

Restoration Support 67 San Jose Unibody (Undercarriage)

This is an ongoing project of mine I expect to be continually updating as new information is documented, studied and discovered.

The following is not a substitute for what you may find on your unrestored original car but instead is offered as a help for those owners and restorers that are starting with a car that has been stripped, damaged, has had a prior restoration or has been cleaned to the point where many of the original details have been lost.

Some pictures used in this document are from original cars assembled at the same plant BUT from a different year - they do illustrate the proper steps and finishes.

Body Prep prior to sealers and paint

- The unibody was assembled from subassemblies and single panels on a pair of moving skids that were each attached, at eight different location, to the body. Four of these attachments passed through the body and were tightened from above to hold the body tightly to the skids, in the interior and trunk areas, which produce round bare areas visible on the finished vehicle at these points. Visible, on a completed car from below, this process resulted in eight round sections (showing the galvanized metal of those panels) on the finished product. (Page 6)
- Next, a limited number of bolt-on items were attached to the completed unibody including doors, and trunk lid as well as attaching items..
- Since it's unseen after car is assembled and it's not part of the undercarriage, I have skipped the specific details of interior sealing of seams and sound deadener applications to the quarter panel and inner door surface in these instructions to focus on the visible portions of the undercarriage of a completed vehicle. I did choose to include a few of the finer, somewhat related details, in a couple of pages of the article outside of the undercarriage I hope you will find them useful and somewhat related.



1- Seam sealer applied to the seams

- Body - Areas like trunk lip, drip rail, A pillar, cowl pinch weld, door jamb and others received a light tan/off white self leveling sealer. The application was such that it left no brush marks as in other applications and different products.

2- Exterior body primed with red oxide

- Undercarriage, from approximately the firewall rearward, was sprayed with a brownish red epoxy primer sealer in a slightly shinny (nothing like red oxide primer) final look. During identified periods of production the red oxide color became lighter, more pale or salmon in tone and tint. During another production period a very dark, almost black tone of epoxy sealer

This document, pictures, and descriptions contained within are the property of Jeff Speegle-2019. It is intended for private use and may not be transferred, copied, or sold by others without written permission. All rights reserved by its creator.

was applied to this same area. The primer sealer, no matter the color, was applied to the undersides of the car from firewall rearward, stopping approximately four-six inches short of the rear cross member. This was accomplished with the body sitting fairly level as it passed over a series of spray jets arranged below the track system the body traveled over. This process produced multiple runs that collected on the lowest surfaces and edges of the lower body panels. (Pg. 6)

- Next, by hand, the front frame rails and portions of the engine compartment walls were painted with another red oxide colored epoxy primer from a second source. This use of two different sources for the red epoxy primer often produced a visible difference in tone and or tint of the paint that can be seen on original paint car from below.
- Interior, trunk and exterior of car are primed with red-oxide next. The interior, door faces, inside of doors (areas such as the bottom of the doors often over looked) is painted red-oxide as was the trunk area and lid.

3- More seam sealers and sound deadener

- Seams sprayed and sound deadener applied in the interior area of the car.
- Trunk Seams - Most of the seams in trunk were typically sealed with thick heavy spray on sealant that produced very little overspray or splatter at the wheel well to floor, taillight panel to lower panels, rear bumper braces. There are a number of examples (dependant on production period) where the seam from taillight panel to floor was only applied with the chalking gun and not spread with a brush or solvent rag (Pg. 17) as detailed in that section.
- Trunk Sound Deadener - Sound deadener was applied to the inner surfaces of each quarter panel, visible from inside the trunk. These were likely applied at the same work station as the one that applied the sound deadener to the rear wheel wells. The product was applied to the center of the panel after it had been welded to the unibody. Instructions were to stay away from the edges and corners of that panel. (Pg. 18)

- Rear Wheel Well - In the rear wheel wells the sound deadener was applied by a worker standing below the body so overspray was common onto the small sections of floor between the frame rail and wheel housing panel lip as well as onto the frame rail in those areas. (Pg. 9)
- Inner Fenders (Wheel side) - In many examples, black seam sealer was applied then brushed to the inner fender to frame rail seam in the front wheel wells. No consistent pattern (by week or month) have been identified yet. In some cases (earlier brush on application may have been missed for some reason) this step was done with a heavy narrow sound deadener application to those seams then over coated with the normal sound deadener pattern/application.

4- Interior paint was next applied, then once dry, masked off to protect those surfaces from the exterior paint application. (Pg. 16)

- Door inner surface - Dash - A pillars were painted interior color. Then these surfaces were masked off and protected from the next primer coat and exterior body color application.

5- Exterior body was next primed with a light gray surface primer. The painters focused mostly on the sides and upper body since that was the most visible surfaces. Little effort was made to coat the lower areas such as rocker panels and other panels so overspray is not typically found on the undercarriage or much in the rear wheel well, door jambs or trunk

6- After the application of the light gray primer the quarter panel extensions, rear bumper guard brackets and rear valance were installed.

- Quarter panel extensions are attached also but spaced out slight from the body using sealant and one retaining nut per side to hold them to the body.
- Rear valance was attached with only two screws at this point and allowed to hang from those points. Normally the screw holes used for these were typically the second or third one in from the ends of the rear valance. Because the screws were installed at two different stations typically you will find two different type of screws installed.

- 7- Exterior paint was applied to the inner trunk areas where it could be seen and reached by the painter. It was not unusual to have bare surfaces or primer showing in areas such as where the quarter extensions attach at the very top (from the trunk side), bottom of the transition panel between the trunk and rear window or high up over the wheel well housing. (Pg. 17-18)
- 8- Door jambs and exterior of the car were painted. (Pg. 9) During this process, using the spray guns of the period, a fair amount of over spray and direct application ended up on areas other than the exterior body such as the interior of the car, the rear wheel wells, the bottom of the floors and undercarriage and any panels or details that hung down more than the surrounding ones. Front frame rails would be one example. This process pushed a lot of body color overspray onto the bottom surface of the floor pans and the panels over the rearend area.
- Normally the exterior color was applied up to the front edge of the firewall to cowl pinch weld and the cowl/A pillar sections on both sides of the car. At times the painter extended forward with the body color but it would be covered with engine compartment black later in the process. (Pg. 9)
 - It should be noted that after the exterior paint was applied the body was tilted/rotated. This often produced runs on one or both wheel well surfaces in the trunk that travel from passenger side towards drivers side on the finished vehicle
- 9- Engine compartment and inner fender areas were next painted semi-gloss to satin black. (Pg. 10) On the inside of the engine compartment from the cowl to firewall pinch weld downward the black faded away as the panel bends back toward the junction with the floor pan at the bottom. How far varies depending on the worker, how much they bent over, their height and the effort they put forward on the particular car. Black paint was applied to all of the inner fender panels in the engine compartment as well as from the top all brackets and mounts along the bottom of the engine compartment. Examples being the strut rod brackets.
- The top edge of the inner fender panel at the rear edge, where the fender will eventually rest, was masked at the leading edge of the cowl to firewall pinch weld typically. This was done in such a way so as to not normally produce a sharp tapered like edge to the black paint. (Pg. 9)
 - The inner fenders in the wheel wells and radiator support were typically fully painted from the top lip of the panels to the bottom edge of the frame rails. Fading away below and behind the firewall section there. At the rear edge on both sides the black normally stopped where the rear splash shields would later be attached. The radiator support was also typically well covered with black paint down to and including the face of the front cross member. All of the painting of the front frame rails and cross member often produced some overspray onto the low hanging brackets that were seen in the engine compartment.
- 10- Next the pinch welds were blacked out from the front edge at the front wheel well, to the rear valance, surface stopping and restarting at the front and rear edge of the rear wheel well. This stopping and starting produced black paint being applied to the rear wheel well, frame and floor sections in that immediate area. (Pg. 10) Because of the angle of the gun the overspray from the pinch weld black out travels across and onto the undercarriage/floor and any bracket, panel or detail that hung down as well as floor surface closer to the rocker panel. Because of the pinch weld and the angle of the gun a shadow from the spray of black paint was produced immediately behind and inward for a very short distance. Many today use a backwards masking technique or foam tape to produce a straight but soft paint edge to the black out.
- 11- Next sealants were applied to specific locations on the undercarriage. (Pg. 12) The material used was a smooth (no grit) black elastomeric chalk, applied from a gun then spread with a rag soaked in a thinner. Many restorers today use a 1" brush with all the bristles cut off except for the last quarter of an inch to spread the material in a single pass. The sealant was applied between/on the seam between the floor and rocker panel. Typically 90% of the sealant was applied to the floor part of the joint with approximately 10% of the product on the rocker section.

12- During the paint process the "small parts" such as fenders, headlight buckets and such were being painted at a separate paint line, supplied from the same paint vats as the body paint line. Back sides of these parts received either a direct or indirect application of body color depending on the shape of the outer surface and what surfaces were being painted on the exterior surfaces. Areas such as the rear edge of the fenders were well covered with body color since the area would be visible when the door was in the open position. This allowed for a fair amount of overspray to travel towards the leading edge of the fender. Same result from painting the fender lip, headlight bucket area.

13- Once all of the items were installed to the firewall and before the engine was installed the firewall openings, pass-throughs and attachment points were sealed using what Ford referred to as an adhesive. (Pg. 12-13) This includes the master cylinder, brake lines and retaining clips, electrical connections, emergency brake and throttle brackets. Only the engine ground strap would not be attached to the firewall at that point and because of that not have sealer at firewall attachment point. Typically, with a wand, the worker would apply the sealant while moving the wand from spot to spot sealing and spraying as he went. This practice often produced a connect-a-dot pattern or look of the finished product.

- There were periods during 1965 production when the worker applying the firewall sealer also attempted to cover the horn wires at the front surface of the radiator support with the product likely in an effort to make them less visible when viewed through the grill.

- Possibly, at the same station, the sides of the cowl received a small amount of sealer over the over the wire loom retainers/attaching clip ends that are visible on the driver side cowl surface.

14- Once the car was completely assembled, minus the front wheels and tires, sound deadener was applied to the front wheel wells to seal out water and reduce road noise. Typically the minimum application of sound deadener to the inner fender panels was a single diagonal pass of the application wand (all of this applied from below the car in the pit) from around the front bumper bracket attachment point to the top just in front of the spring cover on the front inner fender panels. Product on the spring cover

is not typical but there are examples of product if the car was one where the worker applied a heavy much fuller coat that time.

On the rear inner fender panel from just behind the spring cover diagonally down and reward towards where the frame and the firewall section come together. Multiple passes along this firewall section was done at the same time. This firewall application would normally spill over onto the rear splash shield out towards the seal to fender meeting edge.

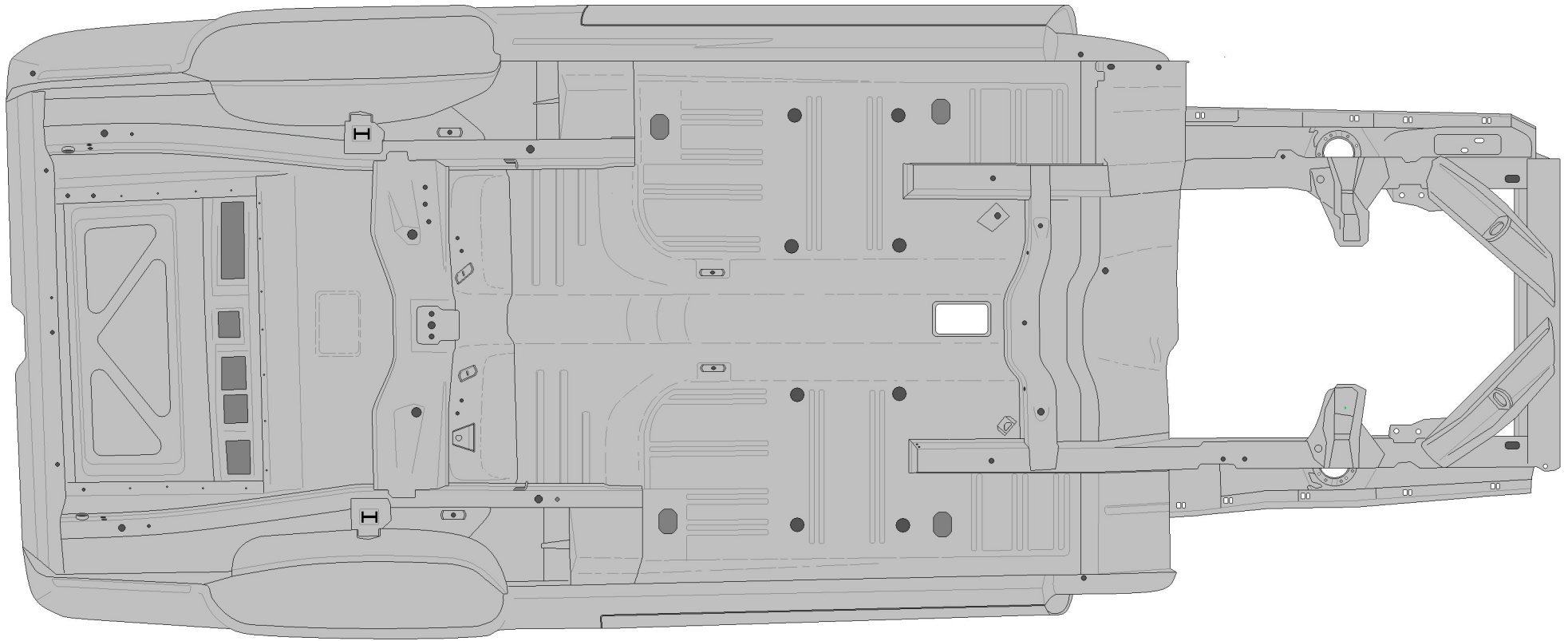
Often an additional application was made on the back side of the head light bucket of the fender and front splash shield. Workers were instructed to seal the splash shield to fender meeting edge but it was not always done fully. (Pgs. 15)

On some cars (approx 40% of the sampling) the bottom side of the front fender received a single pass of the applicator.

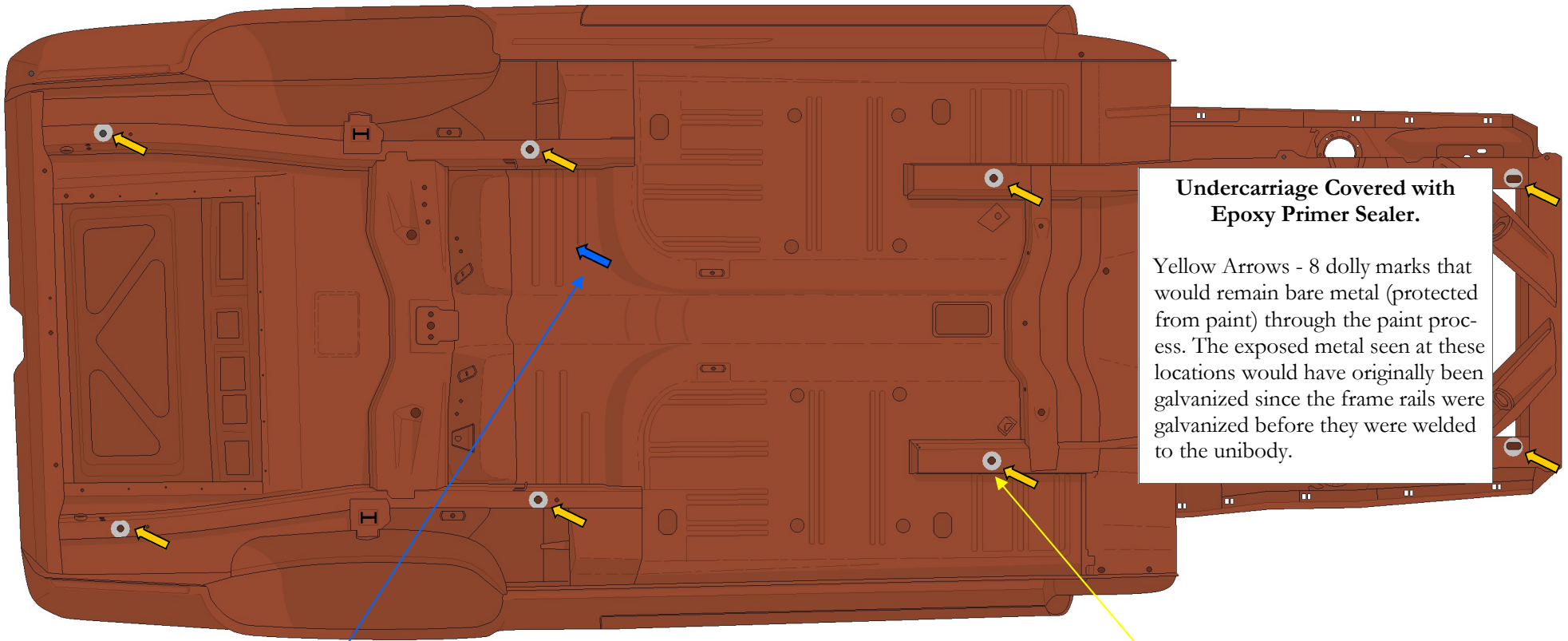
15- The sealant of the inner fenders panels to the front frame rails and to the shock towers differed depending on the production period. It has been found applied with a brush application, sealed with a close application of sound deadener material and some times not done on certain edges. The sound deadener usage may have been an attempt to fix where an earlier worker skipped or missed the application (Pgs. 14)

Now the process in pictures and illustrations.

Note: Colored arrows in the following illustrations correspond to the smaller pictures below the illustrations of the unrestored example of the practice

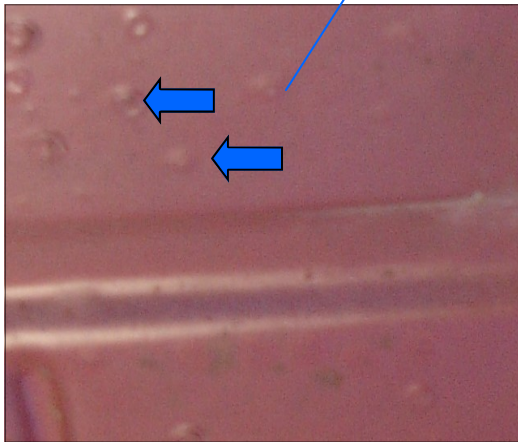


Panels and subassemblies were assembled together to make up the unibody. The unibody was installed on a dolly that would carry it through the rest of the assembly process. To the unibody the trunk lid, doors were installed. Many but not all exterior and seam sealers in other locations were applied next. Following that step exterior and interior were painted with a coat of red oxide primer sealer.



Undercarriage Covered with Epoxy Primer Sealer.

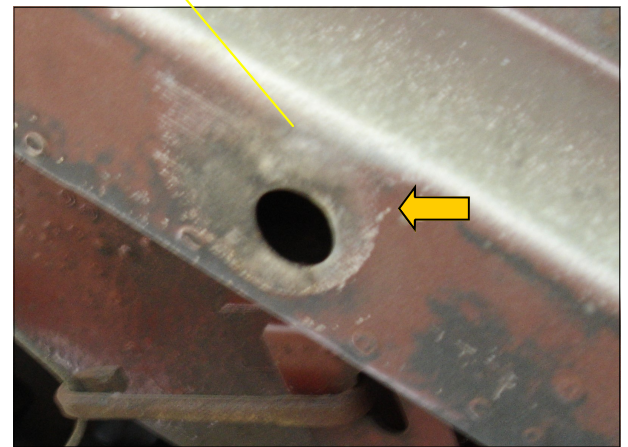
Yellow Arrows - 8 dolly marks that would remain bare metal (protected from paint) through the paint process. The exposed metal seen at these locations would have originally been galvanized since the frame rails were galvanized before they were welded to the unibody.



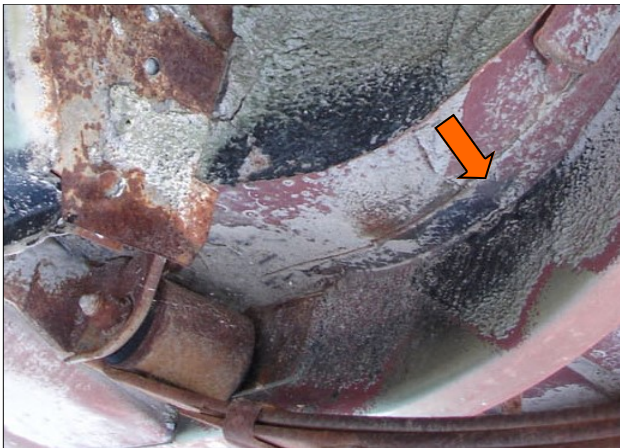
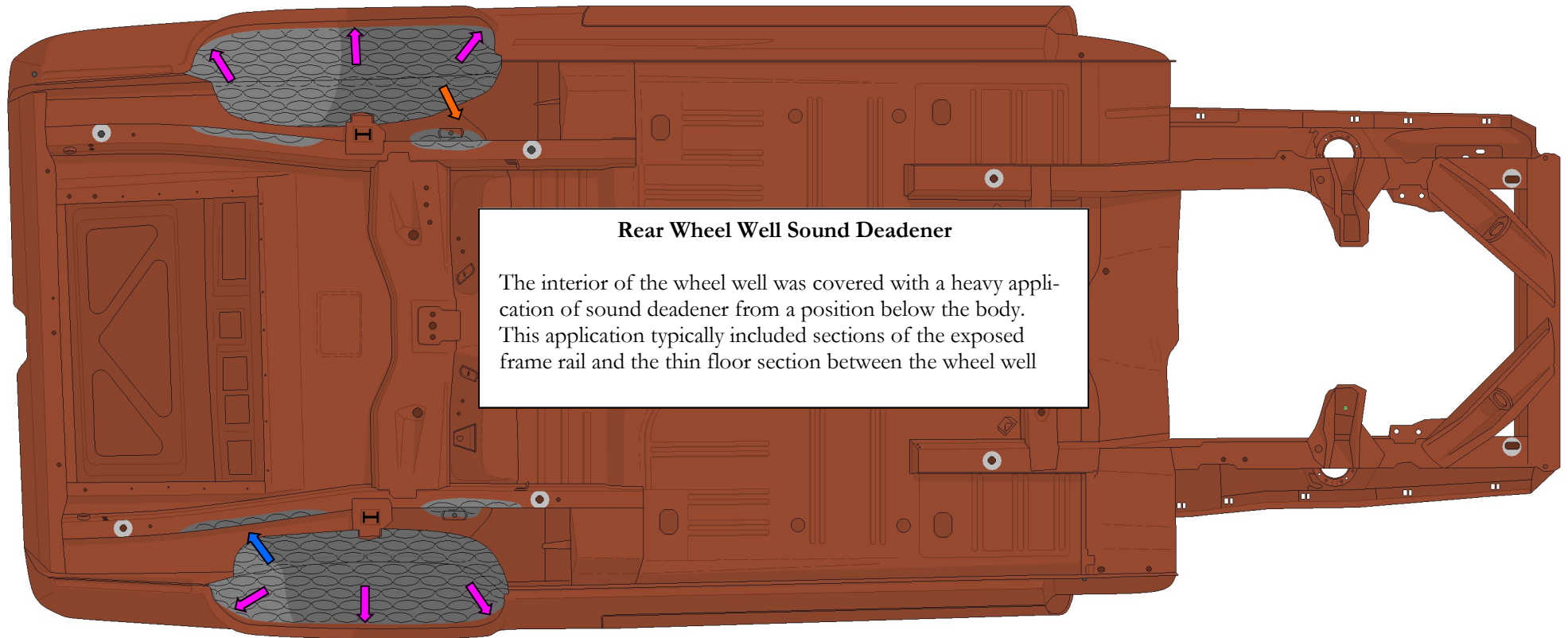
Heavy application produced drips in many areas



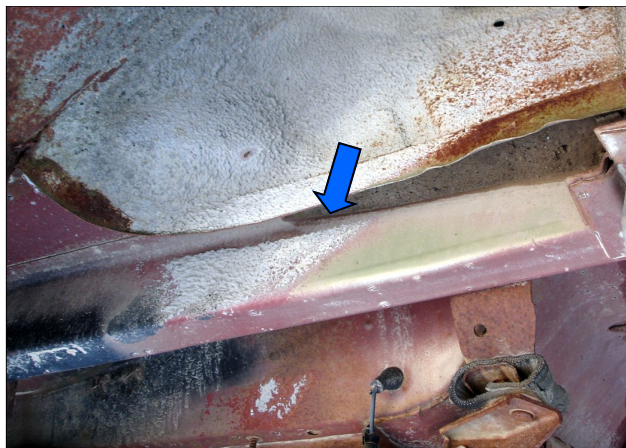
Example of overall finish



Example of dolly mark



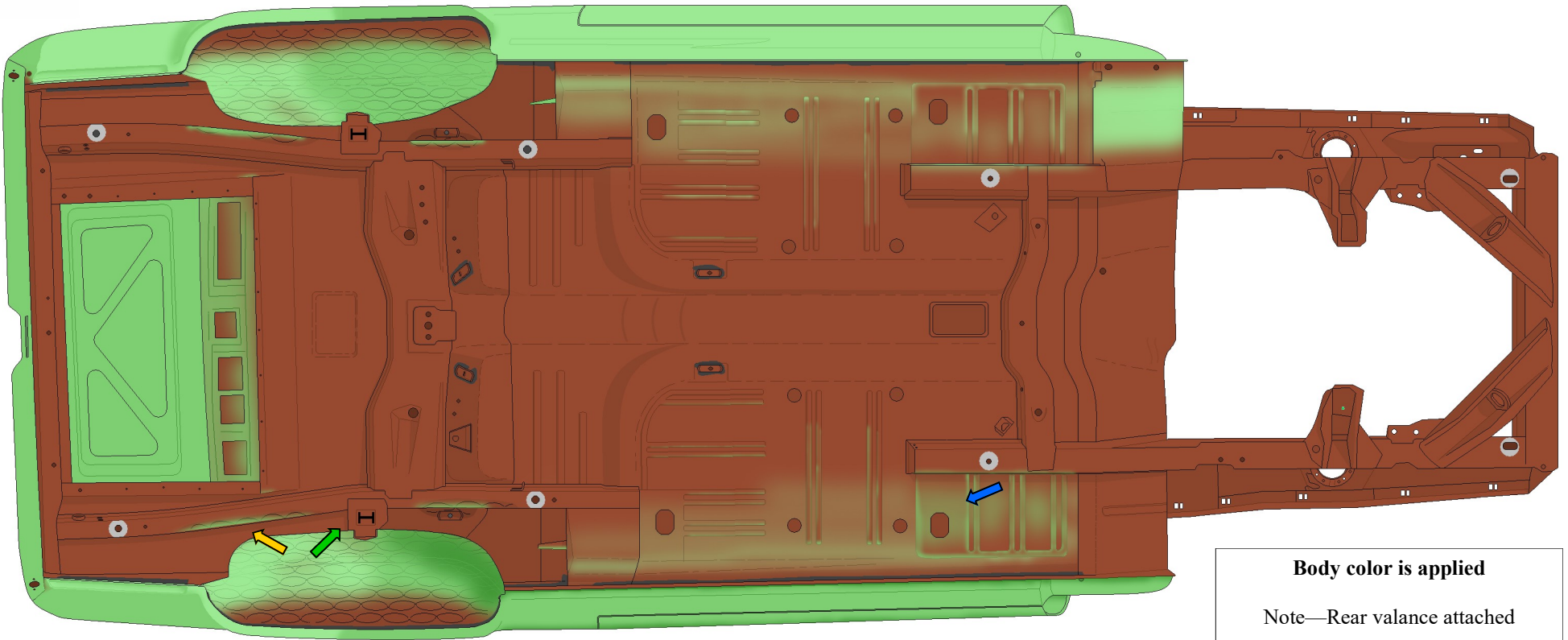
Visible sound deadener overspray on the frame rail though exterior paint has worn off.



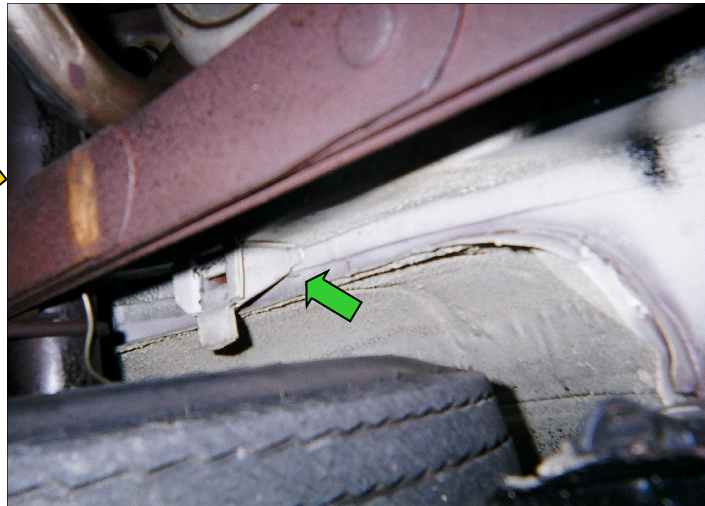
Another example of sound deadener and exterior color on frame and wheel well.

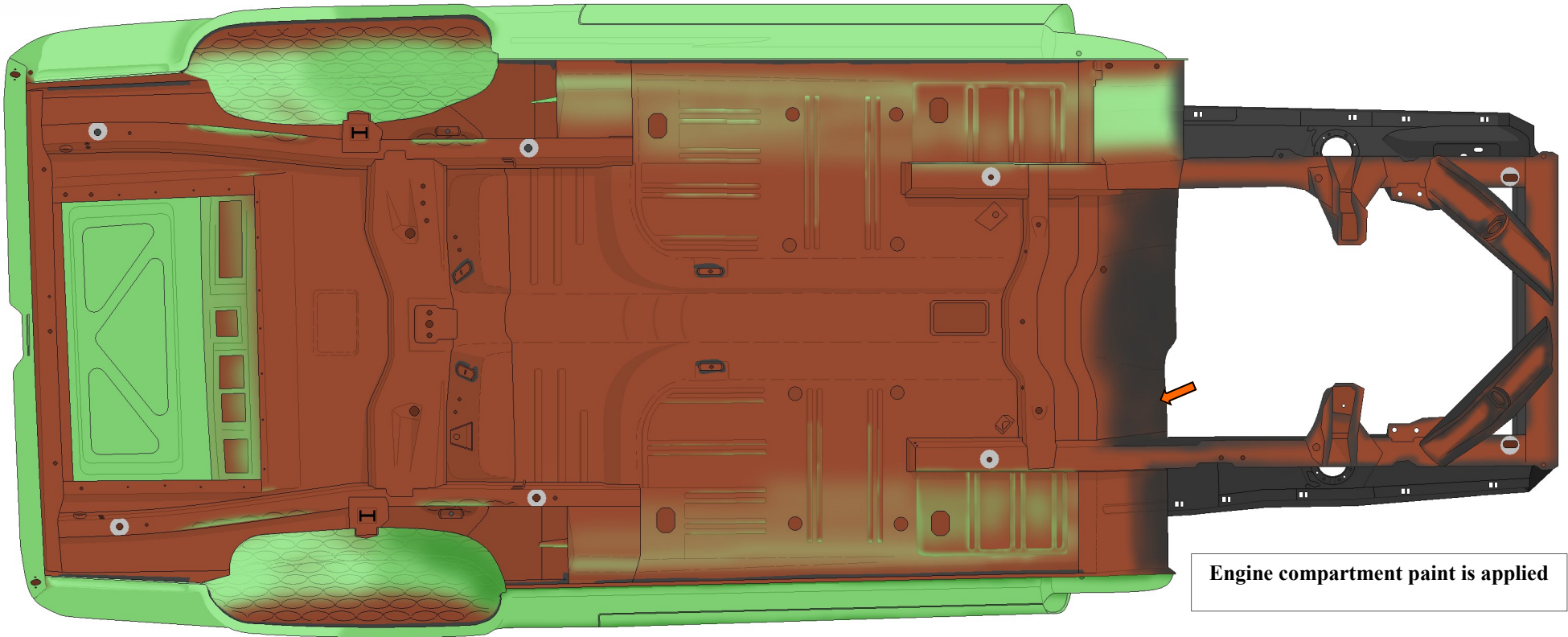


Sound deadener not applied all the way to fender lip.

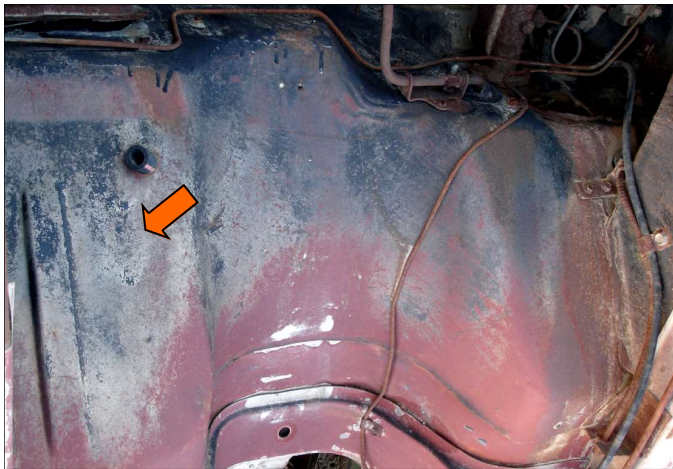


Body color is applied
Note—Rear valance attached





Engine compartment paint is applied

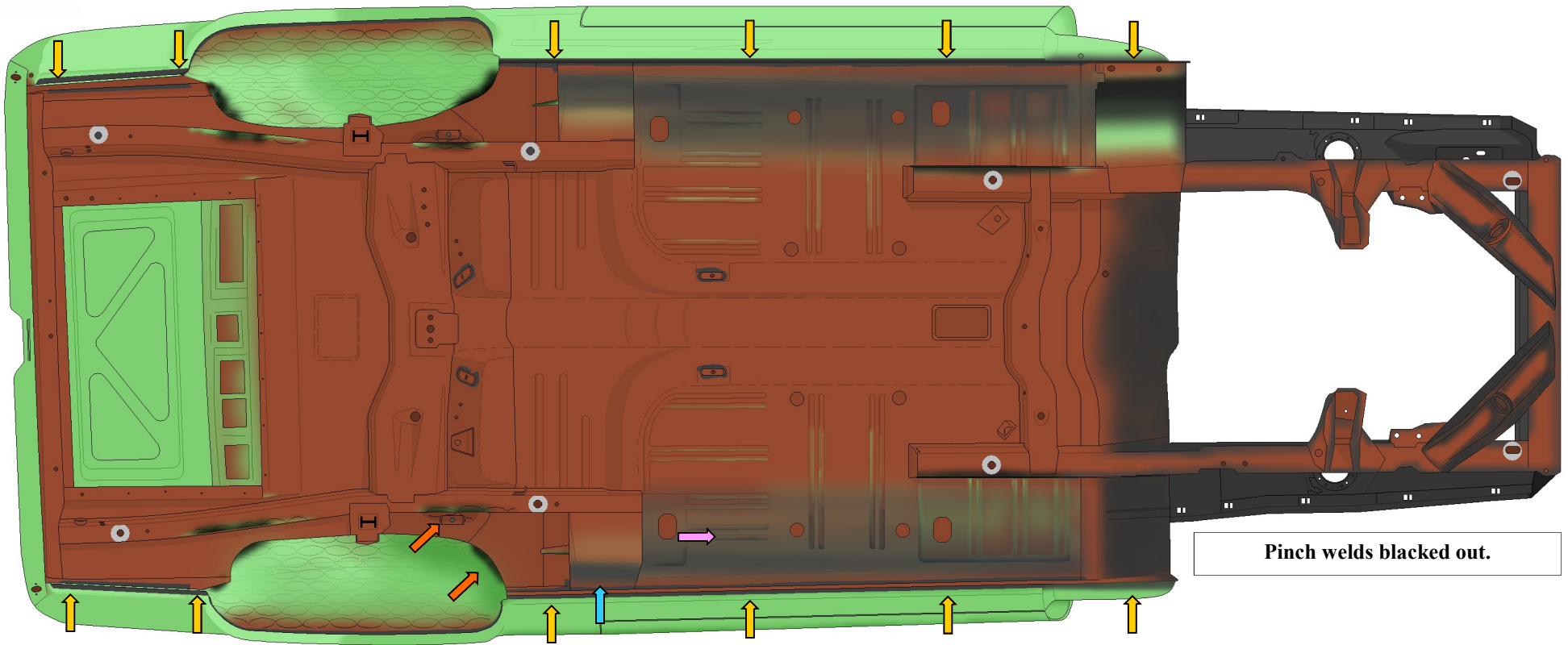


Transition from floor pan area to firewall.

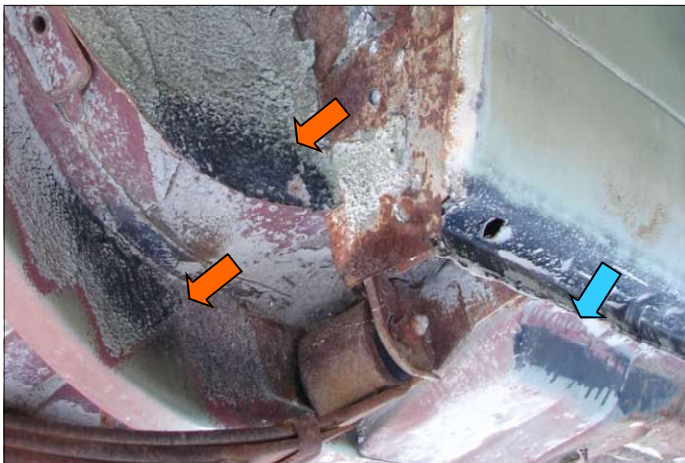


Correct location of black paint to cowl body color





Pinch welds blacked out.



What is left of the pinch and rear wheel well black out

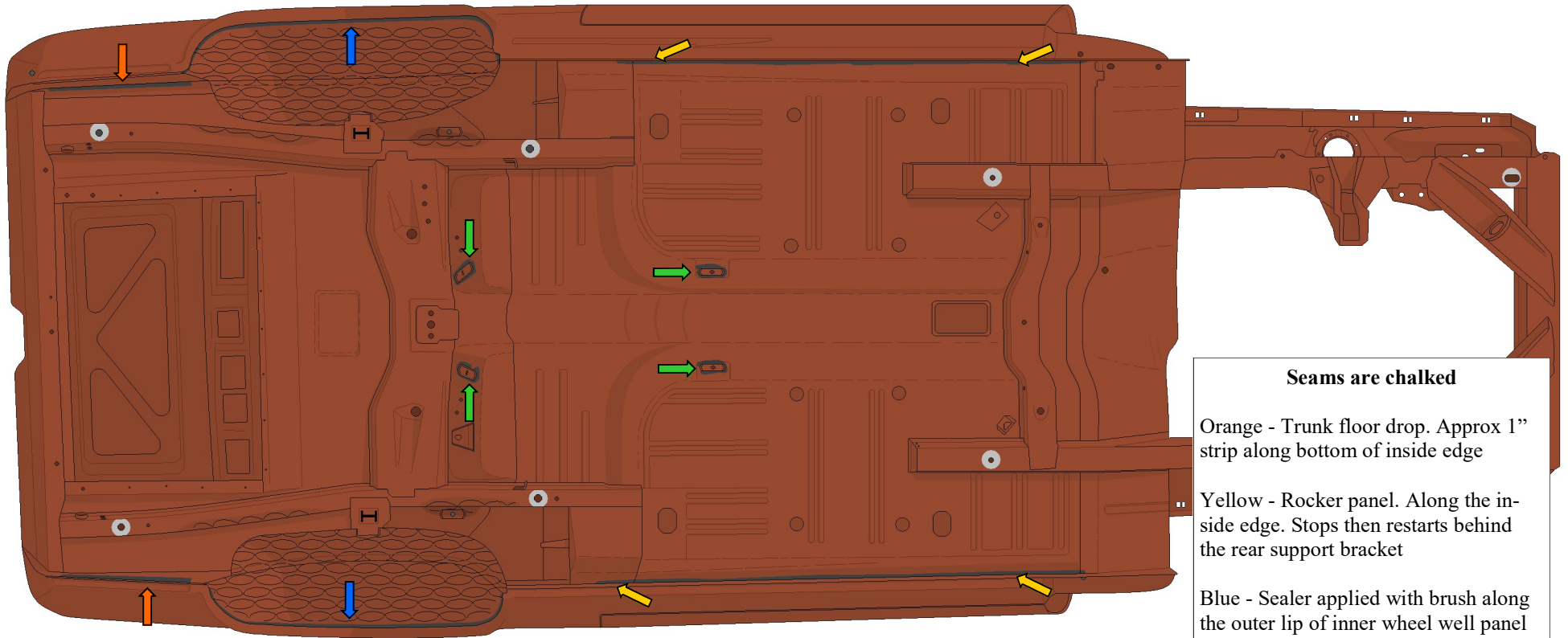


Rocker panel pinch weld blackout



Floor behind rocker lip showing paint shadow.

This document, pictures, and descriptions contained within are the property of Jeff Speegle-2019. It is attended for private use and may not be transferred, copied, or sold by others without written permission. All rights reserved by its creator.



Seams are chalked

Orange - Trunk floor drop. Approx 1" strip along bottom of inside edge

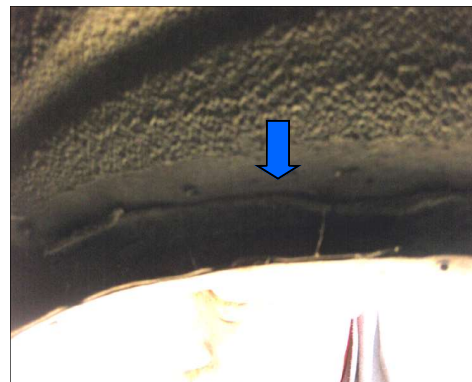
Yellow - Rocker panel. Along the inside edge. Stops then restarts behind the rear support bracket

Blue - Sealer applied with brush along the outer lip of inner wheel well panel

Green - Seat belt mounting points



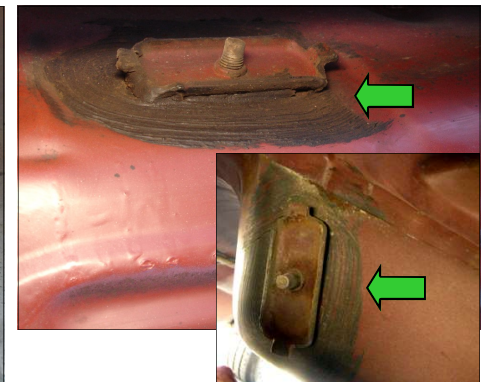
Trunk drop sealant Drain added later



Wheel well lip sealant

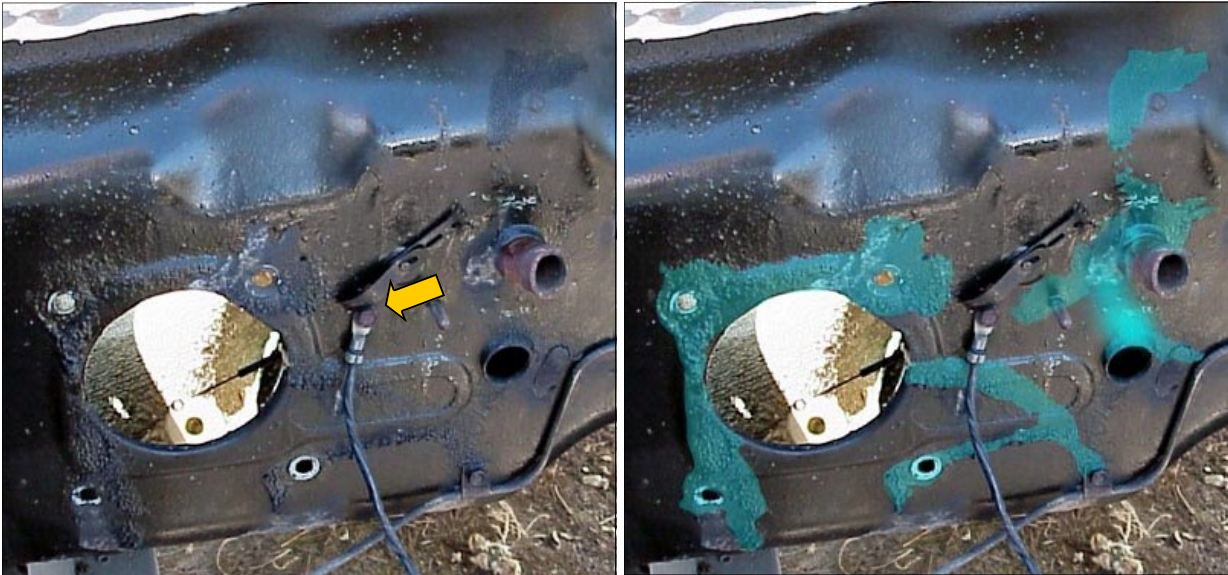


Rocker panel chalking



Seat belt anchor sealant example

This document, pictures, and descriptions contained within are the property of Jeff Speegle-2019. It is intended for private use and may not be transferred, copied, or sold by others without written permission. All rights reserved by its creator.



Example of typical sealant applied at or around all firewall attachments and pass-through locations except for the grounding wiring and attaching screw. They were attached to the firewall later in the assembly process. For each of the picture I've highlighted the spray pattern to make it visible on each. As you can see the product is a very fine spray, in areas, similar to what is produced with spray adhesive (adhesive was the term for Ford used for the product) while in other areas where the product was applied heavily it was thicker. Often you will find it was thin enough to produce runs even where not much sealant was applied.



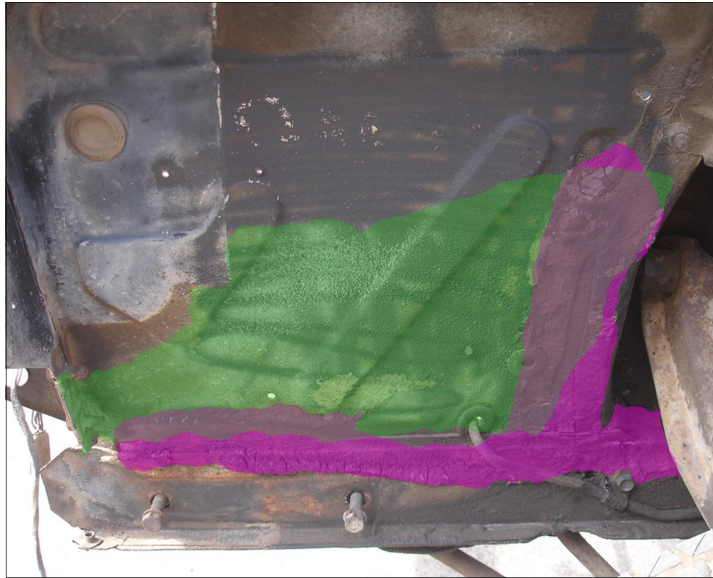


Patterns vary from car to car. The example above is one worker's efforts to cover all required points as instructed.

Sealant normally applied in a continuous spray carried from point to point though the pattern between the target spots can vary from worker to worker.



Front Wheel Well Sound Deadener Applied - Inner Fender Aprons



Highlighted areas show two applications of a spray sealer. One (highlighted in purple) a narrow, heavier, closer application designed to fill and seal and a wider, lighter application designed to deaden sound and vibrations. Ignore the thin back and forth pattern you see on the panel to the left. It's a results of someone attempting to clean the surface using a method that removed some sound deadener.

Once the car was completely assembled (minus front wheels and tires) sound deadener was applied to the front wheel well. The amount and area covered depended completely on the specific worker that applied it and what they did that day. Application falls between a little and a lot with no real identifiable pattern. But all original examples show some on the rear splash shield, firewall section exposed in the wheel well, inner fender panels forward and rearward of the shock tower (normally at a minimum from the lower rear to the top rear edge of the shock/spring cover then from the forward top edge of the shock/spring cover forward and downward.) and finally on the front splash shield.

We often see examples where the bottom side of the fender received a single pass, upper right picture, with the application wand but not all cars received this.



Front Wheel Well Sound Deadener Applied - Fender & Splash Shield Surfaces



Sometimes the worker would make an additional pass with the applicator across the top (bottom of the fender) and over the fender headlight bucket, splash shield and rubber shields for additional coverage. There has been no connection of this pattern with specific intended delivery destinations for a specific vehicle. It appears to just be random.





Defroster vent black out



Once the interior of the door was painted a mask was taped over the inner surface of the door leaving the pattern above.

Interior Paint Application

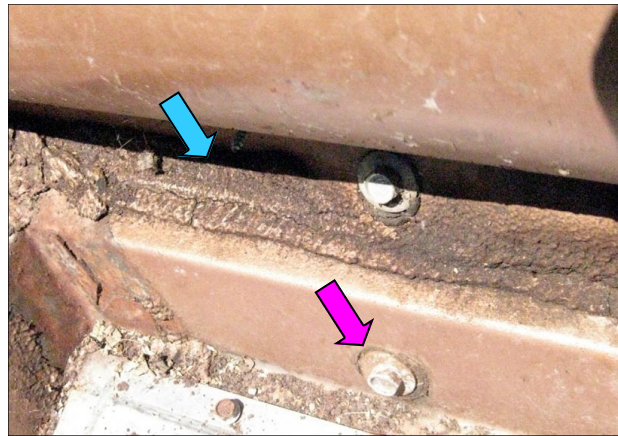
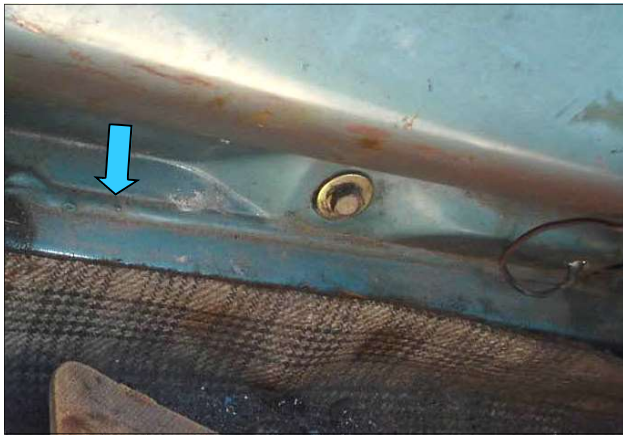
Interior panel paint was the first paint coat applied to the unibody. Once painted and dry, these surfaces were masked off to protect them from the other paints that were applied later during the process. As can be seen in the bottom of the door examples not every painter bent down enough to apply a good coat of exterior paint to the bottom of the doors.



Inner door surface mask left a gap between the lower edge of the mask and the lower door weather-strip channel.

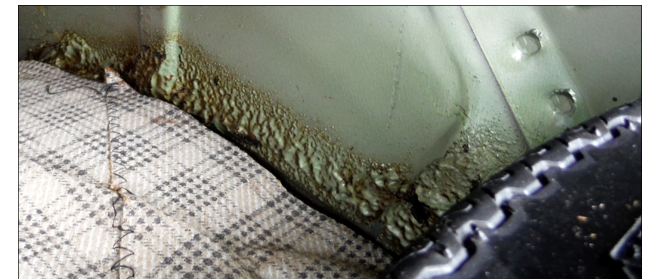
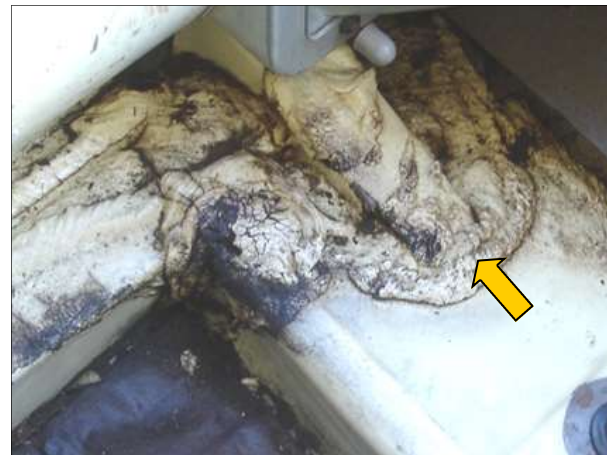


Paint detail at top rear edge of door



Above and below (blue arrow) shows the taillight to rear trunk floor seam and sealant. During one period chalking applied in a thin neat bead while during another production period it was sprayed with the same product and technique as the other floor seams around the trunk. Product appears to match the version of sealant used around the rear bumper brackets shown in the pictures below. Change appears to have taken place in December 1966. Purple arrow indicates the upper mounting bolt for the rear bumper guard bracket which was installed prior to paint application so this would have been painted, along with the sealant, body color.

Seam sealant at wheel wells to trunk floors was a spray on process that resulted in very little splatter or overspray and a narrower spread than the application of the trunk floor panels to other floor panels. Material was a heavy body sealant that flowed outward often leaving a very well defined edge especially on the edges.



Sealant applied straight out of the chalking applicator and left untouched. This product tends to match the product used during this period, the product used above for the taillight panel seam.

This style of sealant application, sprayed, was applied from one quarter panel to the other side producing a finish similar to the other sprayed seams in the trunk area.



Typical sound deadener application onto the inner surface of the quarter panels. Applied to the center of the panel surface, away from any of the edges . Application wand produced a fairly strong edge to the application without much or any overspray. Example in the center, above, appears to be an example where the applicator wand end was plugged or partially blocked producing less than equally balanced application when compared to the example to the left and the far right.



Miscellaneous Paint and Sealant Details

At San Jose on fastback models, workers placed on the trunk lid spring an extra trunk spring insulator, like the one attached to the trunk lid in the middle with the bracket, to the driver's end of the spring. As shown in the pictures to the left.

It's believed that this made the process of installing the trunk lid spring easier and kept the rod from falling out during the process. Because of this, the rubber insulator was painted body color along with the surrounding metal as illustrated in the examples to the left. .