

CIVIL AVIATION AUTHORITY

GYROPLANE TYPE APPROVAL DATA SHEET (TADS)

NO:BG 02 Issue: 11

TYPE: RotorSport UK MTOSport

- (1) MANUFACTURER: RotorSport UK Ltd
Poplar Farm
Prolley Moor
Wentnor
Bishops Castle
SY9 5EJ
- (2) UK IMPORTER: N/A
- (3) CERTIFICATION: BCAR CAP 643 Section T Issue 3
Changes incorporated under issue 5 also refer to issue 5 of Section T
- (4) DEFINITION OF BASIC STANDARD: RotorSport UK Ltd Product Definition Document PDD-004.
- (5) COMPLIANCE WITH THE GYROPLANE DEFINITION
- | | |
|---|---|
| (a) MTOW | 500 kg |
| (b) No. Seats | 2 |
| (c) Permitted range of pilot weights | |
| Front seat | 60 <u>kg</u> – 125 kg. |
| Rear seat | 120 kg max |
| Permitted total occupant weight: | 245 kg max
(subject to fuel loading) |
| (d) Typical Empty Weight (ZFW) | |
| Rotax 912 aircraft | 250 kg |
| Rotax 914 aircraft | 260 kg |
| (e) ZFW + 180 kg crew + 1 hr fuel | |
| Rotax 912 – 27 litres / 19 kg | 449 kg |
| Rotax 914 – 23 litres / 17kg | 457 kg |
| (f) ZFW + 90 kg pilot + full fuel
(70ltrs, 50.4kg) | |
| Rotax 912 aircraft | 390.4 kg |
| Rotax 914 aircraft | 400.4 kg |
| (g) Max ZFW at initial permit issue | |
| Rotax 912 aircraft | 301 kg |
| Rotax 914 aircraft | 303 kg |

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(6) POWER PLANTS

Designation	MTOSport	MTOSport
Engine Type	912 ULS	914 UL
Reduction Gear	2.43:1	2.43:1
Exhaust System	Rotax stainless steel with after muffler	Rotax stainless steel with after muffler
Intake System	Dual intake filter & Skydrive carb heat system	Single intake filter, balance box
Propeller Type	HTC 3 blade ground adjustable, composite or Woodcomp SR3000/3 in flight variable pitch (Modification MC-066; Service Bulletin SB-021) or Ivoprop DL3-68 in-flight pitch adjustable (Modification MC-318; Service Bulletin SB-100)	HTC 3 blade ground adjustable, composite or Woodcomp SR3000/3 in flight variable pitch (Modification MC-066; Service Bulletin SB-021) or Ivoprop DL3-68 in-flight pitch adjustable (Modification MC-318; Service Bulletin SB-100)
Propeller Dia x Pitch	HTC:1.72m x 19.5° at 12” inwards from end of blade, with inclinometer against rear tail of aerofoil.	HTC:1.72m x 20.5 ° at 12” inwards from end of blade, with inclinometer against rear tail of aerofoil.
	Woodcomp SR3000/3 : diameter 1.7m electrical limit stops set at 13.5deg fine to 18.5deg coarse, checked with inclinometer on rear face of prop tip	Woodcomp SR3000/3 : diameter 1.7m electrical limit stops set at 15.5deg fine to 20.5deg coarse, checked with inclinometer on rear face of prop tip
	Ivoprop DL3-68 68inch dia, pitch variance 13deg to 20deg nom	Ivoprop DL3-68 68inch dia, pitch variance 14deg to 21deg nom
Noise Type Cert No.	None required	None required
AAN approving configuration	AAN 29247 (Type Approval)	AAN 29247 (Type Approval)
CAA Addendums	AAN 29247 Addendum 1 Woodcomp SR3000/3 propeller	AAN 29247 Addendum 1 Woodcomp SR3000/3 propeller
	AAN29247 iss 3 Addendum 1 Ivoprop DL3-68	AAN29247 iss 3 Addendum 1 Ivoprop DL3-68

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(7) ROTOR SYSTEM

<u>Rotor system description:</u>	<u>Autogyro rotor system assy, 8.0m diameter (grey end caps)</u>	<u>Autogyro rotor system assy, 8.4m diameter (black end caps)</u>	<u>Rotorsystem II rotor blades and hub assy, 8.4m Standard rotors (red end caps) (MC-175; SB-040)</u>	<u>Rotorsystem II - rotor blades and hub assy, 8.4m TOPP rotors (blue end caps) (MC-328; SB-040)</u>
<u>Rotor blade life limit</u>	<u>700 hours</u>	<u>700 hours</u>	<u>2500 hours</u>	<u>2500 hours</u>
<u>AAN approving rotor system</u>	<u>AAN29247</u>	<u>AAN29247</u>	<u>AAN 29247 Addendum 2</u>	<u>AAN 29247 Addendum ??</u>

(8) MANDATORY LIMITATIONS:

(A) Max Take-Off Weight	500 kg
<u>Max empty weight (912ULS)</u>	<u>301kg</u>
<u>Max empty weight (914UL)</u>	<u>303kg</u>

(B) CG Limits

Horizontal c.g. (dependent on propeller option)

HTC propeller fitted:	Fwd: 600mm forward of the datum Aft: 370mm forward of the datum
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Woodcomp SR3000 VP propeller <u>or IVO DL3-68</u> fitted:	Fwd: 600mm forward of the datum Aft: 343mm forward of the datum
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Vertical c.g. (dependent on rotor blade option)

<u>RSII standard rotor blades</u>	Upper: 930mm above the datum Lower: 770mm above the datum
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<u>RSII TOPP rotor blades</u>	<u>Upper: 950mm above the datum</u> <u>Lower: 770mm above the datum</u>
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(C) CG datum:

horizontal and vertical cg: Mainwheel axis

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(D) Cockpit Loadings

Front seat:	Min 60kg Max 125kg
Rear seat:	Min 0 kg Max 120kg
Total:	Min 60kg Max 245kg (subject to fuel loading)

(E) Never Exceed Speed, V_{NE} 120 mph

(F) Minimum Speed 0 mph

(G) Prohibited Manoeuvres: Aerobic manoeuvres are prohibited. Intentional spinning is prohibited. Manoeuvres involving a deliberate reduction in normal 'g' shall be avoided. Flight in icing conditions is prohibited (not placarded). Flight in strong gusty winds or wind velocities of more than 45mph (40 kts) is prohibited. (not placarded)

(H) Other limitations: Day VMC only.

This Gyroplane is hereby granted a permission to fly for the purposes of aerial work which consists of the giving of instruction in flying or the conducting of flying tests subject to the installation of any required instructional modifications and the Gyroplane being owned or operated under arrangements entered into by a flying club of which the person giving the instruction or conducting the test and the person receiving the instruction or undergoing the test are both members.

(I) Fuel Contents: 35 litres (single tank) - 2 litres unusable
70 litres (twin tanks) - 4 litres unusable

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(J) Power Plant

Engine	912ULS	914 UL Turbo
Max RPM	5,800	5,800
Max Continuous RPM	5500	5500
MAX CHT <u>(where CHT gauge fitted)</u>	135°C	135°C
<u>Max coolant temp (where CT gauge fitted under MC-321)</u>	<u>120°C</u>	<u>120°C</u>
MAX EGT	N/A	N/A
MAX Manifold Pressure <u>(Rotax 914UL variant with Woodcomp SR3000/3 or IVO DL3-68 propeller) (if Analogue gauge fitted)</u>	No <u>limits applicable</u>	Max manifold air pressure: take off 39.9 inHg Max manifold air pressure <u>continuous</u> 35.4 inHg
<u>MAX Manifold pressure (if Digital gauge fitted)</u>	<u>Not marked on gauge See placards</u>	<u>Not marked on gauge See placards Limits as analogue</u>
Fuel Spec	<u>As specified by BRP Rotax service instructions or Pilots Operating Handbook</u>	<u>As specified by BRP Rotax service instructions or Pilots Operating Handbook</u>
Engine Oil Spec	<u>As specified by BRP Rotax service instructions</u>	<u>As specified by BRP Rotax service instructions</u>
Gearbox oil spec	Integral with engine	Integral with engine
Fuel/Oil Mix	N/A	N/A
Oil Pressure	Max: 7 bar Min: 0.8 bar (0-3500 rpm) 1.5 bar (above 3500 rpm) Normal range: 2-5 bar	Max: 7 bar Min: 0.8 bar (0-3500 rpm) 1.5 bar (above 3500 rpm) Normal range: 2-5 bar
Oil Temperature	Max: 130°C Min: 50°C	Max: 130°C Min: 50°C
Fuel Pressure	N/A	N/A

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(9) INSTRUMENTS REQUIRED:

ASI: Fitted <u>mph</u>	Altimeter: Fitted <u>Feet (mb sub-scale)</u>	Rotor <u>rpm</u> : Fitted	Engine <u>rpm</u> : Fitted	Compass Fitted	VSI: Optional <u>ft/min</u>	CHT/EGT: CHT <u>or</u> <u>CT</u> fitted <u>°C</u>	<u>Manifold pressure (if VP prop fitted) in Hg</u>
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(10) CONTROL DEFLECTIONS:

Rotor head – Roll 16° total	Rotor Head – Pitch 21° total	Rudder deflection: LEFT - 27° ± 5° RIGHT- 47° ± 5°
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(11) PILOT'S NOTES, MAINTENANCE MANUALS REFERENCES:

11.1 Manuals approved for use with this aircraft.

Refer to Owners pages at www.rotorsport.org for current manuals issues.

(a) Pilots handbook (POH) approved for use with this aircraft is RSUK0043

~~(b)~~ Maintenance manual approved for use with this aircraft is RSUK0044

~~(b)~~~~(c)~~ IVO prop manual approved for use with this aircraft is RSUK0325

~~(c)~~~~(d)~~ Woodcomp SR3000/3 Variable Pitch Propeller Maintenance Manual approved for use with this aircraft is RSUK0076

~~(d)~~~~(e)~~ Maintenance schedules approved for use with this aircraft are:

F076 – 25 hour inspection

F138 – 100 hour / annual inspection

F146 – Short term storage and return to service worksheet

F141 – Long term storage and return to service worksheet

F106 – Woodcomp prop 25/100 hr service worksheet

F117 – Woodcomp prop 300 hr service worksheet

F189 – IVO prop 25/100 hr service worksheet

Issue levels as provided on the RotorSport website www.rotorsport.org

11.2 The following placards are to be fitted:-

The following are to be placarded:

a) Engine RPM limits (markings on instrument 'glass')

~~a)~~~~b)~~ Engine MAP limits (914UL engine fitted with Variable pitch prop)

~~b)~~~~c)~~ Rotor rpm (markings on instrument 'glass')

~~c)~~~~d)~~ Loading conditions (placard on nacelle)

~~d)~~~~e)~~ Fuel quantity & type (placards on fuel tanks)

~~e)~~~~f)~~ All switches (engraved on instrument panel or placards)

~~f)~~~~g)~~ Occupant warning (placard on instrument. panel)

~~g)~~~~h)~~ Limitations as per Permit to Fly (placard on nacelle)

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- h) Engine CHT or CT limits (markings on instrument face)
- i) Compass deviation (placard adjacent to compass)
- j) Secondary control functions (placards)
- k) Permanent & fireproof attachment of aircraft registration no & aircraft serial no. (plate affixed inside near/on instrument panel)

See Appendix D for placards fitted as standard.

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

See Annex A for required modifications.

(13) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Minimum performance at max take-off weight: 500fpm at 60mph

Issue History

<u>Issue No.</u>	<u>Date.</u>	<u>Reason and signatory</u>
1	22/04/2009	Initial issue J Barratt
2	18/12/2009	Correction to wind speed limitation under item 8G, update to the optional modifications listing under Annex B and addition of Woodcomp SR3000/3 Variable Pitch propeller option. J Barratt
3	28/06/2010	Correction to horizontal CG limits under item 8B. Updated optional modifications listing. J Barratt
4	16/07/2010	The location of the aircraft registration markings has been clarified. The 12V auxiliary socket placard / engraved wording has been clarified under Appendix D. J Barratt
5	13/01/2011	Correction of unusable fuel under section 8I following discussion with Rotorsport.

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<u>Issue No.</u>	<u>Date.</u>	<u>Reason and signatory</u>
		J Barratt
6	23/02/2011	Update to section 11.1, Manuals approved for use with this aircraft.
		J Barratt
7	31/05/2011	Addition of limitation for gyroplane training under section 8H. Updated mods listing under Annex B.
		J Barratt
8	12/07/2011	Update to section 11.1b) Maintenance Manual and section 11.1c) 100 hour / Annual Inspection schedule approved for use with this aircraft.
		J Barratt
9	15/09/2011	Addition of Rotorsystem II option under section 7, update to section 11.1 manuals approved for use with this aircraft, update to Appendix B Optional Modifications and Update to Appendix D Placards.
		J Barratt
10	06.10.15	Addition of Ivoprop DL3-68.
		A Bines
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Illustration of Aircraft – Photographs



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ANNEX A – MANDATORY MODIFICATIONS

None at this time.

ANNEX B – APPROVED OPTIONAL MODIFICATIONS

A list of approved minor modifications is available from the RotorSport website, www.rotorsport.org under support/aircraft compliance.
Minor modifications applicable at release-to-service are listed on the aircraft Statement of Aircraft Conformity, SAC-MTOS/xxx.

ANNEX C - WEIGHING INFORMATION

N/A. Aircraft to be weighed by manufacturer. _

Refer to specific aircraft weight and balance document, AWC-MTOS/xxx.

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ANNEX D – STANDARD PLACARDS

(copied from Pilots Handbook)

GENERAL PLACARDS AND MARKINGS:

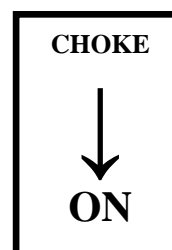
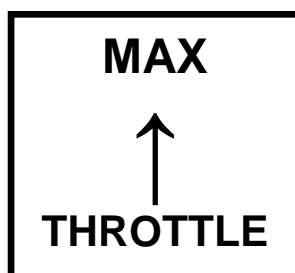
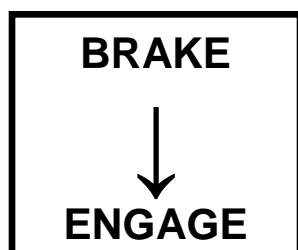
In conformity with BCAR Section T the following placards and markings are installed:

- All emergency controls are coloured red.
- All cockpit controls are clearly marked as to their function and method of operation.
- Fuel and oil filler openings are clearly marked, together with the grade or type required.
- Fuel tank capacity is clearly marked.
- Loading conditions are clearly marked as follows:
- Standard placards
- Aircraft registration markings are clearly marked on either the tail or another location in accordance with CAP 523.

Loading conditions

Aircraft Payload Specification
Front seat pilot: 125kg max, 60kg min
Reduced pro rata to 110kg max
with up to 10kg (max) of
luggage in the nose locker.
Pilot must carry ballast to meet
60kg min.
Rear seat passenger 120kg max
Empty weight (as measured) kg
Fuel load 0.72kg/ltr
MTOW 500kg
Aircraft must only be flown solo from the
front seat.
Aircraft must only be flown solo from the
front seat.

Primary control marking



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Limitations

OPERATING LIMITATIONS

Aerobatic Limitations

Intentional spinning is prohibited.
Aerobatic manoeuvres are prohibited.
Manoeuvres involving a deliberate reduction in normal 'g' shall be avoided.
CG Range Limits (Gyroplane) – refer to Pilots Handbook data.

Airspeed Limitations

Maximum Indicated Airspeed (Vne): 120mph

Other Limitations

This aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited

Occupant warning

OCCUPANT WARNING

This aircraft has not been certificated to an
International Requirement

Fuel gauge (where fitted with a push button)

Press before reading!

Auxiliary socket (where fitted)

Placard wording:

12v DC
auxiliary
socket

or engraved with '12V/5A'

Roll trim indicator (where fitted)

L R
Roll Trim

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Coolant header tank

**Coolant Header Tank
Filled with 50/50
water/antifreeze**

Engine oil tank

**Oil tank
Capacity 3 ltrs.
Use Shell VSX or
equivalent Motorcycle
oil SF or SG**

superceded by:

**OIL TANK CAPACITY
3 LTRS.
USE AEROSHELL OIL SPORT
PLUS 4 OR EQUIVALENT IN
ACCORDANCE WITH BRP ROTAX
SERVICE INSTRUCTIONS**

Fuel tank (both, where two fitted), either on the tank face or beside the filler neck.

At the base of the instrument panel.

**Fuel capacity: 35 ltrs per tank
Preferred fuel: MOGAS
(AVGAS permissible)**

Pilot rudder pedal
position in this aircraft is
Long/middle/short

Baggage placard for front nose locker (same for rear seat glove box and side pockets at each side of the rear of the front seat where fitted, except loading is 2kg and 1kg respectively).

**Baggage Load:
10kg MAX**

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Low voltage placard mounted on instrument panel.

Continuously lit Low Voltage lamp indicates electrical demand exceeds supply, and the battery is being drained. If lit in flight, reduce demand until unlit. If flashing intensely, land asap.

Warning lamp placards.

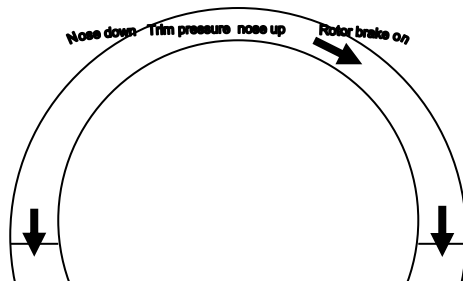
TCU
Failure

On: Boost press exceeded.
Blinking: Turbo engaged
5mins plus

Low
Fuel

Low
Voltage

Pressure gauge placard



Front control stick

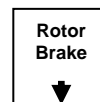
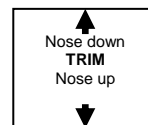
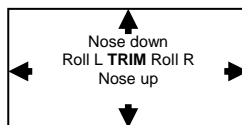
Press to Pre rotate

Around the pre rotate button

On top in front of the trim/brake button

or

and

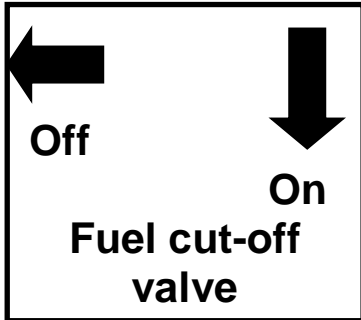


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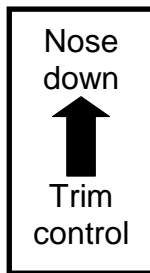
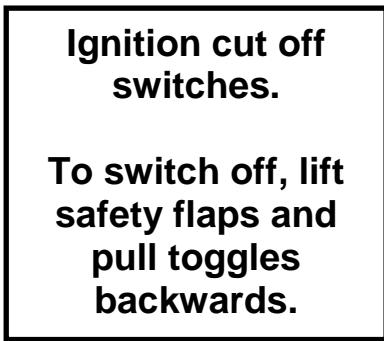
Fuel cut-off valve (where fitted)



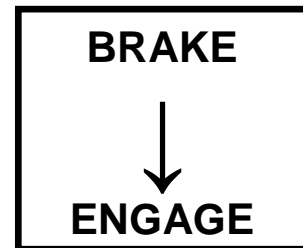
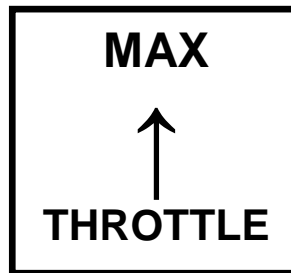
Interlock placard (unless engraved on panel)



Instructor pack (where fitted).

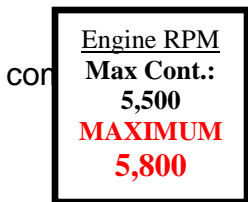


Brake placard (only where brake is fitted).

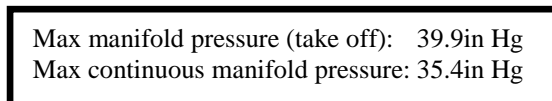


Placards only for fitment with a Woodcomp SR3000/3 propeller with Constant speed controller

Alternative engine rpm placard
(if constant speed controller or digital engine rpm gauge fitted)



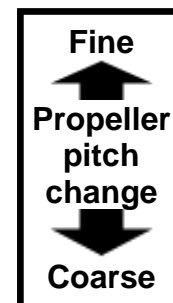
Position below constant speed controller or
rpm/manifold pressure gauge
(if fitted, 914 UL engine only)



Beside circuit breaker, where fitted



Beside propeller pitch change rocker switch, where fitted.



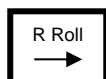
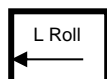
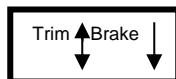
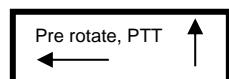
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Front stick (G205 stick-grip or OEM stick-grip)

On top of control stick (either type) of stick grip



(L Roll and R Roll only if roll-trim system fitted)

If **SB-041 “Conair Sports SSM”** is incorporated an additional placard is fitted adjacent to the Mag switches

Soft Start Module fitted,
to Ig. circuit 1. Start on
this circuit only (Mag 1).
After 5secs running, also
switch on Mag 2.

Other

If the compass deviation is more than 5° on all headings, then a deviation placard must be present.

COMPASS DEVIATION						
For	N	30	60	E	120	150
set						
For	S	210	240	W	300	330
set						
Calibration by:				date		
Calibration				e		

Instrument placards as section 2.5

The aircraft is fitted with a permanently attached fireproof plate with the aircraft registration number and serial no. marked on it, on the keel or on front of the instrument panel.

The registration letters are placed high on the tail fin, and are 68cm long, 30cm high. This has been accepted to CAP523, the CAA standard for aircraft registration. Alternative markings and position of markings is acceptable provided they comply with this standard.

Note that all placards must have the same units of measure as the instruments.