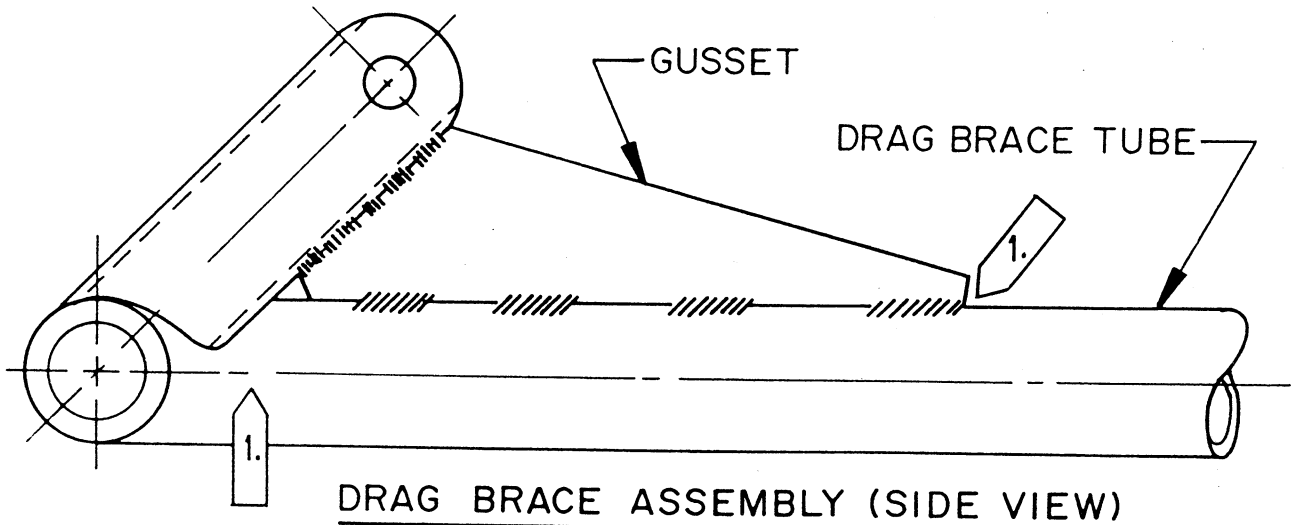


SERVICE BULLETIN 26

SUBJECT: GLASAIR RG NOSE GEAR DRAG BRACE REINFORCEMENT

APPLICATION: GLASAIR RG LANDING GEAR SERIAL Nos. 01 thru 230  
(Serial number is stamped on the landing gear struts)

MANUAL REFERENCES: RG INSTRUCTION MANUAL pages D-222, D-223 (Vol. 1)  
RG INSTRUCTION APPENDIX pages 3-63, 3-64



1. INSPECT TUBE AND GUSSET FOR CRACKING

FIGURE (1)

COMPLIANCE: MANDATORY All Glasair RG's currently flying must comply with the nose gear drag brace reinforcement prescribed in this service bulletin by July 1, 1987. A pre-flight inspection of the drag brace, in the areas indicated by Flag no. 1 in FIGURE (1), must be performed prior to each flight until compliance with this service bulletin is made.

DESCRIPTION: The CAUTION note on page 3-64 of the RG Instruction Appendix and the WARNING note on page D-223 of the RG Instruction Manual advise the builder to adjust the length of the nose gear hydraulic cylinder piston rod so that, when the gear is in the full-up position, the piston bottoms inside the hydraulic cylinder. This prevents putting undue load on the drag brace assembly and any surrounding fuselage structure.

WARNING: Failure to properly adjust the length of the nose gear cylinder piston rod may result in damage to the drag brace and a possible inability to extend the nose gear strut in flight if the drag brace fails.

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NOTE: Fatigue cracking and drag brace failure has been reported on several Glasair RGs. Possible causes of this condition are:

1. An over-load of the drag brace resulting from improper adjustment of the hydraulic actuator piston rod.
2. A fatigue condition occurring over time.
3. A combination of both conditions.

Since proper adjustment of the piston rod length is so critical, and since the possibility exists that fatigue cracking may be occurring with very minor errors in adjustment (or even when correctly adjusted), a reinforcement or strengthening of the drag brace is required.

Glasair RG nose gear drag braces with landing gear serial numbers 01 thru 70 are made from 3/4" O.D. x .035" wall 4130 steel tubing; drag braces with serial numbers 71 thru 230 (approx.) use 3/4" O.D. x .049" wall tubing; and drag braces with serial numbers 231 thru 290 use 3/4" O.D. x .083 wall tubing and a thicker .080" gusset. To determine whether your drag brace has the heaviest tubing (.083" wall thickness), measure the thickness of the gusset that spans from the right brace tube to the actuator arm (short square tube). The gusset thickness is .080" thick on drag braces fabricated from .083" wall 4130 tube. Drag braces with .083" wall thickness tubing are strong enough to withstand some adjustment error over time. Drag braces with the thinner wall tubing (.035" and .049") do not have adequate strength and, therefore, must be reinforced.

SOLUTION: All Glasair RGs with earlier drag braces (landing gear serial numbers 01 through approximately 230) manufactured with the thinner wall tubing (.035" and .049"), must have the drag brace arms on the hydraulic actuator side reinforced. To accomplish this we list three options:

1. Rework the drag brace yourself (instructions are included in this S.B.)
2. Send the drag brace to us and we will rework it for you.
3. Purchase a new drag brace (available from the Stoddard-Hamilton parts department).

NOTE: Option 1 is recommended only for those builders who are capable of performing aircraft quality welding.

OPTION 1:

The thin wall tubing drag braces can be reworked by the removing the original gusset, sleeving the existing right side brace tube and installing a heavier gusset.

STEP 1 If the aircraft is assembled, place the aircraft on jacks and remove the drag brace strut. Measure the distance between the engine mount attach points of the drag brace, as shown in FIGURE (2) Flagnote 2. This dimension must be held during welding to ensure drag brace fit when the aircraft is reassembled.

  
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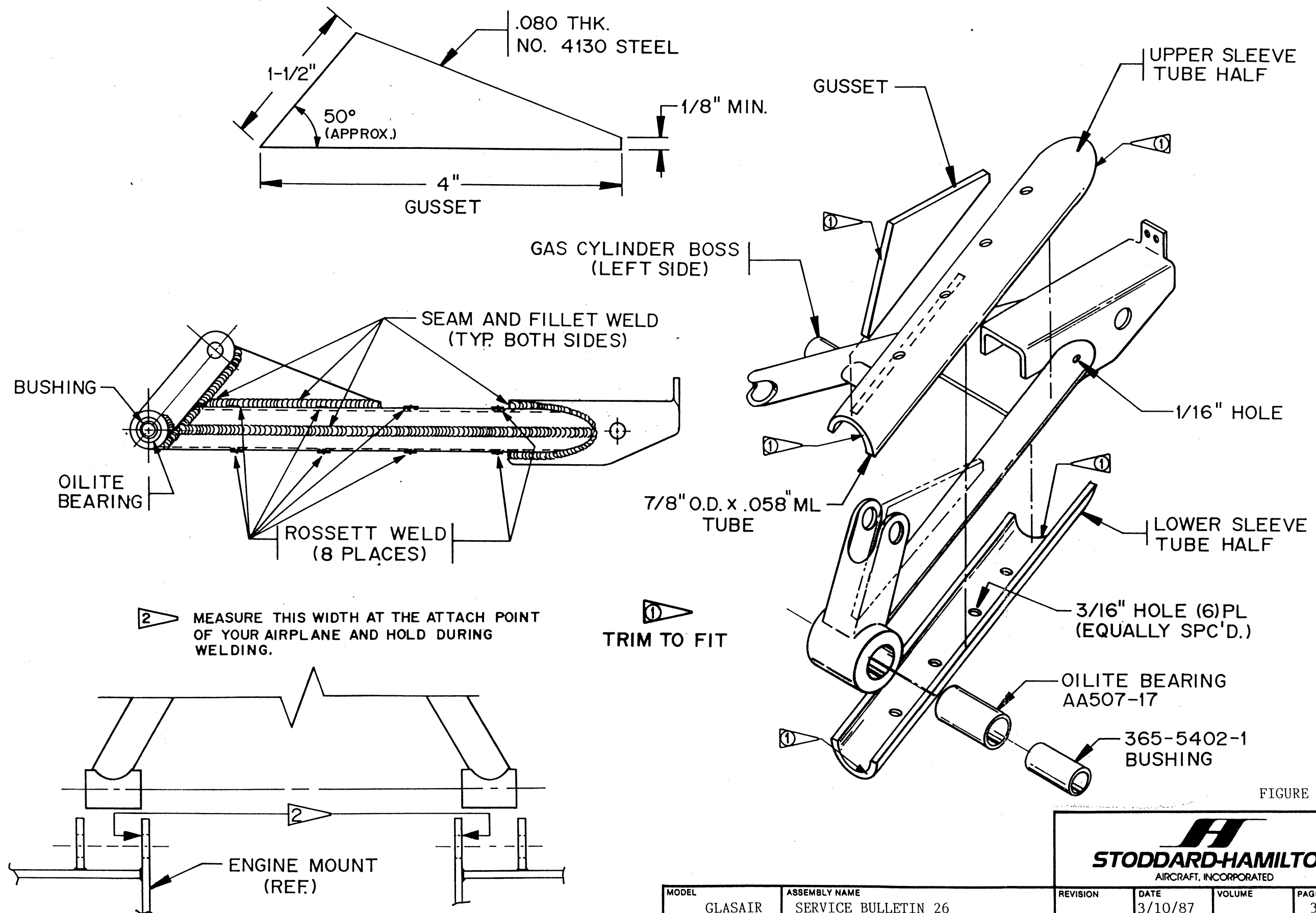


FIGURE (2)

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STEP 2 Carefully press the oilite bearings from the drag brace pivot ends. Use a rod or a socket measuring .450"-.490" and a press to remove the bearings.

STEP 3 Strip the existing paint from the area of the drag brace strut tube to be reinforced.

Using a hacksaw, carefully remove the gusset from between the square hydraulic actuator arm and the right drag brace tube. Do not cut into the round or square tubing during this process. Make the cut clear of the tubing and the actuator arm, then carefully grind or file the welds down flush with the tubing and actuator arm.

STEP 4 Use 7/8" O.D. x .058" wall 4130 steel tubing to form a sleeve over the existing right drag brace tube, as shown in FIGURE 2. Drill a 1/16 inch hole (as shown) in the original drag brace tube to relieve internal air pressure during the welding process. After cutting the 7/8" tube to the correct length, slice the tube lengthwise and bevel the ends to fit. Drill 3/16" holes for rosette welds approximately every 2" top and bottom, as shown. The rosette welds add additional strength to the repair. Be sure the reinforcement sleeves extend from end to end along the entire length of the existing tube.

STEP 5 Build a simple jig to hold the engine mount attach dimensions noted in Step 1. This can be done with a long threaded rod with four nuts, one on each side of the drag brace attach point. The rod and nuts can be purchased from a local hardware store.

STEP 6 Weld the reinforcement sleeve tubes to the right drag brace tube, as shown in FIGURE 2. After welding the reinforcement sleeves, fabricate a new gusset from .080" thick 4130 steel sheet, and weld this in place of the original thinner gusset, as shown in FIGURE 2.

Following is a recommended welding sequence and some tips for achieving a satisfactory reinforcement:

1. Check the splice sleeves on the drag brace to ensure proper fit. Make sure that there is no rocking of the sleeves on the drag brace tube and that there are a minimum of 1/8" gaps along the split lines between the sleeves before welding. Some additional grinding may be necessary. (It is important that the sleeves are welded to the original tubing.)
2. Clamp the splice sleeves on the drag brace, as shown in FIGURE 2.
3. Weld the rosettes first and then remove the clamps. Start welding in the center of each remaining weld and work outwards.
4. Leave the 1/16" gas hole open until after the gusset is welded on, and then weld the hole shut.

  
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5. Be sure to weld the reinforcements completely around their circumferences and that all rosette welds are sealed, so that no moisture may enter between the original tube and the reinforcement sleeves.

6. Recheck the drag brace mount attach point dimensions noted in Step 1.

STEP 6 Press the original oilite bearings back into place in the pivot tubes of the drag brace. If the bearings were ruined when removed, or if they have excess play when reinserted, install new Oilite bearings (AA507-17). (If new oilite bearings are used, it will probably be necessary to ream their inside diameters to fit the 365-5402-1 bushings with a .375 reamer.

STEP 7 Clean and prime the reinforced drag brace strut with an epoxy primer, and then repaint as desired.

STEP 8 Reinstall the drag brace strut in the aircraft carefully following the rigging instructions on page D-223 of the RG Instruction Manual or pages 3-63 and 3-64 of the RG Instruction Appendix.

  
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OPTION 2

We will rework affected drag braces per this service bulletin for \$98.00 each. The work will be accomplished in two production runs to provide you with some flexibility regarding construction or down-time in your airplane.

1st Production: Drag braces must be returned to Stoddard Hamilton by April 10, 1987. (Expect 4-5 weeks for turnaround time from that date.)

2nd Production: Drag braces must be returned to Stoddard Hamilton by May 31, 1987. (Expect 4-5 weeks for for turnaround time from that date.)

NOTE: If you are currently flying or have installed the engine mount and drag brace, measure the distance between the drag brace mounting bracket flanges, as shown in FIGURE (2) Flagnote #2, and send the measurement along with the drag brace. Try to make the accuracy of this measurement to the nearest hundredth (for example 6.42").

OPTION 3

The replacement part price for the nose gear drag brace assembly is \$323.00.

Since we are currently in the process of starting another production run of retractable landing gear, we can include new drag brace orders into the current production run and discount the price to \$265.00. If you wish to order a new drag brace for the price of \$265.00, we must receive your payment by April 1, 1987. Delivery is expected to be 4-5 months (July or August, 1987).

NOTE: We can supply a reinforcement kit for Option 1 that consists of the gusset, (two) ready-to-weld reinforcement sleeves, and new bearings for \$37.00. Please specify Service Bulletin 26 Kit #1 when ordering. (Availability of this kit is estimated to be April 1, 1987.)

Contact Roy Matson, Stoddard-Hamilton parts department (206/435-8534), if you wish to order either a new drag brace or a drag brace reinforcement kit.

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