Timber Tiger Aircraft, Inc.
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SERVICE BULLETIN

Date: 10/31/2023

Subject: Reinforcement of aileron tunnel to wing ribs

Applicability: ST-L kits prior to Serial Number 1000-42

Compliance: See text below

Timber Tiger Aircraft, Inc. has received a few complaints of the wing rib cap strip adhesive delaminating at areas in the vicinity of the aileron tunnel. Most complaints are from ribs built with Loctite Hysol EA-9430. For reasons unassociated with this delamination, Timber Tiger Aircraft, Inc, has switched to Scotch-Weld adhesive (available from Aircraft Spruce), which seems to have helped with this problem. Before getting into the reinforcement of the aileron tunnels to the wing ribs, some notes for TTA builders:

1. Do NOT mix adhesives by eye. The manufacturers have picked specific ratios for a very good reason. Do NOT stray from their instructions.
2. As called out in the manual, the honeycomb of the ribs must be clean of debris before installing cap strips.
3. In addition, the cap strips must be cleaned with acetone or laquer thinner immediately after abrading the strip.
4. As called for in the manual, cap strips must be abraded with 180-240 grit sandpaper prior to gluing. Some customers have gone further and run a Scotchbrite pad over the cap strip after using sandpaper. Do not do this. It is possible that the Scotchbrite pad is removing/polishing out the sandpaper's micro-scratches, which the adhesive needs in order to do its job properly.
5. As mentioned in the manual, aluminum oxidizes very quickly. You should sand/clean/glue cap strips no more than one or two ribs at a time and on days/in areas of low humidity.

Notes specific to the aileron tunnel:

Some ST-L builders have used the blind rivets to pull the tunnel skin down to the aileron. The predictable result is the delamination of the cap strip adhesive.

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When installing the aileron tunnels, it is absolutely critical to make sure the angle of the tunnel bends match the angle of the wing rib. This bend angle can be adjusted by hand in a matter of minutes, if not seconds. Just squeeze the bend tighter with your fingers. The metal is thin and doesn't need any special tooling to bend.

Don't over-think this bending operation! The aileron tunnel can be pulled down in-between ribs once installed. Not only does this require less bending accuracy, but it also makes the airplane look better once the wing is covered with fabric.

With the above notes, this **Service Bulletin 1000-01 is MANDATORY for all ST-L wings currently being constructed.** If your wing is already fabric-covered and you are not seeing any issues with your aileron tunnel, no action is required but you must make inspection of the aileron tunnel a part of your annual maintenance plan.

Steps required to reinforce the aileron tunnel:

Aside from the inner-most and outer-most aileron bay ribs, the aileron tunnel should be reinforced to the wing ribs with three angles opposite the side of the rib that has the flange. Construction of these angles is detailed as follows. They should be positioned such that they reinforce the aileron tunnel's curved portion at center, along with the tunnel's upper and lower flanges.

These angles should be minimum .032 6061-T6 or 2024-T3 aluminum sheet or 3/4" x 3/4" .062 extruded aluminum angle. If extruded angle is used, the aluminum alloy used isn't as critical. Any standard 2000, 5000, or 6000 series aluminum will work.

The angles have legs of 1/2", radii of 1/4" and a single #30 hole centered on each leg. They rivet to the face of the wing rib with a BSPS-43 rivet and to the aileron tunnel with a BSP-41 rivet. The wing rib adhesive (Hysol or Scotch-Weld) can be optionally used IN ADDITION to the rivets.

Parts and drawings for these angles will be supplied in all ST-L kits Serial Number 1000-42 and beyond.

Questions regarding this Service Bulletin can be directed to Timber Tiger Aircraft at nick@timbertigeraircraft.com or (303) 725-5439.

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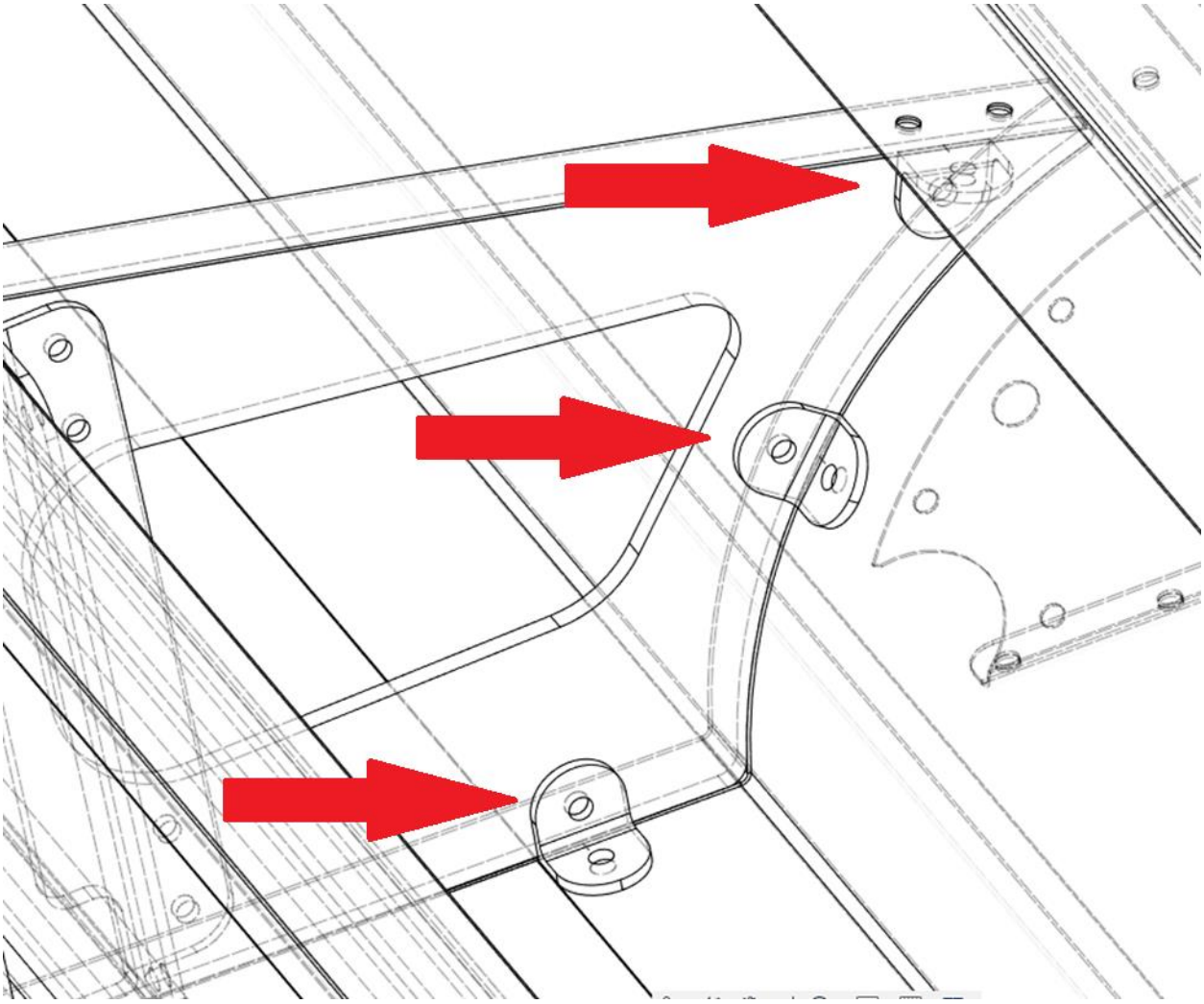
Notice the three tabs at the aft edge of the rib.



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