IMIVCR06

Remove complex dents and creases from motor vehicle body panels using paintless dent removal techniques

Overview

This standard is about the removal of complex dents and creases from motor vehicle panels using paintless dent removal (PDR) techniques where the process may consist of multiple stages and combinations of repair techniques. This includes flat panels, profiled sections (swage lines) and areas where access is restricted. It is also about checking the integrity of the panel prior to repair and the condition of the panel after the repair has been completed.

Note: For the purpose of this standard, drilling to gain access to effect a repair is not acceptable.

Performance criteria

You must be able to:

P1 use the appropriate personal protective equipment when carrying out PDR operations
P2 protect the vehicle and its contents effectively when carrying out PDR operations
P3 refer to appropriate sources of information when carrying out vehicle damage assessment and PDR operations
P4 identify where ADAS systems are present and may be affected by the damage and/or repair
P5 assess the area for repair to ensure that a repair can be carried out to a safe and acceptable standard using PDR techniques without compromising the integrity of the vehicle
P6 identify additional distortion on a panel caused by a primary impact
P7 identify damage on a panel where the initial impacted area is damaged by a further or subsequent impact, for example a dent within a dent
P8 assess the potential access routes in order to carry out a PDR in a safe and appropriate manner without interference with ADAS system or sensors or high voltage components
P9 select and use the appropriate tools and equipment for the panel area to be repaired
P10 ensure that your tools and equipment are in a safe working condition
P11 carry out a complex PDR repair on motor vehicle panels, selecting the technique(s) most appropriate to the type, size and location of the damage and the material being worked on
P12 identify when access is difficult or restricted and use additional or different techniques or approaches to overcome this
P13 use PDR techniques in a sequence or combination relevant to the complexity of the repair
P14 monitor how a panel is responding whilst carrying out a complex PDR repair and react accordingly
P15 avoid damaging other components and units on the vehicle whilst carrying out the repair
P16 store all removed components safely in an appropriate location
P17 check that all relevant components and vehicle systems operate correctly following the manufacturer's specification after you have completed your repairs

P18 promptly report any potential or additional faults you find during or prior to the course of your work to the relevant person(s)

P19 promptly report any delays in completing your work to the relevant person(s)

P20 carry out your repair within the agreed timescale

P21 promptly complete work records accurately, in the format required and pass them to the relevant person(s)

P22 ensure that all areas used to gain access are treated for corrosion inhibition where appropriate

Knowledge and understanding

You need to know and understand:

K1 the health, safety and legal requirements relating to the removal of cosmetic damage using PDR techniques
K2 your workplace procedures for:
K2.1 the referral of problems
K2.2 reporting of delays to the completion of work
K2.3 completion of work records
K2.4 the use of personal protection
K3 the hazards associated with working on or near high energy electrical vehicle components
K4 how to assess the size, depth and plane of damage and recognise any additional damage
K5 how to identify the best course of action to carry out a repair to the standard required
K6 how the panel material affects the complexity of the repair
K7 the action you need to take if the repair cannot be carried out to the required standard by using PDR techniques
K8 the requirements for protecting the vehicle and contents from damage before, during and after repairing panels using PDR techniques
K9 the requirements for protecting the vehicle being repaired from cross contamination including metallurgy and electrolysis
K10 the importance of selecting, using and maintaining the appropriate personal protective equipment when repairing panels using PDR techniques
K11 the importance of maintaining your tools in a safe working condition
K12 how to find, interpret and use sources of information applicable to the safe repair of panels using PDR techniques
K13 how to select, check and use all the tools and equipment required to assess and repair panels effectively using PDR techniques
K14 the need for correct choice of tools to carry out a suitable repair and the methods used to achieve this
K15 the different types of PDR techniques and methods used for repairing panels
K16 PDR techniques can be used in a sequence or combination to carry out a complex repair

K17 the additional considerations, approaches and techniques that can be utilised where access is difficult or restricted

K18 how to scope out a complex repair and identify the most appropriate techniques to use and the order in which to use them to complete the whole repair

K19 metal manipulation and movement

K20 how the initial stage of a complex repair might affect subsequence repair steps and choice of technique(s)

K21 how to monitor the panel's reactions to the repair stage and technique being used to determine when to stop to avoid the previous stage being nullified

K22 how to use glue type pulling/repair systems and where their use will enable a repair to be completed when access to the panel cannot be achieved

K23 the correct techniques for the removal of bonding to access the damage and the approved method of reinstating the bonding where required

K24 why drilling is not acceptable when carrying out a PDR repair

K25 the faults that can occur when repairing panels using PDR techniques and the causes of these faults

K26 the implications of affecting or damaging vehicle safety systems during the repair process and how this can be avoided

K27 the types of quality control checks that can be used to ensure a correct repair has been achieved

K28 the need for correct alignment of components and the methods used to achieve this

K29 the types of quality checks that can be used to ensure correct alignment and operation of components to manufacturer's specification and their purpose

K30 the importance of a robust handover procedure where ADAS systems are present

Scope/range

1. **PDR tools and equipment** include:
1.1. specialist PDR tooling and accessories
1.2. heating equipment
1.3. reflection or line board

2. **PDR techniques** include:
2.1. tensioning/de-tensioning
2.2. pulling
2.3. pushing
2.4. striking

3. **Vehicle panels** include:
3.1. flat panels
3.2. panels with a swage line

4. **Access to damage** is
4.1. direct and straightforward
4.2. difficult or restricted

Glossary

This section contains examples and explanations of some of the terms used but does not form part of the standard.

Acceptable repair
The panel is returned to original condition without any visible sign that a repair has been carried out, as would meet the expectations of a customer.

Cosmetic vehicle damage
Non-structural damage to the bodywork of a vehicle that does not affect the car's safety or functionality but detracts from its appearance and can reduce its resale value.

Damage
A single area of damage - a dent within a dent for example - or multiple points of contact within a small area. Damage may also be caused along different planes.

Flat panel
A panel area that contains no swage line, body line or defining contours.
Note: The panel itself may contain convex curvature as part of the overall structure, such as, bonnet, door, roof etc.

Paintless dent removal
PDR is a fast, cost-effective dent repair technique that retains the original paint finish. To achieve this, the paint surface of the damaged vehicle panel needs to be unbroken so the resulting repair will not need to be painted. However, PDR techniques may also be used to repair a panel in readiness for refinishing, rather than the panel being prepared using filler

Restricted access
Where access to the rear of the damage cannot be gained either directly or indirectly using normal access methods, or where the rear of the dent is enclosed or covered by another component. For example, dents covered by a crash/strengthening bar or box section, or where the edge of the damage is close to the edge of a panel.

Swage line
This is a contour line pressed into a panel at the manufacturing process, to include soft body lines.

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