

**BRITISH MICROLIGHT AIRCRAFT ASSOCIATION
HOMEBUILT AIRCRAFT DATA SHEET (HADS)**

NO: HM16 ISSUE: 7

Air Creation Tanarg / iXess 15 UK / iXess 13 UK / Bionix 15 / Bionix 13

- (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 Airsports Ltd, Sywell Aerodrome, Sywell, Northampton, NN6 0BT
- (3) **CERTIFICATION** iXess 15 - BCAR Section S Issue 3, subject to non-compliance with S335(a) as detailed in the approval MAAN 1913.
iXess 13 - BCAR Section S Issue 3 (trike) / Issue 5 (wing), subject to non-compliance with S335(a) as detailed in the approval MAAN 2144.
Bionix 15 - BCAR Section S Issue 3 (trike) / Issue 5 (wing).
Bionix 13 - BCAR Section S Issue 3 (trike) / Issue 6 (wing).
- (4) **DEFINITION OF BASIC STANDARD**
- (a) Flylight Tanarg build manual Issue 1
 - (b) Flylight iXess 15 wing build manual version 1.0
 - (c) Flylight iXess 13 wing build manual version 1.0
 - (d) Flylight Bionix wing build manual version 3.0
- (5) **COMPLIANCE WITH THE MICROLIGHT DEFINITION**
- (a) MAUW 450 kg
 - (b) No. Seats 2
 - (c) Maximum Wing Loading 30 kg / m² (15m² wing)
33 kg / m² (13m² wing)
 - (d) V_{so} 32 kt CAS (iXess 15)
31 kt CAS (iXess 13)
31 kt CAS (Bionix 15)
34 kt CAS (Bionix 13)
 - (e) Permitted range of pilot weights 55 – 120 kg front
0 – 120 kg rear
 - (f) Typical empty weight 250 kg
 - (g) ZFW + 172 kg crew + 1hrs fuel (22 litres) 438 kg
 - (h) ZFW + 86kg pilot + full fuel (65 litres, 47kg) 383 kg
 - (i) Max allowed ZFW at initial permit issue¹ 262 kg (912S variants)

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

(6) POWERPLANTS

Designation	Tanarg/iXess 15 912S(1)	Tanarg/iXess 15 912S(2)	Tanarg/ Bionix 15 912S(1)	Tanarg/ Bionix 15 912S(2)
Engine Type	Rotax 912ULS	Rotax 912ULS	Rotax 912ULS	Rotax 912ULS
Reduction Gear	Integral 2.43:1	Integral 2.43:1	Integral 2.43:1	Integral 2.43:1
Exhaust System	Air Creation stainless steel p/n E144555	Air Creation stainless steel p/n E144555	Rotax exhaust with Rotax after muffler	Air Creation stainless steel p/n E144555
Intake System	K&N filter	K&N filter	K&N filter	K&N filter
Propeller Type	Kiev 175/1700 5 blade GA	Kiev 183/1800 3 blade GA	Kiev 183/1800 3 blade GA	Kiev 175/1700 5 blade GA
Propeller Dia x Pitch	170cm, pitch 27° at 34cm radius	180cm, pitch 31° at 34 cm radius	180cm, pitch 33° at 32cm radius	170cm, pitch 27° at 34cm radius
Noise Type Certificate No.	184M Issue 2	184M Issue 2	196M Issue 1	196M Issue 1
Max static RPM	4600	4650	4650	4600
MAAN Approving	1913	1913	2351	2371

Designation	Tanarg/iXess 13 912S(1)	Tanarg/iXess 13 912S(2)	Tanarg/ Bionix 13 912S(1)	Tanarg/ Bionix 13 912S(2)
Engine Type	Rotax 912ULS	Rotax 912ULS	Rotax 912ULS	Rotax 912ULS
Reduction Gear	Integral 2.43:1	Integral 2.43:1	Integral 2.43:1	Integral 2.43:1
Exhaust System	Rotax exhaust with Rotax after muffler	Rotax exhaust with Rotax after muffler	Rotax exhaust with Rotax after muffler	Air Creation stainless steel p/n E144555
Intake System	K&N filter	K&N filter	K&N filter	K&N filter
Propeller Type	Kiev 183/1800 3 blade GA	Kiev 163/1700 3 blade GA	Kiev 183/1800 3 blade GA	Kiev 183/1800 3 blade GA
Propeller Dia x Pitch	180cm, pitch 33° at 32cm radius	170cm, pitch 34° at 32cm radius	180cm, pitch 33° at 32cm radius	180cm, pitch 33° at 32cm radius
Noise Type Certificate No.	184M Issue 3	184M Issue 3	196M	196M
Max static RPM	4650	4650	4650	4650
MAAN Approving	2144	2144	2444	2608

Designation	Tanarg/iXess 13 912S(3)
Engine Type	Rotax 912ULS
Reduction Gear	Integral 2.43:1
Exhaust System	Air Creation stainless steel p/n E144555
Intake System	K&N filter
Propeller Type	Kiev 175/1700 5 blade GA
Propeller Dia x Pitch	170cm, pitch 27° at 34cm radius
Noise Type Certificate No.	184M
Max static RPM	4600
MAAN Approving	2623

(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	120 kg	120 kg	240 kg
(C)	Never Exceed Speed	89 kt CAS ² (iXess 15) 90 kt CAS (iXess 13 & Bionix 15) 92 kt CAS (Bionix 13)			
(D)	Manoeuvring Speed	72 kt CAS (iXess 15) 75 kt CAS (iXess 13) 68 kt CAS (Bionix 13) 62 kt CAS (Bionix 15)			
(E)	Permitted Manoeuvres	60° bank Pitch limits ±30° Non-aerobatic Normal acceleration limits +4/-2			
(F)	Fuel contents (max useable)	65 litres (useable 64.5)			
(I)	Power Plant	See Table below			

² V_{DF}: 99 kt CAS (iXess 15); 100 kt CAS (iXess 13 & Bionix 15); 103 kt CAS (Bionix 13).
[V_D=120 kt CAS]

Engine	Rotax 912ULS	
Max RPM	5,800 for 5 minutes 5,500 continuous	
Max CHT	135°C	
Max EGT	800°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	API SF or SG semi synthetic 4 stroke motorcycle engine oil	
Gearbox Oil Spec	Common supply with engine	
Fuel / Oil Mix	4-stroke, add no oil	
Max Coolant Temp	115°C	
Max Oil Pressure	7 bar	
Min Oil Pressure	0.8 bar	
Oil Temperature	50 – 130°C	
Fuel Pressure at Cruise Power	0.15 → 0.4 bar	

(8) INSTRUMENTS REQUIRED

ASI	Altimeter	RPM	EGT	Compass	Coolant Temp or CHT	Fuel Pressure
Required ³	Required	Required	Optional ⁴	Optional	Required	Optional ⁵

Fuel Quantity	VSI	Oil Temp	Oil Pressure	Fuel Quantity		
Optional	Optional	Required (4 stroke engines)	Required (4 stroke engines)	Optional		

(9) CONTROL DEFLECTIONS

Conventional weightshift controls.

³ Range is dependant upon determined ASI errors during flight testing; the ASI scale must read to $V_{NE} + 5\%$.

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

⁵ Required for first example of different engine on type.

(10) PILOTS NOTES, MAINTENANCE MANUALS, REFERENCES:

10.1 Manuals approved for operators use with this aircraft

- (a) Flylight Tanarg / iXess 15 Operators Manual Issue 2.0, or
- (b) Flylight Tanarg / iXess 13 Operators Manual Issue 1.0, or
- (c) Flylight Tanarg / Bionix 15 Operators Manual Issue 1.0, or
- (d) Flylight Tanarg / Bionix 13 Operators Manual Issue 1.0
- (e) Manufacturers Engine Manual
- (f) Other manuals as listed in 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) and, if MAUW can be exceeded with full fuel and maximum cockpit weight, the fuel loads at MAUW for cockpit weights of 240kg / 230kg 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 testing⁶. 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. For the Bionix wing this includes assessment of the aramid (Kevlar) reinforcement (in addition to the sailcloth).

⁶ This requirement is introduced in Issue 2 of this document. It becomes mandatory on 1st August 2010.

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb: see approval MAAN and Annex F
Stall or minimum flying speed: iXess 15 – 32 kt CAS
iXess 13 – 31 kt CAS
Bionix 15 – 31 kt CAS
Bionix 13 – 34 kt CAS

BMAA Approval:		R Patrick Design Approval Engineer	6 September 2016
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Issue History

HM16 Issue A Draft, to permit initial construction and flight testing.
HM16 Issue 1 Approval of type, authorised by MAAN 1913. Signatory, J A F Viner, 8/12/05
HM16 Issue 2 Approval of iXess 13 wing, authorised by MAAN 2144. Signatory, B J Syson, 4/02/10
HM16 Issue 3 Approval of optional mod #8 by MAAN 2349 (iXess 13).
Approval of Bionix 15 912S(1) by MAAN 2351. Signatory, B J Syson, 22/03/12
HM16 Issue 4 Approval of Bionix 15 912S(2) by MAAN 2371. Signatory, B J Syson, 11/07/12
HM16 Issue 5 Approval of Bionix 13 912S(1) by MAAN 2444. Signatory, B J Syson, 24/09/15
HM16 Issue 6 Approval of Bionix 13 912S(2) by MAAN 2608. Signatory, R Patrick, 16/06/16
HM16 Issue 7 Approval of iXess 13 912S(3) by MAAN 2623. Signatory, R Patrick, 06/09/16

Illustration of Aircraft (iXess 15)



ANNEX A

Mandatory Modifications

The following modifications are mandatory for UK approval:

1. [none]

ANNEX B

Approved Optional Modifications

1. Skydrive fuel mixture control for Rotax 912S (EGT gauge must also be fitted)
2. 2a. 16” diameter ‘hors piste’ tyres
2b. 14” diameter standard tyres
3. Rear seat baggage bag
4. Front baggage compartments
5. Repositioned oil cooler. It is mounted below the rear fairing in a fibreglass duct with wire mesh protection on its forward face. The engine bonnet may be replaced with a redesigned version (optional modification 6).
6. Redesigned engine bonnet. The oil cooler must be repositioned (optional modification 5).
7. a) Air Creation stainless steel exhaust⁷ (p/n E144555), standard coolant radiator and rear fairings.

b) Single exhaust system⁷ (standard Rotax stainless steel expansion box and after muffler mounted transversely behind the engine), smaller coolant radiator and redesigned rear fairings.
8. Air Creation Training Bars (iXess 13 and Bionix 13 & 15 only).

⁷ Refer to section 6 for exhaust/variant compatibility.

ANNEX C

Weighing Information

1. Weighing Attitude: Unimportant. Trike and wing may be weighed separately if required.
2. Crew Weights: Minimum 55 kg / Maximum 120 kg per seat.
(Maximum reducible, not below 86kg, if required)
3. Fuel load: 65 litres, of which 0.5 litres unusable.
4. MAUW 450 kg

ANNEX D

Example Placards

- (a) Flight Limitations Placard⁸ (to be visible to pilot)

Tanarg / iXess 15 or 13 or Bionix 15 or 13 [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	120 kg per seat
Aerobatics and deliberate spinning are prohibited.	

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

**** 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 that flashes as cautionary limits are

⁸ This placard need not be fitted until testing is complete and the approval MAAN is issued.

exceeded, and glows continuously as absolute limits are exceeded. An audible alarm linked to the intercom is also acceptable.

If coolant temperature is not directly monitored, cylinder head temperature must be limited to the lower of the cylinder head and coolant temperature limits.

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

FUEL Capacity 65 litres 4-stroke. Add no oil.	
<u>Cockpit Weight (kg)⁹</u> (includes seats and baggage) 240 230 ____ or below	<u>Max. Fuel Load (litres)</u> 65 (Full fuel)
83 MON or 90 RON minimum unleaded to BS(EN)228 or AVGAS 100LL.	

(d) Battery Compartment Placard

MAXIMUM BATTERY MASS PERMITTED 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

Front baggage bags (each side)

MAXIMUM LOAD (5kg)

Luggage box

MAXIMUM LOAD (14kg)

Rear seat-rest compartment (when flown solo)

MAXIMUM LOAD (10kg)

⁹ 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 MAUW of 450 kg to be exceeded.

(g) ASI Calibration Placard (to be close to the ASI)

This is an example and is applicable to iXess 15 only. For actual values see the approval MAAN for each particular aircraft.

kt CAS	32 V _{S0}	40 glide	45 climb	50 approach	60	70	72 V _A	80	89 V _{NE}
kt/mph IAS									

The ASI *must* also be colour placarded in accordance with normal aviation practice.

(h) Switches

All switches must be labelled with function and sense of operation ('up'=on).

(i) Warning lights

All warning lights must be clearly marked with the parameter that it relates to.

(j) Hand throttle

Hand throttle control must be labelled as to function and sense of operation (push for on).

(k) Choke

Choke must be labelled with function and sense of operation.

(l) Fuel tap

Fuel tap must be labelled with the on and off positions.

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.

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>
iXess 15 Rotax 912S engine	252 <i>(194)</i>	236	1080	6.6:1
iXess 13 Rotax 912S engine	250 <i>(192)</i>	160	1035	7.2:1
Bionix 15 Rotax 912S engine	275 <i>(212)</i>	185	990	7.5:1
Bionix 13 Rotax 912S engine	286 <i>(220)</i>	178	950	7.5:1

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.