Let's look at the Holden Colorado

In this issue we will look at the current model Holden Colorado, I say current model as Holden are about to release a new Colorado next month with a completely different body structure that will require different repair methods. We also thank Holden for assisting our industry with technical information.

The Colorado with its ladder frame chassis is a vehicle more often seen in the commercial sector or rural regions and can be a challenge these days for some repairers not familiar with full frame chassis repairs.

The cab of the Colorado has repair methods just like any Unibody construction, however with a full frame chassis the front rails are not part of the cab body structure and the steering and suspension is mounted to the chassis. The following pages will look at some of repair recommendations for both the crew and regular cab models.

The full overview of both this and the new model Colorado will be part of the I-CAR NZ Holden Collision Repair Program being delivered later this year.

STEELS USED

All the cab and deck panels excluding the door skins are classed as HSLA (High Strength Low Alloy Steel) the HSLA Steel has a tensile strength range from 300-700 MPa. The door panels are 270 MPa mild steel. The front doors have UHSS (Ultra High Strength Steel) impact beam tubes with a tensile strength greater than 800MPa

HSLA & Mild Steel; Holden recommends these steels are cold straightened but **if kinked the panel should be replaced.** Controlled heat can be applied but not exceeding 650c with a maximum of 90 seconds x 2

UHSS **Don't repair, replace at factory joints only**

WELDING

STRSW (Squeeze Type Resistance Spot Welding) can be used where applicable.

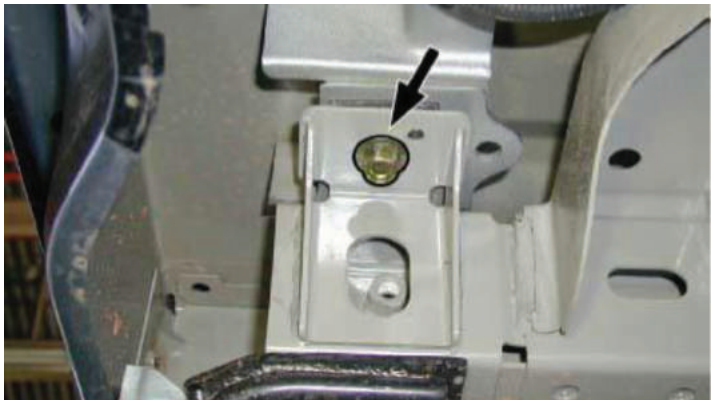
Mig Steel welding using a stitch weld method for joints can be used.

Mig Brazing can be used to replace OEM brazed joints.

Caution; weld joints for partial replacements use a variety of methods including **lap and butt weld with backing**, you should check these before cutting any panels.

TORQUE SETTINGS

All fastening operations have different range of Torque settings and these are given in the specifications. The cab to chassis bolts are one time fasters and require replacement. The illustration below is an example of one of the rear body to frame mounts.



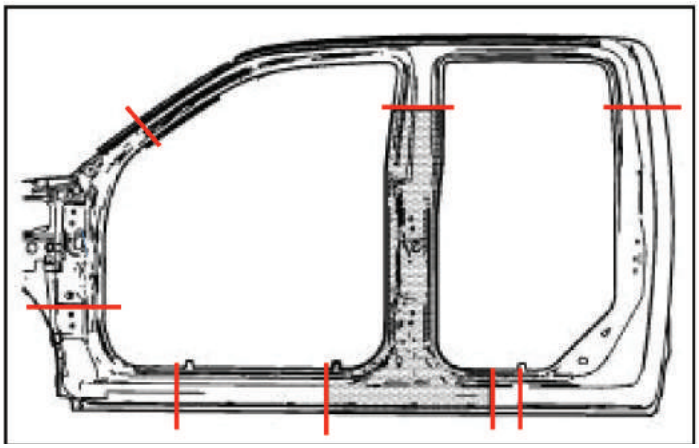
Torque Nm(kgf m/lb ft)
54 (5.5 / 40)

ADHESIVES & NVH FOAMS

The Colorado has a weld or adhesive repair option for replacing the deck rear quarter panel, they also use adhesive for replacing door skins. Be sure to follow the product to use recommendations shown in the graph opposite page) and duplicate OEM locations for foams.

WHERE CAN WE SECTION?

The illustration below shows where outer panel partial replacement joint locations are available; these are the same for both the crew and regular cab model excluding the centre pillar.



A PILLAR LOWER SECTION REPLACEMENT (DIAGRAM A)

The cut lines shown are for the outer panel, this sectioning method uses a lap joint and requires the replacement panel to be cut 40mm longer than the cut line shown, the replacement panel is then fitted behind the exisiting panel. There is also a partial replacement option for the inner reinforcement. (You will need to check the full specification for both these proceedures prior to any repair)

A PILLAR FULL REPLACEMENT (DIAGRAM B)

The weld joints are butt with backing.

B PILLAR PARTIAL REPLACEMENT (DIAGRAM C)

The upper joint is a stitch butt weld with backing using a 50mm backing plate. The lower joint is also a butt weld with backing using a 100mm baking (Refer to illistration of A pillar)

Only adhesive products meeting the General Motors specification indicated below can be used to successfully carry out the body repairs set out in the body repair procedures. Failure to use the correct GM specification adhesive may compromise the structural integrity of the repair.

Product Type	Specification	Product Name (or Equivalent)
Note: Primary Sealer* is applied between 2 panels and can be welded through		
Primary Sealer*	HN2303	Lord Fusor P/N 110B/111B
Primary Sealer*	HN2303	Lord Fusor P/N 108B/109B
Primary Sealer*	GM6449G	3M Automix 8116
* Also known as structural adhesive used for bonding mostly metal panels.		

The following adhesive is to be used in specific metal bonding applications as a repair sealer:

Product Type	Specification	Product Name (or Equivalent)
2 Part Expanding Repair Sealer	GM9984257	Lord Fusor P/N121/124

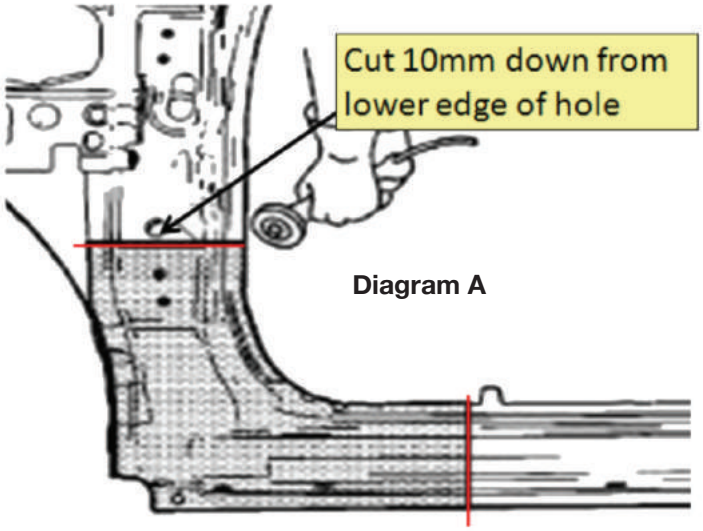


Diagram A

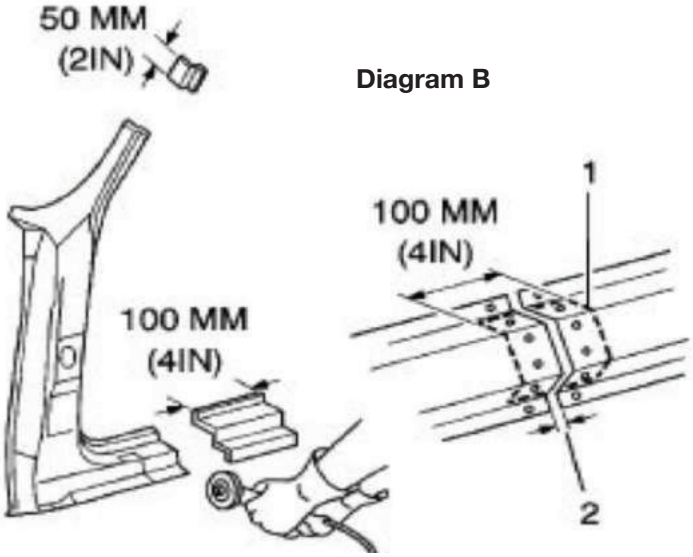


Diagram B

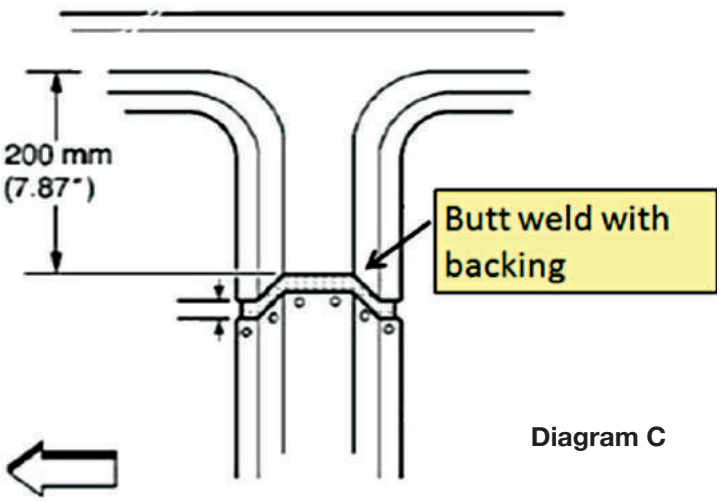
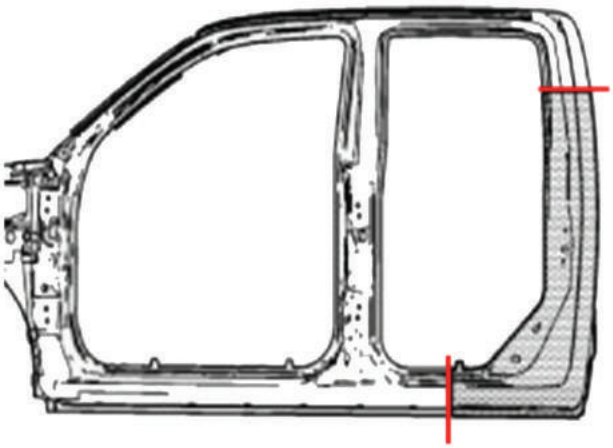


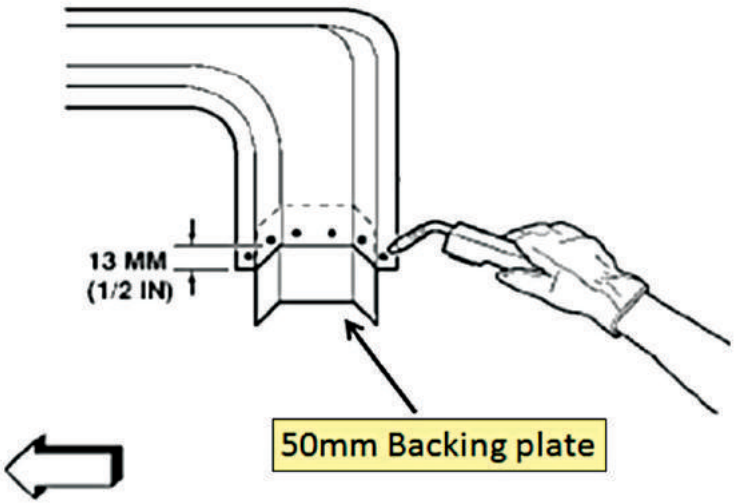
Diagram C

I-CAR NEW ZEALAND technical report

REAR CAB PILLAR JOINT LOCATION

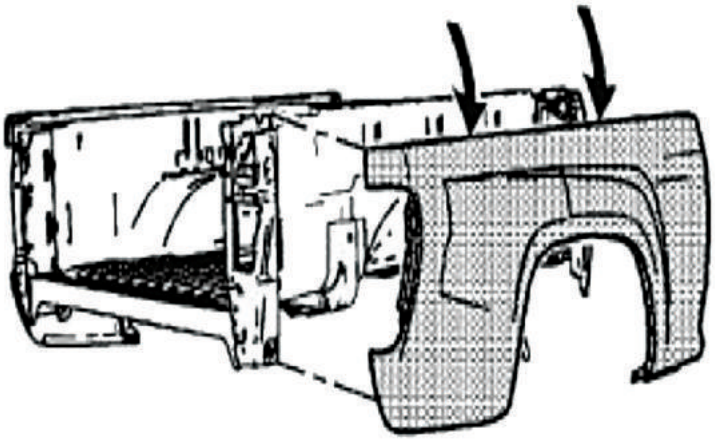
The upper joint location is the same for the crew and regular cab model and uses butt with backing joint.





REAR DECK QUARTER PANEL REPLACEMENT

You have two options for replaceing the quarter panel of the rear deck, this can be fitted with adhesive or welded, if using the bonded method be sure to follow the correct proceedure.



CHASSIS MATERIAL

The Colorado does have a Body Building guide that gives specifications on what can and cannot be done with the chassis. This shows areas where welding and drilling should not be done and states that, modifications to the original chassis design are not permitted. The material specification for the chassis is SAE J1392 050YLK and the body mounts are JSH 400J-P