Recent Incidents of HEWABI

Eric Chesmar
United Airlines
EXAMPLE #1

- June 16, 2015
- DIA
- Witnesses reported vehicle contact with 787
• View looking aft
• Contact made by rubber tube covering railing
• View looking up
• Contact made by rubber tube covering railing at red arrow
• View looking up
• Rubber scuff on surface
• Mechanic check per AMM chap 05 requirements
• Ramp Damage Checker shows acceptable
EXAMPLE #2

- During the same incident the aircraft was pushed hard enough that it pivoted around the landing gear and Door 1L contacted the jet way
- SRM Damage Assessment chapter requires NDT
• C-scan NDI of Door found “anomalies” – the dark areas around fastener holes (red circles)
• SRM does not identify these
• Drawing not accessible by airline
• NDT manual unclear for pass/fail criteria
• Inspectors unable to find acceptable so the OEM was contacted to confirm signals are acceptable
• Close up of Ultrasonic C-scan image: Dark areas around fastener holes (red circles)
• **EXAMPLE #2: Runway Debris thrown by engine**

  • Engine test was performed over soft asphalt resulting in about 3 or 4 cubic feet of asphalt hitting the 777 Horizontal Stabilizer and Tailcone
  • Damage found to fiberglass panels, Tailcone, and Elevator.
  • Gouges found on Horizontal Stabilizer skin
    – Depth about .015 to .020” deep, including paint
  • SRM has limit for allowable gouge of “1 ply”
    – No instruction for mandatory NDT
  • Performed C-scan ultrasound inspection and found a disbond.
  • Contacted OEM for repair
  • Repair was to install fasteners
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CONCLUSIONS

• Compliance to manuals is stressed for all steps in assessment and repair. Poor manuals leads to uncertainty and extends time out-of-service
  – During Damage assessment:
    • Pre-flight for walk-around checks
    • SRM chapter 51 for Damage Assessment, Heat, Defects types
    • AMM chapter 5 for non-routine checks
    • NDT Manual for general and part specific instrumented inspections
  – During Repair: SRM used for Allowable damage, identification of plies, and repairs
    • Allowable damage should always be in measurable metric, like “inches” and not “plies”
    • Specify during Damage assessment does not include paint or other non-structural layers.
  – During Inspection - NDT manual
    • When NDT is needed, SRM/AMM should be clear - “You must perform NDT.”
    • Allow use of undamaged areas of structure as reference standard
    • Clear pass/fail criteria, using measurements and not number of plies
    • Use industry accepted Reference Standards when applicable to structure, such as published by CACRC/SAE: ARP5605, ARP5606
  – Drawing access is needed for details and configurations not covered by SRM
• PSE and FCBS structure require FAA-approved documents
  – Engineering opinion on acceptability not sufficient
  – All documents – NDT manual, SRM, etc. – must have detail
  – Manufacturing allowable defects not usually included in the SRM Allowable, but can be found with visual and NDT inspections
    • Allowable Damage covers in-service and environmental damage: cracks, disbond, dents, gouges, etc.