

## Advanced Composite Repair (Stage III)

All EFC courses comply SAE-CACRC, AIR 4938 and EASA standards.  
This course is our Hands-On TOP 'level Stage III', course as a follow-up for our [TECH 010, \(Stage II\)](#) and is meant for personnel of technical departments who want to acquire the knowledge and skills for this upper level of Aviation and Aerospace composite repair.

EFC Course ID : TECH-010

Nr. of days: 5

### Advised pre-requisites

[EFC TECH-001](#)-(Stage I): Basic of Composite fabrication &Repair (Stage I)  
[EFC TECH 010](#)-(Stage II): Intermediate of composite repair course (Stage II)  
Or equivalent level. Please do [contact](#) us if you want to access your equivalent level

### Participants

Personnel of technical departments who want to be a Composite Repair technician who has a full understanding of, in-depth skills in Advanced Composite Repair, damage assessment and will be able to repair single and double curved damages following the OEM Structural Repair Manuals.

### Number of participants

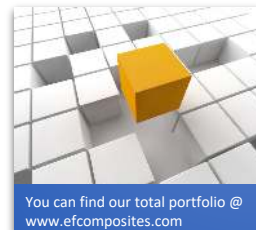
Minimum required 2 and maximum 8 per course. The course will be confirmed by EFC as soon as sufficient applications are received!

### Objectives

At the end of the course the participants:

- Must be able to work as a team but also independently with minimum supervision
- Must be attentive to details
- Will work according to Safety regulations and can recognise hazardous materials & situations
- Can read and understand OEM Ply-Lay-Up drawings
- Will have the utmost in-depth understanding of vacuum bag techniques
- Will have advanced knowledge of materials and their properties

*(continued on next page)*



- Has the excellent practical hands-on experience in taper sanding with various taper ratios and variations in overlaps as required by the OEM
- Can recognise, cut, sand and remove different honeycomb core materials
- Knows how to use and program, monitor different Heat systems for curing
- Knows how to fabricate one-of composite repair tooling
- Can use drill guide, pre-drill and drill holes in edge bands of composite panels with drill fixtures and bushings
- Can build a Quick repair support doubler and a part using Heat systems
- Must be able to understand criteria required in AIR 4838 (Latest revision)

### Course content theory

- O.E.M. Comparison of manuals and other necessary documents
- O.E.M. Advanced Ply Lay-Up/blueprint reading and interpretation
- O.E.M. Additional Repair manual Damage assessment and record keeping documentation and photography
- Composite awareness & damage incident reporting
- Composite Materials & processes
- Surface prep & different repair type assessments and composite faster removal
- Composite fastener hole drilling
- Use of Hot-Bonding equipment, and Pro's and Con's of varying heating devices
- Application of Quick Repair Tooling
- Vacuum support technique on repair area single side repairs
- Safety

### Workshop exercises

*(Level 3)*

Participants will be daily intensively, individually monitored and evaluated by the instructor while repairing their individual parts! Participants will fill in their personal logbook daily which is signed of by the instructor(s)

The participant will be able to:

- perform Damage assessment by inspection and photography and have to keep a record
- prepare a Quick support Tool, cure it at low temp and apply release agent to it
- perform vacuum leak checks on every repair, keep a record of it
- make use of different types of heating equipment
- apply the 'Felt part support technique' for repair
- prepare surface and repair steps and determination of working order steps
- prepare a support doubler (Tool) on a damaged part
- make a repair doubler next to the damaged area on an existing part
- attach a doubler with adhesive and composite fasteners on an existing panel and cure
- perform a post-repair inspection on all repair and keep a record
- program & monitor Hot bonding equipment, change programs and parameters during a high temp. cures.



## 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 practical 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.

## Leipzig, Germany

This course can also be held on our new location nearby Leipzig Airport, Germany. Here we use classrooms and practical workshop in the HEICO Aircraft Maintenance Part 145 facility. We can run this course on a course start date of your choice.

Please contact our purchasing manager [Rolf Hovener](#) via his personal page on the website of Eart & Flight Composites: <https://www.efcomposites.com>.

## 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](#).

Mollie





Did you already visit our webshop?

### 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

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

