Course A-350
A350 Composite Rework Course

Course Summary

This course is designed exclusively for Airbus technicians, supervisors, inspectors, and others directly involved in repairing manufacturing defects or damage that has occured in production. The curricula is also applicable to general damage repair methodologies for field repairs.

Introduction

The A350 Composite Rework Course includes classroom instruction in composite materials and process fundamentals, as well as applied lessons in structural repair in the lab or on the shop floor. The goal is to create a high level of student competence when tasked with composite rework and repair, suitable for airworthiness.

Topics

Key Lecture Topics:

- Introduction to advanced composite materials/structures.
- Resin/adhesive systems: thermosets vs. thermoplastics, mix ratios, viscosity, service temperature limits, cold storage requirements/shelf life limits, pot life, etc.
- Material Forms: dry cloth and wet resins vs. prepregs, weave/styles, etc.
- Fundamentals of Fabrication: prepreg cloth handling, ply orientation, etc.
- Cure cycles and rheology of thermoset resin systems during cure.
- Repair design considerations and determination of proper approach.
- Repair of lightning strike protection (LSP) materials.
- Bagging techniques for actual parts with limited vacuum integrity.
- Proper thermocouple placement and heat blanket selection criteria.
- Programming and use of portable process controllers (hot bonders).
- Identifying and responding to heat blanket and thermocouple problems.

Workshop Exercises:

- Panel layup using prepreg carbon uni-tape materials; symmetric and asymmetric laminates.
- Vacuum bagging using non-autoclave bleeder/breather schedules.
- Use of repair instructions and determination of repair approach.
- Damage identification and assessment.
- Damage removal and taper-scarf preparation.
- Core removal and replacement in sandwich structures.
- Repair scarfing: including on actual or mock aircraft part surfaces.
- Repair layup: adhesives, repair plies, LSP, etc.
- Cure programming and monitoring using portable process controllers (hot bonders).

Course Benefits

Graduates will have the competency to perform airworthy structural and non-structural repairs to composite aircraft structures.

Prerequisites

None

Teaching Method

Classroom presentations and practical hands-on workshop exercises.

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