Welding/Brazing/Bonding & Riveting AOM030

This module ensures the technician has the knowledge, skills and ability to carry out replacement of a welded section within the construction of a vehicle bodyshell.

The technician will be required to cut a specified section from a welded panel (i.e. a sill section) without causing damage to other vehicle systems or the vehicle structure.

The technician will cut a section from a new panel and replace the section into the vehicle body using techniques such as spot welding, MAG welding, MIG braze and bonding and riveting. The technician must be able to 'dress' the welds to a finish where the repaired section is ready to accept body filler to a depth of no more than 2mm.

The technician must access the correct repair information / specification and use this information to carry out the repair to the vehicle bodyshell.

Note: this exercise may be carried out on a rig or similar device but the competences required will be similar to those used when repairing a vehicle bodyshell.

The senior technician should be working in the accident repair sector and must have at least three years' experience to ensure they are familiar with the skills, knowledge and techniques required to repair and replace body components, such as vehicle body panels and their associated parts

Skills Requirements

The technician must demonstrate their skills and ability to:

- Use appropriate Personal Protective Equipment (PPE)
- Use appropriate Vehicle Protection Equipment (VPE)
- Consult, use and understand approved researched repair methods, manufacturer's technical data and material safety data sheets
- Use the correct tools and equipment throughout the cutting, welding and bonding / riveting of the panel section
- Accurately remove a section of panel to a prescribed specification without causing damage to the vehicle / integrity of the structure and the receiving panel flanges
- Clean and prepare a new panel section and receiving panel weld sites
- Prepare surfaces for bonding and riveting to ensure all joints are permanent
- Correctly prepare riveted areas ensuring the appropriate size drill bit is selected and all holes de-burred
- Apply weld-through corrosion protection to welded areas
- Set-up the MIG and MAG equipment including: wire type, wire speed, gas type and gas flow, welding tip, gas shield nozzle and voltage
- Produce a test weld to correct specifications prior to carrying out welding to the new panel section

- Set up spot welding equipment including arms, tips, tip pressure, power and timer
- Produce sample spot welds appropriate to the repair type. i.e. 2 skin, 3 skin etc.
- Assess the sample welds for nugget size, heat zone, defects and peel test
- Identify bonding materials including agents / applicators and confirmed materials are within the usable date(s) identified by the manufacturer
- Apply bonding adhesive and bonding agents to the material as determined by the product manufacturer
- Correctly apply rivets to all specified bonded areas
- Refit a new panel to the existing panel without causing damage to the vehicle structure and/ or systems
- Make adjustments in order to achieve the correct alignment
- Clean off any excess adhesive and bonding agent
- Identify working times, curing times and vehicle movement time provided by the product manufacturer
- Store and dispose of bonding adhesive, bonding agent and packaging after use in line with legislation and Health and Safety requirements
- Complete all spot, MAG and MIG welding joints to specified requirements
- Assess the condition of all welded and bonded joints
- Clean and dress welded joints to 50% ground 50% cleaned
- Prepare surface(s) of the panel(s) to accept filler
- Carry out final quality checks and alignment of reassembled components (including visual and destructive weld tests – split adjacent to MAG weld / MIG braze)
- Take appropriate care throughout the assessment
- Use safe working practices throughout the assessment