

**T-34 Spar Corp.**  
**2800 Airport Rd.**  
**Ada, OK 74820**  
**Phone 580-436-4833**  
**Fax 580-436-6622**

**T-34A/B Main Spar Carry-through Rotating Probe, Bolt-hole Eddy  
Current Inspection Procedure and Cold Work  
No. TSC 3507, Rev. C, dated 4/5/10**

**Purpose:** The purpose of the inspection procedure is to reveal cracks emanating from the ¼” diameter Hi-Shear fastener holes in Main Spar Carry-through Structure and Wing Attach Fitting and to cold work the fastener holes to prevent growth of future cracks I those fastener holes. This procedure is to be used in conjunction with the installation of the T-34 Spar Corp. AMOC to A.D. 2005-25-51 involving the installation of the “ALEC” cable reinforcement.

**Description of Area to be Inspected:** (Ref: Fig. 1) The area to be inspected includes the two inboard-most holes (#8 and #9) four places (eight total) in the Left and Right Wing Attach Fittings of the Main Spar Carry Through Structure. Ref. Fig. No. 1. –Note rotating probe shown in hole #3, but only holes #8 and #9 need inspection at this time.

**Accessing Area to be Inspected and Cold Working:** With the airplane on its wheels, remove the “T” shaped cover plate at the wing to fuselage intersection of the main spar on the lower wing surface. Remove the front seat and floorboard panels covering access to the Main Spar Carry Through Structure. Using a collar cutter, carefully cut the collar off of the Hi-Shear fastener(s) to be inspected. Do not allow the cutter to penetrate through the collar thickness and contact the spar. Carefully punch the Hi-Shear fastener out into the Carry Through Structure where it can be removed. Check the hole size with the fastener removed using the hole check gauge provided in the “cold working” tool kit. If existing holes fall within the acceptable range of .250-.254 inch diameter, then using a .250 inch piloted reamer, ream the hole to .2535 max. diameter for cleanup prior to Eddy Current inspection. In the event that these holes are oversize or have already been “upsized” to the .265/.266 diameter prior to inspection, ream holes to the next largest diameter of .2685 max. for clean up for inspection.

Following a successful bolt hole eddy current inspection, the holes will be “cold worked” for enhanced fatigue strength. See FTI Process Specification 8101D for cold working instructions.

**Equipment Requirements:** Nortec Stavely 2000D Impedence Plan Eddy Current Tester with powered rotating probe attachment or equivalent, Probe = 500Khz-2Mhz, shielded, absolute, differential reflective, .250 diameter, .265 or .280 diameter or equivalent adjustable diameter probe.

**Test Coupon Requirements:** The eddy current test coupon to be used is GAMI P/N 45-128 per Figure 2. Use .050” notch in through-hole for calibration.

**Personnel Requirements:** Personnel performing this inspection shall be qualified as Eddy Current, Level II or III per one of the following specifications: ATA Specification 105, SNT-TC-1A, or NAS-410 (Mil Std 410E).

**Estimated Time Requirements:** It is estimated that to prepare the aircraft, clean the areas, remove the fasteners, perform the inspections, cold work the holes and document the results will require approximately 4.5 manhours.

**Methods:** Typical Set-up parameters are: Frequency –500 KHz, Angle- 0, Gain Vert – 73 dB, Hor. – 73dB, Drive-Mid, Filters- Lo Pass- 500, Hi Pass – 200, Orient the rotation attachment so as to align the display with a known reference in the hole. These may be adjusted as required. Using the .050 notch, set the instrument for at least a mid scale deflection of the flaw indication. Insert the rotating probe into the hole maintaining orientation and scan thoroughly. Inspect all layers of the structure. In the event of a flaw indication, determine orientation, depth and length of crack and document that in the inspection report.

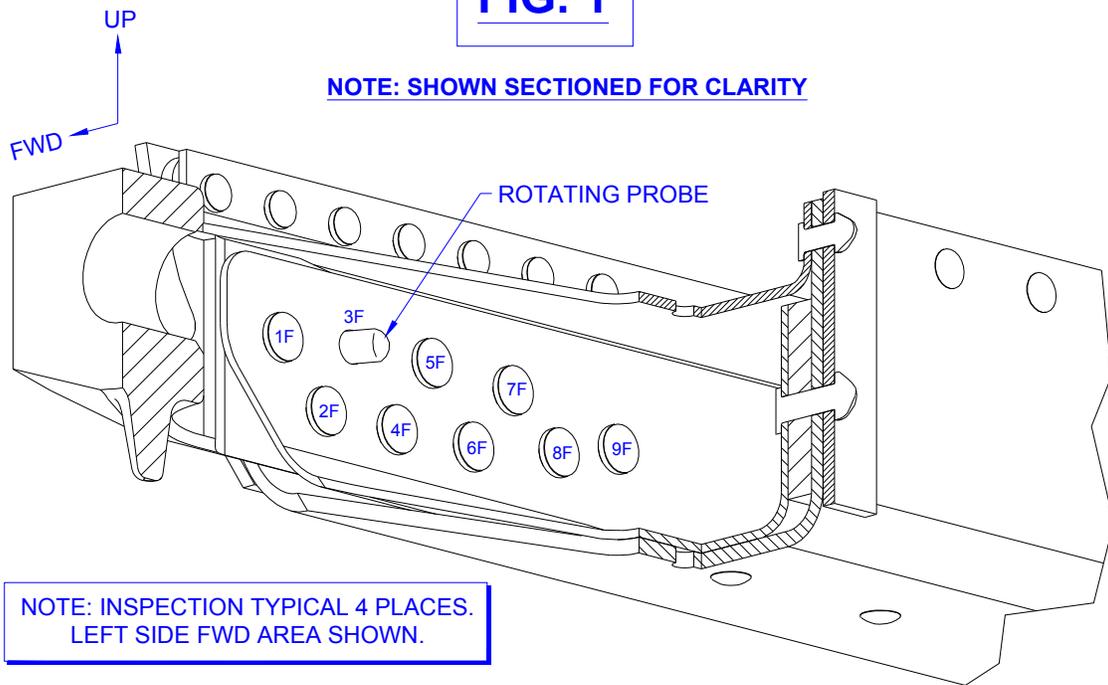
**Accept/Reject Criteria:** Any repeatable flaw indication in excess of the mid-scale setting is cause for rejection in accordance with this procedure. If a crack is found in a .2535 diameter hole during the inspections using the Eddy Current Inspection procedure detailed above, enlarge the hole to .2685 max for accommodation of the next larger fastener and reinspect using the Eddy Current Inspection procedure. If a crack is found in the .2685 diameter hole during the inspections using the Eddy Current Inspection procedure detailed above, the airplane must become the subject of critical assessment and evaluation by a properly rated DER. Report all defective conditions on AMOC TSC F405 form. Any repair will be handled on an airplane by airplane basis.

**Cold Work of Inspected Holes:** After the holes have been Eddy Current inspected and no cracks are present, cold work the holes in accordance with FTI Process Specification 8101D using tool kit 8-1-N for NAS 2904-12 fasteners except the maximum diameter that the holes may be reamed is .2666 inch. If NAS 3004-12 fasteners are to be installed, use tool kit 8-2-N. The maximum diameter that the cold worked holes for the NAS 3004-12 fasteners may be reamed is .2820 inch.

**Replacement of Fasteners:** After cold working the fastener holes install one NAS 2904-12 or NAS 3004-12 (as applicable) bolt with MS21042L4 nut and AN960-416L washer in each hole.

**Documentation Requirements:** Record inspection findings on Form TSC F-405 and aircraft logbook. Maintain the Form TSC-F405 in the permanent aircraft records. Following a successful inspection, an aircraft logbook entry should be made indicating as a minimum: Aircraft S/N \_\_\_\_\_ has been inspected in accordance with procedure TSC 3507, Rev. C, 4/5/10 and found to be free of cracks. In the event that a flaw is detected, describe flaw in detail (see above) with sketch as needed and contact the AMOC holder for FAA/DER disposition.

**FIG. 1**



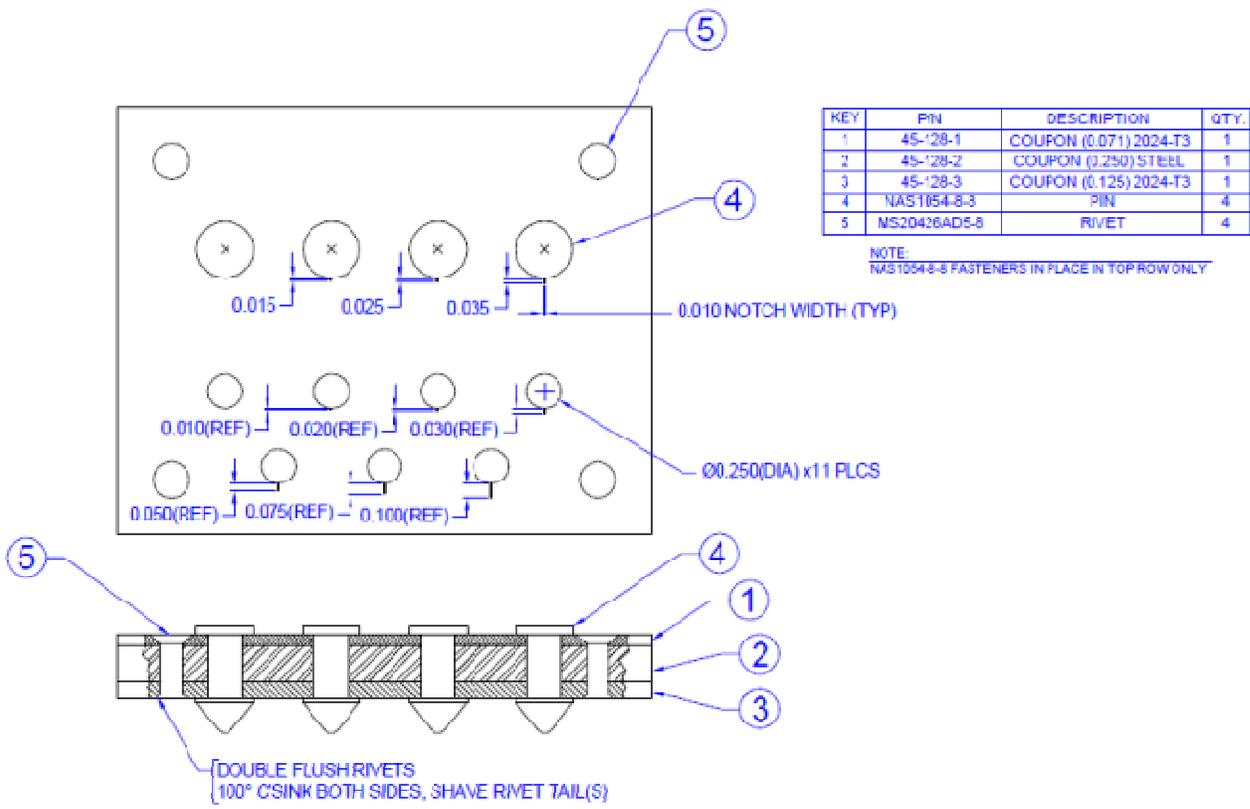


FIGURE 2: Detail of GAMI P/N 45-128