IMIVBR06	IMIARC07
Identify and rectify minor repairs to motor vehicle body panels	**Repair basic automotive body panels**
	Overview
This standard is about repairing vehicle body panels, both plastic and metal, using a variety of techniques , including application of filler. Surfaces must be left in a condition suitable for refinishing processes.	This unit is about repairing exterior, cosmetic non-structural body panels and panel sections using a variety of techniques.
Performance criteria	**Performance criteria**
You must be able to:	You must be able to:
P1 identify component materials involved in the construction of the vehicle in the areas that will be worked on during repair, prior to working on the vehicle	
P2 use the appropriate personal protective equipment when carrying out repairs to exterior body panels	P1 use the appropriate personal protective equipment (where applicable) when carrying out repairs to non-structural body panels
	P2 use the appropriate vehicle protective equipment (where applicable) when carrying out repairs to non-structural body panels
P3 protect the vehicle and its contents when carrying out repairs to exterior body panels	P3 protect the vehicle contents and the work area effectively when carrying out repairs to non-structural body panels
P5 use technical information to check that a repair is permissible	P4 support the preparation and repair of non-structural body panels by reviewing:
	P4.1 technical data
	P4.2 repair procedures
P4 inspect, prepare and use all the tools and equipment required following manufacturers' instructions	P5 prepare and test all the tools required, following manufacturers' instructions, prior to use
P6 carry out preparation and repairs to non-structural body panels following:	P6 carry out repairs to non-structural body panels following:
P6.1 manufacturers' methods/instructions	P6.1 the correct technique and process
P6.2 recognised researched repair/replacement methods	P6.2 manufacturer's instructions
P6.3 your workplace procedures	P6.3 your workplace procedures
P6.4 health, safety and legal requirements	P6.4 health, safety and legal requirements
P7 correctly use specialist dent removal tools to reform all damaged panels	P7 use specialist dent removal tools effectively to relieve all damaged panels
P8 restore exterior body panels to their original contours by correctly using hand tools and filling materials	P8 complete repairs to non-structural body panels so they are restored to their original contour using hand tools and filling materials effectively
P9 avoid damaging other components, **standards** and panels on the vehicle	P9 avoid damaging other components, units and panels on the vehicle
P10 correctly replace any sealer, anti-corrosion and sound deadening materials which were removed prior to the repair	P10 replace correctly any sealer, anti-corrosion and sound deadening materials which were removed prior to or during the repair
P11 ensure all plastic repairs regain the strength of the original part	P11 ensure all plastic repairs regain the strength of the original part
P12 complete repaired components to an agreed condition ready for refinishing processes	P12 pass on the completed repairs in a suitable condition for painting
P13 complete all activities within the agreed timescale	P13 complete all repair activities within the agreed timescale
P14 promptly report any anticipated delays in completion to the relevant person(s)	P14 report any anticipated delays in completion to the relevant person(s) promptly
Knowledge and understanding	**Knowledge and understanding**
You need to know and understand:	You need to know and understand:
	Legislative and organisational requirements and procedures
K1 the health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection when repairing body panels	K1 the health and safety legislation, environmental requirements and workplace procedures relevant to workshop practices and personal and vehicle protection when repairing body panels
K2 the vehicle work specification agreed	K2 the vehicle work specification agreed
K3 the importance of working to agreed timescales and keeping others informed of progress	K3 the importance of working to agreed timescales and keeping others informed of progress
K4 the relationship between time, cost and profitability	K4 the relationship between time, cost and profitability
K5 your workplace procedures for the referral of problems	K5 your workplace procedures for the referral of problems
K6 the importance of promptly reporting anticipated delays to the relevant person(s)	K6 the importance of reporting anticipated delays to the relevant person(s) promptly

K7 the requirements for protecting the vehicle and contents from damage before, during and after repair activities	K7 the requirements for protecting the vehicle and contents from damage before, during and after minor repair activities
	Tools
K8 the principles of the selection and use of hand tools for metal finishing and plastic filling repairs	K8 the principles governing the selection and use of hand tools for metal finishing and plastic filling repairs
K9 how to select the correct tools and equipment to carry out reshaping work, including specialist dent removal tools	K9 how to select the correct tools to carry out reshaping work, including specialist dent removal tools
K10 how to prepare, test, use and maintain the tools and equipment required to prepare damage and reshape damaged areas	K10 how to prepare, test, use and maintain the hand and power tools required to prepare, reshape and repair damaged areas
	Materials
K12 how to mix and apply plastic fillers	K11 how to mix and apply filler material
K11 the properties of component materials involved in the construction of the vehicle in the areas that will be worked on during repair	K12 the properties and use of metals used to manufacture body panels (including ultra high strength steels)
K13 the properties and use of metals used to manufacture body panels	
K14 the properties and safe use of types of filling materials used to repair panels	K13 the properties and safe use of types of filling materials used to repair panels
K15 the different types and grades of abrasive and their use	K14 the different types and grades of abrasive and their use
	K15 the implications of not following the correct abrasive process and its effect on the overall quality process
	K16 the implications of static when working with plastic components
K16 the techniques for identifying the type of plastics used for manufactured components	K17 the techniques for identifying the type of plastics used for manufacturedcomponents
	Repairing non-structural body panels
K17 how to interpret and use sources of information relevant to the removal of body components	K18 how to interpret and use sources of information relevant to the removal of body components
K18 how to prepare the vehicle to avoid contamination	K19 how to prepare the vehicle to avoid contamination
K19 how to prepare damaged areas to facilitate repairs	K20 how to prepare damaged areas to facilitate repairs
K20 how to repair plastic components using thermal and adhesive techniques	K21 how to repair plastic components using thermal and adhesive techniques
K21 how to rough out and metal finish body panels	K22 how to rough out and metal finish body panels
K22 how to reshape filling materials to match the original panel contour	K23 how to reshape filling materials to match the original panel contour
K23 how to finish repairs to a suitable agreed condition for refinishing	K24 how to finish repairs to a suitable condition ready for handing on to the painting stage
K24 how to work safely avoiding damage to the vehicle and its systems	K25 how to work safely avoiding damage to the vehicle and its systems
K25 the techniques for reshaping damaged body panels using hand and specialist tools	K26 the techniques for reshaping damaged body panels using hand and specialist tools
K26 the procedures for reinstating anti-corrosion, sealant and sound deadening materials	K27 the procedures for reinstating anti-corrosion, sealant and sound deadening materials
K27 the procedures for repairing damage to plastic components	K28 the procedures for repairing damage to plastic components
K28 the techniques and processes for plastic repairs	K29 the techniques and processes for:
	K29.1 plastic repairs
	K29.2 hot shrinking
	K29.3 panel pulling
	K29.4 metal finishing
	K29.5 application of filler material
	K29.6 indirect hammering
	K29.7 direct hammering
	K29.8 spring hammering
	K29.9 body filing
K29 the implications of not filling to the correct specification	
K30 the techniques used to regain the contours of repaired plastic components	K30 the techniques used to regain the contours of repaired plastic components
K31 methods of checking reshaped panel contours for accuracy	K31 methods of checking reshaped panel contours for accuracy
K32 standards of finish required to enable the next stage of repairs to proceed	K32 standards of finish required to enable the next stage of repairs to proceed
K33 the manufacturer's approved methods of working for the preparation and repair of non-structural body panels and the implications of not following them	K33 the manufacturer's approved methods of working for the preparation and repair of non-structural body panels

K34 the pedestrian safety aspects of repairability of vehicles	
K35 what can/can't be repaired for safety reasons (ADAS for example), manufacturer and industry agreed standards for these and why these standards must be adhered to	
Scope/range	**Scope/range**
All of the items listed below form part of this National Occupational Standard.	
1. **Repairs** are:	**1. Repairs include:**
1.1. body filling and finishing of flat areas of a panel	1.1. body filling and finishing of flat areas of a panel
1.2. repairs to dents that are over 70 mm in diameter in body panels, including curvature panels and swage lines	1.2. repairs to dents that are over 7 cm in diameter in non-structural body panels, including double curvature panels and swage lines
1.3. repairs to splits and scuffs on plastic components	1.3. repairs to splits and scuffs on plastic exterior trim components
2. Vehicle **body panels** are:	
2.1. non-permanently fixed panels	
2.2. permanently fixed component	
3. **Techniques and processes** are:	**2. Techniques and processes** include:
3.1. plastic repairs	2.1. plastic repairs
3.2. shrinking	
3.3. panel pulling	2.2. panel pulling
3.4. metal finishing	2.3. metal finishing
3.5. plastic filling	2.4. application of filler material
3.6. panel beating	2.5. panel beating
3.7. indirect hammering	2.6. indirect hammering
3.8. direct hammering	2.7. direct hammering
3.9. spring hammering	2.8. spring hammering
3.10. body filing	2.9. body filing
3.11. application of body filling/stopper	
4. **Tools and Equipment** are:	3. **Tools** include:
4.1. workshop equipment	3.1. panel hammers
4.2. generic hand tools	3.2. dollies
4.3. manufacturer's specified and specialist tools	3.3. body spoons
	3.4. body file
	3.5. dual action sander
	3.6. rubbing down hand blocks
	3.7. beating file
	3.8. abrasives
	3.9. mixing and sanding tools
	3.10. specialist dent removal tool