

# RotorSport UK Ltd

## Service Bulletin

<b>SB No.: 013 issue 4</b>	CCAR No.: None	Classification:
Aircraft type & model (applicability) RotorSport UK MT-03 series	Aircraft serial Nos. effected RSUK/MT-03/all	<b>OPTIONAL</b> or <del><b>RECOMMENDED</b></del> or <del><b>MANDATORY</b></del>
<p>This form is the response from RotorSport UK Ltd either against a problem found in the product in service requiring a containment or rectification action, or as service information for aircraft modification incorporation. Upon completion of the action, the person responsible must enter details into the aircraft logbook/worksheet with the SB and/or CAA MPD (Mandatory Permit Directive) number and sign as normal (see instructions below). For help, contact RotorSport on 44(0)1588 650769, or email <a href="mailto:info@rotorsport.org">info@rotorsport.org</a>.</p>		
<p><u>Problem description &amp; cause of problem if known</u>  <b>Problem;</b>          The MT-03 carries an MTOW of 450Kg, limited in engineering terms by the strength of the suspension bow. The market wants the aircraft with an MTOW of 500Kg, which is now proven and accepted on the MTOsport.</p>		
<p><u>Problem solution:</u>          Upgrade the MT-03 suspension bow by replacing it with the stronger MTOsport suspension bow. (Weight penalty 3.5Kg) and add welded reinforcing straps between mast/keel as fitted to MTOsport (Weight penalty 0.5kg). Total weight penalty 4Kg. Released by the UK CAA under AAN29134 addendum 4.  <b>Note:</b>          1. This bulletin may be actioned only by RotorSport UK Ltd as a factory installation.          2. Approval for flight at 500KgMTOW is only permitted with AutoGyro rotor blades and AutoGyro rotor hub assemblies.</p>		Effective date: 05.01.2010
<p><u>Action required to implement this bulletin:</u>          Aircraft suspension bow:</p> <ol style="list-style-type: none"> <li>1. Remove ignition key and support aircraft safely such that the undercarriage bow can be removed. This can be by placing a strap around the rotor hub and hoisting the aircraft up so that the mainwheels are clear of the ground.</li> <li>2. Remove wheel spats, wheels, brakes and brake lines.</li> <li>3. Remove suspension bow.</li> <li>4. Fit new suspension bow with new nuts and bolts, tightening securely. Ensure the bow is identified with an etched serial number and '500Kg' annotation beside it before fitment!</li> <li>5. Refit wheels and brakes.</li> <li>6. If any fastenings are corroded, REPLACE.</li> <li>7. REPLACE all nylock fastenings with new.</li> <li>8. Loctite 243 to be used on all plain fastenings.</li> <li>9. Perform quality check, and lower aircraft to the floor.</li> <li>10. Remove 'Loading Limitations' placard and replace with new (showing MTOW as 500Kg), writing in the new aircraft empty weight (original aircraft weight plus the weight of the modification, 4Kg).</li> <li>11. If the aircraft has a 914UL engine, change the engine rpm gauge placard to show amber from 5500 to 5800 instead of 5000 to 5800.</li> </ol> <p>Aircraft mast braces:</p> <ol style="list-style-type: none"> <li>1. Remove ignition key and remove earth lead from the battery.</li> <li>2. Disconnect aircraft avionics. This can be best achieved by removing the instrument panel entirely.</li> <li>3. Remove the front seat and harness. Remove the rear seat.</li> <li>4. Drain the fuel system, and remove the fuel tanks.</li> <li>5. If the aircraft is 914UL powered, then the waste gate control unit must be first removed from the mast, and the supporting bracket removed by drilling out the rivet heads. Tie to one side.</li> <li>6. Using a CAA A8-10 Approved welder for the aircraft and welding type, weld in the straps as per the sketch and instructions under later in this bulletin. Ensure the attachment points for the waste gate control box are correctly positioned to ensure correct fitment. This can be achieved by clamping them in position and offering up the box for fitting before welding.</li> <li>7. After cooling, clean up the weld, and if a 914, fit the control box to the brackets.</li> <li>8. Refit the removed components, using new nylock nuts and Loctite 243 on any plain fastenings.</li> <li>9. Refill fuel system and ensure no leaks.</li> <li>10. Reconnect battery and perform quality check.</li> </ol>		

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### PAPERWORK

This SB requires the re-issue of the aircraft permit to fly, and may NOT be operated at 500Kg MTOW until a replacement 'Conditions of Permit to Fly' has been issued by the CAA! It is the owners responsibility to write to CAA Applications and Approvals to request this change, using the attached form.

### Parts required to implement the Service Bulletin

Suspension bow RSD8019

Placard RSD4473

Fastener and strap kit RSD7175

(straps are 500 x 20 x 3mm 1.4301 stainless steel, weight each 240g, allowing for weld fillets 500g in total)



View of original mast to keel area.

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View of original turbo waste gate control unit attachment.

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View of straps welded in place The straps are welded at 35 degrees to the mast.

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View of welded on strap.  
Welding requirements

#### 1. Preparation of weld area

Remove any lubricant deposits by cleaning with a lint-free cloth and suitable halogen-free solvent.  
Remove any surface debris by brushing with a stainless-steel wire-brush.

#### 2. Welding

Position and clamp the parts in place

Set the TIG welder for job +ve, electrode -ve.

Using an electrode 2.4mm diameter, filler metal 316 stainless steel and heat-setting 60-70amps produce continuous fillet welds in a single run.

Ensure that filler metal is present in the whole welded length so that a joint "fused only" is not created.

#### 3. Clean-up

Remove burn marks from the weld and areas adjacent using a stainless-steel wire-brush followed by Scotchbrite pads or rubbing blocks if required.

Do not use any acid treatment for clean-up

#### 4. Inspection

Using a magnifying glass at least 4x and good illumination inspect the weld to ensure that there is a high build for the whole length of the weld with no inclusions or voids present and that the start and end of each run are of uniform shape.

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Waste gate control mounted on the straps, cables tied to right side as shown

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Alpha Num	Change description	Sig	Date
A	First issue	GS	3.11.09

DRAWN Geiry Splich		Rotorsport UK Ltd	
CHECKED		TITLE	
		Welded airframe assy for SB-013	
SIZE	DWG NO	SCALE	REV
C	RS07178		
		SHEET	OF
		1	2

250.00 from end to lag centre.  
 150.00 over size required for a 31.44L tube.  
 Waste gate control.

Weld 3x3 around end and to 20mm from ends.  
 Weld either side in the centre of the airframe tubes, 20mm long, 3x3  
 Strap RSD1107 (2 off)  
 Weld 3x3 with 1-4301 compatible material Around this end and 30mm along top and 35mm along bottom edges from this end

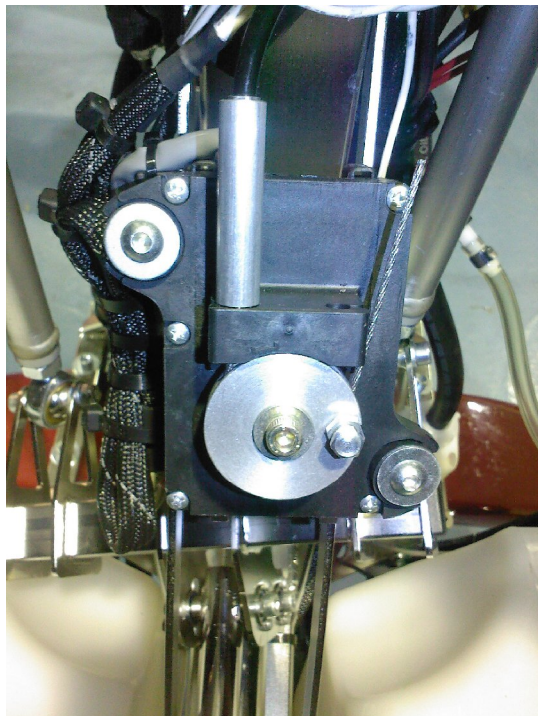
DETAIL C  
 SCALE 1 / 4

DETAIL A  
 SCALE 1 / 4

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Additional view of waste gate control (refitted with existing fastenings)

Effect on Pilots Handbook or Maintenance Manual?

Yes, see RSUK0011 issue 6 and RSUK0012 issue 4

Quality Inspection requirements after action:

Ensure wheels spin freely, and that brakes work normally.

Ensure all fastenings are secure.

Ensure fuel system free of leaks.

If instrument panel removed, follow the following check procedure:

Check instrument panel fully operational by the following procedure:

- a) Turn on keyswitch. Check gen light comes on. Check back up fuel pump and ancillary items for normal function.
- b) Check the ASI function and the integrity of the pitot-tube to ASI connection by use of field test kit RSD7179. This consists of a modified Becton Dickinson D U-100 Insulin hypodermic (or equivalent, and the needle is removed) and a short section of 6mm silicone tube.
  1. The hypodermic scale is calibrated 0-100 units, this range being equivalent to 1ml of fluid. For both single and dual ASI installations withdraw the plunger to deliver 100 units.
  2. Push the silicone tube onto the pitot nozzle at the front of the aircraft. Do not withdraw the hypodermic plunger as the vacuum resulting may damage the ASI.
  3. Slowly depress the plunger to the end-of-stroke.
  4. Examine the ASI which should be reading around 70mph (single installation) or around 50 mph (dual installation). The actual value is not critical and is dependent on the length of pipework installed.
  5. Specifically check that there is no decay of the indicated reading over a period of 10 seconds, this confirms that the system has no leaks.



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6. Carefully remove the silicone tube from the nozzle. Do not withdraw the hypodermic plunger as the vacuum resulting may damage the ASI.



- c)
- d) With a trained person or pilot, start the engine and ensure normal gauge function, and that mag switches turn off the engine. Stop engine
- e) Turn on GPS unit with power lead connected to the aux socket. Remove power lead and note if unit then advises power has been lost, confirms correct power supply.
- f) Check pneumatic cycle.
  - 1) In 'Brake' position, engage brake, confirm pump and brake operation, and that function is acceptable.
  - 2) Pressurise to maximum (nominal reading 8bar +/- .5bar) Change to flight – check for 2 to 3 sec max to release air from brake system.
  - 3) In 'Flight' position check that trim goes on and off in same direction as button (inc rear switch if fitted).
  - 4) In 'Flight' position, stick forward. Start pre rotator. Ensure cylinders (2) engage, and when the stick is pulled back they disengage. Note that the head cylinder must engage prior to the engine cylinder.
  - 5) Stick to front, release pre rotator and confirm that pressure is applied to trim and stick comes back slightly.
  - 6) In 'Brake' position, put 3 bar pressure on and ensure pre rotator does not function.
  - 7) Press the 'Interlock release button' and ensure that pre rotator functions (both cylinders, head and engine) with brake engaged.

Issue Permit Maintenance Release Certificate

CAA BCAR A3-7 Authorised Person to certify that the work is completed by writing 'SB-013 suspension bow serial no xxx incorporated. AutoGyro rotor set serial no xxxx.xxxx fitted. Aircraft complies with AAN29134 addendum 4' in the aircraft logbook white pages, and record the action in the pink pages entitled 'Aircraft Modifications'. Both entries must be signed by the CAA Authorised Person together with their CAA Authorisation number.

SB authorised by: (name, signature, and date of signature)

<b>Quality Conformance Manager</b> 	<b>Engineering Manager</b>  29/1/10	<b>Chief Test Pilot (if flight performance or safety effect)</b>  29/1/10	<b>Structures (where required)</b> 	
Document completion date:	Issued to:	When	Issuer name	Signature
	Internal			
	CAA			
Owners				

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<b>Permit Change Application</b>	
The purpose of this document is to provide sufficient information to the CAA to allow a change of the Permit to Fly to incorporate a specific aircraft modification or upgrade.	
Aircraft reg no <b>G-</b>	Aircraft serial No. <b>RSUK/</b>
AAN that has been incorporated: AAN29134 addendum 4 (increase in MTOW)	Service Bulletin number incorporated: SB-013 increase in MTOW (MT-03 only)
Owners name and address	
Daytime telephone number	
Email	
Summary of change required: (cross out as required)	
Service bulletin SB-013 incorporated, increase in MTOW from 450Kg to 500Kg.	
Documents to be included with this application: Photocopy of aircraft and/or engine logbook pages with certifying signatures from RotorSport UK Ltd that confirm embodiment of the service bulletin and release to service. Existing CAA Permit to Fly. Application fee as specified in the CAA Scheme of Charges paragraph 6.1 ( <a href="http://www.caa.co.uk/application.aspx?catid=33&amp;pagetype=65&amp;appid=11&amp;mode=list&amp;type=subcat&amp;id=1">http://www.caa.co.uk/application.aspx?catid=33&amp;pagetype=65&amp;appid=11&amp;mode=list&amp;type=subcat&amp;id=1</a> )	
Send to: CAA Applications and Approvals Aviation House Gatwick Airport South West Sussex England RH6 0YR	