



TECHNICAL FEATURE

MISCONCEPTIONS ON PANEL JOINING

With all the talk recently about aluminum, it is no wonder the majority of the collision repair field is confused about handling new materials. Of course we are being facetious about the aluminum being new, as it has been around on automobiles since the 1910s. But it does make the point that there is too much conflicting information about how things are done and what equipment to use. That is why this month's article will cover some misconceptions of how panels are attached, what material is used and what equipment is required. In this article, and to establish a foundation, we are going to be dealing primarily with steel-intensive vehicles.

Let's look at three similar vehicles for a quarter panel replacement: A 2013 Toyota Camry, a Nissan Altima and a Honda Accord. If you are unfamiliar with the acronyms or the operations specified, stop here and get familiar with the associated procedures.

replacement on a 2013 Nissan Altima (steel panel), BMW 750i (aluminum panel) and a VW Jetta (steel panel).

Operation	Nissan	BMW	VW
STRSW	NO	NO	Required*
MAG Plug Weld	Required* (Window openings)	NO	NO
Butt/Open Joint	NA	NA	NA
Butt with insert/backing	NA	NA	NA
Silicon-Bronze/Braze Weld	NO	NA	NO
Bonding Adhesive	YES (Side flanges)	YES (Full bond)	YES (Full bond)
Rivets	NO	YES (for holder)	NO

Once again, it is obvious that there are some similarities, yet some major differences. This is what we are seeing in the industry today from the OEMs. But there are two completely different ends of the spectrum. Let's look at a 2013 BMW 750

hybrid construction uni-body. The quarter panel is a steel component with aluminum components attached (quarter extension, rear body panel). The panel is attached with resistance welds (steel to steel) and rivet-bonded in aluminum to steel mating flanges. In the repair procedure, the panel is STRSW on the steel to steel flanges, riveted in the quarter panel to rocker panel area (as there

is no access to the backside for the RSW arms to reach), riveted-bonded in the steel to aluminum mating flanges and silicone-bronze welded in the sectioned areas on the sail panel. Here are two similar vehicles with similar attachment methods from the factory, but very different in the aftermarket field.

The point we are trying to make is that you must use OEM information for the proper protocols on repairing each individual vehicle. A complete and proper repair requires the use of the correct procedure, application of materials and knowledge of the equipment. Today's vehicles are very complex and the multitude of different substrates have caused the OEMs to create different attachment procedures. Not following OEM procedures for attachment methods and materials usage can alter the performance, longevity and crash management of the vehicle, ultimately putting its occupants at risk.

We have heard – and even seen – shops and technicians misled by sales people and their lines: “See how great our product is” or, “Look what our product can do.” Please, do not fall victim to this scam. Always check with the OEM first on what materials and products are used in each repair. Over the past few years, we have seen some

Operation	Toyota	Nissan	Honda
STRSW	Required*	Optional	Required*
MAG Plug Weld	Required*	Suggested	Required*
Butt/Open Joint	YES MAG seam	Yes MAG seam	YES MAG seam
Butt with insert/backing	NO	NO	NO
Silicon-Bronze/Braze Weld	YES	NO	NO
Bonding Adhesive	YES Wheelwell Lip	NO	NO
Rivets	Yes (only fuel door)	NO	NO

(* “Required” = includes specific amount and location)

As you can see by the above-listed procedures, these three similar vehicles require very different attachment procedures. Now, if we look at a 2013 Chevrolet Malibu (MAG plug welds, open butt joints) versus a Ford Taurus (Weld-Bonding Only, open butt joints) versus a Chrysler 200 (Weld-Bonding Only, butt joint with backer bonded, no welding,) we see even the American-made vehicles are very different. Let's look at the roof panel

(steel) versus Mercedes-Benz S550 quarter panel replacement (steel and aluminum). The BMW is a steel uni-body vehicle and is weld-bonded from the factory, but for the repair procedure, BMW requires the panel be rivet-bonded with bonded joints with inserts. The procedure requires about 40-42 rivets, two tubes of bonding adhesive, and three EMC (Electro-Magnetic Compatibility) screws. Conversely, the Benz is a steel-aluminum

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incorrect repairs to vehicles due to a lack of repair information, and we have even had a small percentage that were repaired so unbelievably badly that the vehicle was tearing itself apart. The collision repair industry is only going to get tougher over the next few months with the release of the 2015 Aluminum Ford F-150, and even harder in the next two to three years as OEMs release more advanced steel, composite, aluminum and hybrid construction vehicles that will require many different repair procedures and equipment. This means collision repair professionals will have to purchase new equipment and attend more training classes than ever before. As more and more of these advanced construction vehicles are produced, look for an increase in replacement parts restrictions on these vehicles. They're likely to cause uproar, but they ultimately protect the consumer.

As a shop owner and technician, where do you see yourself in two years? In five years? Do some research and look at the direction of the collision repair industry. Write down what changes, investment, time and effort you will need to be just complete. You will see more and more OEMs restricting parts to their certified repair facilities, which will limit the amount of vehicles you will see in your shop. Things are changing, and it is happening very quickly. If you sit on the sidelines too long, you may not be able to catch up. The time is now to decide.

We hope that this article has helped the industry to better understand the importance of OEM repair procedures and attachment methods. Additionally, we hope we have opened your eyes to the changes here and now and coming in the future.

Feel free to contact us if you have any questions. **H&D**

Executive Director's Thoughts

The theme grappling its way to the top of our industry is training, having the right equipment and managing a repair center that has access to information for repairing today's vehicle technology. If that sentence hasn't knocked you in the head yet, it's really time to pay attention.

- Jordan Hendler

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- ✓ Aluminum Intensive and Hybrid Construction
- ✓ Aluminum Series and Alloys
- ✓ Repair vs. Replace Decisions
- ✓ Repair Equipment for Outer Panels
- ✓ Heating Techniques
- ✓ Hammer and Dolly Techniques
- ✓ Dent Removal Equipment and Techniques
- ✓ Reshaping Techniques

The Presentation is followed up by 3 ½ Hours of hands-on aluminum repair on hoods, doors and fender panels.

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