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EFFECTIVE DATE: This Service Instruction is effective August X, 2022

SUBJECT: FUSELAGE TUBE REPAIR

MODELS AFFECTED: CCK-1865-0001 and on, CCX-1865-0001 and on

COMPLIANCE TIME: *This retrofit is optional and is left to the sole discretion of the owner / operator / builder of the Experimental Amateur-Built aircraft unless repair is called for as part of other service document(s), or becomes necessary due to damage.*

PURPOSE: *Should it be necessary to repair fuselage, this document is provided to give step by step guidance through the process.*

WARRANTY: *This change is optional, and is not considered a warranty item.*

PARTS LIST : N/A



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INSTRUCTIONS:

1. Read all instructions before beginning any work.
2. Remove the following:
 - a. Propeller and spinner per CK10000AMM chapter 60
 - b. Engine cowling per CK10000AMM chapter 71
 - c. Wings and struts per CK10000AMM chapter 57
 - d. Disconnect battery, CK10000AMM chapter 24
 - e. Engine (if the engine can be supported during repair such that the proper fuselage structure alignment is not inhibited, it does not need to be removed.) CK10000AMM chapters 74, 76, 79
 - i. Drain the oil sump
 - ii. Drain any remaining fuel from the system
 - iii. Disconnect both the throttle and mixture control cables from the carburetor.
 - iv. Disconnect carburetor heat control cable from the carburetor.
 - v. Disconnect the fuel line between the carburetor and gascolator.
 - vi. Disconnect oil pressure gauge line.
 - vii. Remove oil temperature capillary in oil screen (if installed).
 - viii. Disconnect tachometer drive nut and cable.
 - ix. Remove primer discharge line from manifold jet.
 - x. Disconnect alternator wires.
 - xi. Disconnect ignition switch wires and magnetos.
 - xii. Attach a hoist to the engine lifting ring and take up the engine weight
 - xiii. Remove engine mounting bolts starting at the bottom.
 - xiv. Move the hoist or aircraft to clear the engine.
 - xv. Install the engine on a support stand or similar mount/device and attach it securely.
 - f. Front two right side interior panels, CK10000AFM chapter 25
 - g. Main door
 - h. Windshield side trim and front window liner
 - i. Right side window (optional)
 - j. Windshield
 - k. Boot cowl

3. Place the aircraft in a level attitude, ref CK10000AMM chapter 08.
4. In order to access the work area, cut and remove the fabric section shown in Figure 1. The section should be large enough to access the tubing several inches away from the broken junction.

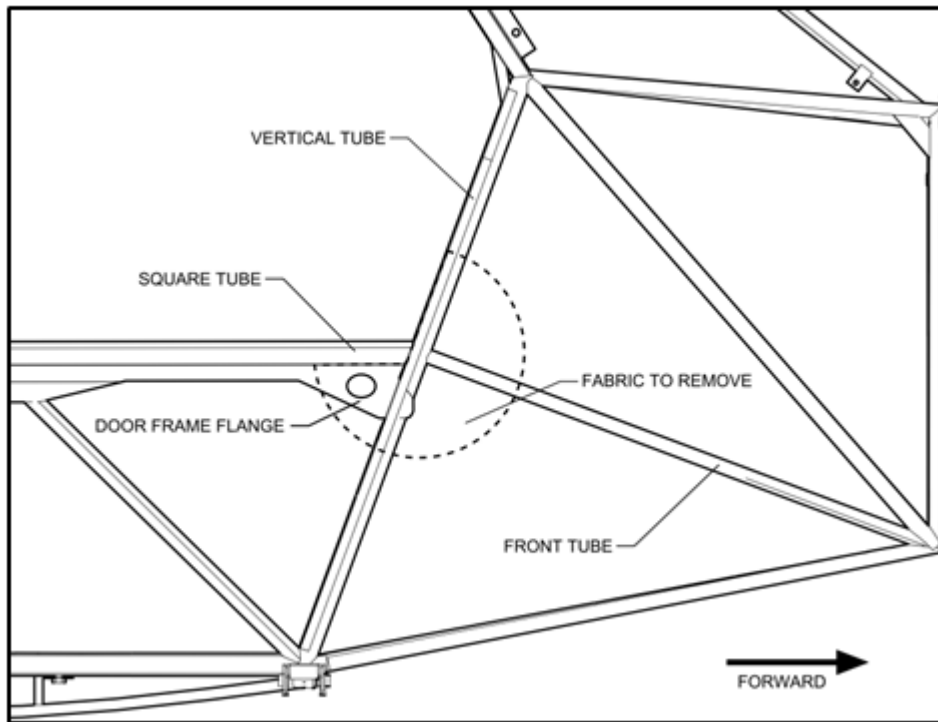


Figure 1 – Fabric Cutout, View From Right Side

5. Cut out the broken junction per AC43.13 See Figure 2 (distances are minimum values)
 - a. Cut the vertical tube above the junction at a diagonal. Either remove a section of the door frame in the cut, or separate the frame from the vertical tube so that it can be welded back later.
 - b. Cut the vertical tube below the junction at a diagonal. If this cut interferes with the door frame flange, separate the flange from the vertical tube so that it can be welded again later.
 - c. Cut the front tube forward of the junction at a 90 degree angle.
 - d. Cut the square tube at the junction weld to fit in assembly with the vertical tube.

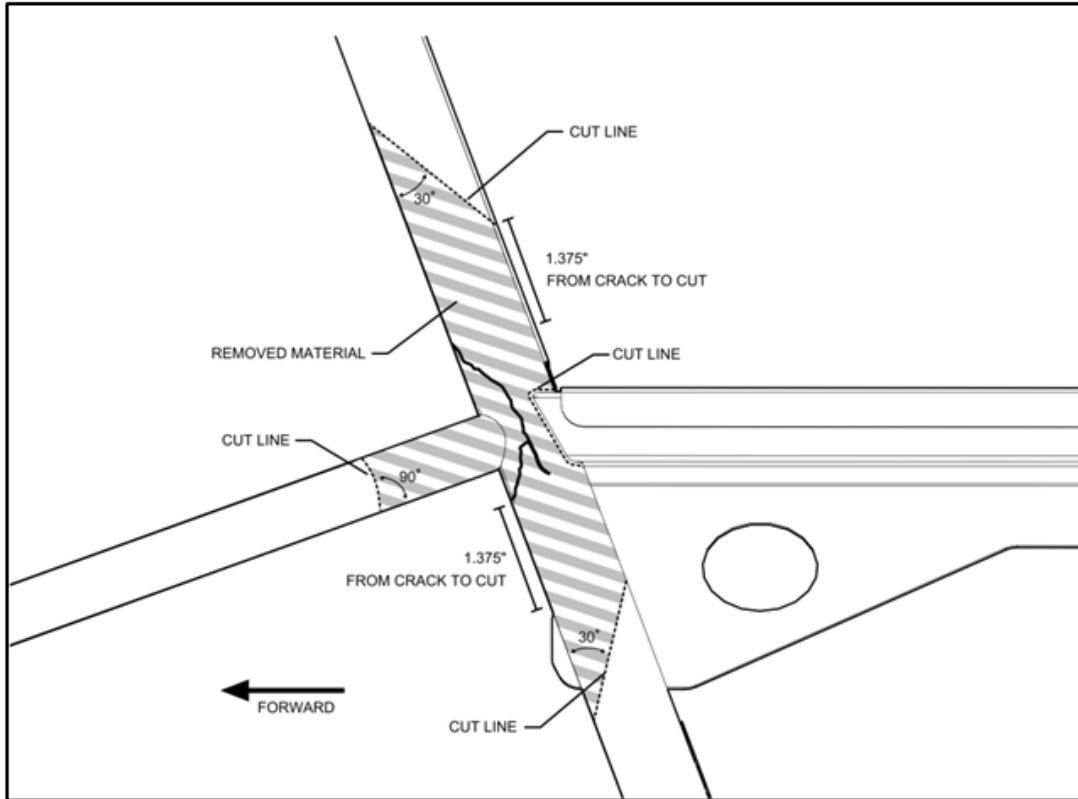


Figure 2 – Junction Removal, View Looking Right

6. Create two normalized 4130 steel per MIL-T-6736 tube inserts for the vertical tube that are cut at 90 degrees at both ends, and of at least 0.035" wall thickness. The insert should fit inside the vertical tube with clearance of no more than 0.063".

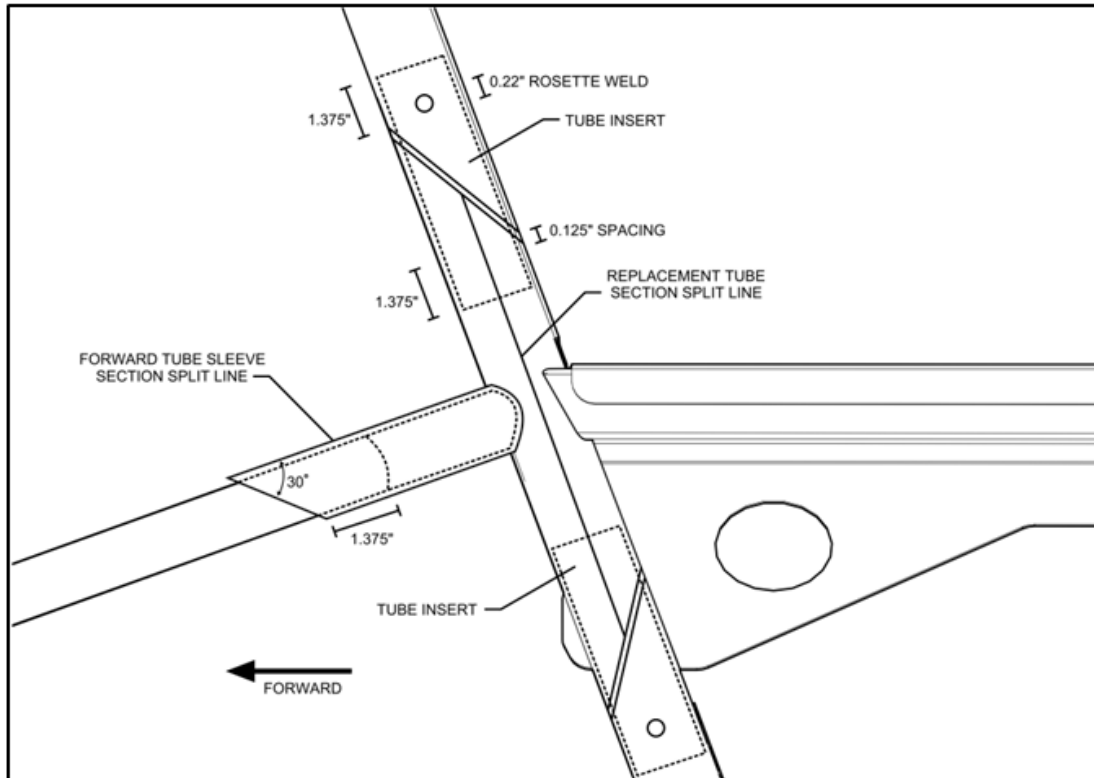


Figure 3 – Junction Assembly, View Looking Right

7. Cut diagonally a replacement tube of normalized 4130 steel per MIL-T-6736 for the removed vertical tube section with the same 0.875 diameter and 0.035 wall thickness as the original vertical tube.
8. Create a sleeve for the forward tube of at least the same (0.035") wall thickness as the vertical tube. The inside diameter of the sleeve should match the outside (Ø0.625) diameter of the forward tube, with an overall gap between the two tubes no larger than 0.063". Fishmouth aft end of the sleeve to fit in assembly with the Ø0.875" vertical tube.
9. Cut the replacement tube in half lengthwise to be attached in assembly with the inserts and original vertical tube. The location of this split line in Figure 3 should be based on ease of assembly later.
10. Cut the sleeve in half lengthwise to allow the sleeve to be attached in assembly with the replacement vertical tube.
11. Deburr the edges of all cut tubes.
12. Place one of the inserts in the top section original vertical tube and secure with an Ø0.22 rosette weld as shown in Figure 3. (rosette weld only required if insert does not stay snugly in place). Repeat with the other insert in the bottom section. All welds require welding filler rod #4130 per AMS 6457 or AWS A5.18
13. Assemble the replacement tube halves leaving 0.125" gap at each end. Tack weld in place.
14. Weld the replacement tube lengthwise seam first on both sides then weld both ends, keeping the vertical tube in column.



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15. After verifying alignment with the frame, weld the square tube to the replacement vertical tube.
16. The forward tube sleeve halves can now be assembled and secured to the forward tube by tack weld(s).
17. After verifying alignment with the frame, weld the sleeve seam on both sides.
18. Weld the sleeve to the forward tube first, and then to the replacement vertical tube.
19. If necessary, weld the door frame flange to the vertical tube located below the junction.
20. The door frame section removed above the junction can be salvaged and welded back in place or a replacement section may be made using any of the following material:
 - a. 24 GA Steel per ASTM A366 or A1008
 - b. 0.025 thick 4130 Steel per AMS 6350 or 6351
 - c. 0.020 Thick 1018 Steel
21. After area has cooled, any steel uncovered by powder coating needs to be corrosion protected. Any existing corrosion needs to be removed and the area washed with a cleaner/degreaser, such as DX330. Suitable primers for areas in contact with fabric chemicals include:
 - a. Self-etching primer (such as DX 1787/1788)
 - b. Two part epoxy primer (such as EP-420/EP-430)All primers must be applied in accordance with the primer manufacturers' instructions.
22. The section of fabric removed in step 1 should be patched per the Polyfiber manual.
23. Attach the right side window and main door reversing the removal procedure.
24. Reinstall boot cowl.
25. Attach the boot cowl fabric spacer to the boot cowl using methacrylate MA832 Gray GB adhesive.
26. Attach the windshield using Parabond clear or silicone to seal seam.
27. Attach the windshield side trim with removed hardware.
28. Attach the windshield liner with removed hardware, and using double sided tape and adhesive promoter between windshield and liner.
29. Attach the interior panels with previously removed snap rivets. Panels may also be attached with adhesive promoter and foam tape as required.
30. If previously removed, attach engine in reverse order of removal. Additional installation information can be found in CK10000AMM chapters 71, 74, 76, and 79.
31. Connect battery per CK10000AMM chapter 24.
32. Attach engine cowling per CK10000AMM chapter 71.
33. Attach propeller and spinner per CK10000AMM chapter 60.
34. Attach struts and wings per CK10000AMM chapter 57.
35. Inspect tank and fuel system for leaks prior to complete fill up and operation.
36. Perform weight and balance per AMM chapter 08.



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37. Make logbook entry stating that fuselage was repaired and CK-SI005 Rev NC was complied with.

If you are no longer in possession of this aircraft, please forward this information to the present owner/operator and notify Cub Crafters, Inc. Contact the customer service department at:

Cub Crafters, Inc.
1918 S. 16th Avenue
Yakima, WA 98903.
1-877-484-7865 or 1-509-248-9491
support@cubcrafters.com

Please include the aircraft registration number, serial number, current name, and address of the owner and/or operator.