NCE North Composites Engineering

Aeroskills

Specialists in aircraft structural composite repair training, support services and equipment supply.

- World class specialist provider of composite training North Composites Engineering (NCE) incorporating Aeroskills International provide composite repair and the latest metal to metal bonding training to the aircraft composite sector.
- Our courses provide the practical skills and development to enable staff to work directly on aircraft repair after course completion.
- We comply with the training requirements to validate the CAA licence with regard to composite repair.
- We are specialist BAE Systems approved trainer for military aircraft composite repair courses.
- Our services include active repair, project management, specialist advice, plant and equipment specifications to comply with productivity and safety requirements.

Specialist Aircraft Structural Repair Training

We provide industry trusted essential aircraft structural repair training for repairers, inspectors, approvers and design authority personnel from novice to experience practitioners to maximise compliance with aircraft SRM requirements.

Our customers are positioned globally and consist of most of the Tier 1 and aircraft maintenance companies and include companies such as Rolls Royce, Safran, BAE, Solvay, GKN, Bombardier, KLM and British Airways. We deliver courses that suit all aircraft types from Lear jets to the latest wide-bodied airliners. We are recognised by BAE Systems due to our significant contribution to their services and customers with quality management approvals.

Our scheduled courses are offered throughout the year, in addition we also offer tailor made courses to customers' specifications. We will actively work with your company to introduce specific challenging aircraft repairs into our training activities to provided added value and can supervise your ongoing in-house training and development activities.

Our aircraft courses comply with the requirements of AT 104 class IV specification. Our courses and trainers meet the requirements of the CAA and Tier 1 aircraft manufactures training recommendations for composite training and comply with J.A.R. Part147 approved maintenance training. All our instructors are professionally qualified engineers compliant at the highest grade by the Boeing advisory circular FAA AC65-33 and hold formal teaching qualifications.

We are the only recongised composite trainer to hold JOSCAR (Joint Supply Chain Accreditation Register) accreditation requiring external verification of our course and staff quality.

Aircraft Structural Repair Courses 2023

Contents

Aircraft Structural Repair Course Schedule 2023

Course Code	Title	Date	Price*
ACM01	Metal to Metal Bonding 1	27th February – 3rd March 2023 9th – 13th October 2023	£1804.00
ACM02	Metal to Metal Bonding 2	5 days dates on application	££1804.00

*All quoted prices are subject to VAT at the standard rate at the time of booking.

Re-validation/Refresher Courses for Aircraft Structural Repair - Composites and Metal Structures Civil Aircraft

The aim of the aircraft structural repair refresher courses complies with EASA continuation training requirements. if you have a gap in aircraft structural repair activities of 9 months or a period of 24 months has passed since your original training, we offer the following 2-day courses.

- **ACM01 Metal to Metal Bonding 1 refresher course ACM01R (£880+VAT).** Within this course we will implement a skin and damaged core repair to consolidate the methods of combining a range of anodising techniques.
- **ACM02 Metal to Metal Bonding 2 refresher course ACM02R (£1045+VAT).** Within this course we will implement a repair to a prior repaired through damage location and consolidate damage allowable

Specialist and Bespoke Courses

Bespoke courses can be specifically tailored to your own requirements please call to discuss your needs; training can be arranged on a one to one basis or for company based groups. Bespoke courses are individually priced following discussion of requirements and include trainer related expenses.

Specialist approved restricted Military Aircraft courses are available upon request, if you are involved in the repair of military aircraft please contact us to discuss our approved courses and your requirements.

Safety Wear

- All course fees are per delegate per course and include provision of materials, tools, protective clothing (excluding footwear) course hand-outs lunch and refreshments.
- Delegates must wear full length trousers and closed leather shoes or safety footwear as appropriate to the course.
- All courses incorporating a practical element require safety footwear.

Safety Footwear
Must be worn

Course Descriptions

Course Title: Metal to Metal Bonding

Course Code: ACM01

Duration: 5 Days

Course structure: 20% theory, 80% practical

Who is it for: This course is intended for those members of staff who will be carrying out bonded repairs on metallic aircraft structures. It will give them sufficient knowledge to be able to complete the repair to approved aerospace standards. No previous knowledge required.

Course content

The emphasis of the course is on developing the practical skills necessary to carry out metal-to-metal bonded repairs on metallic structures in accordance with published manufacturers' structural repair manuals. The theoretical content allows the delegate to produce quality repairs using the correct materials and procedures and to work safely.

The techniques used are those currently recommended in manufacturers' structural repair manuals and emphasis will be placed on strict adherence to these procedures. The importance of quality assurance is stressed through-out with particular attention paid to quality control by adopting good practices throughout the repair procedure.

The course content has been devised to convey the latest accepted techniques for metal-to-metal bonding.

The course aims:

- To familiarise the delegate with the materials and techniques used to repair metallic structures using bonding techniques.
- To provide the delegate with the knowledge to satisfy the appropriate health and safety requirements.
- To equip the delegate with the knowledge and practical skills required to carry out sound and effective repairs on metallic aircraft components, according to the methods recommended and accepted by the aircraft manufacturers.
- To provide the delegate with the skills necessary to carry out surface anodising using the phosphoric acid non-tank method (P0ANTA).
- To introduce the delegate to the phosphoric acid containment system (PACS) for aluminium anodising as specified by Boeing.
- To provide the delegate with the skills necessary to carry out the sol-gel (Boegel) process for aluminium conversion as specified by Boeing.
- To provide the knowledge required to interpret standard structural repair manuals and to relate them to a given repair situation.

- To satisfy all the relevant quality assurance requirements.

The course covers:

Delegates will be introduced to the fundamentals of metal to metal bonding and the reasons that it is becoming more widely used and adopted.

The safe and correct use of epoxy resins will be covered along with vacuum hot bonded cure. Delegates will learn the correct methods of bagging up repairs and programming cure cycles. Health and safety issues will be addressed throughout.

The reasons for surface anodising will be addressed, delegates will utilise various surface preparation methods for surface anodising. The will have the opportunity to anodise with a combination of tank and non-tank (PANTA) anodising methods along with the effective use of Sol-gel (Boegel) process for alluminium conversion as specified by Boeing.

An introduction to the use of film adhesives will be followed by practice in the use of effective vacuum hot bonding.

Delegates will be shown how to assess the success of the anodising process using reflected polarised light.

The poultice method of PANTA will be demonstrated and the delegates will carry out metal-to-metal bonding using the poultice PANTA method and a hot bonded film adhesive cure.

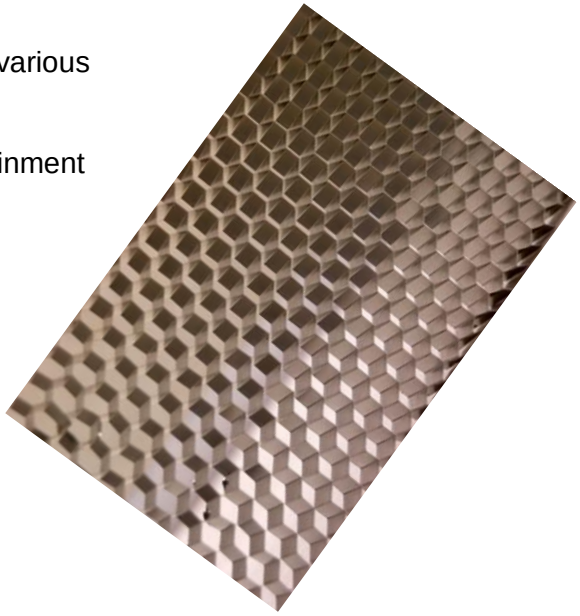
The relevant sections of manufacturers' structural repair manuals relating to metallic repairs will be analysed in detail.

Delegates will be introduced to the sol-gel (Boegel) surface conversion method for preparing aluminium alloys for bonding.

Delegates will perform a metal bonded repair on a metal skinned honeycomb cored component using the SRM and appropriate techniques. Delegates will perform dent and crack evaluation and repairs, they will also perfom skin repairs and a variety of core repairs both single sided and through penetrating.

Continuation of component repair and comparison of the various manufacturers’ repair methods.

Delegates will be introduced to the phosphoric acid containment system (PACS) for surface anodising.



Course Title: Metal to Metal Bonding 2

Course Code: ACM02

Duration: 5 Days

Pre-requisite: ACM01 Metal to Metal Bonding 1

Course structure: 20% theory, 80% practical

Who is it for: This progression course is intended for those members of staff who will be carrying out bonded repairs on metallic aircraft structures. It will give them sufficient knowledge to be able to complete the repair to approved aerospace standards together with completing repairs which are outside the SRM, enabling the repair of damage which has occurred to an existing repair. Delegates will have completed ACM01 Metal to Metal Bonding 1 prior to commencing the course.

Course content

This course is designed to address metal to metal and metal to composite bonded repairs. The repairs addressed will be within the boundaries of the structural repair manuals (SRM)s and will address the procedures to take and how to complete repairs which are outside the SRM requirements. Familiarization and compliance to such procedures is the central focus to equip the technician with the skills to perform repairs utilising good practice bonding methodologies.

Various damage scenarios will be presented including, but not limited to, damage to: edge/s, corner, bolted locations with the application of repair triple septons. Delegates will also be introduced to the practices and methods to use when dealing with repairs to areas which have an existing repair and addressing and/or restoring unsuccessful damage repairs.

The emphasis of the course is on developing the practical skills necessary to carry out metal-to-metal and metal-to-composite bonded repairs on metallic structures in accordance with published manufacturers' structural repair manuals. The theoretical content allows the delegate to produce quality repairs using the correct materials and procedures and to work safely.

The techniques used are those currently recommended in manufacturers' structural repair manuals and emphasis will be placed on strict adherence to these procedures. The importance of quality assurance is stressed through-out with particular attention paid to quality control by adopting good practices throughout the repair procedure. The course content has been devised to convey the latest accepted techniques for metal-to-metal and metal-to-composite bonding.

The course aims to:

- To provide delegates with the knowledge and confidence to undertake challenging repairs they will encounter.
- To provide the delegate with the knowledge to satisfy the appropriate health and safety

requirements for processes and material used in repair.

- To enable delegates to identify the correct materials, techniques, tooling and equipment to utilise for a given situation.
- To equip the delegate with the knowledge and practical skills required to carry out sound and effective repairs on metallic aircraft components, according to the methods recommended and accepted by the aircraft manufacturers.
- To provide the delegate with the skills necessary to carry out effective surface anodising using a combination of anodising techniques.
- To provide the knowledge required to interpret standard structural repair manuals and to relate them to a given repair situation and when required implement successfully repairs which have been defined outside repair allowable.
- To satisfy all the relevant quality assurance and NDT requirements.

The course covers:

Delegates will be introduced to the required methods of progressive repair utilising a variety of bonding metals and core densities based upon effective thermal balance to implement a series of progressively changing repairs.

Delegates will undertake structural repair to cellular systems on both aircraft structures and decking.

Delegates will have the opportunity to repair a corner and a leading edge.

Delegates will perform a variety of repairs septum repairs to cores and critical areas where a load platform exists which result in a triple septum repair.

Delegates will repair an unsuccessful structural repair and consider the implications of repair proximity.

Core Filling using paste techniques and edge band techniques will be demonstrated. Delegates will learn the correct methods of bagging up repairs and programming cure cycles.

Health and safety issues will be addressed. Various surface preparation methods will be investigated.

Delegates will be shown how to assess the success of the anodising process.
The issues of bonding aluminium honeycombs to a composite skin together with a repair will be reviewed on sandwich panels with and without acoustic inclusion.

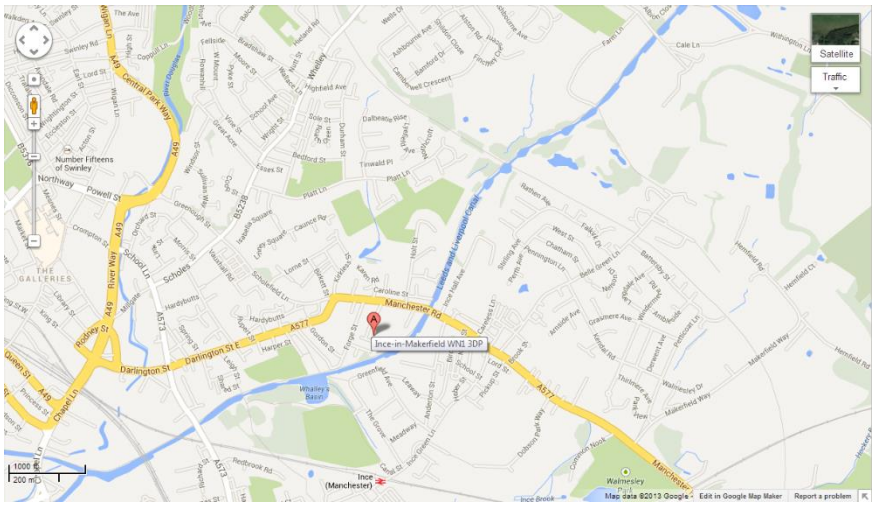
The delegates are encouraged to take our hotbonder certification course as required by the CAA. However, we will provide knowledge of hotbonder use for repairs on the course and the safe handling of materials utilised, along with vacuum hot bonded and oven cure and associated procedures.

We are also happy to either introduce specific customer repairs or components into this course or convert its structure to a bespoke course to match the needs of our customer, by

prior discussion.

Location and contact details

We are located within 1 mile of Wigan town centre and 22 miles from central Manchester.



By Car

We are located close to the main M6 motorway for north and south bound carriageways. From Manchester we are off the M61 at junction 5. Follow signs for Wigan when leaving the motorways.

North Composites Engineering Ltd
Unit 8 Rosebridge Court
Rosebridge Way
Ince
Wigan

Sat Nav location

WN1 3DP

Rail Link

We are easily accessed by rail link with Wigan North Western and Wigan Wallgate stations are only 1.8 miles away and Ince rail station is 0.7 of a mile away all have links to Manchester Piccadilly Station.

Contact Details

For further details of our other courses and service or to reserve a place please contact us on:

Phone: +44(0)1942 665292

Email: info@aeroskills.co.uk

Hotels and accommodation close to North Composites Engineering.

Premier Inn Wigan Town Centre
Harrogate Street,
Wigan, WN1 1BL
Contacts
T: 0871 527 9502
F: 0871 527 9503

Part of the premier inn group, approx. 2.4 miles to NCE

Premier Inn Wigan
Warrington Road,
Marus Bridge,
Wigan,
WN3 6XB
Contacts
Tel: 0871 527 9164
Fax: 0871 527 9165

Part of the premier inn group, approx. 3.1 miles to NCE.
http://www.premierinn.com

Macdonald Kilhey Court
Chorley Road,
Standish
Wigan
WN1 2XN
Contacts
Tel: 0844 879 9045
International: (+44) 1257 472100

4 star hotel located just outside Wigan, approx. 6.7 miles to NCE
http://www.macdonaldhotels.co.uk/our-hotels/macdonald-kilhey-court/