

Repairability of Outer Body Panels Are We Making the Right Decisions?



Supporting New Zealand's Repair Certification Industry

About RepairCert NZ Technical Bulletins

These Technical Bulletins have been developed to provide 'Best-practice' guidance for Repair Certifiers, to assist them in ensuring that auto body repairs are carried out safely and correctly. It is also intended that these Technical Bulletins can be used by the wider auto body repair industry.

Repair Certifiers should always (if available) be guided by any appropriate OE Manufacturer (OEM) supplied information, methods/procedures, or requirements.

Purpose of this Technical Bulletin

This Technical Bulletin provides guidance to Repair Certifiers (and repairers) about when it is and isn't appropriate to repair outer body panels.



Background

Having now reviewed many repair certification files in the SharePoint file repository system, RepairCert NZ technical staff have noticed a common trend. Outer body panels, particularly rear quarters, doglegs, and sill/rocker panels are being repaired (or re-repaired) when the extent of the damage determines they should be replaced or sectioned.

Reasons to Repair

In many instances, electing to repair outer panels rather than replacing or sectioning them, may certainly be the right decision for a variety of reasons, including that:

- there is less intrusiveness into the body structure; and
- the removal of undamaged panels (required in certain circumstances to access factory weld points, when replacing or sectioning some panels) won't be required; and
- OEM weld connections are not disturbed; and
- substantially more of the OEM corrosion protection is retained; and
- mild steel (as the most predominant steel used for outer panels) offers the best opportunity for repair, without compromising structural strength; and
- a major reduction in repair 'complexity' (compared to reading and understanding OEM cut and weld sectioning procedures) is achieved; and
- reduced 'cycle time' (the time taken to complete the repair) is achieved; and
- shipping delays (that often occur in the supply chain for replacement panels) are avoided; and
- better efficiencies (and therefore profitability) can be achieved in comparison to 'standard allowances' for replacing a panel (a cut and weld procedure).

So, there's plenty of justification (and motivation), for Repair Certifiers (and repairers), to decide to repair rather than replace outer body panels.

Criteria for Repairing

However, to ensure an outer body panel repair 'returns the vehicle to within safe tolerance of the state of the vehicle when manufactured' and doesn't result in a premature repair failure, compromise structural integrity, crash safety, or unnecessarily affect the value of the vehicle, Repair Certifiers should verify that:

- the panel can be straightened to a standard that substantially reinstates all original body line features, profiles, and swage lines (that is, they are not being re-created by only using body filler); and
- the depth (or thickness) of body filler is kept to a minimum (global industry standards generally recommend that the thickness/depth should not exceed approximately 5 mm); and
- any inner structural reinforcements are undamaged; and
- the repair processes used won't negatively affect any structural reinforcements in close proximity to the repaired area(s); and
- there is appropriate accessibility to the back side of the damaged panel to facilitate the repair, and restore any corrosion protection removed during the repair process; and
- the chosen repair methodology doesn't substantially reduce or 'thin' the thickness (or gauge) of the panel; and
- the chosen repair methodology doesn't over-stretch and/or work-harden the steel to the extent that any structural strength may be compromised; and
- any holes or perforations created by any pin pulling or tag pulling procedures are repaired/welded; and

- non-structural inner panel damage (such as the inner wheelhouse panel on a dogleg repair), is repaired to industry standard condition; and
- any Noise Vibration Harshness (NVH) elements, adhesives, and sealers are not damaged (or if damaged, are able to be correctly reinstated); and
- any active safety systems (particularly ADAS components and associated mounting hardware) have not been compromised and will function as the manufacturer intended; and
- for previously repaired damage:
 - there are no holes or perforations from pin pulling or tag pulling; and
 - the steel hasn't been stretched or overworked (work-hardened to the extent that any structural strength may have been compromised); and
 - the panel has not been overly thinned by sanding or grinding; and
 - corrosion protection is restored.

Examples of Sub-standard Previous Repairs

Sill/Rocker Panel (1)

In Image 1, after the removal of body filler, it is obvious the base metal has been substantially thinned, with holes and perforations clearly visible. The extent of the damage determines that this panel should not be re-repaired, and replacement or sectioning is the appropriate 'repair' method (*see Image 1*).



Image 1.

Sill/Rocker Panel (2)

In Image 2, the steel has been over-stretched and work-hardened, and the original contours and shapes of the panel have not been restored. The extent of the damage determines that this panel should not be re-repaired, and replacement or sectioning is the appropriate 'repair' method (*see Image 2*).



Image 2.

Outer Dogleg Panel

In Images 3 and 4, the overly thick body filler has cracked, delaminated, and fallen out, revealing corrosion to the base metal. The previous repairs have not returned the panel to 'within safe tolerance of the state of the vehicle when manufactured', as the original contours/profiles of the wheel arch and door shut have not been restored (see Images 3 and 4).



Image 3.



Image 4.

After Removal of Outer Dogleg Panel

Removal of the previously repaired outer dogleg panel (see Images 3 and 4) reveals the extent of the poorly repaired damage (see Images 5 and 6), in that:

- the NVH element has been burnt and separated; and
- the outer wheel arch profile has been cut and only partially re-welded; and
- extensive (overuse), of the pin pulling process has occurred (which has not restored the proper shape and contours of the panel); and
- damaged corrosion protection coatings have not been restored and rust is starting to appear; and
- sealing materials have been damaged and not restored.



Image 5.



Image 6.

In Summary

Following these guidelines will assist Repair Certifiers in making consistent, 'fit-for-purpose' decisions on the reparability (or non-reparability) of outer panels, putting all Repair Certifiers 'on the same page' as to what is required by the applicable legislation.



FOR FURTHER INFORMATION PLEASE CONTACT REPAIRCERT NZ.