TECHNICAL REPORT

Until recently, GM Holden has generally specified butt joints with backings when sectioning parts of a uniside. However, an overlap joint is now being required for some uniside sectioning joints. This is being done to reduce the transfer of heat from GMA (MIG) welding into heat-sensitive high- and ultra-high-strength steel reinforcements. The concern with a butt joint with backing is that the backing piece does not extend to the pinchweld flange, and leaves the reinforcement exposed. As a result, a GMA (MIG) weld is made on the pinchweld flange area of the reinforcement (see Figure 1).

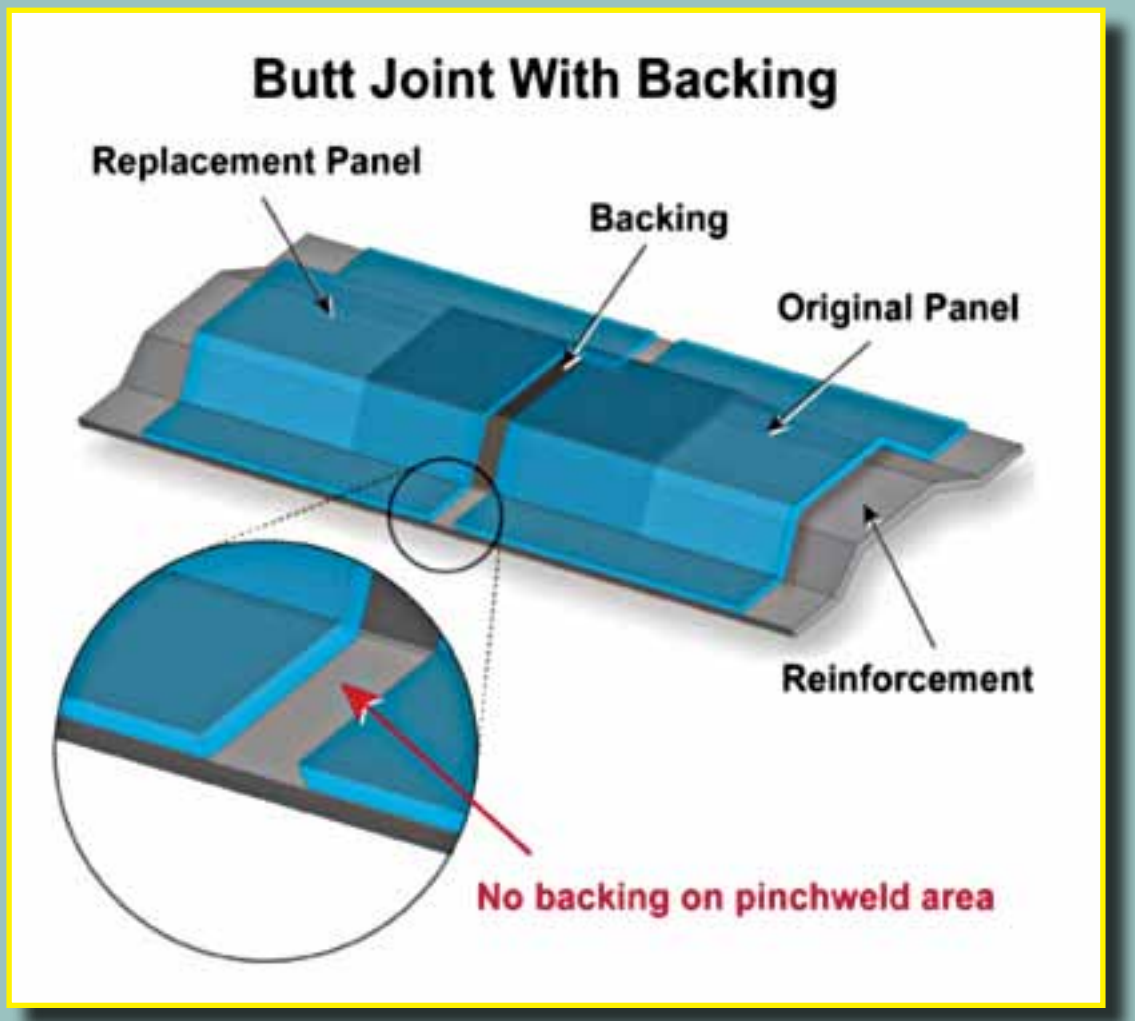

Figure 1 - Because the backing does not extend to the pinchweld flange, a portion of the seam weld would be made directly on the reinforcement.

GM Holden Overlap Sectioning Joint

OVERLAP JOINT

The overlap joint specified in some new GM Holden repair procedures is made by cutting the replacement part to overlap the original part on the vehicle 25 mm. The overlap allows the original panel to serve as a backing for the seam weld, even on the pinchweld flanges, better protecting the reinforcement from the heat of the weld (see Figure 2). This is also a less complicated process compared to a butt joint with backing, and reduces the chance for cutting the replacement part too short.

The overlap joint is now specified by GM Holden for a number of its models including the new partial replacement option for the VE Ute rear quarter panel and sedan side panels. Other models that specify this overlap joint include the new Barina, Colorado, Colorado SUV and the just released 2012 GM Holden Volt. Common procedures where this type of joint is used include replacement of the outer A-pillar, sill panel, B-pillar, and quarter panel.

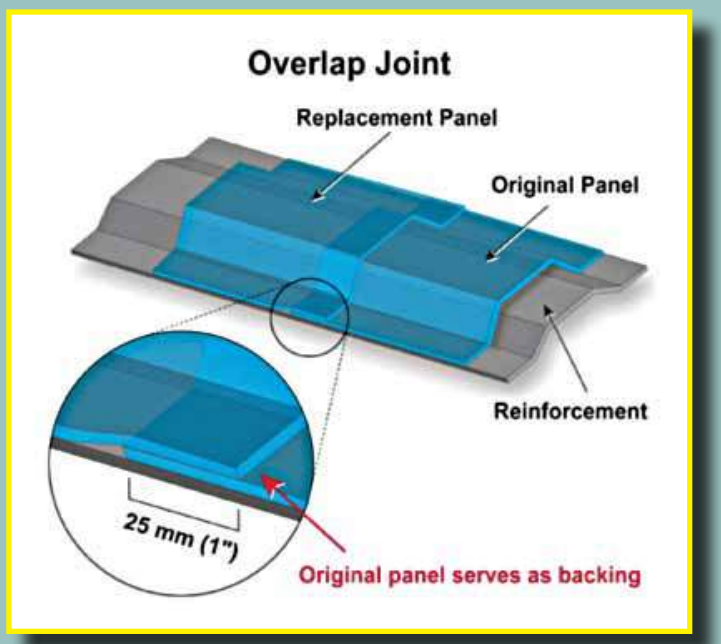

Figure 2 - The original panel serves as a backing, and protects the reinforcement from welding heat.

WELDING

The overlap joint is welded using a fillet weld. Plug welds may be required as well, but this recommendation varies according to the procedure. The fillet weld should be made using a skip or stitch technique to minimize the chance for heat distortion. This is done by making 25 mm welds along the seam with 25 mm gaps between each weld, and then going back to fill in the gaps. (See Figure 3)

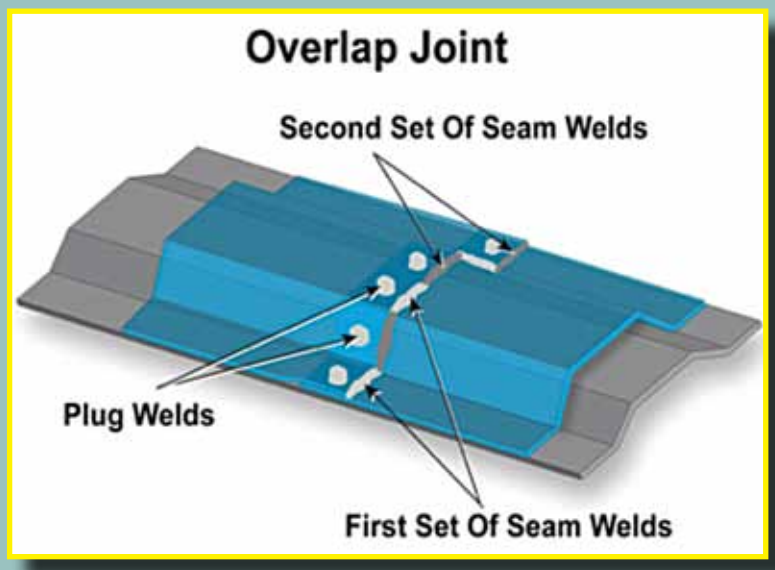

Figure 3 - The first set of seam welds should leave a 25 mm (1") gap between each weld. The second set of seam welds fill in the gaps.

CONCLUSION

A butt joint with backing is not always specified for sectioning procedures on GM Holden vehicles anymore. It is becoming more common for sectioning procedures to specify an overlap joint when sectioning parts of a uniside. This is why it is so important to always refer to the vehicle maker procedures to ensure the correct joint is being used. Collision repair procedures for GM Holden vehicles can be accessed from you local dealership when ordering parts or the I-CAR NZ Holden Collision Repair Course programme. The I-CAR NZ condensed course information is an easy reference when preparing the estimate as it gives you information on, if you can or can't section, and if so where you can section and the method of weld joint required.

(This article has been modified from the I-CAR Advantage Online feature covering General Motors USA vehicles)

GM Holden releases sectioning replacement options for the VE Commodore Sedans and Sportwagon.

The following illustrations show the new partial replacement repair options for the VE Holden SWB and LWB Sedan and Sportwagon. These new repair options will reduce the need for replacing the whole body outer side panel after minor damage as has been the case until now. These options are now available for replacing the B Pillar outer (Fig 1) and Sill (Rocker) outer panel (Fig 2), so along with the existing rear quarter sectioning option we now have a much wider range of repair methods that can be used. However make sure you get the full repair procedure with measurements and weld methods before starting any repairs. The full repair procedures are available from your GM Holden dealership when ordering the parts.

CAUTION; Since 2011 engineering changes have been made to the VE and WM car body side assemblies, product improvements on these vehicles are now different to those on earlier models, these changes involve the side impact sensor and sheet metal in the lower B pillar area, earlier model parts should not be used for replacing these panels.

Be sure to read the article on page 44, 45, this looks at the weld joint method now used for fitting the panels to the VE and other new GM Holden model vehicles.

We also feature on page 47, the just released sectioning method for the rear quarter panel on the VE Ute, this is shown separately as there are some limitations on when this can be done, along with some strict procedures that must be followed.

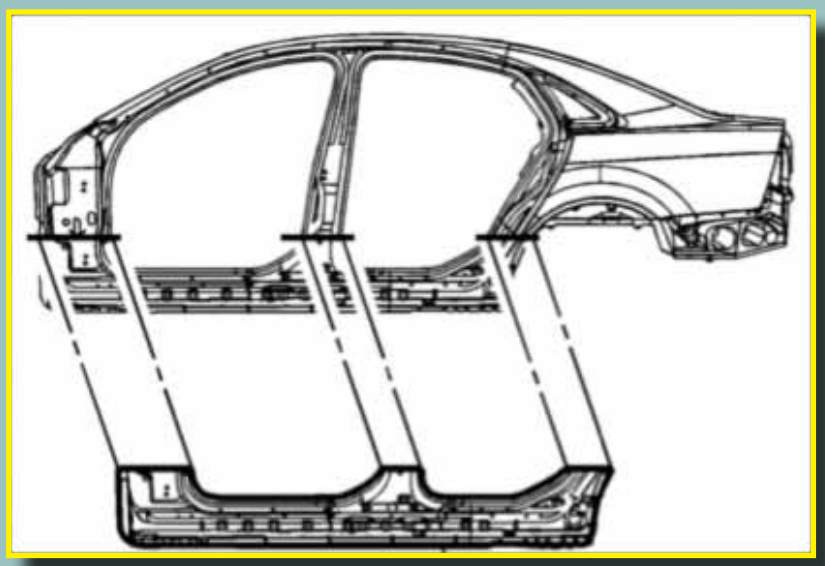

Fig 1. B Pillar outer

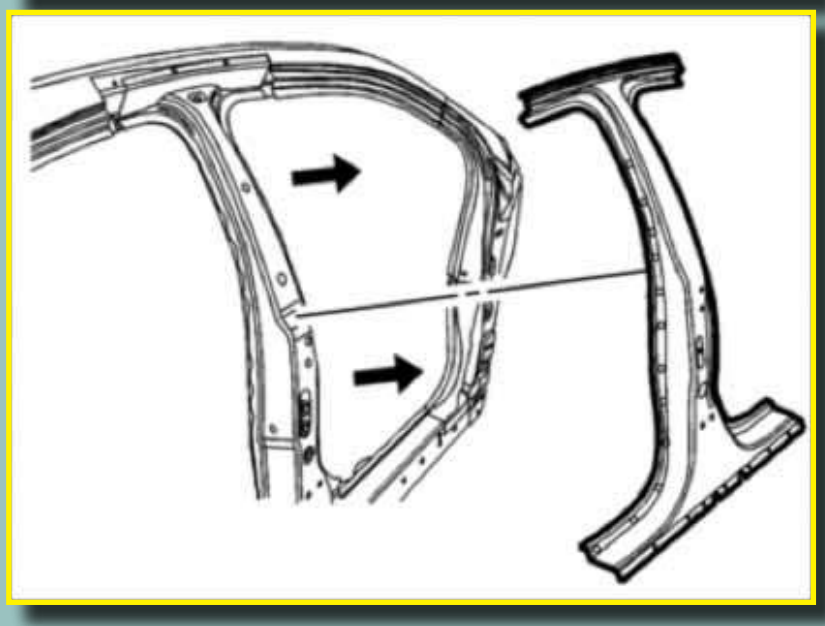

Fig2. Sill (Rocker) outer panel

GM Holden Overlap Sectioning Joint

GM Holden VE Ute rear quarter panel replacement.

GM Holden has released a sectioning repair method for the body outer side panel rearward of the B-pillar for the VE Ute. This now provides another tidier repair option than the existing, and sometimes questioned method that joins the rear panel through the wheel arch area. However this is not for all models of the VE Ute.

Caution; this option is for vehicles built since 16/3/2009 and cannot be used for earlier models, this is because assembly methods and sealing configuration is different in the earlier models.

The illustration in Fig.1 below shows the joint areas where the panel should be fitted, however you will need the full repair procedure when fitting, as the outer skin is the easy bit. Panel fitting instructions are an 11 page document that shows how sealers and baffles should be installed while the outer panel is removed, (see inner structure in Fig.2) then the panel must be installed before these sealers cure. Perhaps something new for our industry is that the instructions also explain how the cabin must be pressurized to check for any air leakage.

GM Holden have released new part kits for use with these new procedures, the kit includes a body-side outer panel supplied as a complete panel which must be cut at the sectioning points described in the installation procedure. The kit also includes a number of critical sealers and baffles that should be used according to the correct procedure in order to seal the cabin and prevent exhaust gas intrusion into the cabin, these kits must be used according to the procedure. A fuel tank filling pipe is also required if fitting the right side panel. (Note; because of the limited shelf life for some sealers these may not be included in the NZ kit but will state the brand and product to use)

The new GM Holden “Overlap Joint” weld is used for fitting the panel (see this on page 44,45)

This repair method along with the instructions on what is required for this VE Ute is a good example of how we are now faced with researching, reading and understanding what is required before starting any repair requiring the replacement of welded panels.

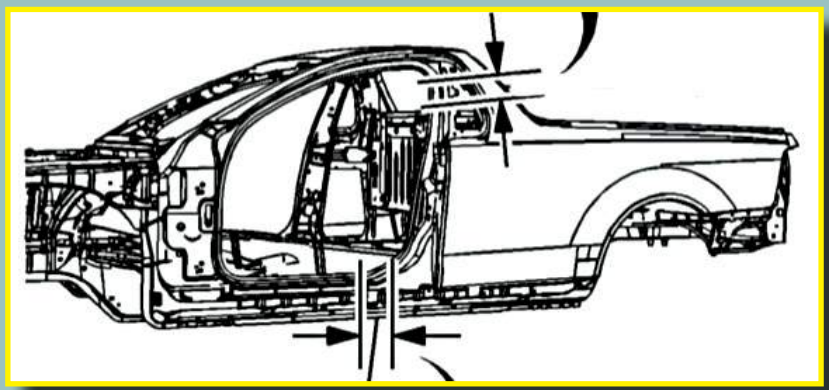

Fig 1. B Pillar outer