

JAMS CECAM

NDI – Better Tools and Techniques

ISSUE – Interpretation of “A” Scan results

DESCRIPTION

- Inspecting for delaminations, voids and around potting
- Applies to solid laminates and face sheet to core
- Difficulty defining extent of discrepancies
- Subjective by the Operator
- Potting can use X Ray as confirmation (safety concerns)

FAA/JAMS Research

- Develop a catalogue of Standards
- Build Specimens with and without damage
- Establish wave form and gain patterns for correlation

ADVANTAGES

- Reduces amount of rework and retest
- Confidence in NDI “Results”

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LIGHTNING PROTECTION

ISSUE – Small changes in structural configuration result in repeat testing

DESCRIPTION

- Phosphor Bronze OML/Aluminum flashing IML
- Results can be affected by paint thickness, ply thickness, core density, curvature

FAA/JAMS Research

- Conductivity testing methodology to establish equivalency (and adequacy) of lightning protection

ADVANTAGES

- Reduces repeat HIRF/Lightning testing following small changes
- Provides a more uniform lightning protection solution

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IMPROVING ANALYTICAL TOOLS

ISSUE – Error sources for Finite Element Modeling of Sandwich Structure

DESCRIPTION

- Currently a process exists for taking geometry data from CATIA solid to Viper and CATIA solid to FEM
- Property Card data must be input by hand to FEM
- Labor intensive particularly with wrapping of plies
- Extra caution required to avoid errors in areas where multiple plies or doublers have been combined in CATIA

FAA/JAMS Research (Software)

- Need to have more generalized method for importing material property cards into the FEM mesh

ADVANTAGES

- Reduce errors, more efficient evaluation

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TEST INSTRUMENTATION

ISSUE – Embed instrumentation during build process

DESCRIPTION

- Currently add strain gages, sensors locally after manufacture
- Measure displacements, strain
- Specific areas may need more detailed instrumentation, hard to access after built
- Embedded Instrumentation must survive the build process

FAA/JAMS Research

- Need to have the ability to embed instrumentation into critical areas of concern
- Eliminate wiring
- Continue to develop Aramis photogrammetry system for full scale test articles

ADVANTAGES

- Allows detailed correlation of test with analysis in any part of a structure