REPAIRCERTNZ
SPECIALIST CERTIFICATION MANAGEMENT (REPAIR) LTD

REPAIRCERT NZ UPDATE

Supporting New Zealand's Repair Certification Industry

UPDATE No. 13 | 15/09/2022

Case Study: 'Water Damage' Versus 'Water Ingress'

Part One
The Background

RepairCert NZ have recently been involved in a potential complaint relating to a privately imported 2006 Landrover Discovery 3 that was initially failed by entry certification for underbody corrosion, and subsequently referred for assessment by a Repair Certifier.

The Repair Certifier determined that the vehicle required repair certification, and took on the job. Complications arose during the second repair certification inspection of the vehicle, when the Repair Certifier 'discovered' (excuse the pun!) that there was now a relatively small volume of water accumulated in the centre floor pan (at the lowest point of the vehicle cabin area). In this vehicle, the floor coverings are a combination of carpet and heavy-duty insulation materials that had also soaked up some of the water.

When referring to the Repair VIRM for guidance, the VIRM says (under Note 1) that: *"Vehicles purchased on or after 7 September 2016 and/or border checked on or after 7 October 2016 must be treated as fully submerged and deviations will not be considered by the Transport Agency."*

Because the water was not present during the Repair Certifier's first inspection, the Repair Certifier's view was that the vehicle had not been submerged, and had not sustained 'water damage', but rather, had some 'water ingress' for some reason (unknown at the time).

Question

Should the repair certification inspection process (and any required repair instructions), be carried out in accordance with section *9-1 Water Damage/Reasons for rejection/Note 1* of the VIRM, when in this instance, there is substantial evidence to support the general understanding that the vehicle has not been 'fully submerged'?

The Answer

The answer is much more than a simple YES or NO in these situations, and can only be determined after conducting proper research and a detailed, thorough, and fully-documented examination that will:

- define precisely how the water has entered the vehicle; and
- establish water entry location(s); and
- identify where possible, the 'situation' the vehicle was in when water ingress was discovered; and
- confirm the level of electronic technologies that the vehicle contains (if any); and
- identify all electronic components that are located in and around the water-affected areas; and
- take into consideration, the type of vehicle - the majority of 4WD vehicles for example, have 'wading' capability (driving through rivers and streams), with the vehicle-maker allowing water immersion to specified levels; and
- confirm the country of origin (Australian statutory write offs for instance, are always treated as being fully submerged).

This vehicle turned out to be a very interesting case study and a shining example of why 'water damage' and 'water ingress' are two different things, and as such, need to have different processes applied. We'll share Part Two of this story with you in RepairCert NZ Update # 14. ■

Draft Technical Bulletin # 03 -2022 Correct Aperture Preparation for Bonded Glass

Accompanying this RepairCert NZ Update is a draft of the Technical Bulletin # 03 -2022 Correct Aperture Preparation for Bonded Glass - as with previous draft bulletins, we would really appreciate your feedback.

For better or worse, we need to know if we've missed anything, or if there is additional information we should include. Don't be shy in coming forward with your thoughts and ideas! Email your comments to nj@repaircert.nz by 22/09/22. ■

On-site Visits and SharePoint Training

RepairCert NZ has many responsibilities under its Contract for Service with Waka Kotahi. Two of these responsibilities are to provide SharePoint Training, and 'On-site Visits'.

On-site Visits

RepairCert NZ will provide an annual one-on-one On-site Visit for each Repair Certifier. The purpose of On-site Visits is to provide an opportunity for a Repair Certifier to have an individual face-to-face catch-up over a coffee with a technical representative of RepairCert NZ. There are no tests, no scoring, no black marks, and no outcomes - it's just a relaxed no-stress discussion where a Repair Certifier can ask any questions or discuss any concerns they might have. The one-on-one format is a great way to have open discussions - the only rule is 'there's no such thing as a dumb question'.

On-site Visits kicked off in August, and Mike has already visited the first four Repair Certifiers in Southland, Otago, and South Canterbury.

Mike has thoroughly enjoyed spending time with the guys, who have given us some great feedback and appreciated the chance to ask questions of Mike - they've also given us lots of useful information to take on board.

The rest of the Onsite-Visits for the Repair Certifiers will take place over the course of the next ten months. RepairCert NZ will be in touch to organise a time that suits the rest of you to send Mike your way for a relaxed catch-up.

SharePoint Training

As you all know, SharePoint is Waka Kotahi's new electronic file repository system to which all repair certification files are to be uploaded, and all Repair Certifiers must be uploading their files to SharePoint (after training with RepairCert NZ), by year-end.

RepairCert NZ's training on the use of SharePoint is now underway with the first four Repair Certifiers up and running after receiving their SharePoint training two weeks ago. If you are not currently using SharePoint, we will be in contact with you over the next few weeks to organise a training time, and guide you through the steps required to get you set up.

Training will be provided online via Teams in small groups of three to four people. These sessions are expected to take approximately an hour. However, if you're a bit old-school and you struggle with technology, let us know and RepairCert NZ will combine your SharePoint training with an On-site Visit (described above), so we can provide you with individual face-to-face training. ■

Introducing New Christchurch Repair Certifier - Carl Dunshea

We are pleased to announce the appointment of Carl Dunshea as a new Repair Certifier in the Canterbury region. Carl brings a wealth of experience and knowledge in autobody repairs with him.

It's fair to say that for some time Carl has expressed his desire to become a Repair Certifier, and after the recent sale of his panel and paint business he is now able to devote time and energy to the role.

In 1997 as a 16-year-old youngster fresh out of high school, Carl signed up as an apprentice with a small panel and paint shop in Addington, Christchurch, where he remained for a period of six years. Carl moved on to Brown & Paterson for two years, gaining extensive experience in structural repair before working for Shepherd and Kime as a contract panel beater. In 2008 Shepherd and Kime opened another shop on the other side of the city where Carl took on the role of production manager, setting up the repair shop and building up new business relationships.

In 2011 Carl took a break from the panel industry, moving to the West Coast where he spent a couple of years driving a fuel truck at the Stockton mine, before moving to another local business to work as a heavy diesel mechanic for about four years, gaining additional experience and skills as a diesel mechanic and in the area of structural repair of commercial equipment.

Returning to Christchurch, Carl helped run a busy panel shop for the next year then the opportunity came up to purchase a run-down panel and paint shop in the rural township of Darfield. After growing Darfield Collision Centre into a successful business, Carl decided he wanted more time with his family and sold up earlier this year.

Carl feels he can bring a high level of expertise and customer service to the Repair Certification space, and is looking forward to working with RepairCert NZ, Waka Kotahi, and the wider Repair Certifier community.

A mad rugby fan often helping out at the local rugby club, Carl and his better half have three children between 11 to 15 years old, and he also spends time fishing in Kaikoura as well as deer hunting mainly in the Lindis pass region. ■

New Team Member for RepairCert NZ

Shelley McAdam joined RepairCert NZ in August, and has been brought onto the team to help out in the areas of contract management, document writing, and general administrative support. With skill-sets that are helpful for both RepairCert NZ and LVVTA, she'll be dividing her time between both organisations.

Shelley was born in Lower Hutt in the mid-1960s and has lived in the Wellington region her whole life, working mainly within the car industry. She was the Administration Manager in a vehicle compliance workshop where she worked for 20 years, after starting on the shop floor completing compliance documentation. Later jobs have included shipping European cars she said she'd never be able to afford ex the UK, and a couple of years working in disability vehicle rental.

Shelley thought her interests included mid-life crisis motorbike riding, cake decorating *("stuffed if I'm paying for someone to make one of those")* and living in a finished house that doesn't leak. BUT, she's been told what she's actually into, is a C5 Corvette, a 3.5 tonne digger, a kit-based sports car, and living in an unfinished, leaking house accessed by what amounts to an offroad track - *"Who knew?"*

The interest in motorbikes started at 15, when Shelley's grandfather bought her a not so grunty bright yellow 50cc Honda with no clutch, which was upgraded to a Suzuki B120 (later written off in the middle of Wellington into the side of a car whose driver failed to look right). Her replacement bike was a Suzuki GS 450S which was sold when she and her husband very responsibly jumped into the housing market and began having kids. Fast forward 35 years to the mid-life crisis mentioned above, with the purchase of a pocket rocket Suzuki GSXF 750, and then replaced a week later by a Suzuki GSX 1250FA. Shelley rides mostly on sunny weekends and Tuesday nights over the Remutaka Hill and around the Wairarapa – if you live around there, you've been warned. ■

TECHNICAL BULLETIN

DRAFT # 03 – 2022 (September 2022)

Correct Aperture Preparation for Bonded Glass

Supporting New Zealand's Repair Certification Industry

Important Notice

These Technical bulletins have been developed to provide 'Best Industry Practice' guidelines and recommendations for auto body repairs.

Collision repair technicians should also look to any appropriate OEM supplied information, methods/procedures, and requirements (where available).

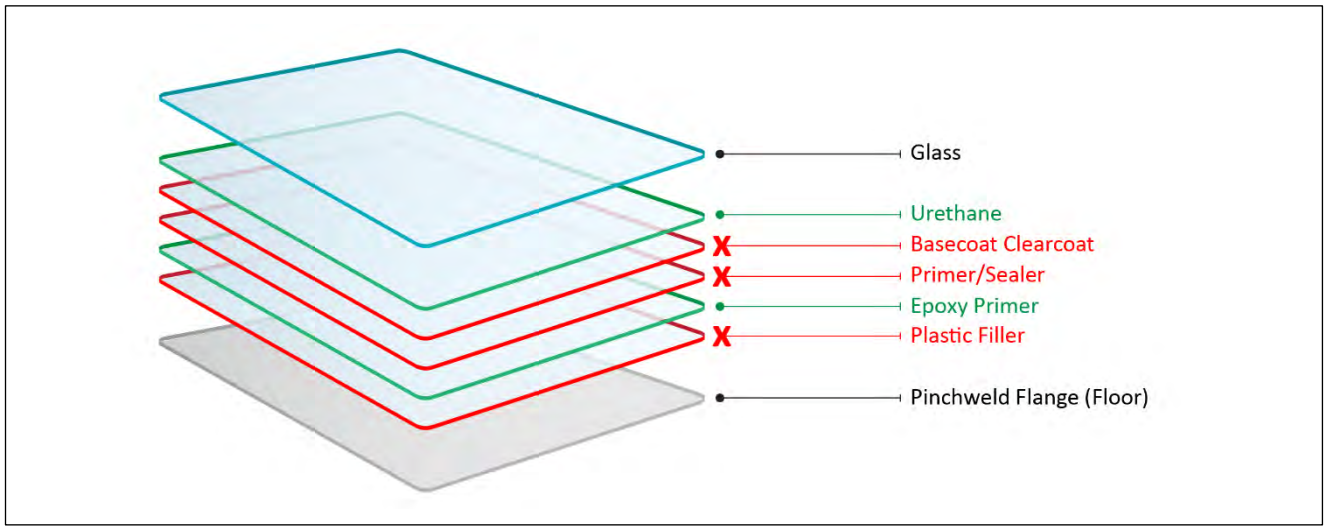
Introduction and Purpose

It has come to the attention of RepairCert NZ that a fundamental mistake is being made by a significant proportion of the repair industry when installing or reinstalling bonded glass.

Commonly, repairers are refinishing the entire window aperture (including the pinchweld flange areas) prior to the installation or reinstallation of bonded glass.

This practice is incorrect because the presence of plastic fillers, primer-sealers, and top-coats between the pinchweld flange and bonding materials creates weaknesses that could have safety consequences on vehicles that utilise bonded glass e.g. virtually all of our modern fleet.

The diagram below shows the steps (in red) that MUST BE LEFT OUT when fitting bonded glass.



This Technical Bulletin is intended to explain why this is a problem, and what the correct aperture preparation is, including:

- pinchweld flange preparation requirements; and
- identifying the appropriate surface coatings for the type of repair being completed; and
- determining the condition (state) of any remaining bonding materials (urethanes), prior to glass installation.

Background

Almost without exception, methods of attaching bonded glass in automotive applications involves bonding a piece of glass to a suitably prepared pinchweld flange within a glazing aperture.

While it's a well-known fact that a laminated windscreen is a critical part of a vehicle's structural integrity, as well as being an integral part of crash management and/or driver assistance systems (ADAS), other bonded glass (rear screens and quarter glasses), also contribute to overall performance, in terms of structural strength and/or crash management, irrespective of the specification of the (typically tempered) piece of glass.

With that understood, the condition of the pinchweld flange areas where bonded glass is attached needs to be consistently 'fit for purpose' after glazing has been removed and re-fitted/replaced, following a repair. A bonding failure due to incorrect aperture preparation may:

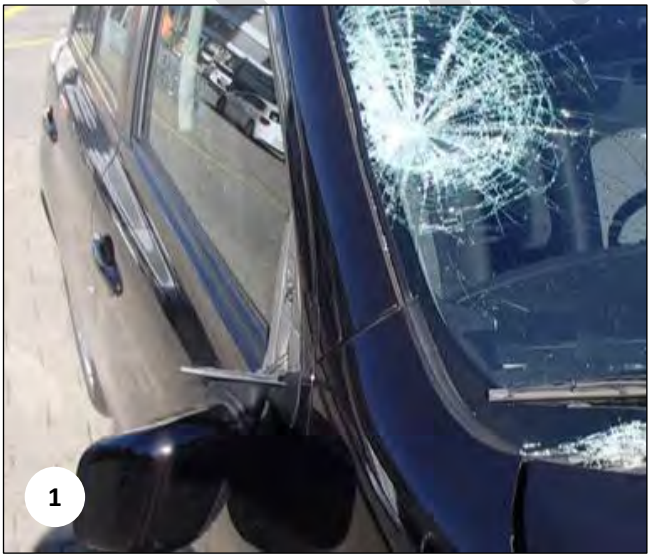
- compromise the overall structural integrity of the vehicle body; and
- result in active and/or passive safety systems not responding in the way the OEM intended, should the vehicle be involved in a future collision event; and
- create water leaks, that have the potential to adversely affect sensitive electronic parts in close proximity (especially safety-related components such as Advanced Driver Assistance Systems [ADAS], and Supplementary Restraint Systems [SRS]); and
- lead to possible corrosion issues developing in the future.

The reasons for bonded glass removal are varied, and will include:

1. glass replacement for damage (cracks and chips); or
2. removal and refitting for re-finishing operations (especially where masking in-situ processes are not appropriate e.g., lifetime paint warranties); or
3. removal and re-installation for panel damage and panel replacement, in the location/proximity of where the glass is fitted; or
4. removal and re-installation to repair corrosion damage in the area where the glass is fitted.

Points 3 and 4 (part replacement/repairs and corrosion) are typical situations where the bonding surfaces (pinchweld flanges) by necessity, will be substantially affected, and accordingly, require different surface preparations.

Any fixed-glass bonding schedule will only be as strong as its weakest link - so accepting that the correct bonding materials and glass specifications have been determined, the 'grey area' is in identifying what the correct condition of the pinchweld flange that the glass attaches to, should look like.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Removing and Refitting/Replacing Glass after Body Repairs

Irrespective of whether the glass removal/installation process is carried out in-house or completed by an independent contractor (assuming in all instances that the installer is suitably trained, and is using approved materials and equipment), at the installation phase, the condition of the pinchweld or body aperture is expected to be in an appropriate state for the glass component(s) to be fitted.

Many bodyshops are 'top-coating' pinchweld flanges in the re-finishing process, without realising that bonding performance (adhesion) will be reduced as a result of the lower adhesive strength of non-OEM top-coats.

Pinchweld Flange Preparation Explained

At the factory, bare metal body shells (including pinchweld flanges) are treated/coated with:

- E-coat (corrosion resistance layer and etching primer); and
- body primers; and
- colour coats; and
- clear coats (predominately).

Importantly, these coatings are cured at elevated baking temperatures of around 140°C.

When parts are repaired or replaced for body repairs, the re-finishing processes, while similar to the OEM, will, by necessity, differ in several ways:

- any missing/removed E-coat cannot be re-instated; and
- paint curing temperatures are substantially lower at 65°C to 70°C.

These fundamental differences determine that 1K or 2K primers, 2K solid colour, and Clear Over Base (COB) topcoats, as used mainly in collision repairs/refinishing (combined with low-temperature baking that slows down the curing time dramatically) have lower strength and are unable to achieve the same level of adhesion as OEM systems.

The Correct Process: *Pinchweld Flange Preparation*

- The pinchweld flange where the urethane will be applied (often described as the 'floor' of the pinchweld flange), must **not** contain any body filler (as these materials have no structural strength). Any surface irregularities (within reason) will be levelled out by the application of the new urethane bead.

- When replacing panels, the factory-applied E-coat (as used on most new, genuine replacement parts), should be retained wherever possible (e.g., only removed at weld sites, or when damaged).
- Any corrosion (rust) repairs in the pinchweld flange area require the complete removal, neutralisation, or conversion of rust, with no loose or flaking materials remaining.
- Rusted sections that are perforated or heavily pitted (to the extent that the structural integrity of the glass opening aperture is compromised) must be repaired to 'best trade practice' for rust repair (appropriate replacement materials, correct welding methodology, etc.).
- Irrespective of the rust treatment method, the affected surfaces must be clean, dry, and free of any residual acid materials (as may be found in both neutralisers and converters).

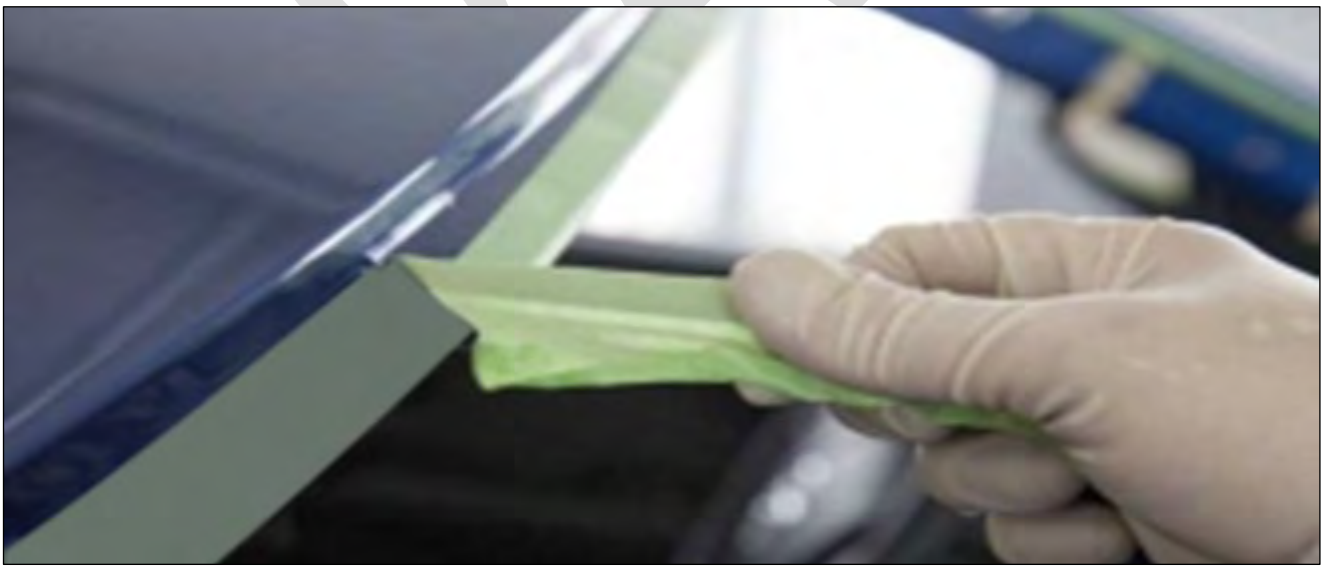
The Correct Process: *Surface Coatings*

Damaged or removed OEM E-coatings and all other correctly prepared bare metal surfaces, must be primed or 'sealed' with an epoxy primer. Note that:

- epoxies are extremely durable and proven to create the best adhesion performance to both the (bare metal) substrate, and the topcoat(s); and
- 2K (chemically cured) epoxy primers are preferred over single pack epoxy primers, as they generally cure faster and are more resistant to solvents.

After full curing, the epoxy primer-coated pinchweld flange floor area (where the new urethane bead will be positioned), is masked off to prevent contamination and overspray from sealers and topcoats that will be applied to the body during the refinishing processes.

THE ONLY COATING APPLIED TO THE PINCHWELD FLANGE FLOOR IS EPOXY-PRIMER.



The Correct Process: *Urethane Bonding Preparation*

- Skilled glazing technicians (in the removal process) will have cut the urethane joint from the glass side, so as to retain the original adhesive bead on the bodyside - minimising cuts and scratches on the windscreen aperture.
- This has an added advantage in that, for any unaffected (undamaged) areas of the window aperture, the original bond between the adhesive and pinchweld flange, is maintained.

- The retention of the original urethane bead also increases the adhesion performance of new materials when applied directly to the existing urethane adhesive bed - *urethanes adhere best to each other (100% 'bond entanglement')*.
- The epoxy primered areas, along with any bare metal scratches, must be primed with the appropriate pinchweld primer, and allowed to dry (typically around 10 to 15 minutes).
- Directly before the application of new urethane, the original urethane bead is trimmed back to a uniform thickness of 1 mm -2 mm, cleaned with water, and dried with a clean cloth.
- The new urethane adhesive bead is then applied either to the pinchweld floor, or to the prepared glass, prior to installation.

Pinchweld Inspection and Preparation: *Close-cut the original urethane down to a thickness of 1 mm - 2 mm. Clean with water and dry with a clean cloth. Apply pinchweld primer to any bare metal scratches if necessary and allow to dry for 10 - 15 minutes*.

Points to Remember

- All adhesives are only ever as strong as their weakest link. Successful urethane glass bonding relies heavily on selecting the correct surface coating materials and appropriate application and preparation methodologies.
- In general terms, most bond failures are the result of incorrect surface preparation (adhesive failure).
- OEM paint chemistries and curing processes provide the best adhesion to bare metals, and have greater strength than those used in the re-finishing industry where the **full** curing time for chemically activated (2K) low-baked topcoats can be up to **90 days.**
- Windscreen glass bonding on ADAS-equipped vehicles may require OEM specified procedures and materials in addition to scanning and calibration. For further information refer to RepairCert NZ's Technical Bulletin #01 – 2022 Advanced Driver Assistance Systems (ADAS).

FOR FURTHER INFORMATION PLEASE CONTACT REPAIRCERT NZ.