REPAIRCERTNZ
SPECIALIST CERTIFICATION MANAGEMENT (REPAIR) LTD

Supporting New Zealand's Repair Certification Industry

Guidance, Requirements, & Inspection Form-set (GRIF)

I35-20(00)
Water-ingressed Vehicles

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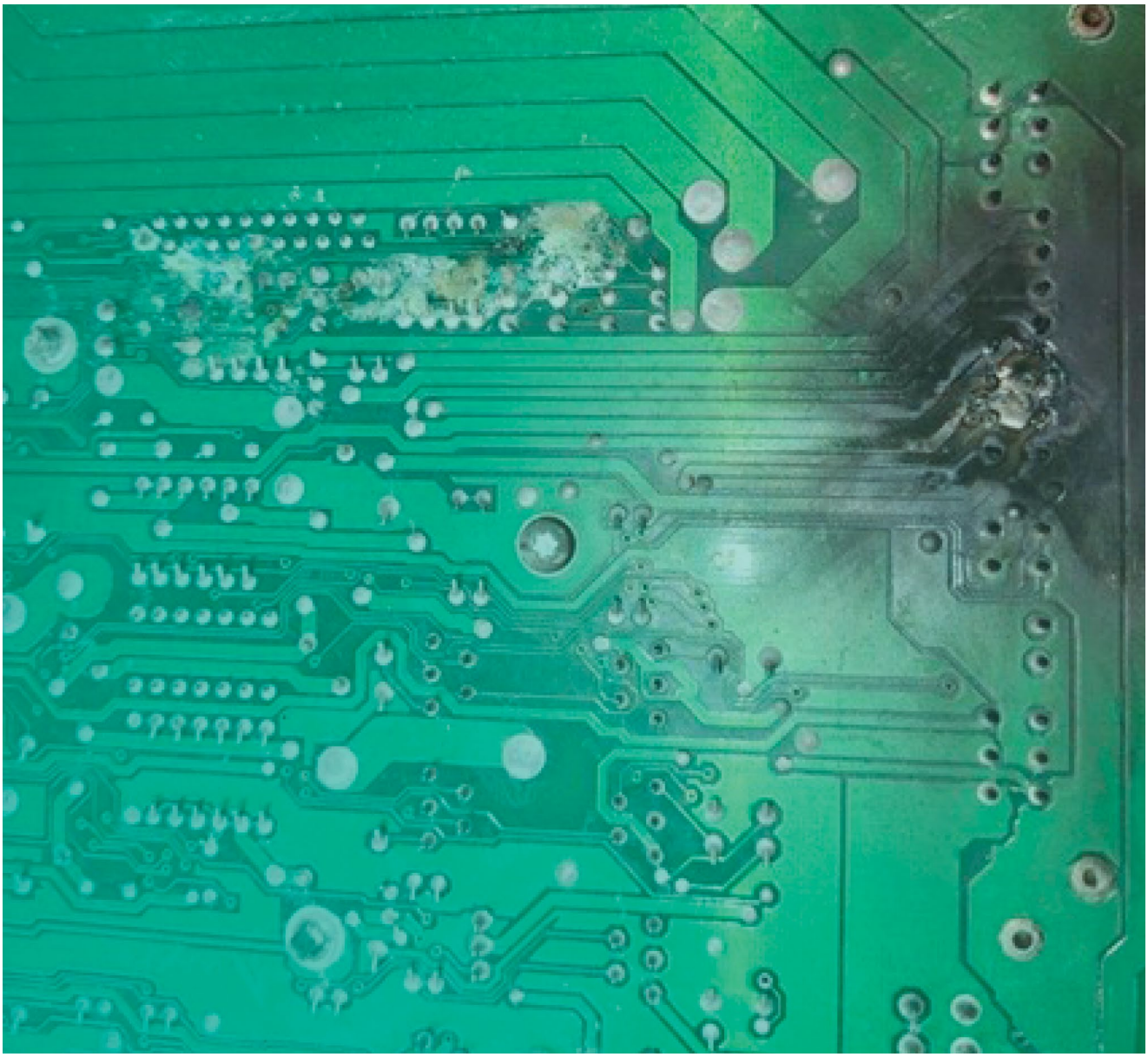

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Approvals

RepairCert NZ GRIF #135-20 Approval:	
Signed on behalf of Waka Kotahi NZ Transport Agency:	*Signed on behalf of RepairCert NZ:*

Amendments

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NOTE 2:	Printed copies of RepairCert NZ GRIFs may become out of date, and should not be relied upon without ensuring that the version is current - visit www.repaircert.nz to check that this GRIF is the latest version before relying on the enclosed information.		

Associated Information

Author and Publisher

This Guidance, Requirements, & Inspection Form-set document (GRIF) is authored and published by RepairCert NZ. This GRIF is part of a Repair Certification Manual being progressively developed by RepairCert NZ to support the national repair certification system. The Repair Certification Manual forms an integral part of the New Zealand Government's technical and operational requirements, and is developed by agreement, and in consultation with, Waka Kotahi New Zealand Transport Agency (Waka Kotahi).

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Introduction

Water-ingress, Water-immersion, and Water-damage

'Water-ingress' is where water has entered a vehicle, but the 'water-ingress' is neither sustained nor intensive, and therefore is not to such an extent that the vehicle has sustained 'water-immersion'. If a vehicle is determined by a Repair Certifier to have sustained 'water-immersion', the vehicle must be treated as 'water-damaged'. A 'water-damaged' vehicle must meet the requirements of *RepairCert NZ GRIF # xxx-xx(00) (Water-damaged Vehicles).*

Applicable Legislation

The applicable supporting legislation in relation to water-damage is the Land Transport Rule: *Vehicle Standards Compliance 2002*, which defines water damage as, in relation to a vehicle, damage to a vehicle's critical safety systems as a result of exposure to water.

Water-immersion, or sustained and intensive water-ingress, as a result of weather events such as flooding, traversing water levels deeper than that which the vehicle is designed for, or prolonged exposure to weather without protection (for example with broken glass), can cause damage to a vehicle's critical safety systems. When this occurs, a vehicle becomes defined as a 'water-damaged' vehicle.

Unidentified or incorrectly repaired collision avoidance and crash management systems (ADAS and SRS) within a water-damaged vehicle may not function as intended, creating considerable safety risk for vehicle occupants, and other road users, in the prevention, reduction, or severity of a collision.

For clarity, a 'water-damaged' vehicle is always treated as having been fully-immersed, and can therefore be reasonably assumed that the vehicle's critical safety systems will have been damaged.

Purpose

This Guidance, Requirements, and Inspection Form-set document (GRIF) is intended to provide comprehensive information to assist Repair Certifiers in achieving consistent outcomes when assessing and inspecting a vehicle to determine whether the vehicle has sustained water-ingress or water-immersion.

This information will also assist affected vehicle owners and the repair industry.

Information Provided

More specifically, this GRIF will provide details about:

- what happens to water-damaged vehicles; and
- the risks that water-damaged vehicles present to road safety; and
- the difference between vehicles with water-ingress vs water-immersion vehicles; and
- how vehicles with water-ingress vs water-damaged vehicles may be identified; and
- the process used to distinguish between a water-ingressed and water-immersed vehicle; and
- the requirements which must be applied to a vehicle which has sustained water-ingress; and

- the Inspection Form-set necessary to enable a Repair Certifier to record the inspection process.

In summary, this GRIF should provide all the necessary information required by a Repair Certifier to make good certification decisions in relation to distinguishing between vehicles which have sustained water-ingress and vehicles which have sustained water-immersion.

GRIF Replaces Repair VIRM Content

This GRIF replaces, and significantly expands upon, all of the information relating to water-damaged vehicles contained in the *Waka Kotahi Light Vehicle Repair Vehicle Inspection Requirements Manual (Repair VIRM).*

Part 1: Best-practice Guidance

Background

What Happens to Water-damaged Vehicles

The majority of water-damaged vehicles are written off by insurers as they are usually uneconomic and difficult to repair, and many are subsequently sold off to auto dismantlers for wrecking. This creates potential for repairers to source and re-use second-hand safety-related components from water-damaged wrecks.

Another safety risk is that some written–off water-damaged vehicles will be purchased by unscrupulous re-sellers who will not repair the vehicles properly.

There are also risks that some vehicle owners:

- who are either uninsured, or have chosen not to proceed with an insurance claim, will dry out their vehicles, attempt to repair them, and continue to drive or on-sell them; and
- who are insured, and retain their water-damaged and de-registered vehicles (after settling with their insurance company), will carry out repairs and rectification work without the oversight and advice of a Repair Certifier.

The Safety Risks

Water-immersion into vehicle passenger compartments - even if only up to lower sill lines - can cause corrosion of safety system electronic components, rendering them faulty, inoperable, or liable to premature failure. *Land Transport Rule: Vehicle Standards Compliance 2002*, defines water damage as, in relation to a vehicle, damage to a vehicle's critical safety systems as a result of exposure to water.

Untreated, the impact of water-immersion will become apparent over time with accelerated corrosion of the vehicle structure, and accelerated deterioration of its critical safety systems. Some safety systems may completely fail to operate as intended in a crash, leaving occupants at serious risk, or, such as in the case of a vehicle equipped with Advanced Driver Assistance Systems (ADAS), even fail to prevent, or reduce, the severity of a collision.

Over and above water-damage affecting a vehicle's critical safety systems, electric vehicles present additional risk, as high voltage batteries, wiring, and various other related components, may also be compromised. Even if no water-ingress into the passenger compartment has occurred, most electric vehicles have their high voltage components, batteries, and wiring mounted externally in vulnerable positions, directly underneath the floor-pan.

Water-damaged vehicles present a significant safety risk to the public if they do not go through a high-quality repair process.

The repair certification process is intended to prevent these vehicles going on the road in an unsafe condition, by having in place appropriate controls, including a rigorous inspection process by an authorised Repair Certifier to ensure that water-damaged vehicles are repaired and certified to a safe and compliant standard.

For these reasons, a Repair Certifier must determine whether water-ingress or water-immersion has occurred, and unless it can be clearly established, by using the processes set out in this GRIF, that a vehicle has only sustained water-ingress, a vehicle must be treated as water-immersed, in which case *RepairCert NZ GRIF # xxx-xx(00) (Water-damaged Vehicles)* must be applied.

Water-ingress vs Water-immersion

Water-damage means water-immersion or submersion. There are, however, some circumstances where a vehicle can sustain 'water-ingress' rather than 'water-immersion', meaning that a vehicle which may have been exposed to water is not necessarily 'water-damaged'. There is a very important distinction between water ingress and water-immersion. Water-immersion means that a vehicle has been submerged in water, typically as a result of a flood event, or where a vehicle has ended up in water, such as a river or a lake. Water-ingress, by contrast, is where water has been able to get into a vehicle as a result of (for example) a broken or cracked piece of glazing, a damaged door or boot seal, or a broken tail-light lens allowing water into the boot floor.

A common example is a vehicle having wet carpets as a result of being stolen and recovered (with glazing broken to gain access). In some cases, there will not be any damage to a vehicle's critical safety systems as a result of water-ingress.

An unusual example where a vehicle had water inside it but was determined to have sustained water-ingress rather than water-immersion, was a Land Rover Discovery 4. The vehicle was privately imported (it had not been written-off in its country of origin), and the water found in the vehicle had entered the vehicle after its arrival in New Zealand. The cause of the water entering the vehicle was found to be a blocked sunroof drain, which is a common fault on this model of Discovery. A Repair Certifier applied a thorough inspection process (involving stripping the interior), and engaged the services of a Land Rover expert, which established that none of the vehicle's critical safety systems had been damaged as a result of exposure to water. On that basis, the vehicle was treated as having sustained water-ingress only (not water-immersion), and therefore the vehicle was not classified as water-damaged. The vehicle was then able to be repair certified without having all of the vehicle's critical safety systems replaced, as would be required by *Component Replacement & Repair Table 1 in Section 2 - Requirements of RepairCert NZ GRIF # xxx-xx(00) (Water-damaged Vehicles).*

Distinguishing Between Water-ingress & Water-immersion

Common Signs of Water-ingress or Water-immersion

A vehicle must be treated as a potentially water-damaged vehicle if any evidence exists which suggests water-ingress to the extent of water-immersion. Common indicators of the presence of water-immersion may include:

- a musty smell inside the passenger compartment; or
- wet or damp carpet; or
- excessive condensation on the inside of glazing and lighting lenses; or
- mould or mildew on interior panels, fabrics, and seatbelt webbing; or
- water line marks on door panels and other interior components; or
- silt in the crevices of interior panels such as speaker covers and air conditioning air vents; or
- corrosion on seat base support springs; or
- irregular noises or faults in electrical systems such as check-lights on the instrument cluster not working; or
- corrosion and/or oxidation on exposed metal components such as under dashboard components/panels and seatbelt anchorages (aluminium oxidation will show up as a white powder residue; copper oxidation will show up as a green patina); or
- excessive debris, silt, or water lines in the engine bay compartment or in the crevices of engine components such as alternators; or

- excessive silt and water staining in the spare wheel well; or signs of an attempt to dry out a vehicle such as the removal of vehicle body drain bungs; or
- a hydro-locked engine; or
- hail damage.

A Repair Certifier must inspect a potentially water-immersed vehicle to determine if the vehicle has sustained water-ingress or water-immersion.

Criteria for Treating a Vehicle as having Sustained Water-ingress

A vehicle which has sustained water-ingress can be treated differently than one which has sustained water-immersion. However, it is important to understand that a vehicle can only be categorised as having sustained water-ingress (rather than water-immersion) if:

- the vehicle has not been written-off by an insurer because of water-damage (which includes any vehicle described as 'statutory write-off', 'salvaged', 'junked', or 'non-repairable'); and
- there is clear evidence to establish exactly how the water-ingress occurred; and
- it can be clearly established, via a thorough examination by a Repair Certifier (involving stripping and dismantling as necessary) that no damage has occurred to any part of the vehicle's critical safety systems as a result of exposure to water.

If the above criteria is met, and a Repair Certifier is satisfied that a vehicle has sustained water-ingress only, such a vehicle will not be considered to be water-damaged.

A Repair Certifier must, however, always treat a vehicle as a water-damaged vehicle if either:

- the vehicle has been written-off by an insurer because of water damage; or
- there is no evidence to prove that a vehicle only sustained water-ingress; or
- the Repair Certifier determines, as a result of inspection, that the vehicle has been subjected to water-immersion; or
- a critical safety item has been damaged as a result of exposure to water.

A procedure for providing a thorough examination by a Repair Certifier (involving stripping and dismantling as necessary) to clearly establish that no damage has occurred to any part of the vehicle's critical safety systems as a result of exposure to water, and that a vehicle may be considered, therefore, to have sustained water-ingress only, is provided in the Inspection process to determine water-ingress vs water-immersion sub-section.

It is recommended that Repair Certifiers contact RepairCert NZ for guidance in making any determinations which may result in a vehicle being treated as having sustained water-ingress.

An Investigative Approach

Because of the risks, obtaining previous history of any vehicles which have been written-off for any reason is a very important step in understanding exactly what has happened to the vehicle, and so every effort should be made to obtain vehicle incident history. Sometimes, good background information – in particular photographs - can show that a vehicle may in fact be water-damaged, even if the insurance information doesn't mention water damage.

Obtaining this information can be difficult, but it is possible with vehicles that have been written-off in New Zealand. Insurance companies will provide details from the previous registration number or a claim number, and while this process can be time consuming, it is worth the effort.

Australian statutory write-offs are more difficult. Australian authorities have 'incident codes' but these are vague, and often prove to be incorrect.

For vehicles which have been written-off in both New Zealand and Australia, a Repair Certifier will need to obtain a copy of the purchase invoice from the auction house. Also, obtaining images and details from auction houses of a water-damaged vehicle (at the time of the incident) is sometimes possible.

An example that serves to illustrate the importance of having all information available is a vehicle recently repair certified for hail damage, with hail damage listed as the reason for the vehicle having been written-off by the insurer. Initially the Repair Certifier sighted just one photograph from the auction house, showing the front of the vehicle. When the Repair Certifier requested all photographs that the auction house had on file, the Repair Certifier discovered that the vehicle had a broken rear glass and had been sitting, full of water, for some weeks.

Pics

Another example highlights how some vehicle owners will behave in a deceitful manner. The owner of the vehicle pictured below claimed to the Repair Certifier that the vehicle was immersed up to the top of the wheels. The Repair Certifier carried out some basic investigative work, and obtained the photo below from a previous owner showing that the vehicle was in fact immersed up to the dashboard.

Pics

Inspection Process to Determine Water-ingress vs Water-immersion

Outline of Inspection Process

A Repair Certifier must, wherever possible, sight a potentially water-damaged vehicle prior to any cleaning or removal of any components in order to determine whether it has sustained water-ingress or water-immersion. During this preliminary inspection, a Repair Certifier must:

- assess, as much as is possible, the vehicle's overall condition; and
- determine the extent and likely cause of the potential water-damage; and
- determine and communicate to the vehicle owner whether the vehicle appears to be economically-viable to repair; and
- provide guidance to the vehicle owner on what the next steps are.

Details of Inspection Process

A Repair Certifier may apply an appropriate inspection process that takes into account where the water has entered the vehicle, and the level of technology (in particular relating to safety systems) involved in the vehicle. However, where a Repair Certifier is uncertain about the extent of water that has entered the vehicle, the following procedure can be used as a guide to confirm (or otherwise) whether the vehicle can be treated as having sustained water-ingress rather than water-immersion.

Exterior

The Repair Certifier should:

- walk around the exterior of the vehicle, looking for any water marks on the bodywork, inside wheel houses, grills, inside lights, and any other components or cavities; and
- open the doors and look for water marks on the door frames and pillars.

Interior

After a preliminary inspection by the Repair Certifier with the interior in place, the interior of the vehicle must be removed, including all seats, console, pillar trims, tread plates, carpets, rear quarter-trims, and all boot trims, and the Repair Certifier should look:

- for silt deposits that may have settled on hinges or in speaker covers on door trims, or water level marks on carpets or on the sides of the tunnel or console trims; and
- at the upholstered side of the seats looking for moisture (if the seat squabs are heavy, it is likely to be because the foam being full of water; and
- under the seats to see if there is corrosion on the springs or seat frames, and look out for paint overspray on the foam or upholstery as a result of seat frames having been painted prior to the inspection; and
- at the front seatbelt retractors and pre-tensioners by fully extending the webbing to expose the aluminium bobbins and check for aluminium oxide (a white powdery residue that appears if the alloy has been wet for any period of time), and that may have transferred from the bobbins to the webbing; and
- for water marks, corrosion, or silt deposits:
    - inside door cards and sealing sheets; and
    - on the steering column and under-dash frames; and
    - inside the cigarette lighter or any auxiliary power plugs; and
    - inside cup-holders, air-vents, and inside dash clusters; and
    - at the seatbelt retractor detonator connectors.

Engine Bay and Boot

The Repair Certifier should:

- lift the bonnet, and remove the air cleaner to see if water has entered the air box, checking the air cleaner element, and air ducting for water marks, corrosion, or silt deposits (if the water has entered the air box, establish whether the engine operation has been affected); and
- check the engine oil for water ingress; and
- look for water marks, corrosion, or silt deposits:
    - inside the radiator support panel cavities; and
    - on the engine block and inside radiator core cavities; and
    - on firewall sound deadening; and
    - throughout the boot area, including the spare wheel housing and inner wheel housings.

Electrical and Electronic Systems

The Repair Certifier should:

- check all electrical wiring casings, base plates, circuit boards, connector pins and bayonets, fuse and relay box holders, wiring terminals and connector holders, looking for water marks, corrosion, silt deposits, and mud-lines; and
- check the wiring loom (modern looms often have stainless steel connectors, however they still show oxide and evidence of short-circuiting on the connectors, in which case the affected wires must be exposed for inspection); and
- check all ECUs from the engine bay, under seats, top of the transmission tunnel, inside A pillars, in rear guards, and in C pillars, looking for evidence that water has been around or above the ECU; and
- check all inertia sensors (these are often mounted under front seats or on transmission tunnels, and although they are normally a sealed unit, they must still be checked as some do have holes that water can enter through); and
- check all SRS airbag units for moisture (even condensation can badly corrode airbag units and may stick the folds in the bag together).

Underbody and Mechanicals

After hoisting the vehicle, removing all four wheels, guard liners, front and rear bumper assemblies, engine and underbody trays and covers, a Repair Certifier should:

- check for the presence of sensor, radar, sonar and lidar units housed in behind or attached to bumper covers, mounting brackets, crash beams and reinforcements; and
- remove any drain bungs from sills and chassis sections, and where possible feel around inside with a finger, or look with endoscope; and
- check for the presence of any underbody ECUs which could be housed in inner guards, on transmission housings, and on engine blocks; and
- look for water marks, corrosion, silt deposits, mud-lines, lawn clippings, leaves, and other debris:
    - on the bodywork and where it may have settled on top of ledges; and
    - in the transmission tunnel by removing heat-shields above exhaust pipes and mufflers; and
    - on top of components attached to the underside of the floor such as petrol tanks.

NOTE 1:	A vehicle that has been submerged in salt water very rarely leaves a water-line, but there will be sand deposits in sills, chassis rails, inside other boxed sections, and on any ledges that it can find to sit on.
NOTE 2:	Flood waters and dirty rivers normally do leave a water line. Although engine bays, interiors, and underbodies are often pre-cleaned prior to a Repair Certifier inspecting the vehicle, often under-guard liners are not removed and water levels can be found by removing them, along with inside wheel-houses, and inside bumper covers.

Determination

Steps to Take Post-inspection

After carrying out this inspection process:

- if a Repair Certifier determines that a vehicle has sustained water-ingress, the requirements specified in *Section 2 - Requirements* of this GRIF must be applied; or

- if a Repair Certifier determines that a vehicle has sustained water-immersion, the vehicle must be treated as water-damaged, and *RepairCert NZ GRIF # xxx-xx(00) (Water-damaged Vehicles)* must be applied.

A vehicle must always be treated as water-damaged if the Repair Certifier determines, during the inspection process, that either:

- any signs of water-immersion become apparent; or
- it is apparent that one or more safety-critical components (as defined in Annex A - '*Definition of Safety-critical Components'*) in the vehicle have been damaged as a result of exposure to water.

Guidance to Vehicle Owners

A vehicle owner relies on a Repair Certifier to provide guidance as to whether a vehicle has sustained water-ingress or water-immersion, and if the vehicle has sustained water-immersion, whether the vehicle is going to be economic to repair.

Using the relevant *Water Damaged Vehicles Component Replacement and Repair Table in Section 2 - Requirements of RepairCert NZ GRIF xxx-xx(00) (Water-damaged Vehicles)*, a Repair Certifier should assist the vehicle owner in understanding the components that are required to be replaced or repaired so that the vehicle owner can establish the approximate costs involved in making the vehicle safe and compliant, so as to determine if it is economically viable to repair the vehicle.

If a vehicle is potentially economic to repair, when a Repair Certifier has determined the type and extent of repairs which must be carried out in order to make a water-damaged vehicle safe and compliant, the Repair Certifier must communicate to the vehicle owner:

- the required repair process; and
- the stages of the repair process at which the vehicle must be re-inspected.

Damage Flags

A Damage Flag may be lifted by a Repair Certifier in the case of a vehicle which has sustained water-ingress.

Part 2: Requirements

Section 1: Repair Certifiers' Inspection Process

1.1 A Repair Certifier must, when inspecting a water-ingressed vehicle:

- in order to become fully conversant with the subject of water-immersed vehicles, read *Section 1 - Best-practice Guidance and Section 2 - Requirements* of this GRIF; and
- thoroughly inspect the vehicle; and
- oversee all necessary repairs; and
- record the inspection process; and
- provide all required documents and supporting information.

1.2 The requirements specified in *Section 2 – Requirements* must not conflict with any procedures specified by the relevant OE vehicle manufacturer. If an OE vehicle manufacturer provides a specification for the repair of water-damaged vehicles, this should take precedence over these requirements.

Section 2: Scope and Application

2.1 Scope of Requirements

NOTE:

2.2 Over-arching Expectations

Section 3: General Requirements

3.1 Preliminary Inspection & Determination

3.1.1 A Repair Certifier must, when presented with a vehicle which may have sustained any water ingress or immersion:

(a) oversee or undertake the strip out process of the vehicle as detailed in 'Inspection process to determine water-ingress vs water-immersion' in Section 1 - Best-practice Guidance; and

(b) carry out the inspection process of the vehicle as detailed in 'Inspection process to determine water-ingress vs water-immersion' in Section 1 - Best-practice Guidance; and

(c) decide, as detailed in 'Determination' in Section 1 - Best-practice Guidance if the vehicle has sustained water-ingress or water-damage.

NOTE	In requirement 3.1.1 (a) a Repair Certifier may delegate the process of stripping out the vehicle.
NOTE	In requirement 3.1.1 (c) if any safety-critical components have been exposed to water, the vehicle must be treated as water-immersed, and RepairCert NZ GRIF # xxx-xx (Water-damaged Vehicles) must be applied. Components that are defined as 'safety critical components' are listed in Annex A - 'Definition of Safety-critical Components'.

3.1.2 If a Repair Certifier determines that a vehicle has sustained water-ingress, the Repair Certifier must:

(a) apply the Technical Requirements specified in Section 2 – Requirements; and

(b) oversee any repairs that may be required in order to make the vehicle safe and compliant.

3.1.3 If a Repair Certifier determines that a vehicle has sustained water-immersion, *RepairCert NZ GRIF # xxx-xx (Water-damaged Vehicles)* must be applied.

NOTE	In requirement 3.1.3 Components that are defined as 'safety critical components' are listed in Annex A - 'Definition of Safety-critical Components'

Section 4: Technical Requirements

4.1 Body and Chassis Requirements

4.1.1 All water contamination must be removed from all panels, structural sections, surfaces, components, and cavities on a water-ingressed vehicle.

4.2 Interior, Engine Bay, and Boot Requirements

4.2.1 The interior, engine bay, and boot area of a water-ingressed vehicle must be completely free of:

(a) wetness, dampness, moisture, or condensation; and

(b) mould or mildew; and

(c) any musty smells which might indicate the presence of water; and

(d) any visible signs of water ingress; and

(e) any corrosion caused by water ingress.

NOTE 1:	In relation to an engine bay, 4.2.1 does not apply to typical water ingress that occurs during normal vehicle operation.

4.3 Electrical System Requirements

4.3.1 All electrical components, and controls which operate electrical components within a water-ingressed vehicle, must:

(a) be free of corrosion; and

(b) function correctly and normally.

4.3.2 All electrical wiring connectors fitted to a water-ingressed vehicle must:

(a) be cleaned with a high-quality contact cleaning material; and

(b) be lubricated with electrical grease or an appropriate electrical lubricant.

4.3.3 Any Advanced Driver Assistance Systems (ADAS) equipment fitted to a water-ingressed vehicle (including Radar, Lidar, Sonar, or cameras) which has been disconnected for the purpose of the inspection process, must, if specified as necessary by the vehicle manufacturer, undergo the required scanning and re-calibration.

Section 5: Other Requirements

5.1 Evidence in relation to the history of a vehicle which has sustained water-ingress must be provided to verify:

(a) how the water-ingress occurred; and

(b) that the vehicle has not been imported from overseas since the water-ingress event occurred; and

(c) that the vehicle has not been recorded as a water-damaged vehicle by an insurer or a New Zealand or overseas regulatory body.

NOTE	In requirement 5.1 (b) a 'water-damage event' does not mean a minor leak (allowing minor water-ingress) caused by something like a damaged boot seal, tail-light, or sunroof drain.

5.2 Evidence in relation to the condition of a vehicle which has sustained water-ingress must be provided to verify that:

(a) no damage has occurred to any part of the vehicle's critical safety systems as a result of exposure to water; and

(b) any necessary diagnostic scans have been carried out by a suitably skilled person to ensure that the vehicle's electrical and electronic systems function correctly and normally.

NOTE	In requirement 5.2 (a) non-safety critical components can be replaced without the vehicle being treated as having sustained water-immersion.
NOTE	In requirement 5.2 (b) Any expert outwork undertaken (such as diagnostic scans) must be carried out by someone who the Repair Certifier has confidence in to carry out a thorough and detailed investigative process.

Section 6: Exclusions

No exclusions apply to this Section.

Section 7: Terms and Definitions

Part 3: Inspection Form-set

Water-ingressed Vehicles - #FS010

The Inspection Form-set is to be used for the inspection of vehicles that have been subject to water-imgress.
The statements in this Inspection Form-set are a series of 'prompts' which directly relate to the requirements contained in *Section 2 – Requirements* of this GRIF. *Section 2 – Requirements* must be used as a reference and support document to this Inspection Form-set during a repair certification inspection.

Vehicle Information		
Vehicle Make:	**Vehicle Model:**	**VIN:**
Client:	**Repair Certifier ID:**	**Inspection Date:**

Form-set Section Contents *(tick those that are applicable, & note N/A for those that don't apply)*			
	YES	**N/A**		**YES**	**N/A**
Section 1 - Repair Certifier's Inspection Process			Section 4 - Technical requirements		
Section 2 - Scope and Expectations			Section 5 - Other Requirements		
Section 3 - General Requirements					

Section 1 - Repair Certifier's Inspection Process					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
1	1.1.	I have: • become familiar with *Section 1 - Best-practice Guidance and Section 2 - Requirements* of this GRIF; and • thoroughly inspected the vehicle; and • overseen all necessary repairs; and • recorded the inspection process; and • provided all required documents and supporting information.			
Notes:					

Section 2 - Scope and Application					
2.1 - Scope of Requirements					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
		•			
2.2 - Overarching Expectations					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
		•			

Item #	Part 2 Ref #	Requirement	Comment	YES	N/A

Notes:

Section 3 - General Requirements

3.1 - Maintaining As-manufactured Condition

Item #	Part 2 Ref #	Requirement	Comment	YES	N/A
	3.1.1	The manufacturer's specifications and instructions have, where applicable, been applied to the replacement components and systems.			

Notes:

Section 4 - Technical Requirements

4.1 - Safety-critical component replacement or Repair

Item #	Part 2 Ref #	Requirement	Comment	YES	N/A
	4.1.1	All safety-critical components and systems required by the relevant Component Replacement & Repair Table 1, 2, or 3 have been fitted/repaired.			
	4.1.2	Replaced or repaired safety-critical components and systems required by Table 1, 2, or 3 are: • within safe tolerance, and fit for purpose; and • not sourced from a water-damaged vehicle.			

4.2 – Body and Chassis Requirements

Item #	Part 2 Ref #	Requirement	Comment	YES	N/A
	4.2.1	Water and other contamination have been removed from all areas of the vehicle.			
	4.2.2	Vehicle has had all seams and cavities: • flushed with water; and • rust treated.			
	4.2.3	All affected seams and cavities have: • had corrosion protection reinstated; and • been cavity-waxed.			

4.3 - Mechanical Systems Requirements

Item #	Part 2 Ref #	Requirement	Comment	YES	N/A
	4.3.1	Hydraulic braking system components have been (if not replaced) restored to OEM specification			
	4.3.2	Hydraulic braking system has been (if not replaced) cleaned, bled, and new fluid fitted.			
	4.3.3	Braking system cables (if not replaced) are free of moisture, and lubricated.			

4.4 - Electrical Systems Requirements

Item #	Part 2 Ref #	Requirement	Comment	YES	N/A
	4.4.1	Electrical components, and controls (if not replaced) which operate electrical components, are: • free of corrosion; and • function correctly and normally.			

Item #	Part 2 Ref #	Requirement	Comment	YES	N/A
	4.4.2	Electrical connectors (if not replaced) have: • had contact cleaner applied; and • been lubricated.			
	4.4.3	High-voltage batteries, wiring, & related components in a BEV, PHEV, or PEV have (if not replaced) been inspected and assessed as safe by: • vehicle manufacturer's representative; or • suitably qualified EV repair specialist.			
4.5 - Interior, Engine Bay, and Boot Requirements					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
	4.5.1	Interior, engine bay, and boot is free of: • wetness, dampness, moisture, & condensation; and • mould, mildew, or musty smells; and • visible signs of water-ingress or water-immersion; and • visible signs of silt debri or silt marks; and • any corrosion caused by water-ingress or water-immersion.			
Notes:					
Section 5 - Other Requirements					
5.1 - Sourcing of Safety-critical Components					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
	5.1.1	Documented evidence of the source of all replacement components required by relevant Component Replacement & Repair Table 1, 2, or 3 (using RCNZ Second-hand Replacement Components Declaration Form) has been provided, which shows: • origin of replacement components; and • that replacement components meet the same specifications as OEM; and • that replacement components are within OEM operating tolerances.			
5.2 - Specialist Work Out-sourcing					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
	5.2.1	Suitably-qualified specialists have been engaged to perform: • pre and post diagnostic scans on ABS, SRS, and other safety-related electrical systems; and • Scanning and calibration of ADAS.			
21	5.2.2	Suitably-qualified specialists have been engaged to provide: • a RCNZ Brake Declaration Form; and • an NZTA SRS Declaration Form; and • an NZTA ADAS Declaration Form.			
5.3 - Non-Safety Cri□cal Components					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
	5.3.1	Other non-safety critical components affected by water-immersion have been replaced or repaired, including: • air-conditioning compressor; and • clutch release bearing; and • idler pulleys on a belt-drive system; and			

Item #	Part 2 Ref #	Requirement	Comment	YES	N/A
		• front and rear differentials, transfer case, and automatic or manual transmission; and • other components which, if damaged, could affect the reliable operation of the vehicle.			
5.4 - Vehicle Operation					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
	5.4.1	Repaired vehicle has been road-tested, and functions safely & normally.			
5.5 - Disposal of Electrical Components					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
	5.5.1	Electrical ECUs, other components, & wiring looms being replaced: • are marked as water-damaged; and • have part numbers recorded; and • have been rendered inoperable.			
5.6 - Notification					
Item #	**Part 2 Ref #**	**Requirement**	**Comment**	**YES**	**N/A**
	5.6.1	Waka Kotahi has been notified of water-damaged vehicle, by: • adding vehicle to Written-off & Damaged Vehicle's list; and • recording in Vehicle Notes section of Landata.			
Notes:					

Drawings/diagrams