

Restoration Support 66 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.

During this year at San Jose they, primarily used a version of a epoxy primer/sealer in red oxide color. The color typically was a somewhat dark, brownish or sort of muddy tone that had a low shine to it. A few examples of a lighter, as if some white or other light color had been added, more pinkish/salmon version, have been found during specific production periods. I will continue to collect data and update this article as more information becomes available or to improve the article or the method of delivery. The article includes a lot of details and pictures, read the information carefully and completely while comparing and studying the illustrations and pictures provided.

NOTE: The following is not a substitute for what you may find on your un-restored 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 a prior restoration or has been cleaned to the point where many of the original details have been lost.



The Process in Words

Body prep prior to sealers and paint

- The unibody was assembled from subassemblies, on a pair of moving skids that were each attached at 4 different spots (8 total) 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 below the attachment fixture. Visible on a completed car from below, this process results in eight round sections (showing the galvanized metal of those panels) on the finished product. (Page 5)
- Next a limited number of bolt on items were attached to the completed unibody including doors, L shaped fender brackets (attached to each A pillar) and trunk lid.
- Since it's unseen after car is assembled and not the focus of this article 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 completed vehicle. But I have included just a few interior details in the following pages. (Pg 17)

1- Seam sealer applied to the seams

- Body - Areas like trunk lip, drip rail, A pillars, 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.

- Trunk Seams - Seams in trunk were typically sealed with a black, brush on, sealer (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 18)
- During much of the 1966 production at San Jose where the front inner seat belt anchors were sealed at this point with a thin runny sealant applied over and around the attachment bracket. Pattern has not been identified as to which cars did or didn't receive the sealant. Initial findings suggest that more cars were sealed than not sealed after mid October 1965. (Pg 5)
- Seams sprayed and sound deadener applied in the interior area of the car
- Firewall (engine side) - Sealer applied from a chalking gun (not brushed) along the inner fender panel to firewall seam on passenger side. (Pg 8)
- Inner Fenders - In many examples black seam sealer was applied (brushed) to the inner fender to frame rail seam in the front wheel wells. No consistent pattern (week or months) have been identified yet. In some cases this step was done when the sound deadener was applied later to the front wheel well where the worker coated these seams with that produce instead. (Pg 7)

2- Exterior body primed with red oxide (Pg 6)

- Undercarriage is sprayed with a brownish red epoxy primer sealer in a slightly shiny (nothing like red oxide primer) final look. Color or tone appears to be more consistent through the year than what was found in 65 production at the same plant and can normally be seen as a reddish brown to muddy red, depending on time period though a period of pale red oxide color was applied near the beginning of the production year.

With the body sitting fairly level, red oxide epoxy primer sealer applied to the undersides of the car from firewall rearward, as it passed over a series of spray jets arranged below the track system the body traveled over. This application stopping approximately four inches short of the rear cross member. This process produced multiple runs to collect on the lowest

surfaces and edges of the lower body panels.

- Interior, trunk and exterior of car are primed with red-oxide next. The complete interior, door faces, inside of doors (areas such as the bottom of the doors often over looked) is painted red-oxide as is the trunk area and lid.
- Next, by hand, the front frame rails and some parts 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 that can be seen on original paint car.

3- Sealant and sound deadener added. Next, sealants were applied to specific locations on the undercarriage. (Pg 10-11) 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 cheap 1" brush with all the bristles cut off except for the last quarter of an inch to spread the material in a single pass.

- Rocker to floor seam sealed with a wipe of black smooth sealant normally from the firewall panel to floor overlap joint to the rear spring front torque box to floor seam. Likely at about the same time the short outer wheel house to trunk drop seam was sealed with a thick wipe of the same black smooth sealant. (Pg 11) The sealant was applied between/on the seam between the floor and rocker panel. Typically 90% of the sealant was applied to the floor panel section of the joint.
- Trunk Sound Deadener - Sound deadener is 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. (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)

- 4- Interior paint was next applied, then once dry, masked off to protect those surfaces from the exterior paint application (Pg 17)
 - Door inner surface - dash, A pillars were painted interior color. Fastback simulated scoop "fingers" were blacked out from the exterior side of the body also, possibly at this paint station or the next. These surfaces were then masked to protect them from the exterior spray 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. (Pg 12)
- 6- After the application of the light gray primer the quarter panel extensions, rear bumper guard brackets and rear valance were installed. (Pg 12)
 - Quarter panel extensions are attached also but spaced out slight from the body using sealant and one retaining nut each side to hold them to the body.
 - Rear bumper guard lower brackets were attached to the rear cross member and the rear valance was attached with two screws only at this point and allowed to hang from those points. Normally the screw holes used were typically the second or third one (most often the third) in from the ends of the rear valance. Type/style of mounting screw often differed between the two painted and the remaining screws as well as production period. Before this was done the rear bumper guard brackets were installed to the rear cross member and trunk surface.
 - Sometime during March of 1966 San Jose production, workers started installing the rear splash shields located in the front wheel prior to applying the exterior paint. This resulted in the inside upper mounting screw, visible from the engine compartment, being painted exterior color as it is often at or rearward the transition point between the exterior color and the engine compartment black. On earlier cars the visible screw head would not be painted except for possibly (if the black was applied that far rearward) with black overspray. (Pg. 13 Lower left center picture)
- 7- Exterior paint was applied to the inner trunk areas where it could be seen and reached by the painter. It's not unusual to have bare surfaces or primer showing in spots 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.
- 8- Door jambs and exterior of the car were painted. (Pg 12) 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 housing 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 all would normally be covered with black later in the process.
 - It should be noted that after the exterior paint was applied the body was tilted/rotated onto the driver's side. This often produced runs on the passenger side wheel well house visible in the trunk, that travel from passenger side towards drivers side on the finished painted vehicle.
- 9- Engine compartment and inner fender areas were next painted semi-gloss to satin black. (Pg 13) On the inside of the engine compartment from the cowl to firewall pinch weld downward. Fading 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 into painting that 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 off 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 tapped like edge to the black paint. (Pg 13)

- 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 or from the side in the example of the front wheel wells.

10- Next the pinch welds were blacked out from the front edge 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 sound deadener, frame and floor sections in that immediate area. (Pg 14) Because of the angle of the gun overspray from the pinch weld black out was allowed to pass over 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 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.

12- During the paint process the "small parts" such as fenders, headlight buckets and such were being painted in a separate paint line but supplied from the same paint vats as the body paint line. Backsides 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 surfaces of the fenders.

13- Once all of the items were installed on 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 15) 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 to the finished product.

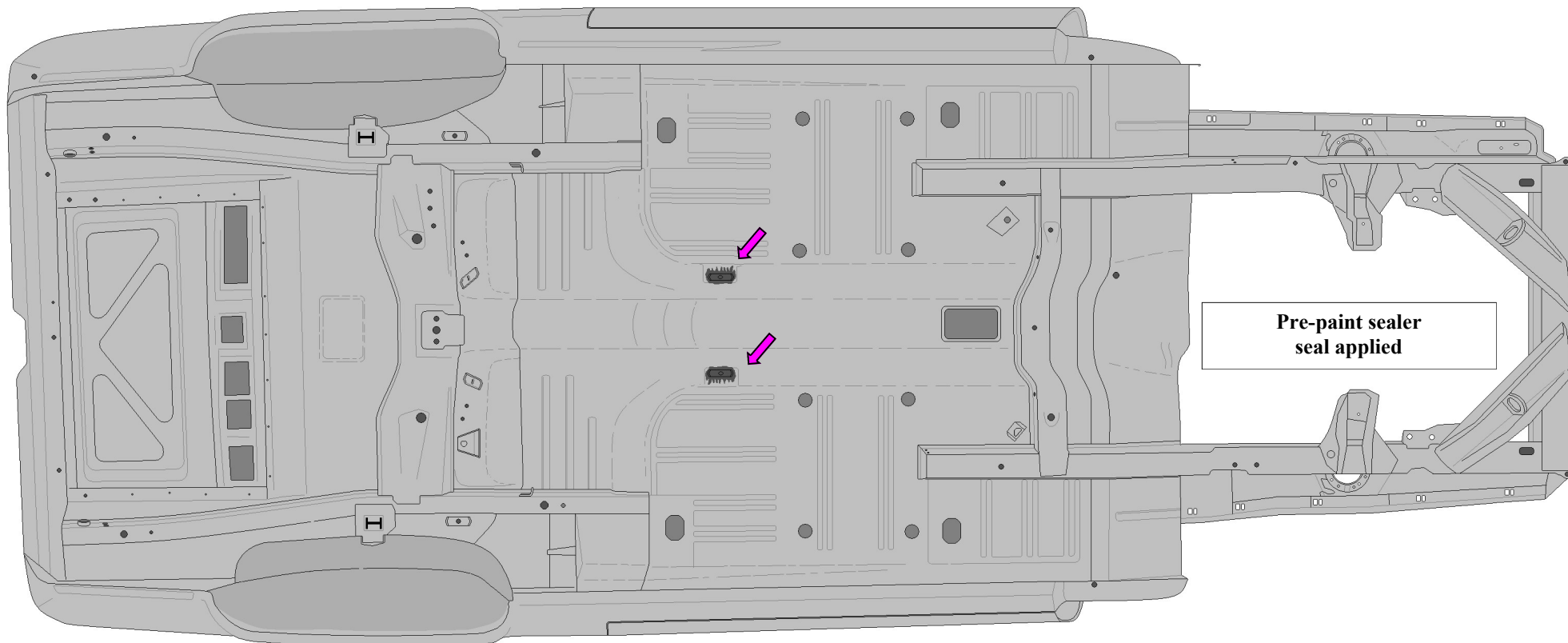
- Its possible that at this same station, the drivers side of the cowl received a small amount of sealer over the wire retainers ends that are visible on the drivers side cowl surface.

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. The range/amount of application differs from car to car but the minimal amount appears to be a single pass of the application wand on the inner fender panel in front of each shock tower, one pass behind each shock tower on the inner fender panel and the surface of firewall visible in the wheel well coated. Workers appear to have normally attempted to seal the splash shields to the fender edge, though they often fell short of completing the task completely, leaving only spits and splatters. On some cars the worker also made a single pass over the top of the wheel well onto the bottom surface of the front fender. (Pg 16)

If something is not clear please feel free to contact me

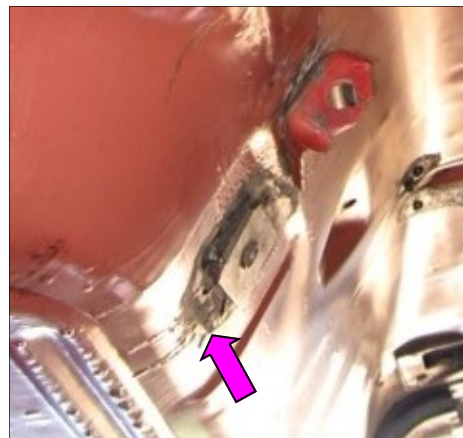
Now the process in pictures and illustrations.

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

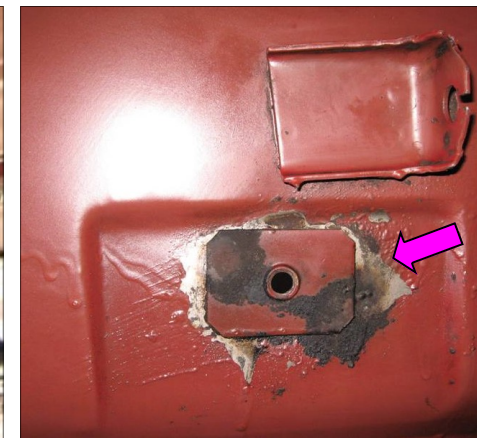


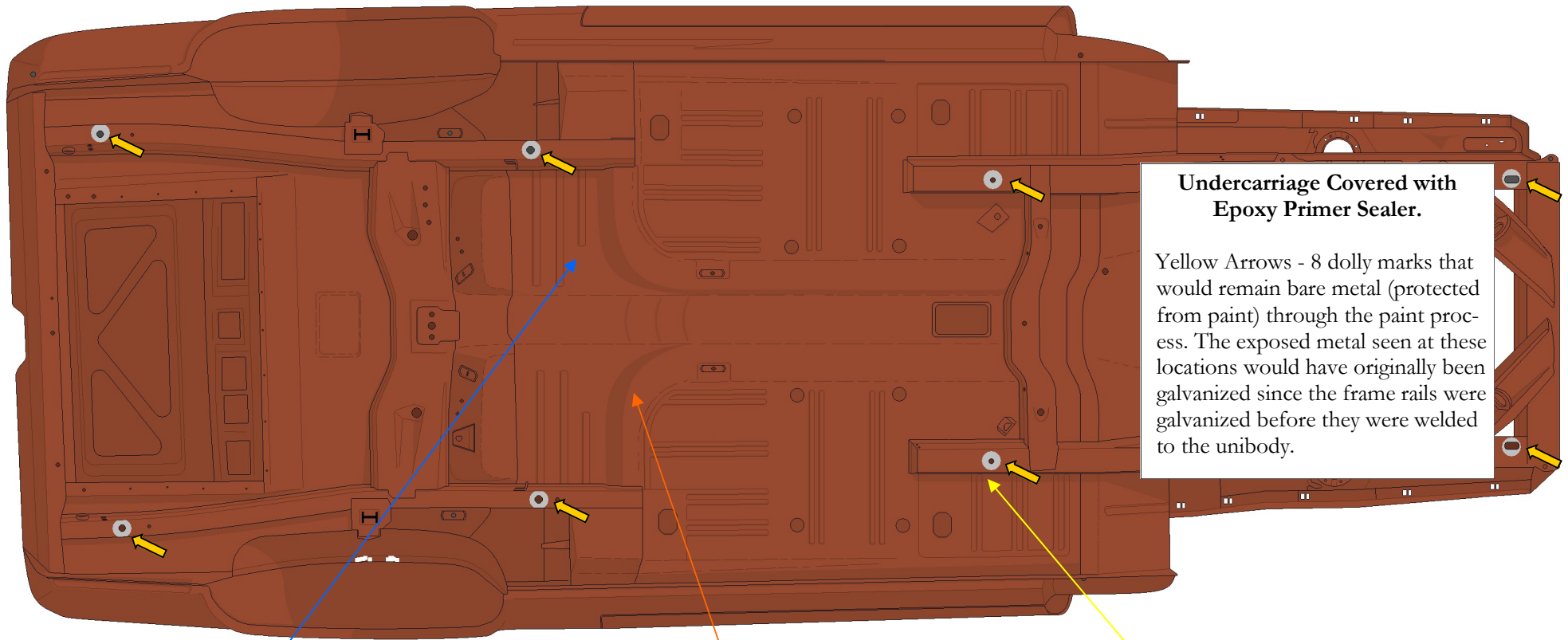
Front seat belt anchors without sealant.

There were periods of time at San Jose during the 1966 production run where the front inner seat belt anchors were sealed with a runny thinly sprayed on sealer applied before the floor color as applied as shown in the accompanying pictures on this page. At this time not pattern as to when this was done or not done have been established though earliest identified example with the spray sealant was from mid November. The final look, after the red oxide has been applied, often appears to be paint runs localized around the anchor.



Front seat belt anchor with sealant. Top coat (red oxide) removed during cleaning





Undercarriage Covered with Epoxy Primer Sealer.

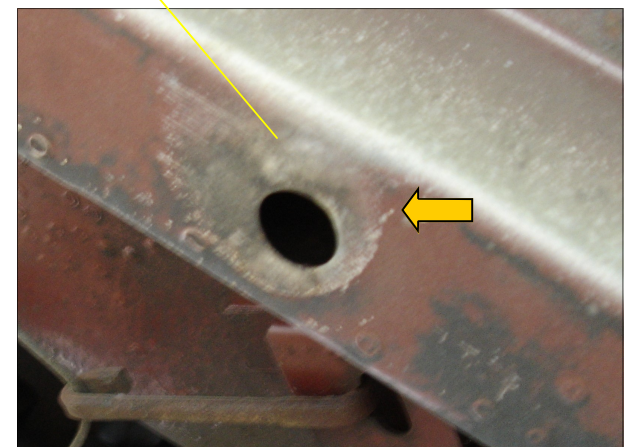
Yellow Arrows - 8 dolly marks that would remain bare metal (protected from paint) through the paint process. The exposed metal seen at these locations would have originally been galvanized since the frame rails were galvanized before they were welded to the unibody.



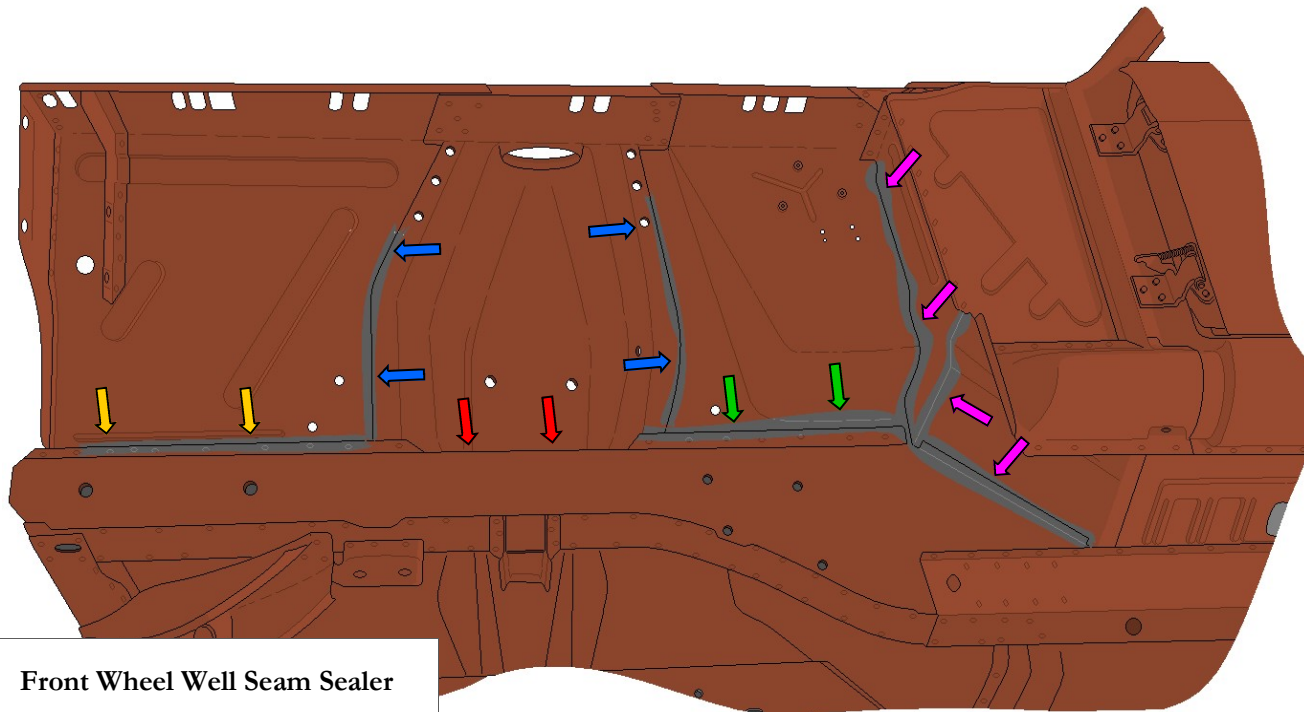
Heavy application produced drips in many areas



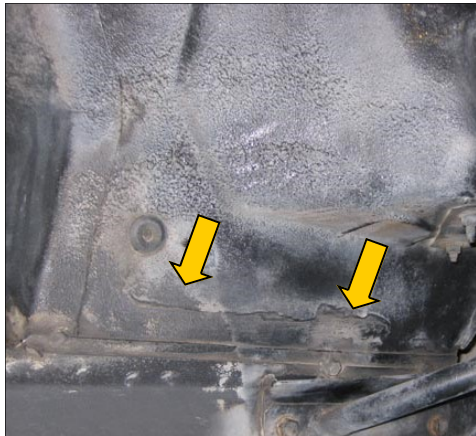
Example of overall finish



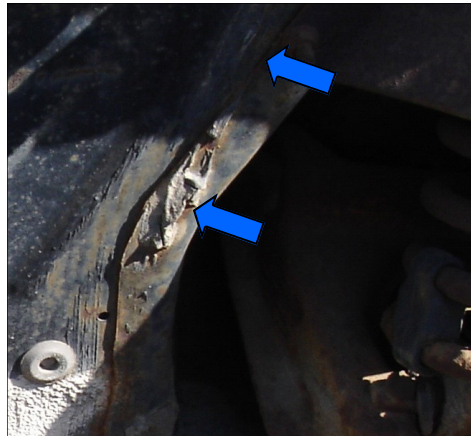
Example of dolly mark



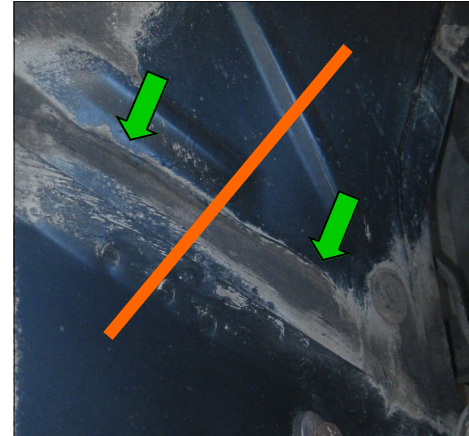
Front Wheel Well Seam Sealer



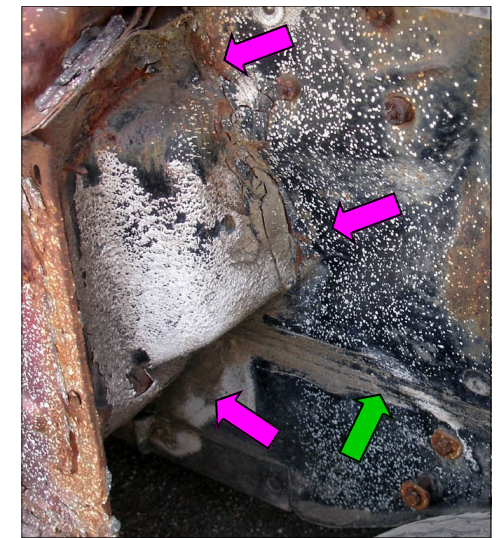
Yellow-Thinly applied, finished with brush along the inner to front frame seam. On late built cars this sealer was skipped and sealed during the sound deadener application step.



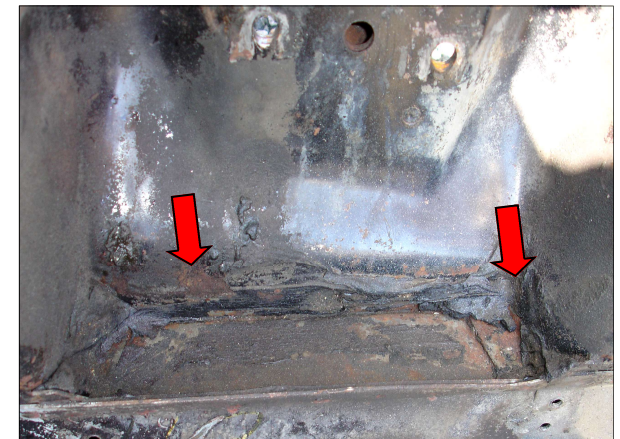
Blue-Very thinly applied along shock tower to inner joint. Was applied to only some of the cars built earlier in the production year.



Green-Thinly applied, finished with brush along the inner to front frame seam. On late built cars this sealer was skipped and sealed during the sound deadener application step.



Purple-Heavy seam sealer application. Often filled corner between frame or inner panel to firewall/cowl panel



Red- A very thick application of sealer was applied to the valley at the base of the shock tower.



The strip of unsmeared chalking was typical along the passenger side of the firewall to rear inner fender panel seam. It normally stops midway down the seam and does not continue further. Likely due to access issues as it was applied from above.

PAINTS, COATINGS & NOTES:

Red Oxide Epoxy Base - DP - 74LF then tinted to match. Should be glossy and smooth when finished not open, flat and or chalky

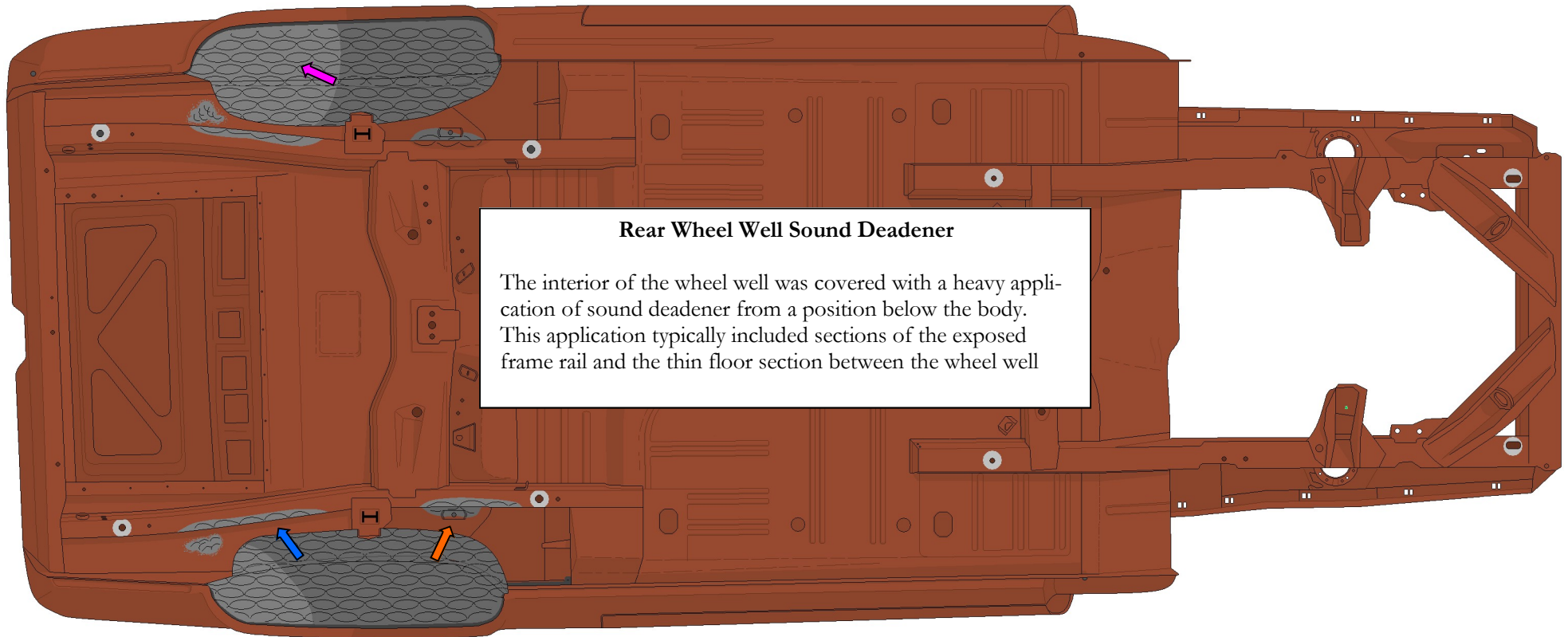
Seam Sealers & Sound Deadeners

Spectrum Sludge - Used in article

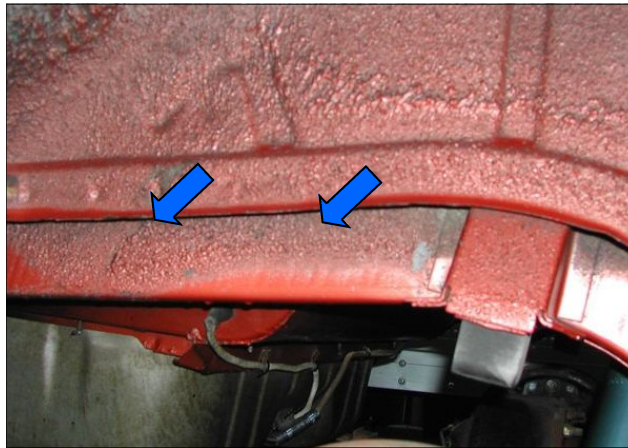
Lord Fusor 805 - Applicator/gun costs possible loaner?

Würth - Another option for spray but cost of applicator can be an issue

All three can be used as a brush on seam sealer also.



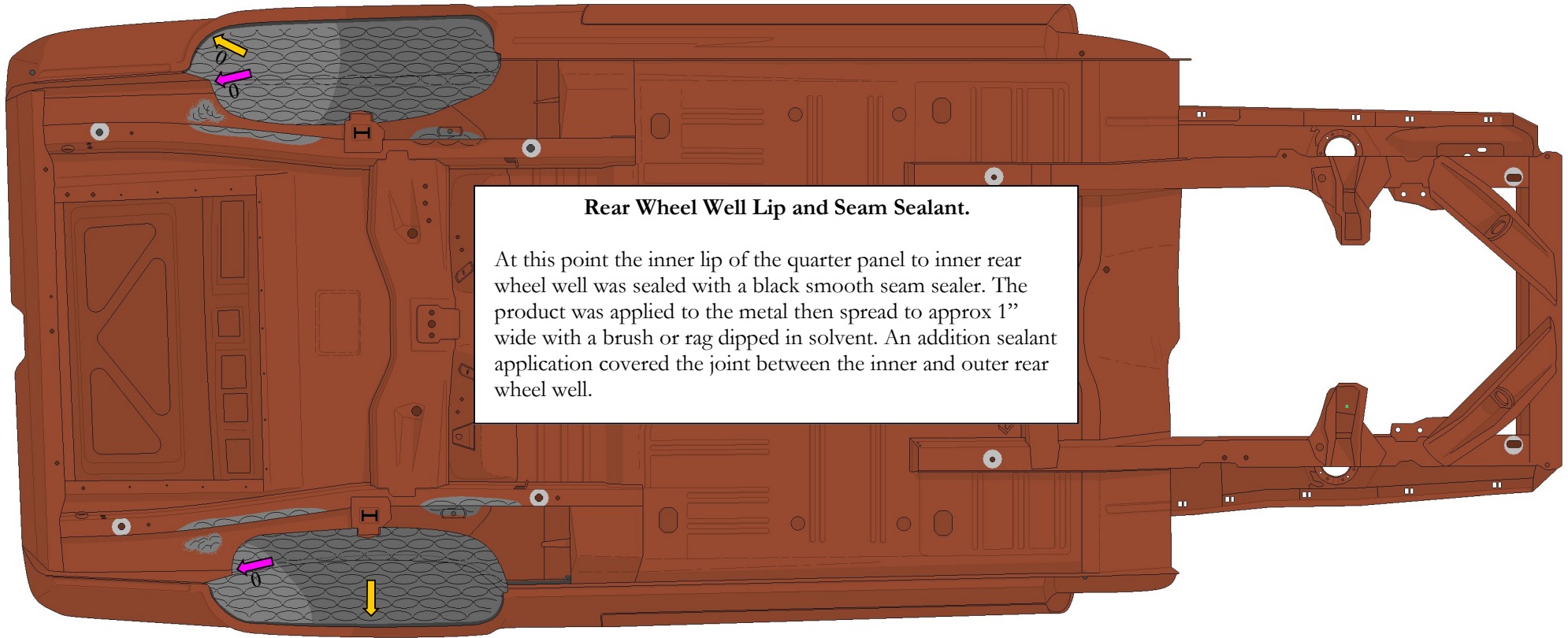
Visible sound deadener overspray on the frame rail though exterior paint has worn off.



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



Heavy application on frame and floor section.

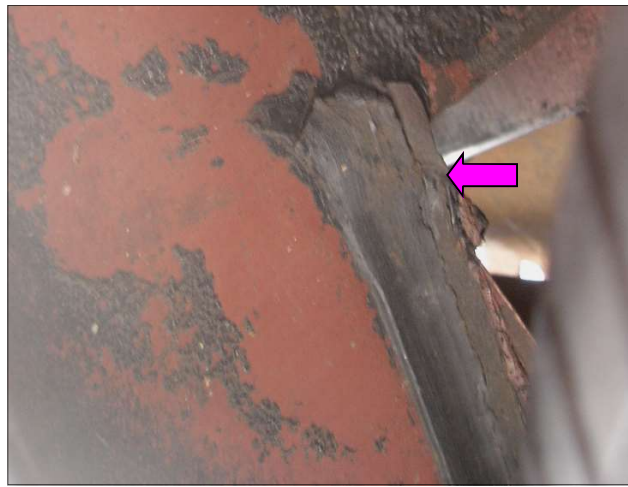


Rear Wheel Well Lip and Seam Sealant.

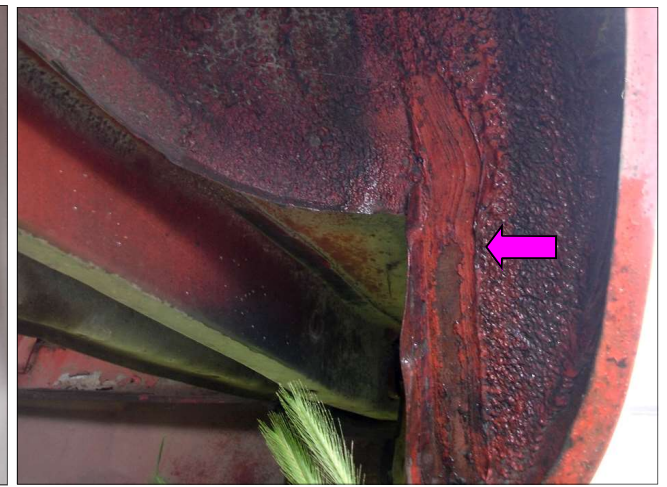
At this point the inner lip of the quarter panel to inner rear wheel well was sealed with a black smooth seam sealer. The product was applied to the metal then spread to approx 1" wide with a brush or rag dipped in solvent. An addition sealant application covered the joint between the inner and outer rear wheel well.



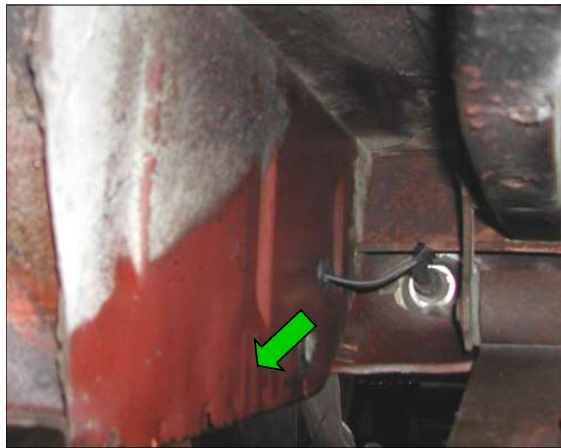
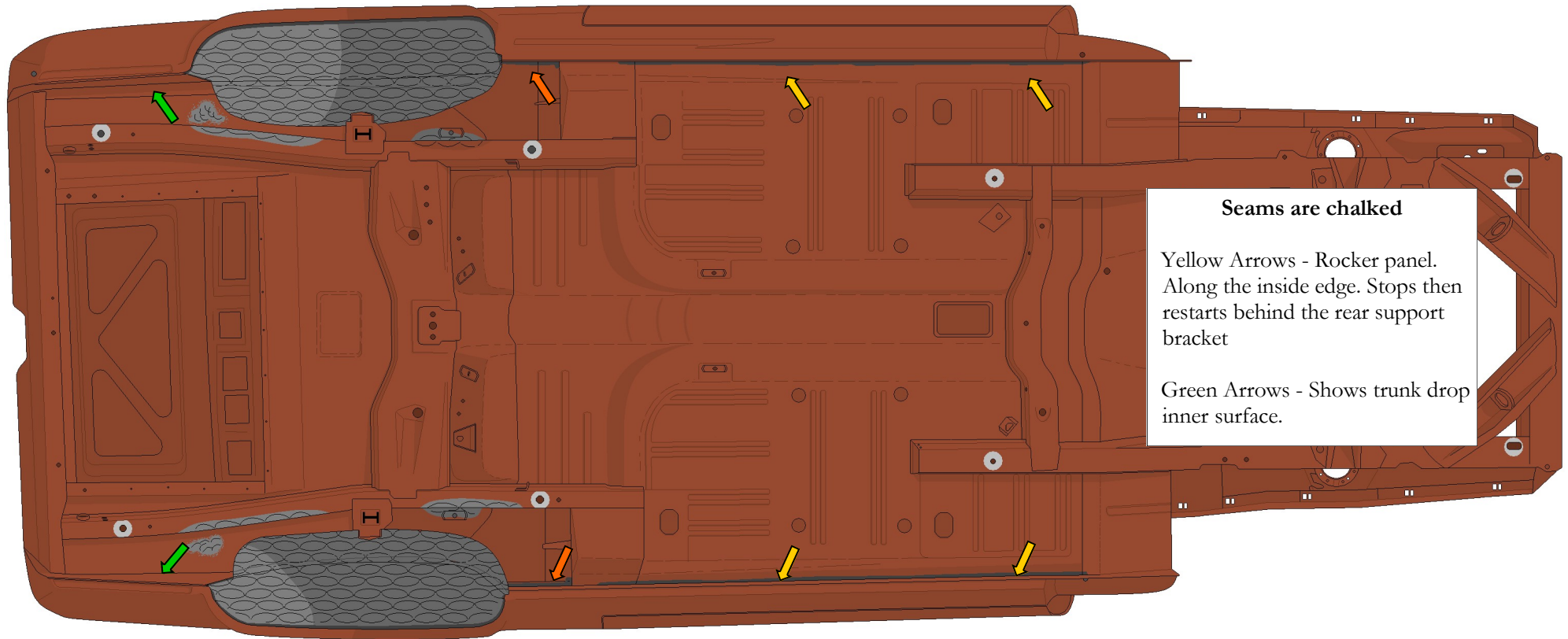
Example of lip sealant



Rear wheel well to trunk drop seam seal paint removed



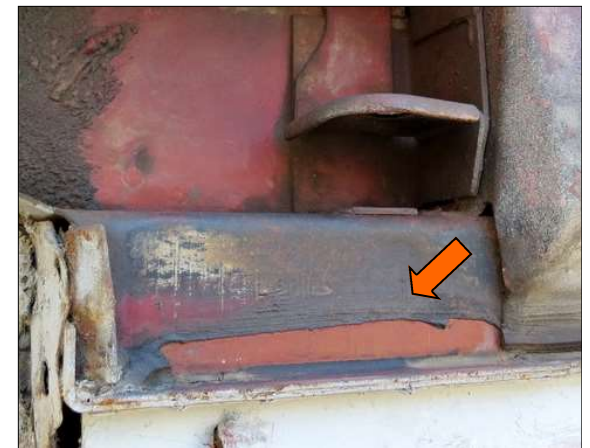
Rear wheel well to trunk drop seam seal



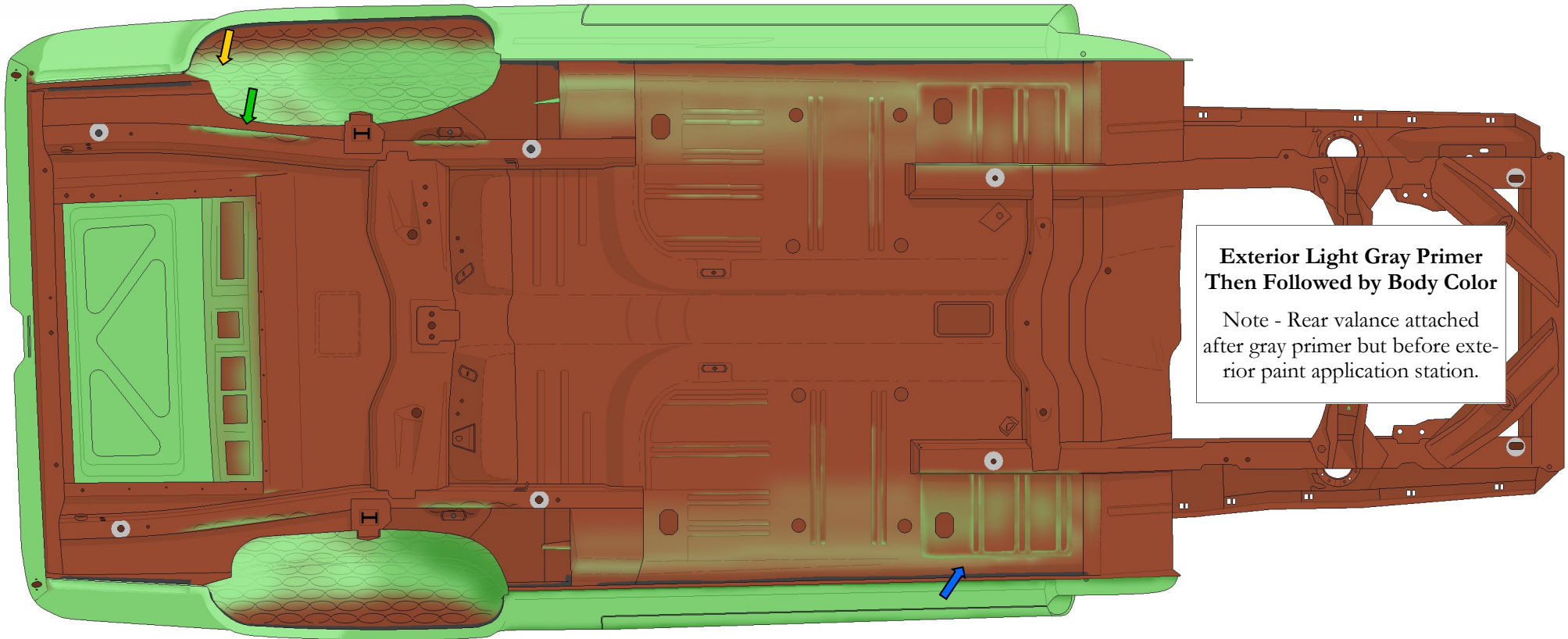
Trunk drop surface. No sealer at bottom edge



Rocker panel to floor seam chalking



Convertible rocker panel to floor seam chalking



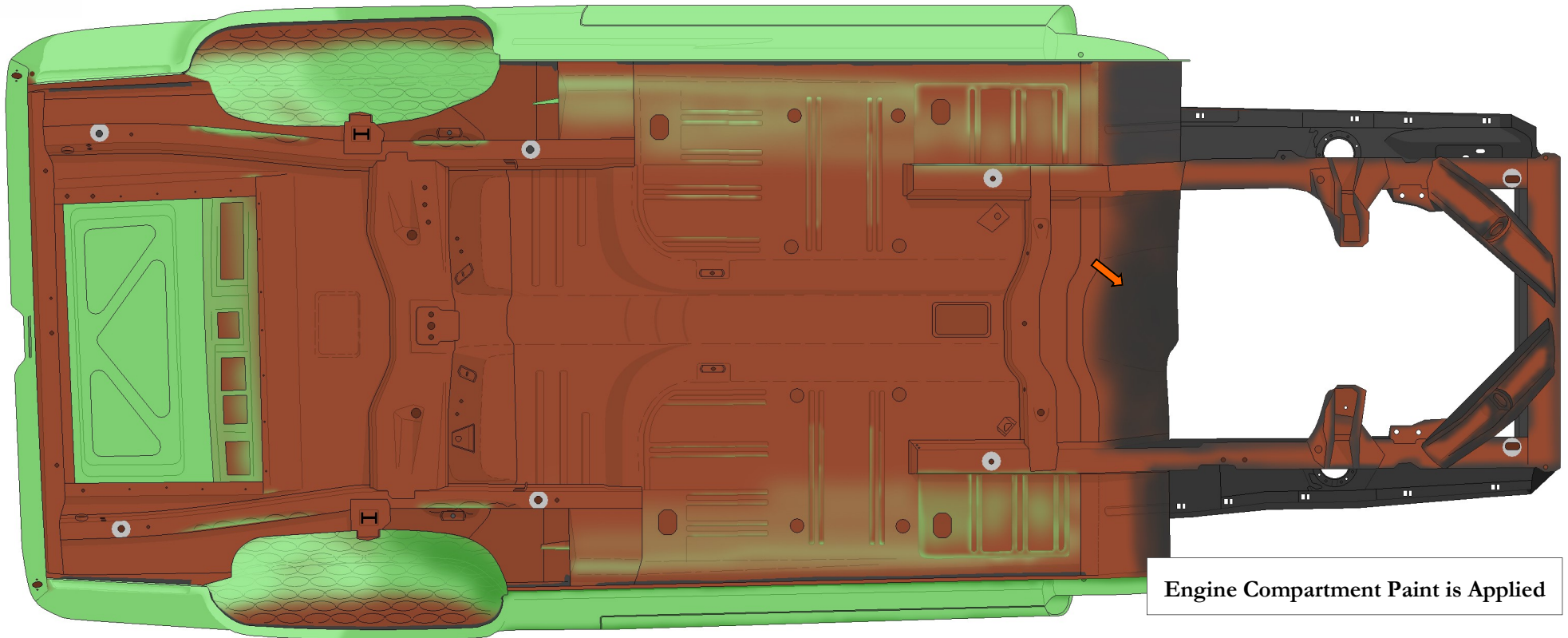
Example of amount of direct exterior color on the visible surface over sound deadener. In right picture



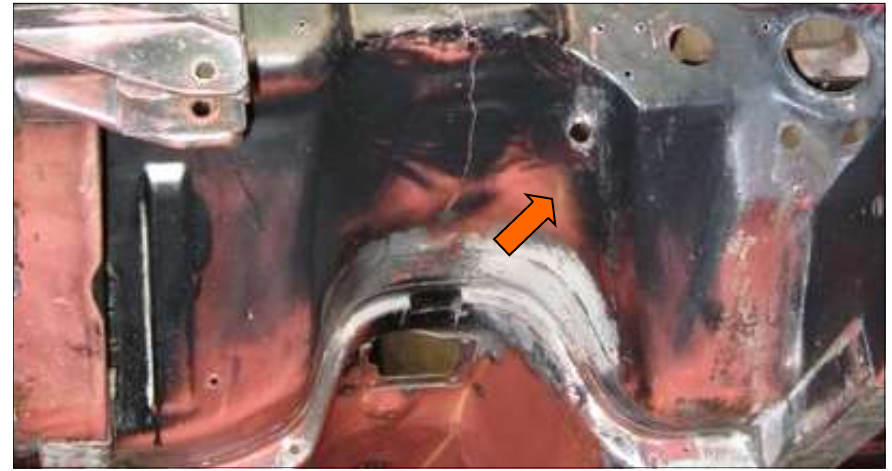
Example of the painted and unpainted screws holding the rear valance to the taillight panel on a later car.



Example of a lot of body color



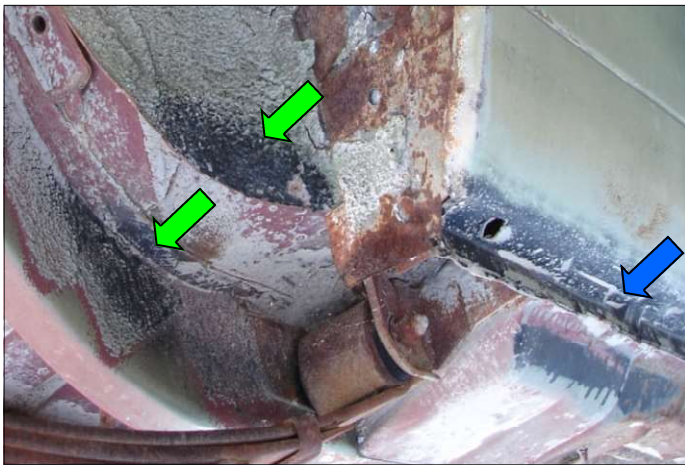
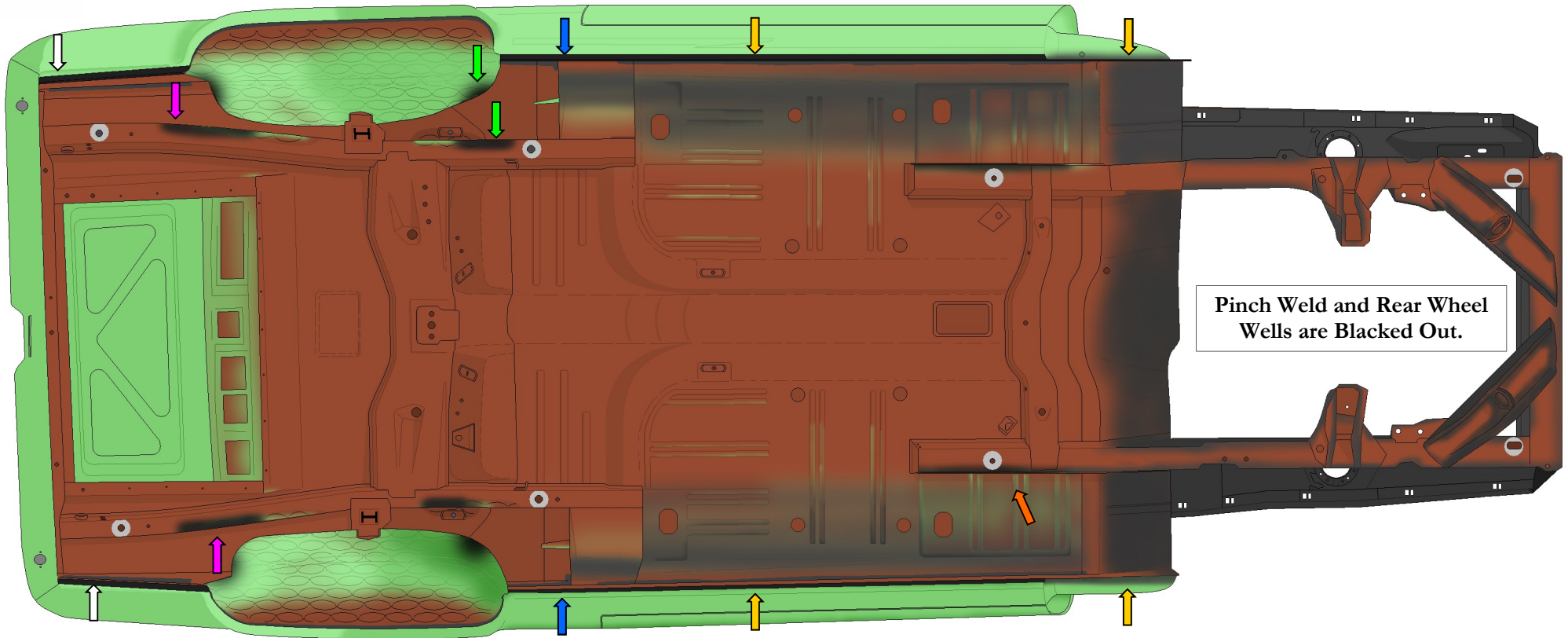
Engine Compartment Paint is Applied



Typical location of black paint to cowl body color. Soft line/edge = not taped.
Picture, above right, shows the post mid March painted splash shield screw.

Transition from floor pan area still shows the red oxide color with black over it.
Amount of over and direct space could produce sharp shadows or smooth fading.

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



Rocker panel pinch weld blackout—often it is not as wide



This car received a heavy (more overspray) coat close to the pinch weld likely due to paint gun angle



Example of typical sealant applied at or around all firewall attachments and pass-through locations (not engine ground). On the right I've highlighted the spray pattern. As you can see the product is a very fine spray similar to what is produced with spray adhesive (adhesive was the term for Ford used for the product) to a somewhat runny and thin undercoating later in the year.

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 -
This is shown in the front wheel well detail article.

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 down ward.) 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.





Inner door mask off pattern



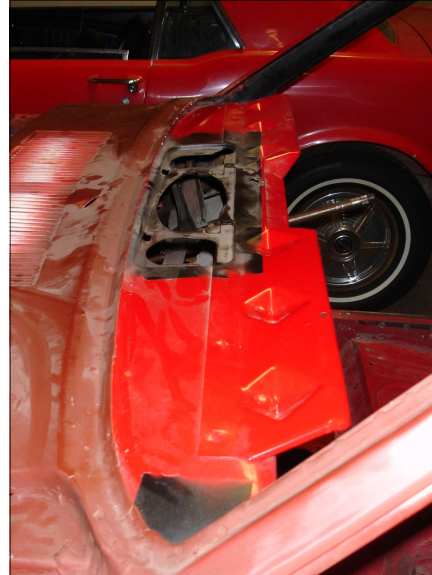
Upper door/interior paint detail



Bottom door edge paint break



Dash paint details. Top coat green exterior over tan interior paint



Dash paint details. Top coat red exterior over black interior paint

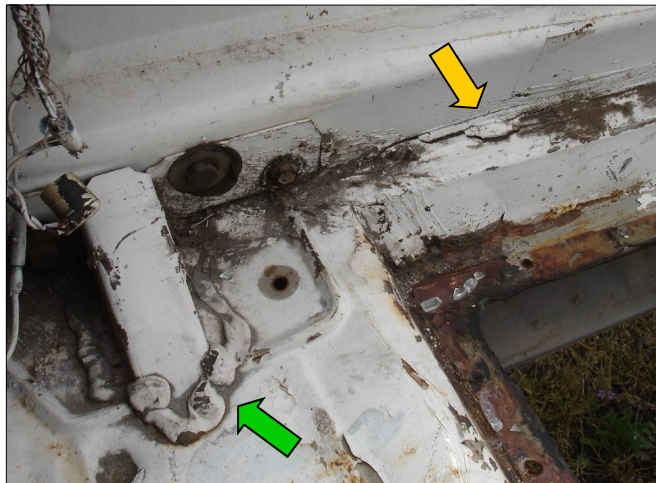


Fastback rear black out detail. What appears to be shadow is a blacked out area. The second and third surfaces (from left) are painted on front and rear surface.

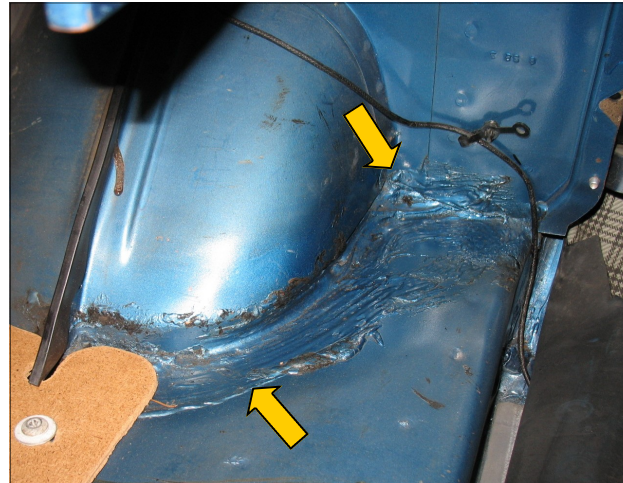
Trunk Sound Deadener and Seam Sealer Application



Typical sound deadener application onto the inner surface of the quarter panels. Applied, typically, away from any of the edges . Application wand produced a fairly strong edge to the application without much or any overspray.



Green-Chalking applied but not spread or wiped



Yellow-Sealant applied then wiped with solvent rag

