RotorSport UK Ltd

Service Repair Request and Evaluation/Approval

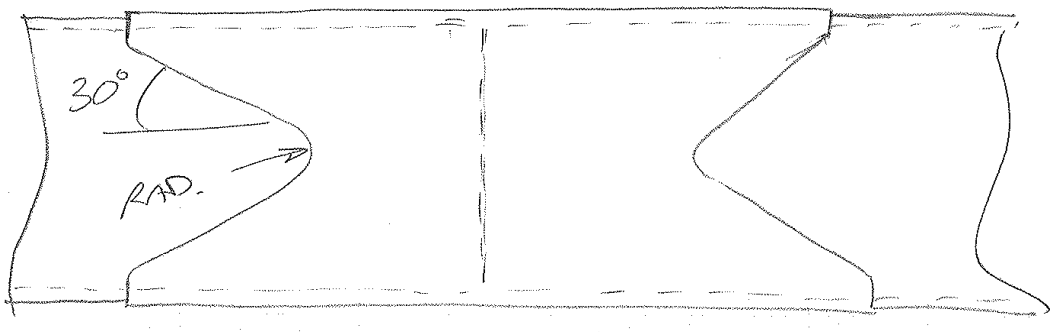
This form (Part 2 of 2) is the response from RotorSport UK Ltd to a Service Repair and Evaluation/Approval request, which specifies the company authorised repair method. Deviation from this method renders the authorisation ineffective. Upon completion of the repair the repairer must enter details into 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.: 005 issue 1, 11/05/10	CCAR No.: None Mod approval No. MC-140	Repair classification: ~~**MAJOR**~~ or **MINOR**
Aircraft type: MT-03	Aircraft serial No.: OPEN (first application G-YROX)	

Repair problem description & cause of problem if known
Aircraft has received significant airframe damage during impact into a lake in Thailand whilst circumnavigating the world. The owner wishes to continue the trip with the same frame and aircraft. The frame suffered bent suspension bow brackets and a bent mast. The safest and most robust solution is to cut the mast and suspension mounting area completely out of the airframe, and weld in a new section

Service repair authorised by RotorSport UK Ltd (and only permitted to be carried out under RSUK supervision):

1. To enable the repair, the aircraft is disassembled, and the keel checked for straightness and general acceptability
2. Record the tail to front keel angle to ensure this is the same after welding.
3. The mast section is carefully marked out for an exact match to the new mast.
4. The old mast is cut out, and as far as practical, the cuts to be at 30deg. The connection to the lower keel tube is dressed back.
5. The new mast section is offered in place, cut to suit, and clamped in place. Ensure the mast to front keel angle is correct and that the front to rear keel alignment is the same as before cutting. Butt weld the three joints using appropriate filler metal (1.4301 graded wire, supplied from AutoGyro). Then over plate the left and right sides of the three cut butt joints with 50mm long, 50mm wide, 2mm thick plates, fishplate shape as below.
6. Similarly, overplate the top of the rear cut and the bottom of the front cut. Grind back the weld to suit under the plates, to achieve a flush fit.
7. Check for alignment between rear keel and front keel in both planes. Straighten as necessary using a ratchet strap.
8. Check that alignment is correct in the vertical plane.
9. Weld in place two straps, from Fastener and strap kit RSD7175 (straps are 500 x 20 x 3mm 1.4301 stainless steel), carry over from MTOsport and for the MT-03 500Kg. See photos for position, and also fit lugs shown for the 914UL engine TCU. NOTE! Ensure these are in the highest possible position to clear the control forks!
10. Rebuild aircraft as per build instructions and PDCD's.



Sketch of acceptable plate

View of straps welded in place The straps are welded at 35 degrees to the mast, and must clear the control fork on full articulation! The ends of the strap may adjusted in shape to suit.

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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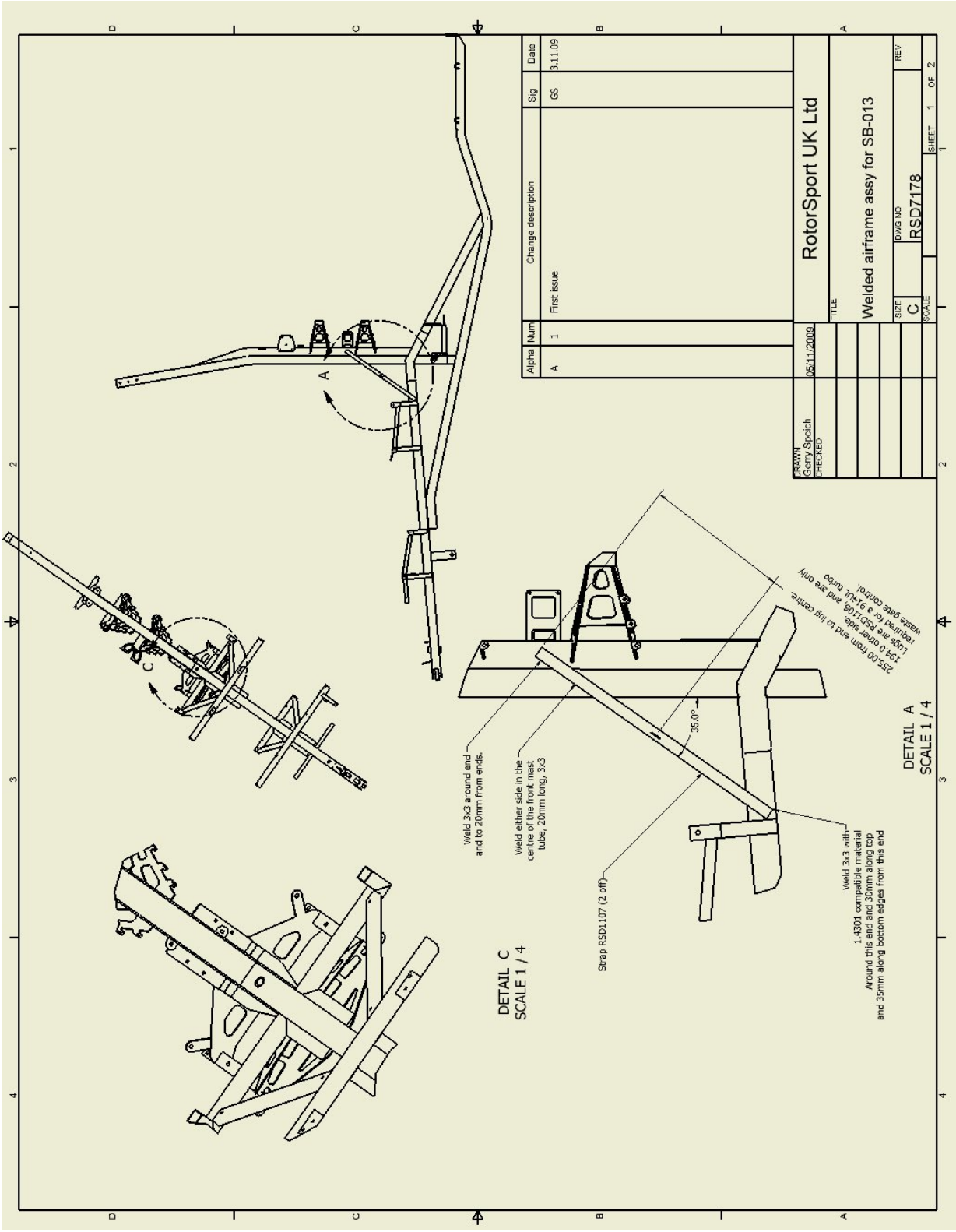

Drawing to define position of straps

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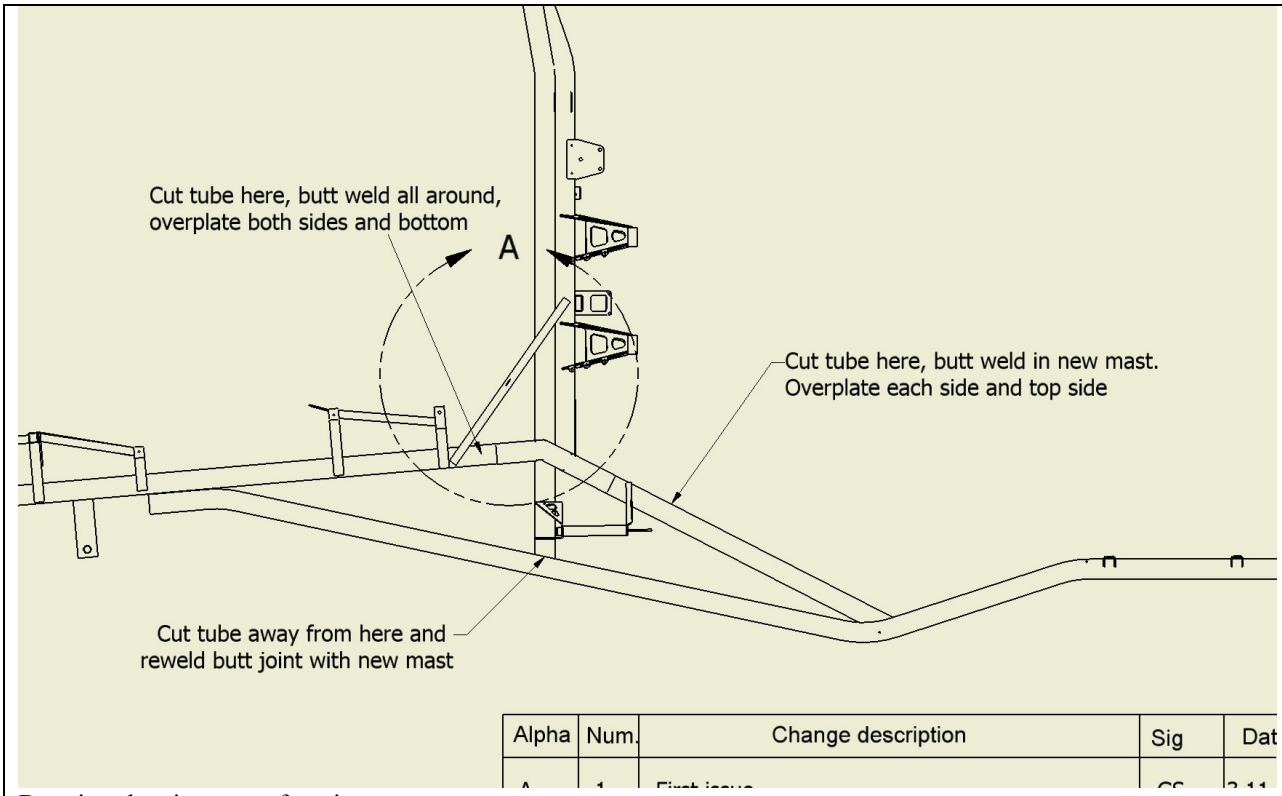

Drawing showing area of cutting

View of welded on strap. Weld as per RSD7178 and instructions above.

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Special tools & Health and Safety requirements, and/or components required for repair: None – observe existing welding operational requirements.
Quality Inspection requirements after repair: Ensure airframe is straight and correctly orientated. CAA BCAR A3-7 Authorised Person to certify that the work is completed by writing 'SRA-005 Weld repair' 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.
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)	Structures (where required)	Civil Aviation Authority (if a major repair)
	13/5/10		D. E. STANLEY 13/05/2010	

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

Form F023 Issue 1 Part 2 of 2