

Damage Assessment Criteria for the Classification of Light Vehicle Statutory Write-Offs

Austroads is the peak organisation of Australasian road transport and traffic agencies.

The NMVTRC is an initiative of all Australian Governments and the Insurance Industry.



National Motor Vehicle
Theft Reduction
Council

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About this guide

This guide has been developed by the National Motor Vehicle Theft Reduction Council (NMVTRC) and Austroads to support the consistent application of new, more stringent assessment criteria for the classification of written-off vehicles (WOVs). The new criteria apply to passenger and light commercial vehicles only. Readers should refer to the local related laws about the management of heavy vehicles, motorcycles, trailers and caravans.

The new criteria are designed to consistently identify and appropriately classify those WOVs that should not be repaired on safety grounds and are suitable only for dismantling or scrap.

This guide is intended to be used by insurance personnel and other *notifiers* who are required to classify WOVs for regulatory purposes. It has been prepared on the basis that it provides sufficient technical precision to be able to be expressly referenced as an incorporated instrument under State and Territory law should a jurisdiction wish to do so. See Figure 1 for an overview of the end to end *assessment* process.

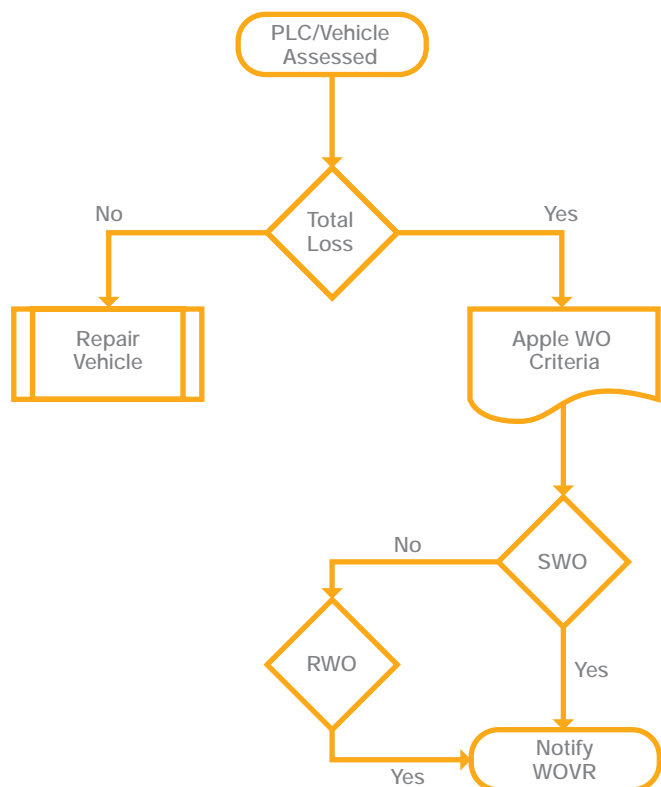
The illustrations used throughout the guide depict the type of damage that would be consistent with the technical terms used in the detailed assessment criteria i.e. buckled, cracked, cut, fractured and folded. While they have been developed from detailed photographs of a select group of appropriately damaged vehicles, they are not intended to portray precise degrees of damage. That is to say – a buckle, crack, cut, fracture, or fold of lesser size or proportion than depicted in an illustration would still mean the relevant criteria are met.

The 'Nomenclature guide' on page 26 also provides additional direction on the technical terms.

The NMVTRC and Austroads thank the many technical experts and advisers from across the insurance industry, motor trades, police and road transport sectors that have contributed to the development of the criteria and this guide.

Additional copies can be downloaded in PDF format, free of charge from the Austroads website www.austroads.com.au

Figure 1



Statutory write-off criteria

Under Australia's national framework for the management of WOVs any vehicle that has been determined to be a total loss by an insurer or other *notifier*¹ as a result of:

- damage induced by a collision, fire, water inundation, other weather event, malicious action; or
- dismantling or stripping;

must be classified to be either a Statutory Write-Off (SWO) or Repairable Write-Off (RWO).

A SWO may only be sold subject to a statutory restriction that it may only be used for parts or scrap metal. A RWO may be repaired and re-registered subject to the vehicle passing specific safety and identification inspections.²

A vehicle determined to be a total loss must also be assessed against the criteria set out in this guide to determine its classification. There are 11 categories of potential damage that each vehicle must be assessed against, comprising:

- three forms of specific 'event' related criteria (fire, water and vehicle stripping). If the vehicle meets any of these criteria, it must be classified as a SWO; and
- eight separate areas of potential structural damage to be reviewed. These are set out on pages 6-24 of this guide. If the vehicle is assessed to have sustained damage to any three of the identified structural areas and/or supplementary restraints it must be deemed to be a SWO, e.g. two structural areas and supplementary restraints or three structural areas. Each different and separate area of damage to the pillars, floor pan, longitudinal rails or independent suspension mounts must all be counted separately towards meeting the 'three count threshold' for SWO status.

The criteria have been developed to err on the side of caution in terms of safety to ensure that vehicles that have sustained significant damage are consistently identified and appropriately classified as suitable only for dismantling or processing as scrap.³

Event criteria

Fire criteria

The fire damage SWO criteria consider in-vehicle (engine compartment, occupant cabin and/or boot) and external damage. A fire (whether in-cabin or external) which causes the internal and/or external paint to blister on any three of the following structural members; roof, pillars, floor pan, firewall and or structural rails/chassis shall be deemed a SWO.

Paint blistering on the doors and/or external panels that are designed to be detached is not sufficient for the vehicle to be classified a SWO as these components can be replaced without affecting the rest of the structure.

In addition, where a vehicle has sustained a combination of exterior and interior fire damage such that it is determined to be a total loss, it is to be classified as a SWO.

Water damage criteria

Where the internal cabin of a vehicle is inundated with any water (fresh, salt and/or brackish water) such that the internal cabin water level rises above the level of the inner door sill for any period the vehicle is to be classified as a SWO.

Vehicle stripping criteria

Where a vehicle is stripped of interior or exterior parts, panels and components such as wheels, bonnet, guards, doors, boot lid and interior parts or a combination of these items, and is determined to be a total loss, it is to be classified as a SWO.

Structural criteria

The 'Structural criteria' appear on the following pages.

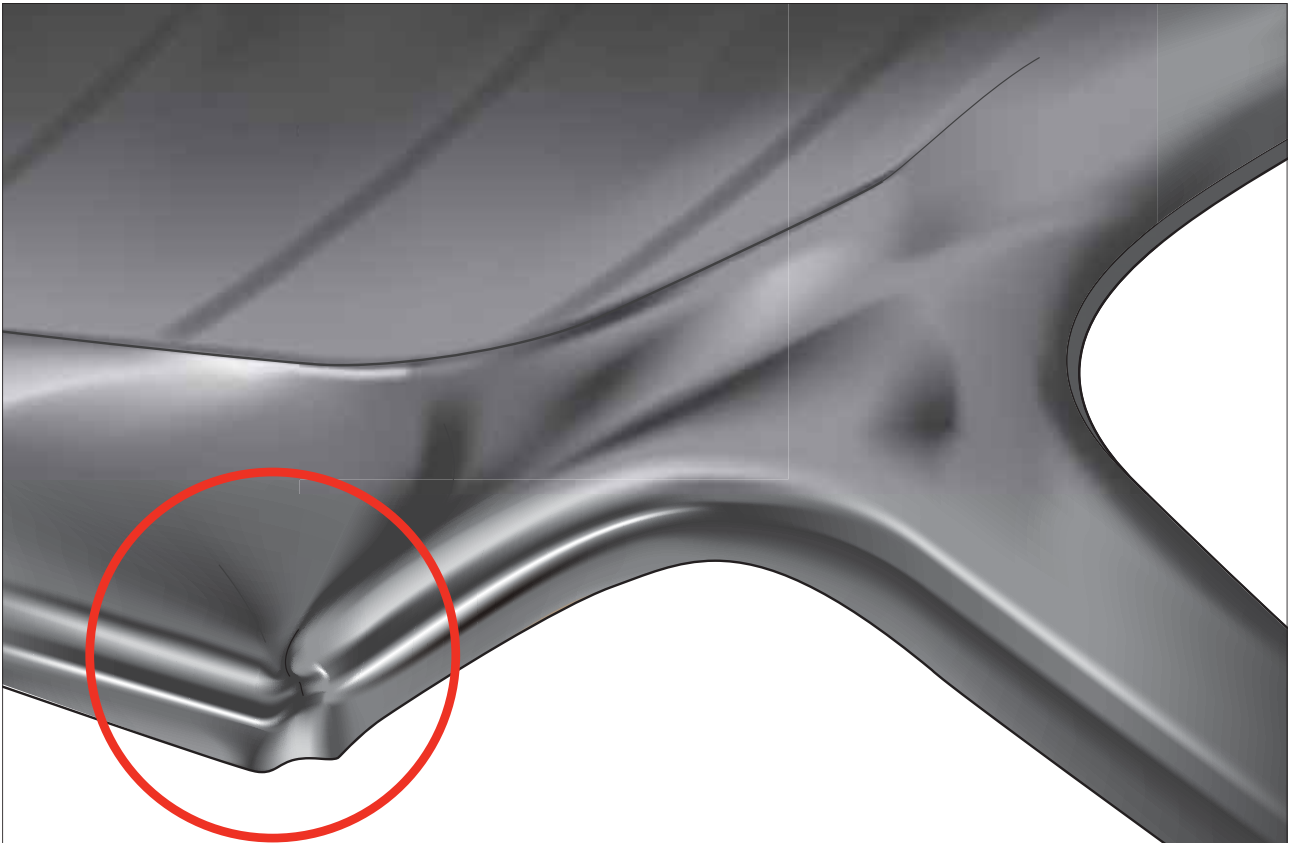
1. The range of persons defined as *notifiers* is specified in the related law of each jurisdiction. However, it may extend to insurers, self-insurers, auction houses, motor car traders, and automotive dismantlers or recyclers or vehicle owners.

2. While New South Wales (NSW) law bans the re-registration of most WOVs, the Roads and Traffic Authority (RTA) has indicated that it will apply the assessment criteria contained in this guide to any vehicle considered for exemption from the general ban. Full details of the NSW scheme are available from the RTA website www.rta.gov.nsw.au

3. Interested readers can download reports on the development of the criteria and related in-field testing from the publications page of the NMVTRC website www.carsafe.com.au

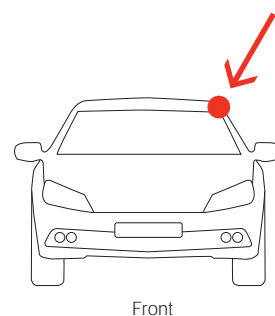
1. Roof

The criteria to be used for the vehicle's roof is that if the roof has been loaded such that individual structural element(s)/member(s) have been structurally: fractured, cut, cracked, buckled and/or is folded over onto itself, then the roof has an area of structural damage.



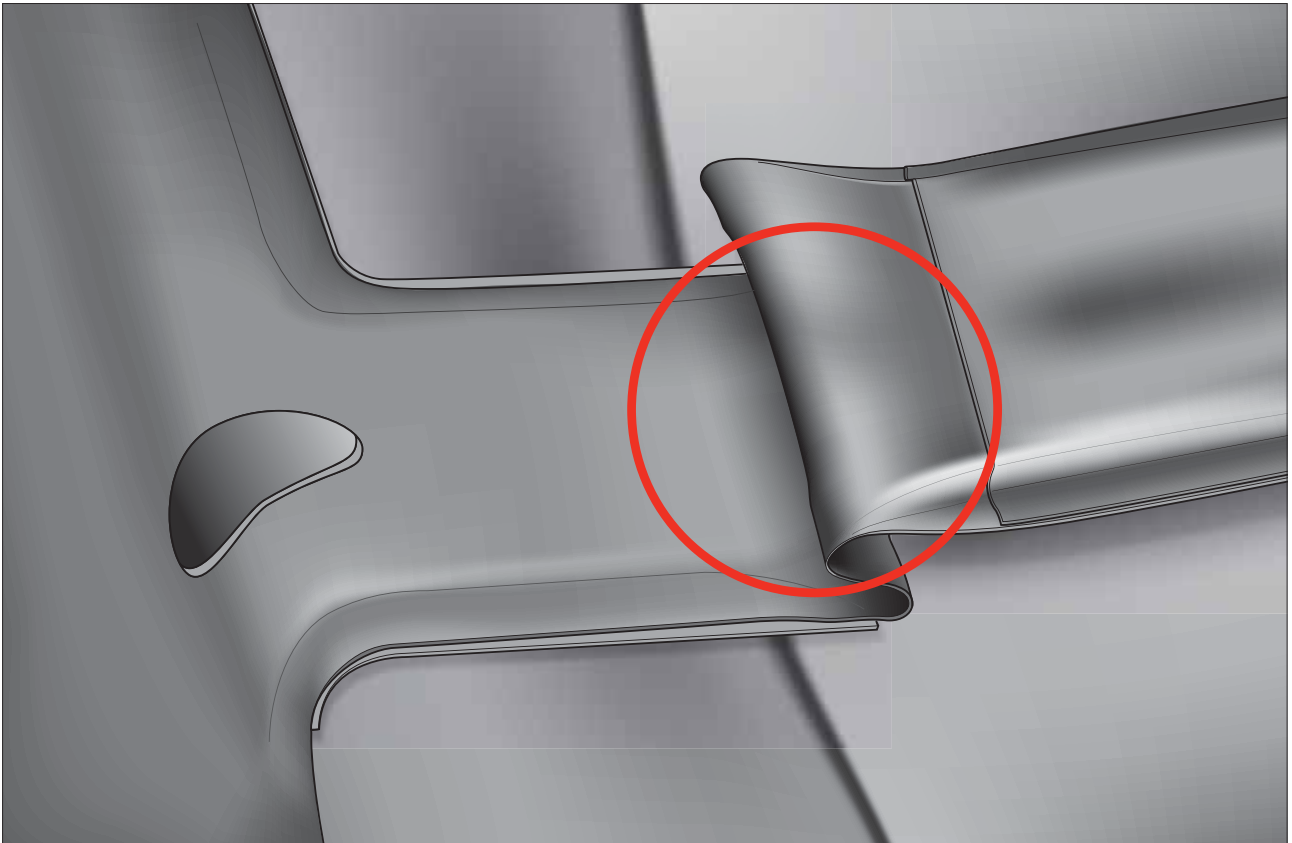
1.1 Roof – buckled

View of the roof, windscreen header, front left door header and 'A' pillar. The roof has been structurally loaded such that the windscreen header has buckled.



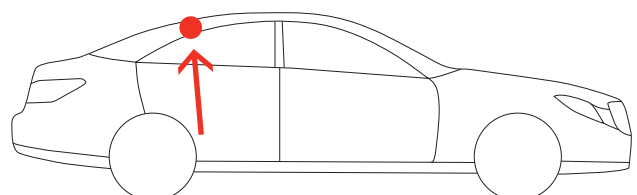
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

1. Roof continued



1.2 Roof support rail – folded

Internal view of lateral roof rail which due to structural loading has folded over onto itself.



Driver side

The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

1. Roof continued

Roof versus pillar damage

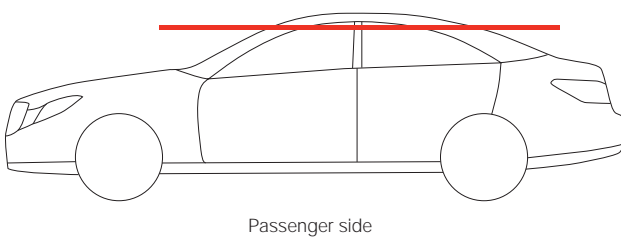
A 2017 audit of assessed total losses found a small number of cases where load damage reaching into the roof area was assessed to be contained to the adjoining pillar only. The problem is exacerbated in vehicles featuring sweeping, complex roof lines.

It is therefore recommended that Assessors apply a virtual halo to the side elevation of a subject vehicle, with those parts of the structure within the halo to be classified as forming part of the roof.

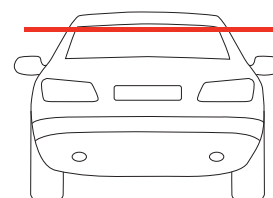


Roof v Delineation

Above the horizontal line equals roof.



Passenger side

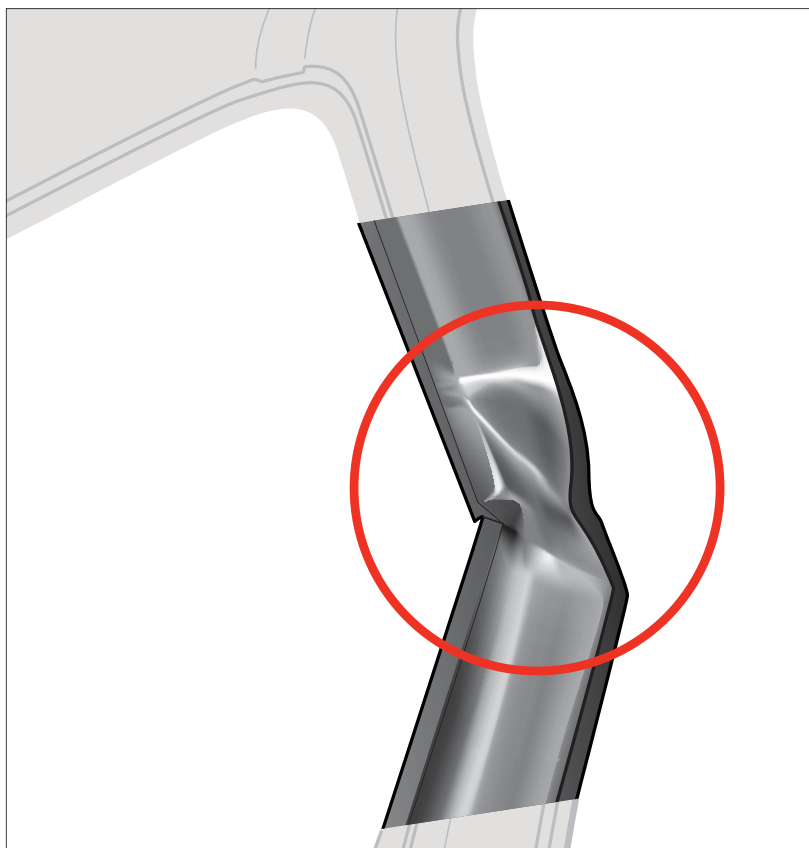


Rear

2. Pillars

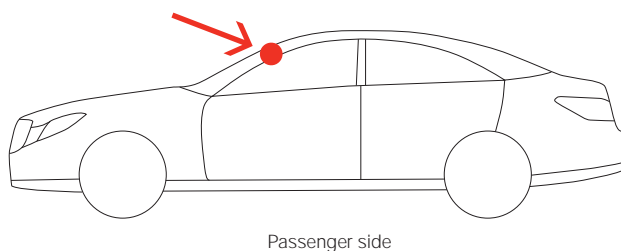
The criteria to be used for the vehicle's pillars is that if the pillar(s) has/have been loaded such that an individual structural element has been structurally: fractured, cut, cracked, buckled and/or is folded over onto itself, then the pillar has an area of structural damage.

Each pillar counts separately i.e., if three pillars are structurally damaged then based on the pillar damage alone the vehicle would have three areas of structural damage. Hence, the vehicle with three damaged pillars would be classified as a SWO.



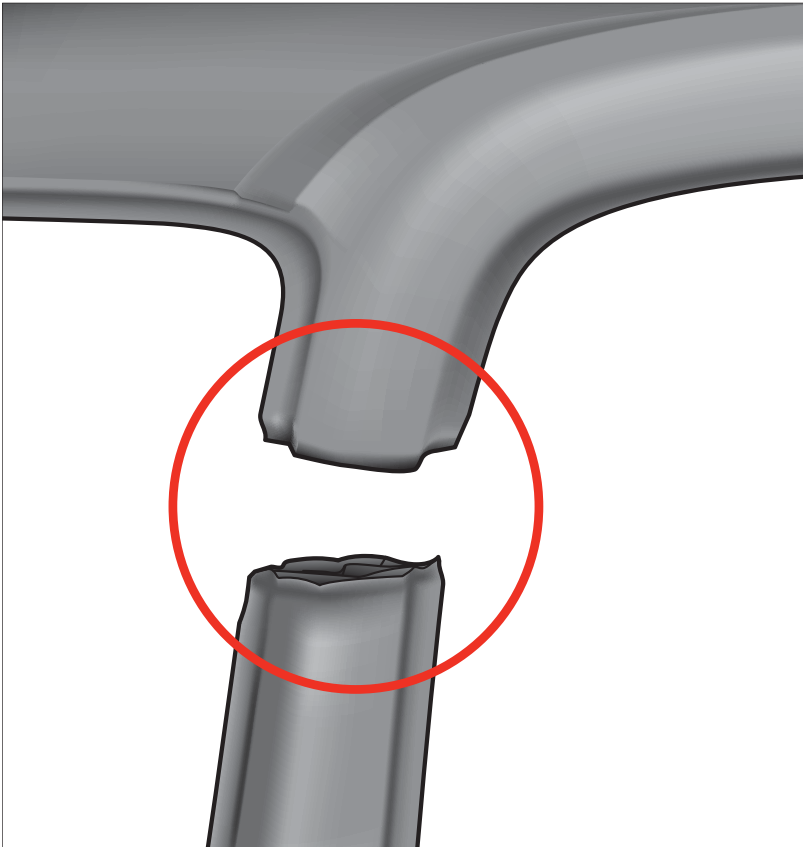
2.1 'A' pillar – buckled

A vehicle 'A' pillar which has failed by buckling due to structural loads to the roof.



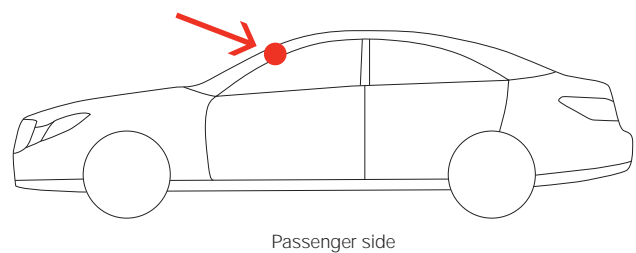
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

2. Pillars continued



2.2 'A' pillar – cut

The 'A' pillar of a vehicle which has been cut (e.g. by emergency services personnel to permit occupant extraction).



The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

2. Pillars continued

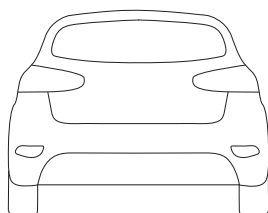
Inaccessible pillar damage

In small cars, closed rear door apertures should be regarded as symptomatic evidence of an underlying structural indicator being present but not readily visible or accessible.⁴

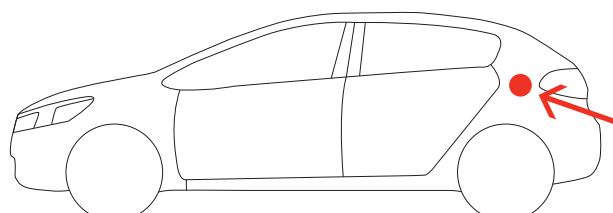
This is most likely to occur only in the smallest passenger vehicles involved in an off-set rear impact resulting in hidden damage to the rear longitudinal rail and pillar.



Small car – Rear offset impact resulting in closed rear door aperture



Small car – Rear



Small car – Passenger side

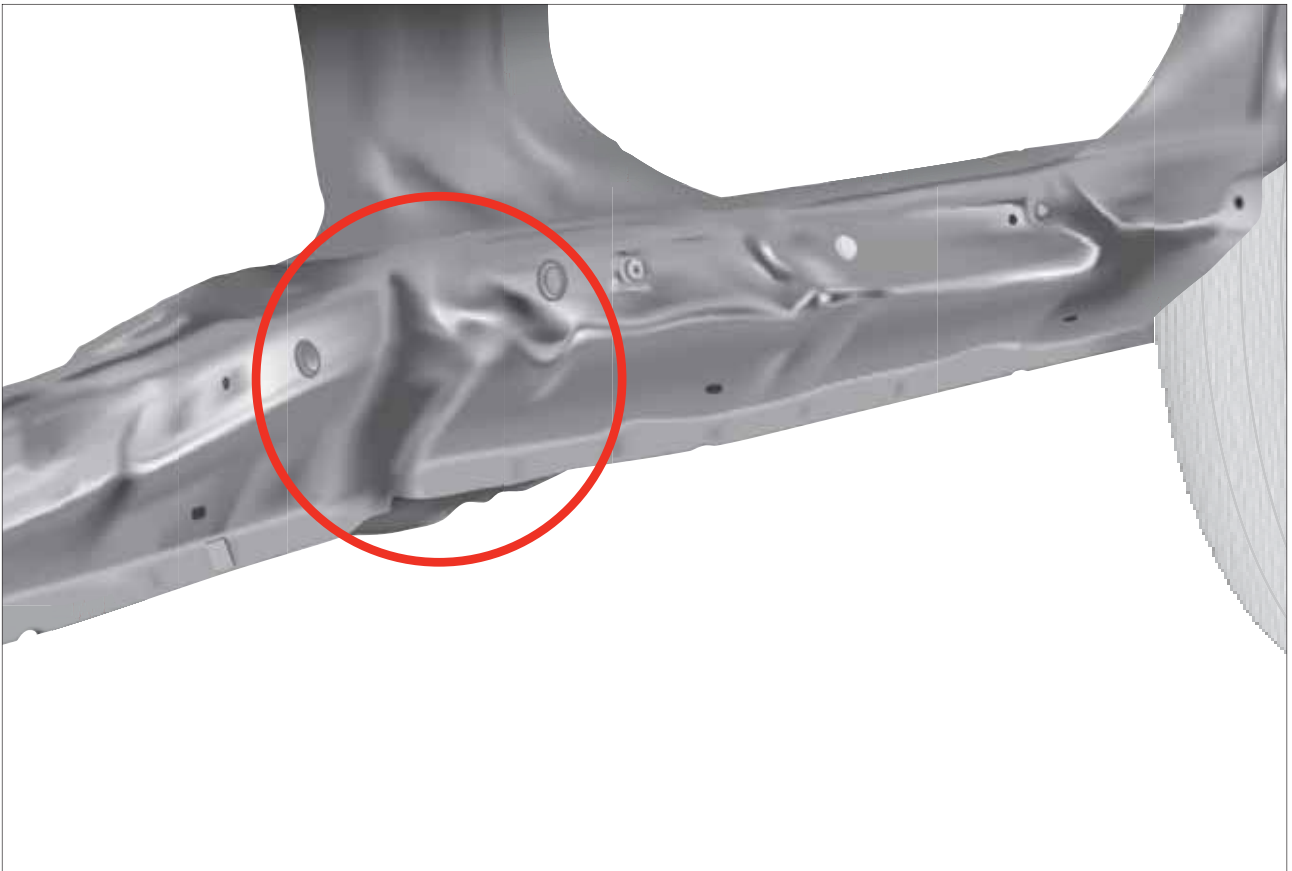
4. A 2017 audit of assessed total losses found several examples of body misalignment indicating a structural load in the rear pillars (evidenced by the closure of rear door gaps) without a visible load indicator eg. buckle, crack, cut, fold or fracture. In practice, this approach is already applied routinely in respect of many frontal impacts where it is obvious from adjoining damage that a structural load must have been transferred to, say, the vehicle's firewall but the physical evidence is hidden by contiguous damage or is inaccessible. In field audits, the problem was not evident in small-medium or larger vehicles.

3. Floor pan

The criteria to be used for the vehicle's floor pan is that if the floor pan has been loaded such that individual structural element(s)/member(s) have been: fractured, cut, cracked, buckled and/or is folded over onto itself, then the floor pan has an area of structural damage. Each different and separate area of damage to the floor pan must be counted individually, i.e. damage under the driver's seat and damage under the rear passenger side seat

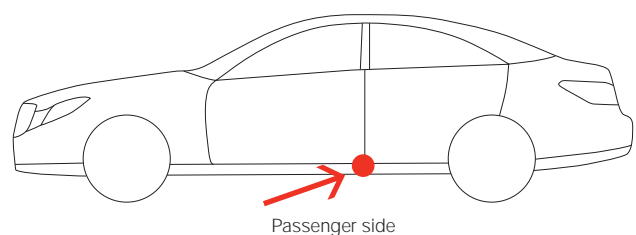
represents two areas of structural damage. Hence the vehicle would require only one other area of structural damage to be classified as a SWO.

The floor panel commences from and includes inner sill panel where that panel attaches to the floor pan. It however, excludes the outer sill/rocker panel and internal stiffener and braces between the inner and outer panels.

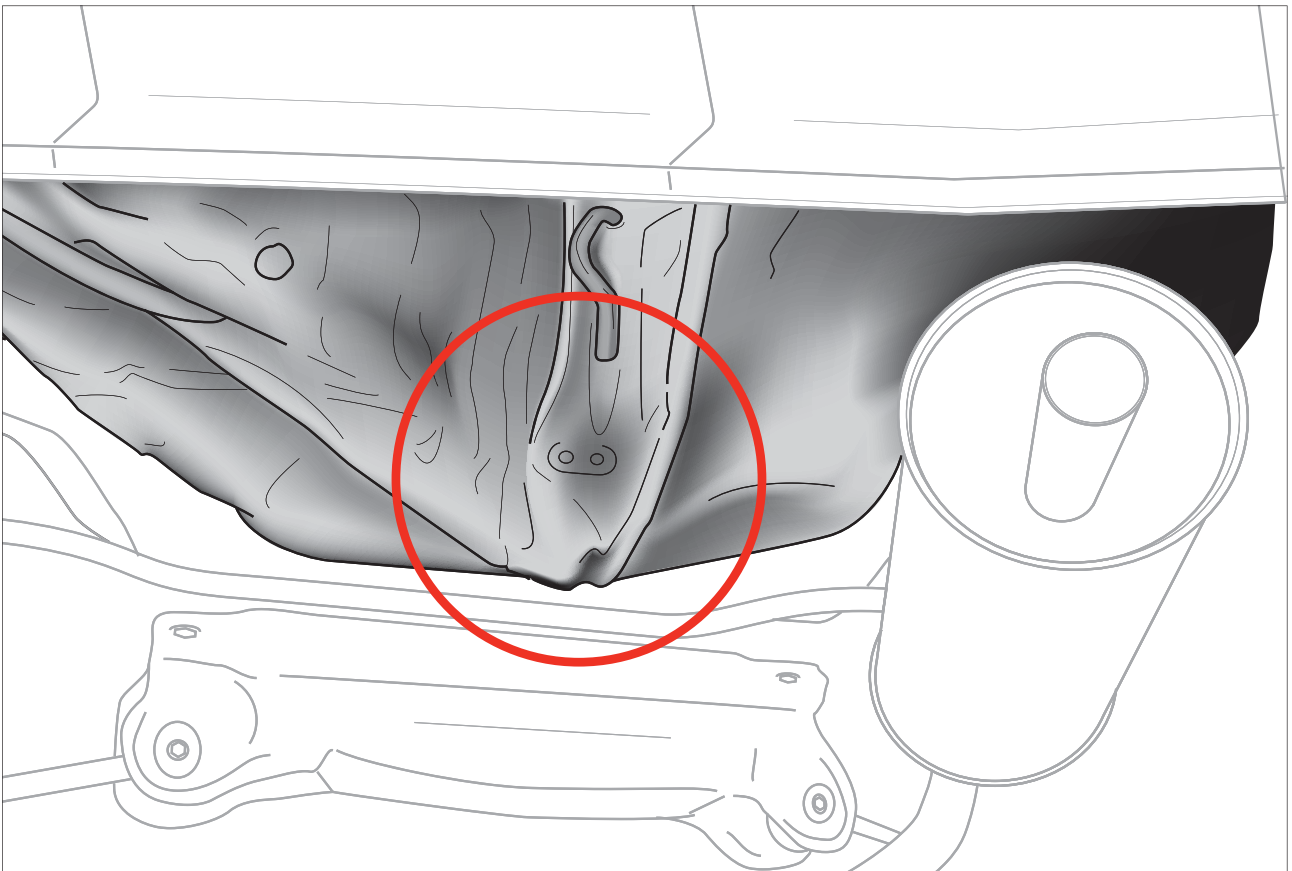


3.1 Floor pan – buckled

A side view of a vehicle showing buckling and folding of the floor.

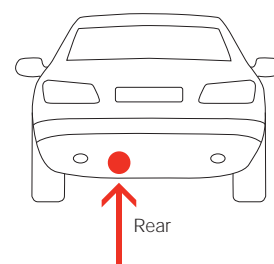


3. Floor pan continued



3.2 Floor pan – buckled

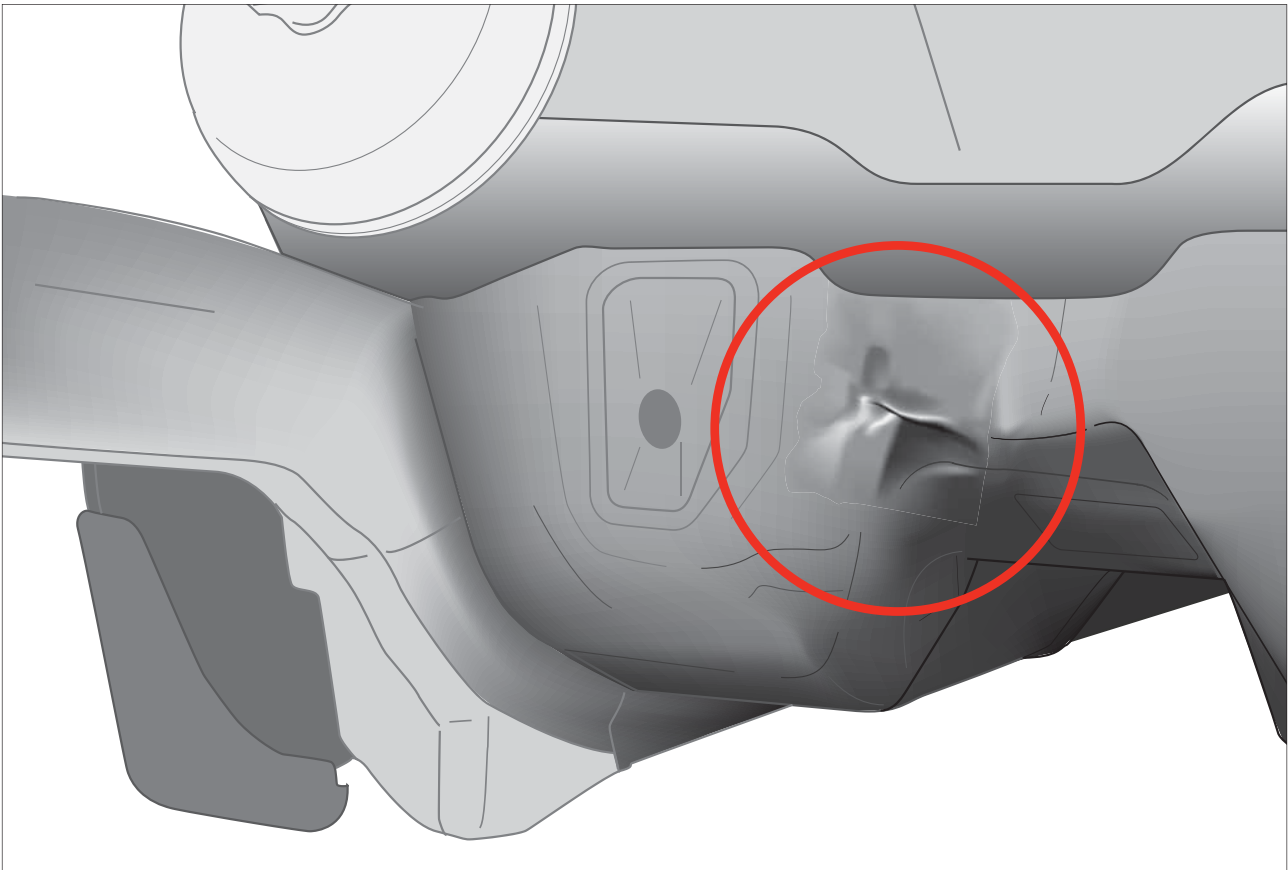
View of the rear underneath of a vehicle showing buckling of the floor pan.



The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

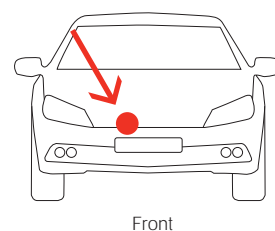
4. Firewall

The criteria to be used for the vehicle's firewall is that if the firewall has been loaded such that an individual structural element(s)/member(s) have been: fractured, cut, cracked, buckled and/or is folded over onto itself, then the firewall has an area of structural damage. If different and unconnected areas of damage are identified, each area counts separately.



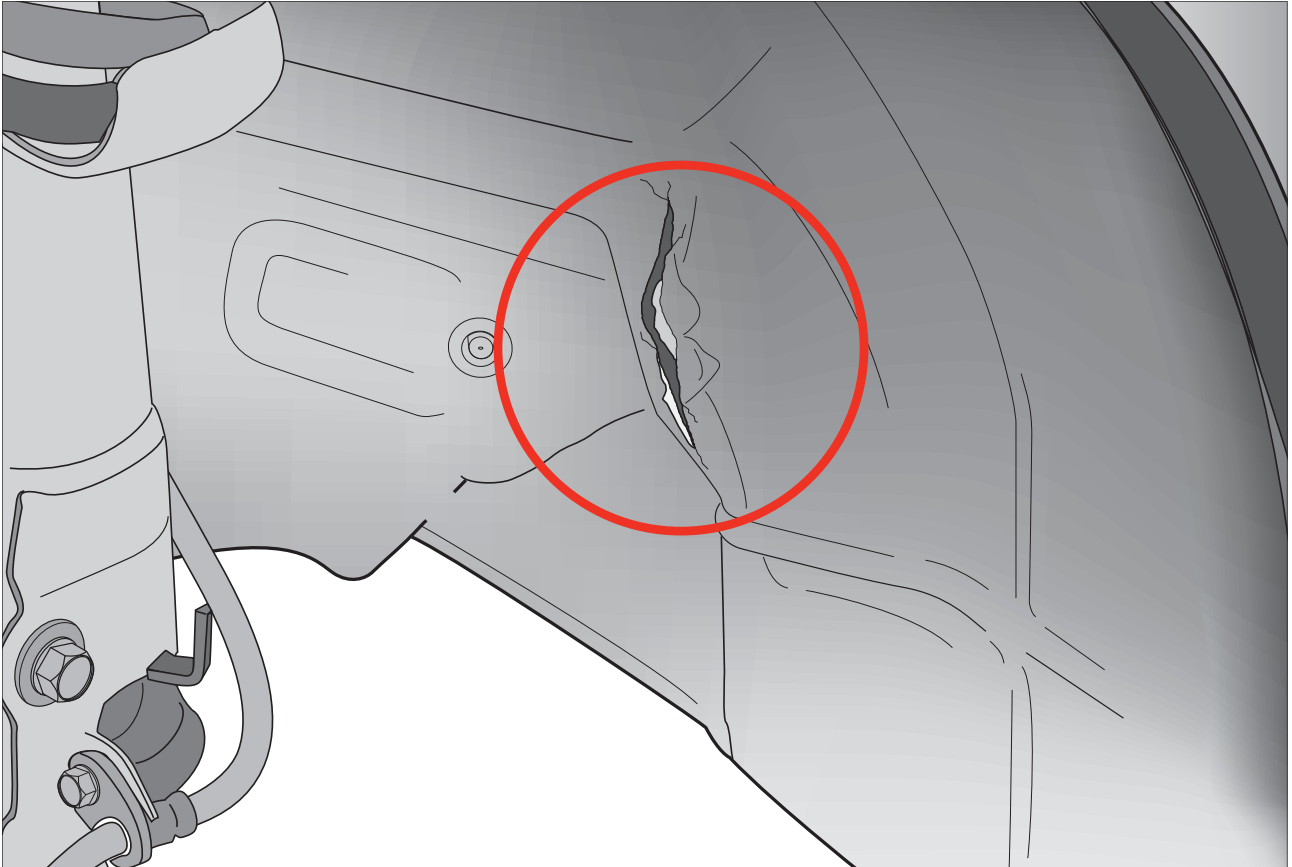
4.1 Firewall – folded

View of the firewall showing a fold induced by impact damage.



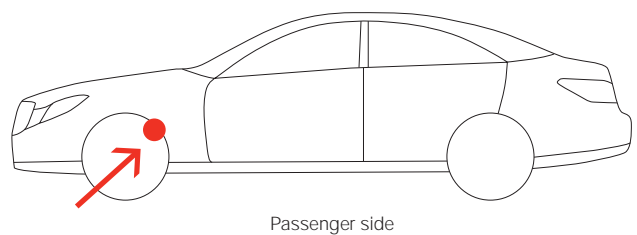
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

4. Firewall continued



4.2 Firewall – cracked

View through the front left wheel-well of the firewall showing a crack in the firewall.



The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

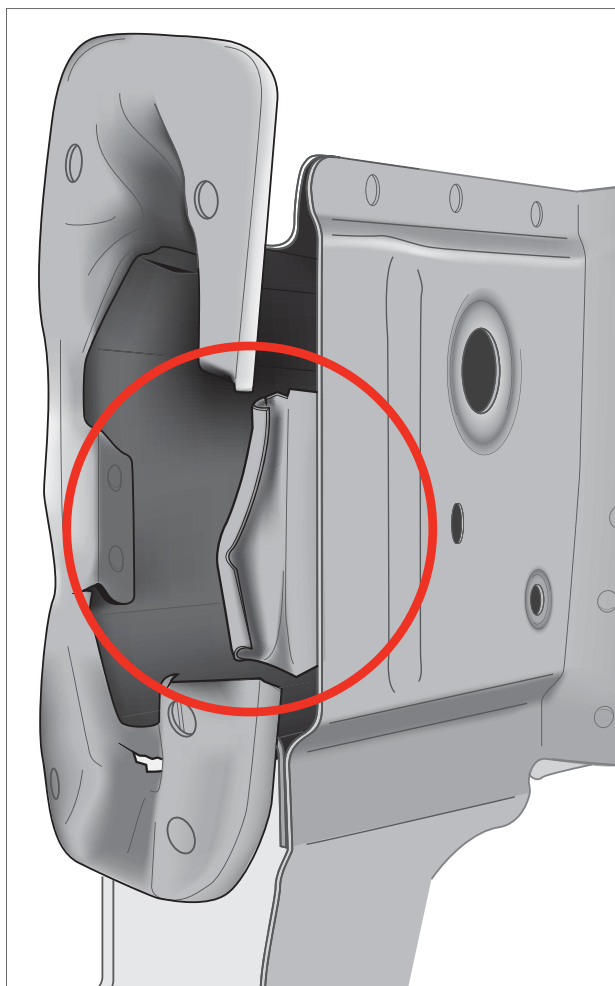
5. Longitudinal structural rails/chassis

The criteria to be used for the vehicle's longitudinal structural rails/chassis is whether the longitudinal rails/chassis has been structurally loaded such that longitudinal structural element(s)/member(s) have been structurally: fractured, cut, cracked, buckled and/or is folded over onto itself.

Each longitudinal structural rail counts separately i.e. if two longitudinal structural rails are buckled and the front right suspension mount is damaged the vehicle would have three areas of structural damage and thereby be classified as a SWO.

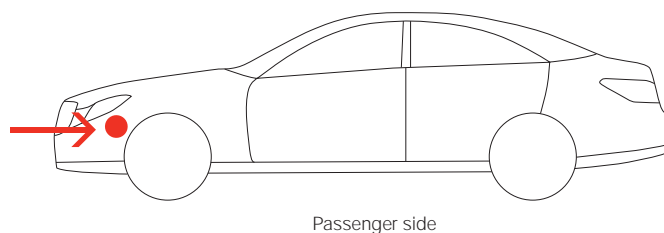
If both longitudinal rails are damaged to the extent that they both require Original Equipment Manufacture replacement, a third count of damage is to be applied and the vehicle is to be classified as a SWO.

Note: A deformable member that is designed to be removed and replaced is not considered a fundamental structure of the vehicle if damaged and such components are not to be registered as a damage count.



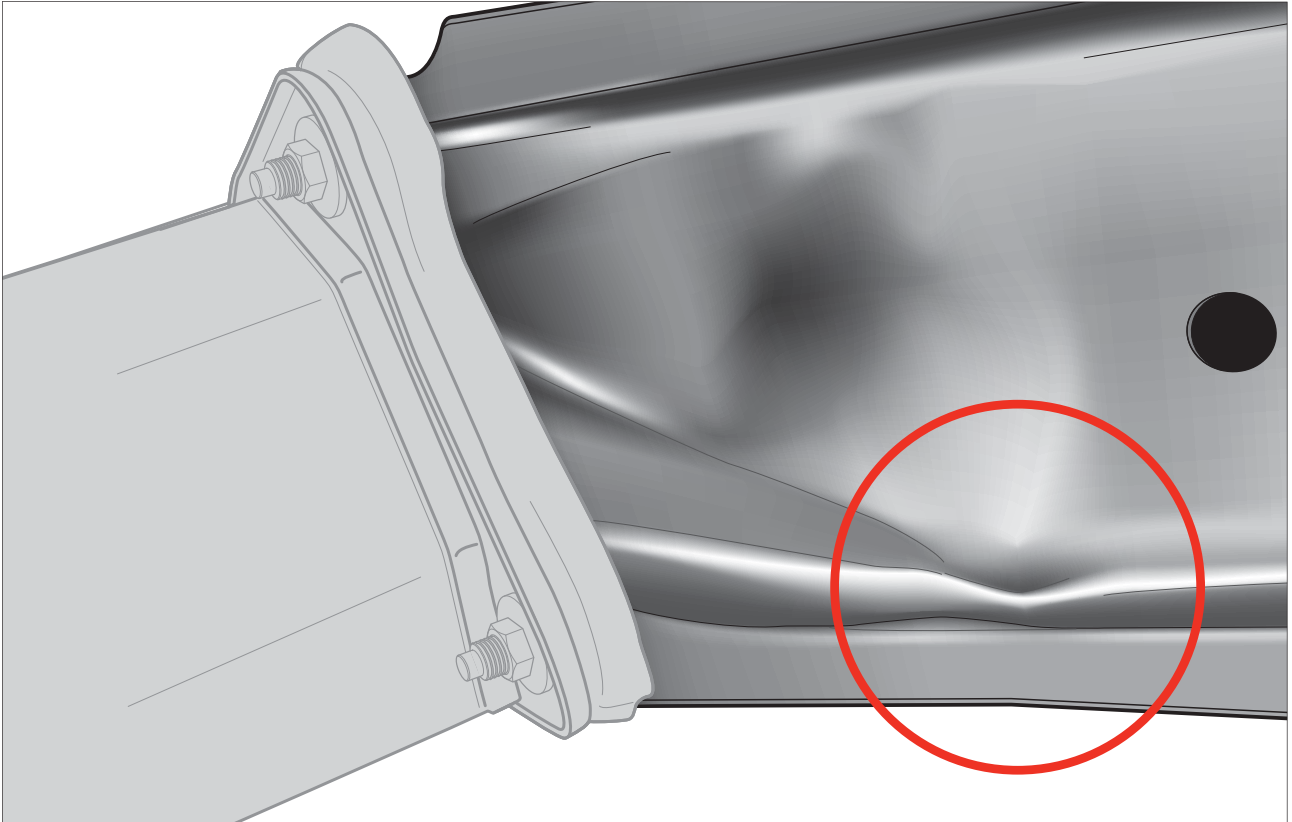
5.1 Chassis rail – fractured

View of longitudinal structural rail/chassis fractured due to impact.



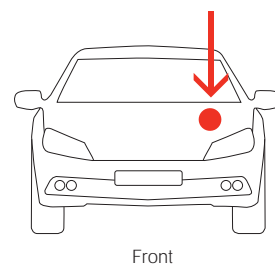
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

5. Longitudinal structural rails/chassis continued



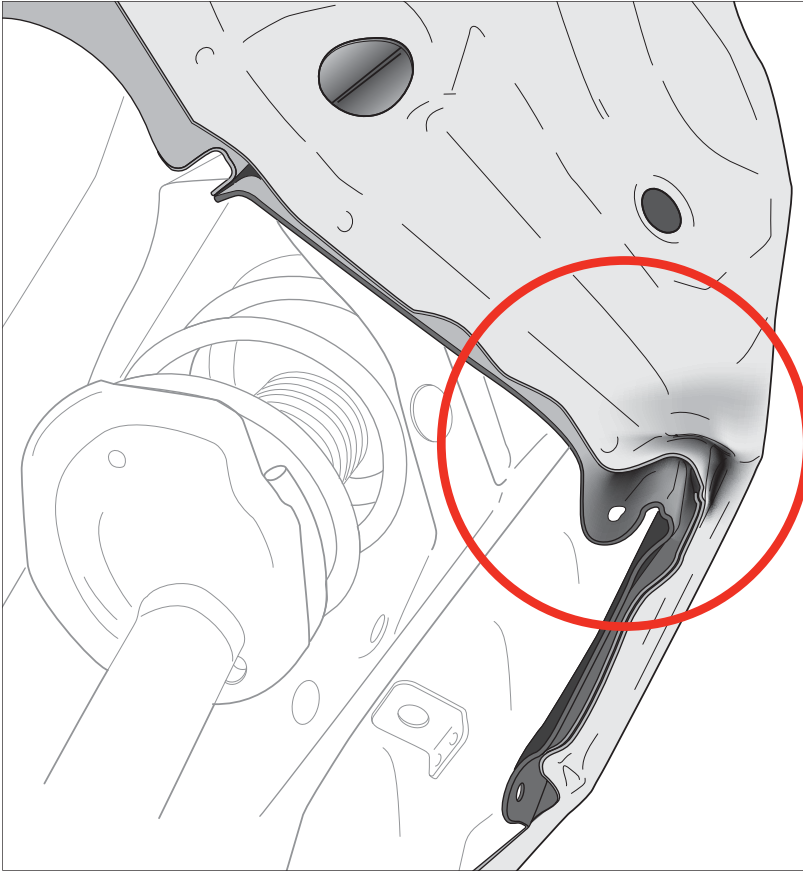
5.2 Chassis rail – buckled (side view)

View of a longitudinal structural/chassis rail which has buckled due to structural impact loading.



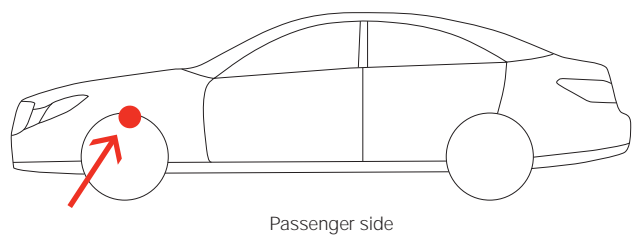
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

5. Longitudinal structural rails/chassis continued



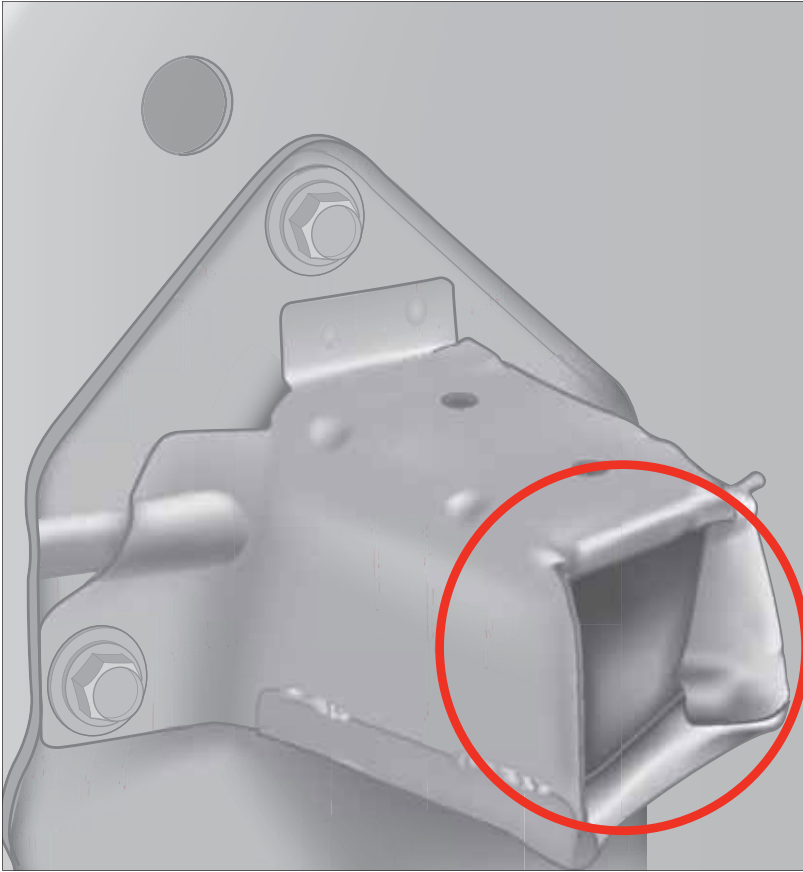
5.3 Chassis rail – folded

View of a longitudinal structural/chassis rail which has folded due to a side impact.



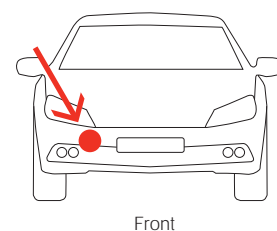
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

5. Longitudinal structural rails/chassis continued



5.4 Deformable crush tube – damaged

This is an example of a deformable end plate that is designed to be removed and replaced. Such components are not to be registered as a damage count.



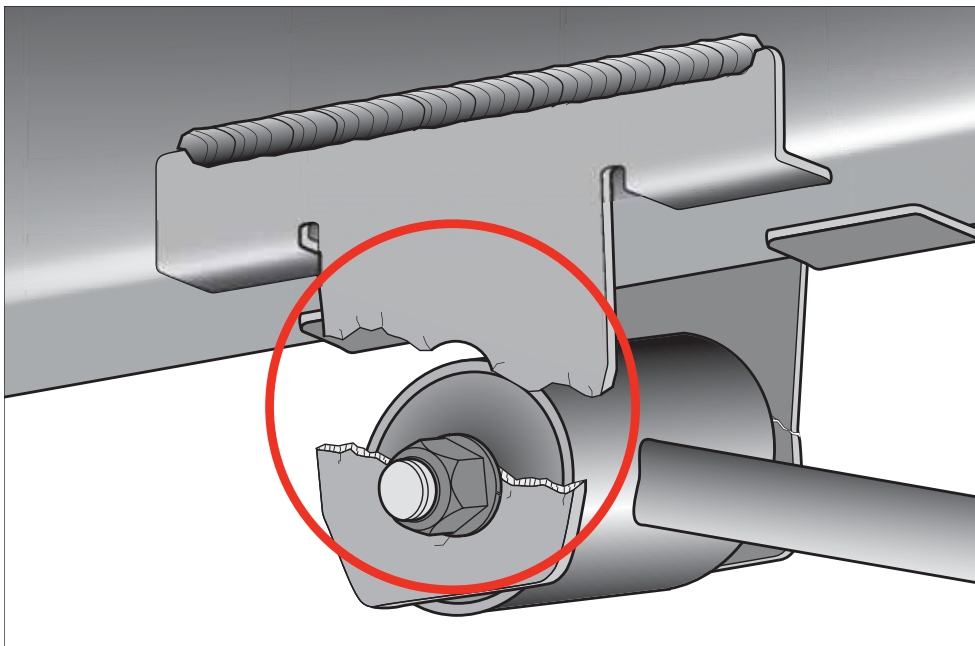
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

6. Suspension

The criteria to be used for the vehicle's suspension is whether there has been any collision induced damage to any of the suspension mounts to the chassis/body. Assessment of independent suspension units (ISU) and live axles (i.e. connected axles) require different consideration.

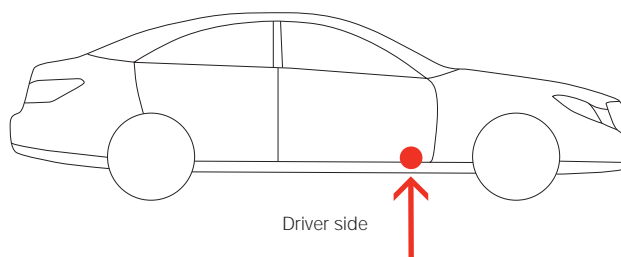
In the case of an ISU, each ISU which has sustained damage to a mount shall be counted as a separate area of structural damage.

In the case of a live axle, damage to one or both mount(s) shall be counted as only one area of structural damage.



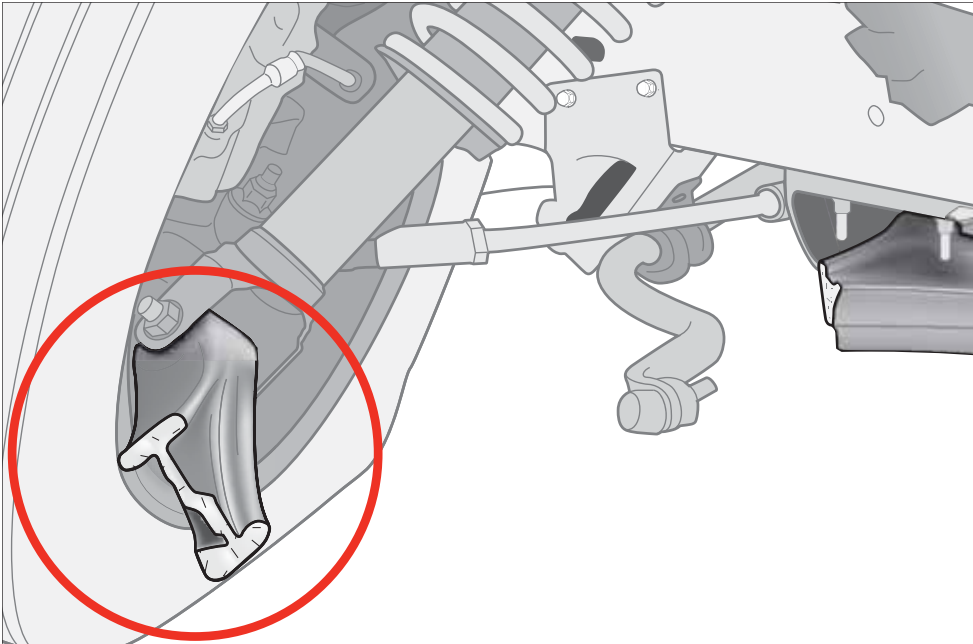
6.1 Suspension mount – fractured

View of a fractured suspension mount.



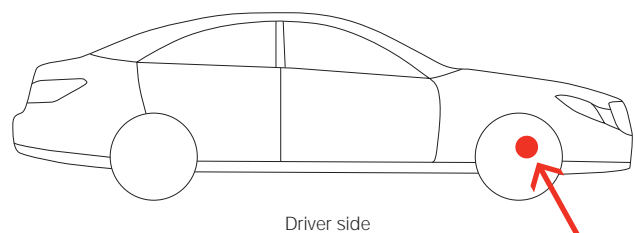
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

6. Suspension continued



6.2 Suspension and linkages – damaged

This is an example of damaged suspension components that do not form part of the damage criteria because components such as suspension arms and linkages are designed to be removed and replaced.

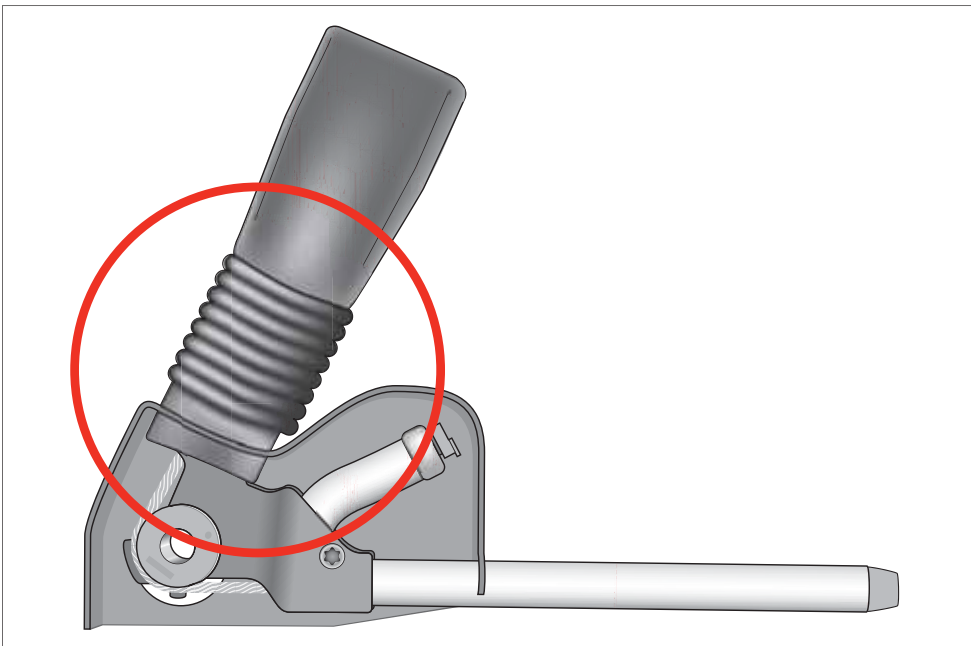


The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

7. Supplementary restraints

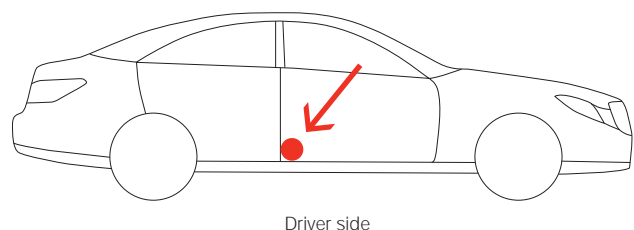
The deployment of supplementary restraints is an indication that the vehicle has been subject to a structural load. The criteria to be used for the vehicle's supplementary restraints is whether there has been any deployment of either an airbag (frontal, side and/or curtain) system within the vehicle

occupant cabin and/or the activation of a seatbelt pre-tensioner. Deployment of supplementary restraint systems would be grouped. Deployment of a single or multiple airbag(s) (front, side or curtain) or pre-tensioner(s) can only account for one area of structural damage.



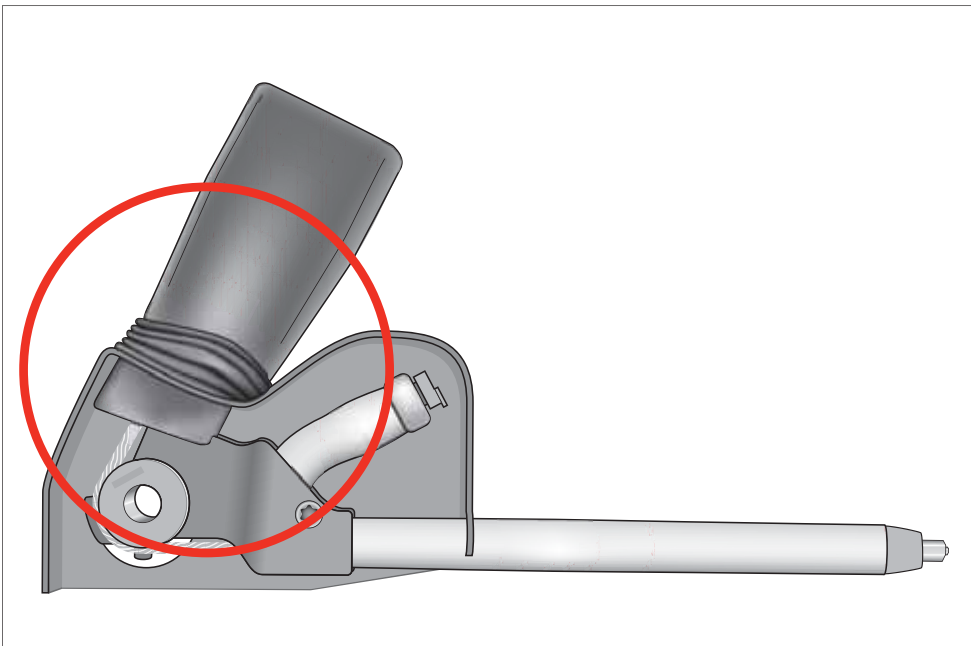
7.1 Pre-tensioner – active

View of a seat belt buckle showing a buckle with an active pre-tensioner.



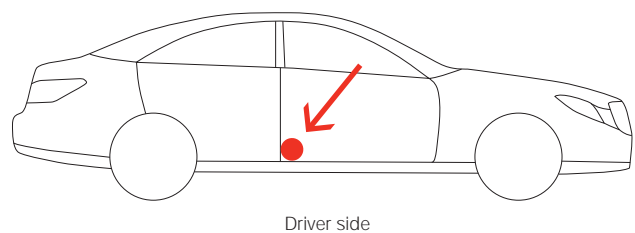
The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

7. Supplementary restraints continued



7.2 Pre-tensioner – fired

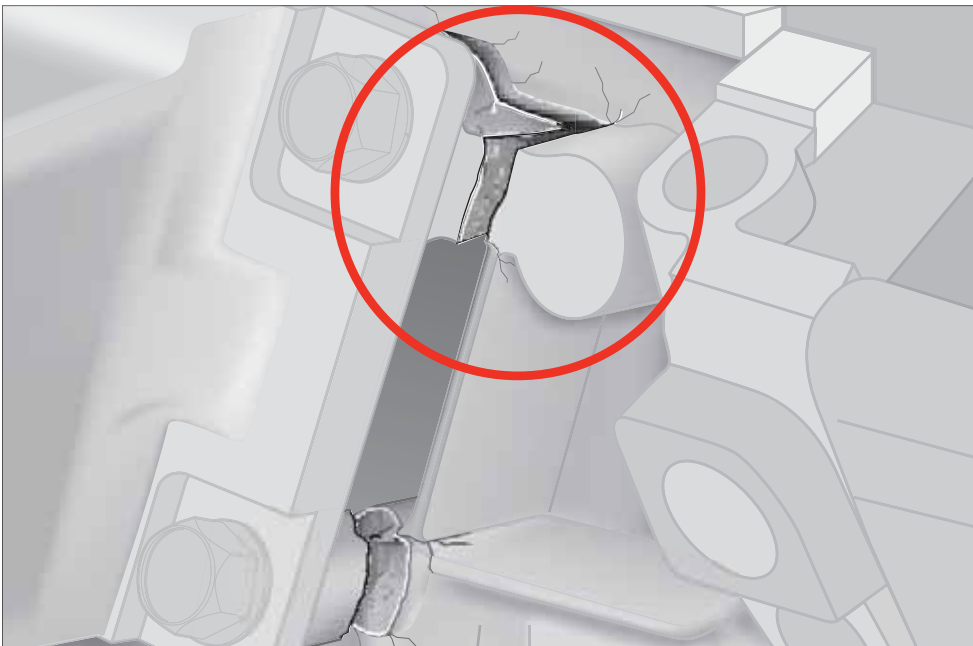
View of a seat belt buckle showing a buckle with a used pre-tensioner.



The above image(s) are select examples only. A buckle, crack, cut, fracture or fold of lesser size or proportion than depicted would still meet the relevant criteria.

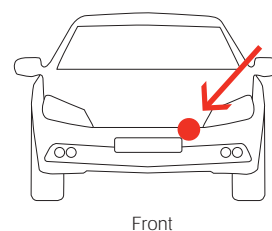
8. Mechanical components

The criteria to be used for the vehicle's mechanical components is whether there has been any collision induced damage to the: engine block, transmission case, differential case(s) and axle housings such that the items are cracked, deformed and/or broken. Damage to the mechanical components would be grouped. Damage to single or multiple mechanical components can only account for one area of structural damage.



8.1 Engine mount – fractured

View of fractured engine and mount induced by a collision.

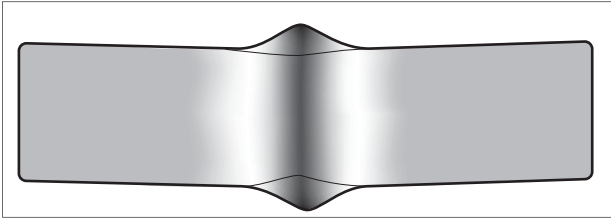


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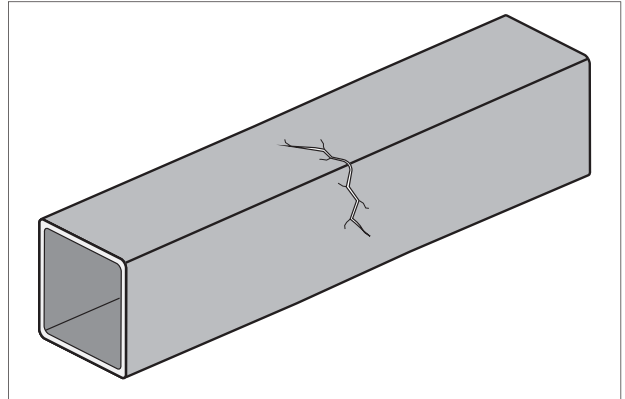


Nomenclature guide

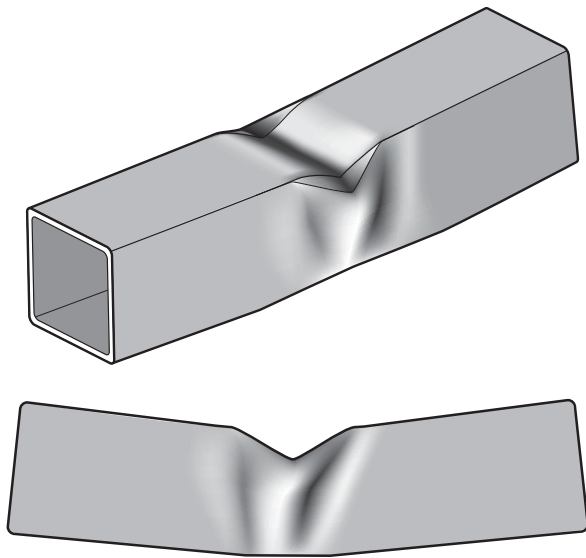
The following illustrations depict the typical damage that would be consistent with the technical terms used throughout this guide.



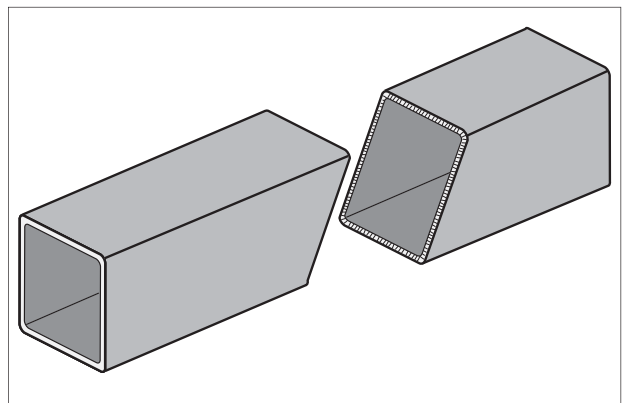
Buckle (top view)



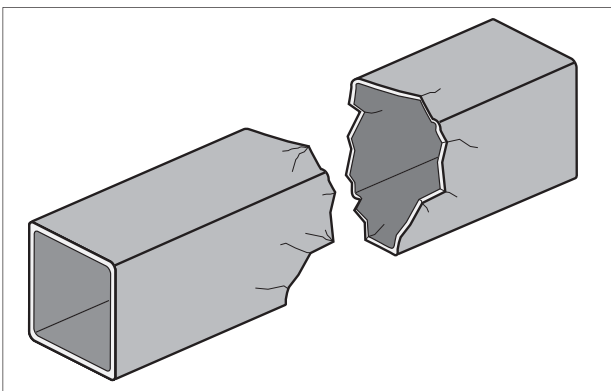
Cracked



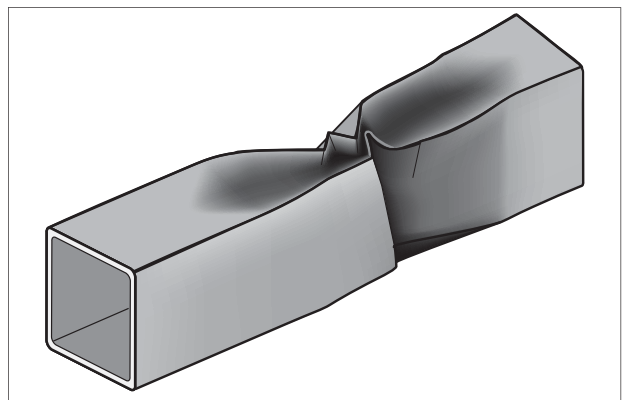
Buckle (side view)



Cut



Fractured



Folded

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