

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 Surface Eddy Current Inspection
Procedure No. TSC 3505, Rev. B, dated 3/31/05**

Purpose: The purpose of the inspection procedure is to reveal cracks emanating from ¼” diameter Hi-Shear fastener holes in the innermost “C” channel of the Main Spar Carry-through Structure.

Description of Area to be Inspected: (Ref: Fig. 1) The area to be inspected includes the inside surface of the innermost “C” channel P/N 410215-31 immediately surrounding each of the nine Hi-Shear fastener heads (four places, 36 total) and adjacent area as noted.

Accessing Area to be Inspected: 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. The area to be inspected is accessed through the open area of the steel wing attach fitting of the main spar carry through structure.

Cleaning/Preparation of Area to be Inspected: Thoroughly flush and clean area to be inspected with solvent (acetone or equivalent) as required until no signs of dirt, grime or oil remain. Surface to be inspected shall be smooth and corrosion-free. Use small adjustable mirror for visual inspection of cleanliness and inspect for any visually detectable cracks around fastener heads. It is not necessary to remove the primer to conduct the surface eddy current inspection. Minor surface corrosion on heads of Hi-Shear Fasteners is acceptable. In the event significant surface corrosion of -31 channel is noted, strip paint and sand lightly to reveal extent of corrosion. Remove any residual stripper from area prior to further inspection. An ultrasonic thickness tester may be used to determine if material thickness has been compromised. Any noted loss of thickness due to corrosion below material thickness tolerance is cause for rejection of the structure.

Equipment Requirements: Nortec Stavely 2000D Impedance Plan Eddy Current Tester or equivalent., Probe = 100-500 Khz, shielded, absolute , .071 diameter (maximum), right angle, pencil style, surface probe, 5 ½” long, ½” drop or equivalent.

Reference Standard Requirements: The eddy current reference standard to be used is GAMI P/N 45-128 per attached drawing. Use .025” notch (beyond head) 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 area, perform the inspection and document the results will require approximately 4 manhours.

Methods: The spar make-up has .250 thick steel on the back side of the .071 aluminum channel. At this range of frequency, 100-500 KHz, the eddy current does not penetrate the .071 through to the steel on the back side. Typical Set-up parameters are: Frequency – 350 KHz, Gain Vert – 75 dB, Hor. – 69 dB, Drive-Mid, Filters- Lo Pass- 30, Hi Pass – 0, Lift off- Horizontal to the left. These may be adjusted as required. The most reliable indication (minimum of 1-1/2 to 2 graticules) of the smallest observable flaw in the coupon occurs from the notch extending .025” past the edge of the nominal fastener head (total notch length of .101” from the edge of the nominal hole).

Accept/Reject Criteria: Any repeatable flaw indication is cause for rejection in accordance with this procedure. For possible indications less than seen with the .025 calibration notch, fastener may be removed to expose area under head and surface scan repeated. As an alternative, bolt hole, rotating probe eddy current may be used to verify potential findings. Use procedure TSC 3507 for rotating probe inspection.

Documentation Requirements: Record inspection findings on Form No. TSC F405 and in aircraft logbook. Maintain the Form No. TSC F405 in the permanent aircraft records. Following a successful (no flaw indications found) inspection, an aircraft logbook entry should be made indicating as a minimum: Aircraft S/N _____ has been inspected in accordance with procedure TSC 3505, Rev. B, 3/31/05 and found to be free of cracks. In the event that a flaw is detected, contact the AMOC holder for FAA/DER disposition.

