

## Aircraft Cabin Interior Repair

This course complies with parts out of the SAE-CACRC, EASA standards.

This course is a Training 'level 2-3' Aircraft Cabin Interior Repair course, how to repair cabin Interior composite parts and to install and to remove fasteners.

It is designed to meet the requirements of a wide range of participants/technicians from beginner to intermediate technician who want to have a better understanding of the repair of a wide range of Aircraft Cabin Interior composite parts.

EFC Course ID : TECH-023

Nr. of days: 5

### Advised pre-requisites

EFC [TECH-001](#) Basic course or equivalent level. Please contact us to access your level

### Participants

Personnel of technical departments having none or some experience in repair off Aircraft Cabin Interior Fiber-Reinforced parts and wanting to gain a better understanding of cabin interior composite part repair and the materials and processes u.

### Number of participants

Minimum required 2 and maximum 12 per course. The courses will be confirmed as running by EFC as soon as sufficient applications are received!



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## Objectives

To provide participants with the theoretical knowledge and Hands-On practical skills necessary to carry out the essential repair of Aircraft cabin interior composite parts.

At the end of the course the participant:

- Must be able to work independently with minimum supervision
- Must be attentive to details
- Can work according to Safety regulations and recognise hazardous situations & materials
- Can work with the OEM manuals in the repair of Aircraft cabin interior parts
- Knows material properties and is familiar with "Handling & Storage" of frozen materials
- Knows how to work with dry glass fabric and liquid Epoxy resin to impregnate wet in wet (Wet Lay-Up)
- Can apply for damage assessment plan work and work as planned
- Can find steps of repair to be taken in the Aircraft type related OEM manuals for interior parts
- Can apply fundamental vacuum bagging, bleeder & breather concepts
- Can repair Glass fibre single/double curved panels with Nomex<sup>®</sup> honeycomb and foam core
- Performs necessary 'Wet Lay Up' cosmetic repairs in sandwich panels from the inside to outside
- Can apply Tedlar /wallpaper
- Must be able to understand criteria as written in the SAE- CACRC AIR 4938 and Composite Glossary document.

## Course content theory

*(Level 1,2)*

- Health and Safety (MSDS)
- Composite interior repair of laminates and honeycomb sandwich panel with thin skins
- Materials: Dry fiber cloth and weave styles, wet resin impregnation and squeeze out, adhesives, potting compounds and honeycomb core types and density
- Fundamentals of fabrication: dry cloth and pre-preg handling, ply orientation, layup procedures, vacuum bagging techniques
- Introduction and use of OEM manuals per Aircraft type for cabin Interior parts repair
- Resin, adhesive systems: thermosets vs mix ratios, viscosity, service temperature limits, cold storage requirements/shelf life limits, pot life, etc.
- Material Data Sheet (MDS) reading to determine Open time, Shelf life, and material Cure cycles
- Composite awareness & reporting damage incidents
- Minor Damage assessment, dents scratches and others
- Sanding techniques for thin laminate skins, scarf angels, repairs
- Installing & removing installed fasteners like threaded inserts, bushings
- Installing Heli-coil threaded inserts
- The upholstery of interior parts and pattern making.



## Workshop exercises

(Level 1-2)

- Participants shall intensively be monitored while repairing Aircraft cabin Interior sandwich I using various ply lay-up directions. Lay-Up of vacuum materials and perform vacuum leak checking and curing
- Health and Safety (MSDS)
- Work with the content and use the information of the SAE-Int ARP documents
- Composite interior repair of Aircraft Cabin Interior honeycomb sandwich panels with thin skins such as side wall panels, ceiling panels stowage units, overhead luggage bins and cabin floor panel repair
- Materials: dry fiber cloth and weave styles, wet resin impregnation and squeeze out, adhesives, potting compounds and honeycomb core types and density
- Fundamentals of fabrication: dry cloth and pre-preg handling, ply orientation, layup procedures, vacuum bagging techniques
- Introduction and use of OEM manuals per Aircraft type for cabin Interior parts repair
- Resin, adhesive systems thermosets vs mix ratios, viscosity, service temperature limits, cold storage requirements/shelf life limits, pot life, etc.
- Material Data Sheet (MDS) reading to determine Open time, Shelf life, and material Cure cycles
- Composite awareness & reporting damage incidents
- Minor Damage assessment, dents scratches and others
- Sanding techniques for thin laminate interior part skins, scarf angels, repairs
- Determine ply directions in thin laminated Glassfiber, laminates by sanding.
- Introduction to oven and Hot Bond repair consoles and their equipment.
- Performs necessary 'Wet Lay Up' cosmetic repairs in sandwich panels from the inside to outside
- Installing & removing installed fasteners like threaded inserts, bushings
- Apply Tedlar/wallpaper patches and panels by heat forming
- Bonding of ABS seat covers by dissolving technique

## Examinations

- Multiple choice questions from each of the teachings Level 1-2
- Successful completion is 75% correct answers
- The examination will be closed book and can be conducted by a Part 147 approved Examiner upon request
- The practical mark will be the average of all marks gained from the practical exercises
- All grades will be recorded in the participant individual training records and kept on record at EFC for unlimited time (compliant with Reference EASA Commission Regulation (EU) No 1321/2014) and the GDPR rules
- A certificate of accomplishment is handed out to each participant
- Assessment activities are built into our courses, to give feedback on the achievement and personal potential and kept a record in their personal logbook.



- The final outcome of the participant's Examination, assessment document and logbook per student will be digitally sent to your company responsible manager or HR department.
- We also comply with the European [GDPR rules](#) as effective on May 25th, 2018 concerning storage of private information of participants who attended our courses.

## Course run on site and at special request

- For your company to benefit, this course can be held 'On-Site' at your facility under certain conditions.
- Click on this link to the [Onsite information webpage!](#)
- Courses as noted on our [course schedule page](#) can be run on request to meet your required start and end date.

## Course pricing

All listed course prices are **Excl VAT**. (Dutch VAT is 21%). EFC complies with Dutch tax laws. On request, companies can be sent an invoice instead of paying direct On-line with PayPal, IDEAL or credit card. Payment is securely arranged via Mollie.nl . More information can be found on [the website of Mollie](#).



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### Vacuum Valves/ Vacuum Sniffers



Smart vacuum Valve/Ports for a curved surface  
In the images shown the vacuum valves/ports are fitted with standard quick connect couplings.

These quick connect standard couplings are not supplied with the vacuum valves/ports. They merely serve to show the connectivity options. These conventional couplings, male or female type, are available at many vacuum equipment suppliers. EFC can deliver them to you if required.

Contact us by email at [info@efcomposites.com](mailto:info@efcomposites.com)  
These Vacuum ports/valves are specially designed and patented by EFC owner Bert Groenewoud  
Tha can be used use with Hot bonders, in ovens, autoclaves on flat and curved surfaces.

Visit our [webshop](#) for more information!

### B- Aluminium tap hammer



The B- Aluminium tap hammer, is used to detect delamination (separation of plies) and dis-bonds from the core in advanced composite structures.

This tap Hammer is a must have, for Composite Repair Technicians, Composites certifying staff Composite engineers and Quality inspectors to perform a correct damage assessment in thin laminates and metal bonded parts!

It is fabricated to OEM standard drawings and sizes and anodized for a better protection of the material. The material used is Alum type EN\_AW\_ 6082-T6  
let us know if you want to order the B-tap hammer in larger quantities and ask us for a quotation  
Coming soon; A tap-hammer lanyard with a B-tap-hammer plastic click-in holder

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