

GLASTAR SERVICE BULLETIN 19

MANDATORY

Subject: Elevator and trim tab hinge edge margin

Applicability: All GlaStar kits shipped prior to the publication of *Assembly Manual* Revision C.

Discussion: Through calls to our Customer Service Department and postings on various electronic GlaStar discussion groups, we have long been aware that some builders are having trouble aligning the skins, spars and hinges of their elevators and trim tabs in such a way as to provide adequate edge margin in all three parts for the rivets that join the three parts together. We have addressed this problem in several ways, including the following specific actions:

1. In the ANOR of 7/17/95, we suggested moving the elevator hinges aft on the elevator spar 1/32" to improve edge margin through the hinge flange. The ANOR also described in general terms the goals of positioning the stabilizer skins to protect edge margin.
2. In the ANOR of 9/14/95, we advised that the upper skins of the stabilizer be trimmed back to the aft edge of the spar flange to make alignment of the elevator hinges easier.
3. In the ANOR of 7/1/96, we clarified the goals of positioning the elevator hinges to best achieve adequate edge margin. This involved reducing the specified gap between the elevator and the stabilizer.
4. In the ANOR of 11/20/96, we offered similar clarification of the goals of positioning the trim tab hinge.
5. In October 1996, the pre-punched rivet line in the elevator skins along the trim tab cutout was moved aft slightly to make achieving edge margin on the trim tab hinge easier. (This change will take effect in the next run of skins to be produced.)

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6. In January 1997, the stabilizer nose ribs were shortened by roughly 1/4" to an overall length of about 3-3/4". (The original ribs were P/N 302-00009-01; the new ribs are designated -03.) This will make it easier to pull the stabilizer skins back over the spar/rib structure to their proper position relative to the aft spar and hinges. (This change will take effect when the next run of ribs is produced.)



Note Builders with -01 ribs can gain this same benefit by trimming the ribs themselves. Instructions for this trimming are included in the "Recommended Action" section at the end of this Bulletin.

Taken together, these changes in procedures and parts have made it much easier to achieve standard edge margins on all the hinges. To make this easier still in future kits, we are considering moving the rivet line along the aft edge of the stabilizer skin upper surfaces slightly further aft. However, due to problems of tolerance stack-up that are common in any sheet-metal design, we need to proceed very cautiously when it comes to moving the locations of the pre-punched holes, and this particular change is still being evaluated by our engineering staff.

It bears emphasis that we have heard from many builders who have successfully constructed their control surfaces using unrevised parts and instructions while meeting standard edge margin requirements throughout. With either the old parts or the new, the result depends on the builder's remaining always conscious of edge margin concerns.

However, we are also aware that some builders may have finished riveting their stabilizer, elevator and/or trim tab assemblies together **without** having achieved acceptable edge margin, particular with respect to the hinges. Thus, the main purpose of this service bulletin is to prescribe inspection of finished assemblies and remedial procedures to ensure the structural integrity of any assemblies found to be in violation of edge margin requirements.

Required Action: If you have already riveted your elevator and/or trim tab hinges, inspect them carefully to see if there are any rivets that violate standard edge margin criteria. This means that the **center** of each rivet should be **two rivet diameters** from the edge of **all** the surfaces through which it passes—i.e., 1/4" for AN470AD4 rivets and 3/16" for AN470AD3 rivets..

If you find that edge margin rules have been violated, the required action is to install additional 3/32" AN470AD3 rivets between the existing rivets. Install these rivets halfway between the existing rivets in a spanwise direction and shifted fore or aft from the existing rivet line as necessary to meet edge margin criteria. If only a portion of the existing rivets are in violation of the prescribed edge distance, you need to install additional rivets only among those bad rivets—not along the entire hinge. However, if, for aesthetic reasons, you prefer to add rivets along the entire hinge, there's no harm in doing so.

Recommended Action: If you have not yet drilled or riveted your horizontal stabilizer skins and you received **first-run** nose ribs [P/N 302-0009-01], you can minimize the edge margin problems outlined above by trimming your stabilizer nose ribs. Figure 1 shows how the ribs should be trimmed. Begin by drilling a small hole through the rib web about 1/2" aft of the leading edge immediately above or below the rib flange. A 1/8" or #30 bit will be just about right. Then use a pair of snips cut away the web as shown by the dashed line, leaving only the flange itself. Sand or file the cut edges smooth.

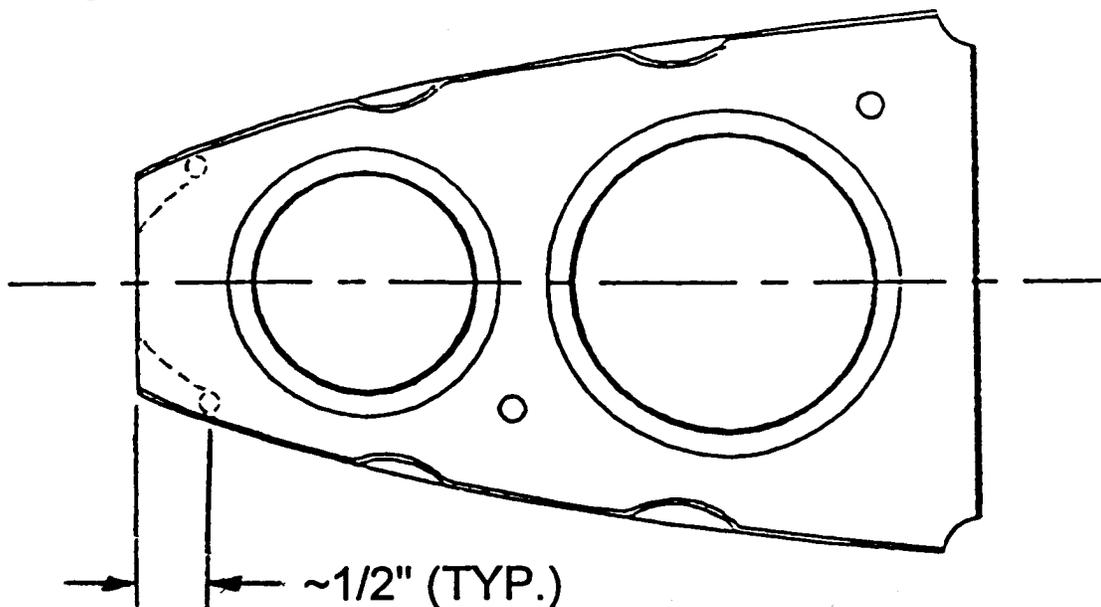


Figure 1: Trimming the Horizontal Stabilizer Nose Ribs



Note If you received **second-run** nose ribs [P/N 302-0009-03], do not trim them; they are already shortened.