

## LET'S LOOK AT THE 2011 CHRYSLER 300



With a high number of these vehicles now on our NZ roads we thought it timely to look at some of the repair method recommendations from Chrysler, and I'm glad we did because this vehicle (or should I say Chrysler) have some repair methods that I haven't seen on any other brand vehicle. The very detailed 542 page Chrysler collision repair and body structure documents cover everything from metal thickness, corrosion protection, where every OEM weld is placed along with body gaps, safety system and airbag awareness or most anything else you may ask for. These documents do take a bit of reading and include some strict warning statements regarding what they want or don't want done when repairing their vehicles, perhaps this is because of the liability issues in the USA? The following are a few statements from the Chrysler repair manual;

**WARNING:** Chrysler Group LLC engineering's position on the use of heat during collision repair is as follows:

Any body panel or frame component damaged which is to be repaired and reused, must be repaired using the "cold straightening" method. No heat may be used during the straightening process. This "no heat" recommendation is due to the extensive use of high strength and advanced high strength steels in Chrysler Group LLC products. High-strength materials can be substantially and negatively affected from heat input which will not be obviously known to the repairer or consumer. Ignoring these recommendations may lead to serious compromises in the ability to protect occupants in a future collision event, reduce the engineered qualities and attributes, or decrease the durability and

reliability of the vehicle.

**NOTE:** OEM panel replacement such as a quarter panel, side aperture and rocker panel will always require the weld bonding procedure at the pinch weld flange area(s).

**NOTE:** Chrysler Group LLC recommends the same quantity of welds as the original panel, but placement of the new weld should NOT be within a 6mm. (0.25in.) of where the original welds were located. Squeeze Type Resistance Spot Welding (STRSW) is the method to be used. If accessibility prevents application of spot welds MIG plug welds are to be used. Welding of structural panels through three or more tiers of panel stack ups will require 9.5 mm. plug welds. Exterior panels should be installed using 8 mm. plug welds.



**DuPont™ Cromax® Pro**  
The Winner in Productivity.

- Advanced technology designed to improve **productivity**.
- 1.5 coats applied wet-on-wet, it **speeds up** your processes.

[www.cromaxpro.co.nz](http://www.cromaxpro.co.nz)

0800 108 008



Automotive & Light Industrial

Exclusive Importer



## Spot Weld Testing

Weld coupons identical to the repair situation need to be made prior to performing any repair. These coupons must be tested (peel test) to determine if the weld nugget meets the minimum size outlined in the Minimum Weld Nugget Requirement Chart.

## Training

To demonstrate welding skill, it is highly important that technicians obtain certification from an organization such as the American Welding Society (AWS) or a certificate from the InterIndustry Conference on Auto Collision Repair (I-CAR).

## Requirements of a Welding Repair

The number one requirement of any welding repair is to restore the vehicle to its OEM condition. Materials and technologies should duplicate original OEM conditions as much as possible. To meet this requirement, the technician must ensure the following:

- Panel layering (shingling) is the same as original
- Part fit up is correct
- Equivalent sealers and/or adhesives are utilised

- Welds are replaced in the same size, quantity and location

- “Weld thru” primers are NOT recommended
- Structural adhesives and sealers must be replaced where they were located

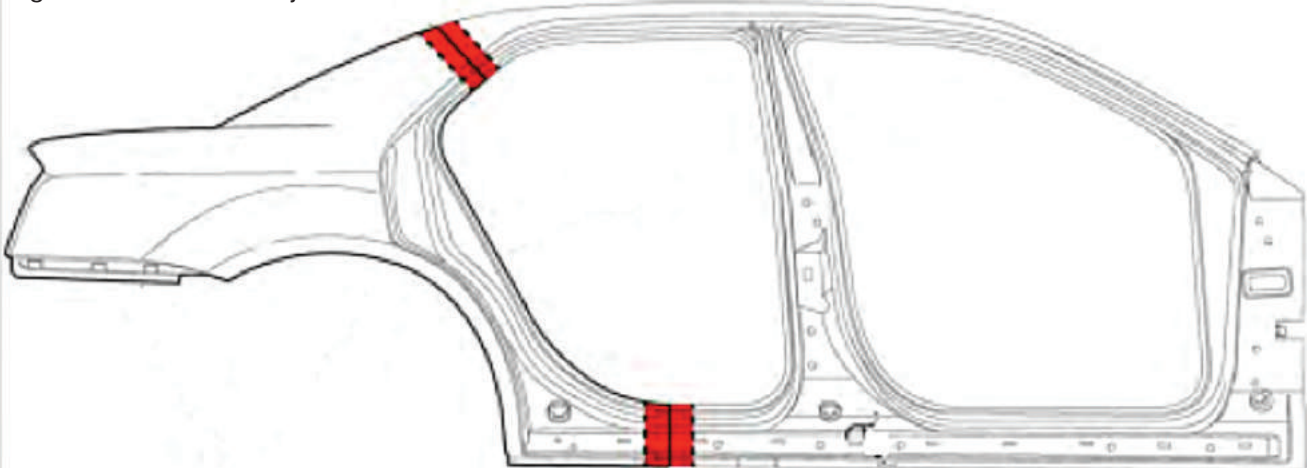
A significant amount of structural adhesive is used at the OEM to improve joint strength.

NOTE: Structural adhesives that meet Chrysler materials recommendations for adhesive strength and corrosion protection qualities include Mopar #05083855AA, Lord Fusor #112B and 3M #08816.

## Repair Methods

Some interesting repair methods are also shown for the Chrysler 300 that are not common practice as we know it, firstly the rear quarter panel replacement; this has a adhesive only or welded joint option for the upper sail and sill panel joints, with the weld bonding method used for all other joints. The illustration in Fig 1; shows the joint locations for the quarter panel with the red highlighting the backing plate required if using the glue only joint option.

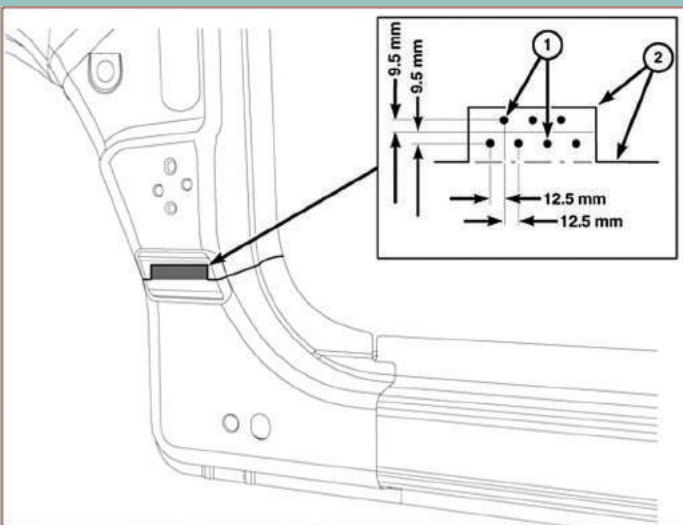
Fig. 1: Shows adhesive joints



# Let's look at the 2011 Chrysler 300

Like General Motors who have their specialised weld joint for sectioning panels so does Chrysler, this is similar but different to the GM method and is called a Combination Lap Joint. The panels are lapped in the flat areas and butted (2) in the contoured locations and flanges, the flat overlap area then acts as a backing plate for plugs welds (1) this adds extra strength to the weld joint. Fig 2; shows an example of this weld joint configuration.

Fig 2 - Shows this joint configuration



The 300 roof panel is laser bronze welded at OEM but this same method is not used if replacing the roof panel. Chrysler have a very detailed removal procedure that requires all brazing removed back to bare steel, the replacement roof skin is then fitted using structural adhesive in the joints where laser bronze welding was used. Once fitted the front and rear flanges must be spot welded before the adhesive has gone past it's work time.

In Fig 3; the arrow shows the laser welded brazed joint.

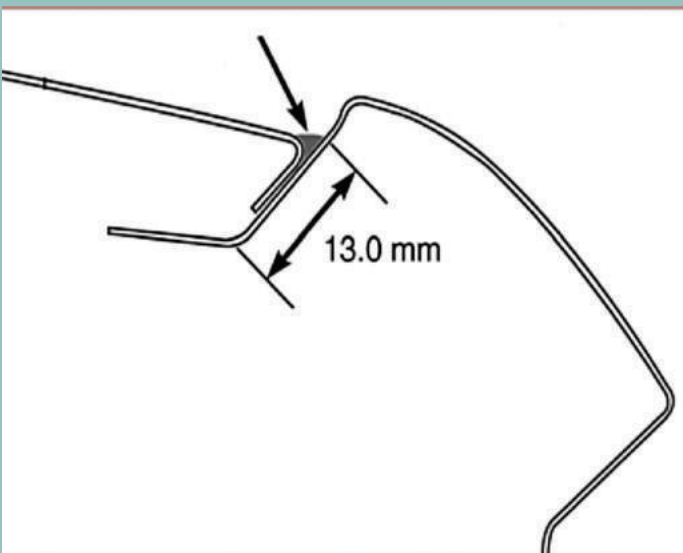


Fig 4 – Right - shows the options for sectioning the outer body side aperture;

- 1 - SIDE APERTURE (OUTER)
- 2 - SERVICE PARTS CUT LOCATIONS
- 3 - SILL SECTIONING LOCATIONS
- 4 - A PILLAR SECTIONING LOCATIONS

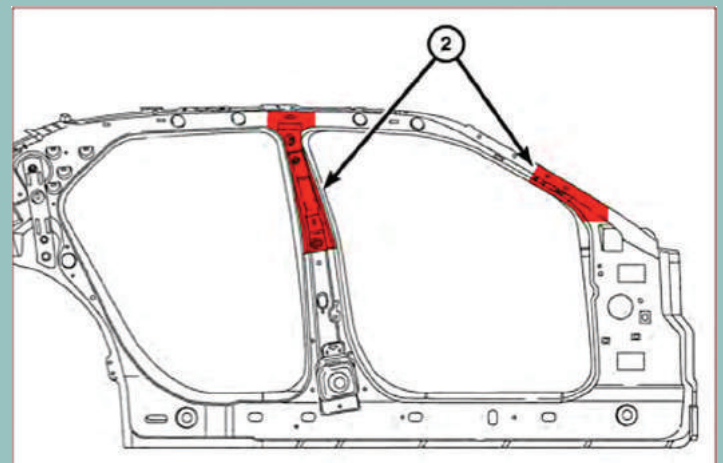
The A pillar is to be sectioned between the wire harness pass through and the upper door hinge as shown. The sill areas are to be sectioned within 50 mm of centreline of the door opening. All other outlined areas are general sectioning areas and may be sectioned in this region.

Butt joint with 13 mm (0.5 in) backer is to be used in all sectioning areas of the outer body side aperture

Another interesting design feature of the 300 are the reinforcements in the upper A and B Pillars, these are made of a composite material and come with a warning from Chrysler;

**WARNING:** Composite Reinforcements (2) shown in Fig 5 must be installed to maintain roof strength standards, failure to follow these directions may result in serious or fatal injury.

Fig. 5: Composite reinforcements



Sectioning options are available for both the front and rear rails however they do have some limitations of when and how this should be done. The repair methods have some very detailed specifications for doing this and the rear rails have both a right and left method. Fig; 6 and 7 show the locations where the sectioning is done.



Fig. 4: Sectioning and cut locations

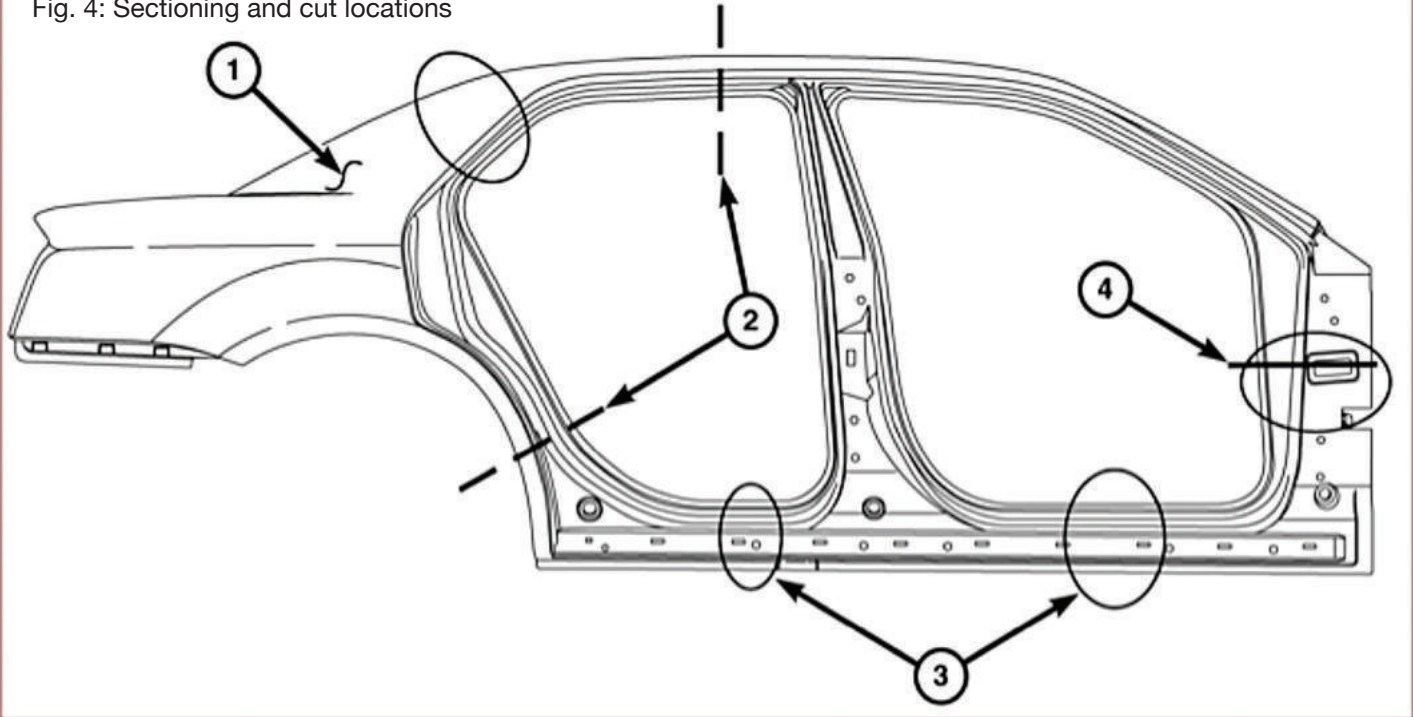


Fig. 6: Front rail

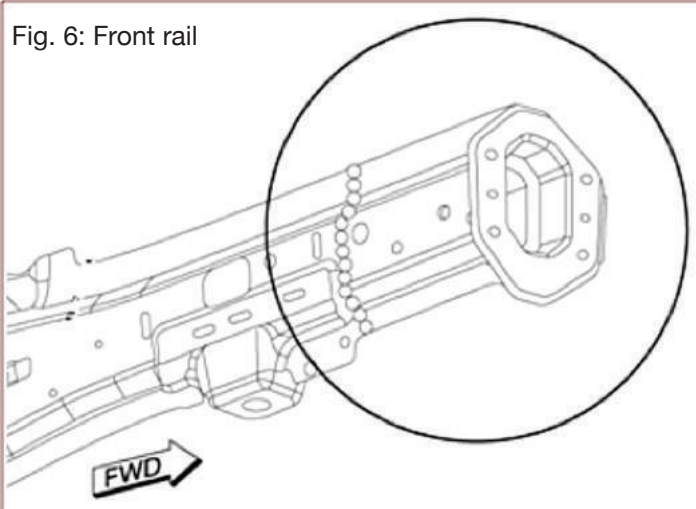
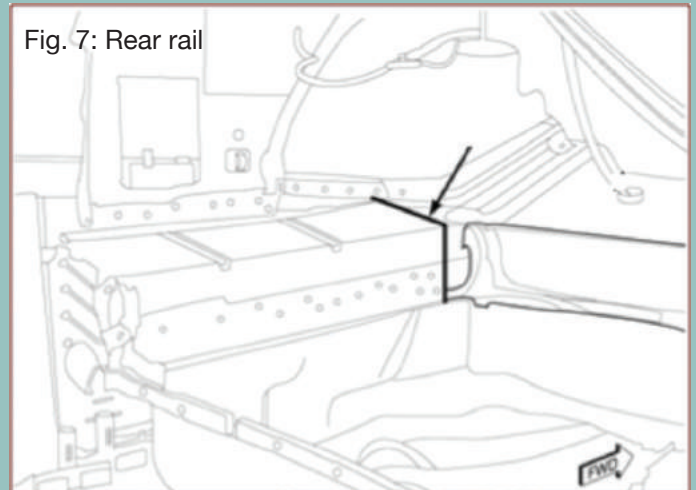


Fig. 7: Rear rail



In conclusion; The Chrysler 300 has some very interesting and detailed collision repair specifications along with additional warnings and helpful information that qualifies the methods they require to repair this vehicle. This PanelTalk overview is only a brief awareness of what information is available for this vehicle; the full specifications should be obtained before commencing any repairs.

Chrysler, Jeep, Dodge, Mopar repair manuals and information can be downloaded from a free web-site, however you need to register with a username and password to gain access to the information. You can do this by going to the [www.i-car.co.nz](http://www.i-car.co.nz) website and clicking on Technical information then click on the Chrysler badge; they have some very good information on a full range of models.