Assessment Requirements

Unit BP14K – Knowledge of Motor Vehicle Body Panel Major Repairs

Content:

Selection and use of tools and equipment

a. The principle governing the selection and use of hand tools for metal finishing and plastic repairs.
b. The factors governing the selection and use of panel beating and hydraulic reforming equipment, including specialist pulling systems.
c. How to prepare, test, use and maintain the tools and equipment required to repair vehicle body panels.
d. How to adapt hydraulic push equipment to perform pulling operations.

Selection and use of materials

a. The types and selection of filling materials, their preparation and application:
b. The properties, types, grades and use of abrasives used in vehicle body panel repair process
c. The properties and safe use of types of filling materials used to repair panels including:
    i. plastic fillers
    ii. body solder
d. How to mix and apply plastic fillers.

Repairing vehicle bodies

a. How to prepare the vehicle to avoid contamination.
b. How to assess the extent of damage, including corrosion damage.
c. How unitary vehicle bodies and cabs are constructed.
d. The principles of resistance spot welding, gas shielded arc plug welding and gas shielded arc brazing.
e. How body panels and component damage can affect other panels and the operation of vehicle systems.
f. The factors determining the use of specific preparation and repair methods.
g. The repair and welding implications of working with:
    i. high strength steels (HSS)
    ii. low carbon steels (LCS)
    iii. aluminium alloys
    iv. galvanized coatings
    v. Boron steels.
    i. TRIP
    ii. TWIP
    iii. Laminated

h. The consequences of using inappropriate repair methods.
i. How heat can be used to assist reforming.
j. How heating can affect the properties of steels.
k. The techniques for identifying the type of plastics used for manufactured components.
l. The procedures for reinstating anti-corrosion, sealant and sound deadening materials.
m. The causes and rectification and distortion resulting from welding.
n. The manufacturers approved methods of working for the preparation and repair of vehicle body panels.
o. The specification of panel shapes, dimensions and tolerances for the vehicle worked on.
p. The type of quality control checks that can be used to ensure the correct contour and standard of finish.

q. How to interpret and use sources of information relevant to the repair of vehicle body panels and components.
r. How to prepare damaged areas to facilitate repairs.
s. How to repair corrosion damaged panels.
t. How to remove protective materials.
u. How to repair and reinstate vehicle body panel contours and components using:
    i. body filling operations
    ii. metal finishing
    iii. plastic filling
    iv. panel beating
    v. panel shrinking
    vi. hydraulic reforming
    vii. specialist dent removal tools
    viii. spot welding
    ix. gas shielded arc welding
    x. gas shielded arc brazing.
v. The techniques of reshaping damaged vehicle body panels using hand and specialist tools.
w. How to check the accuracy of reinstated vehicle body panel shapes.
x. How to finish repairs to a suitable condition for handing on to the painting stage.
y. How to work safely avoiding damage to the vehicle and its systems.

Additional Content

Repairs are: -

a. correction of severely distorted panels
b. assessing panel damage
c. splits on metal panels, using relevant joining techniques
d. fractures on plastic panels

Vehicle panels are: -

a. non-permanently fixed exterior panels
b. permanently fixed exterior panels
c. sub-structure components
    i. bonded panel
    ii. TRIP
    iii. TWI
    iv. Laminated