

SUBJECT: ELEVATOR TRIM BOX MAIN GEAR ASSEMBLY

APPLICATION: All Glasair II, II-S, and III elevator trim gear box assemblies, and Glasair I retrofit trim systems shipped before 9/12/90.

DESCRIPTION: We have had reports of failure of the main gear shaft in the elevator trim box. Loads in the system are transmitted from the cable drum to the main gear by the roll pins that secure the components to the shaft. The shaft fails where it has been weakened by the roll pin holes.

SOLUTION: ***WARNING: COMPLIANCE WITH THIS SERVICE BULLETIN IS MANDATORY***

We require that the elevator trim box on all affected aircraft be modified by pinning the main gear directly to the cable drum with two .094" diameter solid steel dowel pins. The two dowel pins relieve the loads that would otherwise be applied to the main gear shaft through the roll pins. Trim gear modification instructions are included at the end of this Service Bulletin.

The two .094" diameter steel dowel pins, as well as replacement roll pins for use when reassembling the trim gear box, are included with this Service Bulletin. In addition, a trim gear drilling jig tool (Part No. 810-0155-001) is needed to accomplish the trim system modification. The jig tool may be either purchased (\$15.00) or borrowed. If borrowed, we require a \$15.00 deposit to guarantee the tool's return in good condition. Contact Stoddard-Hamilton's order desk to place your order. The jig tool is illustrated in FIGURE (1) if you prefer to fabricate it yourself.

ELEVATOR TRIM GEAR MODIFICATION PROCEDURES

STEP 1 TRIM CABLE AND GEAR BOX DISASSEMBLY

Disconnect the forward trim cables from the trim springs in the aft fuselage. To accomplish this, rotate the trim wheel in one direction while a helper holds the elevator against the spring. This introduces slack in the other spring which can be easily disconnected.

Remove the trim gear box and cable assembly from the wing.

Disassemble the worm drive and trim wheel shaft from the trim box in the opposite order as described in the trim box assembly instructions. This is necessary to remove the cable drum from the box.

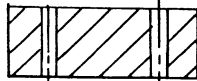
CAUTION: Make sure to adequately support the trim wheel shaft to prevent bending it when driving out the roll pin that secures the worm drive. Also, be careful not to damage or elongate the existing roll pin holes.

Disassemble the main gear shaft, the main gear, and the cable drum from the trim box while observing similar precautions as mentioned above.



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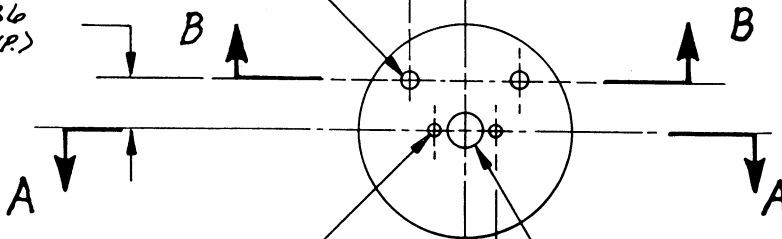
SECTION B-B



.39 (TYR)
2 PLACES

$\frac{.133}{.136}$ DRILL
THRU

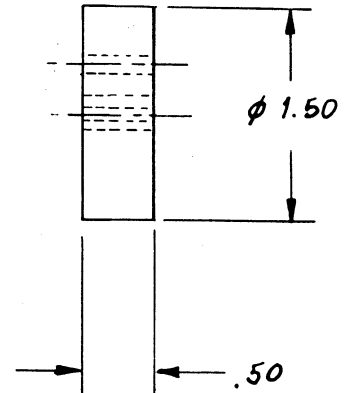
.36
(TYR)



DRILL NO. 42
HOLE FOR $\frac{3}{32}$ "
BY $\frac{3}{4}$ " PIN
(2) PINS REQ'D.

.217
.220
(2 PLACES) &

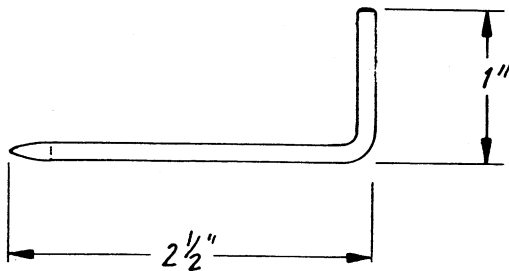
.250 DRILL
THRU



SECTION A-A

CABLE DRUM, MAIN GEAR DRILLING
JIG TOOL FABRICATION

FABRICATE FROM MILD STEEL



OPTIONAL ALIGNMENT PIN

FABRICATE (2) FROM .125" STEEL
OR ALUMINUM ROD

FIGURE (1)

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STEP 2 DRILLING THE MAIN GEAR/CABLE DRUM ASSEMBLY

Reassemble the main gear and the cable drum to the main gear shaft in their correct positions and pin them using either the original roll pins or some temporary alignment pins, as shown in FIGURE (2).

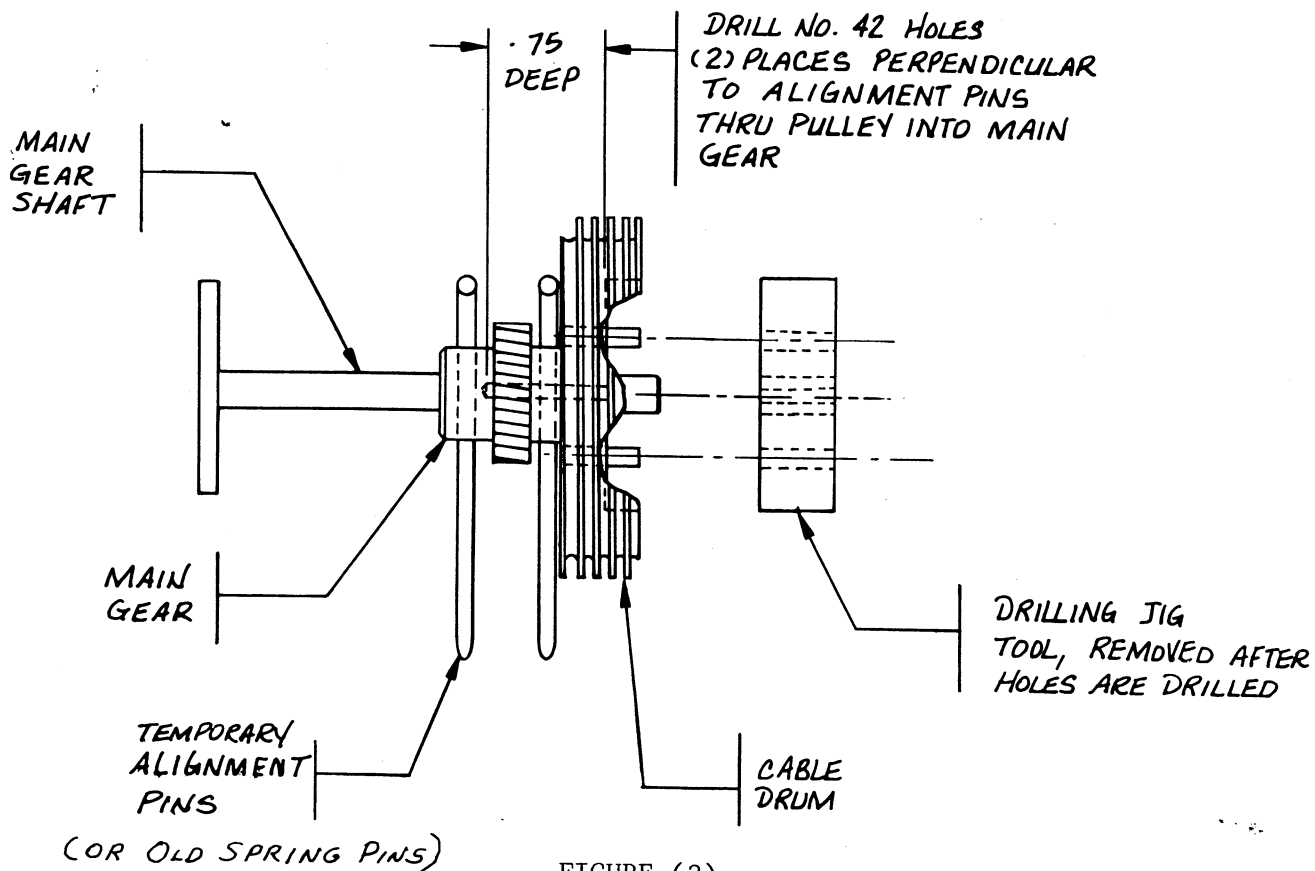


FIGURE (2)

Slide the drilling jig tool over the main gear shaft and into the recess in the cable drum, inserting the two stop pins in the cable drum into the two large holes in the drilling jig tool.

Using the two small holes in the drilling jig tool as guides, drill #42 diameter holes for the dowel pins into the cable drum and main gear, as shown in FIGURE (2). Drill 3/4" deep into the cable drum/main gear assembly, as shown. (Since the jig tool is 1/2" thick, wrap masking tape around the drill bit 1-1/4" from the end to serve as a depth guide or drill stop.)

After drilling the dowel pin holes, remove the drilling jig tool from the cable drum. It may be necessary to clamp the jiggling tool in a vise and lightly tap the cable drum to remove the drilling jig tool.

Press the two .094" diameter steel dowel pins into the main gear/cable drum assembly until the ends of the pins are flush with the recessed surface of the cable drum, as shown in FIGURE (2). Remove the temporary alignment pins and disassemble the main gear shaft from the main gear/cable drum assembly.

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Use a center punch and a small hammer to peen the aluminum drum on two opposite sides of each dowel pin to ensure that the pins don't work their way out. Peening is accomplished by placing the point of the center punch against the surface of the cable drum near the dowel pin, and striking the punch with a hammer. The punch slightly deforms the aluminum, which effectively clamps the pin.

STEP 3 REASSEMBLY AND TESTING

Reassemble the elevator trim gear box, using the procedures described in your Instruction Manual or Trim System Retrofit Instructions (for Glasair Is). Reinstall the trim box in the aircraft, and reconnect the trim cables.

WARNING: Verify correct trim system operation before flight.



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