RotorSport UK Ltd

Service Repair Request and Evaluation/Approval

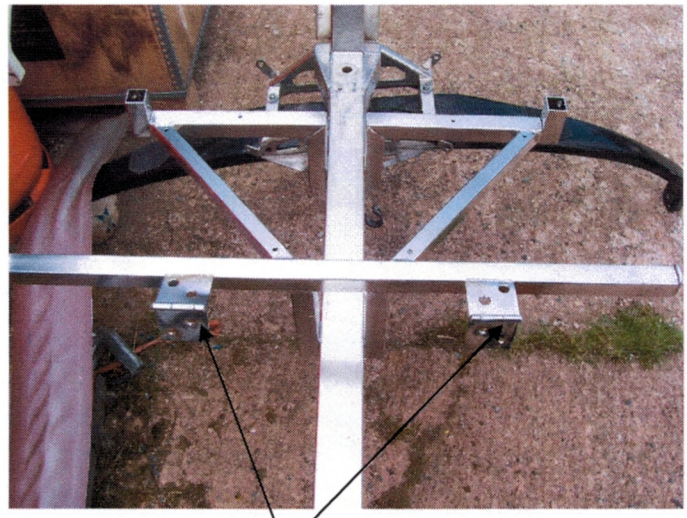
This form (Part 2 of 2) is the response from RotorSport UK Ltd to a Service Repair and Evaluation/Approval request, which specifies the company authorised repair method. Deviation from this method renders the authorisation ineffective. Upon completion of the repair the repairer must enter details into the logbook/worksheet with the repair number and sign as normal.
If any problems with carrying out the work authorised, contact RSUK immediately on 44(0)1588 650769, or email info@rotorsport.org.

Repair No.: 011 Issue 1, 03/10/11	CCAR No.: None Mod approval No. MC-202	Repair classification: ~~**MAJOR**~~ or **MINOR**
Aircraft type: MT-03 and MTOsport (all aftermarket only)	Aircraft serial No.: OPEN (first application G-JBRE RSUK/MT03/016)	

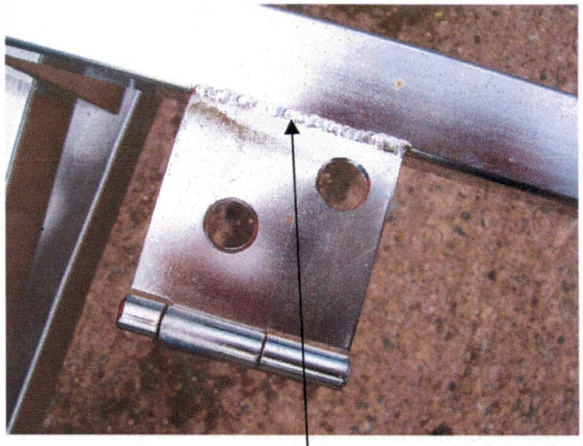
Repair problem description & cause of problem if known:
During routine servicing of the rotor-head of G-JBRE the service engineer inadvertently placed his full body weight on one of the hinges of the rear seat and caused its weld to the airframe cross-member to fracture. This SRA (with associated MC-202) is provided by RSUK to substantiate repair of G-JBRE and allow the technique to be used generically on MT-series aircraft. Note: RSUK understand that a temporary and unauthorised repair has been made to G-JBRE, and this is now to be removed.

NB: The weld repair may only be carried-out by a CAA approved welder.

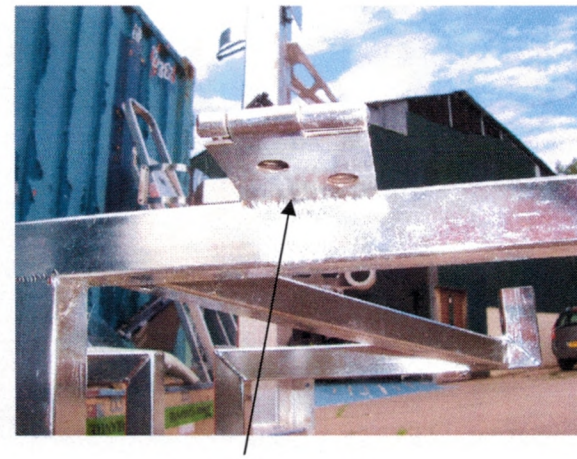
The location of the seat hinges is shown below:



The two hinges (looking aft)



Upper fillet weld



Lower fillet weld

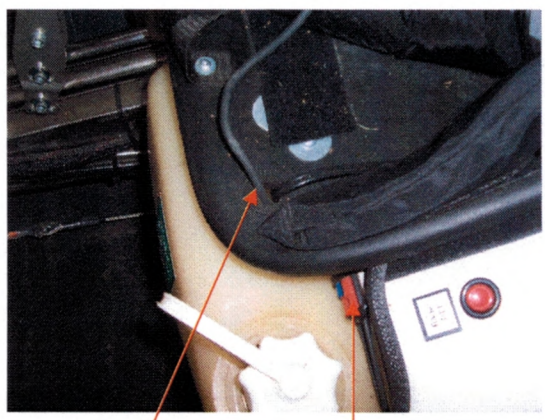
A) Seat removal

1. Remove the seat by unscrewing the upper fastener (socket-head screw with ring on MT-03, thumb-nut on MTOS)

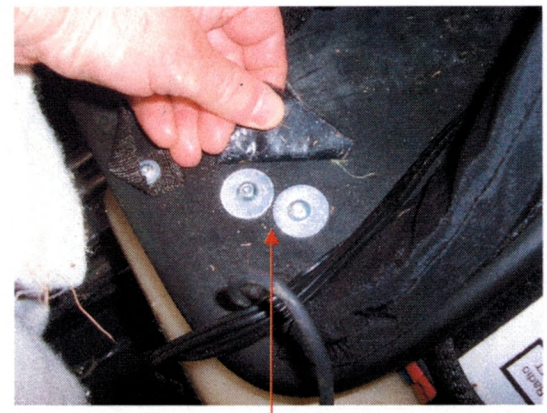
MT-03

MTOS

2. Hinge the seat forwards, disconnect the heated-clothing regulator cables (if fitted) and feed these, then the comms cable through the grommet in the seat. Unscrew the two pairs of dome head screws/washers from the nyloc nuts under the seat. The seat may now be lifted clear.



Cable grommet Connectors



Lower mounting screws (nylocs beneath)

3. Place a fire-extinguisher within ready reach of the working area. Verify that the fuel filler-caps are screwed closed
4. Release the fuel-tank restraining straps to allow the tanks to be lowered for access then cover the fuel-tanks with substantial/non-flammable padding material. Carefully grind-away any remnants of the fillet weld. Ensure that the grinding cutter does not penetrate the wall of the cross-member.

B) In-situ re-welding of seat-hinge

1. Preparation of weld area on airframe and removed hinge
   Remove any lubricant deposits by cleaning with a lint-free cloth and Amberklene LO30 solvent
   Remove any surface debris by brushing with a stainless-steel wire-brush.
   Grind away any residual weld from the hinge edge.
2. Welding
   Disconnect the aircraft battery leads and temporarily insulate the ends
   Position and clamp the hinge in place, taking measurements from the airframe and following the pattern of the undamaged hinge
   Set the TIG welder for job +ve, electrode -ve.
   Using an electrode 2.4mm diameter and filler metal 316 stainless steel produce continuous upper and lower fillet

welds in single runs of fillet size 3.5 – 4.0mm.
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.

C) Fuel-tank and seat replacement

1. Lift each fuel-tank into its correct location with the plastic upstands adjacent to the airframe. At the same time tighten each retaining strap so that the tanks are held securely but without distortion.
2. Check that the fuel-pipes and fuel-gauge sender (pneumatic or electrical , as appropriate) have not been dislodged
3. Refit the seat by reversing the procedure in (A) above, using new nyloc nuts on the seat hinge fasteners.
4. Use small cable-ties as required to retain the breather pipe and cables
5. Reconnect the battery leads (positive terminal first)
6. Check the function of the heating regulator (if fitted)
7. Check the function of the rear-seat comms.
8. Check the function of the fuel-gauge

Parts required to implement this repair

4-off M6 nyloc nut RSD6008
2mm cable-tie RSD4206 (as required)
4mm cable tie RSD4207 (as required)
Amberklene LO30 solvent RSD4655

Special tools & Health and Safety requirements, and/or components required for repair:
No special tools. Observe usual welding operational requirements.

Quality Inspection requirements after repair:
Ensure seat firmly attached and electrical cables not trapped

CAA BCAR A3-7 Authorised Person to certify that the work is completed by writing 'SRA-011 Seat hinge repair incorporated' 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.

The technical content of this document is approved under the authority of the UK CAA Design Organisation Approval Ref: ***DAI/9917/06***

Service repair authorised by: (name, signature, and date of signature)

Quality Conformance Manager	Engineering Manager	Chief Test Pilot (where an effect on flight performance or safety) Not required.	CVE	Head of Airworthiness

Document completion date:	Issued to:	When	Issuer name	Signature
	Internal			
	CAA			
	Owners			
	PFA/BMAA Inspectorate			

RotorSport UK Ltd

Service Repair Request and Evaluation/Approval

Aircraft serial no. Registration G-	**Service Repair Implementation Worksheet**	Date raised: Raised by:
Purpose – record service repair implementation actions taken, then to inspect aircraft and return to service.		Document reference: **SRA-011**
Maintenance manual referred to and issue level/date:		
Note; attach any secondary sheets to this document		

Task	Notes	Eng'r check/date	Inspector check/date
Record aircraft service hours (from log-book)	Aircraft service hours:		
Confirm seat-hinge fasteners tightened (4-off)			
Confirm breather pipes and cables positioned clear of obstruction or damage			
Confirm seat upper fastener tightened			
Confirm heating regulator function (if fitted)	Use digital voltmeter if heated clothing not available		
Confirm fuel gauge function	Level indicated should correlate with fuel-tank placards		
Welder approval number	Record CAA approval ref.		

Customer acceptance: Name: Signature/date:	Aircraft Hobbs meter reading: Confirm logbooks annotated:
Permit Maintenance Release: The work recorded above has been completed to my satisfaction and in that respect the aircraft is considered fit for flight.	
Engineer/Inspector signature Name: CAA Authorisation code :	Date of work Location where work completed

PLEASE FAX THIS BACK TO 01588650769 (or send by email to info@rotorsport.org)

welds in single runs of fillet size 3.5 – 4.0mm.
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.

C) Fuel-tank and seat replacement

1. Lift each fuel-tank into its correct location with the plastic upstands adjacent to the airframe. At the same time tighten each retaining strap so that the tanks are held securely but without distortion.
2. Check that the fuel-pipes and fuel-gauge sender (pneumatic or electrical , as appropriate) have not been dislodged
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4. Use small cable-ties as required to retain the breather pipe and cables
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Special tools & Health and Safety requirements, and/or components required for repair:
No special tools. Observe usual welding operational requirements.

Quality Inspection requirements after repair:
Ensure seat firmly attached and electrical cables not trapped

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Quality Conformance Manager	Engineering Manager	Chief Test Pilot (where an effect on flight performance or safety)	CVE	Head of Airworthiness
24.11.11	24.11.11	Not required.		

Document completion date:	Issued to:	When	Issuer name	Signature
	Internal			
	CAA			
	Owners			
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Service repair authorised by: (name, signature, and date of signature)

Quality Conformance Manager	Engineering Manager	Chief Test Pilot (where an effect on flight performance or safety) Not required.	CVE STARKEY 23/11/2011	Head of Airworthiness

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