COLLISION INFORMATION

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Collision Information

Warning

SAFETY NOTICE

CAUTION: All service and rebuilding instructions contained herein are applicable to, and for the convenience of, the automotive trade only. All test and repair procedures on components or assemblies in non-automotive applications should be repaired in accordance with instructions supplied by the manufacturer of the total product.

Proper service and repair is important to the safe, reliable operation of all motor vehicles. The service produces recommended and described in this publication were developed for professional service personnel, and are effective methods for performing vehicle repair. Following these procedures will help ensure efficient economical vehicle performance and service reliability. Some service procedures require the use of special tools designed for specific procedures. These special tools should be used as recommended throughout this publication.

Special attention should be exercised when working with spring-or tension-loaded fasteners and devices such as E-Clips, Circlips, Snap rings, etc., since careless removal may cause personal injury. Always wear safety goggles when working on vehicles or vehicle components.

It is important to note that this publication contains various Cautions and Warnings. These should be read carefully in order to minimize risk of personal injury or the possibility that improper service methods may damage the vehicle or render it unsafe. It is important to note that these Cautions and Warnings cover only the situations and procedures Chrysler Group LLC has encountered and recommended. Chrysler Group LLC cannot possibly know, evaluate, and advise the service trade of all conceivable ways in which service may be performed, or of the possible hazards of each. Consequently, Chrysler Group LLC has not undertaken any such broad service review. Accordingly, anyone uses a service procedure or tool that is not recommended in this publication must be certain that neither personal safety, nor vehicle safety, will be jeopardized by the service methods they select.

USE OF HEAT DURING REPAIR

WARNING: Chrysler Group LLC engineering's position on the use of heat during collision repair is as follows:

- **Any body panel or frame component damaged which is to be repaired and reused, must be repaired using the "cold straightening" method. No heat may be used during the straightening process.**
- **During rough straightening prior to panel replacement, damaged panels or frame components may be heated to assist in body/frame realignment. The application of heat must be constrained to the parts which will be replaced and not allowed to affect any other components.**

This "no heat" recommendation is due to the extensive use of high strength and advanced high strength steels in Chrysler Group LLC products. High-strength materials can be substantially and negatively affected from heat input which will not be obviously known to the repairer or consumer.

Ignoring these recommendations may lead to serious compromises in the ability to protect occupants in a future collision event, reduce the engineered qualities and attributes, or decrease the durability and reliability of the vehicle.

This statement supersedes any previously released information by the Chrysler Group LLC.

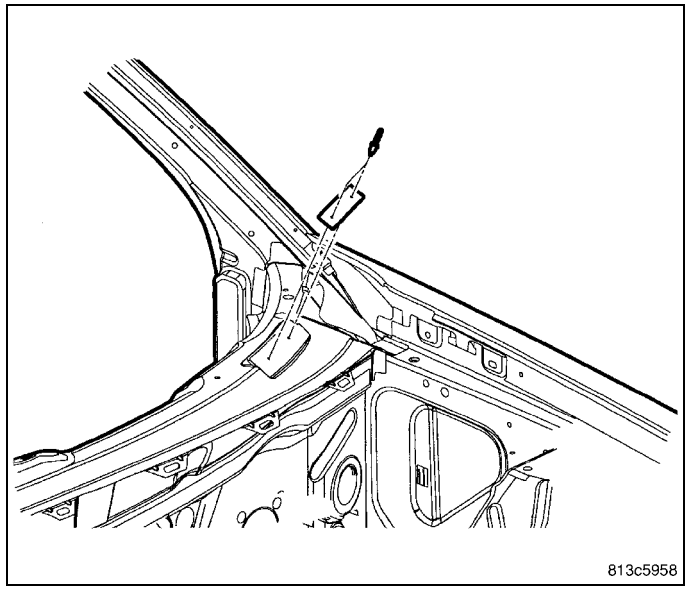
Failure to follow these instructions may result in serious or fatal injury.

Specifications

DESCRIPTION - VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number (VIN) plate is attached to the top left side of the instrument panel. The VIN contains 17 characters that provide data concerning the vehicle. Refer to the decoding chart to determine the identification of a vehicle.

To protect the consumer from theft and possible fraud the manufacturer is required to include a Check Digit at the ninth position of the Vehicle Identification Number. The check digit is used by the manufacturer and government agencies to verify the authenticity of the vehicle and official documentation. The formula to use the check digit is not released to the general public.



VEHICLE IDENTIFICATION NUMBER DECODING CHART

NOTE: All Seating Positions (ASP), Outboard Seating Positions (OSP)

POSITION	INTERPRETATION	CODE = DESCRIPTION
1, 2, 3	WMI (World Manufacturer Identifier)	2C3 = Chrysler Canada
4	Restraint system	C = Active Belts (ASP) Front Air Bags (OSP) Side Inflatable Restraints All Rows
5	Vehicle line	A= 300 / 300C (RWD) (LHD) U.S., Canada, Mexico, BUX K= 300 / 300C (AWD) (LHD) U.S., Canada
6	Series	4 = 300 C-H-48 U.S. 4 = 300 Touring C-H-48 Canada 5 = 300 Limited C-P-48 U.S., Canada, Mexico 6 = 300C RWD C-S-48 U.S., Canada, Mexico, BUX 6 = 300C AWD F-S-48 U.S., Canada
7	Body style	C = 4 Door Sedan Tall
8	Engine	G = 3.6L 6 CYL Gasoline Non - Turbo (ERB) T = 5.7L 8 CYL Gasoline Non -Turbo (EZH)
9	Check digit	0 through 9 or X
10	Model year	B = 2011
11	Assembly plant	H = Brampton Assembly
12 Through 17	Vehicle build sequence	Six digit number assigned by assembly plant

STANDARDIZED STEEL IDENTIFICATION

In an effort to reduce confusion over the large number of steel grades in use, and the repairability and weldability concerns involved with each, Chrysler Group LLC has instituted new nomenclature which is applicable to material call-outs and BIW exploded views released for use in the repair industry.

All materials listed in the key may not be used on a given model, nor may every panel be identified in the blow-up (ex: some groups do not show fascias).

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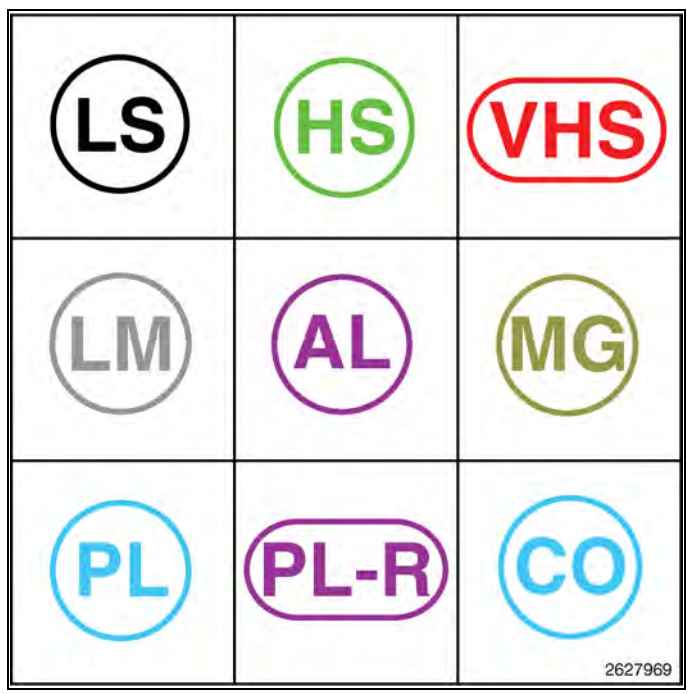
Failure to follow these instructions may result in serious or fatal injury.

NOTE: Corrosion protection must be restored after repair.

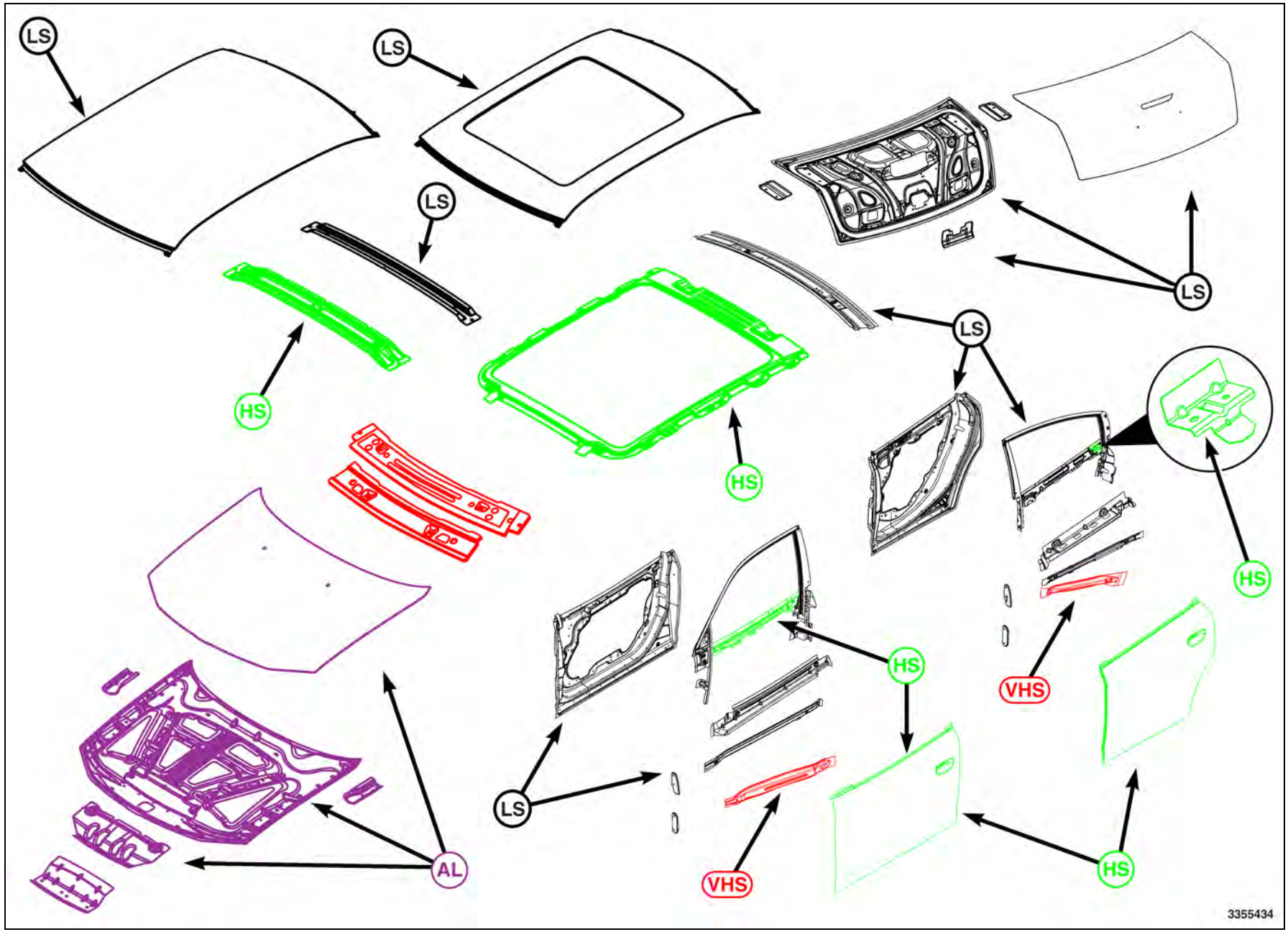


- **LS** - Good repairability and weldability (least sensitive to heat). May be attached using the preferred Squeeze Type Resistance Spot Welding (STRSW) process, weld bonding where appropriate, or MIG welding. Materials have a tensile strength of less than 270 MPa.
- **HS** - Some repairability and good weldability (the higher the strength of the steel, the greater the sensitivity to heat). May be attached using STRSW, weld bonding, and MIG welding. Material tensile strength range between 270 MPa and 600 MPa and includes DP590.
- **VHS** - Very limited repairability and weldability (very sensitive to heat). Attach only at OE defined locations using OE defined procedures. Material tensile strengths are greater than 600 MPa. This category includes hot-stamped boron materials which are also termed "press hardened." Specialized cutters are required with many materials in this group.
- **LM** - Good repairability and weldability. May be attached using STRSW, weld bonding, and Flux Core Arc Welding (FCAW).
- **AL** - Stamped aluminum sheet metal panels may be repairable with specialized tools and techniques.
- **MG** - Magnesium - no repairability, replacement components only.
- **PL and PL-R** - Some repairability depending upon the type of plastic involved, the degree of damage, and the component function. Cosmetic components such as fascias (PL) have a higher degree of repair allowed than those components which can carry components and loads. Where PL-R components are bonded to steel structure, Chrysler Group LLC will identify the proper adhesive to attach the replacement panel. Repair materials for PL are commonly available in the collision repair market.
- **CO** - Composite materials may be fiber reinforced (ex: Kevlar) panels or co-molded assemblies of steel and plastic. Any of these require specialized repair materials and processes.

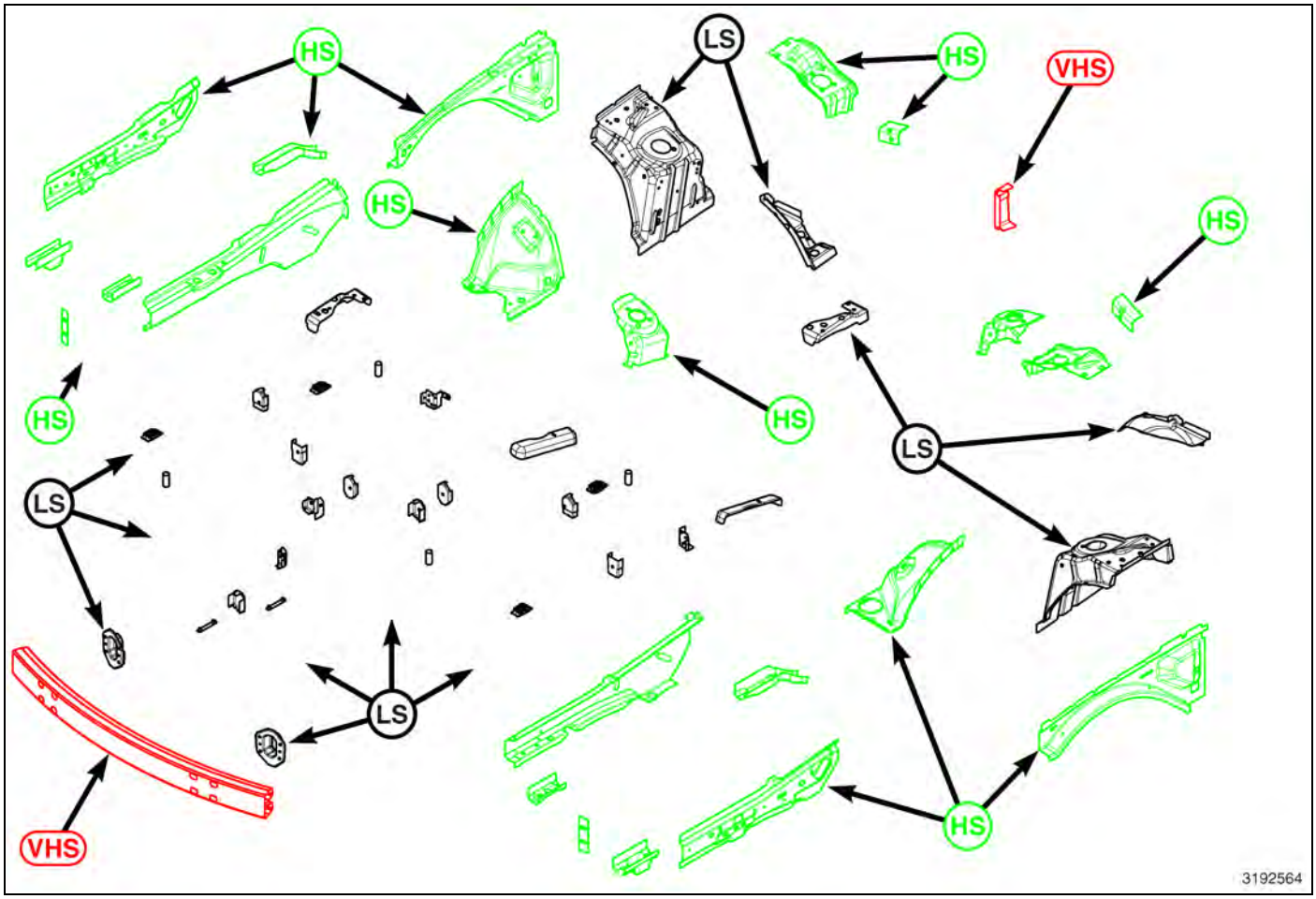
Information on sectioning of components will be identified in**Non-Structural Sheet Metal Repair Guide, Weld /Weld Bonding and Sectioning Procedures,**(Refer to Collision Information - Standard Procedure)

CALLOUT KEY	DESCRIPTION	COLOR
LS	Low-Strength Steel	Black
HS	High-Strength Steel	Green

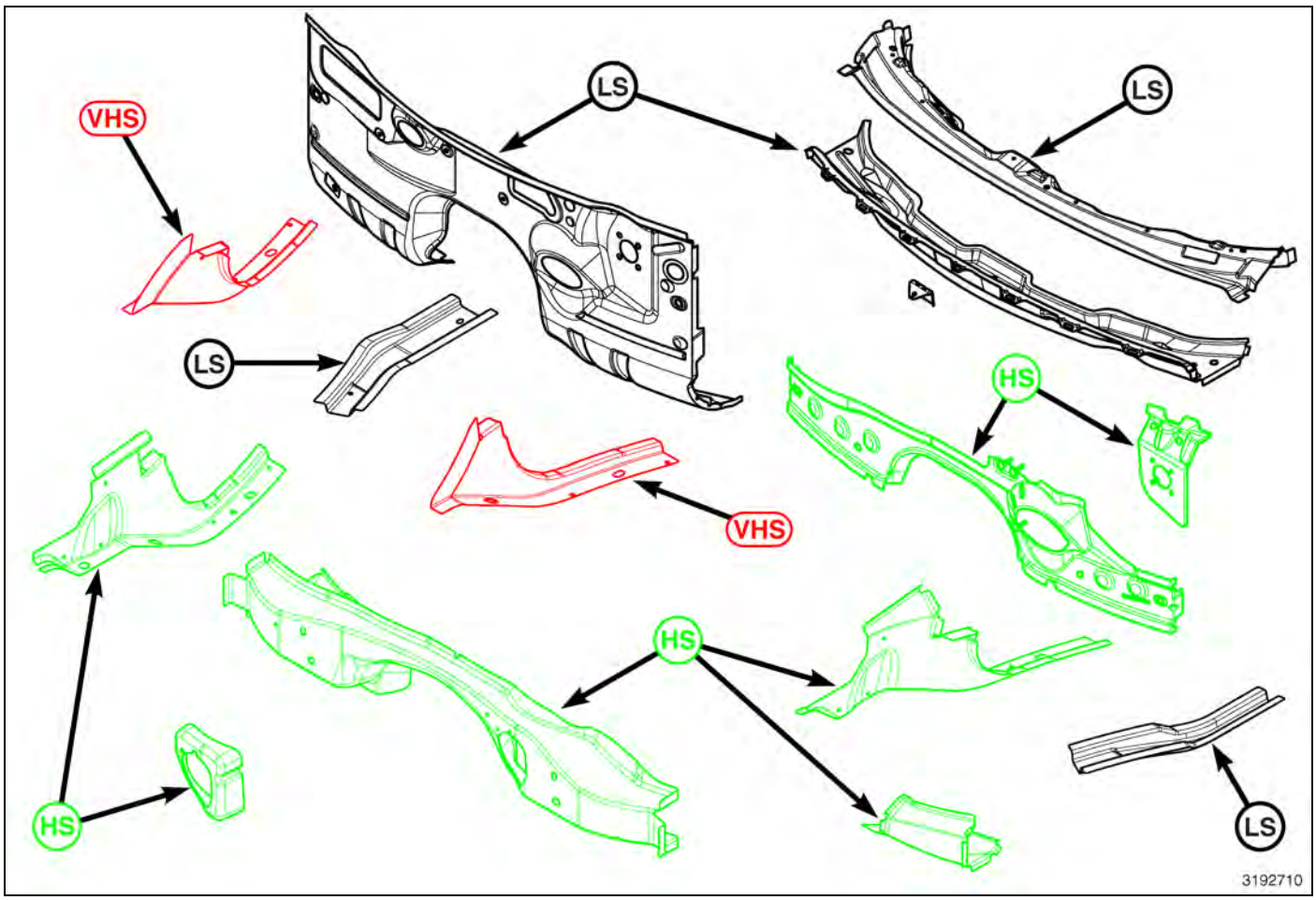
CALLOUT KEY	DESCRIPTION	COLOR
VHS	Very High-Strength Steel	Red
LM	Laminated Steel	Grey
AL	Sheet Aluminium	Purple
MG	Magnesium	Brown
PL	Plastic	Blue
PL-R	Fiber Reinforced Plastic	Purple
CO	Composite Material	Blue



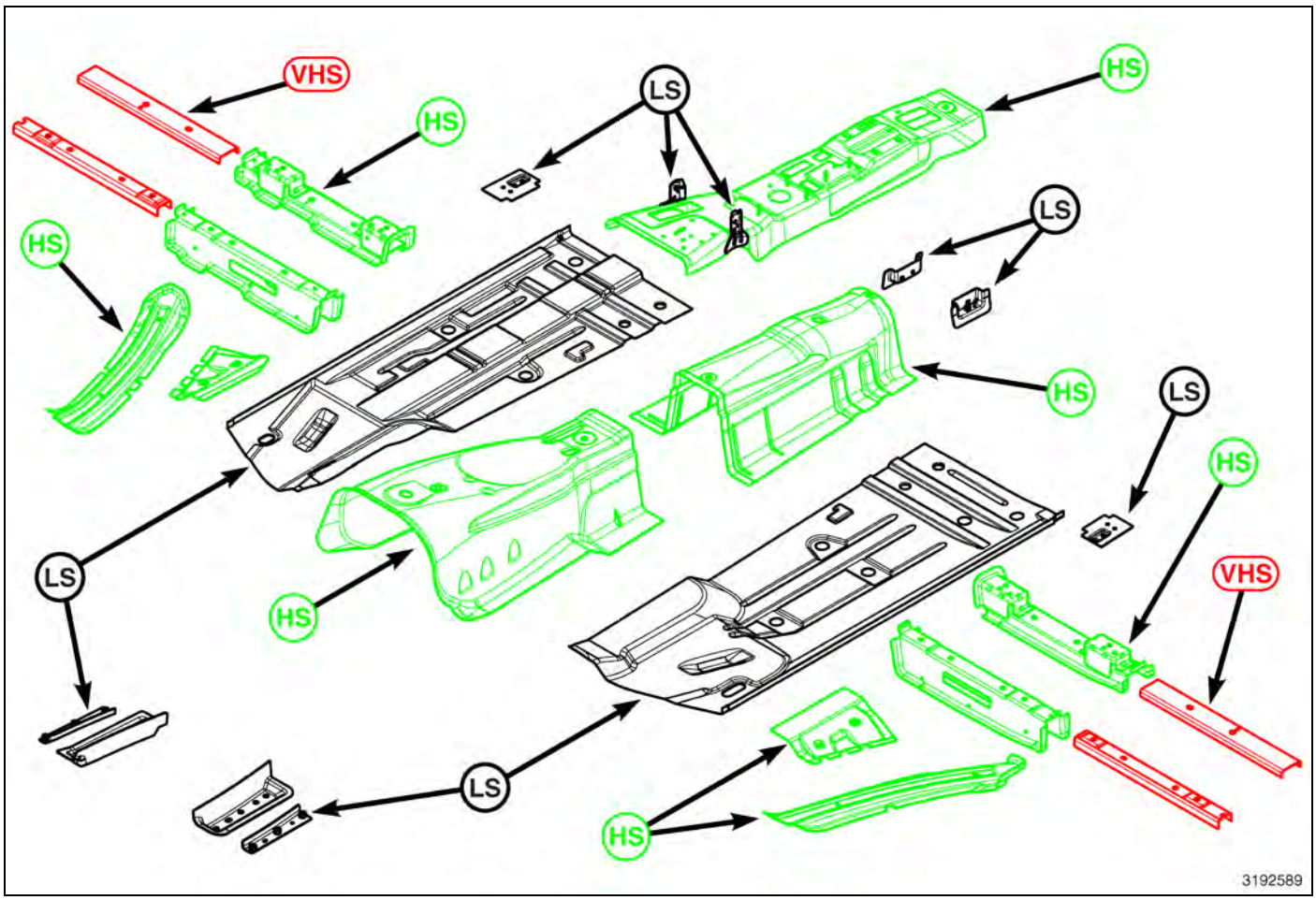
BODY IN WHITE COMPONENT IDENTIFICATION - CLOSURE PANELS



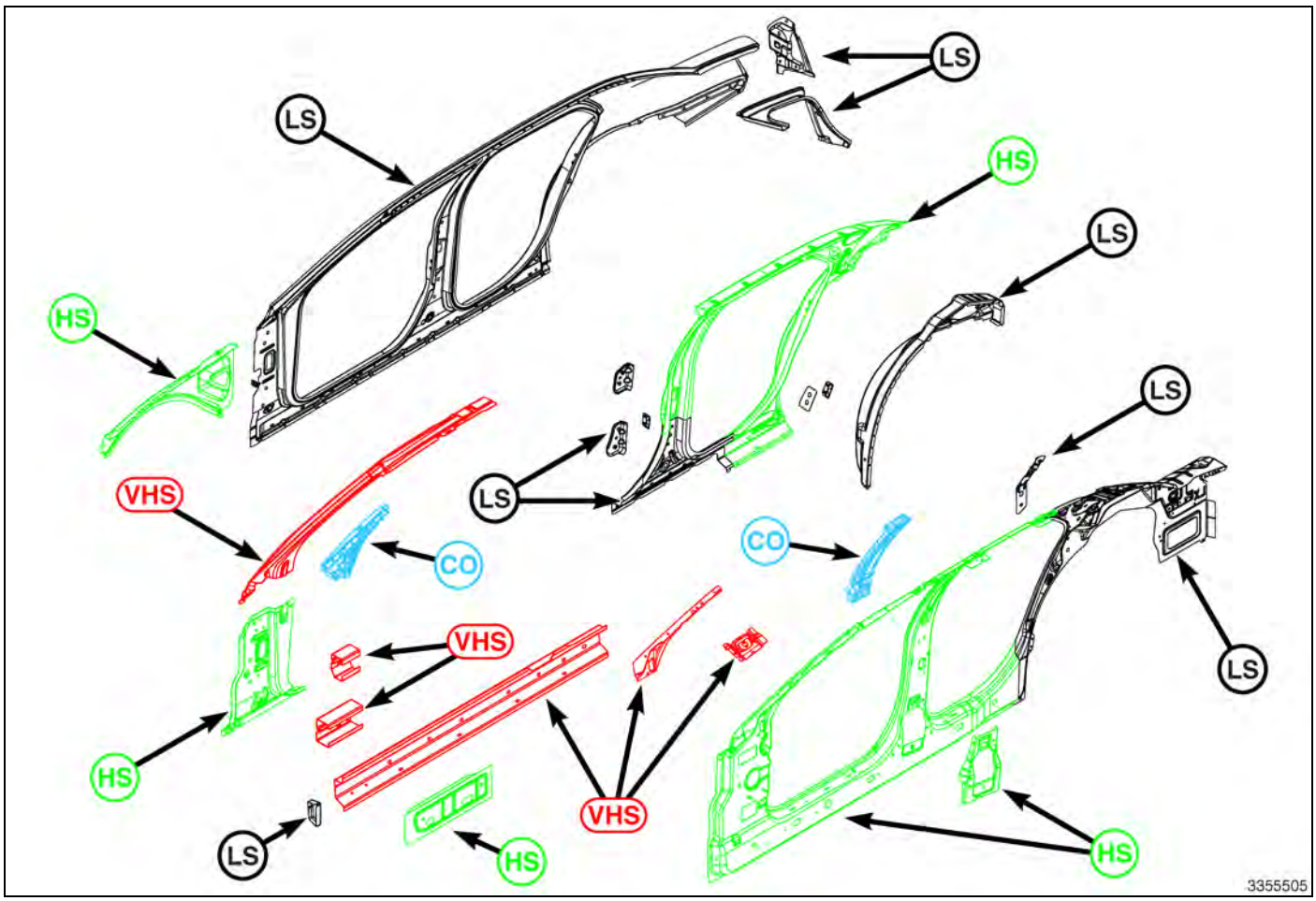
BODY IN WHITE COMPONENT IDENTIFICATION - ENGINE BOX



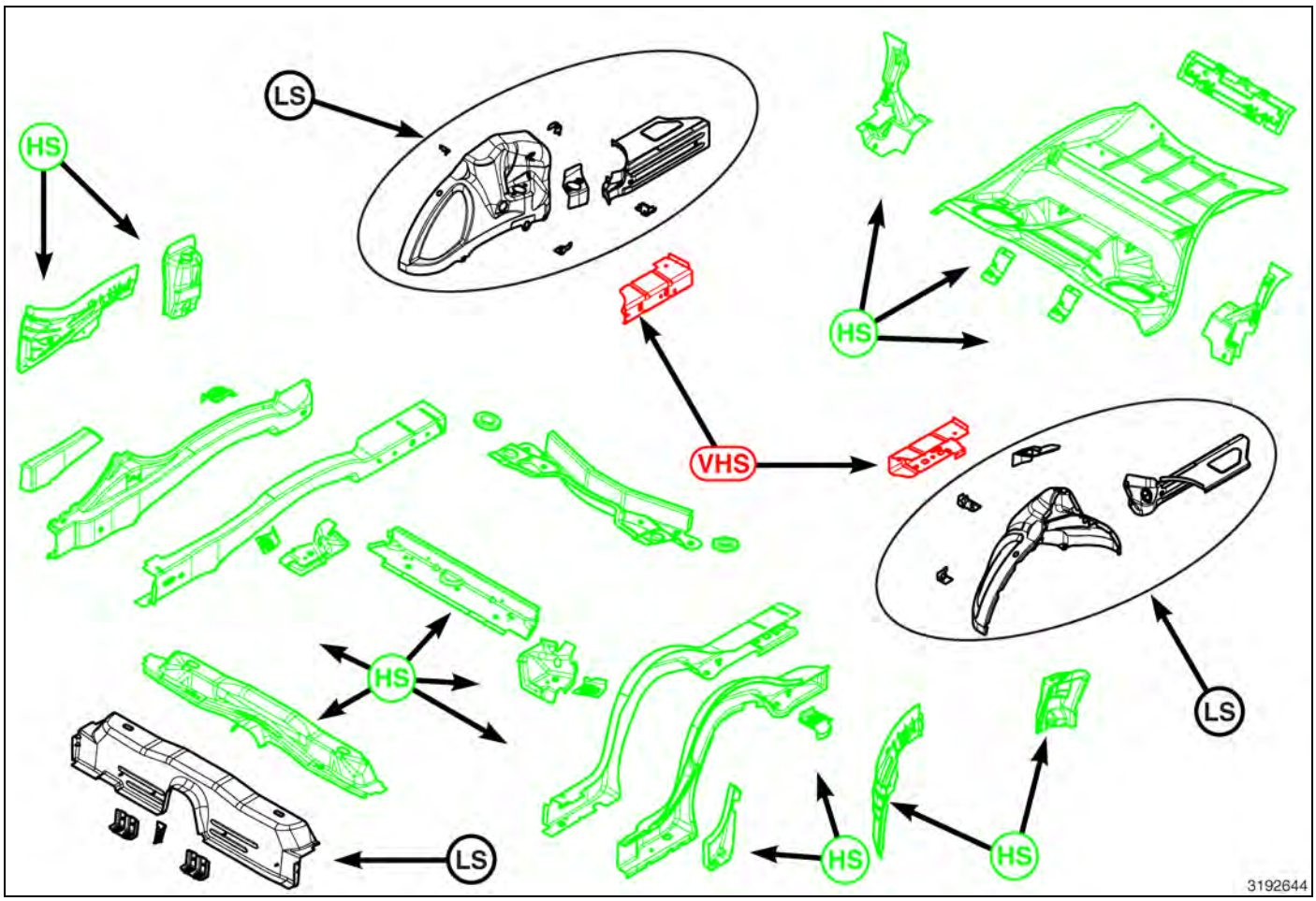
BODY IN WHITE COMPONENT IDENTIFICATION - DASH/COWL



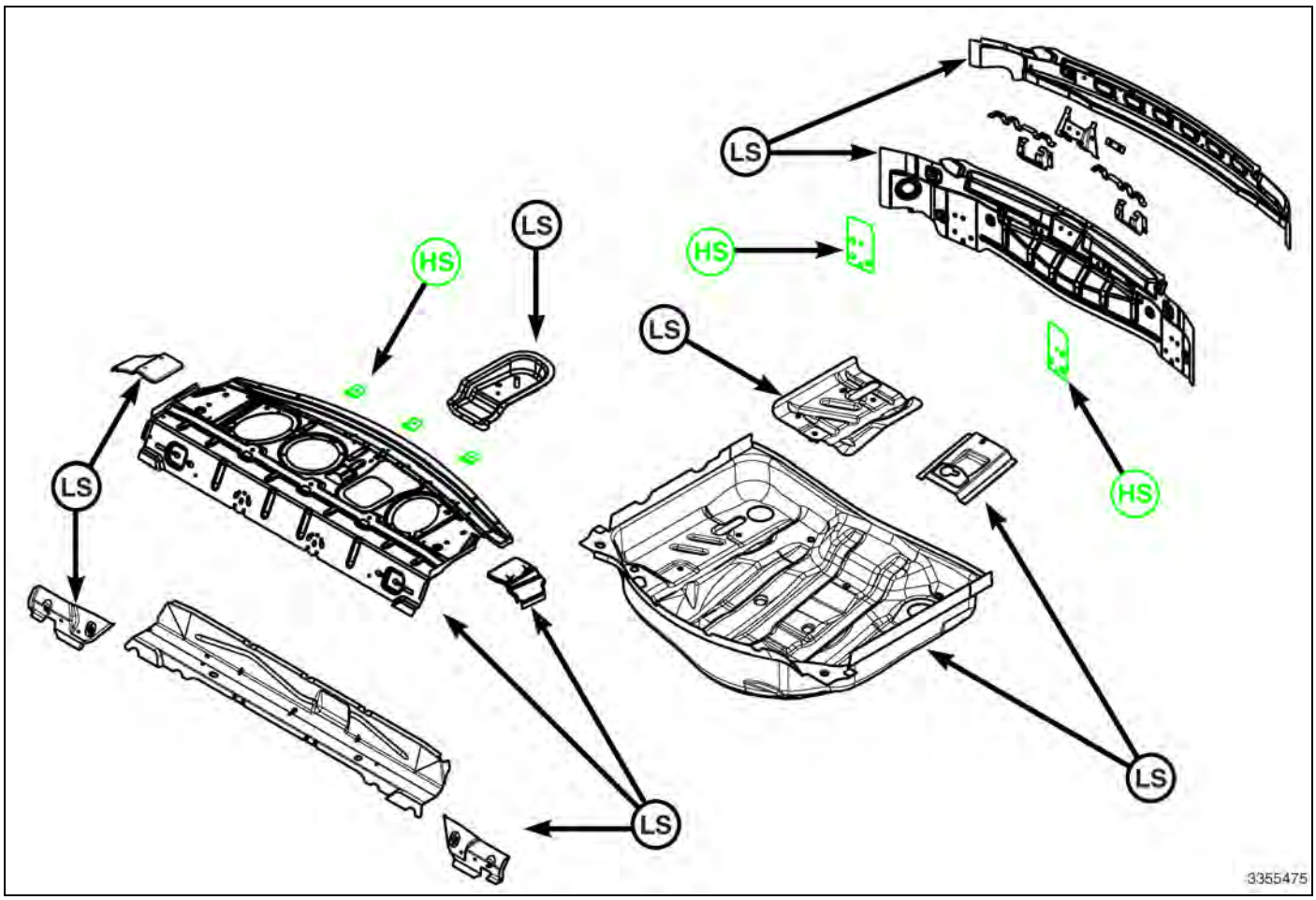
BODY IN WHITE COMPONENT IDENTIFICATION - FRONT FLOOR



BODY IN WHITE COMPONENT IDENTIFICATION - BODY SIDE APERTURE



BODY IN WHITE COMPONENT IDENTIFICATION - REAR FLOOR



BODY IN WHITE COMPONENT IDENTIFICATION - REAR COMPONENTS

WELD PROCESS

COMPONENT PARTS	TRUCK FRAME		BODYSHELL EXTERIOR & UNDERBODY PANELS			
	Zinc and Zinc Iron Alloy coated sheet steels					
WELDING PROCESS	GAS METAL ARC (Note: 1)	FLUX CORED ARC	GAS METAL ARC (Note: 1)	MIG BRAZE (Note: 2)	GAS METAL ARC (Note: 1)	FLUX CORED ARC
Material Type	High Strength and Structural Quality Steels which includes HSLA, Martensitic, and Dual Phase materials					
Material Thickness Range	2 mm - 4 mm		0.6 mm - 1.02 mm		>1.02 mm - 3.0 mm	
ELECTRODE TYPE (AWS SPEC. A5.18)	AWS CLASS. ER70S-6	AWS CLASS. E71T-11 (Note 3)	AWS CLASS. ER70S-6	AWS CLASS. ERCuSi - A Silicon Bronze	AWS CLASS. ER70S-6	AWS CLASS. E71T-11 (Note 3)
ELECTRODE SIZE	0.035	0.045	0.023 - 0.025	0.035	0.035	0.045
ELECTRODE MAKER	Lincoln®	Lincoln® NR-211-MP	Lincoln®		Lincoln®	Lincoln® NR-211-MP

COMPONENT PARTS	TRUCK FRAME		BODYSHELL EXTERIOR & UNDERBODY PANELS			
WIRE FEED SPEED (in/min)	245-250 Vertical Down 70-90 Flat & Horizontal	110 Vertical Down 70-90 Flat & Horizontal	95-115 All Welds	150-155 Flat & Horizontal	245-250 Vertical Down 70-90 Flat & Horizontal	110 Vertical Down 70-90 Flat & Horizontal
TRAVEL SPEED (in/min)			10			
VOLTAGE	19-20	15-18	16-19	18-19	19-20	15-18
POLARITY	DCEP	DCEN	DCEP	DCEP	DCEP	DCEN
GAS FLOW (cfh)	25-35	N/A	25-35	25-35	25-35	N/A
ELECTRICAL STICKOUT (in)	1/2 - 5/8	3/8 - 1/2	1/2 - 5/8	5/8 - 3/4	1/2- 5/8	3/8 - 1/2
GAS TYPE	75% Ar 25% CO2	N/A	75% Ar 25% CO2	100% Ar	75% Ar 25% CO2	N/A
TYPE OF ARC TRANSFER	Short Circuit		Short Circuit	Pulse	Short Circuit	

These Procedure Specifications are appropriate as of this publication. Procedures may be superceeded with new spec's at a later date.

Always process to the thinner material thickness (TMT)

All persons performing welding must be qualified to weld in all positions.

NOTE:

1. Must remove Zinc Coating on both sides of metal at the weld zone.

2. MIG Braze welding process requires use of Pulse Arc® or STT® welding machine.

3. Must use Lincoln® product since E 71T-11 product differs from other suppliers.

BODY OPENING DIMENSIONS

NOTE: Body opening dimensions are listed in metric scale millimeter (mm). Principal Locating Points (PLP), fastener locations, and holes are measured to center, unless noted otherwise.

VEHICLE PREPARATION

Position the vehicle on a level work surface. Remove any weatherstrips, door strikers or any other parts that may interfere with the reference point.

DESCRIPTION	FIGURE
WINDSHIELD OPENING	(Fig. 1)
BODY SIDE APERTURE OPENINGS	(Fig. 2)
BACKLIGHT OPENING	(Fig. 3)
DECK LID OPENING	(Fig. 4)

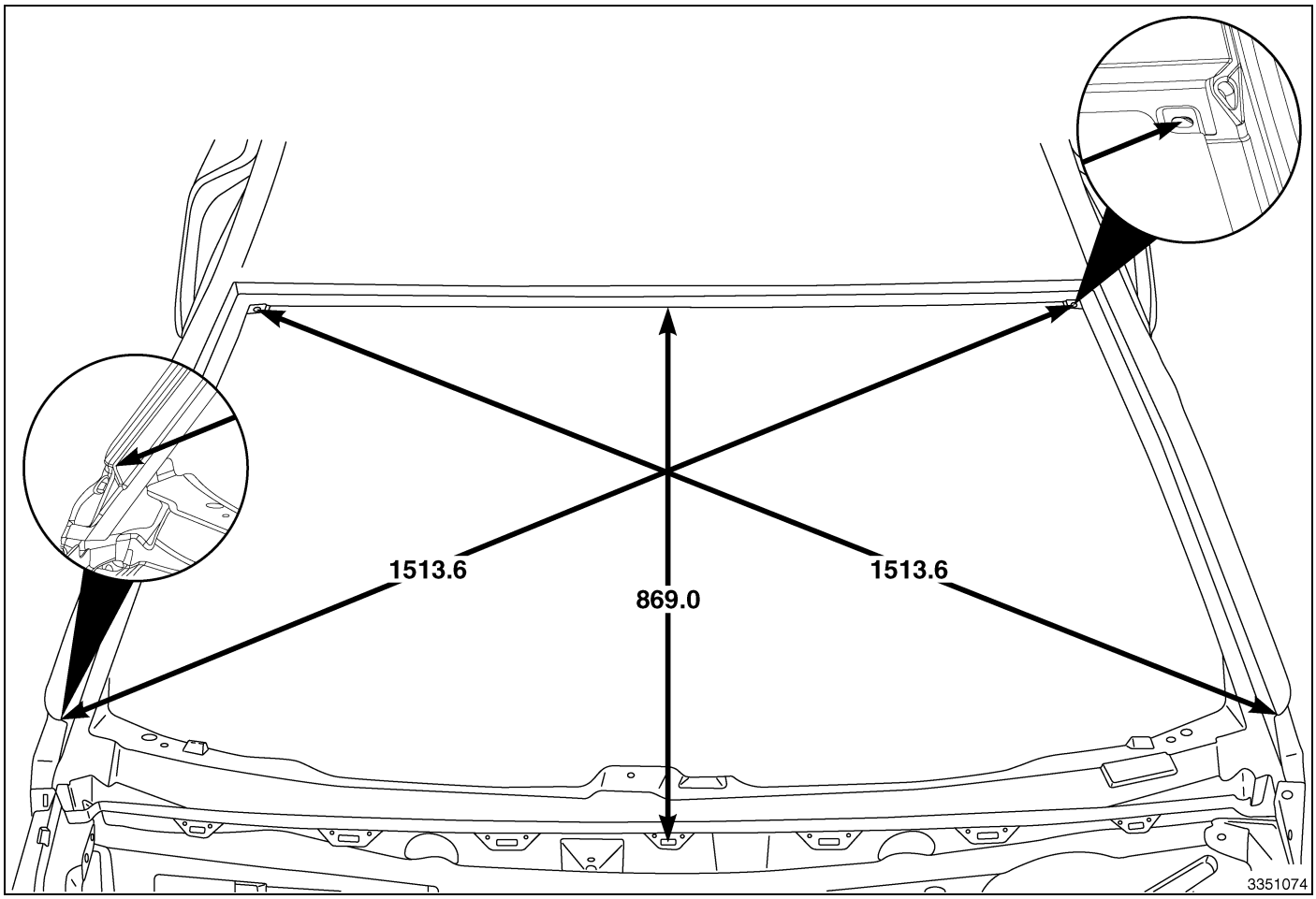


Fig. 1 WINDSHIELD OPENING

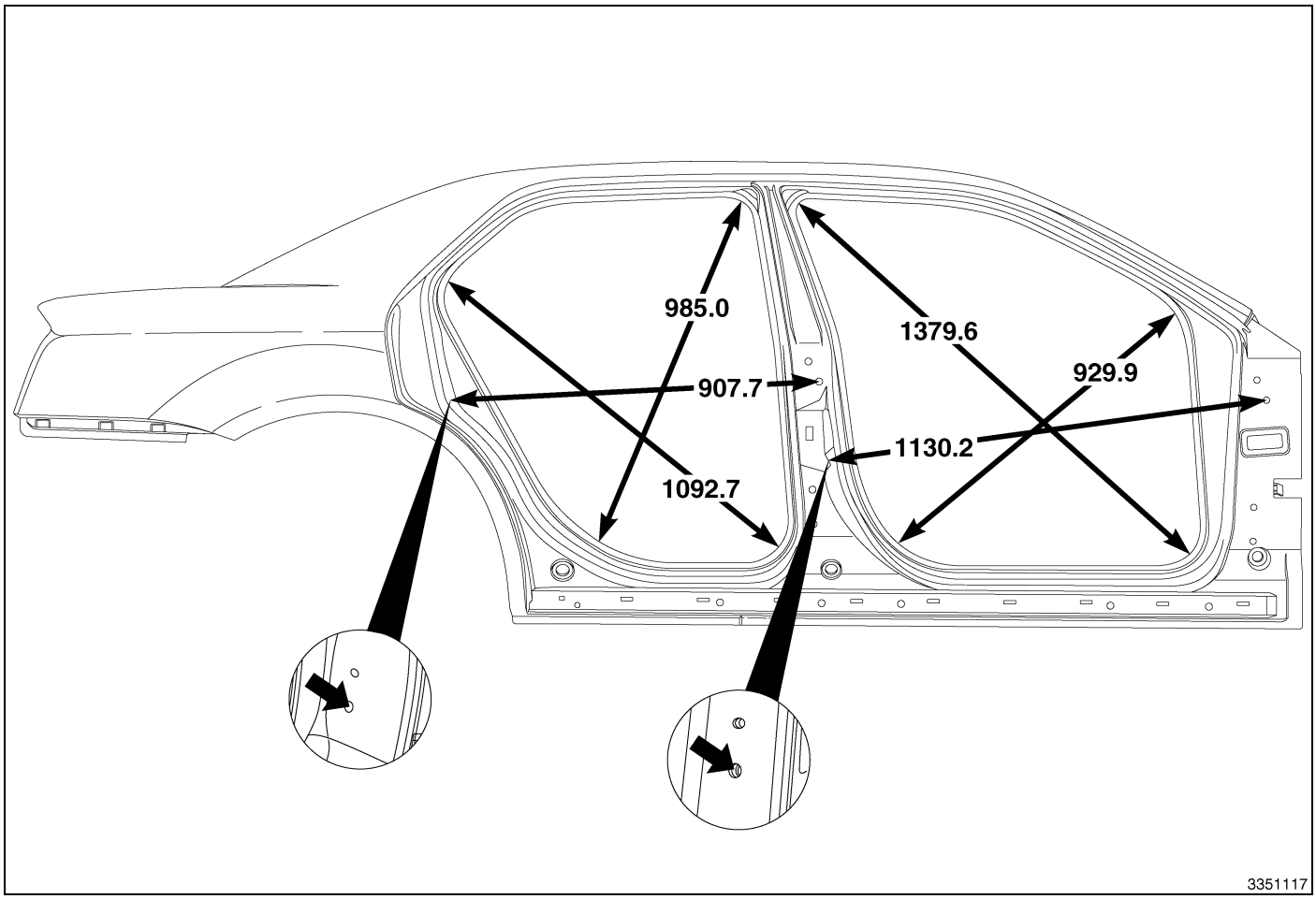


Fig. 2 BODY SIDE OPENINGS

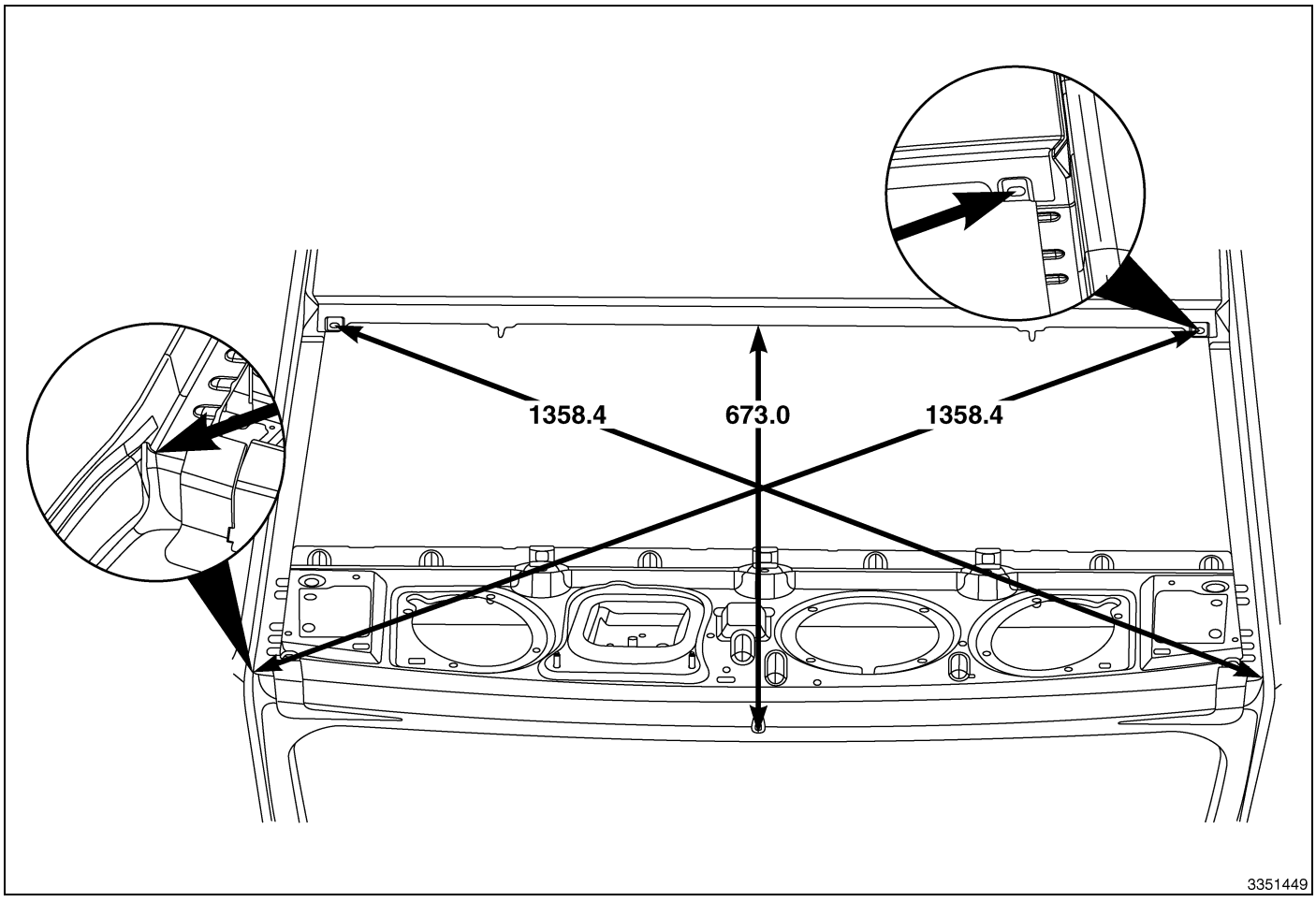


Fig. 3 BACKLIGHT OPENING

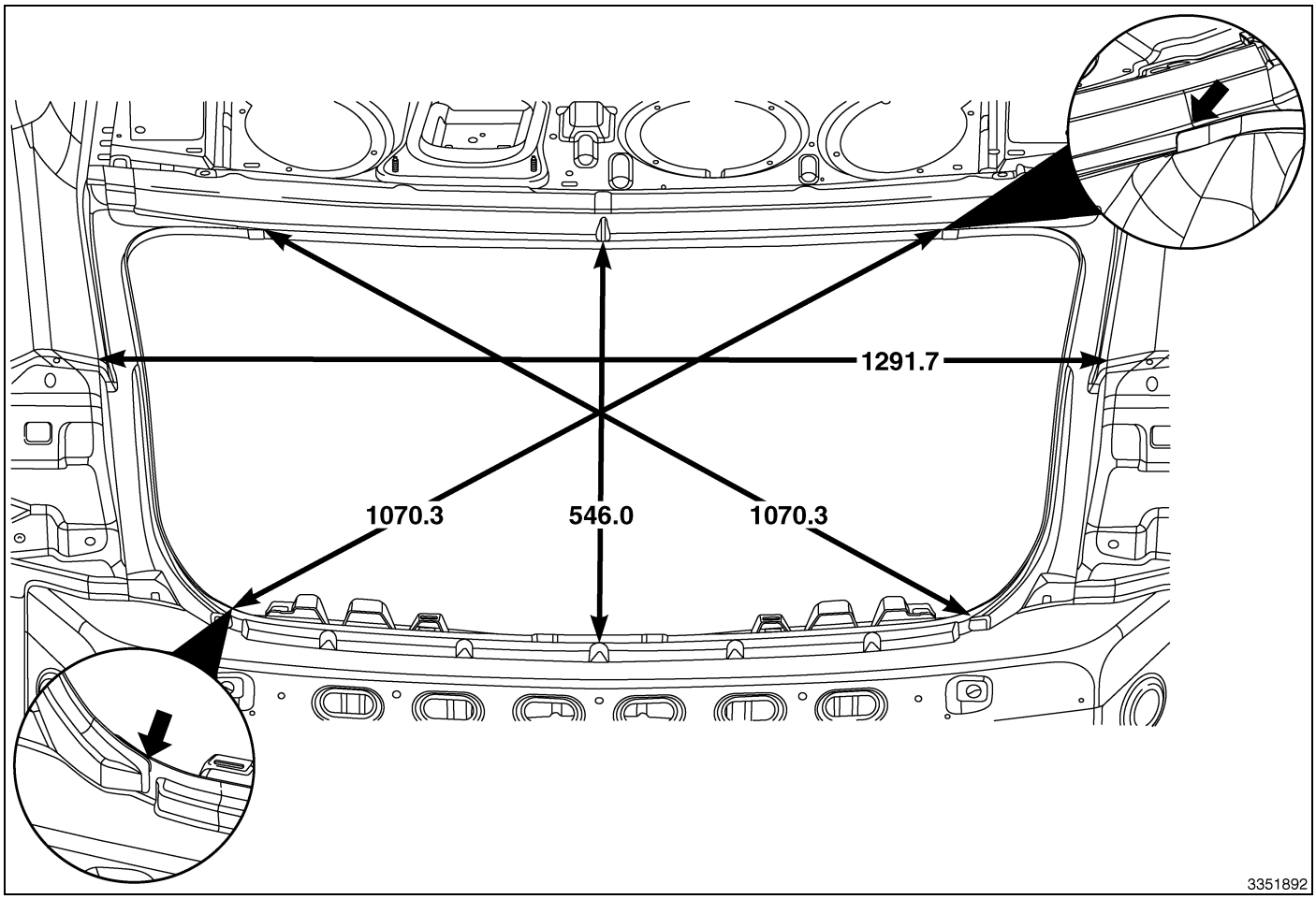


Fig. 4 DECK LID OPENING

FRAME DIMENSIONS

NOTE: Frame dimensions are listed in metric scale millimeter (mm). All dimensions are from center to center of Principal Locating Point (PLP), or from center to center of PLP and fastener location.

VEHICLE PREPARATION

Position the vehicle on a level work surface. Using screw or bottle jacks, adjust the vehicle PLP heights to the specified dimension above a level work surface. Vertical dimensions can be taken from the work surface to the locations indicated were applicable.

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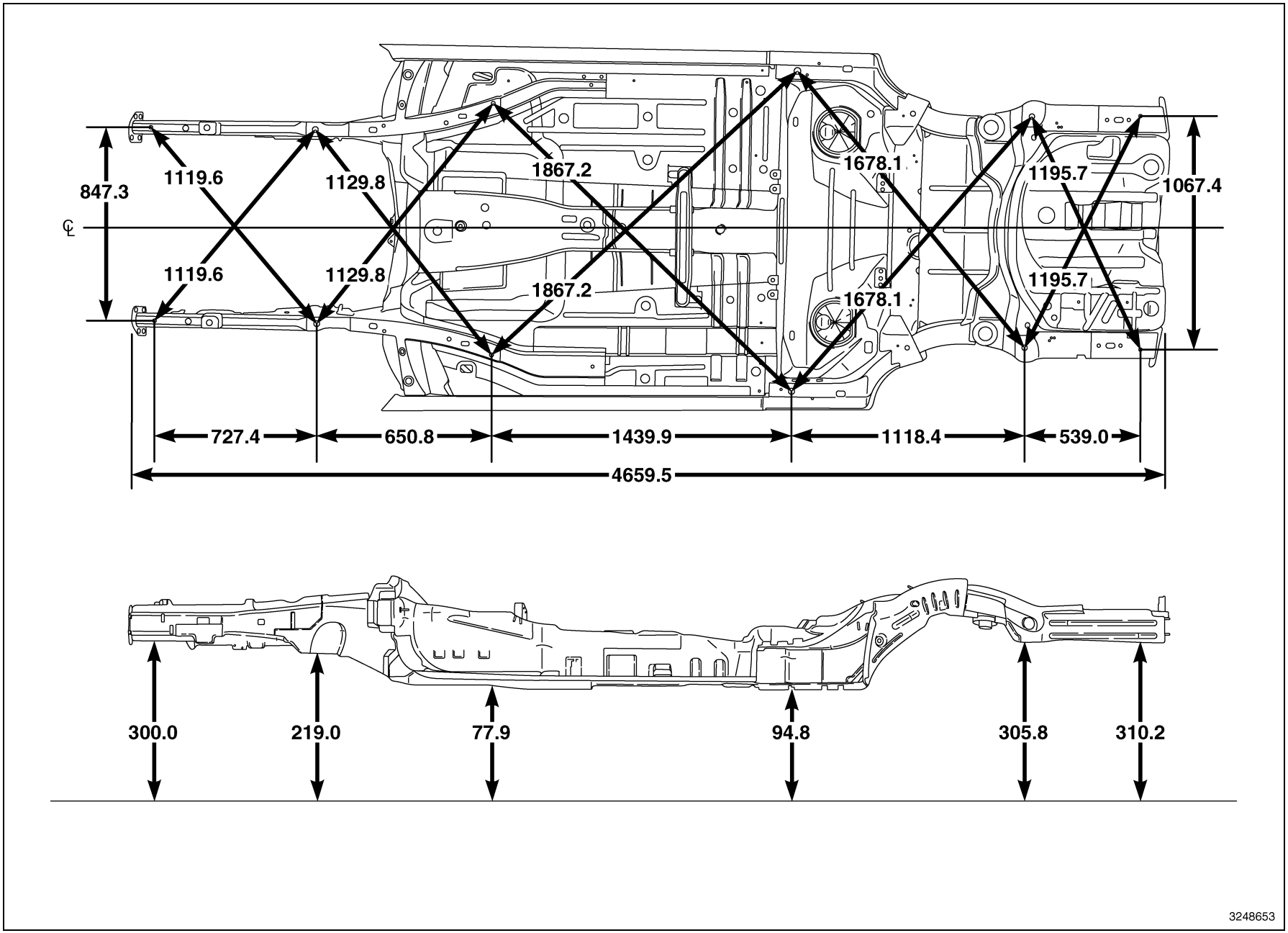


Fig. 5 Underbody Dimensions

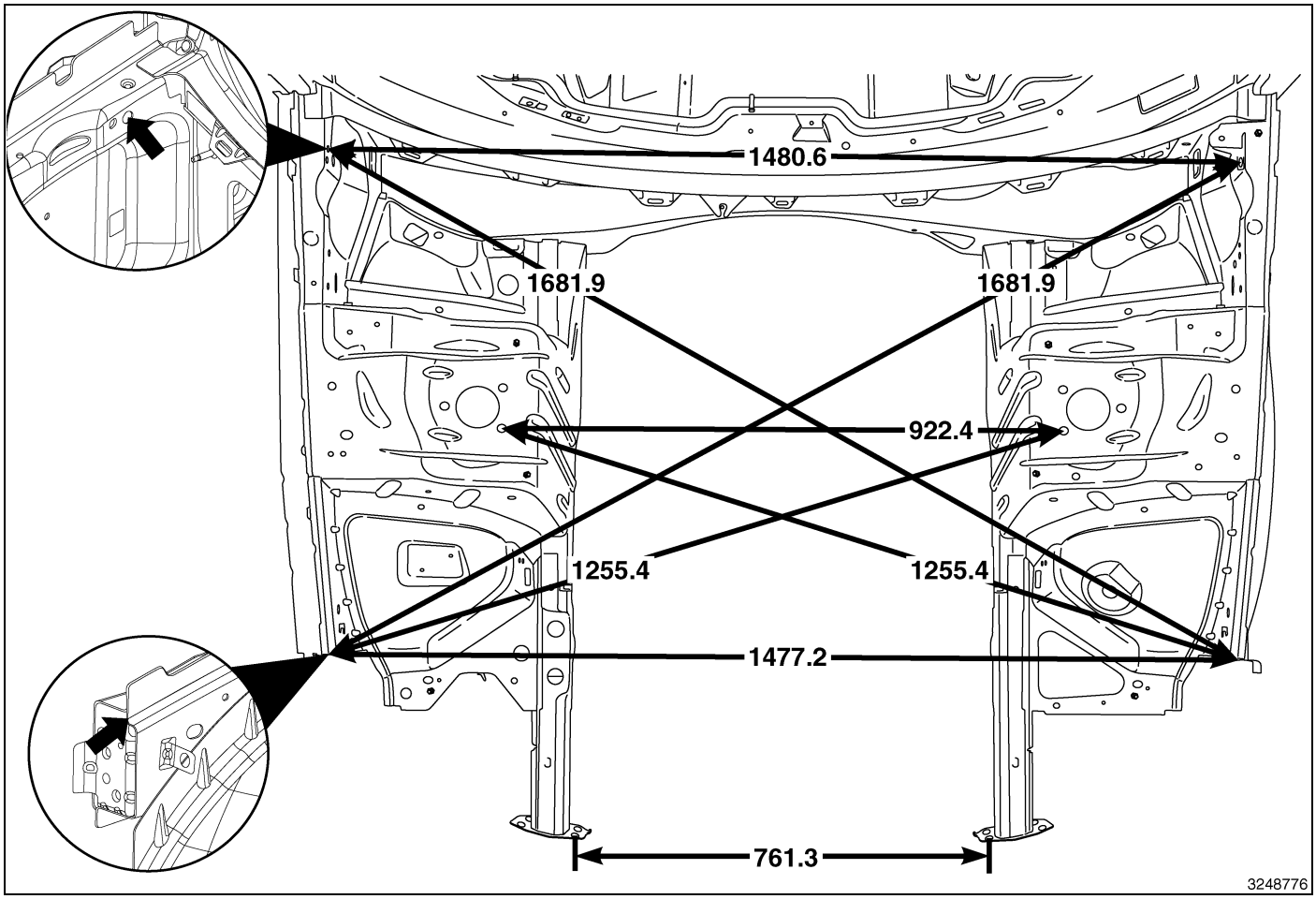
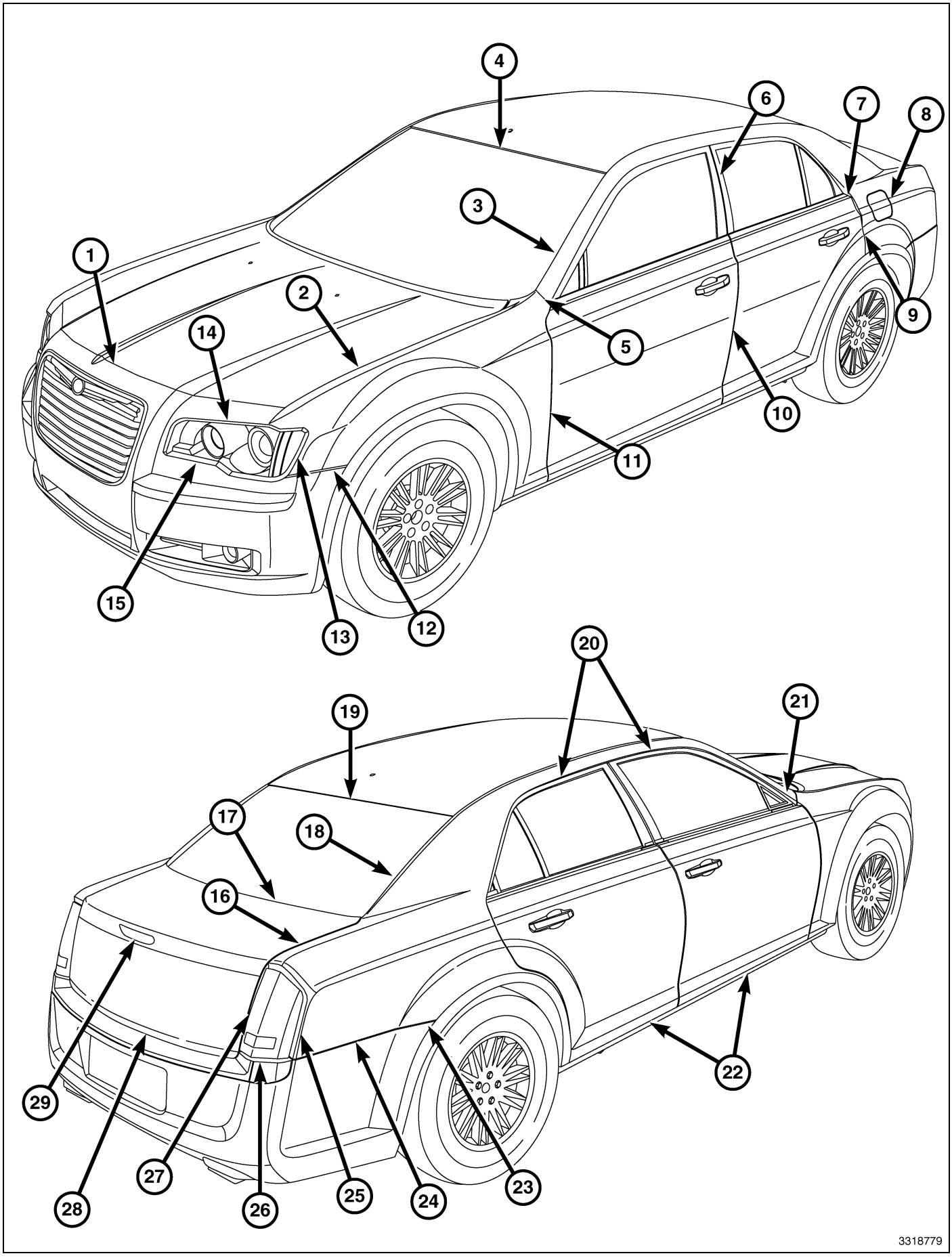


Fig. 6 Under Hood

GAP AND FLUSH DIMENSIONS



NOTE: All measurements are in millimeters.

O/F = Over Flush **U/F = Under Flush**

U/D = Up/Down **F/A = Fore/Aft**

DIMENSION	DESCRIPTION	GAP	FLUSH
1	Hood to Facia	3.5+/- 1.5 Parallel within 1.5	Facia O/F 1.0+/- 1.5 Consistent within 1.5
2	Hood to Fender	3.5+/- 1.0 Parallel within 1.5 Side to side within 1.5	Hood 0.0+/- 1.5 Consistent within 1.5 Side to side within 1.5
3	Windshield to Body Side	Isolator: No Gap 0.0 Glass: 6.0 +/- 2.0 Parallel within 2.0 Side to side within 2.0	
4	Windshield to Roof	Isolator: No Gap 0.0 Glass: 6.0 +/- 2.0 Parallel within 2.0	Glass: U/F 2.7 +/- 1.5 Consistent within 1.0
5	Front Door Belt Molding to Fender	4.0 +/- 1.5	Belt Molding: U/F 1.0 +/- 1.5
6	Front Door Applique to Rear Door Applique	4.0 +/- 1.5 Parallel within 1.5	0.0 +/- 1.5 Consistent within 1.5
7	Rear Belt Molding to Body Side	5.0 +/- 1.5	Belt Molding: O/F 3.0 +/- 1.5
8	Fuel Filler Door to Body Side	Belt Molding: 3.0 +/- 1.0 Parallel within 1.0	Door: U/F 0.5 +/- 1.0 Consistent within 1.0
9	Rear Door to Body Side Feature Line 0.0 +/- 1.5 U/D	4.0 +/- 1.0 Parallel within 1.5	0.0 +/- 1.0 Consistent within 1.5
10	Front Door to Rear Door Feature Line 0.0 +/- 1.5 U/D	4.0 +/- 1.0 Parallel within 1.5	Front Door O/F 0.8 +/- 1.0 Consistent within 1.5
11	Fender to Front Door Feature Line 0.0 +/- 1.5 U/D	4.0 +/- 1.0 Parallel within 1.0	Fender O/F 0.8 +/- 1.0 Consistent within 1.5
12	Facia to Fender	Net to 0.5	0.0 +/- 1.0 Consistent within 1.0
13	Headlamp to Fender	2.0 +/- 1.5 Parallel within 1.0 Side to side within 2.0	Headlamp (top) U/F 2.0 inboard to 1.0 outboard Headlamp (bottom) 0.0 +/- 1.5 Side to side within 2.0
14	Headlamp to Facia	2.5 +/- 1.5 Parallel within 2.0	@ top 1.2 +/- 1.5 Consistent within 2.0

NOTE: All measurements are in millimeters.

O/F = Over Flush **U/F = Under Flush**

U/D = Up/Down **F/A = Fore/Aft**

DIMENSION	DESCRIPTION	GAP	FLUSH
		Side to side within 2.0	
15	Headlamp to Facia (bottom inboard middle)	2.0+/- 1.5 Parallel within 2.0 Side to side within 2.0	
16	Decklid to Body Side	3.5 +/- 1.0 Parallel within 1.0 Side to side within 1.5	
17	Backlight to Decklid	12.5+/- 2.0 Parallel within 2.0 No Gap to Molding	
18	Backlight to Body Side	5.0 +/- 2.0 Parallel within 1.5 Side to side within 1.5	
19	Backlight to Roof	6.0 +/- 2.0 Parallel within 2.0	Roof O/F 2.0 +/- 2.0 Consistent within 1.0
20	Door Lip Opening to Body Side	5.4 +/- 1.5 Parallel within 1.5	Bodyside 0/F 3.0 +/- 1.5 Consistent within 1.5
21	Mirror Flag to Door Lip Opening Molding	2.0+/- 1.3	0.0 +/- 1.3
22	Front and Rear Doors to Sill	6.0 +/- 2.0 Parallel within 2.0	Sill O/F 6.0 +/- 2.0 Consistent within 2.0
23	Facia to Body Side Alignment at Wheelhouse: Facia O/F 2.0 +/- 1.0		
24	Facia to Body Side	Net to 0.5	0.0 +/- 1.0 Consistent within 1.0
25	Taillamp to Body Side	1.5 +/- 1.0 Parallel within 1.5 Side to side within 2.0	
26	Taillamp to Facia (Bright)	2.0 +/- 2.0 Parallel within 1.0 Side to side within 2.0	Taillamp O/F 1.0 +/- 2.0 Consistent within 1.0
27	Taillamp to Decklid	3.5 +/- 2.0 Parallel within 2.0 Side to side within 2.0	
28	Decklid to Facia	U/D 6.5 +/- 2.0 Parallel within 2.0	

NOTE: All measurements are in millimeters.			
O/F = Over Flush		U/F = Under Flush	
U/D = Up/Down		F/A = Fore/Aft	
DIMENSION	**DESCRIPTION**	**GAP**	**FLUSH**
	Cross Car transition	From 4.0 to 6.5 (below taillight) Side to side within 2.0	
29	Decklid Centerlamp Applique to Decklid	1.0+/- 1.0 Parallel within 2.0	

PAINT CODES

Exterior vehicle body color(s) are identified on the Vehicle Certification Label or the Body Code Plate.

The first digit of the paint code listed on the vehicle indicates the sequence of application, i.e.: P = primary coat, Q = secondary coat. The color names provided in the Paint and Trim Code Description chart are the same color names used on most repair product containers.

EXTERIOR COLORS

EXTERIOR COLOR	CHRYSLER CODE
Brilliant Black Crystal Pearlcoat	AXR
Tungsten Met. Clearcoat	CDM
Bright White Clearcoat	GW7
Blackberry Pearlcoat	HBV
Sapphire Crystal Met. Clearcoat	JBF
Deep Cherry Red Crystal Pearlcoat	JRP
Billet Met. Clearcoat	JSC
Ivory 3 Coat	JWD

INTERIOR COLORS

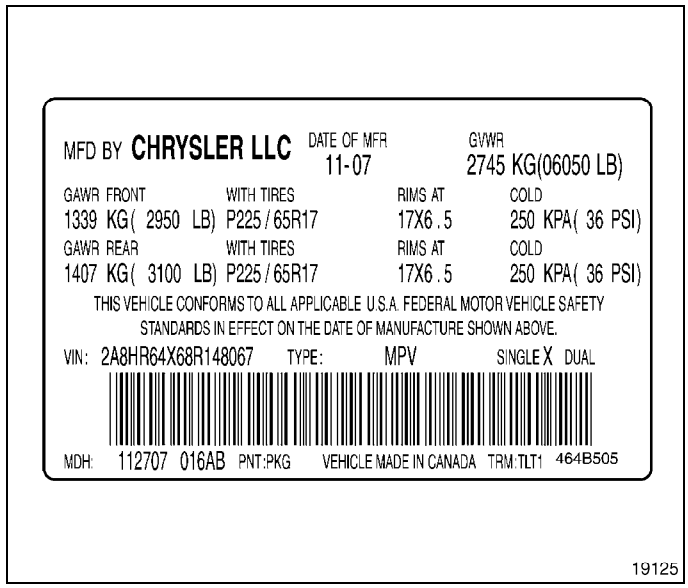
INTERIOR COLOR	CHRYSLER CODE
Dark Frost Beige/Light Frost Beige	L9
Black/Light Frost Beige	XL
Black	X9

VEHICLE CERTIFICATION LABEL

A vehicle certification label is attached to every Chrysler Group LLC vehicle. The label certifies that the vehicle conforms to all applicable Federal Motor Vehicle Standards. The label also lists:

- Month and year of vehicle manufacture.
- Gross Vehicle Weight Rating (GVWR). The gross front and rear axle weight ratings (GAWR's) are based on a minimum rim size and maximum cold tire inflation pressure.
- Vehicle Identification Number (VIN).
- Type of vehicle.
- Type of rear wheels.
- Bar code.
- Month, Day and Hour (MDH) of final assembly.
- Paint and Trim codes.
- Country of origin.

The label is located on the driver-side door shut-face.



Vehicle Certification Label - Typical

Standard Procedure

SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT

Any vehicle which is to be returned to use following a Supplemental Restraint System (SRS) component deployment must have the deployed restraints replaced. In addition, the following guidelines MUST be observed.

- **Following ANY major vehicle impact damage in the vicinity of an impact sensor or the ORC** - It is critical that the mounting surfaces and mounting brackets for the Occupant Restraint Controller (ORC), front impact sensors and side impact sensors located within the proximity of the impact damage be closely inspected and restored to their original conditions. Because the ORC and each impact sensor are used by the SRS to monitor or confirm the direction and severity of a vehicle impact, improper orientation or insecure fastening of these components may cause airbags not to deploy when required, or to deploy when not required.
- **If an active head restraint is deployed** - Deployed Active Head Restraint (AHR) units that are undamaged are designed with the intention of reuse. However, the deployed AHR units must be properly reset following deployment. (Refer to Service Manual Section 10 - Restraints/RESTRAINT, Active Head - Standard Procedure)
- **If the driver airbag is deployed** - If the driver airbag has been deployed, the Steering Column Control Module (SCCM) with integral clockspring and the steering column assembly must also be replaced.
- **If the knee blocker airbag is deployed** - On vehicles so equipped, if the knee blocker airbag (also known as the Knee AirBag/KAB or Inflatable Knee Blocker/IKB) has been deployed, the entire instrument panel assembly must also be replaced.
- **If the passenger airbag is deployed** - If the passenger airbag has been deployed, the instrument panel top cover must also be replaced.
- **If a seat airbag is deployed** - If a seat (pelvic and thorax) airbag has been deployed, the seat back frame, the seat back foam and the seat back trim cover on the same side of the vehicle as the deployed airbag must also be replaced.
- **If a seat belt tensioner is deployed** - The seat belt tensioners are deployed in conjunction with the front airbags, but can also be deployed with seat (pelvic and thorax) or side curtain airbags. The seat belt tensioners must be replaced if either front airbag has been deployed, and must be inspected if either seat or side curtain airbag has been deployed.
- **If a side curtain airbag is deployed** - If a side curtain airbag has been deployed, the headliner as well as the upper A, B and C-pillar trim on the same side of the vehicle as the deployed airbag must also be replaced. On vehicles with an optional sunroof, the sunroof drain tubes and hoses must be closely inspected following a side curtain airbag deployment.

The components identified with the deployed SRS components in the preceding list are not intended for reuse and will be damaged or weakened as a result of an airbag deployment, which may or may not be obvious during a visual

inspection. All other vehicle components should be closely inspected following any SRS component deployment, but are to be replaced only as required by the extent of the visible damage incurred.

SQUIB CIRCUIT WIRING REPAIRS

In addition to the preceding guidelines, be aware that the heat created by the initiator during an airbag or tensioner deployment will cause collateral damage to the connected wiring (squib circuits) and connector insulators. There are two methods by which an airbag or seat belt tensioner may be connected to the vehicle electrical system. The first method involves a short pigtail harness and connector insulator that are integral to the airbag or tensioner unit and are replaced as a unit with the service replacement airbag or seat belt tensioner. This connection method typically requires no additional wiring repair following a deployment.

However, the second connection method involves a wire harness takeout and connector insulator that are connected directly to the airbag or tensioner initiator or squib. These direct-connect type take outs and connector insulators **MUST** be repaired following an airbag or seat belt tensioner deployment using the approved Supplemental Restraint System Wiring Repairs procedure. (Refer to Service Manual Section 10 - Restraints - Standard Procedure).

AIRBAG SQUIB STATUS

Multistage airbags with multiple initiators (squibs) must be checked to determine that all squibs were used during the deployment event. The driver and passenger airbags in this vehicle are deployed by electrical signals generated by the Occupant Restraint Controller (ORC) through the driver or passenger squib 1 and squib 2 circuits to the two initiators in the airbag inflators. Typically, both initiators are used and all potentially hazardous chemicals are burned during an airbag deployment event. However, it is possible for only one initiator to be used; therefore, it is always necessary to confirm that both initiators have been used in order to avoid the improper handling or disposal of potentially live pyrotechnic or hazardous materials. The following procedure should be performed using a diagnostic scan tool to verify the status of both airbag squibs before either deployed airbag is removed from the vehicle for disposal.

CAUTION: Deployed front airbags having two initiators (squibs) in the airbag inflator may or may not have live pyrotechnic material within the inflator. Do not dispose of these airbags unless you are certain of complete deployment. Refer to the Hazardous Substance Control System for information regarding the potentially hazardous properties of the subject component and the proper safe handling procedures. Then dispose of all non-deployed and deployed airbags and seat belt tensioners in a manner consistent with state, provincial, local and federal regulations.

1. Be certain that the diagnostic scan tool contains the latest version of the proper diagnostic software. Connect the scan tool to the 16-way Data Link Connector (DLC). The DLC is located on the driver side lower edge of the instrument panel, outboard of the steering column.
2. Turn the ignition switch to the ON position.
3. Using the scan tool, read and record the active (current) Diagnostic Trouble Code (DTC) data.

Using the active DTC information, refer to the **Airbag Squib Status** table to determine the status of both driver and passenger airbag squibs.

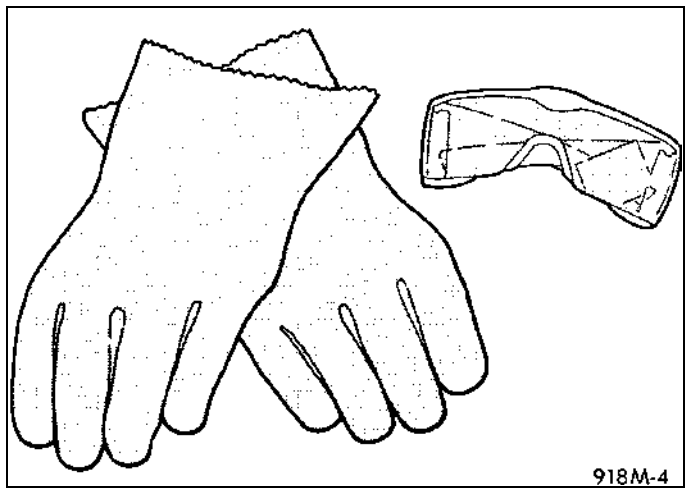
AIRBAG SQUIB STATUS		
IF THE ACTIVE DTC IS:	**CONDITIONS**	**SQUIB STATUS**
Driver or Passenger Squib 1 open	**AND** the stored DTC minutes for both Driver or Passenger squibs are within 15 minutes of each other	Both Squib 1 and 2 were used.
Driver or Passenger Squib 2 open		
Driver or Passenger Squib 1 open	**AND** the stored DTC minutes for Driver or Passenger Squib 2 open is GREATER than the stored DTC minutes for Driver or Passenger Squib 1 by 15 minutes or more	Squib 1 was used; Squib 2 is live.
Driver or Passenger Squib 2 open		
Driver or Passenger Squib 1 open	**AND** the stored DTC minutes for Driver or Passenger Squib 1 open is GREATER than the stored DTC minutes for Driver or Passenger Squib 2 by 15 minutes or more	Squib 1 is live; Squib 2 was used.
Driver or Passenger Squib 2 open		

AIRBAG SQUIB STATUS		
IF THE ACTIVE DTC IS:	**CONDITIONS**	**SQUIB STATUS**
Driver or Passenger Squib 1 open	**AND** Driver or Passenger Squib 2 open is NOT an active code	Squib 1 was used; Squib 2 is live.
Driver or Passenger Squib 2 open	**AND** Driver or Passenger Squib 1 open is NOT an active code	Squib 1 is live; Squib 2 was used.

NOTE: If none of the Driver or Passenger Squib 1 or 2 open are active codes, the status of the airbag squibs is unknown. In this case the airbag should be handled and disposed of as if the squibs were both live.

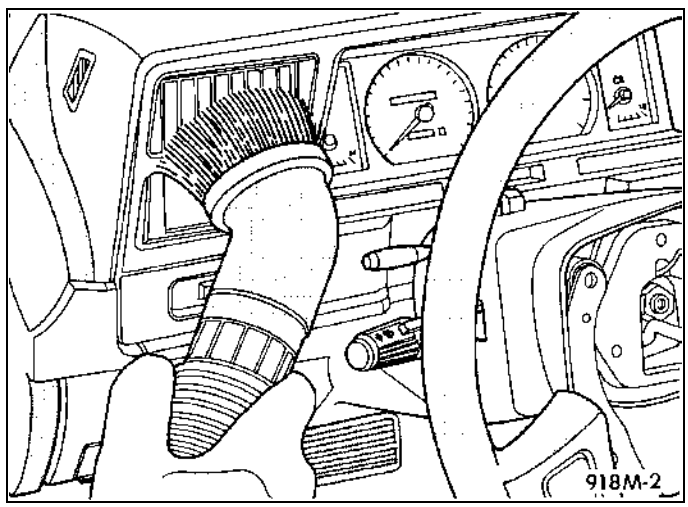
CLEANUP PROCEDURE

Following a Supplemental Restraint System (SRS) component deployment, the vehicle interior will contain a powdery residue. This residue consists primarily of harmless particulate by-products of the small pyrotechnic charge that initiates the propellant used to deploy a SRS component. However, this residue may also contain traces of sodium hydroxide powder, a chemical by-product of the propellant material that is used to generate the inert gas that inflates the airbag. Since sodium hydroxide powder can irritate the skin, eyes, nose, or throat, be certain to wear safety glasses, rubber gloves, and a long-sleeved shirt during cleanup.



WARNING: To avoid serious or fatal injury, if you experience skin irritation during cleanup, run cool water over the affected area. Also, if you experience irritation of the nose or throat, exit the vehicle for fresh air until the irritation ceases. If irritation continues, see a physician.

1. Begin the cleanup by using a vacuum cleaner to remove any residual powder from the vehicle interior. Clean from outside the vehicle and work your way inside, so that you avoid kneeling or sitting on a non-cleaned area.
2. Be certain to vacuum the heater and air conditioning outlets as well. Run the heater and air conditioner blower on the lowest speed setting and vacuum any powder expelled from the outlets.



CAUTION: Deployed front airbags having two initiators (squibs) in the airbag inflator may or may not have live pyrotechnic material within the inflator. Do not dispose of these airbags unless you are certain of complete deployment. Refer to the AIRBAG SQUIB STATUS heading within this information. All damaged, ineffective, or non-deployed Supplemental Restraint System (SRS) components which are replaced on vehicles are to be handled and disposed of properly. If an airbag or seat belt tensioner unit is ineffective or damaged and non-deployed, refer to the Hazardous Substance Control System for information regarding the potentially hazardous properties of the subject component and the proper safe handling procedures. Then dispose of all non-deployed and deployed airbags and seat belt tensioners in a manner consistent with state, provincial, local and federal regulations.

3. Next, remove the deployed SRS components from the vehicle. Refer to the appropriate service removal procedures.
4. You may need to vacuum the interior of the vehicle a second time to recover all of the powder.

BASECOAT/CLEARCOAT FINISH

The original equipment paint finish is a multi step process that involves cleaning, applying electro de-position (E-coat), anti-chip primer, basecoat, and clearcoat steps.

CAUTION: Do not use abrasive chemicals, abrasive compounds or harsh alkaline based cleaning solvents on the painted surfaces of a vehicle. Failure to follow this caution can result in damage to vehicle finish.

On most vehicles a two-part paint application (basecoat/clearcoat) is used. Color paint that is applied to primer is called basecoat. A clear coat paint is then applied to protect the basecoat from ultraviolet light and to provide a durable high-gloss finish.

FINESSE SANDING, BUFFING, AND POLISHING

CAUTION: Do not remove more than 0.5 mils of clearcoat finish when sanding, hand buffing or polishing. Basecoat paint must retain clearcoat for durability.

CAUTION: If the finish has been finesse sanded in the past, it cannot be repeated. Failure to follow this caution can result in damage to vehicle finish.

NOTE: Finesse sanding should only be performed by a trained automotive paint technician.

Minor acid etching, orange peel, or smudging in a clearcoat or single-stage finish can be reduced with light finesse sanding, hand buffing and polishing. Use a Paint Thickness Gauge #PR-ETG-2X or equivalent to determine clearcoat or single-stage paint thickness before and after the repair.

PAINT TOUCH-UP

If the painted metal surface of a vehicle becomes scratched or chipped, it should be touched-up as soon as possible to avoid corrosion.

WARNING: Use an OSHA approved respirator and safety glasses when spraying paint or solvents. Failure to follow this warning may result in possible personal injury or death.

When repairing painted metal surfaces, for best results, use MOPAR® Scratch Filler/Primer, Touch-Up Paints and Clear Top Coat.

1. Scrape any loose paint and corrosion from inside the scratch or chip.

WARNING: Avoid prolonged skin contact with petroleum or alcohol–based cleaning solvents. Failure to follow this warning can result in possible personal injury or death.

2. Clean affected area with MOPAR® Tar/Road Oil Remover or equivalent, and allow to dry.
3. Fill the inside of the scratch or chip with a coat of filler/primer. Do not overlap primer onto good surface finish. The applicator brush should be wet enough to puddle-fill the scratch or chip without running. Do not stroke brush applicator on body surface. Allow the filler/primer to dry hard.
4. Cover the filler/primer with color touch-up paint. Do not overlap touch-up color onto the original color coat around the scratch or chip. Butt the new color to the original color, if possible. Do not stroke applicator brush on body surface. Allow touch-up paint to dry hard.
5. On vehicles with clearcoat, apply clear top coat to touch-up paint with the same technique as described in Step #4. Allow clear top coat to dry hard. If desired, the clearcoat can be lightly finesse sanded (1500 grit) and polished with rubbing compound.

NON-STRUCTURAL SHEET METAL REPAIR

Safety Notice

CAUTION: All Service and rebuilding instructions contained herein are applicable to, and for the convenience of, the automotive repair industry only.

Proper service and repair is important to the safe, reliable operation of all motor vehicles. The service procedures recommended and described in this publication were developed for professional service personnel, and are effective methods for performing vehicle repair. Following these procedures will help ensure efficient and economical vehicle performance and service reliability. Some service procedures require the use of special tools designed for specific procedures. These special tools should be used as recommended throughout this publication.
It is important to note this publication contains various **Cautions** and **Warnings**. These should be read carefully in order to minimize risk of personal injury or the possibility that improper service may damage the vehicle or render it unsafe. It is important to note that these cautions and warnings cover only the situations and procedures Chrysler Group LLC. has encountered and recommended. Chrysler Group LLC. cannot possibly know, evaluate, and advise the service trade

of all conceivable ways in which service may be performed, or the possible hazards of each. Consequently, Chrysler has not undertaken any broad service review. Accordingly, anyone that uses a service procedure or tool that is not recommended in this publication must be certain that neither personal safety, nor vehicle safety will be jeopardized by the service methods they select.

Safety Precautions

WARNING: Always wear an approved respirator, as well as skin and eye protection per adhesive manufacturer recommendations as stated in the product MSDS (Material Safety Data Sheets)

Adhesives:

- MSDS must be available and understood before adhesives are handled.
- All personnel should be instructed on the proper procedures to prevent skin contact with solvents, curing agents, and uncured base adhesives, which could cause allergic reactions or sensitization.

Types of Structural Adhesives

Overview: There are three basic chemistries used in the collision repair industry. The types of adhesives used include Acrylic, Epoxy and Urethane. To achieve optimal results, it is best to use the chemistry that bonds best to the substrate being repaired, is easiest to use and offers the most permanent , non-detectable repair at the most economical repair cost. All three chemistries have their strengths and weaknesses.

NOTE: Structural adhesives that meet Chrysler Group LLC's approved replacement materials specifications include - Mopar #05083855AA, Fusor 112B and 3M 08116

Adhesive Types:

- **Acrylic Adhesives -** Bond all types of bare metals and are excellent for cross bonding aluminum to steel. They have good NVH (Noise Vibration Harshness) properties and some offer anti-corrosion properties, so primers on bare metals are not necessary. Most acrylics have a fast room temperature cure, and are stable with regards to temperature and moisture during cure. However, both of these can effect shelf life. Mix ratio is modestly important although the performance properties can vary with a change in mix ratio. Acrylics are the most forgiving of the three chemistries with regards to mix ratio accuracy.
- **Epoxy Adhesives -** Bond well to ridged and semi ridged plastics and are generally easy to sand and feather edge. Some may be too ridged for flexible substrates and they often require primers on bare metal applications. Epoxies can be heat cured to increase strength and accelerate the curing process. They have a long and stable shelf life. The mix ratio can vary by ± 50% and still cure. However, the performance properties will vary when the mix ratio is incorrect. Epoxies are more forgiving than urethanes with regards to mix ratio accuracy.
- **Urethane Adhesive -** Typically flexible and bond well to plastics. However, they usually require primers on metal surfaces to protect against corrosion. Urethanes have good seam sealing and NVH qualities and are frequently the optimal choice for seam sealers. They are sensitive to moisture during cure, packaging and storage. Single component urethanes usually have a much shorter shelf life than two component urethanes. Mix ratios are critical for urethanes. In most cases it cannot vary more than ± 5%. Therefore, hand mixing is not recommended. Urethanes are the most unforgiving of the three chemistries with regards to mix ratio accuracy.

JOINT AND REPAIR TYPES	REFERENCE
Backer Panel Joint	Backer Panel Joint
Door Skin	Door Skin Replacement
Body Side Aperture / Quarter Panel	Side Aperture / Quarter Panel
Metal Fatigue/Stress Cracks	Metal Fatigue/Stress Crack

Backer Panel Joint

Overview: Backer panel procedures may be used to achieve a smooth joint between panel sections. The backer panel works well in areas where there is not enough room to smooth or feather in an overlap joint. The backer panel joint is a common repair for rocker panels, quarter panels and body side apertures.

NOTE: OEM panel replacement such as a quarter panel, side aperture and rocker panel will always require the weld bonding procedure at the pinch weld flange area(s).

Preparation:

NOTE: Be certain vehicle is evenly supported at normal suspension points.

1. Restore structural dimensions as well as all related mating flanges.

NOTE: It will be difficult to abrade the underside mating surface of the original panel, however this is an important step and should be done effectively.

2. Create a 50mm. (2in.) backer panel out of an unused portion of original or new sheetmetal panel, whichever contains the appropriate shape. Be certain it has a precise fit to the back of the panels it will join.
3. All paint, primer, adhesive and any other corrosion protective coatings must be removed from the mating surfaces as well as the backer panels themselves, prior to application of adhesive. Grind a 25mm. (1in.) contact area on all panels where backer panel bonding will take place. The metal should be completely bare and shiny in appearance, if the metal appears pewter in color all of the galvanized coating has not been removed.
4. Pre-fit the backer panel to the panel(s) being joined, to ensure proper fit. If screws will be used to hold the panels in place during curing, dry fit them now to be certain of proper fit later. There should be a 0.8 - 1.6mm. (1/32 - 1/16in.) gap between the two outer panels, no gap on backer panels.
5. Without a mixing tip attached, purge a small amount of structural adhesive from the cartridge. This will ensure an even flow of both components.
6. Attach a mixing tip and dispense a mixing tube's length of adhesive from the cartridge.

Application:

NOTE: Refer to the structural adhesives manufacturer for information on work, handling and curing times.

7. Apply a 10 - 13mm. (3/8 - 1/2in.) bead of structural adhesive to the bare metal mating surfaces of the backer panels. Evenly apply the adhesive over the complete bonding surface. Apply a 10 - 13mm. (3/8 - 1/2 in.) bead of structural adhesive to bare metal mating surfaces. Use a body filler applicator to level the adhesive, making sure to cover all bare metal to protect against corrosion.
8. Position the new backer panel(s), making sure not to separate after contact. Lifting will create air bubbles and weaken the bond. **Adjustments must be made by sliding, not lifting the panel(s).**
9. Clamp tightly and evenly. Adhesive has glass beads that will prevent complete squeeze out. Install screws to the "hard to clamp areas".
10. Remove excess adhesive from all joints prior to adhesive cure.
11. Allow adhesive to cure, per manufacturer recommendations. When fully cured, expect the adhesive to be a little tacky, as this is a normal characteristic of the adhesive.
12. Remove clamps and screws.
13. Repeat procedure for installation of new panel.
14. Remove any remaining adhesive with a grinder or abrasive disc. All adhesive must be removed from the cosmetic repair area to ensure proper adhesion of further repair and refinish materials.
15. Bevel the center of the screw holes and apply fiber-reinforced waterproof body filler to the screw holes and section seam. When cured, sand and apply conventional body filler and block sand as necessary. Prime and paint per paint manufacturer recommendations.
16. Apply inner panel corrosion inhibiting materials (Mopar Cavity Wax part #6804292970 or equivalent).

Door Skin Replacement

Overview: Depending on the type of door to be repaired, a full skin or a belt cut will be required. Belt cut replacement is necessary when a door with a full skin, around the window opening, has an angle that makes it to difficult to get tools into to do a quality hem flange installation. A butt-joint is used at this seam.

Preparation:

1. Belt cut skins will require determining and cutting of the sectioning locations on the original panel and on the replacement panel.
2. Remove the door skin by grinding the outer edge (C) until the seam is perforated.
3. Cut around weld nuggets and spot welds with a spot weld cutting bit or similar weld removal tool.
4. If panel is attached with adhesive you may use heat, from a **non-flame** heat source, up to 204°C. (400F°). This will aid in loosening the bond.
5. With an air chisel and a flat bladed bit, remove outer skin and any remaining hem flange.
6. Grind any remaining weld nuggets flush with door frame, and remove all adhesive, paint, E-coating and corrosion protective coatings from the area where the **structural adhesive** will be applied, and where the 'butt-joint" is to take place. The metal should be completely bare and shiny in appearance, if the metal appears pewter in color all of the galvanized coating has not been removed.
7. Straighten door flange and any remaining damage on door shell using the hammer and dolly method.
8. The area of the new door skin that will make contact with the door shell will need to be scuffed with a course abrasive pad or ground with a 50 grit grinding disc. This will vary upon adhesive manufacturers, be certain to check adhesive manufacturer recommendations.
9. Dry fit the new panel. Determine where to place clamps to hold the panel in place, as necessary.

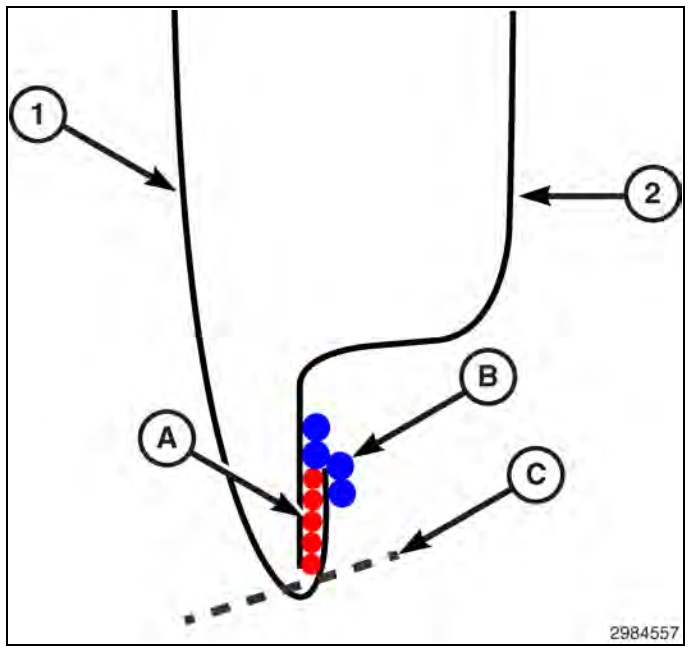


Fig. 7 Door Skin

NOTE: Drain holes must remain clear of obstructions from adhesives and sealers.

1 - DOOR SKIN (OUTER)

2 - DOOR SHELL (INNER)

A - STRUCTURAL ADHESIVE

B - SEAM SEALER

C - HEM FLANGE CUT LINE (BOTTOM EDGE SHOWN, SURROUNDING EDGES TYPICAL)

CAUTION: Be certain the fit is good from the skin to door and door to door opening. Cured adhesive is extremely strong and will not allow for "adjustments".

10. Without a mixing tip attached, purge a small amount of structural adhesive from the cartridge. This will ensure an even flow of both components.
11. Attach a mixing tip and dispense a mixing tube's length of adhesive from the cartridge.

NOTE: Refer to the structural adhesives manufacturer for information on work, handling and curing times.

Installation:

NOTE: Do not apply adhesive within 25mm. (1in.) of the belt cut location.

12. Apply a 10 - 13mm. (3/8 - 1/2 in.) bead of structural adhesive to bare metal mating surfaces. Use a body filler applicator to level the adhesive, making sure to cover all bare metal to protect against corrosion.

NOTE: When applying adhesives be certain any and all drain holes remain open and clear of obstructions.

13. Apply a second bead of adhesive to ensure proper bead thickness.
14. Position the new panel. If repositioning is necessary slide the panel, do not lift or separate panels. **Adjustments must be made by sliding, not lifting the panel(s).** Apply clamps to hold panel in position, as necessary.

NOTE: There are many tools readily available to aid in the hem flange folding process.

15. Roll the hem flange over. Remove excess adhesive. This will save time, as compared to waiting until cured.
16. Re-check door gap and flushness to the vehicle opening and adjust as necessary.
17. Allow the adhesive to cure per manufacturer recommendations. When fully cured, expect the adhesive to be a little tacky, as this is a normal characteristic of the adhesive. Remove clamps, if used.
18. Remove any excess cured adhesive with a grinder or abrasive disc. All adhesive must be removed from the cosmetic repair area to ensure proper adhesion of repair and refinish materials.

19. Weld the butt-joint with GMAW (Gas Metal Arc Welding), if a belt cut was used. Clean and dress welds accordingly.
20. Apply fiber-reinforced waterproof body filler to the section seam, as necessary. When cured sand and apply conventional body filler and block sand.
21. Apply an epoxy or anti-corrosion primer. When cured, lightly scuff.
22. Seam seal the entire door. Duplicate the factory seam sealer. Apply a discrete bead around the rest of the door to seal and protect, maintaining the original appearance.
23. Prime and paint per paint manufacturers recommendations.
24. Apply inner panel corrosion inhibiting materials (Mopar Cavity Wax part #68042970AA , or equivalent).

Side Aperture / Quarter Panel

Overview: Chrysler's recommended repair procedure for body side aperture / quarter panel replacement include butt joints using backer panels with structural adhesive at the sectioning joint, or a welded backer panel with a welded butt joint using GMAW (Gas Metal Arc Welding). Resistance spot welding with structural adhesive, referred to as weld bonding, should be used at all pinch welds and may be used at the drain trough and tail panel areas as well. With the exception of the sectioning joint, the rule to follow is "Re-assemble as it was built from the OEM". For further information on Weld / Weld Bonding, (Refer to Collision Information - Standard Procedure) GMAW (plug or puddle) welds may be used in place of STRSW (Squeeze Type Resistance Spot Welding) only in areas that specifically use spot welds and in areas that access limitations will not allow STRSW. GMAW cannot be used in the weld bonding process. Never weld with GMAW within 25mm. (1in.) of any area where structural adhesive is used. The weld "heat zone" will destroy the properties of the adhesive.

Vehicle design will determine if the sectioning location is to be in the pillar or the roof line area .For locations and warnings that may apply to body side aperture / quarter panel sectioning locations reference Sectioning Procedures,(Refer to Collision Information - Standard Procedure)

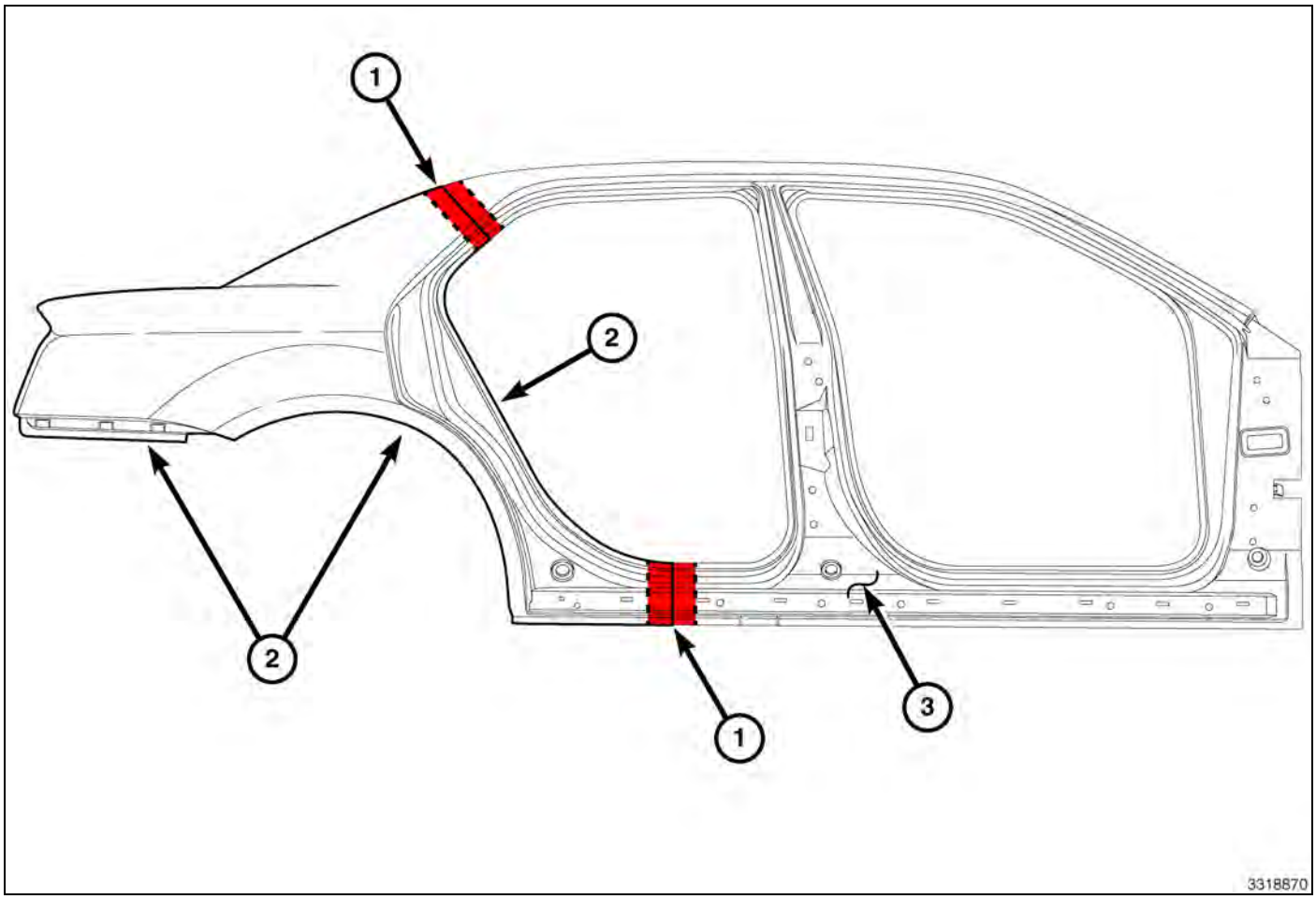


Fig. 8 Body Side Aperture

1 - SECTION JOINT WITH BACKER PANEL

2 - WELD BONDING (AREAS WHERE ACCESSIBLE)

3 - BODY SIDE APERTURE

Preparation:

NOTE: Be certain vehicle is evenly supported at normal suspension points.

1. Restore structural dimensions as well as all related mating flanges.
2. Once sectioning locations have been established, cut original and replacement panels at the pre-determined locations. Remove spot welds within sectioned parameter.

NOTE: Be careful not to destroy any areas that may be able to be used as backer panels.

3. If panel is attached with adhesive, you may use heat, from a **non-flame** heat source, up to 204°C. (400F°). This will aid in loosening the bond.
4. Use an air chisel with a flat bladed bit to remove original panel.
5. Using a hammer and dolly, restore any and all damage to mating surfaces.
6. Create backer panels to be used at butt joints. Refer to Backer Panel Joint

NOTE: It will be difficult to abrade the underside mating surface of the original panel, where backer panel is to be used, however this is important step and should be done effectively.

7. Grind all mating surfaces with a 50 grit grinding disk. Remove all adhesive, sealers, paint, E-coating and corrosion protective coatings from the area where the structural adhesive and welds will be applied. The metal should be completely bare and shiny in appearance, if the metal appears pewter in color all of the galvanized coating has not been removed.
8. Pre- drill any GMAW plug / puddle weld holes that may be necessary, with a 8mm. (5/16in.) hole.

9. With the aid of an assistant, dry fit the panel. Apply clamps to hold panel in place, making note of locations. Install screws where accessibility prohibits the use of clamps. This will aid in proper alignment during installation.
10. Without a mixing tip installed, purge a small amount of structural adhesive from the cartridge. This will ensure an even flow of both components.
11. Attach a mixing tip and dispense a mixing tube's length of adhesive from the cartridge.

NOTE: Using scrap metal and adhesive, make test coupon samples and perform peel test to ensure your STRSW equipment is ready to apply welds as required. The Weld/Weld Bonding section will provide further information on peel testing and equipment set-up, (Refer to Collision Information - Standard Procedure)

NOTE: Refer to the structural adhesives manufacturer for information on work, handling and curing times.

Installation:

12. Install backer panels, refer to Backer Panel Joint
13. Apply 10 - 13mm. (3/8 - 1/2in.) bead of structural adhesive to the area where the two panels are to be bonded and weld bonded. **Do not apply to areas that will only be STRSW or GMAW welded.**
14. Smooth the adhesive with a body filler spreader or equivalent, to cover all bare metal surfaces. Apply a second bead of adhesive to ensure proper adhesive thickness.
15. With the aid of an assistant place the panel to the vehicle. If the panel needs to be adjusted, slide the panel.

NOTE: Adjustments must be made by sliding, not lifting the panel(s). Lifting will cause air bubbles and weaken the bond.

16. Install clamps and screws to locations determined during the dry fit process
17. Remove all squeeze out of adhesive, prior to curing.

NOTE: Structural adhesive manufacturers will vary on time allowed for completion of STRSW in weld bond zones. Check and follow adhesive manufacturer recommendations.

18. Apply STRSW to weld bond area immediately.
19. Once fully cured, remove clamps and screws. When fully cured, expect adhesive to remain a little tacky, as this is a normal characteristic of the adhesive.
20. Complete STRSW and / or GMAW (plug / puddle) welds.
21. Finish / Dress the welds as necessary. If screws were necessary bevel the screw holes. Prepare the joint and screw holes by grinding the area with 50 grit grinding disc. Get in seams as best as possible without thinning the metal.
22. Remove any excess cured adhesive with a grinder or abrasive disc. All adhesive must be removed from the cosmetic repair area to ensure proper adhesion of repair and refinish materials.
23. Apply fiber-reinforced waterproof body filler to screw holes and joint. Complete the repair using conventional body filler, and block sanding.
24. Apply an epoxy or anti-corrosion primer. When cured, lightly scuff and then apply seam sealer as necessary.
25. Prime and paint per paint manufacturer recommendations.
26. Apply inner panel corrosion inhibiting materials (Mopar Cavity Wax part #68042970AA, or equivalent).

Metal Fatigue/Stress Crack

Overview: On rare occasions you may encounter metal fatigue, also referred to as stress cracks. This will appear as a crack starting at an edge and trailing away. Follow these steps for a proper repair:

1. Locate the trailing end of the crack and drill a 3mm. (1/8in.) hole at the very point at which it stops. This is referred to as "Stop Drilling".
2. Remove all contaminants and coatings including primer, paint and anti-corrosion, from the repair area. Surface should be clean and shiny (if pewter in color then anti-corrosion has not been removed).
3. Stitch weld the seam/crack closed using GMAW. Follow welding guidelines as found in Weld/Weld Bonding section, (Refer to Collision Information - Standard Procedure)
4. Dress the welds as necessary. **Careful not to thin the base metal.**
5. Depending on the location and visibility of the repair surface refinishing will vary from body filler, finishing and painting to simply applying an epoxy or anticorrosion primer and rubberized undercoating, Mopar part #05093417AA or equivalent.
6. Apply inner panel corrosion inhibiting materials (Mopar Cavity Wax part #68042970AA , or equivalent).

WELDING AND WELD BONDING

Safety Notice

CAUTION: All Service and rebuilding instructions contained herein are applicable to, and for the convenience of, the automotive repair industry only.

The service procedures recommended and described in this publication were developed for professional service personnel, and are effective methods for performing vehicle repair.
It is important to note this publication contains various **Cautions** and **Warnings**. These should be read carefully in order to minimize risk of personal injury or the possibility that improper service may damage the vehicle or render it unsafe. Chrysler Group LLC. cannot possibly know, evaluate, and advise the service trade of all conceivable ways in which service may be performed, or the possible hazards of each. Consequently, Chrysler has not undertaken any broad service review. Accordingly, anyone that uses a service procedure or tool that is not recommended in this publication must be certain that neither personal safety, nor vehicle safety will be jeopardized by the service methods they select.

Safety Precautions

WARNING:

- **When Welding and/or working with Adhesives always wear safety goggles and gloves to prevent contact with chemicals and to prevent weld spatter, sparks, and sharp metal from causing bodily injury.**
- **Wear an approved respirator while welding and during the application of adhesives to prevent inhalation of harmful vapors.**
- **Always remove NVH (Noise Vibration and Harshness) foam from welding repair area, as material is flammable.**

WARNING: Failure to follow these instructions may result in possible serious or fatal injury

Welding

- Comply with all federal, state and local regulations to avoid any injuries due to shock, fires, fumes, sparks and liquids.
- All flammable materials or liquid should be stored in tightly sealed and labeled containers, and used only in well ventilated areas.
- No spark producing equipment should be permitted in any area where flammable materials are being handled or stored.

Adhesives:

- Material Safety Data Sheets (MSDS) must be available and understood before adhesives are handled.
- All personnel should be instructed on the proper procedures to prevent skin contact with solvents, curing agents, and uncured base adhesives, which could cause allergic reactions or sensitization.

Introduction

The purpose of this document is to clearly explain the welding options available to the collision repair technician and how to determine that welding repairs are made properly. The primary types of welding covered in this section are STRSW (Squeeze Type Resistant Spot Welding), GMAW (Gas Metal Arc Welding) and Weld Bonding (a combination of STRSW and structural adhesive). Proper training and weld testing are required to ensure that a safe, high quality, vehicle repair is made.

Panel Removal

WARNING: Always Wear Safety Goggles, Work Gloves, Hearing Protection and a Dust Mask when removing welded panels this way. Failure to follow these instructions could result in serious or fatal injury.
When removing panels and components for replacement, care must be taken not to damage the underlying component. On welded and "Weld Bonded" panels spot welds must be removed using a spot weld cutting type tool, or equivalent. On panels that are adhesive bonded or weld bonded it is acceptable to use heat up to **204°C. (400°F.)**, from a **Non-Open Flame** heat source. This will loosen the bond, so less damage is inflicted to the mating surface. After panel is removed, any remaining weld nugget should be ground smooth. Cut-off wheels should not be used, as there is potential to remove material from the base material which would weaken the final repair. Place an air hammer with a flat bladed chisel bit (or equivalent) in between panels and remove the panel. Care should be taken as to not damage mating flanges and the surrounding components.

Key Points of a Welding Repair:

- Poor fit up will adversely affect weld quality and may result in a weld failure due to excessive metal stretching around the nugget.
- Clamps should be used to bring parts together and hold them in position.
- Clamps should be insulated when using STRSW to control weld current shunting (This can be accomplished with specialized clamps or by placing a insulating material such as cardboard between the clamp jaws and the panels.)
- Number, size and location of welds should closely duplicate the original assembly. Placement of the new weld should NOT be within a 6mm. (0.25in.) of where the original weld was located. Placement of a new weld over an original weld location may lead to metal fatigue or poor weld quality.
- Surface of the steel parts should be clean and free of scale, rust, paint, cured adhesives/sealers and any other contaminants that could adversely affect the quality of the weld joint. This includes the removal of any E-coat applied to the service part within 25mm. (1in.) of any welds. (Proper corrosion protection must be installed when repairs are complete.)
- If the joint originally had adhesive, all E-coat must be removed where the adhesive is to be reapplied.
- "Weld-thru" primers are not recommended anywhere STRSW or GMAW are used.
- Do not remove base material from the base panel when releasing welds.

NOTE: Chrysler Group LLC recommends the same quantity of welds as the original panel, but placement of the new weld should NOT be within a 6mm. (0.25in.) of where the original welds were located. Placement of a new weld over an original weld location may lead to metal fatigue or poor weld quality.

Requirements of a Welding Repair

The number one requirement of any welding repair is to restore the vehicle to its OEM condition. Materials and technologies should duplicate original OEM conditions as much as possible. To meet this requirement, the technician must ensure the following:

- Panel layering (shingling) is the same as original
- Part fit up is correct
- Equivalent sealers and/or adhesives are utilized
- Welds are replaced in the same size, quantity and location
- "Weld-thru" primers are NOT recommended
- Structural adhesives and sealers must be replaced where they were located

A significant amount of structural adhesive is used at the OEM to improve joint strength. It may be difficult to determine if the material between the panels is an adhesive or a sealer, and for this reason, the following guideline should be used: **If in doubt, use a two-component, corrosion inhibiting, structural adhesive.** GMAW welding is not recommended within 25mm. (1in.) of the adhesive as it creates heat that will destroy the adhesive. STRSW on the other hand, can weld through the adhesive and will not destroy its properties.

NOTE: Structural adhesives that meet Chrysler materials recommendations for adhesive strength and corrosion protection qualities include Mopar #05083855AA, Lord Fusor #112B and 3M #08816

Modified Lap Joint

NOTE: Parts shown for example purposes only. Emphasis is on joint design and proper plug weld placement

The repair joint is a combination lap-joint (1) and butt-joints (2) – the panels are lapped in the flat areas and butted in contoured locations and at weld flanges. The graphic better illustrates this process.

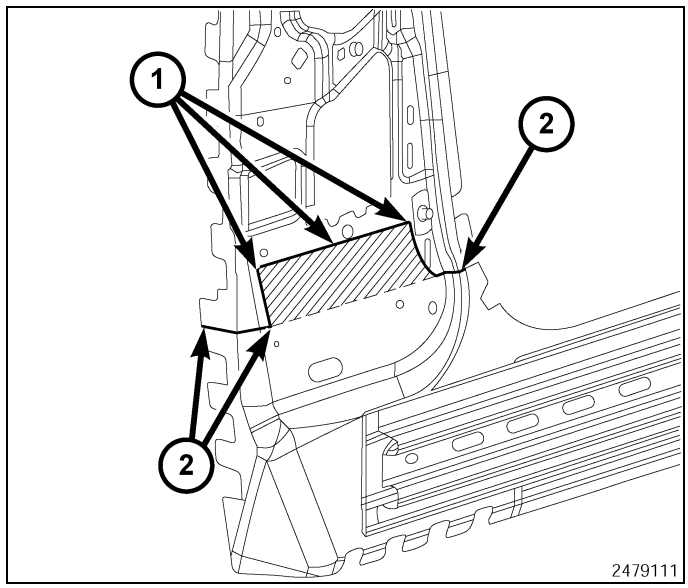
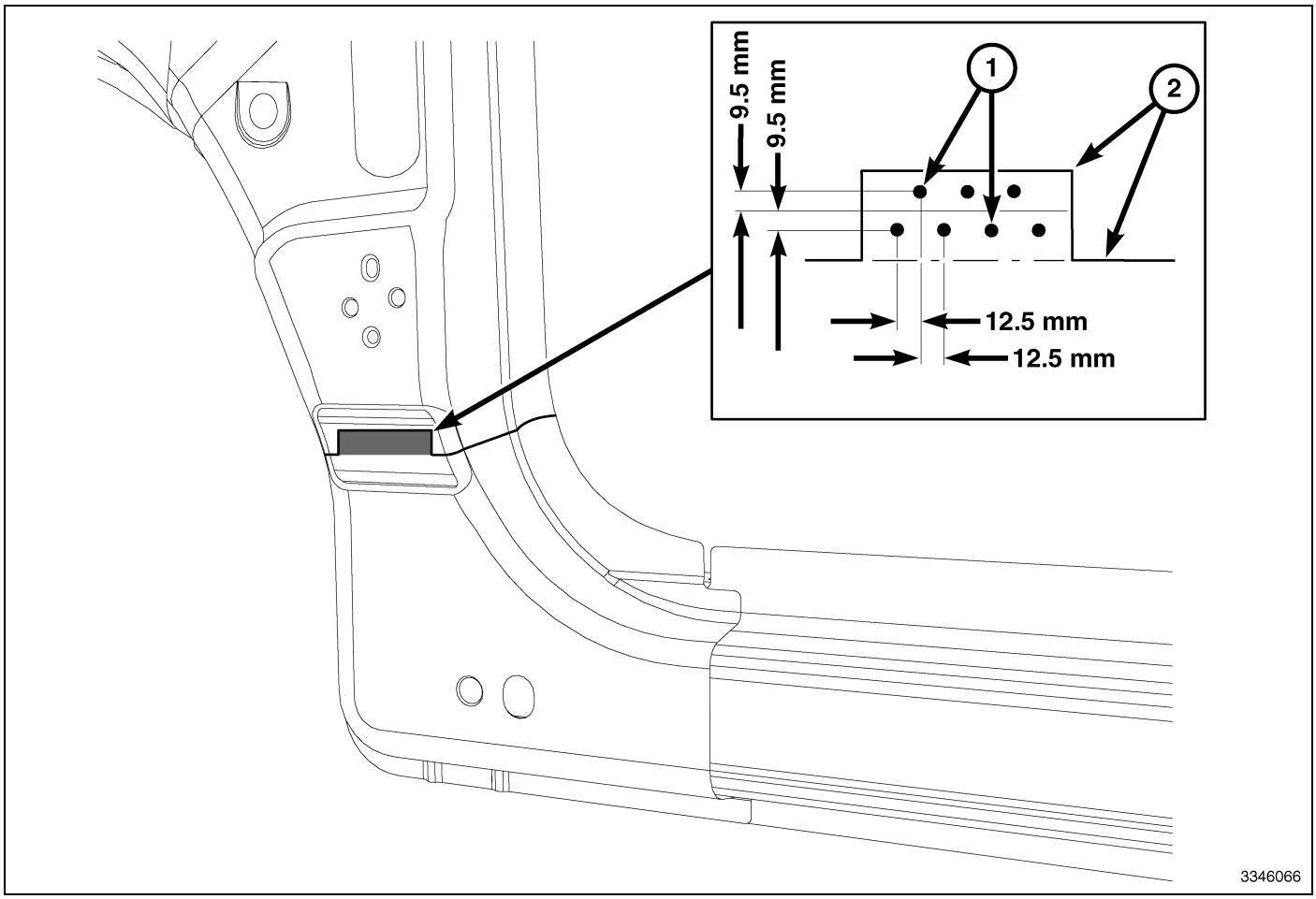


Fig. 9 Modified Lap Joint

1 - LAP-JOINT WELDS
2 - BUTT-JOINT WELDS



Plug Weld Layout

1 - MIG PLUG WELDS
2 - MIG SEAM WELD

The MIG plug welds, or "puddle welds" should be made after drilling 8 mm (5/16 in) holes and should be staggered 12.5 mm (0.5 in) apart following the centerline of the lap and should be alternating above and below the centerline 9.5 mm (3/8 in.).

In the lap-jointed area, staggered MIG plug welds (1) are used to augment the joint and **all edges** of the lapped panel seam (2) should be **completely** welded.

Types of Welding

STRSW (Squeeze Type Resistant Spot Welding)

- STRSW relies on the resistance of the material being welded to create heat as a current is passed through. The materials being welded are squeezed together, and as current passes through, resistance causes heat buildup. The force of the tips and the heat from the current allow the materials to fuse together. The current is removed and the force from the welding tips is held during a cool down cycle. When the cool down cycle is complete, the pressure is released and the next weld is positioned.
- Learning how to create weld coupons, refer to (Fig. 10) and then performing a destructive test using these coupons, is the key to successfully using STRSW. Chrysler Group LLC requires a physical test using test coupons and the methods outlined in this document to test welds prior to making repairs.
- Tip condition is very important for producing proper welds. Inspect tips often and either dress or change per equipment manufacturer recommendations.
- High-quality welding equipment must be used or welds may be inadequate. Also, the equipment must be able to produce repeatable welds from the beginning of the repair to the end.

GMAW (Gas Metal Arc Welding or "MIG")

- GMAW is an arc welding process where the electrode wire is fed through a weld gun and is surrounded by a shielding gas. The term MIG comes from early uses on aluminum where argon was used as shielding gas and the process was referred to as Metal Inert Gas welding. The GMAW process is currently the most common in the uni-body repair environment.

Weld Bonding

- A method of joining metals using STRSW in conjunction/combination with a structural adhesive.
- Weld bonding provides the customer with a superior repair as compared to the traditional plug/puddle welding process using GMAW. Structural adhesive should not be used in a joint that did not originally contain it.
- The repair joint or seam should duplicate the OE build as closely as possible, unless otherwise stated by vehicle manufacturer.

NOTE: Chrysler Group LLC. DOES NOT approve or endorse the use of structural adhesives alone in the replacement of body panels.

Weld Processes:

STRSW (Squeeze Type Resistance Spot Welding)

Applications

- With advancements in equipment technologies, STRSW is not restricted to light gauge sheet metal any longer. Heavier gauges of high strength and coated steel, currently used in vehicle structures, can now be welded in the field, providing destructive testing is performed on each combination. This is to ensure quality welds are being maintained.

Equipment Requirements

- Equipment must produce two sided welds
- Equipment must have been tested to SAE J2667 with satisfactory results obtained
- Equipment must have the capability to create welds that comply with the Minimum Weld Nugget Requirement Chart
- Technician must have the appropriate sheet metal measuring equipment to ensure their welds meet the minimum weld nugget size for the actual panels being welded

Minimum Weld Nugget Requirement Chart

*Governing Metal Thickness (GMT)	**Minimum Weld Nugget Diameter
0.64mm. - 0.79mm.	3.5mm.
0.8mm. - 0.99mm.	4.0mm.
1.0mm. - 1.29mm.	4.5mm.
1.3mm. - 1.59mm.	5.0mm.
1.6mm. - 1.89mm.	5.5mm.
1.9mm. - 2.29mm.	6.0mm.
2.3mm. - 2.69mm.	6.5mm.
2.7mm. - 3.04mm.	7.0mm.

*Governing Metal Thickness (GMT) = The minimum weld nugget for two thickness welds shall be based on the thinner of the two sheets being welded. The minimum weld nugget diameter for three thickness welds shall be based on the middle gauge of the three panels being welded (not necessarily the middle panel).

**Minimum nugget diameter should be measured with a venire caliper. If the weld is not round, measure the major and minor diameter and average.

Equipment Limitations

- Each brand/model is limited to material capacity that can be welded
- The facility power supply can also impact equipment performance

Access Limitations

- Due to the existing structure of the vehicle being repaired, each weld must be evaluated for feasibility. Due to power limitations of the equipment, tongs that are long and deep enough for certain welds may not be available, and the weld will need to be made by another method.

Preparation

CAUTION: All NVH foam must be removed from the repair area of the vehicle, as material is flammable.

- Prior to making repairs with STRSW, weld coupons must be created for testing. The test joint must be an exact duplicate of the original joint, including layering and adhesive application. The testing is required to ensure the repair restores the vehicle to its originally produced condition using the minimum weld nugget requirement chart.
- To correctly identify the material being welded or tested, the technician must posses an accurate material thickness gauge
- No "improvements" to the vehicle design are allowed as this could have a negative impact on the vehicle as a whole. The repair should mirror what was used on the vehicle at the assembly plant.
- Note, the weld is affected by more than just the thickness or number of panels being welded, but also material coatings. Zinc based anti-corrosion coatings (i.e., galvannealing, galvanizing), sealers, adhesives, and E-coat will affect welder performance. Any sandwich type coatings will increase weld time (and current in some types of STRSW welders) required to accomplish an acceptable weld nugget.
- When preparing an E-coated panel for STRSW the E-coat must be removed from both of the mating flanges within 25mm. (1in.) of any flange. Corrosion protection is required anytime you remove E-coat. A scuffing disc should be used to remove the E-coat without damaging other sheet metal coatings
- If the panel originally had structural adhesives it should be reapplied prior to welding. The adhesive should have a corrosion inhibitor and cover all bare metal.
- Prior to creating weld coupons and the final body repairs, all coatings and dirt/road debris must be removed.

Testing

- Weld coupons identical to the repair situation need to be made prior to performing any repair. These coupons must be tested (peel test) to determine if the weld nugget meets the minimum size outlined above in the Minimum Weld Nugget Requirement Chart. Keep in mind that different material coatings, coating thickness, material thickness, and joint configurations have a direct impact on nugget size.

GMAW (Gas Metal Arc Welding or "MIG")

Applications

- Sheet metal repairs where STRSW is not available or practical, and truck frame repairs.
- The most common usage of GMAW on uncoated or galvanneal coated steel will utilize a 75% Argon - 25% CO2 shielding gas mix, and AWS specification ER70S6 wire. When welding galvanized material, Flux Core Arc Welding (FCAW) using AWS specification E71T-GS wire should be used to avoid weld porosity from the zinc in the galvanizing.

Weld Process

COMPONENT PARTS	TRUCK FRAME		BODY SHELL EXTERIOR & UNDERBODY PANELS			
	Zinc and Zinc Iron Alloy coated sheet steels					
WELDING PROCESS	GAS METAL ARC (Note: 1)	FLUX CORED ARC	GAS METAL ARC (Note: 1)	MIG BRAZE (Note: 2)	GAS METAL ARC (Note: 1)	FLUX CORED ARC
Material Type	High Strength and Structural Quality Steels which includes HSLA, Martensitic, and Dual Phase materials					
Material Thickness Range	2 mm - 4 mm		0.6 mm - 1.02 mm		>1.02 mm - 3.0 mm	
ELECTRODE TYPE (AWS SPEC. A5.18)	AWS CLASS. ER70S-6	AWS CLASS. E71T-11 (Note 3)	AWS CLASS. ER70S-6	AWS CLASS. ERCuSi - A Silicon Bronze	AWS CLASS. ER70S-6	AWS CLASS. E71T-11 (Note 3)
ELECTRODE SIZE	0.035	0.045	0.023 - 0.025	0.035	0.035	0.045
ELECTRODE MAKER	Lincoln®	Lincoln® NR-211-MP	Lincoln®		Lincoln®	Lincoln® NR-211-MP

Weld Process, continued

COMPONENT PARTS	TRUCK FRAME		BODY SHELL EXTERIOR & UNDERBODY PANELS			
WIRE FEED SPEED (in/min)	245-250 Vertical Down 70-90 Flat & Horizontal	110 Vertical Down 70-90 Flat & Horizontal	95-115 All Welds	150-155 Flat & Horizontal	245-250 Vertical Down 70-90 Flat & Horizontal	110 Vertical Down 70-90 Flat & Horizontal
TRAVEL SPEED (in/min)			10			
VOLTAGE	19-20	15-18	16-19	18-19	19-20	15-18
POLARITY	DCEP	DCEN	DCEP	DCEP	DCEP	DCEN
GAS FLOW (cfh)	25-35	N/A	25-35	25-35	25-35	N/A
ELECTRICAL STICKOUT (in)	1/2 - 5/8	3/8 - 1/2	1/2 - 5/8	5/8 - 3/4	1/2- 5/8	3/8 - 1/2
GAS TYPE	75% Ar 25% CO2	N/A	75% Ar 25% CO2	100% Ar	75% Ar 25% CO2	N/A
TYPE OF ARC TRANSFER	Short Circuit		Short Circuit	Pulse	Short Circuit	

These Procedure Specifications are appropriate as of this publication. Procedures may be superseded with new spec's at a later date.

Always process to the thinner material thickness (TMT)

All persons performing welding must be qualified to weld in all positions.

NOTE:

1. Must remove Zinc Coating on both sides of metal at the weld zone.

2. MIG Braze welding process requires use of Pulse Arc® or STT® welding machine.

3. Must use Lincoln® product since E 71T-11 product differs from other suppliers.

Equipment Requirements

- The preferred GMAW welder will be a 220V. unit with minimum output capacity of 150 amps (250 amps suggested to avoid equipment limitations).

Limitations

- Welds must be "dressed", or ground down before applying topcoats.
- GMAW cannot weld through paints, sealers, or adhesives. Additionally, the zinc used in coated steels can lead to reduced weld strength due to porosity. This porosity problem on materials with heavy coatings can be dealt with by using FCAW.
- Due to the heat affected zone, structural adhesives cannot be applied within 25mm. (1in.) of GMAW welds.

Testing

- Weld coupons identical to the repair situation need to be created to help set up the welding equipment and weld process. These coupons then should be destructively tested to ensure proper quality welds are being made

Post Weld Procedures

- When welding has been completed, welds in cosmetic locations must be dressed.
- Welds will need to be smoothed down to the height of the surrounding panel without any thinning of the sheet metal. This can be accomplished using one of many sanding or grinding products available in the aftermarket.
- Slag must always be removed prior to refinishing to restore corrosion protection and appearance.
- Corrosion inhibiting materials must be applied to seal the weld zone from future corrosion.

Weld Bonding

NOTE: Structural adhesive manufacturers will vary on time allowed for completion of STRSW in weld bond zones. Check and follow adhesive manufacturer recommendations.

Application

- Weld bonding is the STRSW welding process utilizing structural adhesive between the panels that are resistance welded together. The adhesive creates a very stiff structure, while the welding eliminates concerns of the adhesives' peel strength.
- Additionally, the adhesive acts as a sealer and provides a high level of corrosion protection.

Sealers and Adhesives

- Sealers are materials placed on top of a seam to control water and air intrusion.
- Adhesives, providing structural improvements, are found between panels welded together. Adhesives also provide the qualities of sealers when applied correctly.
- The Chrysler Group LLC. recommendation is to replace any suspected adhesive with a two-component, corrosion inhibiting structural adhesive when any repairs are made, providing the STRSW process is applicable. The structural adhesive must meet or exceed Chrysler Group LLC. MS CD507

Test Weld Coupon

NOTE: Periodically check the electrodes tips to determine weather the faces have been contaminated, damaged or increased in size. If any of these conditions have occurred, replace or re-face the electrode tips per equipment manufacturer recommendations.

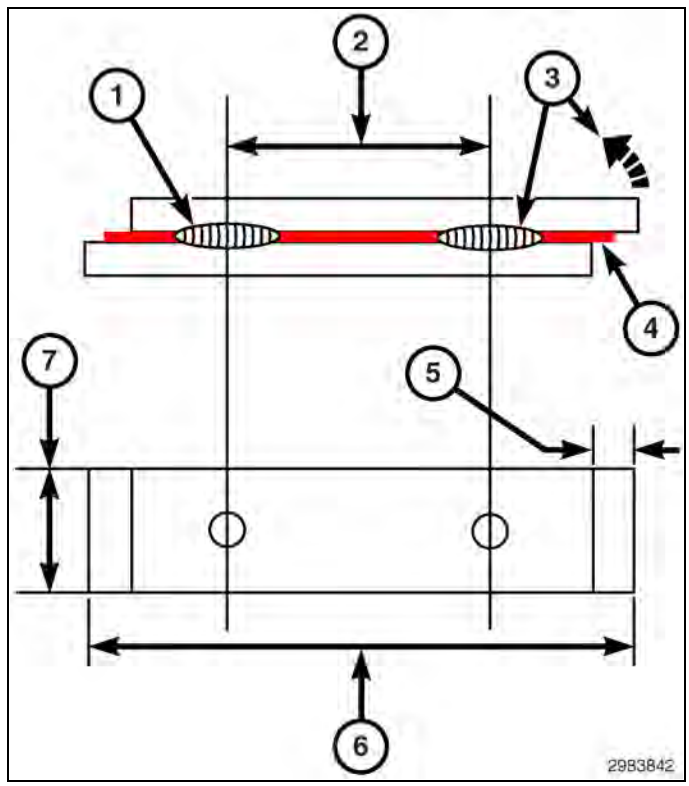


Fig. 10 Weld Coupon

1 - FIRST WELD TOWARD END OF COUPON, AT LEAST 12.5mm. (0.5in.) FROM ANY EDGE

2 - DISTANCE MUST EQUAL THE SPACING FROM THE REPAIR WELD TO THE CLOSEST EXISTING WELD ON THE VEHICLE

3 - TEST THE SECOND WELD BY PEELING APART IN DIRECTION SHOWN (USING PLIERS OR EQUIVALENT

4 - STRUCTURAL ADHESIVE

5 - APPROXIMATELY 13mm. (0.5in.)

6 - APPROXIMATELY 100mm. (4in.)

7 - APPROXIMATELY 25mm. (1in.)

Same Current Level Used For Both Welds

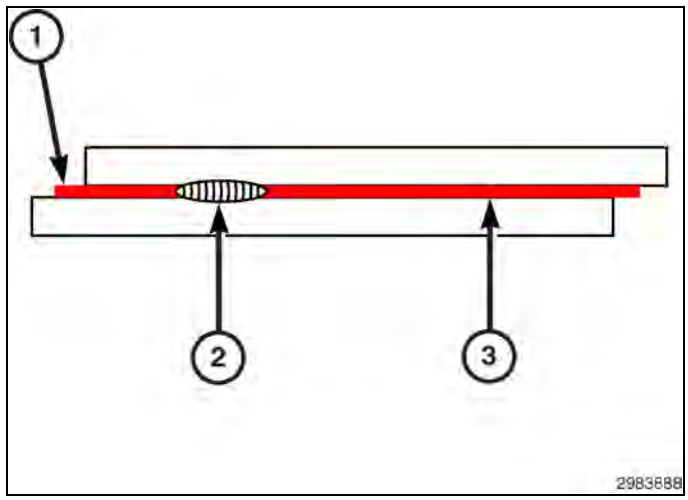


Fig. 11 Current Level Low for Both Welds

1- STRUCTURAL ADHESIVE

2 - WELD TOO SMALL

3 - WELD NON-EXISTENT

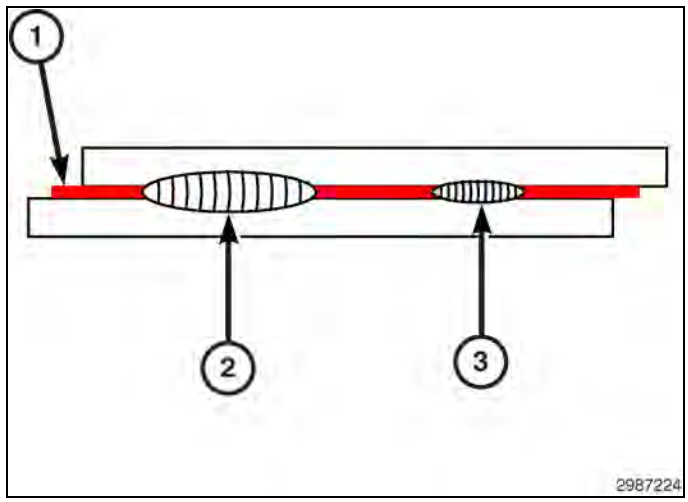


Fig. 12 Current Level Medium for Both Welds

1 - STRUCTURAL ADHESIVE

2 - WELD CORRECT SIZE

3 - WELD TOO SMALL

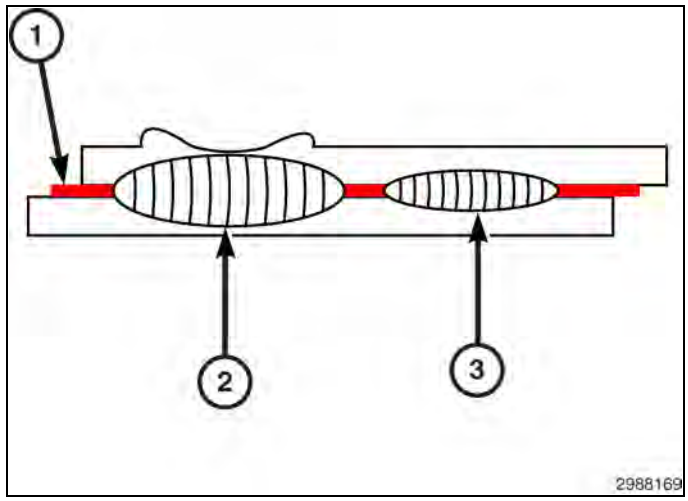


Fig. 13 Current Level High for Both Welds

1 - STRUCTURAL ADHESIVE

2 - WELD HAS HEAVY EXPULSION OF METAL AND SURFACE MARKINGS

3 - WELD CORRECT SIZE

Current Level Adjusted to Provide Acceptable Welds

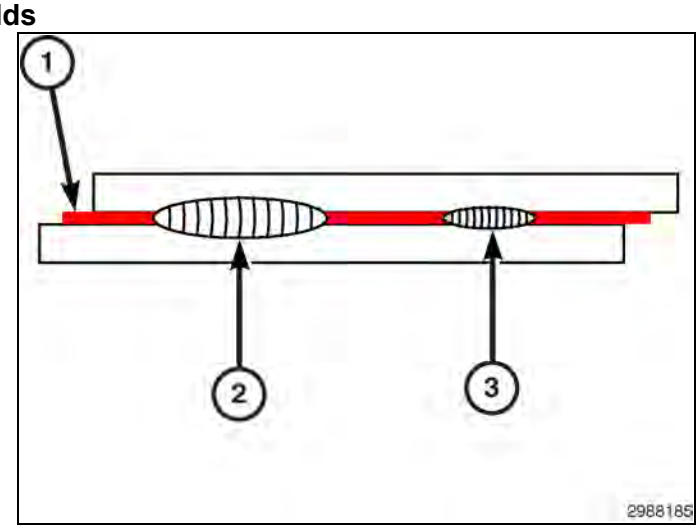


Fig. 14 Current Level Low for Both Welds

1 - STRUCTURAL ADHESIVE

2 - WELD CORRECT SIZE

3 - WELD TOO SMALL

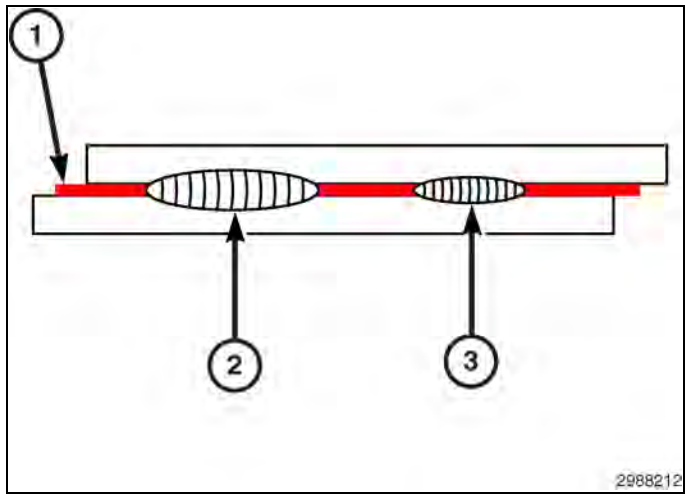


Fig. 15 Current Level Medium for Both Welds

1 - STRUCTURAL ADHESIVE
2 - WELD CORRECT SIZE
3 - WELD TOO SMALL

1. Select the proper spot welding "arm" which provides the best access to the areas of the vehicles where the spot welds are to be made.
2. Obtain metal of the same thickness and coating (i.e., bare, galvanneal, or galvanized) to be welded. This metal will be used for spot welder set up. Damaged sheet metal taken from the vehicle being repaired may be used if it is from the area from which the work is to take place. The sheet metal must be flat, free of cracks, wrinkles and scored metal.
3. Using the procedure outlined, (Fig. 10), prepare the test coupons.
4. Clean and prepare both mating coupons. If using adhesives, verify the recommendations of the adhesive manufacturer. All contaminates such as rust scale, dirt, paint, and existing sealers and adhesives must be removed. Remove any E-coat within 25mm. (1in.) of where the welds are to be placed.
5. If the panel joint originally contained structural adhesive, it should be applied to the coupon at this time.
6. Install the equipment manufacturers recommended electrode tips.

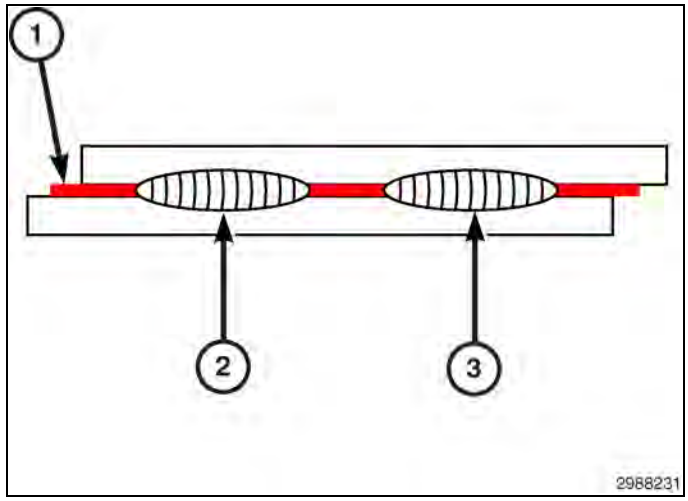


Fig. 16 Current Level Medium (2) High (3)

1 - STRUCTURAL ADHESIVE
2 - WELD CORRECT SIZE
3 - WELD CORRECT SIZE

7. Adjust the welding electrode tip force, and clamp time per manufacturer recommendations.

NOTE: Galvanneal and galvanized coated steel will require more force

8. As shown in (Fig. 10), place first weld at a position at least 12.5mm. (0.5 in.) away from end weld coupons. Then make the second weld. The weld spacing should be the same distance as the original welds or the closest existing weld, whichever is the least on the vehicle being repaired.
9. Destructively test the **second** weld to determine the size of the resistance spot weld produced (see examples in (Fig. 11) If the weld is insufficient, adjust the welder per the welder manufacturer recommendations and repeat steps 7,8 and 9 until the proper weld size is achieved.

NOTE: If the first weld becomes too "hot" before the second weld reaches the correct size, reduce the current settings for the first weld and continue increasing the current setting for the second weld until the proper size for the second has been reached.

Final Weld Preparation

CAUTION: All NVH foam must be removed from the repair area of the vehicle, as material is flammable.

1. Visually verify that mating flanges are free of scale, rust, dirt, paint and cured adhesives/sealers, as well as wrinkles. If cracked, wrinkled or scored metal exists the condition needs to be corrected at this time.
2. E-coat within 25mm. (1in.) needs to be removed for STRSW. If Weld Bonding, E-coat should be ground off completely along seam.

NOTE: Corrosion resistance coating (i.e., galvanneal, galvanized) should not be removed during cleanup of components.

3. If adhesive is to be used, apply it at this time. Clamp the component to the vehicle.

NOTE: Insulated clamps should be used, as not to shunt the weld current.

4. Visually verify that the welds to be made **will not** be placed directly over an existing weld.
5. After verifying that the welder control settings are the same required to produce the second weld on the test coupons, make the welds on the vehicle.

NOTE: Structural adhesive manufacturers will vary on time allowed for completion of STRSW in weld bond zones. Check and follow adhesive manufacturer recommendations.

6. If adhesive was used, clean up any excessive squeezeout prior to adhesive curing.

Training and Qualification

Training

As with any equipment, proper training is required, and in the case of welding equipment this is no exception. The goal of automobile facilities and technicians is to restore the vehicle to its OEM condition.

Training must be considered a two-fold process:

- The technician must be well versed in how the equipment operates, how adjustments are made and what effects those adjustments have on the weld. The technician must also clearly understand the maintenance of the equipment and the impact of poor maintenance on welds and equipment longevity.
- The second and most important, aspect of the training, is weld quality confirmation. Destructive testing of weld coupons must be performed to ensure the minimum weld size is created. Physical appearance of the weld is not enough to determine the quality of the weld. Additionally, poor welds may also reduce the durability, or quality , of the repaired vehicle in time.

It is required that technicians have received training regardless of the welding equipment or method they utilize. Both training in the specific field of welding, and the particular equipment, are necessary to ensure safe, durable, quality welds are obtained.

Qualification

To demonstrate welding skill, it is highly important that technicians obtain certification from an organization such as the American Welding Society (AWS) or a certificate from the Inter-Industry Conference on Auto Collision Repair (ICAR).

LASER BRAZE ROOF REPLACEMENT

SAFETY PRECAUTIONS

WARNING: Always wear an approved respirator, as well as skin and eye protection per adhesive manufacturer recommendations as stated in the product MSDS (Material Safety Data Sheets)

WARNING: Failure to follow these instructions may result in possible serious or fatal injury

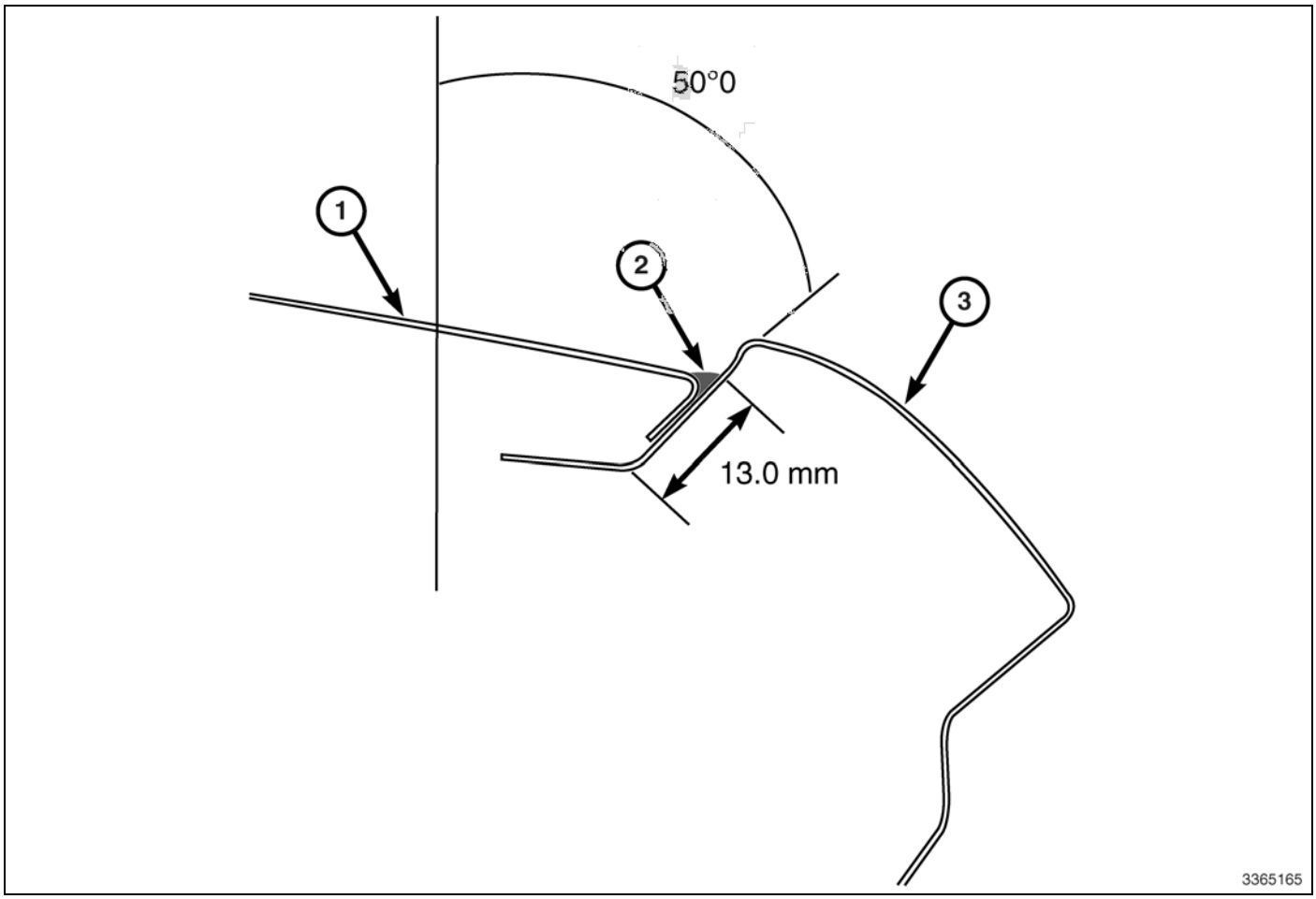
- MSDS must be available and understood before adhesives are handled.
- All personnel should be instructed on the proper procedures to prevent skin contact with solvents, curing agents, and uncured base adhesives, which could cause allergic reactions and / or sensitization.

1. Be certain vehicle is setting level on its suspension.

NOTE: Interior removal is required due to physical positions required by the technician to perform the repair.

2. Remove windshield, backglass, headliner, seats, console and all necessary interior trim.
3. Cover any remaining interior, glass and painted surfaces with clean welding blankets to ensure complete protection against sparks and debris.

CAUTION: Proper angles and depths must be maintained throughout the entire cut to prevent damage to surrounding components



CAUTION: To prevent damage to the Body Side Aperture Do not reach full 13mm depth when cutting through the roof panel for removal.

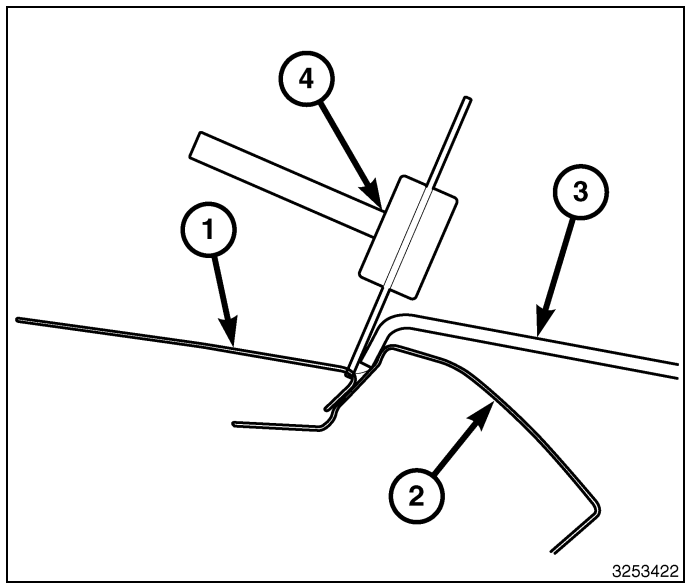
1 - ROOF PANEL

2 - LASER BRAZE WELDMENT

3 - BODY SIDE APERTURE

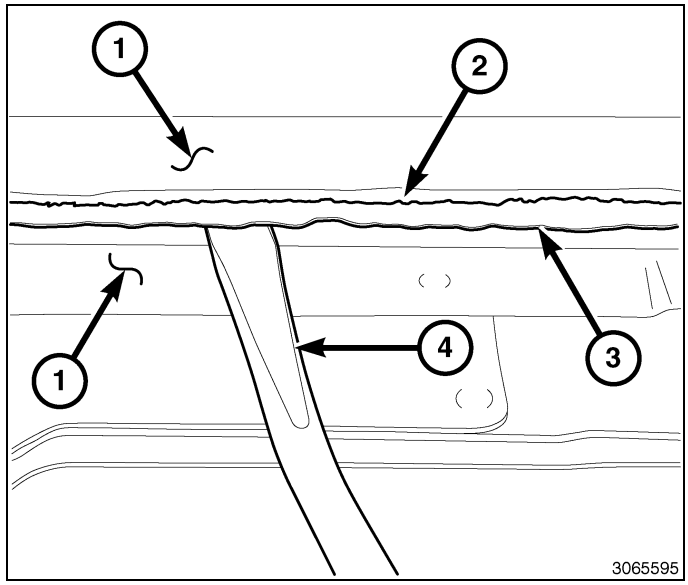
NOTE: The closer the cut is made to the laser braze joint, the less grinding involved in upcoming steps

4. Use a cut off wheel or equivalent, to make a **very shallow** cut the length of the roof. The cut should be approximately 5mm. inboard from the laser braze seam.
5. To aid in as close a cut as possible and minimize damage to body side, make a guide out of bent scrap stock (3) and slide along aperture (2) as the cut off wheel (4) cuts along the roof (1). This will allow the cutting wheel to get even closer to the laser braze and reduce the amount of filing and grinding.
6. Using a rotary broach spot weld cutter or equivalent, release the spot welds along the windshield and backlight headers.



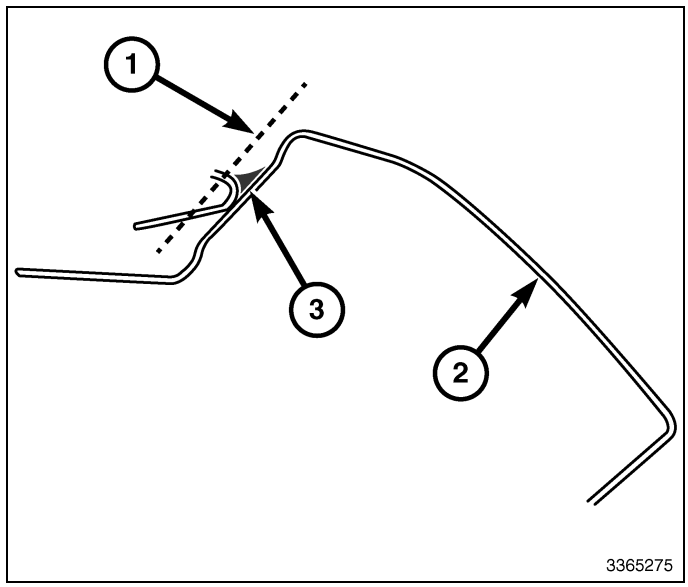
NOTE: Adhesive types and locations along headers, roof bows and sunroof supports (if equipped) can be found in Adhesive and Sealer Locations, (Refer to Collision Information - Material Locations)

7. Release the adhesive and anti-flutter material from the headers, roof bows and if equipped the sunroof supports.
8. To aid in the release of structural adhesive, use heat from a **non-flame** heat source, up to 204°C. (400F°) and an air chisel equipped with a flat bit.
9. To release anti-flutter adhesive, use a utility knife. Cut along bead until released.
10. Remove the roof panel and discard.
11. With the use of pry bar (4) or equivalent, pry up the remaining roof flange (3) located below the laser braze weldment (2).

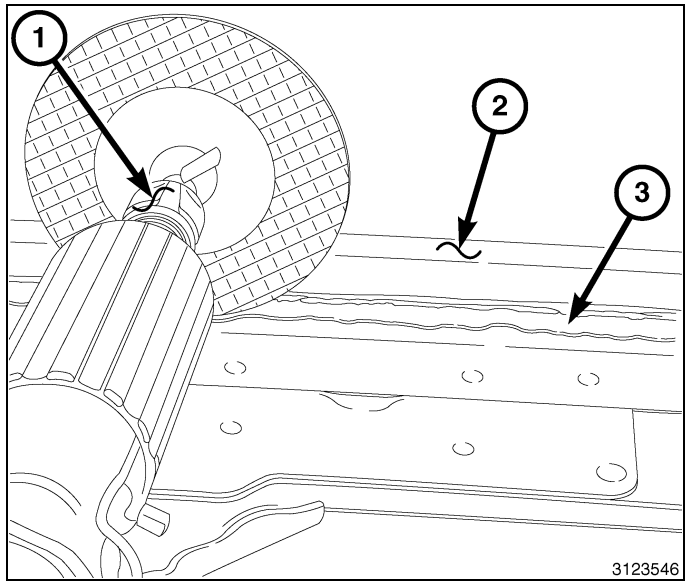


CAUTION: Proper angles and depths must be maintained throughout the entire cut to prevent damage to surrounding components

12. Care should be taken while cutting along cut-line (1) while trying to get as close as possible to laser braze weldment (3) yet protecting the body side (2) from damage. Re-use bent scrap stock from the initial roof cut.

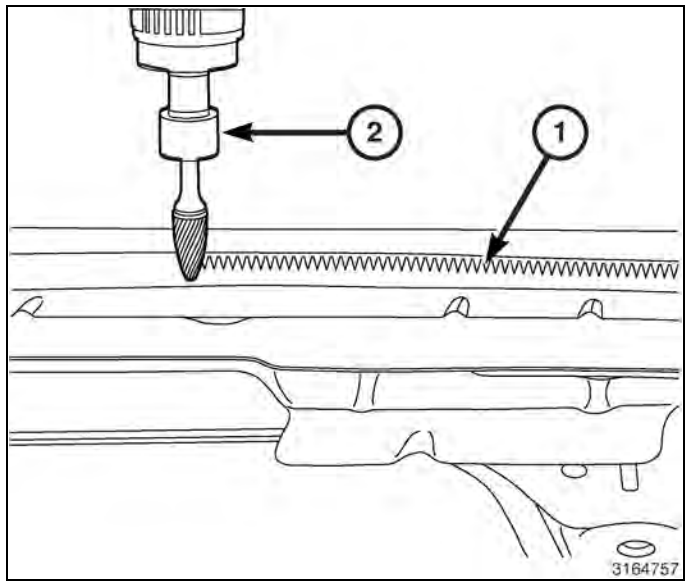


13. Cut off the flange (3) with a cut-off wheel (1) or equivalent.



NOTE: Use extreme care as to not as not to thin or cut through the outer aperture while removing the remaining roof flange and laser braze weldment.

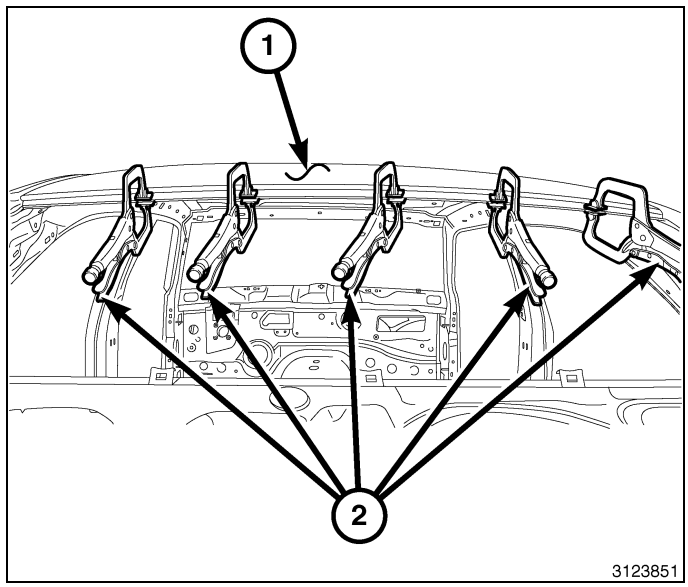
14. Remove any remaining laser braze (1) and roof panel flange by using a die grinder (2) equipped with a 0.5 in. (12.7 mm.) carbide rotary file (tree shaped) to start with and finish with an angle grinder with 50 grit abrasive disc.
15. Using an angle grinder, remove any remaining weldment from the front and rear roof headers.
16. Remove debris from the mating surfaces with a vacuum or pressurized air to ensure proper fit and adhesion.



17. Trial fit the new roof panel (1) and determine what kind of clamping devices (2) will be used to hold in place during the adhesive curing process.
18. Adjust the replacement roof panel as necessary, so that it rests consistently from side to side, front to rear.

NOTE: If the replacement roof panel rests too high it will be necessary to add weight, such as a sand bag, to the area. Adjusting weight accordingly to ensure proper fit. If it rests to low, place temporary shims between Inner body side aperture and roof panel

19. Once the replacement roof panel fits properly, scribe along the roof line to the body side aperture.
20. With the help of an assistant remove the roof panel.
21. From the scribe line outward, complete any remaining filling and feather edging that may be necessary.
22. Remove all paint, e-coat and corrosion protection from the aperture roof channel mating surfaces (scribe line inward), sunroof support pads (if equipped), and front and rear header mating surfaces. Use an abrasive disc as directed by the adhesive manufacture's recommendations. Prepare the mating surfaces on the replacement roof panel in the same manner.
23. Use pressurized air and a clean cloth to final clean all mating areas.



NOTE: Proper locations for placement of adhesives along headers, roof bows and sunroof supports (if equipped) can be found in Adhesive and Sealer Locations, (Refer to Collision Information - Material Locations)

NOTE: Refer to the structural adhesives manufacturer for information on work, handling and curing times.

Approved structural adhesives are Mopar #05083855AA, Fusor 112B, 3M 08116, or equivalent.

24. Without a mixing tip attached, purge a small amount of structural adhesive from the cartridge. This will ensure an even flow of both components.
25. Attach a mixing tip and dispense a mixing tube's length of adhesive from the cartridge.
26. Apply a 3/8 in. (10 mm.) bead of adhesive to the body side joints where sunroof reinforcement meets (if equipped).
27. Apply a 3/8 in. (10 mm.) bead of adhesive to the vehicle mating surfaces and replacement panel mating surfaces. Then with the use of a plastic spreader or acid brush, spread to completely coat the bonding area and any areas where the corrosion protective coatings have been removed.
28. Apply another 3/8 in. (10 mm.) bead to the front and rear header area outer flanges.
29. Apply a 3/8 in. (10 mm.) bead to the left and right edge of the replacement roof panel.
30. With one person in each of the four corners, carefully install the roof panel into position,

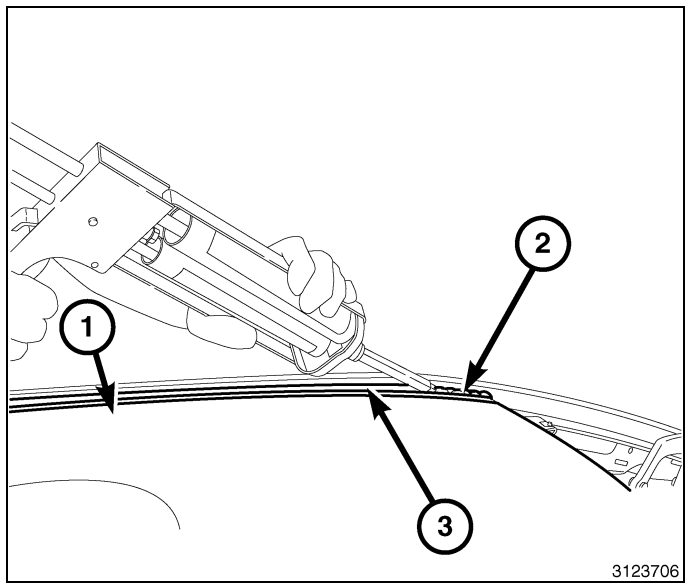
NOTE: Do not separate after contact. Lifting will create air bubbles and weaken the bond. Adjustments must be made by sliding, not lifting the panel

31. Once positioned, clamp the roof at the headers, as pre-determined in the trial fit.
32. Resistance spot welding, on header areas, should be performed at this point.

NOTE: Adhesive in roof joint must be cleaned down far enough to allow for sealer application.

33. Clean excessive adhesive from the roof joint and surrounding areas, before adhesive curing occurs.
34. Once adhesive has cured, apply anti-fllutter adhesive to the roof bows and inner headers where anti-flutter adhesive was originally used. Recommended anti-flutter adhesives are Fusor #121 or #124 Flexible Foam, 3M 8463 Flexible Foam, Crest #CFF Flexi-Foam or equivalent.

35. Once adhesive has cured, apply masking tape (1) along the aperture top edge and then along the roof edge. This will provide a border where sealer is not desired
36. Apply, bare metal approved, 2-K sealer (2) to the roof joint (3). Approved sealer is 2-K sealer Fusor #019 or equivalent.
37. Smooth sealer bead with a pre-formed rounded edge, such as an outer corner of a plastic spreader or equivalent.
38. Smooth and finesse each of the four corners joints to ensure sealer will not impede urethane bead thickness and glass fitment during glass installation.
39. Remove tape and clean any remaining sealer from undesired areas.
40. Once sealer is fully cured, complete the balance of repairs and refinishing as necessary.



SECTIONING PROCEDURES

WARNING: Sectioning of components may only be performed in the described areas if damage to component does not extend past sectioning location. Should damage extend past sectioning location entire component replacement is the only acceptable repair

WARNING: Chrysler engineering's position on the use of heat during collision repair is as follows:

- **Any body panel or frame component damaged which is to be repaired and reused, must be repaired using the "cold straightening" method. No heat may be used during the straightening process.**
- **During rough straightening prior to panel replacement, damaged panels or frame components may be heated to assist in body/frame realignment. The application of heat must be constrained to the parts which will be replaced and not allowed to affect any other components.**

This "no heat" recommendation is due to the extensive use of advanced high strength steels in Chrysler Group LLC products. High-strength materials can be substantially and negatively affected from heat input which will not be obviously known to the repairer or consumer.

Ignoring these recommendations may lead to serious compromises in the ability to protect occupants in a future collision event, reduce the engineered qualities and attributes, or decrease the durability and reliability of the vehicle.

This statement supersedes any previously released information by the Chrysler Group LLC.

Failure to follow these instructions may result in serious or fatal injury.

CAUTION:

- **All restraint systems should be disabled before beginning repairs.**
- **Electronic modules located within 305 mm (12 in.) of any welding should be isolated.**
- **Protect vehicle from weld spatter damage.**
- **Vehicle service manual should be referenced for guidelines and warnings.**

Service assemblies for body components may be disassembled if utilization of the subcomponents is more appropriate to the repair or to reduce vehicle disruption. The structural and non-structural metal on the 300 (LX) may be sectioned in several areas providing the prescribed methods below are adhered to.

The joint should whenever possible be performed in as "flat" an area as possible to simplify the repair. While the joint may include "holes" and formations, it is suggested they be avoided but where this is not possible, the technician must ensure that the additional material thickness does not impede installation of fasteners, etc. that the hole exists for.

All dimensions are to be restored to factory specifications prior to full or partial component replacement.

CAUTION: NVH foam should be removed from the weld area, as material may be flammable.

CAUTION: Do not apply any corrosion protection or NVH foam prior to completion of welding, as materials are flammable.

The described sectioning locations only explain joint location and type. All other welds along the sectioned portion of the component must be replaced. Squeeze Type Resistance Spot Welding (STRSW) is the method to be used. If accessibility prevents application of spot welds MIG plug welds are to be used. Welding of structural panels through 3 or more tiers of panel stack ups will require 9.5 mm. plug welds. Exterior panels should be installed using 8 mm. plug welds. For further information (Refer to Collision Information - Specifications)

When welding is completed apply inner panel rust proofing, such as Mopar Cavity Wax Kit (part #68042969AA), Mopar Wax Refill (part #68042970AA), or equivalent. Apply to the inner cavity areas in two applications with a 30-minute flash period between the applications. Pay particular attention to areas which have been welded. Corrosion protection should always be restored to manufacturer specifications. For further information on Corrosion Protection, (Refer to Collision Information - Standard Procedure).

Finish, sealers, adhesives and silencers should be reapplied or replaced to OEM locations and specifications, (Refer to Collision Information - Material Locations)

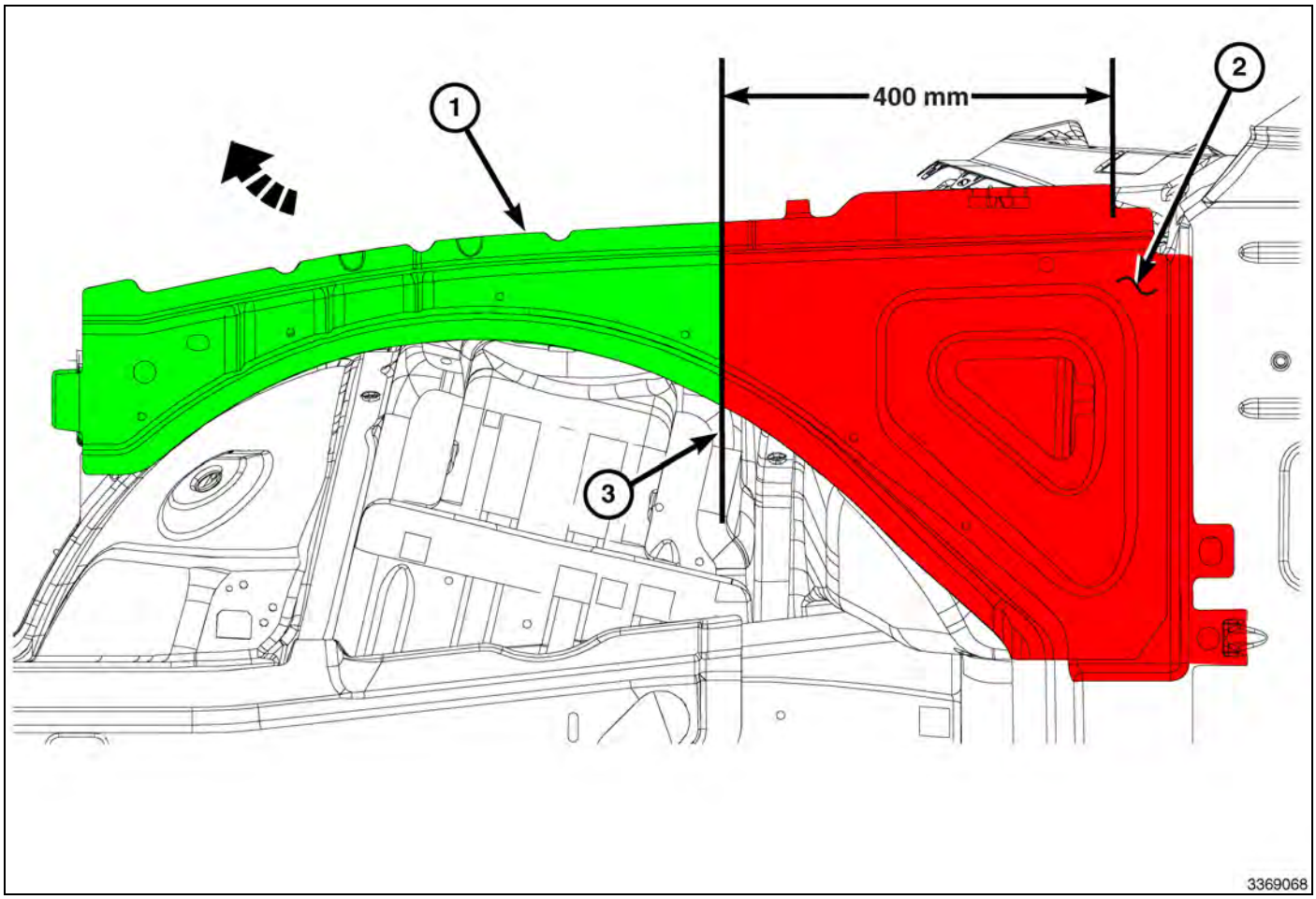
DESCRIPTION	FIGURE
UPPER LOAD PATH BEAM	Upper Load Path Beam
LOWER FRONT RAIL ASSEMBLY	Front Rail Assembly
OUTER BODY SIDE APERTURE	Outer Body Side Aperture
REINFORCEMENTS **DO NOT SECTION AREAS**	Reinforcements Do Not Section
REINFORCEMENTS BODY SIDE	Inner Reinforcement
INNER BODY SIDE APERTURE	Inner Body Side Aperture
REAR RAIL (Right and Left)	Rear Rail

Upper Load Path Beam

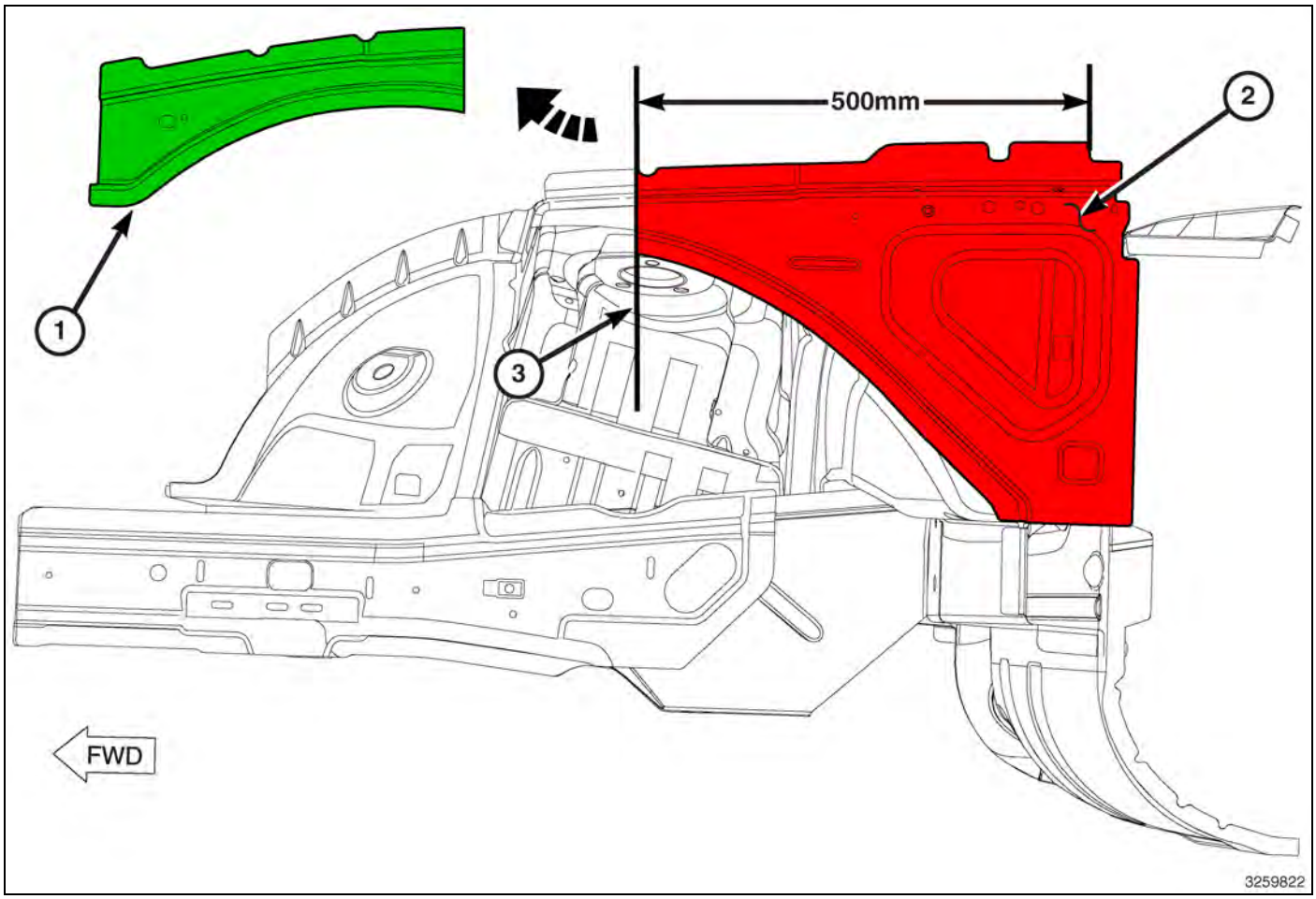
1. Verify that structural dimensions have been restored to vehicle specifications.
2. Remove all components necessary to access the upper load path beam.

NOTE: Sectioning of the outer load path beam is recommended due to the use of net, form and pierce in the hood hinge area.

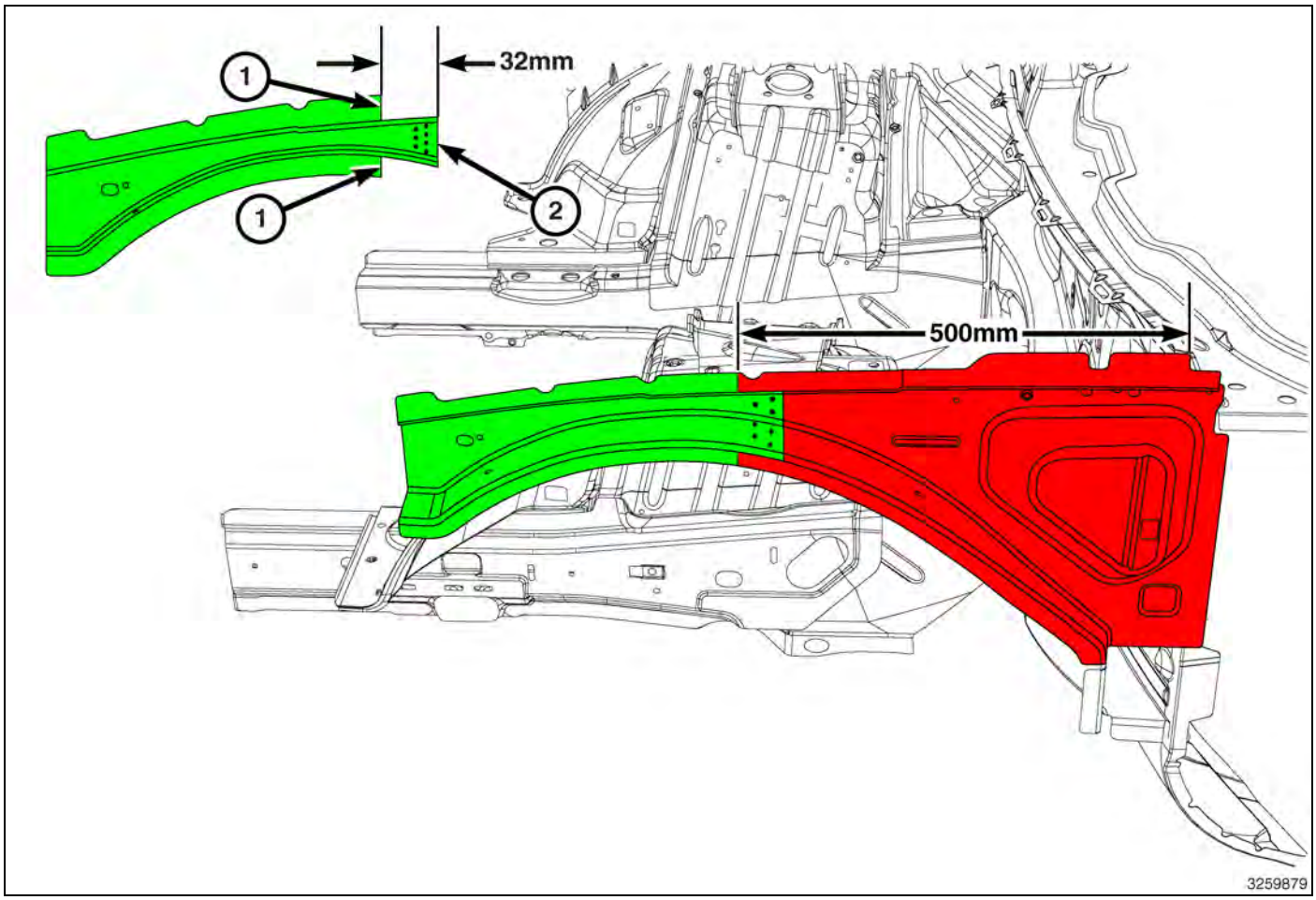
NOTE: Should full replacement of outer load path beam be necessary, hood hinge mount area will require hammer and dolly method to recreate.



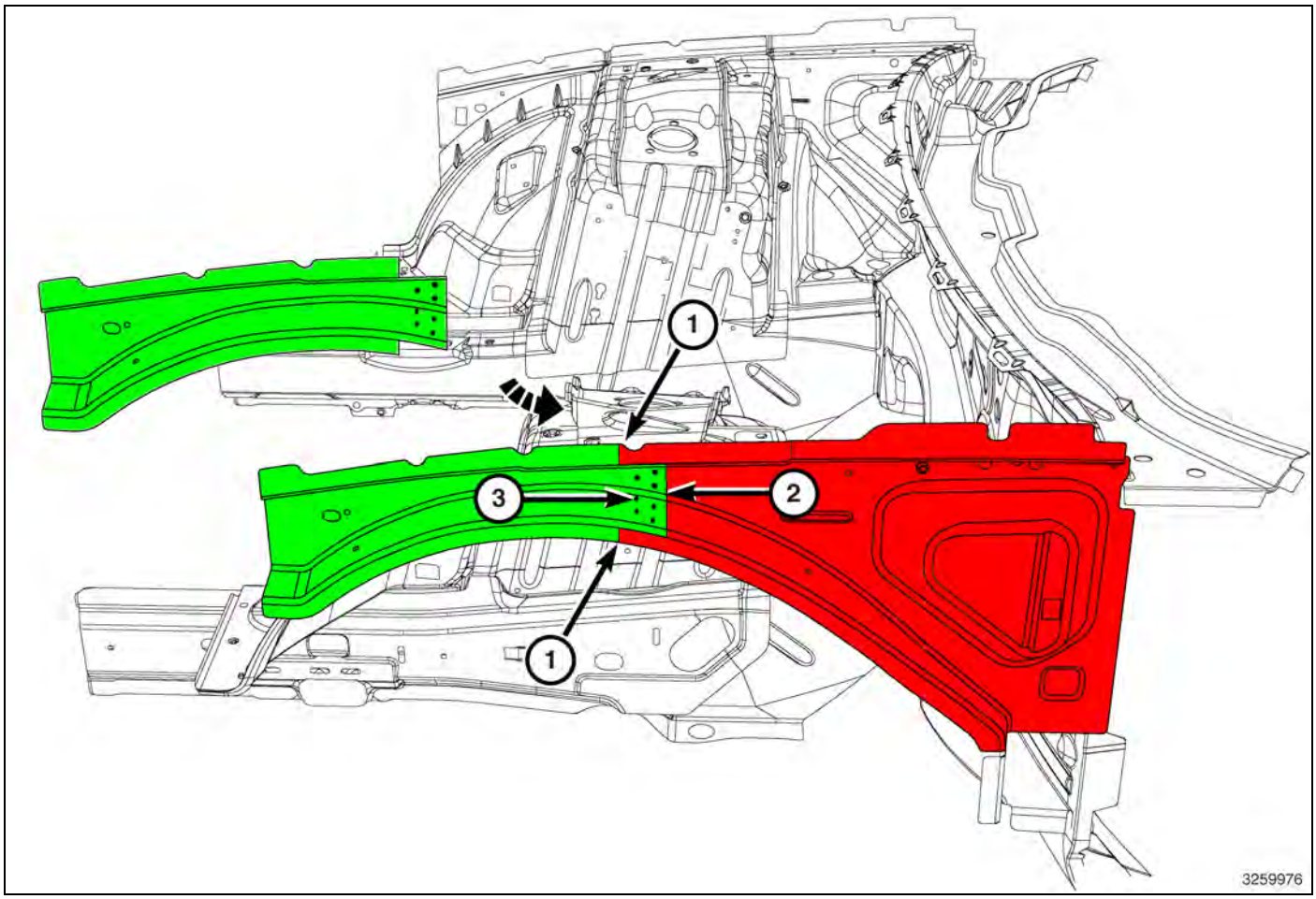
3. On the existing (original) outer load path beam (2), measure 400 mm (15.75 in) from the rear edge shown forward, and scribe top edge.
4. With the use of a "square", scribe the center section. With a straight edge, scribe the upper and lower flange. This will be the cut line (3).
5. Cut through the outer load path beam using a reciprocating saw or similar tool, while being careful not to cut the inner load path beam.
6. Release all the spot welds forward of the cut line.
7. Remove front section with an air chisel equipped with a flat blade bit and discard the front section (1).



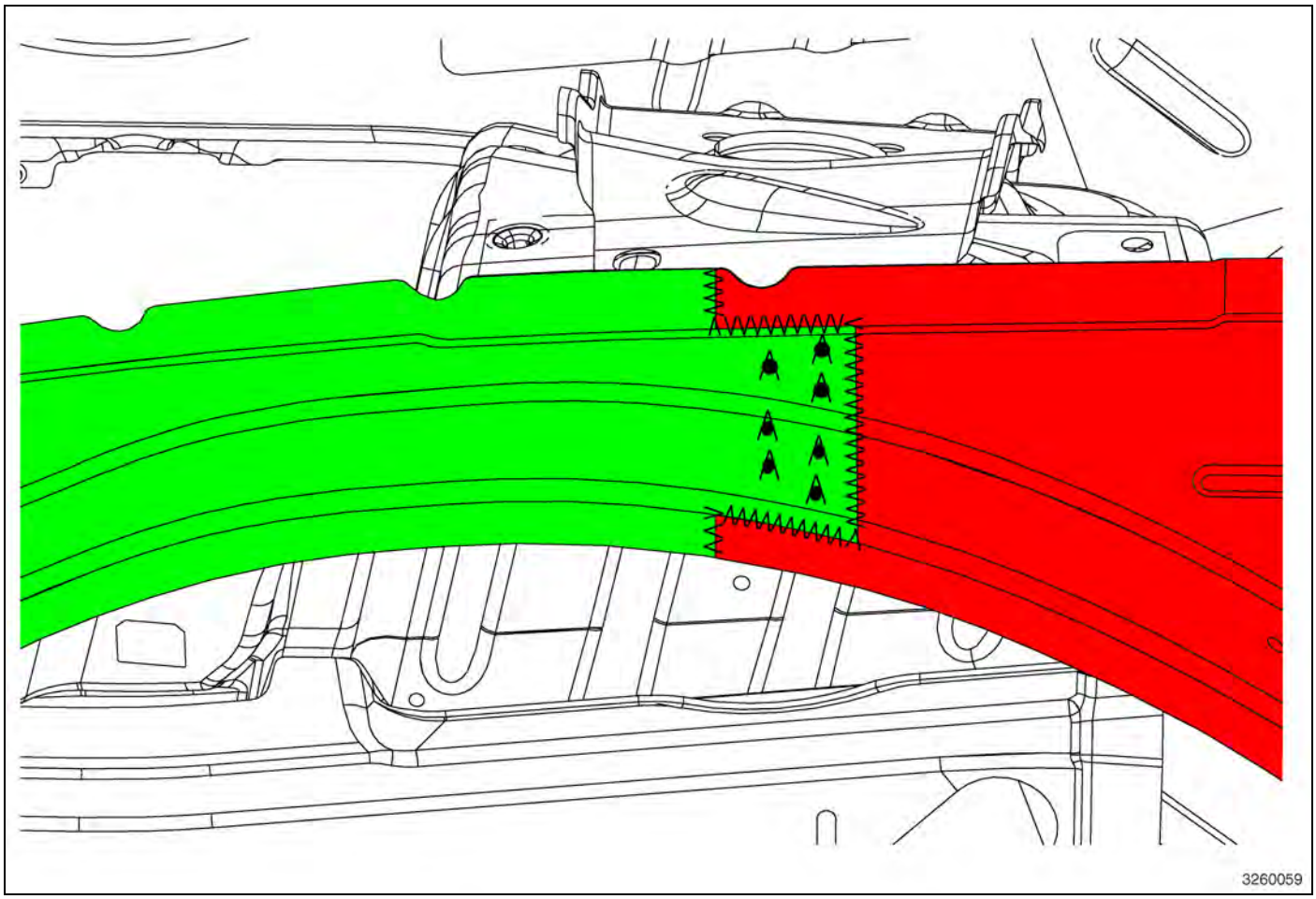
8. On the existing (original) inner load path beam (2), measure 500 mm (19.5 in) from the rear edge shown forward, and scribe top edge.
9. With the use of a "square", placed to the rear of beam cut line (3), scribe the upper load path beam upper and lower flanges. With a straight edge, scribe the center section of original inner load path beam.
10. Cut through the beam using a reciprocating saw or similar tool, while being careful not to cut into the wheelhouse.
11. Release all the spot welds forward of the cut line (3).
12. Remove front section of the upper load path beam (1) with an air chisel equipped flat bladed bit. Discard the front section.



13. On the replacement part, measure and scribe 500 mm (19.5 in) as the original part in the above steps.
14. With the use of a "square", placed to the rear of beam cut line, scribe the load path beam upper and lower flanges (1).
15. Measure 32 mm (1.25 in) aft the scribe marks made on new part flanges, and with a straight edge scribe accordingly, creating the outline for the tongue (2).
16. Use a reciprocating saw or similar tool to cut along the scribed edges.
17. Use layout in Weld / Weld Bonding section "Modified Lap Joint", (Refer to Collision Information - Standard Procedure) to layout plug weld pattern on tongue and drill holes accordingly.
18. Grind all contaminants and coatings off of the mating surfaces. The metal should be completely bare and shiny in appearance, if the metal appears pewter in color all of the galvanized coating has not been completely removed.



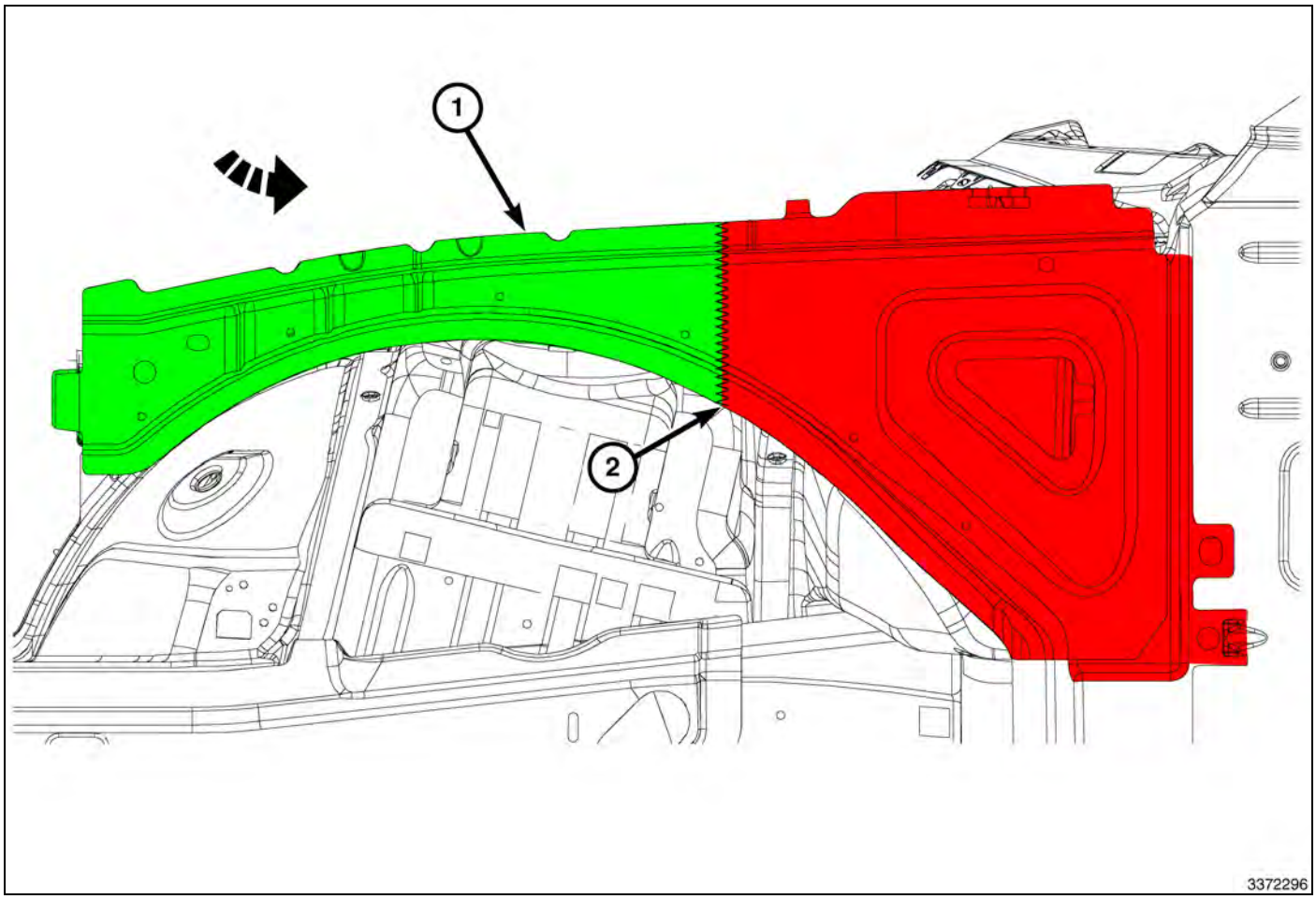
19. Place the replacement part into position. Flanges (1) should fit tightly together, forming the "butt-joint". Tongue (2) will overlap the original section of the inner load path beam, forming the lap joint.
20. With welding clamps or similar tools, tightly clamp the two sections together.
21. Re-measure structural dimensions to ensure new section is positioned correctly. If not within specifications, reposition as necessary until proper dimensions have been achieved.
22. Weld into position, alternating between plug welds (3), lap and seam welds to reduce the heat effected zone.



NOTE: Be certain to completely (100%) weld all exposed, accessible seams around the entire joint. Inner and outer in All accessible areas.

CAUTION: Do not apply any corrosion protection to the weld zones until the outer panel is fully installed and all welding is completed as materials are flammable.

23. The exposed area should be cleaned and welds dressed.



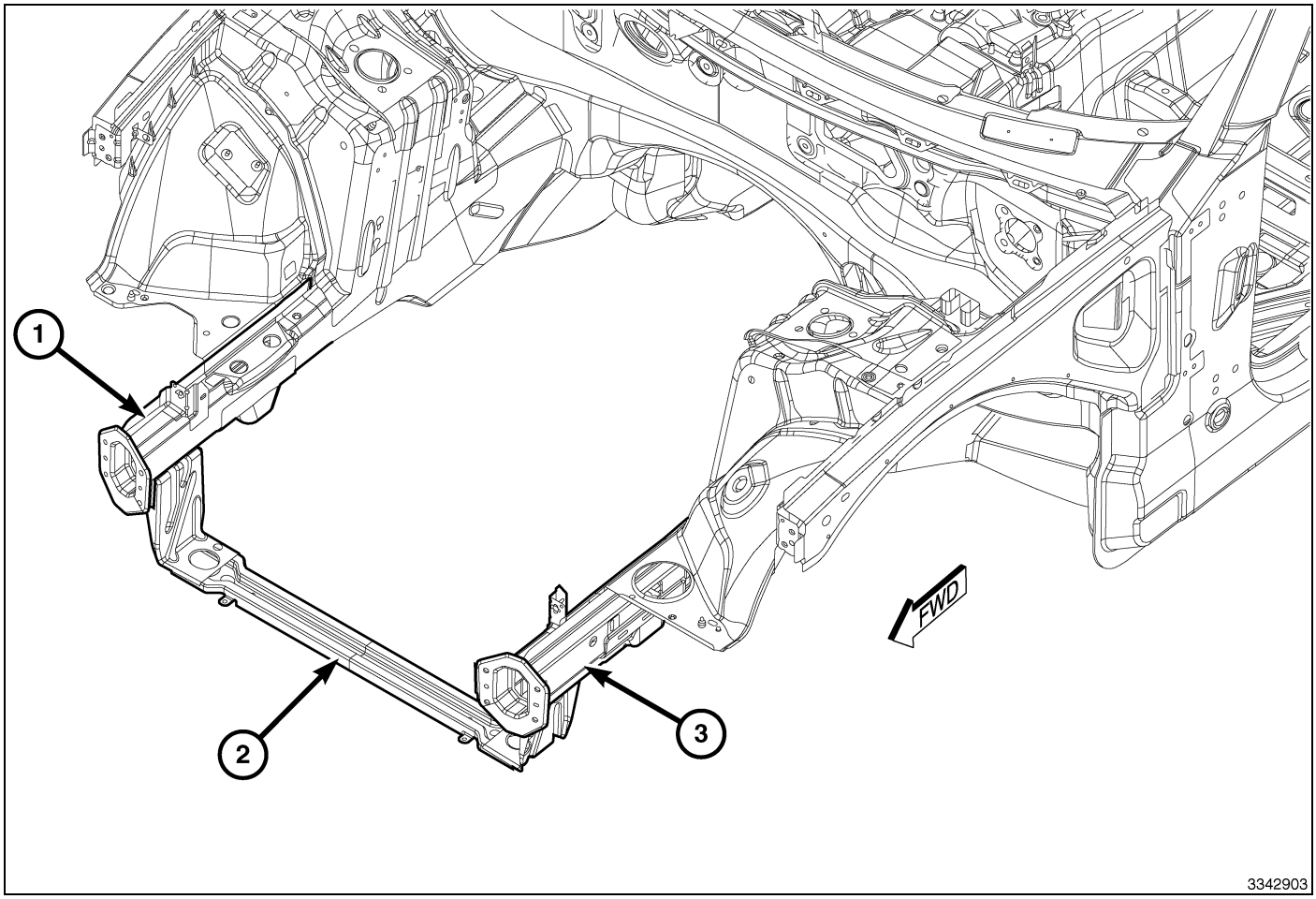
NOTE: Outer load path beam will be installed using a butt-joint with weld backer

24. On the replacement outer load path beam, measure and scribe 400 mm (15.75 in) as the original part in the above steps.
25. Use a reciprocating saw or similar tool to cut along the scribed edges.
26. Cut a 19 mm (0.75 in) weld backer out of the unused portion of the rear section of replacement outer.
27. Grind all contaminants and coatings off of the mating surfaces. The metal should be completely bare and shiny in appearance, if the metal appears pewter in color all of the galvanized coating has not been completely removed.
28. Tack weld backer into place.
29. Re-measure and position outer load path beam.
30. MIG weld into position, stagger stitch welds to minimize heat effect zone. Weld seam completely.
31. Upon completion of welding, inject Moper Cavity wax kit (part #68042969AA), Mopar wax refill (part #68042970AA) or equivalent, to the inner cavity. A double application should be applied. Allow a minimum of 30-minutes flash time between the first and second coats.
32. Complete the remainder of repairs.

NOTE: Due to component replacement it will be necessary to shim the front of fender to replace net, form pierce area.

33. Follow paint manufacturer instructions and refinish accordingly.

Front Rail Assembly



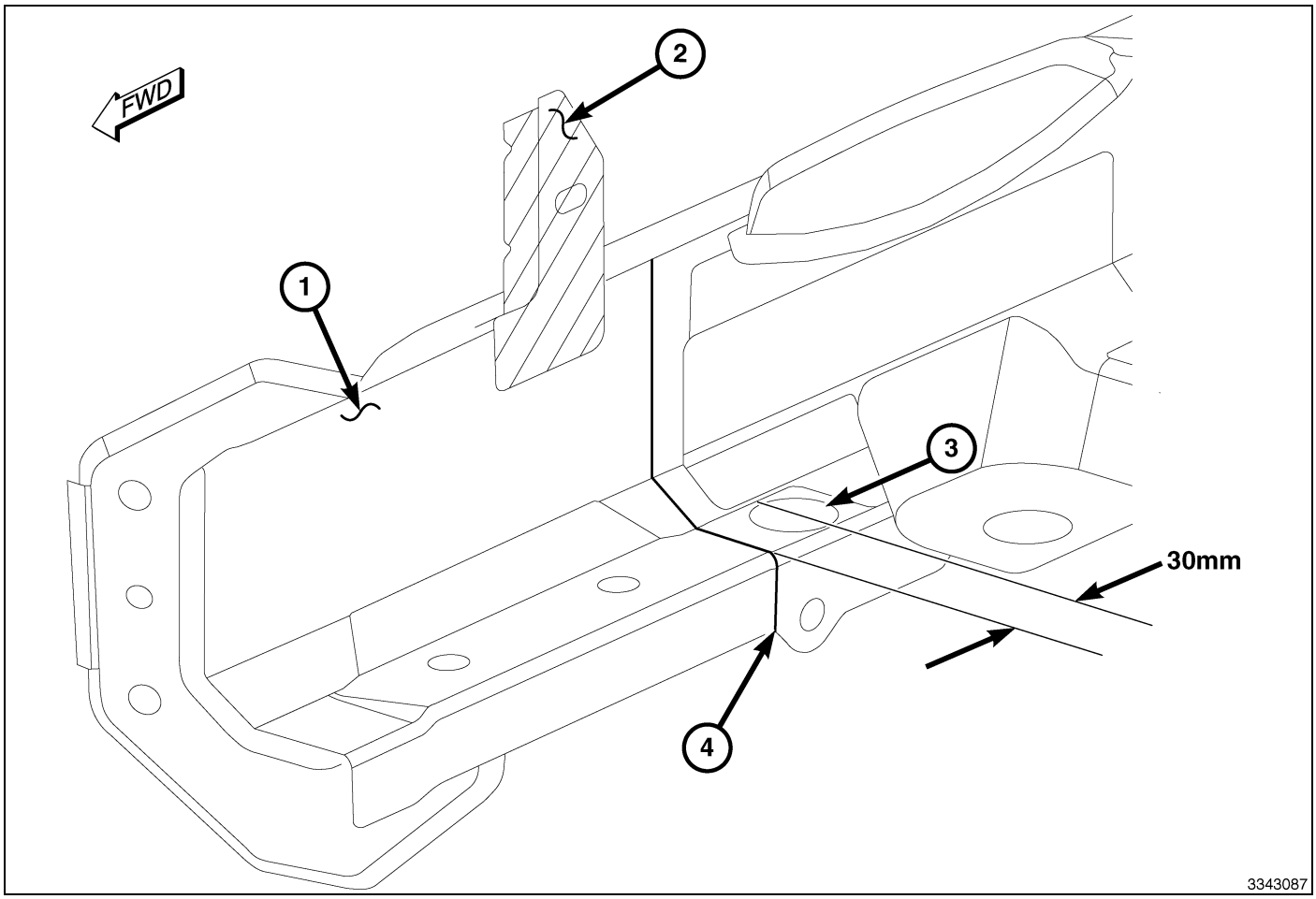
1 - Right Side Rail

2 - Lower Radiator Crossmember

3 - Left Side Rail

Damage to the frame rail, rearward of the area covered by this procedure, which is not eliminated during preliminary structural corrections and pulls, necessitates complete rail replacement to restore the vehicle to pre-loss condition.

1. Mount, measure and make structural corrections as needed.
2. Using 3-dimensional measuring equipment verify that dimensions have been restored.
3. Remove all components in the area of repair allowing unimpeded access for cutting and welding operations.
4. Remove bolts holding lower radiator crossmember (3) to the rail. If crossmember is to be replaced remove completely.



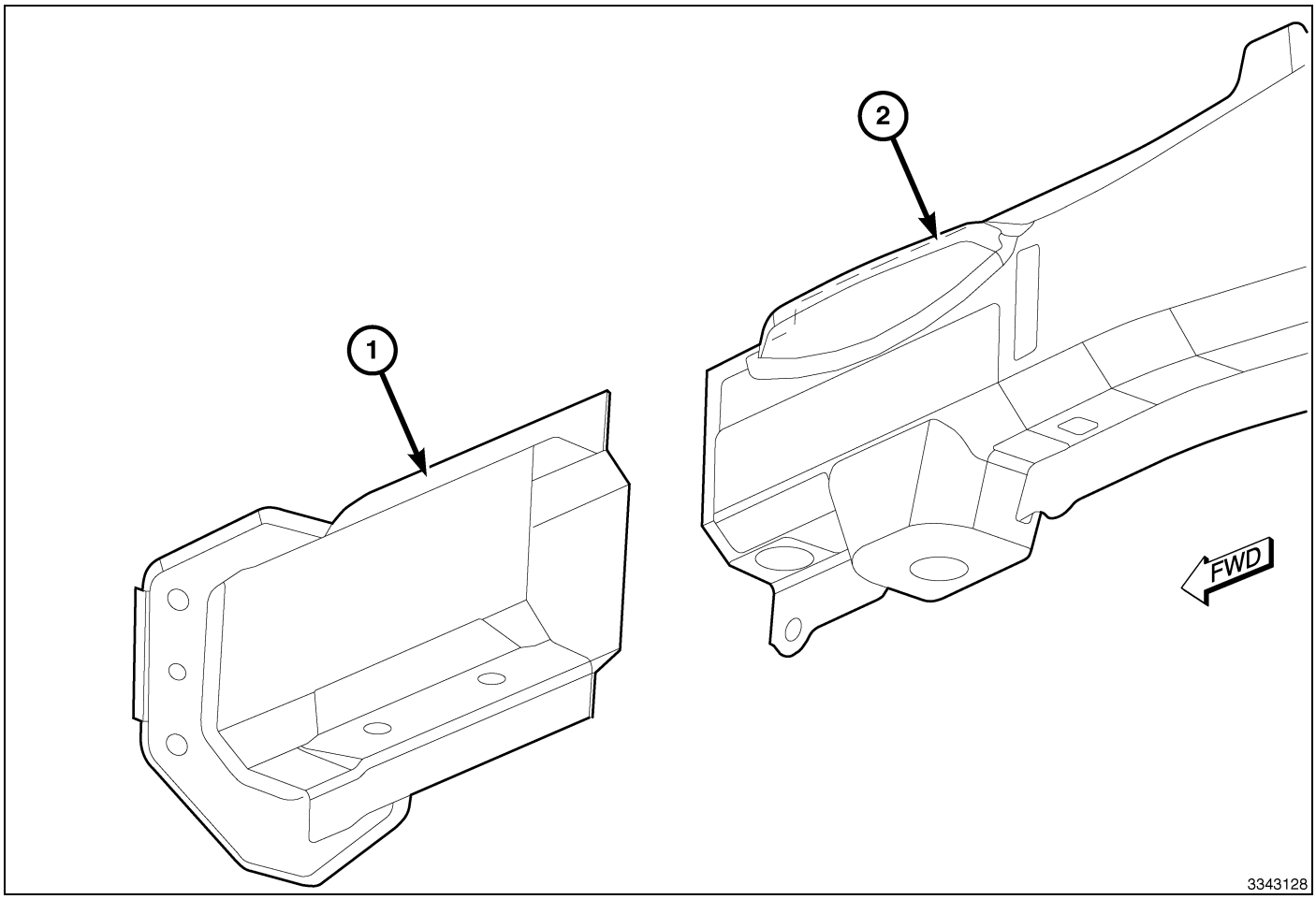
1 - Inner Rail

2 - Bracket

3 - PLP (Principal Location Point)

4 - Cut Line

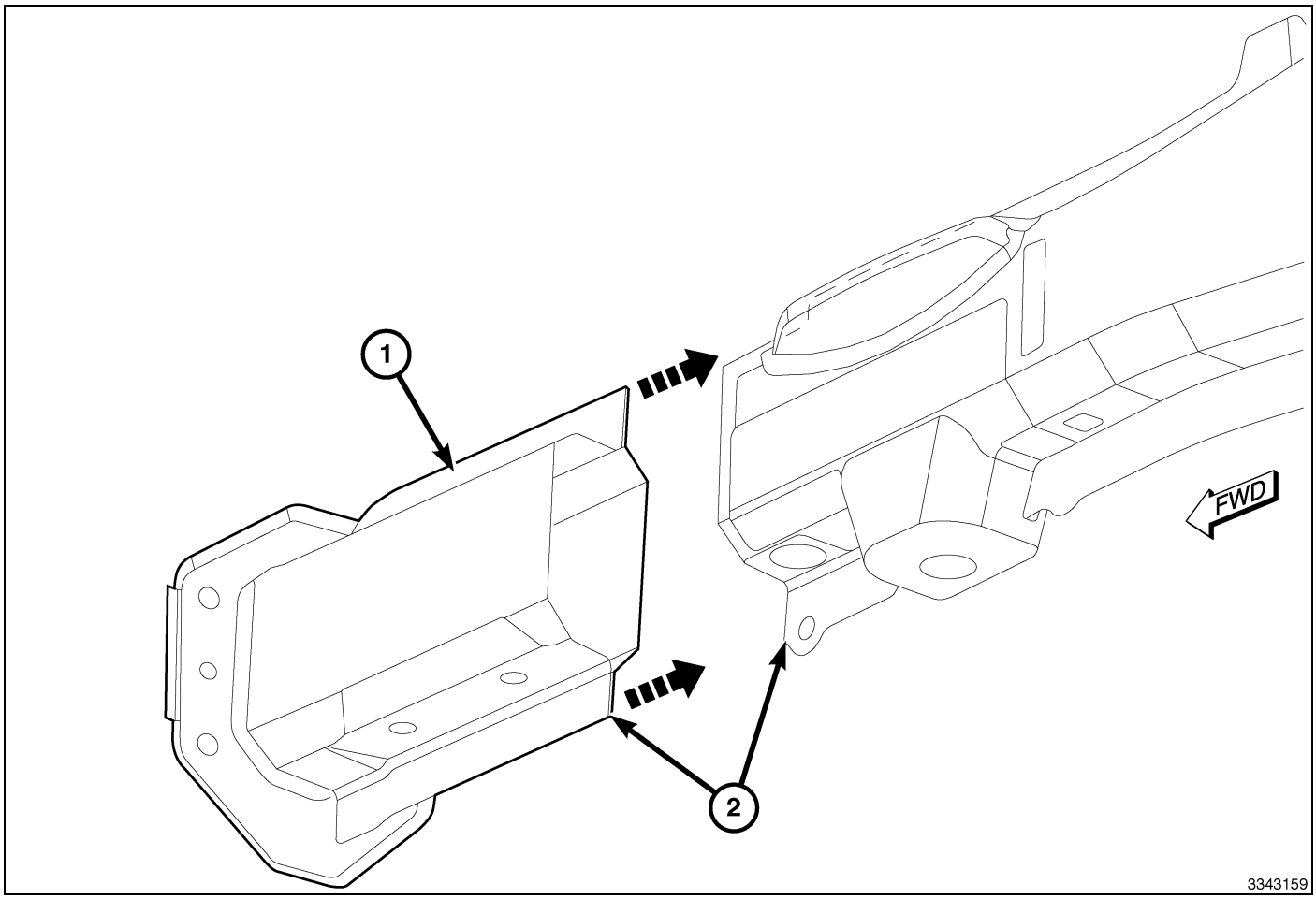
5. Remove bracket - carefully as it will be re-used.
6. Using the Principal Location Point (PLP) hole in the bottom of the frame rail, measure 30mm forward from center of the PLP and mark rail. Using appropriate straight edge, complete a vertical cut line on the inner and outer rail.



1 - Damaged Rail tip

2 - Original Rail (Un-Damaged)

7. Using a reciprocating saw or a cut-off wheel, cut through the rail and remove the damaged rail tip (1).
8. Utilize the same measuring and cutting process above to remove the rail tip from the inner rail service part.
9. Using a surface conditioning disc, remove all e-coat within 25mm (1in) of the cut location of the original rail (2) and the inner service component also deburr and slightly taper the cut edge.

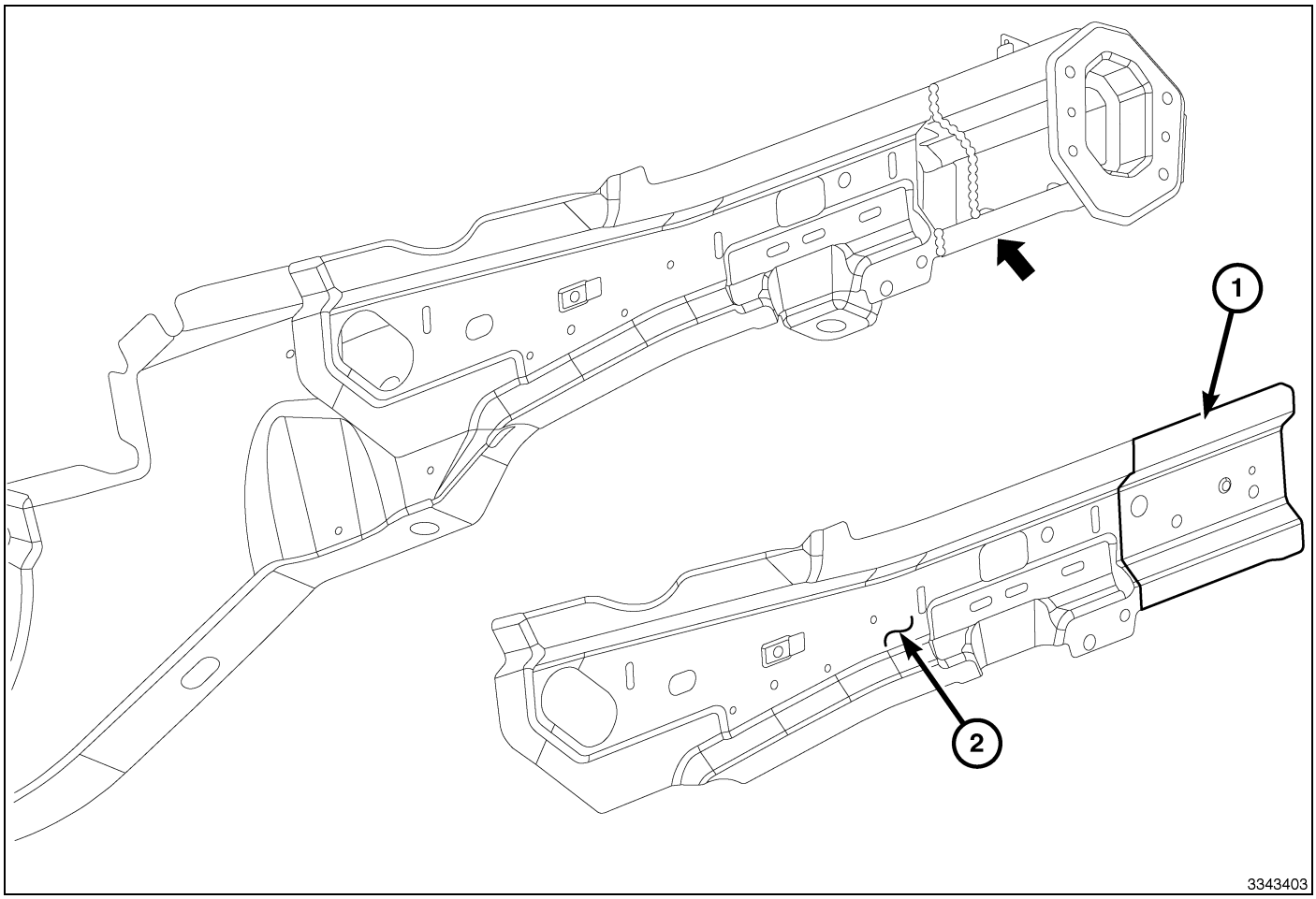


1 - Replacement Inner Rail

2 - Position and Clamp

10. Position and clamp the replacement inner rail (1) and confirm the proper position with measuring equipment.
11. Weld the service part into position in the sequence as follows:

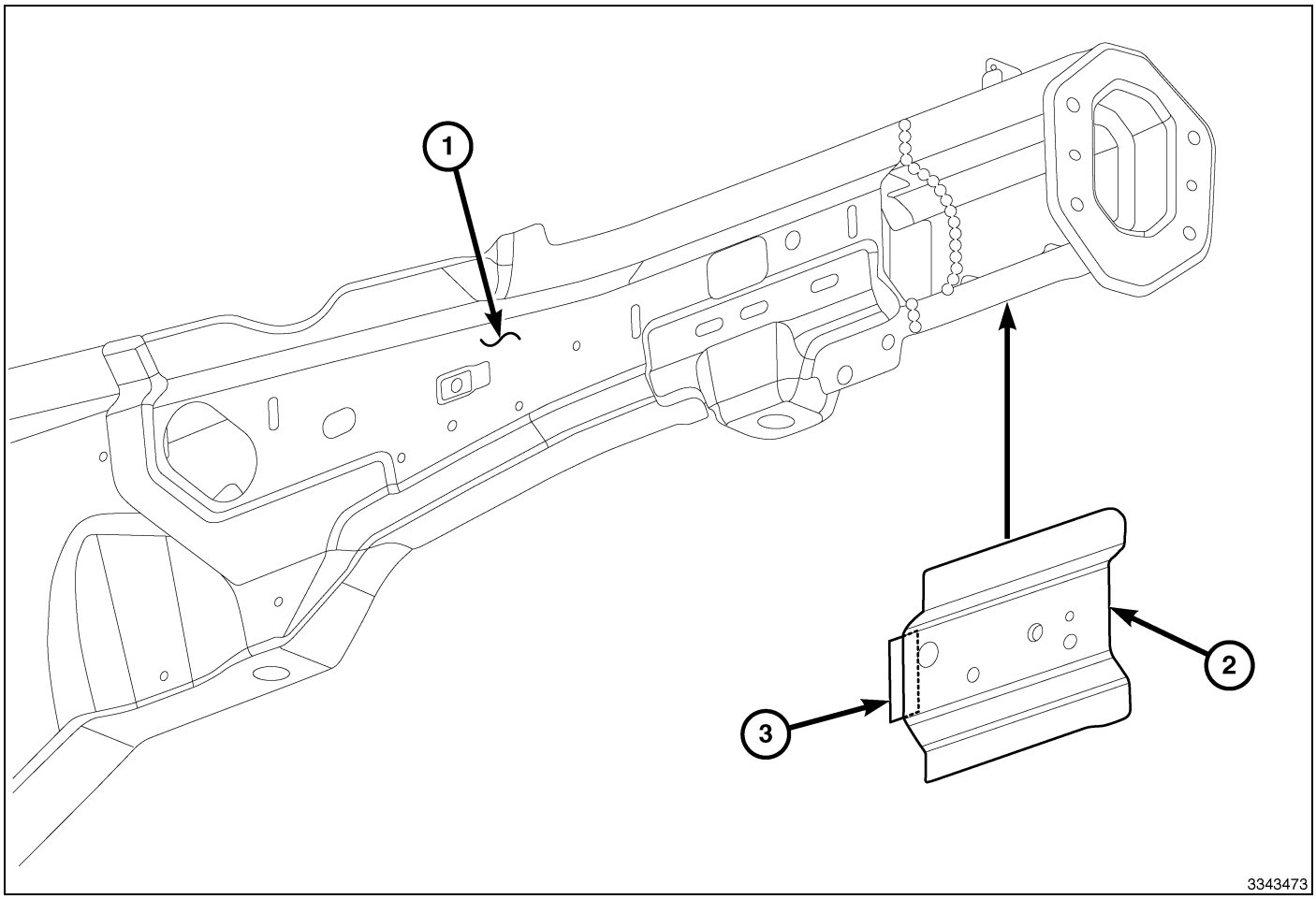
- Weld inside of rail upper half
- Weld outside of rail lower half
- Clean the back sides of the above welds in preparation for welding
- Weld inside of rail lower half
- Weld outside of rail upper half



1 - Replacement Outer Rail Closure Plate

2 - Outer Rail Closure Plate Section

12. Roughly trim the outer rail closer plate (1) to length.
13. Hold cover plate in proper position and mark top and bottom at cut location and mark. Remove plate and trim to proper dimensions, then remove e-coat within 1 inch of the cut line.
14. From the cover plate waste, cut a 19mm (3/4in.) wide strip of material and fabricate into a weld backer and tack it to the rail.



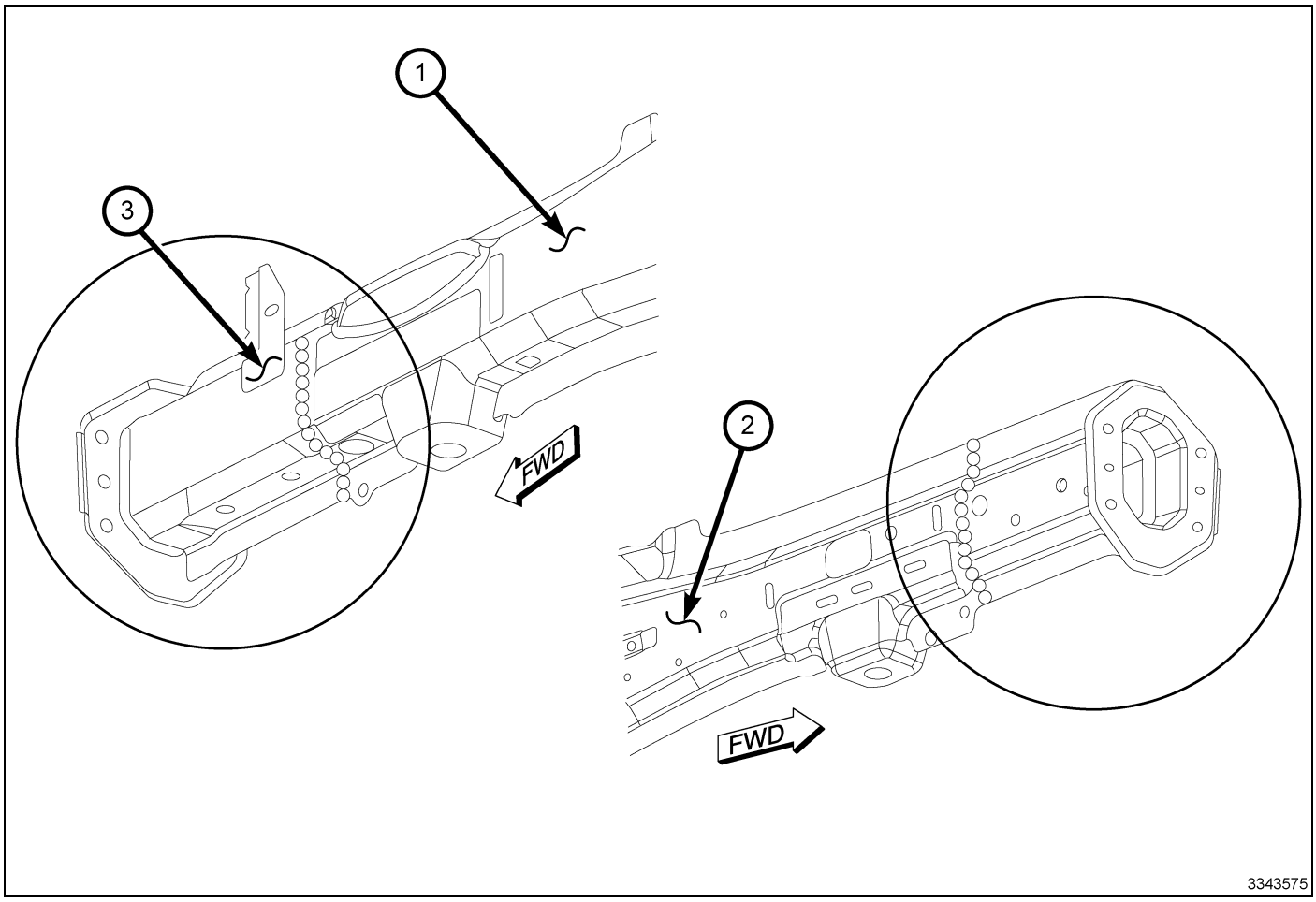
1 - Original Rail Closure Plate

2 - Weld Backer

3 - Replacement Outer Rail Closure Plate

15. Install the closure plate (3) and weld:

- The inner rail and cover plate are welded preferably using Squeeze Type Resistance Spot Welding (STRSW) equipment as the original. If STRSW is not available, then MIG ring fillet welds may be substituted.
- MIG Weld the butt-joint location



1 - Inner Frame Rail

2 - Outer Frame Rail

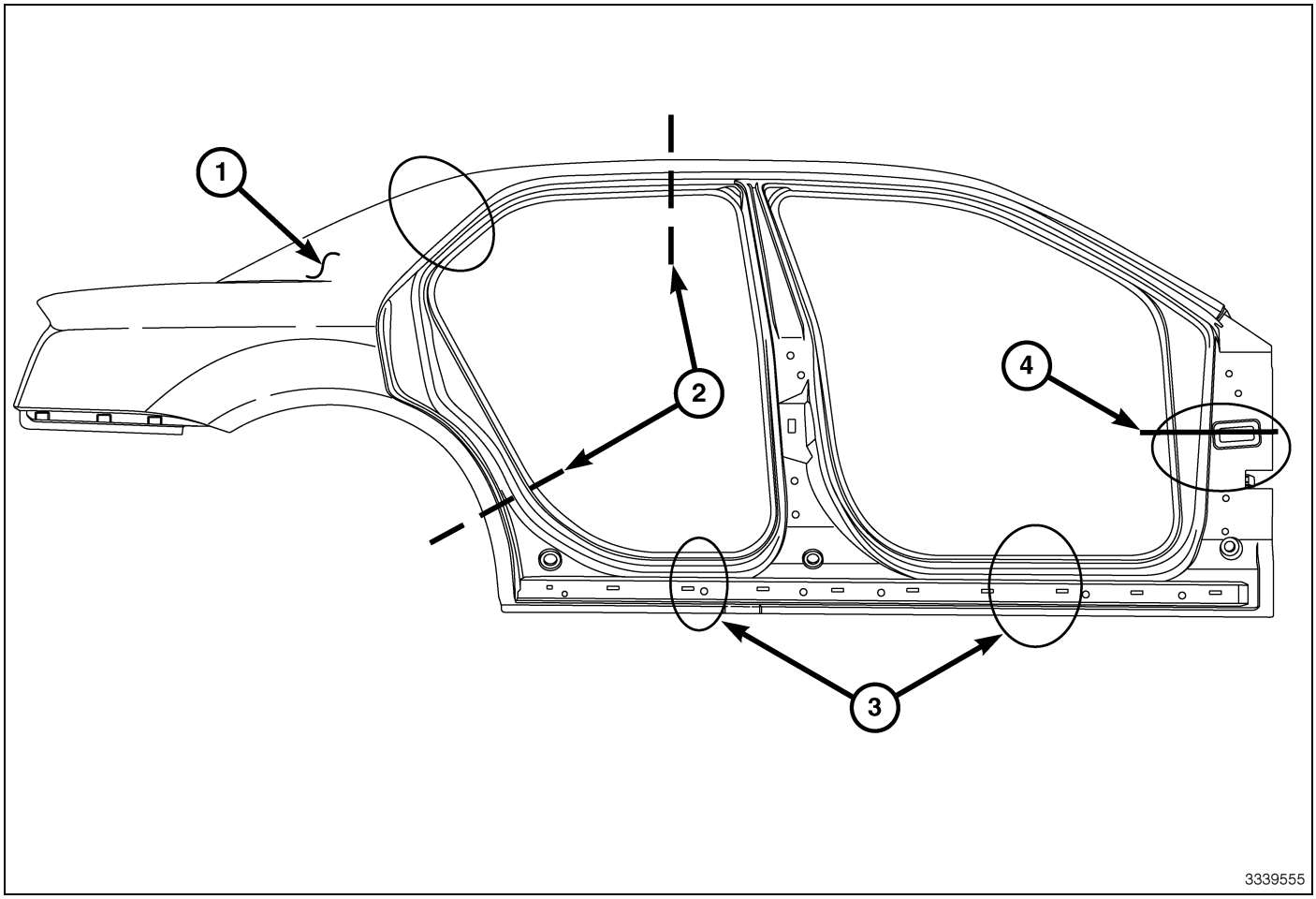
3 - Bracket

16. Reattach bracket (3) to inner frame rail (1), reattach lower radiator crossmember to inner rail (1).
17. Dress the welded area and apply corrosion resistant coatings inside and out:

- Apply etch-primer to the inside of the frame rail repair area
- Inside the rail, inject a creeping wax based rust inhibitor compound through the existing holes in the frame ensuring 100% coverage including the space between the original frame and the reinforcing sleeve; using Mopar Cavity Wax Kit (part #68042969AA), Mopar Wax refill (part #68042970), or equivalent. Apply to the rail inner cavity areas in two applications with a 30-minute flash period between applications. Pay particular attention to areas which have been welded.
- Apply a durable top coat to the outside of the repair area.

18. Complete the balance of repairs.

Outer Body Side Aperture



NOTE: Dashed lines represent service parts cut lines.

NOTE: The A-pillar and sill areas are dedicated to where they are to be sectioned, as compared to the general location within the outlined areas.

Collision Information SIDE APERTURE (OUTER)

2 - SERVICE PARTS CUT LOCATIONS (see note)

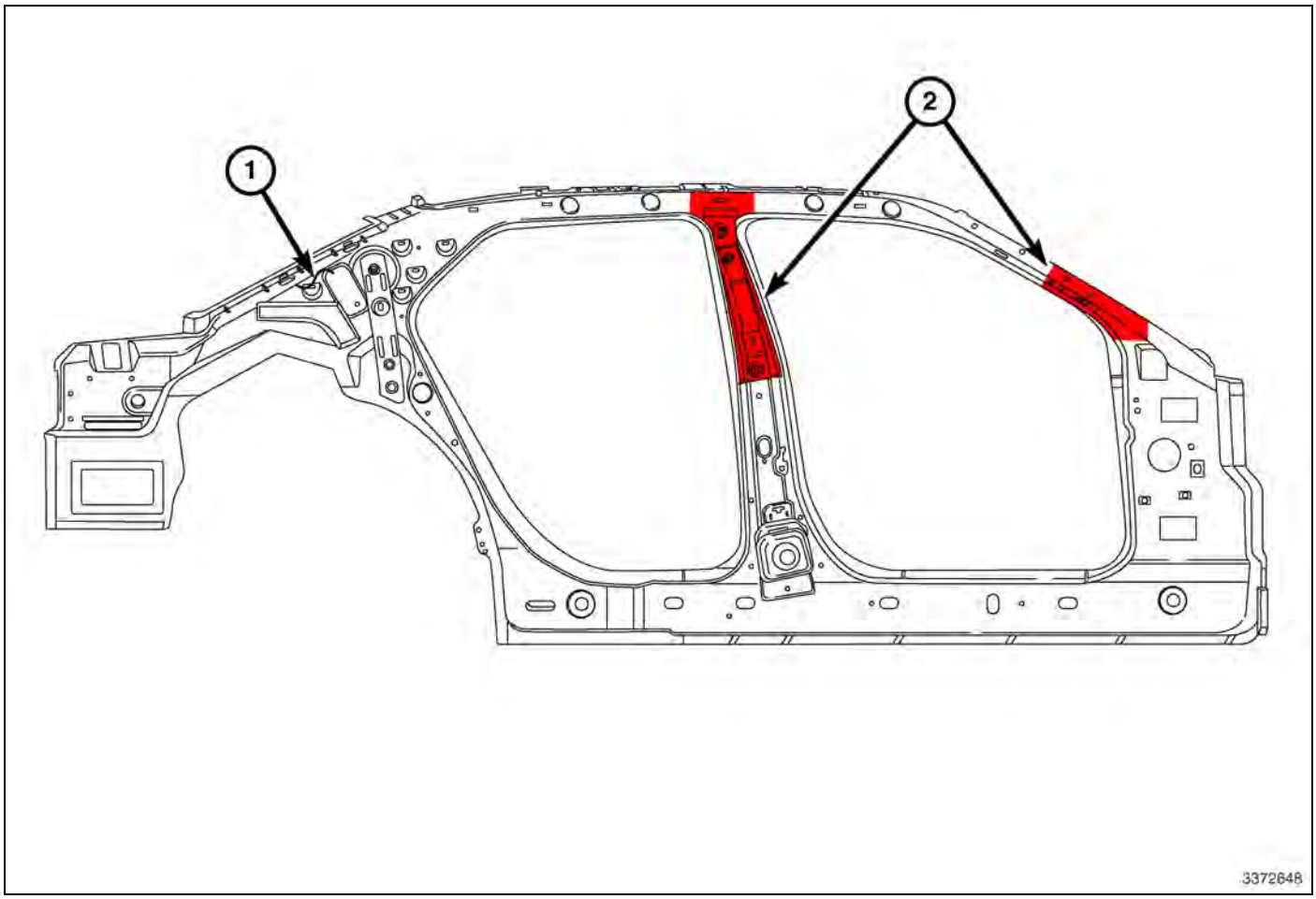
3 - SILL SECTIONING LOCATIONS (see note)

4 - A-PILLAR SECTIONING LOCATIONS (see note)

The body side aperture has many areas in which it may be sectioned in. The A-pillar is to be sectioned **between** the wire harness pass through and the upper door hinge as shown in figure. The sill areas are to be sectioned within 50 mm (2 in) of centerline of door opening. All other outlined areas represent general sectioning areas and may be sectioned within.

Butt-joint with 13 mm (0.5 in) backer is to be used in all sectioning areas of the outer body side aperture.

Reinforcements Do Not Section



1 - INNER BODY SIDE APERTURE

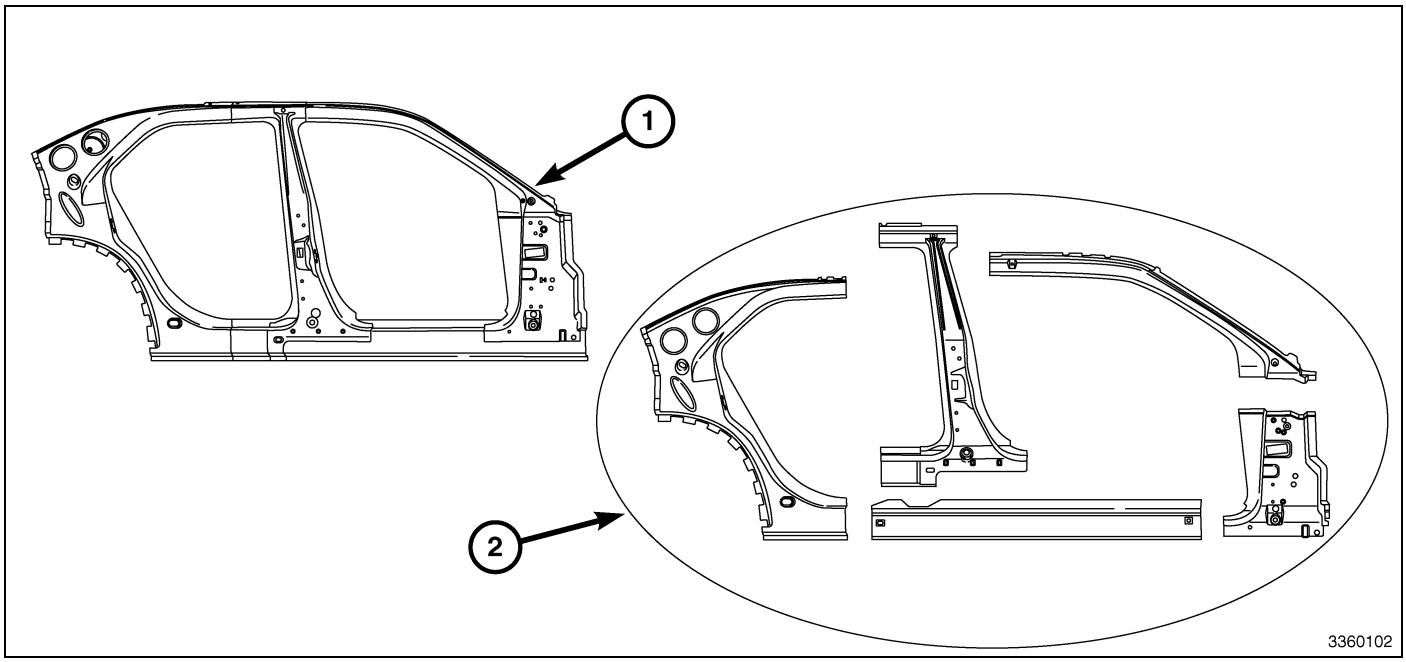
2 - A and B-PILLAR REINFORCEMENTS **DO NOT** SECTION AREA

WARNING: Composite Reinforcements must be installed to maintain roof strength standards

WARNING: Failure to follow these directions may result in serious or fatal injury

The Reinforcements (2) are made of composite material. If the Reinforcement Panel or any component that makes contact with the reinforcement is replaced it will need to be re-secured. **Composite Reinforcements absolutely must be reinstalled**. Re-secure the Composite Reinforcements by applying a 13mm (0.5in) bead of structural adhesive, coating all accessible sides. Recommended structural adhesives are Mopar #05083855AA, Fusor 112B, 3M 08116 or equivalent.

Inner Reinforcement



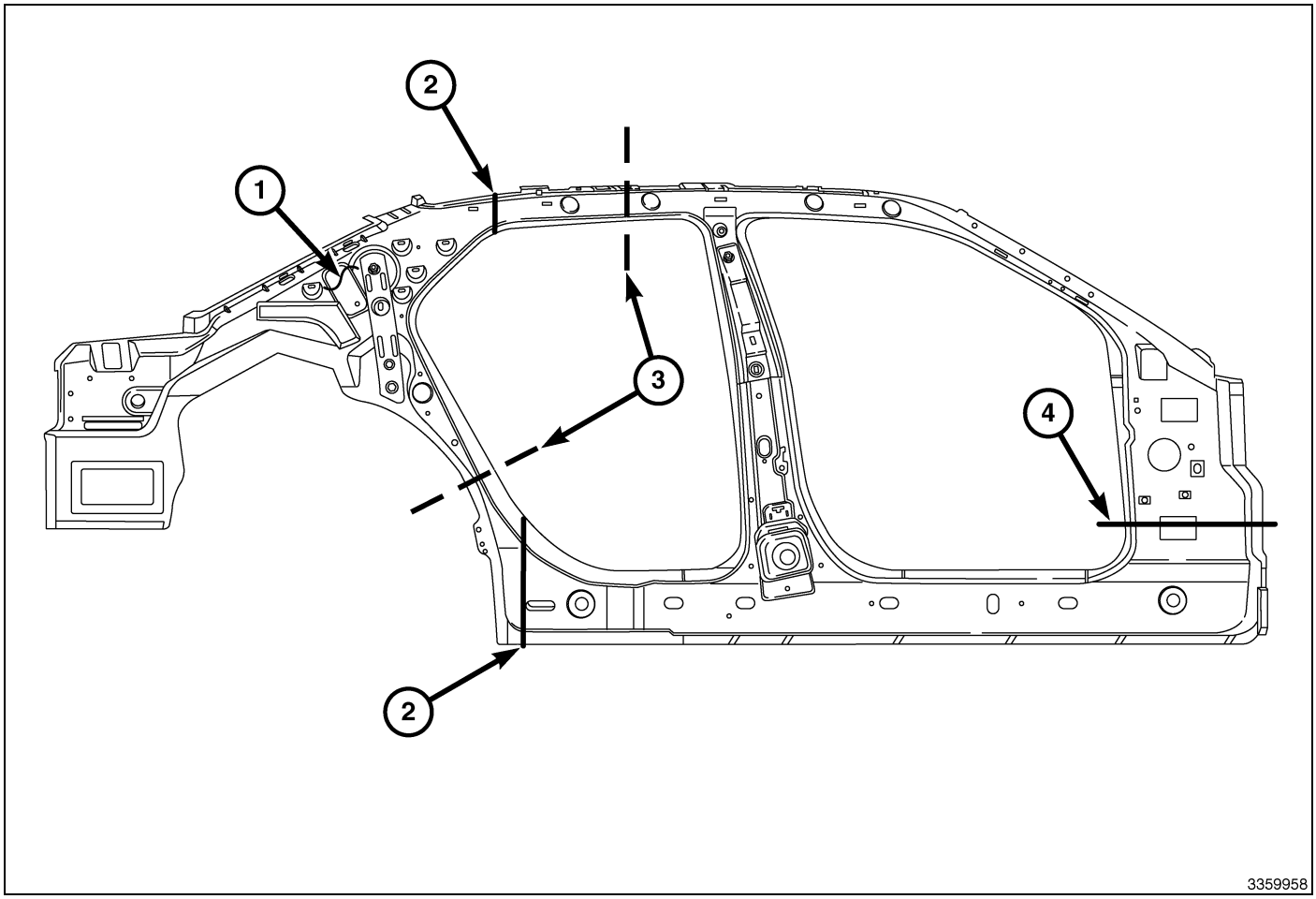
NOTE: Right side shown, left side typical

1 - INNER REINFORCEMENT PANELS

2 - INNER REINFORCEMENTS EXPANDED VIEW

Body Side Reinforcements may be installed as individual components. Separate at factory welds on the original and the replacement panels and replace in same manner as original section.

Inner Body Side Aperture



NOTE: Dashed lines represent service parts cut lines.

Collision Information SIDE INNER ASSEMBLY

2 - FACTORY SEAM

3 - SERVICE PARTS CUT LOCATIONS (see note)

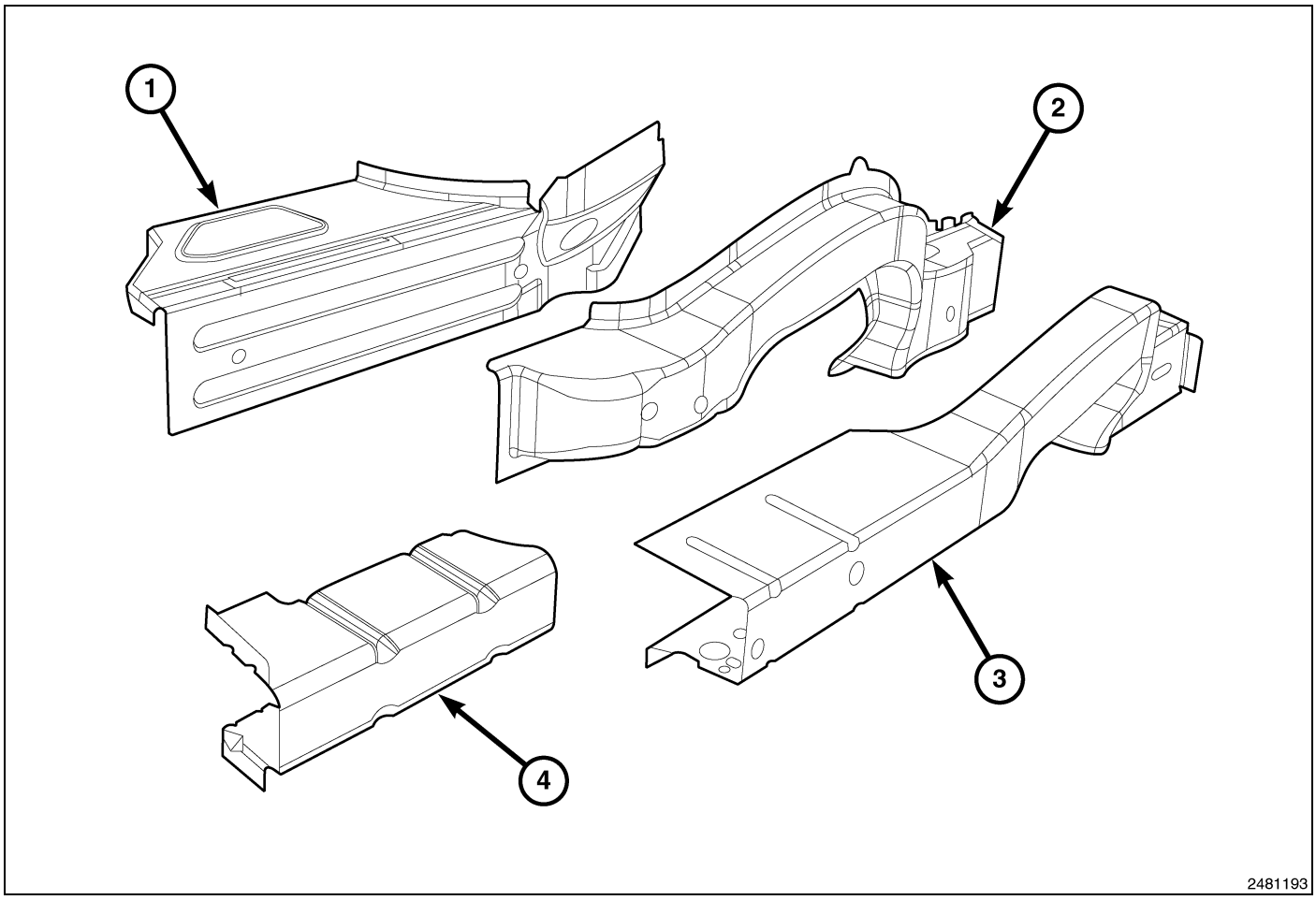
4 - A-PILLAR SECTIONING LOCATION

Factory seams and service part cut locations are acceptable sectioning locations

Outlined areas represent general sectioning areas within.

The body side inner aperture is to be sectioned using Modified Lap-joints. Further information on "Modified Lap-Joint" can be found in "Weld / Weld Bonding" section (Refer to Collision Information - Standard Procedure)

Rear Rail



Rail Terminology

1 - COVER PLATE

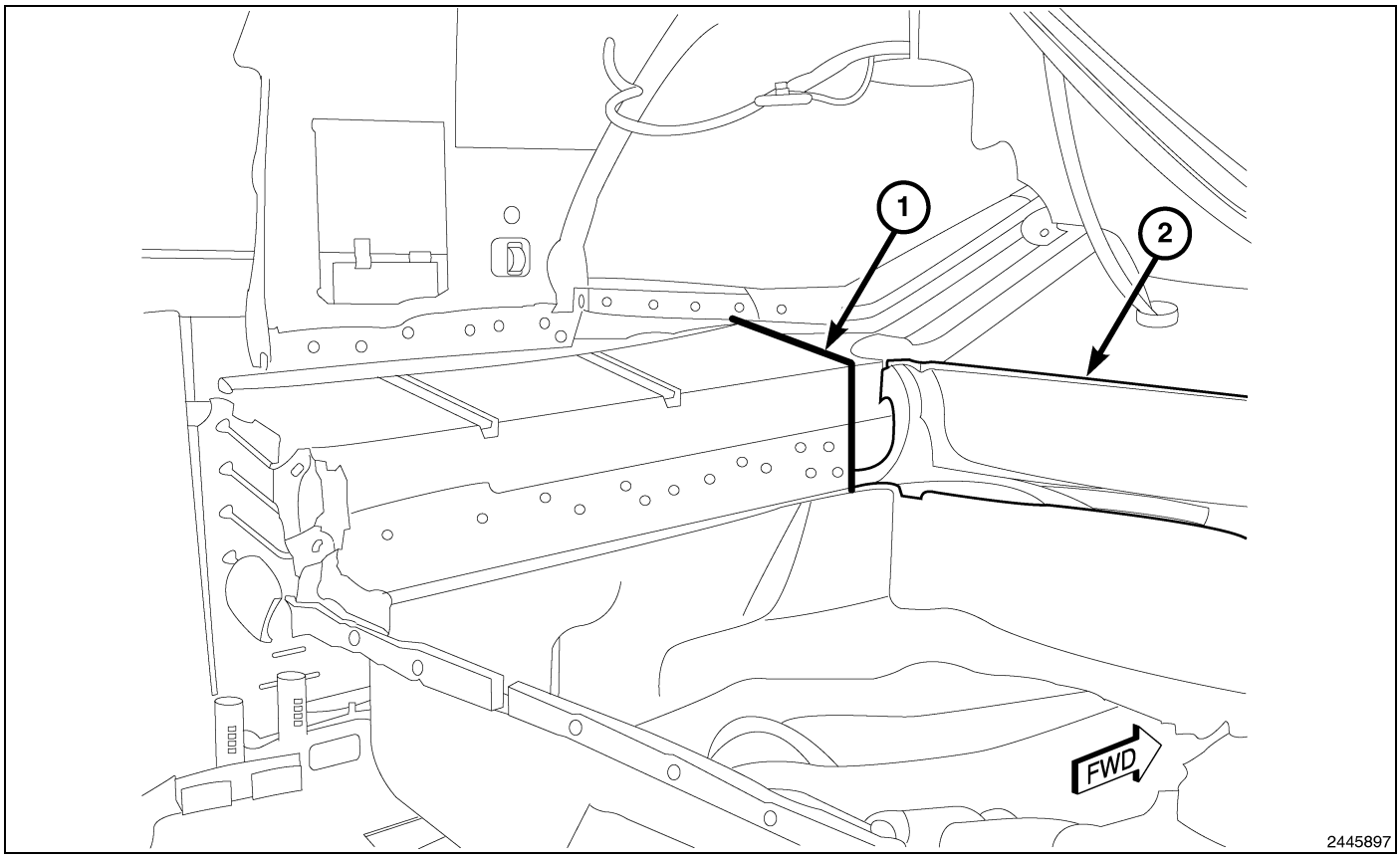
2 - RAIL, REAR, OUTER **(Do not section)**

3 - RAIL, REAR, INNER

4 - REINFORCEMENT, REAR RAIL INNER, REAR

"Rail, rear, outer" (2) **may not be sectioned** – this portion of the rear rail assembly is not visible as it is gloved inside the "rail, rear, inner" (3) and the "cover plate, rear rail extension" (1).

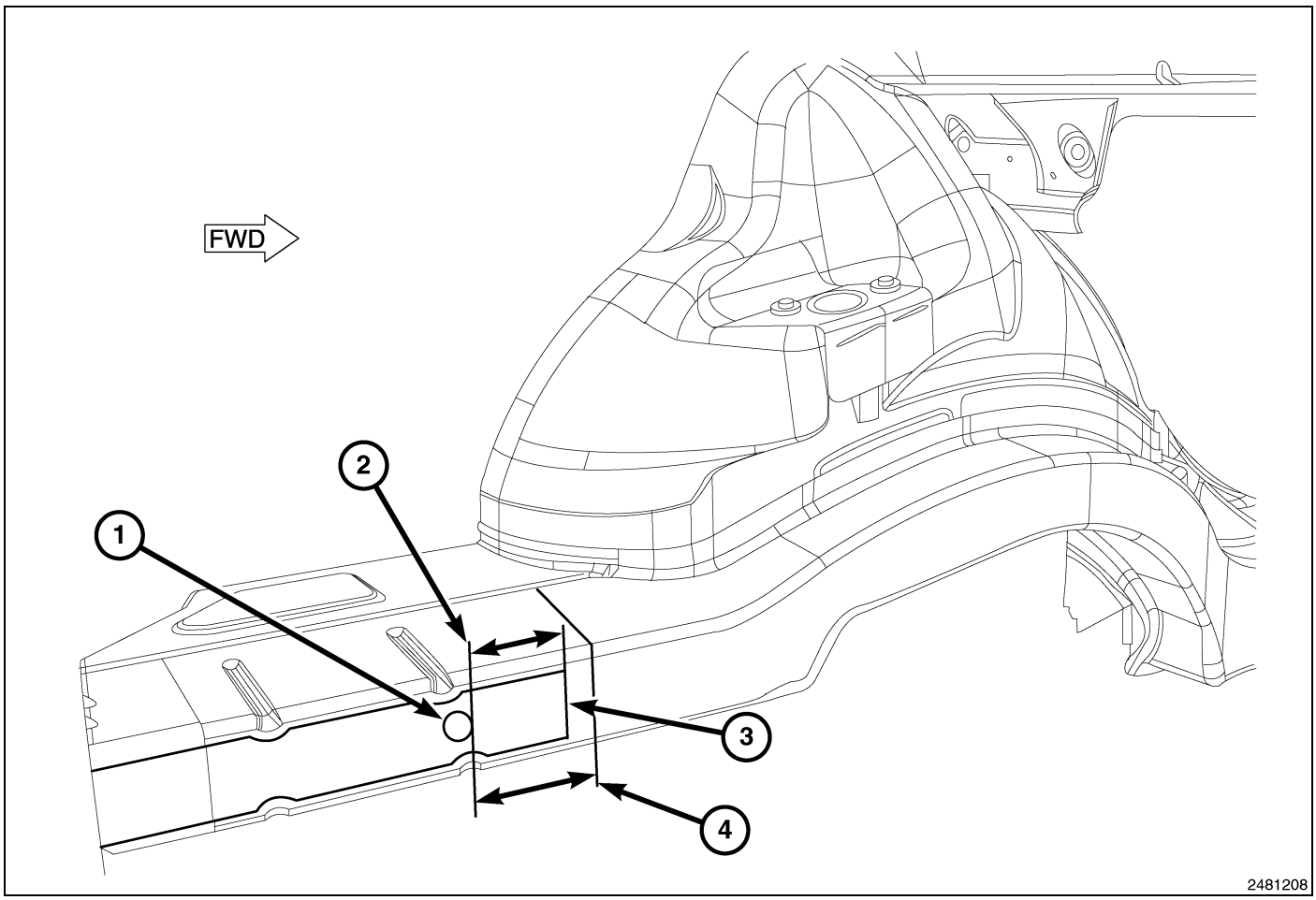
"Reinforcement, rear rail inner rear" (4) – welded inside of the "rail, rear, inner" (3) and extends from the end of that rail to the "panel, deck opening lower".



“Rail, rear inner” may be sectioned at this location (1), greatly reducing vehicle disruption and repair costs.

This partial replacement procedure presumes that all damage to the “rail, rear inner” is aft of the crossmember (2).

Left Side



Left Rear Rail Cut Locations

1 - HOLE

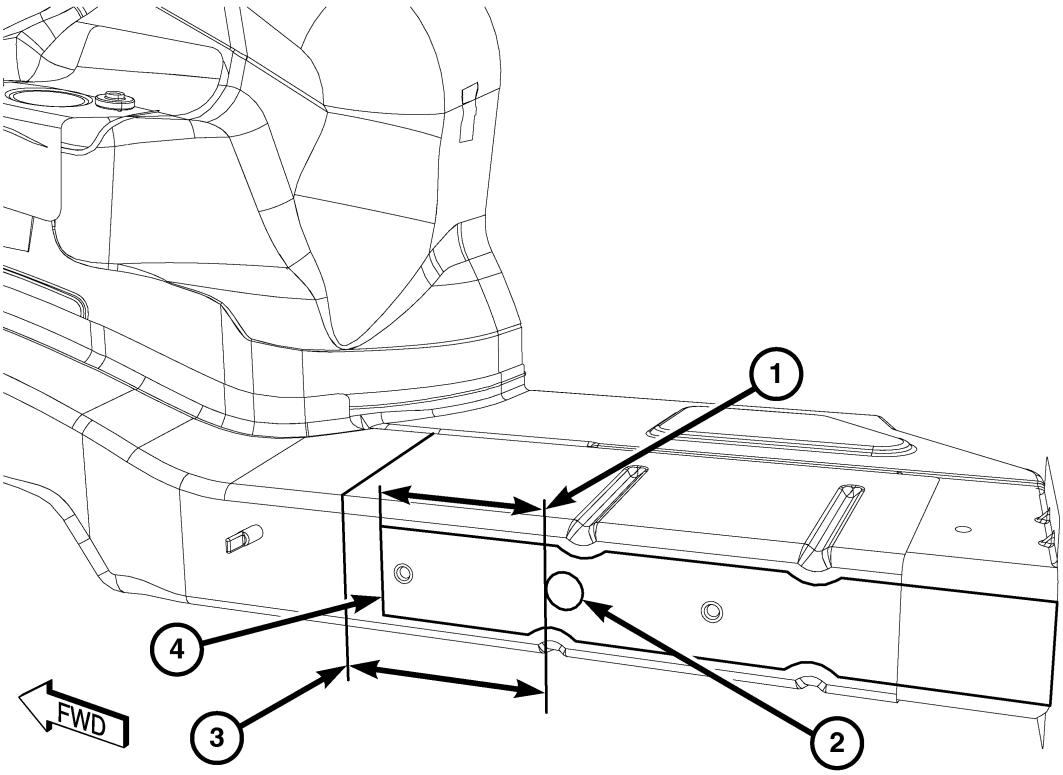
2 - 100 mm (4 in.)

3 - REINFORCEMENT, REAR RAIL INNER, REAR

4 - CUT LOCATION 125 mm (5 in.)

The “Reinforcement, Rear Rail Inner, Rear” (3) ends 100 mm (4 in.) (2) forward of round hole (1) on inner face of “Rail, Rear Inner” – recommended cut location is 125 mm (5 in.) (4) from forward edge of the hole (1).

Right Side



Right Rear Rail Cut Locations

1 - 125 mm (5 in.)

2 - HOLE

3 - CUT LOCATION 150 mm (6 in.)

4 - REINFORCEMENT, REAR RAIL INNER, REAR

The “Reinforcement, Rear Rail Inner Rear” (4) ends 125 mm (5 in.) (1) forward of round hole (2) on inner face of “rail, rear inner” – recommended cut location (3) is 150 mm (6 in.) from forward edge of hole (2).

The following procedure details key points of the repair. I-CAR training is presumed, and should be followed for best-practice repair procedures.

1. Mount the damaged vehicle onto a structural straightening bench and check/correct any body misalignment utilizing three dimensional measuring equipment.
2. Remove all components in area of repair allowing unimpeded access for cutting and welding operations.
3. Trunk floor should be removed if being replaced, or the necessary welds released and the weld flange bent inboard to provide access to the rail for the butt-joint.
4. Using the round hole in the “Rail, Rear, Inner” as a point of reference, measure 125 mm (5 in.) forward for the left rail, or 150 mm (6 in.) forward for the right rail, and scribe a vertical line on the rail.
5. With the vertical line just made as reference, cut off the damaged “Rail, Rear, Inner” taking care not to damage the “Rail, Rear, Outer”, using a reciprocating saw or cut-off wheel, and remove the damaged portion.
6. Utilize the same measuring and cutting process above to remove the replacement portion from the service part.
7. Using a surface conditioning disk, remove all e-coat within 25 mm (1 in.) of the cut location and de-bur the cut edge.
8. If the “Rail, Rear, Outer” was damaged during the cutting operation, MIG-weld the damage and dress the weld.
9. Fabricate 19 mm (0.75 in.) weld backers from the damaged component, or the remains of the service part, and tack in place on the replacement rail section at the butt-joint location.

10. Position and clamp the replacement rail and confirm proper position with measuring equipment.
11. Weld the service part in position using a skip-stitch process.
12. Complete remaining repairs in the damaged area.
13. Clean and dress all welded areas.
14. Apply epoxy primer to the exterior of the rail at the repair location.
15. Apply quality body sealer to all areas previously sealed to duplicate the original appearance. Note that additional sealer may be applied to better protect the exterior exposed seams from road spray.
16. Refinish all exposed surfaces in trunk and on underbody using quality refinish materials.
17. Apply inner panel rust proofing, such as Mopar Cavity Wax Kit (part #68042969AA), Mopar Wax Refill (part #68042970AA), or equivalent. Apply to the inner cavity areas in two applications, with a 30-minute flash period between the applications. Pay particular attention to areas which have been welded.
18. Reassemble vehicle and complete repairs.

Butt joint should be metal finished without thinning the base rail material or weldment. This is a cosmetic finishing process to disguise the repair and should have the surface coating (paint) duplicated as well.

CORROSION PROTECTION

Corrosion Protection Restoration

"Corrosion protection" encompasses all the materials and coatings which protect a vehicle from corrosion and include:

- Coated steels
- E-coat primer on the complete body
- Body sealing to eliminate water and air intrusion where panels join
- Structural adhesives in some joints
- Chip resistant primer applications on the entire body
- Paint application
- Underbody corrosion protection
- Inner panel corrosion protection added to repair areas

Corrosion protection must be restored during a repair anytime it may have been compromised. All areas that have been subjected to structural pulls, clamping, straightening, welding, or any other any other operation that may have imparted damage to the corrosion protection system will need to be addressed.

In the repair process corrosion protection is addressed in three phases: pre-refinish, refinish and post-refinish.

Pre-refinish

In the pre-finish phase, structural adhesives, seam sealers and other applied coatings are installed. Sheet metal seams are sealed to prevent water intrusion into the "dry" areas of the vehicle, such as passenger compartment, and also to prevent intrusions of contaminates, such as water and road salt, into seams causing corrosion. Lap joints, hem flanges, and any panel mating locations need to be addressed during the repair and treated to duplicate the original vehicle build.

All bare metal should be etch primed prior to applying seam sealer, following the refinish material provider's instructions for doing so, unless the manufacture of the sealer specifically states otherwise.

When working around pinch weld flanges, seam sealer should be installed to duplicate the original appearance and function. If it is unclear weather the original sealing material **between** the flanges is strictly a sealer or structural adhesive, always default to a structural adhesive such as Mopar part #05083855AA, Fusor 112B, or 3M 08116. Refer to the welding and joining section of the Body Repair Manual for additional information related to weld-bonding and welding around adhesives and sealers.

Roof and closure panels will require the use of Anti-Flutter foam. Where inner panel supports meet external panels, the proper replacement materials in these areas are Mopar part #04864015AB , or equivalent, or Fusor 121, or 3M 04274 (NVH dampening material).

All hem flanges on closure panels should be sealed whether sealer is apparent or not. This includes those disturbed during the repair, and those on new replacement panels. Either duplicate the existing bead in shape or size, or where one is not obvious, seal the hem flange in a discrete fashion. Hem flanges should be sealed using Mopar part #04318026, Fusor 129, or 3M 08308.

Lap joints, such as in floor pans, should be sealed to duplicate the sealer visible, but also addressed on any exterior surface by sealing the lap weather visible or not.

NOTE: Chrysler does not recommend the use of any type of "weld-thru" primer during repairs. Weld-bonding with corrosion protecting adhesives or sealers, along with final application of inner panel corrosion protection is the proper method.

Refinish

All painted surfaces should be coated using a Chrysler group LLC approved refinish material. The refinish process includes application of undercoats, primers (filler & sealer), basecoats and clearcoat. These approved materials have been tested to the same material standards as the production materials.

Post-refinish

All new panels, and repair areas, must have inner panel corrosion protection applied after the painting operation is complete, but before all the trim is reinstalled. Mopar Cavity Wax #68042970AA, or 3M Rustfighter #08891 should be applied to all interior cavities, weld flanges, hem flanges as well as any are affected by the repair especially where any type of welding was performed. Inner panel corrosion protection should be applied using "pressure pot" equipment with wands which provide 360-degree material coverage for closed cavities, and directional spray wands for visible coverage (Mopar kit #04271235). Additionally, the corrosion protecting material must be applied in two coats with a minimum 30-minute flash time between applications.

Wheel wells and underbody panels which have been involved in the repair process should also have a final undercoating applied. Use Mopar #05093417AA, or equivalent, and apply with "pressure pot" style application equipment.

Any disturbed or removed NVH foam needs to be replaced. Use Mopar part #05142864AA, Fusor 130, or 3M 8463.

Following this arrangement, choice of materials, and proper application, the repaired vehicle should be as well protected against corrosion as it was prior to the repair.

Material Locations

SEALERS AND SOUND DEADENERS

Terminology

Work Time : The length of time a sealer can continue to be applied or tooled effectively.

Set Time : Time when there is no longer product transfer.

Handling Time : The time when a part can be safely transported and sealer can no longer be tooled or repositioned.

Full Cure Time : Time when a sealer has reached it's full strength.

Paintable Time : Established time when refinish materials can safely be applied to a sealer.

Sealers

Brushable : Single component sealer applied with a brush.

Flowable : Sealer with low viscosity and self-leveling characteristics.

Pumpable : A two component or one component sealer that seals interior and exterior joints and voids.

Resistance Weld-through : Sealer / adhesive that can be used in conjunction with resistance spot welding.

Sealer Tape : Preformed sealer.

Sprayable : Sealer applied with a pneumatic dispenser to duplicate original textured appearance.

Thumb Grade : Heavy bodied sealer for sealing large gaps and filling voids. Should remain soft and pliable.

Sound Deadeners

Non-structural Flexible Acoustical : Flexible foam with sealing and sound deadening properties.

Non-Structural Ridged Acoustical : Ridged foam with sealing and sound deadening properties.

Mastic Pads : Sound deadener pad that is preformed to fit a specific area.

Identifying Sealers

Several types of sealers and sound deadeners are used during assembly. Therefore, specific applications may not be identified in this publication. General applications and the various types of products for repair will be featured to identify and replace OEM sealers and sound deadeners.

Helpful Sealer Tips

- Check shelf life or expiration date prior to beginning sealer applications.
- Be sure "work time" is appropriate for sealer application.
- Temperature, humidity and thickness of sealer will affect the work, set and paintable times.

- Test fit replacement panels prior to installation to insure tight fit and proper seal.
- Equalize 2K Products according to adhesive manufacturer's recommendations.
- Always follow manufacturer's recommendations for storage, usage and application to achieve best performance of the product.

SOUND DEADENER LOCATIONS

DESCRIPTION	FIGURE
PUR FOAM LOCATIONS	(Fig. 17)
HOOD	(Fig. 18)
FENDER	(Fig. 19)
FRONT DOOR	(Fig. 20)
REAR DOOR	(Fig. 21)
ROOF	(Fig. 22)
DECKLID	(Fig. 23)
DASH PANEL (OUTER)	(Fig. 24)
DASH PANEL (INNER)	(Fig. 25)
FRONT FLOOR PAN	(Fig. 26)
TUNNEL	(Fig. 27)
REAR FLOOR (1 OF 2)	(Fig. 28)
REAR FLOOR (2 OF 2)	(Fig. 29)
INNER BODY SIDE	(Fig. 30)
WHEELHOUSE	(Fig. 31)
REAR SHELF	(Fig. 32)
TRUNK FLOOR (1 OF 3)	(Fig. 33)
TRUNK FLOOR (2 OF 3)	(Fig. 34)
TRUNK FLOOR (3 of 3)	(Fig. 35)

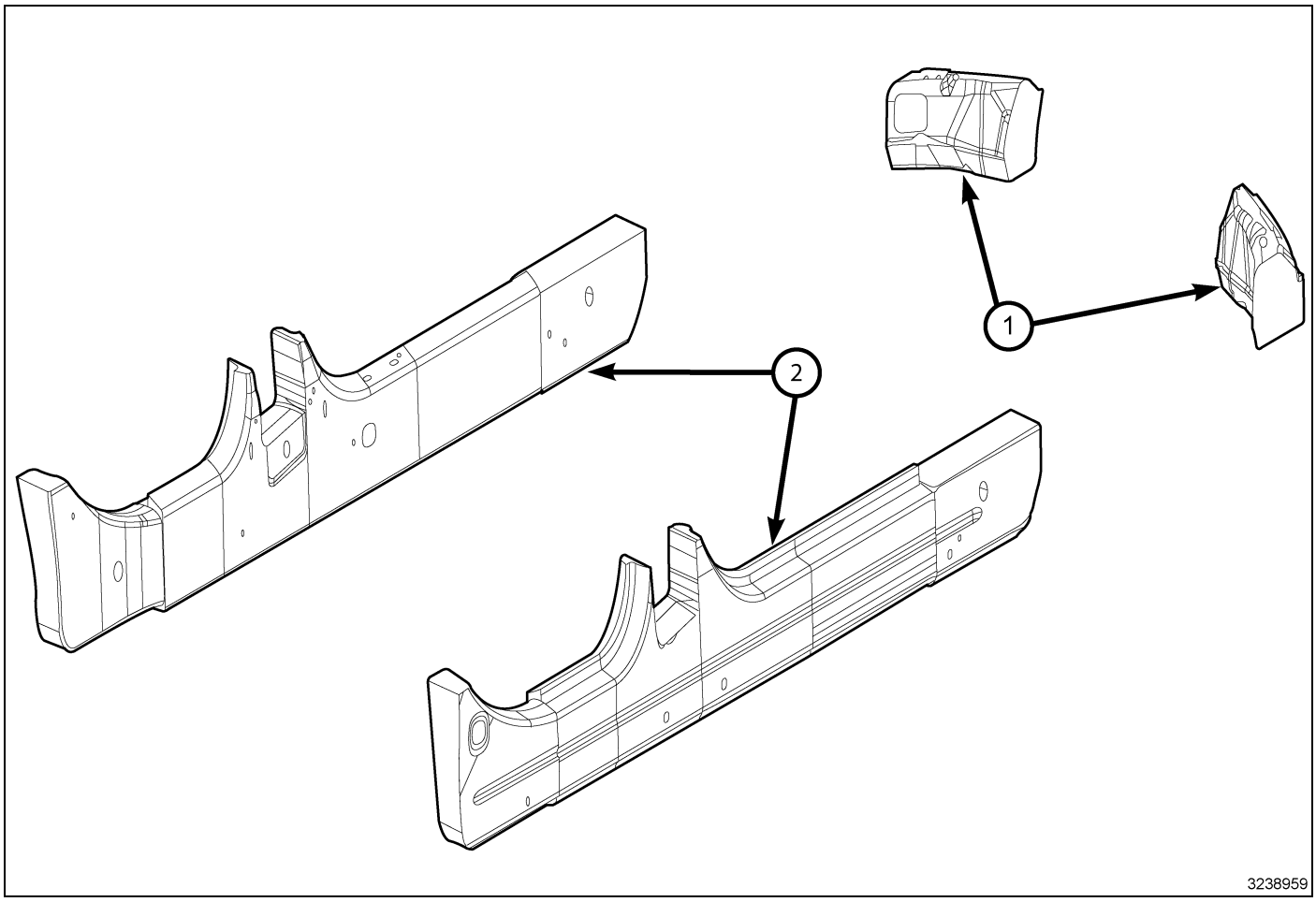


Fig. 17 PUR Foam Locations

1 - COWL (LEFT AND RIGHT)

2 - ROCKER / B AND C-PILLARS (LOWER)

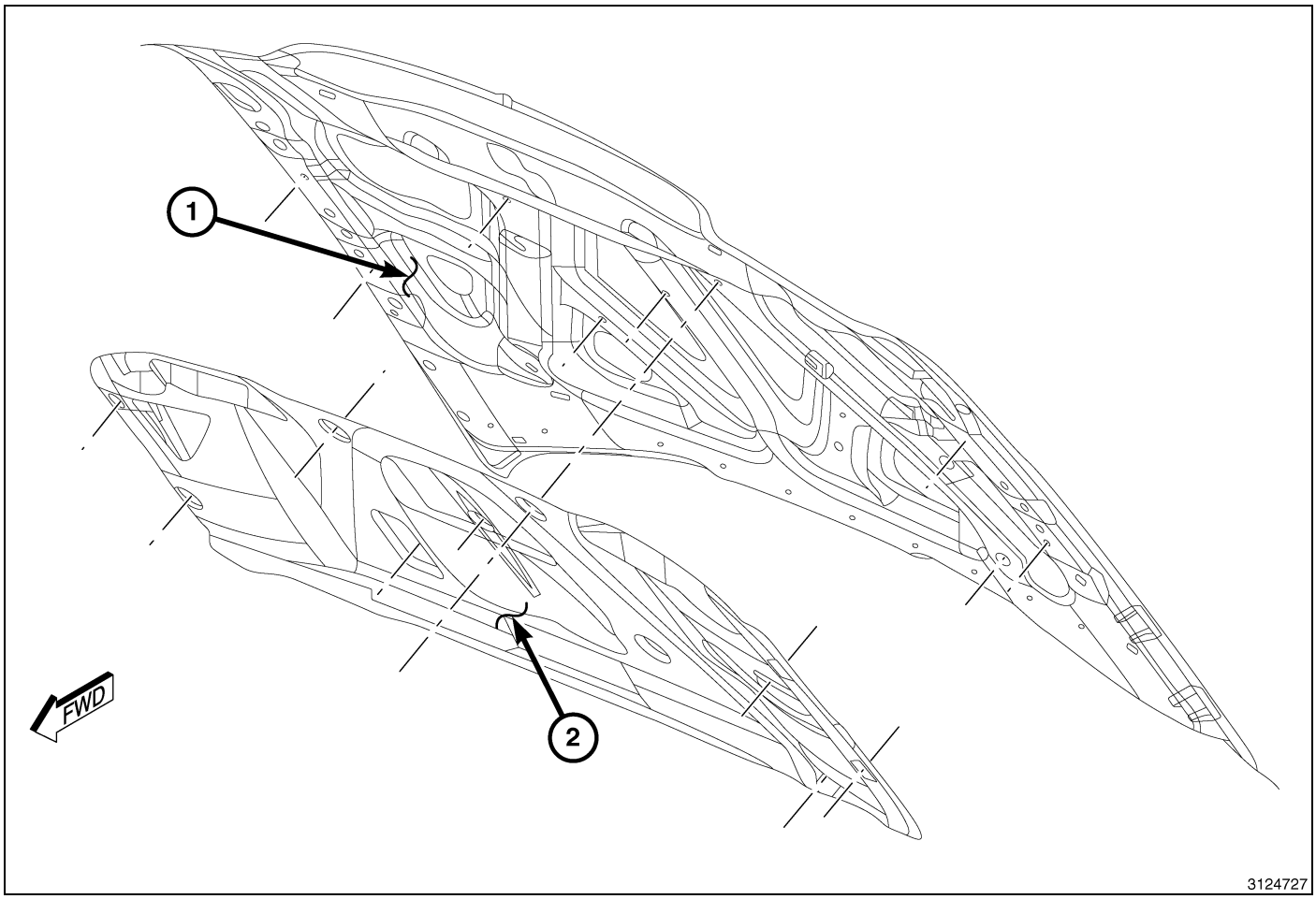


Fig. 18 Hood

1 - HOOD

2 - HOOD SILENCER PAD

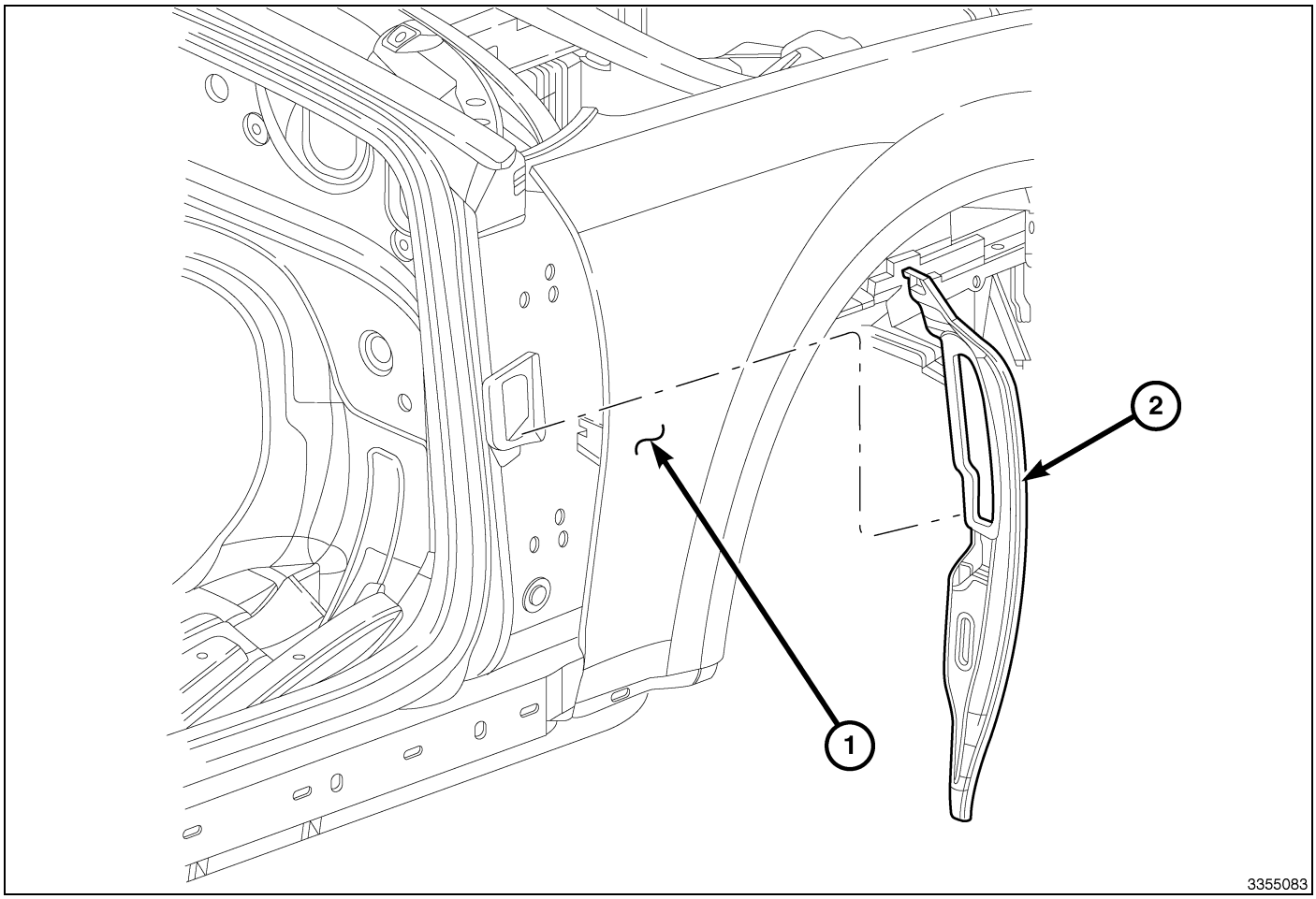


Fig. 19 Fender

NOTE: Right side shown, left side typical

1 - FENDER

2 - FENDER SILENCER PAD

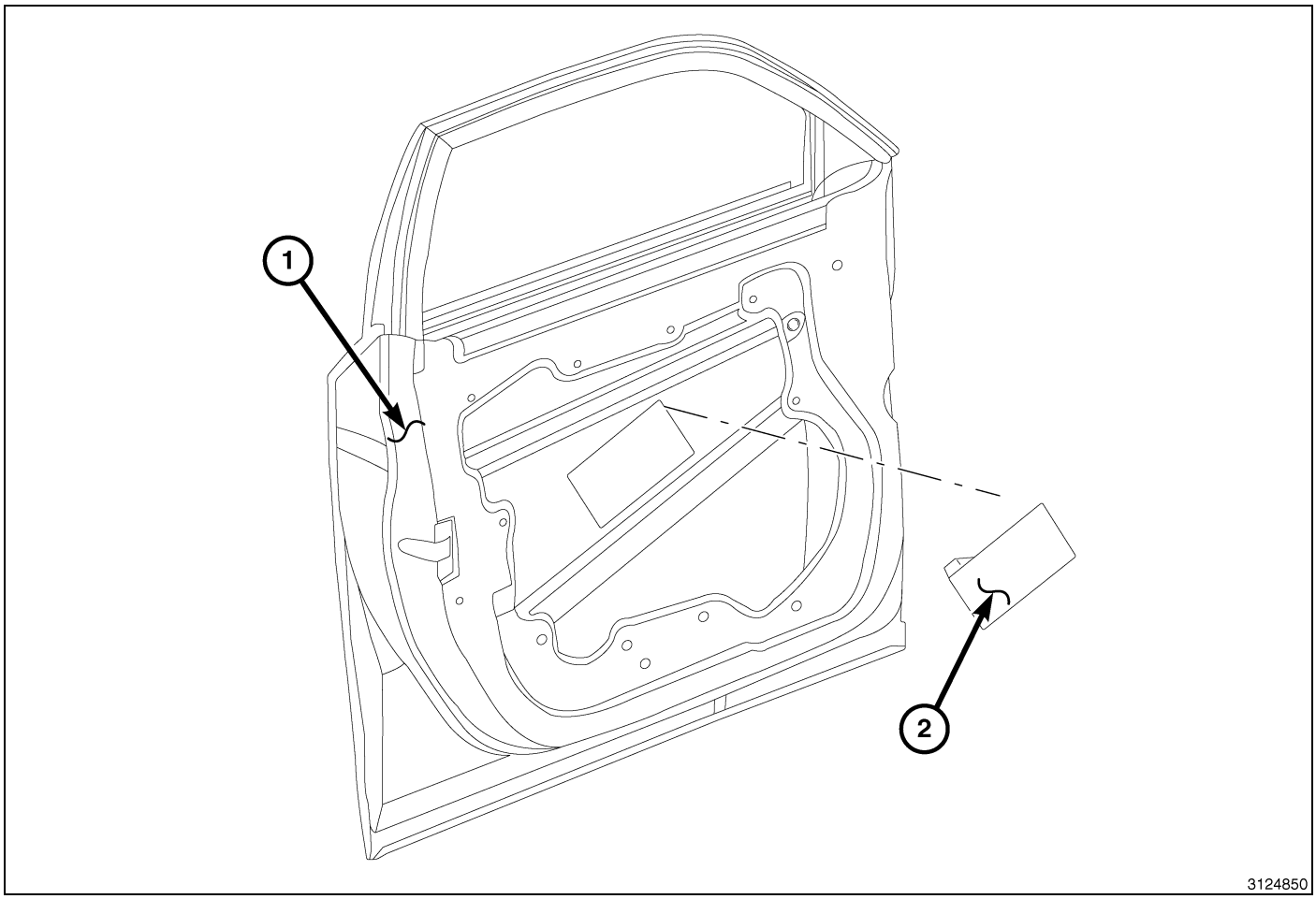


Fig. 20 Front Door

NOTE: Left side shown, right side typical

1 - FRONT DOOR

2 - MASTIC PAD

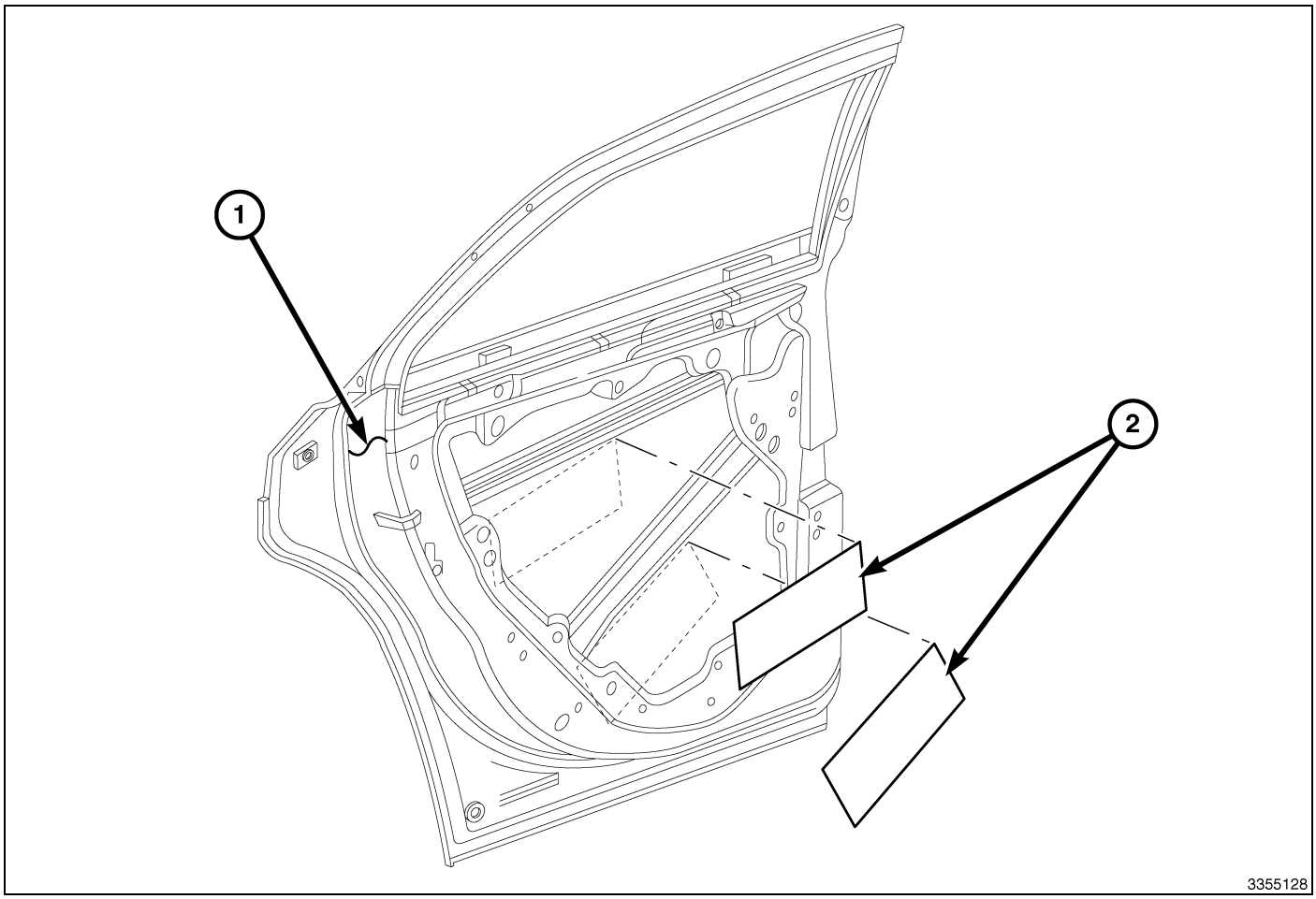


Fig. 21 Rear Door

NOTE: Left side shown, right side typical

1 - REAR DOOR

2 - MASTIC PADS

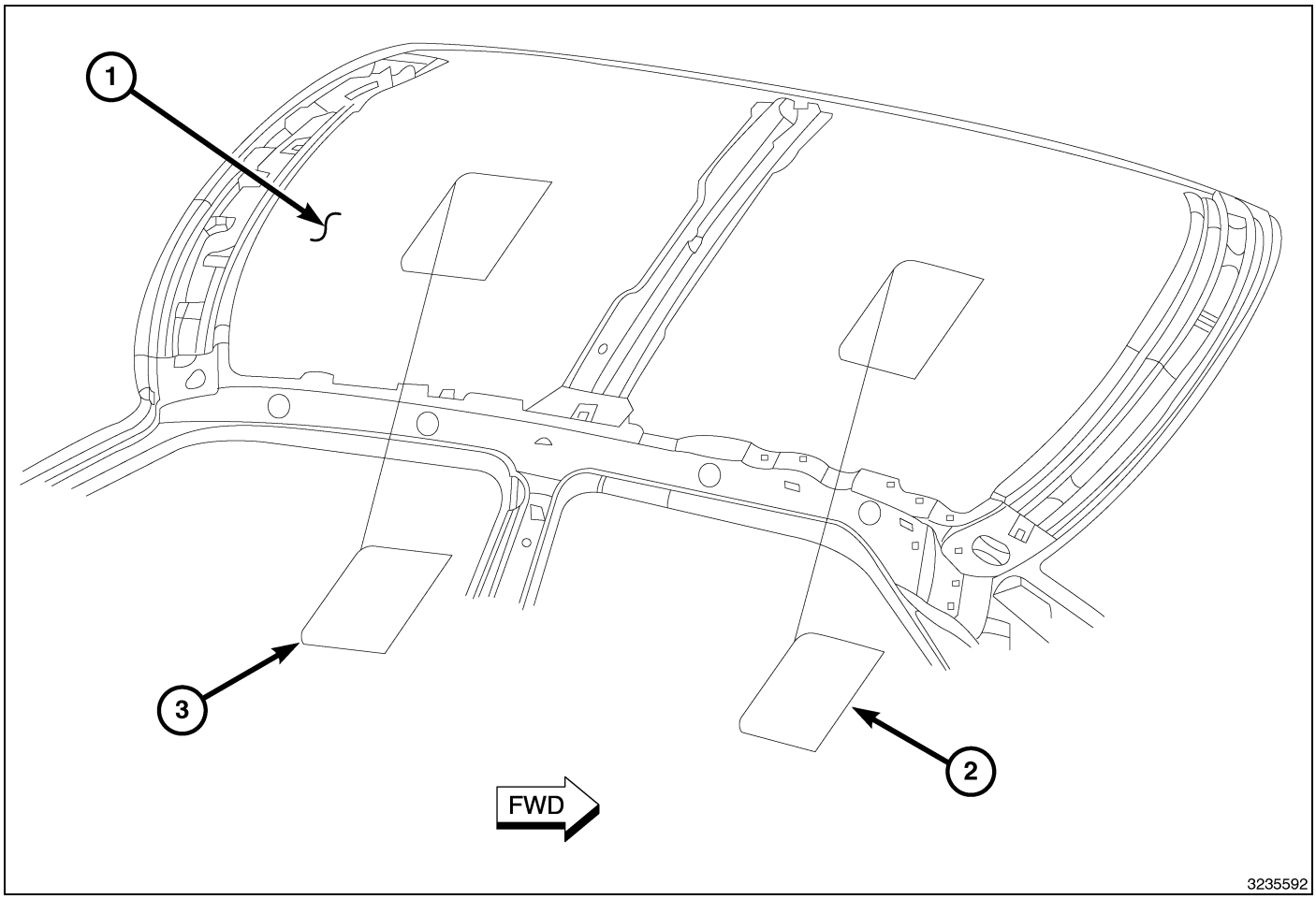


Fig. 22 Roof

1 - ROOF
2 - MASTIC PAD (STANDARD ROOF ONLY)
3 - MASTIC PAD (STANDARD ROOF ONLY)

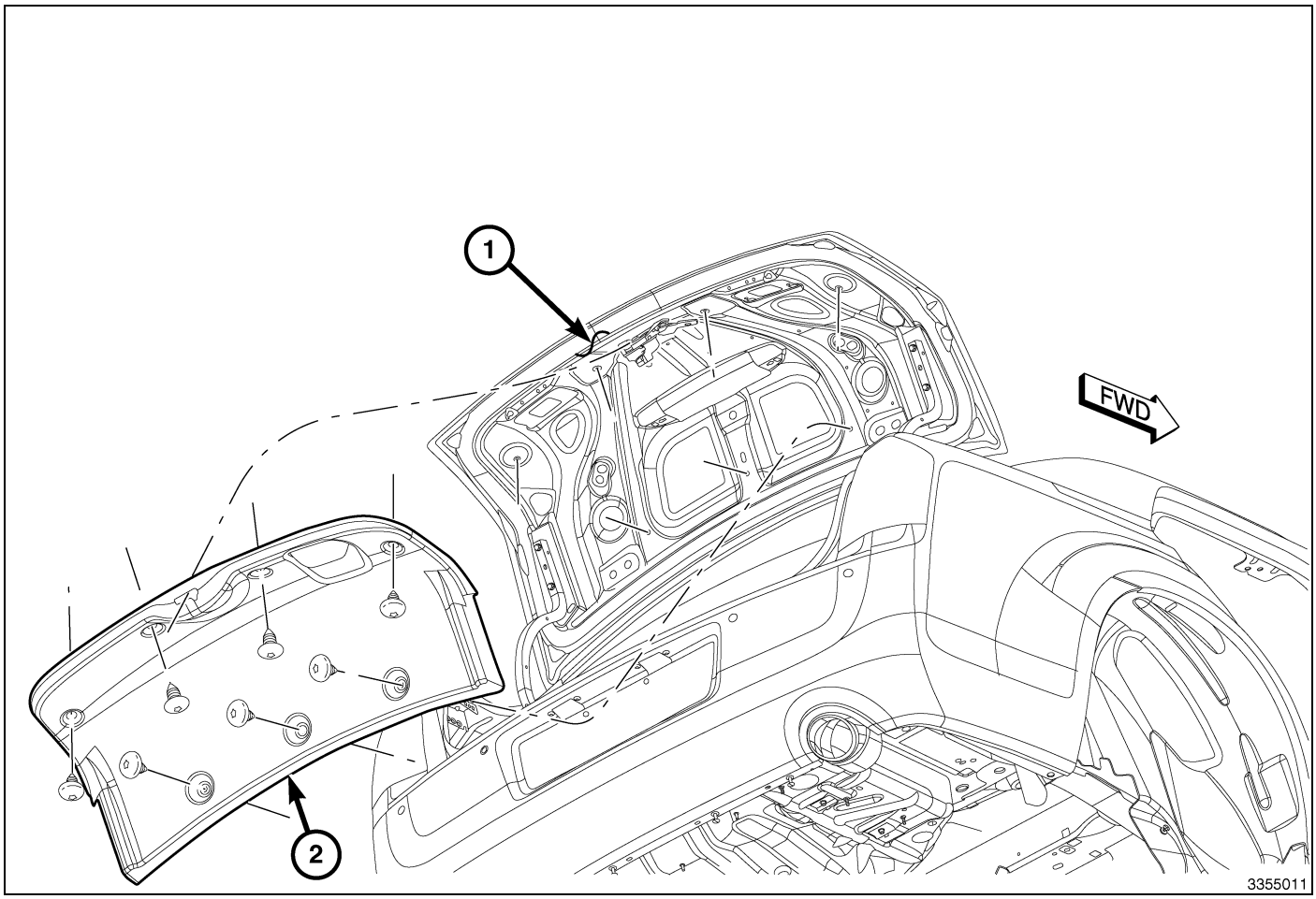


Fig. 23 Decklid

1 - DECKLID

2 - DECKLID SILENCER PAD

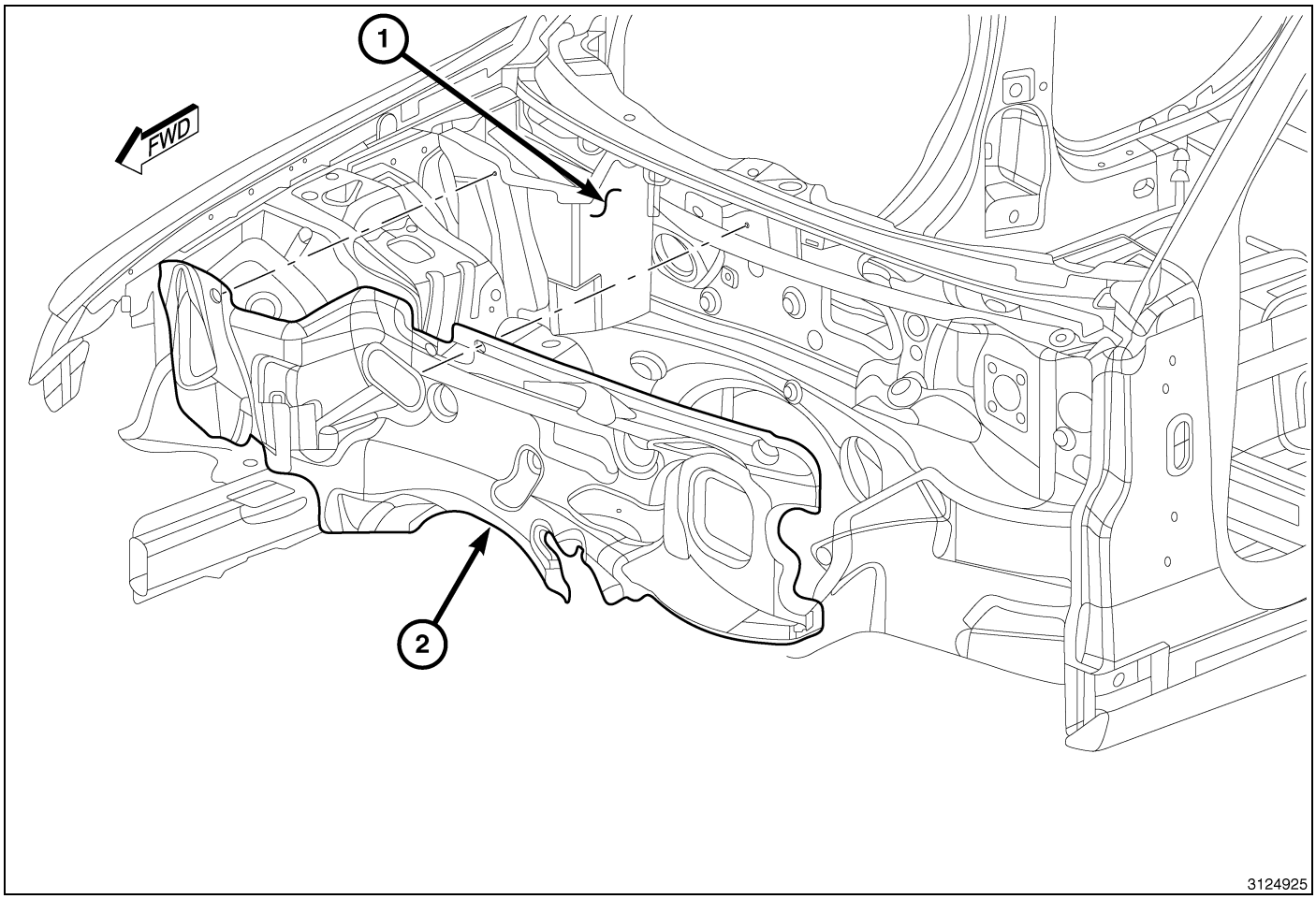


Fig. 24 Dash Panel (Outer)

1 - DASH PANEL

2 - DASH PANEL SILENCER PAD

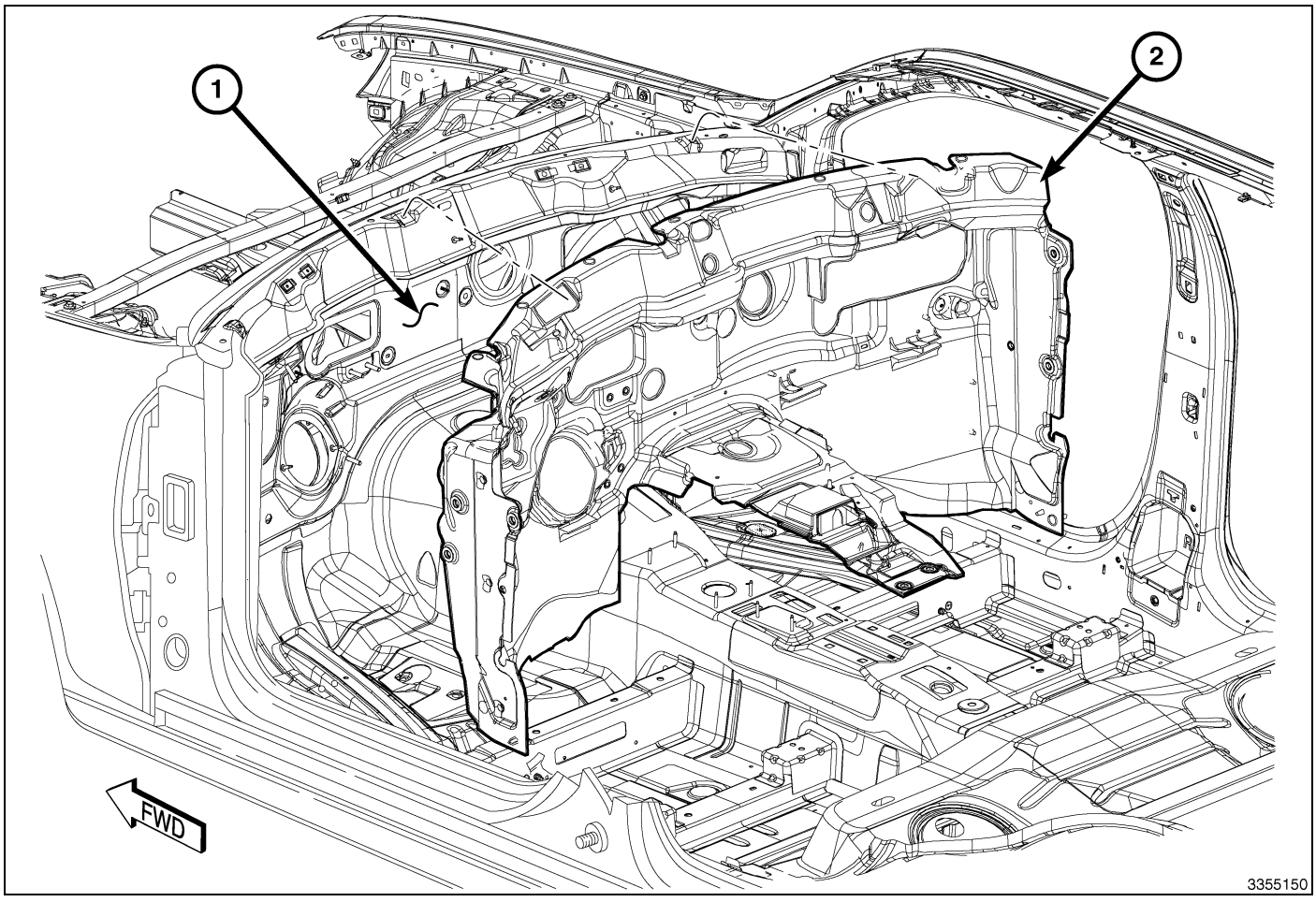


Fig. 25 Dash Panel (Inner)

1 - DASH PANEL

2 - DASH PANEL SILENCER PAD (INNER)

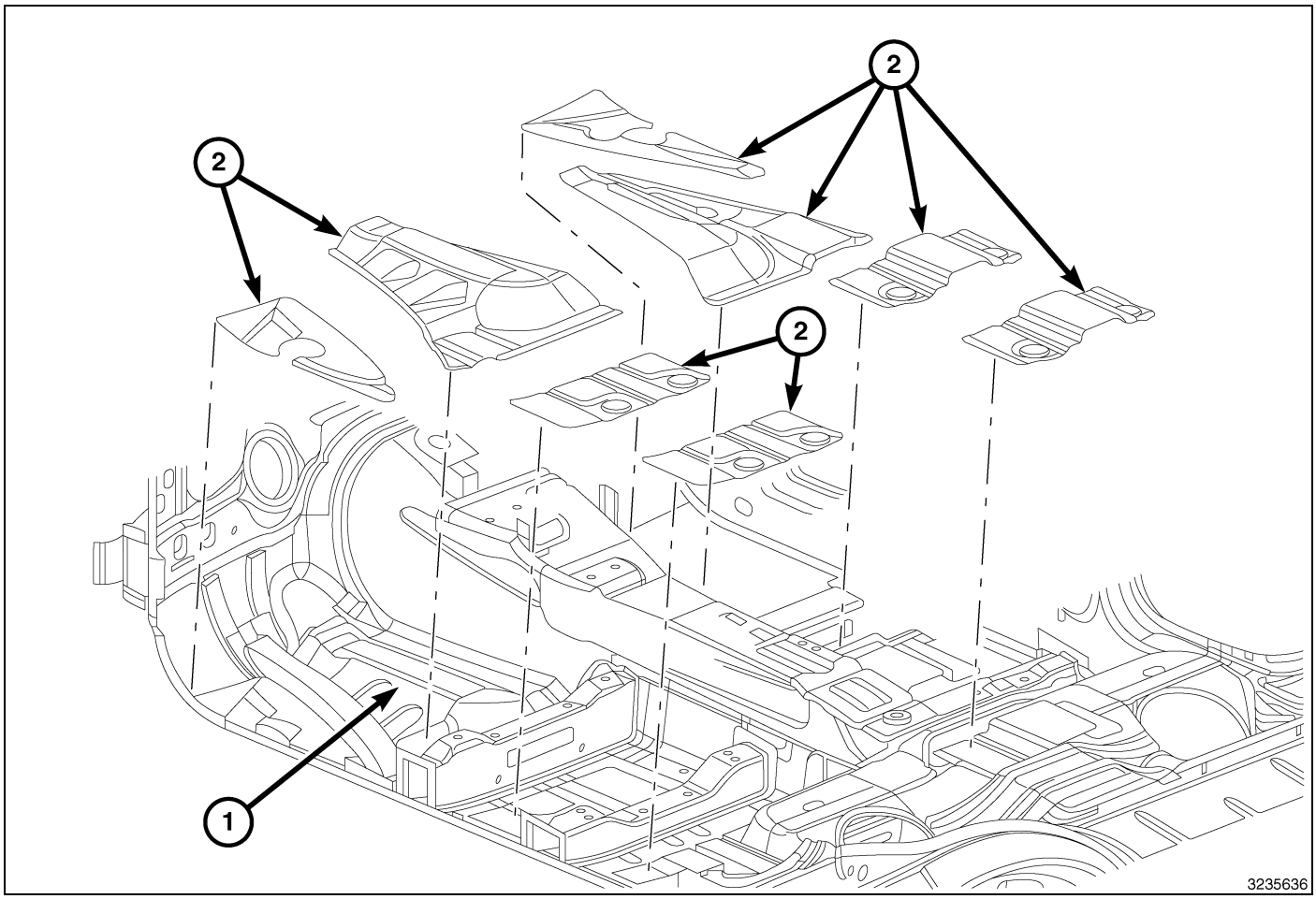


Fig. 26 Front Floor

1 - FRONT FLOOR
2 - MASTIC PADS

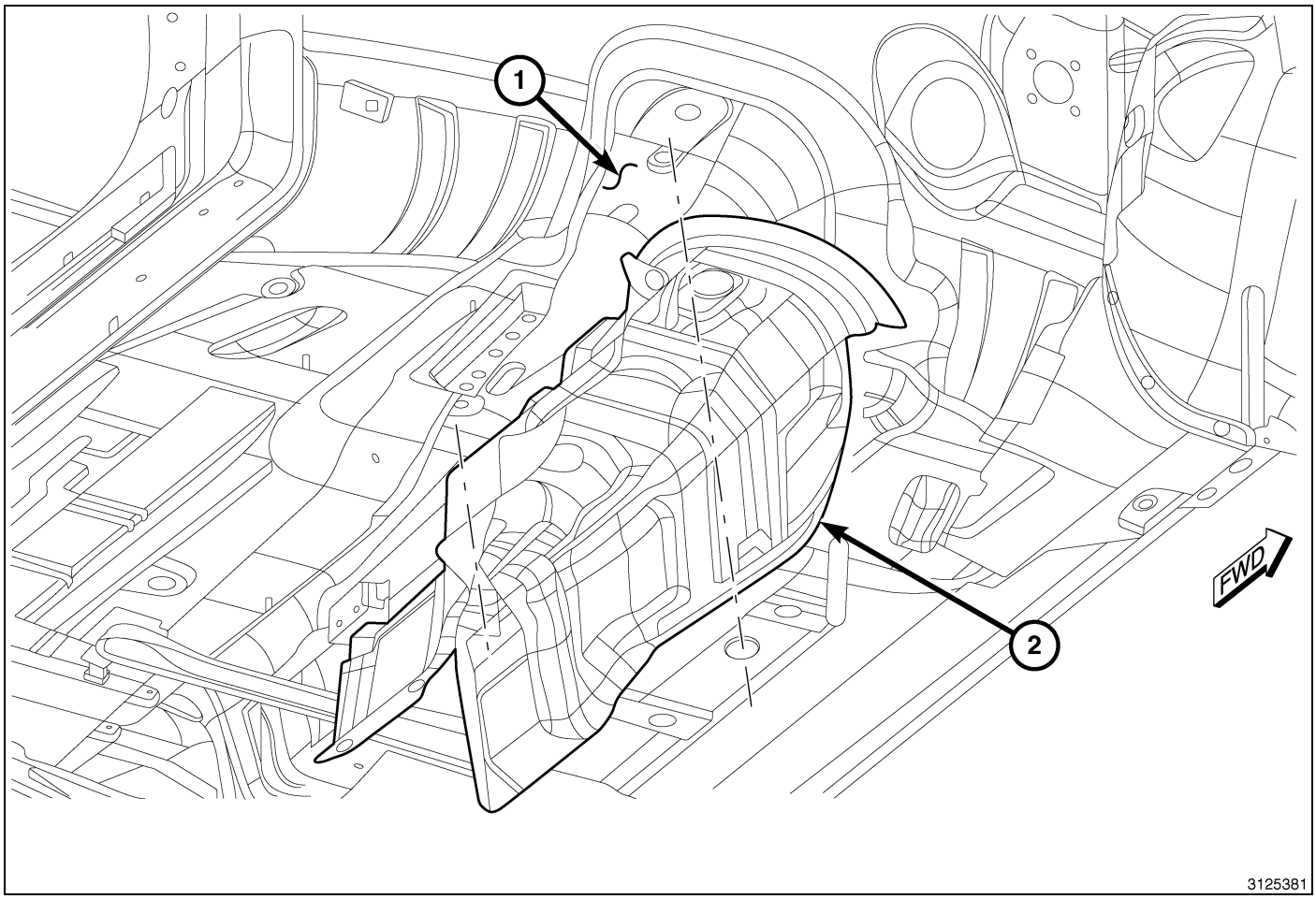


Fig. 27 Exterior Tunnel

1 - FRONT FLOOR

2 - EXTERIOR TUNNEL SILENCER PAD

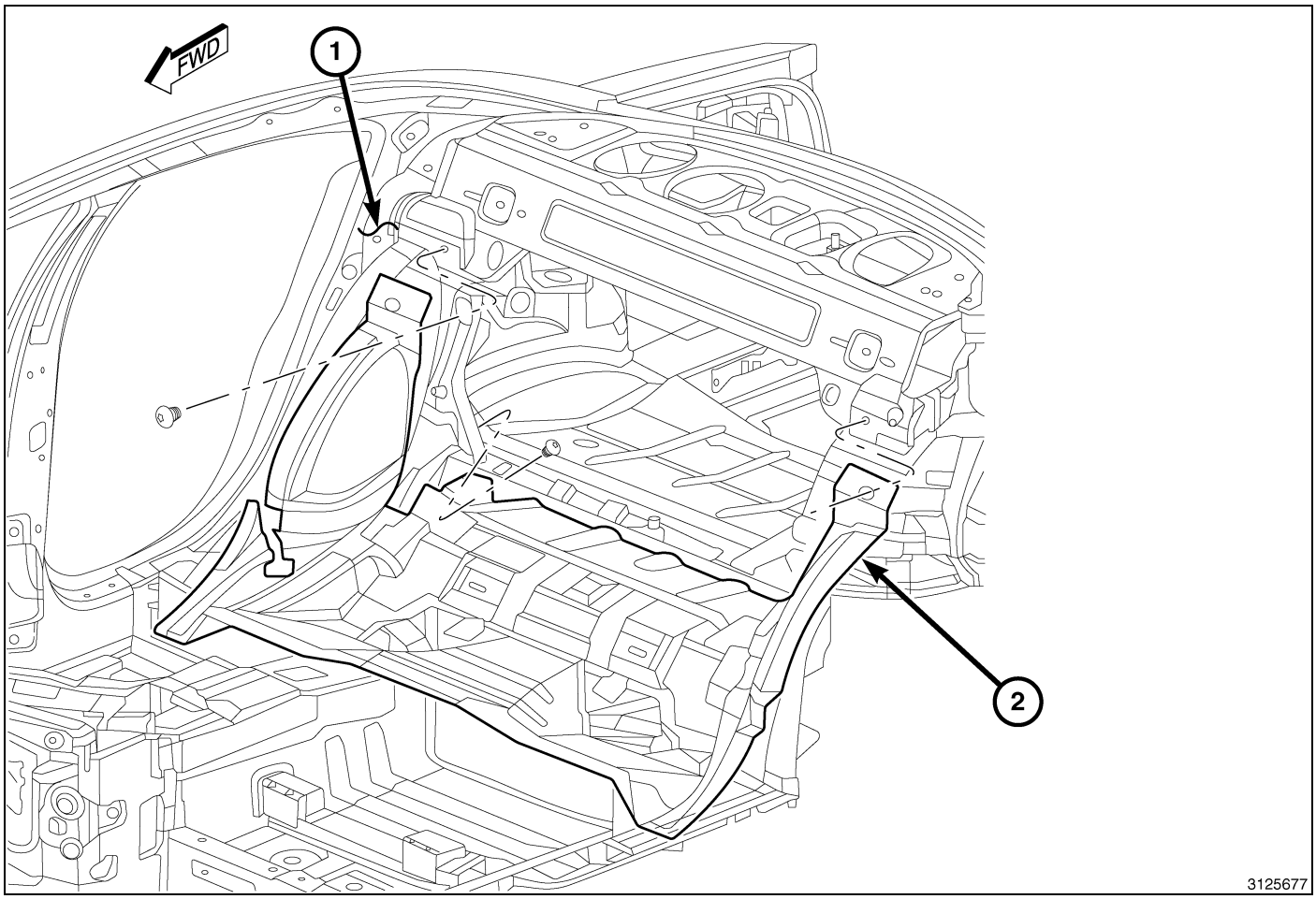


Fig. 28 Rear Floor (1 of 2)

1 - REAR FLOOR

2 - REAR FLOOR SILENCER PAD

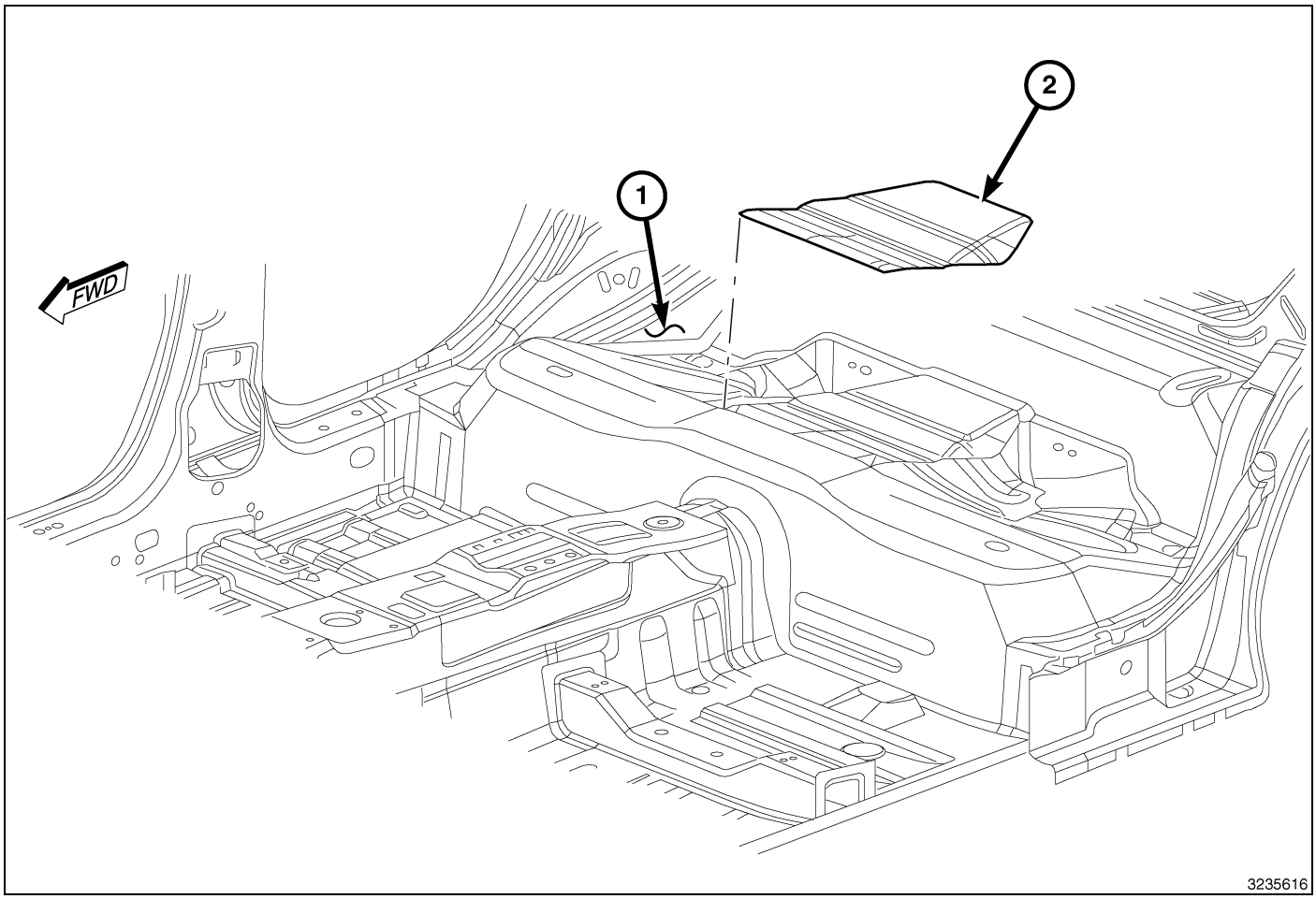


Fig. 29 Rear Floor (2 OF 2)

1 - REAR FLOOR
2 - MASTIC PAD

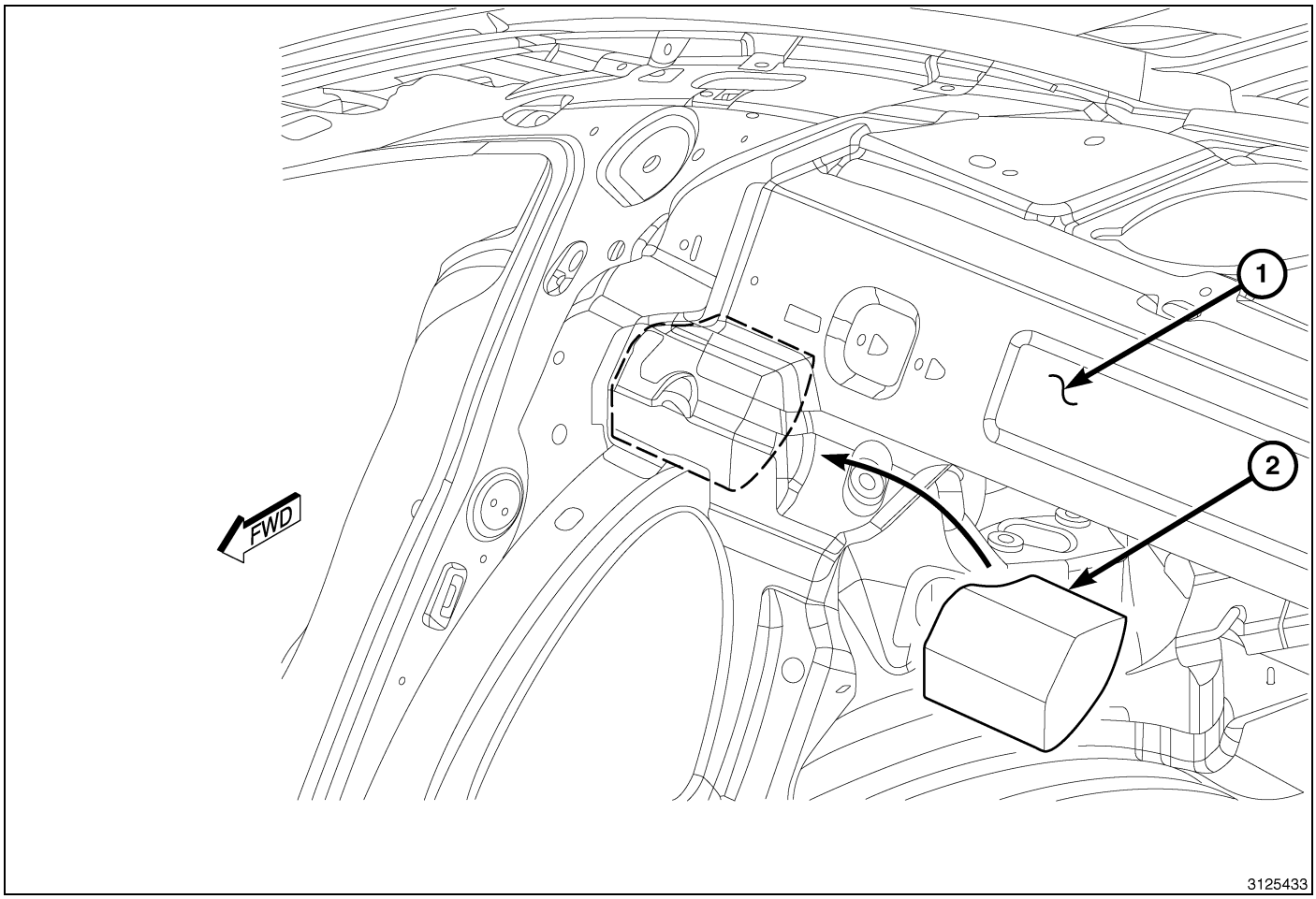


Fig. 30 Inner Body Side

NOTE: Right side shown, left side typical

1 - REAR SHELF

2 - STUFFER PAD

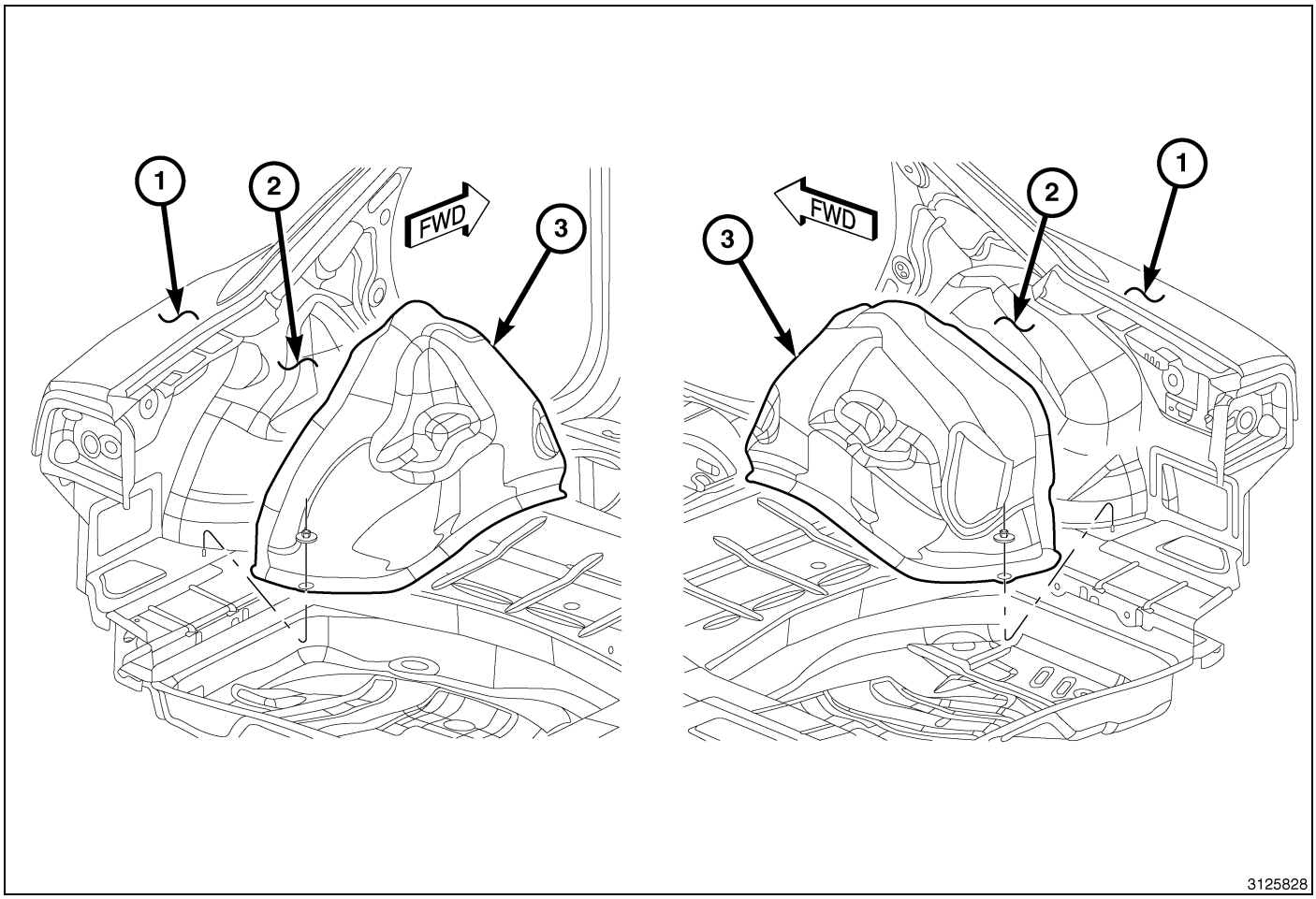


Fig. 31 Wheelhouse

NOTE: LD shown, LX typical

1 - INNER WHEELHOUSE

2 - WHEELHOUSE SILENCER PAD

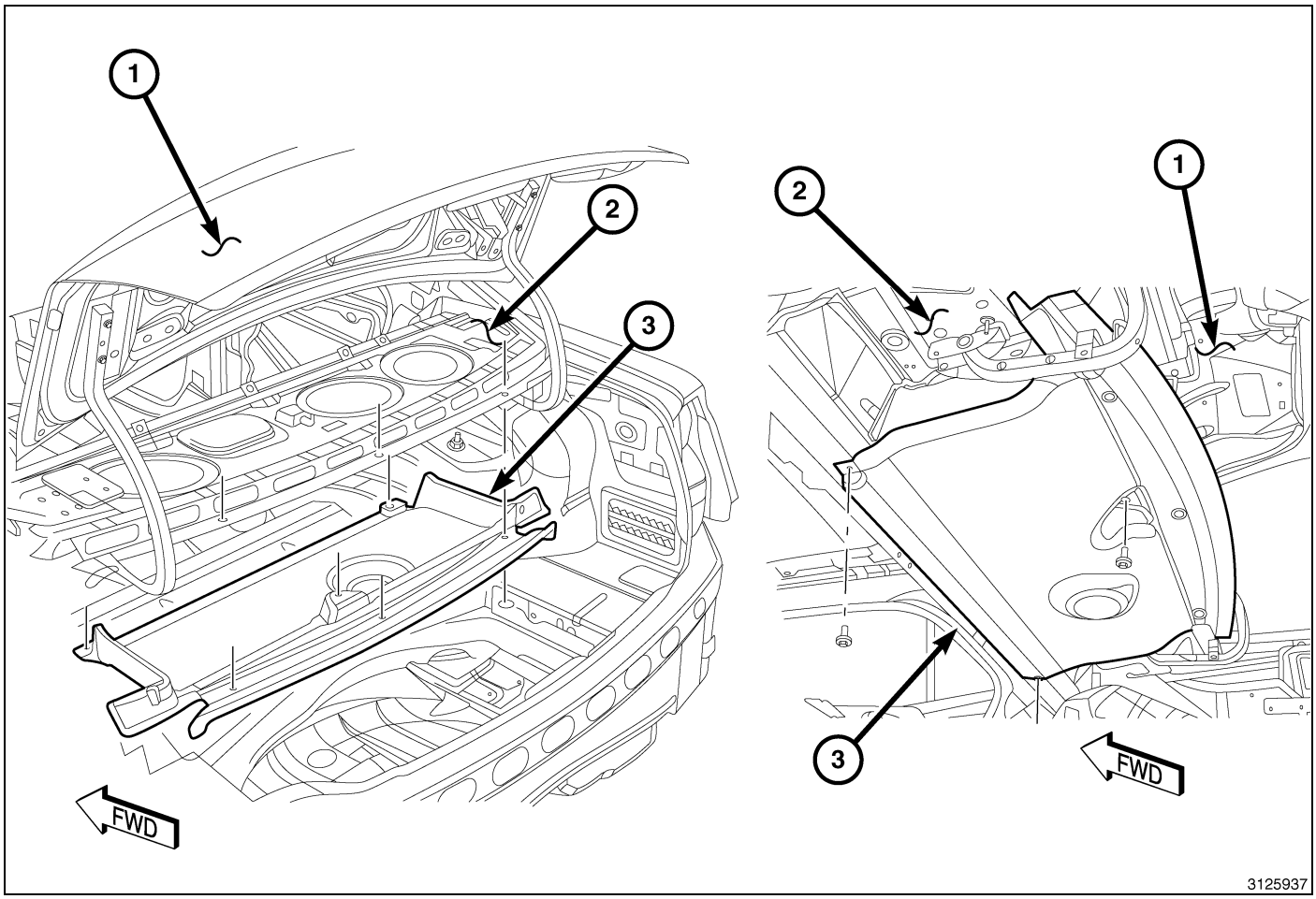


Fig. 32 Rear Shelf

1 - DECK LID
2 - REAR SHELF
3 - SILENCER COVER

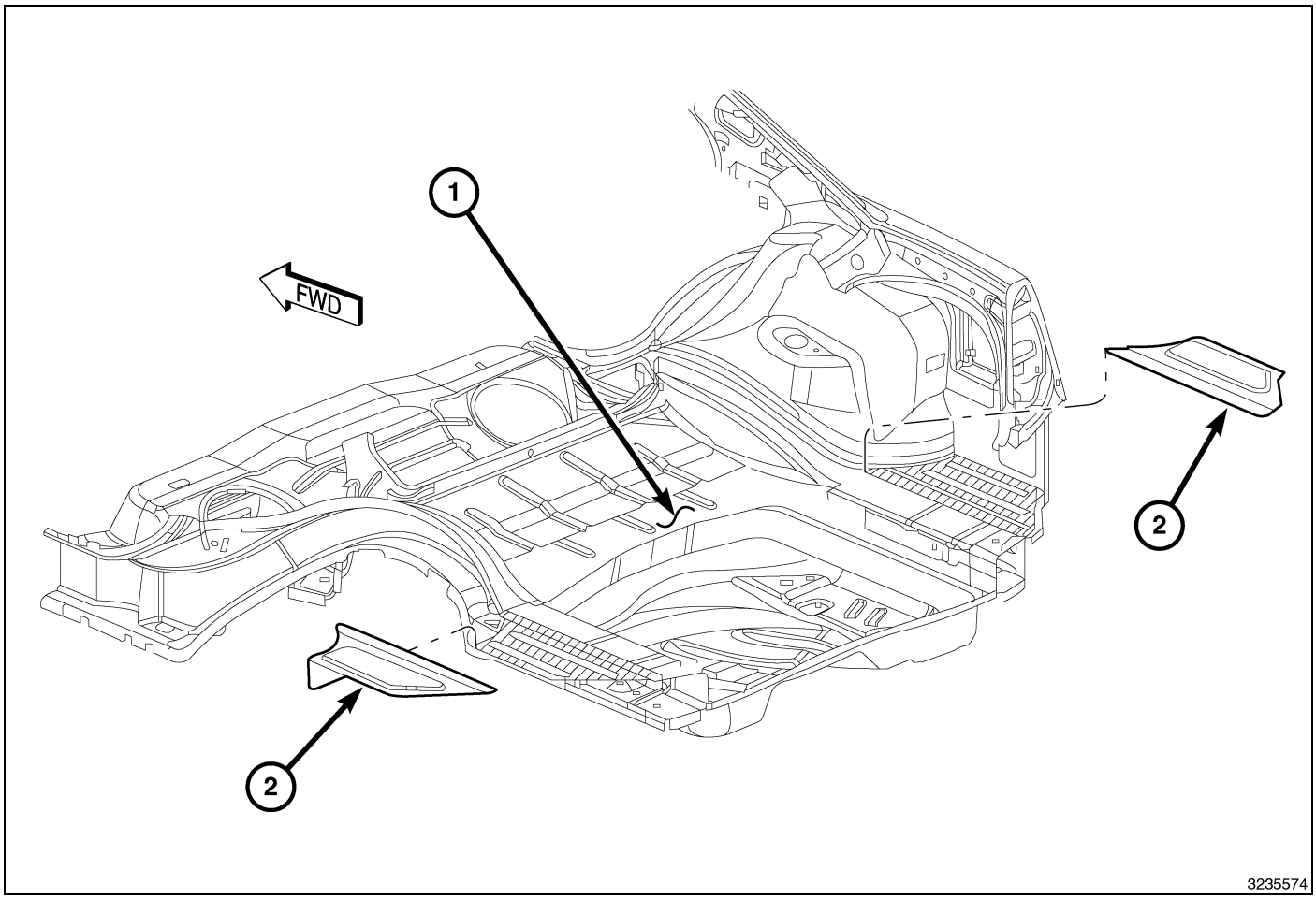


Fig. 33 Trunk Floor (1 of 3)

1 - REAR FLOOR (TRUNK AREA)

2 - MASTIC PAD

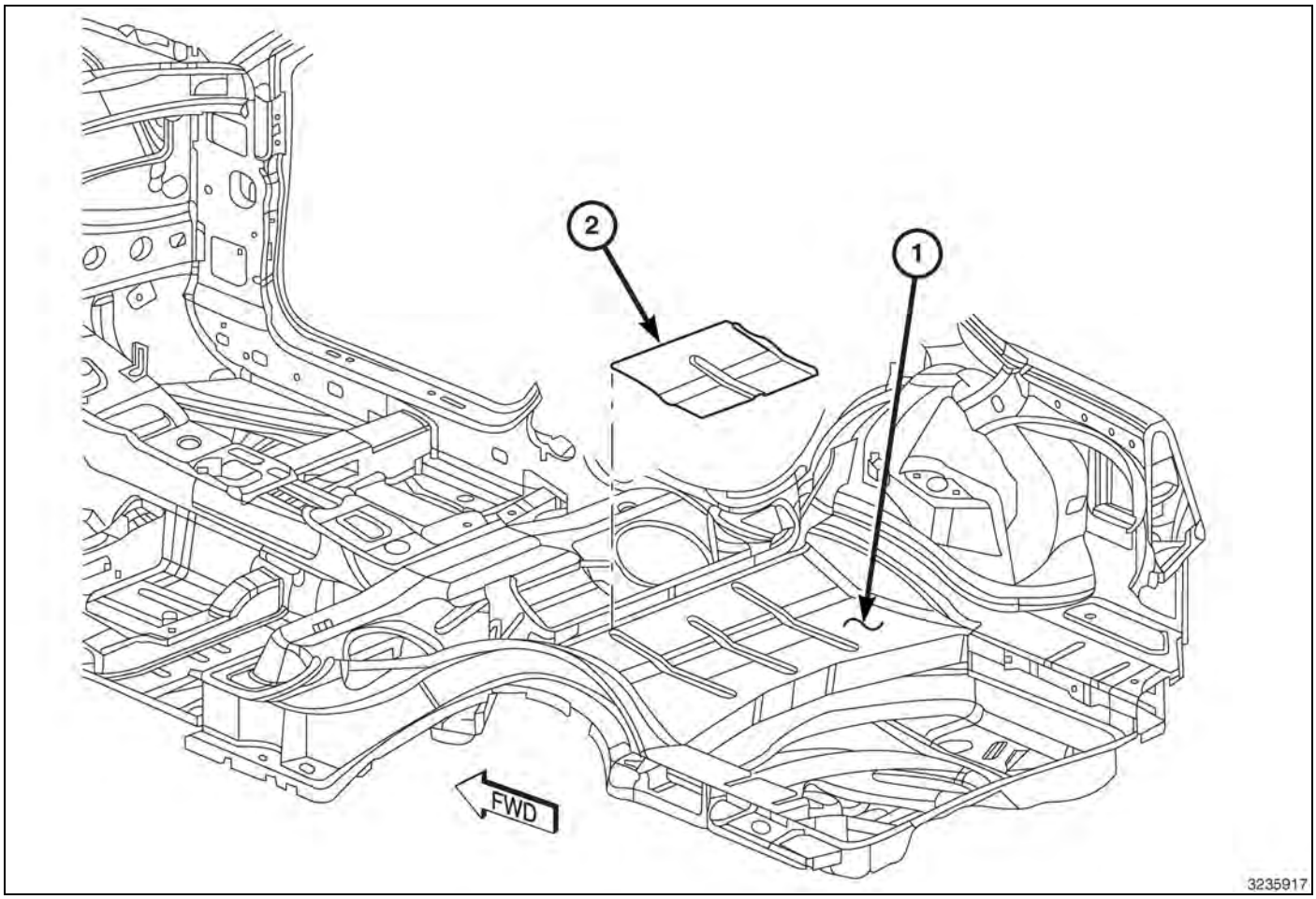


Fig. 34 Trunk Floor (2 of 3)

1 - REAR FLOOR (TRUNK AREA)

2 - MASTIC PAD

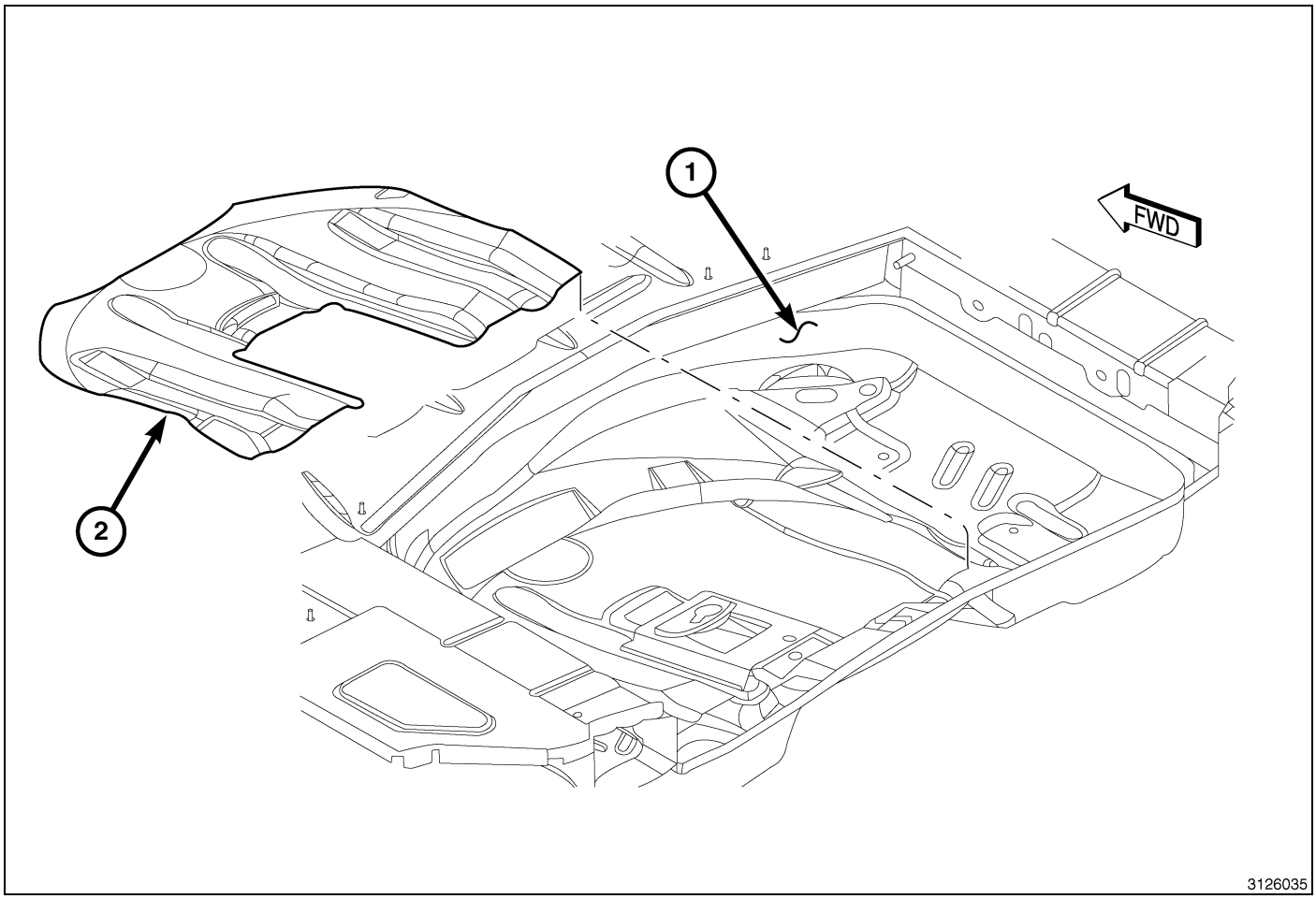


Fig. 35 Trunk Floor (3 of 3)

1 - SPARE TIRE WELL

2 - MASTIC PAD

STRUCTURAL ADHESIVE, FLEXIBLE ADHESIVES AND SEAM SEALER LOCATIONS

Structural adhesives, flexible adhesives and seam sealers should only be applied by trained technicians. Follow the manufacture instructions for proper applications of products.

Structural adhesive is applied by itself or in conjunction with Squeeze Type Resistance Spot Welds and is to be re-assembled in the same manner as vehicle build. Any situation where it is undetermined weather it is structural adhesives or seam sealer always default to structural adhesive .

Anti- flutter adhesive is applied to areas of the vehicle where adhesive properties with flexibility are required. Typically found on supports and braces throughout the closure panels, roof and body side gas fill areas.

Seam sealers are only to be used topically, never within weld flanges or hem flanges. All sealers being replaced should duplicate the factory style sealer in shape and size.

For additional information on Corrosion Protection, (Refer to Collision Information - Standard Procedure), and Sealer and Sound Description, (Refer to Collision Information - Material Locations)

Chrysler approved replacement materials include -

- **Structural Adhesives :** Mopar #05083855AA, Fusor 112B, 3M 08116, or equivalent.
- **Anti-FlutterAdhesives (flexible) :** Fusor #121or #124 Flexible Foam), 3M 8463 Flexible Foam, Crest #CFF Flexi-Foam or equivalent.
- **Seam Sealer :** Mopar #04318026, Fusor 129, 3M 08308, or equivalent.

SEALER TYPE	COLOR
Structural Adhesive	Red

SEALER TYPE	COLOR
Anti-Flutter Adhesive	Green
Seam Sealer	Blue

DESCRIPTION	FIGURE
Hood	(Fig. 36)
Front Door (1 of 2)	(Fig. 37)
Front Door (2 of 2)	(Fig. 38)
Rear Door (1 of 2)	(Fig. 39)
Rear Door (2 of 2)	(Fig. 40)
Decklid	(Fig. 41)
Engine Box	(Fig. 42)
Left Body Side Aperture	(Fig. 43)
Right Body Side Aperture	(Fig. 44)
Standard Roof	(Fig. 45)
Dual Pane Sunroof Roof (1 of 2)	(Fig. 46)
Dual Pane Sunroof Roof (2 of 2)	(Fig. 47)
Standard Roof and Sunroof Roof	(Fig. 48)
A-pillar / Load Path Beam	(Fig. 49)
Strut Tower	(Fig. 50)
Cowl / Dash	(Fig. 51)
Outer Body Side Aperture	(Fig. 52)
Inner Body Side Aperture	(Fig. 53)
Upper Load Path Beam / Lower Hinge Reinforcement	(Fig. 54)
Dash / Body Side Inner	(Fig. 55)
Dash / Front Floor (1 of 2)	(Fig. 56)
Dash / Cowl / Front Floor (2 of 2)	(Fig. 57)
Front Floor	(Fig. 58)
Rear Floor	(Fig. 59)
Rear Floor Crossmember	(Fig. 60)
Rear Inner Wheelhouse (1 of 3)	(Fig. 61)
Rear Inner Wheelhouse (2 of 3)	(Fig. 62)
Rear Inner Wheelhouse (3 of 3)	(Fig. 63)
Rear Wheelhouse	(Fig. 64)
Rear Inner Wheelhouse (Exterior)	(Fig. 65)
Outer Wheelhouse	(Fig. 66)
Left Wheelhouse (Inner / Outer)	(Fig. 67)
Right Wheelhouse (Inner / Outer)	(Fig. 68)
Quarter Panel Extension	(Fig. 69)
Body Side Inner (Rear) / Drain Trough	(Fig. 70)
Drain Trough / Rear Shelf	(Fig. 71)

DESCRIPTION	FIGURE
Drain Trough / Quarter Panel	(Fig. 72)
Rear Rail / Closeout Panel	(Fig. 73)
Drain Trough / Quarter Extension (Interior)	(Fig. 74)
Spare Wheel Tub (Interior)	(Fig. 75)
Spare Wheel Tub (Exterior)	(Fig. 76)
Tail Lamp Pocket	(Fig. 77)

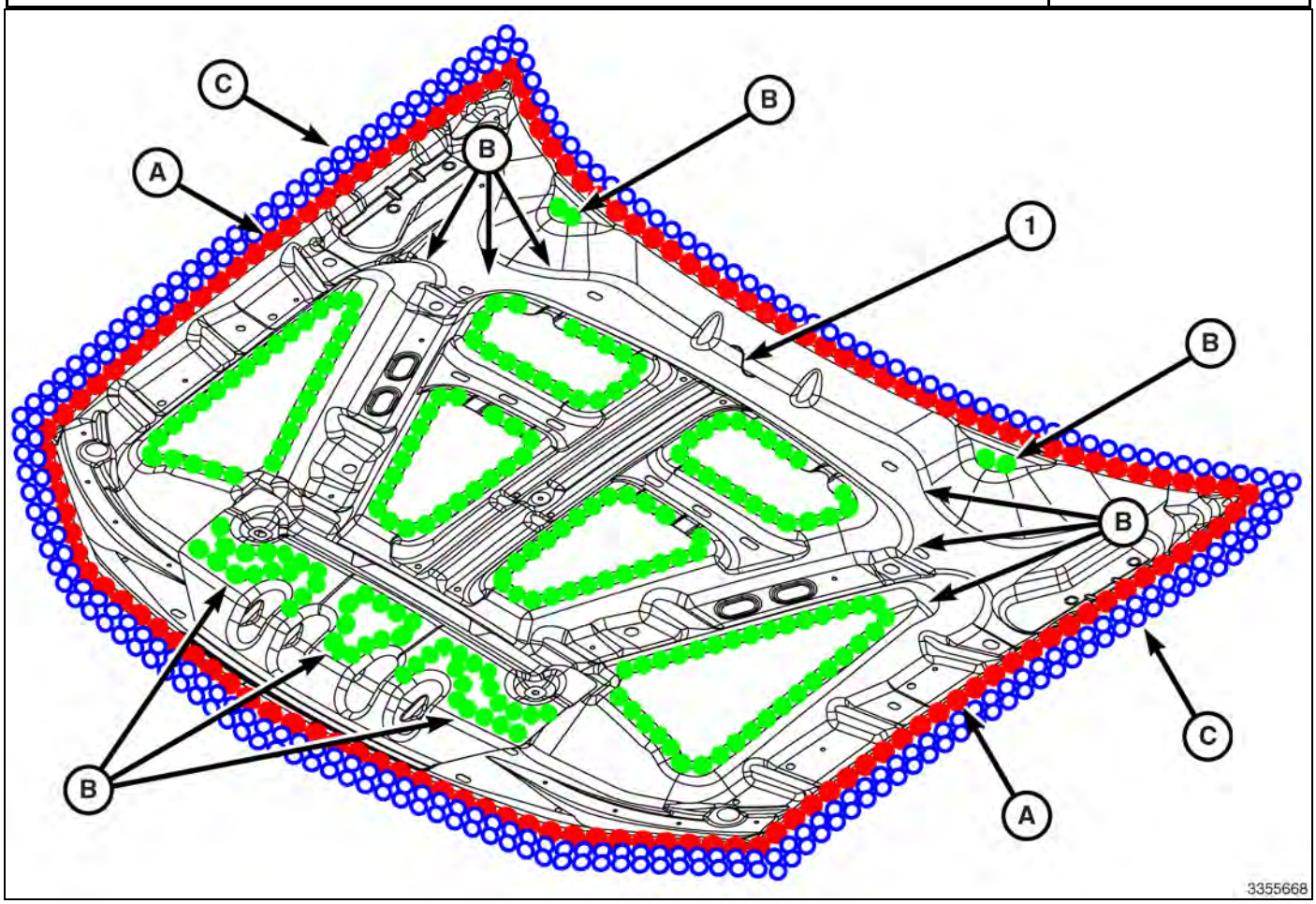


Fig. 36 Hood

NOTE: Double row seam sealer represents factory appearance of seam sealer. Single row represents discrete application to seal and protect yet maintain factory appearance of no sealer

NOTE: Drain holes must remain clear of obstructions from adhesives and sealers

1 - HOOD

A - STRUCTURAL ADHESIVE

B - ANTI-FLUTTER ADHESIVE

C - SEAM SEALER

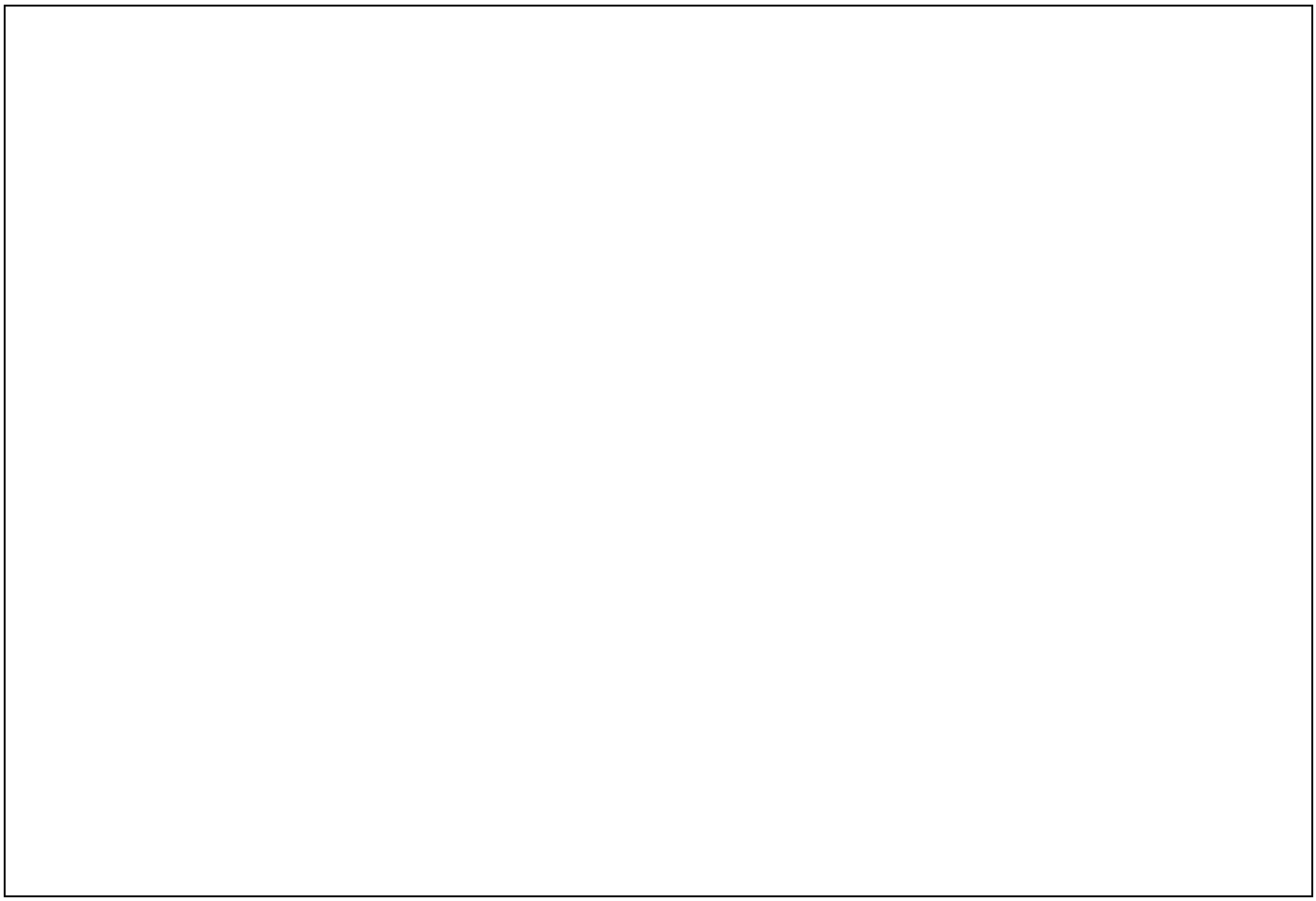


Fig. 37 Front Door (1 of 2)

NOTE: Double row seam sealer represents factory appearance of seam sealer. Single row represents discrete application to seal and protect yet maintain factory appearance of no sealer

NOTE: Drain holes must remain clear of obstructions from adhesives and sealers

1 - FRONT INNER DOOR SHELL

A - STRUCTURAL ADHESIVE

B - ANTI-FLUTTER ADHESIVE

C - SEAM SEALER

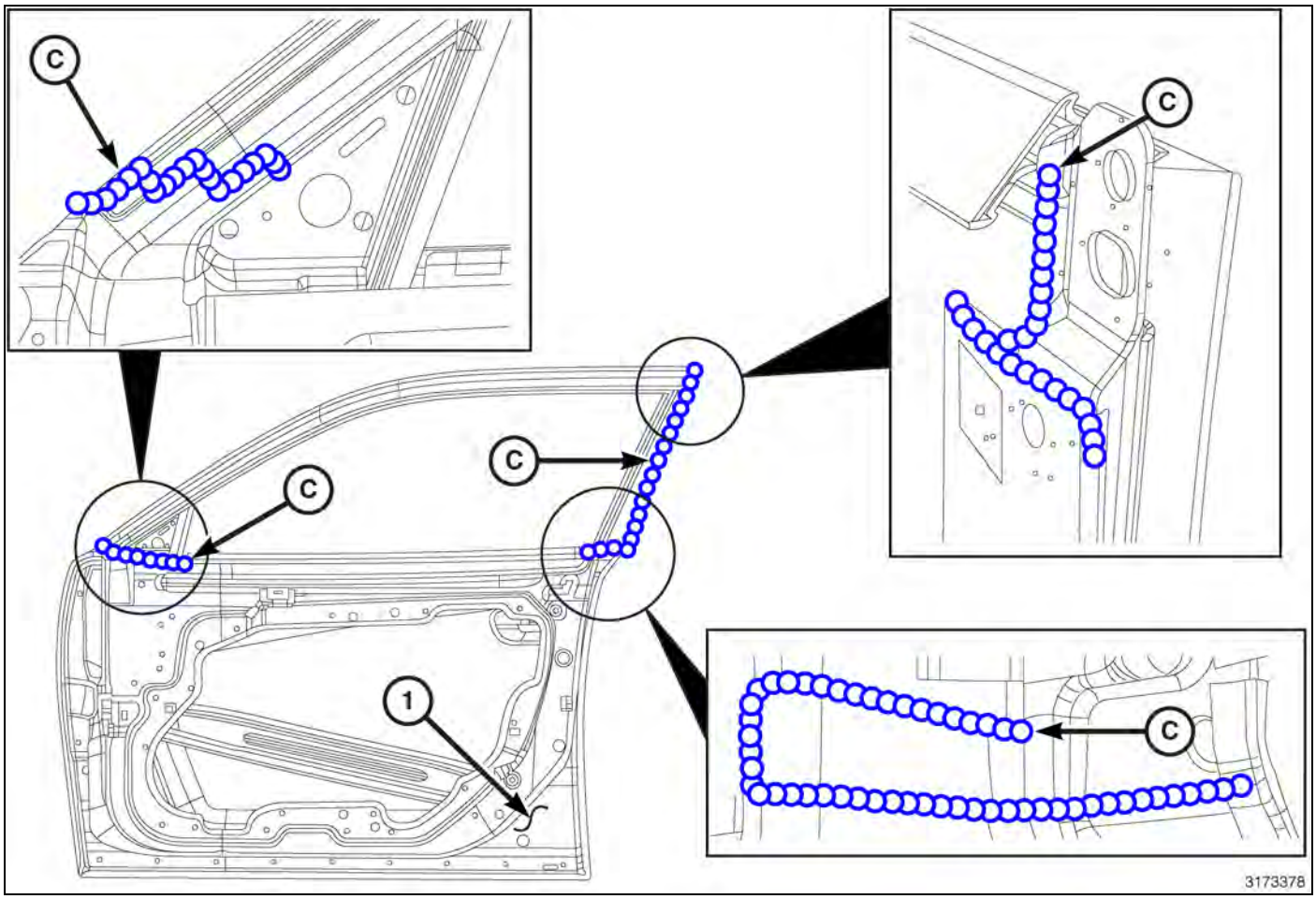


Fig. 38 Front Door (2 of 2)

NOTE: Left side shown, Right side typical

1 - FRONT INNER DOOR SHELL

C - SEAM SEALER

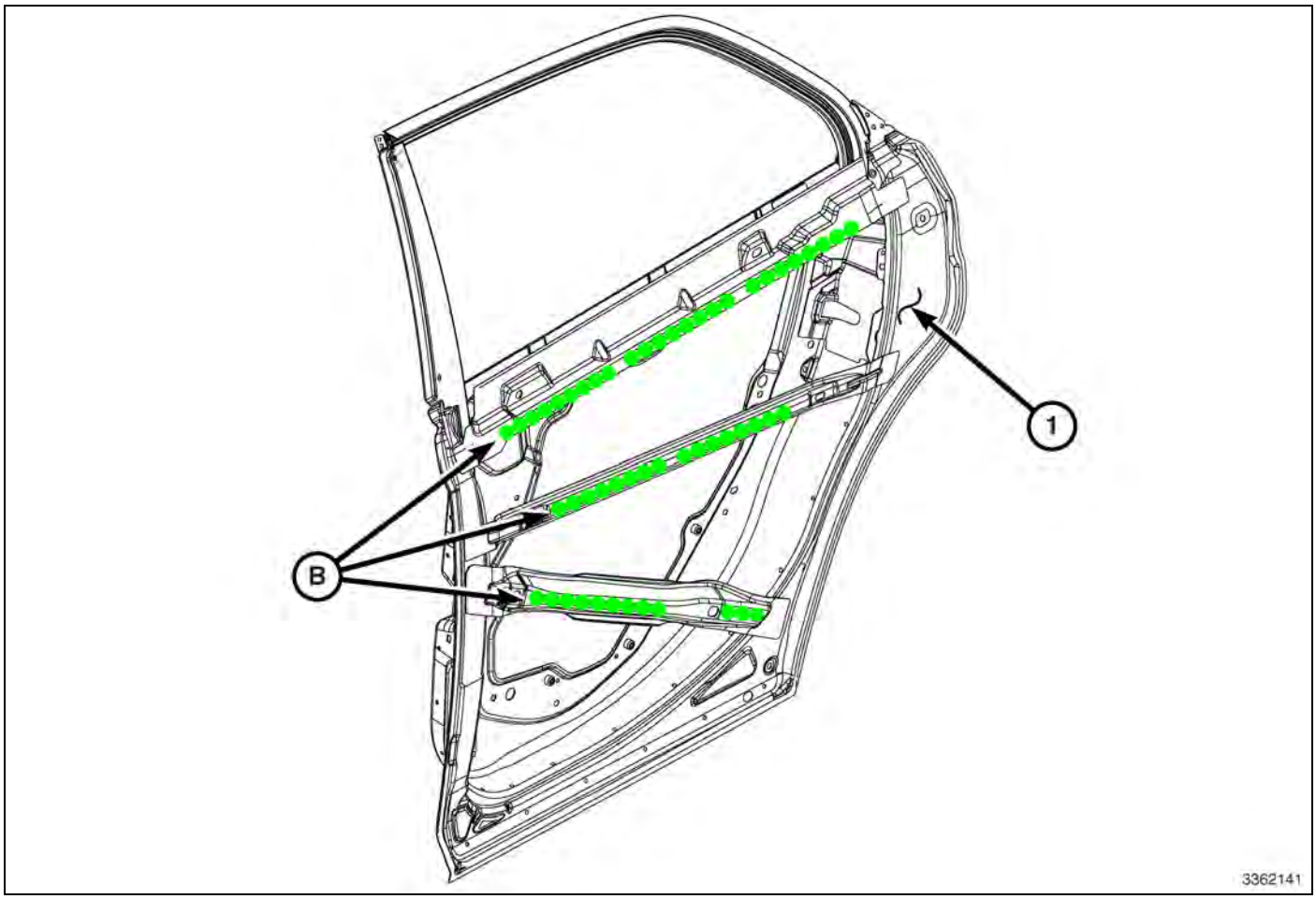


Fig. 39 Rear Door (1 of 2)

NOTE: Left side shown, Right side typical

NOTE: Drain holes must remain clear of obstruction from adhesives and sealers.

1 - REAR INNER DOOR SHELL

B - ANTI-FLUTTER ADHESIVE

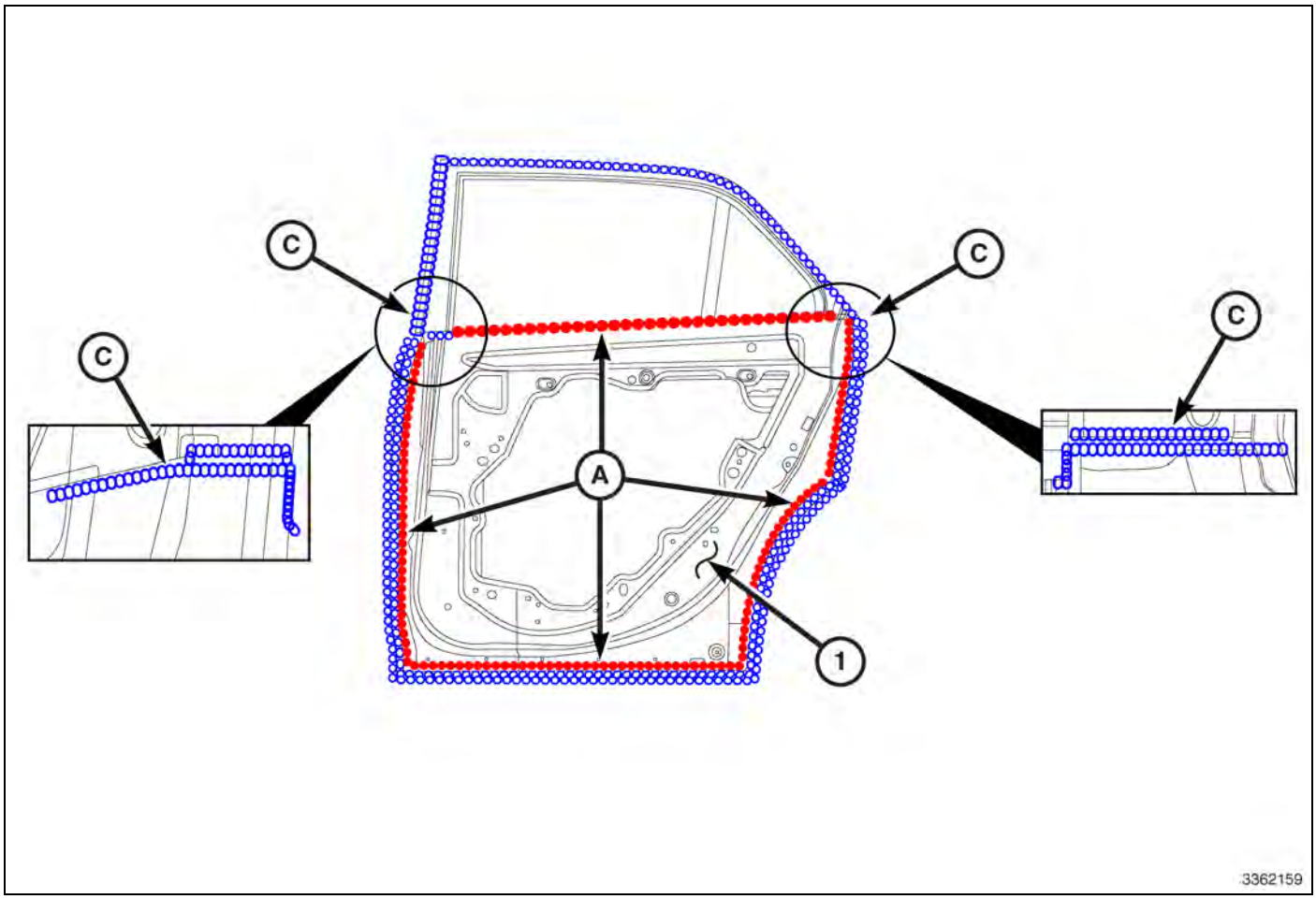


Fig. 40 Rear Door (2 of 2)

NOTE: Left side shown, Right side typical

NOTE: Double row seam sealer represents factory appearance of seam sealer. Single row represents discrete application to seal and protect yet maintain factory appearance of no sealer

NOTE: Drain holes must remain clear of obstruction from adhesives and sealers

1 - REAR DOOR SHELL

A - STRUCTURAL ADHESIVE

C - SEAM SEALER

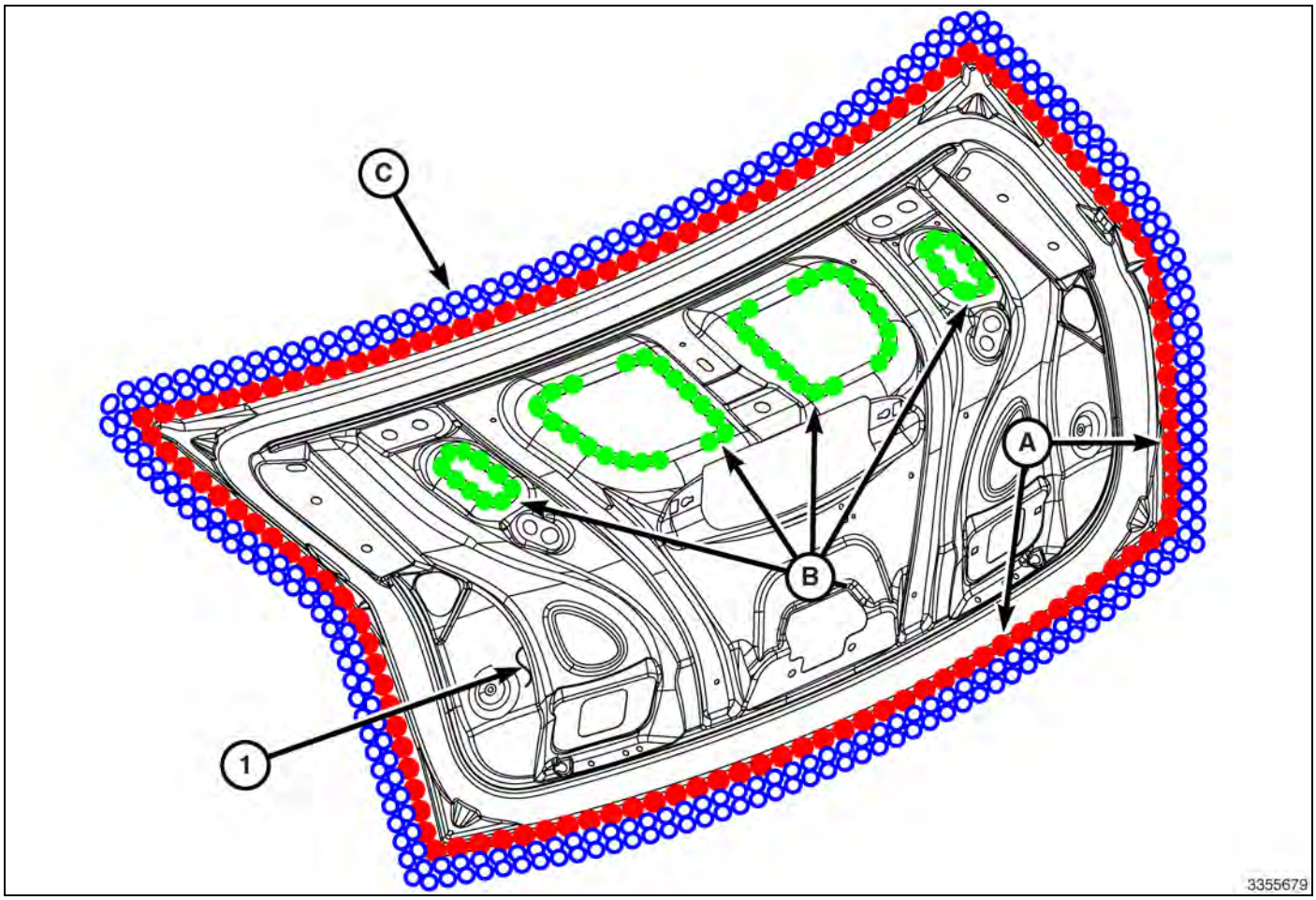


Fig. 41 Decklid

NOTE: Double row seam sealer represents factory appearance of seam sealer. Single row represents discrete application to seal and protect yet maintain original appearance of no sealer

NOTE: Drain holes must remain clear of obstruction from adhesives and sealers

1 - DECKLID

A - STRUCTURAL ADHESIVE

B - ANTI-FLUTTER ADHESIVE

C - SEAM SEALER

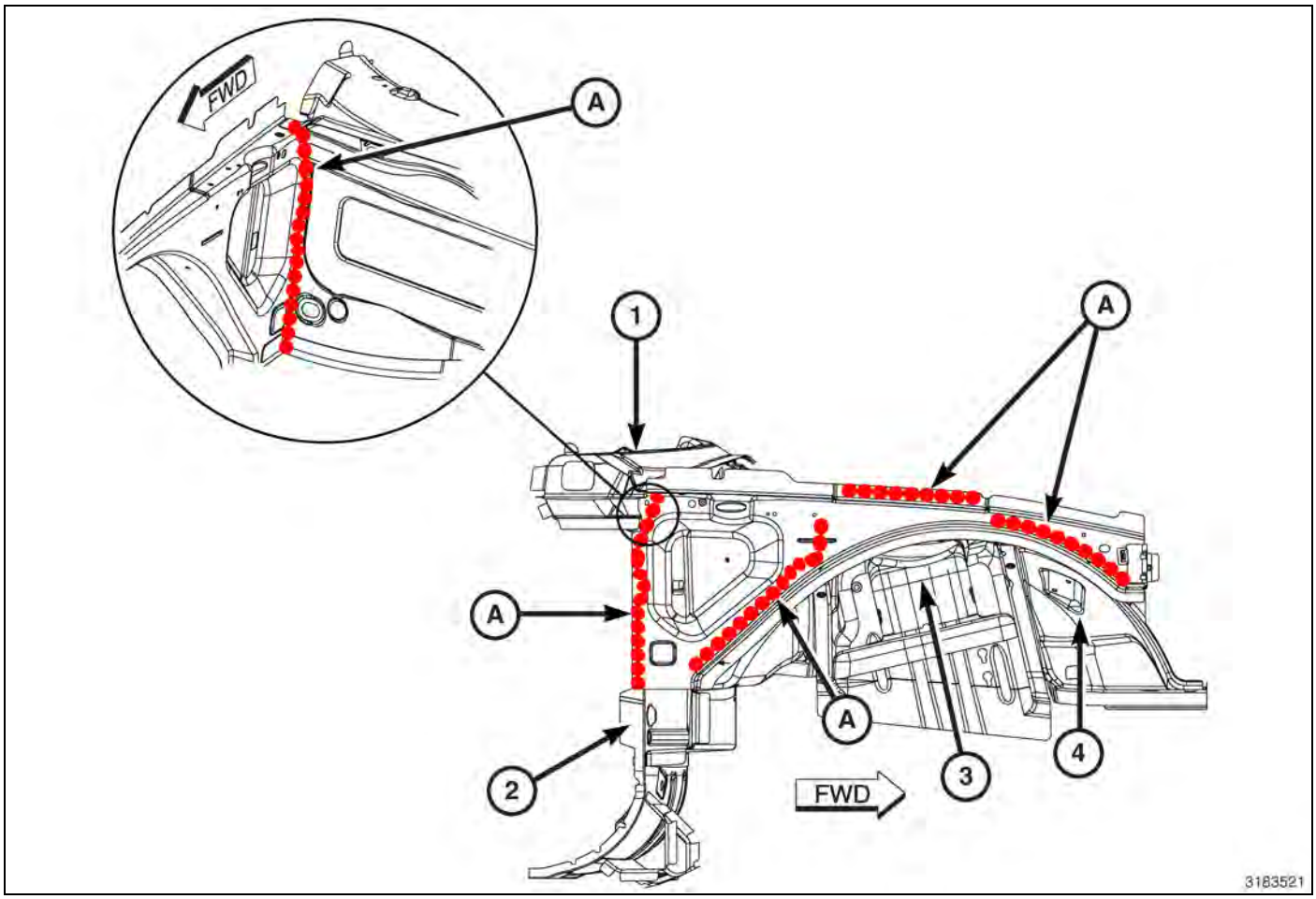


Fig. 42 Engine Box

NOTE: Right side shown, Left side typical

1 - COWL

2 - DASH PANEL

3 - STRUT TOWER REINFORCEMENT

4 - FRONT WHEELHOUSE

A - STRUCTURAL ADHESIVE

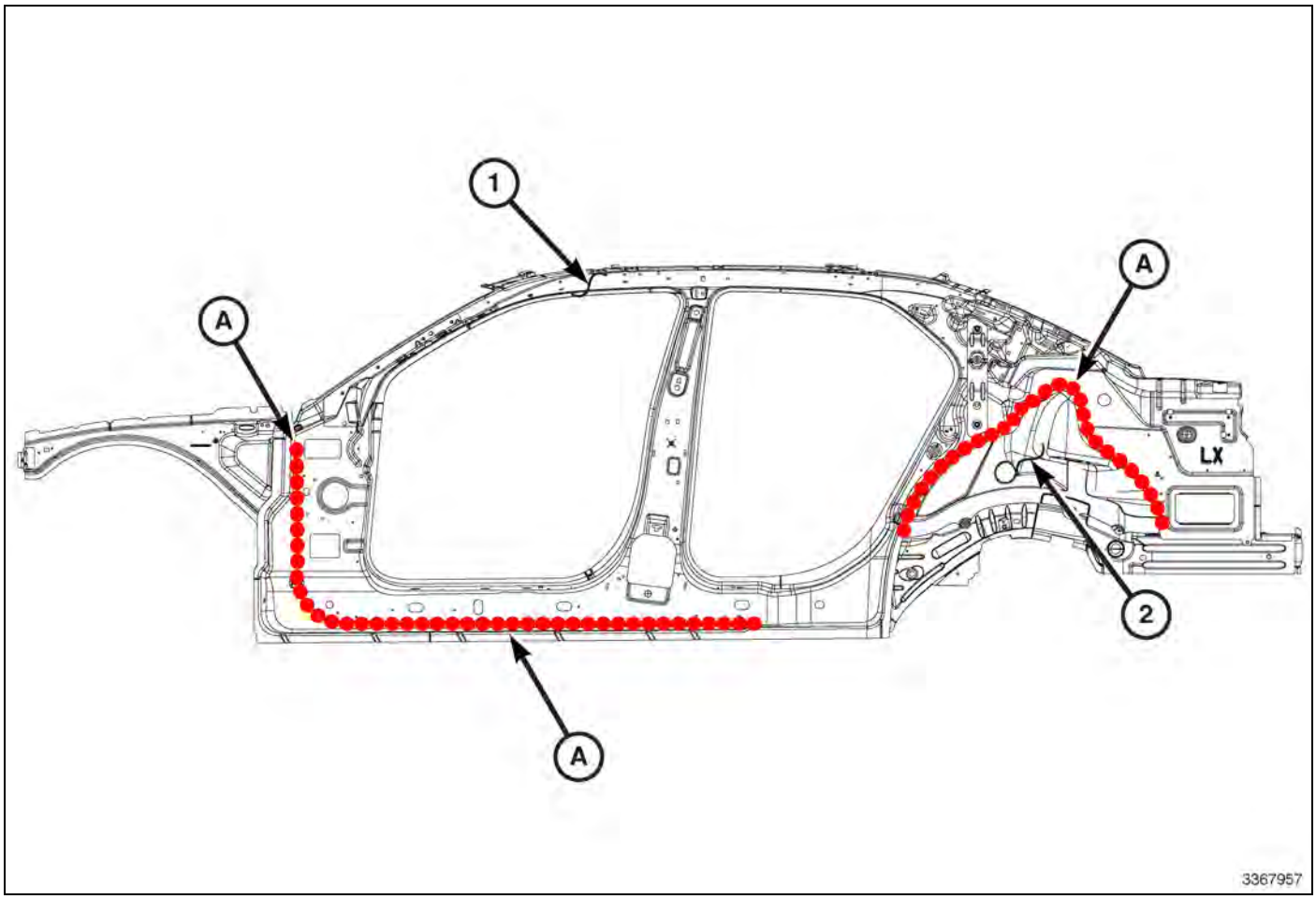


Fig. 43 Left Inner Body Side Aperture

1 - INNER BODY SIDE APERTURE

2 - INNER WHEELHOUSE

A - STRUCTURAL ADHESIVE

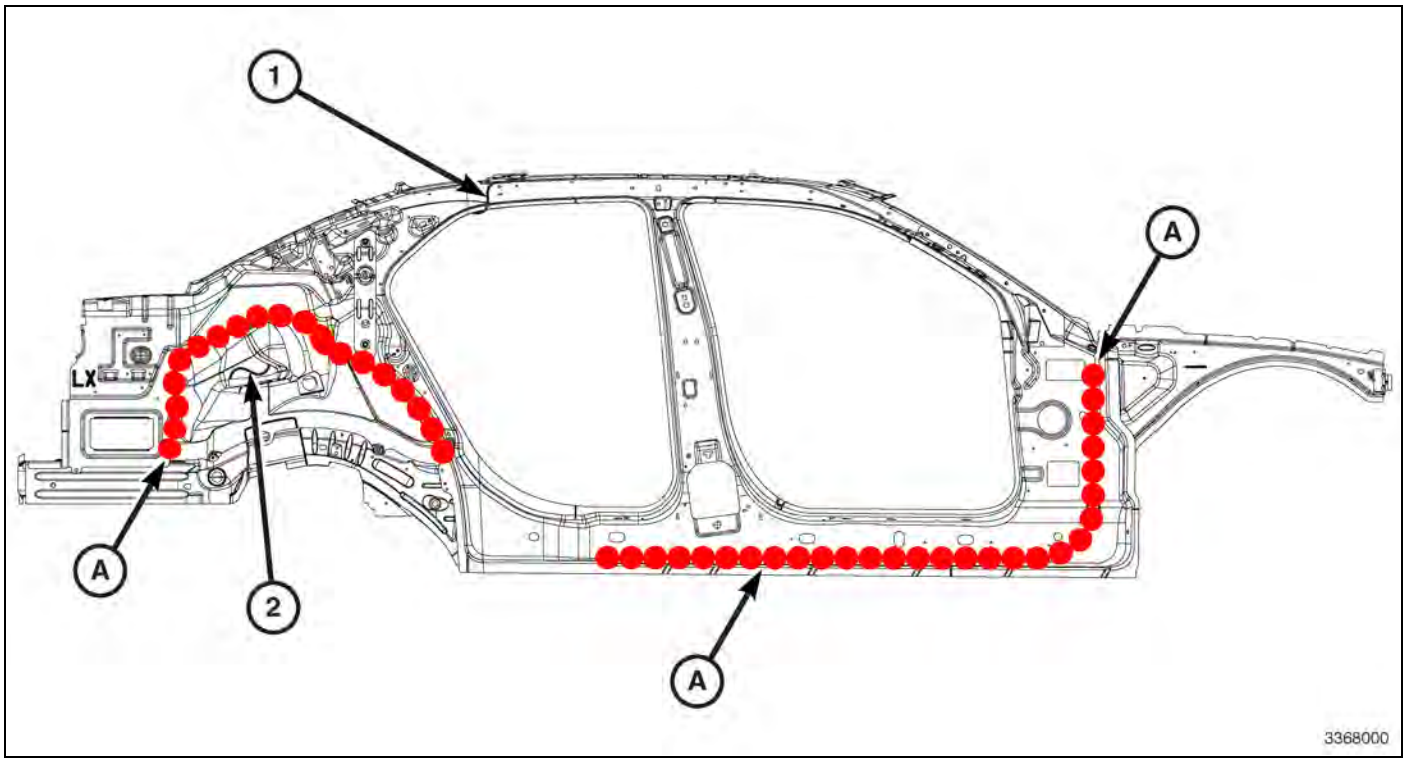


Fig. 44 Right Inner Body Side Aperture

1 - INNER BODY SIDE APERTURE

2 - INNER WHEELHOUSE

A - STRUCTURAL ADHESIVE

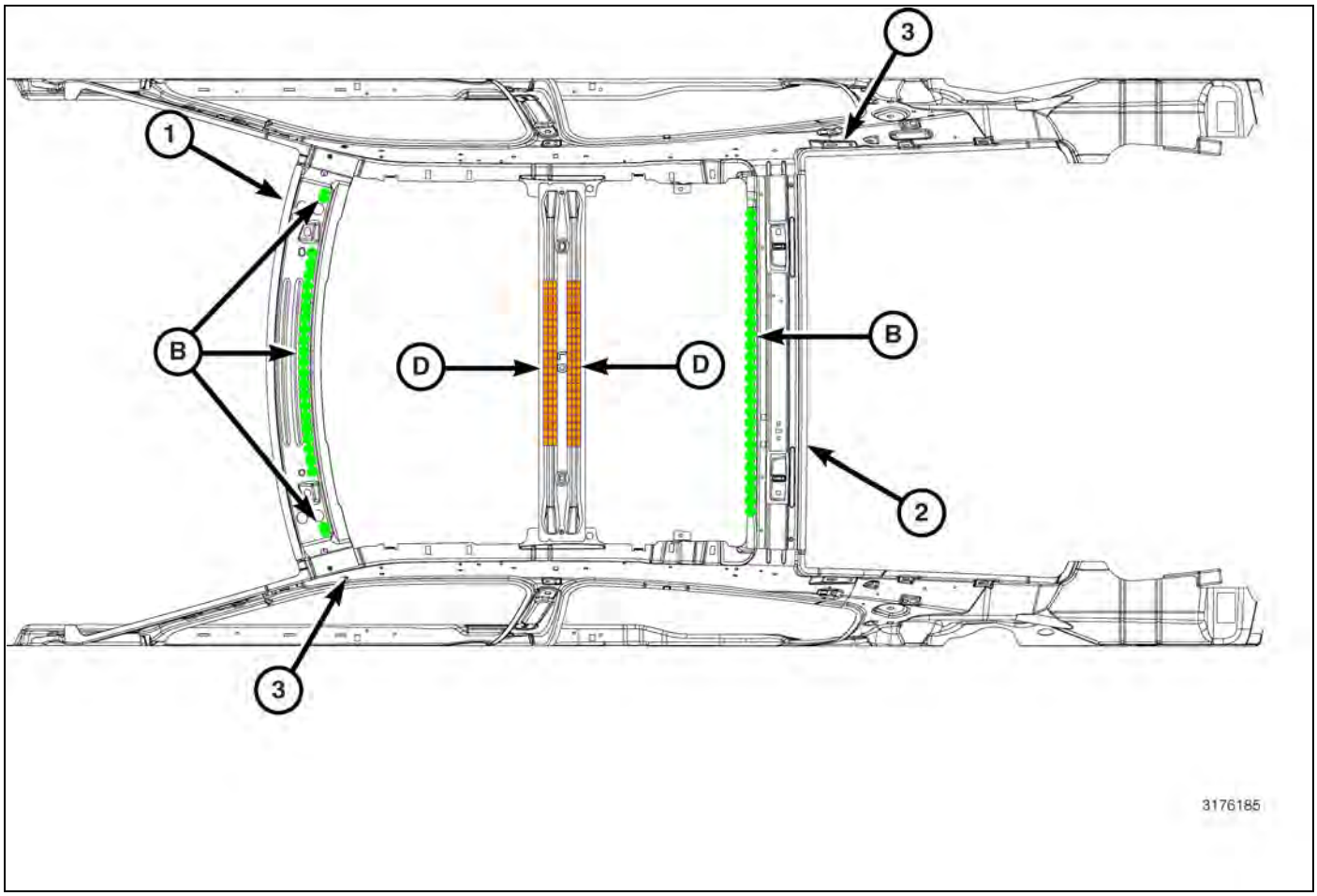


Fig. 45 Standard Roof

1 - FRONT ROOF HEADER

2 - REAR ROOF HEADER

3 - INNER BODY SIDE PANEL

B - ANTI-FLUTTER ADHESIVE

D - ACOUSTIC FOAM (REPLACE WITH ANT-FLUTTER APPROVED MATERIALS)

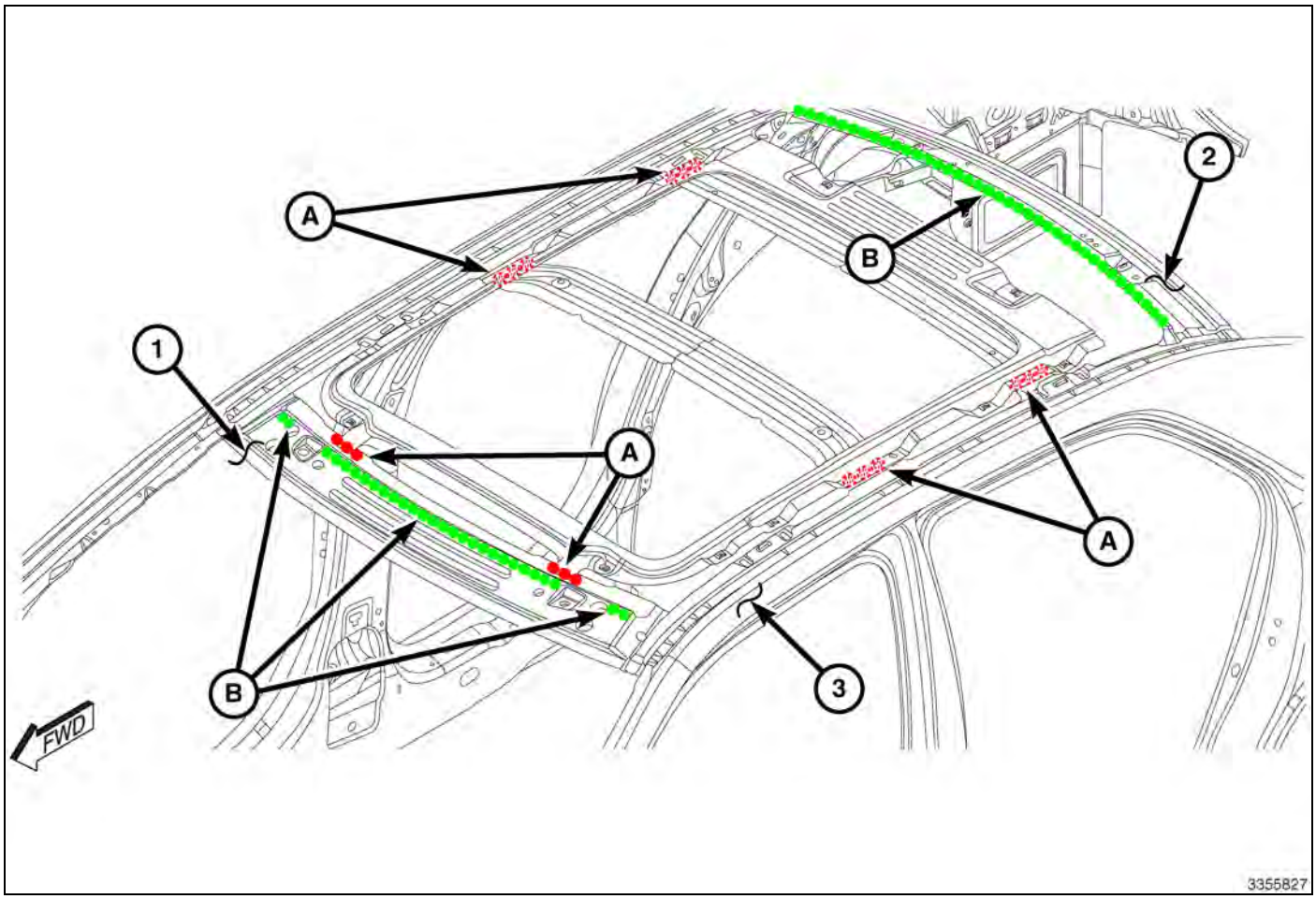


Fig. 46 Dual Pane Sunroof without Reinforcement (1 of 2)

1 - FRONT ROOF HEADER
2 - REAR ROOF HEADER
3 - OUTER BODY SIDE PANEL
A - STRUCTURAL ADHESIVE
B - ANTI-FLUTTER ADHESIVE

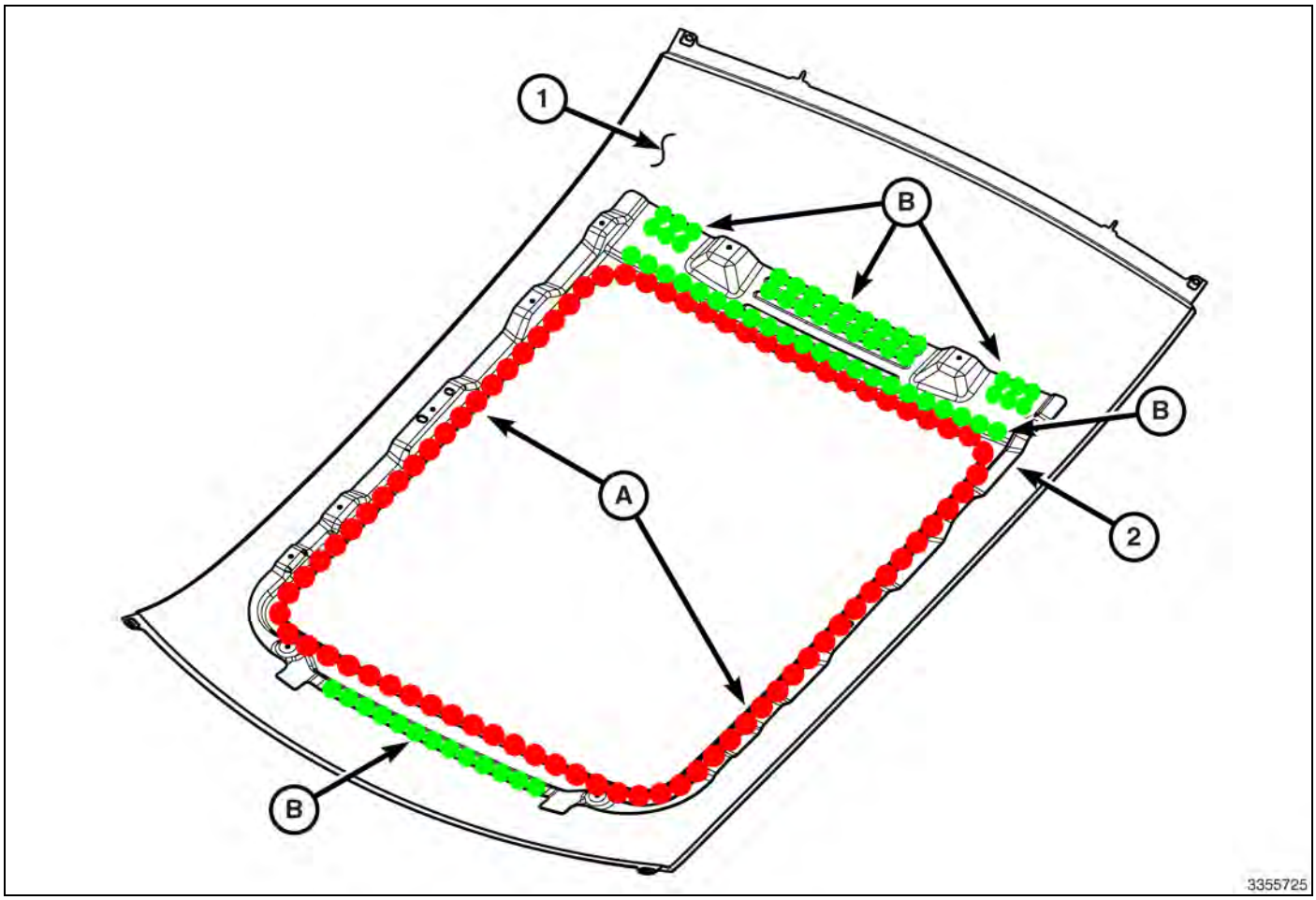


Fig. 47 Dual Pane Sunroof Reinforcement (2 of 2)

1 - ROOF PANEL
2 - SUNROOF REINFORCEMENT
A - STRUCTURAL ADHESIVE
B - ANTI-FLUTTER ADHESIVE

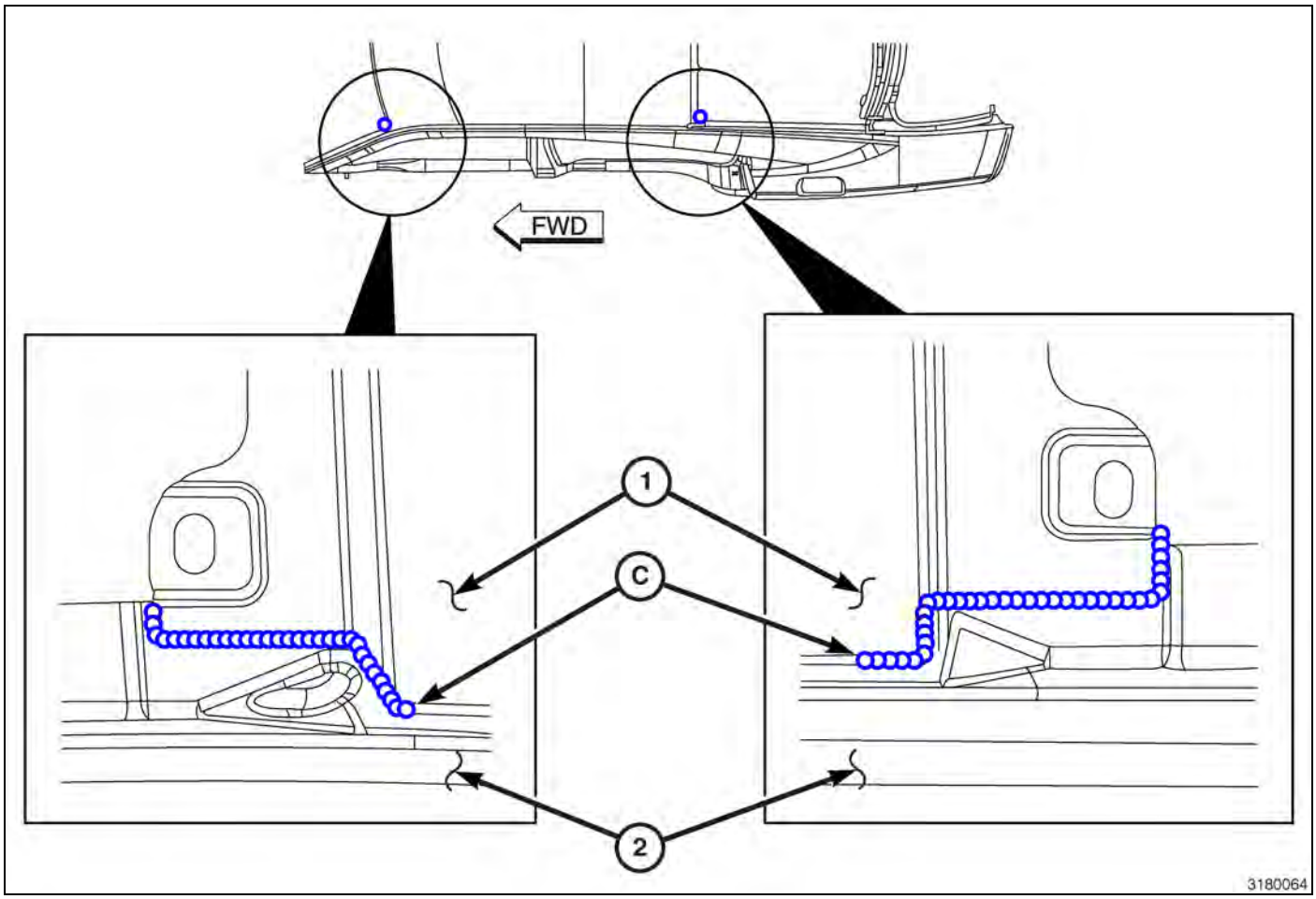


Fig. 48 Roof Standard and Sunroof

NOTE: Left side shown, Right side typical

1 - A-PILLAR

2 - B-PILLAR

3 - ROOF PANEL

C - SEAM SEALER

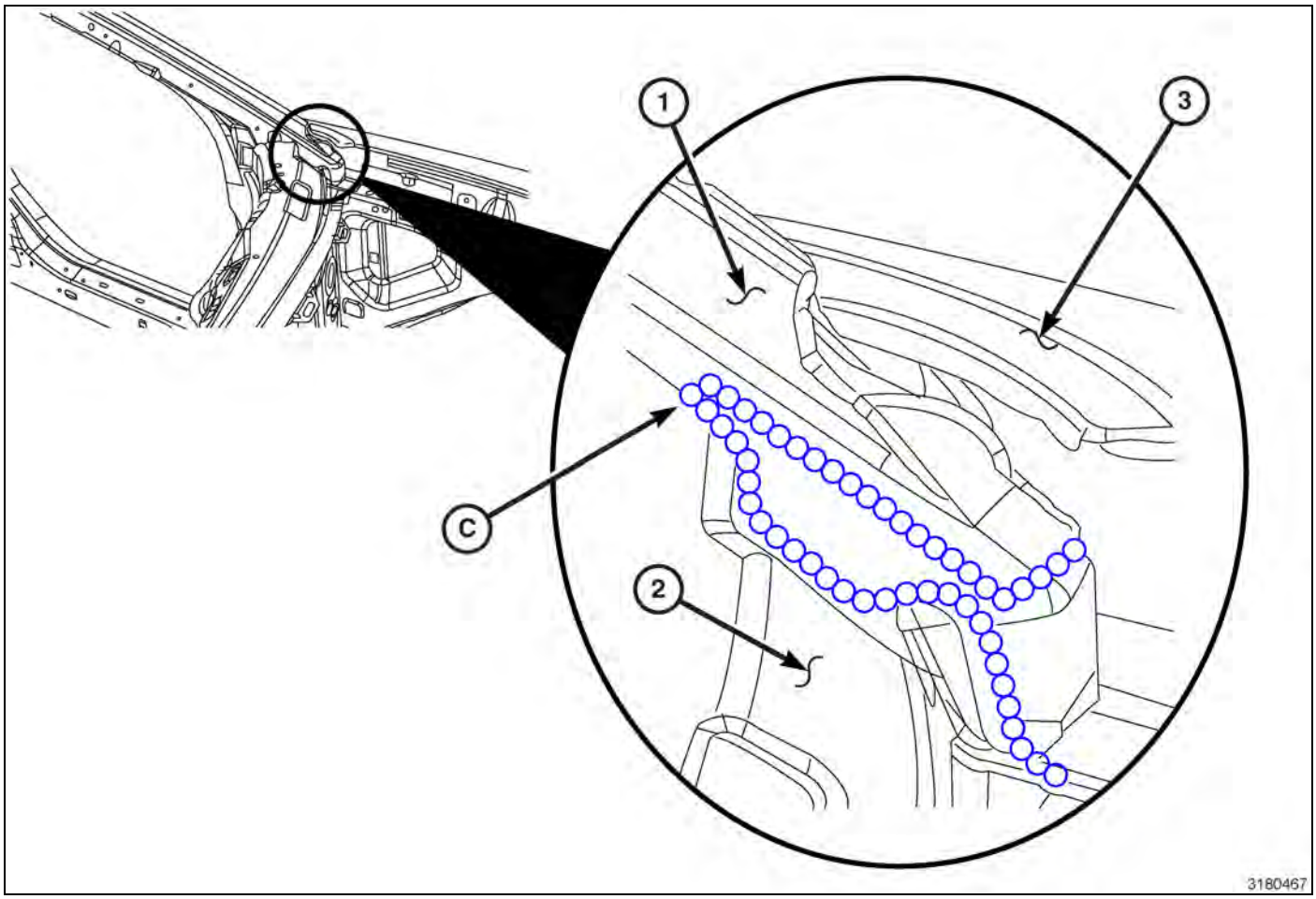


Fig. 49 A-pillar / Load Path Beam

NOTE: Left side shown, Right side typical

1 - A-PILLAR

2 - COWL PANEL

3 - FENDER

C - SEAM SEALER

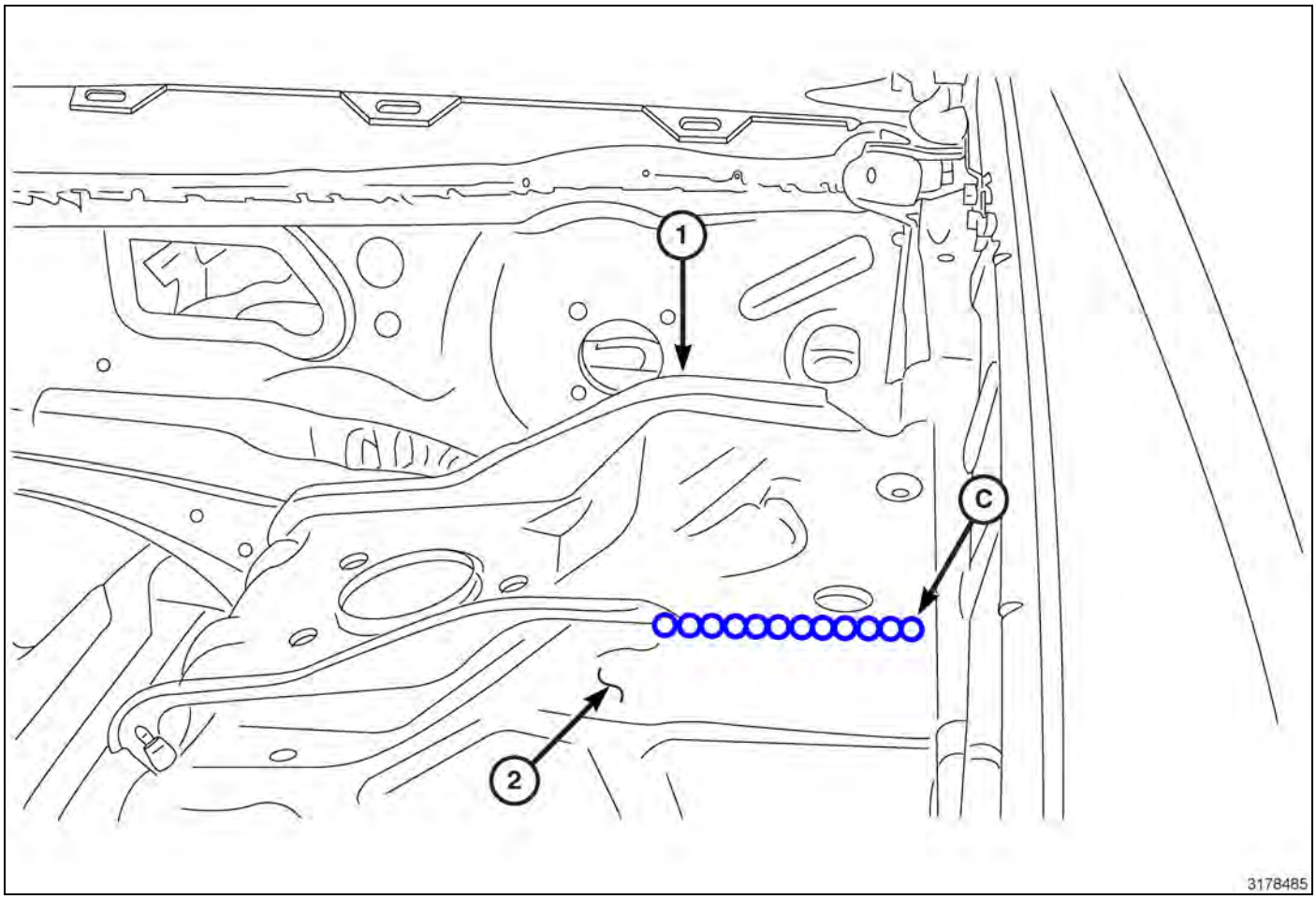


Fig. 50 Strut Tower

NOTE: Left side shown, Right side typical

1 - STRUT TOWER REINFORCEMENT

2 - STRUT TOWER

C - SEAM SEALER

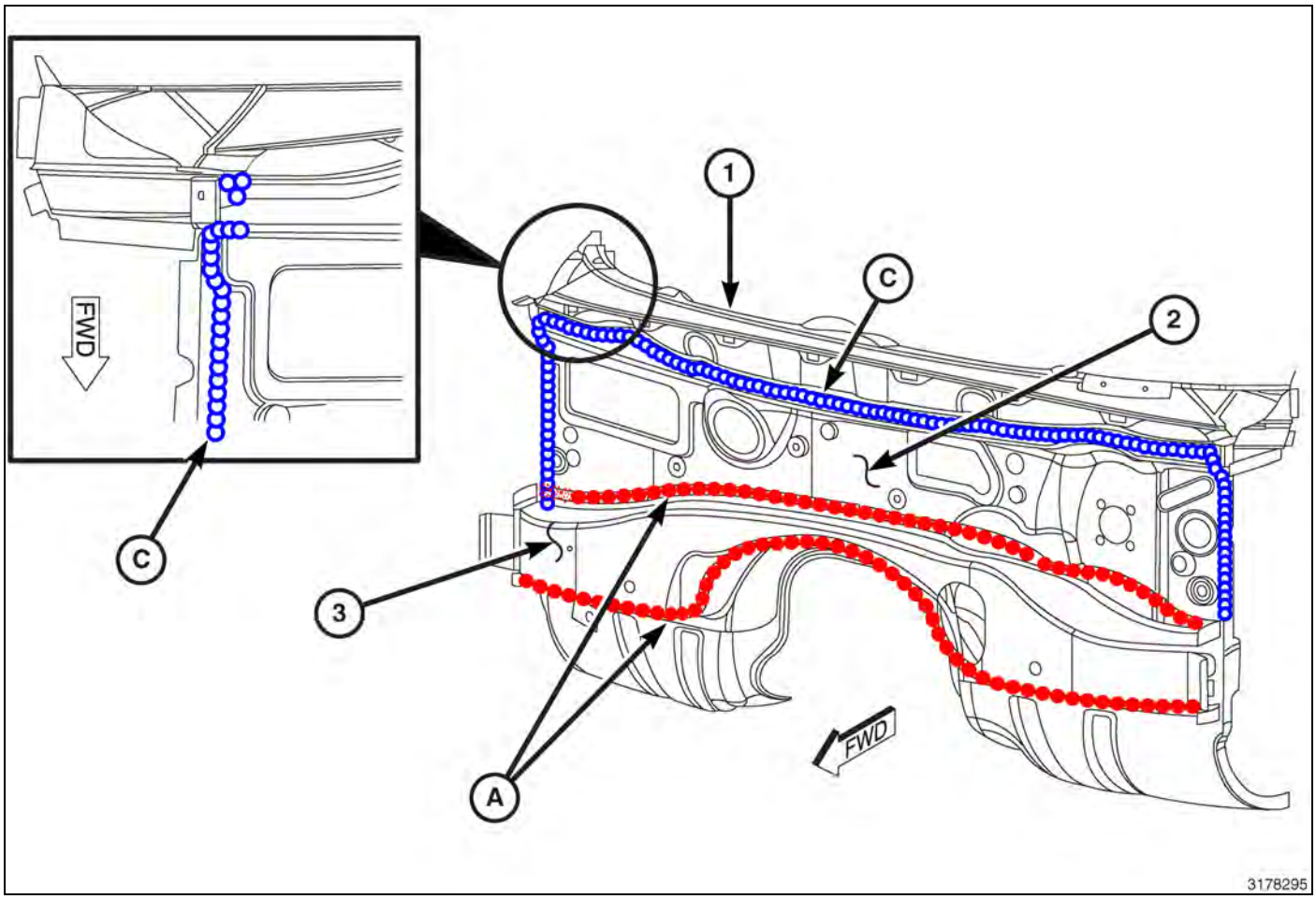


Fig. 51 Cowl / Dash

NOTE: Right side shown, Left side typical

1 - COWL PANEL

2 - DASH PANEL

3 - DASH REINFORCEMENT

A - STRUCTURAL ADHESIVE

C - SEAM SEALER

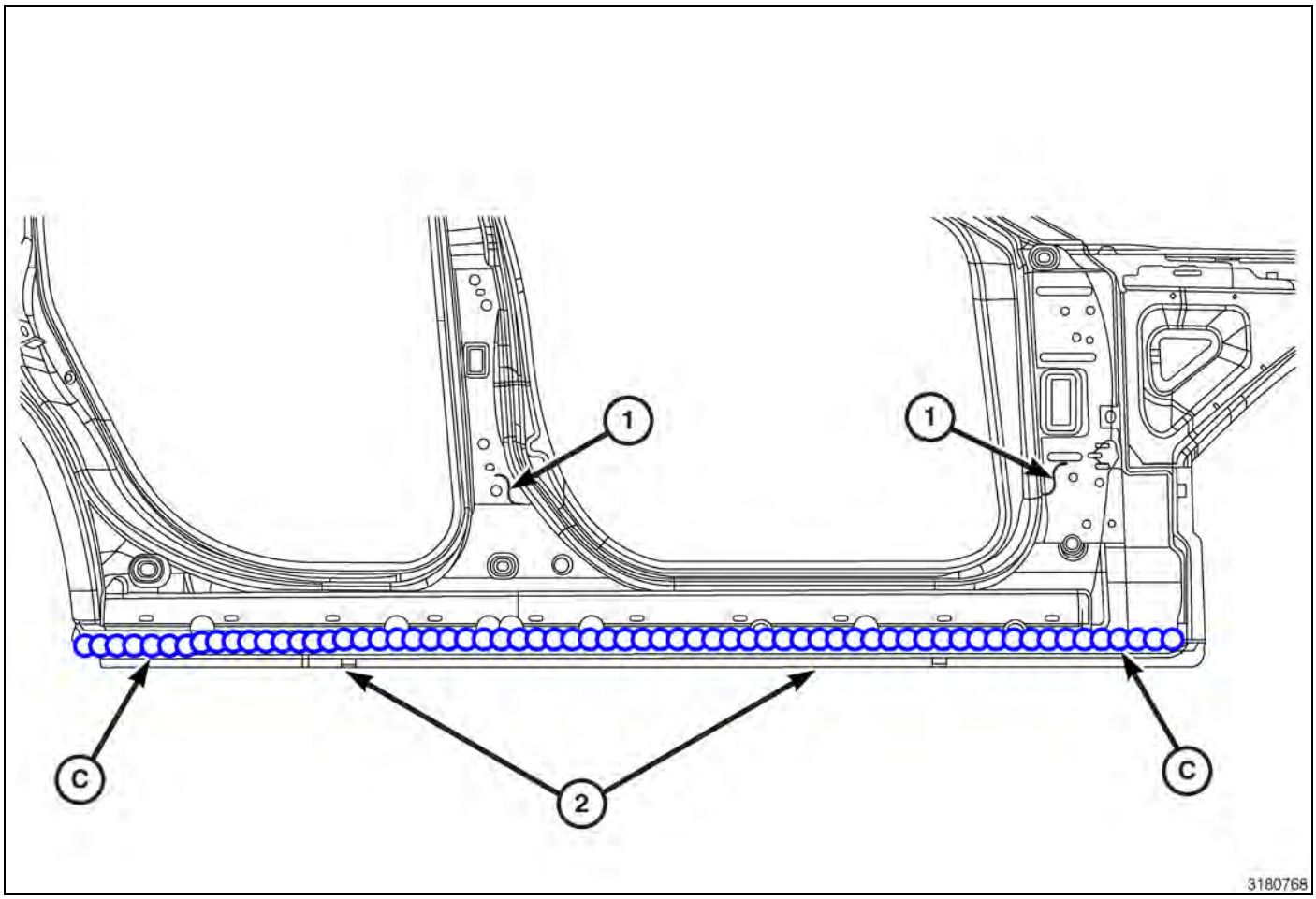


Fig. 52 Outer Body Side Aperture / Reinforcement

NOTE: Right side shown, Left side typical

1 - OUTER BODY SIDE APERTURE

2 - REINFORCEMENT

C - SEAM SEALER

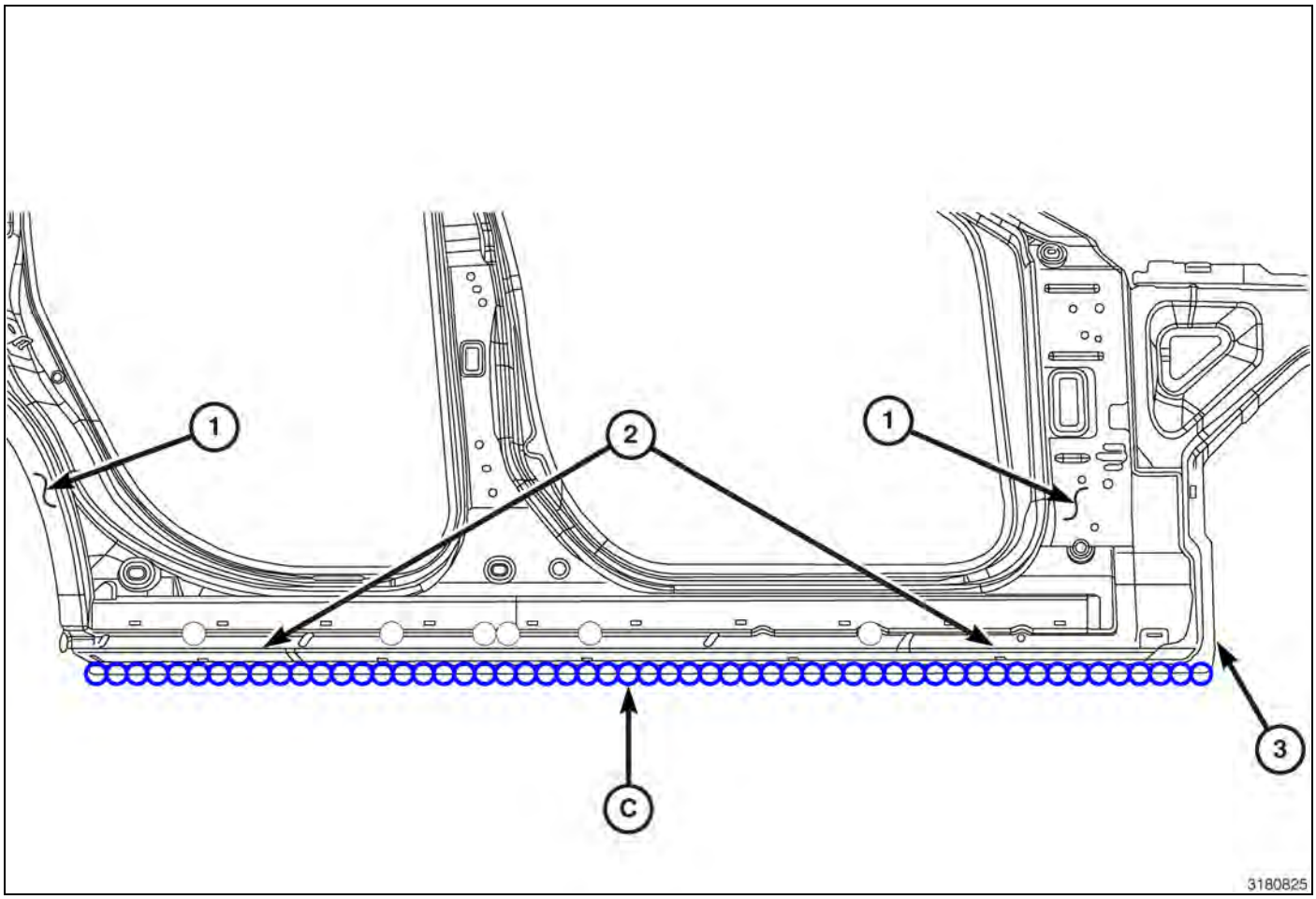


Fig. 53 Inner Body Side Aperture / Reinforcement

NOTE: Right side shown, Left side typical

1 - OUTER BODY SIDE APERTURE

2 - REINFORCEMENT

3 - INNER BODY SIDE APERTURE

C - SEAM SEALER

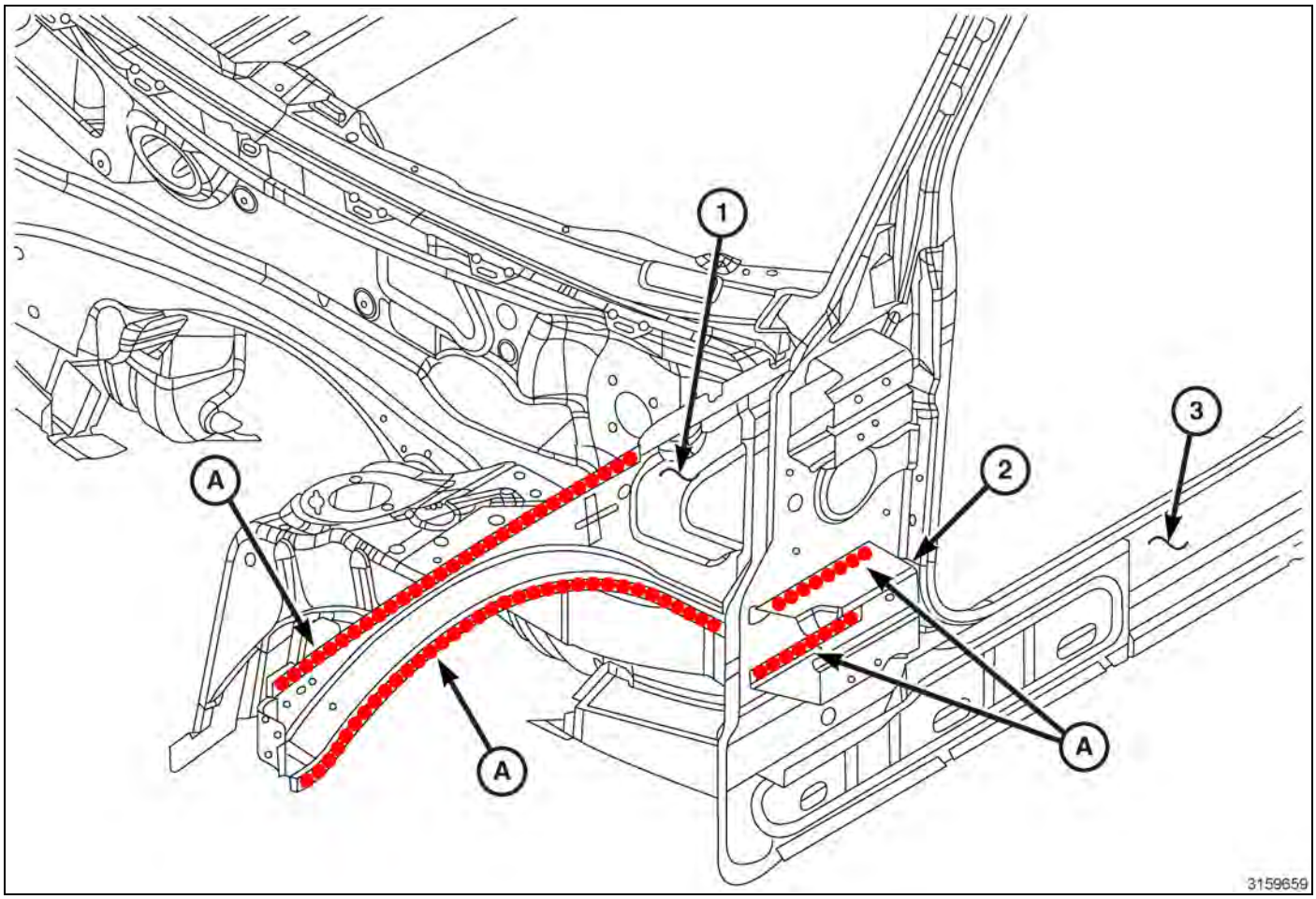


Fig. 54 Upper Load Path Beam / Hinge Reinforcement

NOTE: Left side shown, Right side typical

1- INNER LOAD PATH BEAM

2 - LOWER HINGE REINFORCEMENT

A - STRUCTURAL ADHESIVE

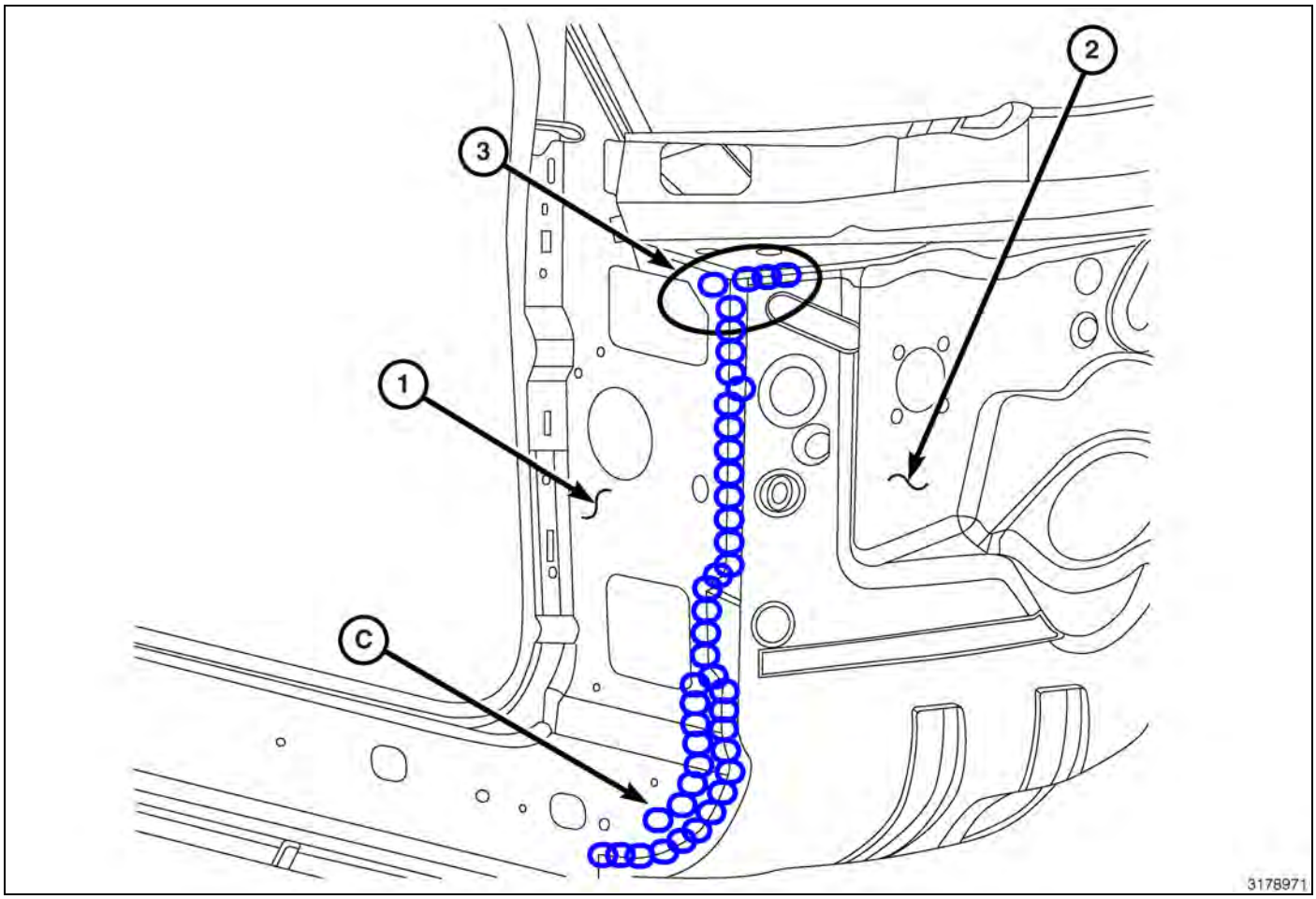


Fig. 55 Dash / Inner Body Side Aperture

NOTE: Right side shown, Left side typical

1- INNER BODY SIDE APERTURE

2 - DASH PANEL

3 - BRUSH SEALER INTO JOINT

C - SEAM SEALER

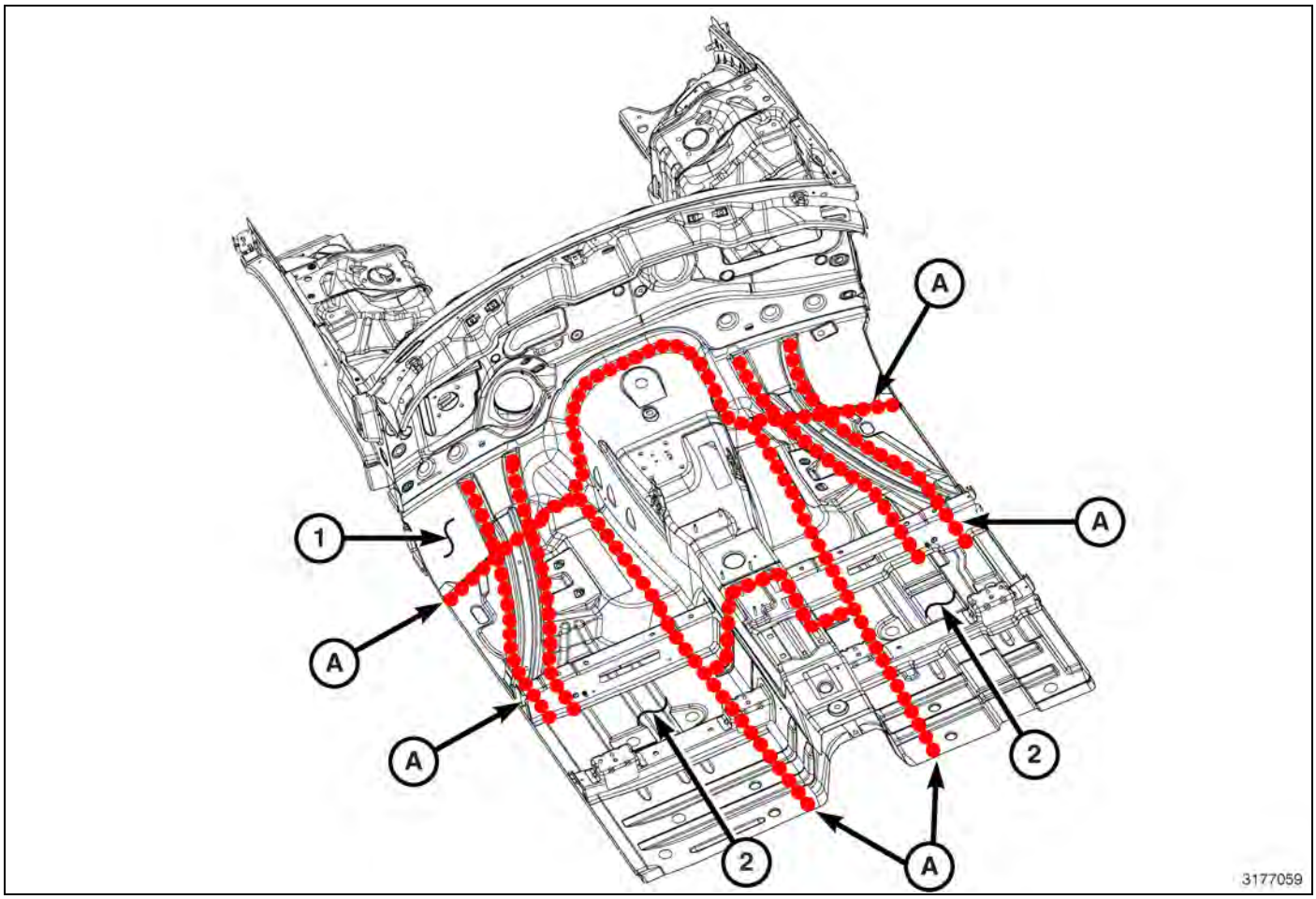


Fig. 56 Dash/Front Floor / Tunnel (1 of 2)

1 - DASH PANEL

2 - FRONT FLOOR SECTION

A - STRUCTURAL ADHESIVE

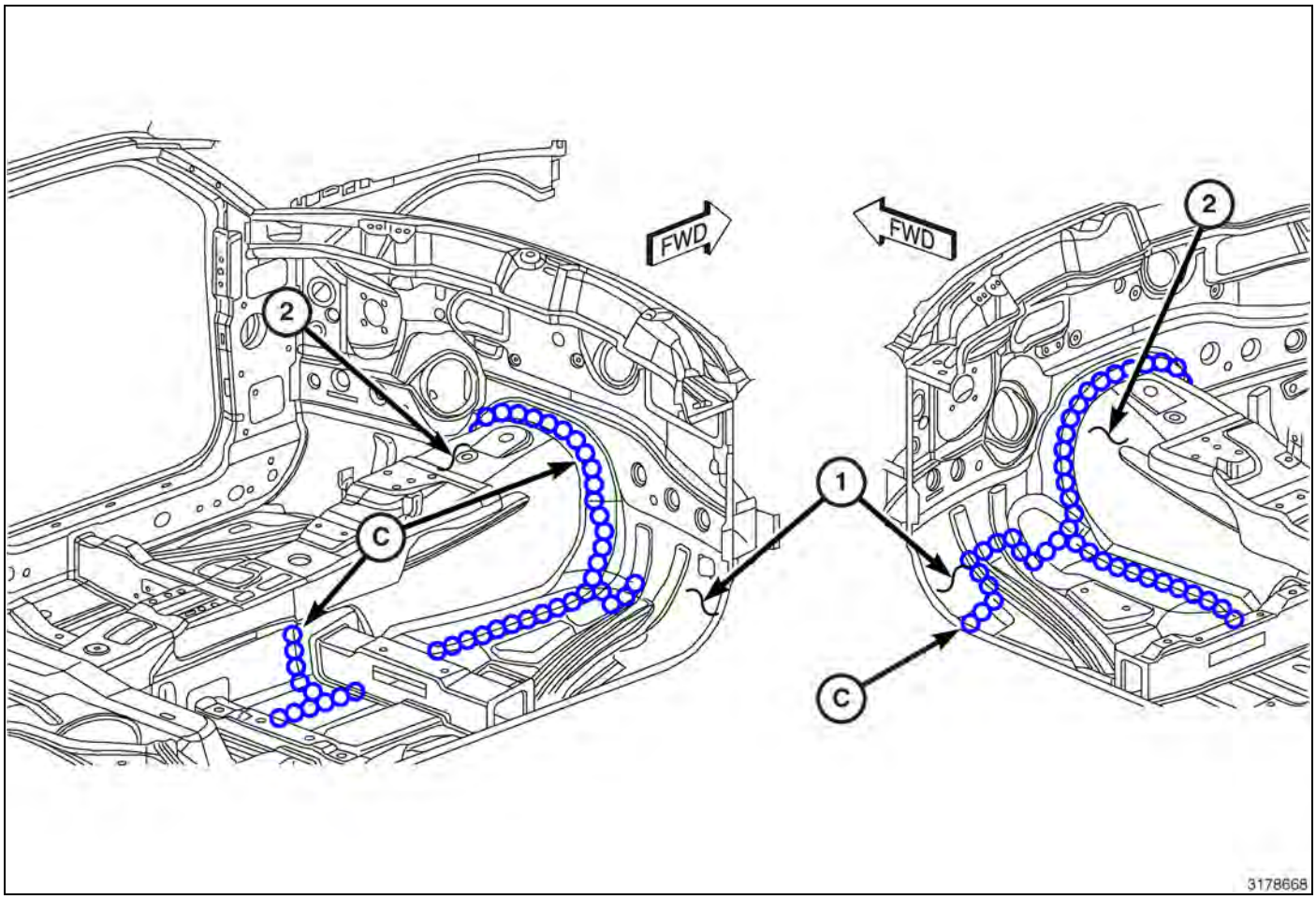


Fig. 57 Front Floor / Dash / Tunnel (2 of 2)

1 - DASH PANEL

2 - TUNNEL

C - SEAM SEALER

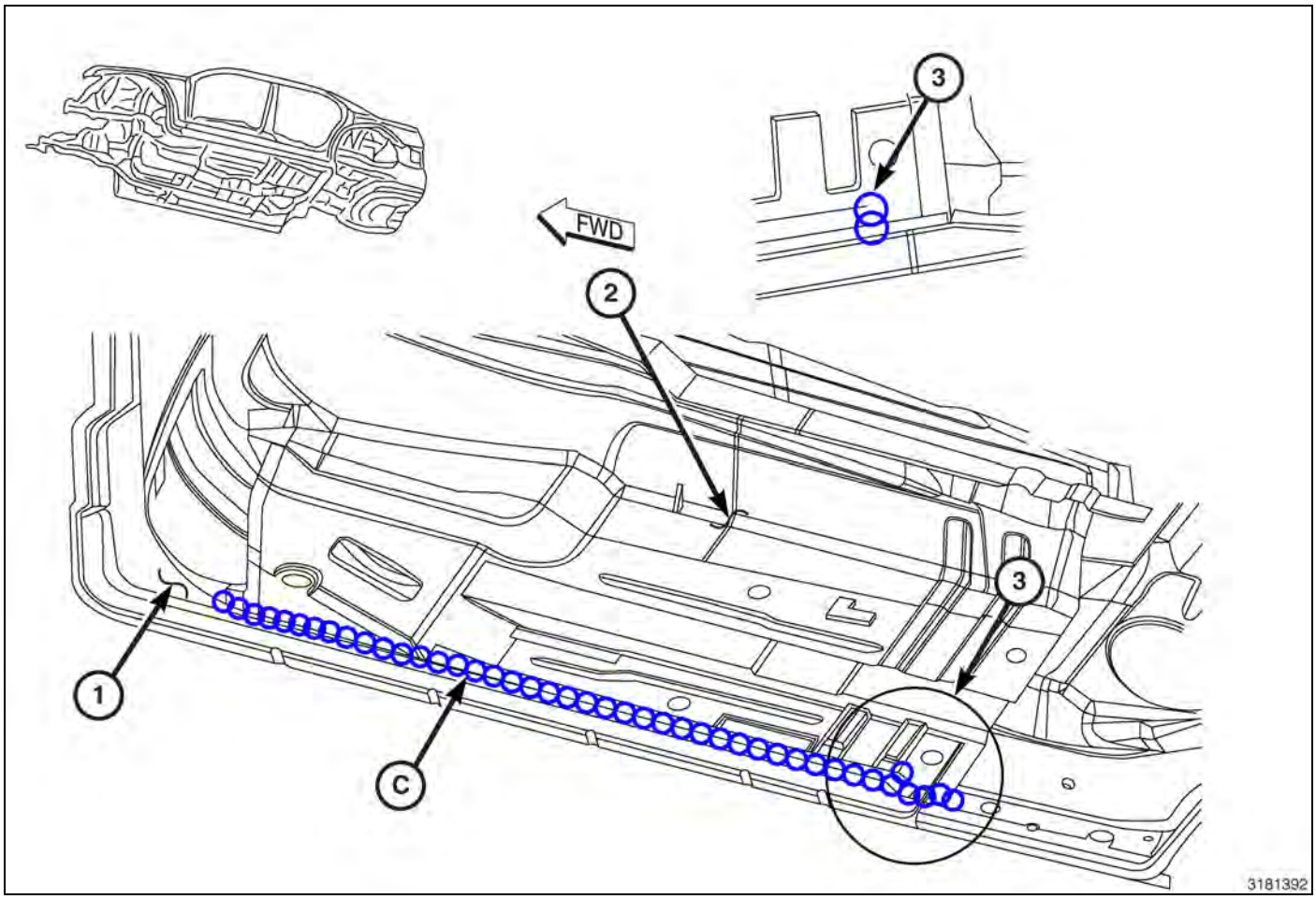


Fig. 58 Front Floor

NOTE: Left side shown, Right side typical

1 - INNER BODY SIDE APERTURE

2 - FRONT FLOOR

C - SEAM SEALER

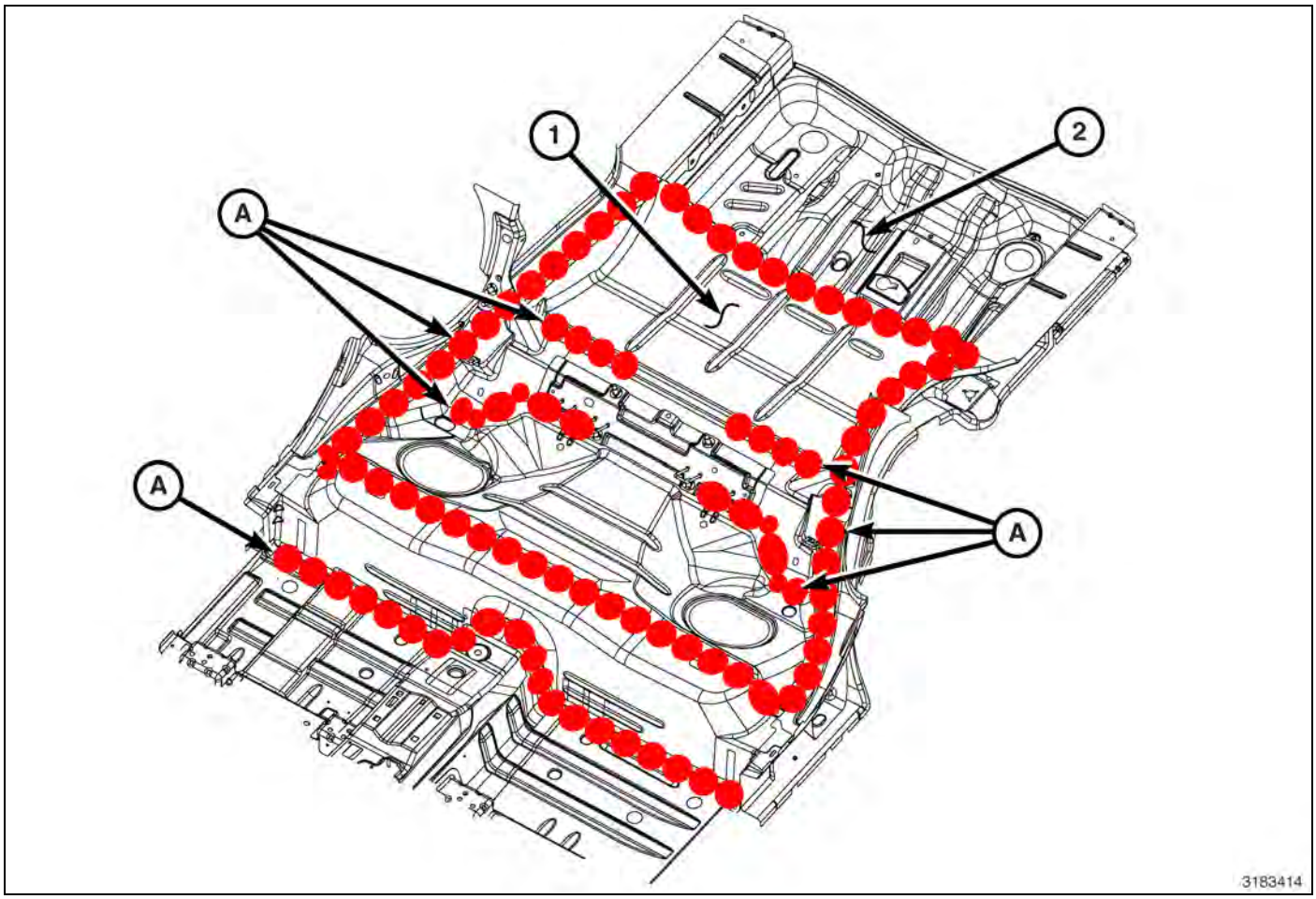


Fig. 59 Rear Floor

1 - REAR FLOOR

2 - SPARE TIRE TUB

A - STRUCTURAL ADHESIVE

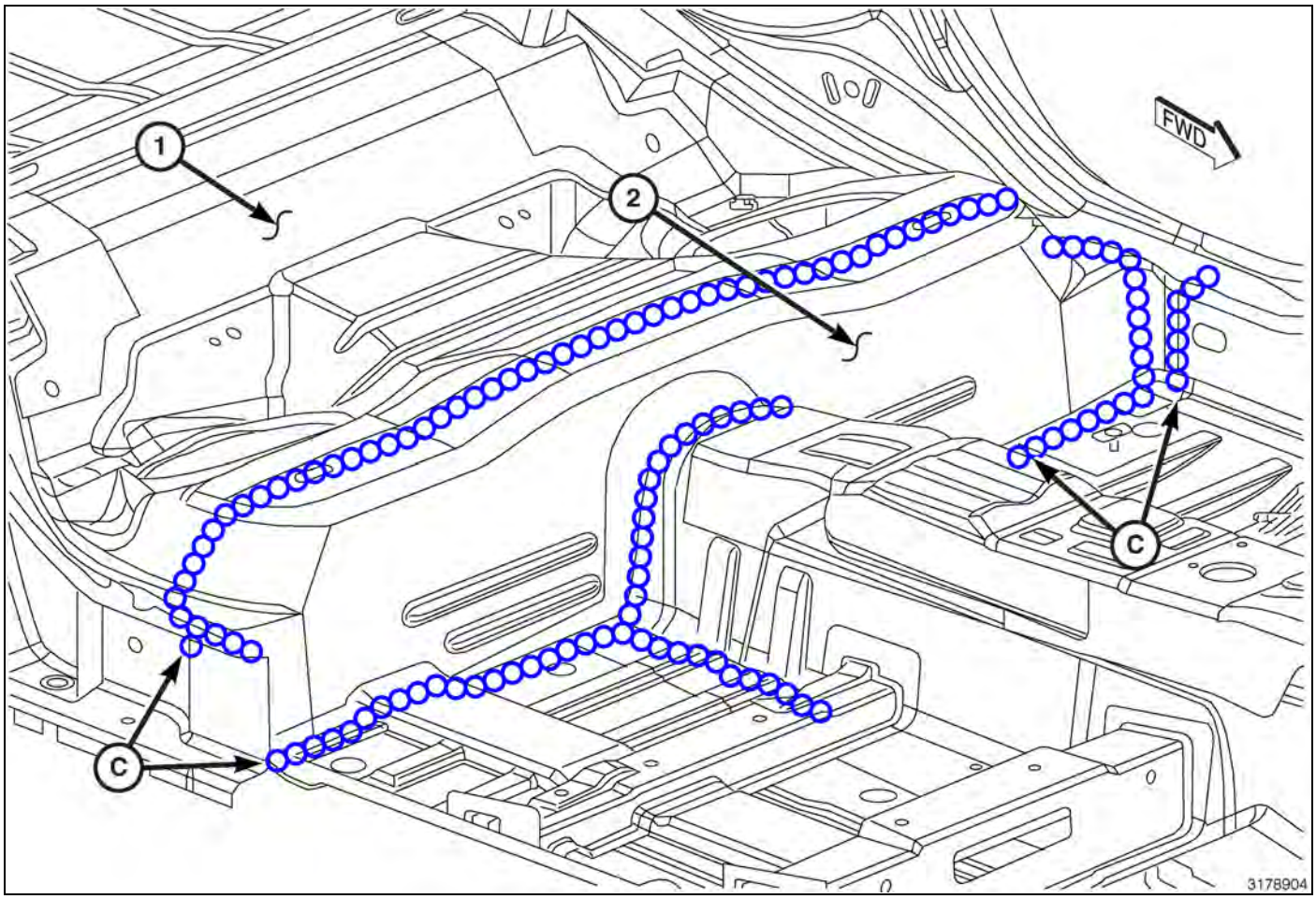


Fig. 60 Rear Floor Crossmember

NOTE: Right side shown, Left side typical

1 - REAR FLOOR

2 - CROSSMEMBER

C - SEAM SEALER

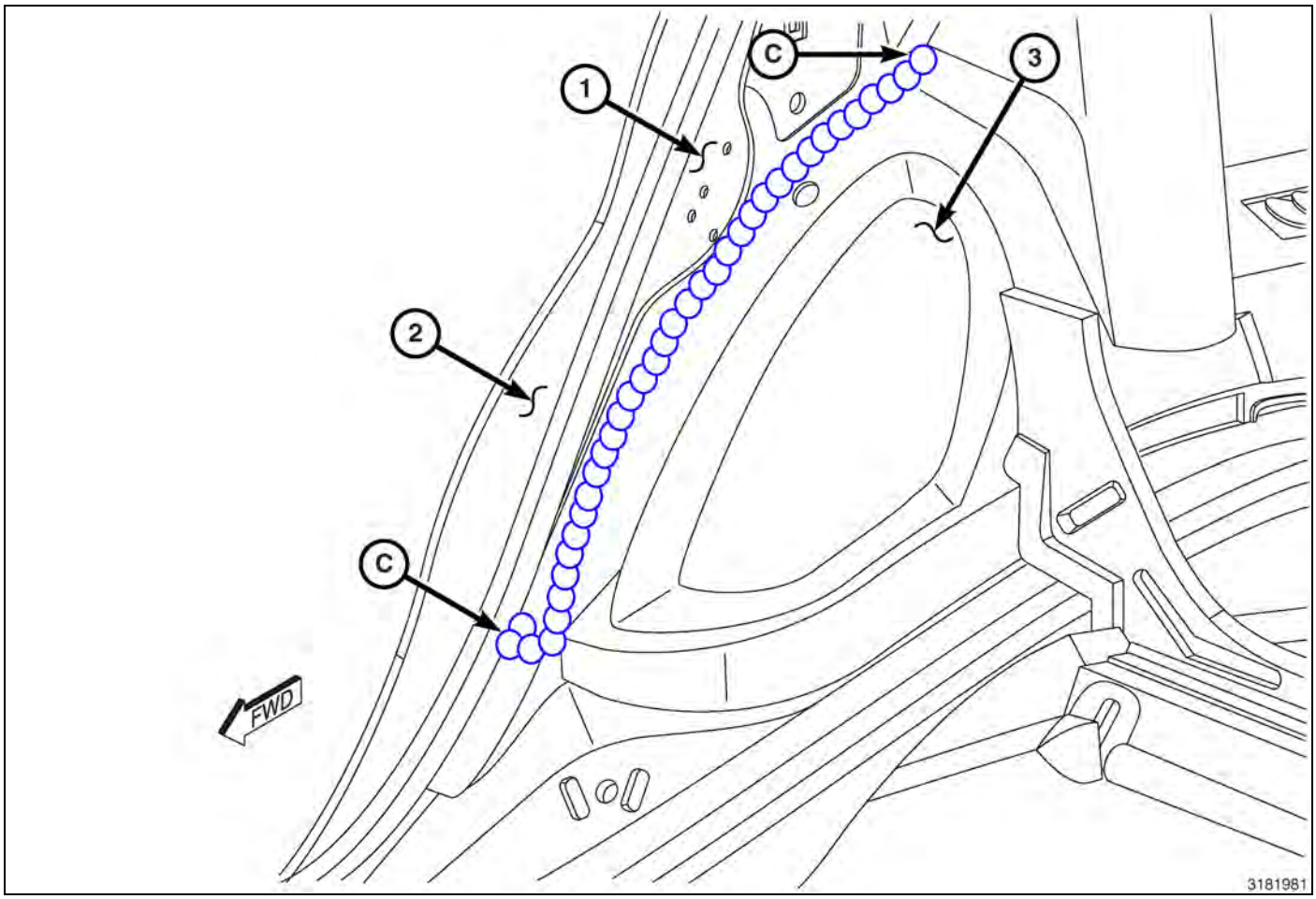


Fig. 61 Rear Inner Wheelhouse (1 of 3)

NOTE: Right side shown, Left side typical

1 - INNER BODY SIDE PANEL

2 - OUTER BODY SIDE PANEL

3 - INNER WHEELHOUSE

C - SEAM SEALER

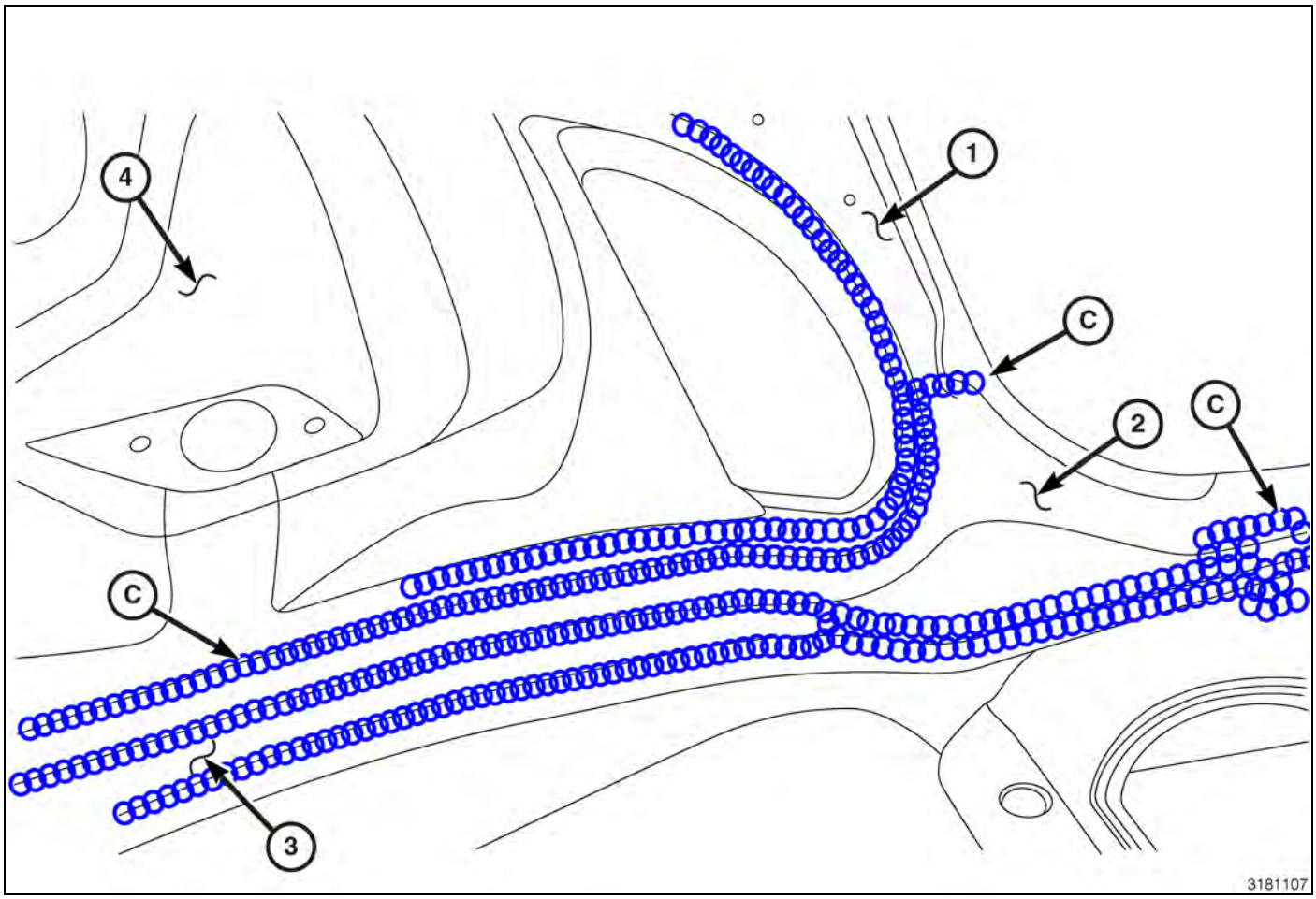


Fig. 62 Rear Inner Wheelhouse (2 of 3)

NOTE: Left side shown, Right side typical

1 - INNER BODY SIDE PANEL

2 - REAR/OUTER RAIL

3 - REAR INNER RAIL

4 - WHEELHOUSE

C - SEAM SEALER

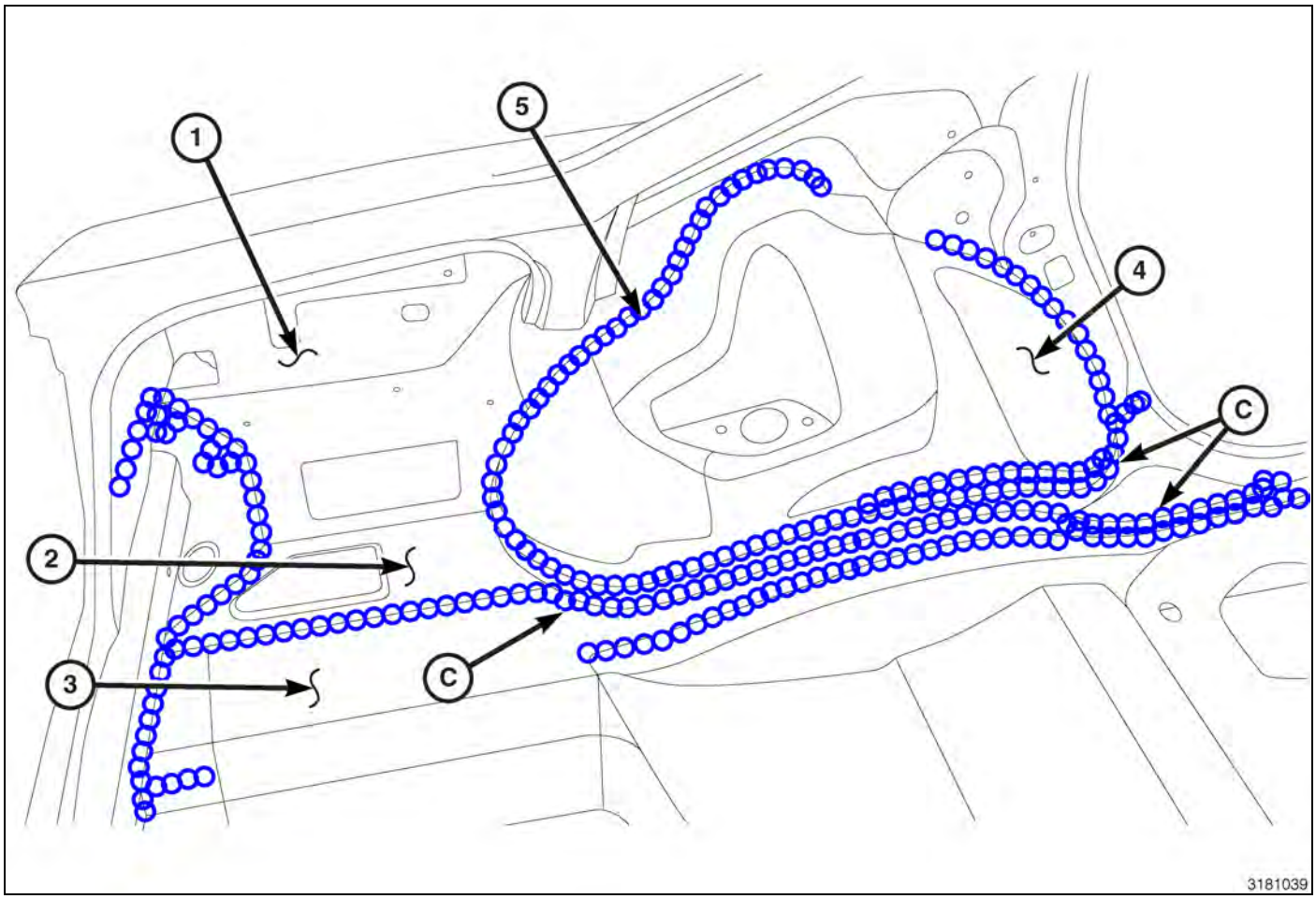


Fig. 63 Rear Inner Wheelhouse (3 of 3)

NOTE: Left side shown, Right side typical

1 - INNER BODY SIDE PANEL

2 - REAR OUTER RAIL

3 - REAR INNER RAIL

4 - WHEELHOUSE

C - SEAM SEALER

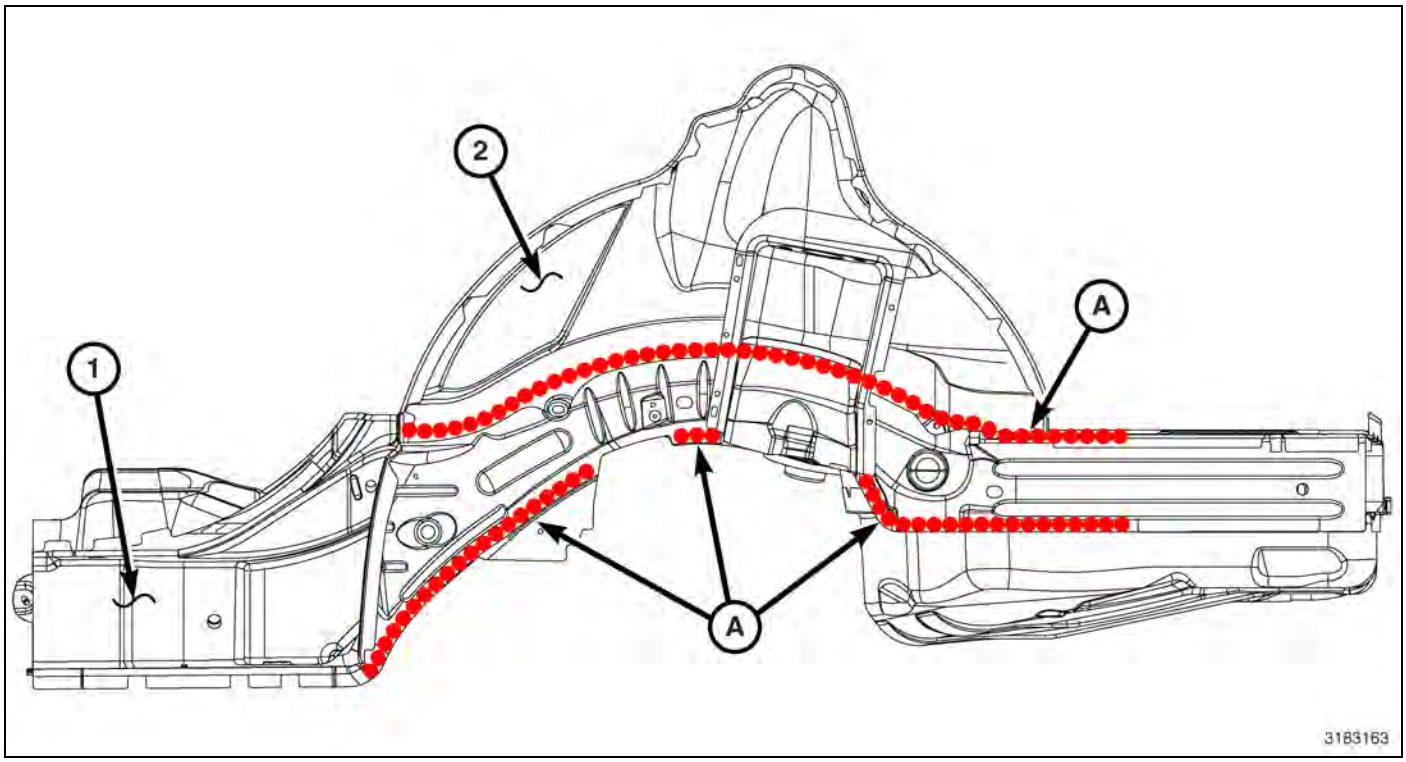


Fig. 64 Rear Wheelhouse

NOTE: Left side shown, Right side typical

1 - OUTER BODY SIDE PANEL

2 - INNER WHEELHOUSE

C - SEAM SEALER

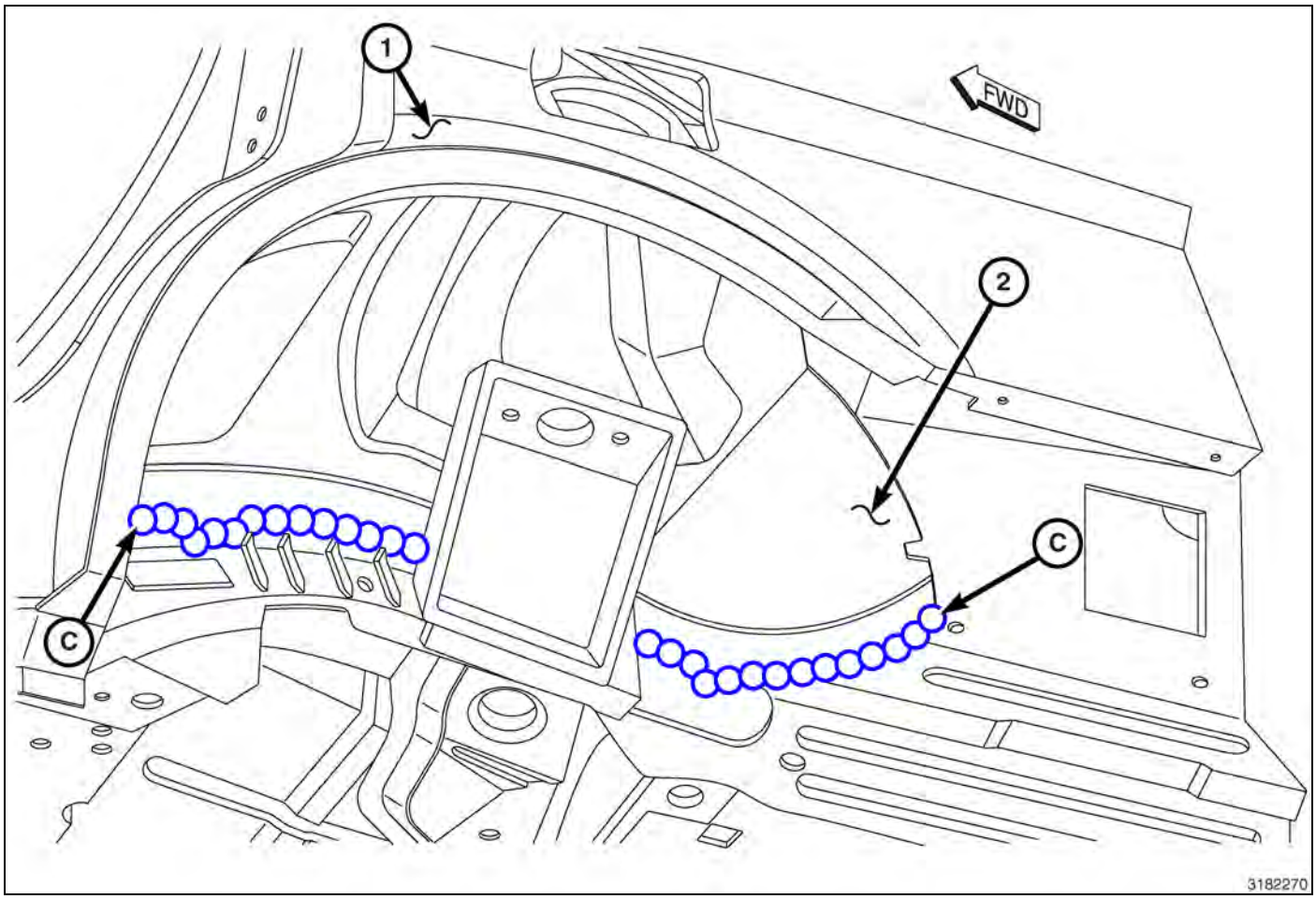


Fig. 65 Inner Wheelhouse (Exterior)

NOTE: Left side shown, Right side typical

1 - OUTER BODY SIDE PANEL

2 - INNER WHEELHOUSE

C - SEAM SEALER

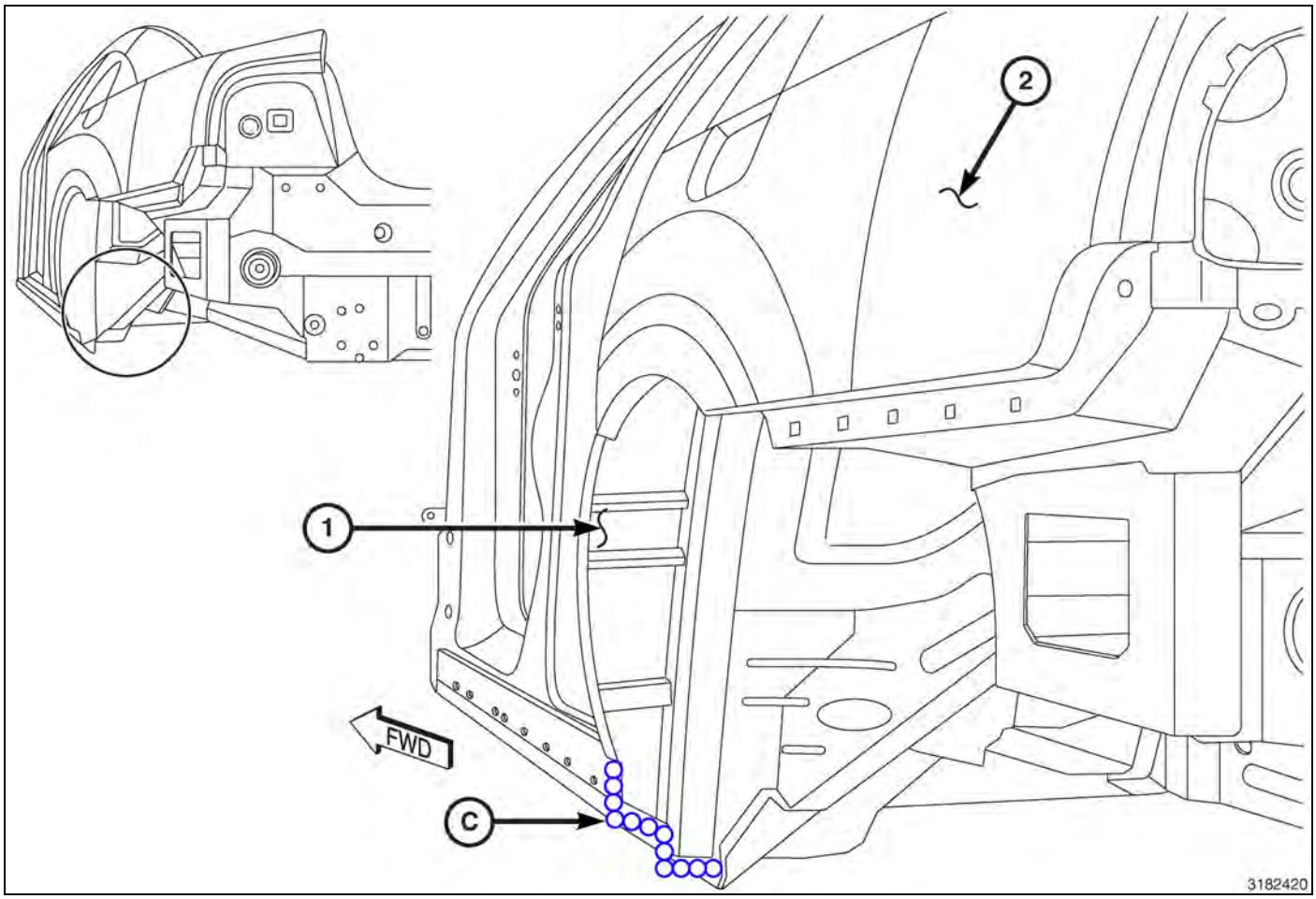


Fig. 66 Outer Wheelhouse

NOTE: Left side shown, Right side typical

1 - OUTER WHEELHOUSE

2 - OUTER BODY SIDE PANEL

A - SEAM SEALER

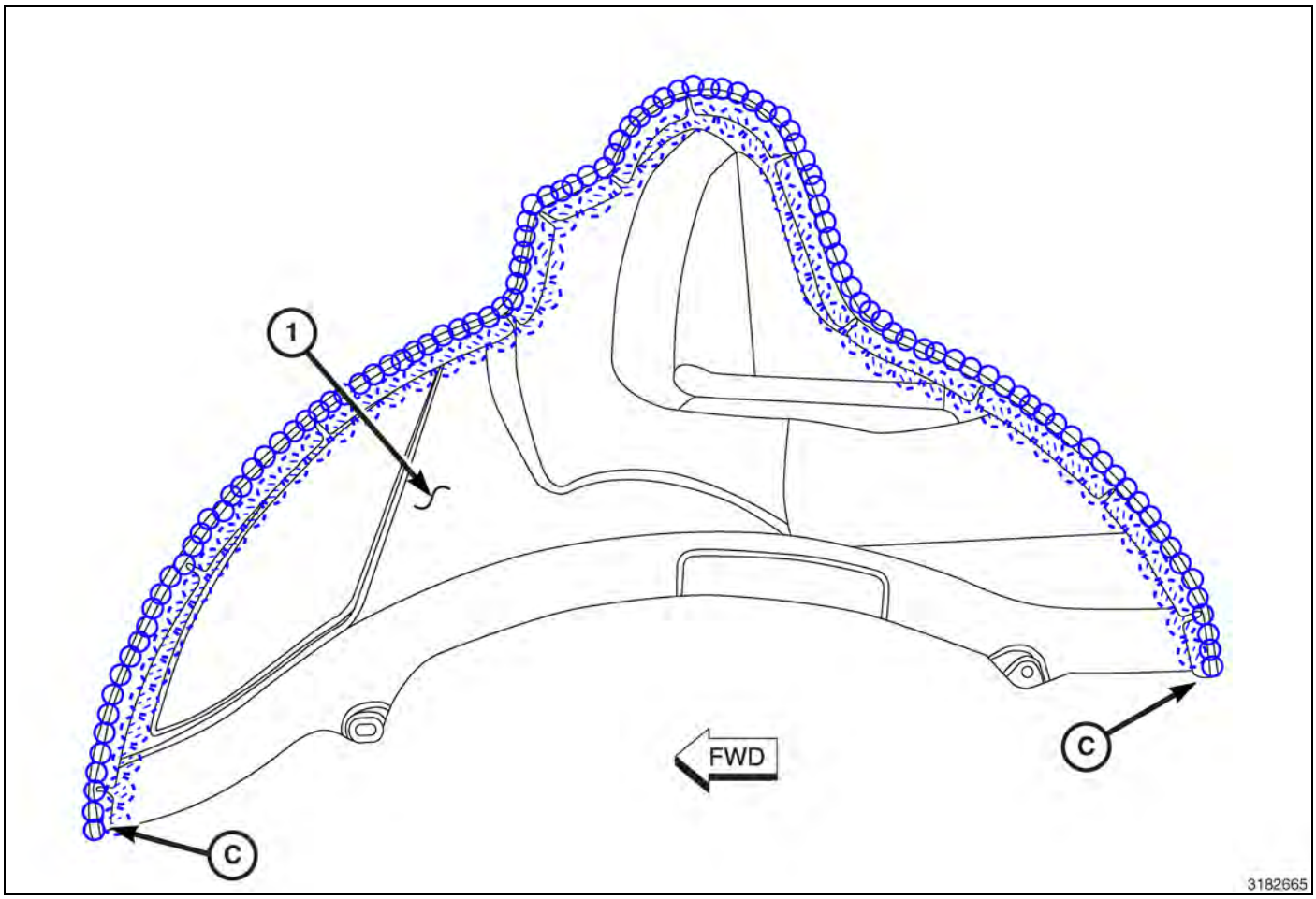


Fig. 67 Left Wheelhouse

NOTE: Completely cover inboard and outboard flanges

NOTE: Completely cover air vent holes

1 - LEFT INNER WHEELHOUSE

C - SEAM SEALER

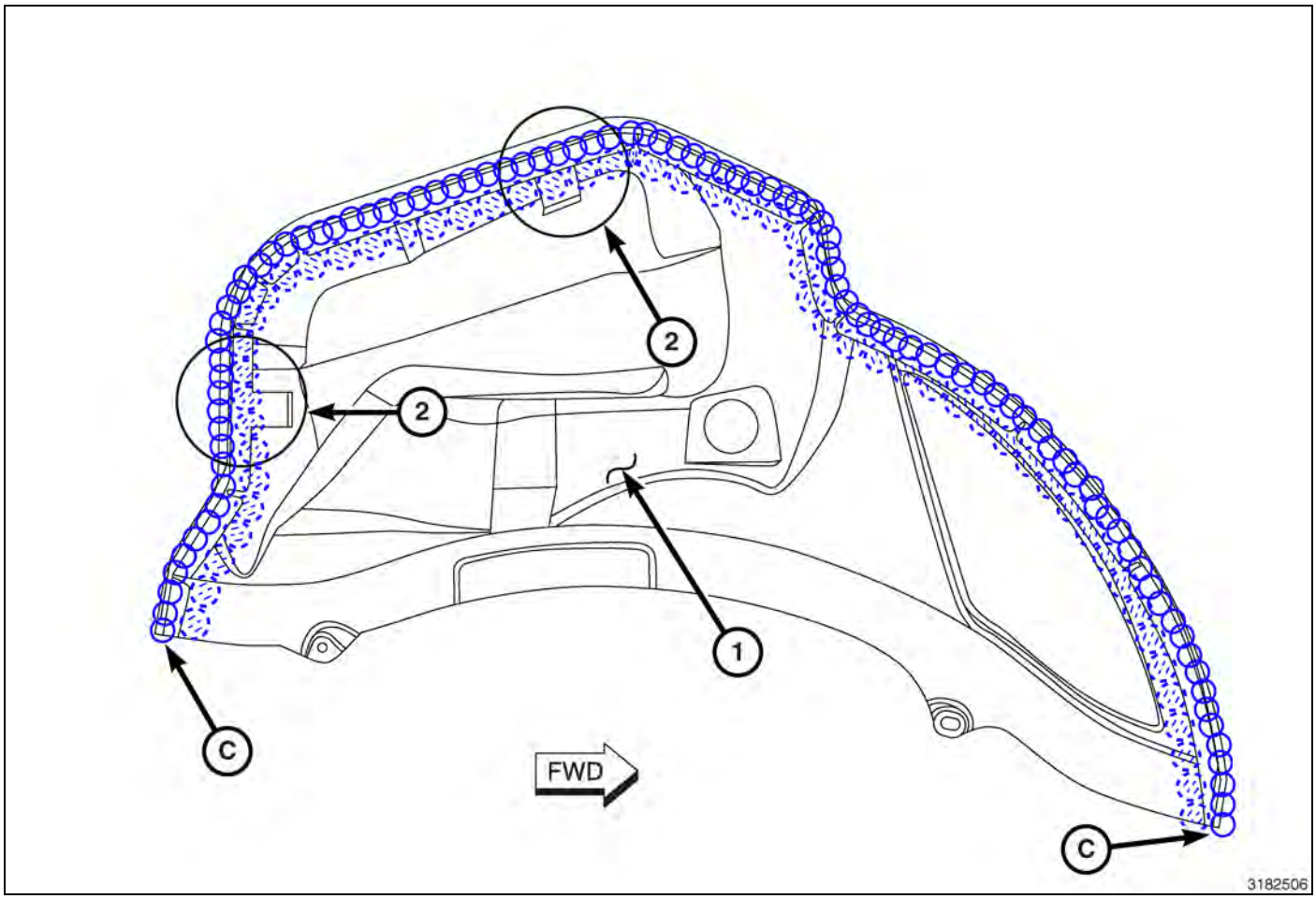


Fig. 68 Right Wheelhouse

NOTE: Completely cover inboard and outboard flange

NOTE: Completely cover air vent holes

1 - RIGHT INNER WHEELHOUSE

2 - BRACKETS (KEEP FREE OF SEALER)

C- SEAM SEALER

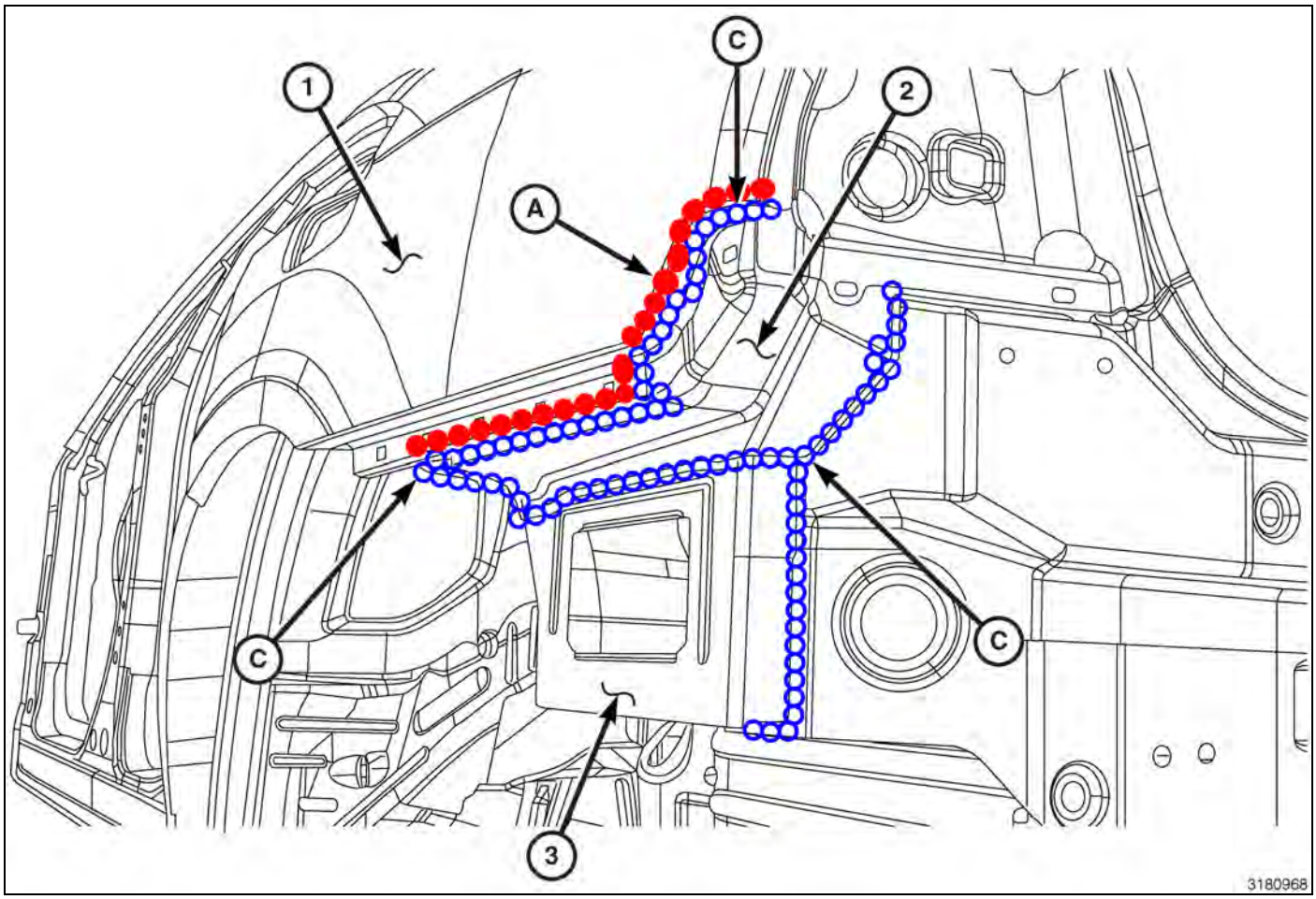


Fig. 69 Quarter Panel Extension

NOTE: Left side shown, Right side typical

NOTE: Smooth sealer for proper facia fitment

1 - OUTER BODY SIDE APERTURE

2 - CLOSEOUT PANEL

3 - QUARTER PANEL LOWER EXTENSION

A - STRUCTURAL ADHESIVE

C - SEAM SEALER

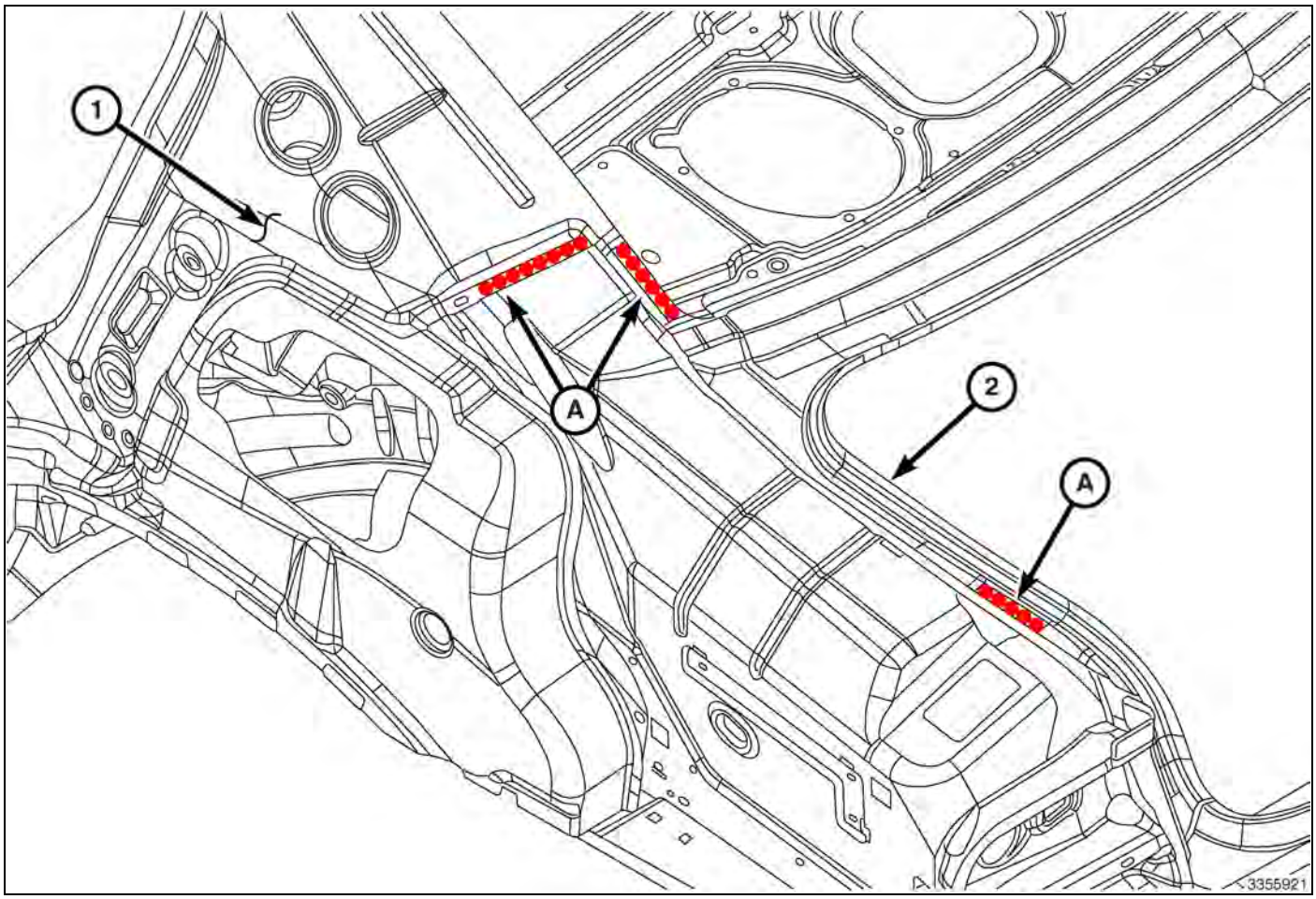


Fig. 70 Body Side Inner (Quarter)

NOTE: Left side shown, Right side typical

1 - INNER BODY SIDE PANEL

2 - DRAIN TROUGH / DRAIN TROUGH REINFORCEMENT

A - STRUCTURAL ADHESIVE

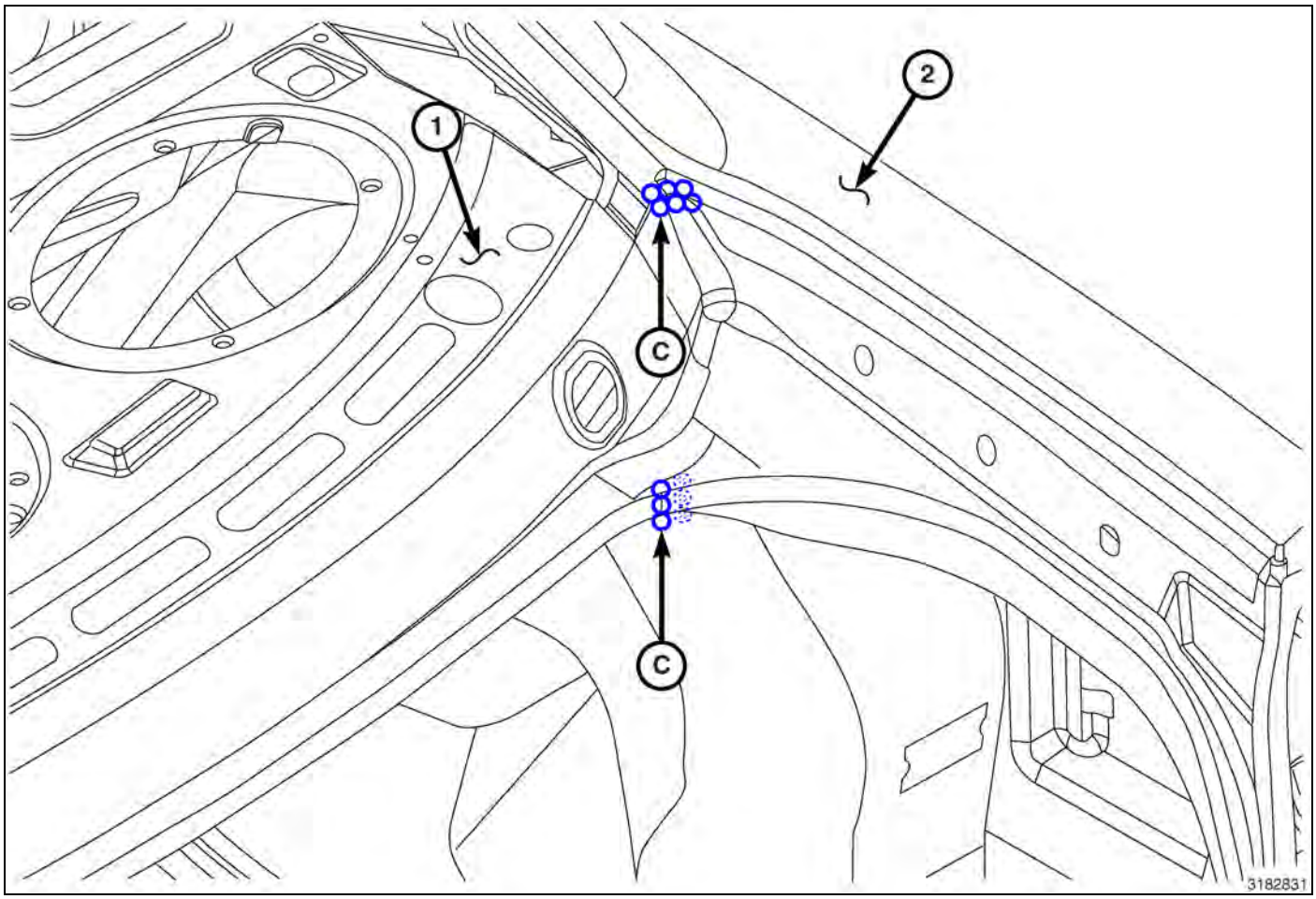


Fig. 71 Drain Trough/Rear Shelf

NOTE: Right side shown, Left side typical.

1 - DRAIN TROUGH

2 - OUTER BODY SIDE

C - SEAM SEALER

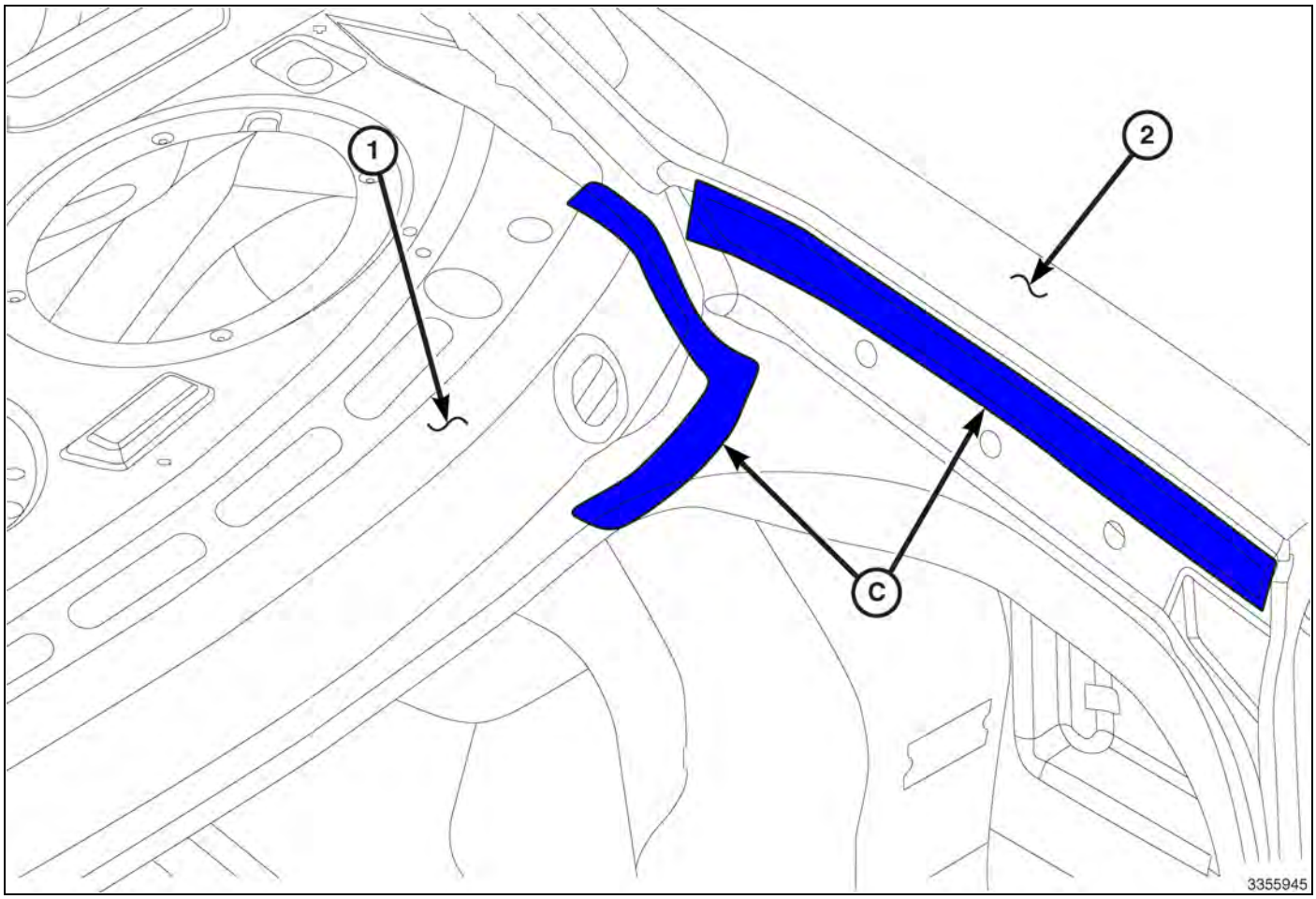


Fig. 72 Drain Trough/Quarter Panel

NOTE: Right side shown, Left side typical

1 - REAR SHELF

2 - QUARTER PANEL

C - SEAM SEALER

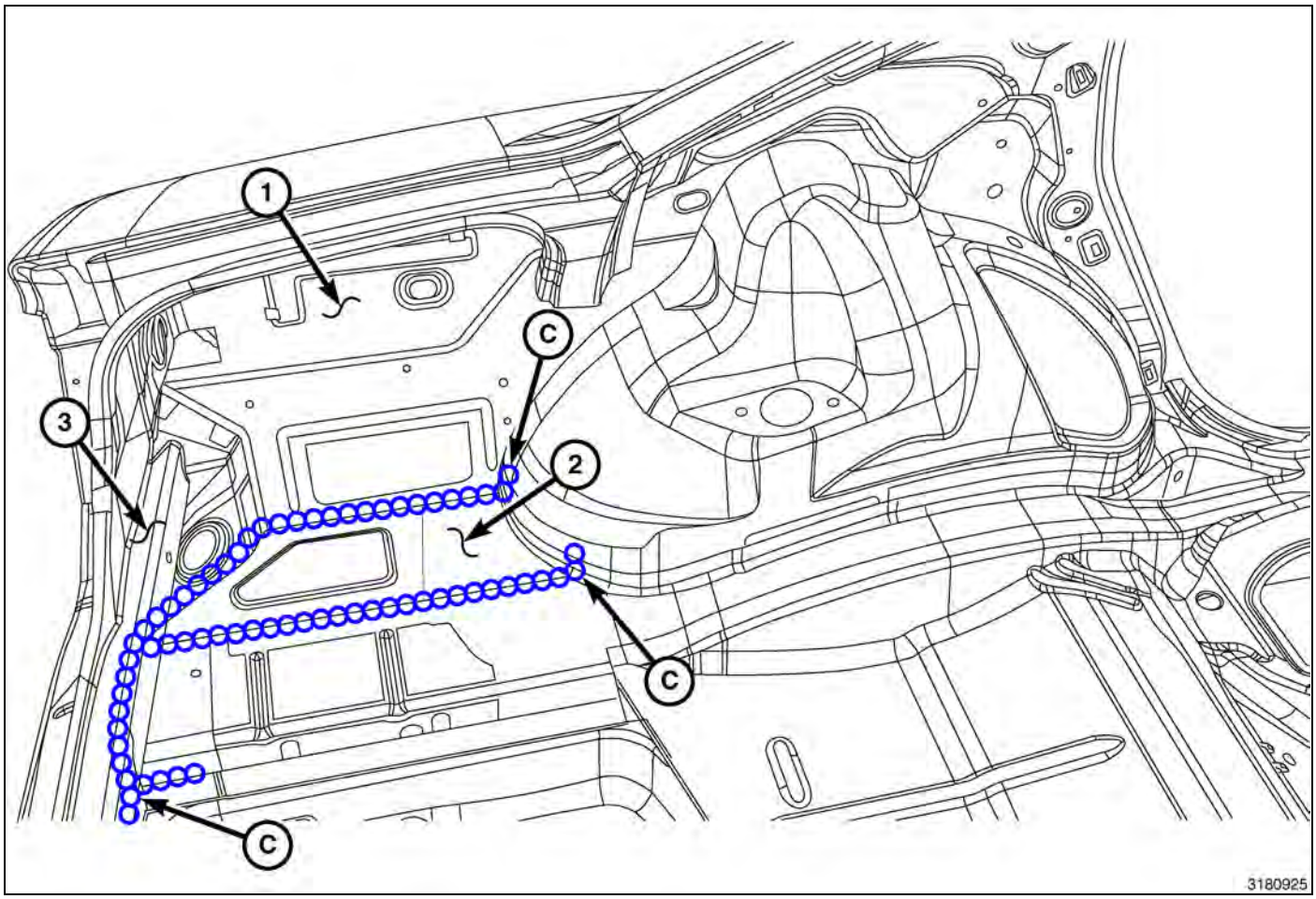


Fig. 73 Rear Rail/Closeout Panel

NOTE: Left side shown, Right side typical

Collision Information SIDE INNER

2 - OUTER REAR RAIL

3 - CLOSEOUT PANEL

C - SEAM SEALER

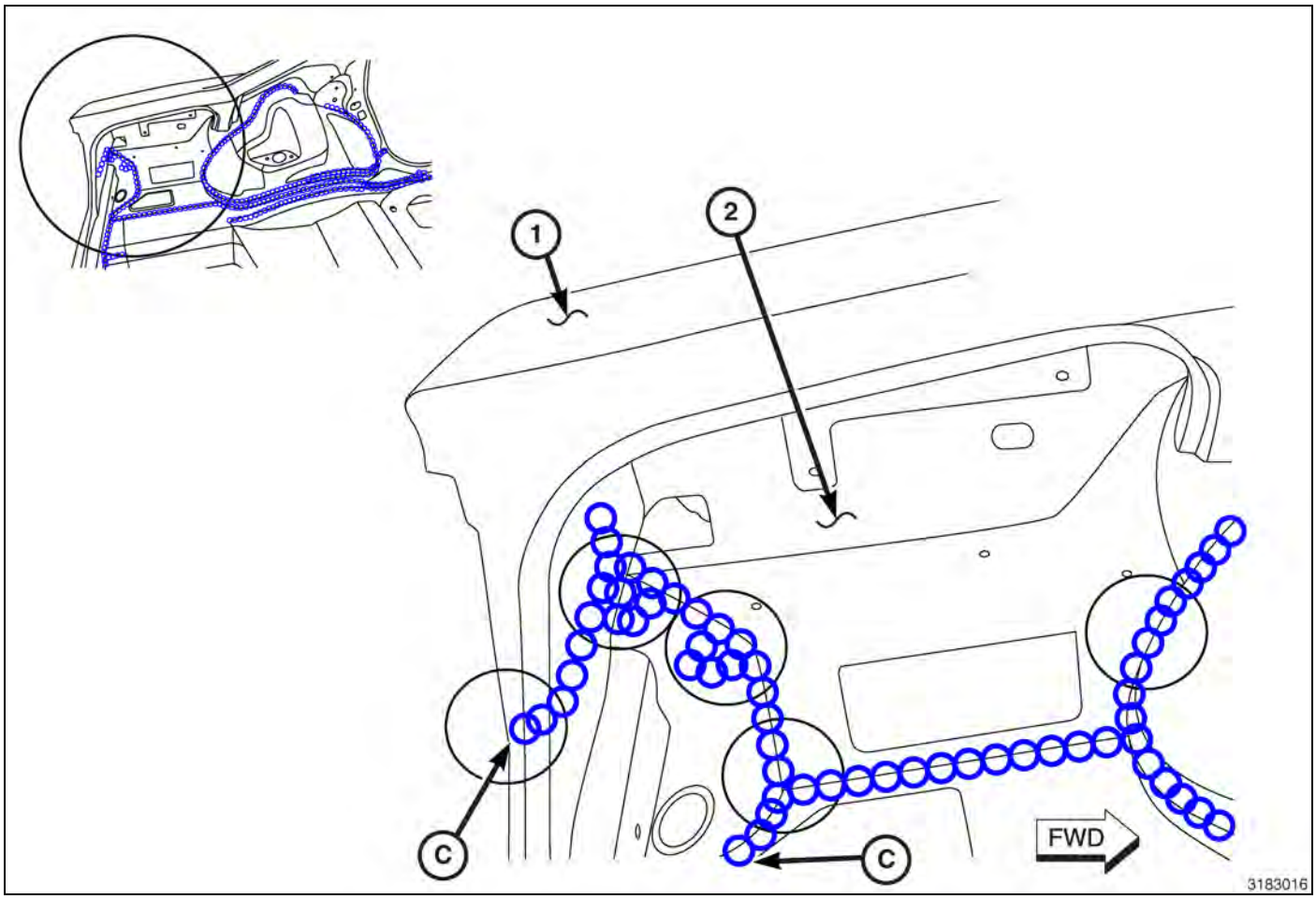


Fig. 74 Drain Trough/Quarter Extension

NOTE: Left side shown, Right side typical.

1 - OUTER BODY SIDE APERTURE

2 - INNER BODY SIDE

C - SEAM SEALER

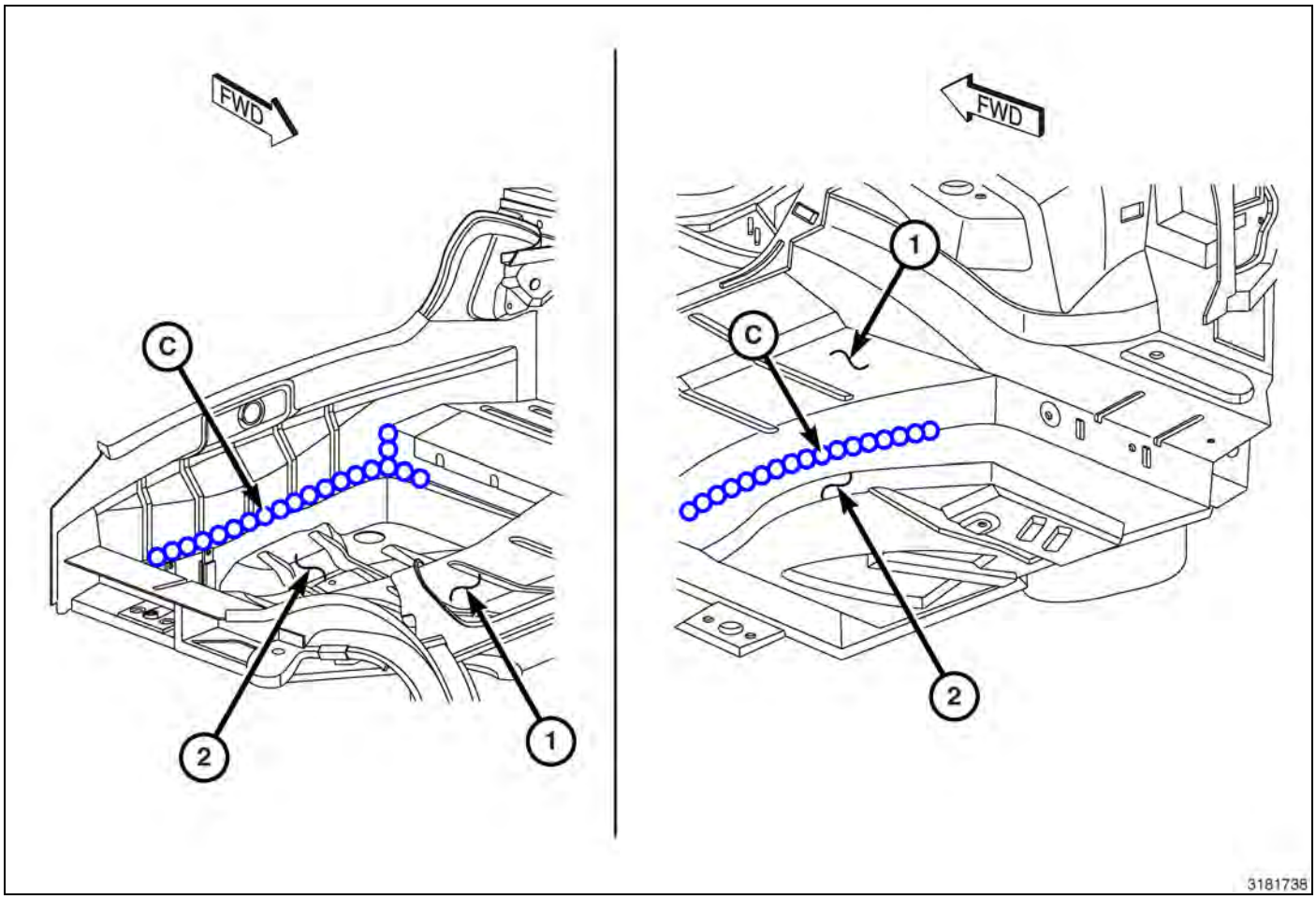


Fig. 75 Interior Spare Wheel Tub

NOTE: Opposite sides typical.

1 - REAR FLOOR

2 - SPARE TIRE WELL

C - SEAM SEALER

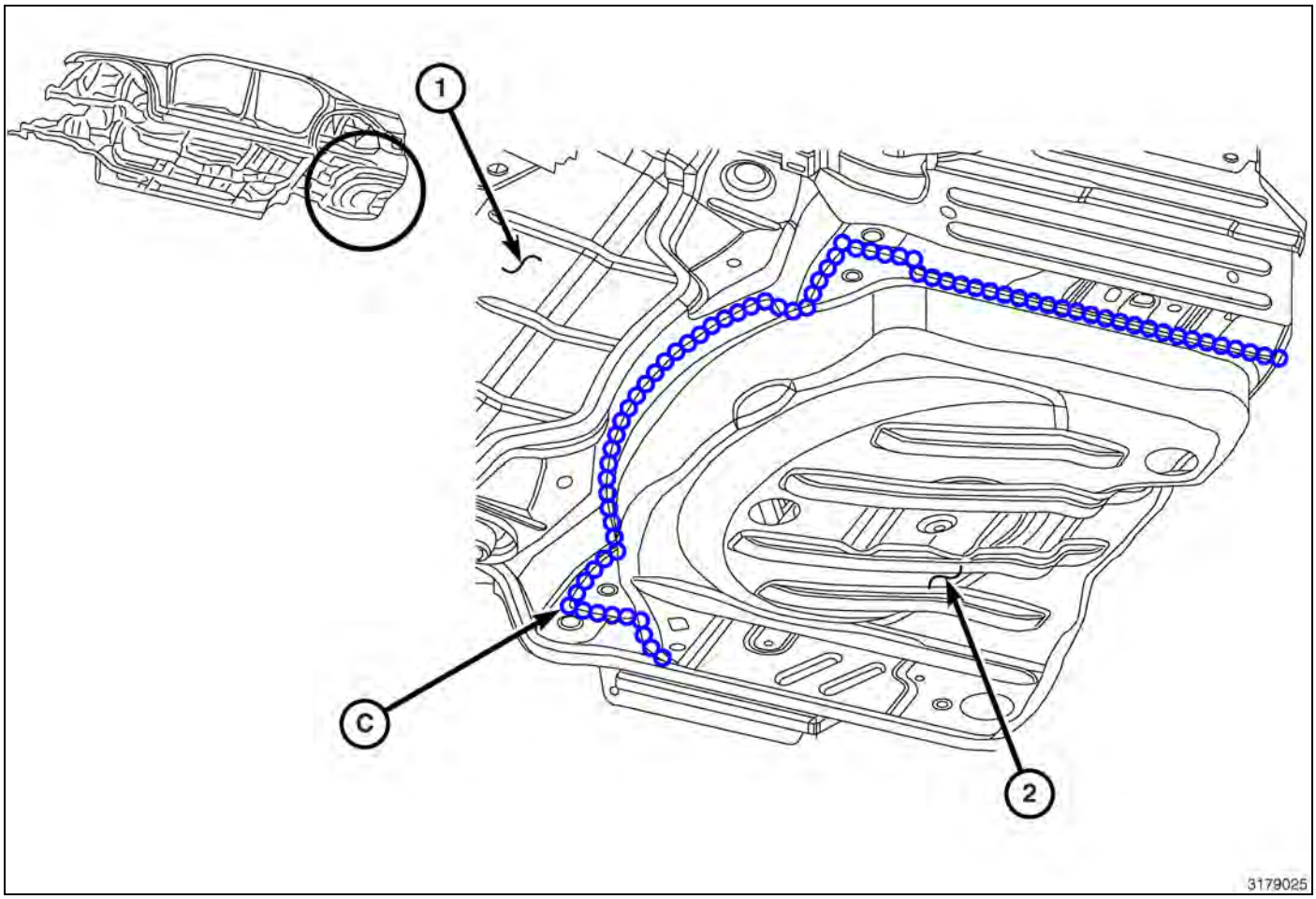


Fig. 76 Exterior Spare Wheel Tub

NOTE: Left side shown, Right side typical

1 - REAR FLOOR

2 - SPARE TIRE TUB

C - SEAM SEALER

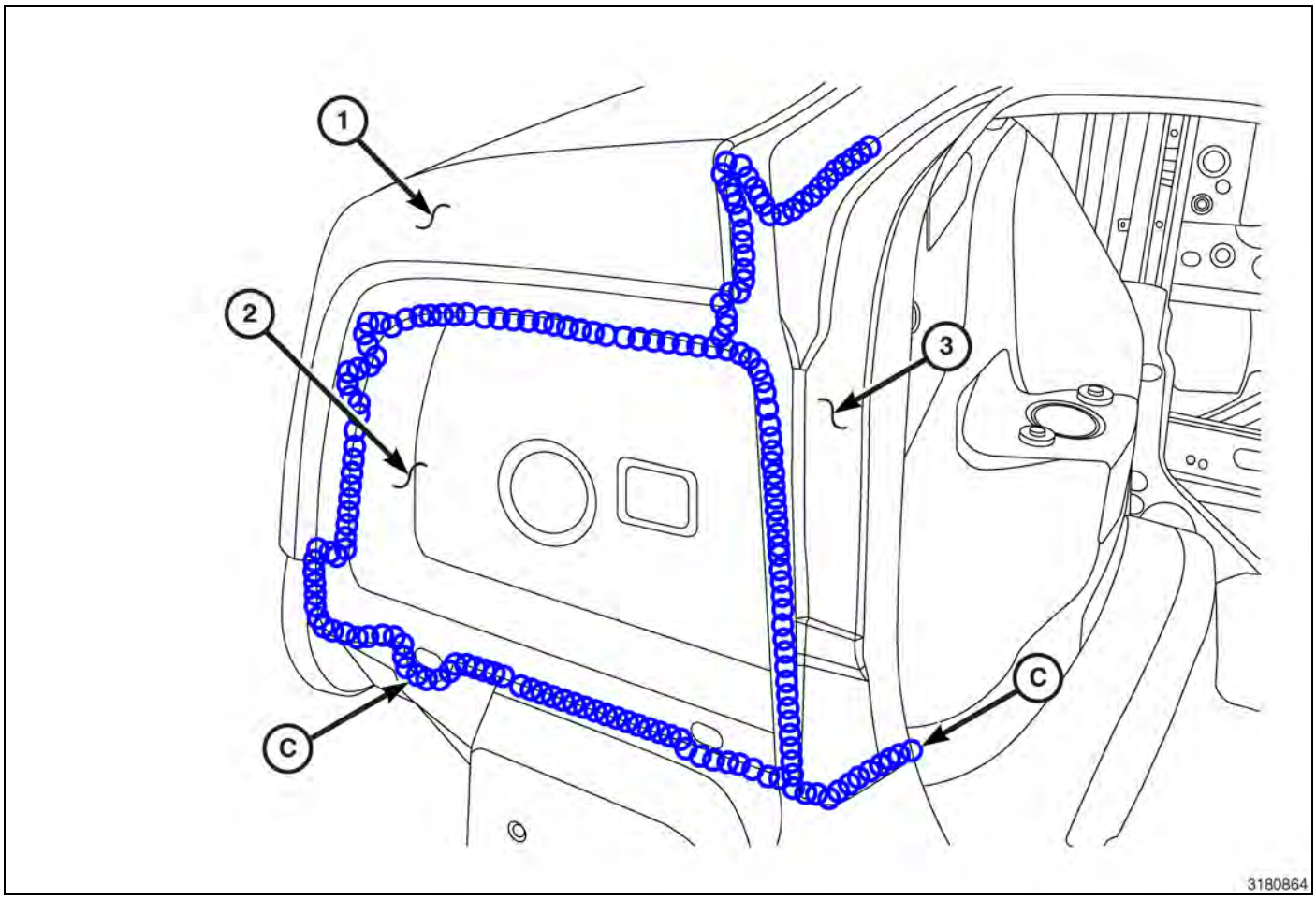


Fig. 77 Tail Lamp Pocket

NOTE: LD shown, LX typical

NOTE: Left side shown, Right side typical

1 - QUARTER PANEL

2 - TAIL LAMP POCKET

3 - DRAIN TROUGH

C - SEAM SEALER