

3 WELDED PANEL REPLACEMENT

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SPECIAL TOOLS

Tool	Number	Name	Use
	MB991776	Hole cutter type G	Cutting off the spot welded section
	A : MB991777	Hole cutter	
	B : MB991778	Shank	
	C : MB991779	Center pin	
	D : MB991780	Spring	
	E : MB991781	Hexagon socket head bolt	

NOTES WITH REGARD TO REPAIR WORK

At the sections shown below where the high-residue austenite steel panels are used, the spot section is thermally hardened and is difficult to cut, so a hole cutter (MB991776) or low-speed drill (500 to 700 r/min) should be used for cutting.

Sections using high-residue austenite steel panels

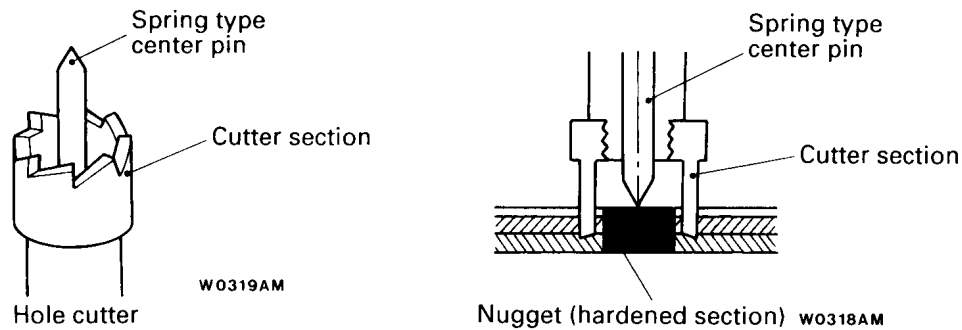
Usage sections	Name
	- Front sidemember, outer - Front sidemember, inner - Front pillar, inner upper - Front pillar inner lower extension - Side sill outer reinforcement - Front floor sidemember - Front floor side sill, inner

Cutting methods

To adapt to the in-house factory, cut with one of the following two methods.

Cutting with a hole cutter

Cut the outer periphery of the nugget (hardened section) of the spot welding in a circular shape.



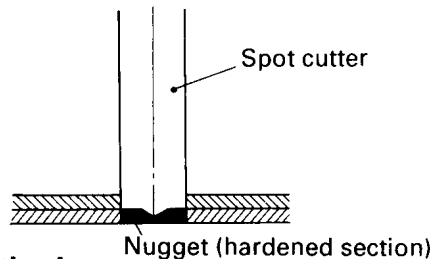
NOTE

As the center will easily deviate, accurately punch the center.

Cutting with a low-speed drill (500 to 700r/min)

1. Using the low-speed drill, cut the nugget with a spot cutter.

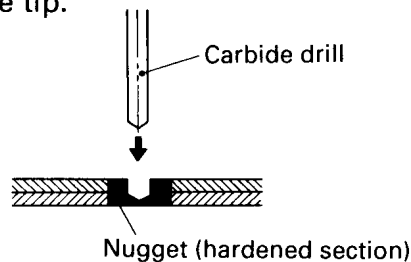
If cutting is not possible with this method, use the pre-hole method given in section 2.



2. Cutting with the pre-hole method

(1) Using the low-speed drill, open a pre-hole* at the center of the nugget with a carbide drill.

* With the regular spot cutter, a load of 50 to 60% will concentrate at the tip, so open a hole beforehand to protect the tip.

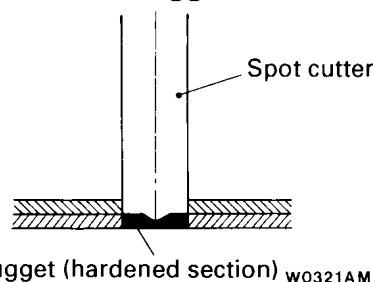


Tool	Material	Dimensions	Speed
Carbide drill	Carbide	φ3 mm	700 r/min

Caution

As the center will easily deviate, accurately punch the center.

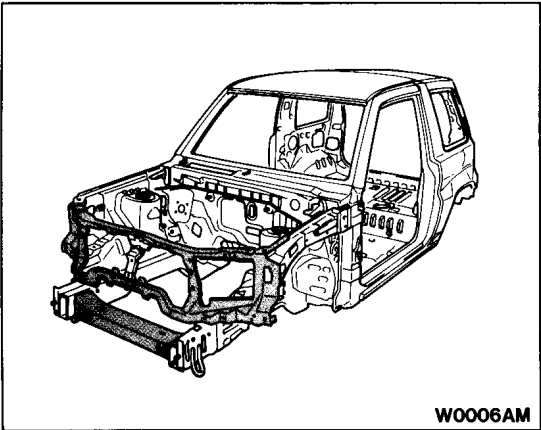
(2) Using the low-speed drill, cut the nugget with a spot cutter.



Caution

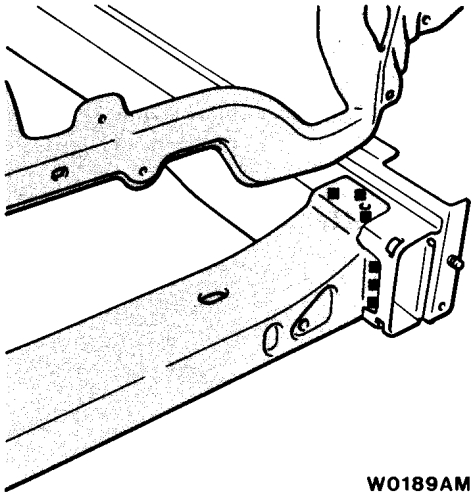
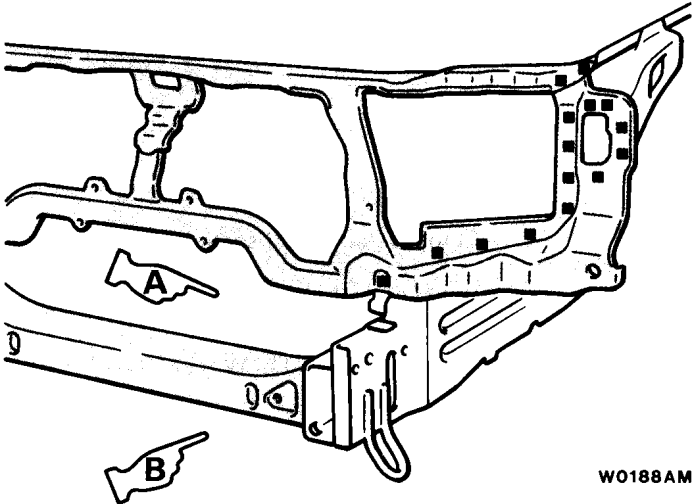
Depending on the type (manufacturer) of the spot cutter, it may be possible only to cut several points using this method. In this case, cut with the hole cutter.

HEADLAMP SUPPORT

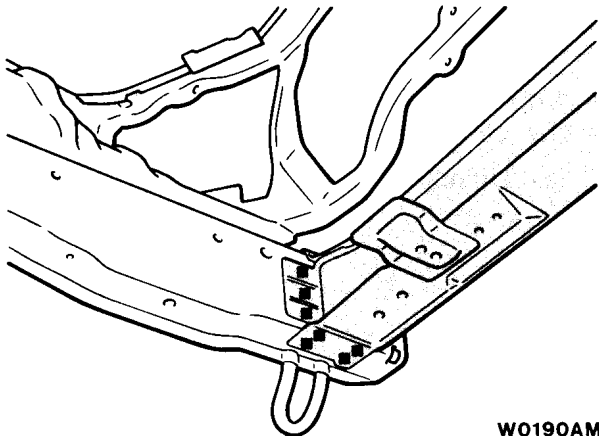


Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
	MIG arc welding (continuous)
oooooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS



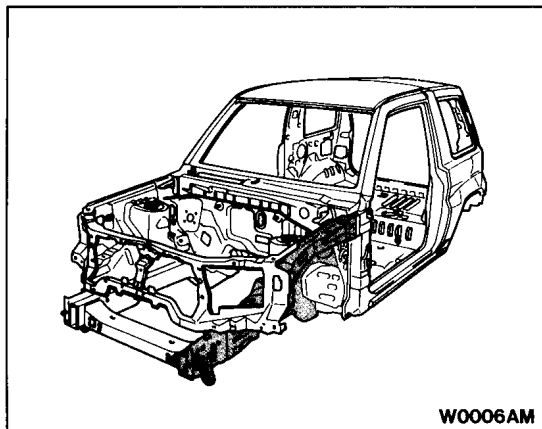
A



B

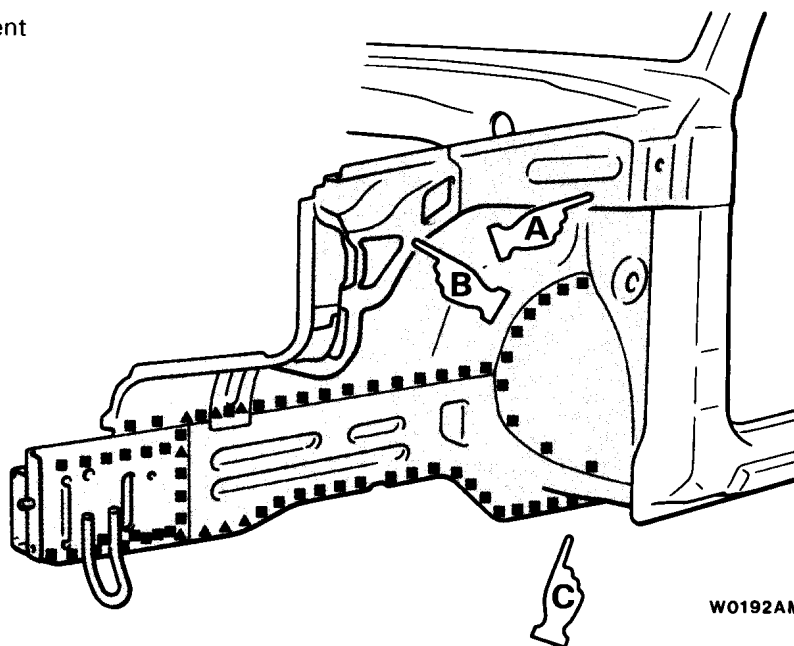
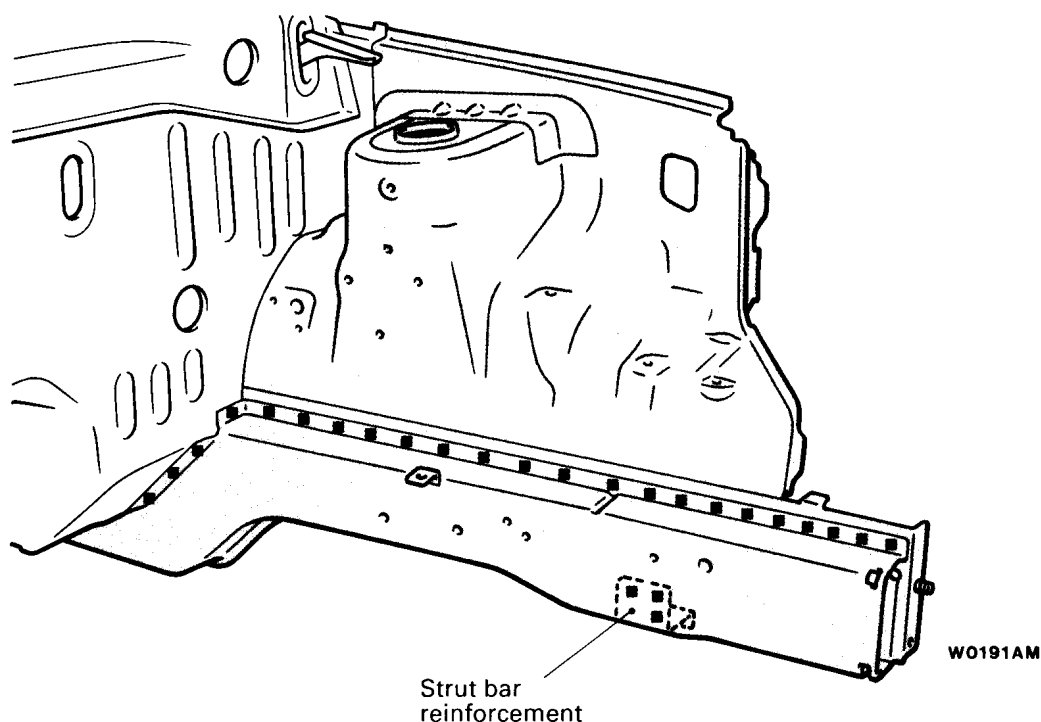
NOTES

FENDER SHIELD



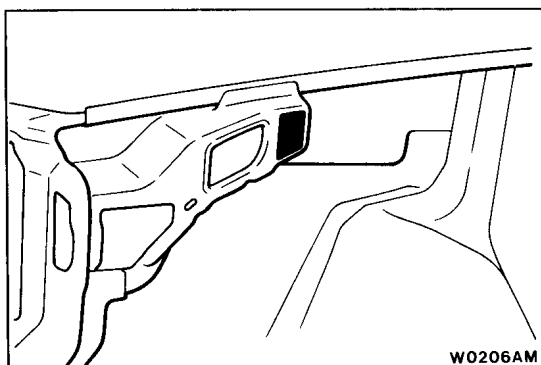
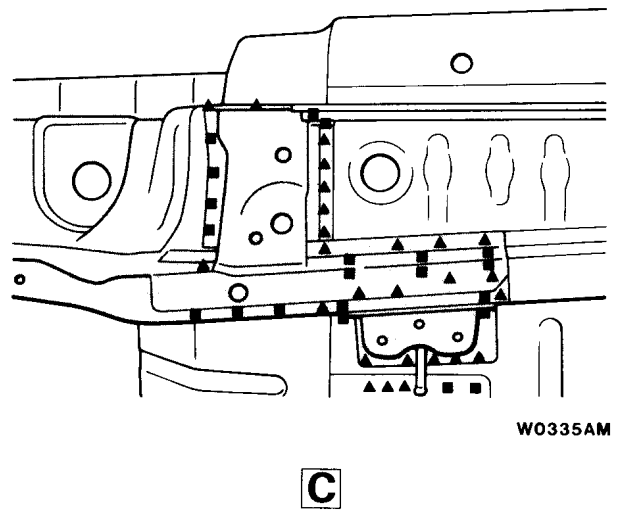
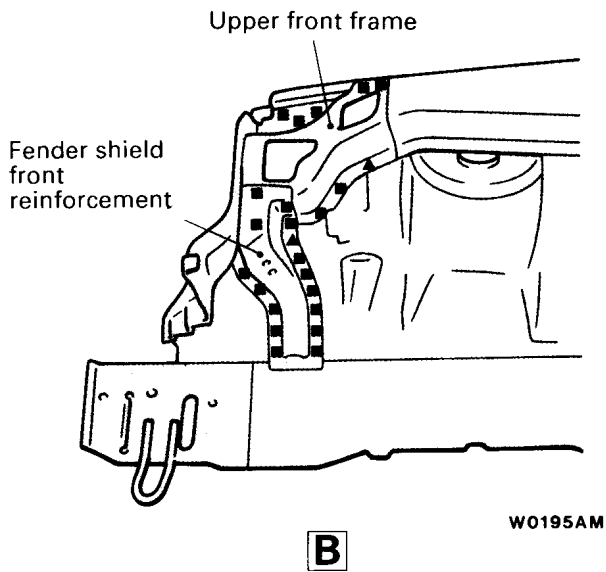
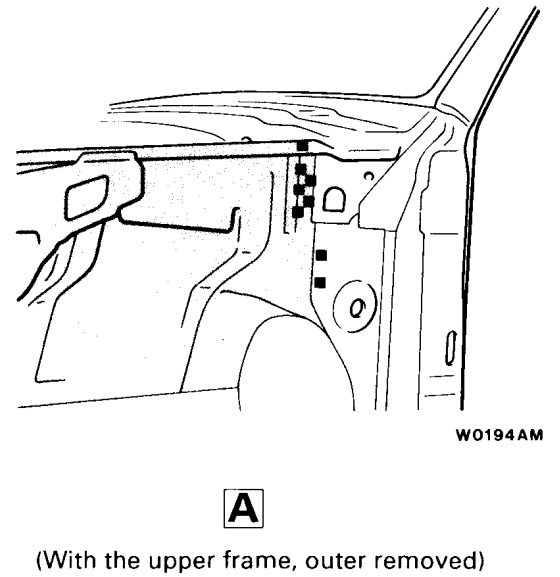
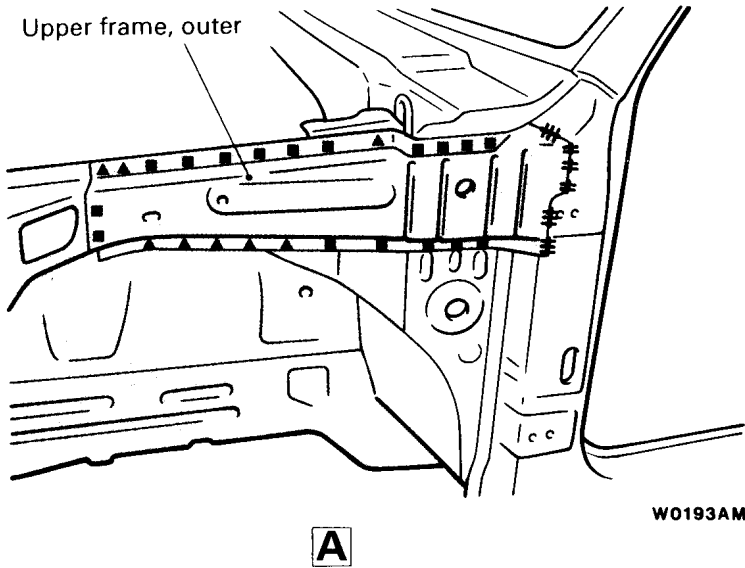
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	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS



NOTE

For the weld points for the headlamp support, refer to P.3-4 – Headlamp Support.



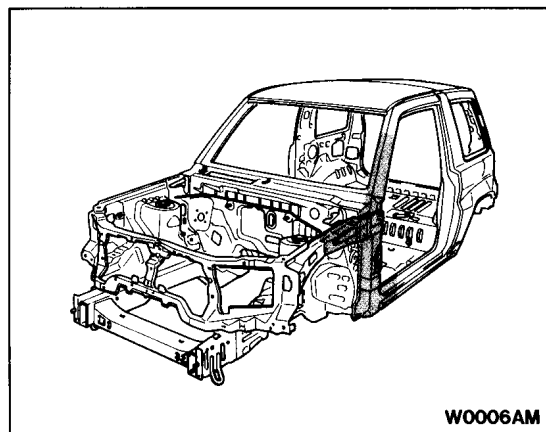
NOTES WITH REGARD TO REPAIR WORK INSTALLATION

When installing the new outer upper frame, outer, apply structural adhesive.

■ : Adhesive

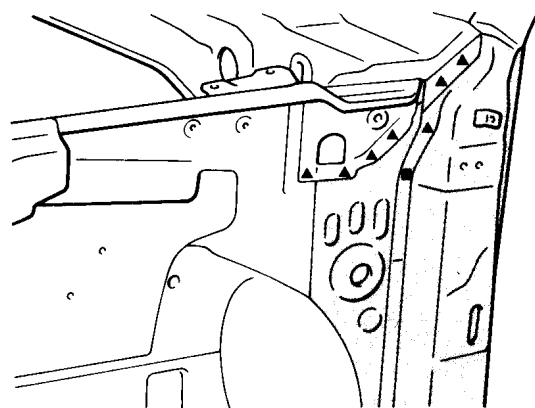
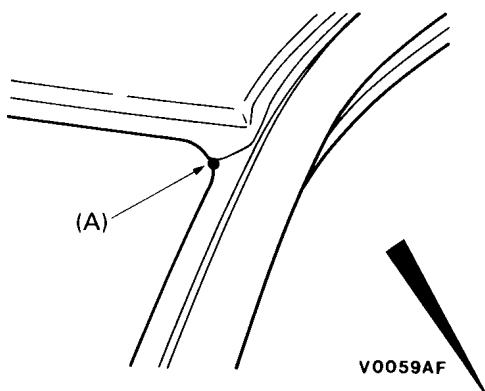
Adhesive	Type	Brand
	Epoxyresin adhesive	3M DP-460 3M DP-420

FRONT PILLAR

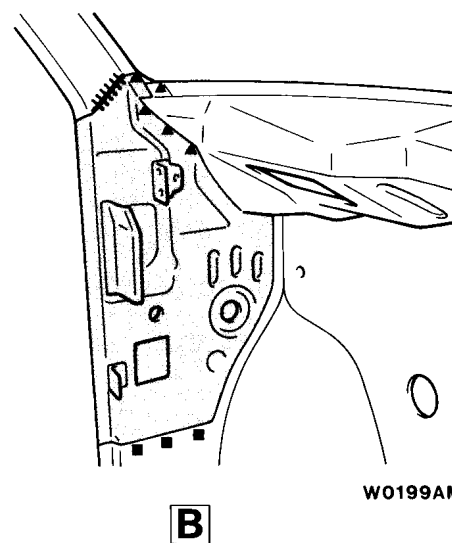
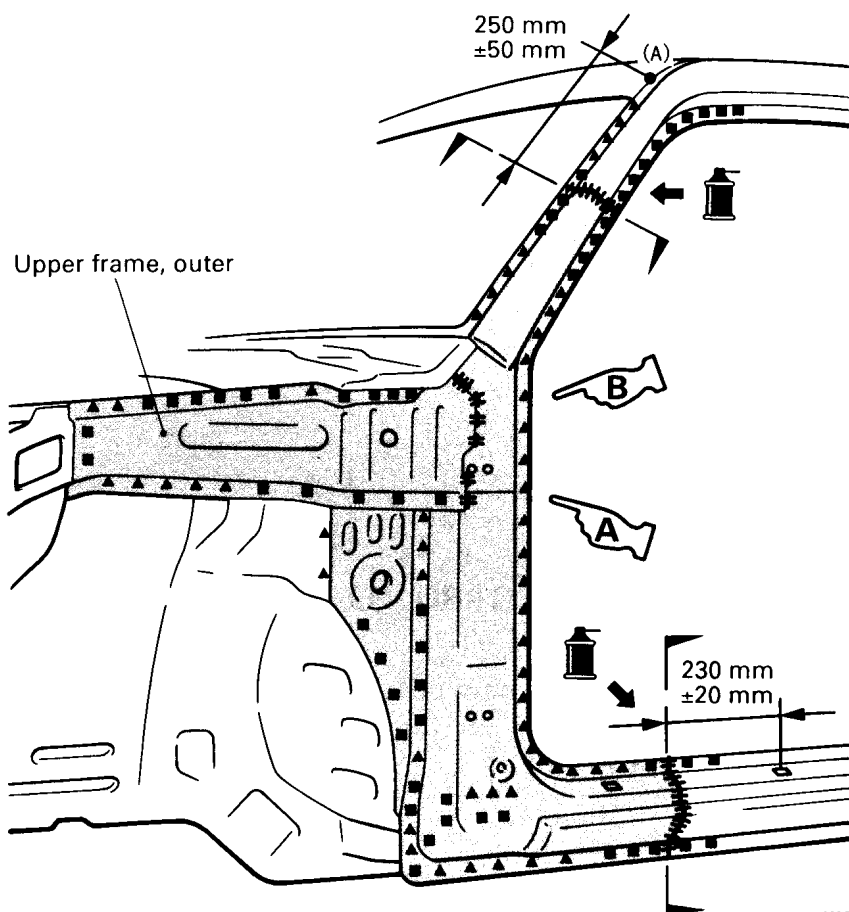


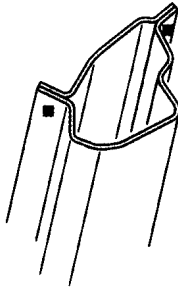
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	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS

**A**

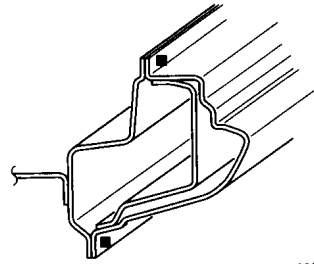
(With the upper frame, outer removed)

**B**



W0200AM

C

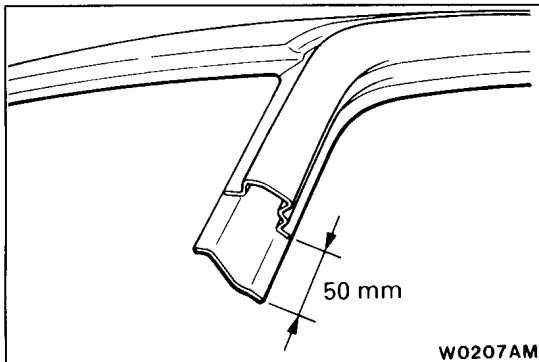


W0201AM

D

NOTES WITH REGARD TO REPAIR WORK INSTALLATION

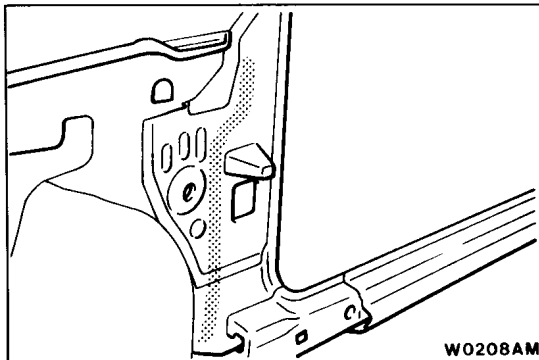
- (1) When cutting the front pillar, cut the outer panel off the inner panel by 50 mm, as shown, to ensure strength.



W0207AM

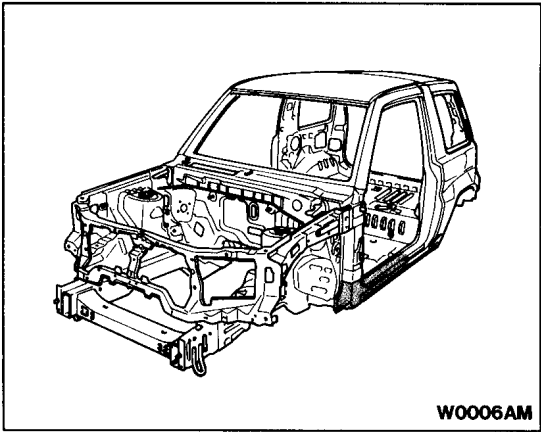
- (2) When installing a new outer side panel, apply body sealant at the sections of the front pillar, inner shown in the illustration.

 : Body sealant



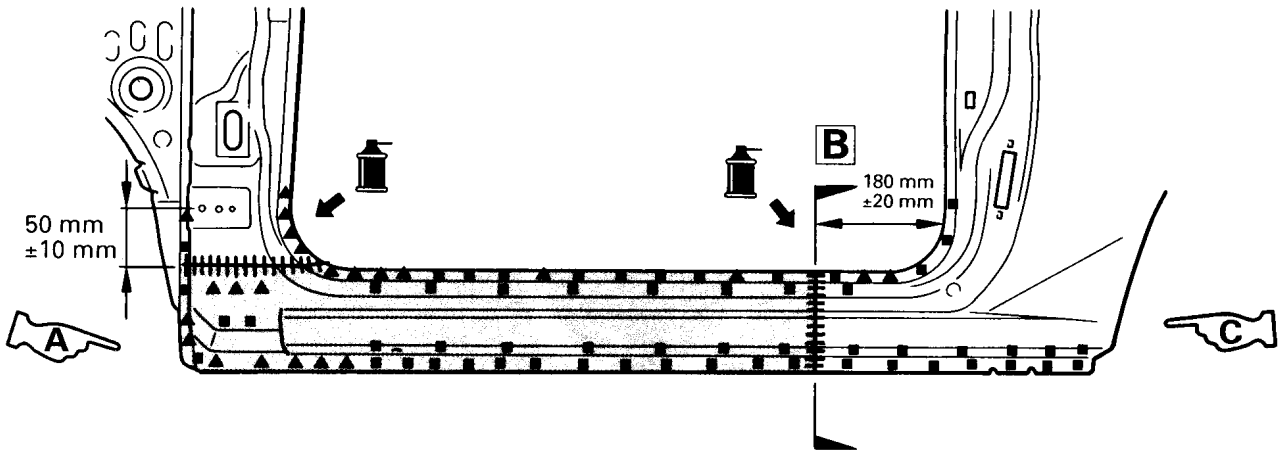
W0208AM

SIDE SILL <3 DOOR>

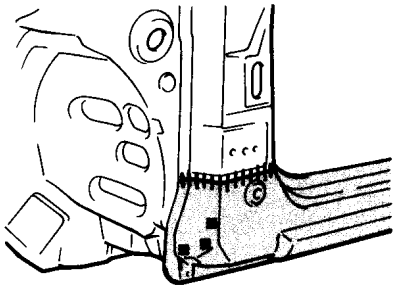


Symbol	Operation description
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	MIG arc welding (continuous)
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	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS

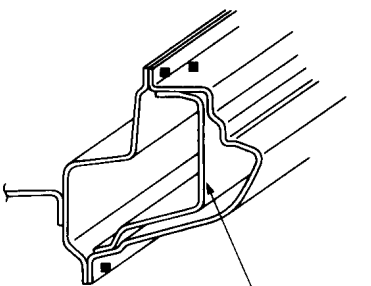


W0214AM



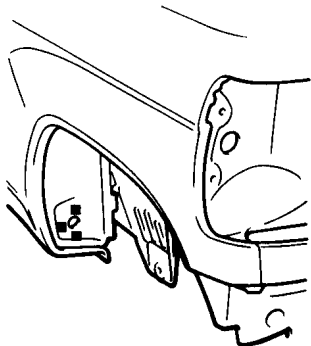
A

W0215AM

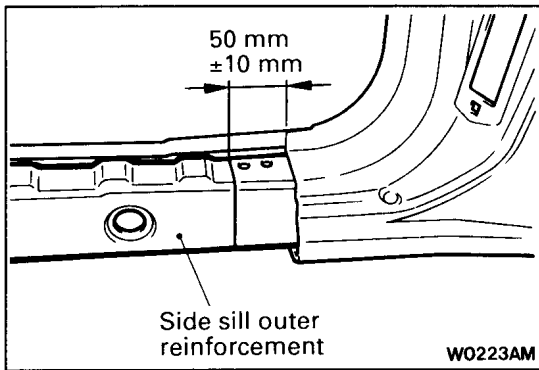


Side sill outer reinforcement

B



C

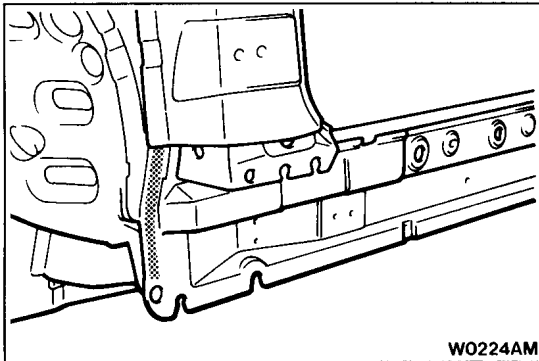
**NOTES WITH REGARD TO REPAIR WORK****REMOVAL**

Cut the side sill outer reinforcement with the side outer panel at a position $50 \text{ mm} \pm 10 \text{ mm}$ in front of the cutting face.

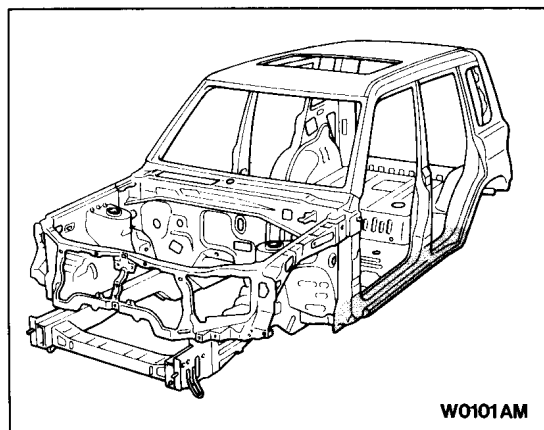
INSTALLATION

When installing a new side outer panel, apply body sealant on the front edge of the side sill shown in the illustration

■ : Body sealant

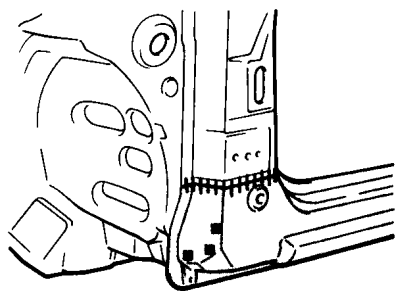
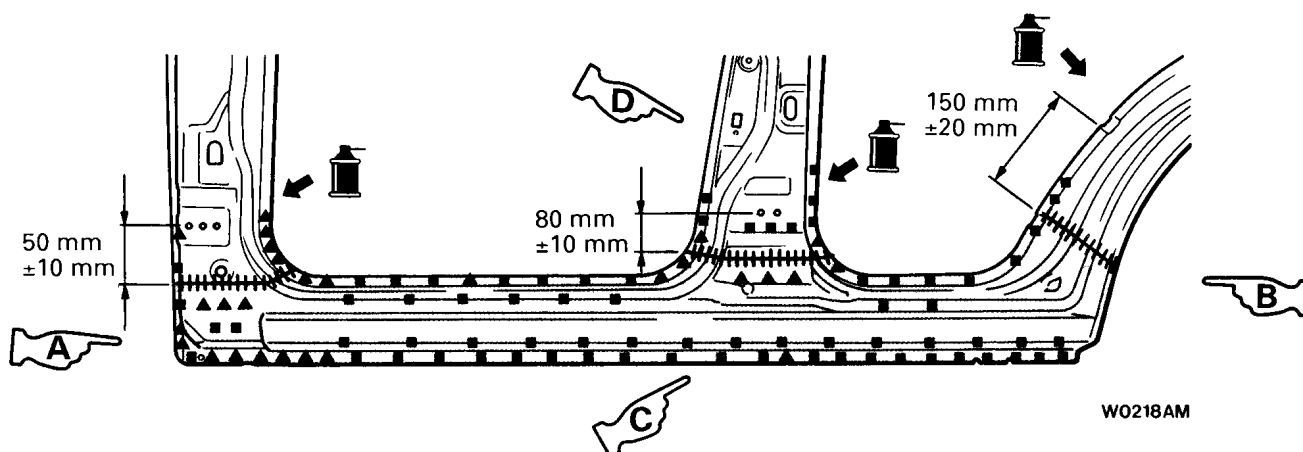


SIDE SILL <5 DOOR>



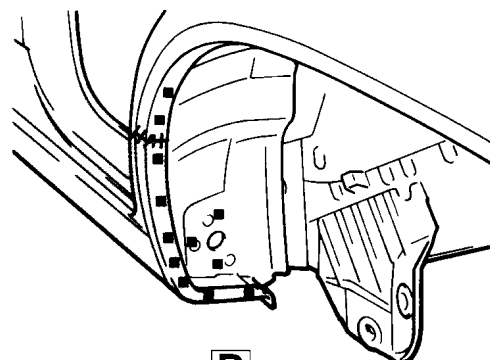
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++++	MIG spot welding
	MIG arc welding (continuous)
ooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS



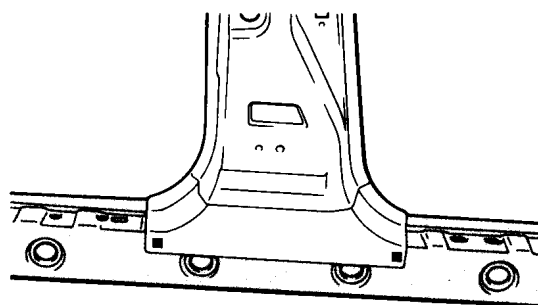
A

W0215AM



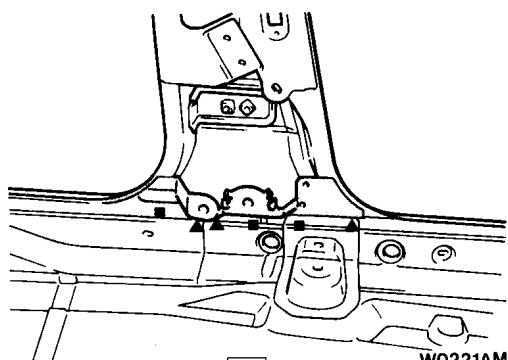
B

W0219AM



C

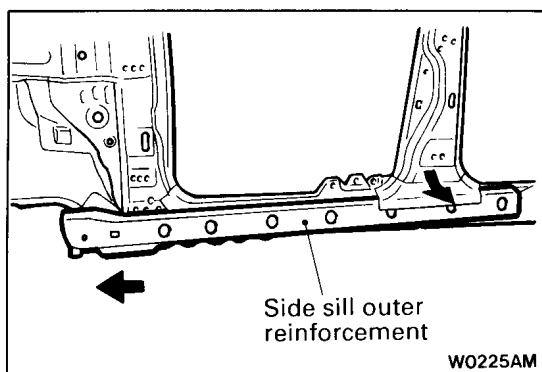
W0220AM



D

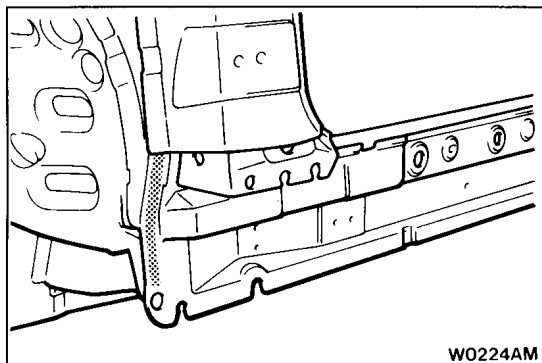
W0221AM

(With the side outer panel removed)



NOTES WITH REGARD TO REPAIR WORK REMOVAL

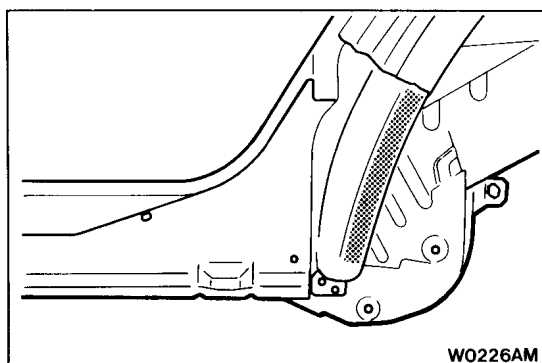
When removing the side sill outer reinforcement, shift the center pillar section forward and then remove.



INSTALLATION

- (1) When installing a new side outer panel, apply body sealant on the front edge of the side sill shown in the illustration.

 : Body sealant

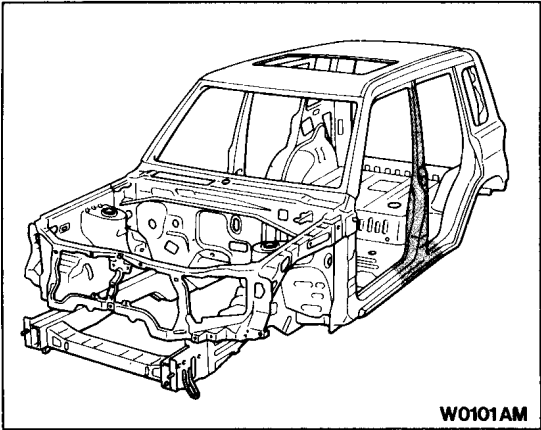


- (2) When installing a new side outer panel, apply adhesive on the back edge of the side sill shown in the illustration.

 : Adhesive

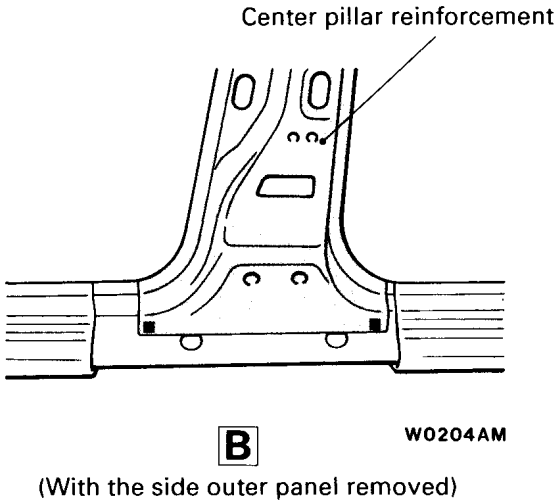
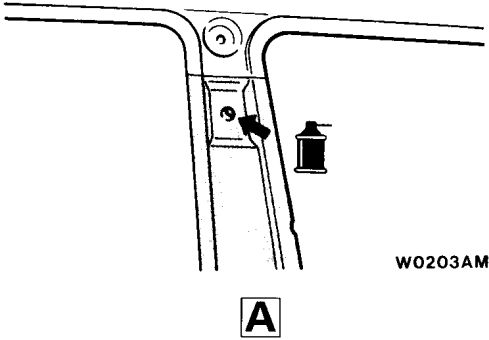
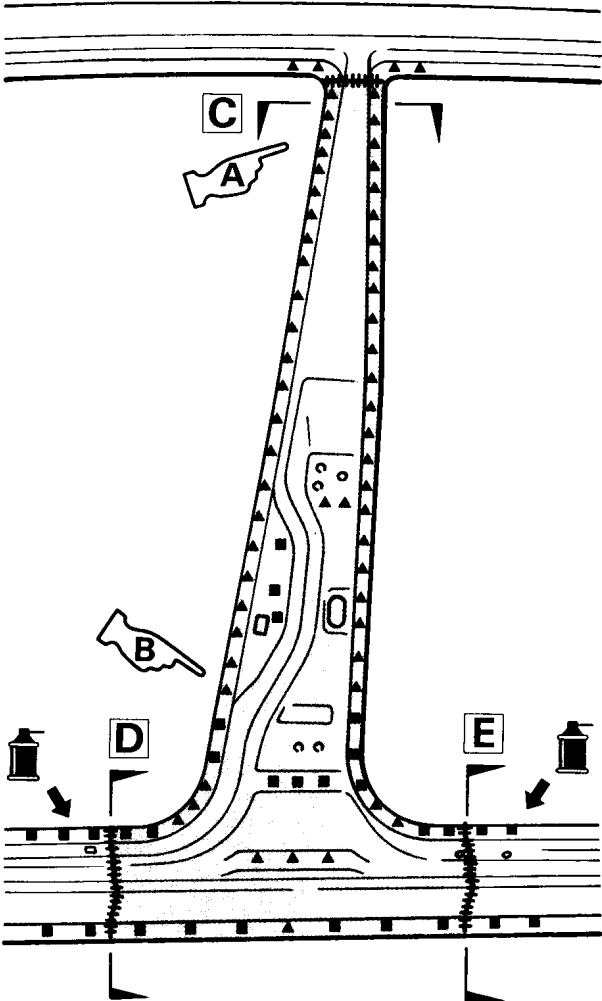
Adhesive	Type
	Chloroprene-base drying sealant

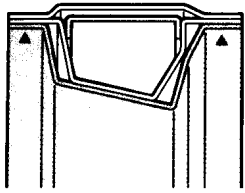
CENTER PILLAR <5 DOOR>



Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
	MIG arc welding (continuous)
ooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

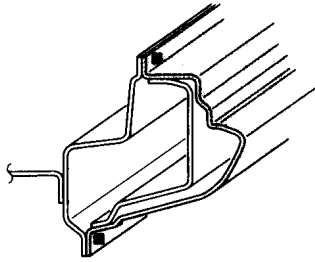
REPAIR WELDS





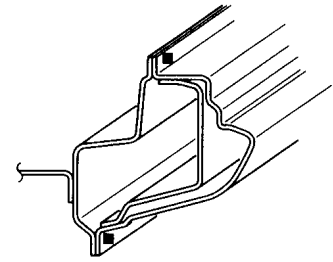
C

W0205AM



D

W0201AM



E

W0201AM

NOTES WITH REGARD TO REPAIR WORK

REMOVAL

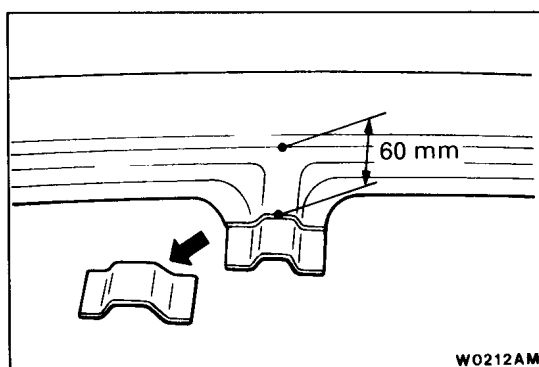
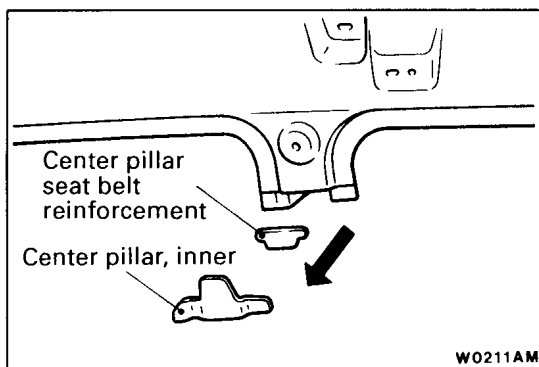
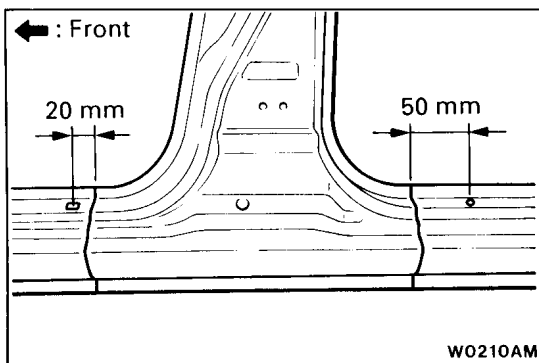
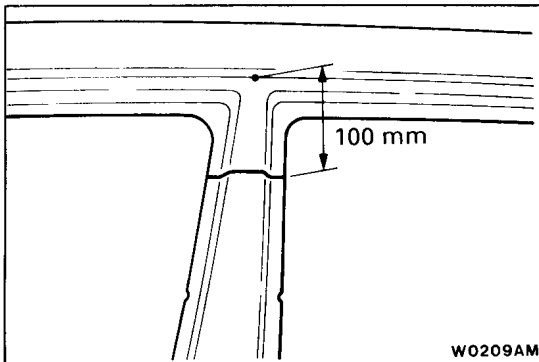
- (1) Cut the upper section of the center pillar at the same time as the center pillar, inner at the section shown in the illustration.

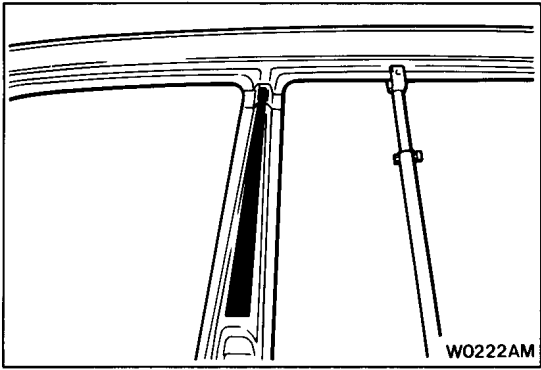
- (2) Using the front and back scuff plate installation holes, cut only the side outer panel of the bottom of the center pillar at the position shown in the illustration.

- (3) Cut off part of the center pillar, inner and center pillar seat belt reinforcement left on the body side.

INSTALLATION

- (1) Cut only the side outer panel at the position shown in the illustration, and shift the center pillar reinforcement and side outer panel. Then, butt weld each part.



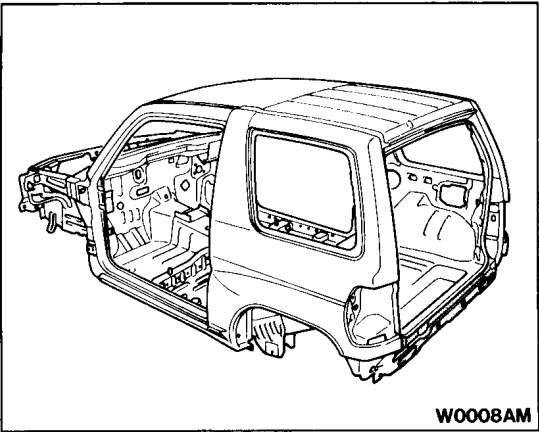


- (2) When installing a new side outer panel, apply structural adhesive on the center pillar reinforcement at the sections shown in the illustration.

■ : Adhesive

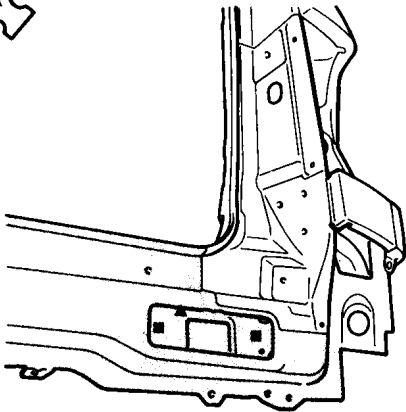
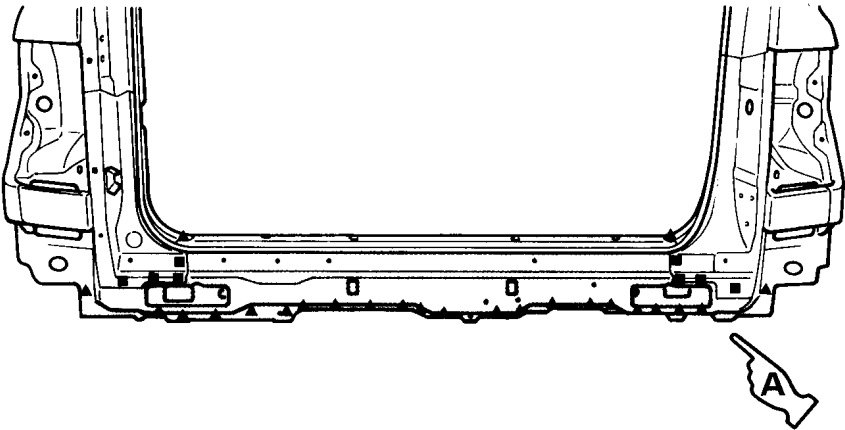
Adhesive	Type	Brand
	Epoxyresin adhesive	3M DP-460 3M DP-420

REAR END CROSSMEMBER

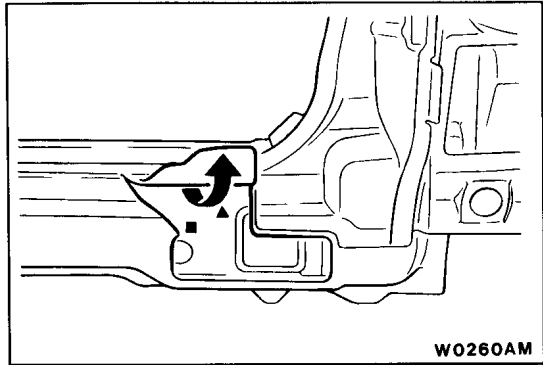


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	MIG arc welding (continuous)
○○○○○	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS



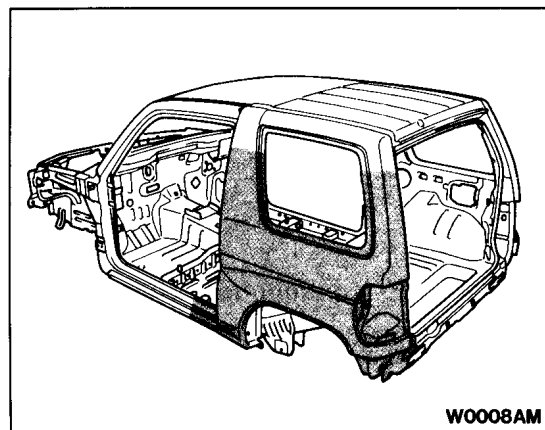
A



NOTES WITH REGARD TO REPAIR WORK
REMOVAL

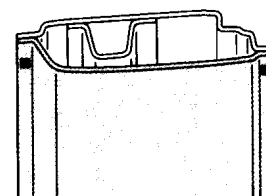
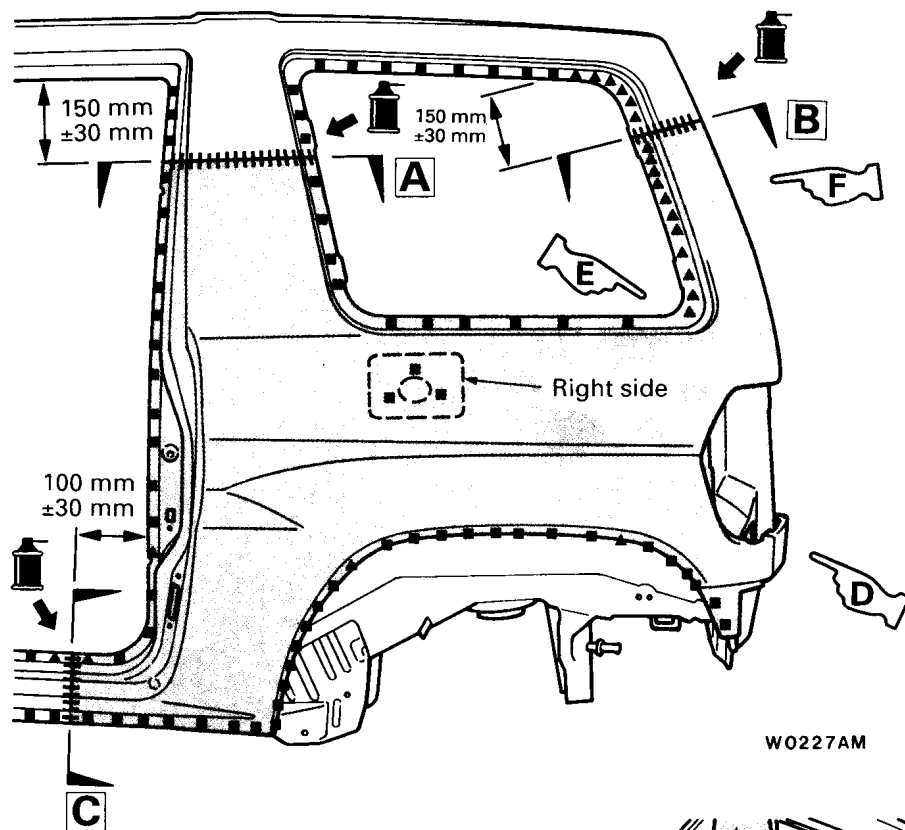
For the welding at the sections shown in the illustration, use the work hole for the rear end outer crossmember, make notches in the panel, bend the panel upward and remove.

QUARTER PANEL, OUTER <3 DOOR>



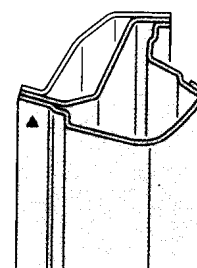
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REPAIR WELDS



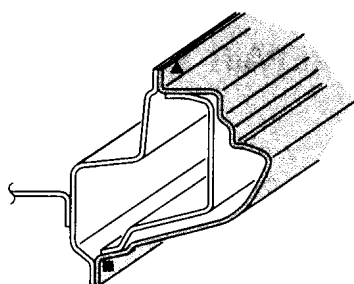
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W0228AM



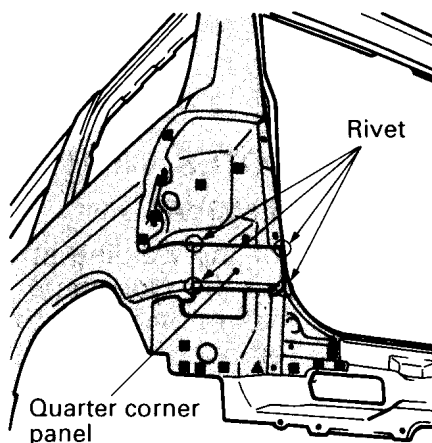
B

W0229AM



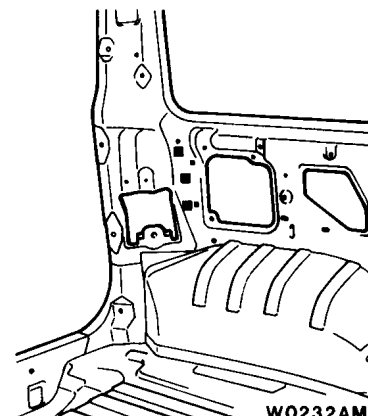
C

W0230AM



D

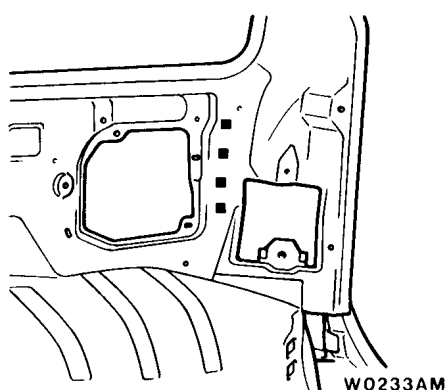
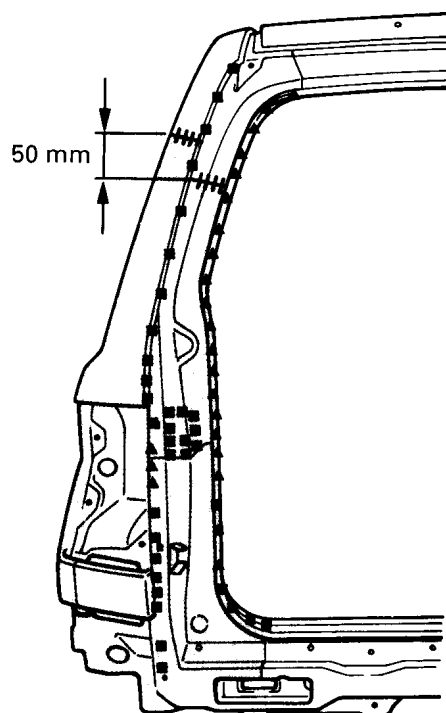
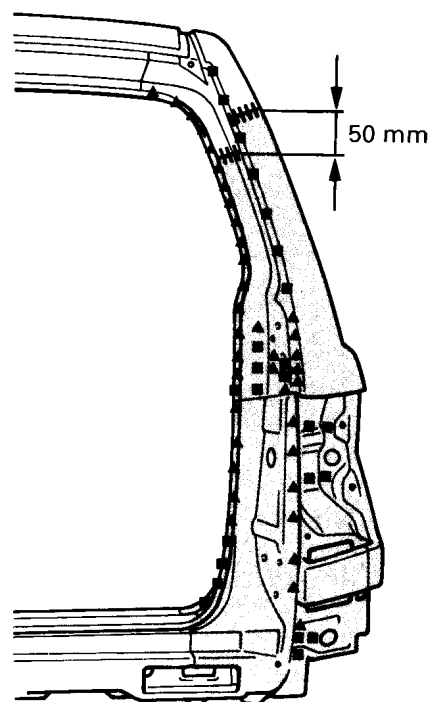
W0231AM



E

W0232AM

(Left side)

**E** (Right side)**F** (Left side)
W0234AM**F** (Right side) W0235AM

NOTES WITH REGARD TO REPAIR WORK INSTALLATION

When installing the side outer panel, apply adhesive at the sections shown in the illustration.

■ : Adhesive

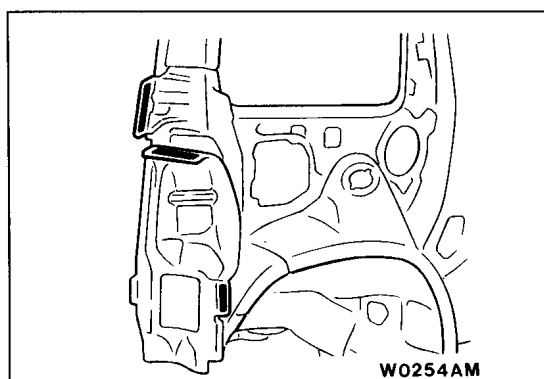
Adhesive	Type	Brand
	Epoxyresin adhesive	3M DP-460 3M DP-420

■ : Adhesive

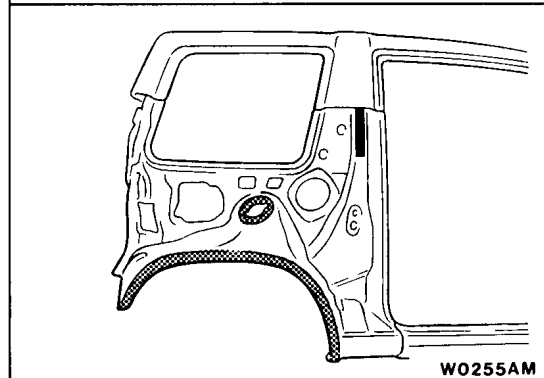
Adhesive	Type
	Chloroprene-base drying sealant

Reference: The part can be replaced according to the range of damage.

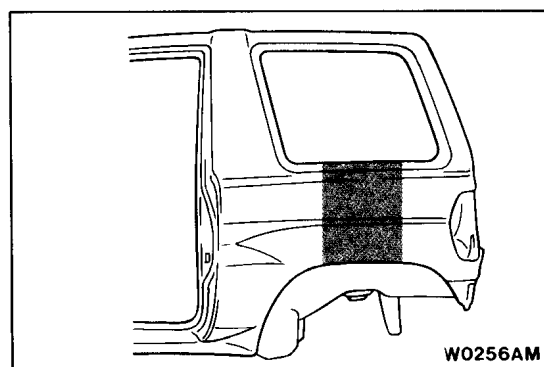
■ : Cutting range



W0254AM

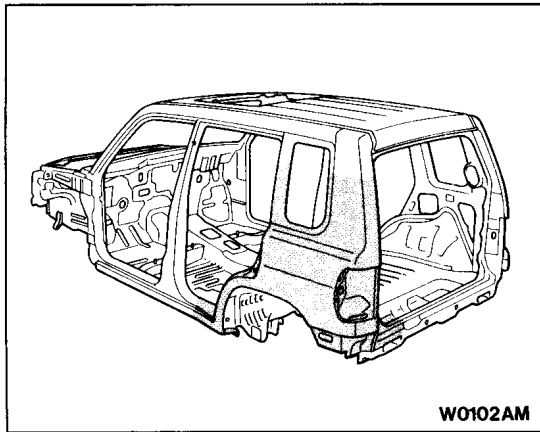


W0255AM



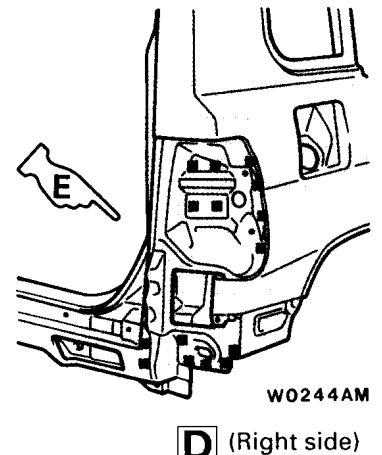
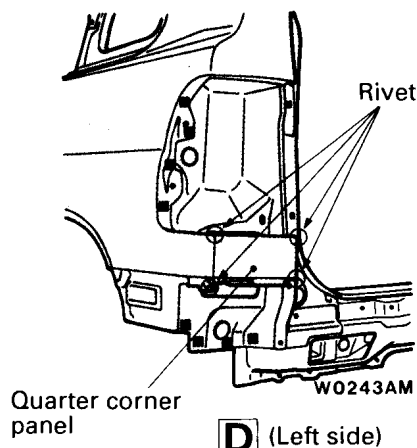
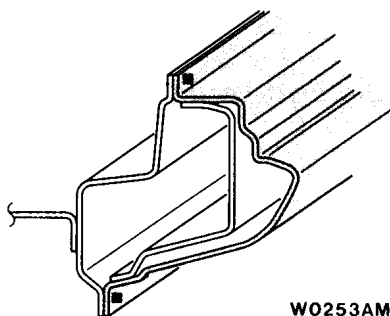
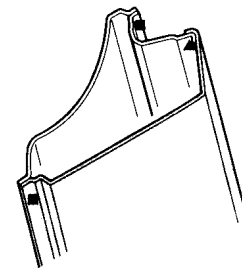
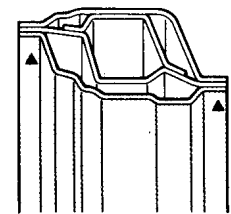
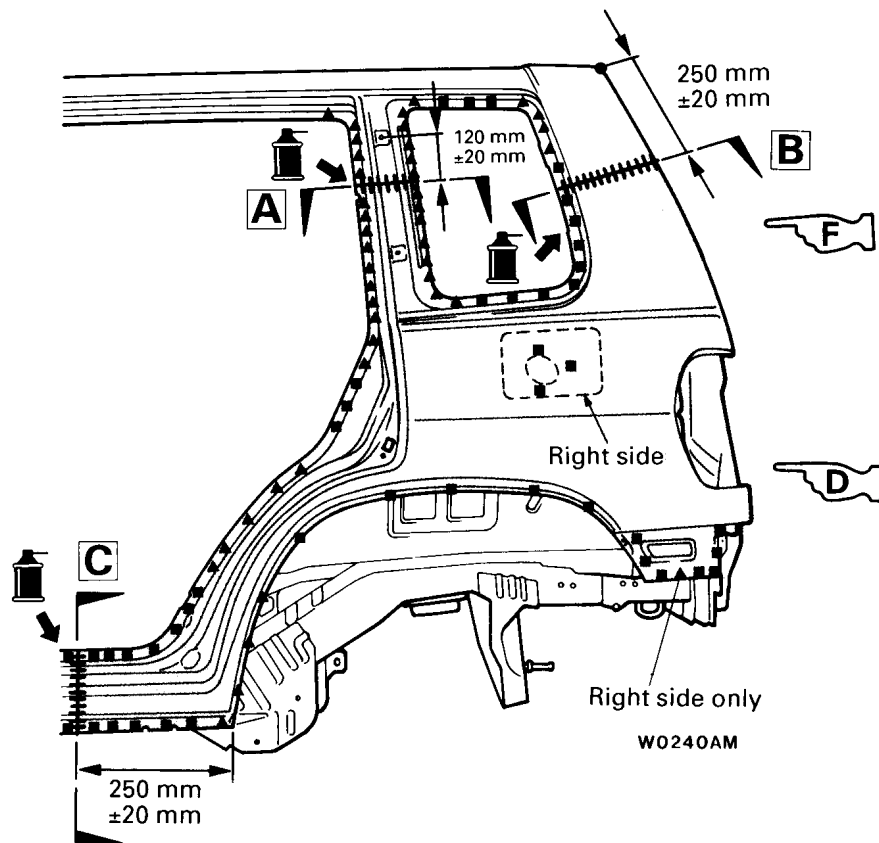
W0256AM

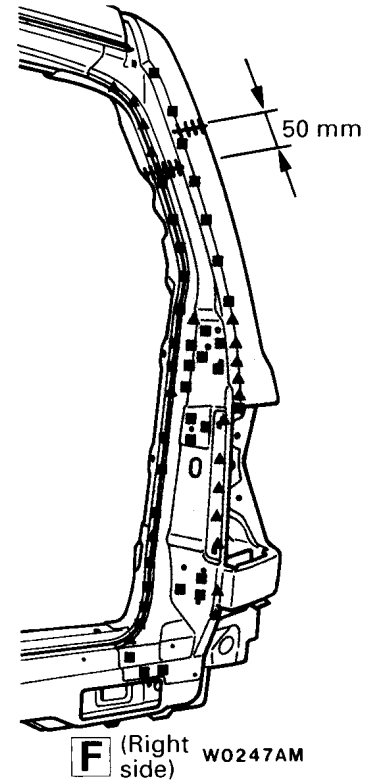
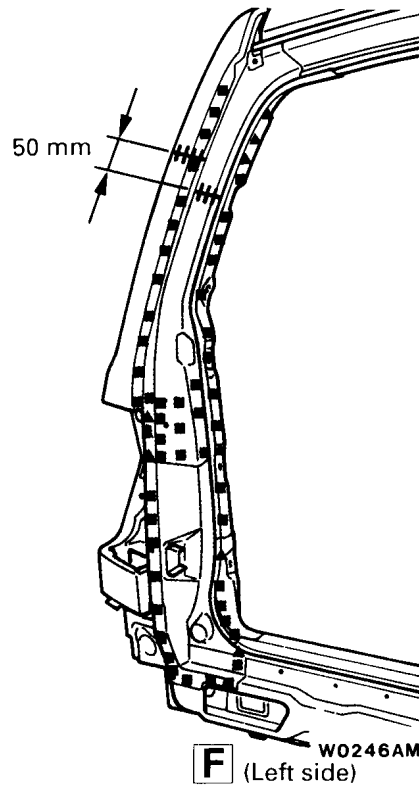
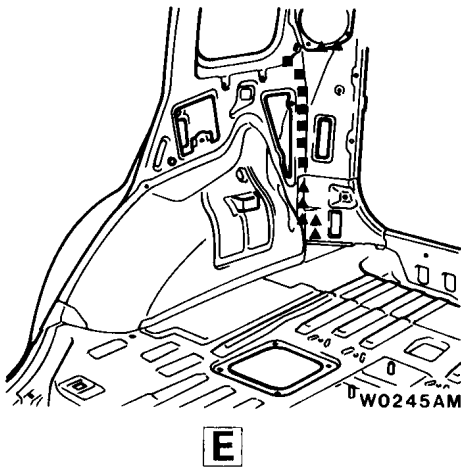
QUARTER PANEL, OUTER <5 DOOR>



Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
++++	MIG spot welding
	MIG arc welding (continuous)
ooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS





NOTES WITH REGARD TO REPAIR WORK INSTALLATION

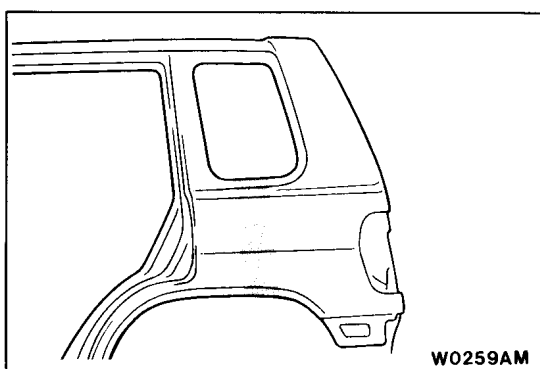
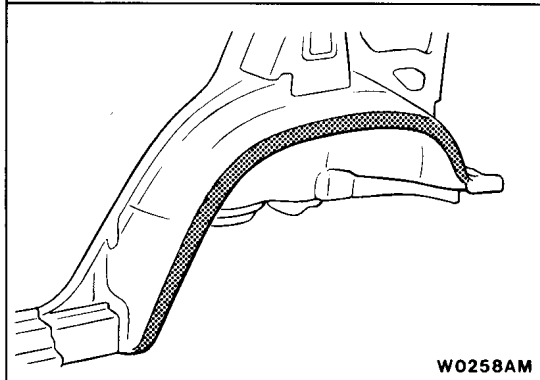
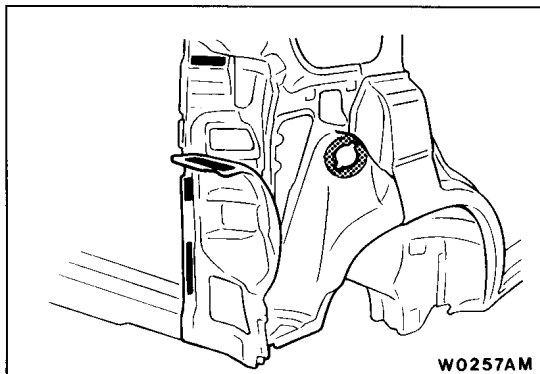
When installing the side outer panel and rear pillar hinge reinforcement, apply adhesive at the sections shown in the illustration.

■ : Adhesive

Adhesive	Type	Brand
	Epoxyresin adhesive	3M DP-460 3M DP-420

▨ : Adhesive

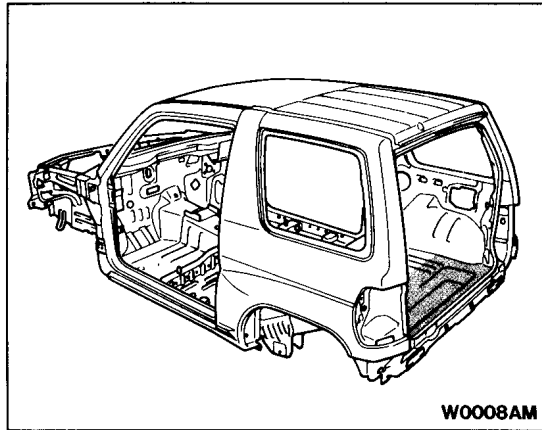
Adhesive	Type
	Chloroprene-base drying sealant



Reference: The part can be replaced according to the range of damage.

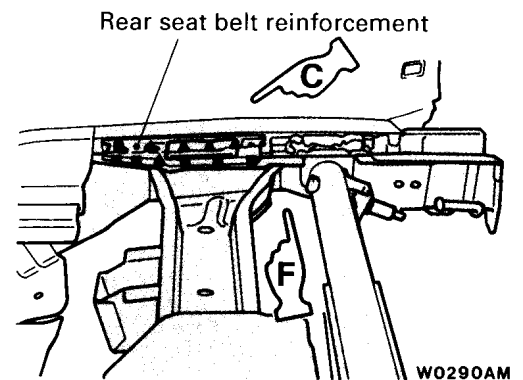
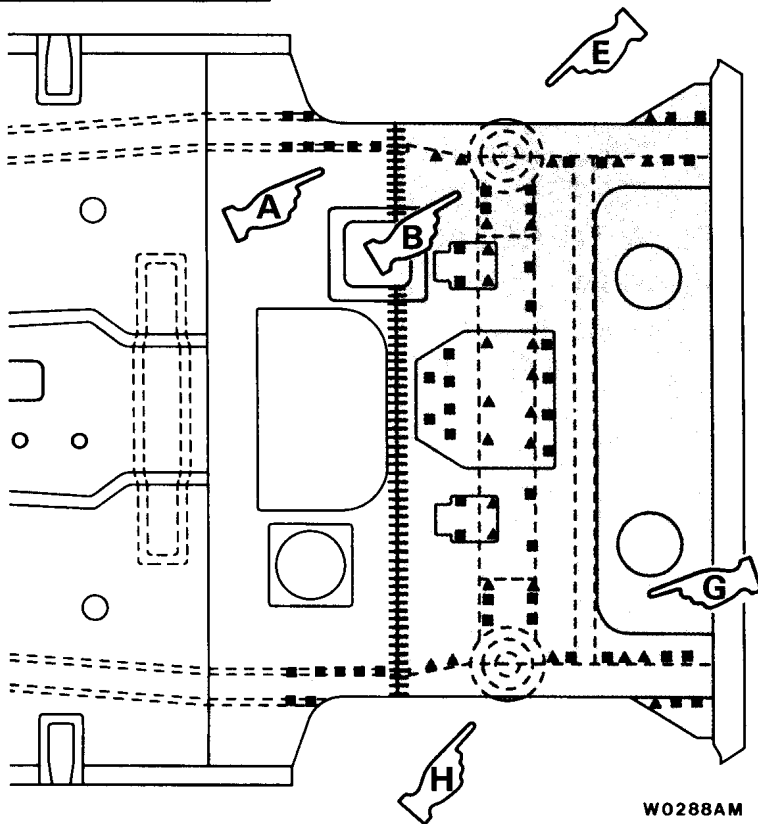
□ : Cutting range

REAR FLOOR <3 DOOR>



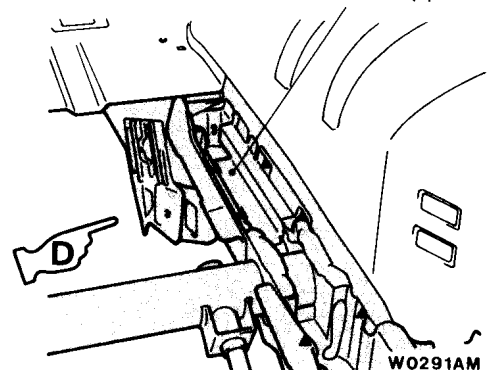
Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
++++	MIG spot welding
	MIG arc welding (continuous)
oooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS



B

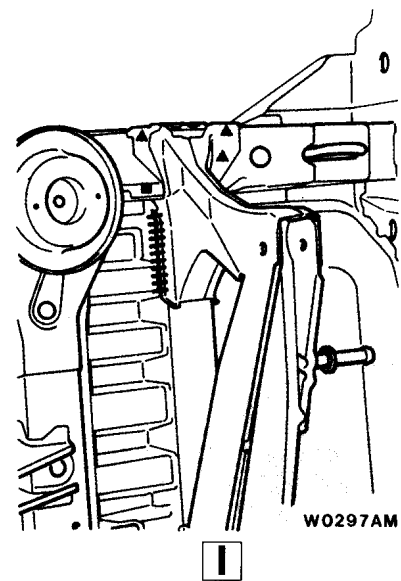
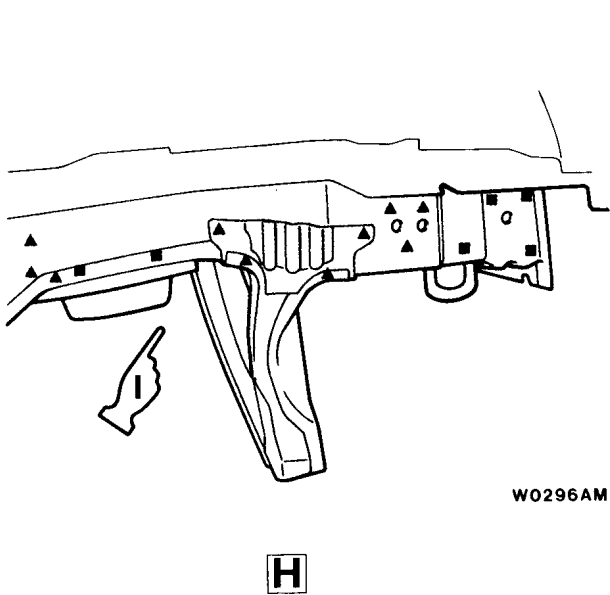
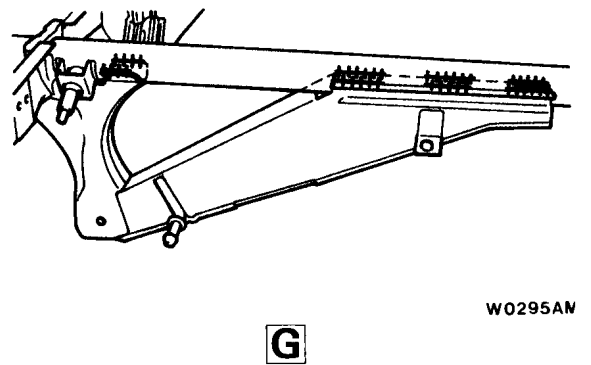
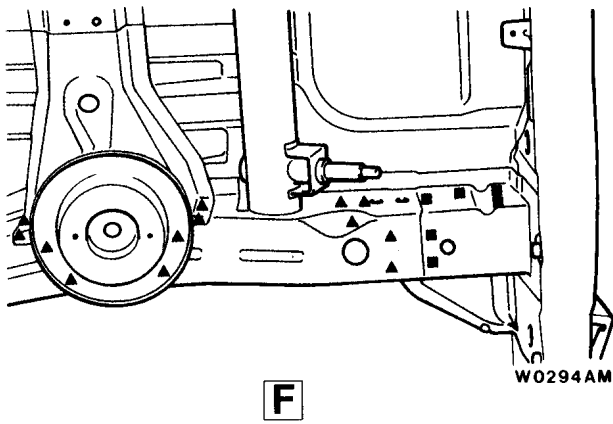
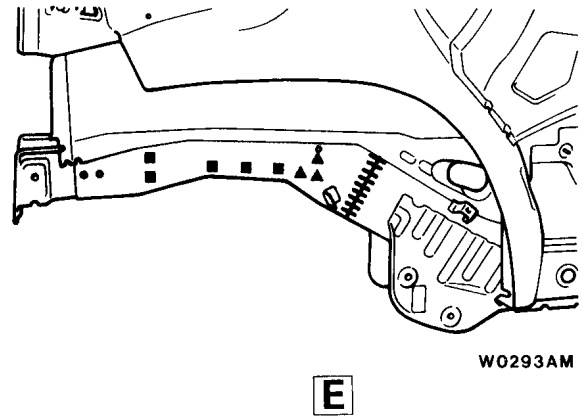
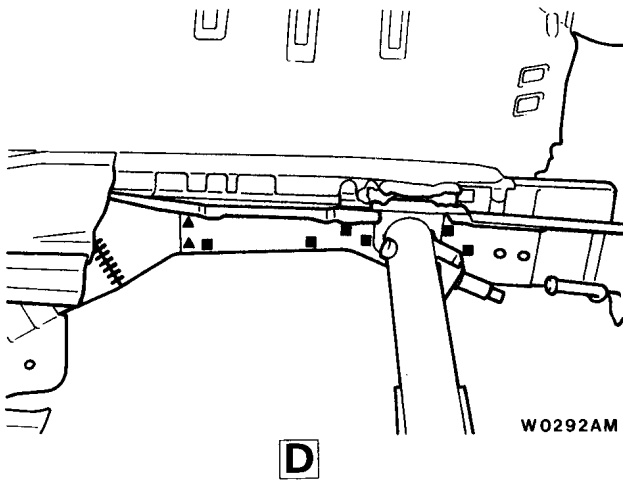
Former support (B)

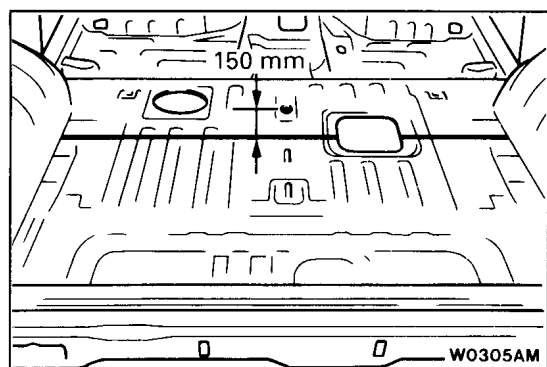


C

NOTE

For the weld point to the rear end crossmember, refer to P.3-17 – Rear end crossmember.

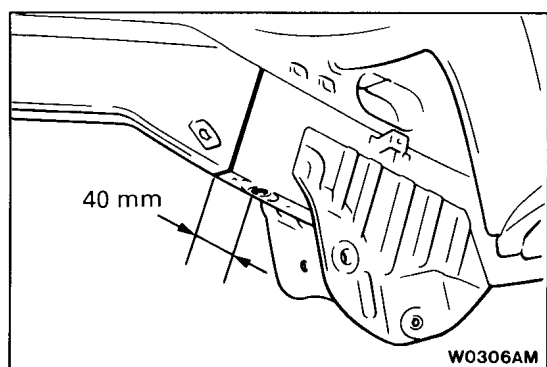




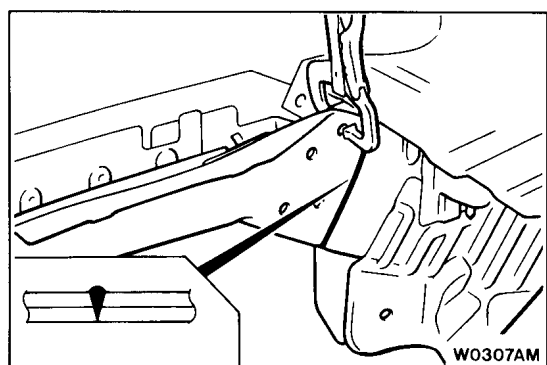
NOTES WITH REGARD TO REPAIR WORK

REMOVAL

- (1) Cut the rear floor pan 150 mm behind the body center point shown.



- (2) Cut the rear floor sidemember with the rear floor sidemember reinforcement 40 mm behind the hole shown.

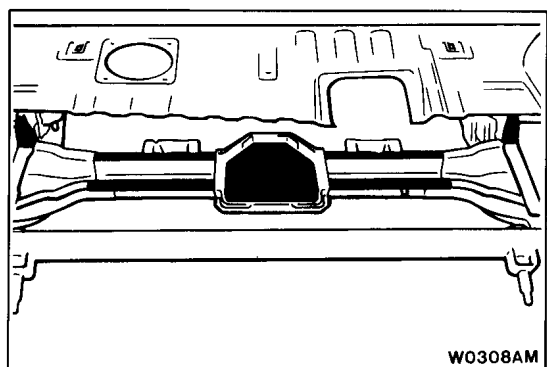


INSTALLATION

- (1) Cut the new part to match the cutting surface of the rear floor sidemember on the body side.

Caution

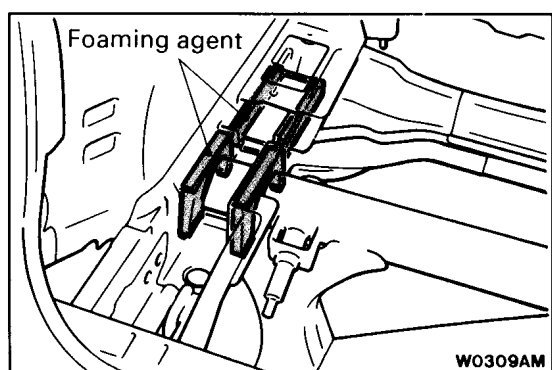
Cut the welded surface in V-shape and secure the strength of the welded section.



- (2) When installing the rear floor pan, apply adhesive on the rear floor crossmember and rear seat belt center reinforcement at the sections shown in the illustration.

■ : Adhesive

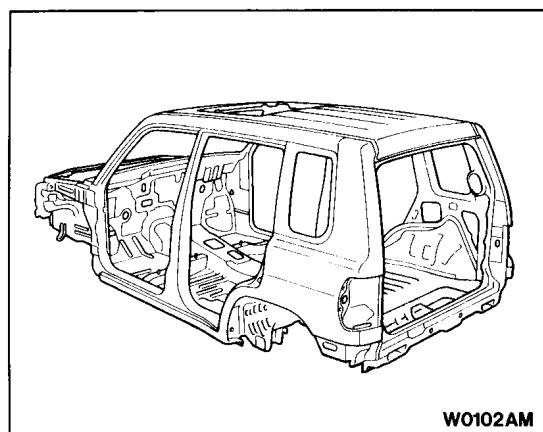
Adhesive	Type	Brand
	Epoxyresin adhesive	3M DP-460 3M DP-420



- (3) Fill foaming agent in between the rear floor sidemember and former support (B).

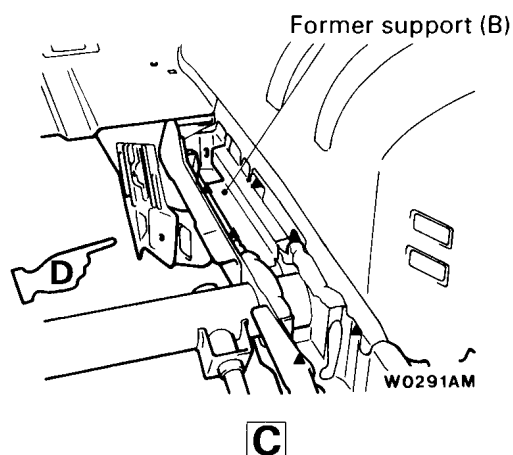
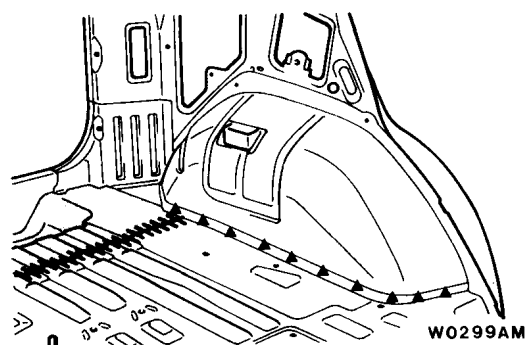
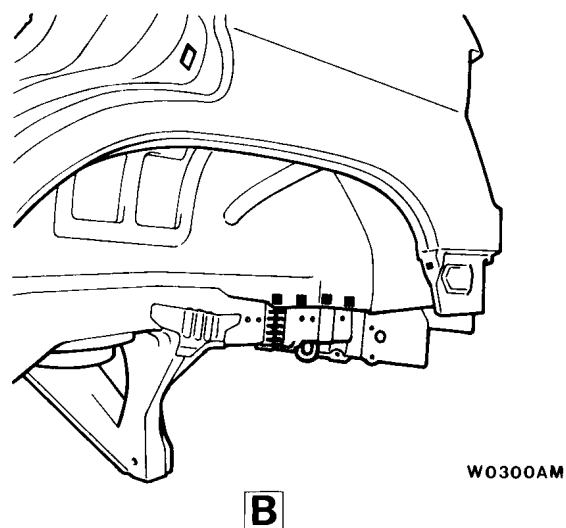
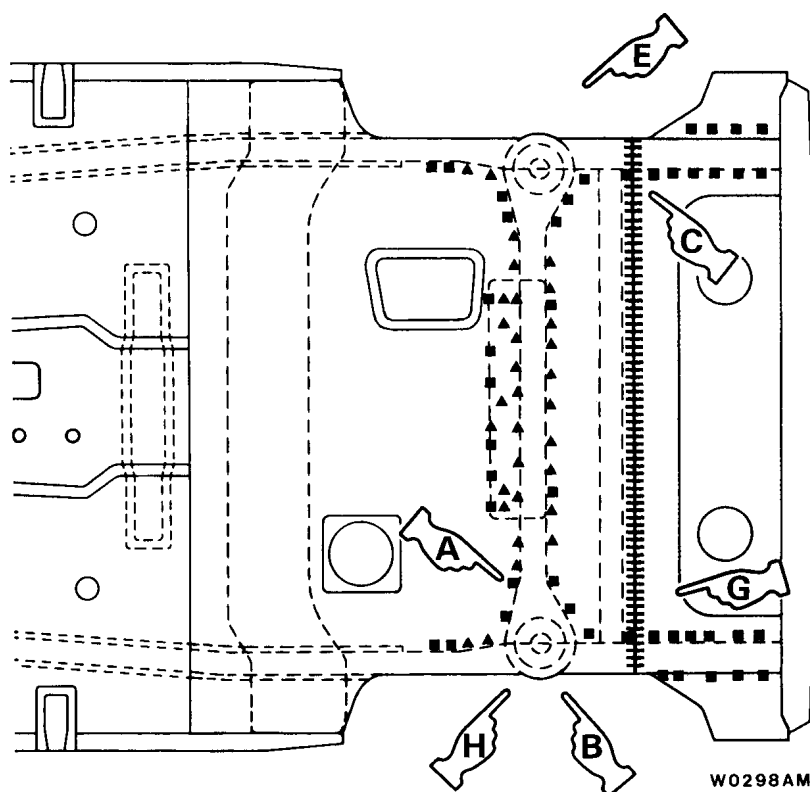
Foaming filler: 3M Super Panel Filler

REAR FLOOR <5 DOOR>



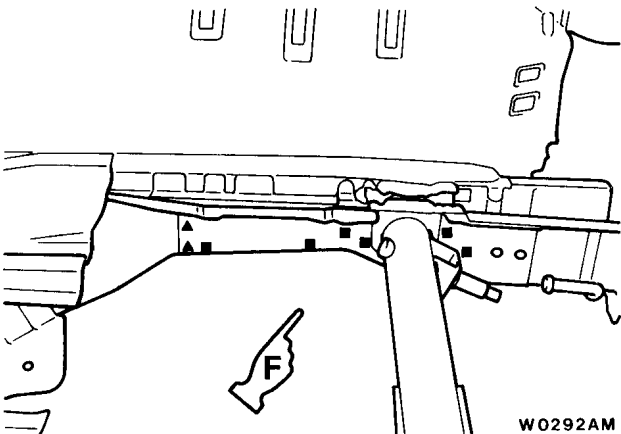
Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
++++	MIG spot welding
	MIG arc welding (continuous)
ooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS



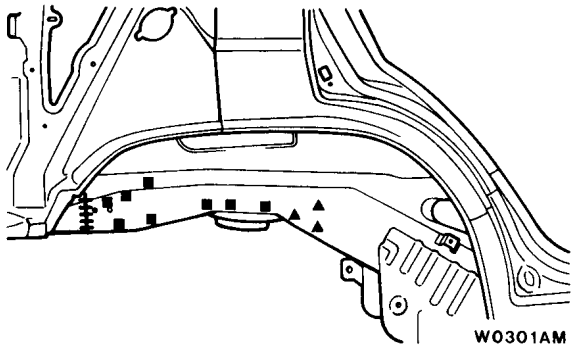
NOTE

For the weld point to the rear end crossmember, refer to P.3-17 – Rear end crossmember.



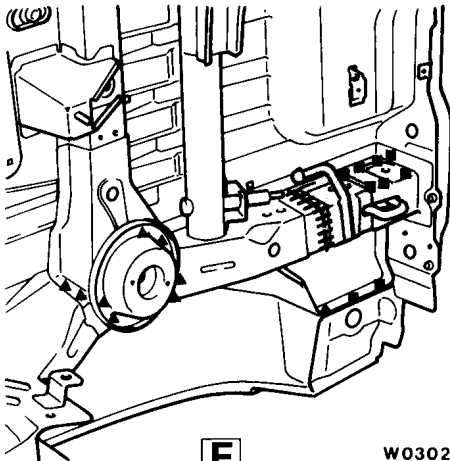
W0292AM

D



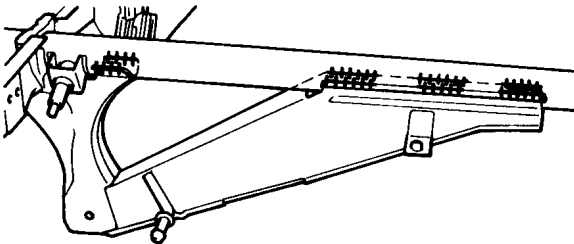
W0301AM

E



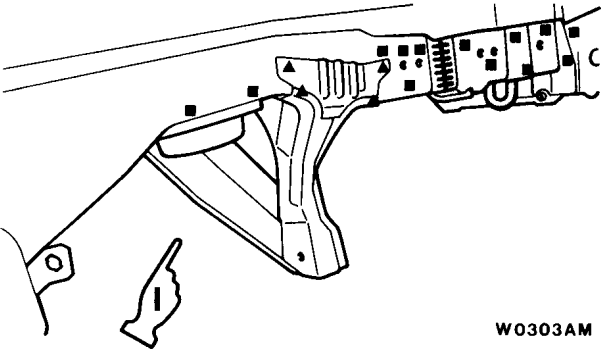
W0302AM

F



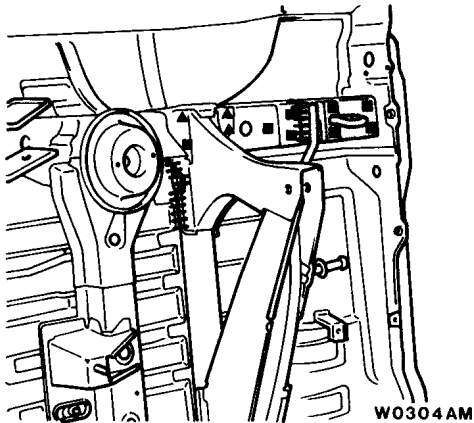
W0295AM

G



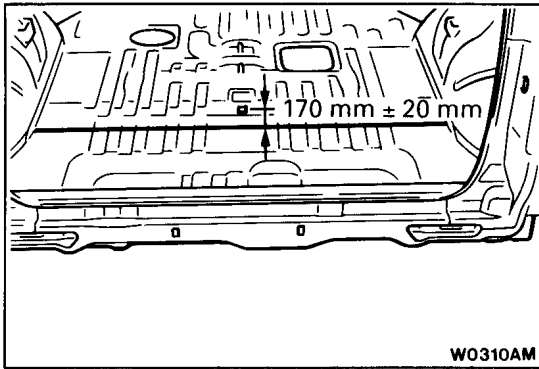
W0303AM

H



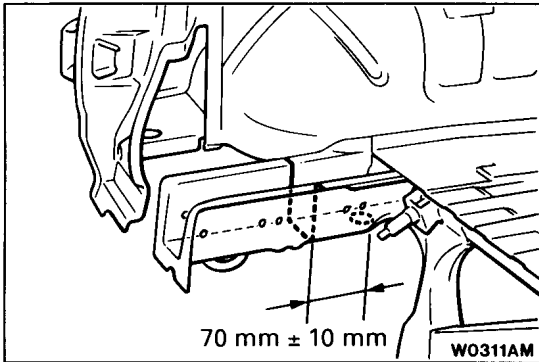
W0304AM

I



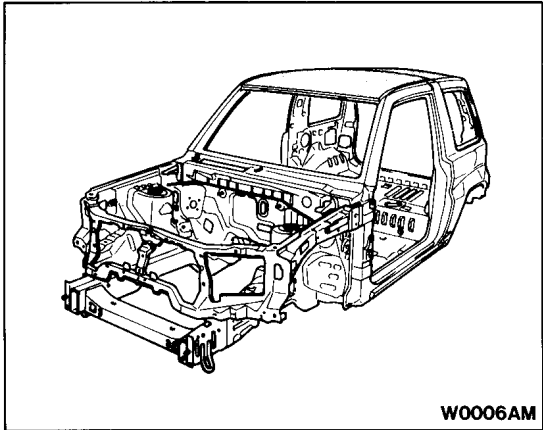
NOTES WITH REGARD TO REPAIR WORK REMOVAL

- (1) Cut the rear floor pan at a position $170\text{ mm} \pm 20\text{ mm}$ behind the luggage floor box installation hole.



- (2) Cut the rear floor sidemember extension rear at a position $70\text{ mm} \pm 10\text{ mm}$ behind the water drain hole shown in the illustration.

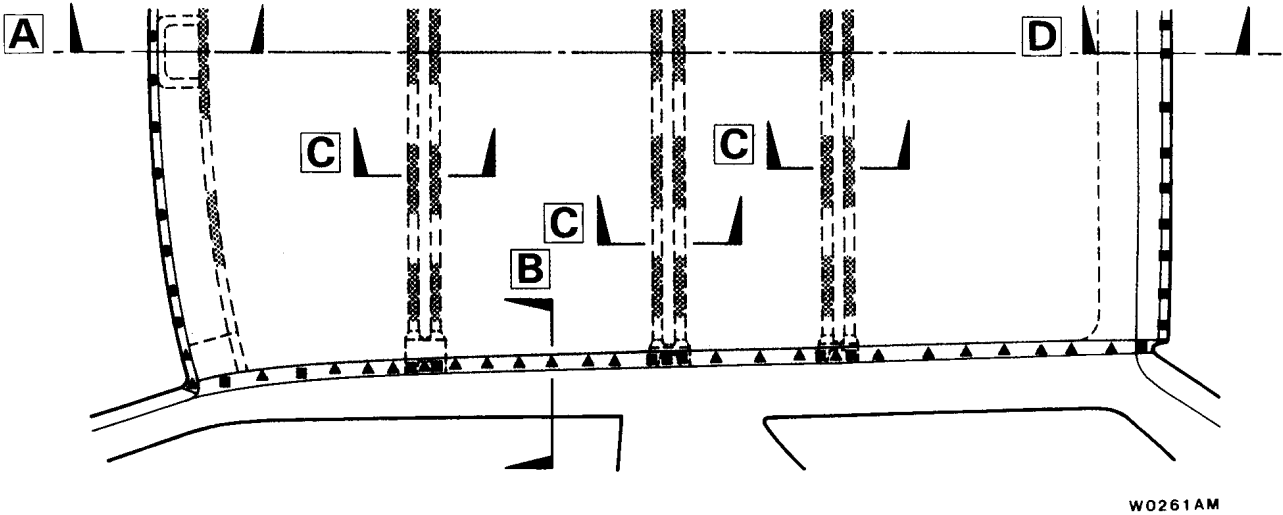
ROOF <3 DOOR>



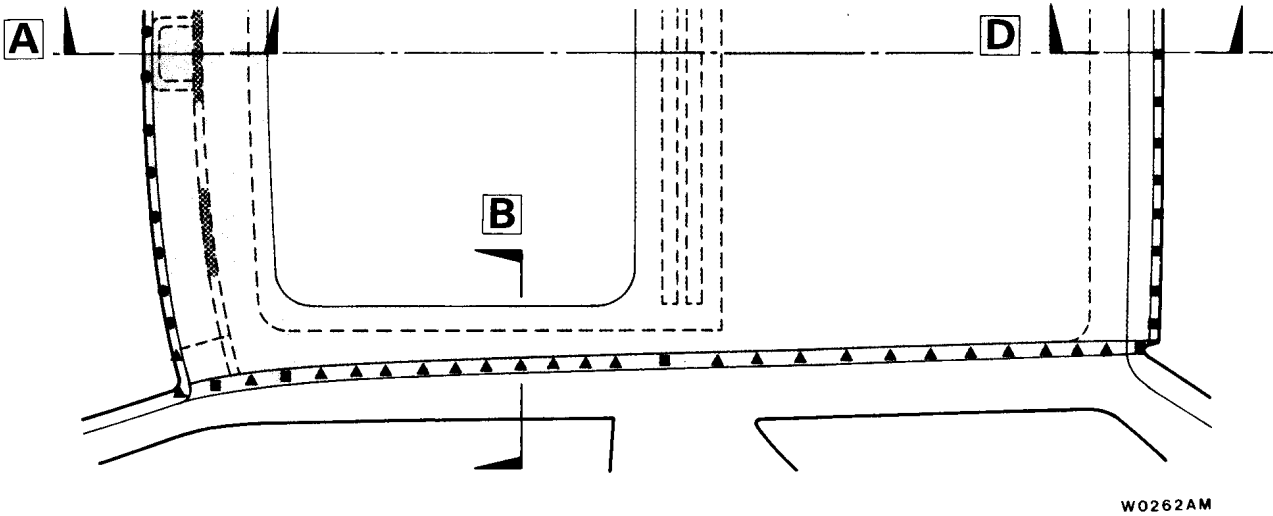
Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
	MIG arc welding (continuous)
ooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS

STANDARD ROOF

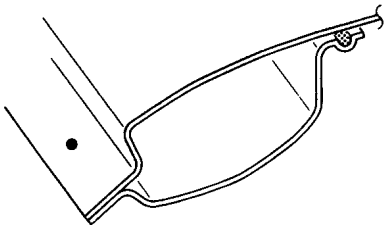


SUNROOF



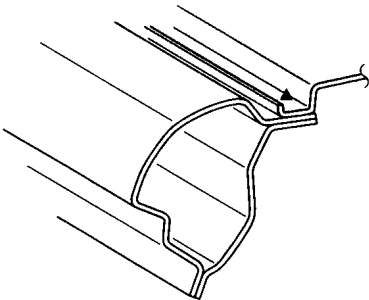
 : Adhesive

Adhesive	Type
	Chloroprene-base drying sealant



A

W0263AM



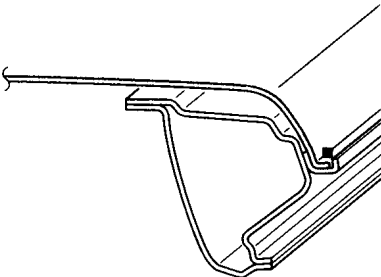
B

W0264AM



C

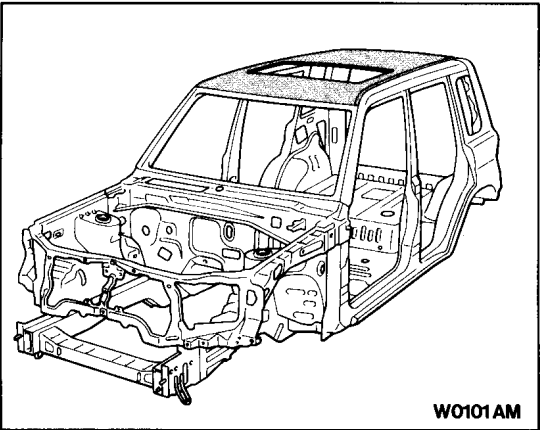
W0265AM



D

W0266AM

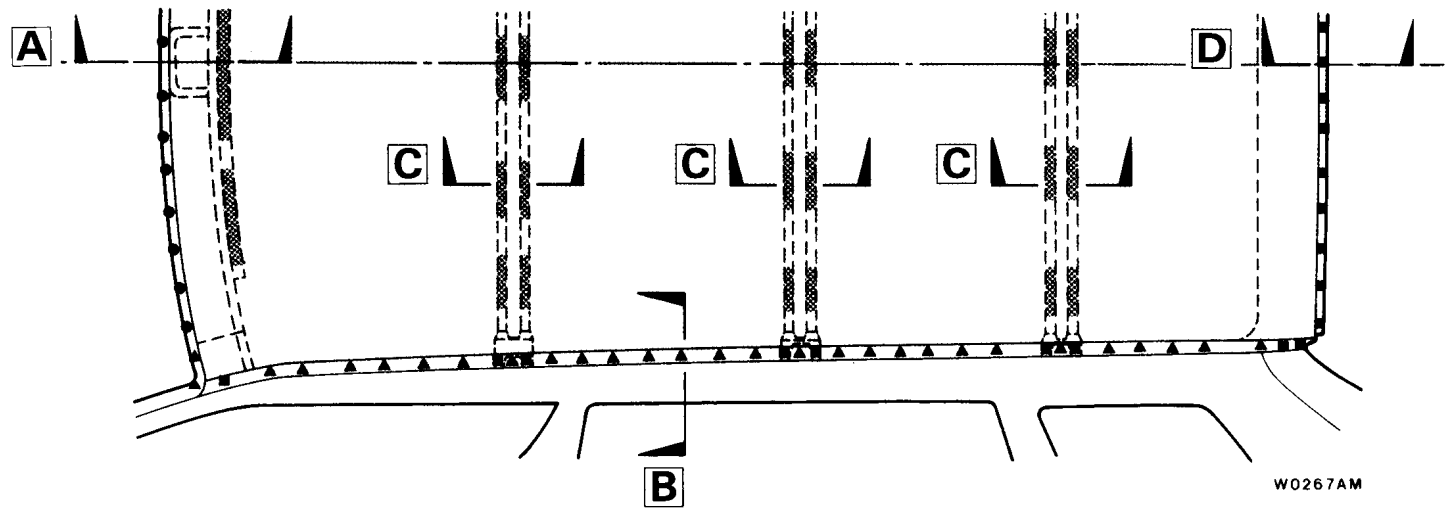
ROOF <5 DOOR>



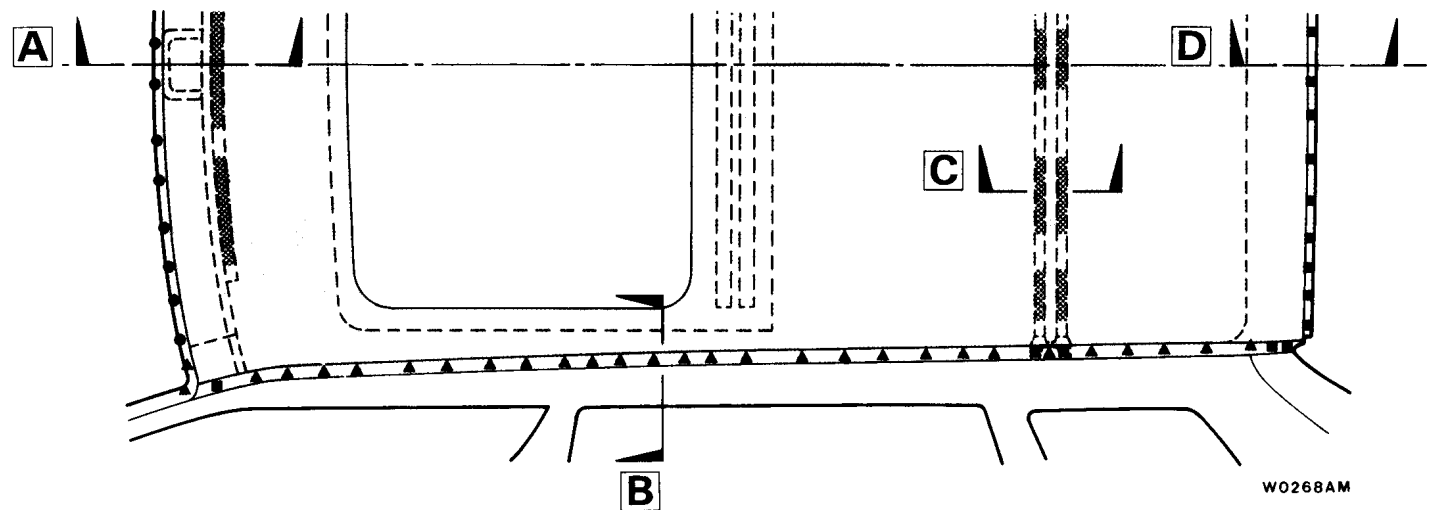
Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
	MIG arc welding (continuous)
○ ○ ○ ○ ○	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS

STANDARD ROOF

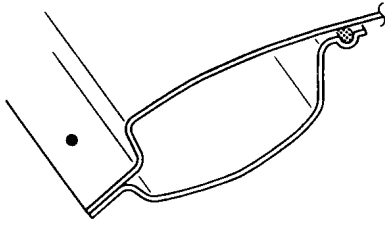


SUNROOF



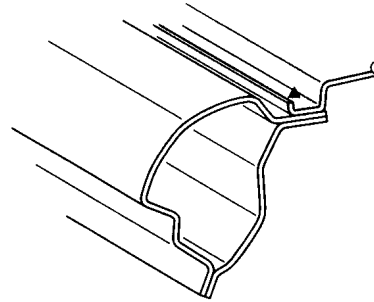
 : Adhesive

Adhesive	Type
	Chloroprene-base drying sealant



W0263AM

A



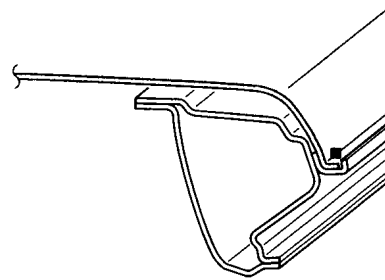
W0264AM

B



W0265AM

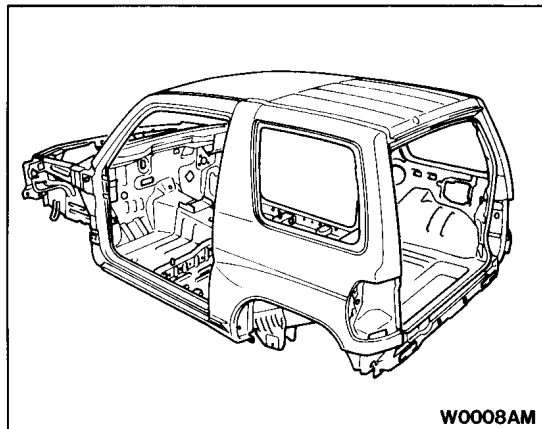
C



W0266AM

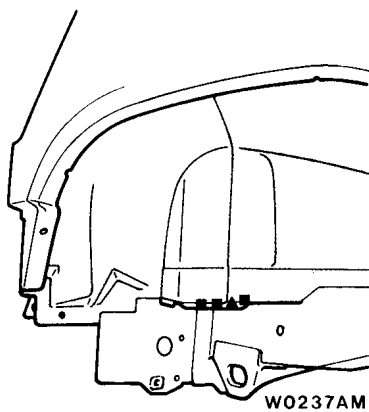
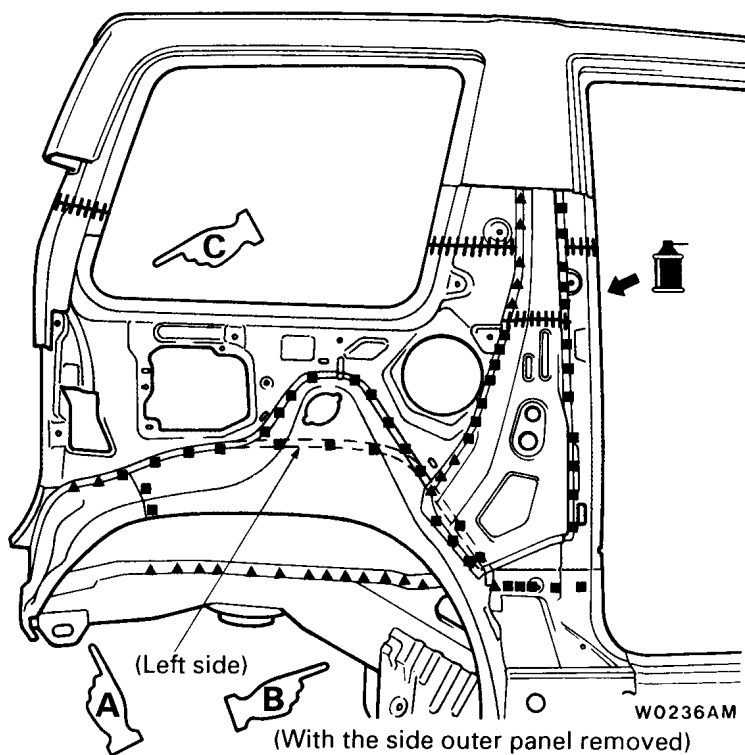
D

QUARTER PANEL, INNER <3 DOOR>

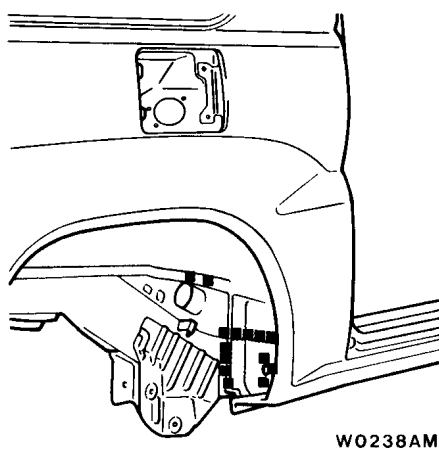


Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
++++	MIG spot welding
	MIG arc welding (continuous)
oooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

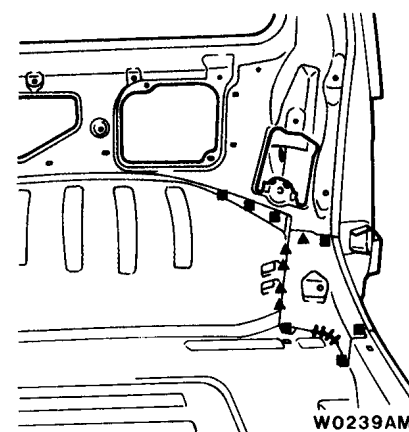
REPAIR WELDS



A

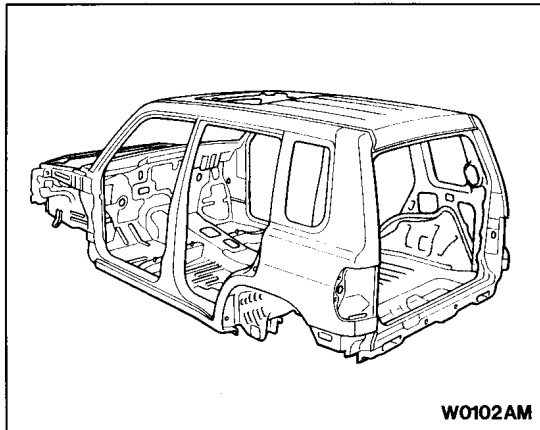


B



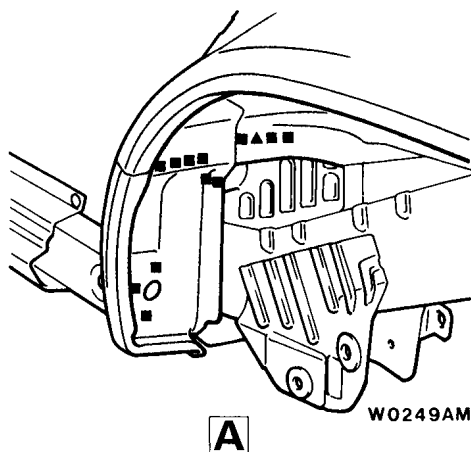
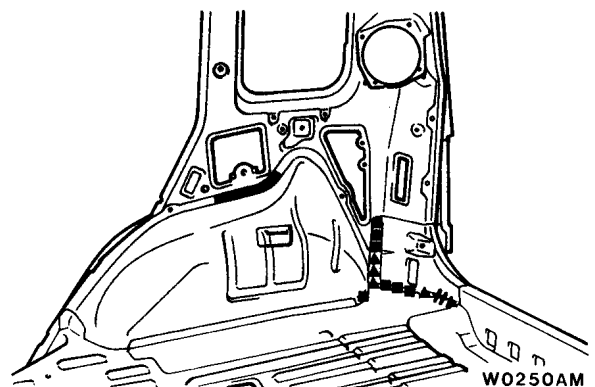
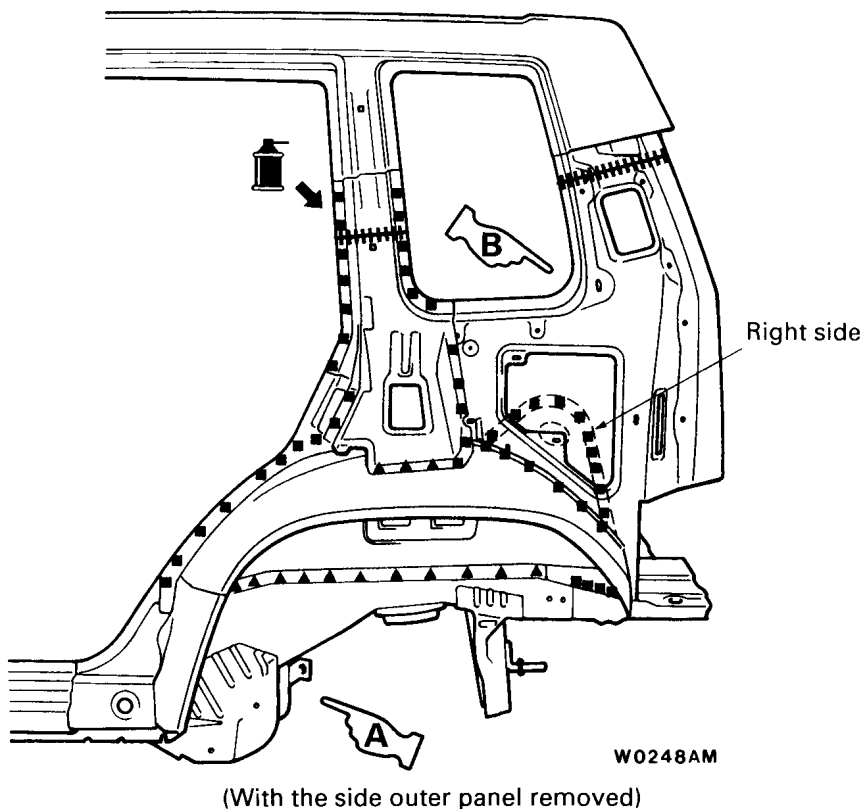
C

QUARTER PANEL, INNER <5 DOOR>



Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
++++	MIG spot welding
	MIG arc welding (continuous)
○○○○○	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

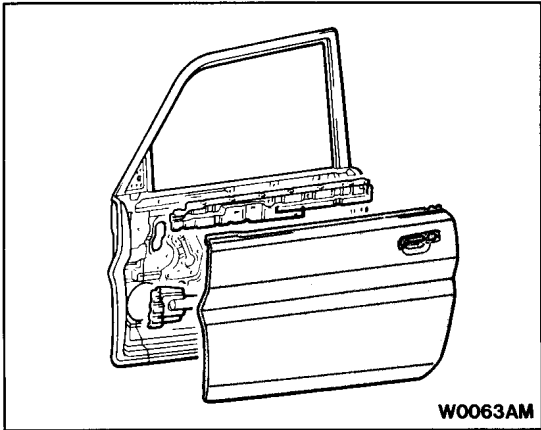
REPAIR WELDS



■ : Adhesive

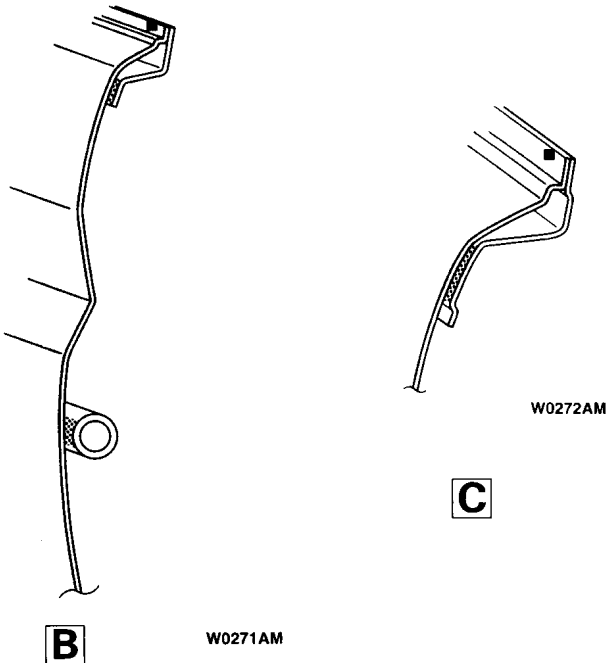
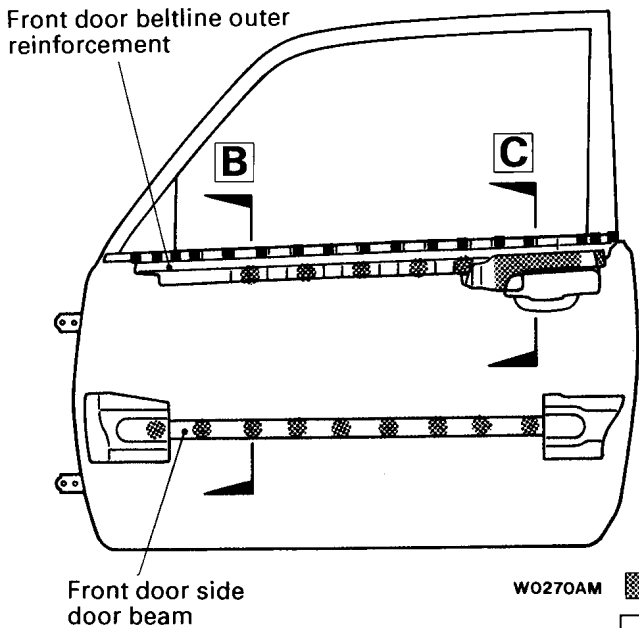
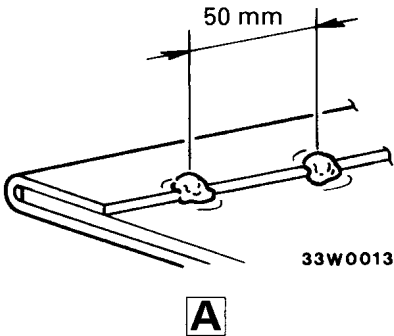
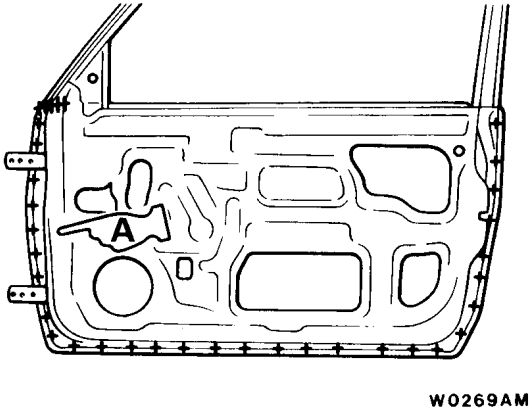
Adhesive	Type	Brand
	Epoxyresin adhesive	3M DP-460 3M DP-420

FRONT DOOR PANEL, OUTER <3 DOOR>



Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
++++	MIG spot welding
	MIG arc welding (continuous)
oooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

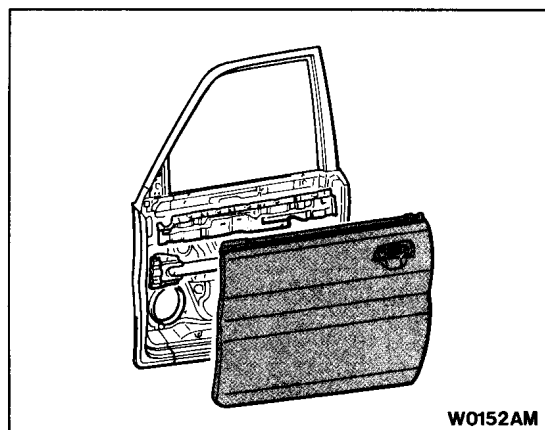
REPAIR WELDS



Adhesive	Type
	Chloroprene-base drying sealant

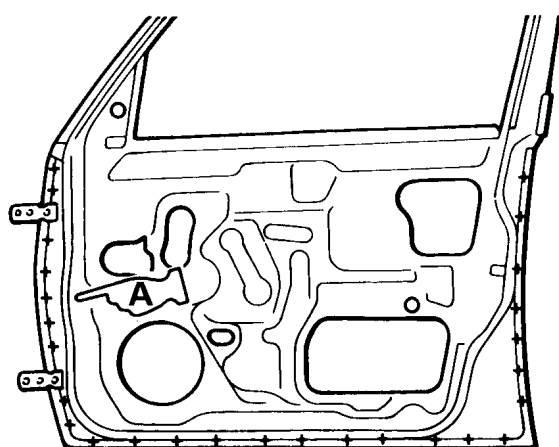
NOTE
After hemming the door outer panel, MIG spot weld the flange overlap section at a pitch of approx. 50 mm.

FRONT DOOR PANEL, OUTER <5 DOOR>

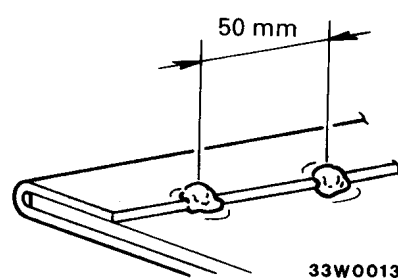


Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
++++	MIG spot welding
	MIG arc welding (continuous)
oooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

REPAIR WELDS

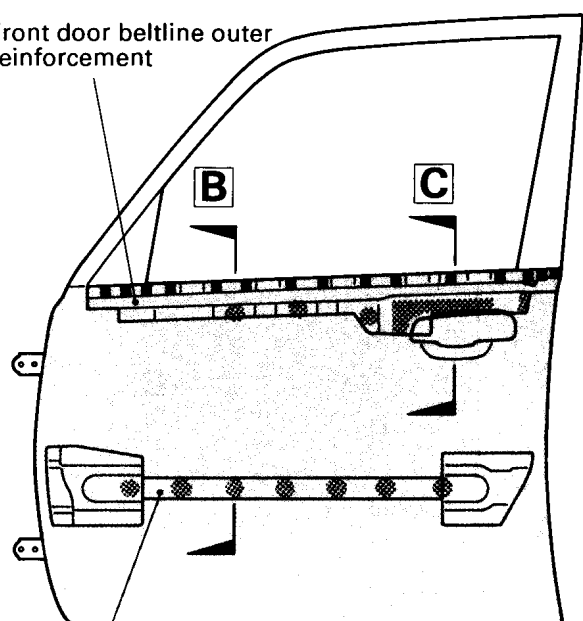


W0273AM



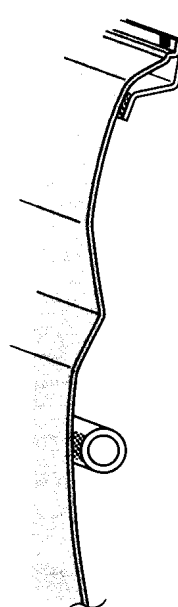
A

Front door beltline outer reinforcement

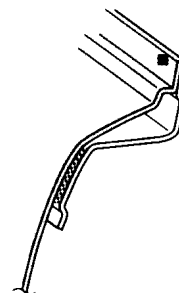


Front door side door beam

W0274AM



B



W0272AM

C

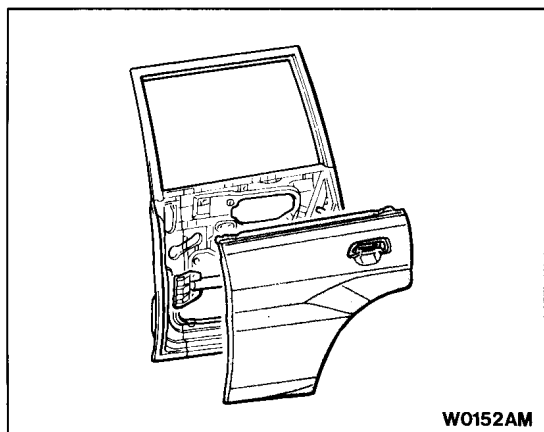
: Adhesive

Adhesive	Type
	Chloroprene-base drying sealant

NOTE

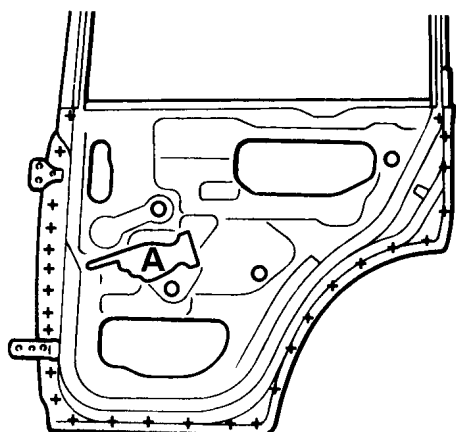
After hemming the door outer panel, MIG spot weld the flange overlap section at a pitch of approx. 50 mm.

REAR DOOR PANEL, OUTER <5 DOOR>

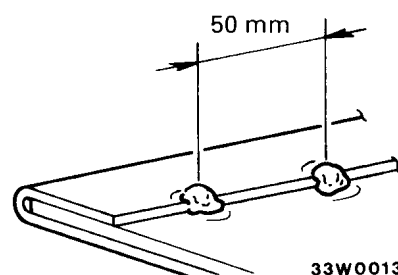


Symbol	Operation description
• • • •	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
	MIG arc welding (continuous)
ooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes to apply liberally to butt-welded joints.)

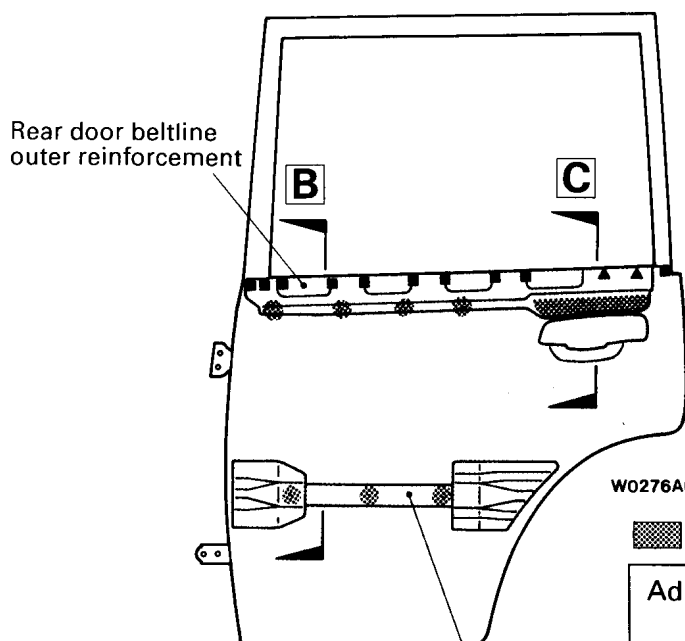
REPAIR WELDS



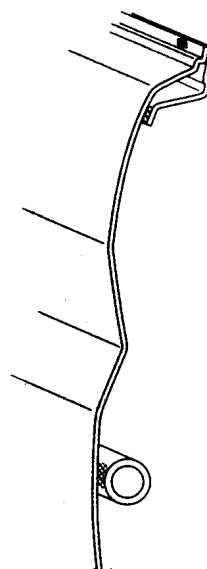
W0275AM



A

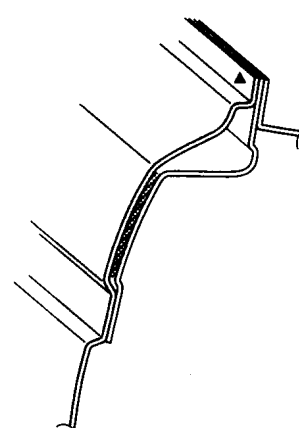


W0276AM



B

W0277AM



W0278AM

C

 : Adhesive

Adhesive	Type
	Chloroprene-base drying sealant

NOTE

After hemming the door outer panel, MIG spot weld the flange overlap section at a pitch of approx. 50 mm.