REPAIRCERTNZ
SPECIALIST CERTIFICATION MANAGEMENT (REPAIR) LTD

REPAIRCERT NZ UPDATE

Supporting New Zealand's Repair Certification Industry

UPDATE No. 14 | 25/10/2022

Passing of Glynn Wilson

"It is with sadness that we farewell Repair Certifier Glynn Wilson who has passed away. Glynn was a true icon of our industry.

One of the first appointed I-CAR Training Technicians in New Zealand, Glynn was a widely respected panel beater, trainer, and Repair Certifier, and so well regarded that he was the go-to man for investigations in the vehicle industry.

Glynn spent substantial time training Border and Entry Certifiers, and Waka Kotahi staff here in New Zealand, as well as travelling to Japan to provide training for staff inspecting vehicles prior to export.

He was hugely influential in bringing the auto body industry (including panel beaters, panel shops, and Repair Certifiers) up to date with the challenges of working with rapidly changing vehicle technologies.

Glynn spent his whole working life giving to our industry.

Our condolences to family and friends.

Tony McHugh, Repair Certifier.

"It was sad to hear of Glynn passing away. Glynn and I developed a great friendship that spanned more than twenty years and he has been a big part of my life, both at work and outside of work.

Bill Hyslop, Senior Engineer, Waka Kotahi NZ Transport Agency.

"As I sit reviewing our latest course, it is clear to us all that Glynn will be sorely missed, as we start to reference Google and YouTube instead of just picking up the phone and chatting with him. He was a fount of knowledge and a great teacher, with a very old-fashioned ▶

sense of humour. Glynn was enormously respectful to everyone wanting to learn, no matter what their level of ability was. He took the time to assist Fiona in learning the V-Cert courses, explaining everything so Fiona could assist with modernising and updating the courses, and create online training (with Rod as well so he could present the courses when required).

Glynn was extremely passionate about all things to do with the motor vehicle industry, especially anything to do with vehicle road safety. Working closely with NZTA throughout his career to ensure the motor vehicles in NZ were of a high standard and suitable for our roads, Glynn backed all his decisions with a reason - he always needed to know the logic around doing something (the what, the how, and the why).

An Authorised Repair Certifier and Vehicle Border Inspector, Glynn has also been an Instructor for I-CAR, MITO, and Manukau Technical Institute. Glynn's qualifications included NZ Trade Cert, Advanced NZ Trade Cert, & MAIME.

Glynn was a qualified panel beater working for several repair shops before deciding to increase his knowledge by taking himself to America to learn more. While in America Glynn visited crash testing facilities to learn about accident outcomes, and why vehicles were designed the way they were.

On his return to NZ Glynn shared all this knowledge as an I-CAR System Instructor. His training methods involved both theory and practical, so students could back up what they learnt on paper with hands on knowledge.

In 2002 Glynn formed V-Cert Pacific to train Inspectors in both Border and Entry Inspections, ensuring vehicles coming into NZ were meeting NZ standards. While training the Border Inspectors he travelled to Japan many times and formed strong relationships with the Japanese companies shipping vehicles to NZ. Then in 2015 Glynn joined forces with Rod and Fiona Hyland, and Peter Padgett, to add repair certification inspections to the services provided by V-Cert Pacific.

Even in the last few months of his life Glynn remained passionate about the opportunities ahead and was assisting Fiona in updating and creating new courses.

A few pics in Glynn's archives that may be of interest are included. He kept everything from day 1.

Rod Hyland (Repair Certifier), and Fiona Hyland. ▸

In 2008 I asked Glynn if he'd consider doing a lap of the country with me, to give the LVV Certifiers a Hitchhikers Guide on future technology that they needed to be aware of like ADAS. Glynn threw himself into the project, did a fantastic job for us, and we really enjoyed his company during our two weeks on the road. What a neat guy.

Tony Johnson, CEO LVVTA | RepairCert NZ.

An excerpt from LVVTA LVV Newsletter #35

Modern vehicle structure training for LVV Certifiers, November 2008

LVVTA would also like to express its appreciation to Northland's Glynn Wilson, a Repair Certifier and accredited I-CAR system trainer, who, during LVVTA's November 2008 LVV Certifier training sessions throughout NZ, provided a presentation to all LVV Certifiers on modern vehicle construction methodology.

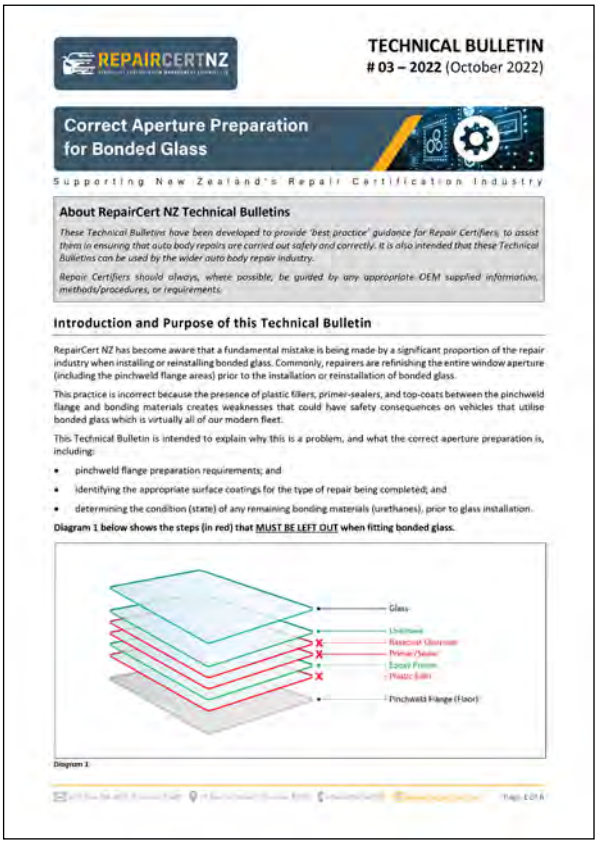
Glynn gave all LVV Certifiers throughout the country a very good insight into the complexities of modern vehicle construction, including the high-tech materials used, and the difficulties in visually identifying energy absorption components within very modern vehicles.

The presentation significantly increased our appreciation of the problems associated with modifications to modern vehicles and has started LVVTA down the track of gaining more information in this area, to understand where and how to set the boundaries for the modifications to modern vehicles, which must inevitably occur in the very near future.

As a result of what was learnt, LVVTA developed and distributed LVV Information Sheet #08-2009 earlier this year as a summary of that training provided to us by Glynn.

Of note is that Glynn provided this training at virtually no cost to LVVTA, such is his enthusiasm to help others gain an understanding of his industry. LVVTA is very appreciative of all Glynn's help. ■

Technical Bulletin # 3 - 2022 Correct Aperture Preparation for Bonded Glass



We asked for feedback from Repair Certifiers (whether good, bad, or indifferent) on Draft **Technical Bulletin # 3 - 2022 Correct Aperture Preparation for Bonded Glass**, which we sent out with the previous RepairCert NZ Update #13 after considering the comments we received, the final version is now attached with this update.

The expectation is that from now on, all Repair Certifiers providing repair instructions for certifications involving repairs to bonded glass apertures will advise repairers that the information contained in RepairCert NZ's Technical Bulletin #3 must be followed to ensure safe and compliant outcomes.

RepairCert NZ is very grateful for having access to the expertise of Marty Lane, which enables these Technical Bulletins to be produced. ■

Repair Certification for Acid Wash Vehicles Now Mandated

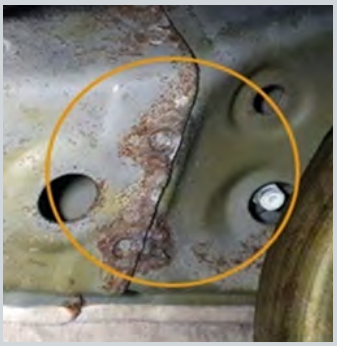
Repair Certifiers will recall that RepairCert NZ has been liaising with Waka Kotahi on Acid Wash vehicles, and earlier this year provided Waka Kotahi with a 'Position Statement' regarding Acid Wash.

Waka Kotahi has considered the effects of Acid Wash on vehicles and has made the decision to mandate repair certification for vehicles that have signs of Acid Wash on them. To implement this, Waka Kotahi has just released a new requirement within the Entry VIRM, instructing Entry Certifiers to refer any vehicles featuring Acid Wash to a Repair Certifier for assessment. The instructions are contained in the Repair VIRM under Technical Bulletins, 9 (Acid Wash process on used imports), and reads (with accompanying photos of examples of visible Acid Wash, as follows:

Technical bulletins

9 Acid wash process on used imports

Acid washing is a treatment being used to repair corrosion in vehicles, in particular the underbody structure and components. The process involves the use of a chemical mix containing an acid base liquid, phosphoric acid is commonly used, to remove corrosion and treat the metal area. The following photos show examples of visible signs of acid wash repair.



Visible signs of an acid wash repair include:

- *The area has been cleaned and a clear topcoat, or no topcoat applied.*
- *A white residue is noticeable in joints, seams, or coming through underseal/topcoats.*
- *Corrosion is still visibly active in an area that has been treated.*

An area of metal that has not been acid washed correctly will continue to degrade within a short time and can be detrimental to the vehicle structure.

Application

When visible signs of acid wash repair as described above are observed by an inspector at an entry compliance inspection the vehicle must be failed and referred to a Repair Certifier for assessment.

The threshold for requiring repair certification instructs 'A vehicle must be referred to a specialist repair certifier if signs of repair, rust prevention, acid wash or under-sealing to any part of the vehicle structure are evident'. The repair certifier will assess the repair and decide if it requires remedial work and a Light vehicle repair record of certification (LT308) issued, or if the repair is acceptable a No repair certification required declaration – light vehicle (LT307) issued. ▶

In preparation for this, RepairCert NZ has developed and issued ***'Technical Bulletin # 02-2022 Acid Wash Identification and Removal Options'***. This Technical Bulletin is to be used by Repair Certifiers when presented with vehicles referred for assessment featuring Acid Wash, and can be found on the RepairCert NZ website www.repaircert.nz/resources/.

If any Repair Certifiers have any questions on this, please feel free to call the RepairCert NZ technical helpdesk for support on (04) 595 4755. ■

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

Part Two

The Background (re-visited)

In the last RepairCert NZ Update (#13), we featured Part One of a Case Study on a water affected vehicle that described a situation with a 2006 Land Rover Discovery 3 privately imported into New Zealand. While being repair certified for underbody corrosion, the Land Rover was also shown to have a quantity of water present in the interior (enough to have saturated the interior carpet and insulation and collected in the low-lying areas of the floor pan).

The Question Was...

Should the repair certification inspection process (and any required repair instructions), be carried out in accordance with the Repair VIRM, Section 9 (General repairs), Subsection 9.1 (Water Damage), Reasons for rejection, Note 1, when in this instance, there is substantial evidence to support the general understanding that the vehicle has not been 'fully submerged'?

The Answer

Previously we explained that an accurate and appropriate answer can only be provided after proper background research and a comprehensive, detailed inspection. We listed a number of bullet points created by the Repair Certifier and several other industry experts, prior to and during the physical inspection of the affected vehicle.

It's of substantial benefit that the Repair Certifier involved in this case study has a great deal of experience certifying water-affected vehicles and has developed a comprehensive inspection and reporting regime that accurately identifies and describes any affected parts or components.

In this case study, the following questions (in bold type) to be investigated, together with the answers immediately after, were:

- **How did the water enter the vehicle?**
  Via factory fitted drain hoses that carry rainwater away from the sunroof area- these had split from gradual deterioration (perished). ▸

- **Where is the entry location(s)?**
  Behind the dashboard, where the (internally fitted) perished drain hoses pass through the left and right inner A-pillar locations to drain any rainwater to the exterior of the vehicle.
- **In what 'situation' was the vehicle in (or had been in) when the water ingress was discovered?**
  It had been sitting outside in an open yard for many months without any protection from the elements.
- **What electronic technologies does the vehicle have (or not have)?**
  SRS (airbag) and seat belt pre-tensioner systems, Terrain Response System, Dynamic Stability Control (DSC), Hill Descent Control (HDC), infotainment and navigation systems.

- **What electronic components are located in and around the water-affected areas?**
  Numerous electronic control modules, circuit boards, a main fuse box, SRS (airbag) ECU, seat belt pre-tensioners, amplifier unit, relay units, major wiring harnesses, and associated connectors.
- **What type (or style) of vehicle?**
  A body-over-frame, full-sized SUV, designed (importantly) for off-road use. It has a wading depth of 700mm.
- **Country of origin?**
  A privately imported vehicle from the UK, with a known history of ownership.

All these questions (and appropriate answers) helped to create a clearer picture or understanding as to what extent the water ingress had on the vehicle, and if it is safe and compliant.

Importantly, ALL electronic parts, fittings and associated components in the affected areas require removal and dismantling to confirm if they have, in any way been compromised by water - scanning alone does not verify whether a component is affected (or not).

In this instance, the mechanical workshop that undertook the stripping /dismantling of the vehicle had many years of experience with the Land Rover brand, and extensive knowledge of all the wear and tear issues associated with age.

Below are excerpts from the vehicle description, as recorded on the Repair Certifier's Repair Schedule:

Repair Schedule/Inspections

The seats, tread plates, pillar trims, console, & glovebox were all removed. The carpet was able to be lifted but was not removed as the dash would need to be removed to remove the carpet.

At this stage of the inspection, it was not a requirement to remove the dash.

The carpet was still wet as there is a very thick foam base bonded to the underside of the carpet which is holding water.

When stripping, STAG 4X4 found that the left & right sunroof drainpipes had perished and cracked where they go through the lower inner A pillars. Rainwater running through the sunroof drains was leaking into the interior of the vehicle from the break in the drains, tracking down the lower A pillars and under the carpet. STAG 4X4 have advised that leaking sunroof drains are a common issue on this model Land Rover Discovery.

The front seats sit up high on a pedestal base, well away from the carpets. I inspected seat base wiring connectors, under-seat bare metal frames and the seatbelt pretensioners bolted to the seat bases.

There was no evidence of water having been present in the wiring connectors, on the under-seat frames or in the barrels of the seatbelt pretensioners.

The engine management ECU is mounted on the left-hand A pillar. I dismantled the engine management ECU for inspection. The engine management circuit board is of a stacked two-layer design. I found there was no evidence of water having been present on the circuit boards. ▶

All the micro chips and circuitry were clean, showed no water marks or corrosion. There were some water marks on a couple of plug terminals which I cleaned with a marine lubricant.

There was no damage to the zinc coating on the terminals.

Wiring connectors on the lower A pillars were unplugged and inspected. No evidence of water damage or water having been present on the terminals of the connectors was found.

Removed and dismantled the SRS ECU which is mounted on top of the drive shaft tunnel. The SRS ECU base was sealed with a rubber gasket. There was no evidence of water having been present on the underside of the ECU, inside on the circuit board or on the terminals.

There is an amplifier that is mounted on a pedestal about 50mm above the carpet under the left front seat. The amplifier was dismantled and also showed no signs of water on the amplifier base or on the circuitry.

Conclusion

I can confirm that this vehicle is not a flood damaged vehicle and has never been submerged in water. The water ingress in this vehicle is from perished sunroof drains leaking water into the vehicle which has been soaked up by the foam under the carpets.

The wiring connectors, ECUs, seatbelt retractors & pre-tensioners, were all above carpet level and no damage or evidence of water were found in any of these components.

I am confident that none of the vehicle safety systems or components have been affected by the water ingress and that this vehicle does not meet NZTA's definition of a submerged vehicle.

There is an issue with the suspension ride height which will need to be rectified.

Repairs Required

1. *Replace broken sunroof drains.*
2. *All water will need to be removed from floor channels & carpets will need to be dried.*
3. *All floor channels running down the left & right side of vehicle under wiring looms will need an application of cavity wax.*
4. *Interior of under seat cross members and lower A & B pillars will need an application of cavity wax to restore corrosion protection.*
5. *All A pillar wiring connectors will need to have an application of marine CRC or similar before reconnecting the connectors.*
6. *Once carpets have been dried, connectors have been lubricated, & cavity wax has been applied, the vehicle interior can be reassembled.*
7. *Rectify issue with the suspension height.*
8. *Perform a full diagnostic scan on the vehicle electrical system and clear all fault codes.*
9. *Complete and sign an NZTA SRS & ABS declaration form for the certifier's file.*
10. *Please provide a copy of repair invoice for certifier's file.*
11. *Call for final inspection.*

In conclusion

So, back to the question *'Should the repair certification inspection process (and any required repair instructions), be carried out in accordance with the Repair VIRM, Section 9 (General repairs), Subsection 9.1 (Water Damage), Reasons for rejection, Note 1?'* The answer is clearly NO. To apply 9.1.1 in this instance would create repairs that would make the vehicle uneconomic to repair, and it would be sold for parts. To let this happen would be wasteful, and would expose the owner to substantial financial loss unnecessarily.

RepairCert NZ co-ordinated the efforts of its own experts, the Repair Certifier, and Waka Kotahi staff, and ensured that a sensible outcome could be achieved. A good vehicle was not unnecessarily scrapped.

This case study is intended to show that exercising some common-sense can be beneficial; in this case proving that the vehicle was only subject to water ingress, not water immersion.

In all cases, a clear and concise inspection procedure and repair schedule must be written up and fully understood by all parties. RepairCert NZ gives top marks to the Repair Certifier in question for the thorough inspection process he applied, and the well written Repair Schedule he provided (shown on pages 6 and 7). ■

New Northland Motorcycle Repair Certifier - John Shaw

We welcome John Shaw as a new Repair Certifier in the Northland region.

John has been a Whangarei boy since emigrating to New Zealand in 1965 from a small mining town in Nottinghamshire, England with his parents (who were chasing a better life for their family).

After leaving School at 16, John started his apprenticeship as a car mechanic at a local garage, completing his qualification as an A-Grade Automotive Engineer by the time he was 21.

Whilst doing his apprenticeship, John's parents (Jim and Ann Shaw) started a Motorcycle shop in Whangarei which became the local Kawasaki dealer in 1976, later adding Yamaha and Suzuki. The business grew fast, and John started working there in 1978 learning how to repair motorcycles in the workshop, later becoming the service manager with five mechanics under his care.

In the early 1990's John took over ownership of the shop and started importing used Harleys, Ducatis, and Triumphs out of Japan early in the 2000s, rapidly becoming (and remaining to this day), Harley and Euro specialists.

John has been married to Roseanne for 32 great years and they have two children. An avid motorcyclist since he was 15, John circuit-raced motorcycles in the 80s, (including a Castrol six-hour race), and currently rides a Harley Fat Boy.

He also loves Jaguar cars, owning E-types, XJS, XK8's, XKR's, and currently owns a Super Charged XFR. Flying GA aircraft as a private pilot since he was 25, John has owned 6 different aircraft. He enjoys boating and currently owns a Riviera 42 with a mate for fishing and cruising in the summer.

Due to his long-term involvement with the technical side of motorcycle engineering, John now inspects all the motorcycles involved in fatal accidents for the Police. The experience has been very rewarding, reinforcing the fact that the NZ WoF inspection regime is generally robust as pretty much all the bikes inspected were mechanically sound when the accident occurred.

The main reason John decided to become a motorcycle Repair Certifier was because there is really no one else doing it in the Northland area and he feels that with his knowledge he can make sure accident-damaged motorcycles returning to the road are safe to operate for both the rider and other road users. ■

Updated Vehicle Import Forecast for October and November 2022

- **OWV:** heavy machinery items.
- **Load:** Vehicles that are leaving our shore to overseas ports.
- **T - Ship:** Trans Ship. Transported from port of entry to other ports throughout New Zealand.

ETA	Vessel	Voy	LOP	Vehicles Discharge					Load	
				Total	New	Used	T - Ship	OWV	Export	T- Ship
2/10/2022	Don Juan	2217	Armacup	1,814	1,284	377	3	150	-	35
4/10/2022	Frontier Ace	190A	MOL	2,000	753	960	-	287	27	487
5/10/2022	Tirranna	EF219	WWO	1,041	770	-	-	271	459	-
6/10/2022	Hoegh Trader	163	Hoegh	943	730	18	2	193	-	-
9/10/2022	Trans Future 6	140	TFS	1,306	871	401	-	34	50	529
11/10/2022	Themis	NZ205	WWO	247	215	-	-	32	30	-
14/10/2022	Dream Angel	31	TFS	1,653	784	849		20	-	-
15/10/2022	Hoegh Trooper	197	Hoegh	775	650	5	30	90	-	-
16/10/2022	Eminent Ace	160	MOL	2,300	1,150	1,150	-	-	300	-
17/10/2022	Sunlight Ace	105A	MOL	1,700	1,650	50	-	-	-	-
18/10/2022	Paganella	2218	Armacup	1,723	1,144	416	50	113	-	-
19/10/2022	Nabucco	EF220	WWO	1,481	1,258	-	-	223	-	-
20/10/2022	Trans Future 7	140	TFS	2,100	1,400	670	-	30	200	-
22/10/2022	Tugela	EF222	WWO	918	695	-	-	223	-	-
24/10/2022	Martorell	TBA	MOL	1,200	1,150	50	-	-	-	-
30/10/2022	Viking Passama	2219	Armacup	2,000	1,500	500	-	-	-	-
			Total	**23,201**	**16,004**	**5,446**	**85**	**1,666**	**1,066**	**1,051**
4/11/2022	Hoegh London	102	Hoegh	775	650	5	30	90	-	-
4/11/2022	Hoegh New York	136	Hoegh	775	650	5	30	90	-	-
5/11/2022	New Century 1	175	TFS	2,000	1,370	600	-	30	200	-
5/11/2022	Palmela	191A	MOL	2,200	1,100	1,100	-	-	300	-
14/11/2022	Victorious Ace	62A(T)	MOL	1,800	1,750	50	-	-	200	-
16/11/2022	Frontier Ace	TBA	MOL	2,100	1,050	1,050	-	-	200	-
17/11/2022	Trans Future 5	144	TFS	2,100	1,400	670	-	30	200	-
18/11/2022	Hoegh Asia	164	Hoegh	775	650	5	30	90	-	-
18/11/2022	Paglia	220	Armacup	2,500	2,000	500	-	-	-	-
22/11/2022	Miraculous Ace	TBA	MOL	1,500	1,450	50	-	-	-	-
24/11/2022	Turandot	2221	Armacup	2,500	2,000	500	-	-	-	-
26/11/2022	Tijuca	EF223	WWO	980	700	-	30	250	-	-
			Total	**20,005**	**14,770**	**4,535**	**120**	**580**	**1,100**	**0**

Inaugural Technical Support Group Meeting

On September 27, RepairCert NZ hosted the Inaugural Meeting of the Technical Support Group (TSG). All eight TSG members came together for a day at the RepairCert NZ office in Porirua. The primary purpose of the meeting was to help TSG members gain an understanding of their responsibilities and the objectives they are collectively required to achieve over time. The day also provided an opportunity for the TSG members to:

- meet each other (some members are relatively new Repair Certifiers, and the eight members are from all over the country); and

- gain an insight into how the repair certification system will be managed into the future, particularly relating to desk-top auditing via the File Review process, error recording and reporting, the associated coaching and mentoring processes; and
- discuss how the more complex day-to-day technical queries which require high-level support from TSG members will be managed (via email, and online meetings where necessary); and
- establish communication and decision-making protocols; and
- discuss priorities for project work into the future.

There are a vast number of subjects in the repair certification space that require attention and improvement as soon as possible, but the areas of highest priority where the TSG members could provide help were identified as:

- the review of the Repair VIRM; and
- improvements and clarity with the Shop Profile system; and
- Technical Bulletin development - Best Practice: Corrosion; and
- Technical Bulletin development - Best practice: Welding.

The TSG will meet in person again as soon as possible (probably during February) to keep progress moving on these subjects. ■

TECHNICAL BULLETIN
 # 03 – 2022 (October 2022)

Correct Aperture Preparation for Bonded Glass

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.

Introduction and Purpose of this Technical Bulletin

RepairCert NZ has become aware 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 utilising bonded glass, which is virtually all of our modern fleet.

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.

Diagram 1 below shows the steps (in red) that MUST BE LEFT OUT when fitting bonded glass.

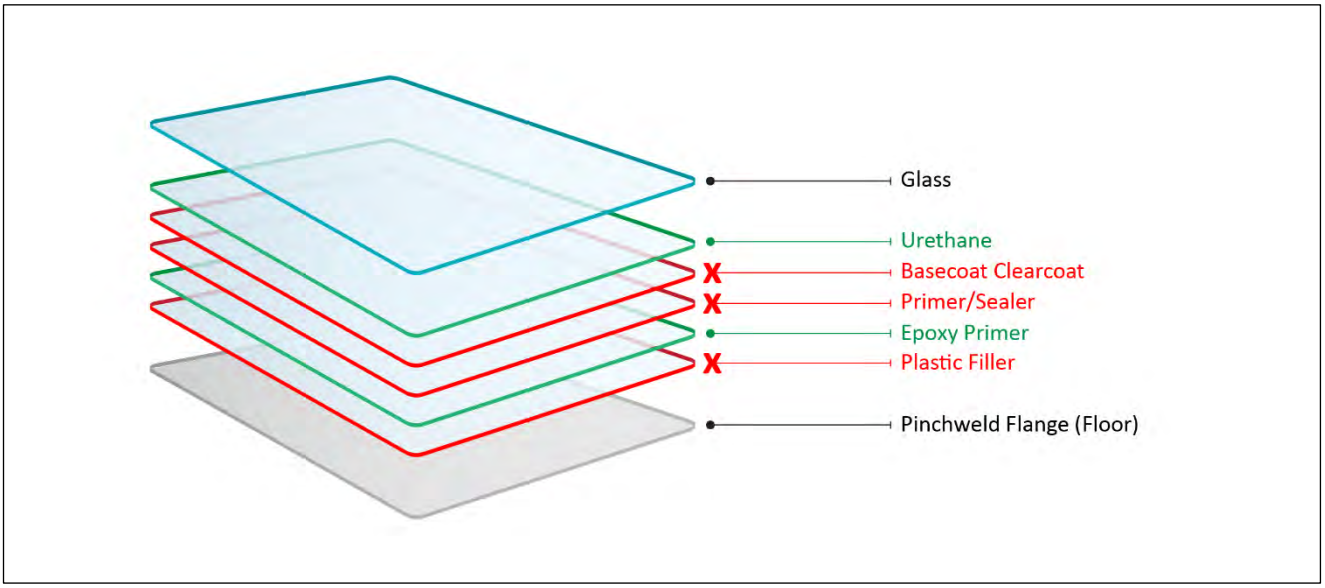


Diagram 1.

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

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

Any fixed-glass bonding procedure 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.

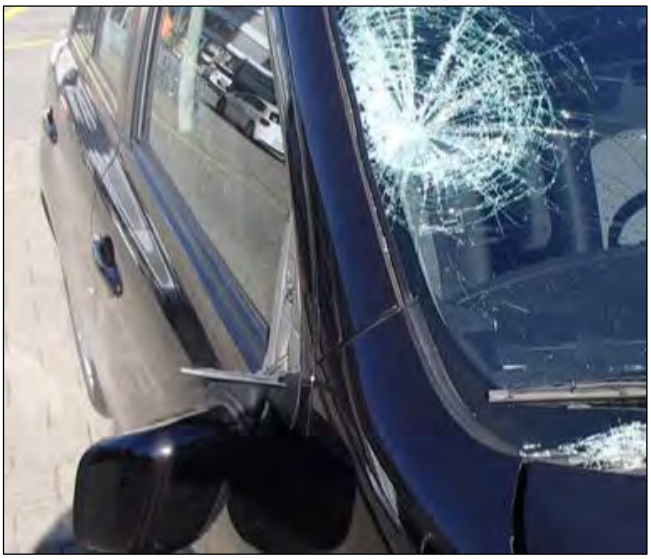


Image 1.

Image 2.

Image 3.

Image 4.

The Specific Problem

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

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 refinishing processes, while similar to the OEM, will, by necessity, differ in several ways:

- any missing/removed E-coat cannot be reinstated; 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) top-coats, as used mainly in collision repairs/refinishing (combined with low-temperature baking that slows the curing time dramatically) have lower strength, and are unable to achieve the same level of adhesion as the OEM systems.

For these reasons (different paint chemistries and different curing temperatures [time to fully cure]) urethane can be applied over a top-coat during the vehicle manufacturing process, but not during a body shop refinishing process.

This position – that pinchweld flanges should never be top-coated by the refinishing industry – is supported by some OEMs, I-CAR technical bulletins, and glazing subject matter experts.

The Correct Process

Correct Pinchweld Flange Preparation

To follow is the correct process for the preparation of the pinchweld flange.

- 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 requires 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 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).

Correct 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 top-coat(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 top-coats that will be applied to the body during the refinishing processes *(see Image 5)*.

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

Image 5.

Correct Urethane Bonding Preparation

The correct process for the preparation of urethane bonding is as follows:

- During the removal process, skilled glazing technicians will have cut the urethane joint from the glass side, so as to retain the original adhesive bead on the body side (minimising cuts and scratches on the windscreen aperture).

- This has the added advantage 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 (known as 100% 'bond entanglement')*.
- Whilst throughout this Technical Bulletin the use of materials that may be applied between a pinchweld flange and the urethane is limited to only epoxy primer, it should, however, be noted that a glass installer may, by necessity, apply an adhesion promoter known as 'windscreen primer' or 'pinchweld primer' to the epoxy primer where any new urethane is to be applied, and also over any small bare-metal scratches *(see image 6).*

Image 6: *Note that windscreen primer must not be applied over any existing cured urethane, or used on large bare metal areas. Windscreen primer must be allowed to dry - typically requiring 10 to 15 minutes - before the application of urethane.*

- 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 *(see Image 7).*

Image 7: *Pinchweld flange 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.*

- The new urethane adhesive bead is then applied either to the pinchweld floor, or to the prepared glass, prior to installation.

Points to Remember

The following points are very important:

- As shown in Diagram 1 (page1), and Diagram 2 (below), there should be no other coatings between the urethane and pinchweld flange other than epoxy primer.

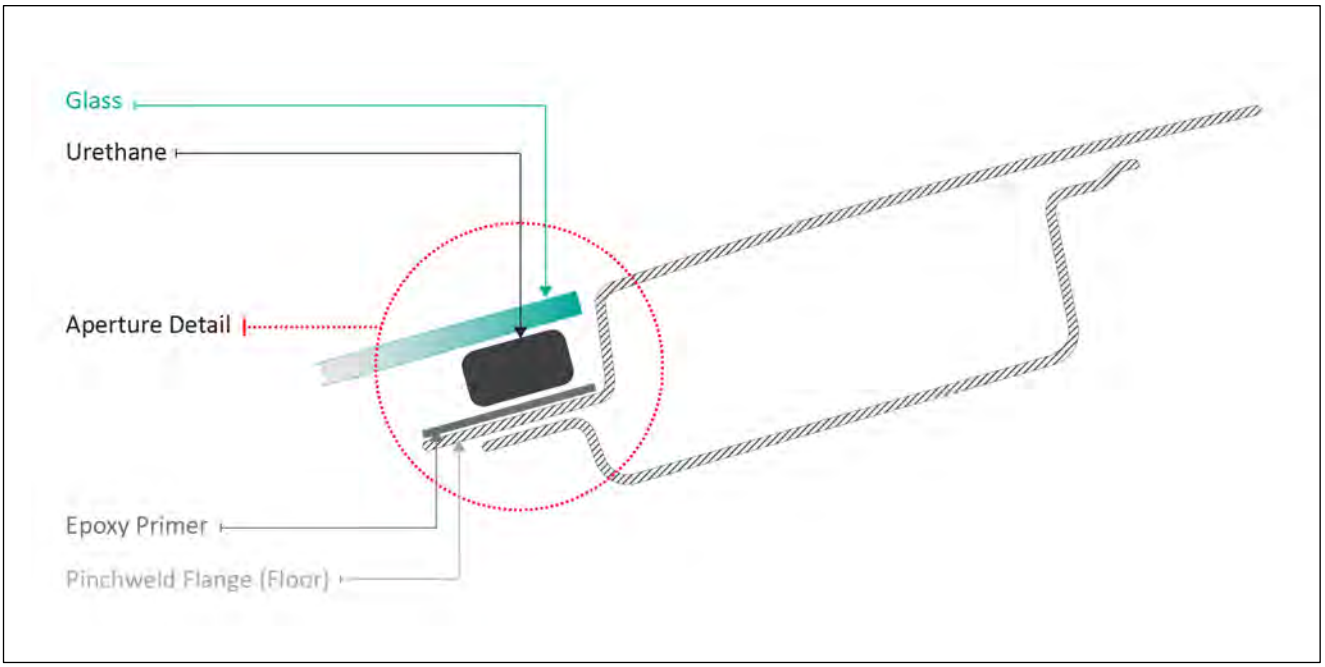


Diagram 2.

- 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 preparation and application methods.
- In general terms, most bond failures are the result of incorrect surface preparation (adhesive failure).
- OEM paint chemistry 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 top-coats 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 *Technical Bulletin #01 – 2022 Advanced Driver Assistance Systems (ADAS).*

FOR FURTHER INFORMATION PLEASE CONTACT REPAIRCERT NZ.