

BRITISH MICROLIGHT AIRCRAFT ASSOCIATION
HOMEBUILT AIRCRAFT DATA SHEET (HADS)

NO: HM13 ISSUE: 3

TYPE

Air Creation iXess 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 the approval of the iXess (UK), ref MAAN1761. |
| (4) DEFINITION OF BASIC STANDARD | <ul style="list-style-type: none"> (a) Air Creation iXess-15 Plans and Nomenclature, June 2002 edition. (b) Air Creation Twin Structure Assembly Manual for Buggy, April 1998 edition. (c) Air Creation Buggy Shell instructions. (d) Air Creation Wheel fairing with fins instructions. (e) Air Creation Twin radiator instructions (f) Flylight iXess 15 wing manual version 1.0 (g) Flylight UK modifications list – Air Creation trikes (h) Air Creation 912 installation manual version 1.3 (i) Above documents as amended by this HADS. (j) 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 |
| (c) Maximum Wing Loading | 30 kg / m ² |
| (d) V _{so} | 33 kn CAS |
| (e) Permitted range of pilot weights | 55 – 90 kg front seat
0 – 90 kg rear seat |
| (With optional modification 2 embodied) | 55 – 105 kg front seat
0 – 105 kg rear seat |
| (f) Typical empty weight | 225 kg |
| (g) ZFW + 172 kg crew + 1hrs fuel (22 litres) | 413 kg |
| (h) ZFW + 86kg pilot + full fuel (60 litres, 44kg) | 355 kg |
| (i) Max allowed ZFW at initial permit issue ¹ | 262 kg (912 variants) |

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

(6) POWERPLANTS

Designation	iXess 912(1)	
Trike Type	Clipper	
Engine Type	Rotax 912UL	
Reduction Gear	Integral 2.27:1	
Exhaust System	Mainair twin-type	
Intake System	K&N filter	
Propeller Type	Arplast 175/166GWAP62/3 3-blade GA	
Propeller Dia x Pitch	166cm, pitch 18.5° at 53.5cm radius	
Noise Type Cert. No.	184M issue 1	
MAAN Approving	1761	

(7) MANDATORY LIMITATIONS

(A)	Maximum Take-Off Weight	450 kg			
(B)	Cockpit Loadings		<u>Front</u>	<u>Rear</u>	<u>Total</u>
		Min	55 kg	-	55 kg
		Max	90 kg	90 kg	180 kg
	(With optional modification 2)	Max	105 kg	105 kg	210 kg
(C)	Never Exceed Speed	84 kn CAS ²			
(D)	Manoeuvring Speed	72 kn CAS			
(E)	Permitted Manoeuvres	60° bank Pitch limits ±30° Non-aerobatic Normal acceleration limits +4/-2			
(F)	Fuel contents (max useable)	60 litres (58 litres)			

² V_{DF}=95 kn CAS

(I) Power Plant

See Table below

Engine	Rotax 912UL	
Max RPM	5,800	
Max CHT	150°C	
Max EGT	850°C	
Fuel Spec	83 MON or 90 RON minimum unleaded to BE(EN)228 or 97+ octane MOGAS leaded fuel to BS4040, or AVGAS 100LL	
Engine Oil Spec	SAE 20/50 for 0-25°C See engine manual for other operating conditions	
Gearbox Oil Spec	See gearbox manual	
Fuel / Oil Mix	4-stroke, add no oil	
Max Coolant Temp	115°C (or 150°C by CHT gauge)	
Max Oil Pressure	5.0 bar	
Min Oil Pressure	1.5 bar	
Oil Temperature	50 – 140°C	
Fuel Pressure at Cruise Power	0.2 → 0.5 bar at 3000 RPM	

(8) INSTRUMENTS REQUIRED

ASI	Altimeter	RPM	EGT	Compass	Coolant Temp	CHT
Required ³	Required	Required	Optional ⁴	Optional	Optional	Required

Fuel Pressure	VSI	Oil Temp	Oil Pressure	Fuel Quantity		
Optional ⁵	Optional	Required	Required	Required ⁶		

(9) CONTROL DEFLECTIONS

Conventional weightshift controls.

³ Range is dependant upon determined ASI errors during flight testing; the ASI must read beyond the indicated V_{NE} by at least 10 units.

⁴ Required if engine mixture control fitted or 2 stroke engine fitted.

⁵ A fuel pressure gauge is mandatory in the first example of a new engine on this aircraft type.

⁶ This must be in addition to the graduation lines marked on the fuel tank, and of a type to be agreed with the BMAA at first fitment

(10) PILOTS NOTES, MAINTENANCE MANUALS, REFERENCES:

10.1 Manuals approved for operators use with this aircraft

- (a) Flylight iXess Operators manual issue 1.0
- (b) Manufacturers Engine Manual (contained at Annex B of the operators manual for a particular aircraft)
- (c) Other manuals as listed at Annex F to 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.

- (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

V_{NE} is to be marked on the ASI by a red radial line; there must also be marked an amber circumferential line from V_A to V_{NE} . 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. The standard Bettsometer test technique is unsuitable for this sail fabric (although the stitching is Betts tested). At Permit revalidation the sail condition must be assessed in accordance with the relevant Annex to the Pilot Operator's Handbook.

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb: see approval MAAN and Annex F
Stall or minimum flying speed: 33 kn CAS

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

Issue History

HM13 issue A Draft, to permit initial construction and flight testing.
HM13 issue 1 Approval of type, authorised by MAAN 1761
HM13 issue 2 Addition of optional modification 2, increase in maximum permissible seat load, authorised by MAAN1848. Signatory G B Gratton, CTO
HM13 issue 3 Addition of sail test in Section 11.
Signatory B J Syson, CTO

Illustration of Aircraft



ANNEX A

Mandatory Modifications

The following modifications are mandatory for UK approval:

1. 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.
2. 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.
3. 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.
4. Mark calibration lines on fuel tank in view of the pilot, at no more than 5 litre intervals with numbers at 10 litre intervals.
5. Hand-throttle relocated to port side of seat frame in accordance with normal UK practice.
6. Fitment of two independent guarded toggle-type ignition switches on the instrument panel. Extension to original wires to permit this.
7. Reposition fuel tap to starboard side of forward mount. Confirm that this can easily be reached by a short pilot in the front seat.
8. A fuel quantity indicating system must be installed on this aircraft, in addition to the graduated lines on the tank, of a type to be agreed with the BMAA.
9. Insulation must be fitted around the oil tank, as per the 912 engine installation manual.

ANNEX B

Approved optional modifications

1. Skydrive fuel mixture control for Rotax 912 (EGT gauge must also be fitted)
2. Maximum permissible seat loads are increased to 105kg per seat. (To embody this modification, all relevant placards must be altered.)
- 3.
- 4.
- 5.

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 2 embodied)
(Maximum reducible, not below 86kg, if required) |
| 3. | Fuel load: | 60 litres, of which 2.0 litres unusable. |
| 4. | MTOW | 450 kg |

ANNEX D

Example Placards

(a) Flight Limitations Placard⁷ (to be visible to pilot)

iXess [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 2 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, 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. An audible alarm linked to the intercom is also acceptable.

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

<u>FUEL</u>	
Capacity 60 litres	
Add no oil.	
<u>Cockpit Weight (kg)⁸</u> (includes seats and baggage)	<u>Max. Fuel Load (litres)</u>
180	
170	
___ or below	60 (Full fuel)
83 MON or 90 RON minimum unleaded to BS(EN)228 or AVGAS 100LL.	

⁷ This placard need not be fitted until testing is complete and the approval MAAN is issued.

⁸ 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.

(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

MAXIMUM LOAD 6.5kg

Rear seat-rest compartment (when flown solo)

MAXIMUM LOAD 10kg

(g) Discretionary ASI Calibration Placard

The ASI Calibration may be placarded at the operator's discretion.

Kn CAS →		37 (glide)	40	44 (best approach)	46 (climb)	50 (normal approach)	60	70	72 (V _A)	80	84 (V _{NE})
Mph IAS →											

(IAS values will be shown in the approval MAAN for each individual aircraft.)

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 912 engine	220 (169)	200 ⁹	850	7.8:1

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.

⁹ This value uses moderate mechanical braking: LDR increases by approximately 60% if only aerodynamic braking is used. This distance is achieved using a 'best approach' speed of 44 kn CAS: if runway length allows an approach speed of 50 kn CAS is recommended, increasing the LDR.