INTRODUCTION

Jeep Grand Cherokee

This manual has been prepared for use by all body technicians involved in the repair of the Jeep Grand Cherokee sport-utility vehicle.

This manual shows:

- **Typical unibody panels contained in the Grand Cherokee**
- **The weld locations for these panels**
- **The types of welds for the panel**
- **Proper sealer types and correct locations**

Chrysler Corporation reserves the right to make improvements in design or to change specifications to these vehicles without incurring any obligation upon itself.

JEEP GRAND CHEROKEE

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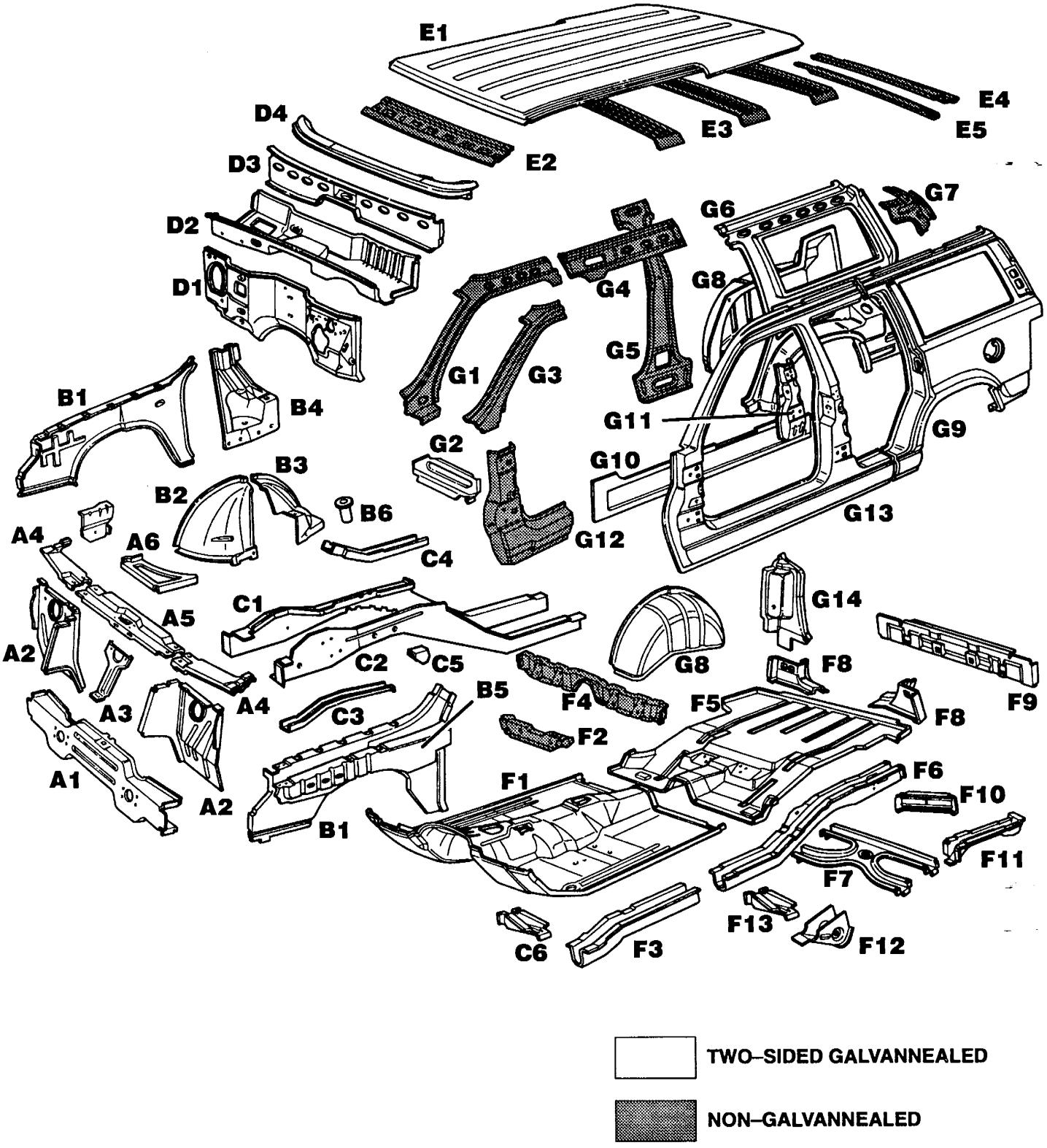
CORROSION PROTECTION — 1993 JEEP GRAND CHEROKEE



The following measures have been implemented in order to provide maximum corrosion prevention and protection.

1. The use of galvannealed coatings throughout the body structure.
2. Cationic electrode position undercoating is used on the complete body in all instances.
3. Body sealing.
4. Stone-chipping resistant primer application.
5. Underbody corrosion prevention.

Definitions of Steels used in Jeep Grand Cherokee:

MS 66 — Represents an uncoated cold-rolled structural steel used mainly for interior braces and reinforcements.

MS 67 — Represents an uncoated structural steel used in areas where structural integrity is critical. Ex. The type of steel used for the "A" pillar.

MS 264-050-XK — Represents an uncoated high strength steel used in applications where structural integrity is critical.

Two-Sided Galvannealed MS 6000-44A — Represents a two-sided zinc coated steel in which the coating is fully alloyed with the sheet or strip surface.

Two-Sided Galvannealed MS 6000-44VA — Represents a two-sided zinc-iron coated high strength steel in which the coating is fully alloyed with the sheet or strip surface.

PARTIAL LIST OF STEEL APPLICATIONS

Galvannealed Steel

Hood — inner and outer panels*
Deck lid — inner and outer*
Front floor pan
Rear floor pan
Front rail
Steering gear crossmember
Front wheelhouse (front and rear)
Lower radiator mounting crossmember
Upper radiator mounting crossmember
Inner side rail
Rear quarter panel
Rear inner wheelhouse
Front door — inner panel*
Front door — outer panel*
Rear door — inner panel*
Rear door — outer panel*
Dash panel
Front fender*
Radiator side closure
Roof Panel
Front suspension mounting panel
Rear quarter panel — inner
Rear quarter panel — outer

* Not shown in illustration

HIGH STRENGTH STEELS (HSS)

High tensile steel strengthened by solid solution has been used for the parts listed below.

The tensile strength of these high strength steel panels is much greater than the tensile strength of mild steel, nevertheless body work (sheet metal work, painting, etc.) can be performed by using the same procedures as those for mild steels.

DO NOT HEAT ANY OF THESE STEELS OVER 700°F.

1993 JEEP GRAND CHEROKEE HIGH STRENGTH STEELS (HSS)

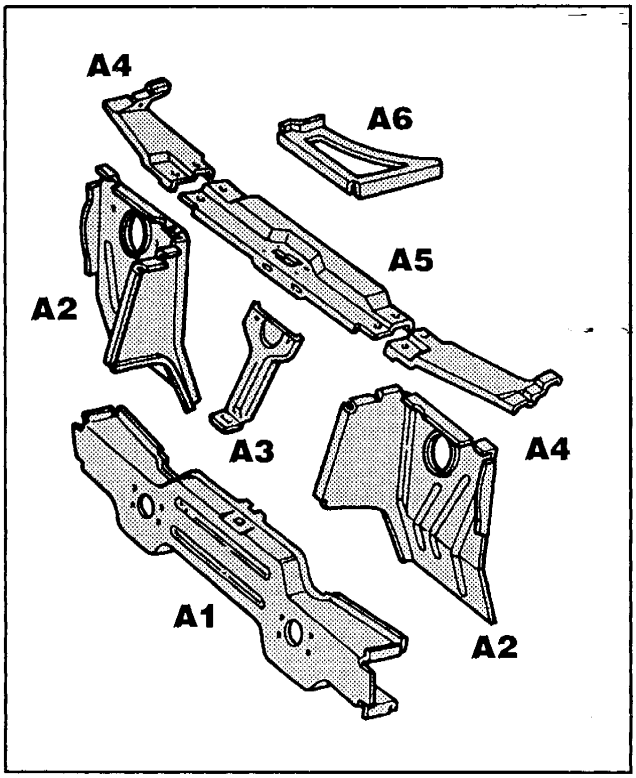
Part Description	Material Specifications
Center Rail	MS-6000-44VA
Front Axle Jounce Bumper Retainer	MS-6000-44VA
Front Door Impact Beam	MS-264-120-XK
Front Inner Rail	MS-6000-44VA
Front Outer Rail	MS-6000-44VA
Lower Control Arm Mounting Bracket	MS-6000-44VA
Outer Front Rail Lower Reinforcement	MS-6000-44VA
Rear Coil Spring Mounting Bracket	MS-6000-44VA
Rear Crossmember	MS-6000-44VA
Rear Door Impact Beam	MS-264-120-XF
Rear Rail	MS-6000-44VA
Rear Rail to Rear Crossmember	MS-6000-44VA
Roof Side Inner Rail	MS-264-050-XO
Upper Front Inner Pillar	MS-264-050-XO

Note: When not sure of steel materials, always treat as high strength steel.

RADIATOR SUPPORT COMPONENTS

Some pieces of the radiator support are serviced only as component assemblies. These assemblies are comprised of individual components that are pre-welded. Components in the assembly cannot be ordered as individual parts. Consult with your parts department for part availability. The Radiator Crossmember Support (A3) and Upper Radiator Crossmember (A5) are bolt-in items.

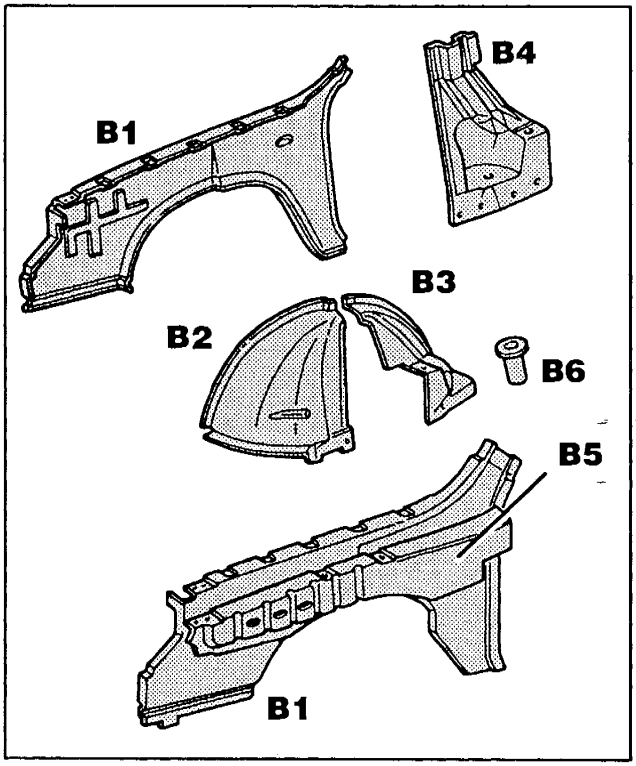
1. Front Lower Crossmember
2. Radiator Side Closure Panel RH/LH
3. Crossmember Support (not welded)
4. Side Closure Reinforcement RH/LH*
5. Upper Crossmember (not welded)
6. Front Wheelhouse Extension (Right Shown)*



FRONT WHEELHOUSE AND COWL SIDE

All components of the Front Wheelhouse and Cowl Side are serviced separately except for the Spring Retainer Guide (B6).

1. Cowl Side Panel RH/LH
2. Front Wheelhouse Panel (Front) RH
3. Front Wheelhouse Panel (Rear) RH
4. Suspension Mounting Support RH
5. Cowl Side Upper Reinforcement LH
6. Front Suspension Spring Retainer Guide RH*

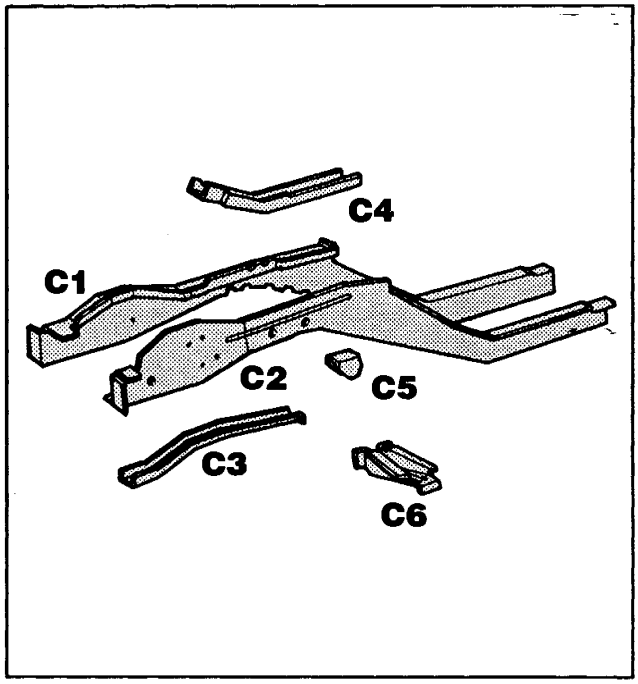


* Serviced as an assembly

FRONT RAIL

All Front Rail components are serviced as an assembly. These components, as well as other components not illustrated, are shipped pre-assembled. Please refer to the Welded Panel Replacement section for component illustration and weld placement or consult a current parts list.

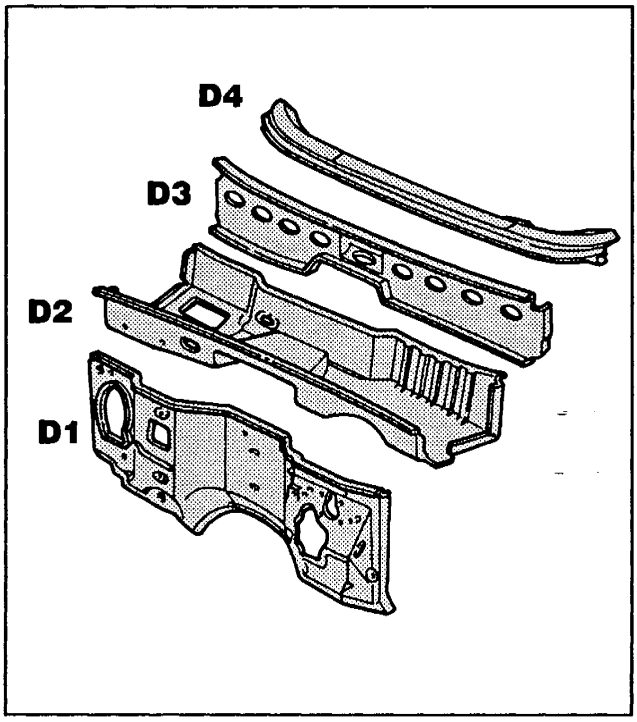
1. Front Rail Inner LH
2. Front Outer Rail LH
3. Front Rail Inner Reinforcement (Front) LH
4. Front Rail Inner Reinforcement (Rear) LH
5. Lower Control Arm Bracket LH
6. Front Floor Pan Outer Reinforcement



DASH PANEL

The Dash Panel is available as a separate component. The Plenum Baffle and Lower Panel are serviced as an assembly along with other cowl components.

1. Dash Panel
2. Plenum Lower Panel*
3. Plenum Baffle Panel
4. Cowl Top Panel



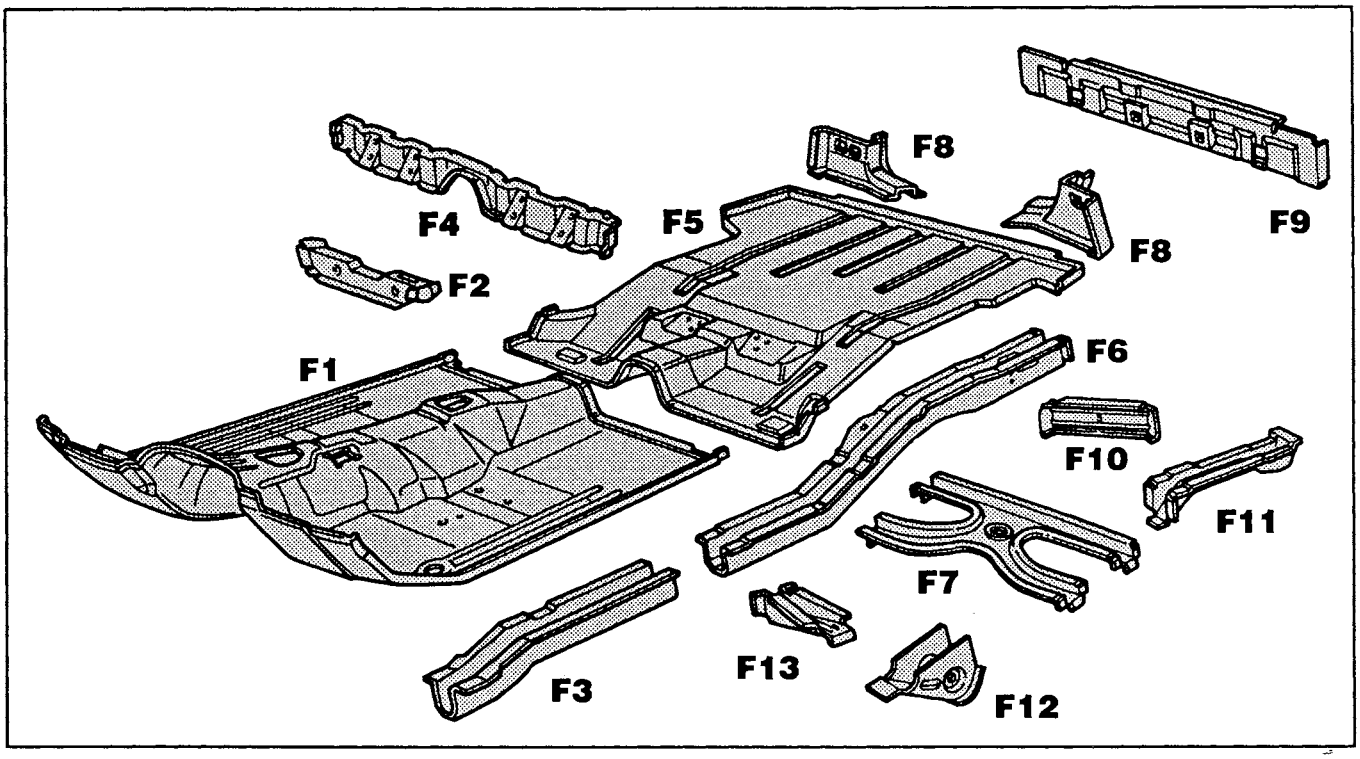
* Serviced as an assembly

FLOOR PAN

The Floor Pan assembly is divided into front and rear sections. The only major component included in the Front Floor Pan Assembly is the Front Seat Mounting Crossmember. The Rear Floor Pan Assembly includes the Rear Seat Mounting Crossmember and the Rear Liftgate Opening Gussets.

1. Front Floor Pan
2. Front Seat Mounting Crossmember* RH Side
3. Center Frame Rail
4. Rear Seat Mounting Crossmember*
5. Rear Floor Pan
6. Rear Rail LH
7. Fuel Tank Mount and Rear Floor Pan Crossmember
8. Liftgate Opening Rear Gusset*
9. Rear Crossmember
10. Sill to Rear Crossmember Reinforcement*
11. Rear Floor Pan Fuel Tank Retainer Support*
12. Rear Lower Control Arm Bracket*
13. Front Floor Pan Outer Rear Reinforcement LH Side

* Serviced as an assembly

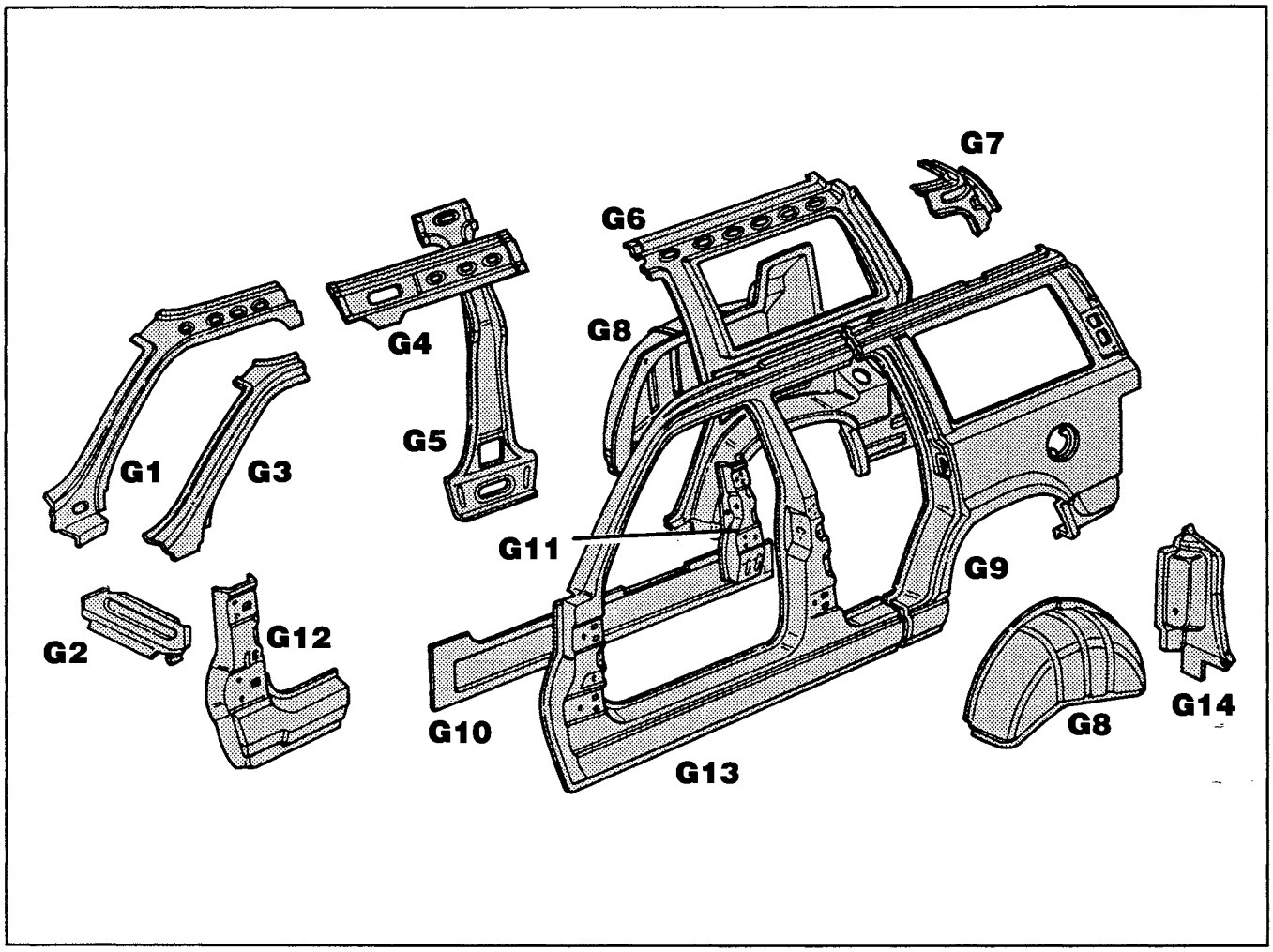


BODY SIDE

The Body Side components are all serviced individually excluding the Upper Front Inner Pillar Reinforcement which is pre-assembled to the Upper Front Inner Pillar.

1. Upper Front Inner Pillar LH
2. Lower Cowl Side Reinforcement
3. Upper Front Inner Pillar Reinforcement LH*
4. Roof Side Inner Rail LH
5. Center Inner Pillar LH
6. Rear Quarter Inner Panel LH
7. Inner Upper Rear Reinforcement LH
8. Rear Wheelhouse Inner Panel
9. Rear Quarter Outer Panel LH
10. Inner Side Rail LH
11. Center Pillar Hinge Reinforcement LH
12. Front Hinge Pillar Reinforcement LH
13. Body Side Outer Panel LH
14. Tail Lamp Mounting Panel RH

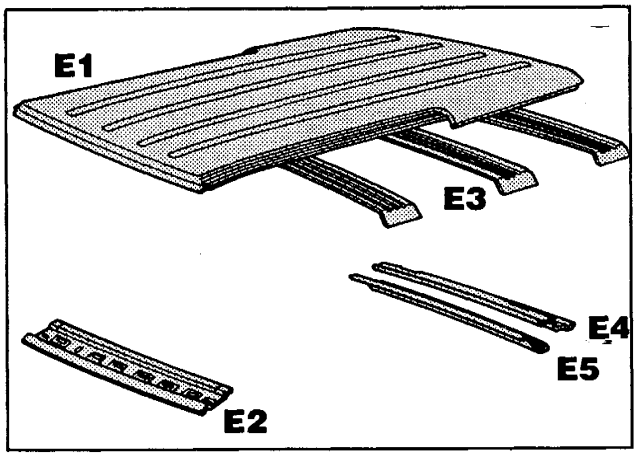
* Serviced as an assembly



ROOF PANEL AND SUPPORT BOWS

All illustrated components are serviced as separate items excluding the Rear Lower Header. This component is a sub-assembly of the Rear Upper Header.

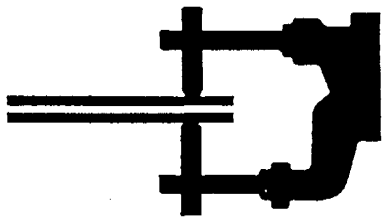
1. Roof Panel
2. Front Header
3. Roof Bows
4. Rear Upper Header
5. Rear Lower Header*



Notes

WELDED PANEL REPLACEMENT

Jeep Grand Cherokee



The basic parts of the body structure are the welded panels. Herein is a brief description of the placement of some of these panels and their weld locations.

NOTE: To ensure the strongest, most durable and cleanest welds possible, perform testing before and during all weld procedures. Always follow American Weld Society specifications and procedures.

EXPLANATION OF MANUAL CONTENTS

The major construction of a unibody automobile consists of welded panels that create the supporting structure for all components and assemblies of the vehicle. Here are some examples for replacement of these parts.

Symbols

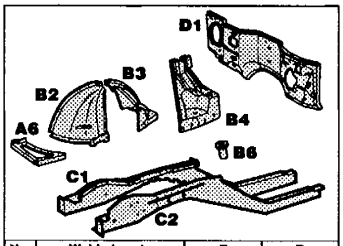
Some of the operations for panel replacement are designated by the following symbols.

Rough cutting of panel to be replaced	+ + + + MIG Plug Weld	WWWWW MIG Arc Welding

1 3 2 4 — Continuous Stitch MIG Weld: Alternate stitch welds until you have a continuous MIG weld.

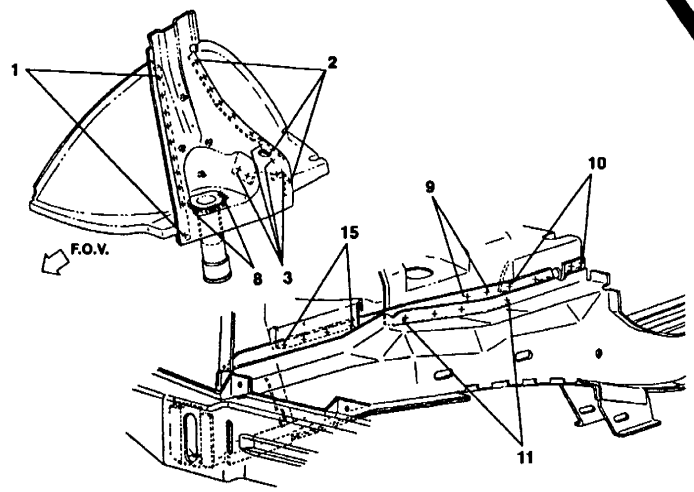
NOTE: Although spot welds are the nuts and bolts of the unibody vehicle, they will not be used as a repair symbol because of the lack of proper spot weld equipment in most shops.

Front Wheelhouse Assembly



No.	Welded parts	F	R
1RH	B4 + B2	10	P10
1LH	B4 + B2	9	P9
2	B4 + B3	10	P10
3	B4 + Front Shock Mounting Reinforcement	6	P6
4	B3 + Front Shock Mounting Reinforcement	2	P2
5	B6 + B4	6 MIG	6 MIG

No.	Welded parts	F	R
6	B6 + B4	2	P2
7	B6 + Jounce Bumper Retainer	1 MIG	1 MIG
8	B4 + Front Suspension Spring Retainer	3 MIG	3 MIG
9	B4 + C2	2	P2
10	B3 + C2	4	P4
11	B4 + C2 + C1	4	P4
12RH	B3 + D1	5	P5
12LH	B3 + D1	6	P6
13	B4 + C2	3 MIG	3 MIG
14	B2 + A6	5	P5
15	C1 + A6	4	P4



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"**F**" indicates the number of factory welds to be separated.
"**R**" indicates the number of welds to be made and the method to be used when making repairs.

If only a number is listed under the "**F**" it indicates that the method used at the factory was a spot weld; for all other methods, both the welding method and the number of welds will be indicated. For example, "**F**2, **R**P2" indicates that the 2 spot welds made at the factory should be replaced by 2 plug welds if repairs are made.

The welded components are indicated by using the designations given in the illustration below: For example, " a + b " indicates that component a and component b shown in the top illustration are welded together.

NOTE: Before beginning repair procedures, perform test welds to verify your equipment and to insure your welds are the best quality. All welds should conform to the American Welding Society standards.

Certain body components must use sealers to ensure proper assembly. Be sure to check the **Body Sealing Locations** and **Structural Adhesives Sections** for location and sealer type.

For weld specifications contact:

American Welding Society

550 Northwest Le Jeune Rd.

P.O. Box 351040

Miami, Florida 33135

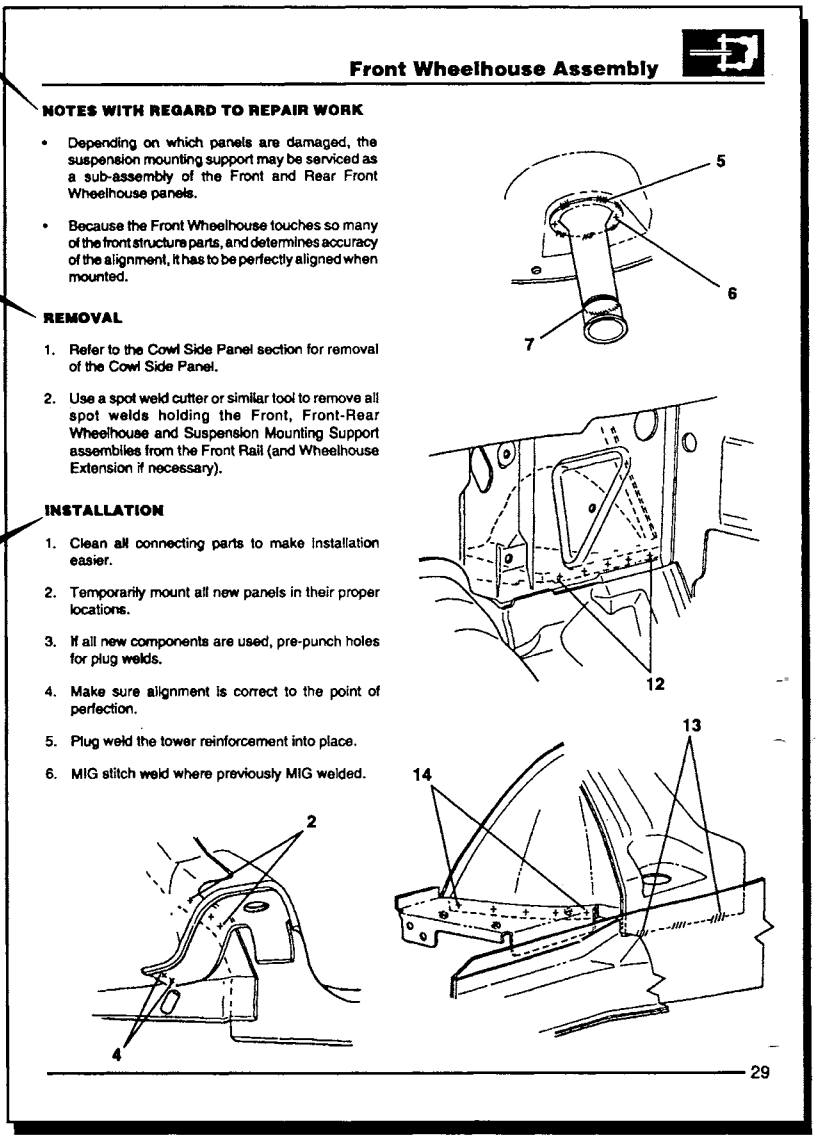
Phone: (305) 443-9353

Points which require particular attention during welded panel replacement work.

The panel removal instructions and accompanying illustrations are given in the order in which the work is to be performed.

The panel installation instructions and accompanying illustrations are given in the order in which the work is to be performed.

In order to keep the instructions brief and simple, obvious work procedures (such as removal of a panel after it has been cut) have been omitted where possible.



Front Wheelhouse Assembly

NOTES WITH REGARD TO REPAIR WORK

- Depending on which panels are damaged, the suspension mounting support may be serviced as a sub-assembly of the Front and Rear Front Wheelhouse panels.
- Because the Front Wheelhouse touches so many of the front structure parts, and determines accuracy of the alignment, it has to be perfectly aligned when mounted.

REMOVAL

1. Refer to the Cowl Side Panel section for removal of the Cowl Side Panel.
2. Use a spot weld cutter or similar tool to remove all spot welds holding the Front, Front-Rear Wheelhouse and Suspension Mounting Support assemblies from the Front Rail (and Wheelhouse Extension if necessary).

INSTALLATION

1. Clean all connecting parts to make installation easier.
2. Temporarily mount all new panels in their proper locations.
3. If all new components are used, pre-punch holes for plug welds.
4. Make sure alignment is correct to the point of perfection.
5. Plug weld the tower reinforcement into place.
6. MIG stitch weld where previously MIG welded.

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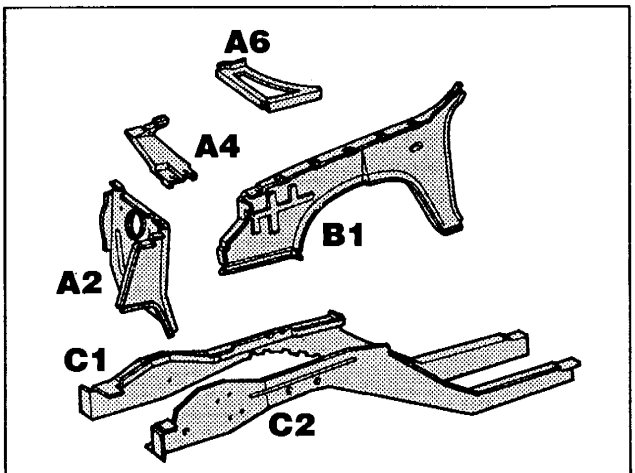
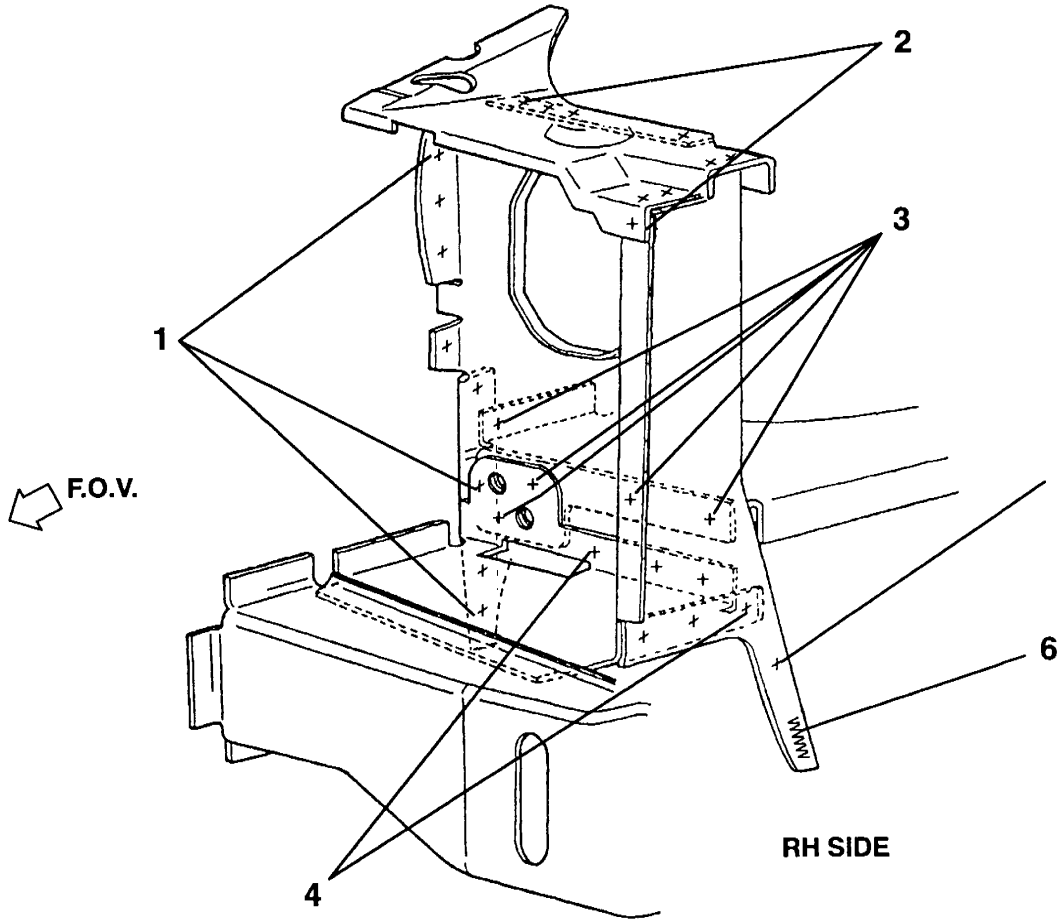
Radiator Side Closure



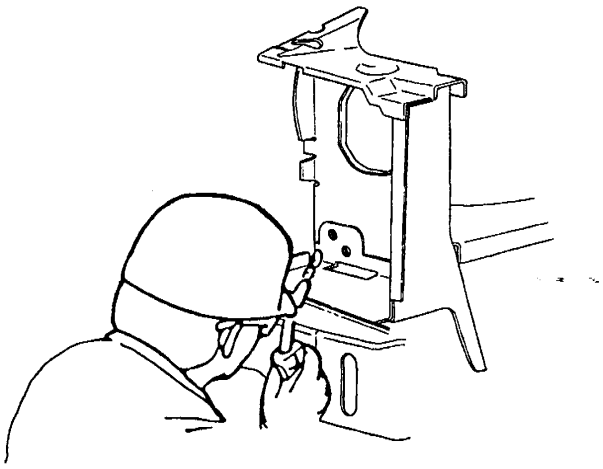
No.	Welded parts	F	R
1	A2 + B1	8	P8
2RH	A2 + A4	9	P9
2LH	A2 + A4	8	P8
3	A2 + A6	5	P5
4	A2 + C2 + Side Closure Extension	6	P6
5	A2 + C2	1	P1
6	A2 + C2	1 MIG	1 MIG

No.	Welded parts	F	R



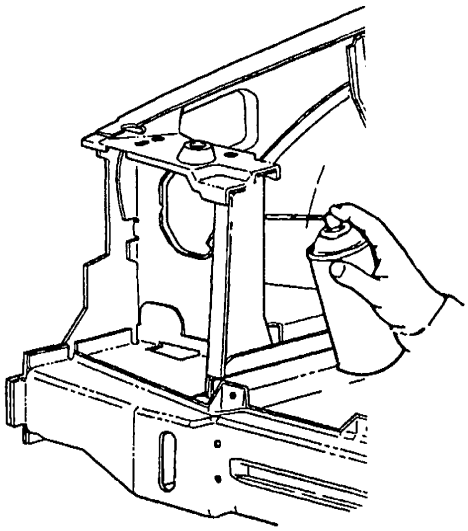
NOTES WITH REGARD TO REPAIR WORK

- The Radiator Side Closures are serviced as a partial assembly that includes the Side Closure Reinforcement.
- Left and right sides are serviced in the same manner.
- Refer to the Front Wheelhouse section for Front Wheelhouse Extension to Wheelhouse weld locations.



REMOVAL

1. Carefully cut all spot and MIG welds and use care not to damage any other panels.
2. Separate all welds.
3. Remove old panel and prepare mating surfaces of existing panels.



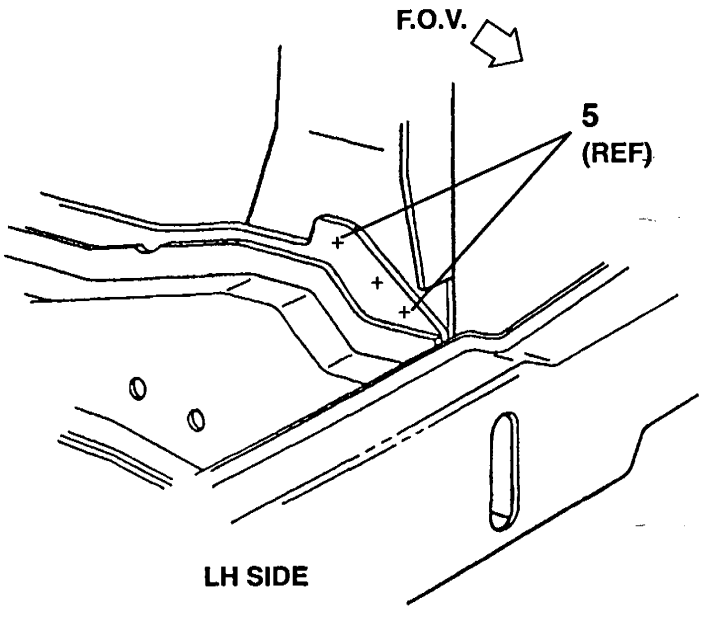
CAUTION:

- Do not cut at a location where there is a weld bead or a welded nut.

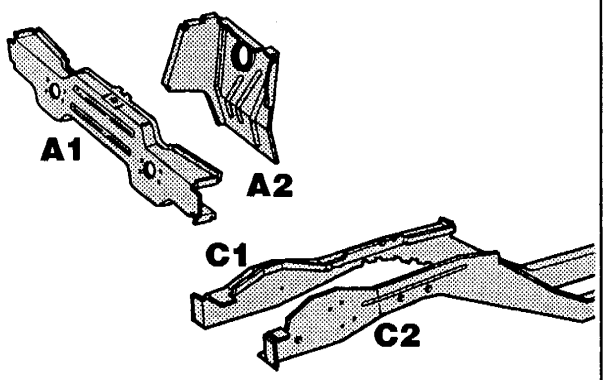
INSTALLATION

1. Measure the upper and lower parts of the Radiator Side Closure and mark them according to your measurements.
2. Temporarily mount new panel.
3. Check all measurements and alignments.
4. Spray anti-corrosion agent over repair area (inside and out).
5. Do the plug and MIG welding work.

Treat all exposed metal with an appropriate metal conditioner of self-etching primer. Follow paint manufacturer's instructions for corrosion protection.

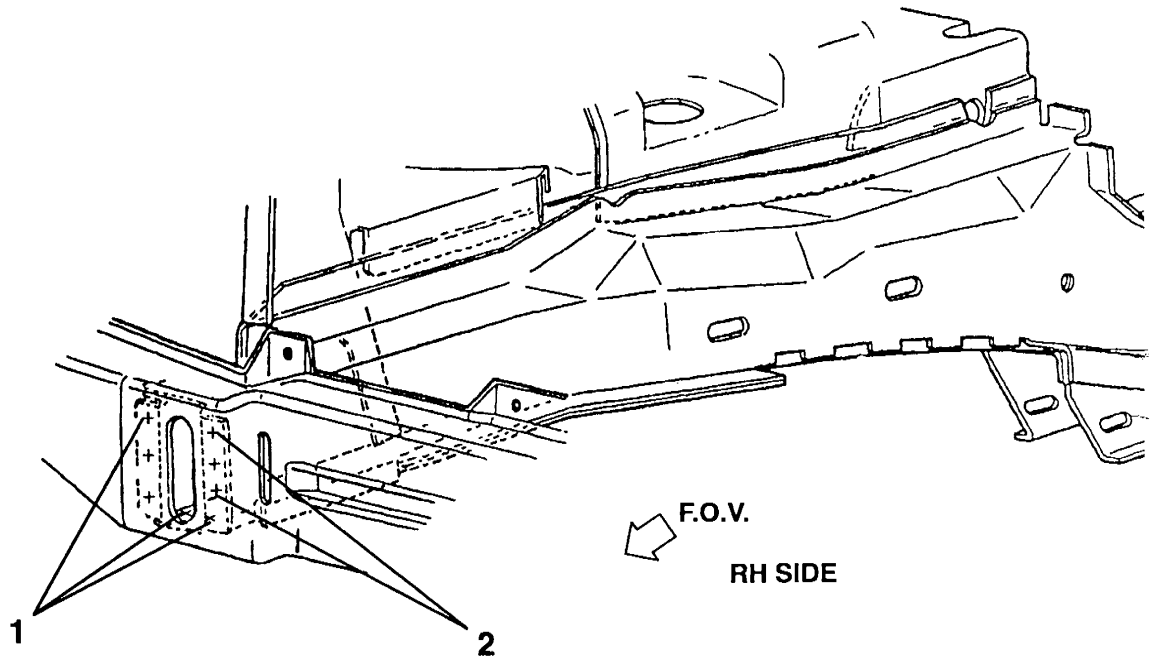


Lower Radiator Crossmember



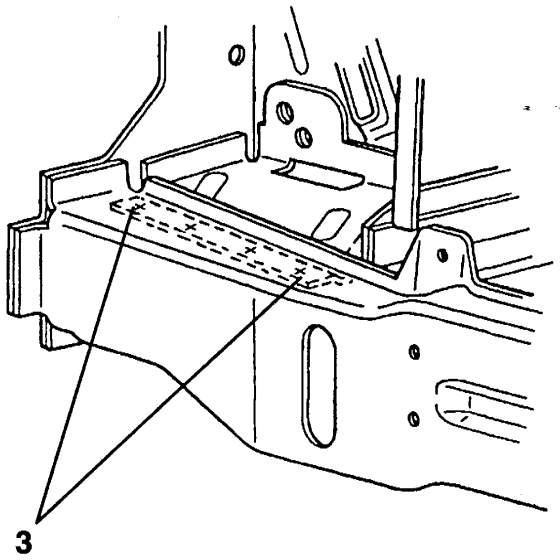
No.	Welded parts	F	R
1	A1 + C2	5	P5
2	A1 + C1	3	P3
3	A1 + Side Closure Extension	4	P4

No.	Welded parts	F	R



NOTES WITH REGARD TO REPAIR WORK

- Because the Radiator Side Closures, Side Closure Reinforcements, and Lower Radiator Crossmember create the mounting points for many critical front body components, be sure to make careful measurements and maintain the correct dimensions when doing the repairs.
- For points which have no specific measurement instructions in the Body Dimensions section, determine two points on the radiator support which are positioned symmetrically, and then confirm that the distances from the body center point to the left point and to the right point are the same.
- The Upper Radiator Crossmember and the Radiator Crossmember Support are bolt-in components.



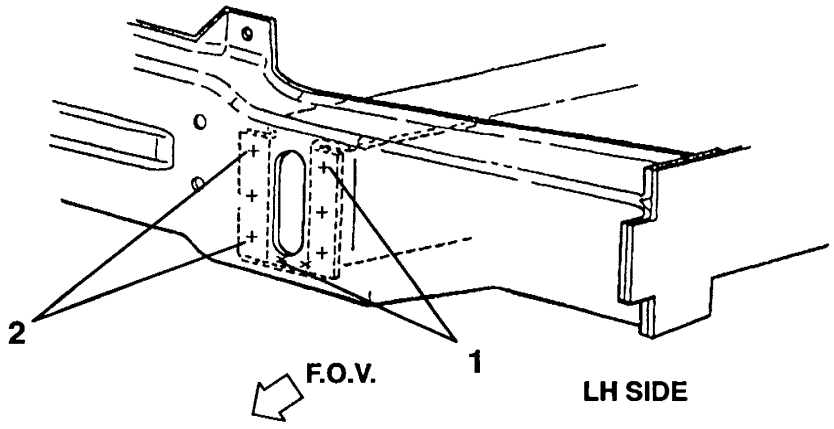
REMOVAL

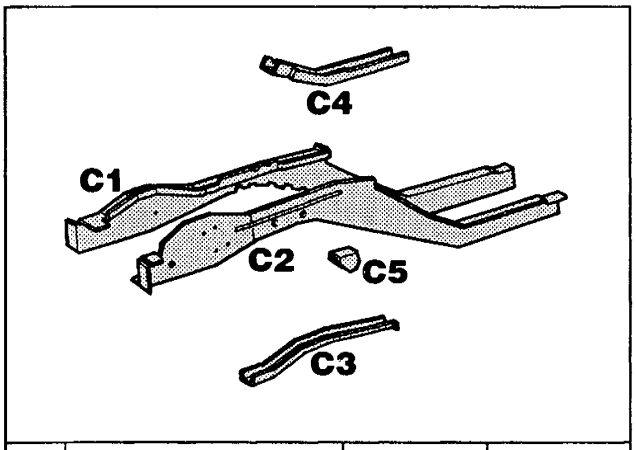
1. Cut spot welds on section being removed. Use care not to damage other panels.
2. Separate panels and remove.

INSTALLATION

1. Temporarily mount the new Lower Radiator Crossmember onto the Front Rails.
2. Measure each part and make any corrections necessary to obtain agreement with the proper body dimensions.
3. Apply anti-corrosion weld-thru primer.
4. Do the plug welding.

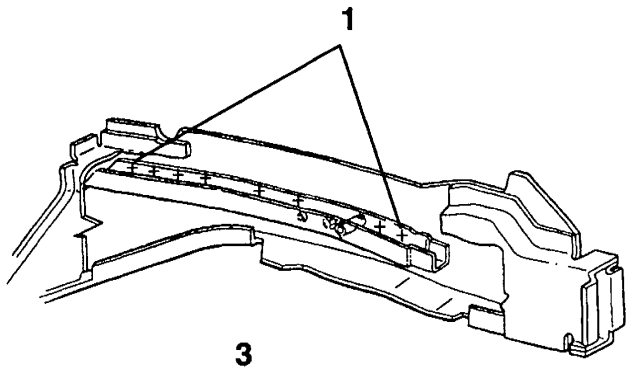
Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.

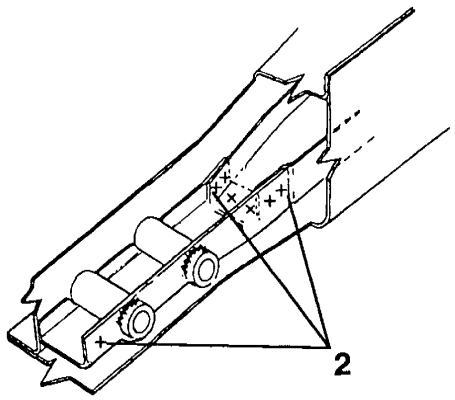




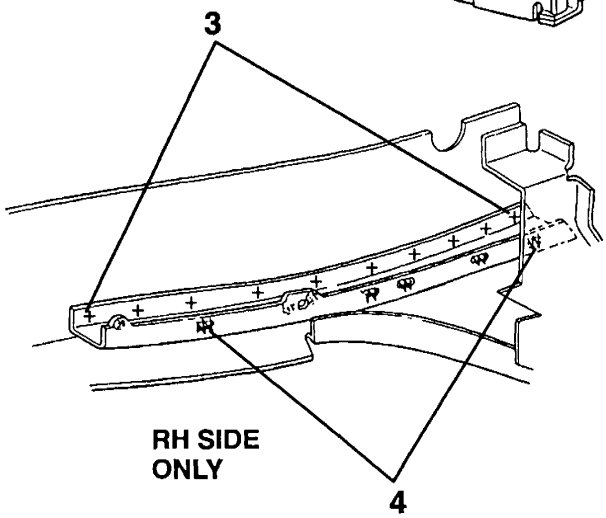
No.	Welded parts	F	R
1LH	C3 + C2	8	P8
2	C3 + C2 + Steering Gear Reinforcement	7	P7
3RH	C3 + C2	10	P10
4	C3 + C1	5 MIG	5 MIG
5	C1 + Engine Mount Reinforcement	15	P15
6	C2 + Engine Mount Reinforcement	3 MIG	3 MIG
7	C4 + C2	13	P13

No.	Welded parts	F	R
8	C4 + C1	15	P15
9	C1 + Lower Control Arm Bracket Reinforcement	7 MIG	7 MIG
10RH	C1 + Upper Control Arm Mounting Bracket	2	P2
10LH	C1 + Upper Control Arm Mounting Bracket	3	P3
11	C1 + Upper Control Arm Bracket	5 MIG	5 MIG

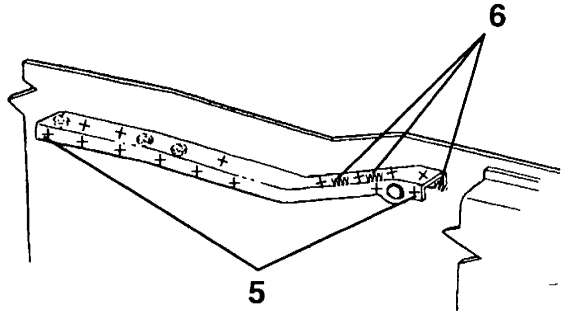




LH SIDE ONLY



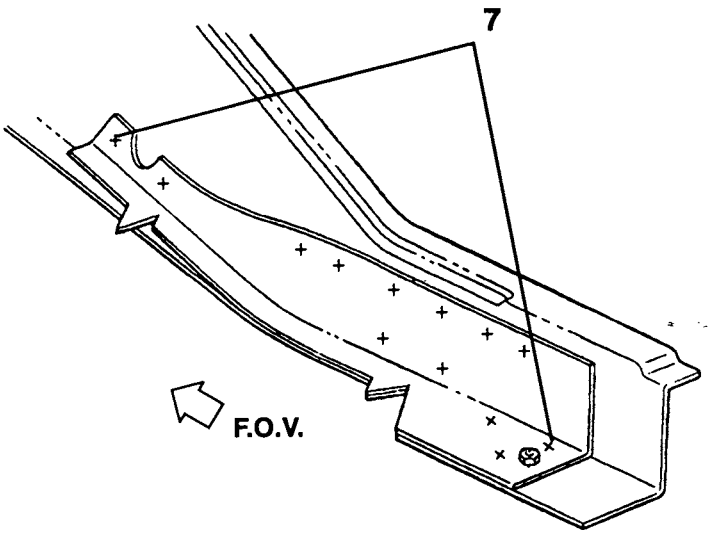
RH SIDE ONLY



LH SIDE ONLY

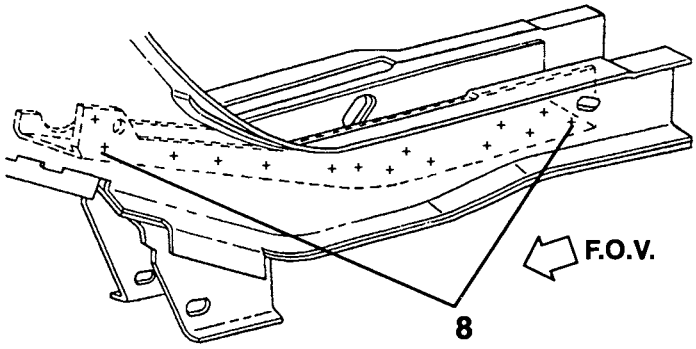
NOTES WITH REGARD TO REPAIR WORK

- Because the engine and some front suspension components mount to the Front Rail, it is extremely important that the alignment and workmanship are perfect when doing repair work in this area.
- There are many reinforcements and brackets that are encased by the Inner and Outer Rails.
- Avoid cutting any welded nuts, reinforcements or brackets during your repair.
- List areas where the frame rails are welded to other panels.



REMOVAL

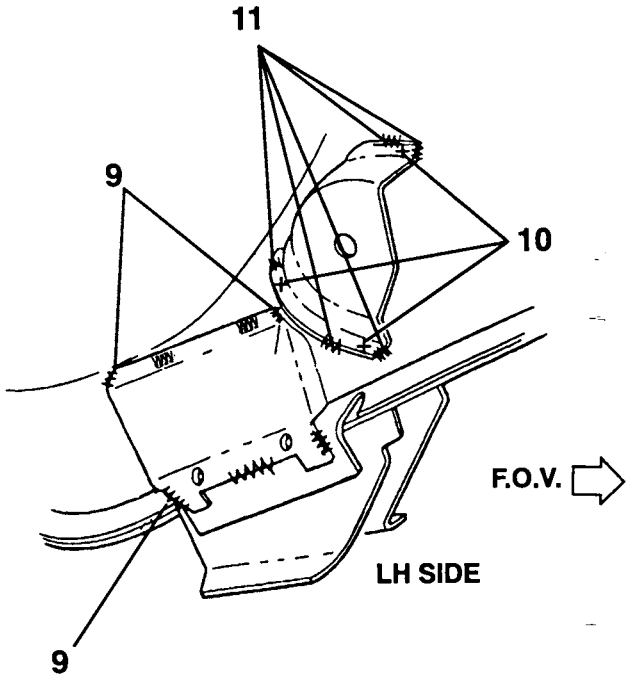
1. Use a drill bit or hole saw designed to cut spot welds to remove welds on the damaged rail.
2. Use old components as a template for weld locations on new pieces wherever necessary.
3. Note location of brackets and reinforcements when removing rail.

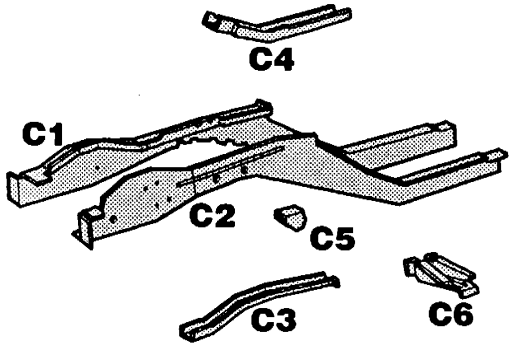


INSTALLATION

1. Clean all attaching surfaces and prep for new component installation.
2. Temporarily mount new panel and check fit and alignment.
3. Check all reference measurements.
4. Use weld-thru primer to promote corrosion protection.
5. Plug weld new panel in place.

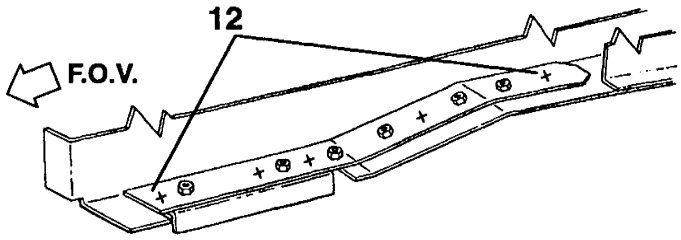
Note: Front Rail Assembly continued on next two pages.

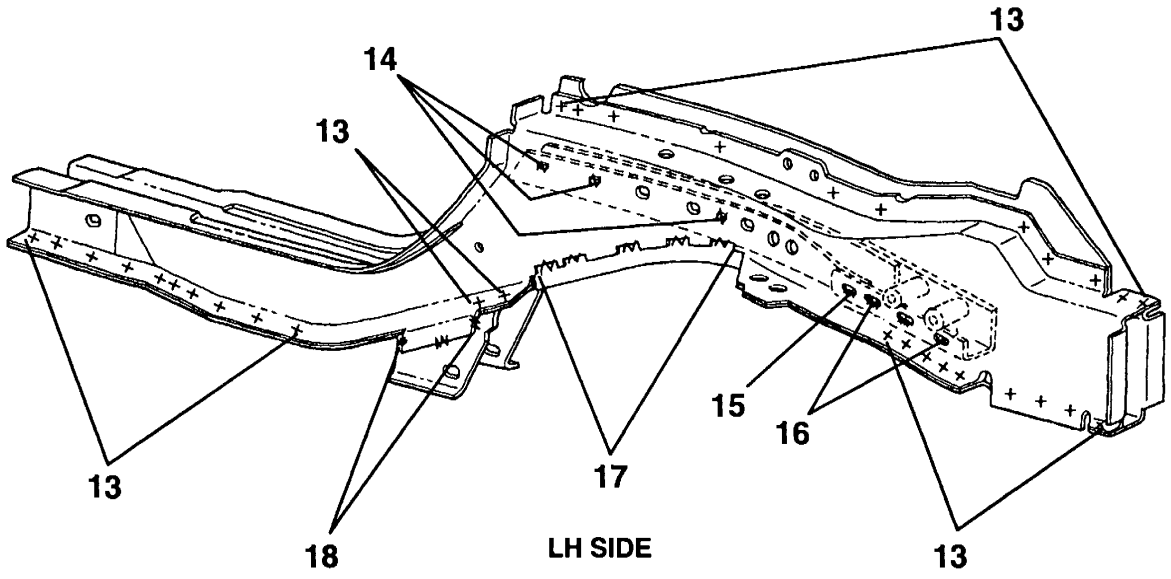


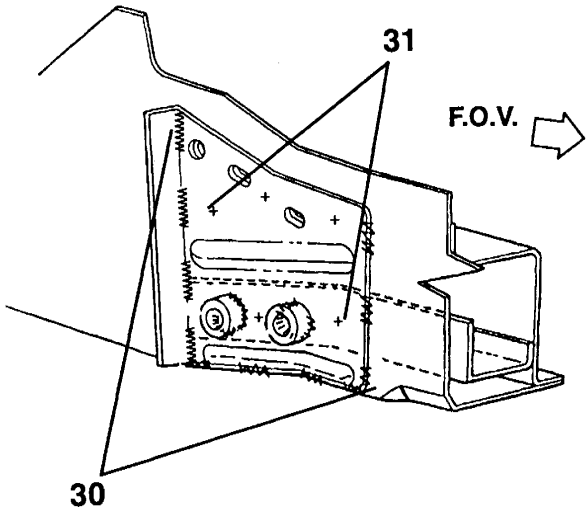


No.	Welded parts	F	R
12RH	C2 + Radiator Support Reinforcement	5	P5
12LH	C2 + Radiator Support Reinforcement	4	P4
13	C1 + C2	32	P32
14	C1 + C3	3 MIG	3 MIG
15	C1 + Steering Gear Reinforcement + C3	1 MIG	1 MIG
16	C1+ Steering Gear Reinforcement	3 MIG	3 MIG

No.	Welded parts	F	R
17	C1 + C2	5 MIG	5 MIG
18	C1 + C5	3 MIG	3 MIG
19	C1 + C2 + Outer Sill Lower Reinforcement	7	P7
20	Outer Sill Lower Reinforcement + C2 + Radiator Support Rein.	1	P1
21	Outer Sill Lower Reinforcement + C2 + C1	4	P4
22	C2 + Upper Sill Rein.	7	P7
23	C1 + Upper Sill Rein.	5	P5
24	C1 + C5	6	P6
25	C5 + C1 + C2	3	P3
26	C2 + Lower Control Arm Bracket Reinforcement	6	P6
27	C5 + Lower Control Arm Bracket Reinforcement	5	P5
28	C2 + Lower Control Arm Bracket Reinforcement	1 MIG	1 MIG
29	C5 + Lower Control Arm Bracket	2 MIG	2 MIG
30	C2 + Outer Sill Rein.	9 MIG	9 MIG
31	C2 + Outer Sill Rein.	5	P5
32	C6 + C2	12	P12



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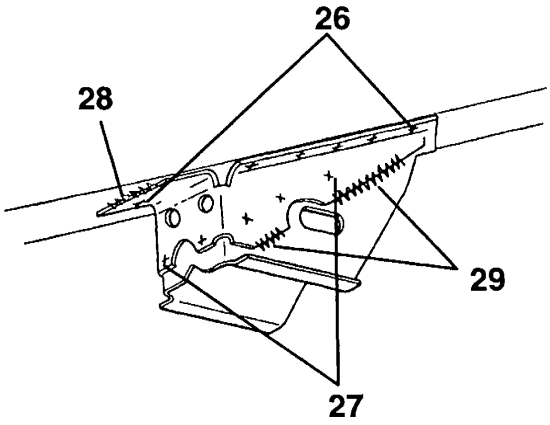
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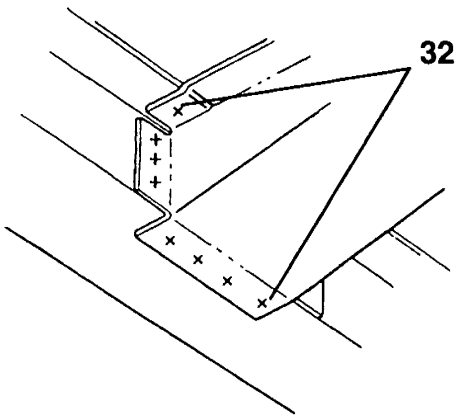
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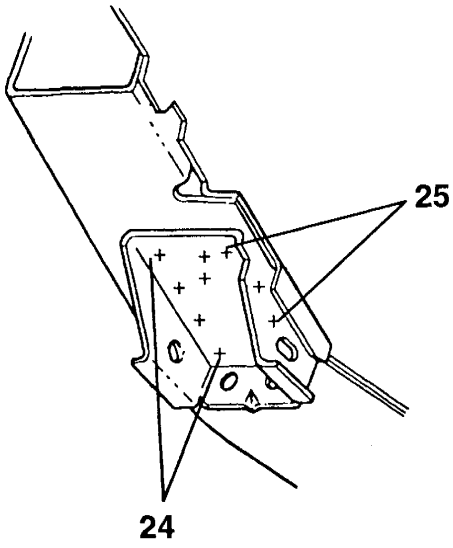
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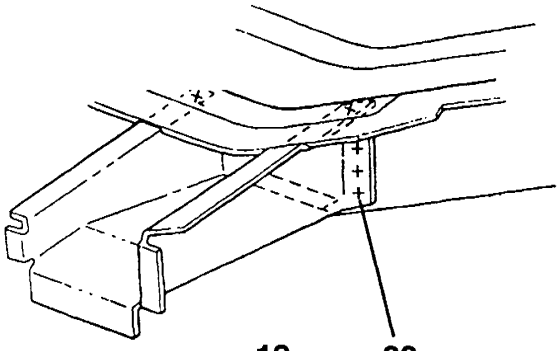
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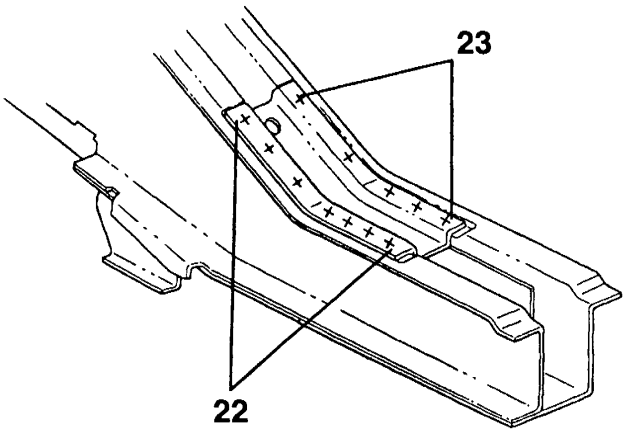
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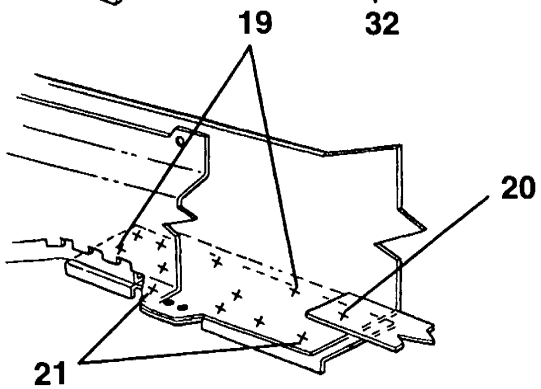
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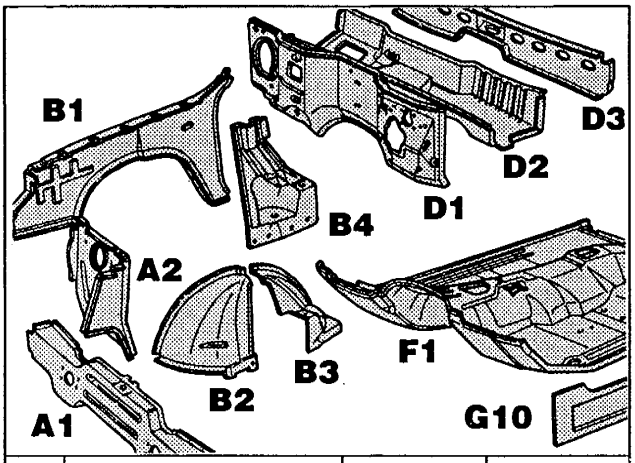
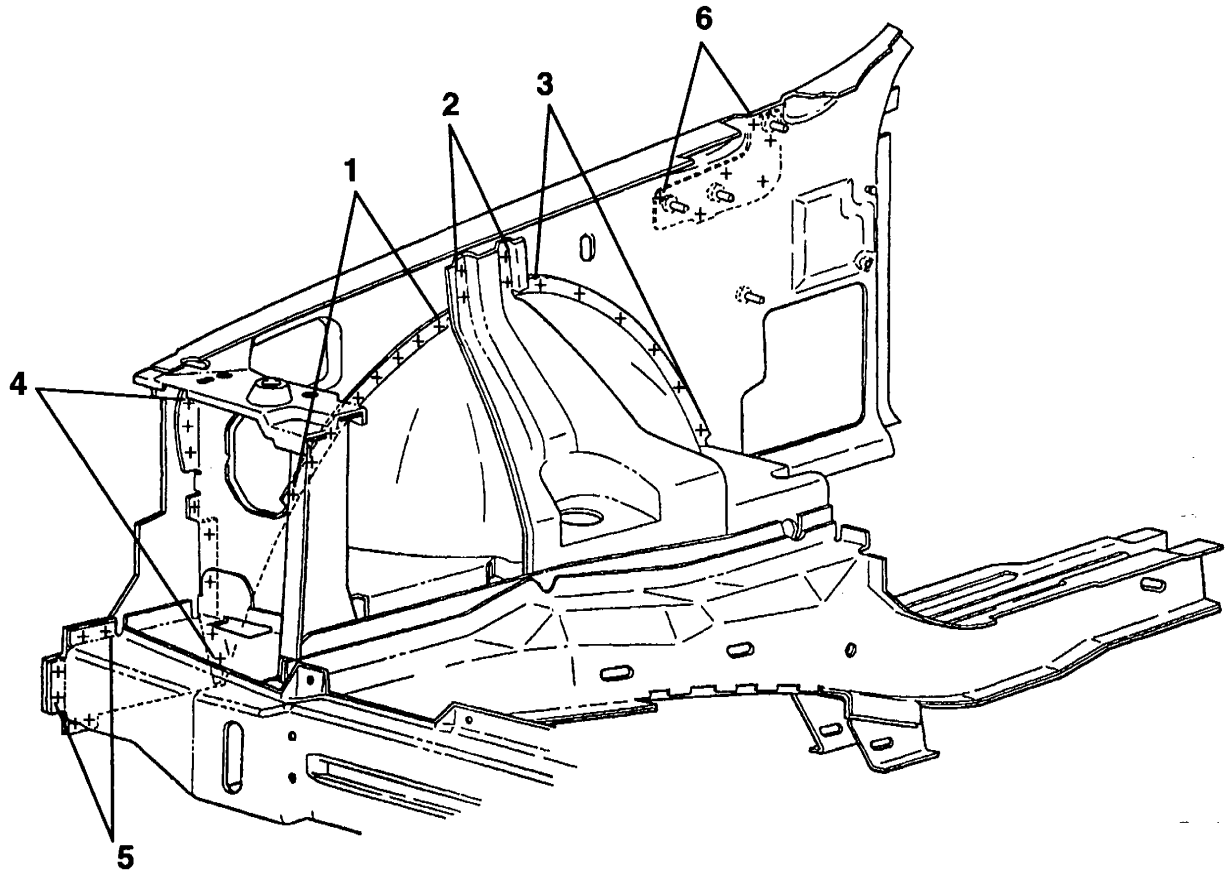
Cowl Side Panel



No.	Welded parts	F	R
1	B1 + B2	8	P8
2	B1 + B4	4	P4
3	B1 + B3	6	P6
4	B1 + A2	8	P8
5	B1 + A1	6	P6
6	B1 + Hood Hinge Mount Support	6	P6
7RH	B1 + D3	2	P2
7LH	B1 + D3	3	P3

No.	Welded parts	F	R
8RH	B1 + D2	8	P8
8LH	B1 + D2	7	P7
9	B1 + Steering Column Support	4	P4
10	B1 + D1	6	P6
11	B1 + F1	4	P4
12	B1 + G10	4	P4



NOTES WITH REGARD TO REPAIR WORK

- The Cowl Side Panel is the connecting point for the Radiator Support and the rest of the unibody. It also is a structural support for the front suspension mounting points.
- Correct mounting location and weld integrity is critical to replacement of this panel.

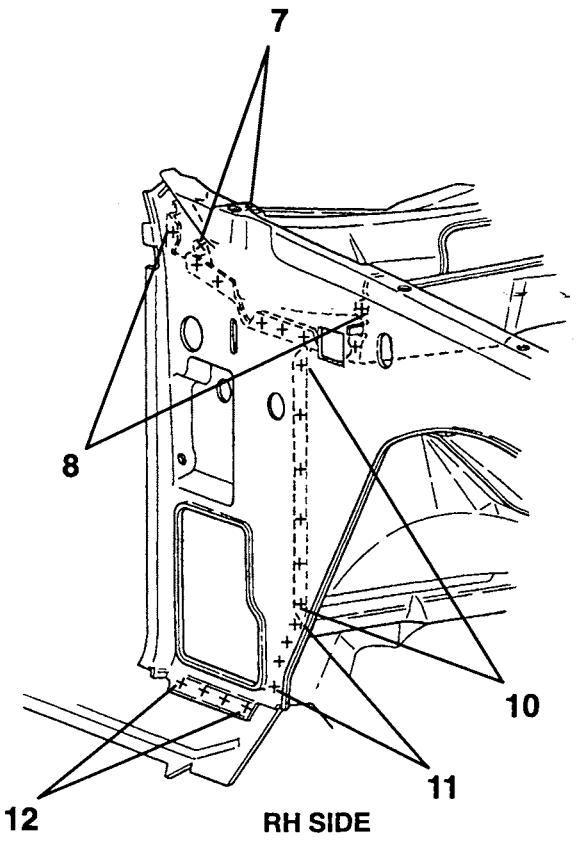
REMOVAL

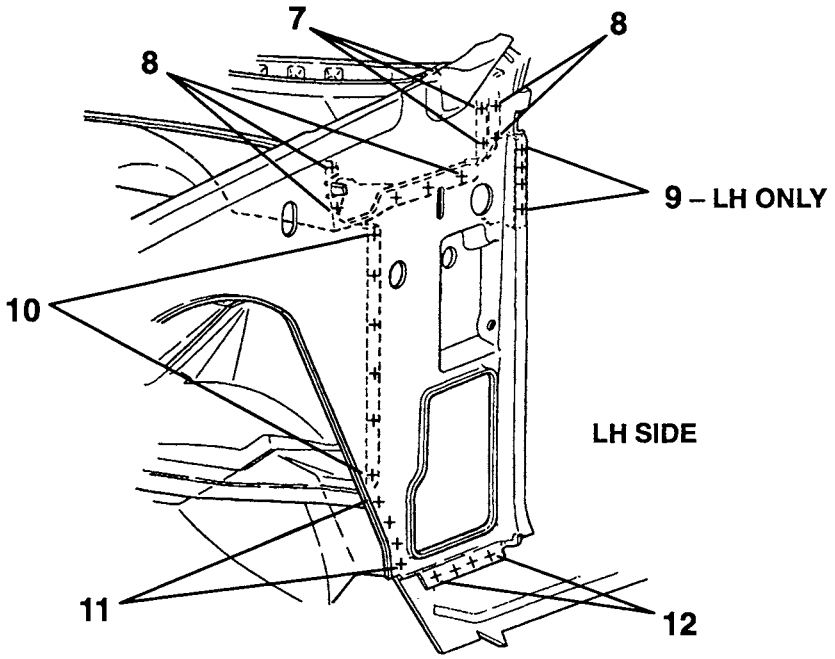
1. Use a spot weld cutter to remove old welds.
2. Clean attaching area on remaining panels.
3. Use removed panel as template for weld placement on new panel.

INSTALLATION

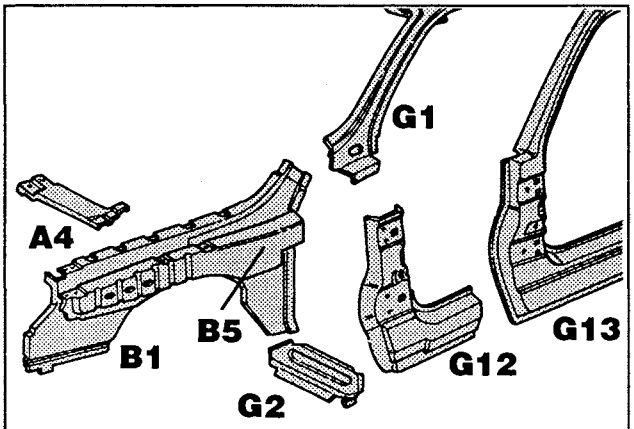
1. Transfer markings to new panel from old for weld locations.
2. Clamp new panel in place and check alignment and measurements.
3. Plug weld new panel.

Treat all exposed material with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.



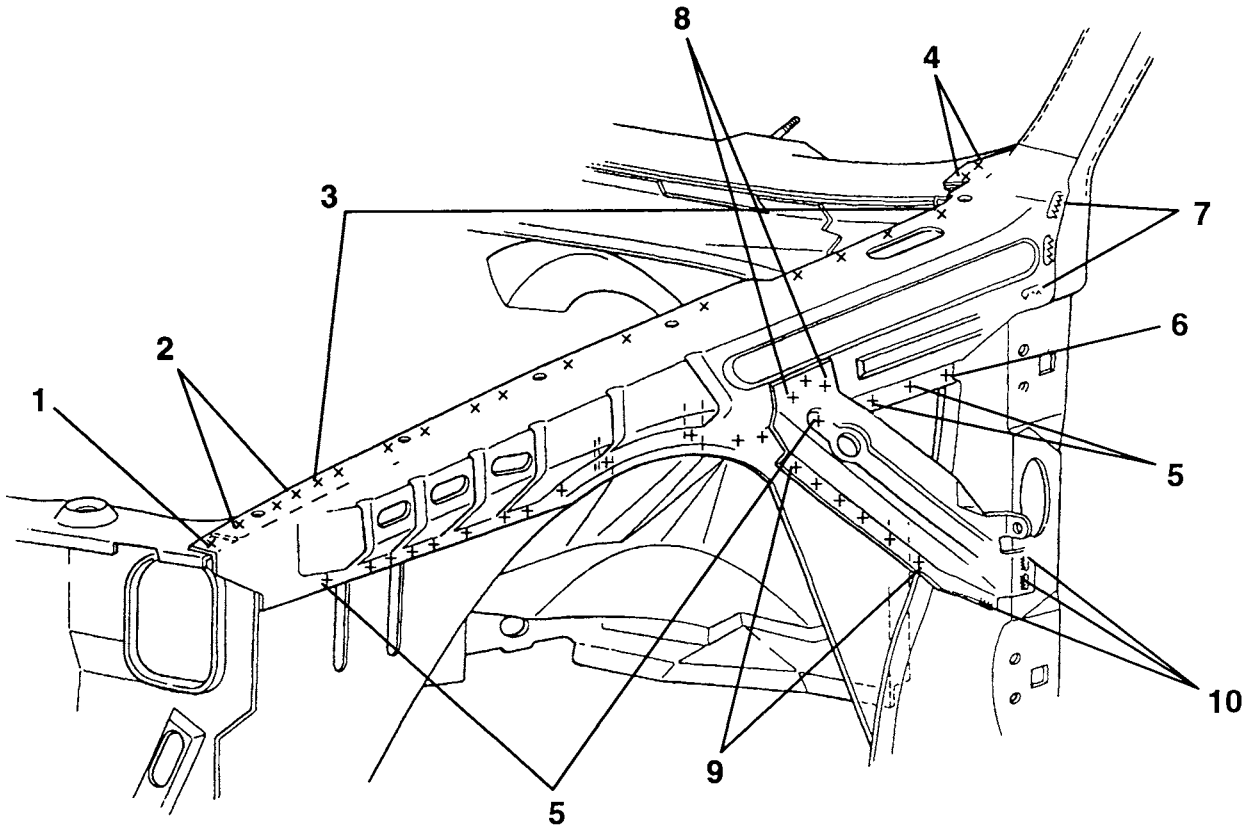


Upper & Lower Cowl Side Reinforcement



No.	Welded parts	F	R
1	B5 + A4	1	P1
2	B5 + A4 + B1	3	P3
3RH	B5 + B1	12	P12
3LH	B5 + B1	13	P13
4	B5 + G1	2	P2
5RH	B5 + B1	15	P15
5LH	B5 + B1	16	P16
6	B5 + G13	1	P1

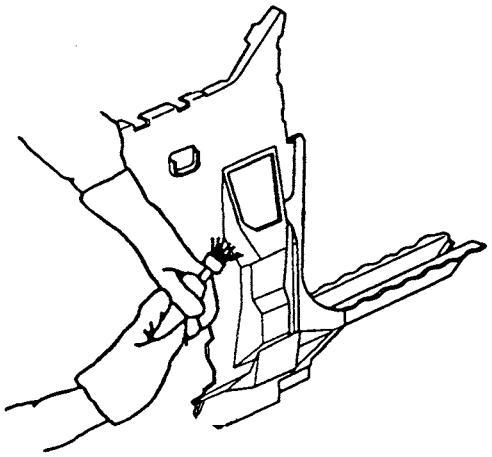
No.	Welded parts	F	R
7	B5 + G13	3 MIG	3 MIG
8	G2 + B5	3	P3
9RH	G2 + B1	5	P5
9LH	G2 + B1	6	P6
10	G2 + G13	3 MIG	3 MIG



LH SIDE

NOTES WITH REGARD TO REPAIR WORK

- The Upper and Lower Cowl Side Reinforcement Panels are the final "tie-in" for the Cowl Side Panel and Radiator Support to the rest of the unibody.
- These reinforcements also provide mounting points for the fender which makes reinforcement alignment crucial.



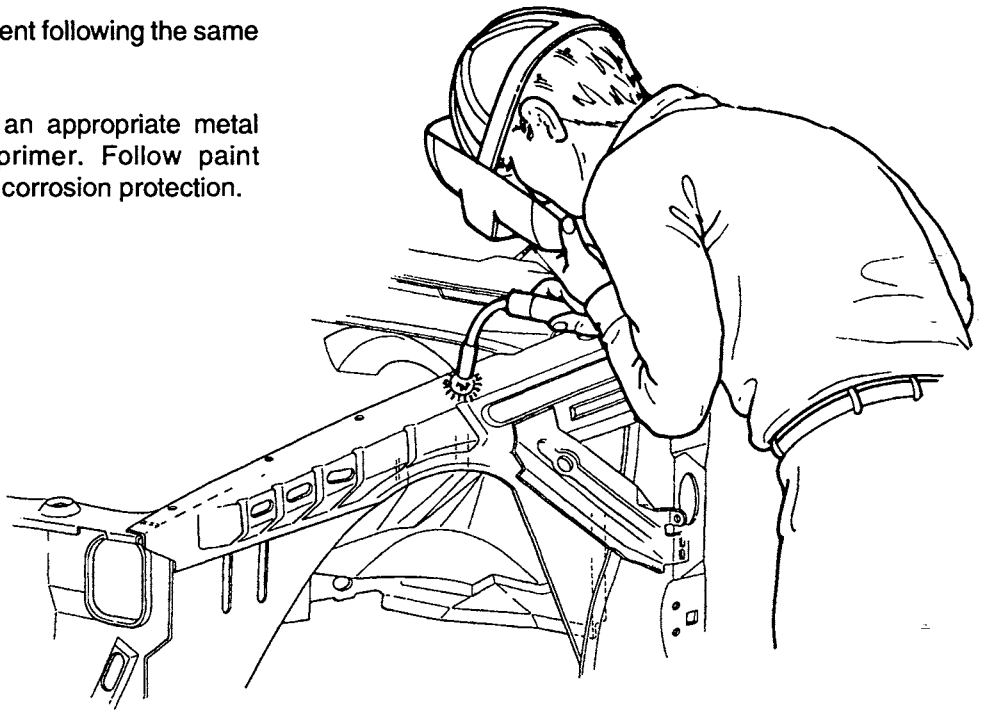
REMOVAL

1. Use a spot weld cutter to remove all welds pertaining to the reinforcements.
2. Note the weld locations of panel sections not damaged.
3. Carefully cut all MIG welds to be removed.

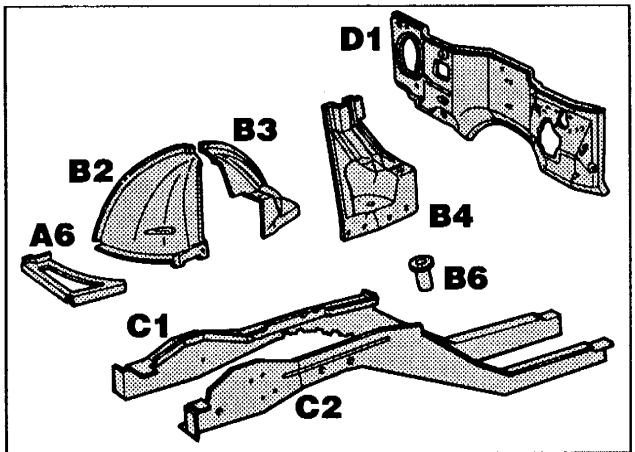
INSTALLATION

1. Prepare all mating surfaces by cleaning thoroughly to ensure good weld penetration and alignment.
2. Install the upper reinforcement first and be sure spot weld locations are aligned correctly.
3. Tack weld the panel in place and check alignment.
4. Use weld-thru primer for best corrosion protection.
5. Complete all plug and MIG welding responsibilities.
6. Install the lower reinforcement following the same procedures.

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.

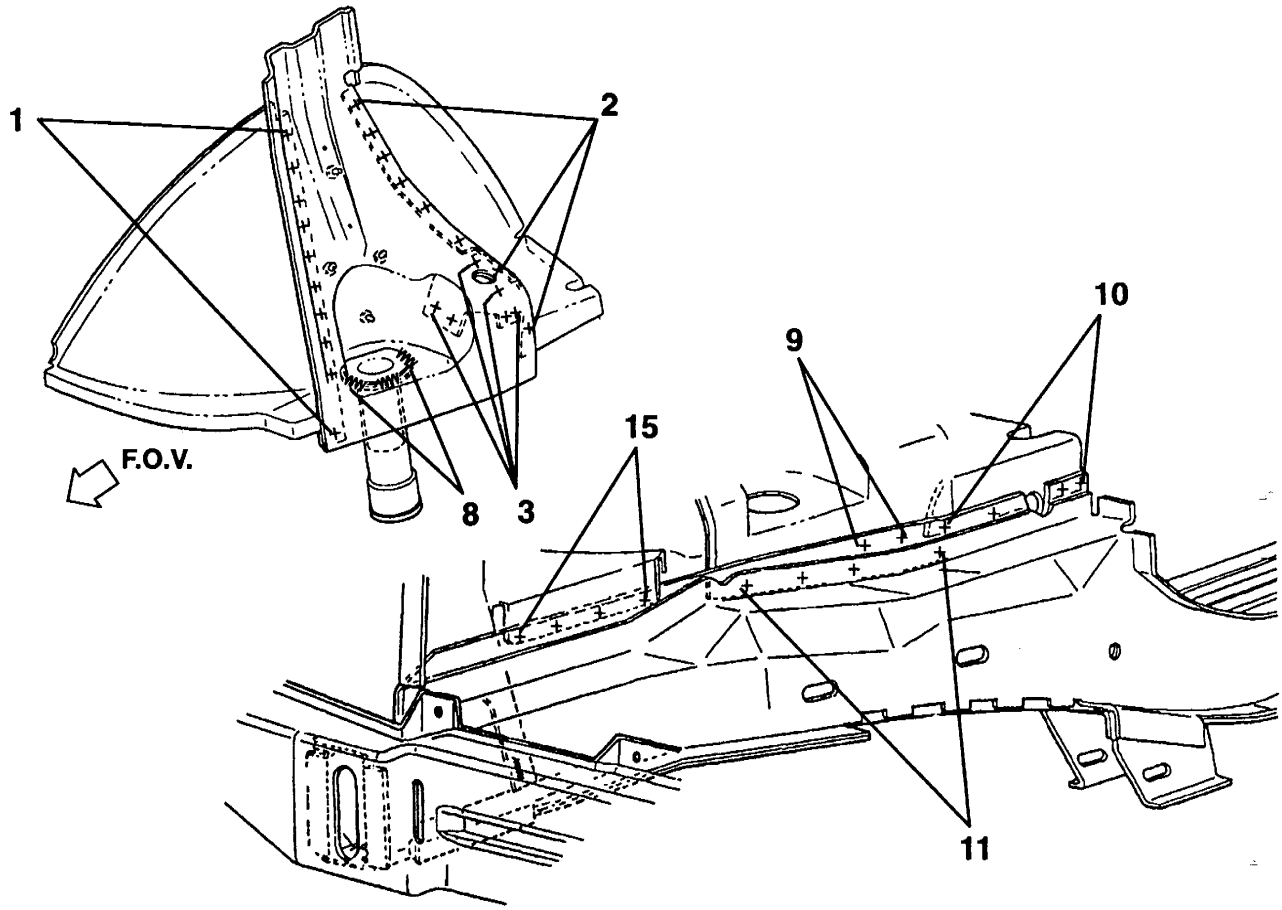


Front Wheelhouse Assembly



No.	Welded parts	F	R
1RH	B4 + B2	10	P10
1LH	B4 + B2	9	P9
2	B4 + B3	10	P10
3	B4 + Front Shock Mounting Reinforcement	6	P6
4	B3 + Front Shock Mounting Reinforcement	2	P2
5	B6 + B4	6 MIG	6 MIG

No.	Welded parts	F	R
6	B6 + B4	2	P2
7	B6 + Jounce Bumper Retainer	1 MIG	1 MIG
8	B4 + Front Suspension Spring Retainer	3 MIG	3 MIG
9	B4 + C2	2	P2
10	B3 + C2	4	P4
11	B4 + C2 + C1	4	P4
12RH	B3 + D1	5	P5
12LH	B3 + D1 (See Dash Panel)	6	P6
13RH	B4 + C2	2 MIG	2 MIG
13LH	B4 + C2	1 MIG	1 MIG
14	B2 + A6	5	P5
15RH	C2 + A6	4	P4
15LH	C2 + A6	1	P1



NOTES WITH REGARD TO REPAIR WORK

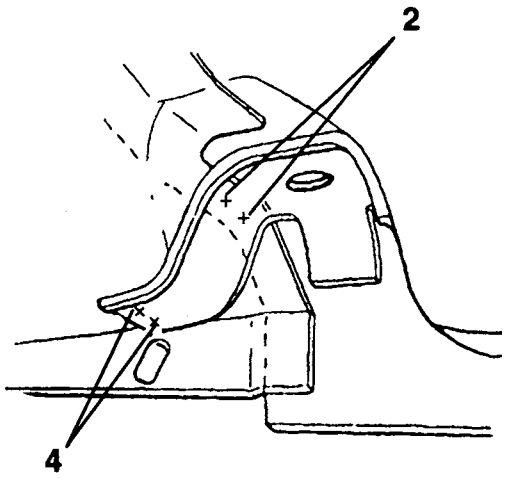
- Depending on which panels are damaged, the suspension mounting support may be serviced as a sub-assembly of the Front and Rear Front Wheelhouse panels.
- Because the Front Wheelhouse touches so many of the front structure parts, and determines accuracy of the alignment, it has to be perfectly aligned when mounted.
- Replace as assemblies when possible.

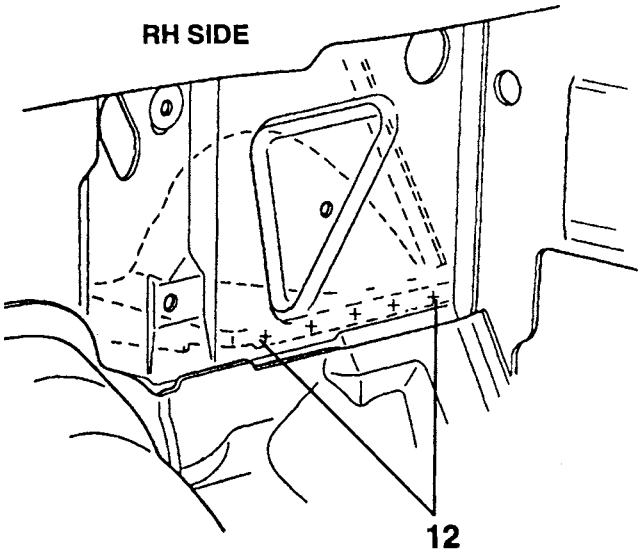
REMOVAL

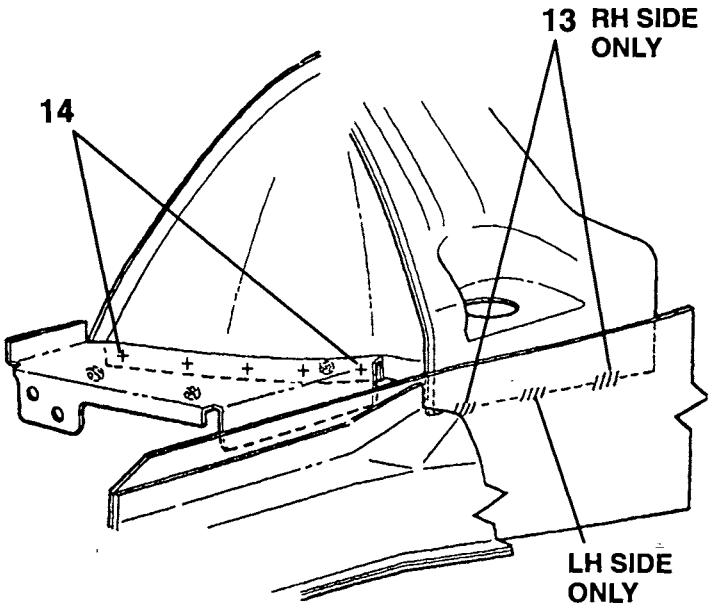
1. Refer to the Cowl Side Panel section for removal of the Cowl Side Panel.
2. Use a spot weld cutter or similar tool to remove all spot welds holding the Front, Front-Rear Wheelhouse and Suspension Mounting Support assemblies from the Front Rail (and Wheelhouse Extension if necessary).

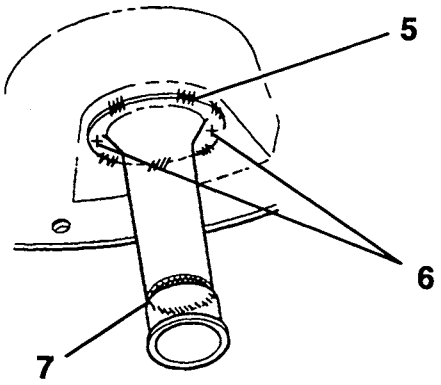
INSTALLATION

1. Clean all connecting parts to make installation easier.
2. Temporarily mount all new panels in their proper locations.
3. If all new components are used, pre-punch holes for plug welds.
4. Make sure alignment is correct to the point of perfection.
5. Use weld-thru primer where necessary.
6. Plug weld the tower reinforcement into place.
7. MIG stitch weld where previously MIG welded.

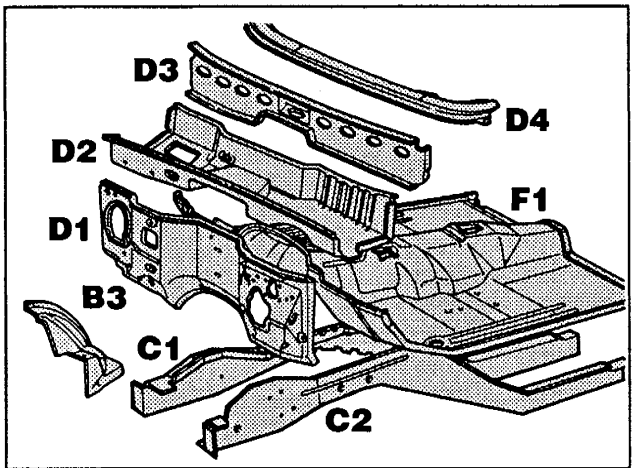






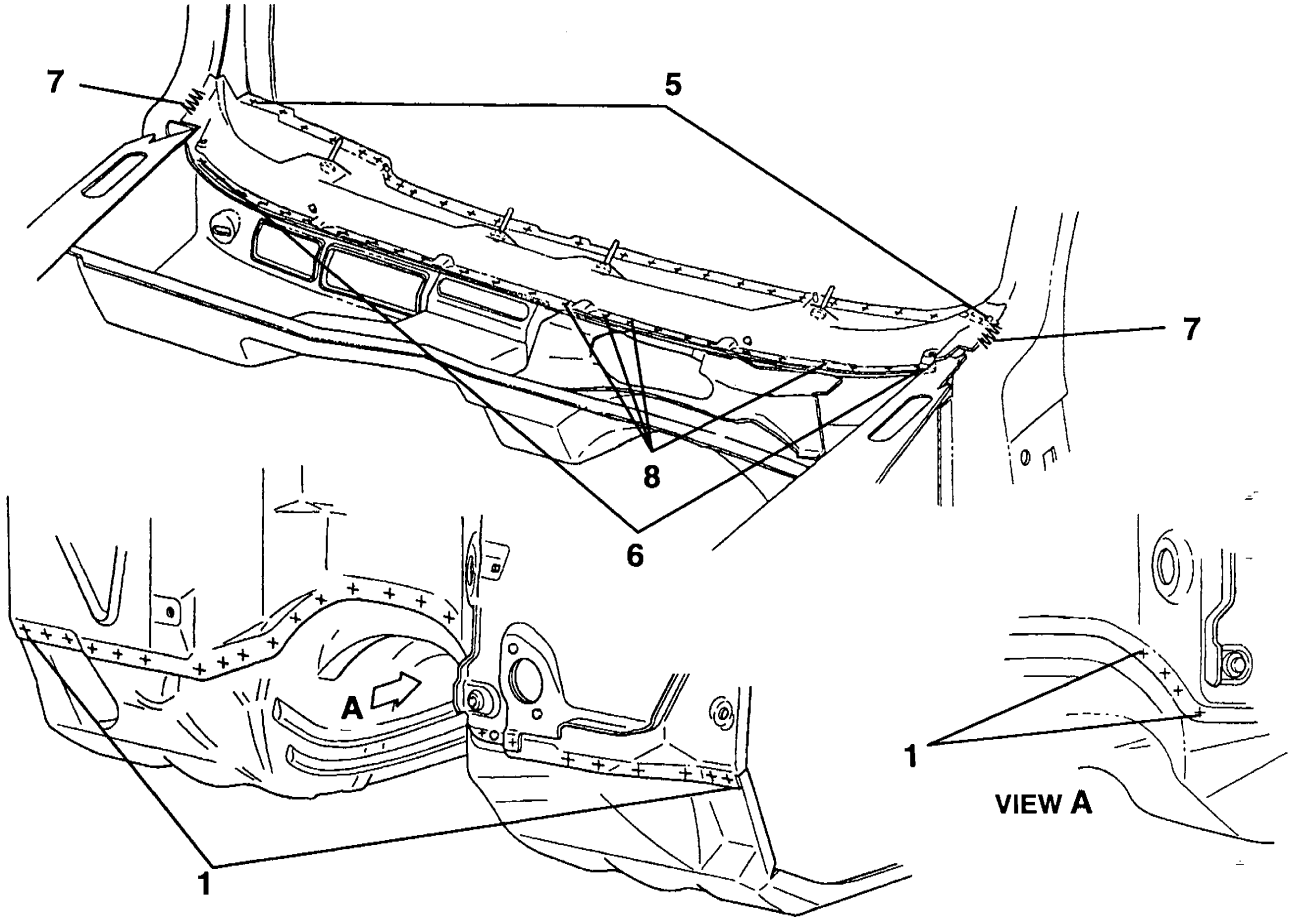


Dash Panel



No.	Welded parts	F	R
1	D1 + F1	28	P28
2	D1 + C1+ F1	4	P4
3RH	D1 + B3	5	P5
3LH	D1 + B3	6	P6
4	D1 + D2	21	P21
-	D1 + B1	See Cowl Side Panel	
-	D2 + B1		
-	D3 + B1		

No.	Welded parts	F	R
5	D4 + D2	27	P27
6	D4 + D3	21	P21
7	D4 + G13	2 MIG	2 MIG
8	D4 + D3 + Wiper Mtg. Brkt.	4	P4
9	D1 + D2 + D3	2	P2



NOTES WITH REGARDS TO REPAIR WORK

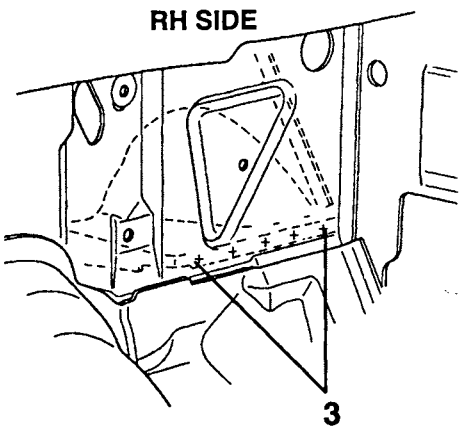
- The Dash Panel is interconnected with many different structural components. Many of these parts must be removed before servicing the Dash Panel. Refer to the appropriate section for panel removal.
- Refer to Cowl Side Panel section for Dash Panel to Cowl Side weld location.

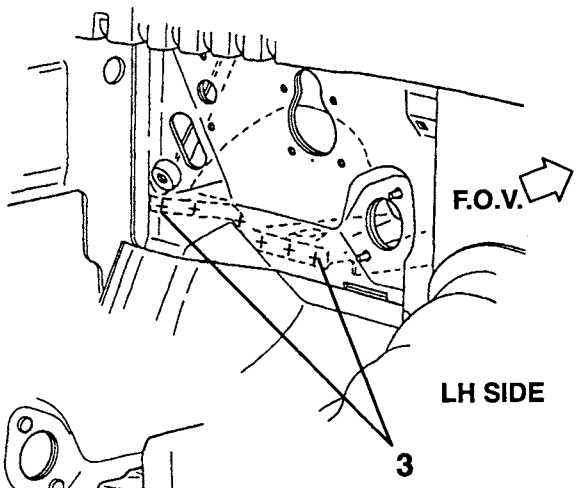
REMOVAL

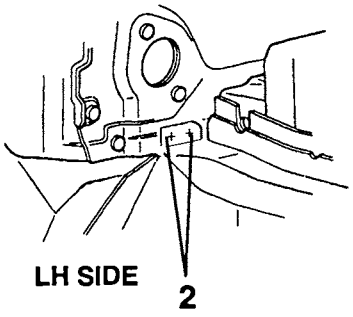
1. The way you intend to replace this panel will determine whether you remove it as a single component or as a sub-assembly.
2. Cut spot welds to free the component you want to replace.
3. Clean all mating surfaces to ensure a good fit of the new panel.

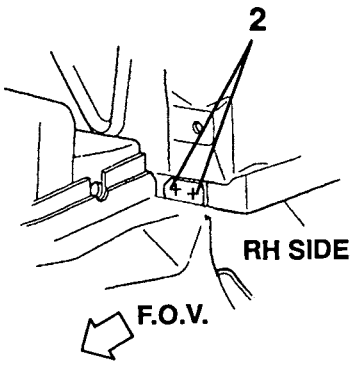
INSTALLATION

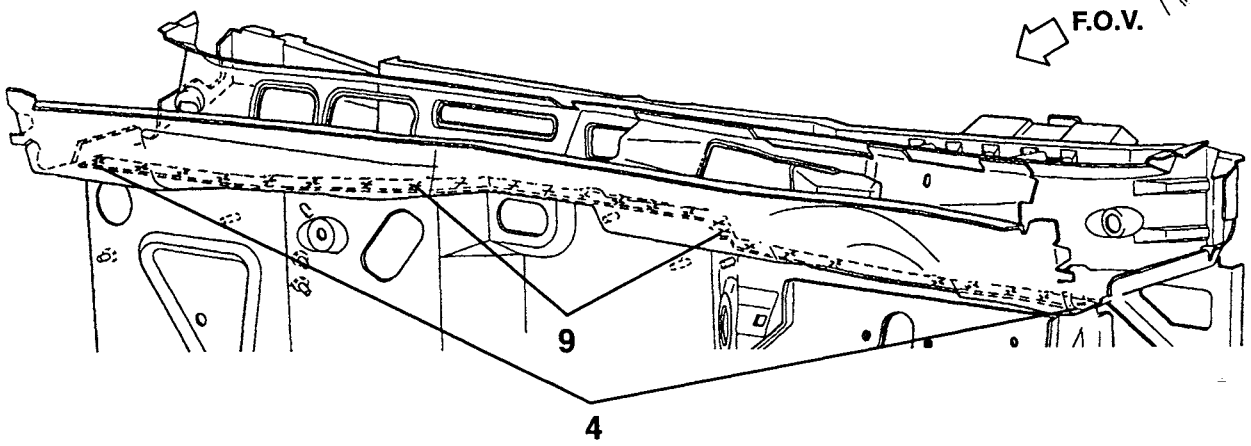
1. Always overlap in areas where you can not weld at OEM welds. Use stitch welds to make a continuous MIG weld at the outer edge and plug welds to the inner panel from the outside.
2. After placing holes in the new panel for the plug welds, fit the panel into position.
3. Plug weld the new Dash Panel into place.
4. Spray weld-thru anti-corrosion agent onto the new weld area prior to welding.



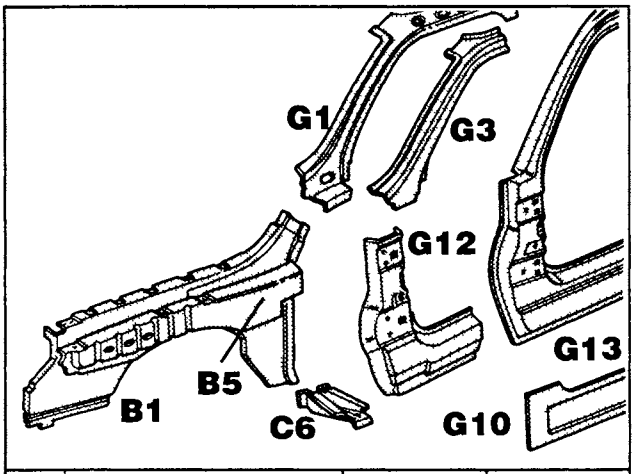






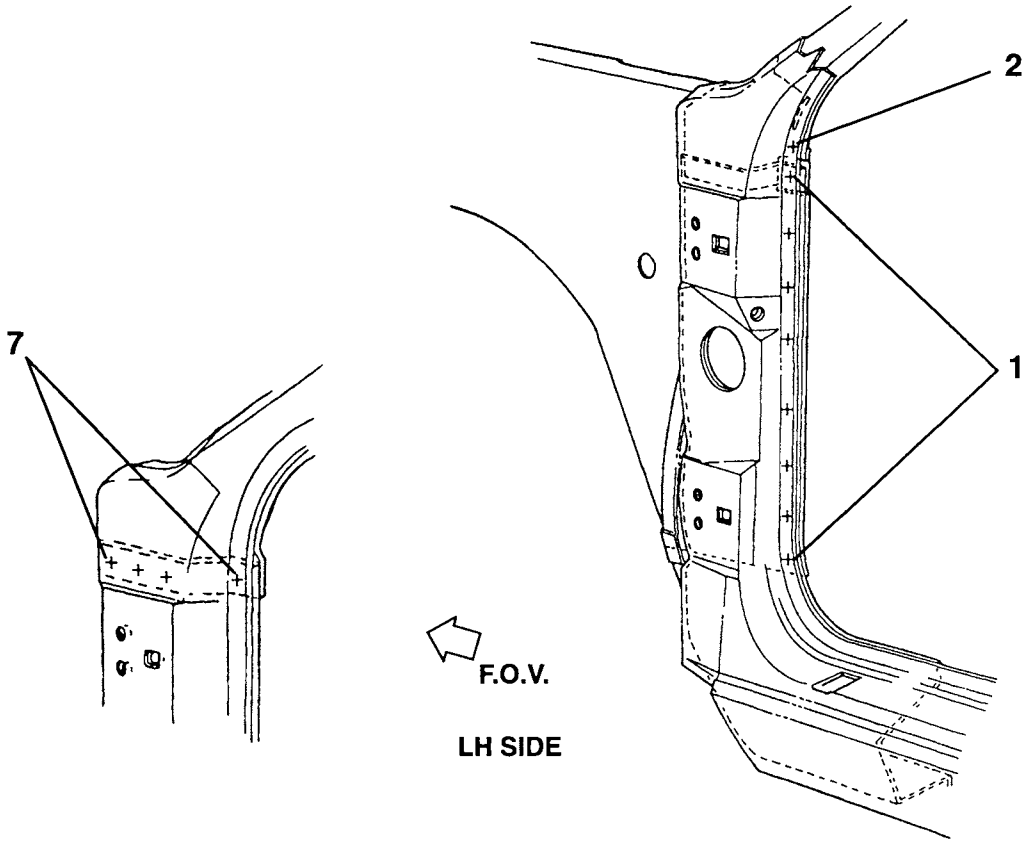


Front Hinge Pillar



No.	Welded parts	F	R
1	G13 + G12 + B1	8	P8
2	G13 + G1 + B1	1	P1
3	G13 + G1 + B1	1	P1
4	G13 + B1	6	P6
5	G13 + G12 + B1	1	P1
6	G12 + G10 + C6	3	P3
7	G13 + G12 + G3	4	P4
8	G13 + G12	15	P15

No.	Welded parts	F	R
9	G12 + G13	4	P4



NOTES WITH REGARD TO REPAIR WORK

- The Hinge Pillar is comprised of multiple components layered to create the pillar
- Depending on the amount of vehicle damage components from the Upper and Lower Cowl Side reinforcement, Upper Pillar and Roof Side Rail and Body Side Rail section may need replacement Refer to these sections for repair information
- Refer to Front Hinge Pillar section for Outer Body Side to Hinge Pillar reinforcement and Cowl Side Panel weld location.

REMOVAL

1. The way you intend to replace this panel will determine whether you remove it as a single component or as a sub-assembly.
2. When cutting these welds be sure to cut them as cleanly as possible. This will make your cleanup work much easier.

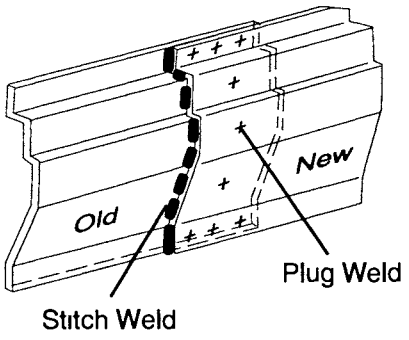
INSTALLATION

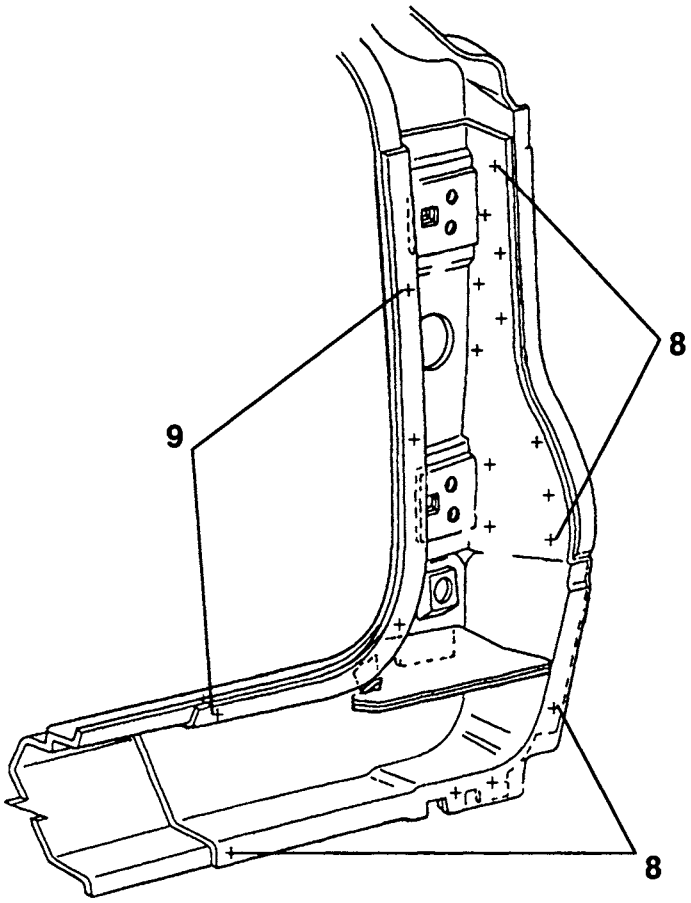
1. If replacing as a sub-assembly, always overlap in areas where you can not weld at OEM welds Use stitch welds to make a continuous MIG weld where specified.

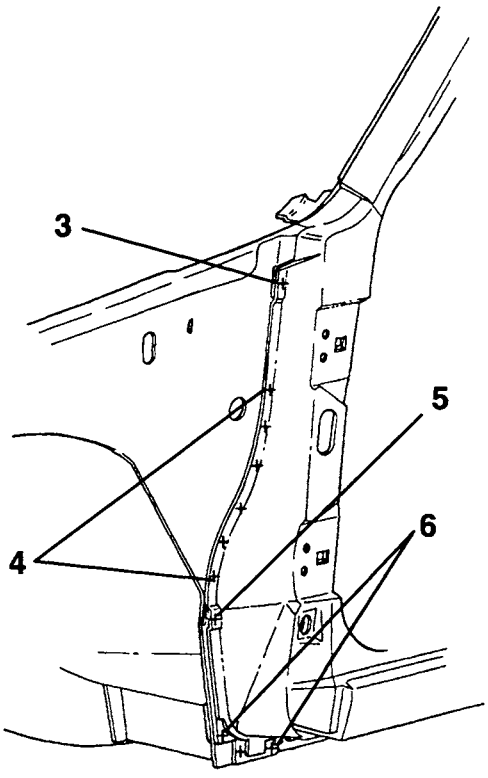
2 After fitting your new panel and cutting the new holes for the plug welds, double check to be sure of alignment.

3 Plug and stitch weld your new panels into place

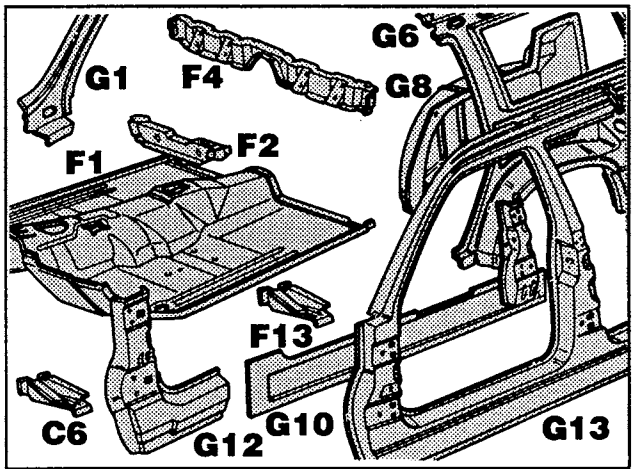
Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection





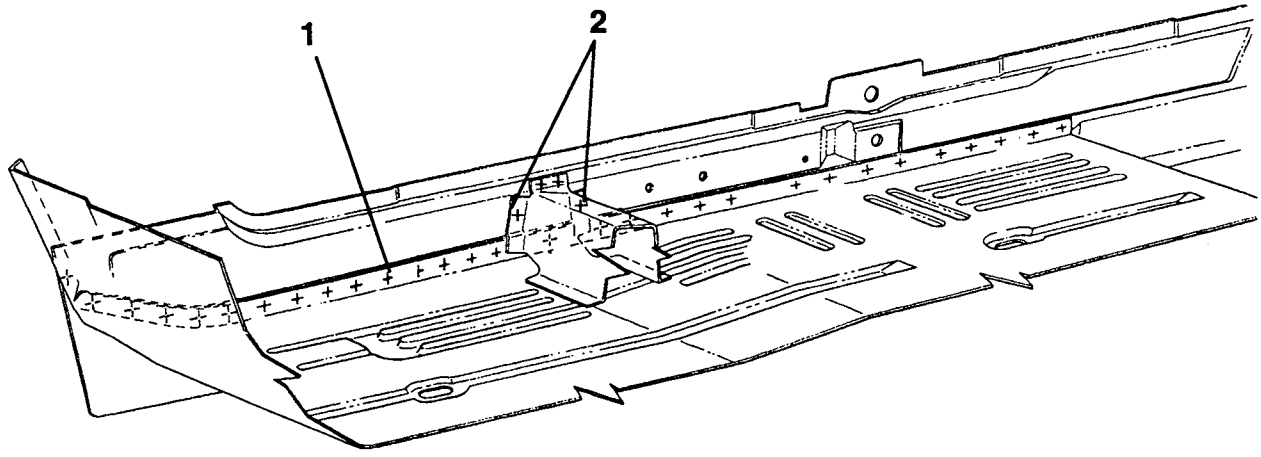


Inner Side Rail



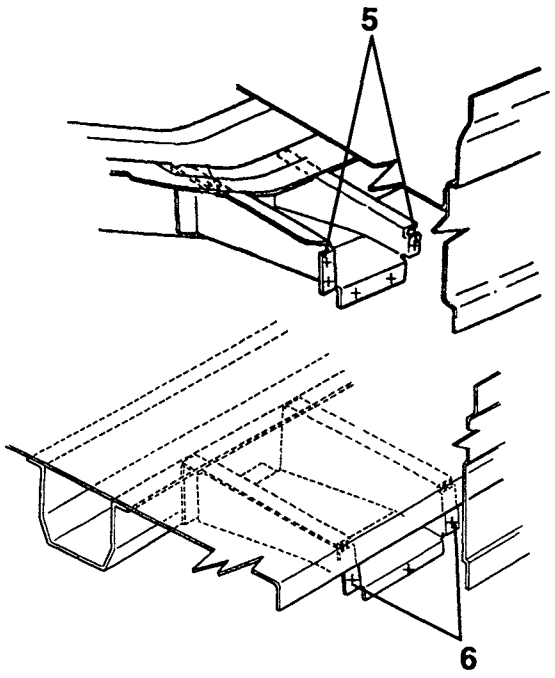
No.	Welded parts	F	R
1	G10 + F1	30	P30
2	G10 + F2	4	P4
3	G10 + G12 + G13	11	P11
4	G10 + G6	4	P4
5	G10 + C6	5	P5
6	G10 + F13	3	P3
7	G10 + F4	See Rear Floor Pan	
8	G10 + G13	32	P32

No.	Welded parts	F	R
9	G10 + G9 + G13	1	P1
10	G10 + G6	1	P1
11	G10 + G6	2 MIG	2 MIG
12	G10 + F5	See Rear Floor Pan	
13	G10 + G5 + G13	2	P2
14	G10 + G5	1	P1
15	G10 + Anchor Plate + G5	2	P2



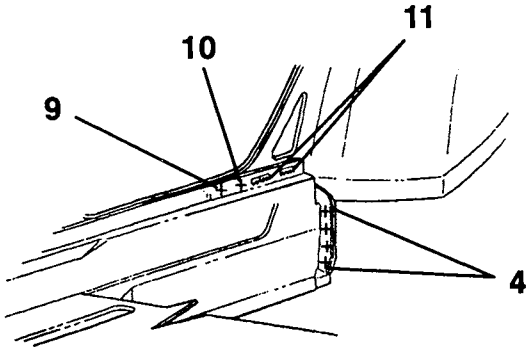
NOTES WITH REGARD TO REPAIR WORK

- The Body Side Rail overlaps multiple components as well as being overlapped by numerous bodyside components.
- If you choose to section the Side Rail, be sure to butt weld over solid components such as reinforcements. If none are available, overlap and use continuous stitch and plug welds.
- Refer to Rear Floor Pan section for Rear Seat Crossmember and Rear Floor Pan to Body Side Rail weld locations.



REMOVAL

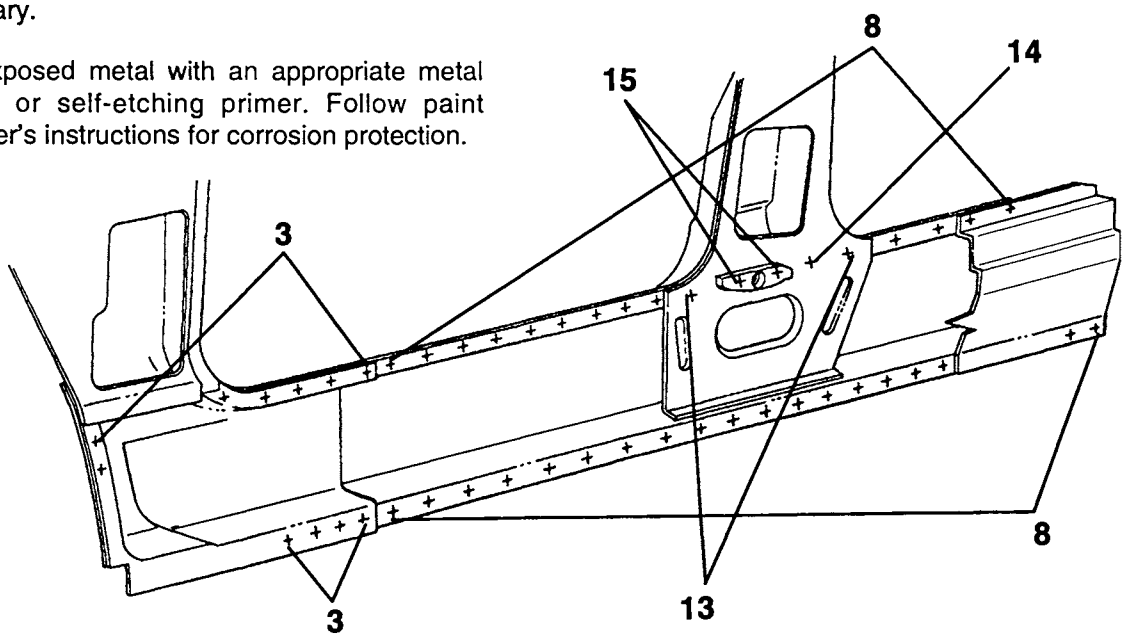
1. Locate all spot and MIG welds and remove as required.
2. If sectioning, do not cut or remove any reinforcements.
3. Clean and prepare panels for new panel installation.



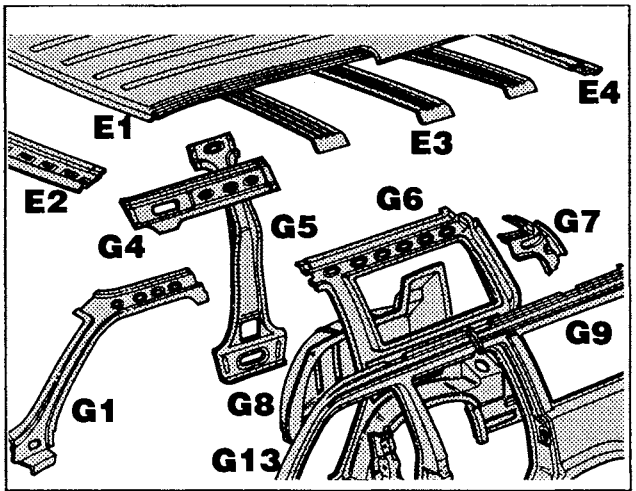
INSTALLATION

1. Using the old Inner Side Rail as a template, mark plug weld locations on new inner side rail panel.
2. Tack weld new rail in place. Recheck all measurements and alignments.
3. Use weld-thru primer at weld loctions.
4. Plug and Stitch weld the panel in place as necessary.

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.

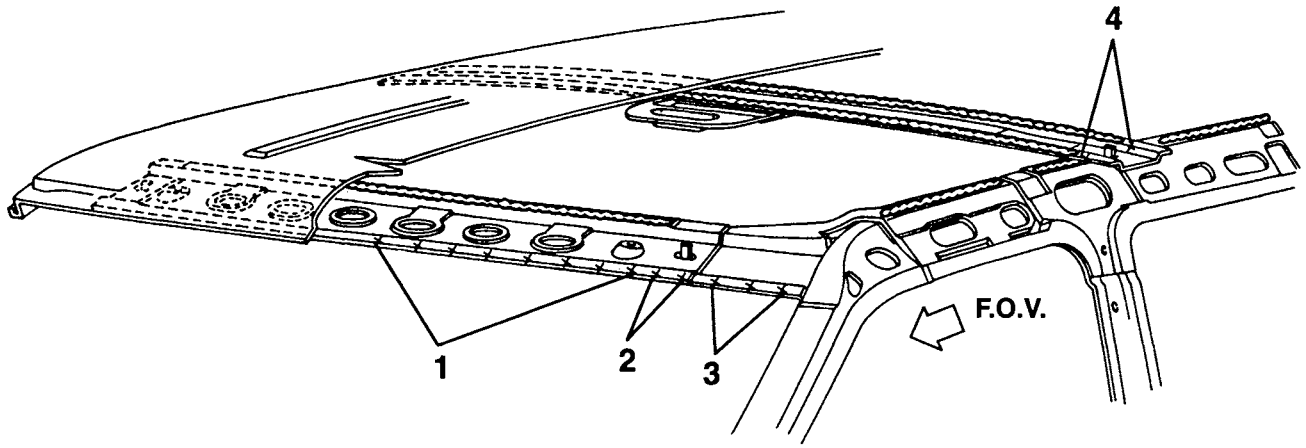


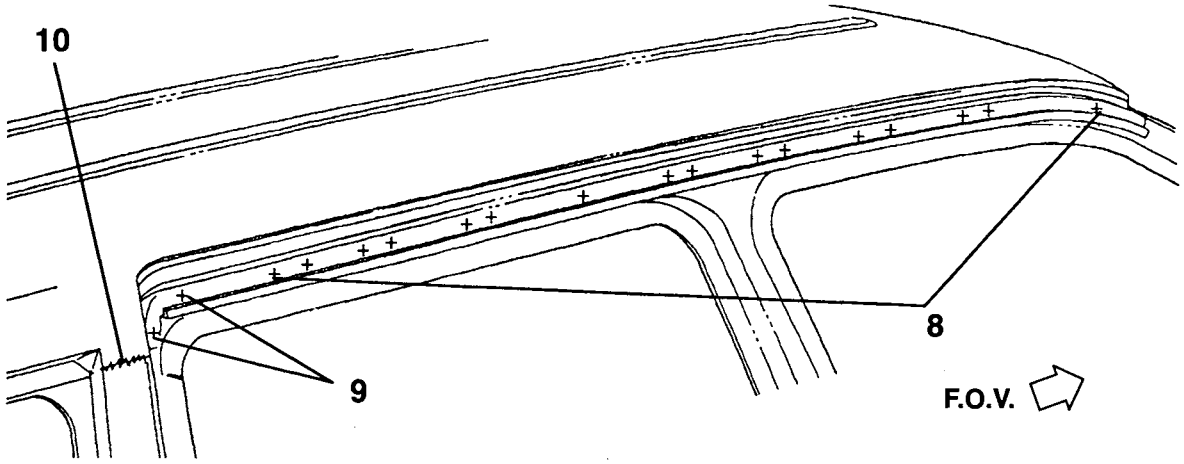
Roof Panel



No.	Welded parts	F	R
1	E1 + E2	16	P16
2	E1 + E2 + G1	2	P2
3	E1 + G1	3	P3
4	E3 + G4	2	P2
5	E3 + G6	4	P4
6	E1 + G7	1 MIG	1 MIG
7	E1 + E4	20	P20

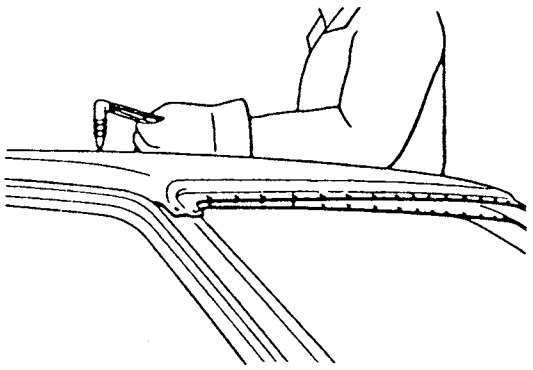
No.	Welded parts	F	R
8	E1 + G13	16	P16
9	E1 + G9	2	P2
10	E1 + G9	1 MIG	1 MIG
11	E1 + G9	8	P8
12	E1 + G9	1 MIG	1 MIG





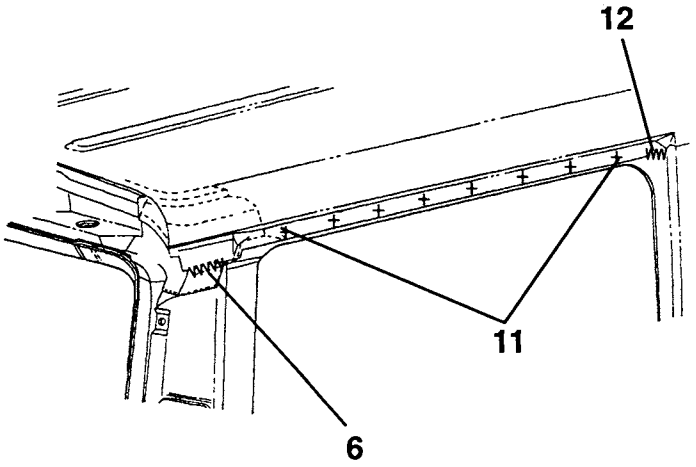
NOTES WITH REGARD TO REPAIR WORK

- Before heating roof panel to soften old adhesive, make sure all flammable materials are removed from roof inner and outer areas.
- Take care when handling the Roof Panel. The panel can be easily damaged by mishandling.
- Make sure to use the recommended adhesive for the roof bows.



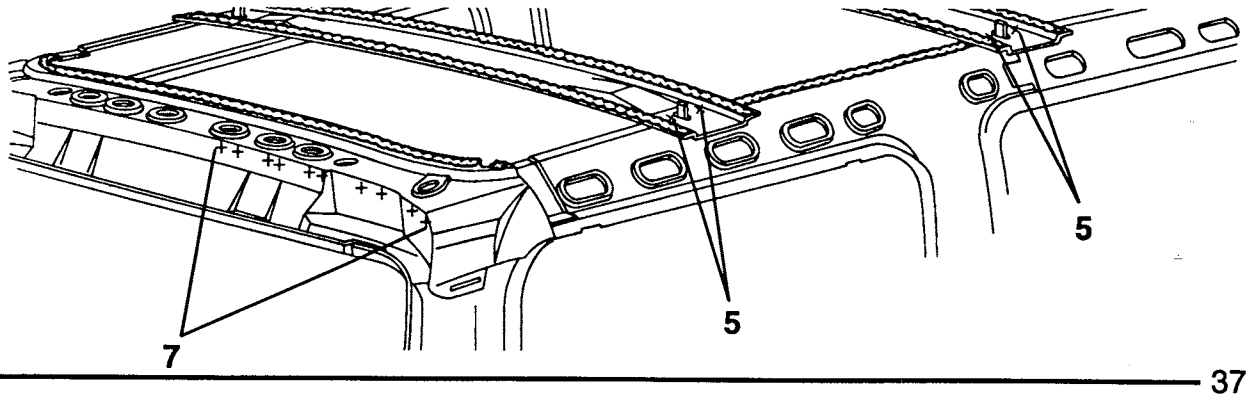
REMOVAL

1. Cut and separate the spot welded and brazed locations, being careful not to damage any other panels.
2. Heat the top of the roof panel where adhesives are applied. It will make it easier to remove.
3. Remove the Roof Panel.
4. Remove any old adhesive on roof braces, using a mule skinner's wire brush or something as aggressive.

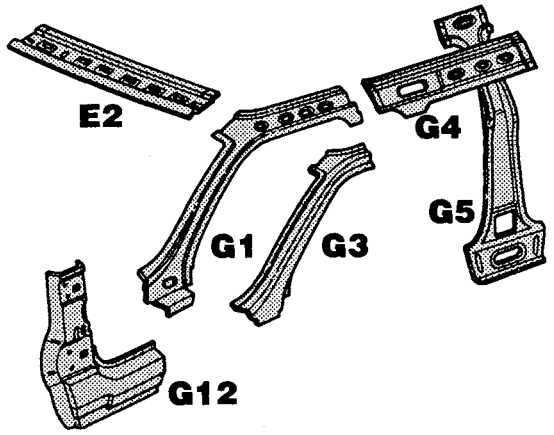


INSTALLATION

1. Temporarily align and mount the new Roof Panel onto the body. Make corresponding reference marks on the Roof Panel and body structure.
2. Use the old Roof Panel as a template to mark locations for plug welds on the Roof Panel.
3. Apply the adhesive to the Roof Bows and other mating surfaces and place Roof Panel into position as marked previously.
4. After checking alignment, clamp panel down.
5. Plug weld the roof panel into place.
6. Put the MIG welds at locations shown in the welding charts.
7. Finish seams as required.

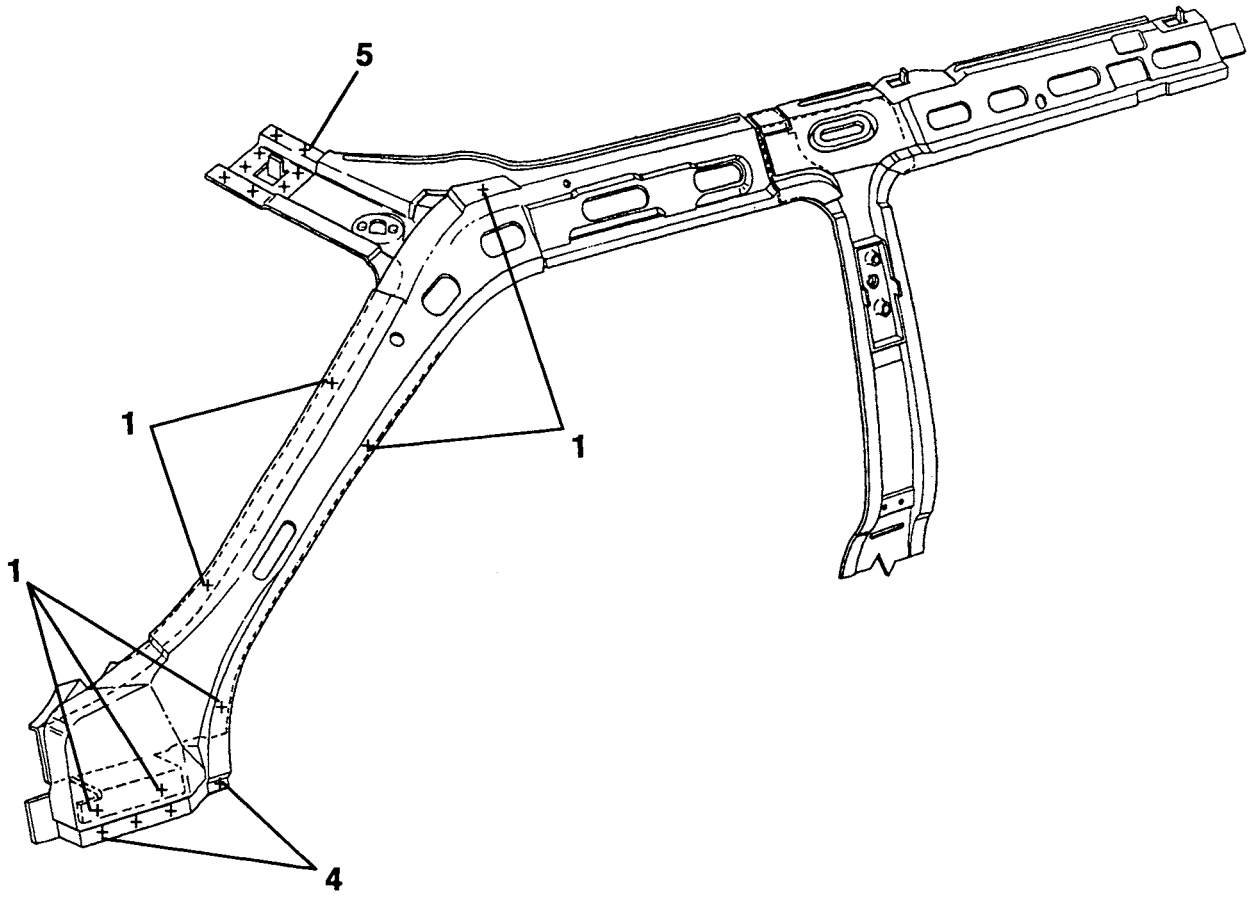


Upper Front Inner Pillar & Roof Inner Side Rail



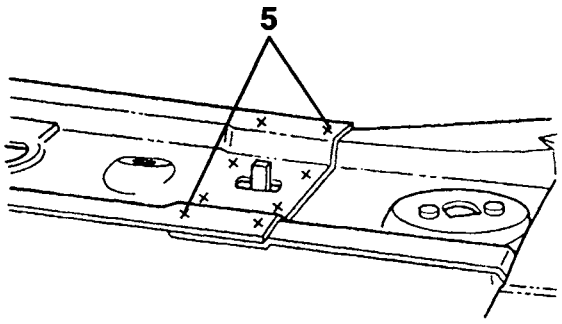
No.	Welded parts	F	R
1	G1 + G3	7	P7
2	G1 + G4	2	P2
3	G5 + G4	3	P3
4	G1 + G12	4	P4
5	G1 + E2	8	P8
6	G4 + G1 + G5	3	P3

No.	Welded parts	F	R



NOTES WITH REGARD TO REPAIR WORK

- These panels can not be accessed without remving several outer skin pieces, i.e. roof panel, outer body side panel.
- The original factory Front Pillar Reinforcement is part of the Upper Front Pillar. A service replacement outer Front Pillar is available with the reinforcement as a sub-assembly.
- Refer to the Center Pillar section if Center Pillar replacement is required.



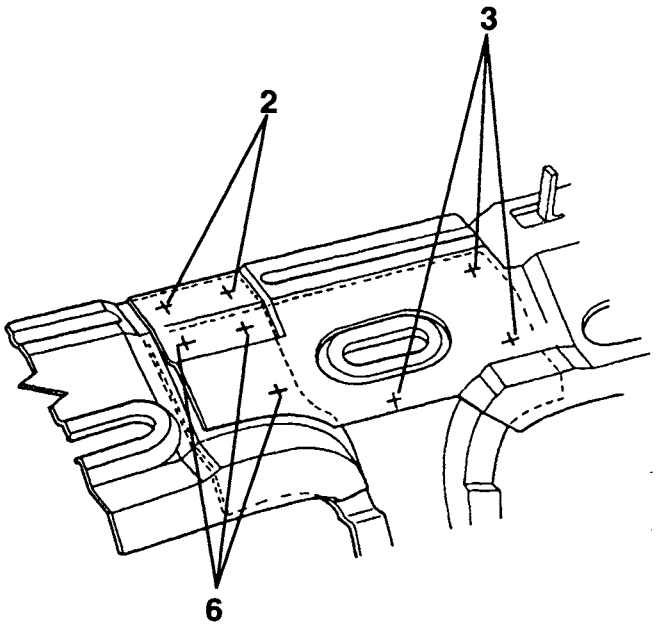
REMOVAL

1. The way you intend to replace this panel will determine how you remove it as a single component or as a sub-assembly.
2. Cut all spot welds, cut Center Pillar at Body Side Rail area using new panel as a guide.
3. Clean all mating surfaces to ensure a good fit of the new panel.

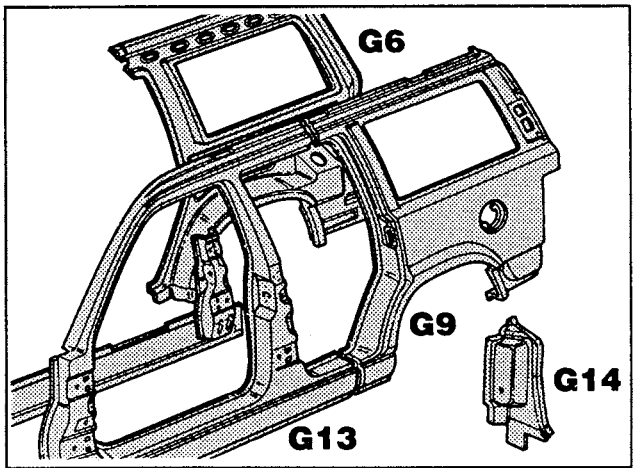
INSTALLATION

1. If replacing as a sub-assembly, always overlap in areas where you cannot weld at OEM welds. Use stitch welds to make a continuous MIG weld at the outer edge and plug welds to the Inner Panel from the outside.
2. After placing holes in the new panel for the plug welds, fit the panel into position.
3. Plug weld the Upper Front Pillar into place.
4. Spray anti-corrosion weld-thru primer on weld areas prior to welding.

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.

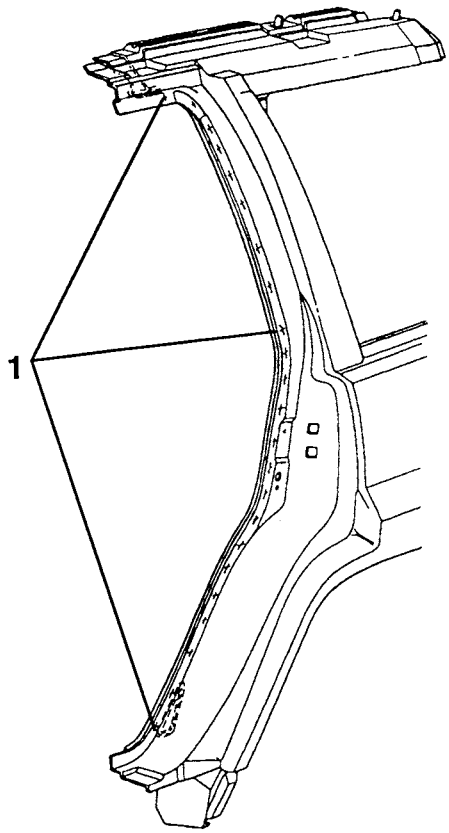


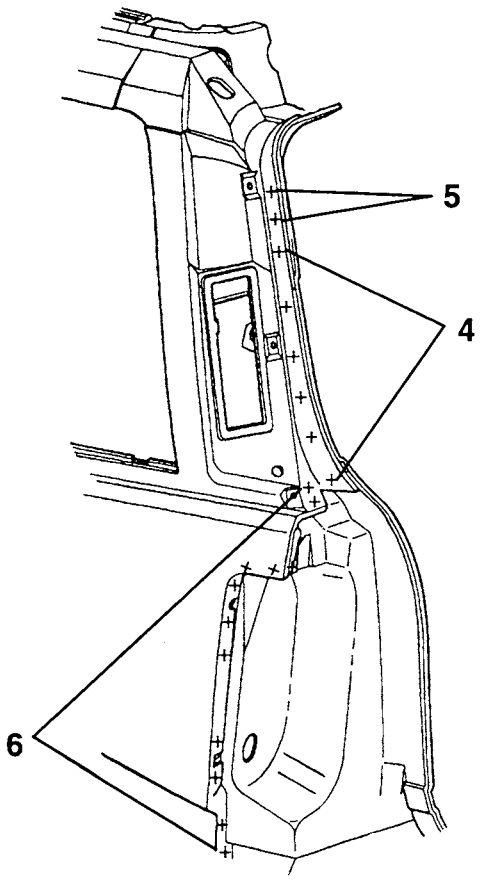
Quarter Panel — Outer



No.	Welded parts	F	R
1	G9 + G6	23	P23
2	G9 + G6	13	P13
3	G9 + G6	27	P27
4	G9 + G6	6	P6
5	G9 + G7	2	P2
6	G9 + G14	12	P12
7	F5 + G6 + G9	See Quarter Panel - Inner	
8	G9 + G7	1 MIG	1 MIG

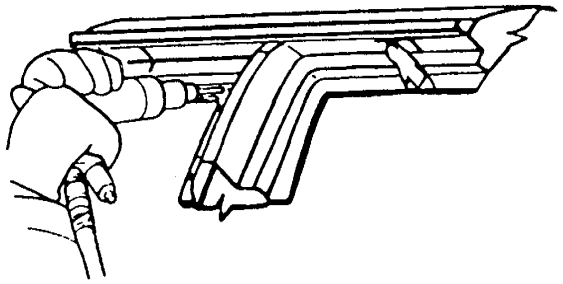
No.	Welded parts	F	R
9	G9 + E1	1 MIG	1 MIG
10	G9 + E1	8	P8





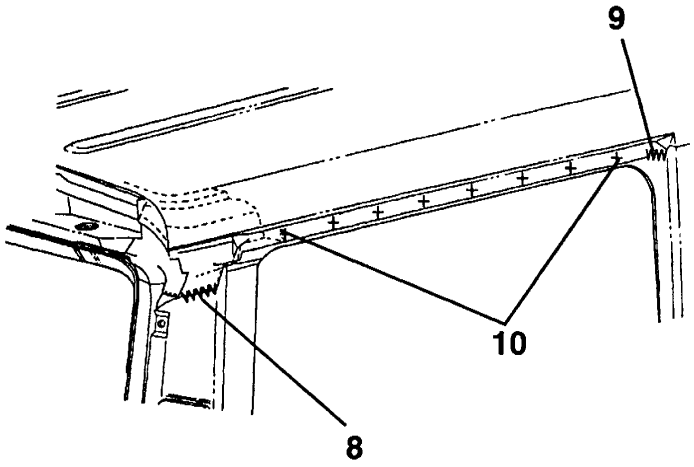
NOTES WITH REGARD TO REPAIR WORK

- For safety reasons, remove the fuel tank before performing repair.
- On vehicles equipped with a sun roof there are drain hoses running down the A and C pillars. You may also encounter wiring harnesses in these pillars; be careful not to cut any of these materials.
- Remove any flammable materials from interior areas before beginning.



REMOVAL

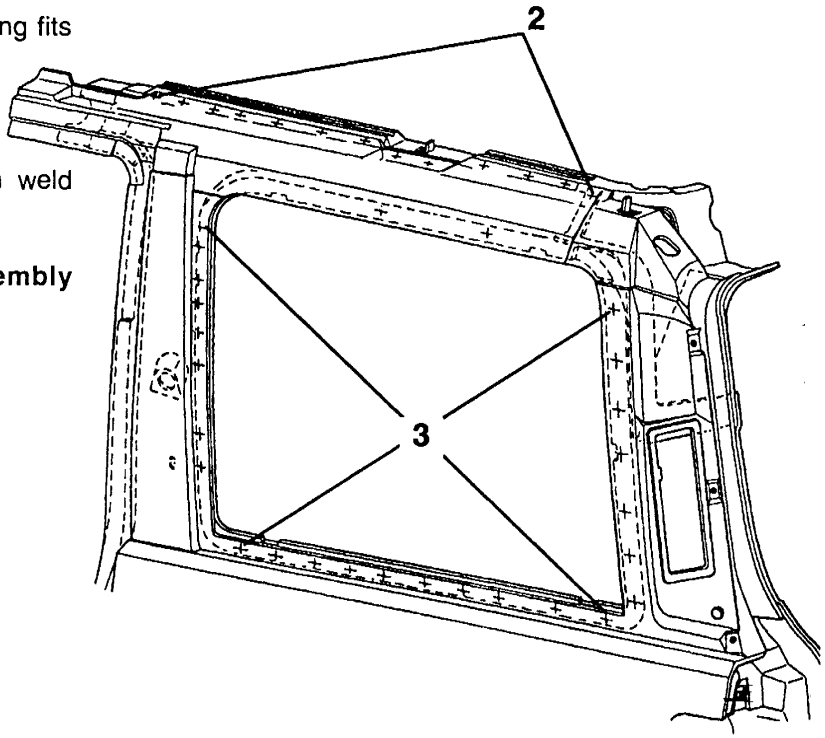
1. After removal of all spot welds, you may have to use an air chisel to cut the old Quarter Panel away from the inner panels.
2. Clean all adjoining panels and prep them for placement of the new Quarter Panel.

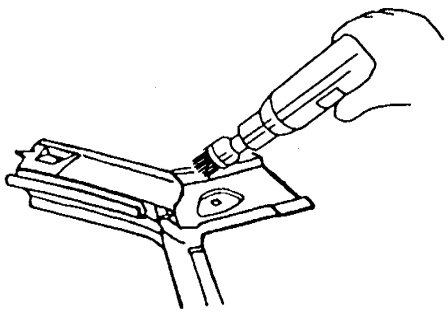


INSTALLATION

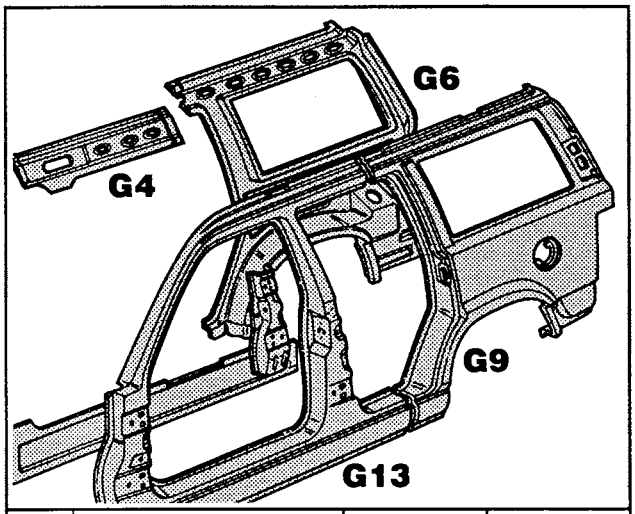
1. Mount the new Outer Quarter Panel and check the door fit.
2. Apply adhesive as specified in the Structural Adhesives section.
3. Tack weld the new Quarter Panel into place.
4. Check the fit again to make sure everything fits perfectly.
5. Weld the Quarter Panel into place.
6. Spray anti-corrosion weld-thru primer on weld surfaces prior to welding.

Note: Quarter Panel — Outer Assembly continued on next two pages.



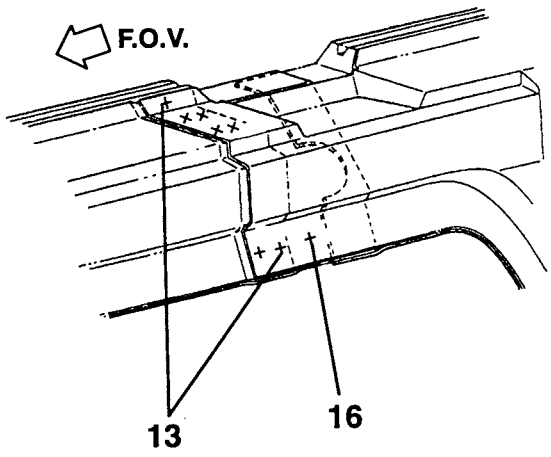


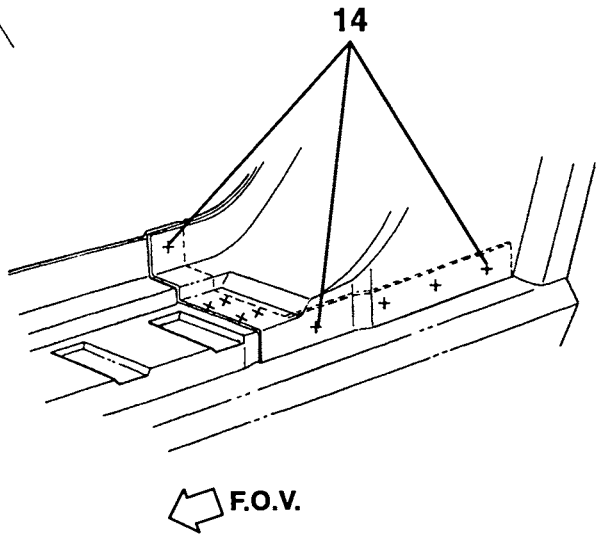
Quarter Panel — Outer



No.	Welded parts	F	R
11	G9 + G6	16	P16
12RH	G9 + G6	3	P3
12LH	G9 + G6	8	P8
13	G9 + G13	7	P7
14	G9 + G13	9	P9
15	G9 + Outer Quarter Panel and Rear Door Striker Reinforcement	6	P6

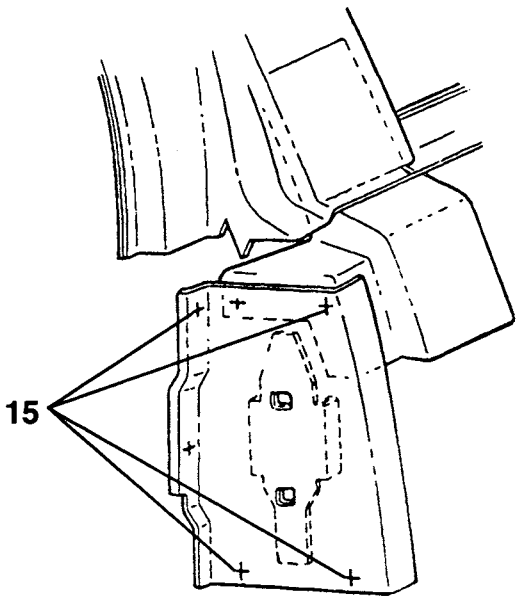
No.	Welded parts	F	R
16	G9 + G4	1	P1





NOTES WITH REGARD TO REPAIR WORK

- Pay close attention to the welds connecting the Outer Quarter Panel to the Body Side Outer Panel. Weld number 14 attaches to the Roof Inner Side Rail only.
- Structural adhesive is used when mounting the Outer Quarter Panel (weld numbers 11 and 15). Refer to the Structural Adhesives section for correct location.
- Be sure to remove any flammable materials from the interior before performing any welding.

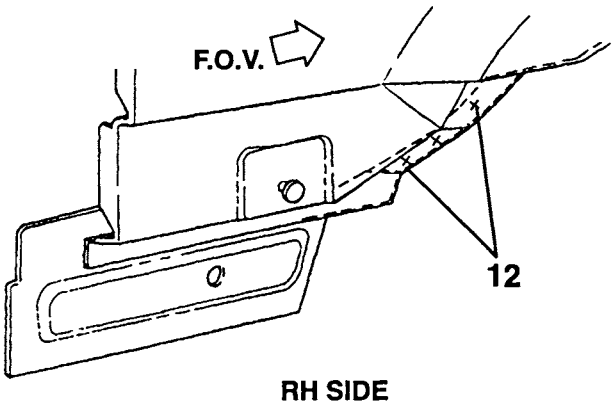


REMOVAL

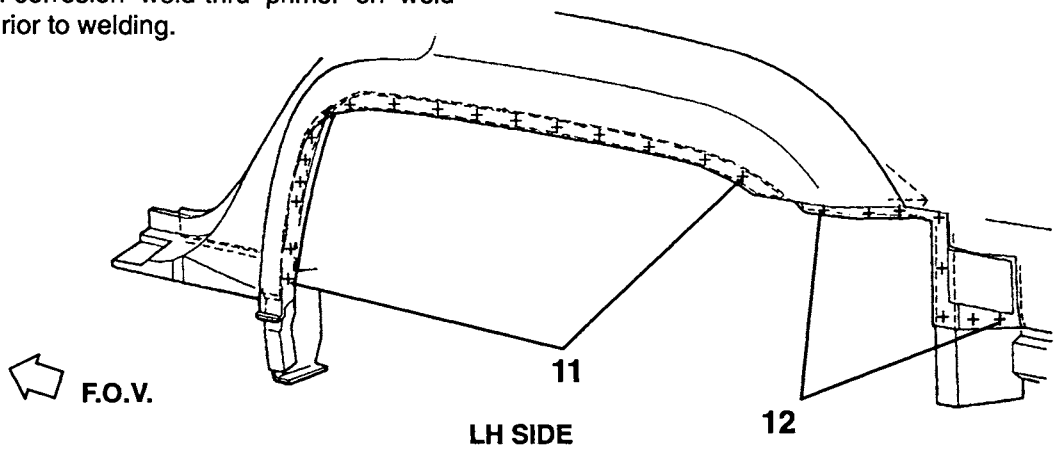
1. If removing the panel as an assembly, including the Inner Quarter Panel, be sure **all** welds attaching these panels to the Outer Front body Side are removed. The selection of a removal tool is dependent upon the number of metal thicknesses involved.
2. Use a torch to heat areas bonded with structural adhesive. Be careful not to overheat the area and cause damage to any underlying panels.

INSTALLATION

1. Mount the new Outer Quarter Panel and check the door fit.
2. Apply adhesive as specified in the Structural Adhesives section.
3. Tack weld the new Outer Quarter Panel into place.
4. Check the fit again to ensure panel placement.
5. Weld the Outer Quarter Panel into place.
6. Spray anti-corrosion weld-thru primer on weld surfaces prior to welding.

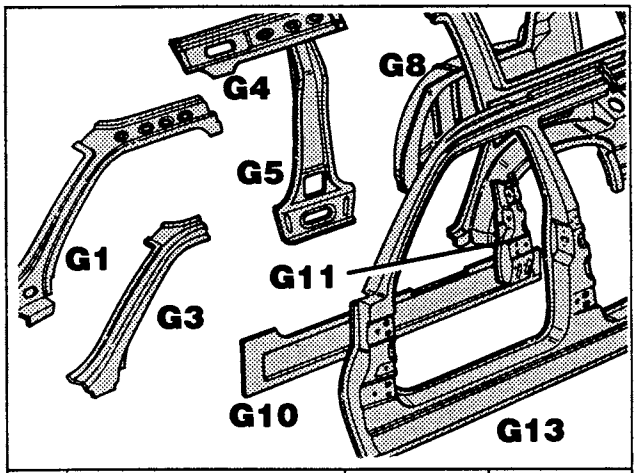


RH SIDE



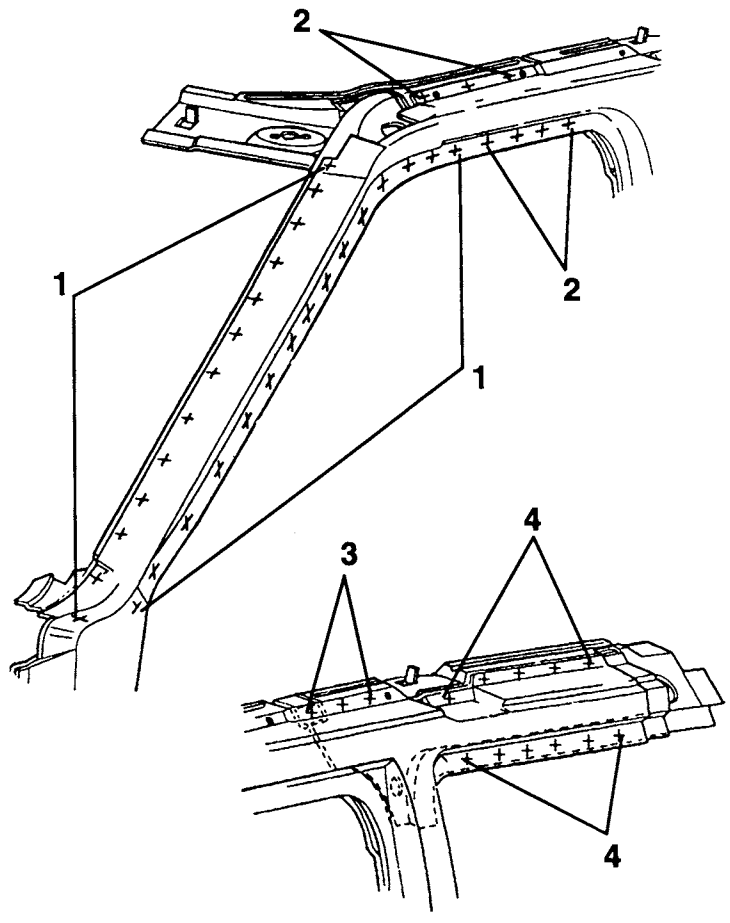
LH SIDE

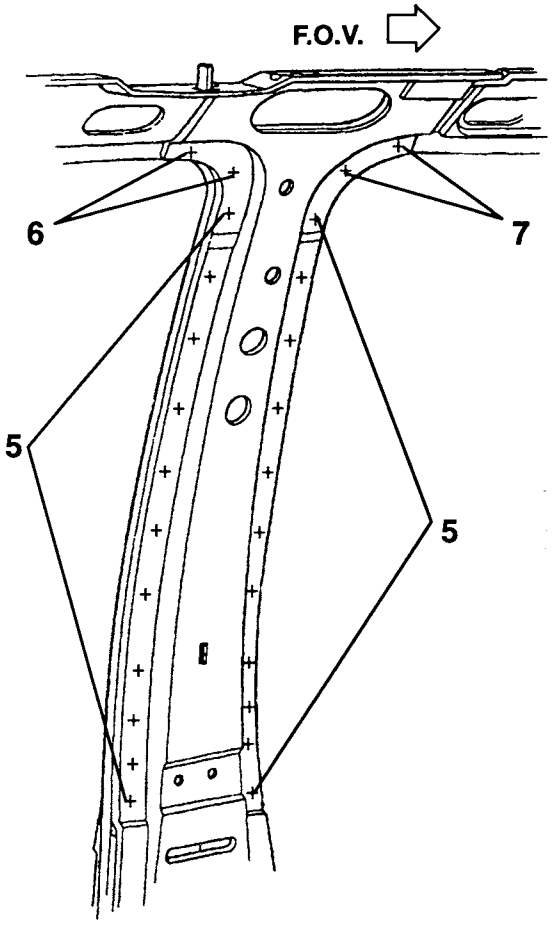
Outer Body Side Panel



No.	Welded parts	F	R
-	G13 + G12 + B1	Refer to Front Hinge Pillar	
1	G13 + G3 + G1	28	P28
2	G13 + G1	7	P7
3	G13 + G4 + G5	3	P3
4	G13 + G4	11	P11
5	G13 + G5	22	P22
6	G5 + G4 + G13	2	P2
7	G5 + G13 + G1	2	P2

No.	Welded parts	F	R
8	G13 + G11	10	P10
9	G5 + G13 + G11	16	P16
10	G13 + G5	5	P5
11	G13 + G10	See Inner Side Rail	
12	G13 + G9	See Quarter Panel Outer	





NOTES WITH REGARD TO REPAIR WORK

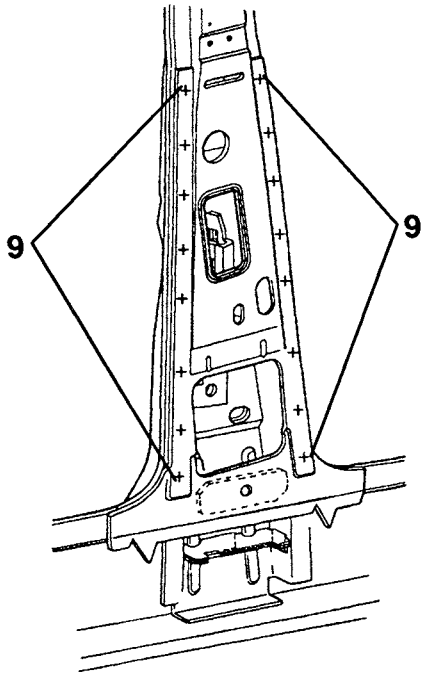
- This panel can be serviced as part of a sub-assembly. It may be necessary to section this panel.
- If replacing only part of the panel, overlap and use continuous stitch welds and plug welds.
- Refer to the Quarter Panel — Outer section for connecting weld locations.
- Refer to Front Hinge Pillar section for Outer Body Side to Hinge Pillar Reinforcement and Cowl Side weld locations.

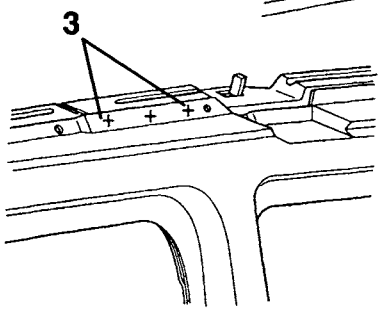
REMOVAL

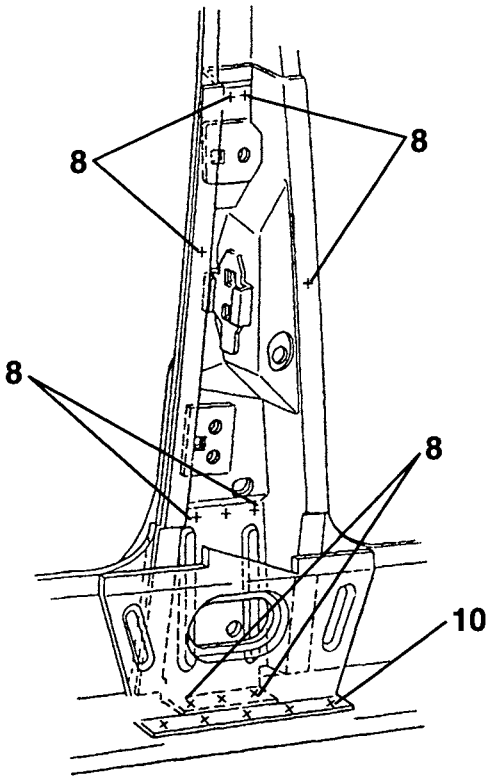
1. The way you intend to replace this panel will determine whether you remove it as a single component or as a sub-assembly.
2. First you have to decide where would be the best place to section the panel, then find a spot on both panels that you can use for measurement.
3. Remember to stagger your overlap section for added strength.
4. Make a rough cut on the old panel, cut all the spot welds and remove the old panel.
5. Make a second measurement. Now make the final cuts and do a good clean job.

INSTALLATION

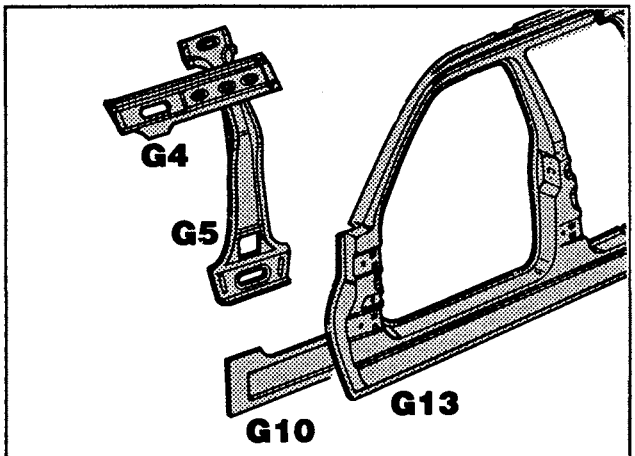
1. If replacing as a sub-assembly, always overlap in areas where you can not weld at OEM welds. Use stitch welds to make a continuous MIG weld at the outer edge and plug welds to the inner panel from the outside.
2. Place the new Outer Body Side panel in place, making sure the alignment is correct.
3. Plug weld the new panel into place, MIG stitch weld the seams where the old panel and the new panel overlap. Then plug weld into existing panel.
4. Spray anti-corrosion weld-thru primer on weld surfaces prior to welding.





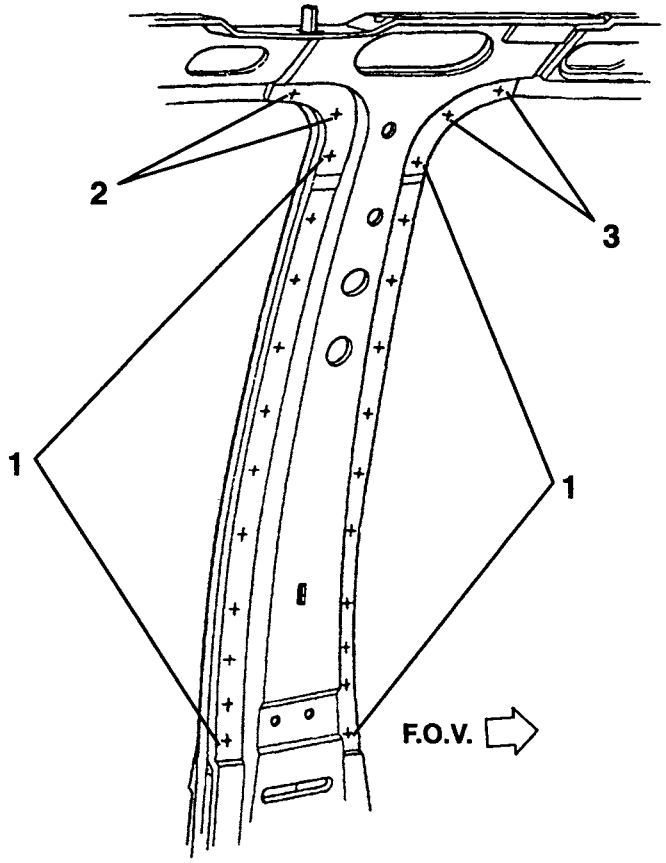


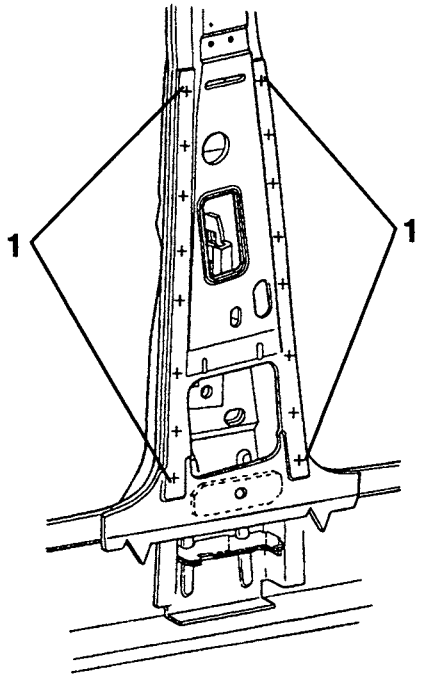
Center Pillar (B-Pillar)



No.	Welded parts	F	R
1	G5 + G13	42	P42
2	G5 + G4 + G13	2	P2
3	G5 + G13 + G1	2	P2
4	G5 + G4	3	P3
5	G5 + G10	5	P5
6	G5 + G13	5	P5
7	G5 + G1 + G4	3	P3

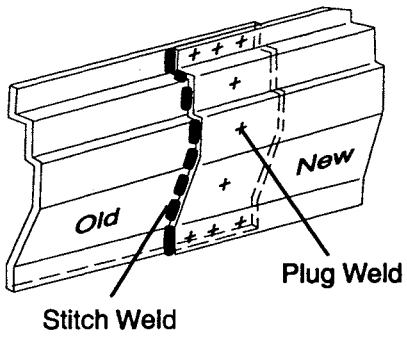
No.	Welded parts	F	R





NOTES WITH REGARD TO REPAIR WORK

- This panel will need to be sectioned into place. Remember this as you cut the damaged part.
- For the outside pillar, drill 1/8" holes in the center of each spot weld as a guide for a 5/16" to 3/8" hole saw or you can use a drill bit designed to cut spot welds.
- The original factory Center Pillar is part of the complete Body Side assembly. A service replacement outer Center Pillar is available.
- You may need to refer to the Body Side Panel section for removal.



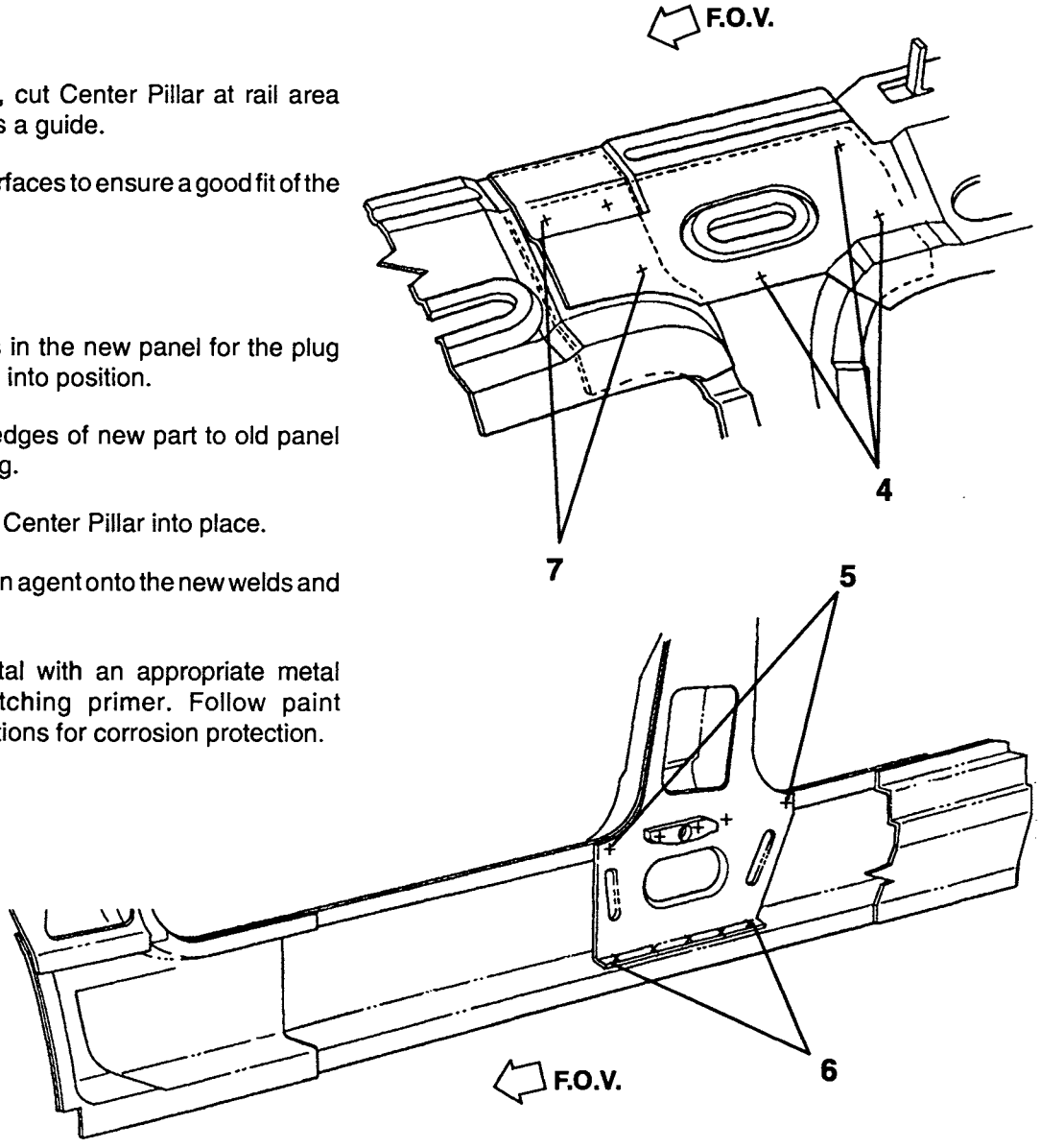
REMOVAL

1. Cut all spot welds, cut Center Pillar at rail area using new panel as a guide.
2. Clean all mating surfaces to ensure a good fit of the new panel.

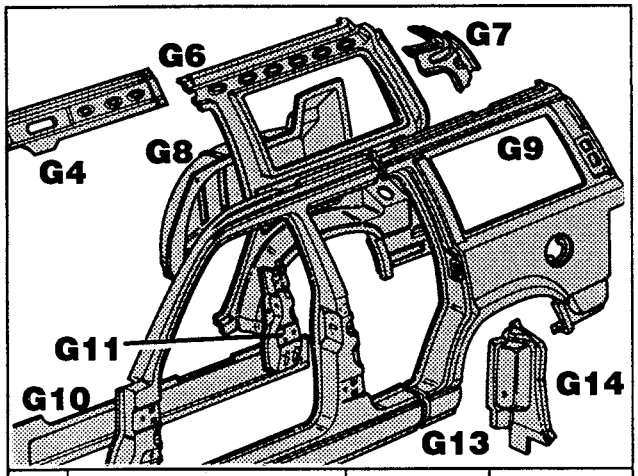
INSTALLATION

1. After placing holes in the new panel for the plug welds, fit the panel into position.
2. Stitch-weld outer edges of new part to old panel you are overlapping.
3. Plug weld the new Center Pillar into place.
4. Spray anti-corrosion agent onto the new welds and inner surfaces.

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.

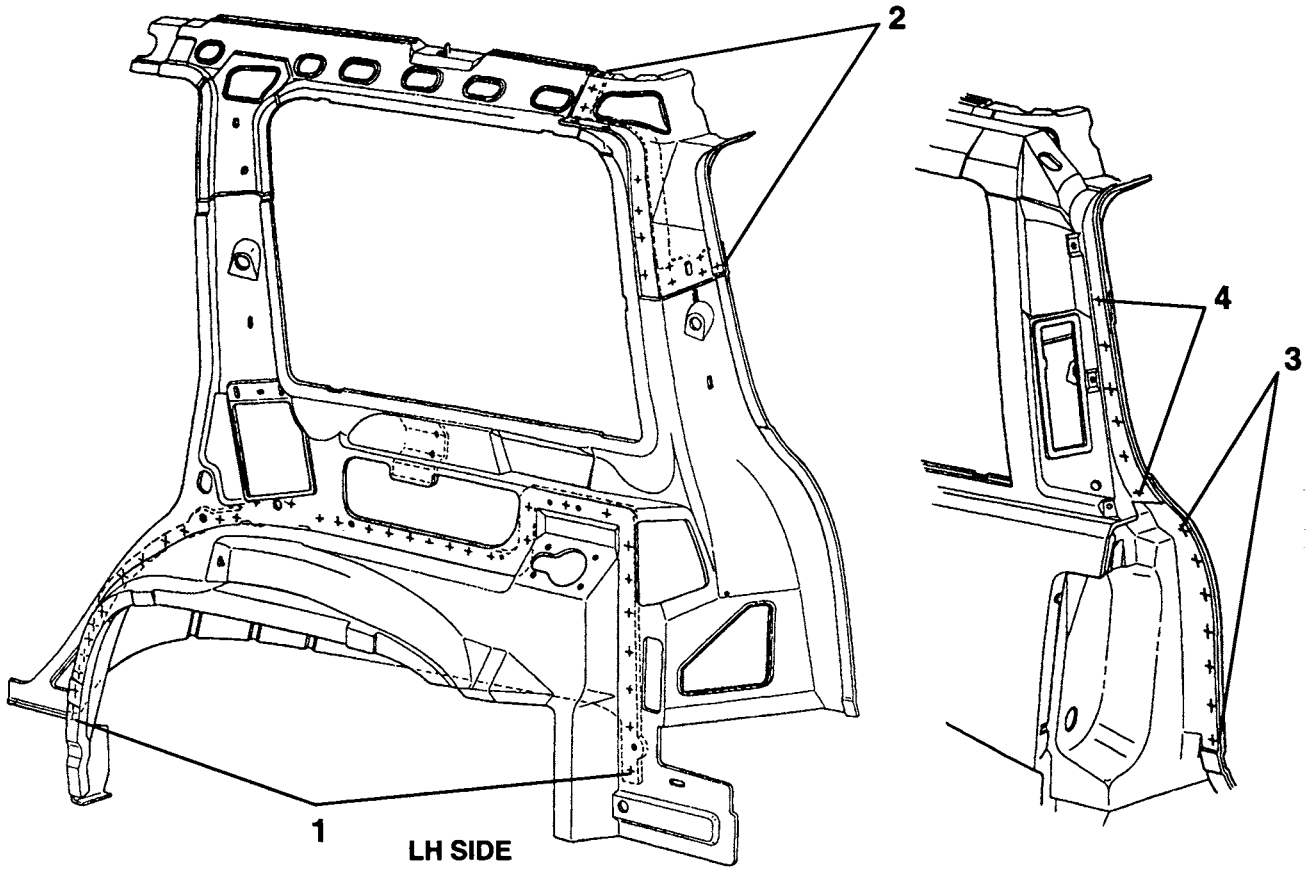


Quarter Panel — Inner



No.	Welded parts	F	R
1RH	G6 + G8	28	P28
1LH	G6 + G8	35	P35
2	G6 + G7	14	P14
3	G6 + G14	7	P7
4	G6 + G9	6	P6
5	G6 + G4	7	P7
6	G6 + G13	2	P2
7LH	F5 + G6 + G9	3	P3

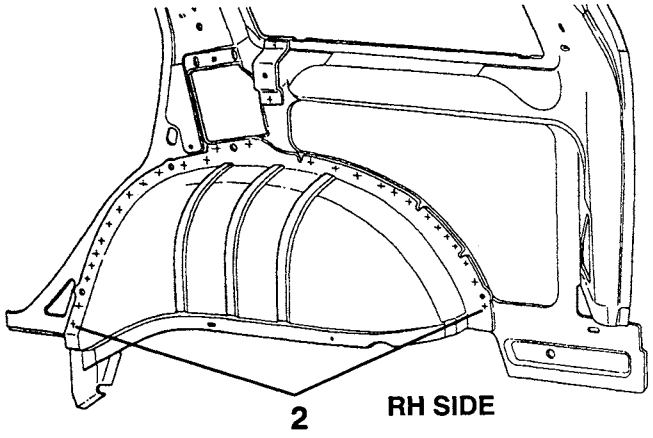
No.	Welded parts	F	R
7RH	F5 + G6 + G9	4	P4
8	G10 + G9 + G13	1	P1
9	G10 + G6	1	P1
10	G10 + G6	2 MIG	2 MIG
11	G10 + G6	4	P4
12	F5 + G6 + G14	2	P2
13	F8 + F5 + G6	1	P1



LH SIDE

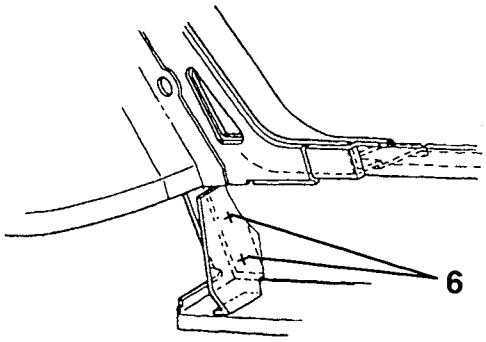
NOTES WITH REGARD TO REPAIR WORK

- For safety reasons, remove the fuel tank before performing work.
- On vehicles equipped with a sun roof there are drain hoses running down the A and C pillars. You may also encounter wiring harnesses in these pillars; be careful not to cut any of these materials.
- Remove all flammable materials from interior areas where working before welding.
- Protect all glass from sparks during cutting and welding.



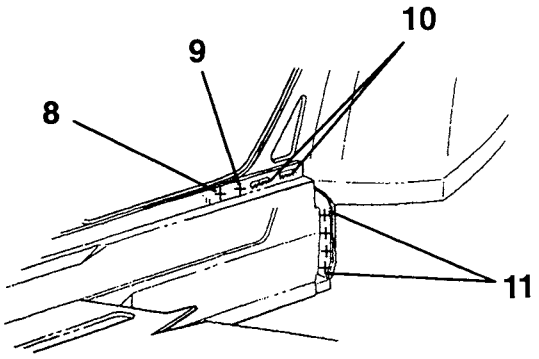
REMOVAL

1. After removal of all spot welds, you may have to use an air chisel to cut the old Quarter Panel away from the Inner Panels.
2. Clean all adjoining panels and prep them for placement of the new Inner Quarter Panel.

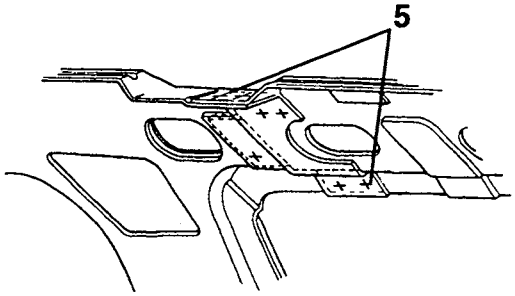


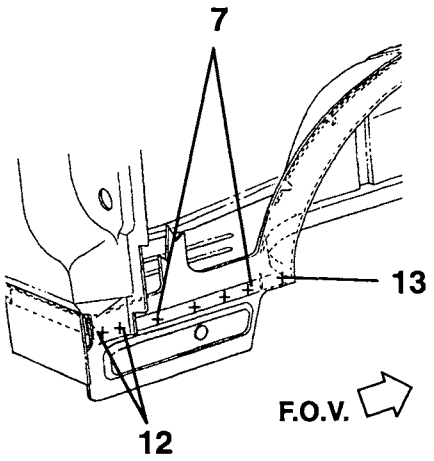
INSTALLATION

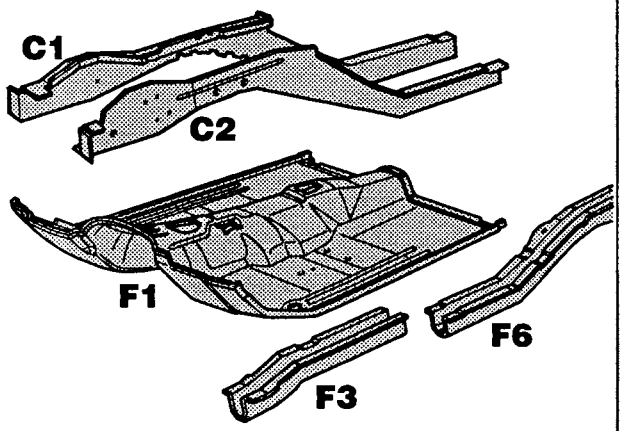
1. Mount the new Inner Quarter Panel and check fit to Inner Rear Wheelhouse.
2. Apply adhesive as specified in the Structural Adhesives section.
3. Tack weld the new Inner Quarter Panel into place.
4. Check the fit again to make sure everything fits perfectly.
5. Weld the Inner Quarter Panel into place.
6. Spray anti-corrosion weld-thru primer on weld surfaces prior to welding.



Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.

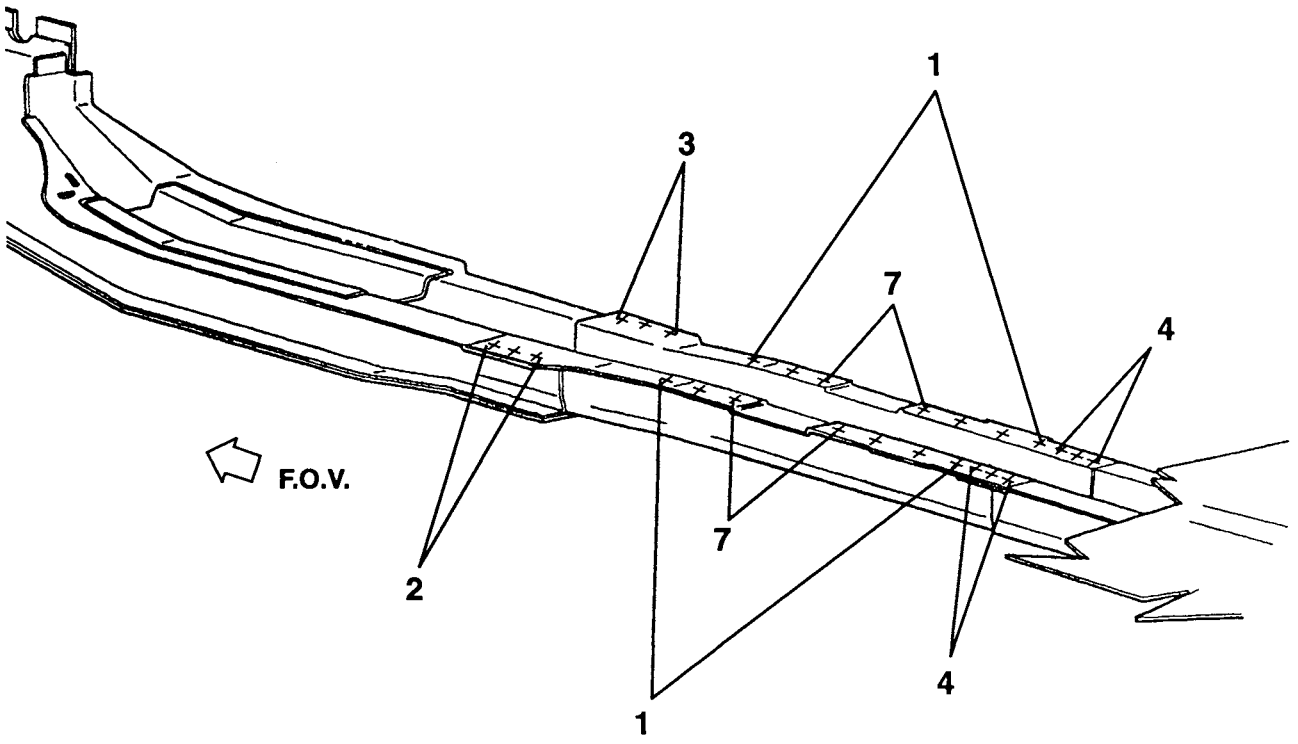






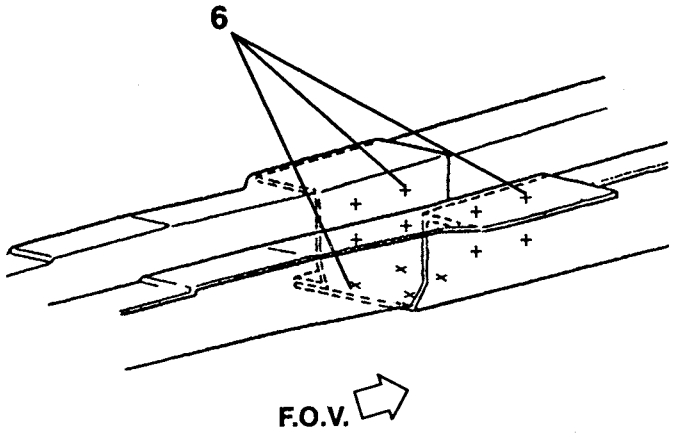
No.	Welded parts	F	R
1	F3 + F1	10	P10
2	C2 + F3 + F1	3	P3
3	C1 + F3 + F1	3	P3
4	F6 + F3 + F1	6	P6
5	F3 + F6	12	P12
6	F3 + C1 + C2	12	P12
7	F3 + F1 + F2	4	P4

No.	Welded parts	F	R



NOTES WITH REGARD TO REPAIR WORK

- The front portion of the Center Rail connects to the rear of the Front Rail and provides the link for the Front Rail to the unibody structure.
- The Center Rail is a major structural component so make sure all welds penetrate sufficiently.
- Because the Front Rail attaches to the Center Rail, alignment of this piece is critical.



REMOVAL

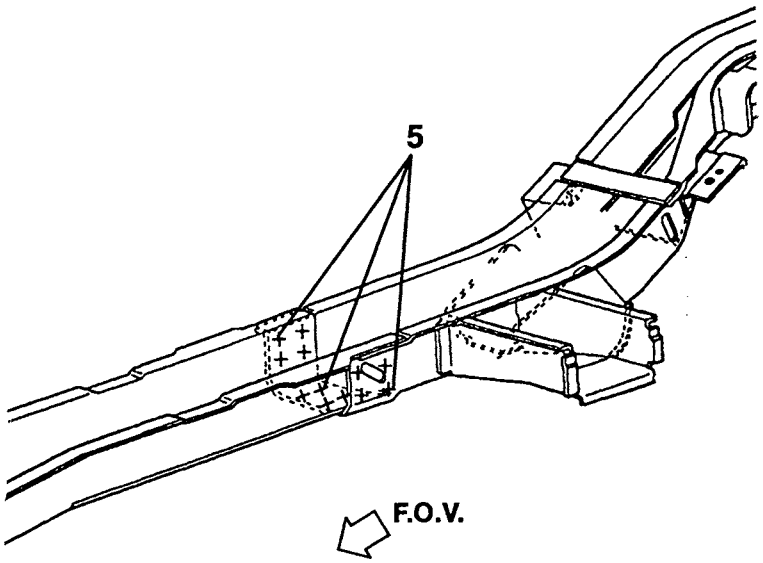
1. Refer to the Front Floor Pan section for weld locations attaching the Center Rail to the Floor Pan.
2. Use a spot weld cutter to remove the old Center Rail welds.
3. The old Center Rail can be used as a guide for weld locations.
4. Prepare all mating surfaces for welding.
5. If not damaged, the Front Floor Pan Outer Reinforcement (C6) can be reused on the new Center Rail. Note weld locations.

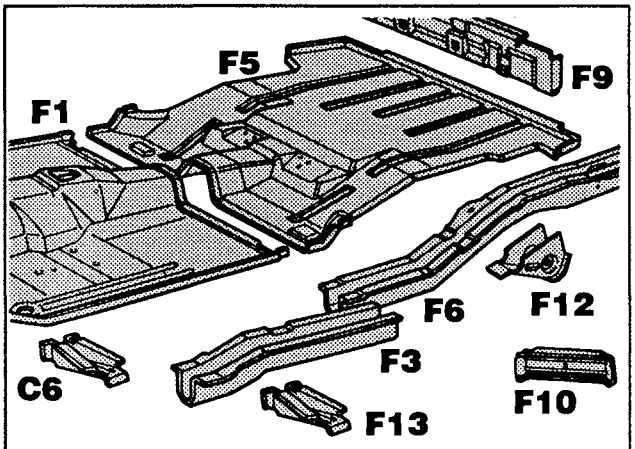
INSTALLATION

1 You can pre-punch weld location holes using a whitney punch.

2. Attach the Front Floor Pan Outer Reinforcement before final attachment of Rail to Floor Pan.
3. Tack weld the new rail in its proper location.
4. Check alignment for both squareness and location on floor pan.
5. Spray anti-corrosion weld-thru primer on weld surfaces prior to welding.
6. Plug weld new rail in place.

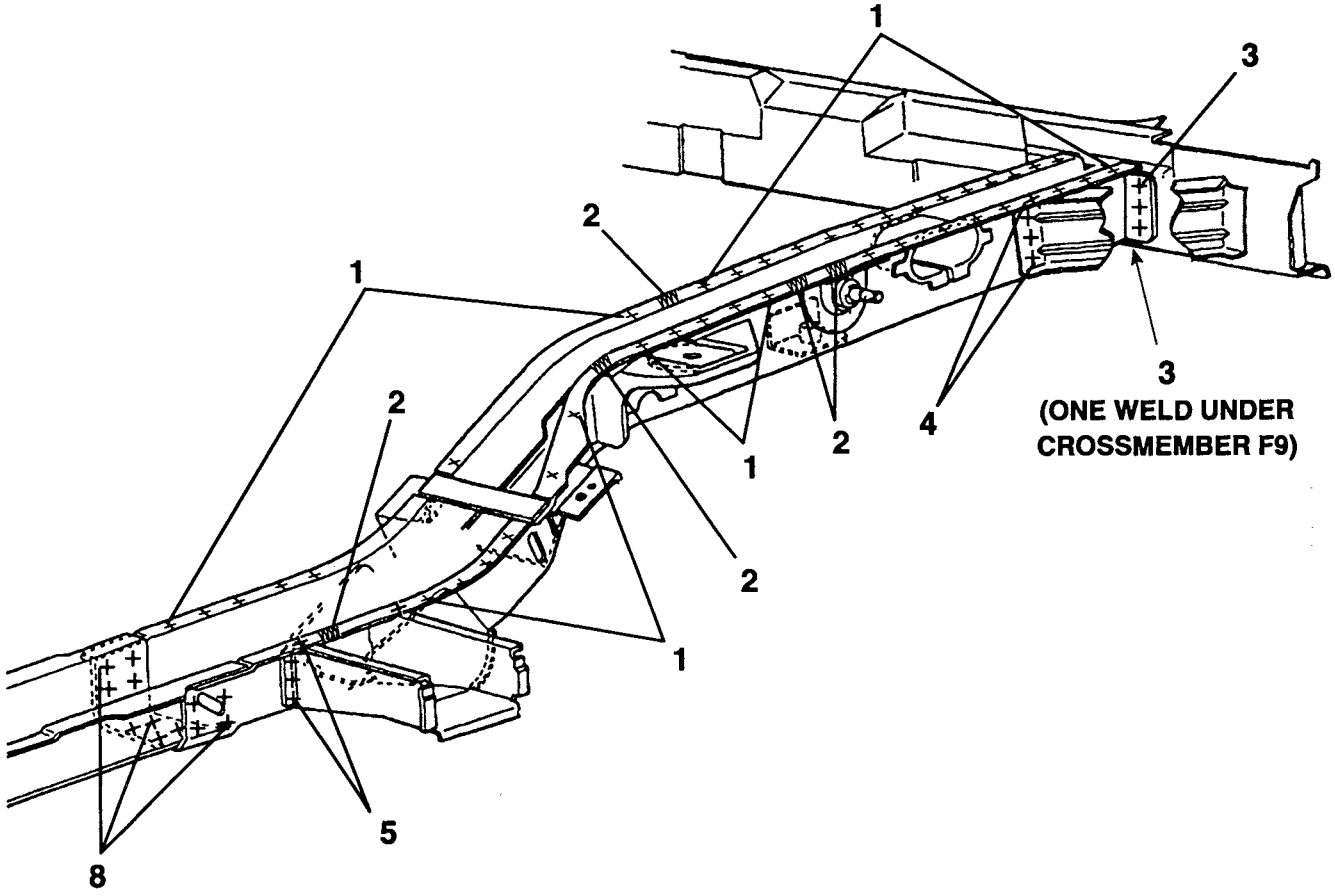
Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.





No.	Welded parts	F	R
1RH	F6 + F5	43	P43
1LH	F6 + F5	40	P40
2	F6 + F5	5 MIG	5 MIG
3	F6 + F9	7	P7
4	F10 + F6	4	P4
5	F13 + F6	8	P8
6	F13 + F12 + F6	2	P2
7	F12 + F6	10	P10

No.	Welded parts	F	R
8	F6 + F3	12	P12



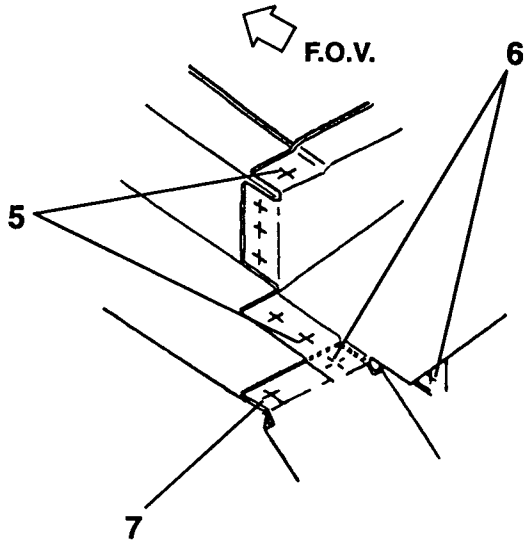
NOTES WITH REGARD TO REPAIR WORK

- Components of the Rear Floor Pan Assembly are available as sub-assemblies. These components should be serviced accordingly.
- Because of the difficulty in the removal of these parts, take special care not to damage any adjacent parts.
- Remove fuel tank and cap open fuel lines.
- Remove all flammable materials from passenger compartment, rear seat area and from interior area.

REMOVAL

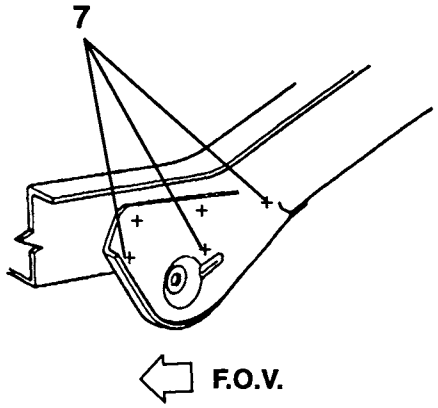
1. Use a spot weld cutter to remove spot welds.
2. Use an air chisel to remove Rear Rail.

   Note: Do not damage any other panels during removal process.



PREPARATION

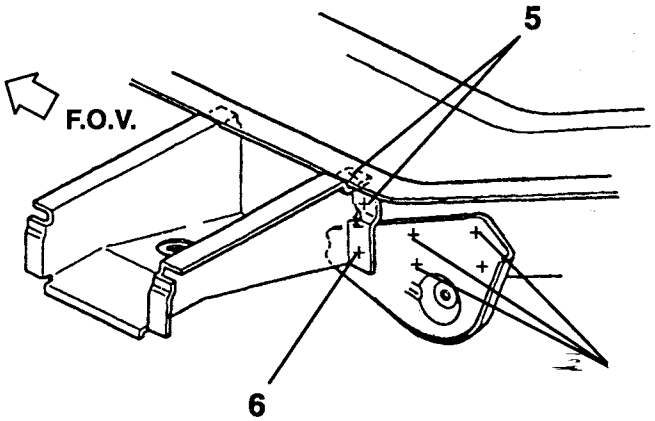
1. Repair any damage that may have been caused by removal of the Rear Rail.
2. Use old Rear Rail as a guide for plug weld placement.

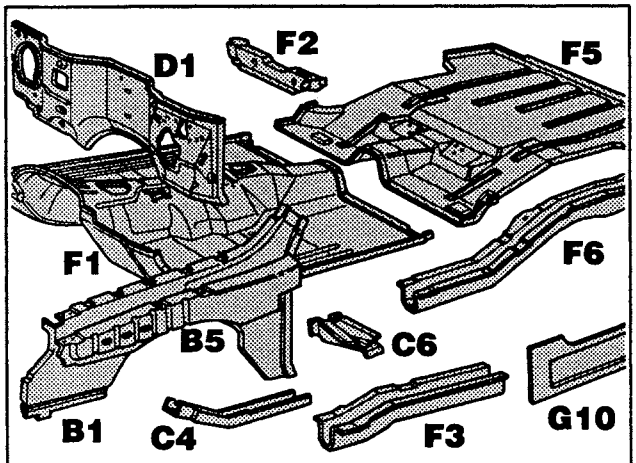


INSTALLATION

1. Temporarily mount the new Rear Rail to the Rear Floor Pan.
2. Measure each part and make corrections necessary to obtain perfect agreement with the other parts involved.
4. Plug weld the new Rear Rail, making sure it is at least as strong as original.

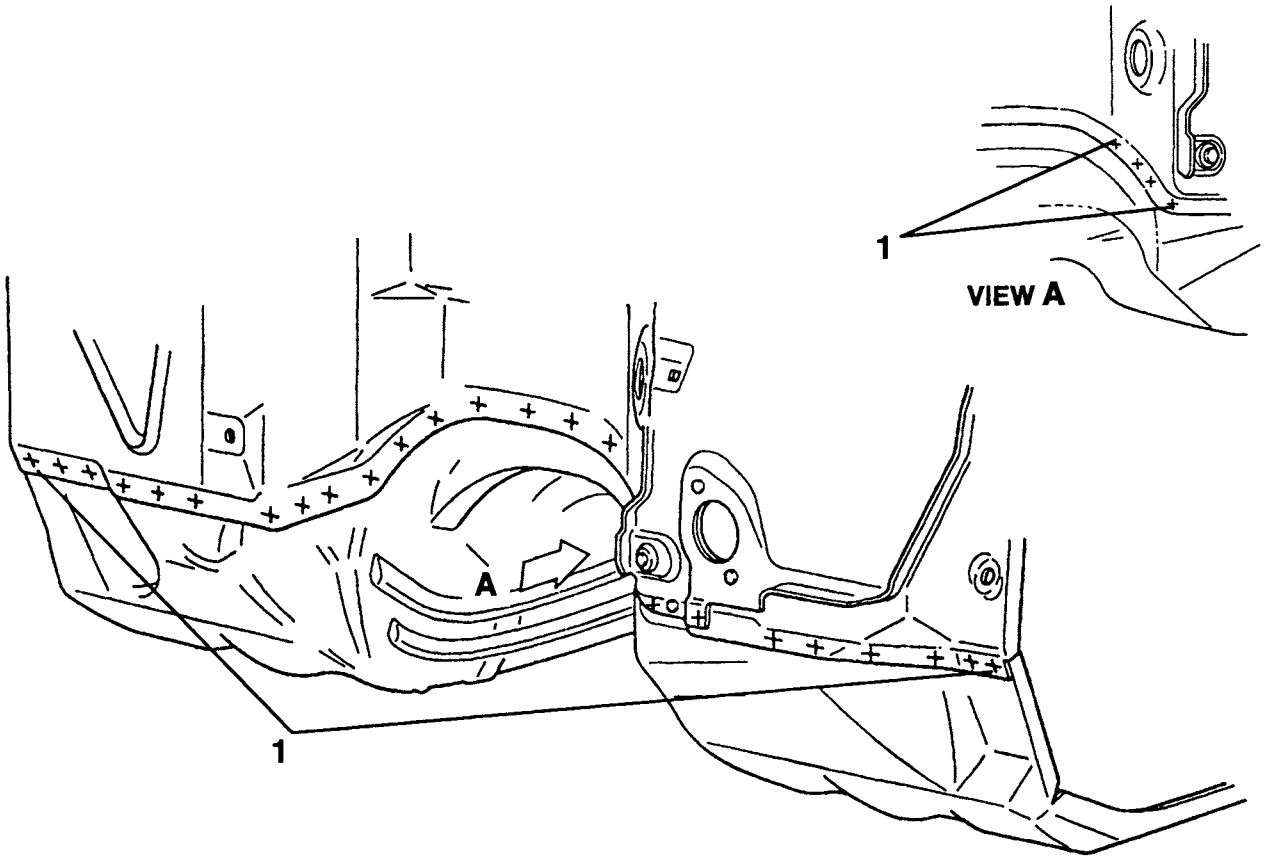
Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.





No.	Welded parts	F	R
1	F1 + D1	26	P26
2	F1 + B1 (each side)	4	P4
3	F2 + F1	18	P18
4	F2 + F1 + F3	4	P4
5	F2 + G10 (each side)	4	P4
6RH	F1 + C1	7 MIG	7 MIG
6LH	F1 + C1	5 MIG	5 MIG
7	F1 + C6	6	P6

No.	Welded parts	F	R
8	F1 + C1	22	P22
9	F1 + C2	12	P12
10	F1 + F3 + C1	3	P3
11	F1 + F3 + C2	3	P3
12	F1 + F3	14	P14
13	F1 + F3 + F6	6	P6
14	F1 + F5	21	P21
15	F1 + F5 + F6	15	P15
16	F1 + F5	4 MIG	4 MIG
17	F1 + G10 (each side)	30	P30



NOTES WITH REGARD TO REPAIR WORK

- Many components of the Front Floor Pan Assembly are available as sub-assemblies of the Front Floor Pan. These components are already attached to the pan when you receive it.
- Remove all flammable materials from passenger compartment, rear seat area and interior area.

REMOVAL

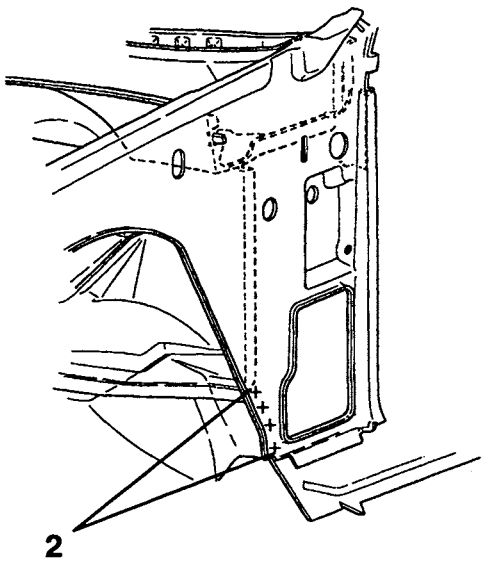
1. Use a spot weld cutter to remove the old Center Rail welds.

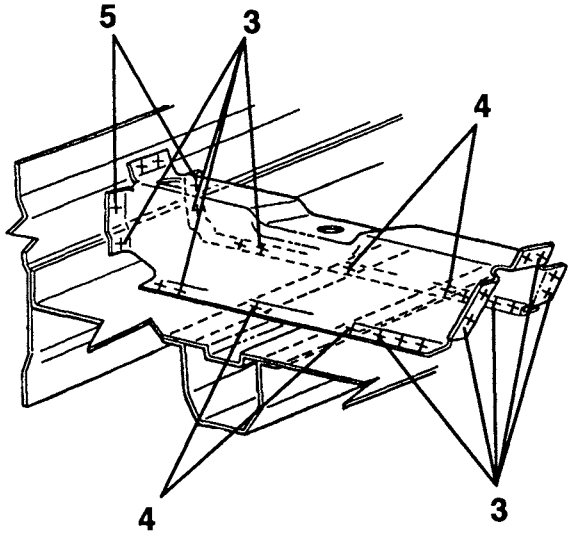
   Note: Do not damage any other panels during removal process.

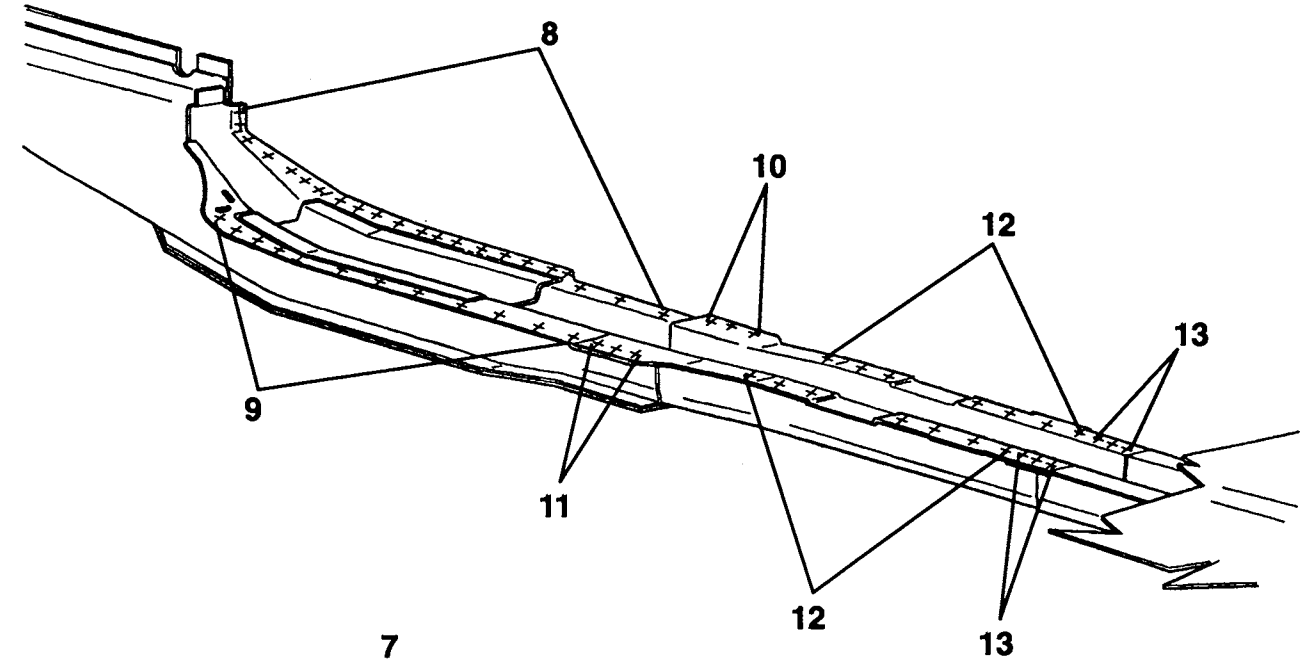
INSTALLATION

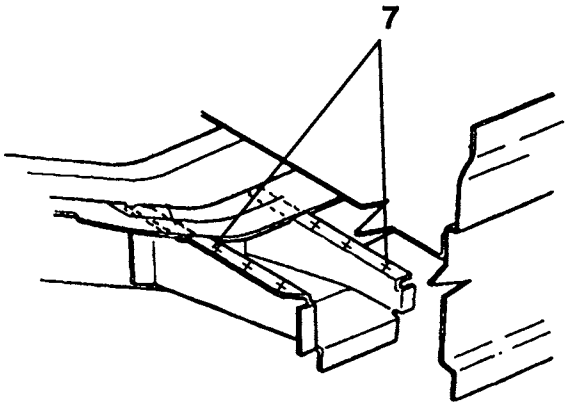
1. Repair any damage that may have been caused by removal of the Front Floor Pan.
2. Use the old Front Floor Pan as a guide for plug weld placement.
3. Temporarily mount the new Front Floor Pan to all connecting components.
4. Measure each part and make corrections to obtain perfect agreement with other parts involved.
5. Plug weld the new Front Floor Pan, making sure it is at least as strong as original.

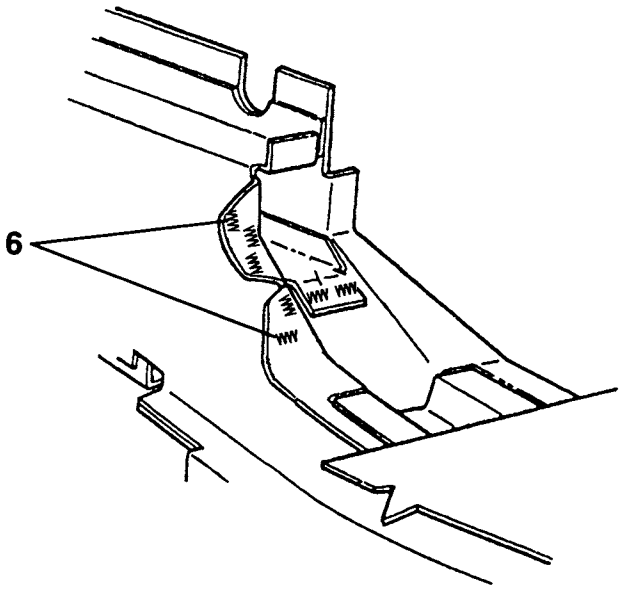
   Note: Front Floor Pan Assembly continued on next two pages.



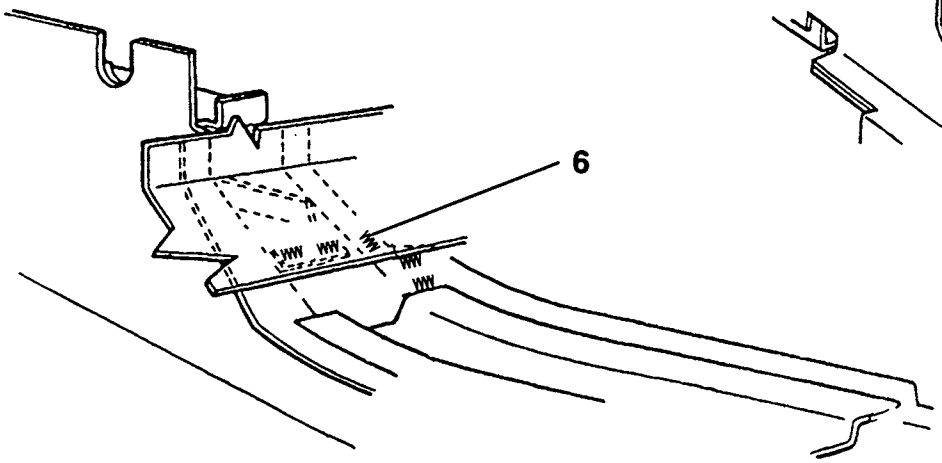




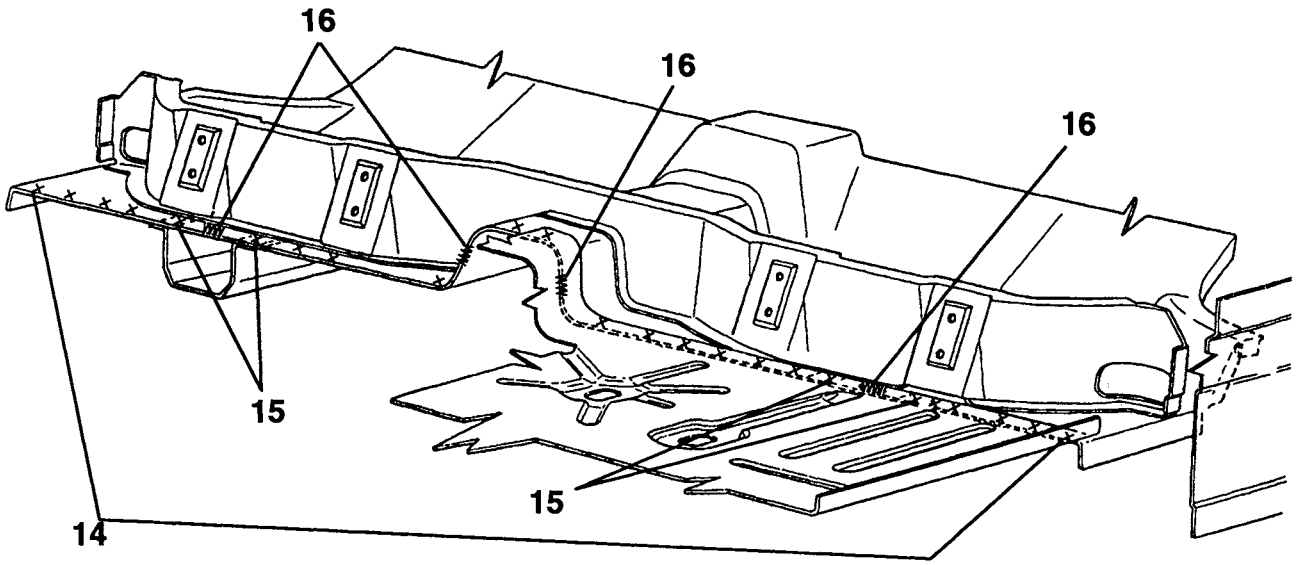




RH SIDE



LH SIDE


16
16
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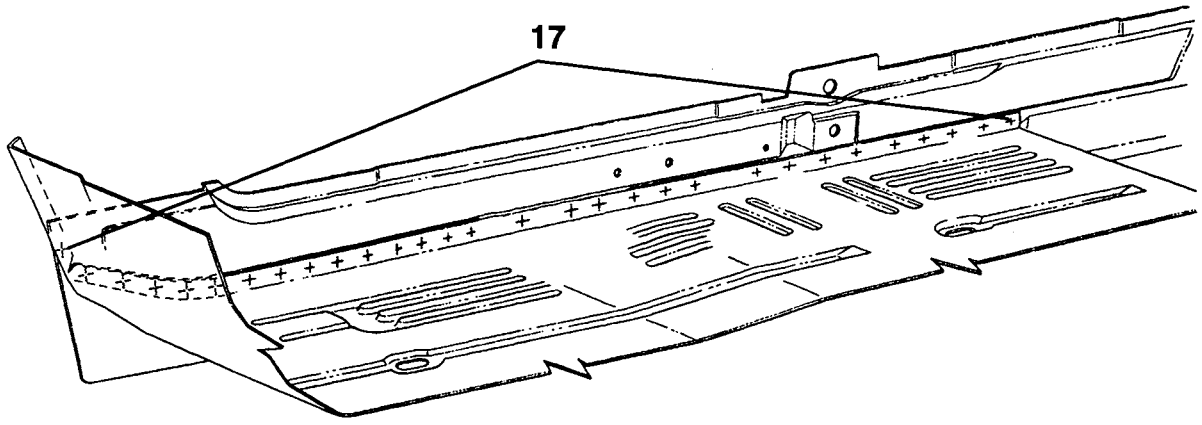
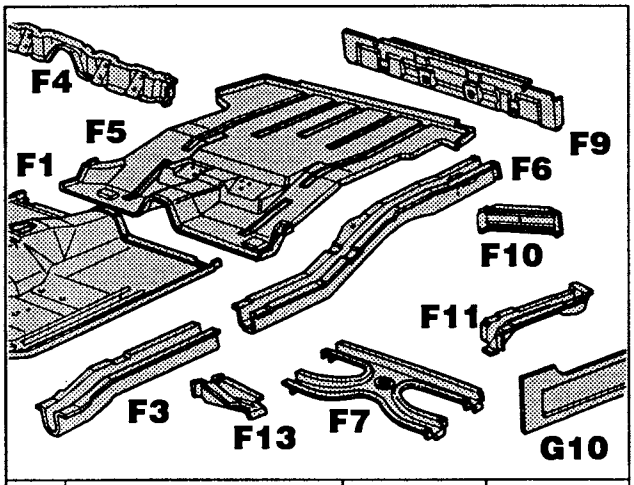
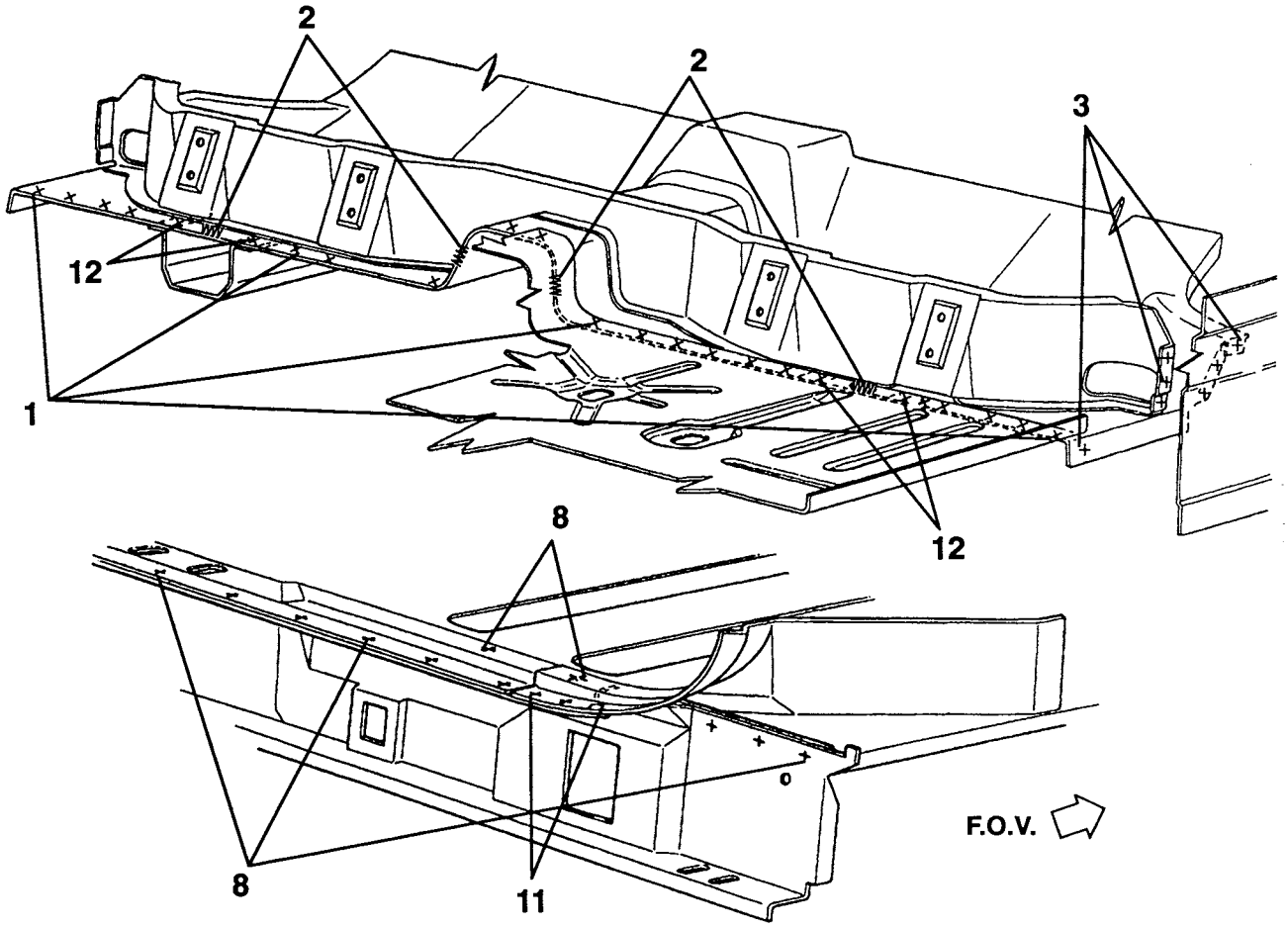

17

Rear Floor Pan



No.	Welded parts	F	R
1	F5 + F1	21	P21
2	F5 + F1	4 MIG	4 MIG
3	F5 + F4 + G10 (each side)	7	P7
4	F5 + F13	8	P8
5	F5 + G8	See Inner Wheelhouse	
6	F5 + F11	11	P11
7	F5 + F10	3	P3
8	F5 + F9 + F8	24	P24

No.	Welded parts	F	R
9	F5 + Rear Seat Belt Anchor Bracket	2	P2
10	F5 + Rear Coil Spring Bracket	6	P6
11	F8 + F5 + F9	3	P3
12	F5 + F1 + F6	4	P4



NOTES WITH REGARD TO REPAIR WORK

- Components of the Rear Floor Pan Assembly are available as sub-assemblies. See Body Construction Characteristics section for details.
- Remove fuel tank and cap open fuel lines.
- Remove all flammable materials from passenger compartment, rear seat area and interior area.
- Refer to Inner Wheelhouse — Rear section for Inner Wheelhouse to Rear Floor Pan weld placement.
- Refer to Liftgate Opening — Lower section for Rear Floor Pan to Rear Crossmember weld placement.

REMOVAL

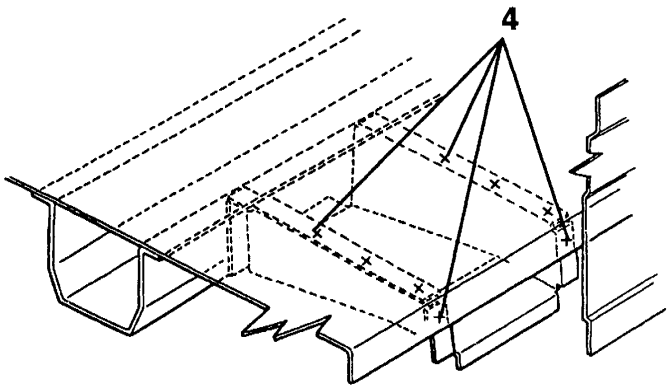
1. Drill 1/8" hole in the center of each spot weld to be used as a guide.
2. Use a 5/16"-3/8" hole saw to cut all spot welds.
3. Use an air chisel to remove Rear Rail and Rear Crossmember BUT be careful not to damage it.

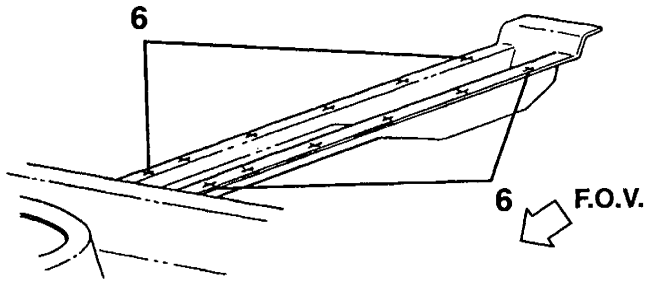
   Note: Do not damage any other panels during removal process.

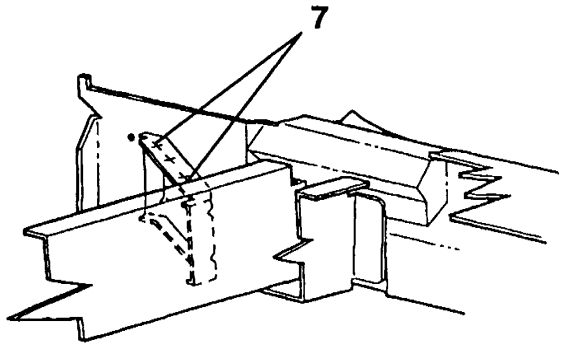
INSTALLATION

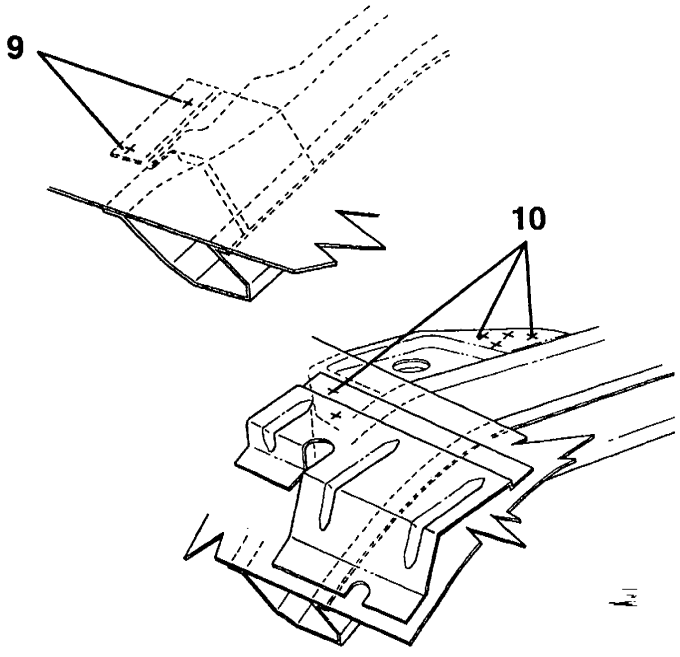
1. Repair any damage that may have been caused by removal of the sub-assembly or individual components.
2. Re-use these components as a guide for plug weld placement and refer to the appropriate section for weld placement.
3. Temporarily mount the new Rear Floor Pan.
4. Measure each part and make corrections necessary to obtain perfect agreement with the other parts involved.
5. Plug weld the new Rear Floor Pan, making sure it is at least as strong as the original.

   Note: Rear Floor Pan Assembly continued on next two pages.

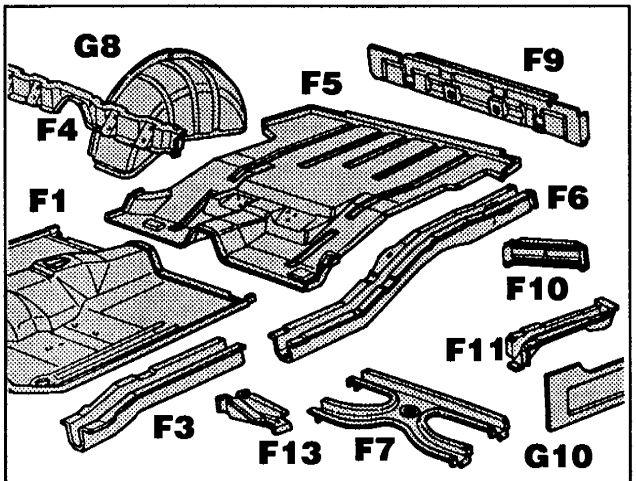






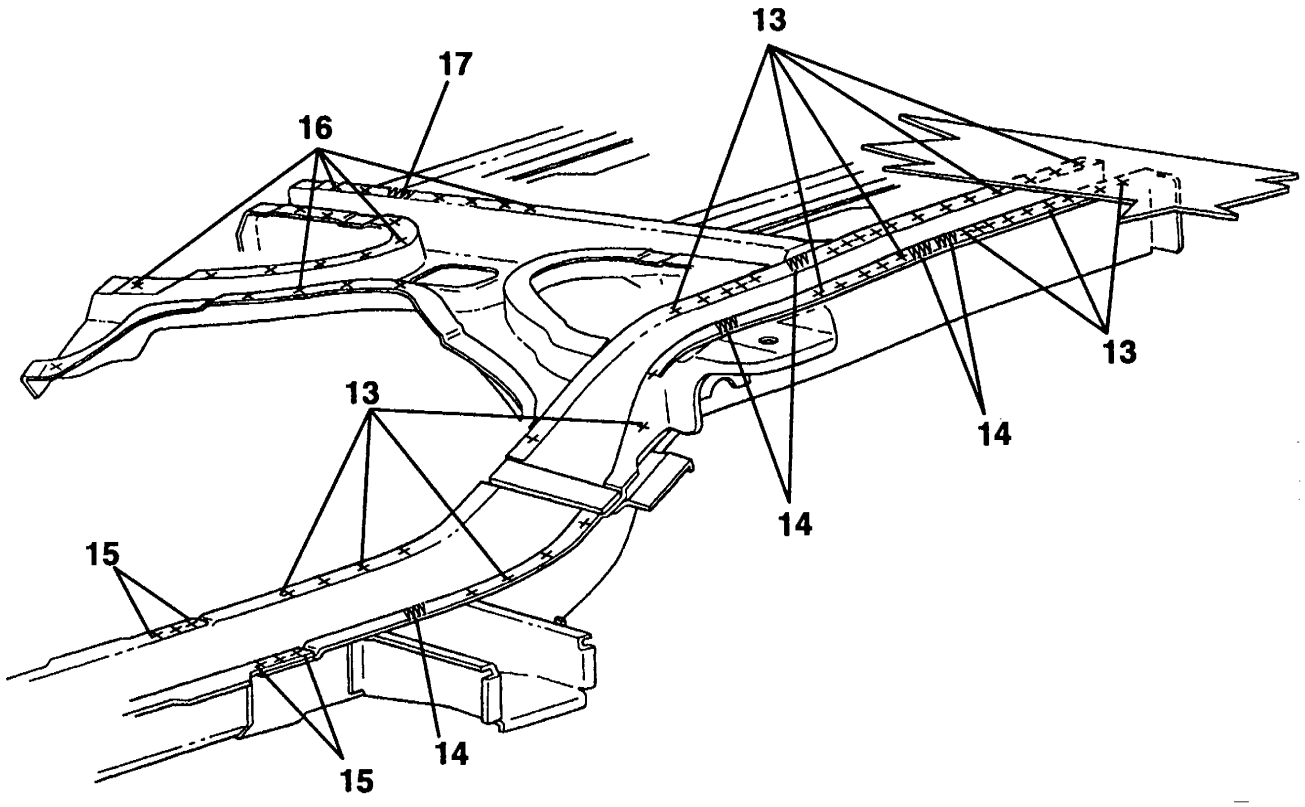


Rear Floor Pan



No.	Welded parts	F	R
13RH	F5 + F6	43	P43
13LH	F5 + F6	40	P40
14	F5 + F6	5 MIG	5 MIG
15	F5 + F3 + F6 (each side)	6	P6
16	F5 + F7	38	P38
17	F5 + F7	2 MIG	2 MIG
18LH	F5 + G6 + G9	3	P3
18RH	F5 + G6 + G9	4	P4

No.	Welded parts	F	R
19	F5 + G14	2	P2
20	F5 + G8	1 MIG	1 MIG
21RH	F5 + G8	28	P28
21LH	F8 + G8	31	P31



NOTES WITH REGARD TO REPAIR WORK

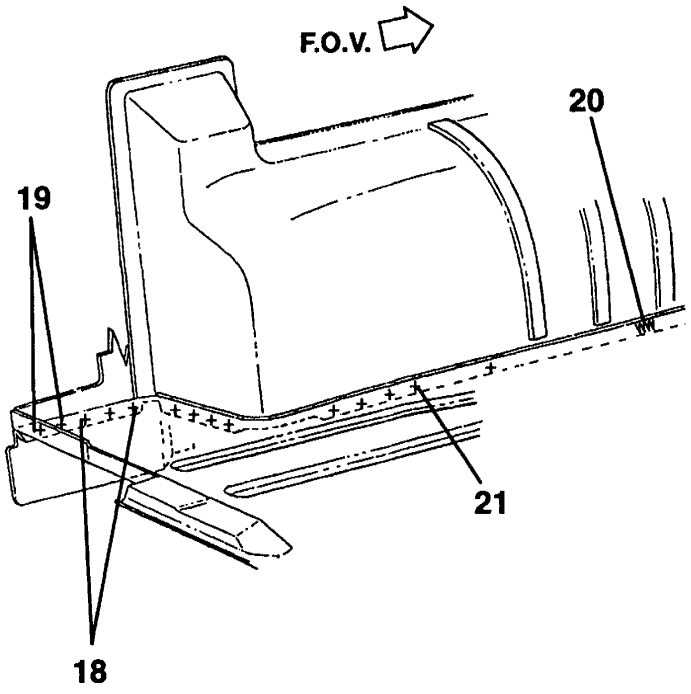
- The artwork for welds 16 and 17 depicts only one-half of the welds required to mount the Fuel Tank Support and Crossmember. The remaining welds are symmetrical to those shown in the art.
- Be sure to remove all flammable materials from the passenger compartment before performing any repair procedures.
- Some components of the Rear Floor Pan are available as sub-assemblies. See the Body Construction Characteristics section for details.
- Be sure all flammable interior materials are removed prior to welding.

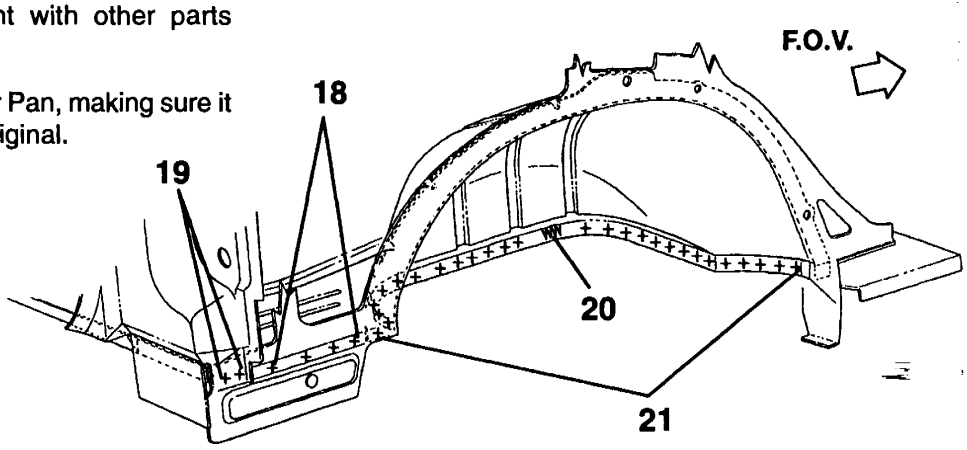
REMOVAL

1. Remove the fuel tank and cap the exposed fuel lines to prevent any fuel leakage.
2. Use an appropriate tool to remove all MIG welds attaching the Rear Rail, Fuel Tank Crossmember and Inner Wheelhouse to the Floor Pan.
3. It is suggested to use a 1/8" drill to create a pilot hole in all spot welds and then follow-up with a 5/16"-3/8" for complete removal of the weld.

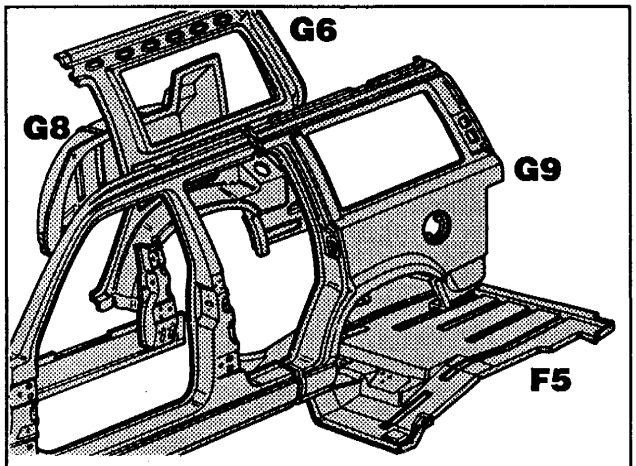
INSTALLATION

1. Repair any damage that may have been caused by removal of the sub-assembly or individual components.
2. Re-use these components as a guide for plug weld placement and refer to the appropriate section for weld placement.
3. Temporarily mount the new Rear Floor Pan.
4. Measure each part and make corrections necessary to obtain perfect agreement with other parts involved.
5. Plug weld the new Rear Floor Pan, making sure it is at least as strong as the original.



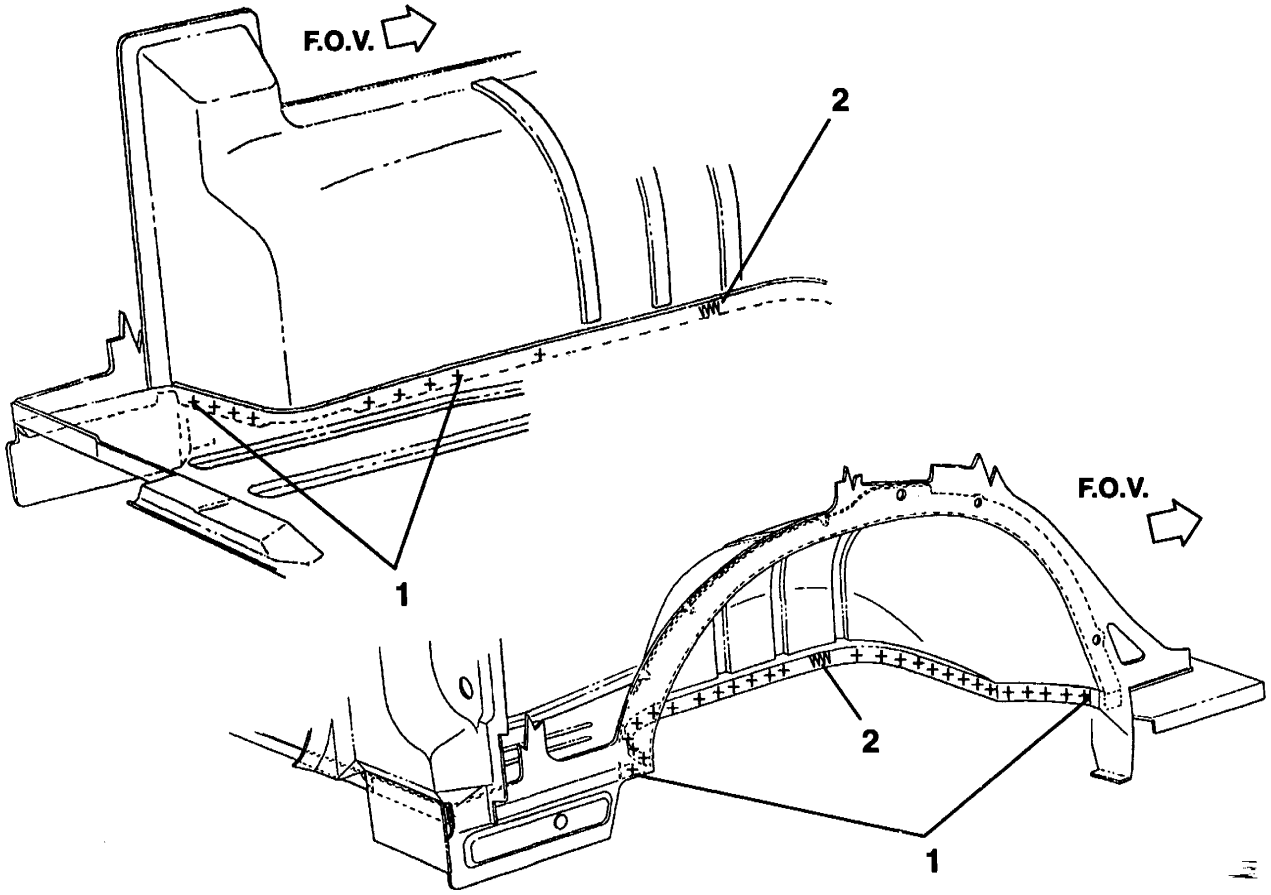


Inner Wheelhouse — Rear



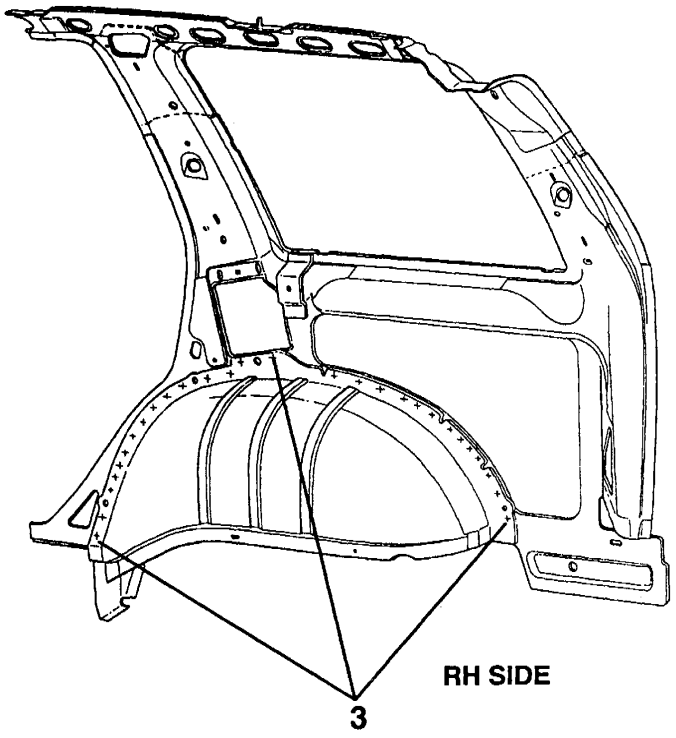
No.	Welded parts	F	R
1RH	G8 + F5	28	P28
1LH	G8 + F5	31	P31
2	G8 + F5 (each side)	1 MIG	1 MIG
3RH	G8 + G6	28	P28
3LH	G8 + G6	35	P35

No.	Welded parts	F	R



NOTES WITH REGARD TO REPAIR WORK

- The Inner Wheelhouse Panel is welded with spot welds at the seam where it mounts to the Outer Wheelhouse. There are so many spot welds here it is comparable to a seam weld.
- Remove all flammable materials from area being repaired.



RH SIDE

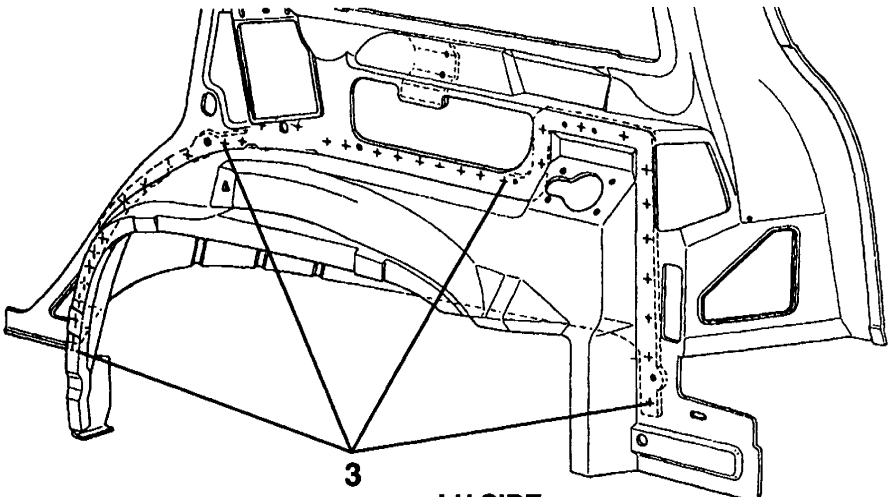
REMOVAL

1. Begin removal of Inner Wheelhouse by rough cutting old panel to obtain access to spot welds.
2. Remove spot welds with a 5/16" or 3/8" spot weld cutter. Remove remainder of panel.
3. Clean old sealer from remaining panels and prep them for reassembly.

INSTALLATION

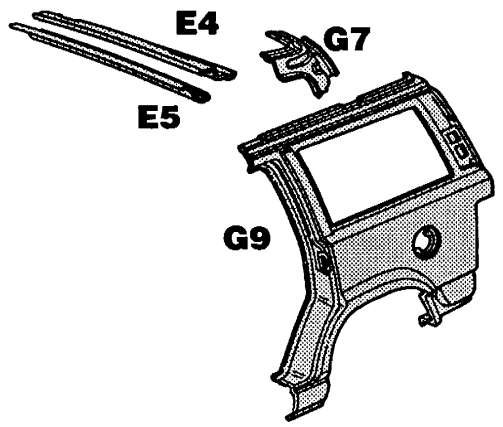
1. Using old panel as a guide, mark and punch holes in new Wheelhouse Panel.
2. Temporarily mount Wheelhouse in place.
3. Check fit and alignment.
4. Plug weld new panel in place.
5. Use an appropriate sealer to seal all seams.

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.



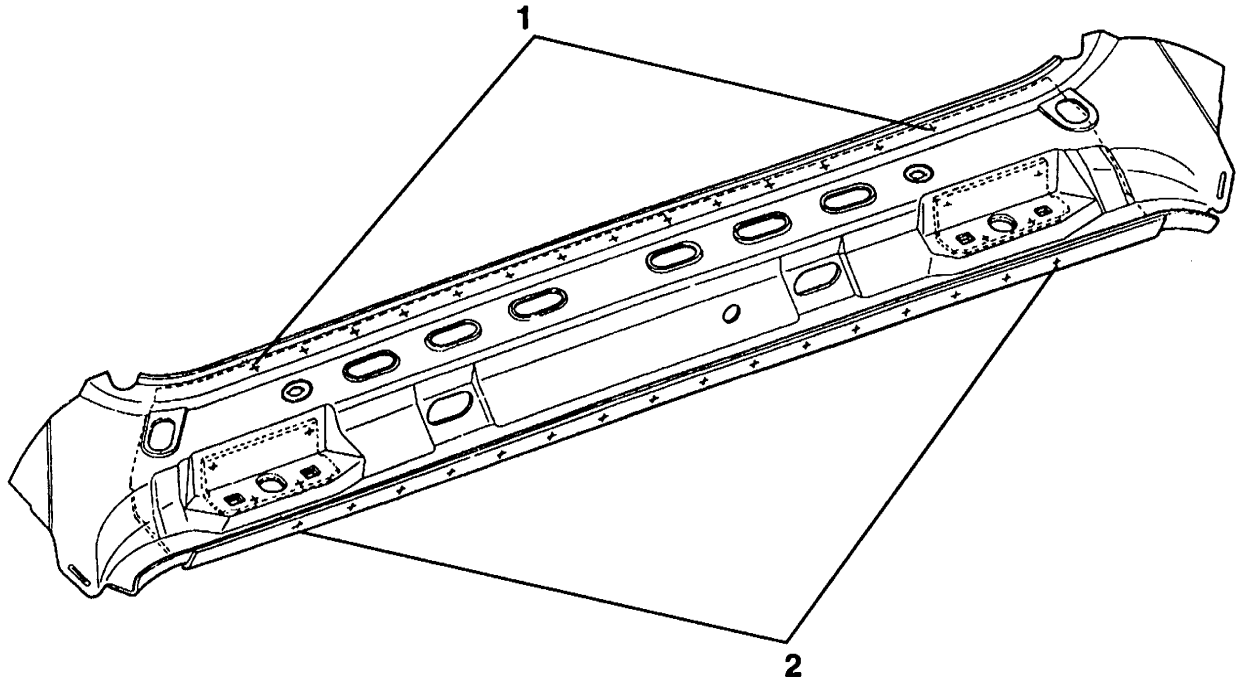
LH SIDE

Liftgate Opening — Upper



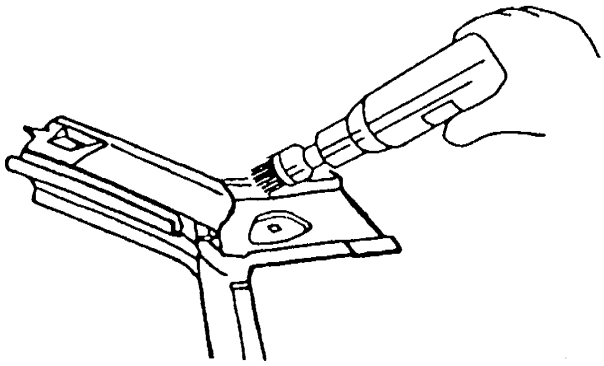
No.	Welded parts	F	R
1	E4 + E5	14	P14
2	E4 + E5	16	P16
3	E4 + G7	4	P4
4	E4 + G7	3	P3
5	G7 + G9	1	P1
6	E5 + G7	1	P1
7	G7 + G9	1 MIG	1 MIG
8	G7 + G9	See Quarter Panel - Outer	

No.	Welded parts	F	R



NOTES WITH REGARD TO REPAIR WORK

- The Upper and Lower Header connect the Roof Panel and the Inner and Outer Quarter Panels.
- The Lower Header (E5) is a sub-assembly of the Upper Header (E4).
- Remove all flammable materials from interior area before welding.
- Refer to Quarter Panel—Inner section for additional information.



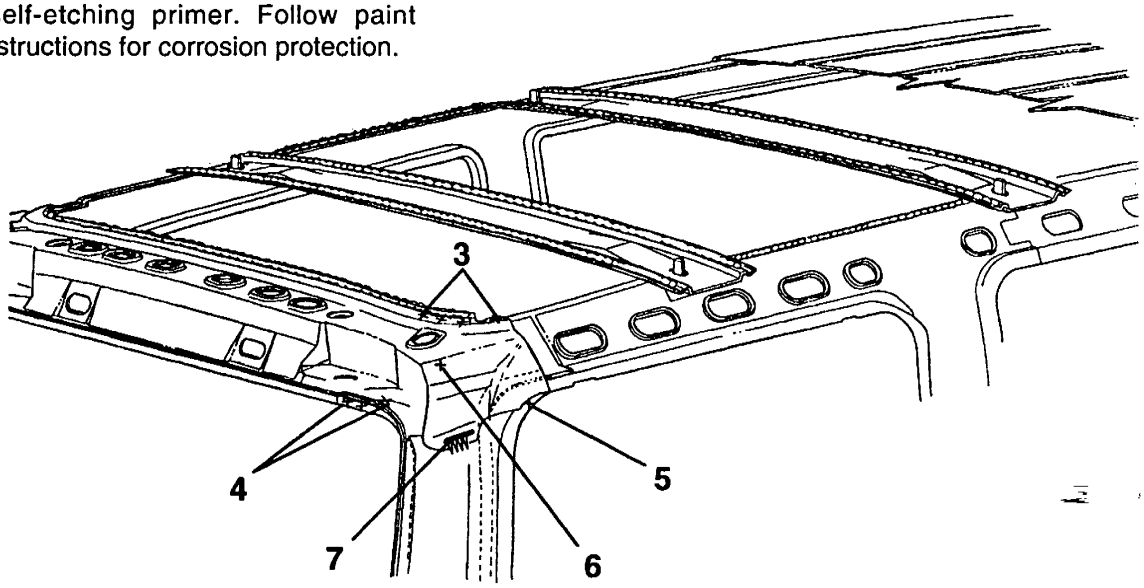
REMOVAL

1. Cut the spot welds attaching the Upper Header (E4) to the Inner Quarter Panel (G6) and Inner Upper Rear Reinforcement (G7) with a hole saw or equivalent.
2. Be sure no other panels are damaged when removing the header assembly. Repair any other damage that may occur.
3. Clean and prep all the panels to which you will be fitting the new Upper and Lower Header.

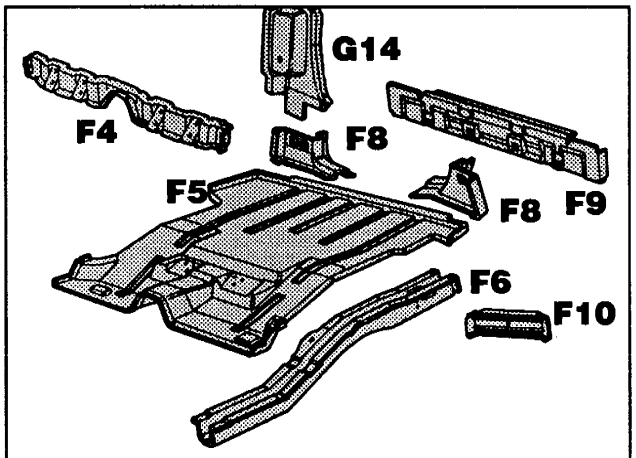
INSTALLATION

1. It may take a little extra time to fit the new panel for a good fit.
2. Tack weld the new panel into place.
3. Plug weld the panel for a permanent repair.

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.

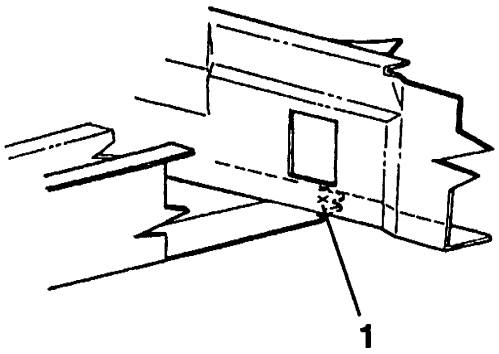


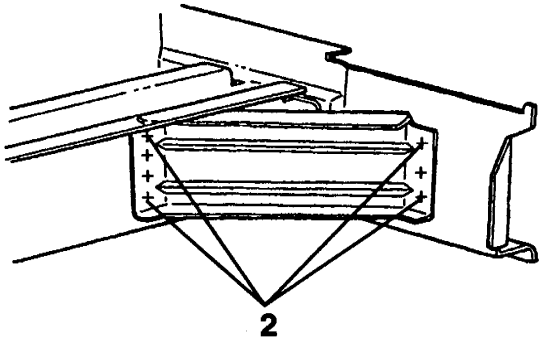
Liftgate Opening — Lower

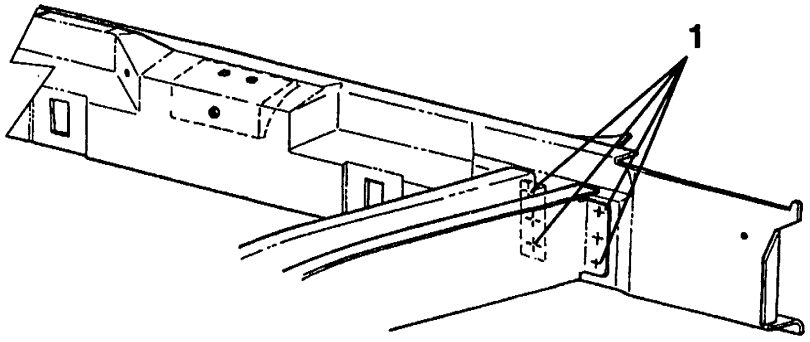


No.	Welded parts	F	R
-	F9 + F5	See Rear Floor Pan	
1	F9 + F6	7	P7
2	F9 + F10 + F6	7	P7
3	F9 + G14	2	P2
4	F9 + G9	2	P2
5	F8 + F5	8	P8
6	F8 + G6	5	P5
7	F8 + G14	1	P1

No.	Welded parts	F	R
8	F8 + G6 + G14	1	P1

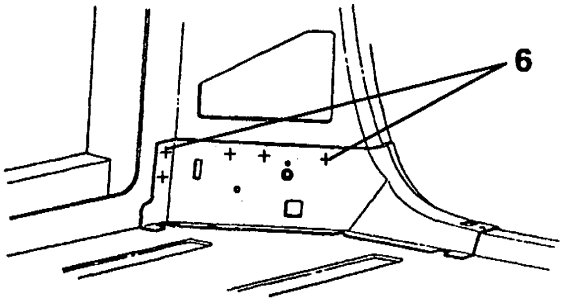






NOTES WITH REGARD TO REPAIR WORK

- For safety reasons, do the repair with the fuel tank removed.
- Remove flammable material from interior area before welding.
- Refer to Quarter Panel — Outer and Rear Floor Pan sections for additional information.
- Refer to Rear Floor Pan section to identify Rear Rail to Rear Crossmember weld location.



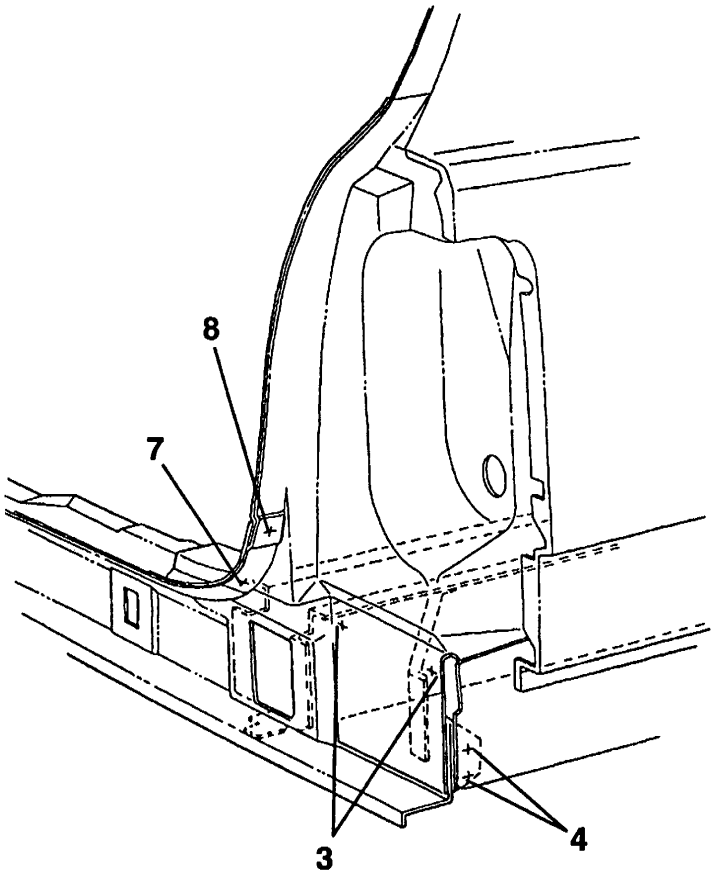
REMOVAL

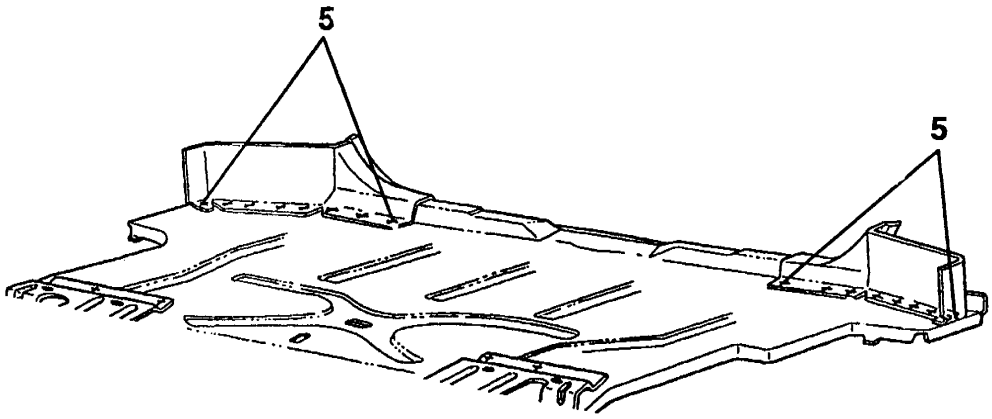
1. Cut the spot welds with a hole saw.
2. You may want to cut the Tail Panel into two pieces to make it easier to remove.
3. Clean and prep all the panels to which you will be fitting the new components.

INSTALLATION

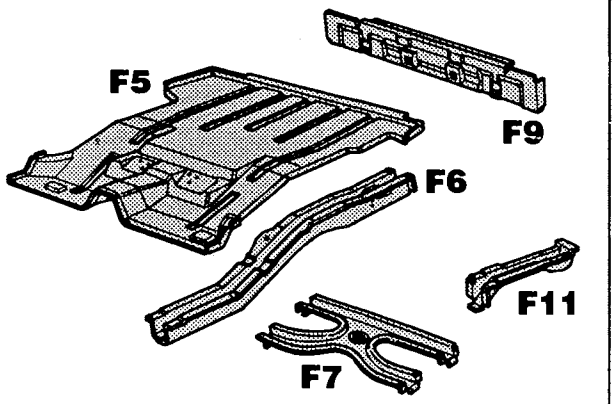
1. It may take a little extra time to fit the new panel but it will be time well spent.
2. Tack weld the new panel into place and check measurements and alignment.
3. Apply weld-thru corrosion resistant primer.
4. Plug weld the panel for a permanent repair.

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.



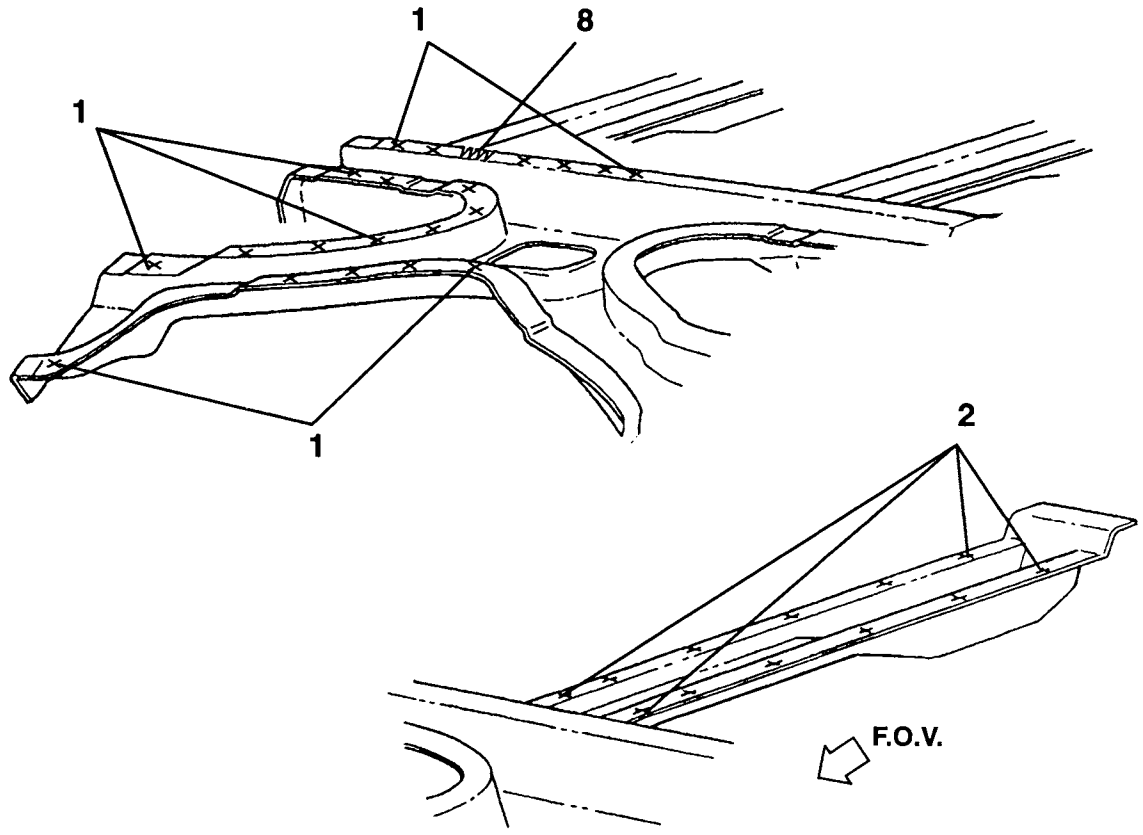


Fuel Tank Mount & Rear Floor Pan Crossmember



No.	Welded parts	F	R
1	F7 + F5	38	P38
2	F11 + F5	12	P12
3	F7 + F6 (Rearward Mount)	6	P6
4	F7 + F6 (Forward Mount)	4	P4
5	F7 + F6	4 MIG	4 MIG
6	F11 + F7	8	P8
7	F11 + F9	2	P2

No.	Welded parts	F	R
8	F7 + F5	2 MIG	2 MIG



NOTES WITH REGARD TO REPAIR WORK

- The fuel tank must be removed to make this repair.
- The Rear Floor Pan Fuel Tank Retainer Support (F11) and the Rear Floor and Fuel Tank Support (F7) is available as an assembly only.
- Note the number and location of welds attaching the four "legs" of the Fuel Tank Crossmember (F7) and Rear Rail (F6).

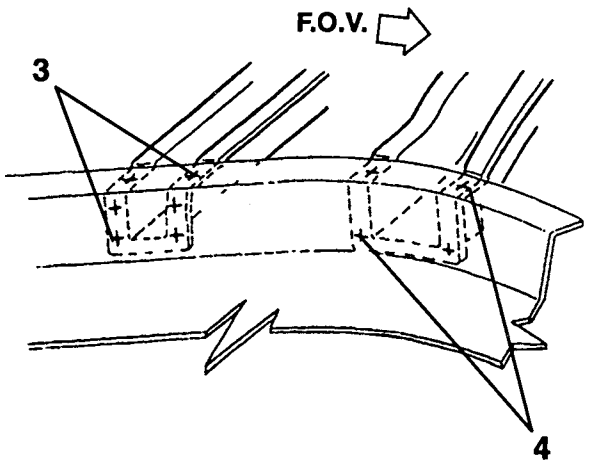
REMOVAL

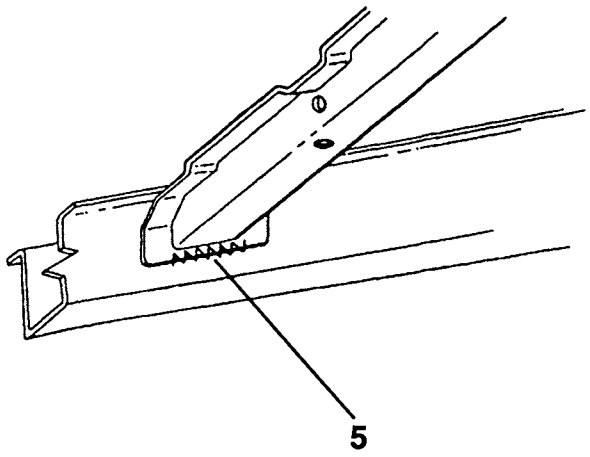
1. You may want to remove the Rear Crossmember (F9) to complete this repair. Refer to the Liftgate Opening, Lower and Rear Floor Pan sections for more information.
2. Cut and separate the spot welds using a 5/16"-3/8" hole saw. Using this technique will give you a template with which to mark spot weld locations.

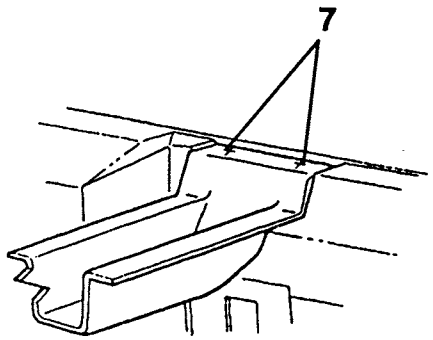
INSTALLATION

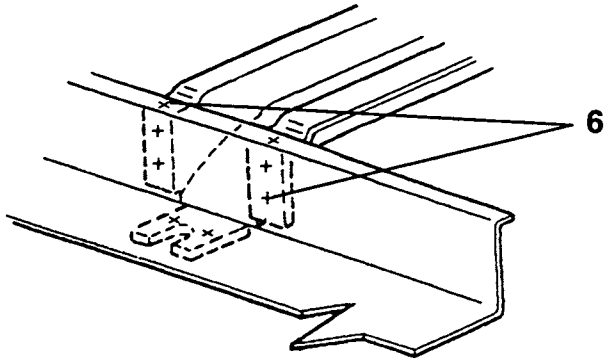
1. Prepare all welding surfaces by cleaning with a brush and applying any appropriate non-flammable solvents.
2. Fit new assembly into place and temporarily mount to Rear Rail (F6).
3. Double check measurements and alignment.
4. Plug and MIG weld all panels to factory specifications.
5. Be sure to attach the Support (F11) to the Rear Crossmember (F9).

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturers instructions for appropriate corrosion protection.

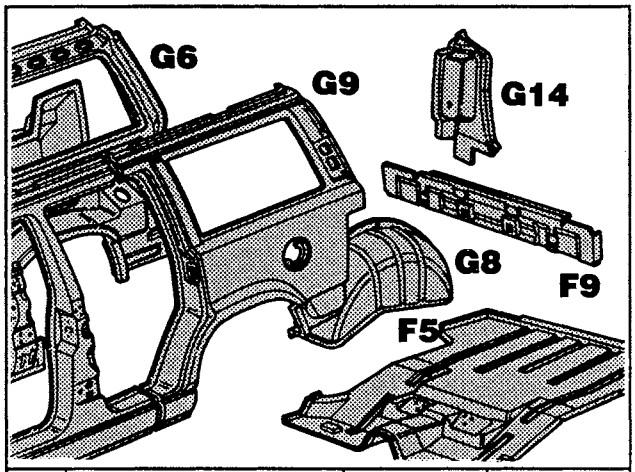






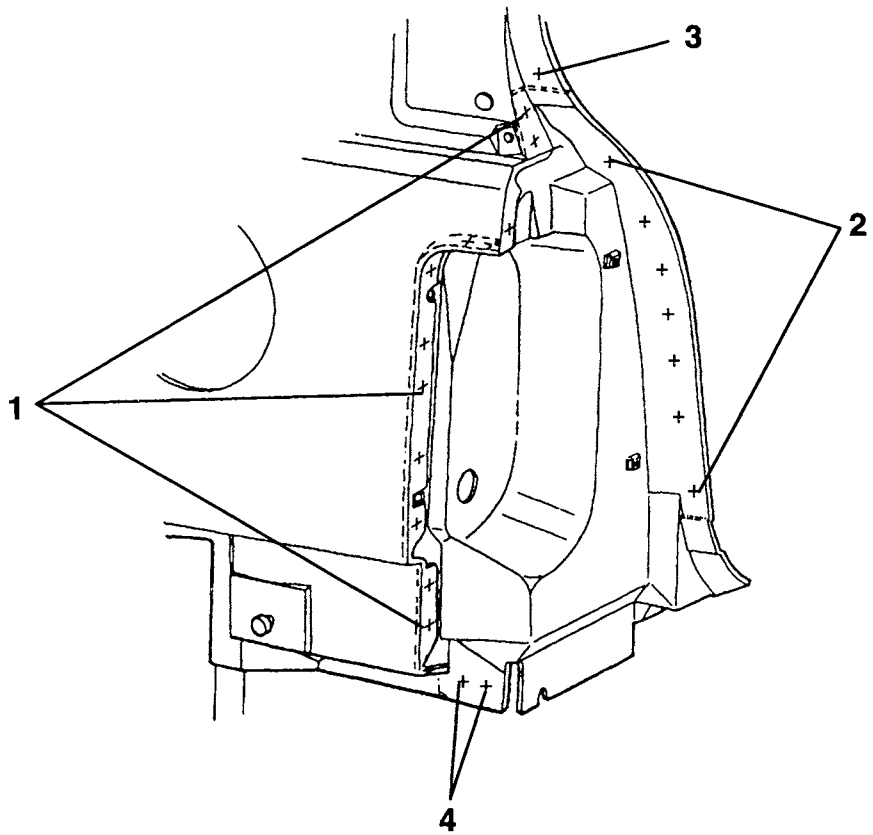


Tail Lamp Mounting Panel



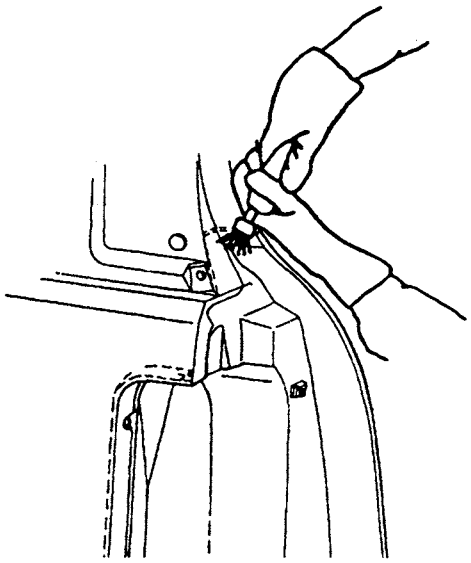
No.	Welded parts	F	R
1	G14 + G9	12	P12
2	G14 + G6	7	P7
3	G9 + G14 + G6	1	P1
4	G14 + F5	2	P2
5	G14 + F9	2	P2
6	G14 + F8	1	P1
7	G14 + G6 + F8	1	P1

No.	Welded parts	F	R



NOTES WITH REGARD TO REPAIR WORK

- For safety reasons, do the repair with the fuel tank removed.
- Remove all flammable materials from interior area before welding.
- Refer to Quarter Panel — Outer section for additional information.



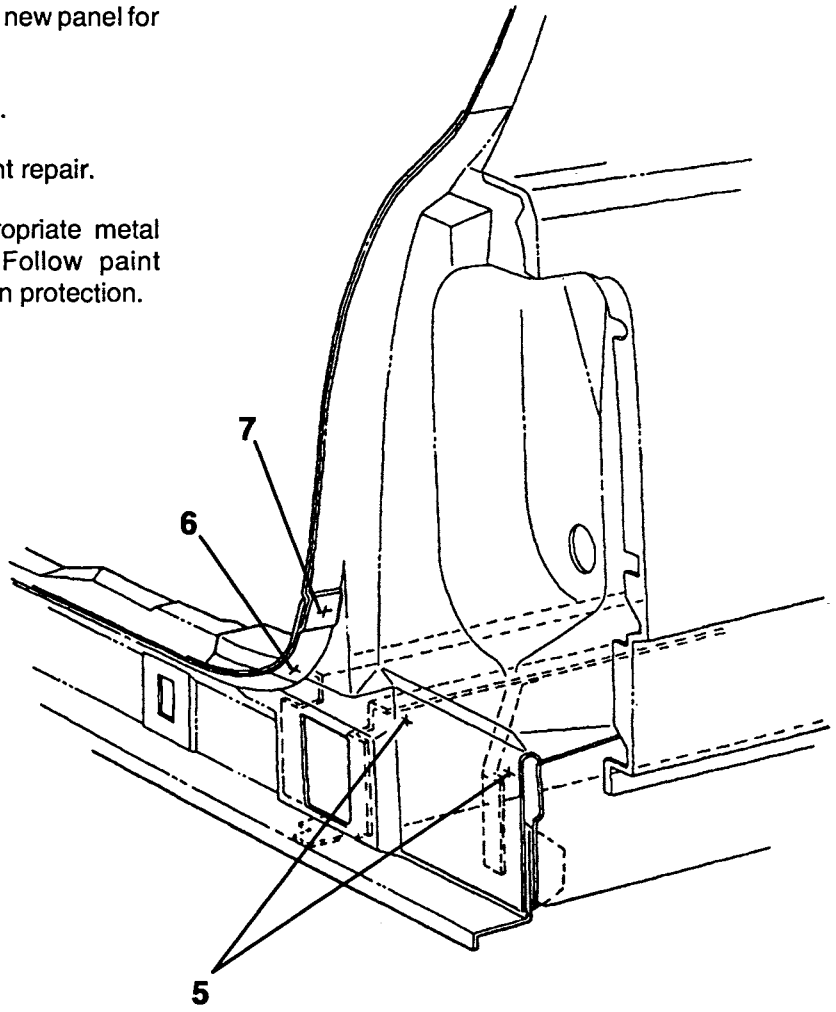
REMOVAL

1. Cut the spot welds with a hole saw or equivalent.
2. You may want to cut the Tail Panel into two pieces to make it easier to remove.
3. Clean and prep all the panels to which you will be fitting the new Tail Panel.

INSTALLATION

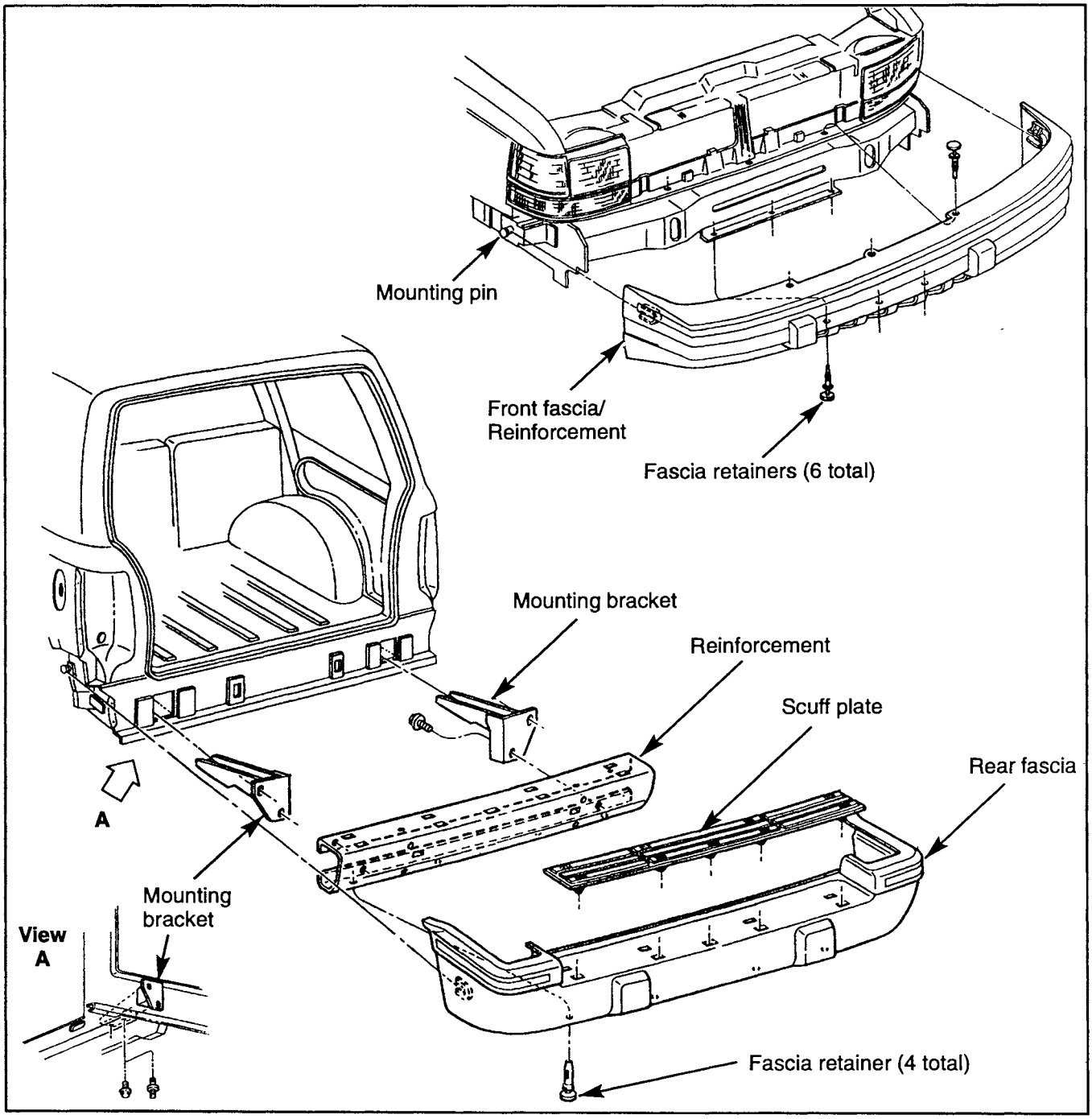
1. It may take a little extra time to fit the new panel for proper alignment.
2. Tack weld the new panel into place.
3. Plug weld the panel for a permanent repair.

Treat all exposed metal with an appropriate metal conditioner or self-etching primer. Follow paint manufacturer's instructions for corrosion protection.



BUMPER SYSTEMS

Jeep Grand Cherokee



STRUCTURAL ADHESIVES

Jeep Grand Cherokee

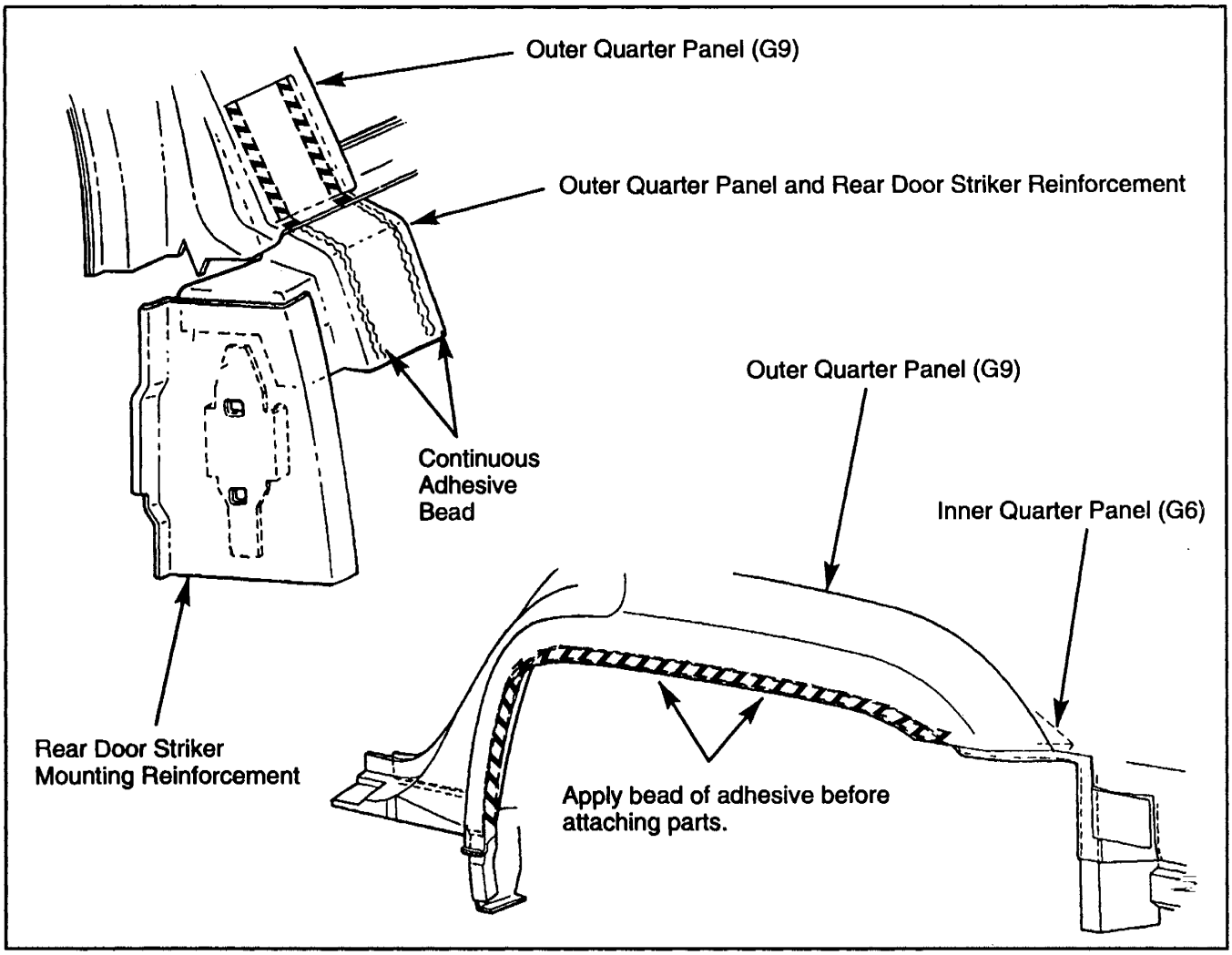
In the past, replacing a door skin has been a time consuming repair requiring a variety of tools and equipment to perform the repair. Now with the aid of structural adhesive an alternative repair procedure for door skin replacement exists. There are many benefits for using structural adhesive.

For example:

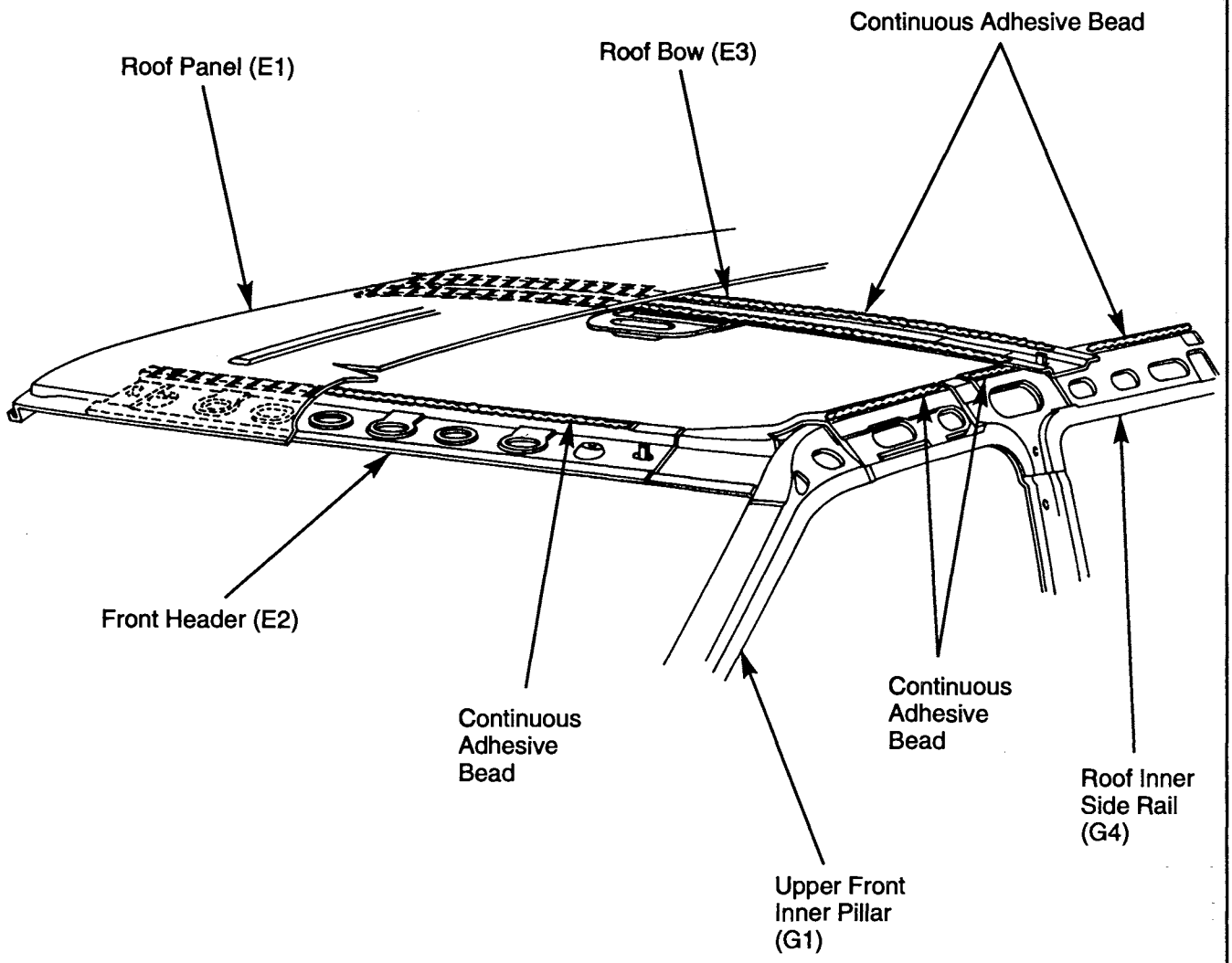
— No welding required

— Added strength

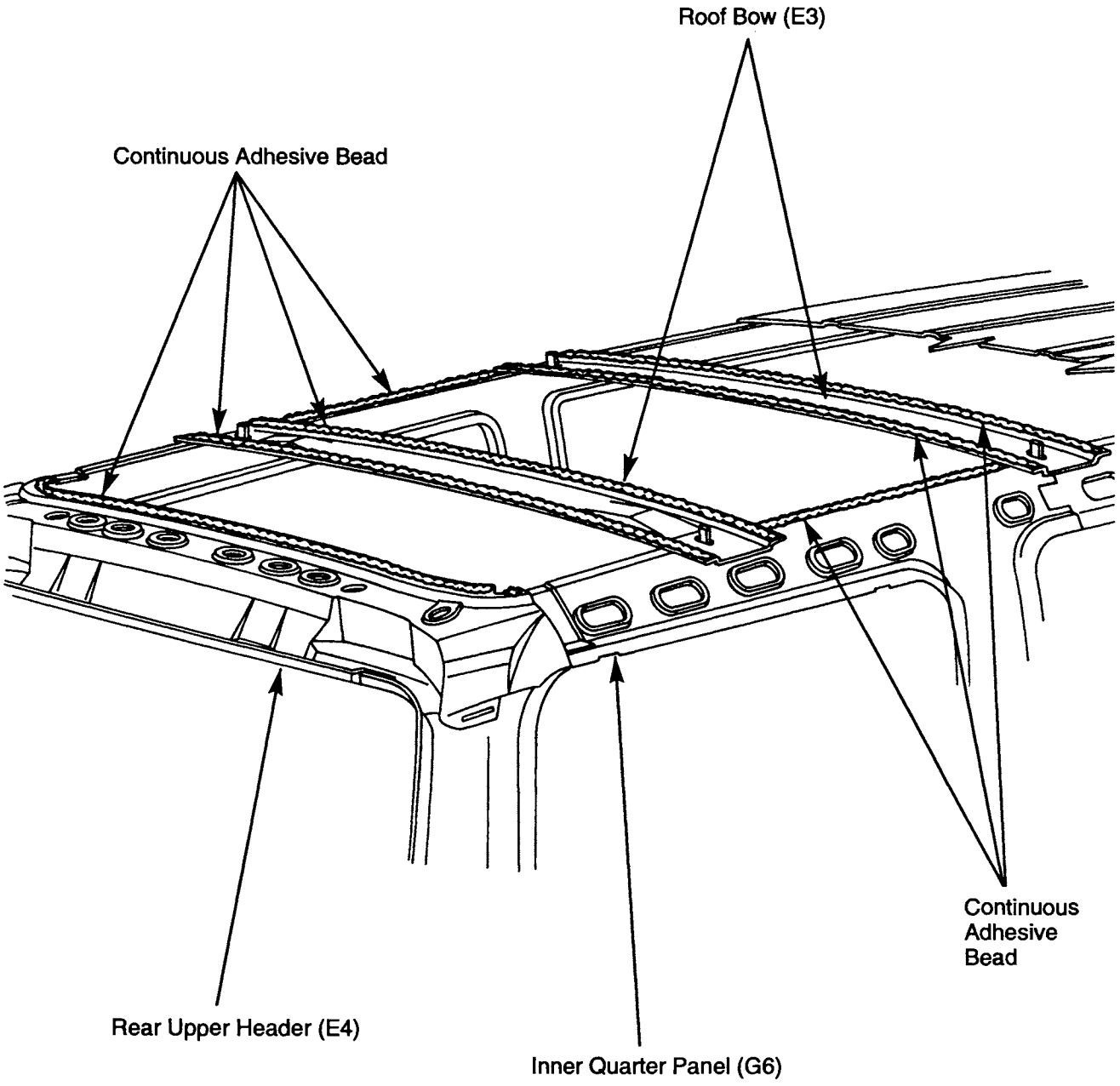
— Reduces door flange distortion



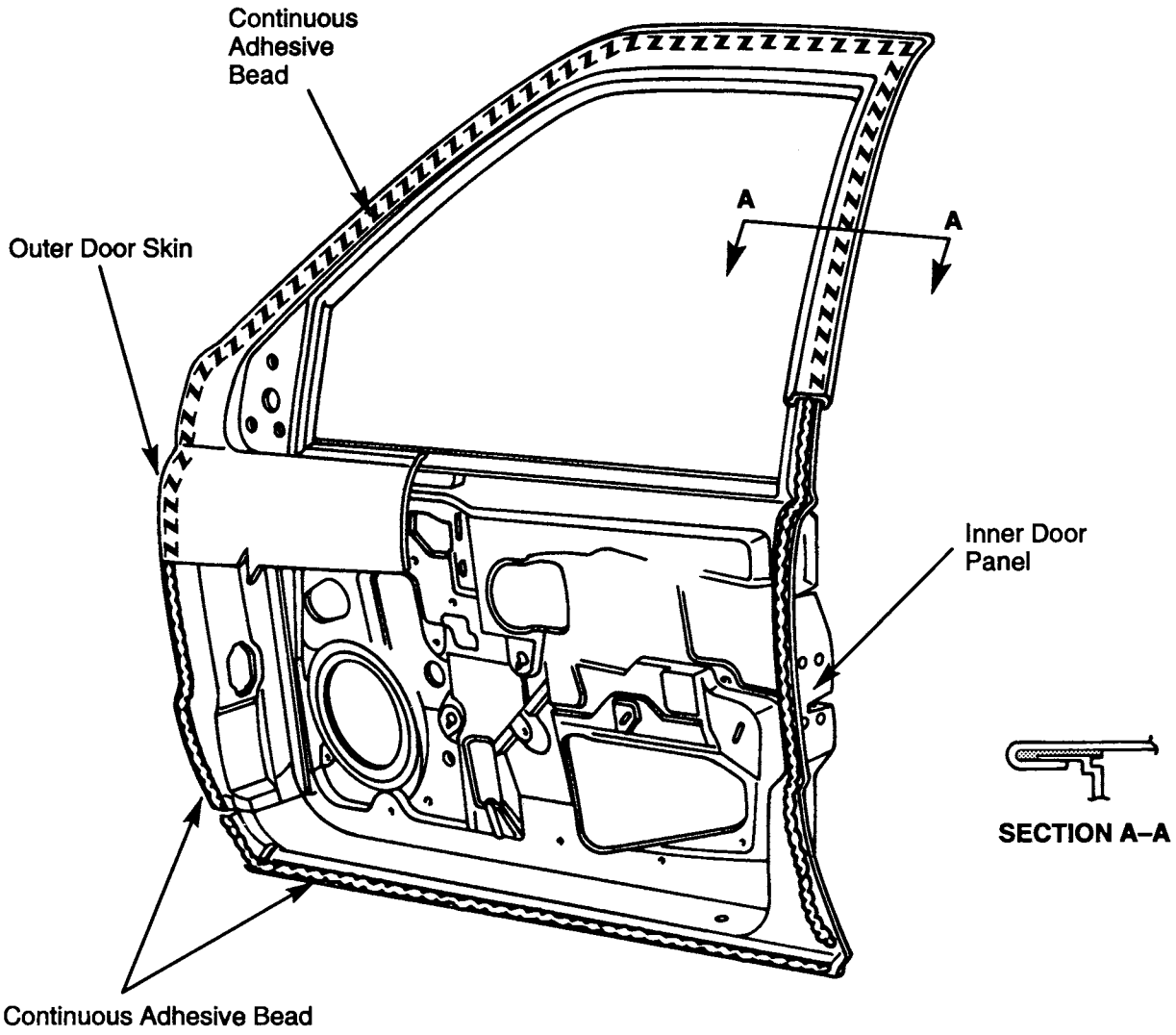
ROOF PANEL
(Front)

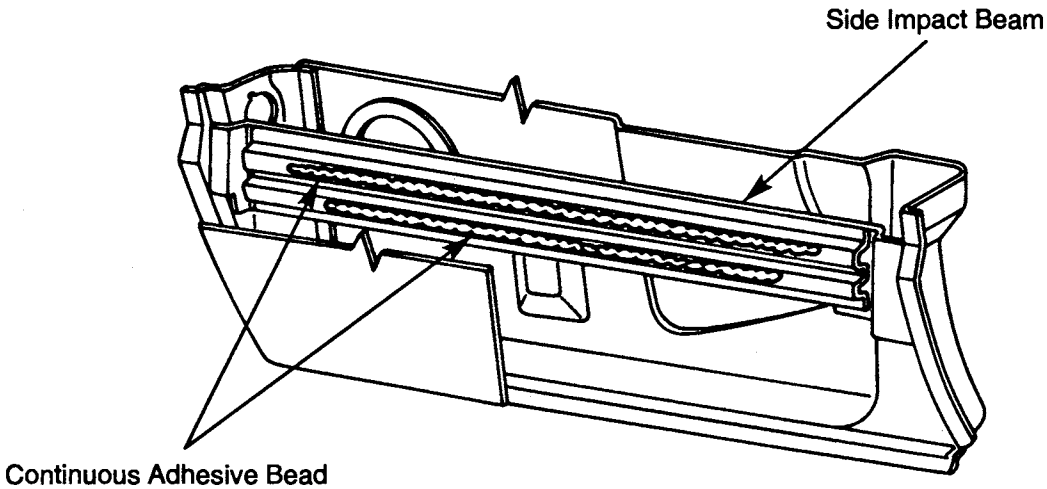


ROOF PANEL
(Rear)

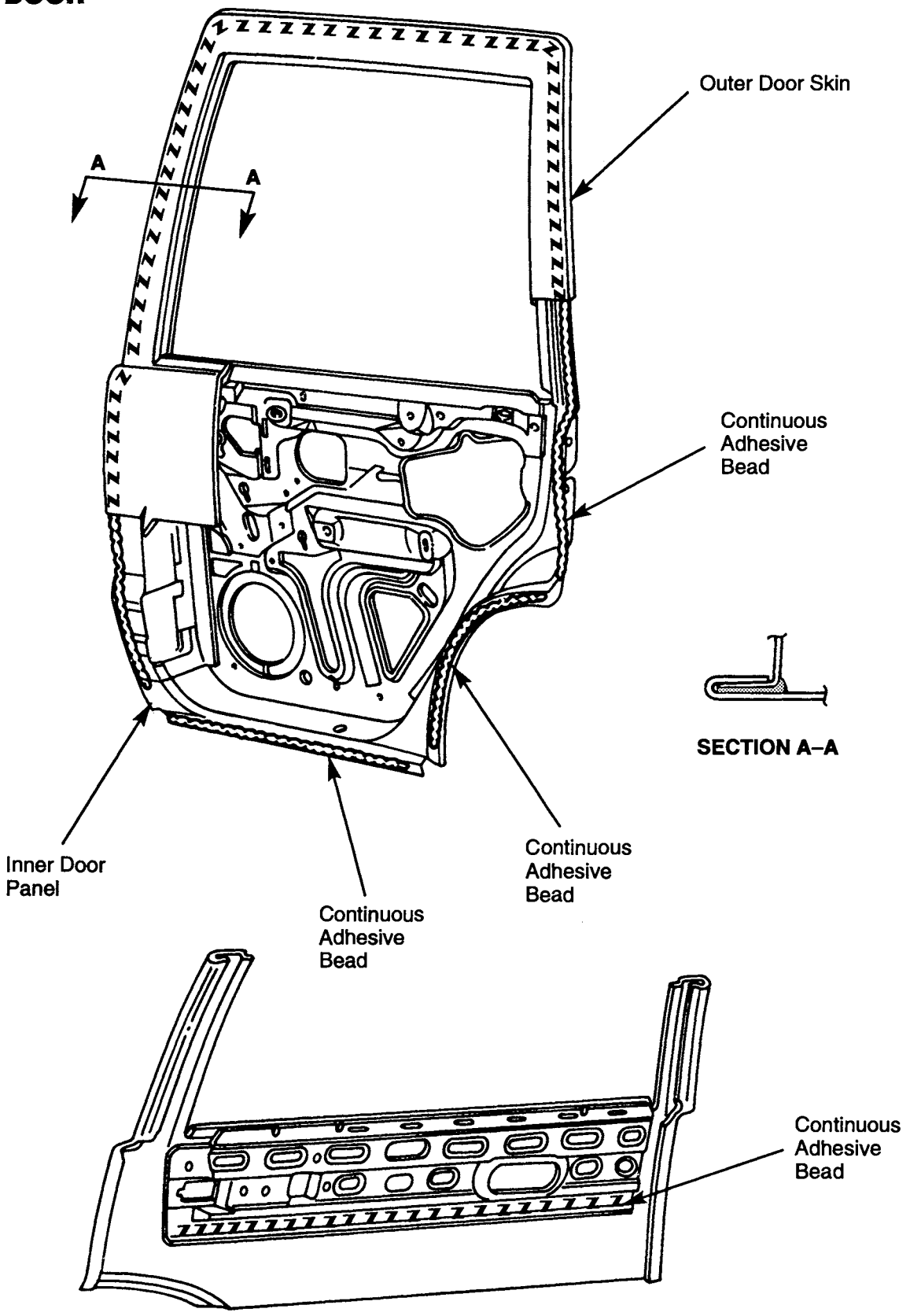


FRONT DOOR


Continuous Adhesive Bead
A
A
Outer Door Skin
Inner Door Panel
SECTION A–A
Continuous Adhesive Bead


Side Impact Beam
Continuous Adhesive Bead

REAR DOOR


Outer Door Skin
A
A
Continuous
Adhesive
Bead
SECTION A–A
Inner Door
Panel
Continuous
Adhesive
Bead
Continuous
Adhesive
Bead
Continuous
Adhesive
Bead

BODY SEALING LOCATIONS

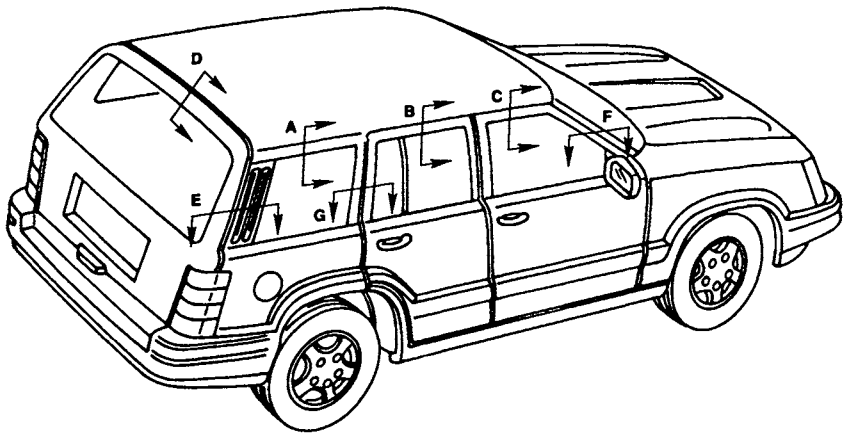
Jeep Grand Cherokee

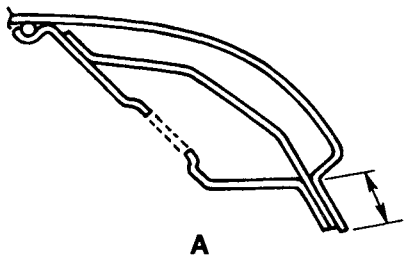
All repairs where panels were replaced have voids that must be filled with sealant. Sealant should be applied to all skips, pin holes in sealers and weld burn through holes on the interior and exterior of the vehicle that would permit leakage of water, air or exhaust fumes.

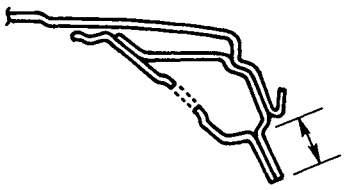
Typical areas of the exterior that must be sealed are listed on this page. Areas of the interior that must be sealed are floor pans, wheelhouses, dash panel and cowl sides.

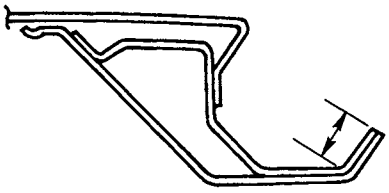
AREAS AFFECTED

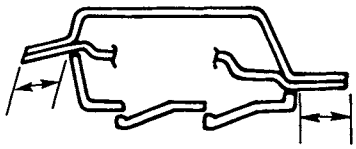
A — Rear quarter window opening–upper.
B — Door opening and roof.
C — Door opening and roof.
D — Liftgate opening.
E — Rear quarter window opening–side.
F — Windsheild opening.
G — Door opening–side.

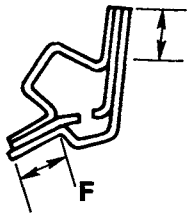


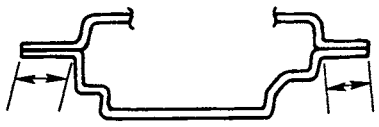

A


B & C

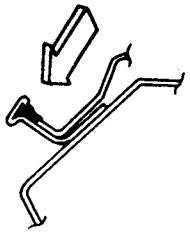

D


E

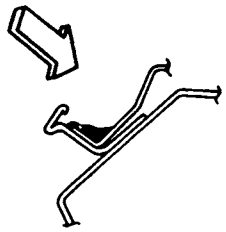

F


G

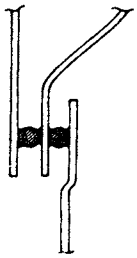
METHODS OF APPLYING AUTO BODY SEALANT



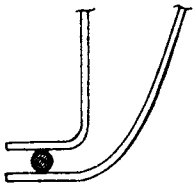
Hold gun nozzle in direction of arrow in order to effectively seal metal joints.



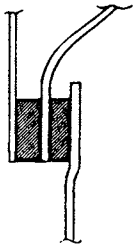
Do not hold gun nozzle in direction of arrow. Sealer applied as shown is ineffective.



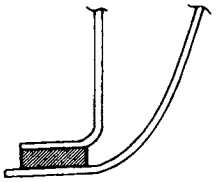
3 metal thickness



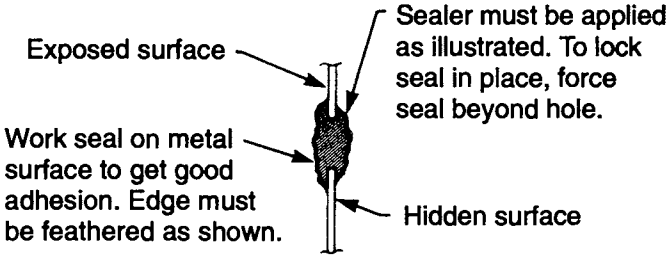
2 metal thickness

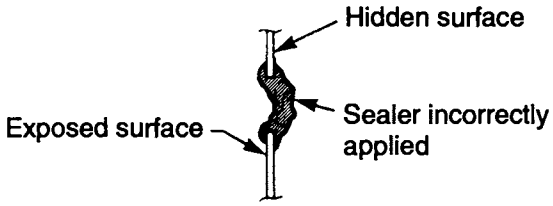


3 metal thickness



2 metal thickness





SYMBOLS

Extrudable thermoplastic

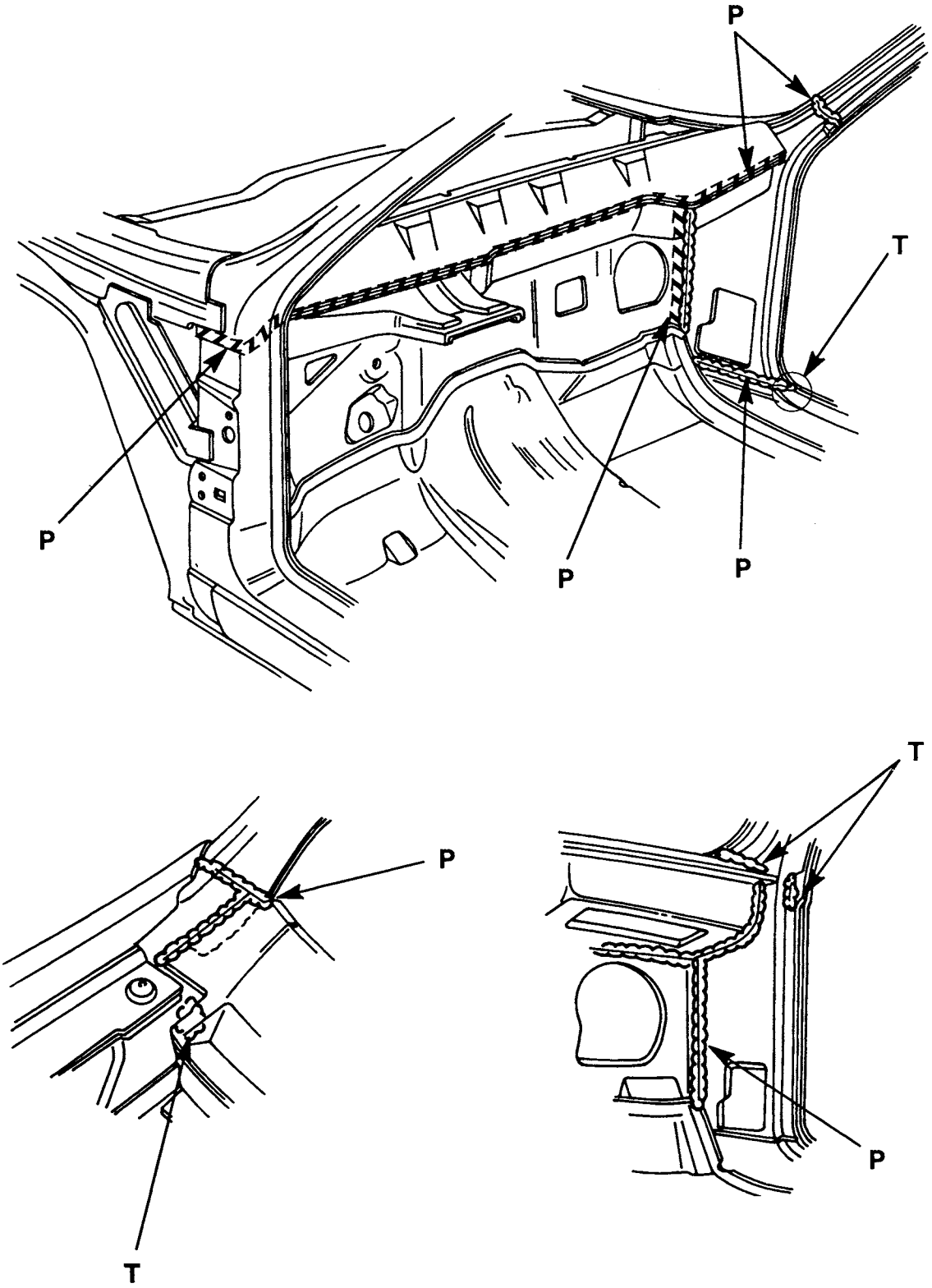
Exposed sealant

z z z z z z z z

Hidden sealant

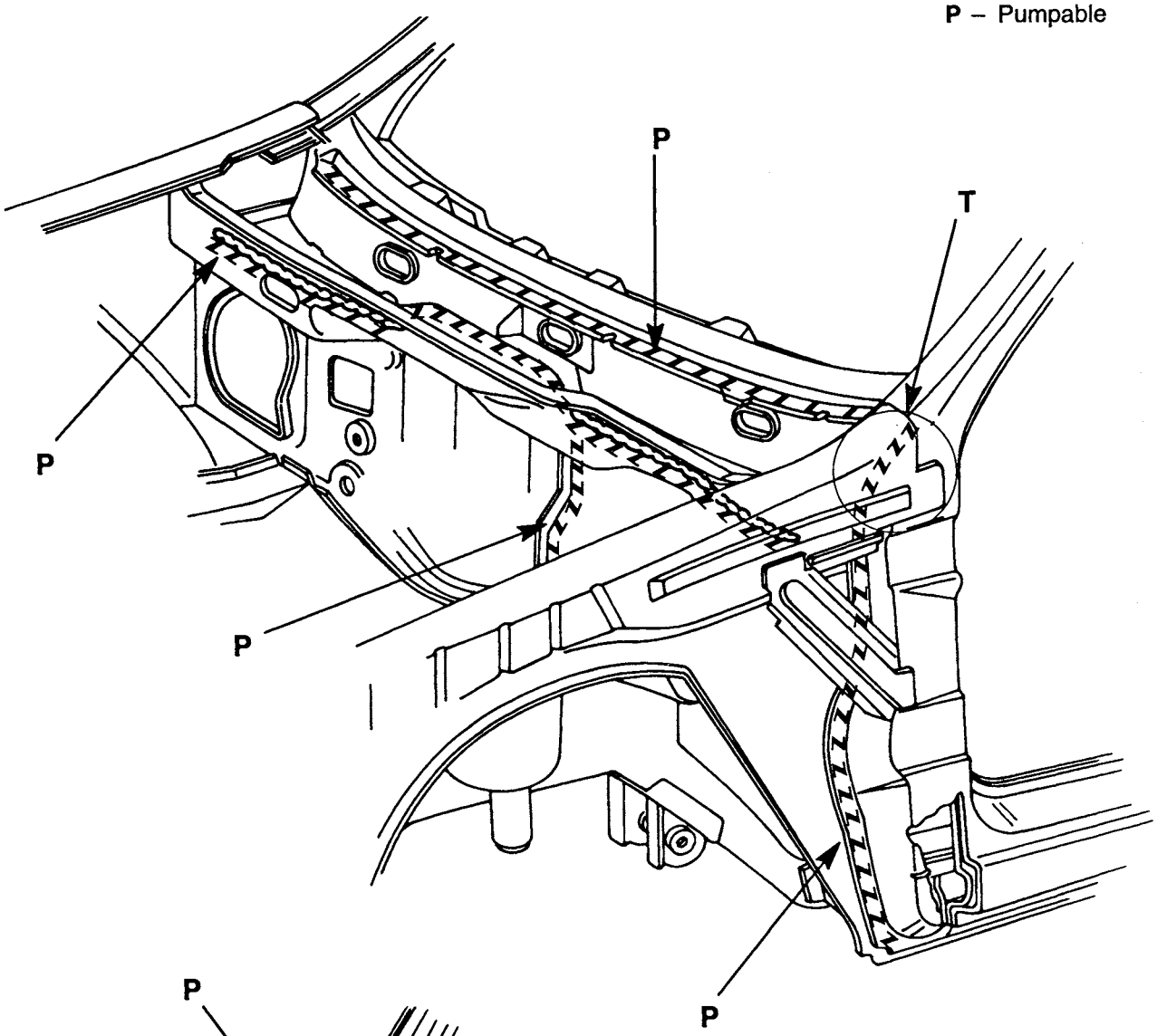
DASH PANEL AND COWL SIDE

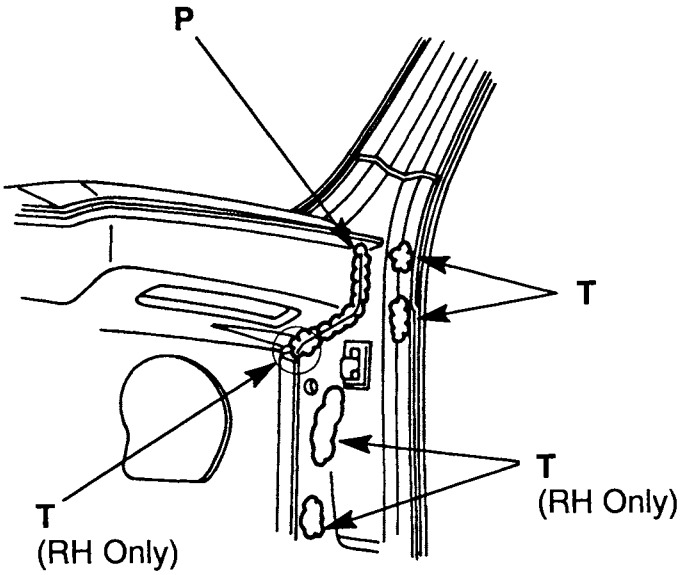
T – Thumbgradable
P – Pumpable

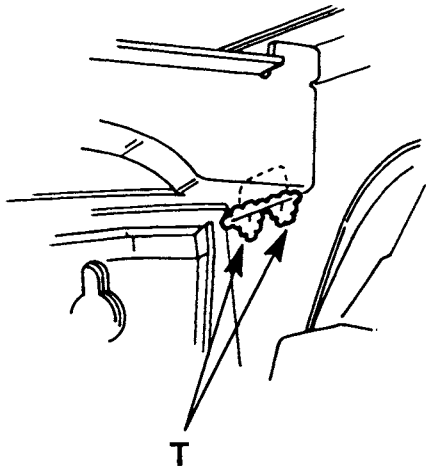


DASH PANEL AND COWL SIDE

T – Thumbgradable
P – Pumpable

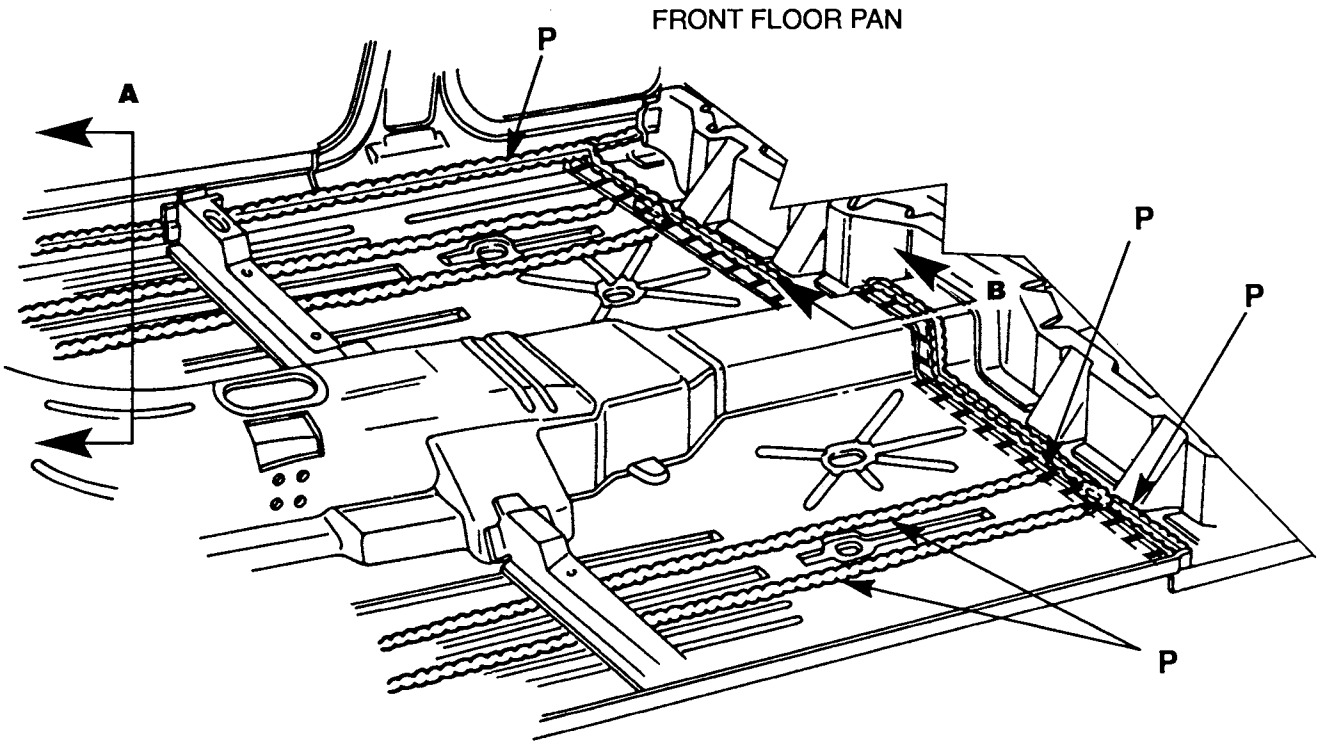


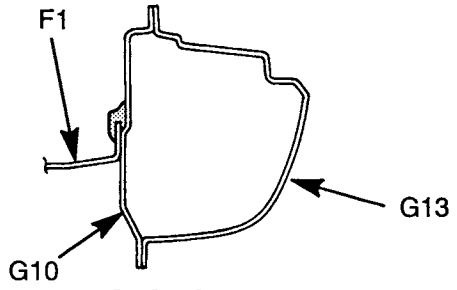




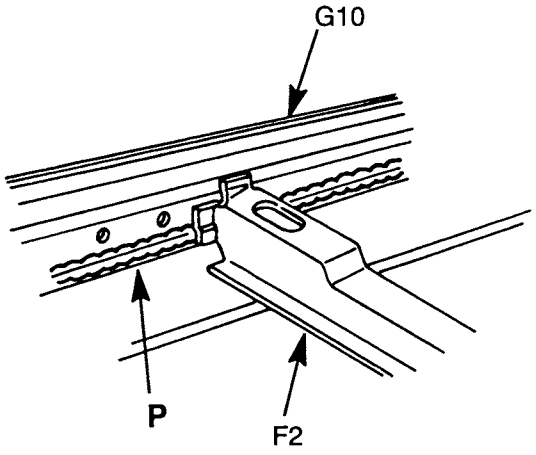
FLOOR PAN AREA

T – Thumbgradable
P – Pumpable





SECTION A

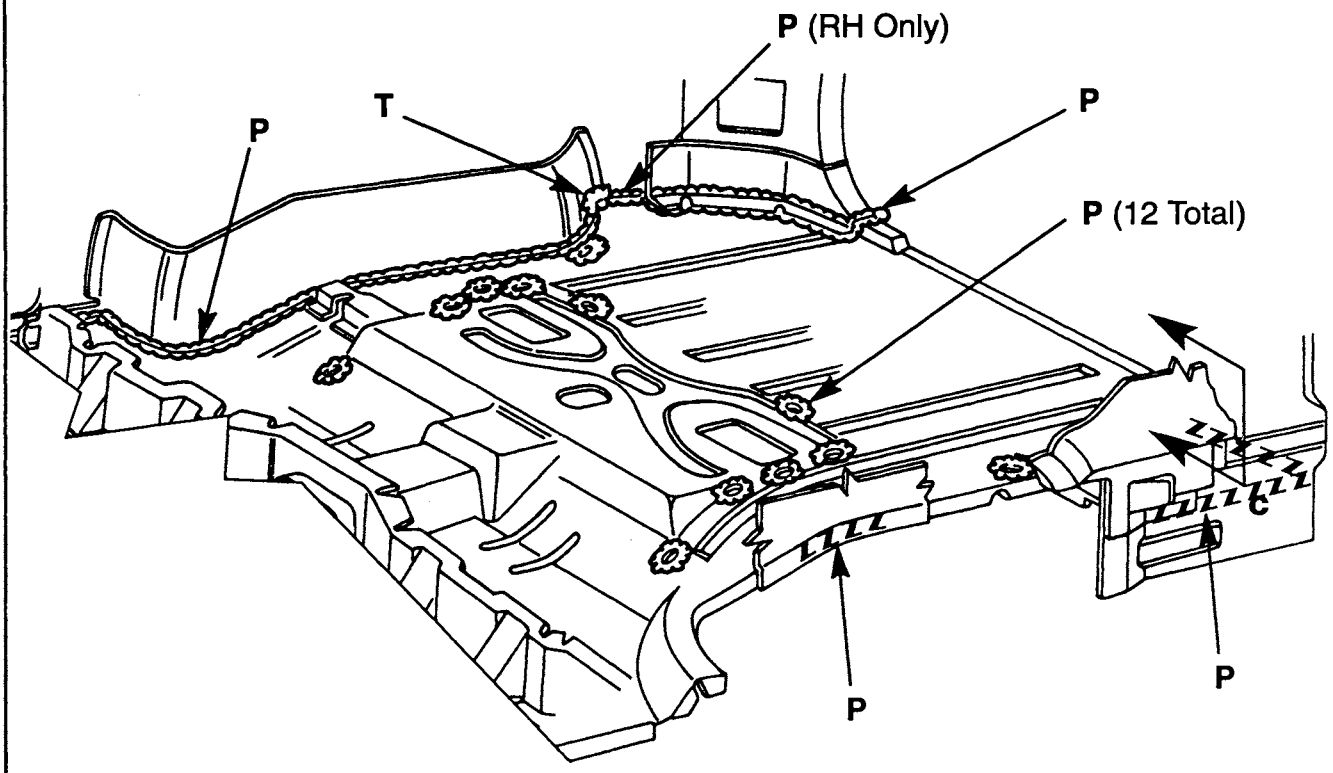


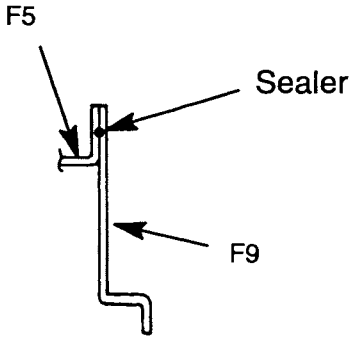
SECTION B

FLOOR PAN AREA

T – Thumbgradable
P – Pumpable

REAR FLOOR PAN

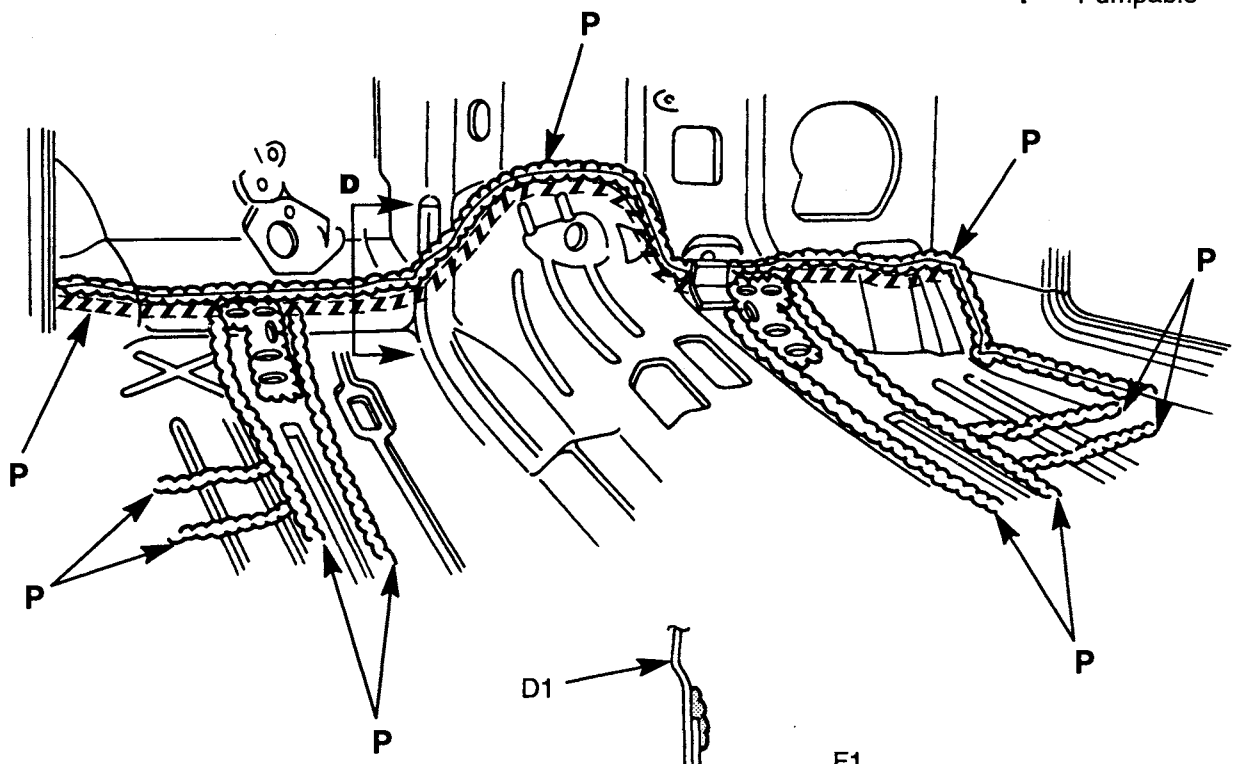


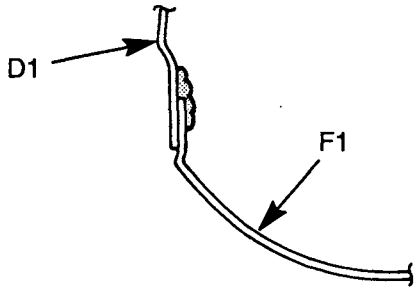


SECTION C

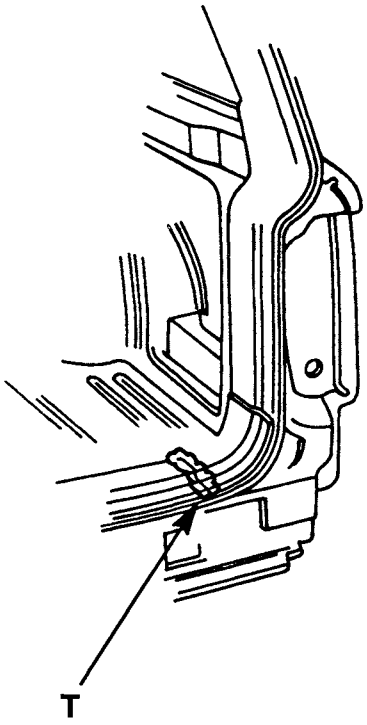
FLOOR PAN AREA

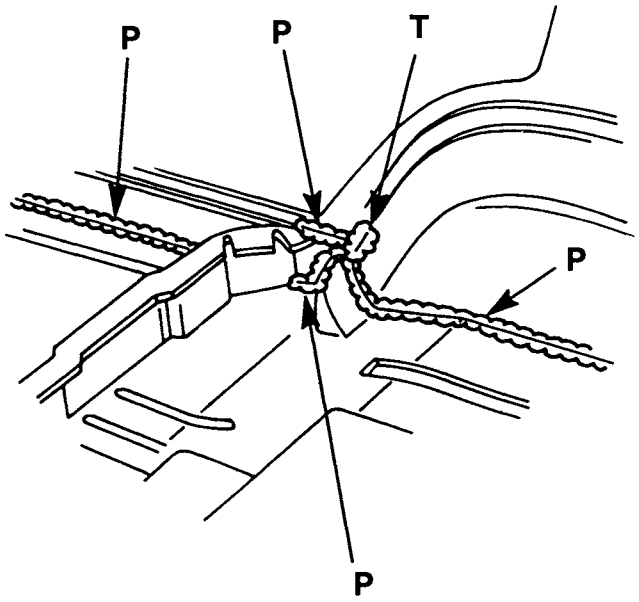
T – Thumbgradable
P – Pumpable





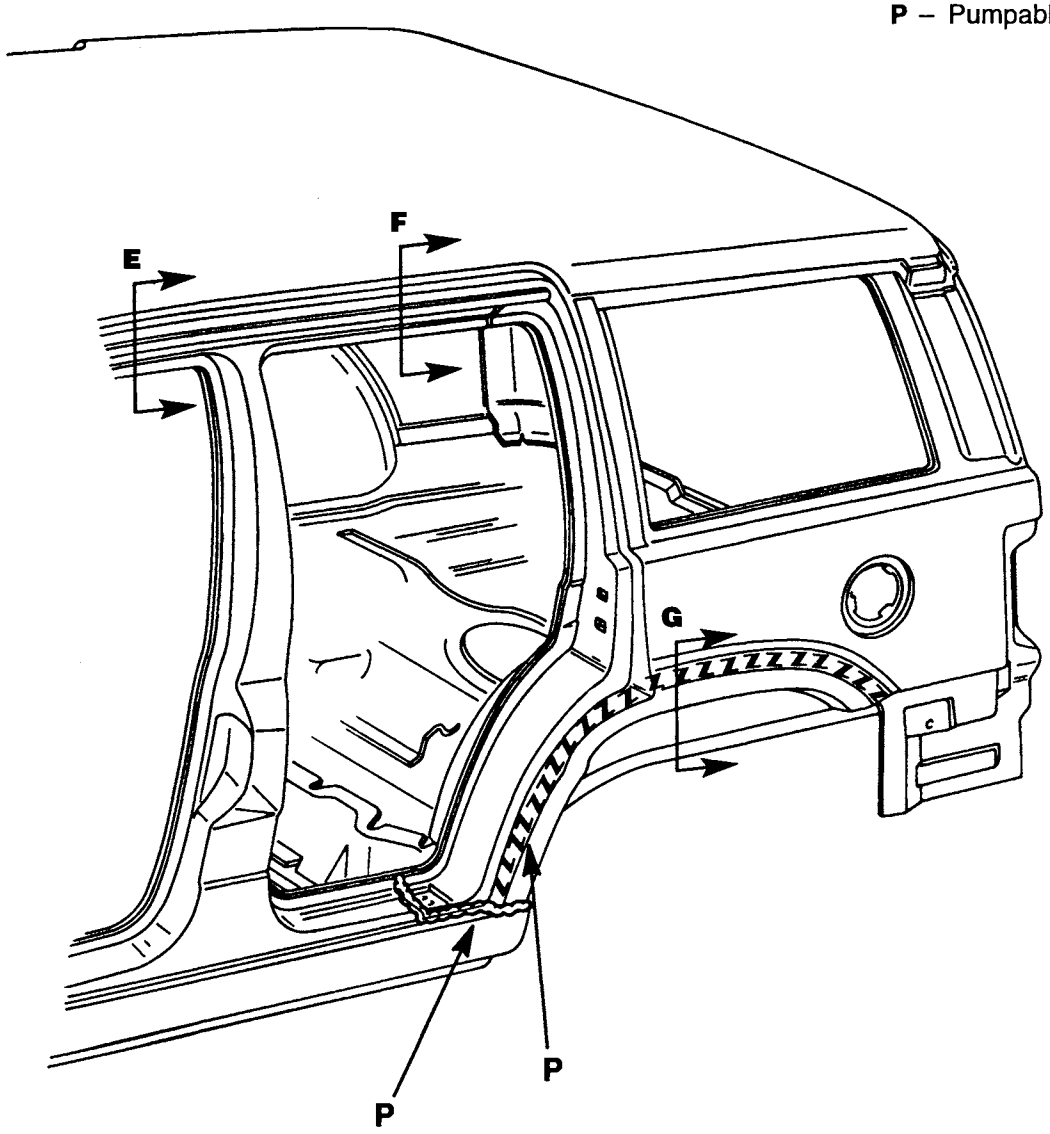
SECTION D

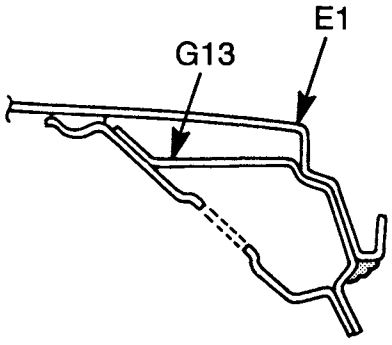




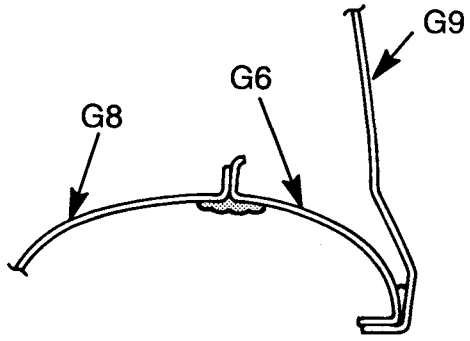
BODY

T – Thumbgradable
P – Pumpable





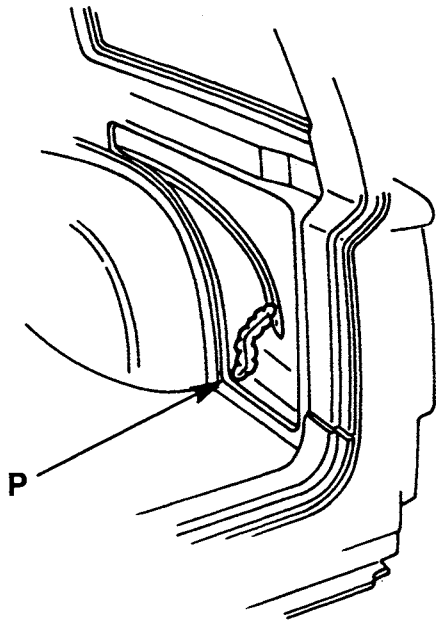
SECTION E & F

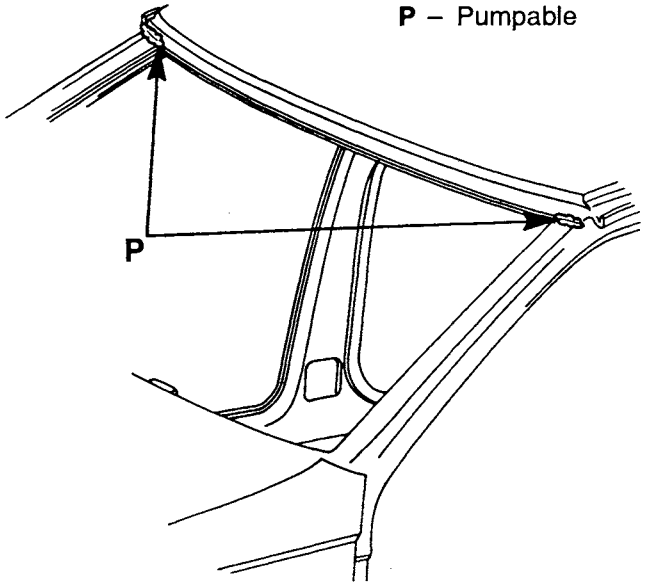


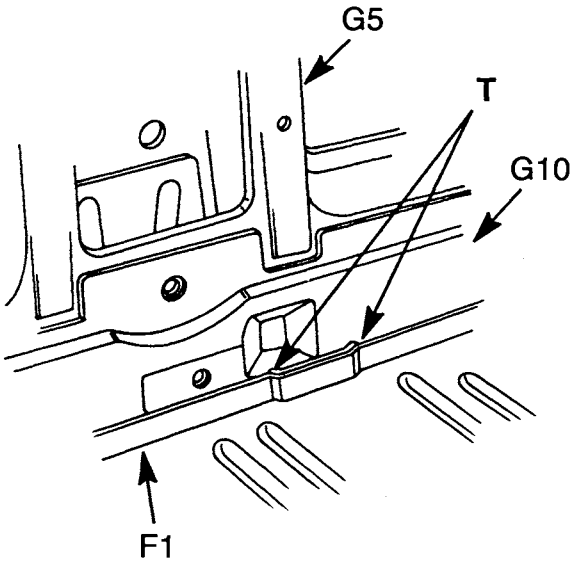
SECTION G

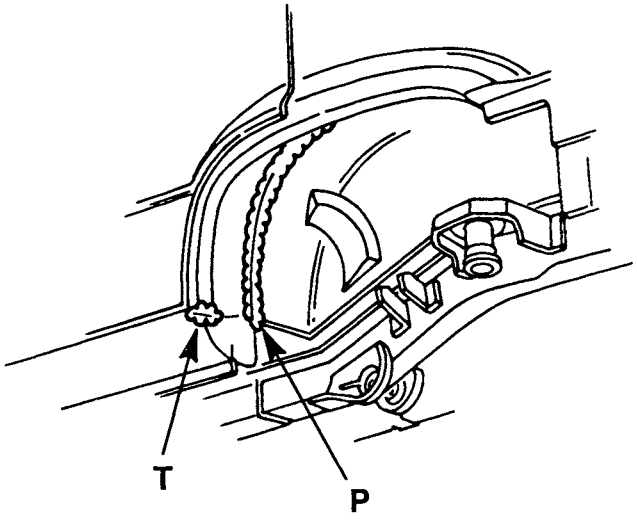
BODY

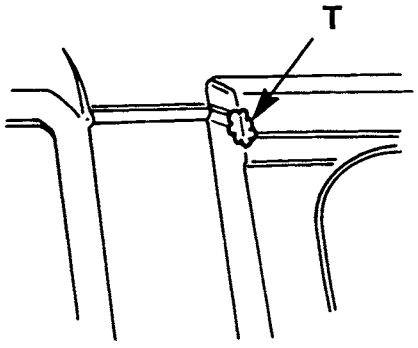
T – Thumbgradable
P – Pumpable

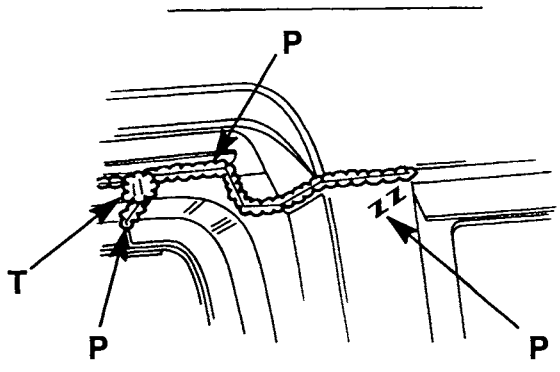


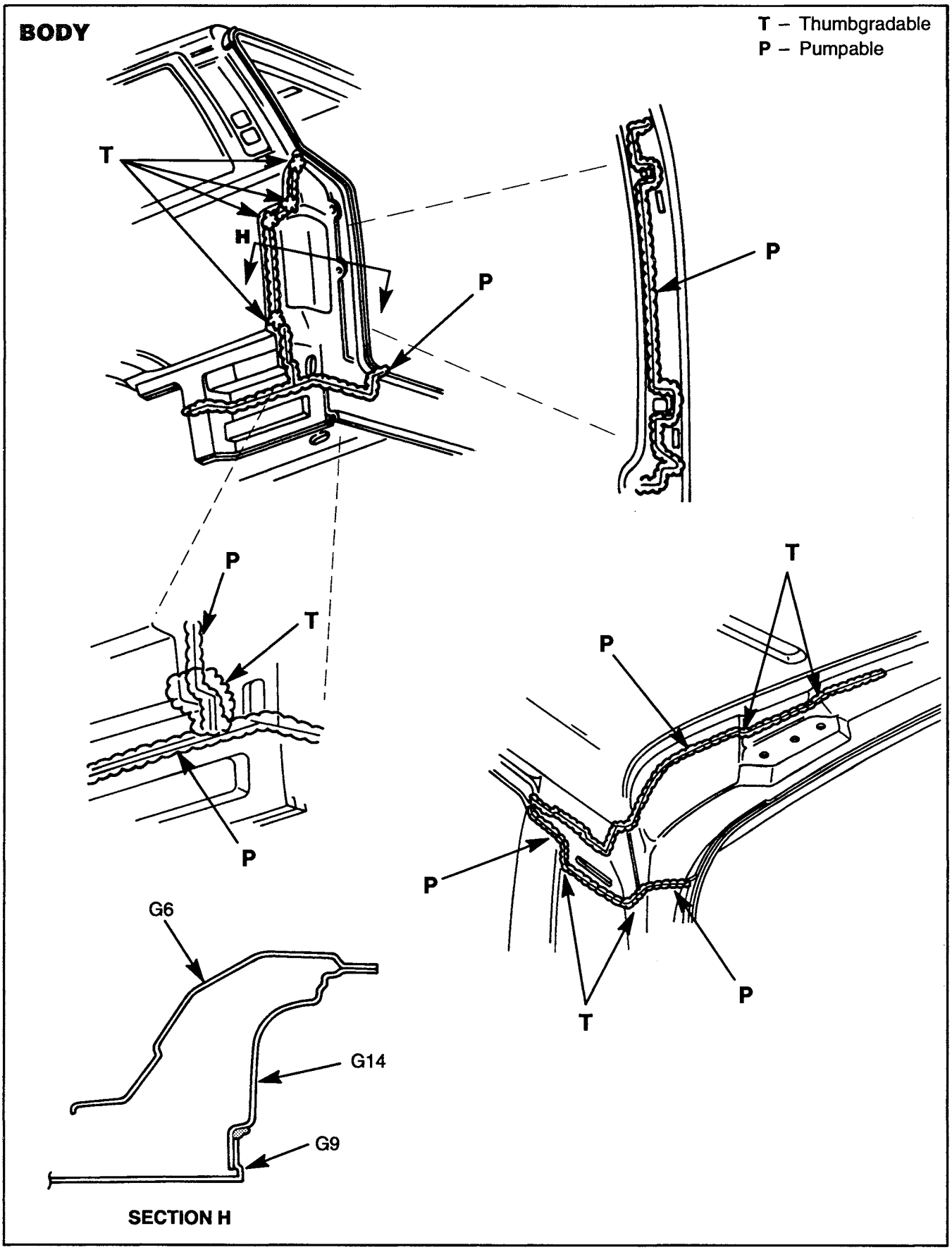






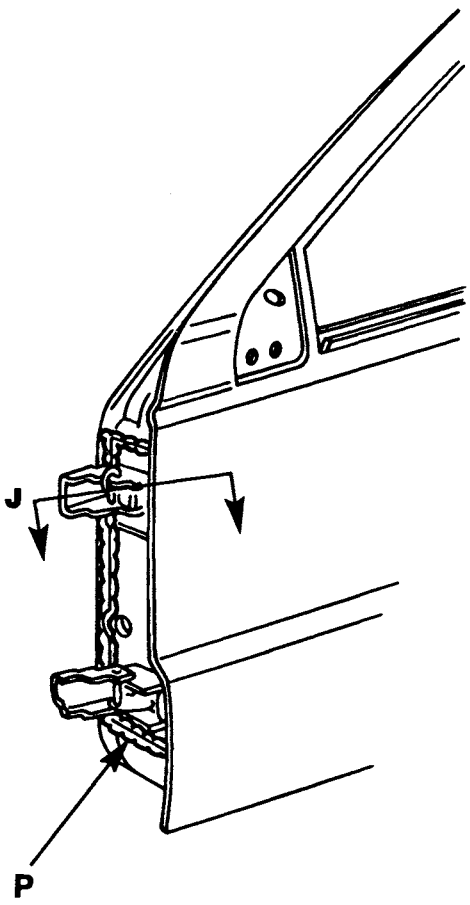


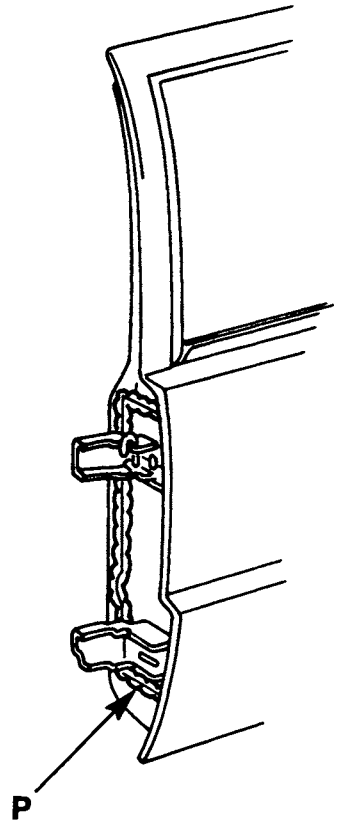


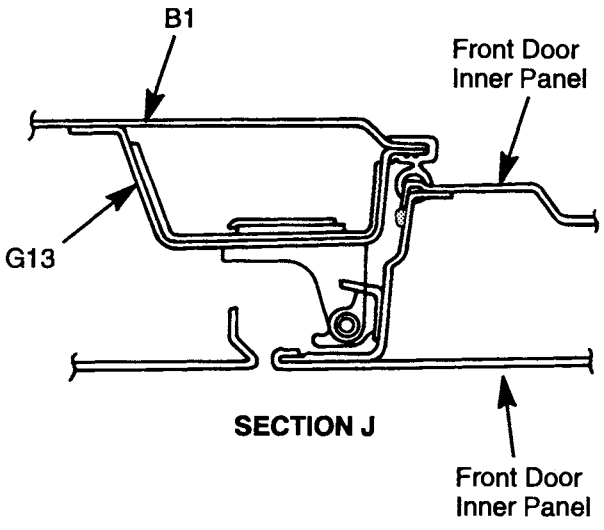

BODY
T – Thumbgradable
P – Pumpable
T
H
P
P
P
T
P
T
P
P
P
G6
G14
G9
SECTION H

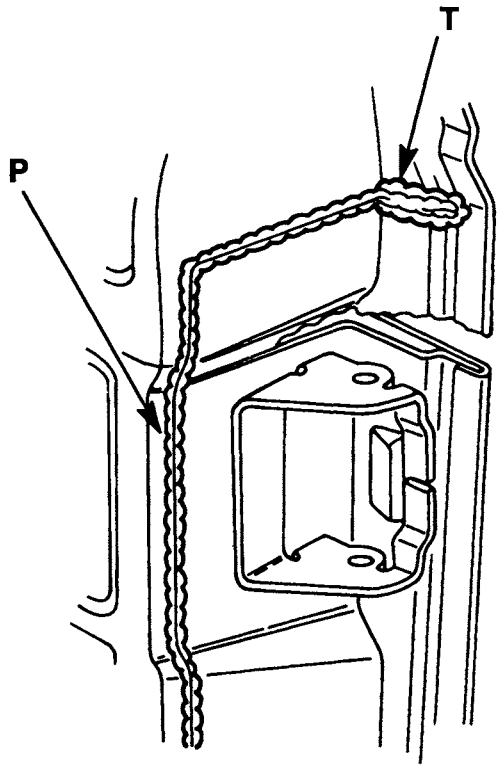
DOORS

T – Thumbgradable
P – Pumpable



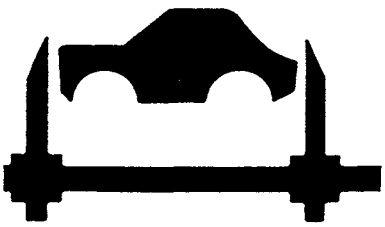


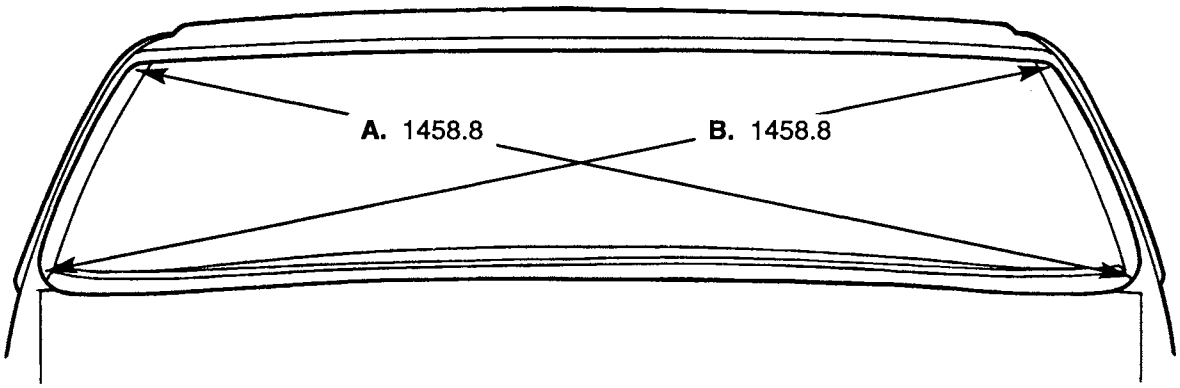




BODY DIMENSIONS & SPECIFICATIONS

Jeep Grand Cherokee





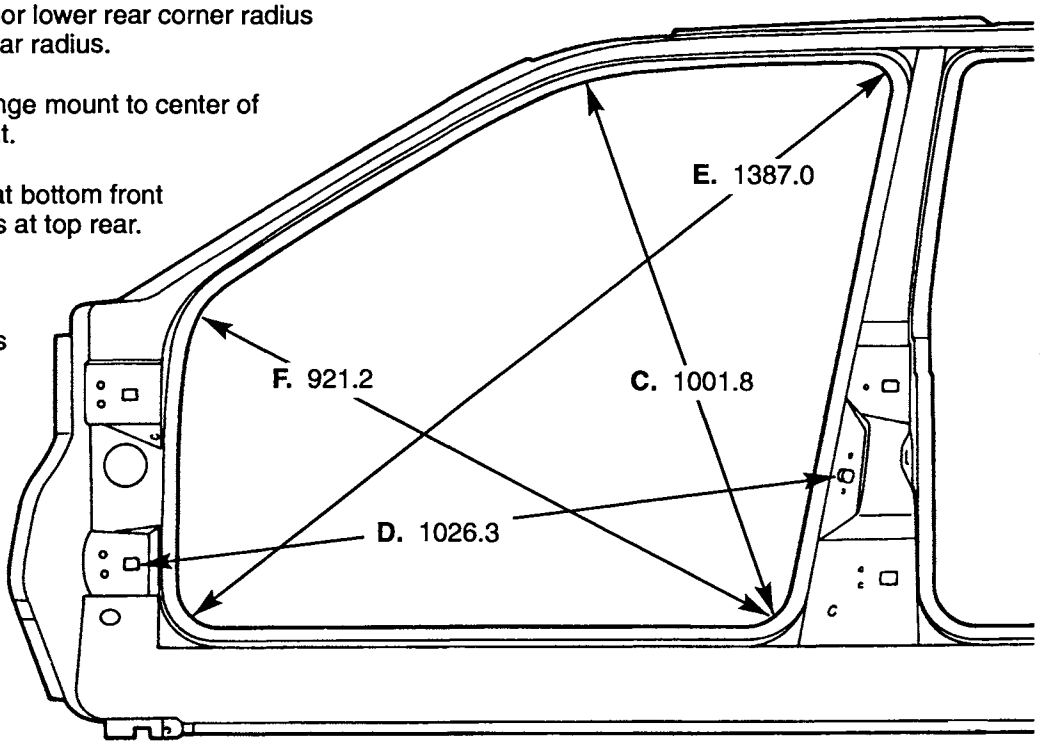
A. & **B.** Center of radius at bottom to center of radius at top.

C. Center of front door lower rear corner radius to center of A–pillar radius.

D. Center of door hinge mount to center of door striker mount.

E. Center of radius at bottom front to center of radius at top rear.

F. Center of radius at bottom rear to center of radius at lower A–pillar.

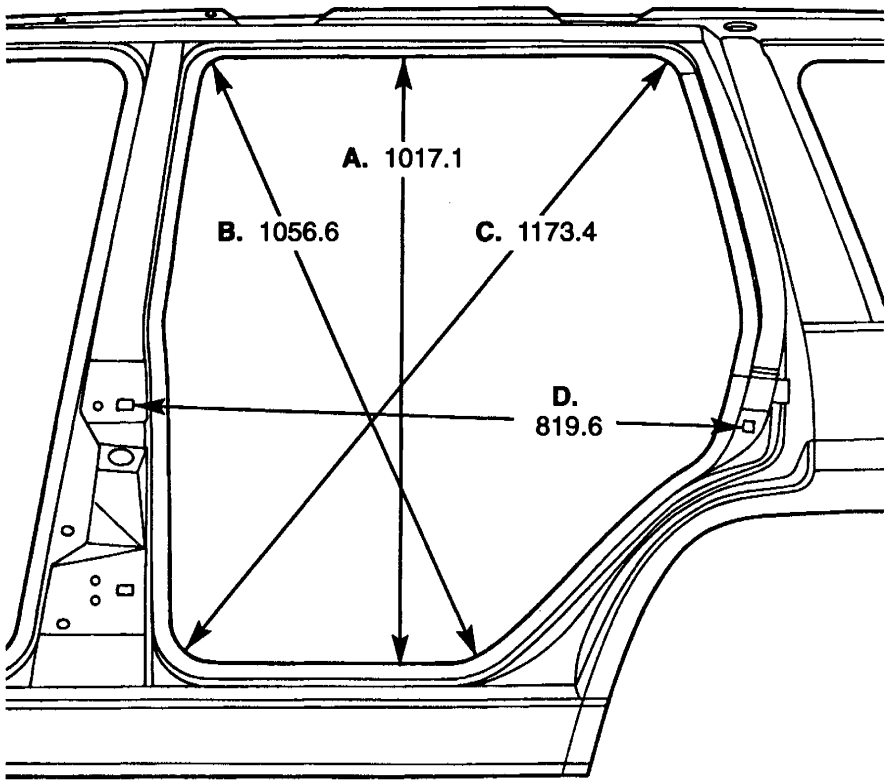


A. Quarter panel to Front Outer Body side upper and lower seam.

B. Center of front upper door radius to center of rear lower door radius.

C. Center of front lower door radius to center of rear upper door radius.

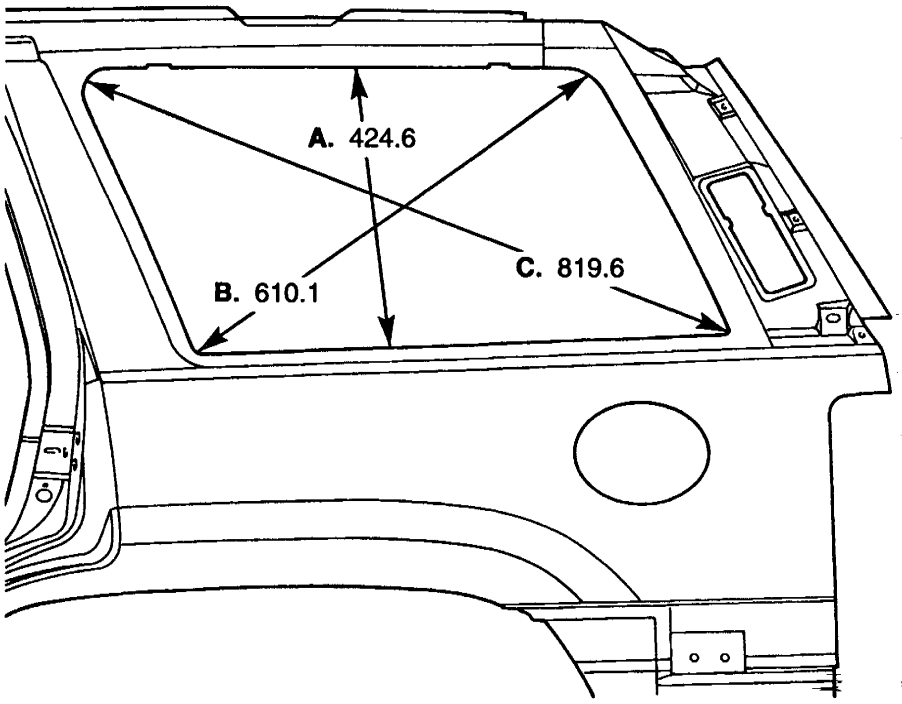
D. Rear door hinge mount to rear door striker mount.

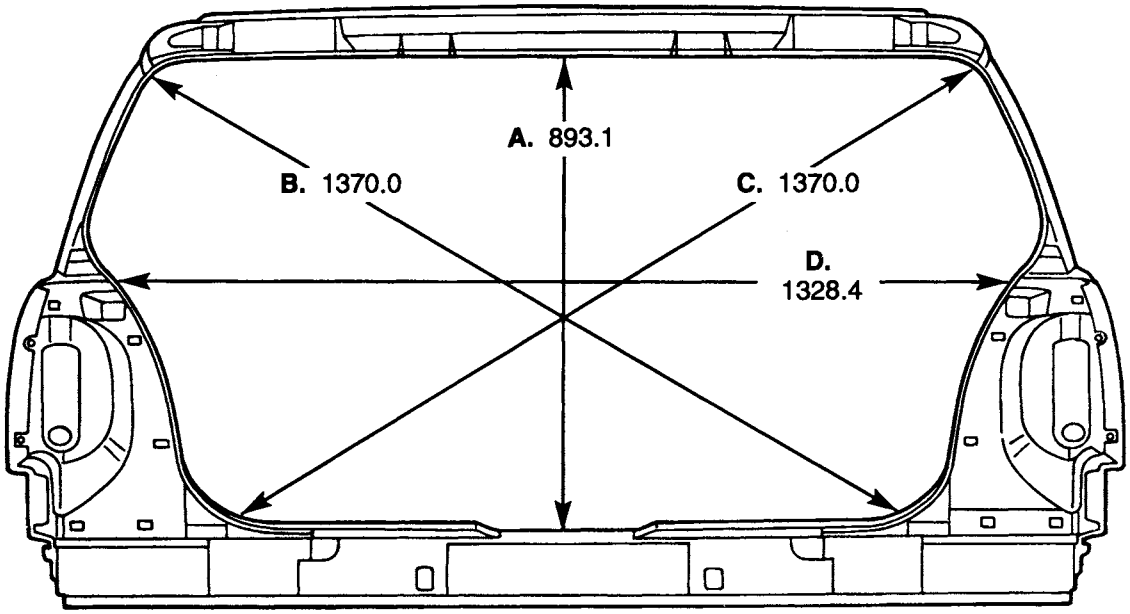


A. Center of upper and lower rear quarter window opening.

B. Center of radius front lower corner to center of radius rear upper corner.

C. Center of radius front upper corner to center of radius rear lower corner.

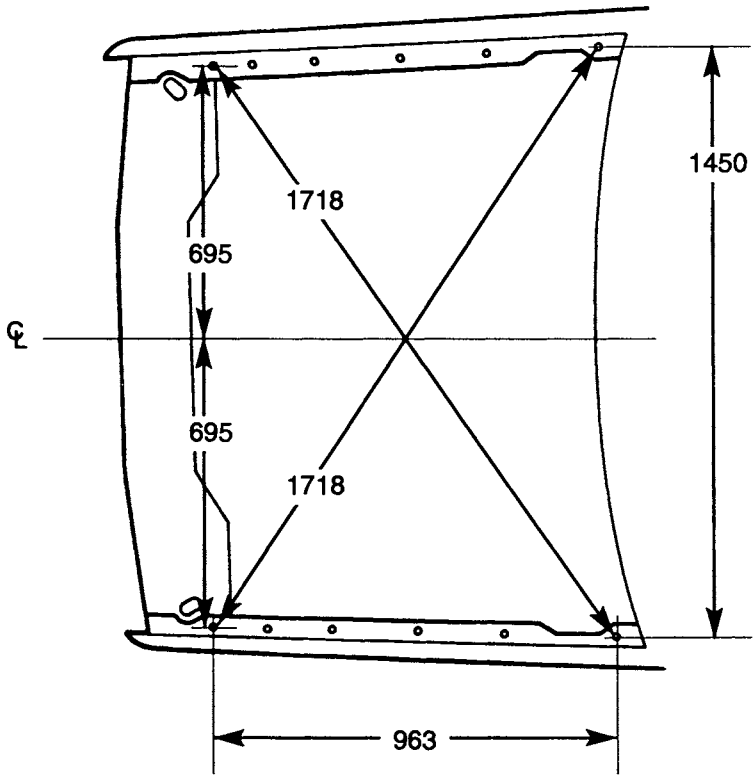




A. Center of upper liftgate opening to liftgate striker mount.

B. & **C.** Center of radius upper corner to center of radius lower corner.

D. Distance between outer quarter panel to tail lamp mounting panel to inner quarter panel seams.

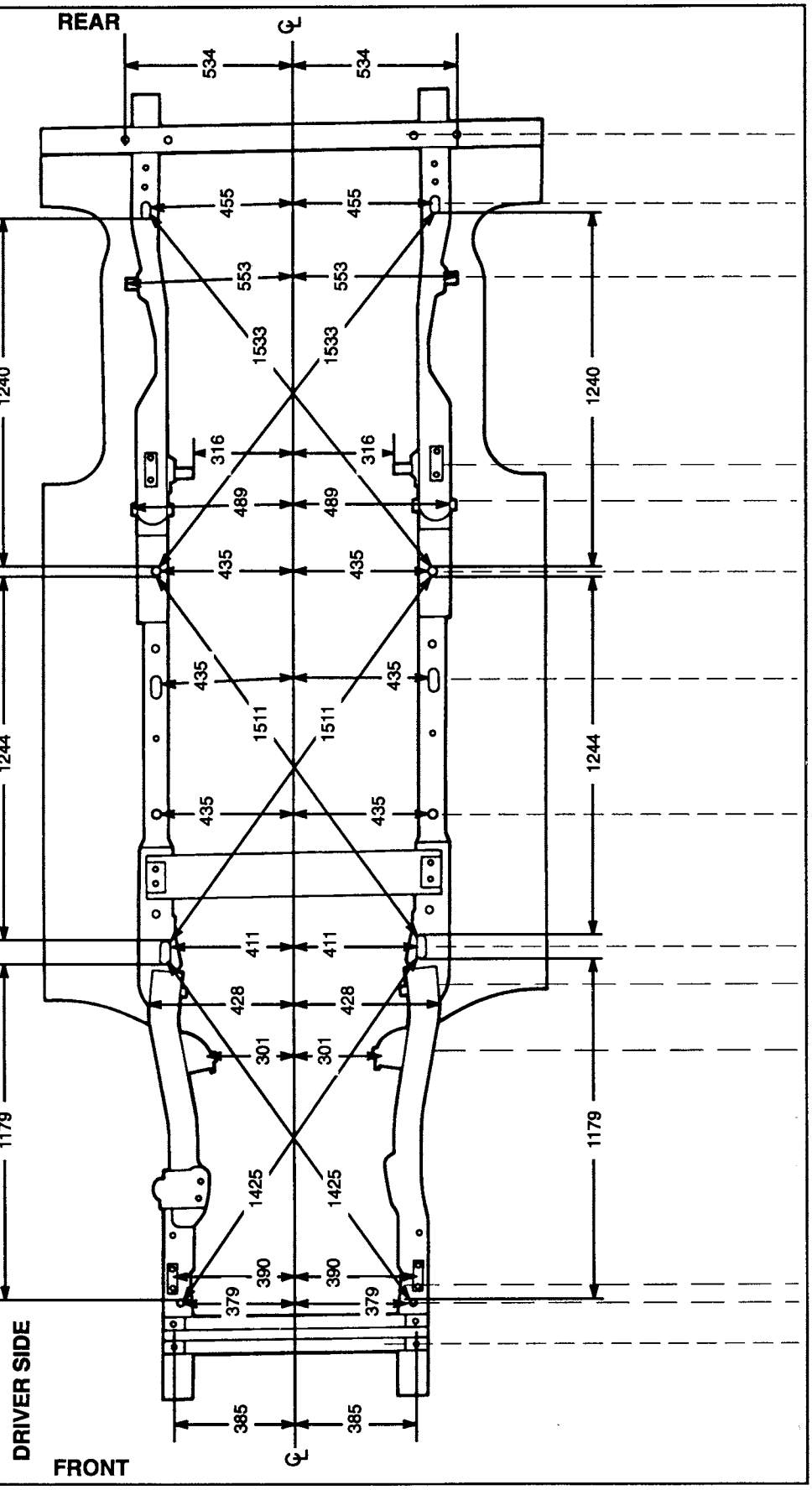


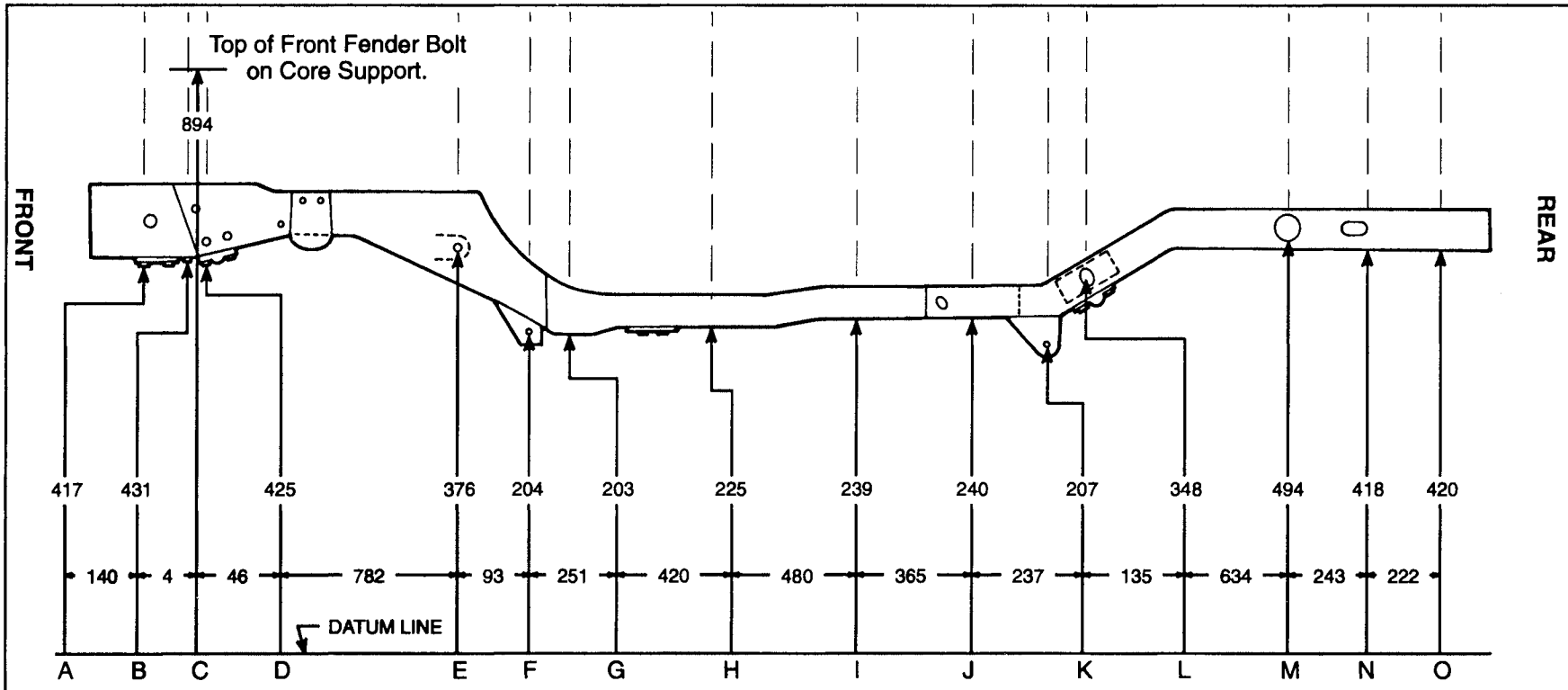
All measurements in millimeter.

BOTTOM VIEW

BOTTOM VIEW POINT–TO–POINT DIMENSIONS ARE TAKEN WITH TRAM BAR POINTERS SET AT EQUAL LENGTHS.

Bolts and Studs are Measured to Center. Holes are Measured to Closest Edge.





OVERALL DATUM LENGTHS

B to G = 1176mm
G to J = 1265mm
J to N = 1249mm

SIDE VIEW

Datum Height Dimensions are PERPENDICULAR to Datum Plane.
Datum Length Dimensions are PARALLEL to Centerline of Vehicle, and are Measured Center–to–Center.

HOLE DIAMETERS

A = Bolt
B = 14mm
C = Front Fender Bolt
D = Bolt
E = Bolt
F = Bolt
G = 19mm x 25mm
H = 19mm
I = 19mm x 25mm
J = 19mm
K = Bolt
L = Bolt
M = Bolt
N = 19mm x 25mm
O = 13mm

All measurements in millimeter.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A														
B														
C														
D														
E														
F														
G														
H														
I														
J														
K														
L														
M														
N														
O														
P														
Q														
R														
S														
T														
U														
V														
W														

This is a very easy way to write up your measurement information. You can tell at a glance when a dimension changes and you can do what is necessary to stay in specification before you proceed.

Here's how to use this sheet or a similar one since each vehicle manufacturer supplies critical measuring point information.

Each time a correction is made to restore the unibody to its proper dimension, all readings should be taken again, in addition to the dimension you have just corrected.

The A-B-C etc. are the measuring point dimensions.

The 1-2-3 etc. are the readings taken at measurement step 1 — measurement step 2, etc.

This sheet tells you at a glance how you stand in restoring the unibody to its proper state.

When using the tram and centering gauge system, always compile a list of dimensions each time you measure. This provides the information for measurement comparison, especially during the pulling and straightening phase of unibody collision repair.

The manufacturer of the equipment supplies information, so be sure you constantly review it and bulletins so you will be up to date on repair techniques.