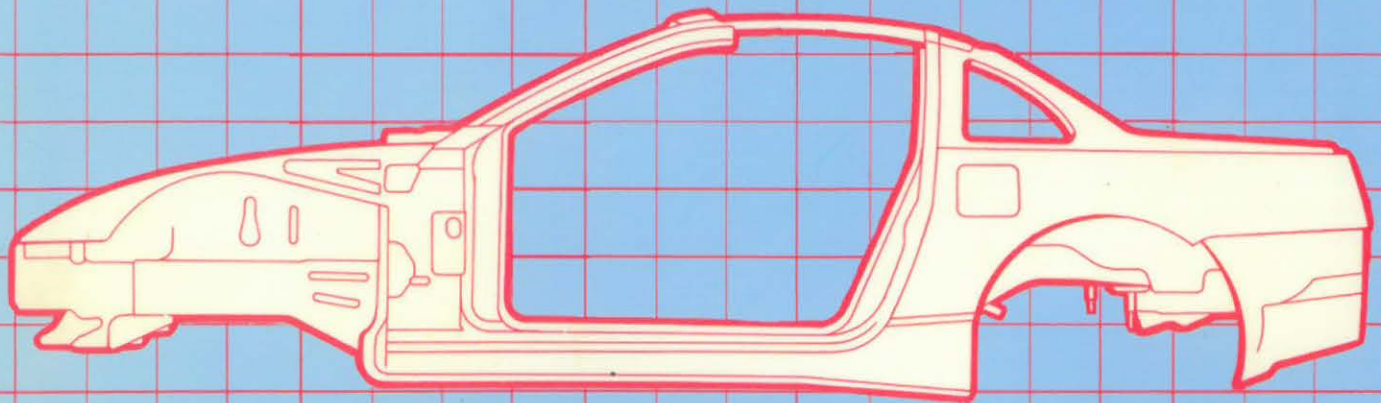
MODEL Z32 SERIES

NISSAN 300ZX

BODY REPAIR MANUAL



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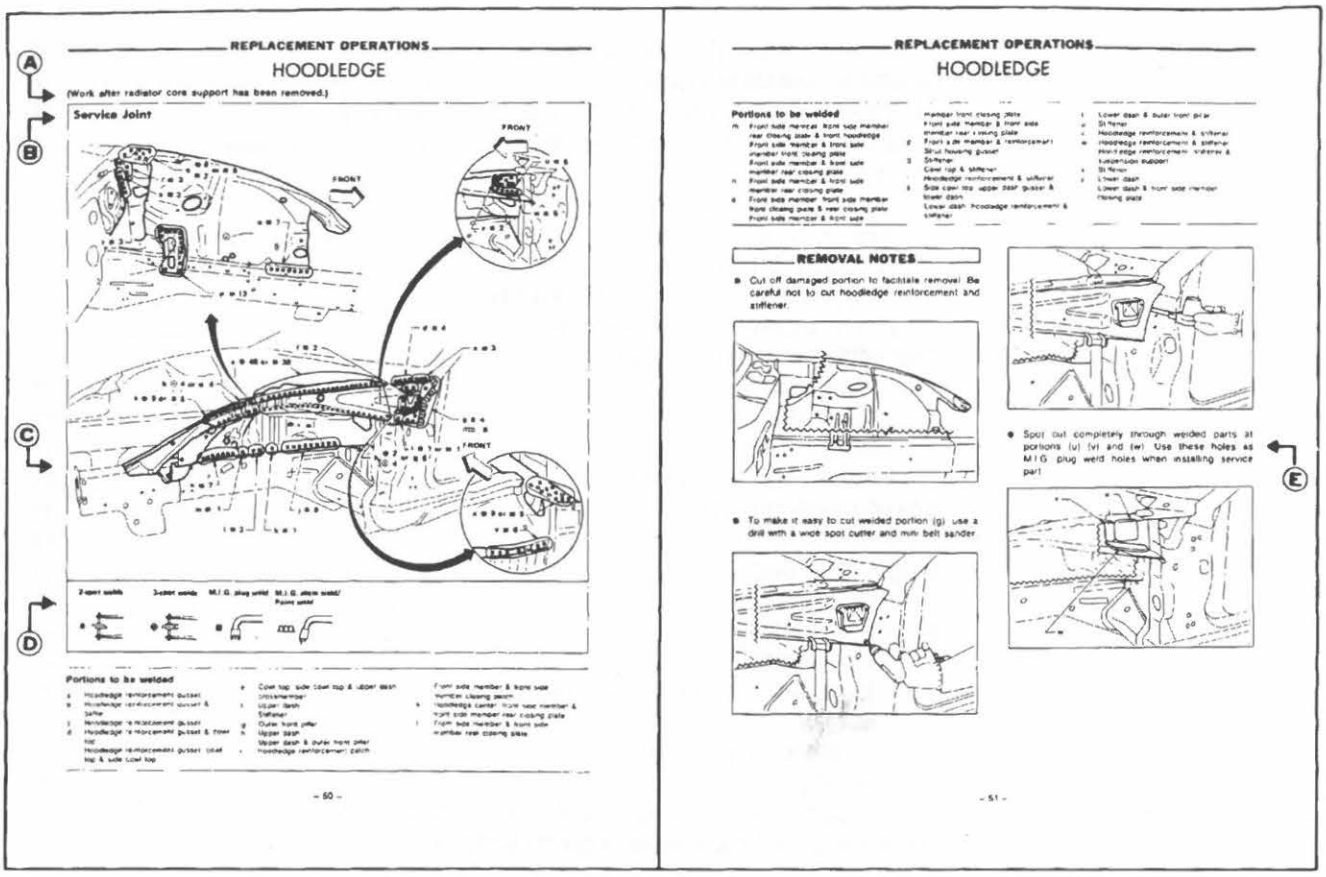
HOW TO USE THIS MANUAL



Ⓐ **(Work after RADIATOR CORE SUPPORT has been removed):**
The replacement operation of the hoodledge panel is shown here, beginning from the condition where the radiator core support has already been removed. If the radiator core support and the hoodledge reinforcement are installed on the vehicle to be serviced, refer to "RADIATOR CORE SUPPORT" in REPLACEMENT OPERATIONS.

Ⓑ **SERVICE JOINT:**
Welding methods and No. of welding points for performing body repair work are described (replacement of body parts).
To maintain the integrity of the vehicle body, work should be done, observing the instructions described here (particularly No. of welding points).
[Example]

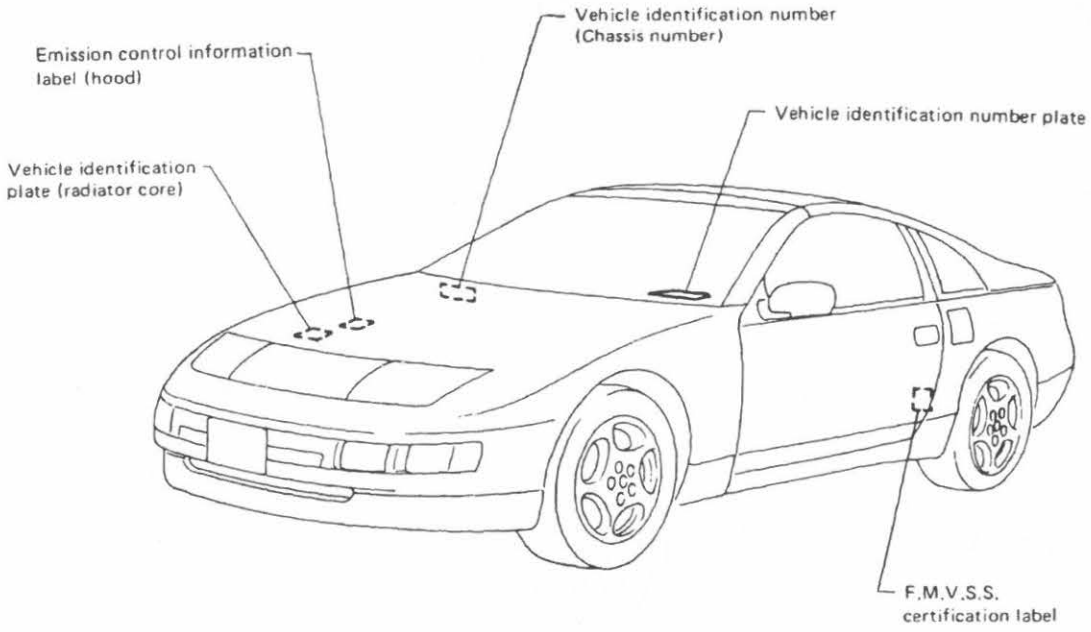
a ■ 6
Portion — No. of welding points
MIG plug weld (See symbol mark on page 50.)

Ⓒ Symbols are used in illustrations to clearly identify welding methods. (See symbol mark on page 50.)

Ⓓ **PORTIONS TO BE WELDED:**
Portions to be welded are listed, including descriptions of those areas to which the portion under the subtitle (ex. Hoodledge panel) will be welded.

Ⓔ **REMOVAL/INSTALLATION NOTES**
Main service points and special notes for body repair work are described.

IDENTIFICATION NUMBERS (For U.S.A. & Canada)



SGI617

VEHICLE IDENTIFICATION NUMBER ARRANGEMENT

JN1 R Z 2 4 S * L X 000001

Manufacturer
JN1 : Nissan passenger vehicle

Engine type
R : VG30DE
C : VG30DETT

Vehicle line
Z : NISSAN 300ZX

Model change (0 to 9)

Body type
4 : 2 seater
6 : 2+2 seater

Restraint system
S : Standard
A : Automatic

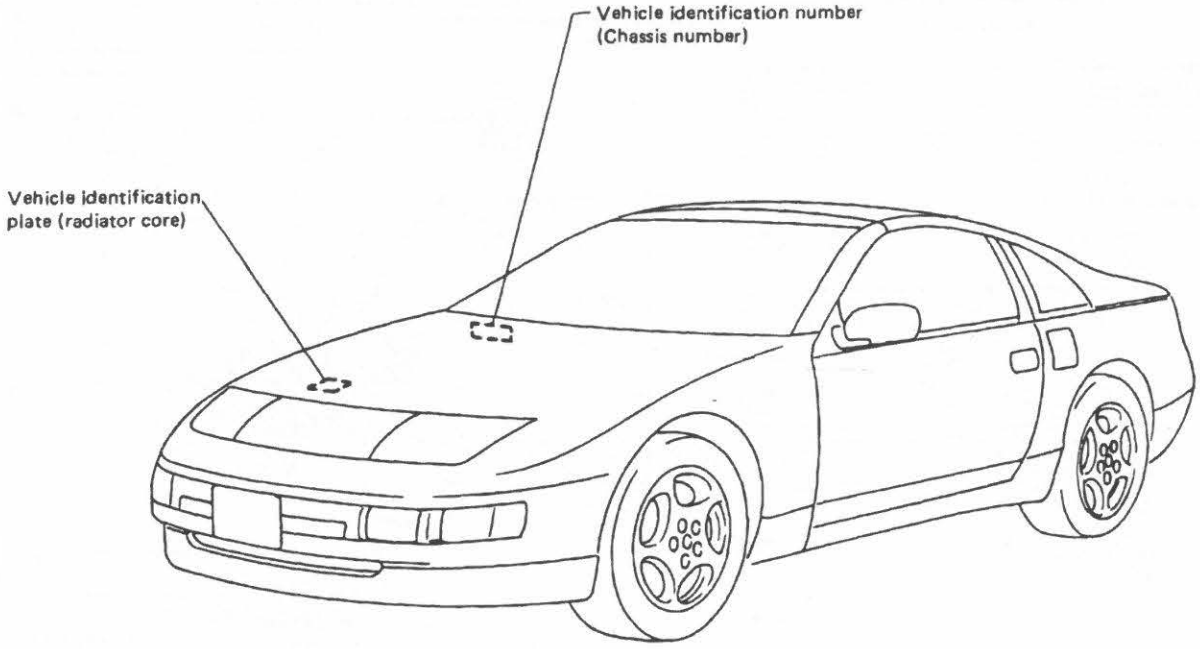
Check digit (0 to 9 or X)
The code for the check digit is determined by mathematical computation.

Model year
L : 1990 year model

Manufacture plant
X : Hiratsuka

Vehicle serial number

IDENTIFICATION NUMBERS (Except for U.S.A. & Canada)



SGI575

VEHICLE IDENTIFICATION NUMBER ARRANGEMENT

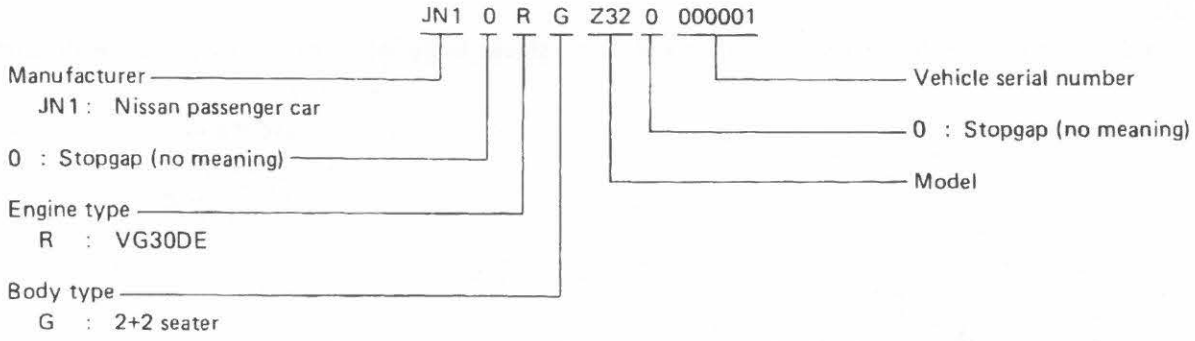
For Europe (LHD/RHD)

JN1 0 R G Z32 U 0 000001

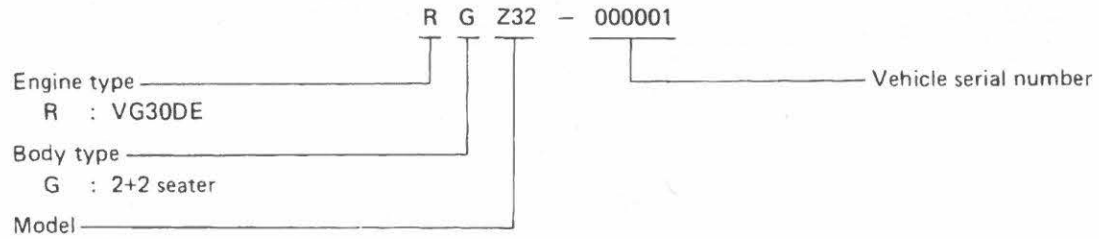
- Manufacturer
  - JN1 : Nissan passenger car
- 0 : Stopgap (no meaning)
- Engine type
  - R : VG30DETT
- Body type
  - G : 2+2 seater
- Model
- U : For Europe
- 0 : Stopgap (no meaning)
- Vehicle serial number

IDENTIFICATION NUMBERS (Except for U.S.A. & Canada)

For Australia



Except for Europe and Australia (LHD/RHD)



LIFTING POINTS

GARAGE JACK AND SAFETY STAND

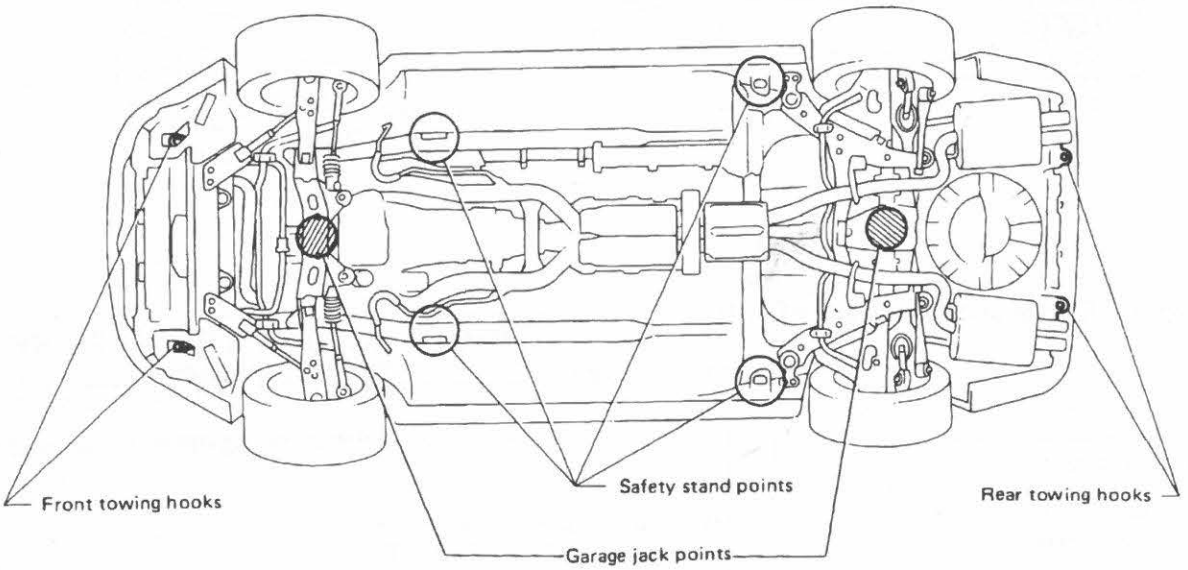
WARNING:

a. **When carrying out operations with the garage jack, be sure to support the vehicle with safety stands.**
b. **Place wheel chocks at both front and back of the wheel, diagonally opposite the jack position.**

CAUTION:

Always place a wooden block between safety stand and vehicle body when supporting body with safety stand.

Apply the garage jack and safety stand to the position indicated in the figure in a safe manner.



SG1609

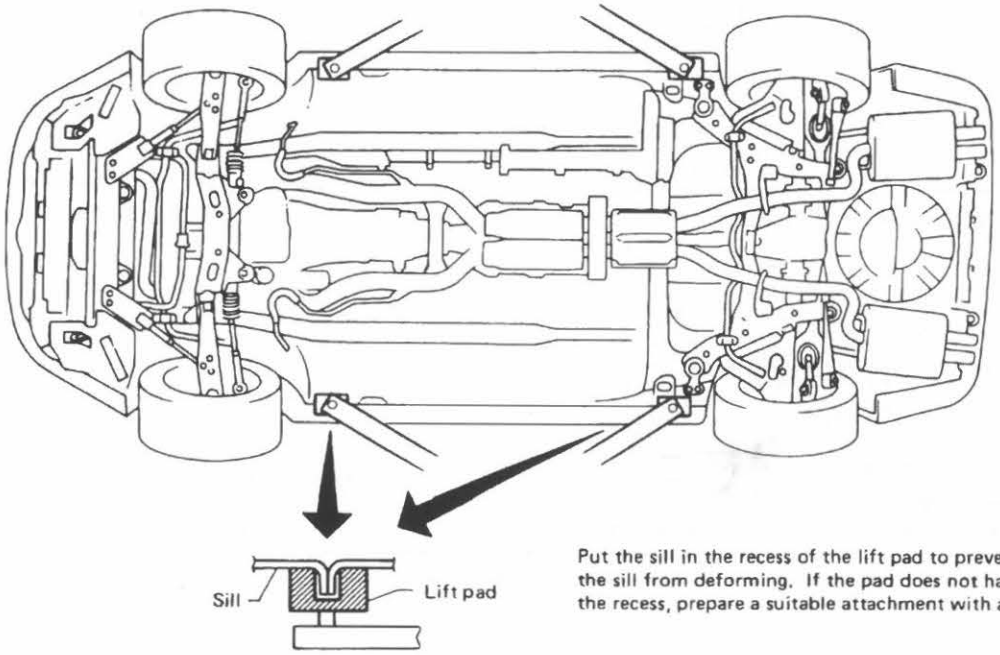
LIFTING POINTS

2-POLE LIFT

WARNING:

When lifting the vehicle, open the lift arms as wide as possible and ensure that the front and rear of the vehicle are well balanced.

When setting the lift arm, do not allow the arm to contact the brake tubes and fuel lines.



Note:
Lift-up points are the same as pantograph jack points.

Put the sill in the recess of the lift pad to prevent the sill from deforming. If the pad does not have the recess, prepare a suitable attachment with a recess.

SG1610

VEHICLE DIMENSIONS

Unit: mm (in)

Item \ Model		2 seater	2+2
Overall length		4,305 (169.5)	4,520 (178.0)
Overall width		1,790 (70.5)	1,800 (70.9)
Overall height	T-bar roof	1,250 (49.2)	1,255 (49.4)
	Standard	1,245 (49.0)	–
Wheelbase		2,450 (96.5)	2,570 (101.2)
Tread	Front	1,495 (58.9)	1,495 (58.9)
	Rear	1,535 (60.4)	1,535 (60.4)

WHEEL ALIGNMENT

FRONT WHEEL ALIGNMENT (Unladen*1)

Camber	degree	−1°35′ to −0°05′
Caster	degree	9°00′ - 10°30′
Toe-in	mm (in)	0 - 2 (0 - 0.08)
(Total toe-in angle)	degree	0′ - 5′
Kingpin inclination	degree	12°10′ - 13°40′
Front wheel turning angle Full turn Inside/outside	degree	34°30′ - 38°30′/28° - 32°

*1: Tankful of fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools, mats in designated position.

REAR WHEEL ALIGNMENT (Unladen*2)

Camber	degree	−1°36′ to −0°36′
Toe-in	mm (in)	0.4 - 4.4 (0.016 - 0.173)
(Total toe-in angle)	degree	2.4′ - 26.4′

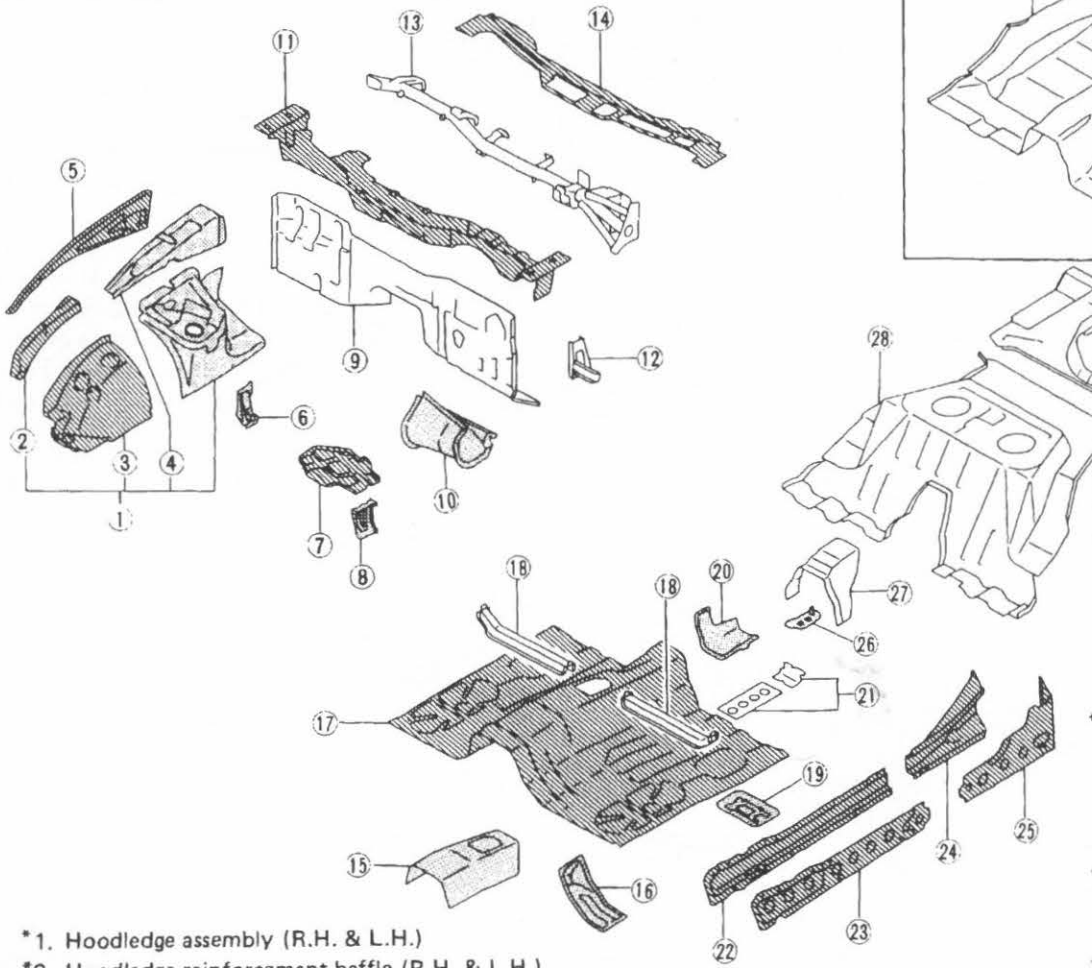
*2: Tankful of fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools, mats in designated position.

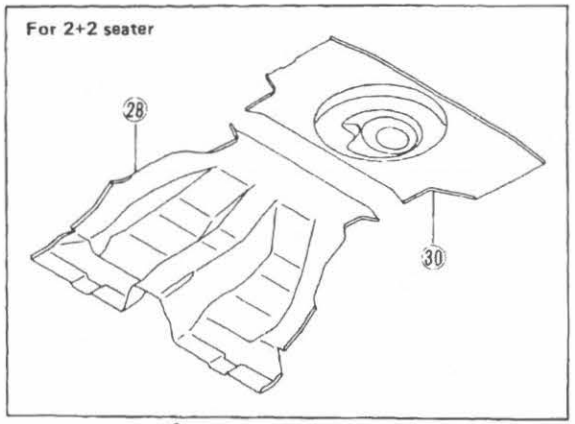
UNDERBODY COMPONENT PARTS

: Indicates anti-corrosive precoated steel portions.

: Indicates two-side anti-corrosive precoated steel portions.

* : Indicates high strength steel (HSS) portions.





*1. Hoodledge assembly (R.H. & L.H.)
*2. Hoodledge reinforcement baffle (R.H. & L.H.)
*3. Front hoodledge (R.H. & L.H.)
*4. Hoodledge reinforcement (R.H. & L.H.)
*5. Hoodledge reinforcement gusset (R.H. & L.H.)
*6. Strut housing gusset (R.H. & L.H.)
7. Battery support bracket
8. Battery mounting reinforcement
9. Lower dash
*10. Lower dash crossmember (R.H. & L.H.)
11. Upper dash
*12. Steering mounting stay assembly
13. Steering member assembly
14. Cowl top
15. Transmission control reinforcement
16. Rear engine mounting bracket
17. Front floor
*18. 2nd crossmember
19. Outer front seat mounting bracket (R.H. & L.H.)
20. Upper center bearing bracket
21. Front floor reinforcement
*22. Inner sill (R.H. & L.H.)
23. Front inner sill reinforcement (R.H. & L.H.)
*24. Inner sill extension (R.H. & L.H.)
25. Inner sill reinforcement (R.H. & L.H.)
26. Hand brake and seat belt reinforcement
27. Rear front floor
28. Rear floor front
29. Front rear floor extension
30. Rear floor rear

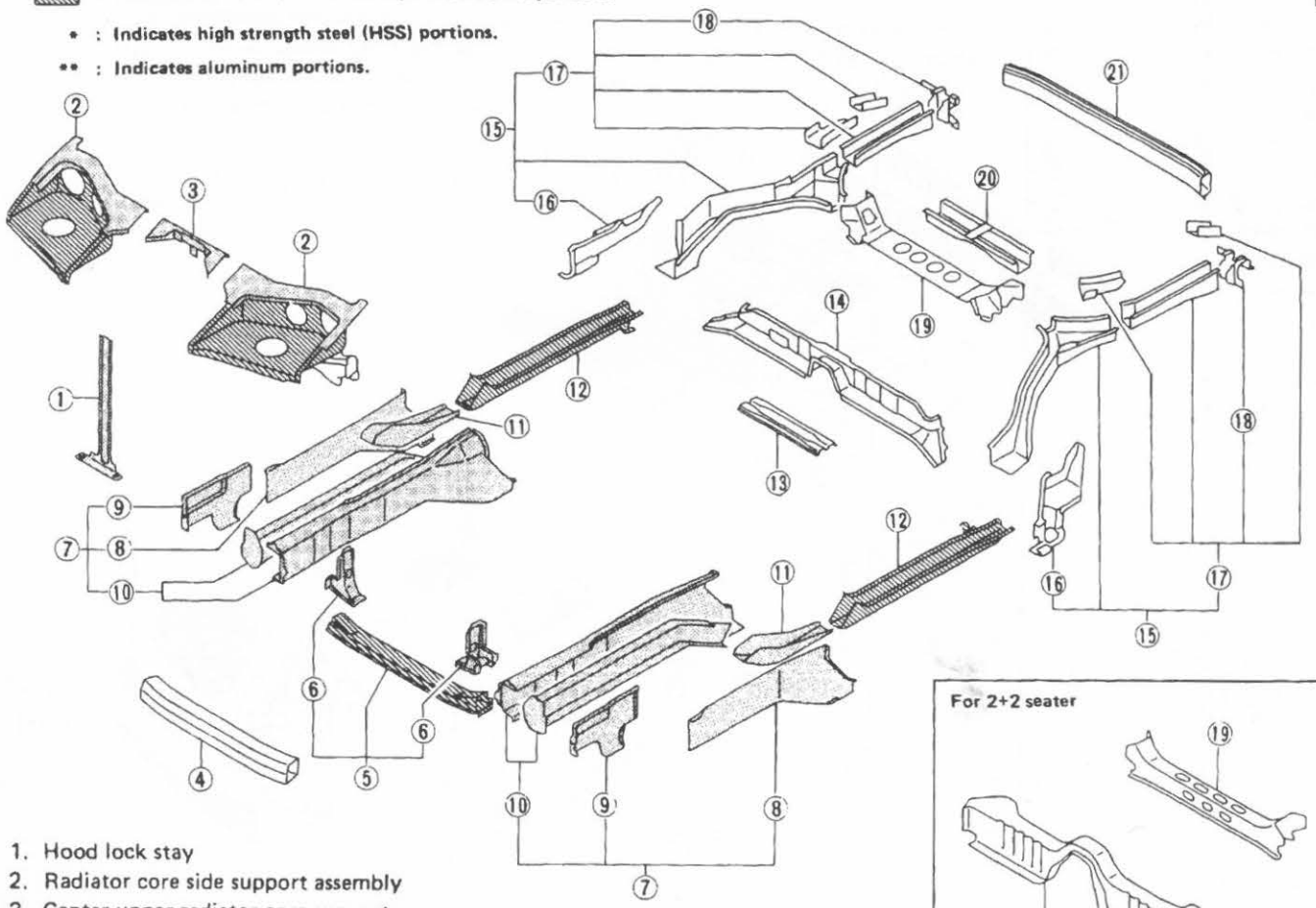
UNDERBODY COMPONENT PARTS

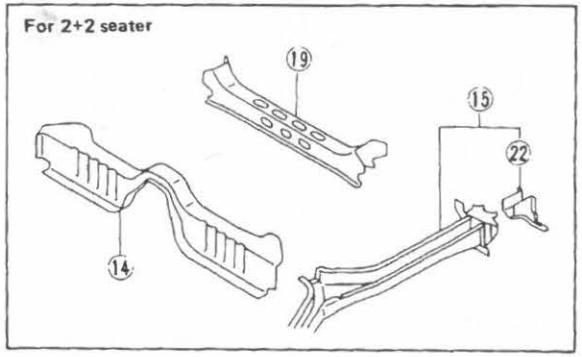
: Indicates anti-corrosive precoated steel portions.

: Indicates two-side anti-corrosive precoated steel portions.

* : Indicates high strength steel (HSS) portions.

** : Indicates aluminum portions.





1. Hood lock stay
2. Radiator core side support assembly
3. Center upper radiator core support
**4. Front bumper reinforcement
*5. Front crossmember
*6. Lower radiator core support brace
*7. Front side member assembly
*8. Front side member rear closing plate
*9. Front side member front closing plate
*10. Front side member
*11. Front side member brace
*12. Center side member
13. Inner rear crossmember
14. Rear 1st crossmember
*15. Rear side member assembly
*16. Rear side member extension
*17. Rear side member rear
18. Rear bumper stay
19. Shock absorber and differential mounting crossmember
20. Rear 2nd crossmember
**21. Rear bumper reinforcement
*22. Rear hook (R.H. & L.H.)

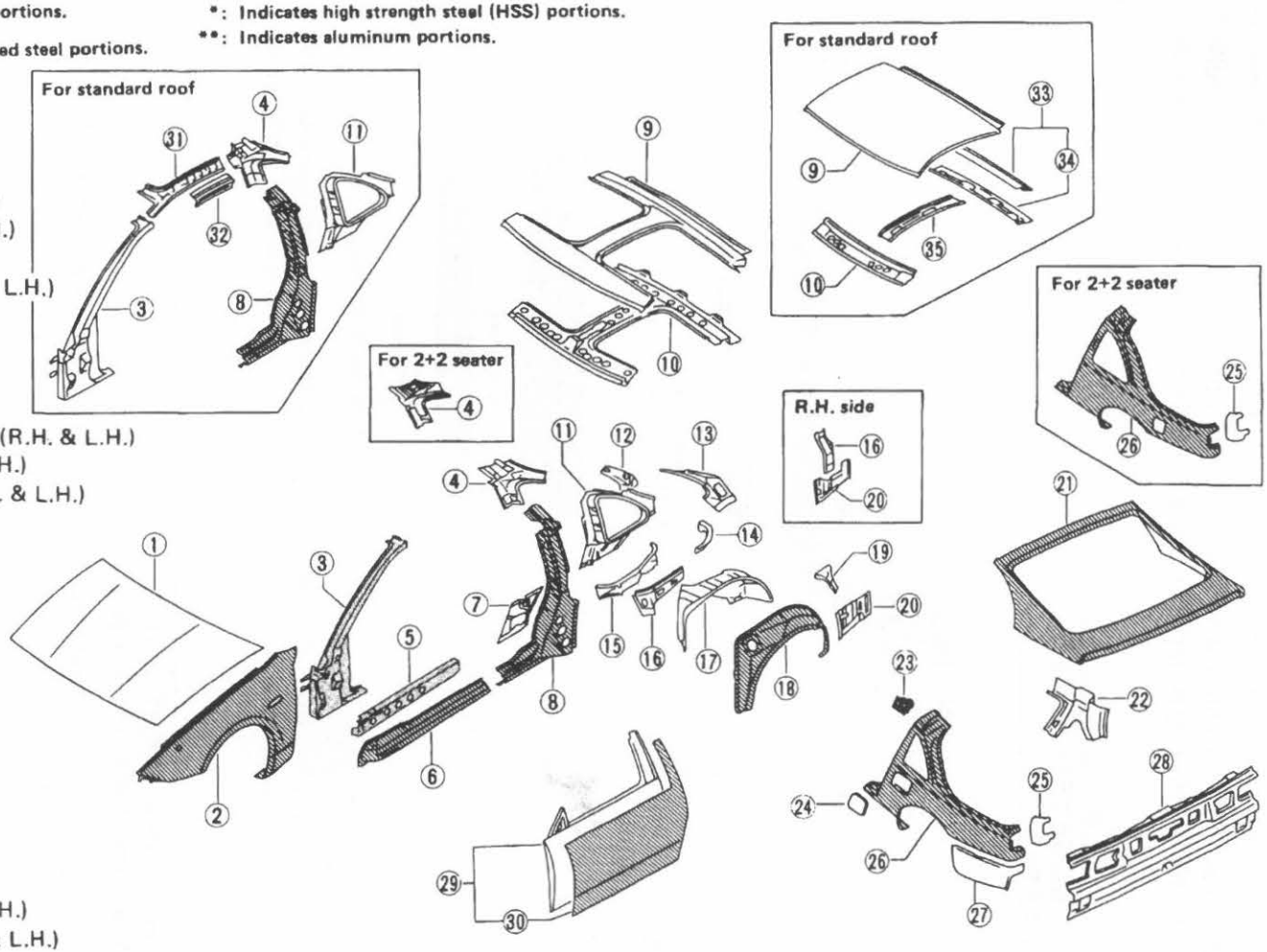
BODY COMPONENT PARTS

: Indicates anti-corrosive precoated steel portions.

: Indicates two-side anti-corrosive precoated steel portions.

*: Indicates high strength steel (HSS) portions.

**: Indicates aluminum portions.



**1. Hood
2. Front fender (R.H. & L.H.)
*3. Front pillar (R.H. & L.H.)
4. Upper inner rear pillar (R.H. & L.H.)
*5. Outer sill reinforcement (R.H. & L.H.)
6. Outer sill (R.H. & L.H.)
7. Front lower inner side panel (R.H. & L.H.)
8. Inner center pillar (R.H. & L.H.)
9. Roof
10. Front roof rail
11. Inner side panel (R.H. & L.H.)
12. Rear seat belt anchor reinforcement (R.H. & L.H.)
13. Rear pillar reinforcement (R.H. & L.H.)
14. Rear inner side panel extension (R.H. & L.H.)
15. Rear inner side panel (R.H. & L.H.)
16. Side panel reinforcement
17. Inner rear wheelhouse (R.H. & L.H.)
18. Outer rear wheelhouse (R.H. & L.H.)
19. Rear side finisher retainer (R.H. & L.H.)
20. Rear lower inner side panel
21. Back door
22. Rear fender corner (R.H. & L.H.)
23. Fuel filler lid base
24. Fuel filler lid (PA) Polyamide (Nylon)
25. Rear fender patch (R.H. & L.H.)
26. Rear fender (R.H. & L.H.)
27. Rear fender extension (R.H. & L.H.)
28. Rear panel assembly
29. Front door (R.H. & L.H.)
*30. Outer front door panel (R.H. & L.H.)
31. Inner side roof rail (R.H. & L.H.)
32. Outer side roof rail (R.H. & L.H.)
33. Rear roof rail
34. Inner tail rail
35. No. 1 roof bow

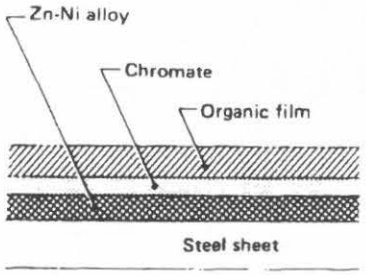
DESCRIPTION

In order to provide improved corrosion prevention, the following anti-corrosive measures have been implemented in our production plants. When repairing or replacing body panels, it is necessary to use these same anti-corrosive measures.

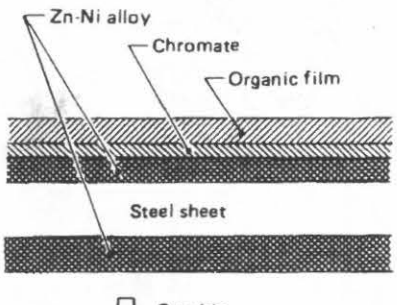
ANTI-CORROSIVE PRECOATED STEEL (DURASTEEL)

In order to improve repairability and corrosion resistance, a new type of anti-corrosive precoated steel sheets have been adopted taking the place of conventional zinc-coated steel sheets.
This durasteel is electroplated, zinc-nickel alloy under organic film, which provides excellent corrosion resistance.

Durasteel is classified as either one-side precoated steel or two-side precoated steel. The two-side precoated steel provides excellent corrosion resistance.



One-side precoated



Two-side precoated

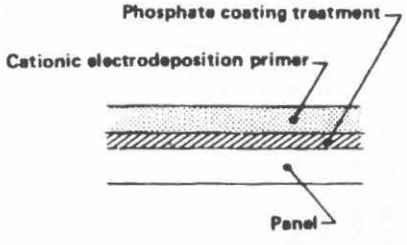
Nissan Genuine Service Parts are fabricated from durasteel sheets. Therefore, it is recommended that GENUINE NISSAN PARTS be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

PHOSPHATE COATING TREATMENT AND CATIONIC ELECTRODEPOSITION PRIMER

A phosphate coating treatment and a cationic electrodeposition primer, which provide an excellent anti-corrosion effect, are employed on all body components.

CAUTION:

Confine paint removal in the welding operation to the absolute minimum.

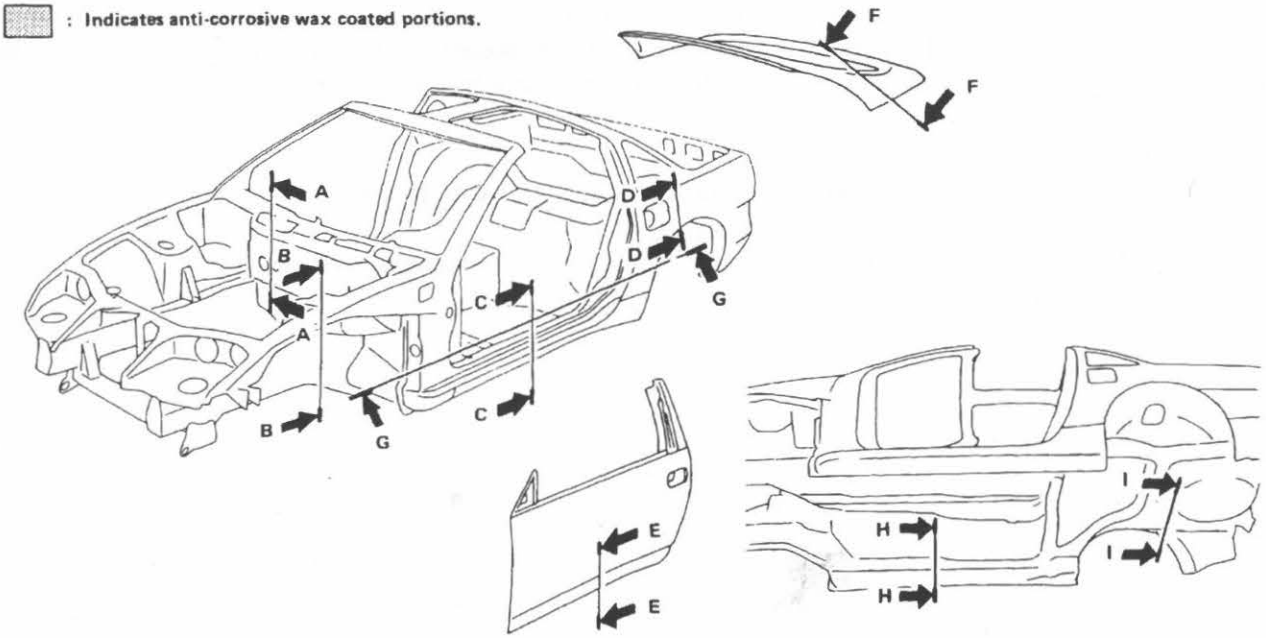


Nissan Genuine Service Parts also are treated in the same manner. Therefore, it is recommended that GENUINE NISSAN PARTS be used for panel replacement to maintain anti-corrosive performance built into the vehicle at the factory.

ANTI-CORROSIVE WAX

In order to improve corrosion resistance, anti-corrosive wax is applied inside the body sill and inside other closed sections. Accordingly, when replacing these parts, be sure to apply anti-corrosive wax to the appropriate areas of the new parts. Select an excellent anti-corrosive wax which will penetrate after application and has a long shelf life.

: Indicates anti-corrosive wax coated portions.



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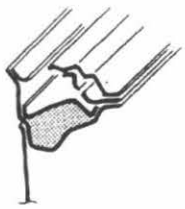	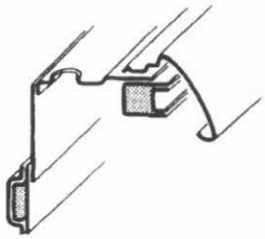	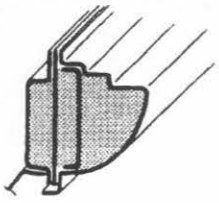	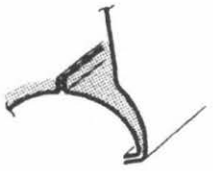

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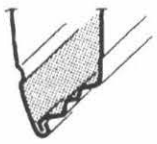		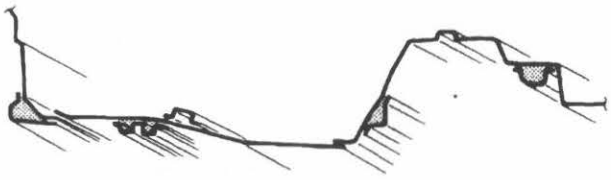

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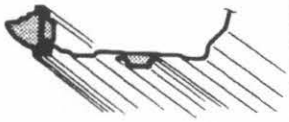
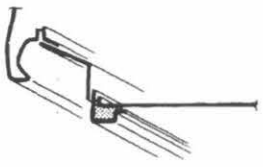
			

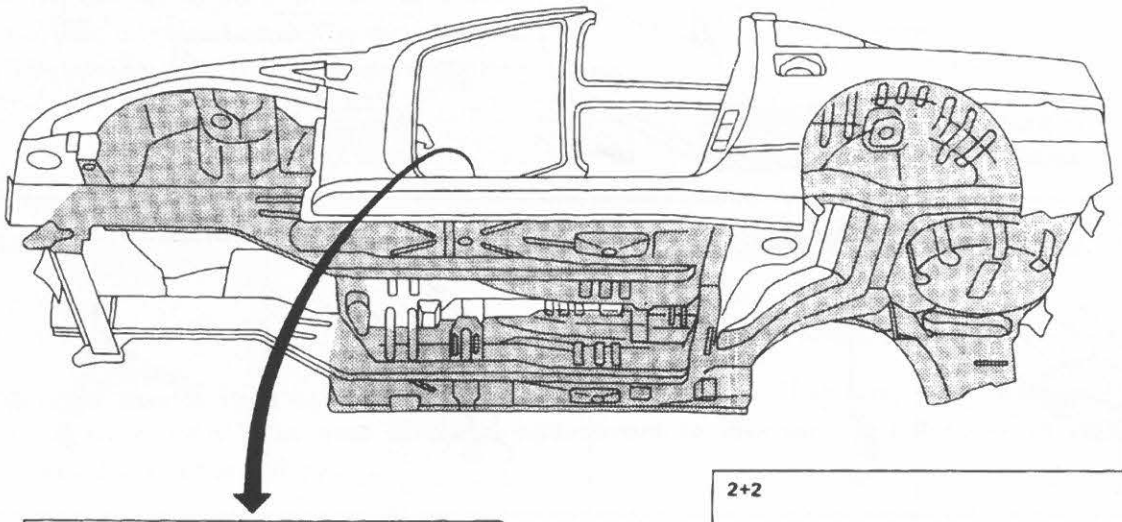
UNDERCOATING

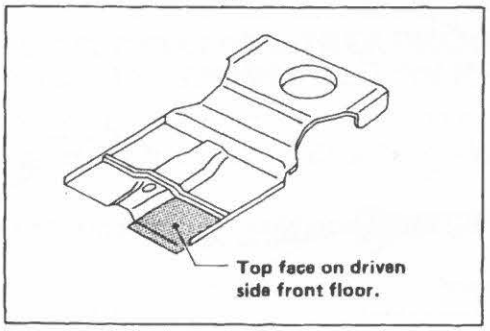
The undersides of the floor and wheelhouse are undercoated to prevent rust, vibration, noise and stone chipping.
Therefore, when such a panel is replaced or repaired, apply undercoating to that part. Use an undercoating with the following properties: rust preventive, soundproof, vibration-proof, shock-resistant, adhesive, and durable.

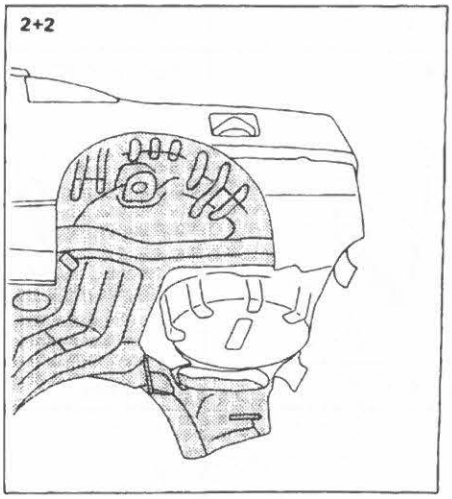
Precautions in undercoating

1. Do not apply undercoating to any place unless specified (such as the areas above the muffler and catalytic converter which are subjected to heat).
2. Do not undercoat the exhaust pipe, other parts which become hot, and rotary parts.
3. Apply bitumen wax after applying undercoating.

: Indicates undercoated portions.



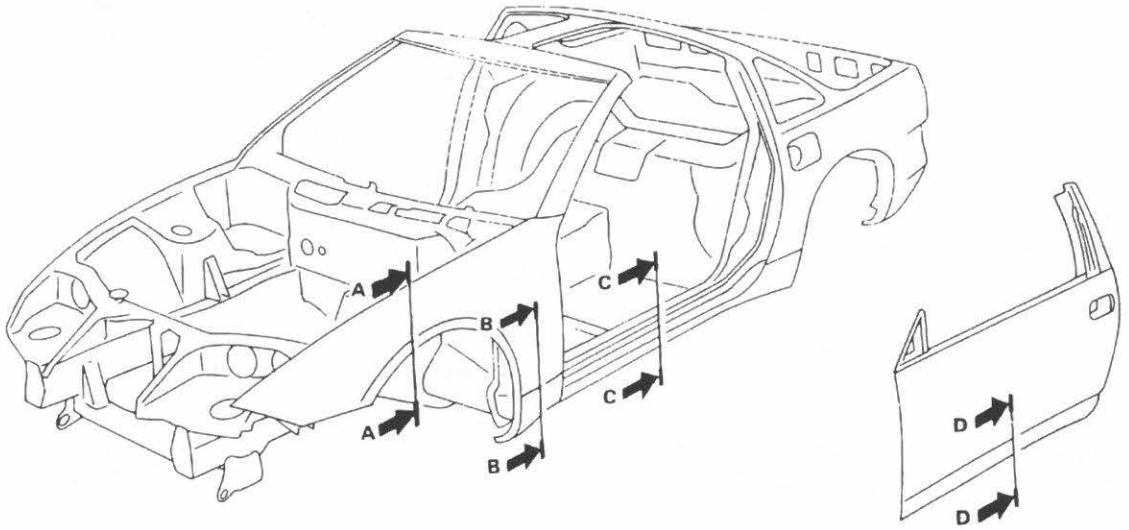


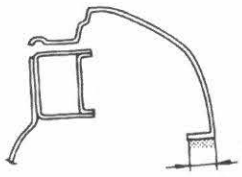


STONE GUARD COAT

In order to prevent damage caused by stones, the lower outer body panels (fender, door, etc.) have an additional layer of Stone Guard Coat over the ED primer coating. Thus, when replacing or repairing these panels, apply undercoat to the same portions as before. Use a coat which is rust preventive, durable, shock-resistant and has a long shelf life.

: Indicates stone guard coat coated portions.





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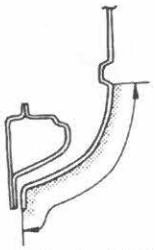

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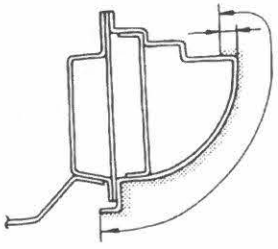

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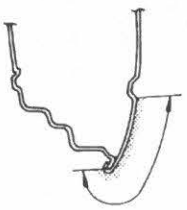
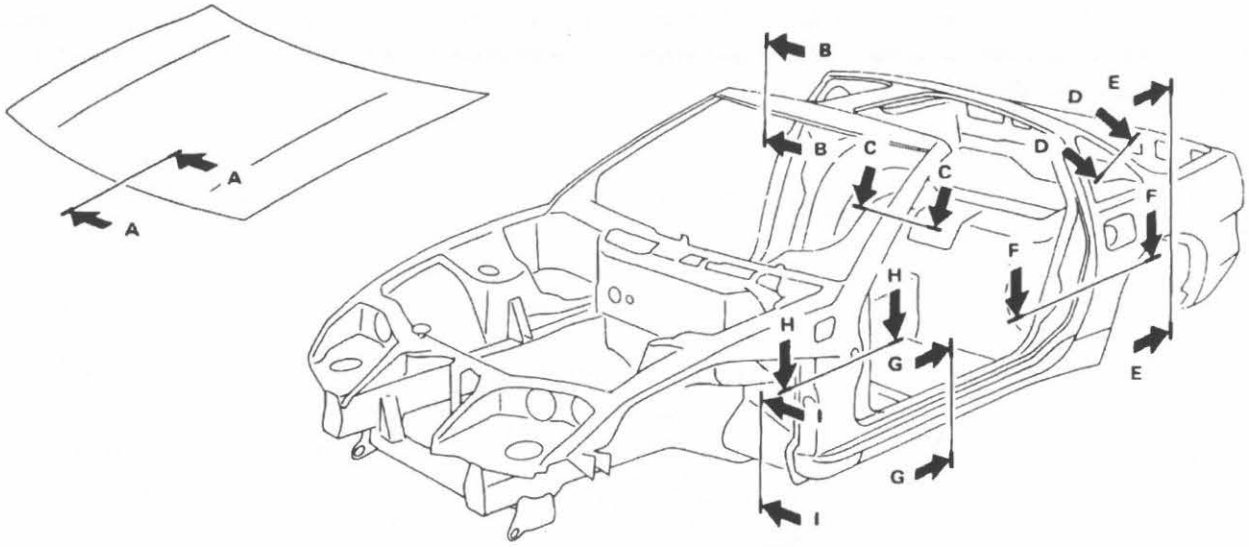


Section D–D

BODY CONSTRUCTION



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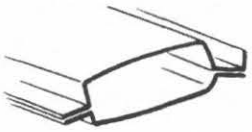
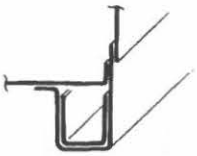
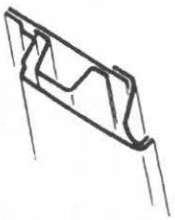
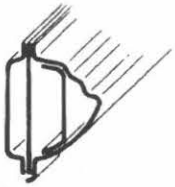
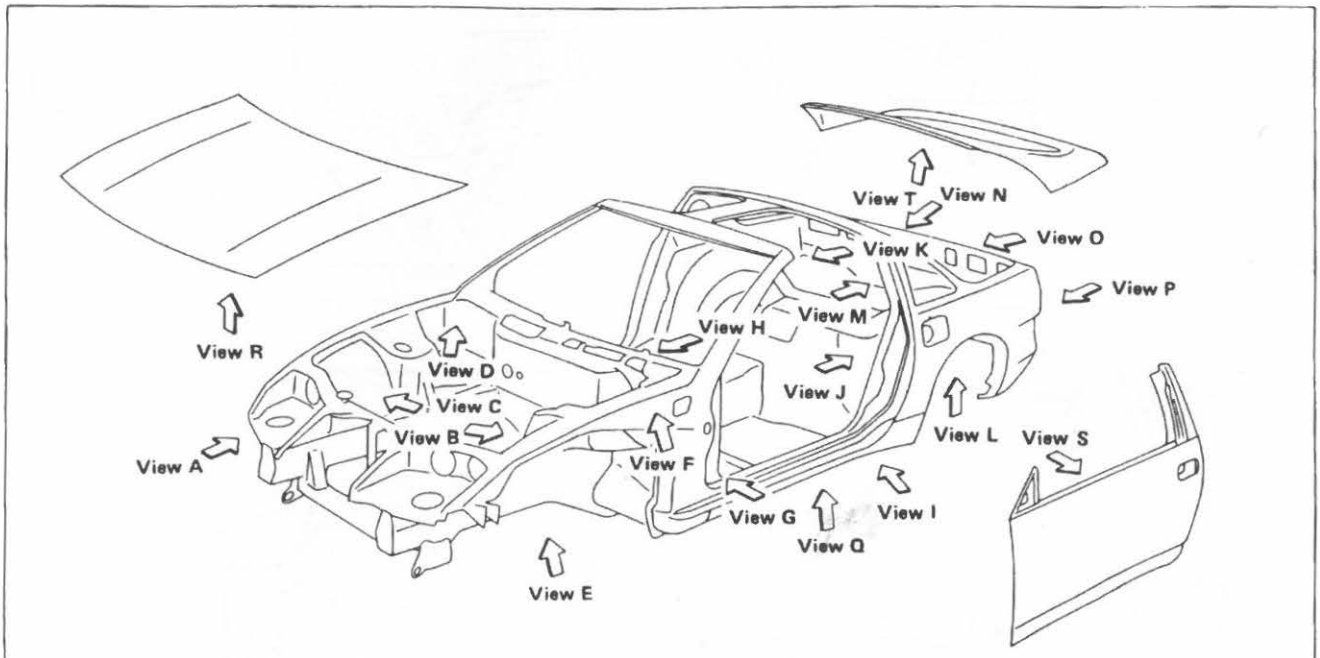
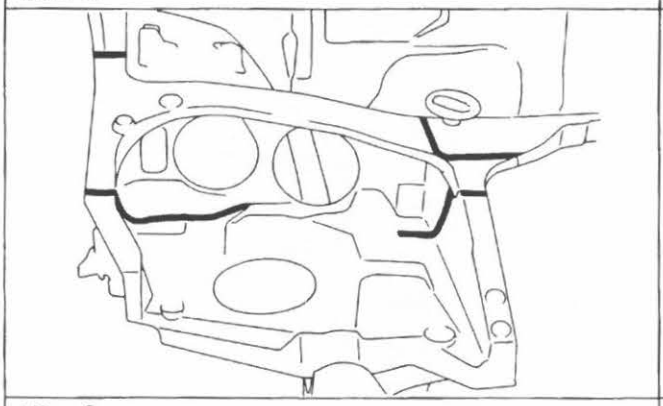
			
Section E-E	**Section F-F**	**Section G-G**	**Section H-H**
			
Section I-I			
			

DESCRIPTION

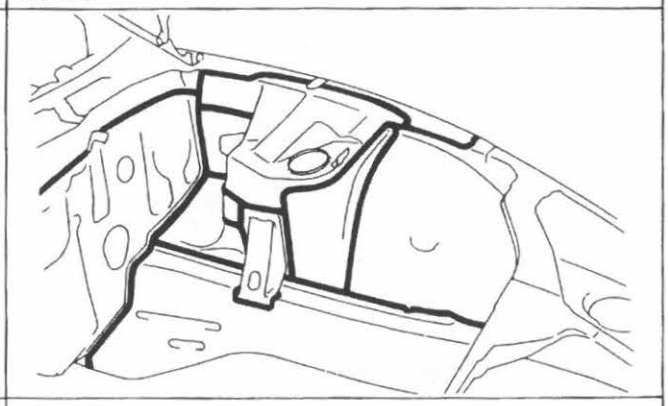
The following figure shows the areas which are sealed at the factory. Sealant which has been applied to these areas should be smooth and free from cuts or gaps.
Care should be taken not to apply an excess amount of sealant and not to allow other unaffected parts to come into contact with the sealant.



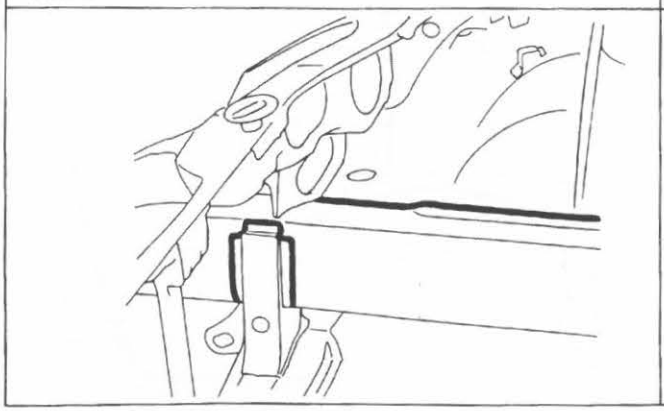
View A



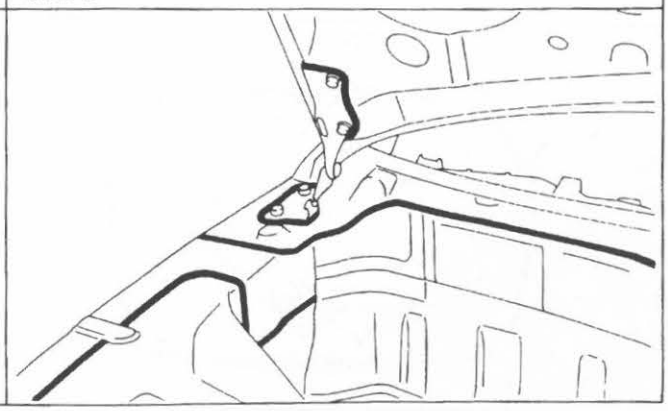
View B



View C

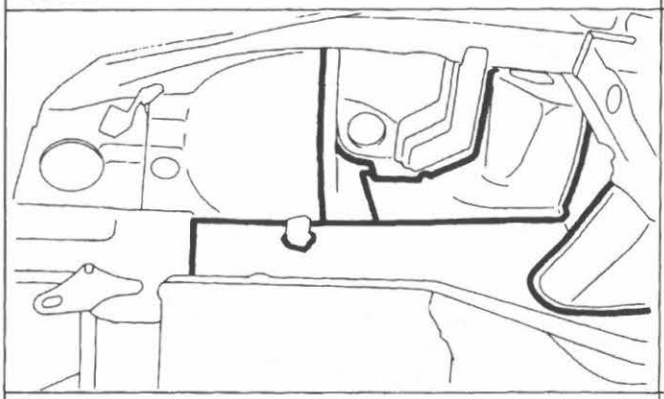


View D

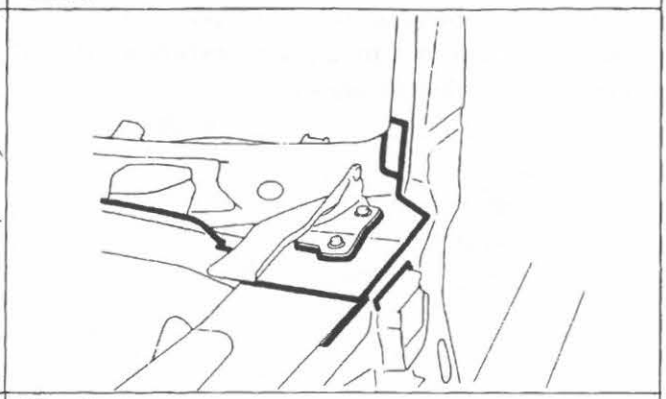


DESCRIPTION

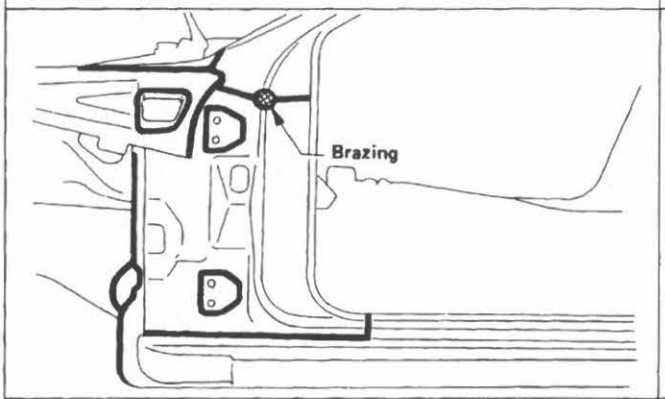
View E



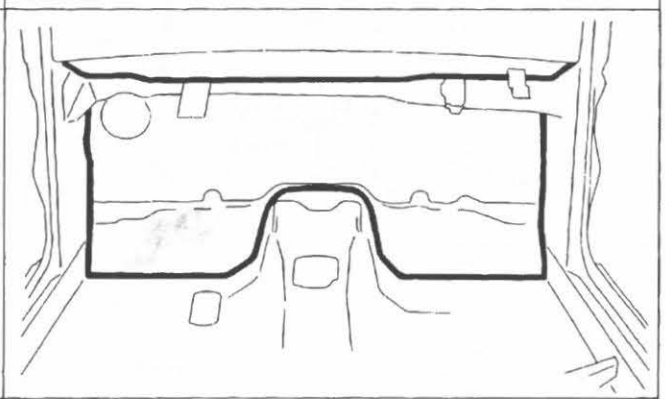
View F



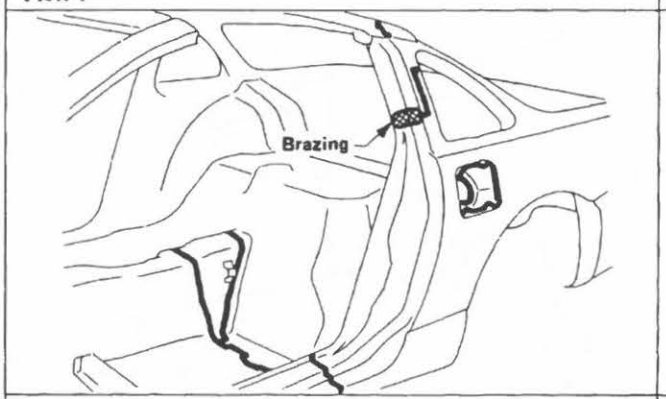
View G



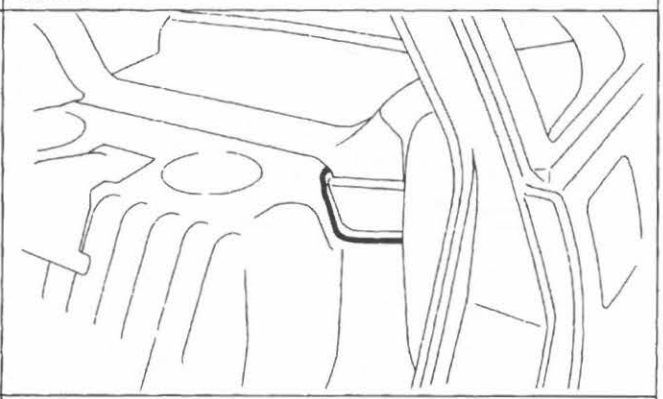
View H



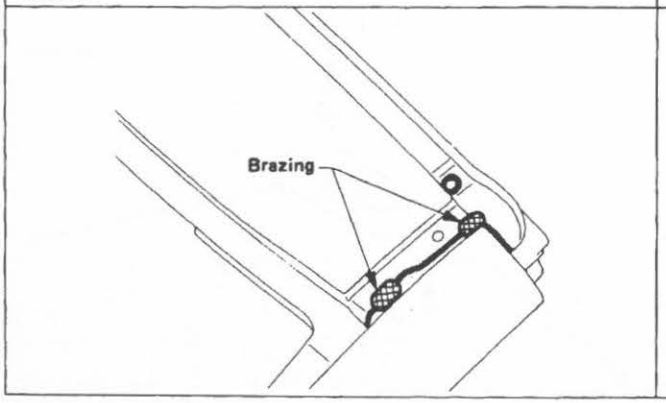
View I



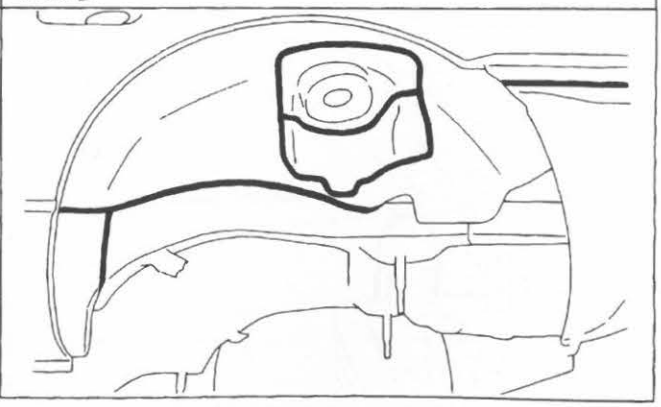
View J



View K

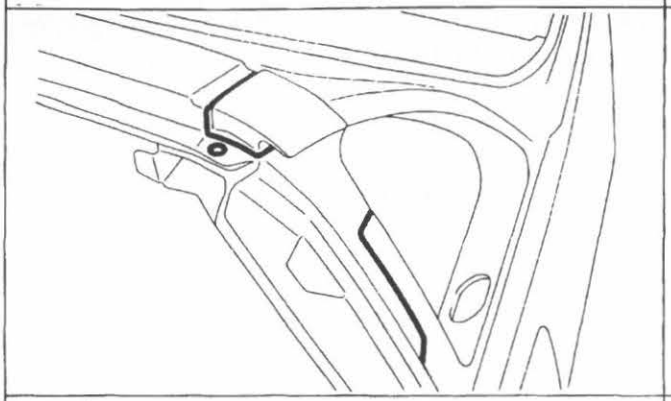


View L

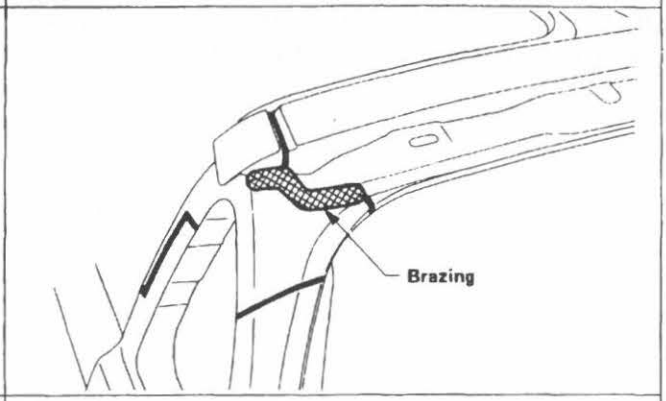


DESCRIPTION

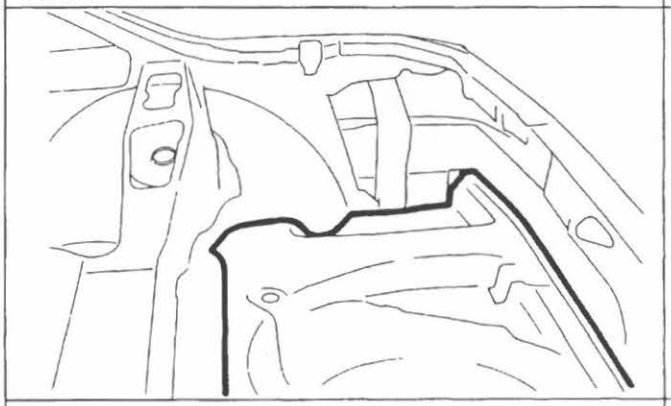
View M



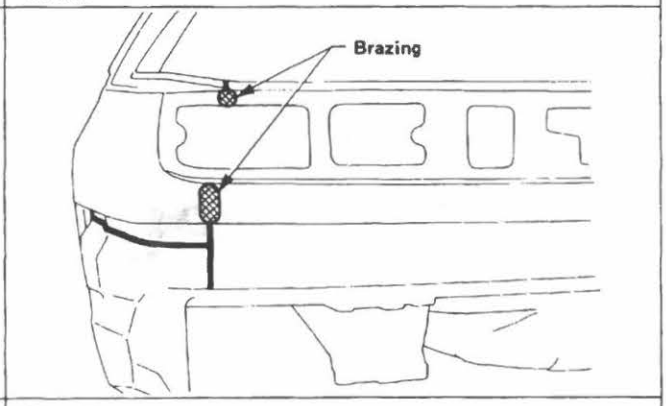
View N



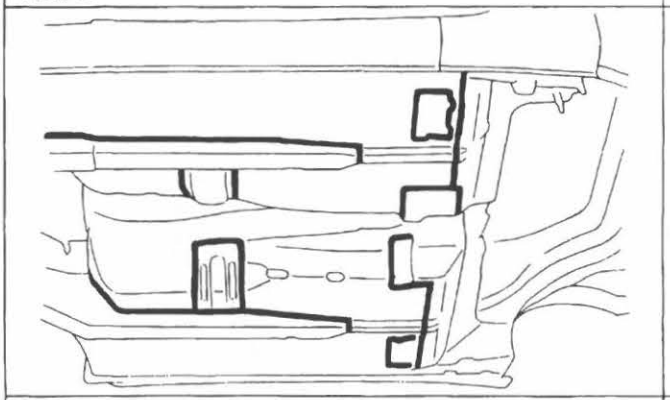
View O



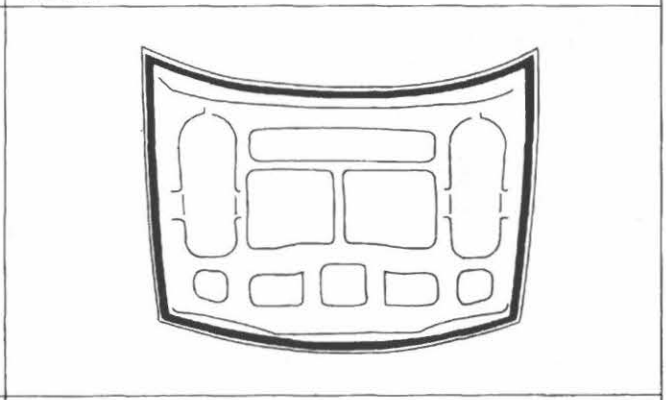
View P



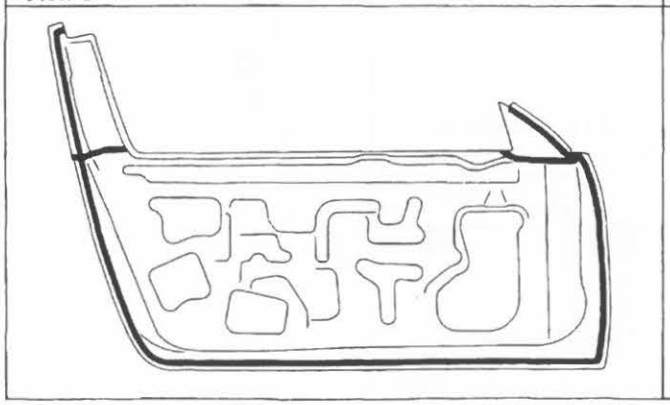
View Q



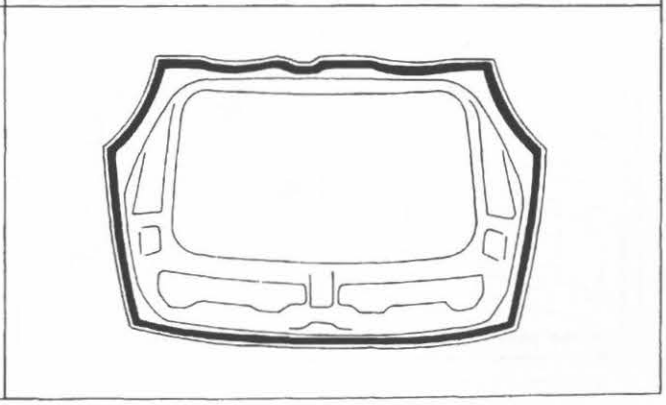
View R



View S

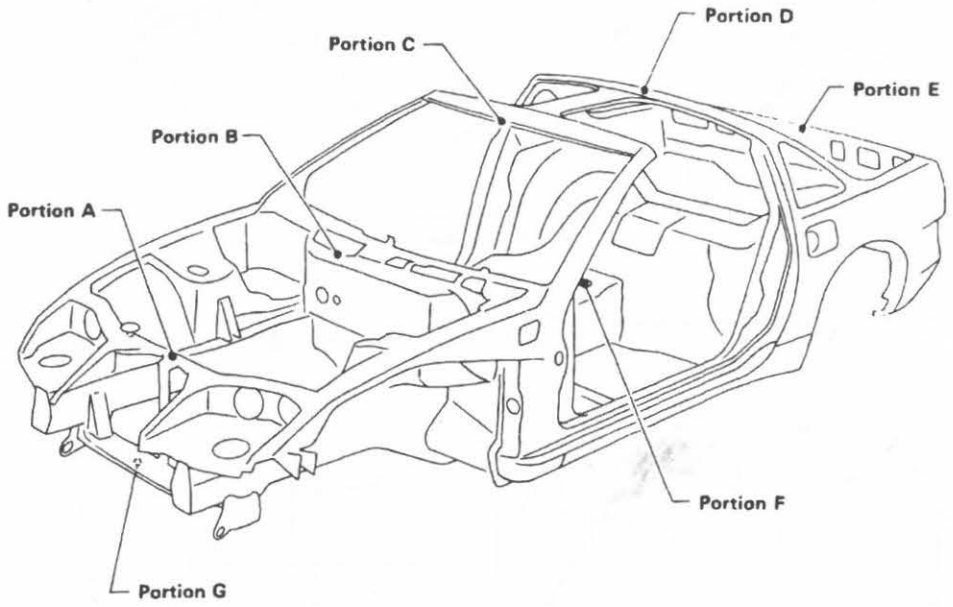


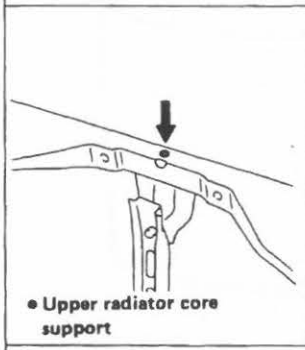
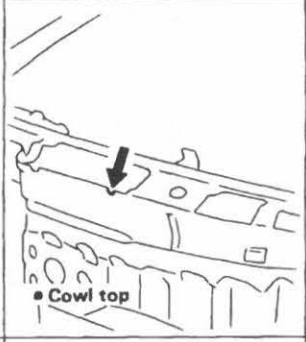
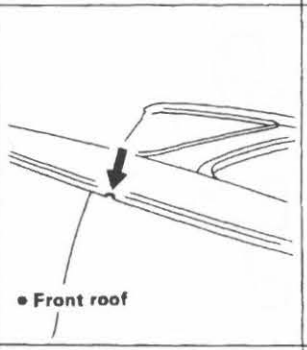
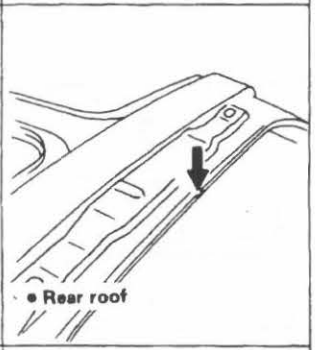
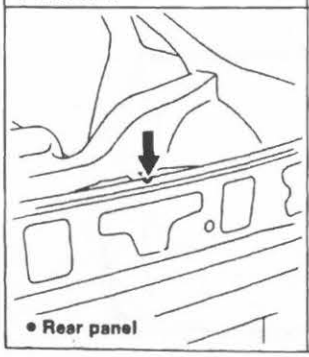
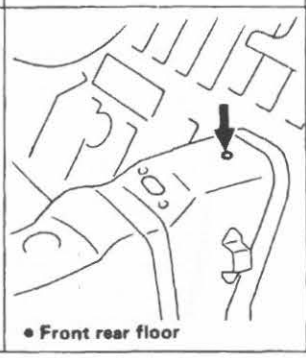
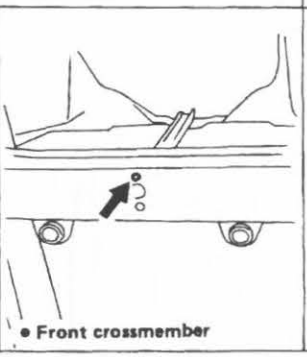
View T



BODY CENTER MARKS

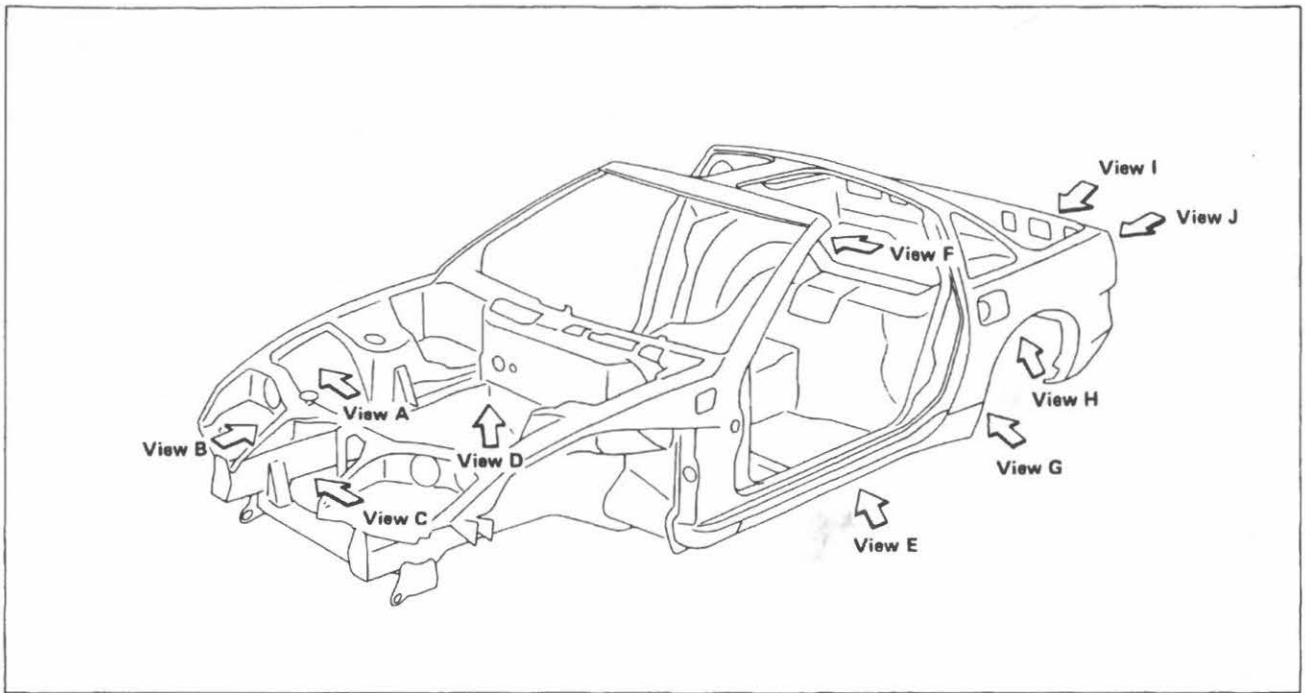
A mark has been placed on each part of the body to indicate the vehicle center. When repairing parts damaged by an accident which might affect the vehicle frame (members, pillars, etc.) more accurate, effective repair will be possible by using these marks together with body alignment data.



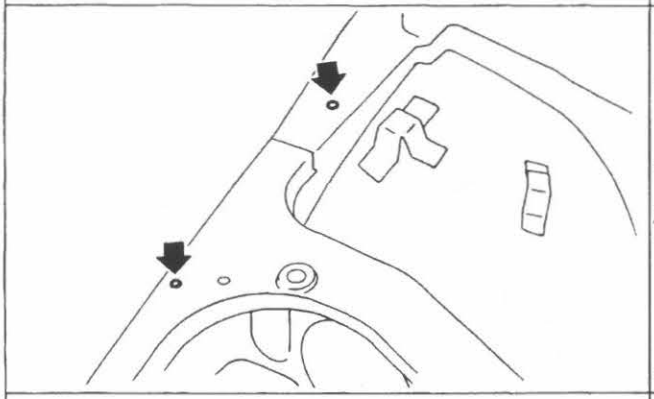
Portion A	Portion B	Portion C	Portion D
 • Upper radiator core support	 • Cowl top	 • Front roof	 • Rear roof
Portion E	**Portion F**	**Portion G**	
 • Rear panel	 • Front rear floor	 • Front crossmember	

PANEL PARTS MATCHING MARKS

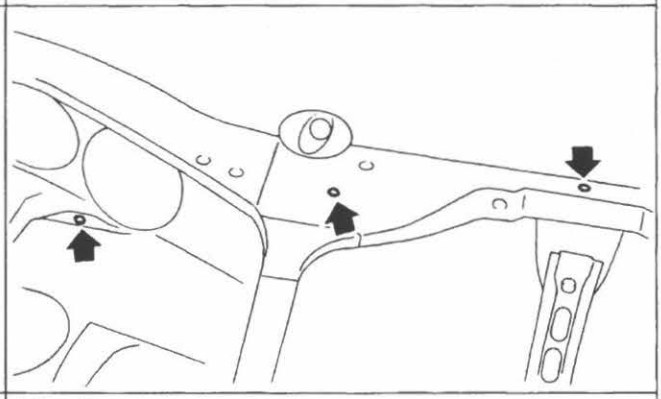
A mark has been placed on each part of the body to indicate the panel parts matching positions. When repairing parts demaged by an accident which might affect the vehicle frame (members, pillars, etc.) more accurate, effective repair will be possible by using these marks together with body alignment data.



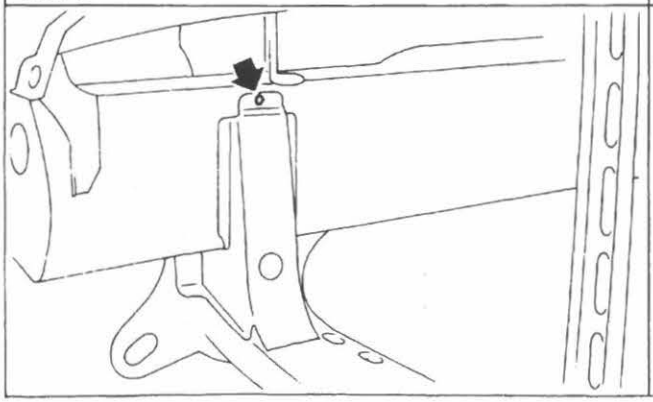
View A



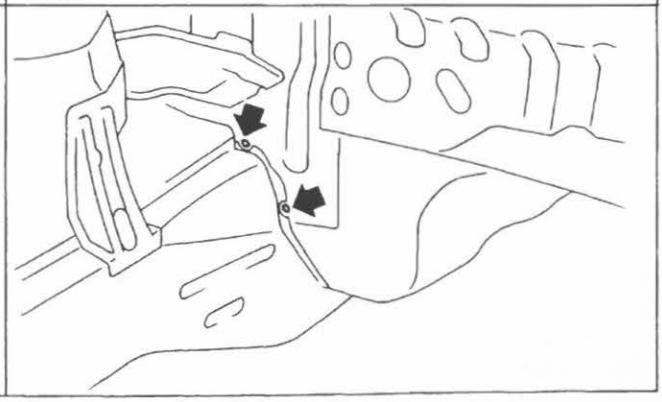
View B



View C

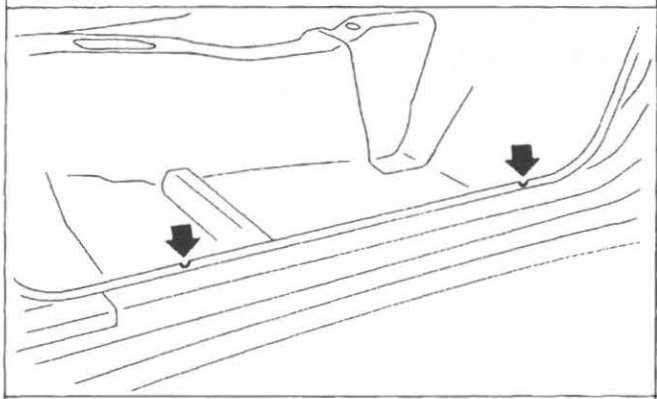


View D

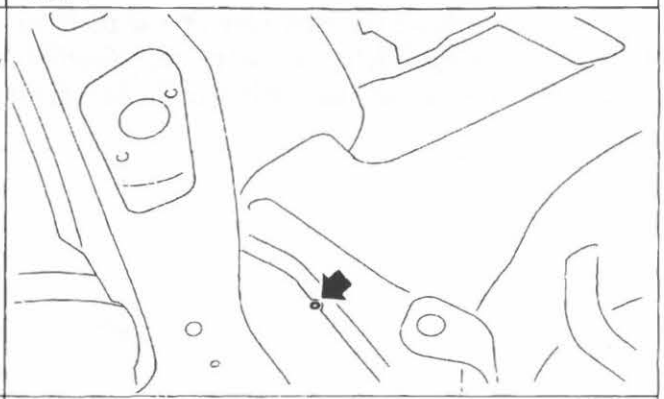


PANEL PARTS MATCHING MARKS

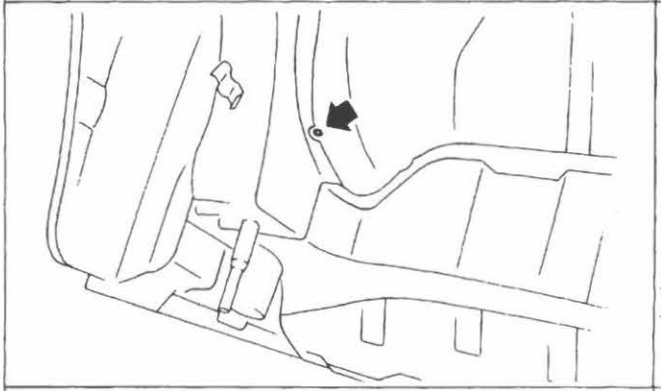
View E



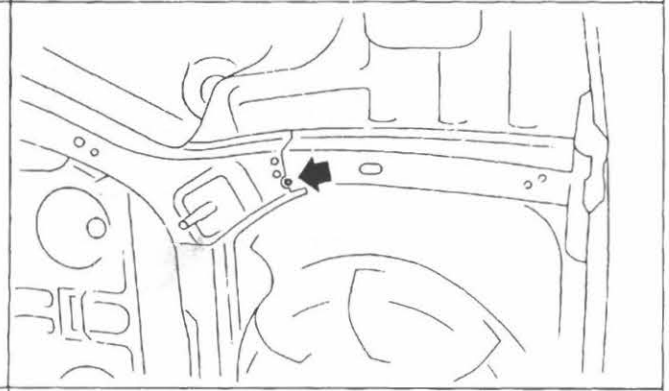
View F



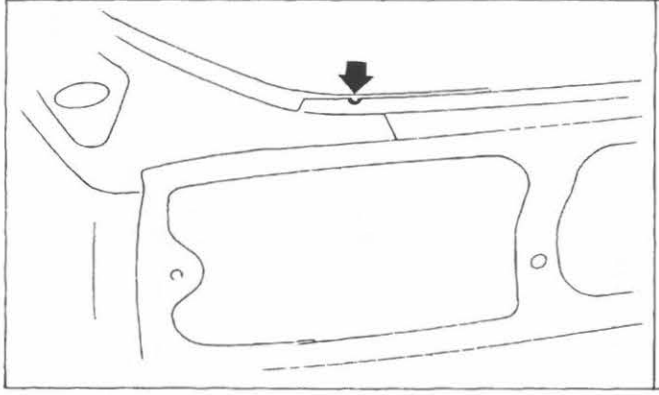
View G



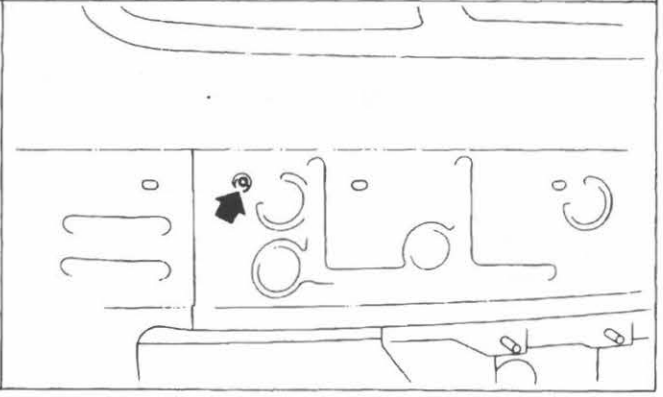
View H



View I

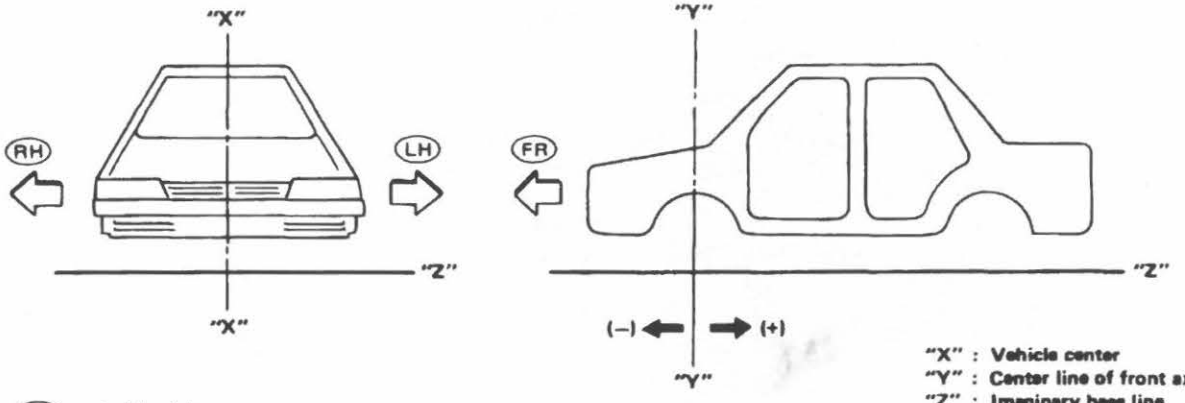


View J



DESCRIPTION

- All dimensions indicated in figures are actual ones.
- When a tram tracking gauge is used, adjust both pointers to equal length and check the pointers and gauge itself to make sure there is no free play.
- When a measuring tape is used, check to be sure there is no elongation, twisting or bending.
- Measurements should be taken at the center of the mounting holes.
- An asterisk (*) following the value at the measuring point indicates that the measuring point on the other side is the same value.
- The coordinates of the measurement points are the distances measured from the standard line of "X", "Y" and "Z".

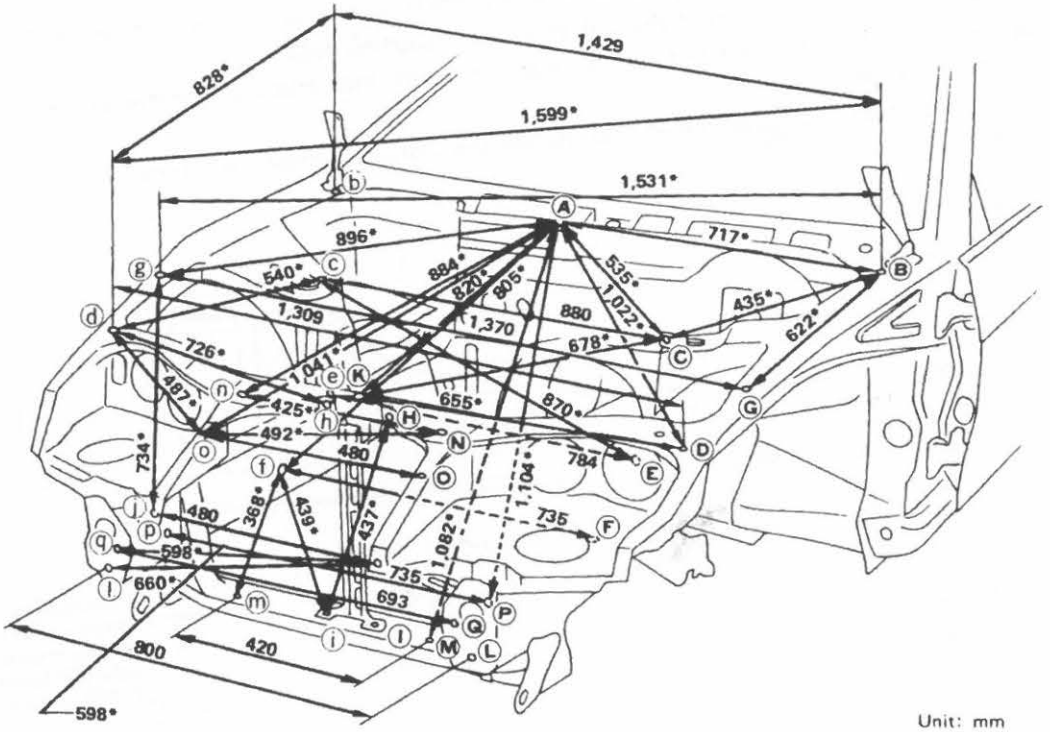


(LH) : L.H. side
(RH) : R.H. side

"X" : Vehicle center
"Y" : Center line of front axle
"Z" : Imaginary base line
[200 mm below datum line ("OZ" at design plan)]

ENGINE COMPARTMENT

MEASUREMENT



Unit: mm

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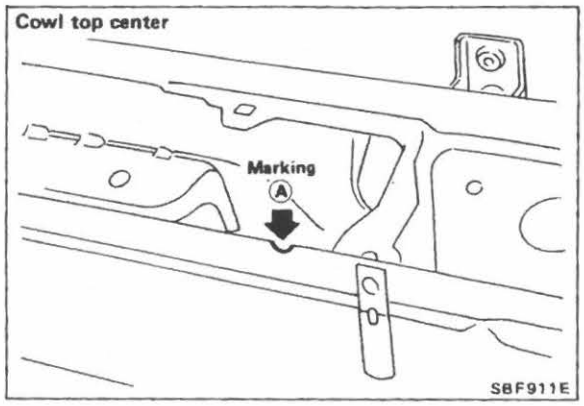
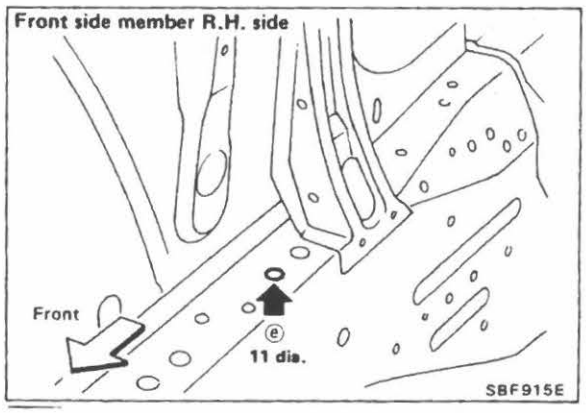
MEASUREMENT POINTS

Unit: mm

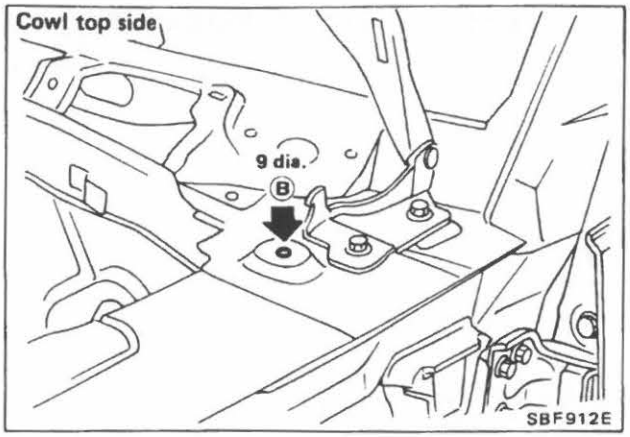




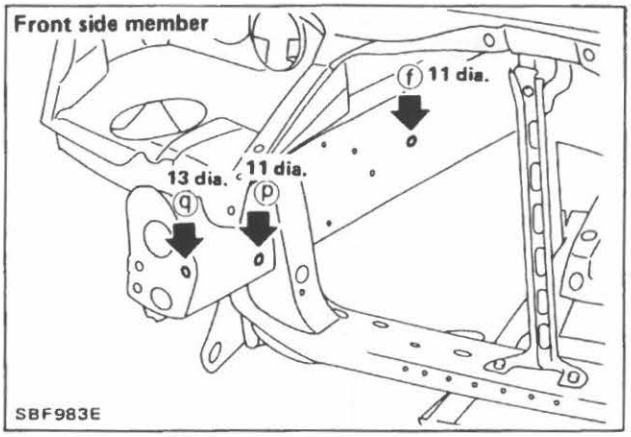
ENGINE COMPARTMENT

Unit: mm

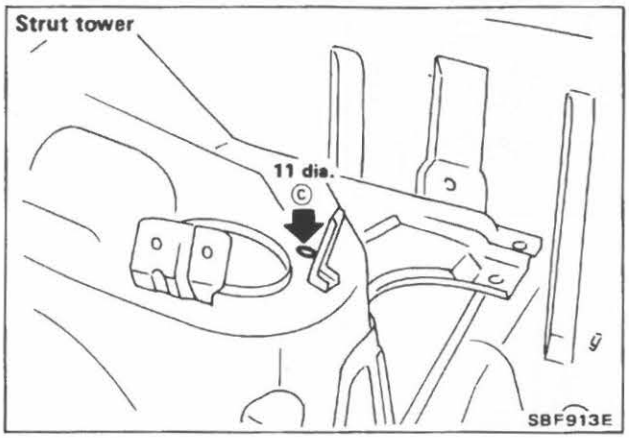
Cowl top side



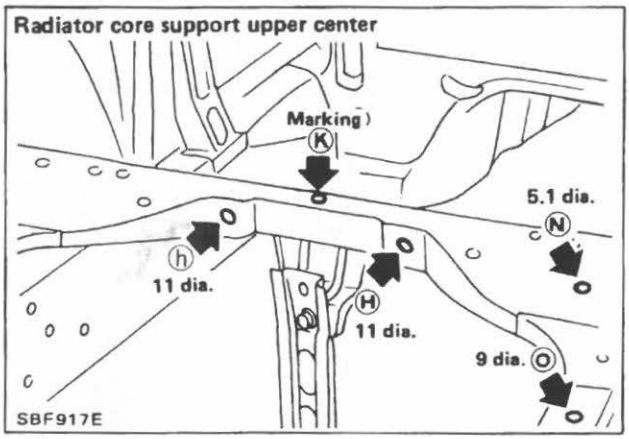
Front side member



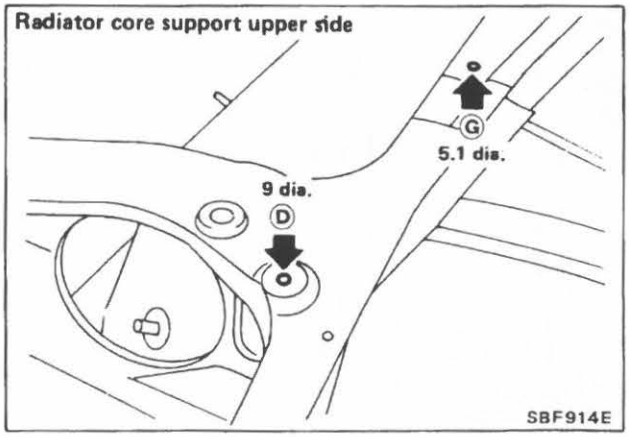
Strut tower



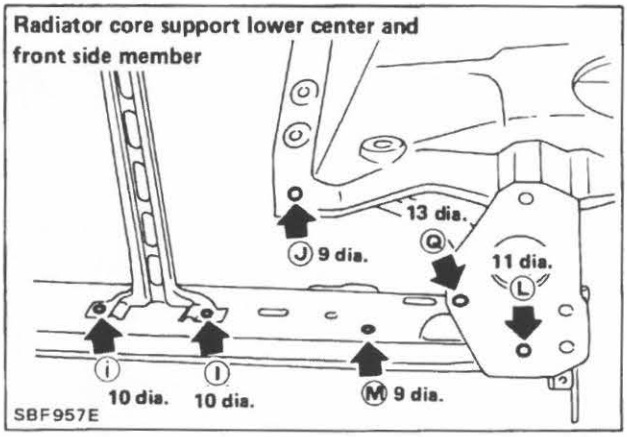
Radiator core support upper center



Radiator core support upper side



Radiator core support lower center and front side member

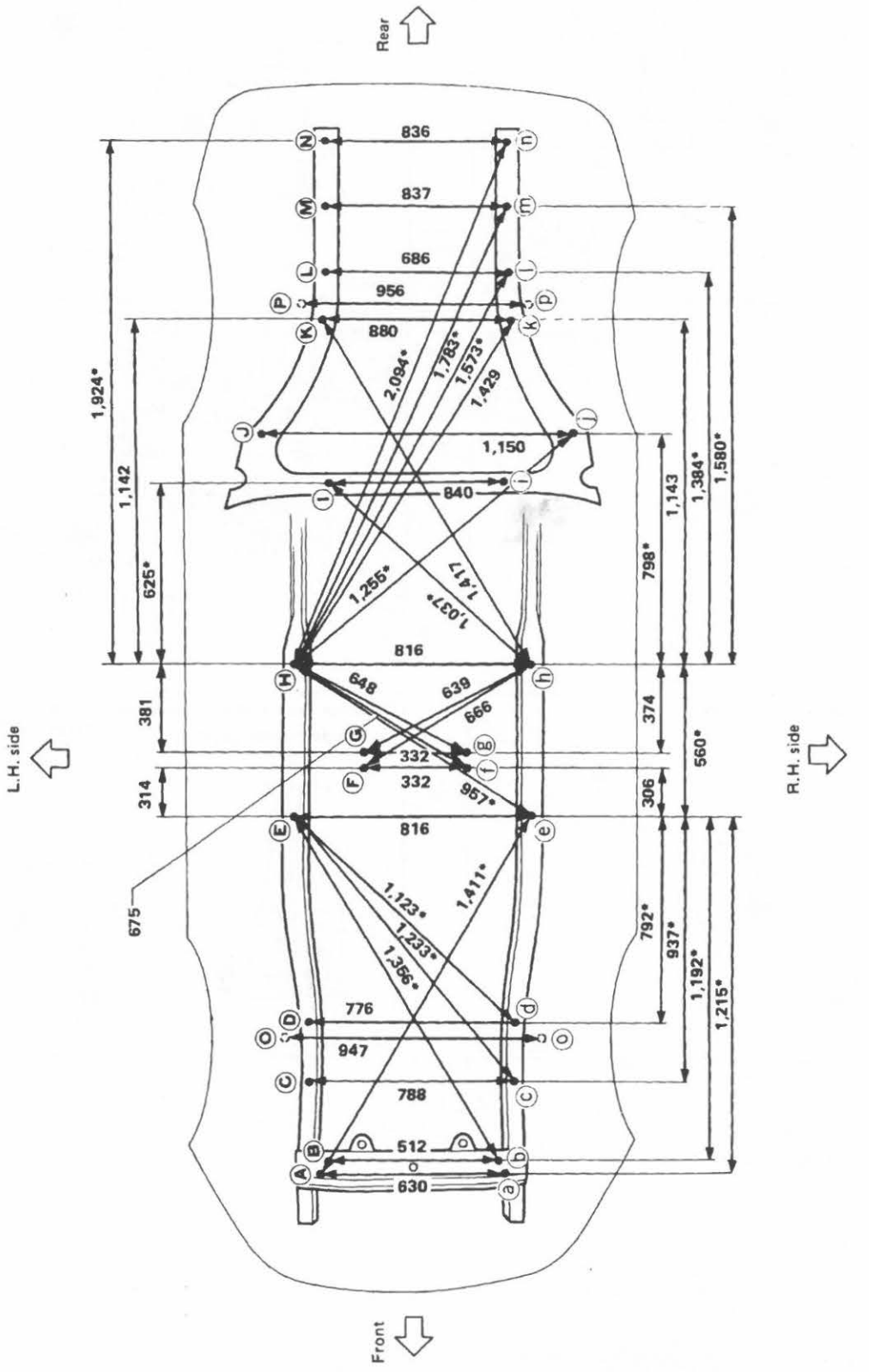


UNDERBODY

MEASUREMENT

2 seater model

Unit: mm



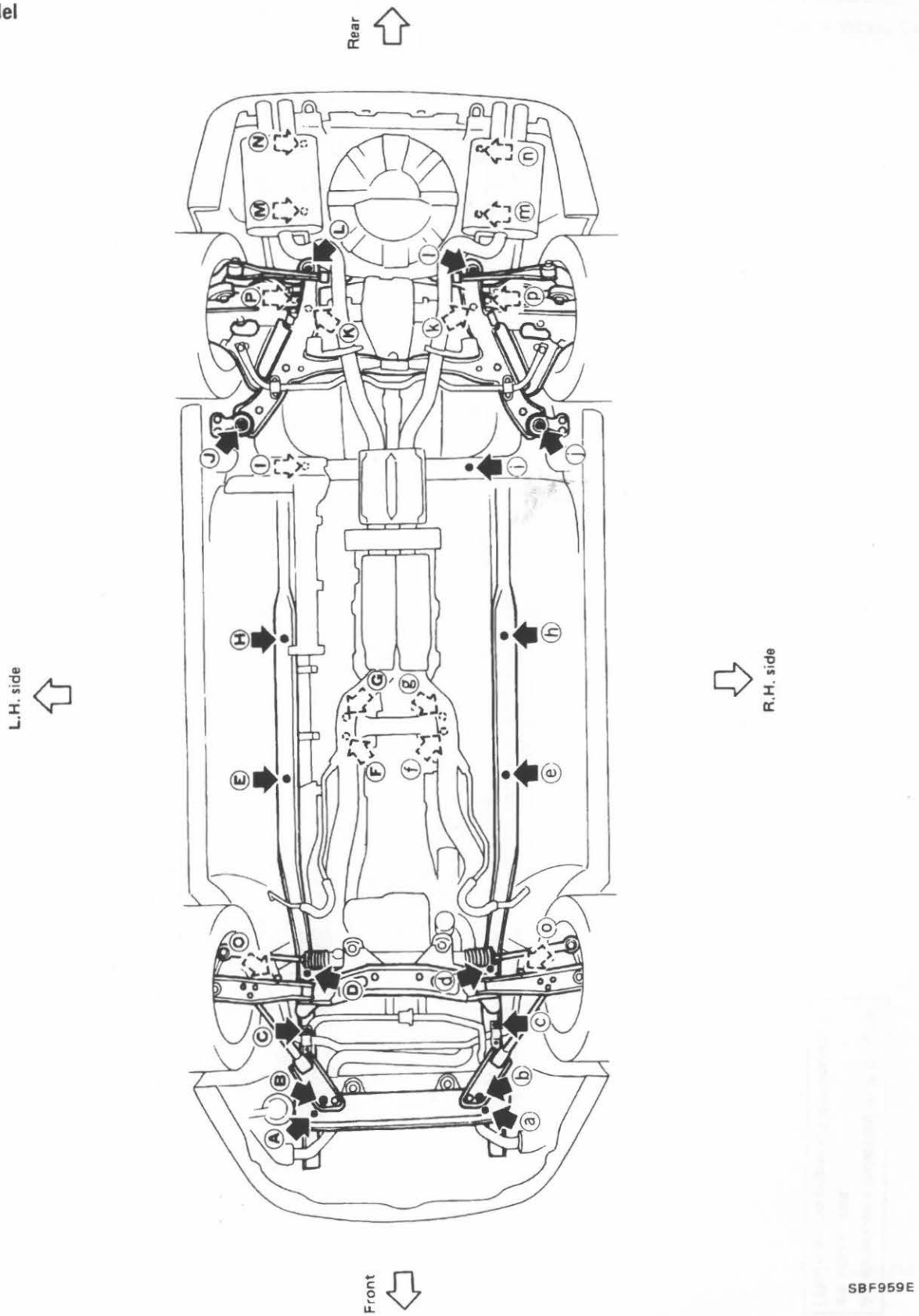
SBF958E

All dimensions indicated in this figure are actual ones.
(There are no projected dimensions.)

UNDERBODY

MEASUREMENT POINTS

2 seater model

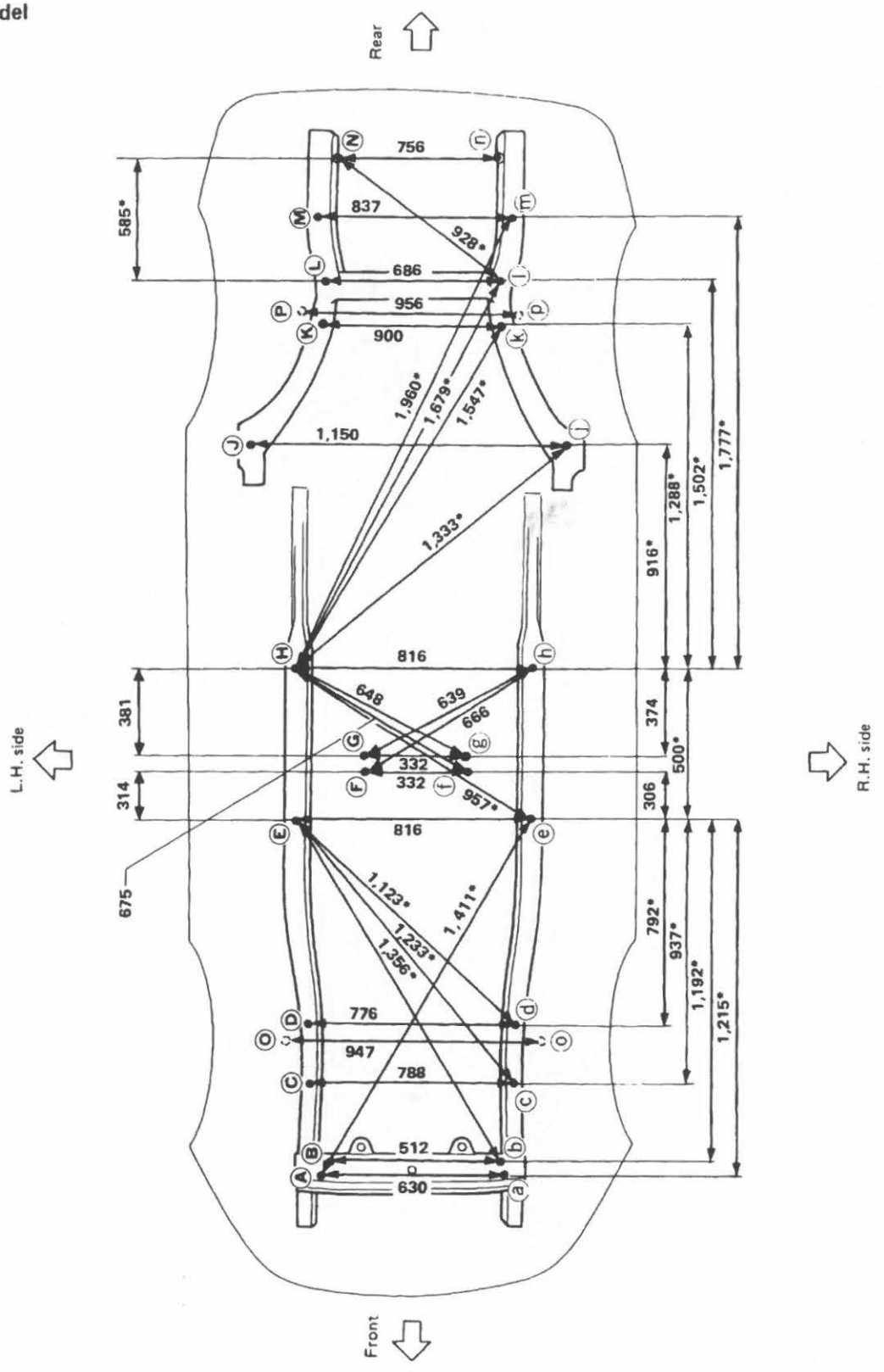


UNDERBODY

MEASUREMENT POINTS

2+2 seater model

Unit: mm



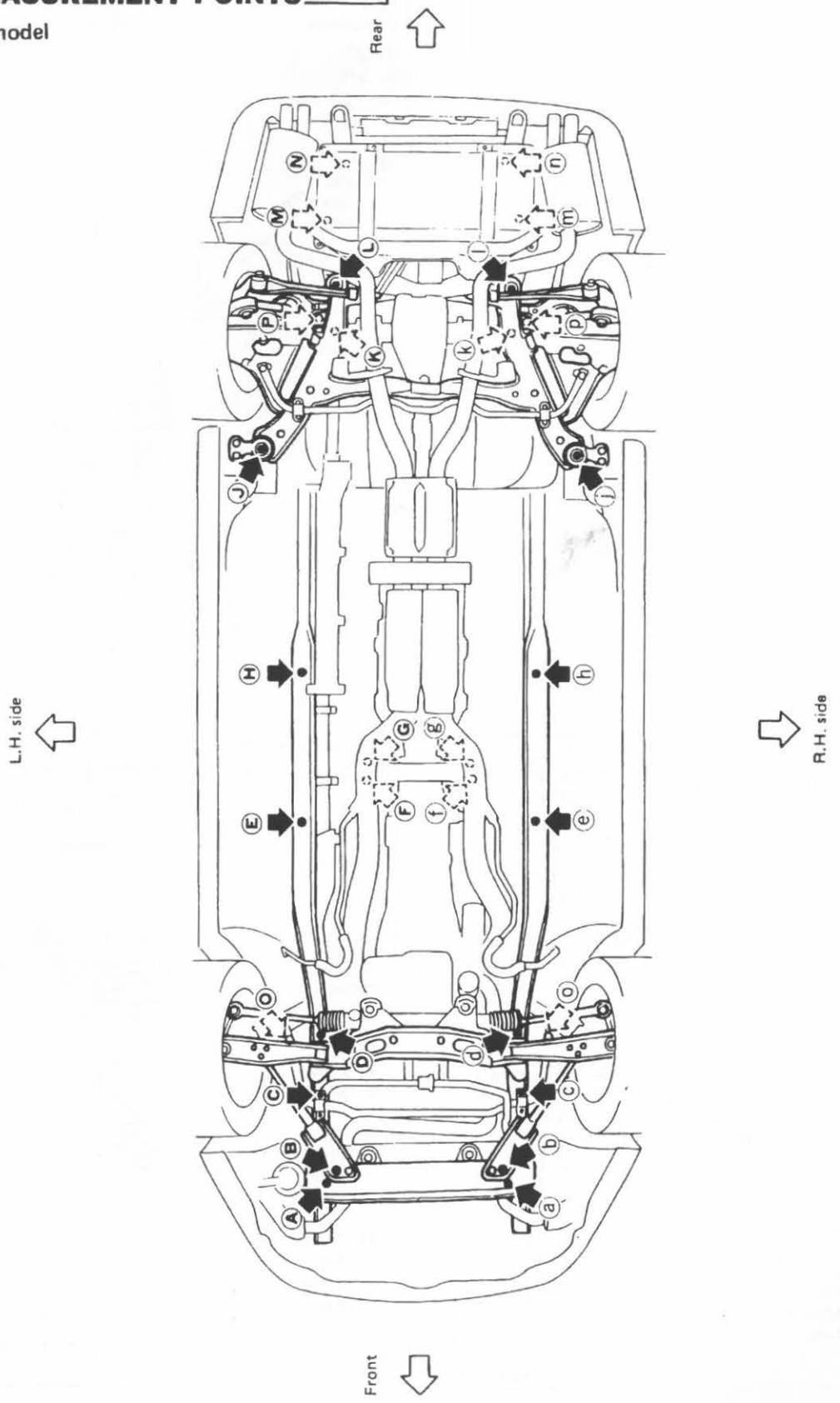
All dimensions indicated in this figure are actual ones.
(There are no projected dimensions.)

SBF960E

UNDERBODY

MEASUREMENT POINTS

2+2 seater model



UNDERBODY

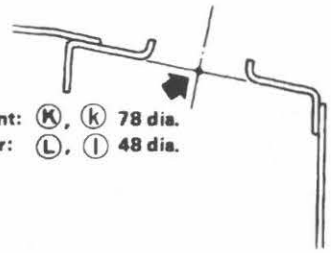
Unit: mm

Front and rear strut tower centers

Coordinates:

Ⓚ, ⓚ
X: 473.4
Y: 52.2
Z: 727.2

Ⓛ, ⓛ
X: 477.9
Y: 2489.3
Z: 727.8



SBF119C

Front side member and front extension

Coordinates:

Ⓐ, ⓐ
X: 315
Y: –460
Z: 205.1

Ⓑ, ⓑ
X: 315
Y: –460
Z: 205.1

Ⓒ, ⓒ
X: 394
Y: –170
Z: 330

ⓕ
X: 171
Y: 917
Z: 249

Ⓓ, ⓓ
X: 388
Y: –22
Z: 330

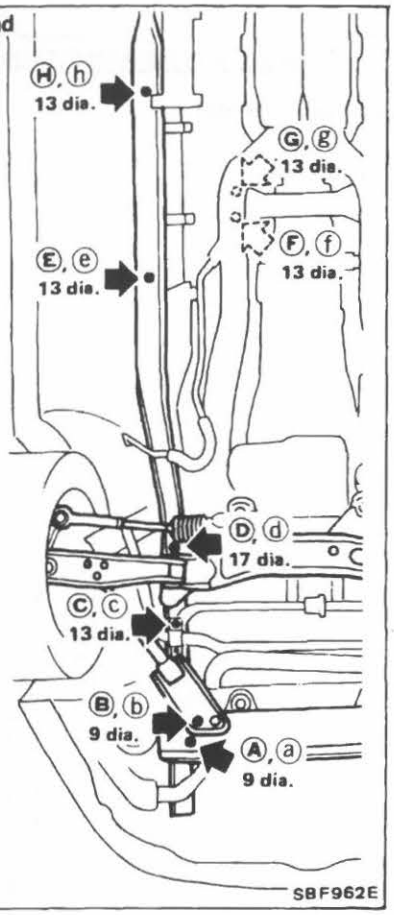
Ⓖ
X: 161
Y: 977
Z: 249

Ⓔ, ⓔ
X: 408.2
Y: 750
Z: 152.6

ⓖ
X: 171
Y: 977
Z: 249

Ⓕ
X: 161
Y: 917
Z: 249

Ⓗ, ⓗ
X: 408.2
Y: 1,250
Z: 152.6



SBF962E

Rear side member and rear extension (2 seater model)

Coordinates:

Ⓘ, ⓘ
X: 420
Y: 1,860
Z: 286.1

Ⓙ, ⓙ
X: 575
Y: 2,030
Z: 179.1

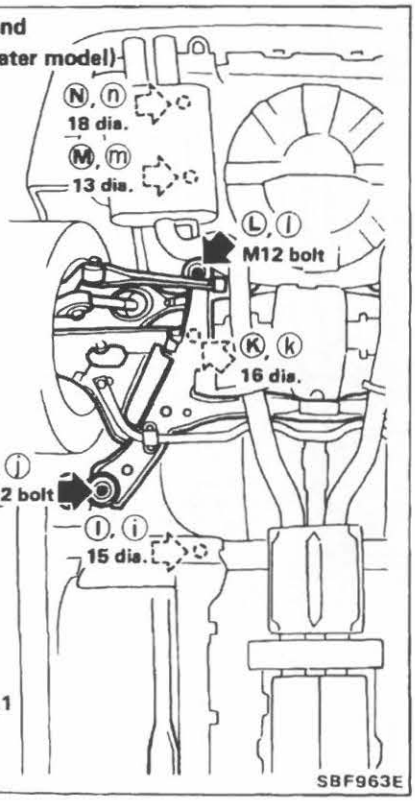
Ⓚ
X: 430
Y: 2,350
Z: 459.6

ⓚ
X: 450
Y: 2,350
Z: 459.6

Ⓜ, ⓜ
X: 418.5
Y: 2,800
Z: 460

Ⓛ, ⓛ
X: 343
Y: 2,620
Z: 334.3

Ⓝ, ⓝ
X: 418
Y: 3,153.1
Z: 434.1



SBF963E

Rear side member and rear extension (2+2 seater model)

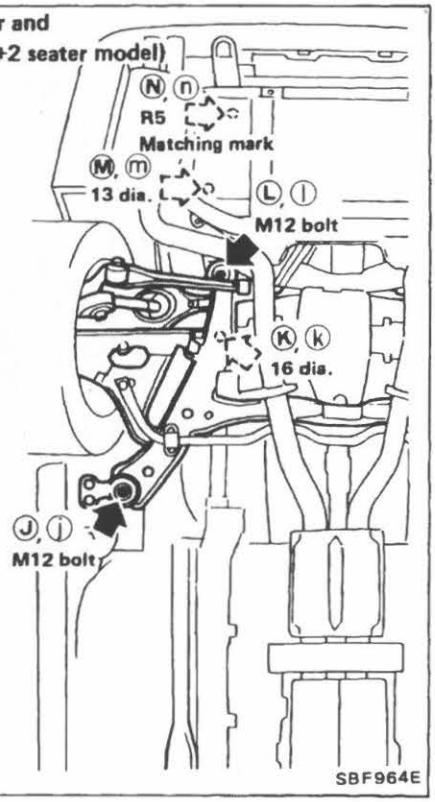
Ⓙ, ⓙ
X: 575
Y: 2,150
Z: 179.1

Ⓚ, ⓚ
X: 450
Y: 2,500
Z: 259.6

Ⓛ, ⓛ
X: 343
Y: 2,740
Z: 334.3

Ⓜ, ⓜ
X: 418.5
Y: 3,000
Z: 460

Ⓝ, ⓝ
X: 378
Y: 3,290
Z: 530

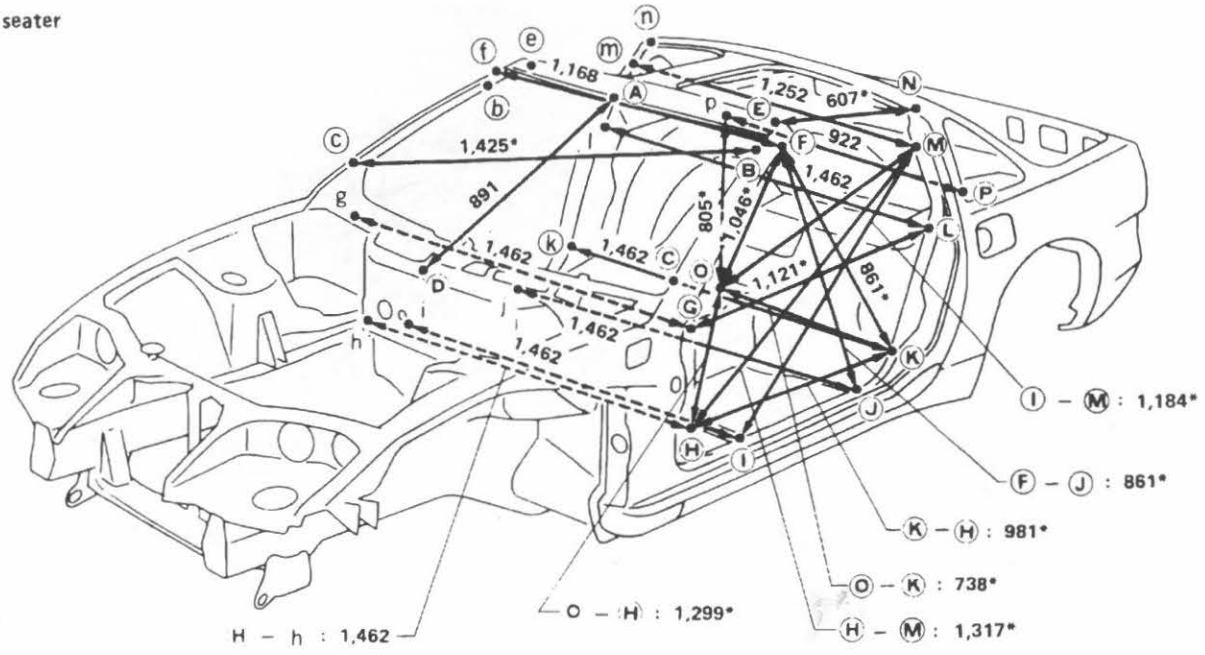


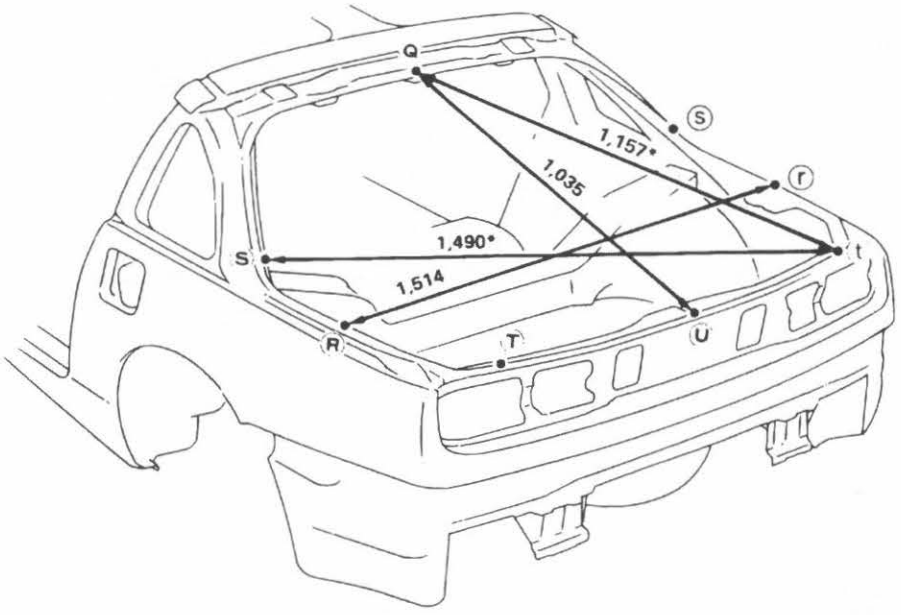
SBF964E

PASSENGER COMPARTMENT AND REAR BODY

MEASUREMENT

2 seater

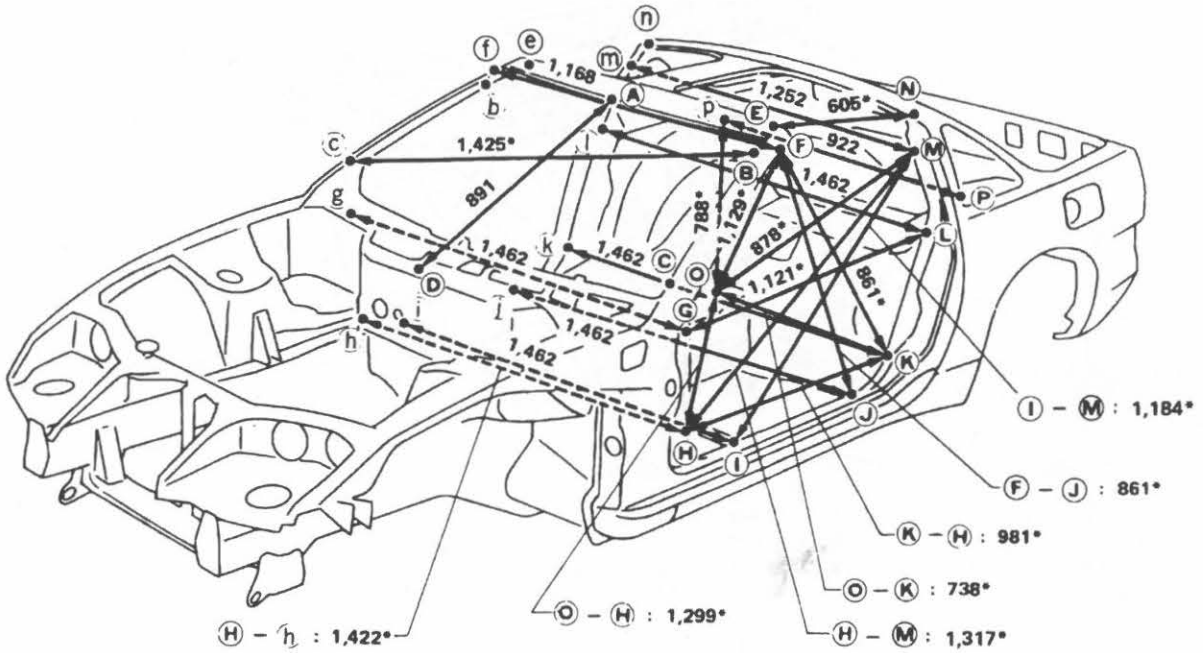


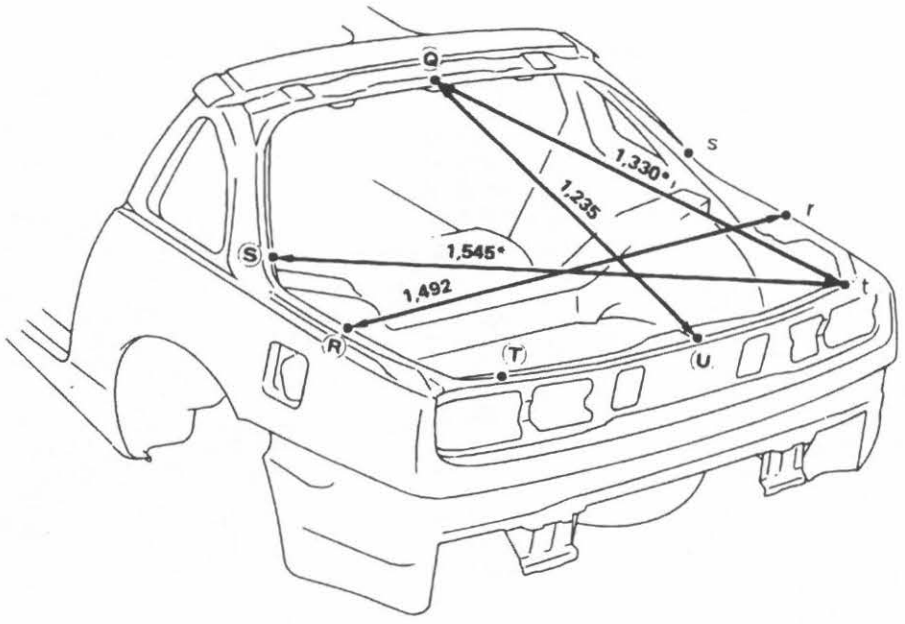


Unit: mm

PASSENGER COMPARTMENT AND REAR BODY

2 + 2 seater





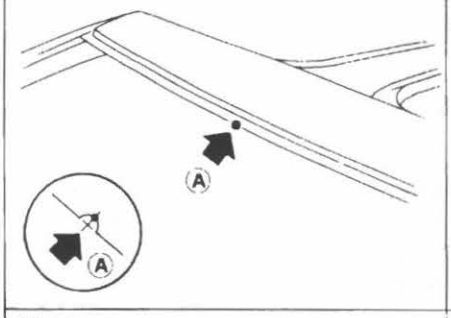
Unit: mm

PASSENGER COMPARTMENT AND REAR BODY

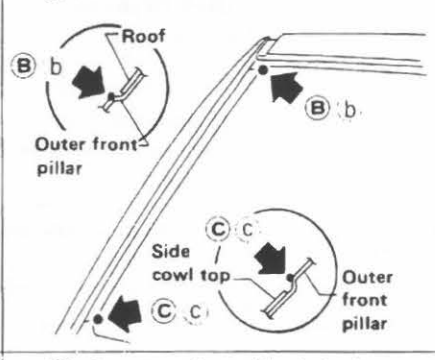
MEASUREMENT POINTS

Unit: mm

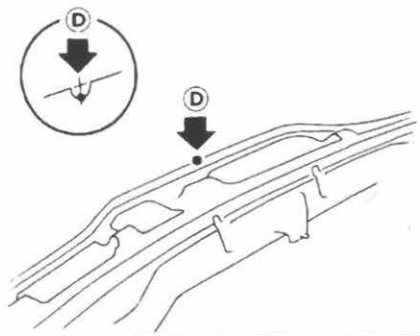
: Front roof indention



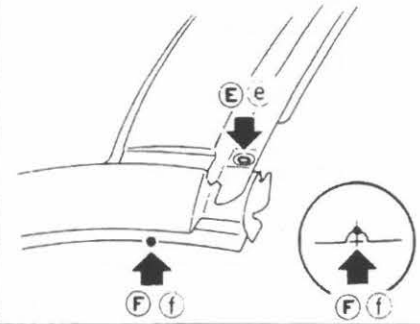
Ⓑ b : Outer front pillar joggle
Ⓒ c : Outer front pillar joggle



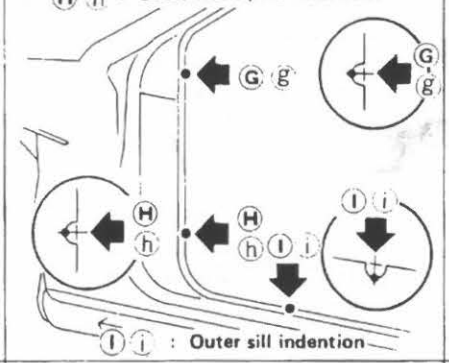
Ⓓ : Cowl top indention



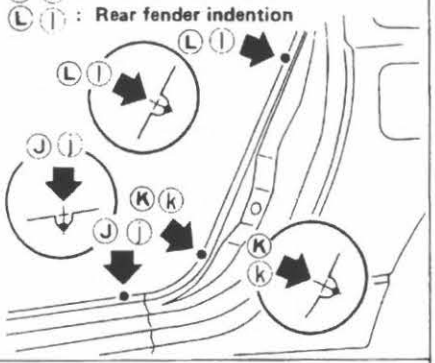
Ⓔ e : Front roof drain hole conter (14 dia.)
Ⓕ f : Outer front pillar indention



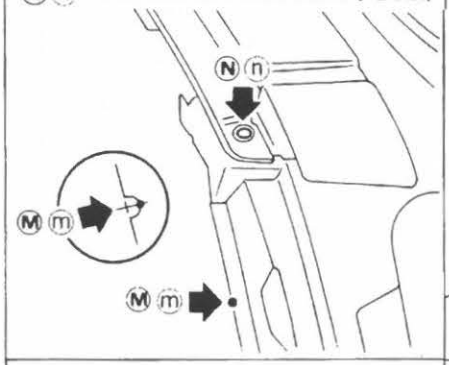
Ⓖ g : Outer front pillar indention
Ⓗ h : Outer front pillar indention



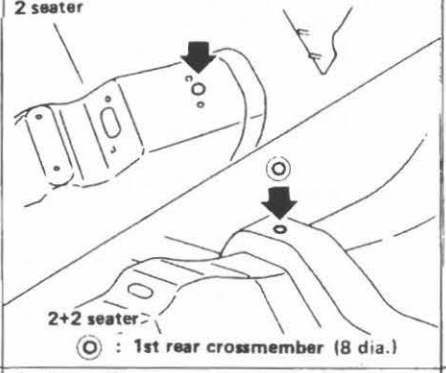
Ⓙ j : Outer sill indention
Ⓚ k : Rear fender indention
Ⓛ l : Rear fender indention



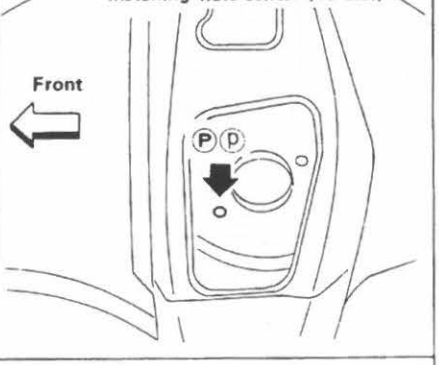
Ⓜ m : Rear fender indention
Ⓝ n : Rear roof drain hole center (12 dia.)



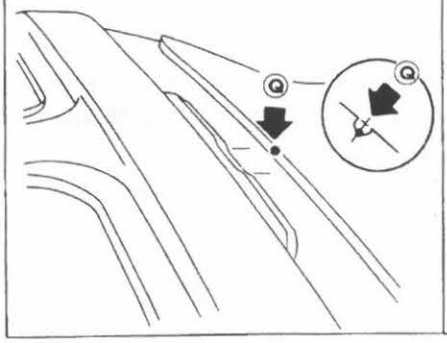
Ⓞ : Rear front floor hole center (14 dia.)



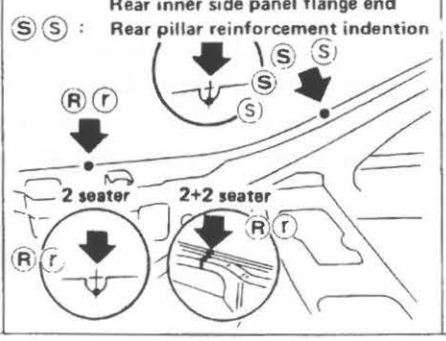
Ⓟ p : Inner rear wheelhouse suspension installing hole center (10 dia.)



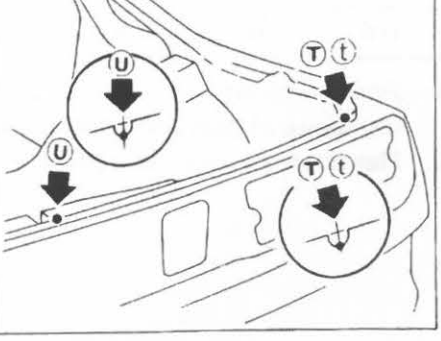
Ⓠ : Rear roof indention



Ⓡ r : 2 seater
Rear inner side panel indention
2+2 seater
Rear inner side panel flange end
Ⓢ s : Rear pillar reinforcement indention



Ⓣ t : Rear panel indention
Ⓤ : Rear panel indention

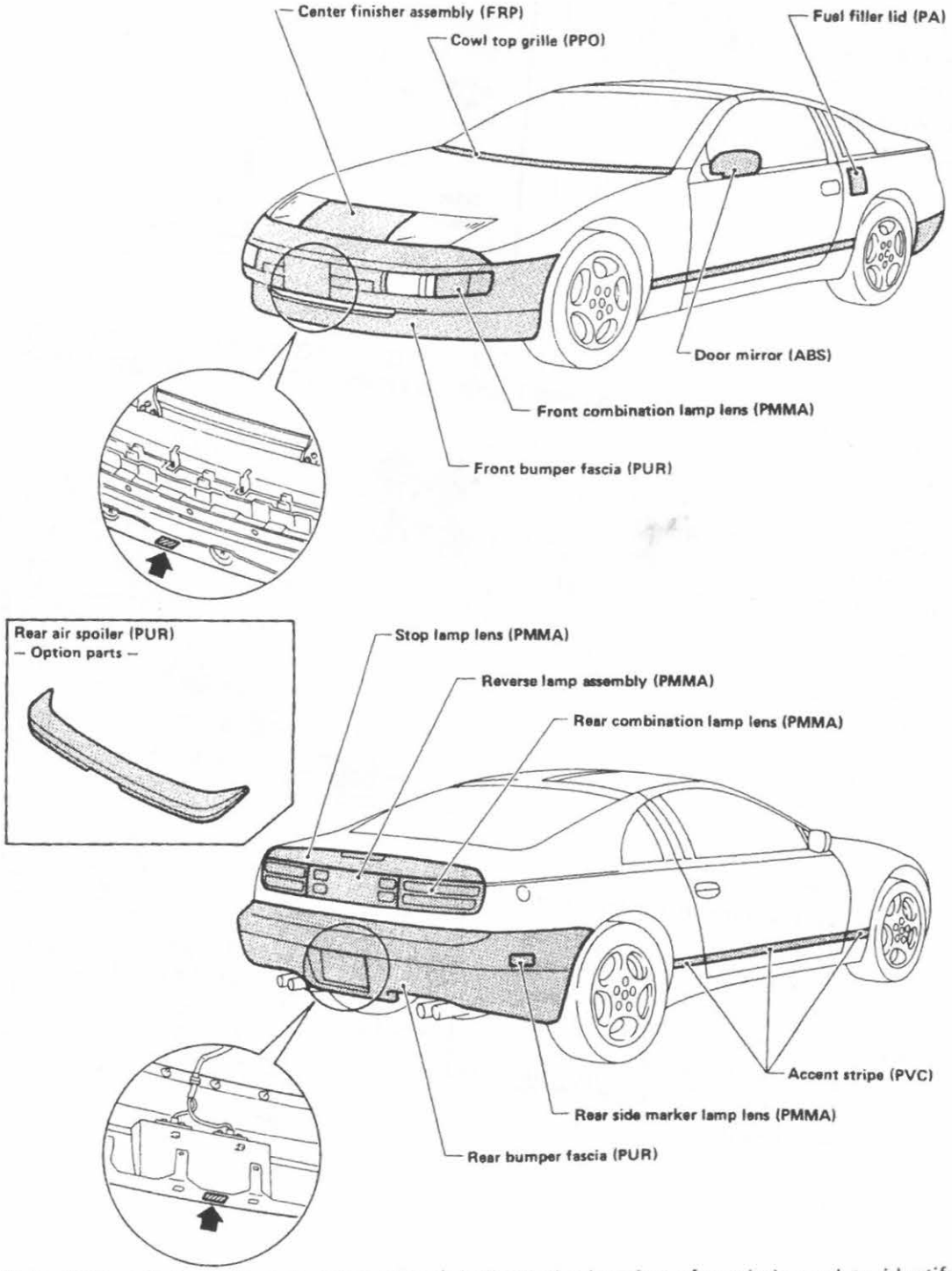


HANDLING PRECAUTIONS FOR PLASTICS

Abbreviation	Material name	Heat resisting temperature °C (°F)	Resistance to gasoline and solvents	Other cautions
PE	Polyethylene	80 (176)	Gasoline and most solvents are harmless.	Flammable
PVC	Polyvinyl chloride	90 (194)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Poison gas is emitted when burned.
PP	Polypropylene	90 (194)	Gasoline and most solvents are harmless.	Flammable
ABS	Acrylonitrile butadiene styrene resin	90 (194)	Avoid gasoline and solvents.	Avoid brake fluid.
AES	Acrylonitrile ethylene styrene	90 (194)	Avoid gasoline and solvents.	Avoid brake fluid.
PMMA	Polymethyl methacrylate	90 (194)	Avoid gasoline and solvents.	Avoid brake fluid.
PUR	Polyurethane	90 (194)	Gasoline and most solvents are harmless.	Avoid brake fluid.
AAS	Acrylonitrile acrylic rubber styrene	95 (203)	Avoid gasoline and solvents.	Avoid brake fluid.
AS	Styrene-acrylonitrile	85 (185)	Avoid gasoline and solvents.	Avoid brake fluid.
PPO	Polyphenylene oxide	110 (230)	Avoid gasoline and solvents.	
POM	Polyacetal	120 (248)	Gasoline and solvents are harmless.	Avoid battery acid.
PC	Polycarbonate	120 (248)	Avoid gasoline and solvents.	
PA	Polyamide (Nylon)	150 (302)	Gasoline and most solvents are harmless.	Avoid immersing in water.
FRP	Fiber reinforced plastics	170 (338)	Gasoline and most solvents are harmless.	
PPC	Polypropylene composite	115 (239)	Gasoline and most solvents are harmless.	Flammable
PBT	Polybutylene terephthalate	140 (284)	Gasoline and most solvents are harmless.	
TPR	Thermoplastic rubber	80 (176)	Avoid gasoline and solvents.	
TPE	Thermoplastic elastomer	80 (176)	Avoid gasoline and solvents.	

1. **When repairing and painting a portion of the body adjacent to plastic parts, consider their characteristics (influence of heat and solvent) and remove them if necessary or take suitable measures to protect them.**
2. **Plastic parts should be repaired and painted using methods suiting the materials.**

LOCATION OF PLASTIC PARTS



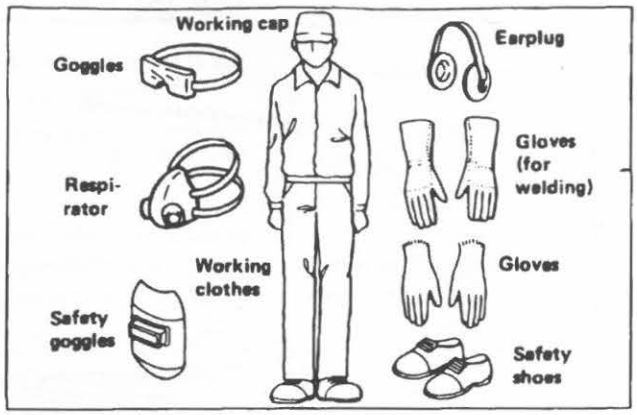
NOTE: Arrows " ⬆ " (in enlarged portions) indicate the location of symbols used to identify plastic material used.

PRECAUTIONS IN OPERATION

WELDING PRECAUTIONS

1. Wear protectors

- Be sure to wear goggles, earplugs, respirator, gloves and so forth depending on the work to be performed. Working clothes, safety shoes, and working cap must be worn as usual.

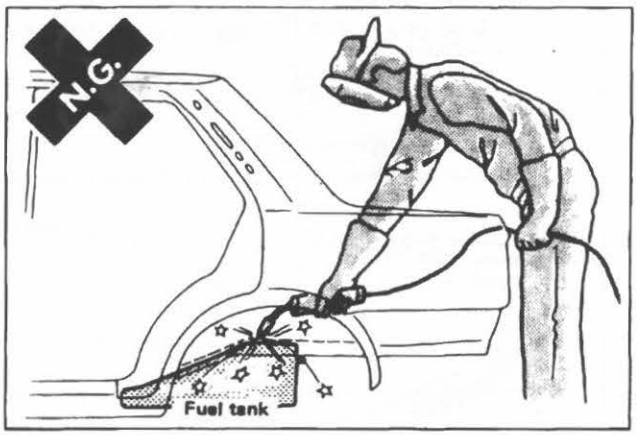


2. Safety stand

- After jacking up a vehicle body, be sure to support it with the safety stand. For the supporting positions, refer to "Lifting Points".

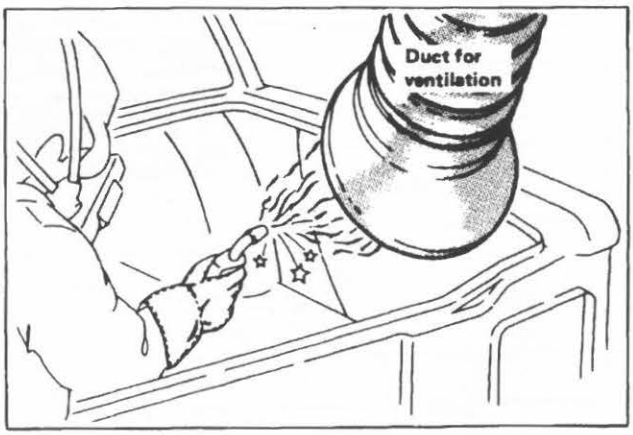
3. Inflammables

- Before starting repair work, be sure to disconnect the negative terminal of the battery.
- When welding parts near the fuel tank, be sure to remove the fuel tank. Plug the filler port of the tank.
- Plug the fuel pipe and brake pipes to avoid leakage when removing connectors from the pipes.



4. Working environment

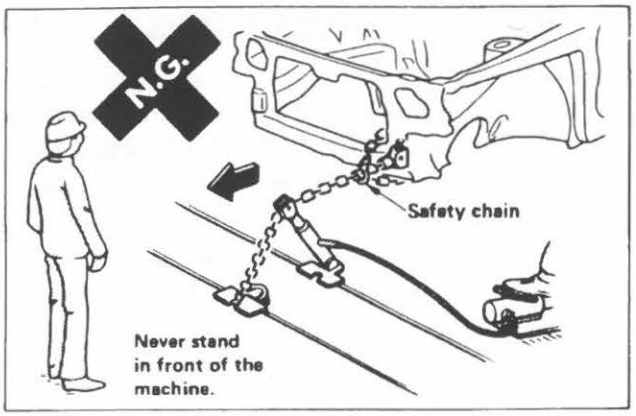
- Pay attention to ventilation and the health of operators.
- Paint and sealant may generate poisonous gases when heated by fire. To prevent this, do not use a gas welder for cutting off damaged portions. Use an air saw or an air chisel.
- Use a belt sander or rotary wire brush for removing paint from the panel.



PRECAUTIONS IN OPERATION

5. Vehicle body straightener

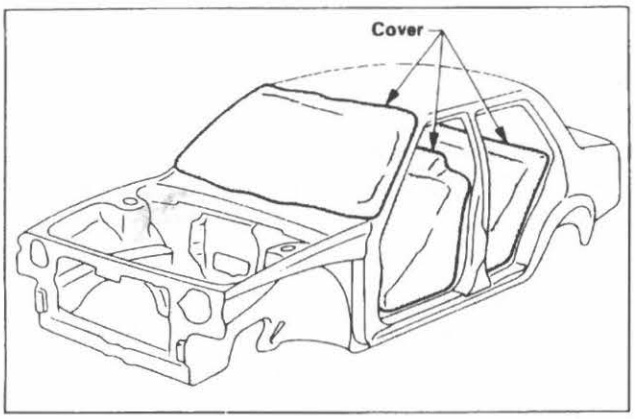
- Be sure to use correctly according to the instruction manual prepared by the manufacturer of the straightener. When straightening a damaged portion, never stand in front of the machine in the direction that the body is to be straightened. Equip with a safety chain in case of emergency.



PROTECTION OF BODY AND EXTERNALLY ATTACHED PARTS

1. Protection of body

- Remove or cover interior components (seats, instruments, carpet).
- When welding, cover glasses, seats, instruments and carpet with a heat-resistant material. (This protection is necessary especially when CO_2 arc welding.)



2. Protection of exterior parts

- When removing external parts (moldings and finishers) attached to the body, apply cloth or protection tape to the body to prevent scratching.
- If the painted surface is scratched, be sure to repair that portion: even a small flaw in the painted surface may cause corrosion.

PRECAUTIONS IN REPLACING OPERATION

Use of genuine parts

- In order to maintain the original functions and high quality of the vehicle, it is recommended that you use genuine Nissan parts.

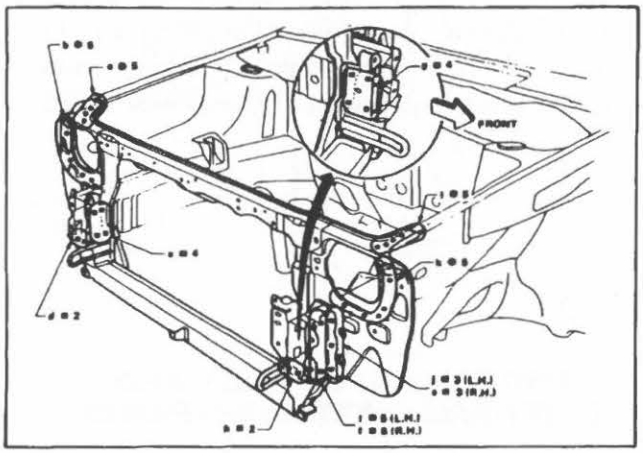
PRECAUTIONS IN OPERATION

WELDING PRECAUTIONS

General precautions

Welding must be properly performed so that vehicle body will retain sufficient strength and durability.

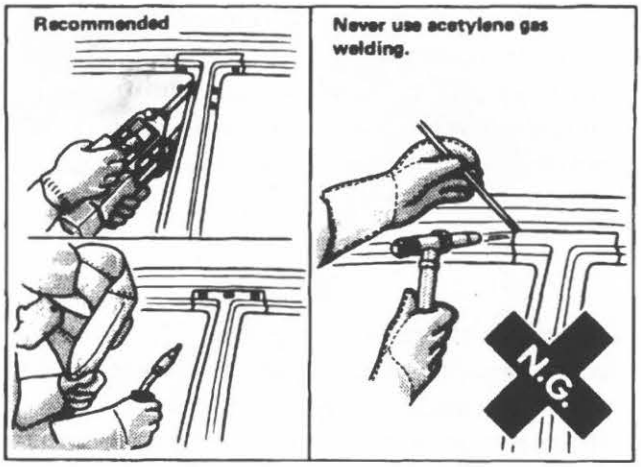
- The REPLACEMENT OPERATION section in the Manual deals with the welding methods, locations to be welded, number of welding spots (or welding pitches) for each body portion. It is recommended to perform welding according to the instructions.



- Resistance spot welding is superior in weld strength to other welding processes. In addition, it features a low amount of thermal strain, a short welding time and finishing is unnecessary.

  For these reasons, it is recommended that resistance spot welding be used whenever possible.

  Further, use of mig welding is recommended for locations where resistance spot welding cannot be utilized.



CAUTION:

Gas welding (oxyacetylene gas welding) must not be used because it causes a decline in strength of areas surrounding the welded parts.

There are a variety of resistance spot welders on the market. Be sure to use a welder with a sufficient capacity to secure weld strength. Also, inspect welded parts to confirm weld strength.

PRECAUTIONS IN OPERATION

Spot welding

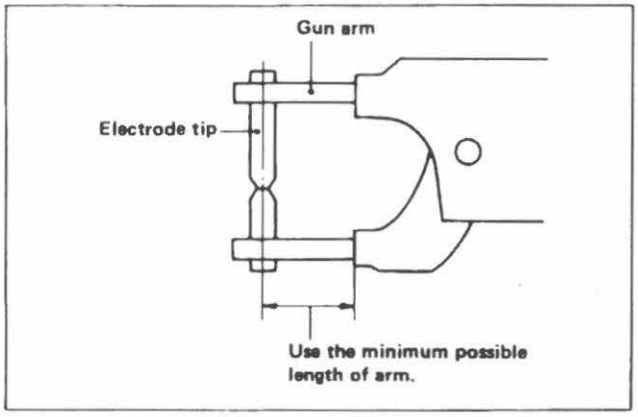
1. Spot welder

To obtain sufficient strength at the spot welded portions, perform the following checks and adjustment on the spot welding machine before starting operation.

(1) Adjustment of arm

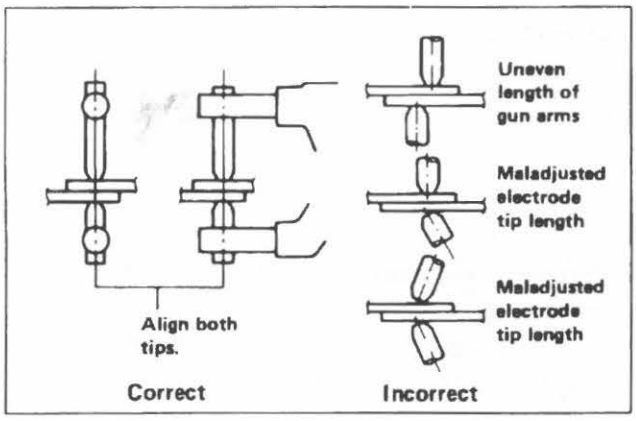
a. Keep the gun arm as short as possible to obtain the maximum pressure for welding.

b. Securely tighten the gun arm and tips so that they will not become loose during operation.



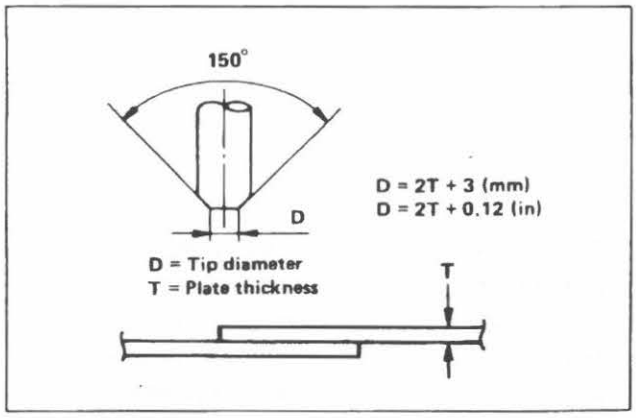
(2) Alignment of electrode tips

Align the upper and lower electrode tips on the same axis. Poor alignment of the tips causes insufficient pressure, resulting in insufficient current density and insufficient strength at the weld.



(3) Diameter of electrode tip

The tip diameter must be properly controlled to obtain the desired welding strength. Before starting operation, make sure that the tip diameter (D) is kept the proper size, and file it cleanly to remove burnt or foreign matter from the surface of the tip.



Unit: mm (in)

Thickness (T)	Diameter (D)	Thickness (T)	Diameter (D)
0.6 (0.024)	4.2 (0.165)	1.0 (0.039)	5.0 (0.197)
0.7 (0.028)	4.4 (0.173)	1.2 (0.047)	5.4 (0.213)
0.8 (0.031)	4.6 (0.181)	1.4 (0.055)	5.8 (0.228)
0.9 (0.035)	4.8 (0.189)	1.6 (0.063)	6.2 (0.244)

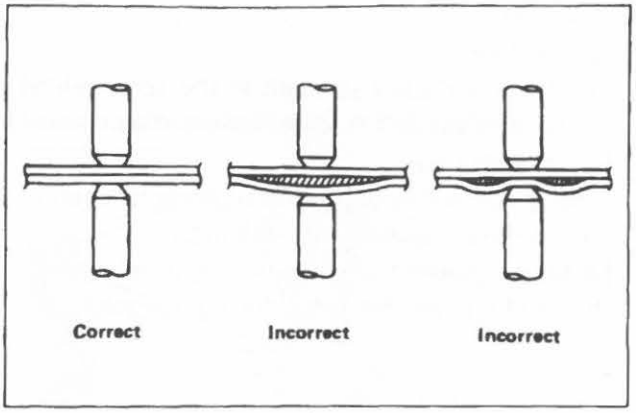
2. Condition of the panel

Presence of a gap, paint film, rust, or dust on the surface of the panel causes poor current flow and reduction is spot area and these lead to unsuccessful welding.

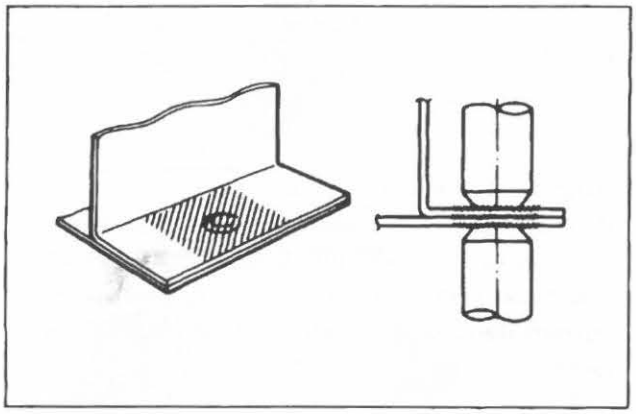
Before beginning, it is necessary to thoroughly check the condition of the panel, and make any necessary corrections.

PRECAUTIONS IN OPERATION

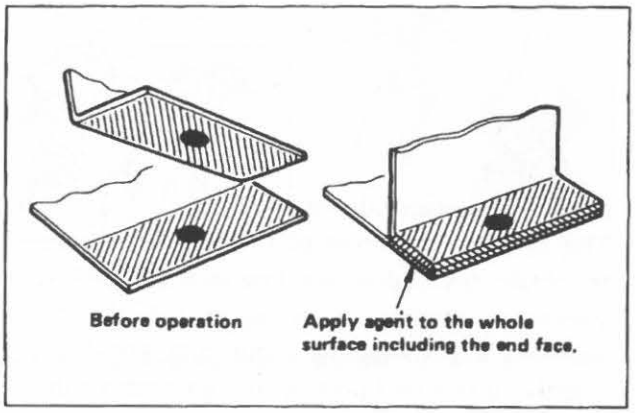
(1) Clearance between welding surfaces:
Any clearance between the surfaces to be welded causes poor current flow. Even if welding can be made without removing such gap, the welded area would become smaller, resulting in insufficient strength.
Flatten the two surfaces to remove the gaps, and clamp them tightly with a clamp before welding.



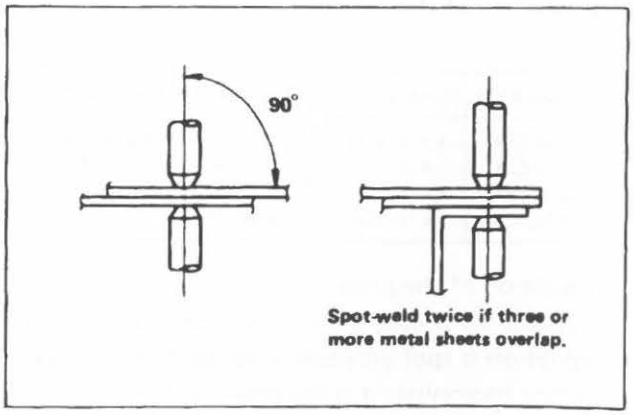
(2) Metal surfaces to be welded:
Paint film, rust, dust, or any other contamination on the metal surfaces to be welded cause insufficient current flow and poor results.
Remove all foreign matter from the surfaces to be welded.



(3) Corrosion prevents the welding process on metal surface:
Corrosion agent has higher conductivity. It is important to apply the agent evenly to the end face of the panel.



3. Precautions in performing spot welding:
(1) Selection of spot welding machine –
Use the direct welding method. (For the portions to which direct welding cannot be applied, use plug welding by mig welding.)
(2) Application of electrode tips –
Apply electrodes at right angle to the panel. If the electrodes are not applied at right angle, the current density will be low resulting in insufficient welding strength.
(3) Lap welding of more than three metal sheets –
For portions where three or more metal sheets are overlapping, spot welding should be done twice.



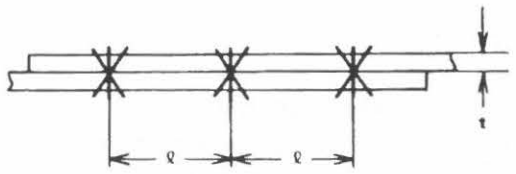
PRECAUTIONS IN OPERATION

(4) No. of points of spot-welding:
Generally, the capacity of spot welding machines available in repair shop is smaller than that of welding machines at the factory. Accordingly, the number of points of spot-welding should be increased by 20 to 30% in a service shop compared to spot-welding in the factory.

(5) Minimum welding pitch:
The minimum welding pitch varies with the thickness of plates to be welded. In general, the values given in the following table must be observed. Note that excessively small pitch allows the current to flow through surrounding portions, and this results in insufficient welding strength of the metal.

Unit: mm (in)

Thickness (t)	Minimum pitch (ℓ)
0.6 (0.024)	10 (0.39)
0.8 (0.031)	12 (0.47)
1.0 (0.039)	18 (0.71)
1.2 (0.047)	20 (0.79)
1.6 (0.063)	27 (1.06)
1.8 (0.071)	31 (1.22)

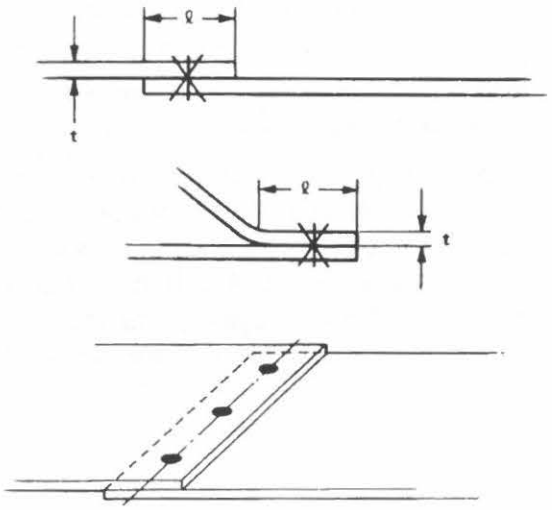


(6) Minimum lap of panels:
Observe the following values for the lap distance of panels. If the lap distance is too small, it results in insufficient strength and also in a strained panel.

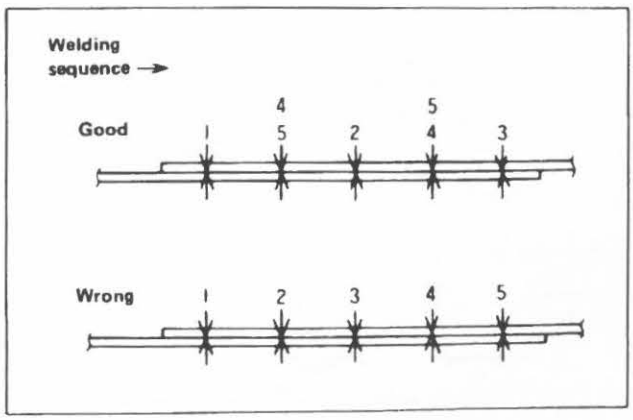
Unit: mm (in)

Thickness (t)	Minimum pitch (ℓ)
0.6 (0.024)	11 (0.43)
0.8 (0.031)	11 (0.43)
1.0 (0.039)	12 (0.47)
1.2 (0.047)	14 (0.55)
1.6 (0.063)	16 (0.63)
1.8 (0.071)	17 (0.67)

Be sure to spot weld at the center of the overlapped portion.



(7) Spotting sequence:
Do not spot continuously in only one direction. This method provides weak welding due to the shunt effect of the current. If the welding tips become hot and change their color, stop welding and allow the tips to cool.

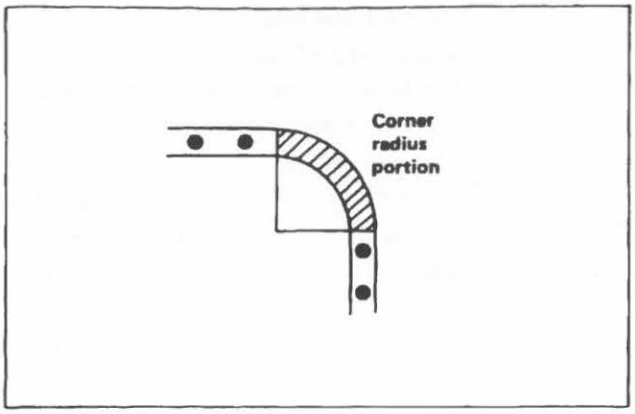


PRECAUTIONS IN OPERATION

(8) Welding corners:
Do not weld the corner radius portion. Welding this portion results in stress concentration, which leads to cracks.

Examples

- Upper corner of front and center pillars
- Front upper portion of rear fender
- Corner portion of front and rear windows



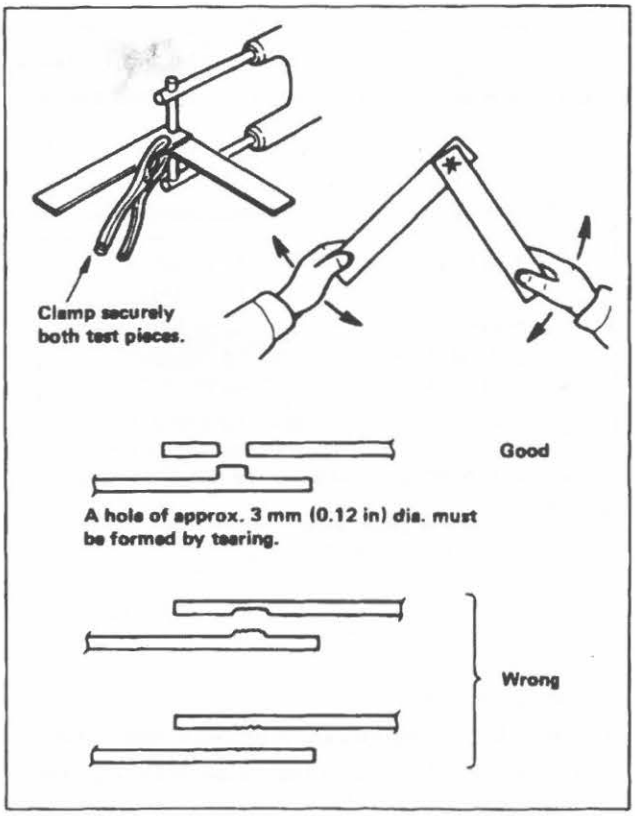
4. Inspection of welded portion
Spot-welded portions can be checked by visual inspection and destructive inspection. The destructive inspection explained below can be adopted easily at the time of welding. Before and after welding, be sure to perform this destructive inspection to check the strength of the welded portions.
The welding spots should be spaced equally and arranged at the center of the flange to be welded.

(1) Check by using test piece (Confirmation before operation)

- Prepare test pieces having the same thickness as the panel to be welded and weld them together. Break the welded portion by twisting and examine the condition of the ruptured portion.

Clamp both test pieces together so that they will not slip or move during welding.

- With this test, a hole should be made on one test piece by tearing at the welded portion. If no hole is formed, it indicates that the welding conditions are incorrect. Adjust the pressure, welding current, current passing time and other conditions, and repeat test until the best result is obtained.



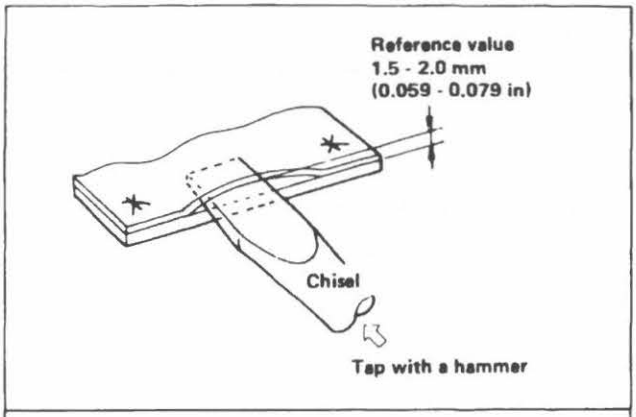
PRECAUTIONS IN OPERATION

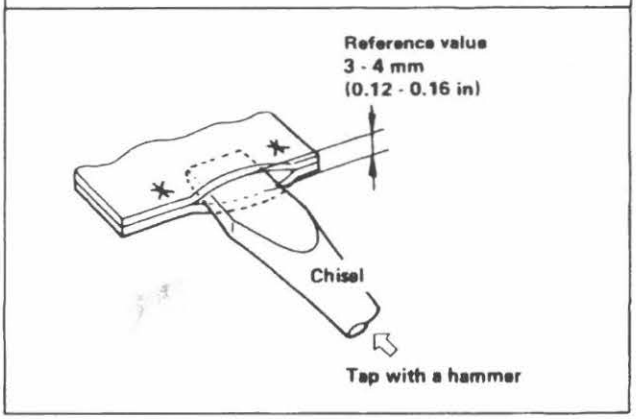
(2) Check by using chisel and hammer (Confirmation after welding)

- Insert the tip of a chisel between the welded plates, and tap the end of the chisel until the clearance of 3 to 4 mm (0.12 to 0.16 in) [when the plate thickness is 0.8 to 1.0 mm (0.031 to 0.039 in)] is formed between the plates. If the welded portions remain normal, it indicates that the welding has been done properly.

This clearance varies with the location of the welded spots, length of the flange, plate thickness, welding pitch, and other factors. Note that the value shown above is only a reference value.

- If the thickness of the plates is not equal, the clearance between the plates must be limited to 1.5 to 2.0 mm (0.059 to 0.079 in). Note that further opening of the plates can become a destructive test.
- Be sure to repair the deformed portion of the panel after inspection.





Mig welding

1. Condition of panel to be welded
   Paint film, rust, or oils attached to the surface of the panel reduces the welding conditions, causing blowholes and spatter. Thoroughly remove any foreign matter from the surface to be welded by using a belt sander or wire brush.

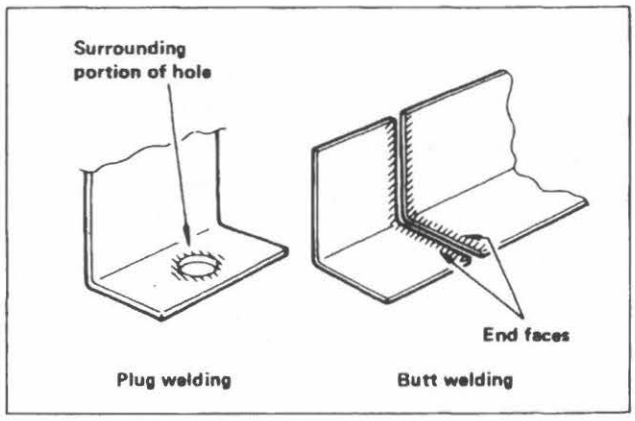
2. Precautions in welding

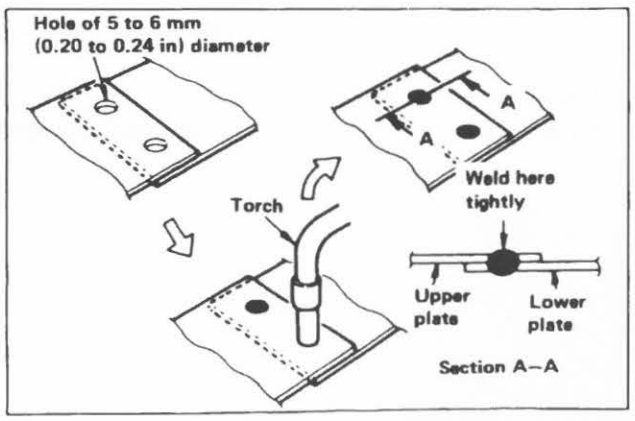
(1) Plug welding

a. Open a hole of 5 to 6 mm (0.20 to 0.24 in) diameter on one of the two metal plates to be welded and keep the upper plate and lower plate in tight contact.

b. Apply the torch at right angle to the plate and fill metal into the hole at a stretch. Note that intermittent welding leads to the generation of oxide film on the surface and this causes blowholes. If this occurs remove the oxide film with a wire brush.

c. Make sure that the upper and lower plates are welded together tightly.

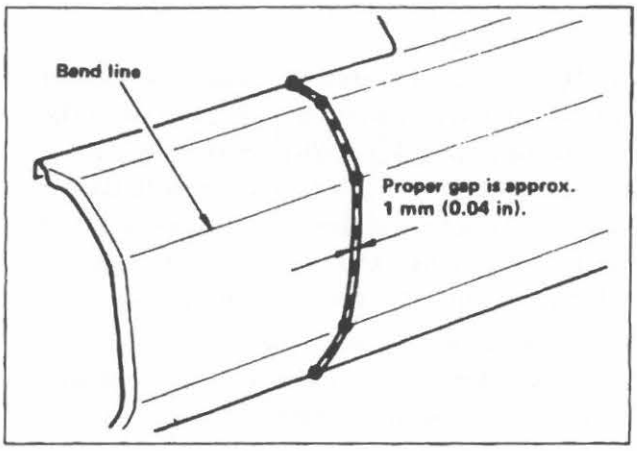




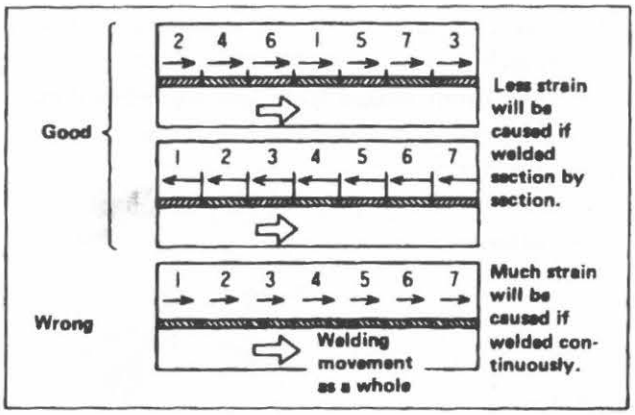
PRECAUTIONS IN OPERATION

(2) Butt welding

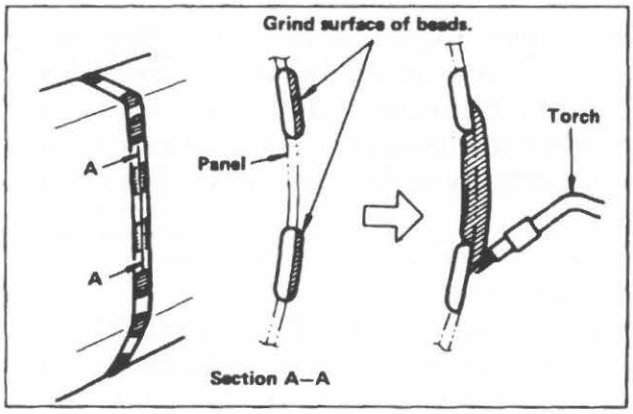
a. Before performing this welding, tack-weld two pieces of the metals to be welded to prevent generation of strains and to align two metal surfaces. Tack two metal pieces by placing point welds and then fill in the spaces by placing short welding beads.



b. Long weld line is apt to cause strain. Use the method shown at the left to reduce strain.



c. To fill the spaces between intermittently placed beads, first grind the beads along the surface of the panel using a sander, then fill metal into the space. If weld metal is placed without grinding the surface of the beads, blowholes may be produced.

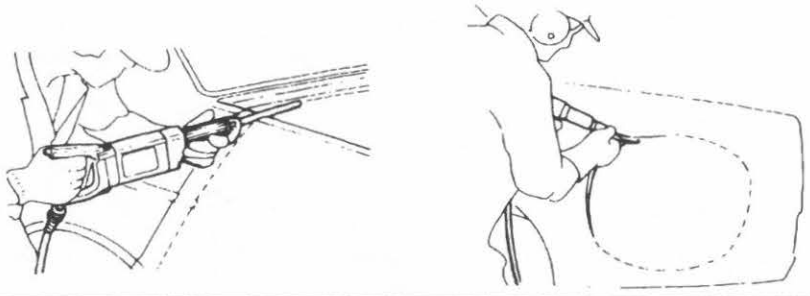


3. Inspection of welded portion
Refer to the inspection method described for spot welding.

DESCRIPTION — SYMBOLS FOR CUTTING AND WELDING/BRAZING OPERATIONS

The identification of the cutting and the welding/brazing symbols used throughout this guide is given in the following pages.

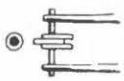
Saw cut or
air chisel cut

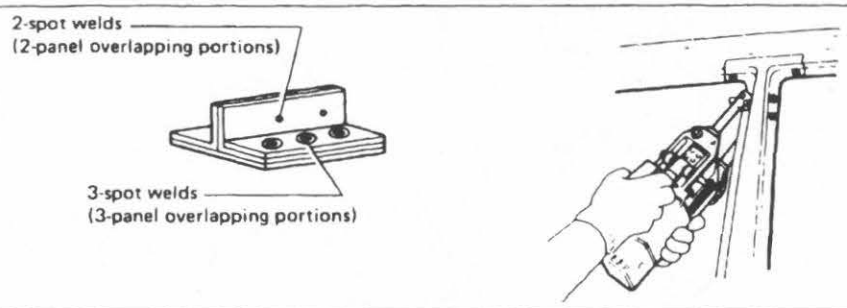


Spot weld

- 2-spot welds

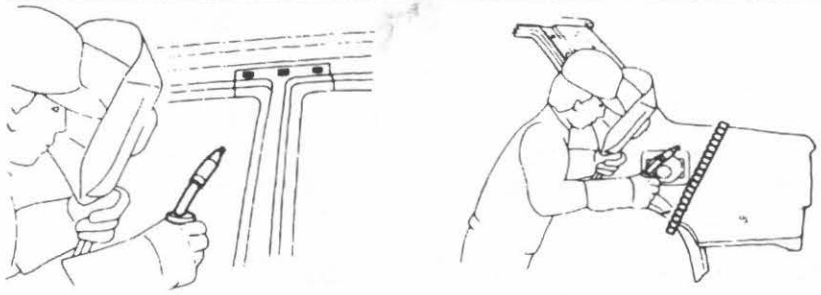
- 3-spot welds



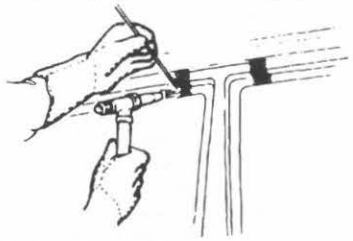


M.I.G. plug weld

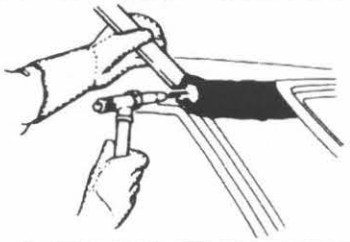
M.I.G. seam weld/
Point weld



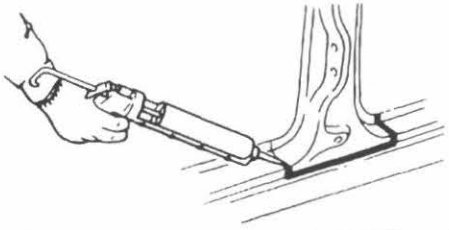
Brazing



Soldering

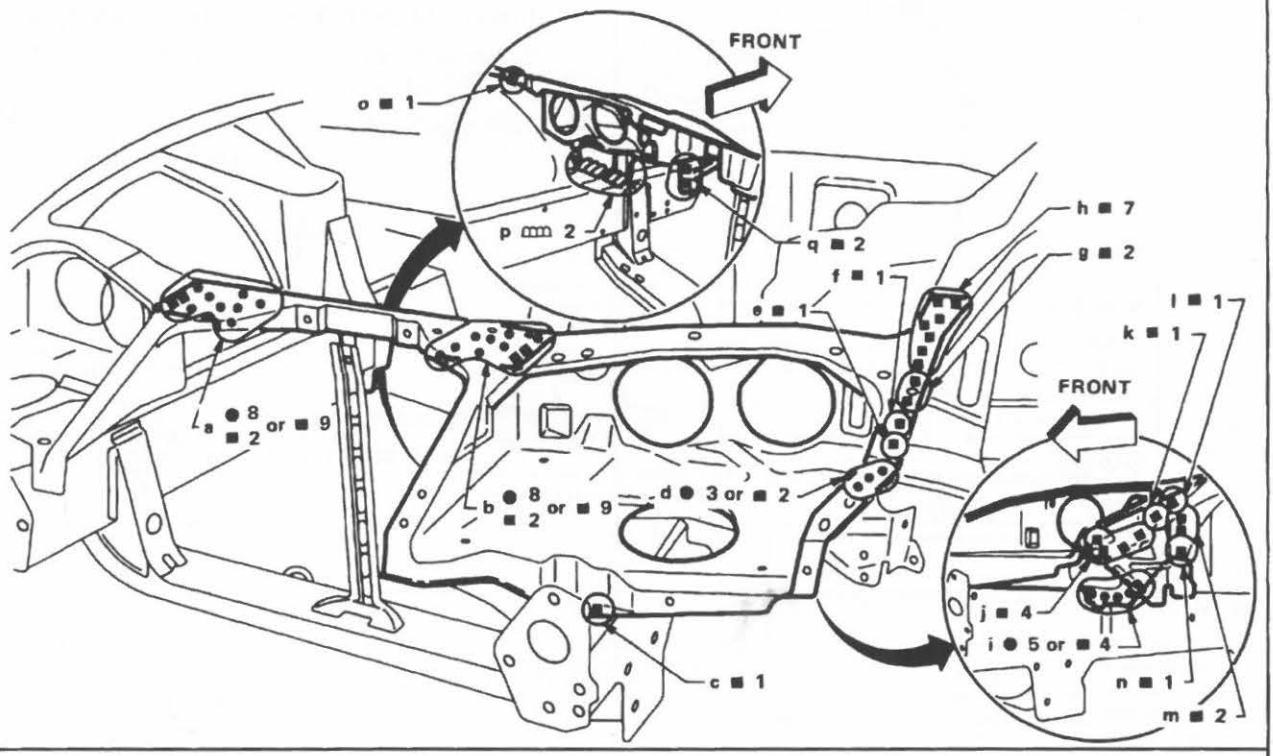


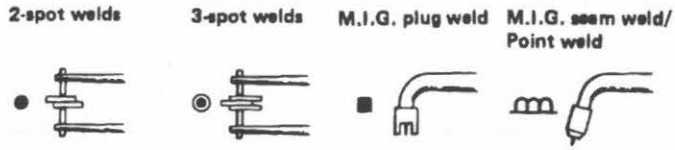
Sealing



RADIATOR CORE SUPPORT

Service Joint





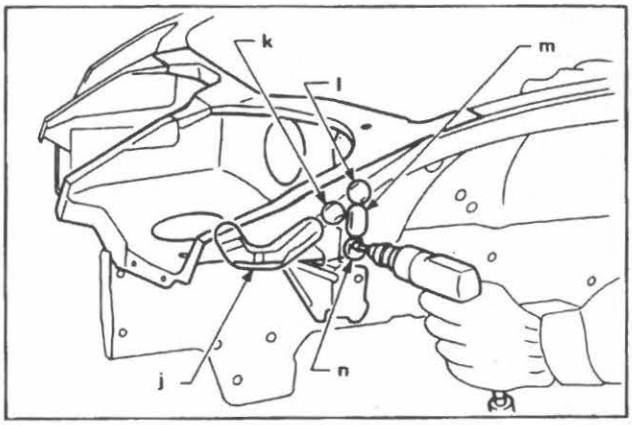
Portions to be welded

a Upper side radiator core support
Upper side radiator core support & side radiator core support
b Upper side radiator core support
Upper side radiator core support & side radiator core support
c Front side member & front side member front closing plate
d Hoodledge reinforcement baffle
e Headlamp bracket & hoodledge reinforcement baffle
f Headlamp bracket, side radiator core support & hoodledge reinforcement baffle
g Side radiator core support & hoodledge reinforcement baffle
h Hoodledge reinforcement baffle
Hoodedge reinforcement baffle & hoodledge reinforcement gusset
i Front hoodledge
j Hoodledge reinforcement baffle
k Side radiator core support & hoodledge reinforcement baffle
l Front hoodledge & hoodledge reinforcement baffle
m Front hoodledge
n Front hoodledge & headlamp bracket
o Front hoodledge & hoodledge reinforcement baffle
p Front side member
q Front side member

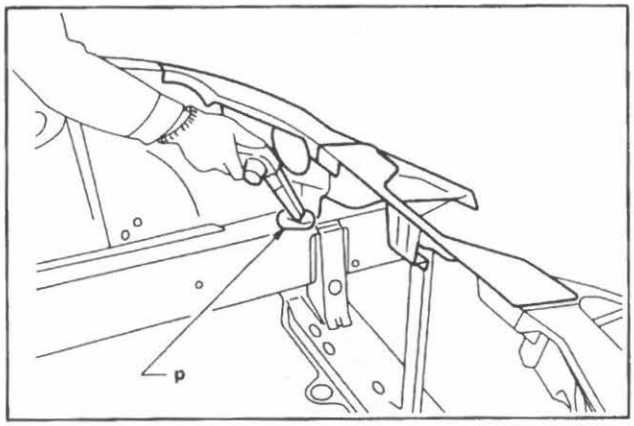
RADIATOR CORE SUPPORT

REMOVAL NOTES

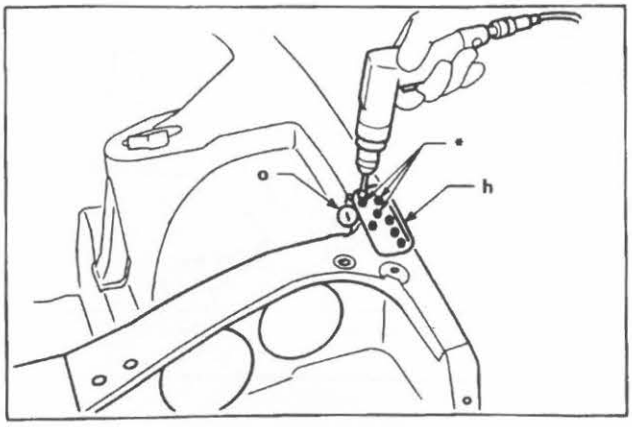
- Spot cut completely through welded parts at portions (j) (k) (l) (m) and (n). Use these holes as M.I.G. plug weld holes when installing service parts.



- Cut welds with a mini belt sander at portion (p).

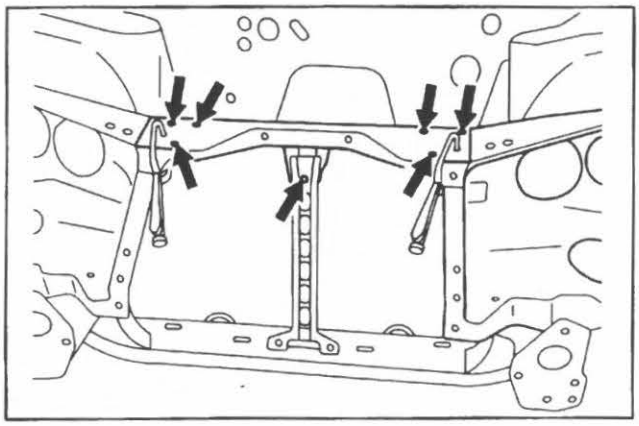


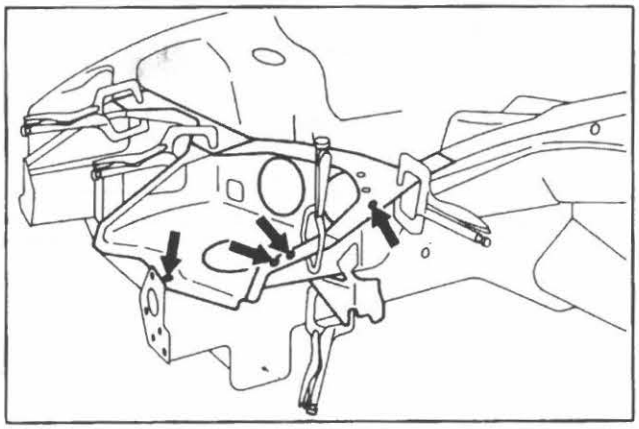
- When removing welded part at portions (h*) and (o), be careful not to spot cut through mating parts.



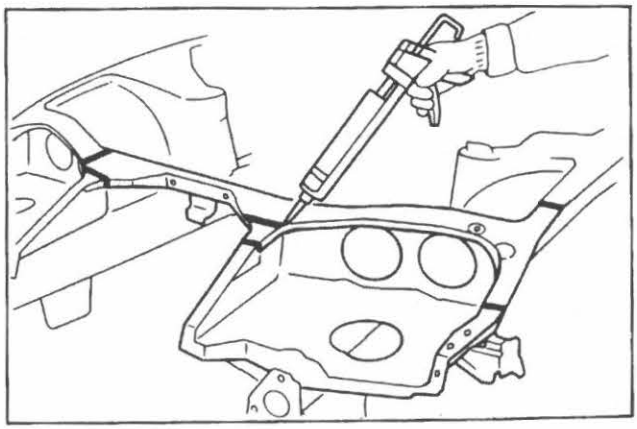
INSTALLATION NOTES

- When installing service parts, measure various dimensions of part locations. Refer to "BODY ALIGNMENT" drawing and align locating holes.

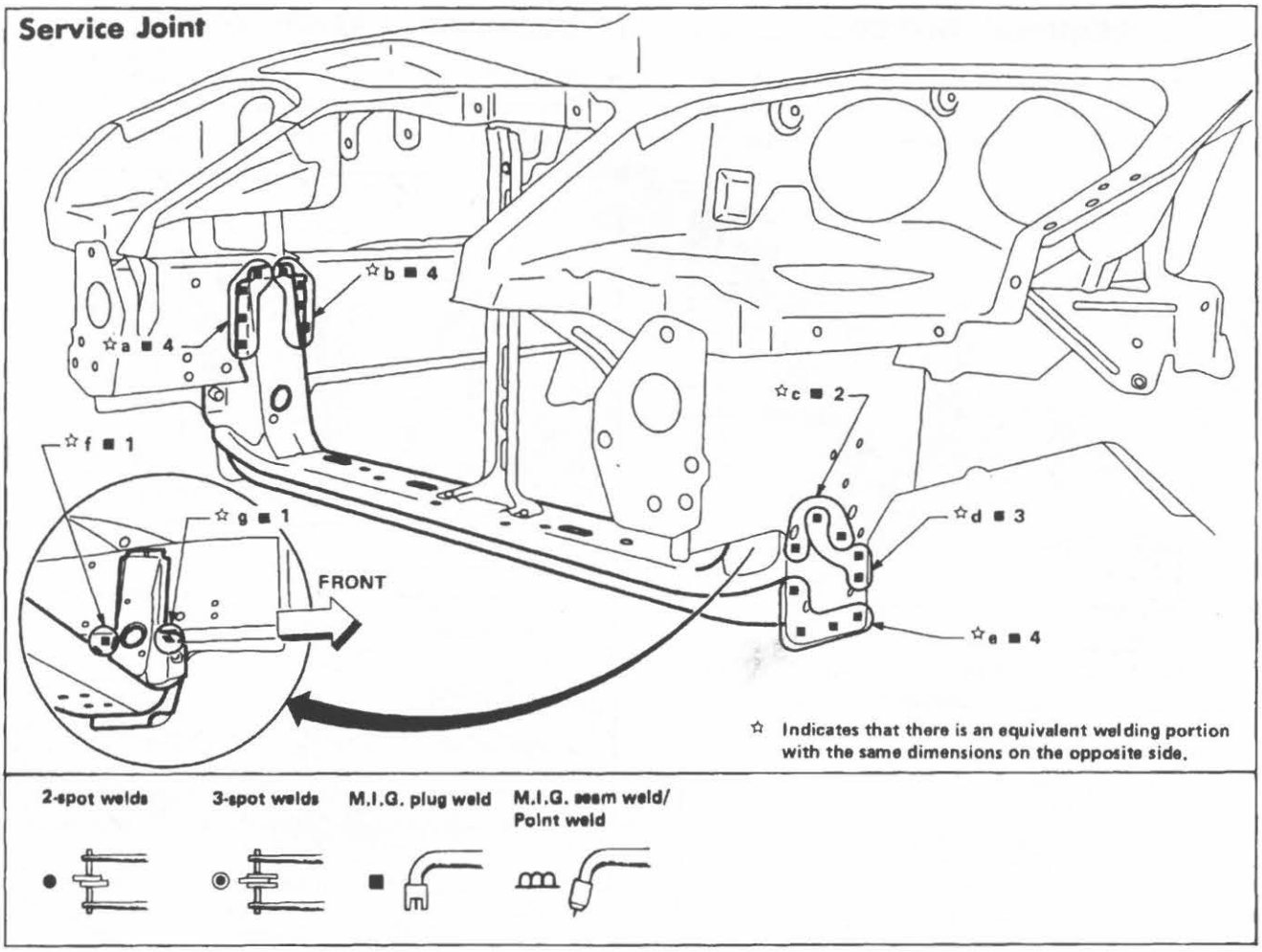




- After welding, apply sealant.



FRONT CROSSMEMBER

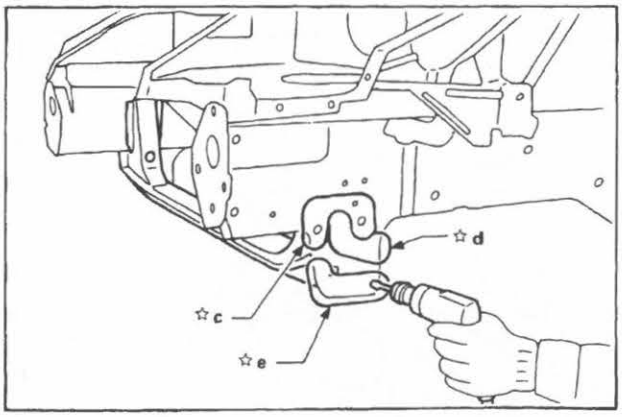


Portions to be welded

a Front side member & front side member patch
b Front side member & tension rod mounting reinforcement
c Front side member front closing plate
d Front side member front closing plate
Front side member & front side member front closing plate
e Front side member front closing plate
f Front side member & tension rod mounting reinforcement
g Front side member & front side member patch

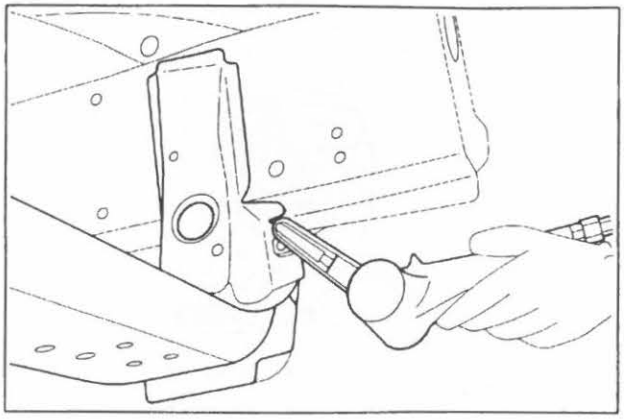
REMOVAL NOTES

- Spot cut completely through welded parts at portions (c), (d) and (e). Use these holes as M.I.G. plug weld holes when installing service part.



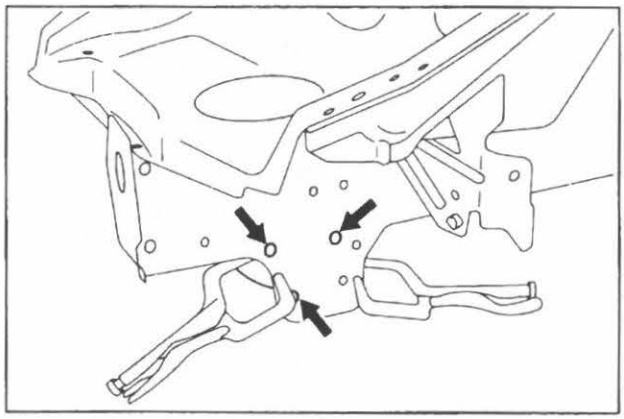
FRONT CROSSMEMBER

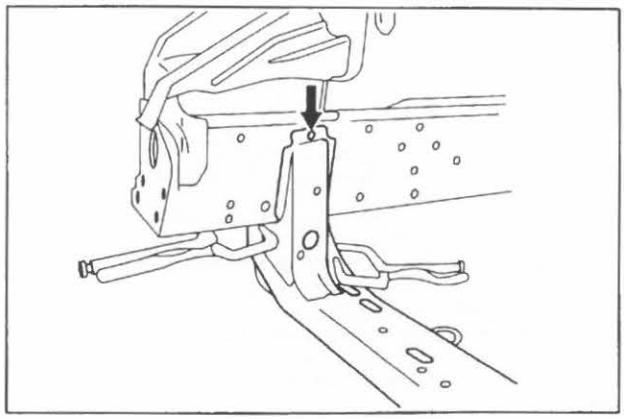
- To make it easy to cut welded portions (f) and (g), use a mini belt sander.



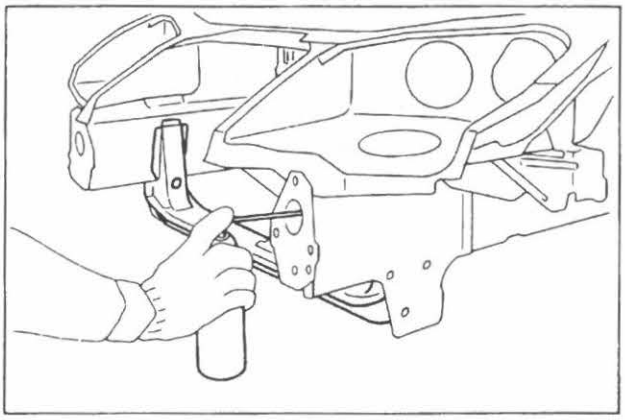
INSTALLATION NOTES

- When installing service part, measure various dimensions of part locations. Refer to "BODY ALIGNMENT" drawing and align locating holes.

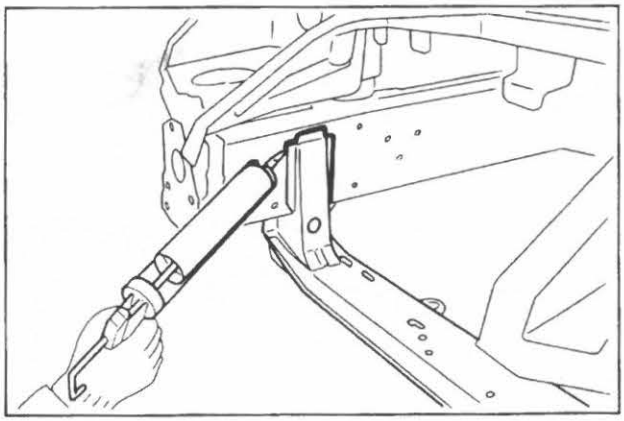




- After welding, apply anti-corrosive agent to inside of front side member.



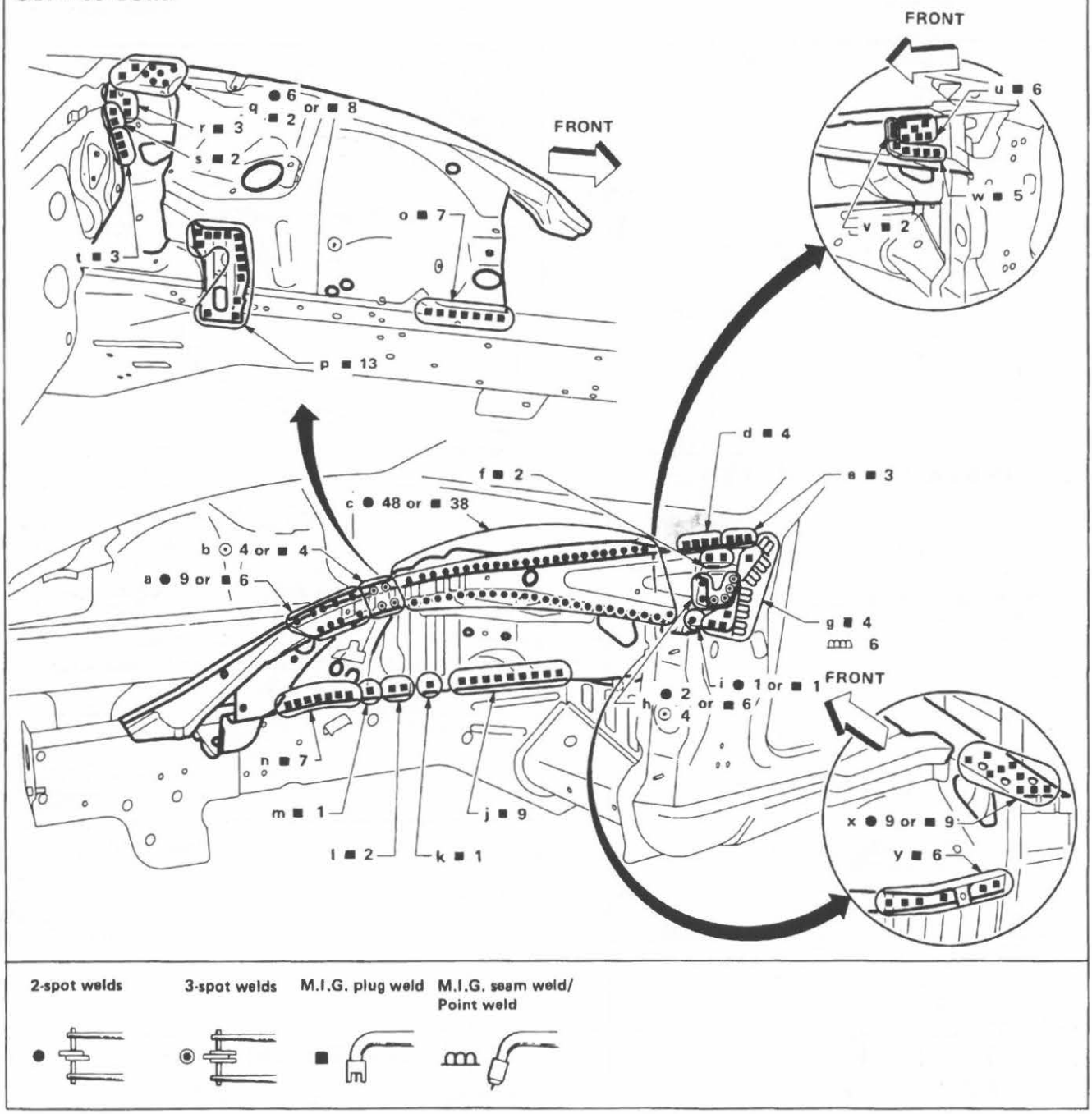
- Apply sealant.



HOODLEDGE

(Work after radiator core support has been removed.)

Service Joint



Portions to be welded

a Hoodledge reinforcement gusset
b Hoodledge reinforcement gusset & baffle
c Hoodledge reinforcement gusset
d Hoodledge reinforcement gusset & cowl top
Hoodledge reinforcement gusset, cowl top & side cowl top
e Cowl top, side cowl top & upper dash crossmember
f Upper dash
Stiffener
g Outer front pillar
h Upper dash
Upper dash & outer front pillar
i Hoodledge reinforcement patch
j Front side member & front side member closing patch
k Hoodledge center, front side member & front side member rear closing plate
l Front side member & front side member rear closing plate

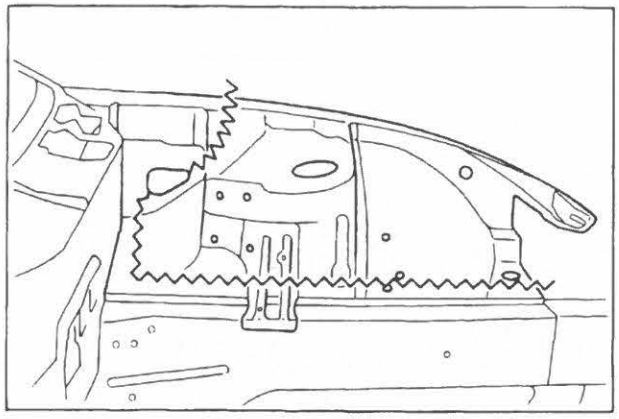
HOODLEDGE

Portions to be welded

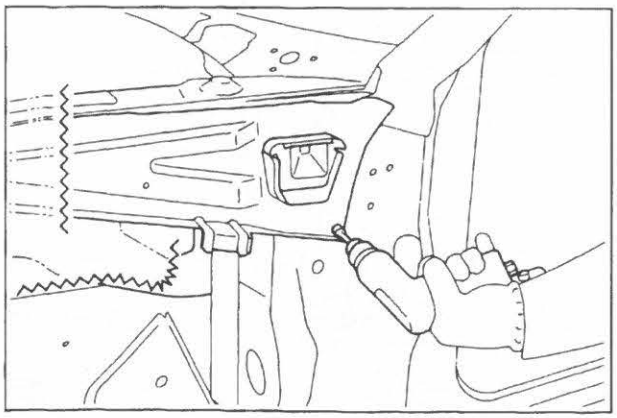
m Front side member, front side member rear closing plate & front hoodledge
Front side member & front side member front closing plate
Front side member & front side member rear closing plate
n Front side member & front side member rear closing plate
o Front side member, front side member front closing plate & rear closing plate
Front side member & front side member front closing plate
Front side member & front side member rear closing plate
p Front side member & reinforcement
Strut housing gusset
q Stiffener
Cowl top & stiffener
r Hoodledge reinforcement & stiffener
s Side cowl top, upper dash gusset & lower dash
Lower dash, hoodledge reinforcement & stiffener
t Lower dash & outer front pillar
u Stiffener
v Hoodledge reinforcement & stiffener
w Hoodledge reinforcement & stiffener
Hoodledge reinforcement, stiffener & suspension support
x Stiffener
y Lower dash
Lower dash & front side member closing plate

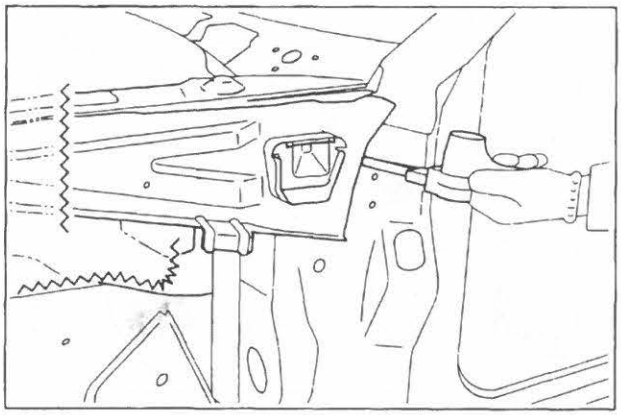
REMOVAL NOTES

- Cut off damaged portion to facilitate removal. Be careful not to cut hoodledge reinforcement and stiffener.

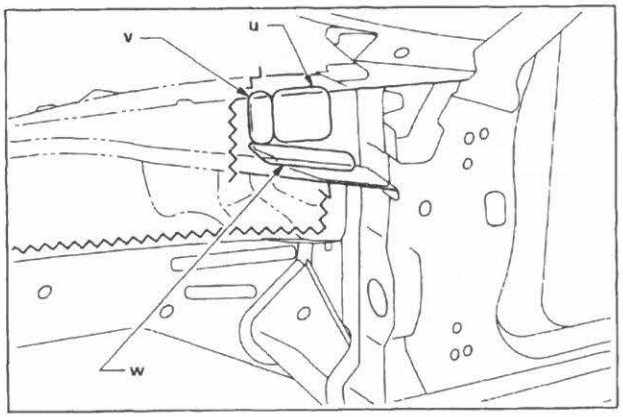


- To make it easy to cut welded portion (g), use a drill with a wide spot cutter and mini belt sander.



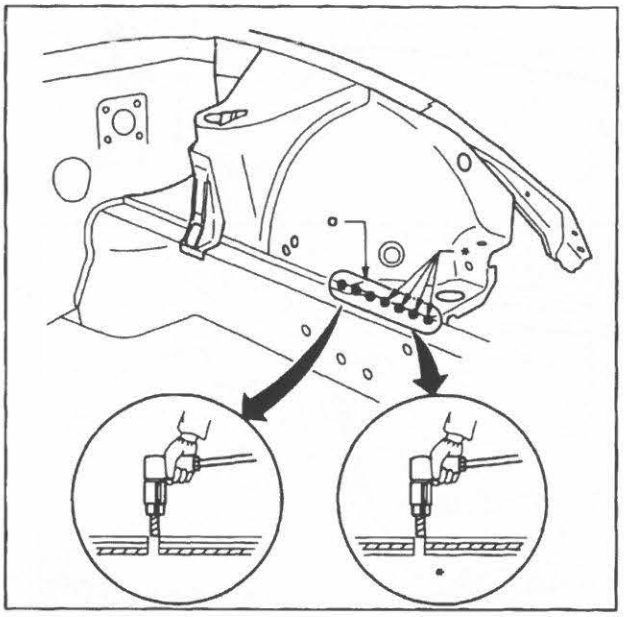


- Spot cut completely through welded parts at portions (u) (v) and (w). Use these holes as M.I.G. plug weld holes when installing service part.

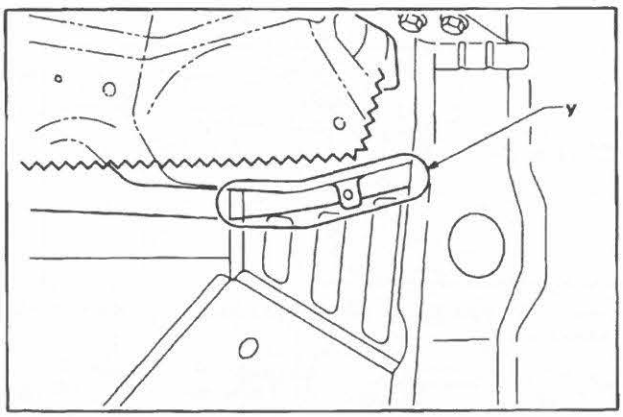


HOODLEDGE

- Spot cut through welded portion (o) from front side member side. Use holes on mating panel as M.I.G. plug weld holes when installing service part.

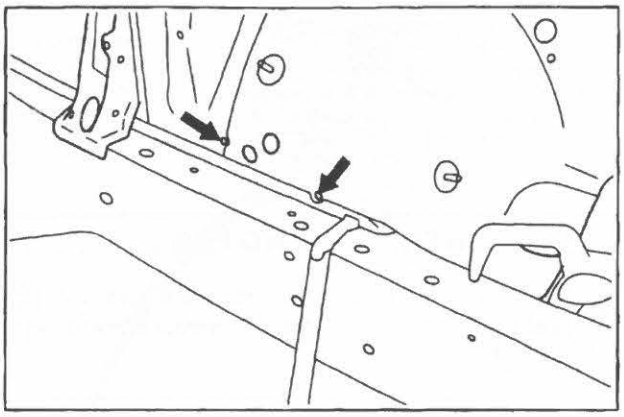


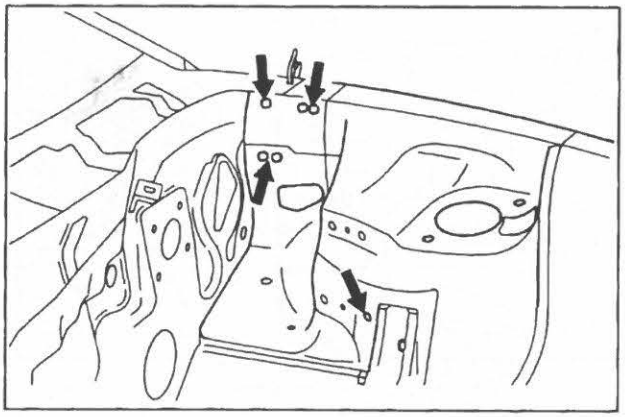
- When removing welded part with lower dash panel at portion (y), be careful not to spot cut through mating part.

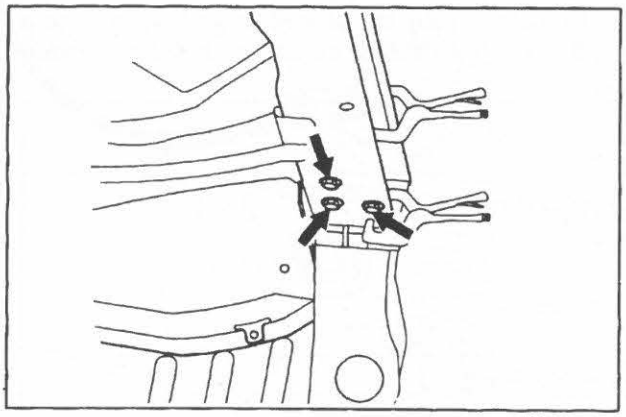


INSTALLATION NOTES

- Align service parts at locating holes and positioning marks when installing.

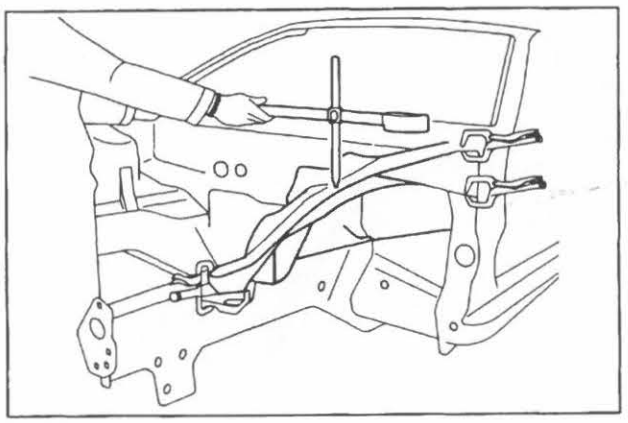




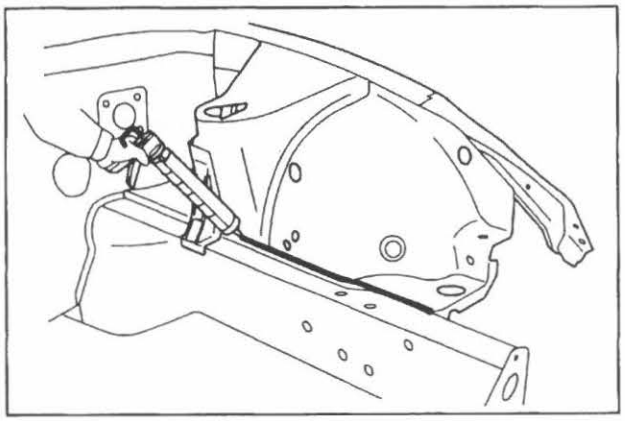


HOODLEDGE

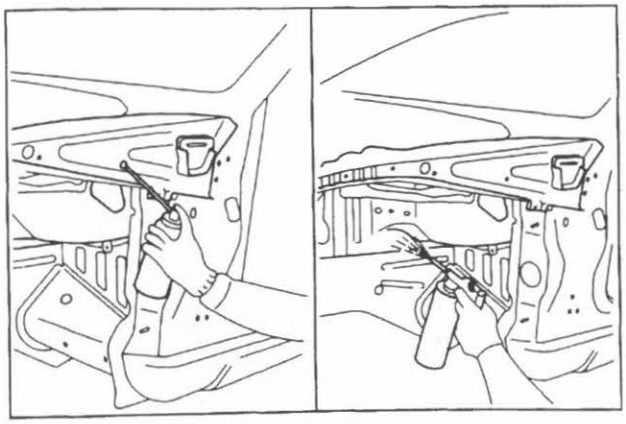
- Measure various dimensions of part locations. Refer to "BODY ALIGNMENT" drawing.



- Apply sealer to service parts joint portions from both sides.

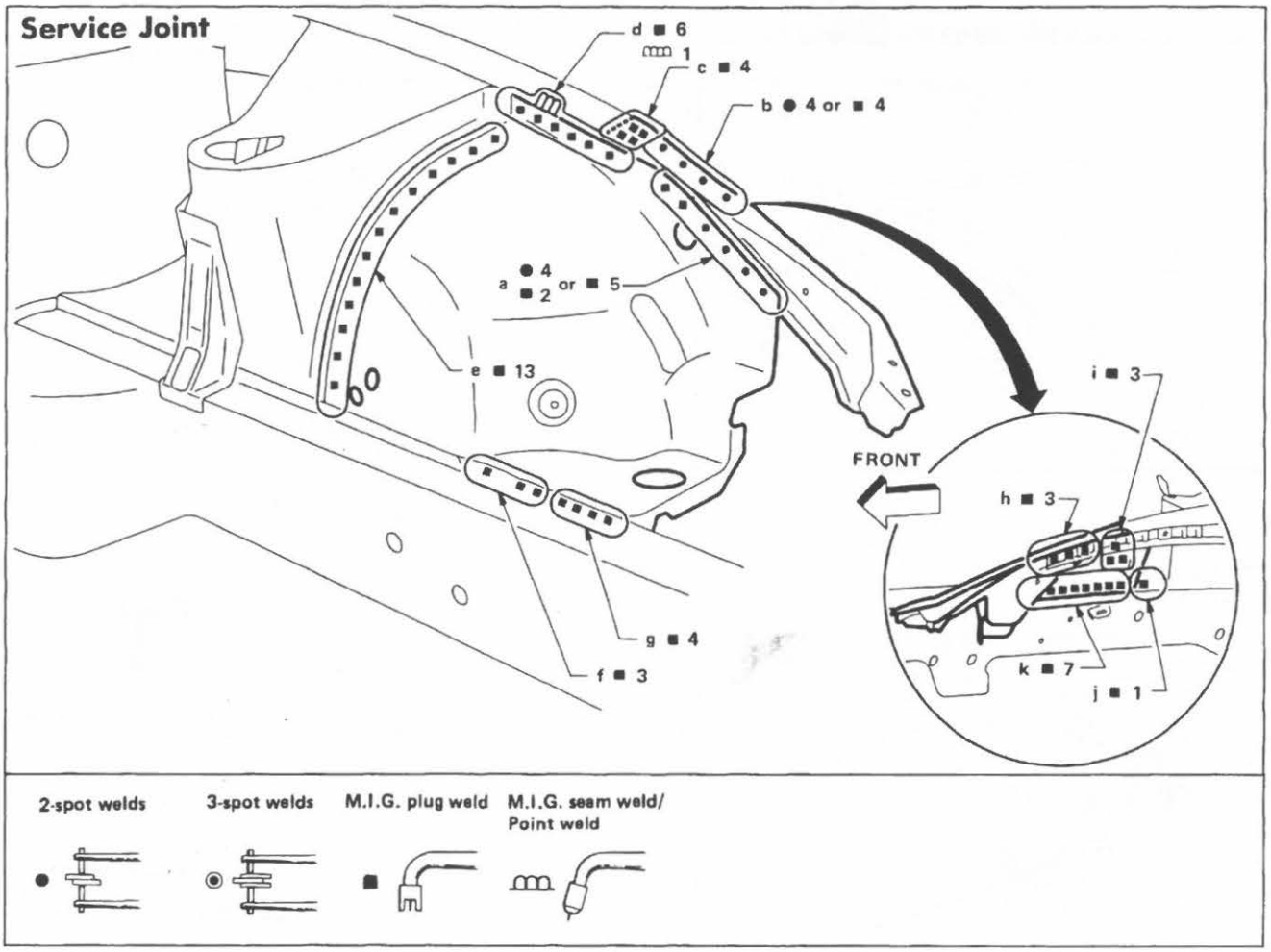


- Apply an anti-corrosive agent to the inside of hoodledge reinforcement and apply undercoating to the inside of wheelhouse.



HOODLEDGE (Partial Replacement)

(Work after radiator core support has been removed.)

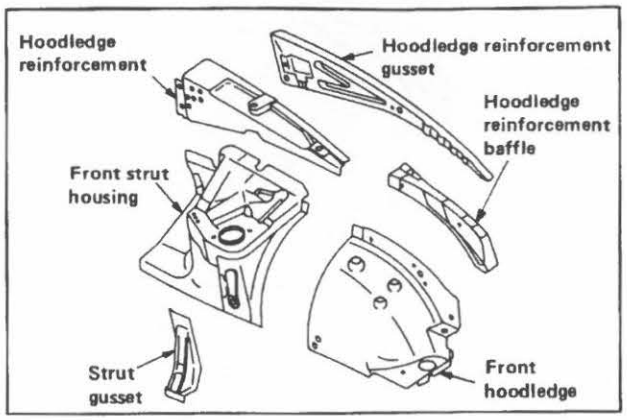


Portions to be welded

a Hoodledge reinforcement baffle
b Hoodledge reinforcement gusset
c Hoodledge reinforcement
Hoodledge reinforcement & hoodledge reinforcement gusset
d Hoodledge reinforcement
Hoodledge reinforcement & hoodledge reinforcement baffle
Center hoodledge & strut housing
e Center hoodledge
f Front side member & front side member rear closing plate
g Front side member, front side member front closing plate & rear closing plate
Front side member & front side member front closing plate
h Hoodledge reinforcement gusset
Hoodledge reinforcement gusset & hoodledge reinforcement
i Hoodledge reinforcement
Hoodledge reinforcement & hoodledge reinforcement gusset
j Center hoodledge, front side member & front side member rear closing plate
k Front side member & front side member rear closing plate

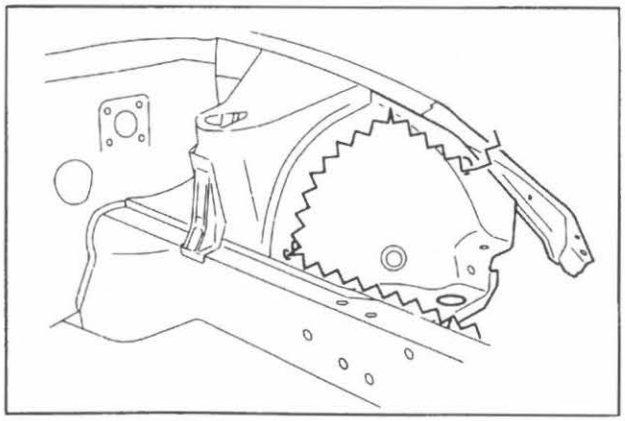
HOODLEDGE (Partial Replacement)

Service parts for hoodledge are available as 6 individual service parts. Thus, the damaged part alone can be replaced. The procedure for simultaneous partial replacement of front hoodledge and hoodledge reinforcement baffle is described below.

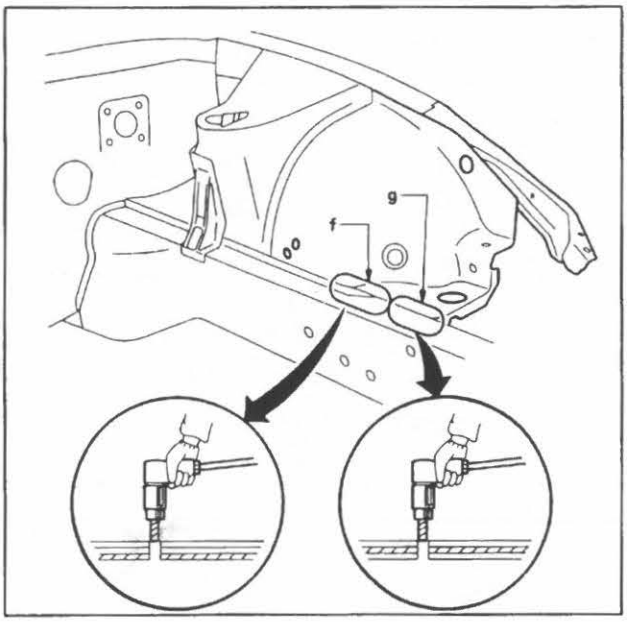


REMOVAL NOTES

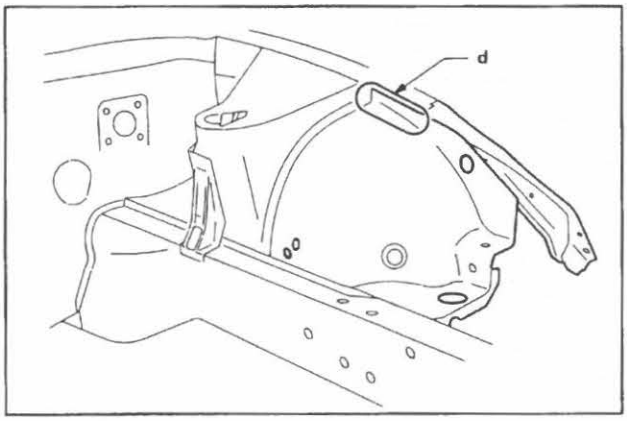
- Cut off damaged portion to facilitate removal. Be careful not to damage hoodledge reinforcement gusset.



- Spot cut through weld portions (f) and (g) from front side member side. Use holes on mating panel as M.I.G. plug weld holes when installing service part.



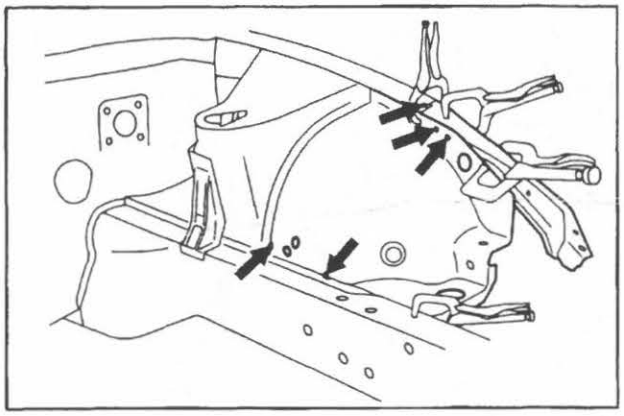
- Spot cut only one panel at portion (d) from front hoodlege side.

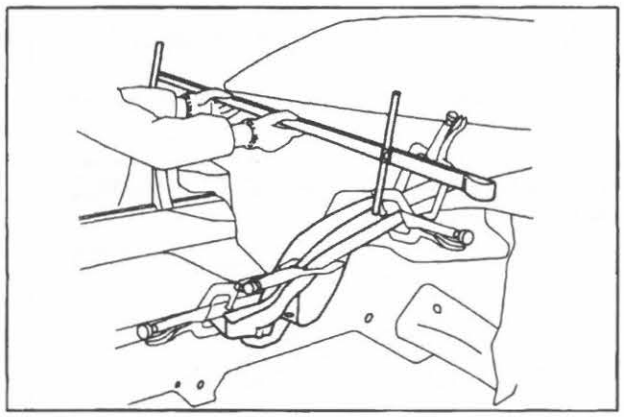


HOODLEDGE (Partial Replacement)

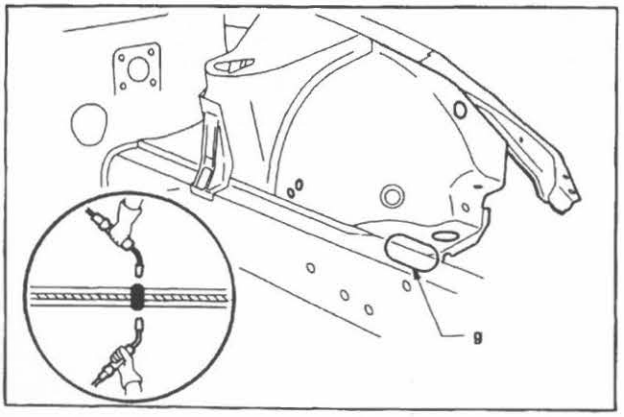
INSTALLATION NOTES

- When installing service part, measure various dimensions of part locations. Refer to "BODY ALIGNMENT" drawing and align locating holes (Positioning marks).

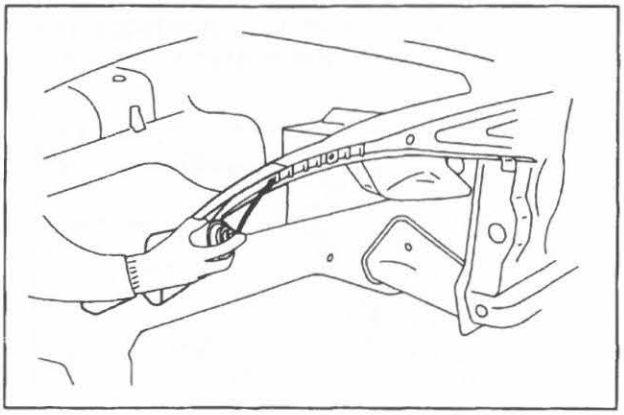




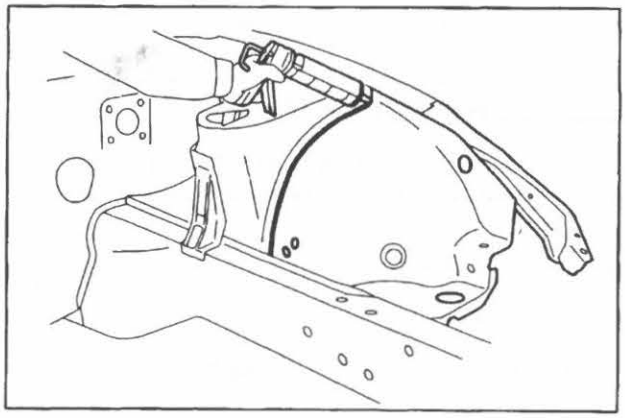
- M.I.G. plug weld portion (g) from both sides.



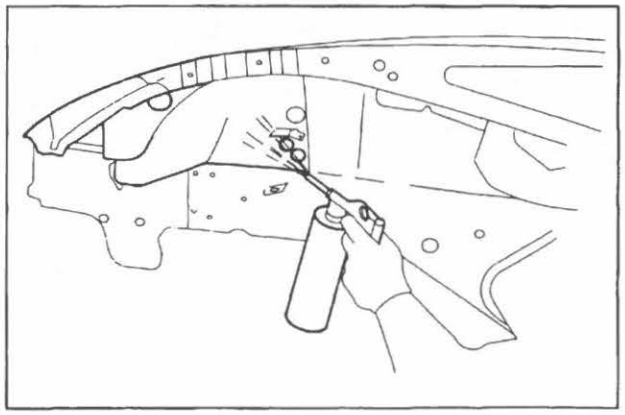
- After welding, apply an anti-corrosive agent to inside of hoodledge reinforcement.



- Apply sealant.

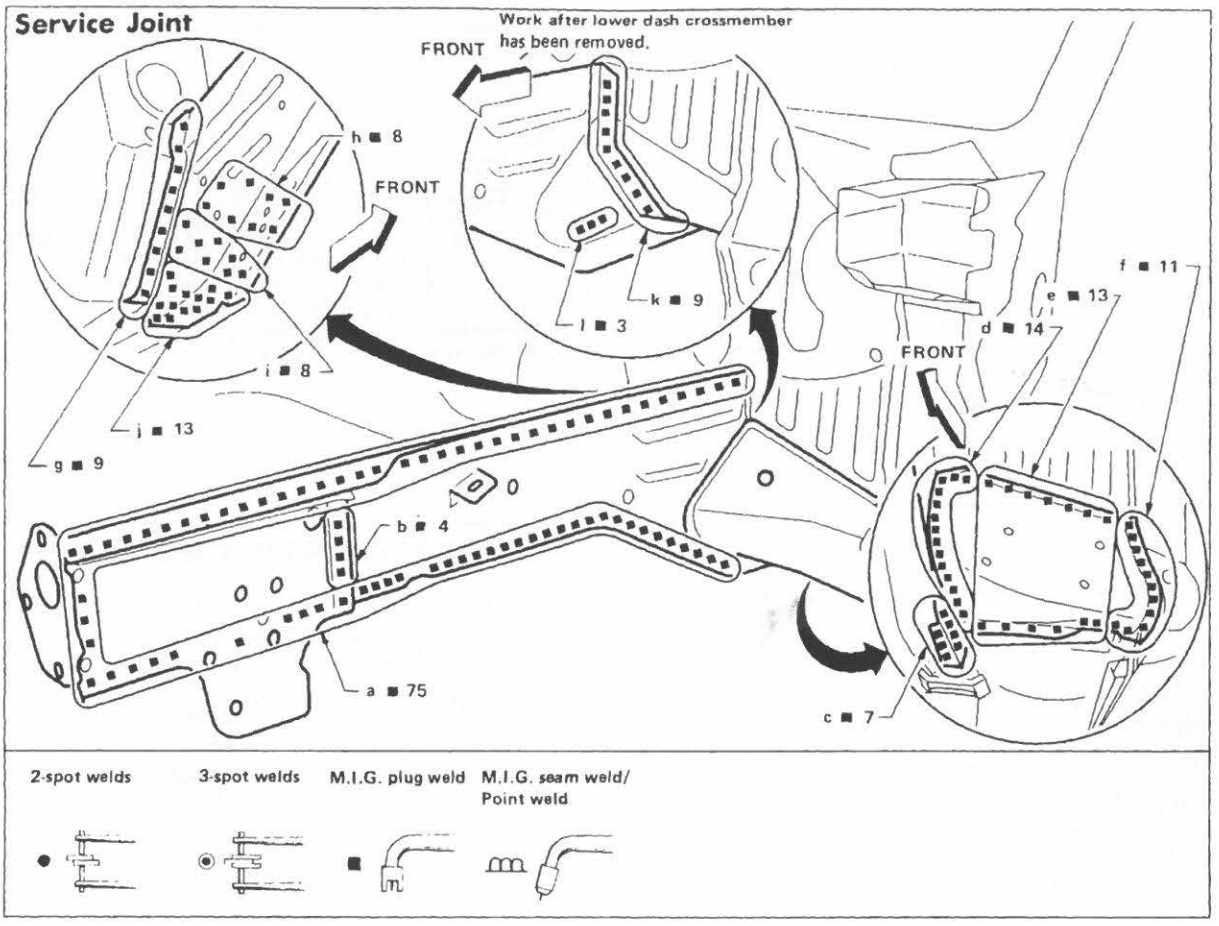


- Undercoat inside of wheelhouse.



FRONT SIDE MEMBER AND LOWER DASH CROSSMEMBER

(Work after hoodledge has been removed.)



Portions to be welded

a Front side member rear closing plate
Front side member front closing plate
Front side member front & rear closing plate

b Front side member rear closing plate

c Center side member
Front side member brace
Center side member & front side member rear closing plate

d Front side member rear closing plate

e Lower dash
Lower dash & front side member rear closing plate
Lower dash & center side member

f Outer front pillar & lower dash
Outer front pillar, inner sill & outer sill reinforcement
Inner sill & outer sill reinforcement
Inner sill

g Lower dash
Lower dash & center side member

h Front side member reinforcement & brace

i Front side member brace

j Center side member & front side member brace

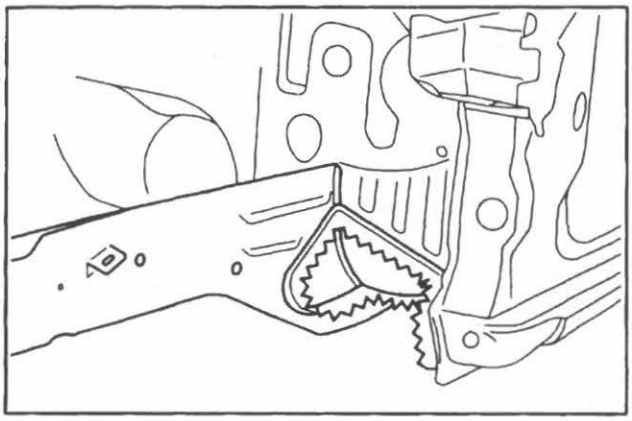
k Lower dash
Lower dash & center side member

l Front side member brace

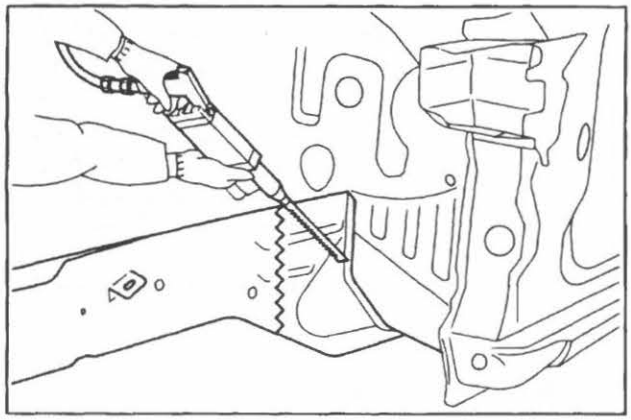
FRONT SIDE MEMBER AND LOWER DASH CROSSMEMBER

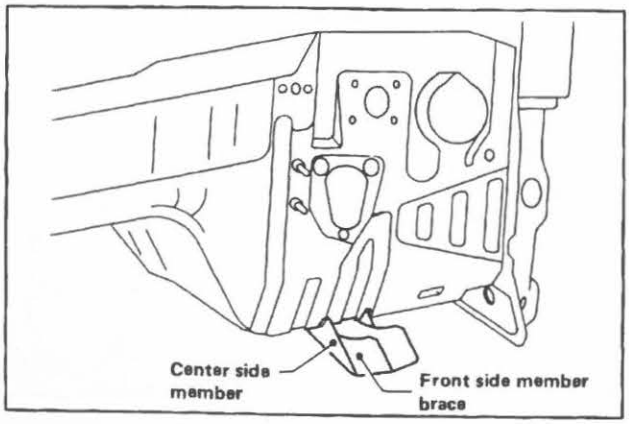
REMOVAL NOTES

- Cut off lower dash crossmember so that welded part can be easily spot cut.

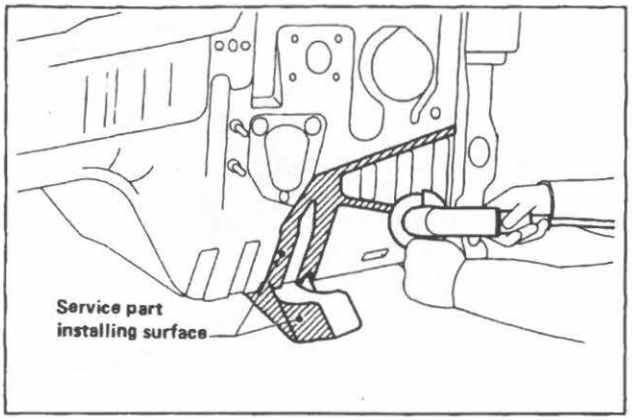


- Cut off affected portion so that it is easy to work with.
  Be careful not to damage front side member brace and center side member.



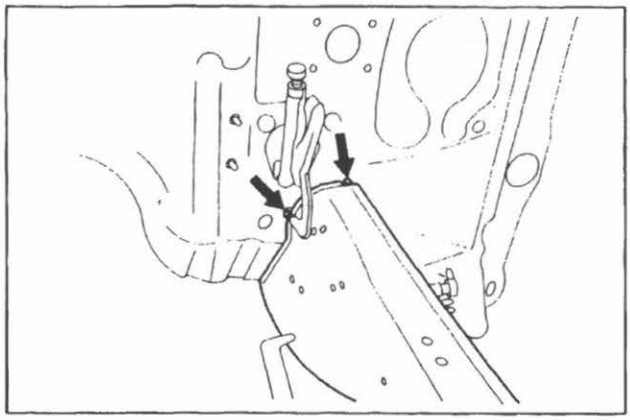


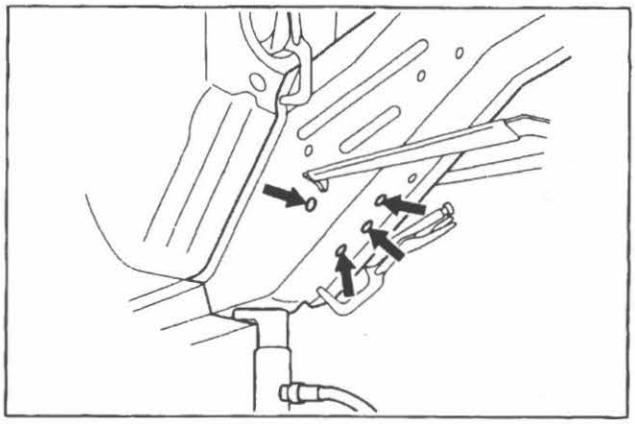
- Align mating surfaces of lower dash panel with front side member to eliminate gaps.



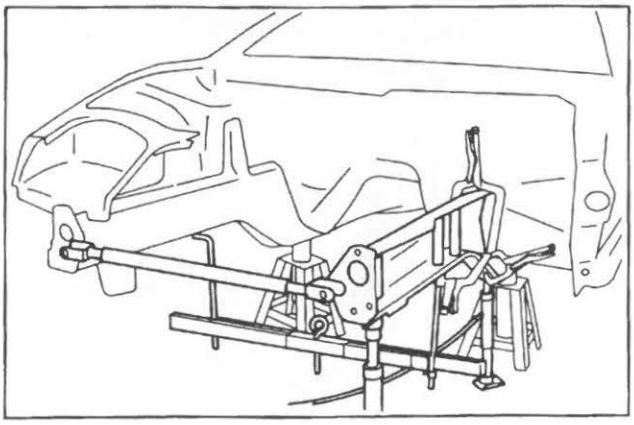
INSTALLATION NOTES

- When installing front side member, measure various dimensions of part locations. Refer to "BODY ALIGNMENT" drawing and align locating holes. (positioning marks)

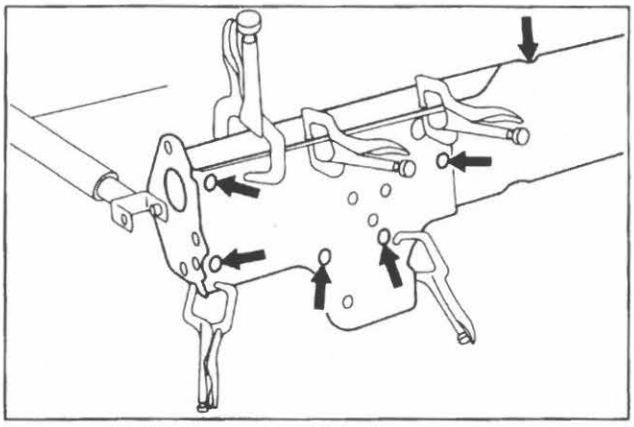




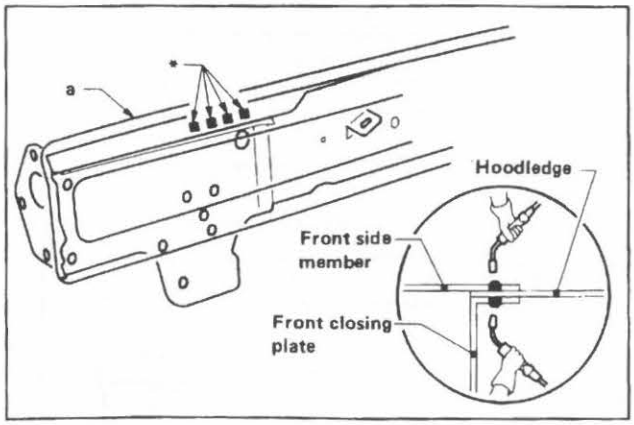
FRONT SIDE MEMBER AND LOWER DASH CROSSMEMBER



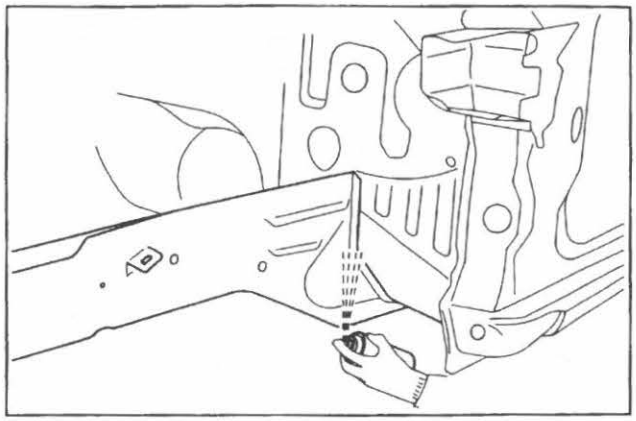
- When installing front and rear front side member closing plates, be sure to align locating holes correctly.



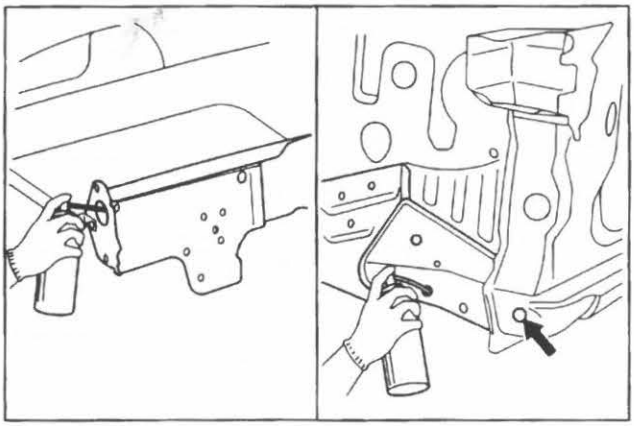
- M.I.G. plug weld portion (a*) from both sides when installing hoodledge panel.



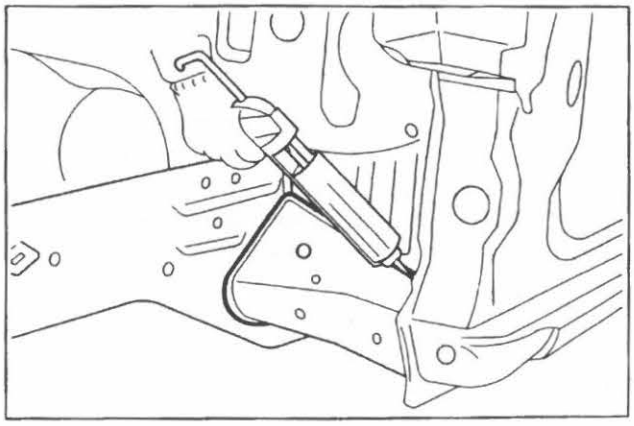
- Before installing lower dash crossmember, apply an anti-corrosive agent to welded part at portions (k) and (l).



- After welding, apply an anti-corrosive agent to the inside of welded portions.

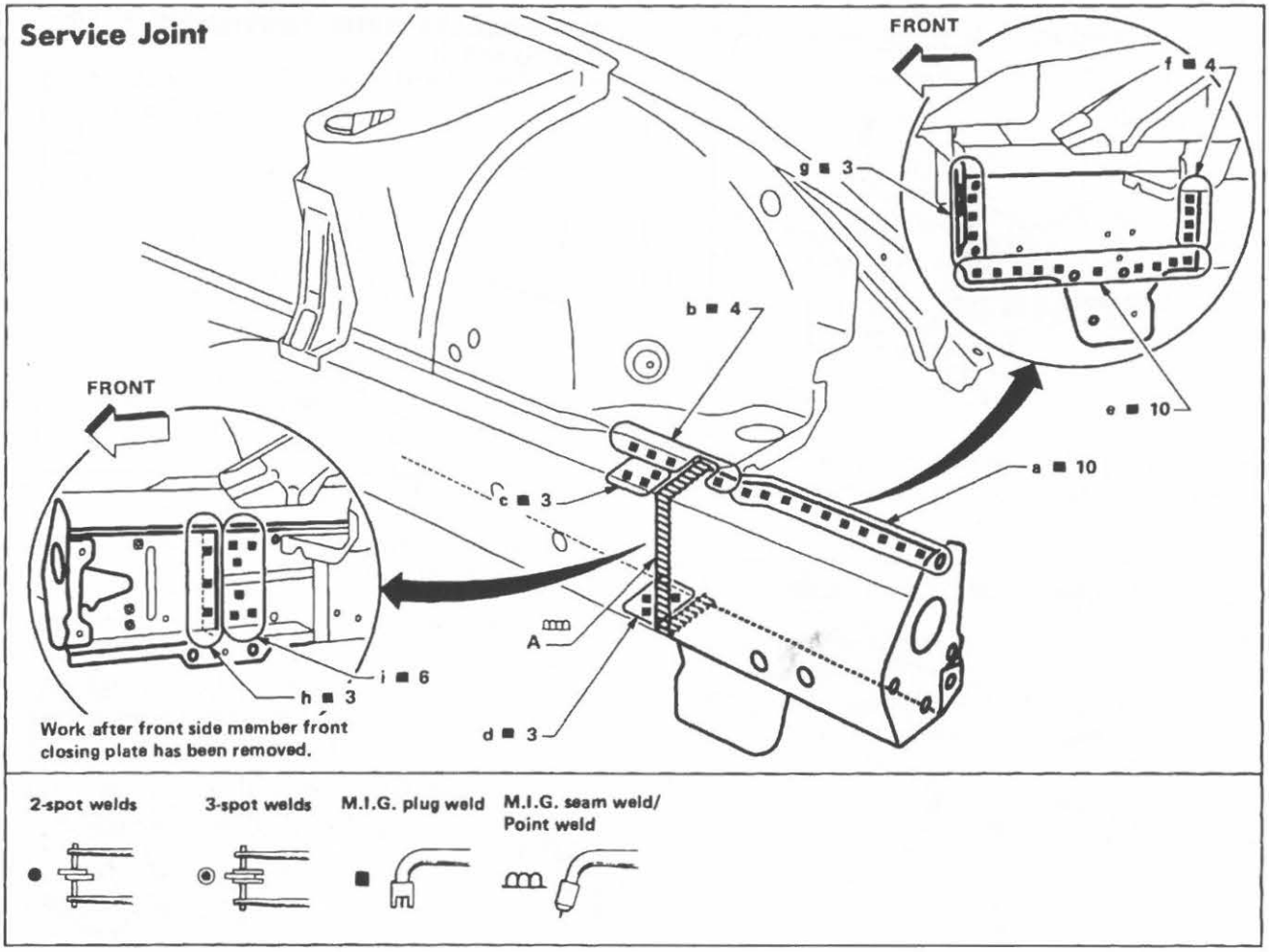


- Apply sealant.



FRONT SIDE MEMBER (Partial Replacement)

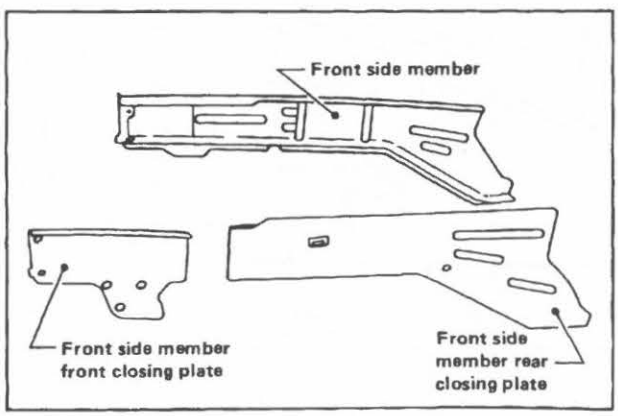
(Work after radiator core support and front crossmember have been removed.)



Portions to be welded

- A Front side member
- a Front side member front closing plate
- b Front side member front closing plate & hoodledge
  Front side member front closing plate
- c Front side member patch & tension rod mounting reinforcement
  Tension rod mounting reinforcement
- d Front side member patch & tension rod mounting reinforcement
  Tension rod mounting reinforcement
- e Front side member front closing plate
  Front side member front & rear closing plate
- f Front side member rear closing plate
- g Front side member front closing plate
- h Front side member patch & tension rod mounting reinforcement
- i Tension rod mounting reinforcement

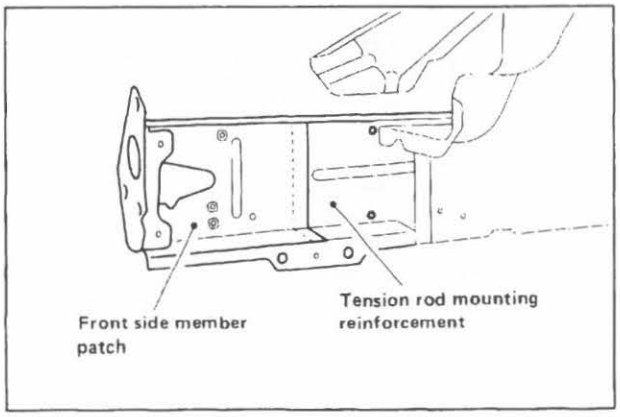
Service parts for front side member are available as 3 individual service parts. Thus, damaged area alone can be replaced. The procedure for replacing front closing plate and partially removing front side member simultaneously, is described below.



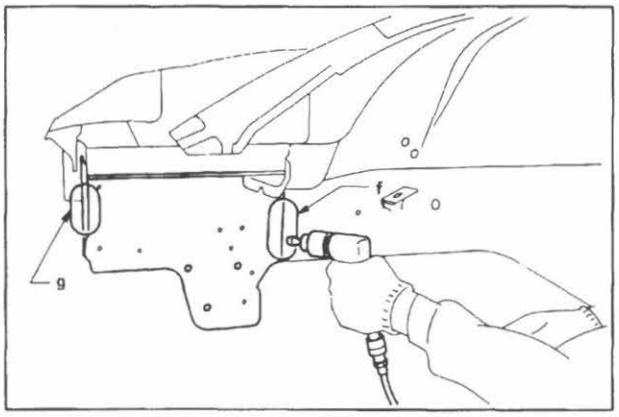
FRONT SIDE MEMBER (Partial Replacement)

REMOVAL NOTES

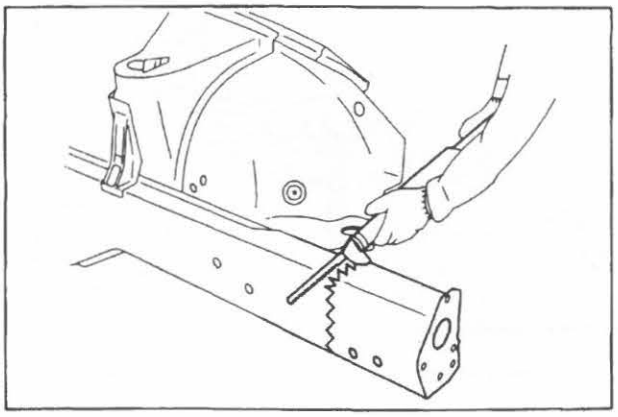
- The inside of front side member construction is shown in the figure.

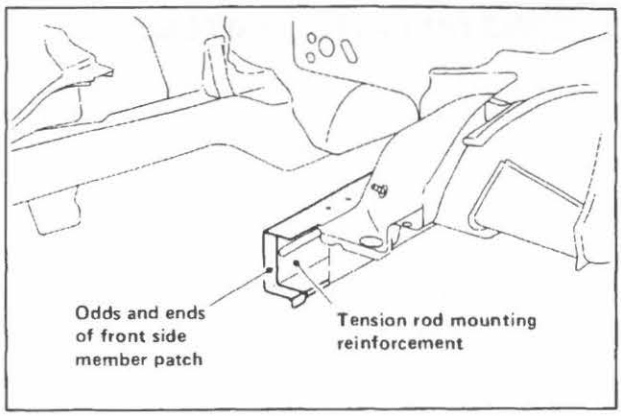


- To make it easy to cut M.I.G. welded portions (f) and (g), use a drill with a wide spot cutter.

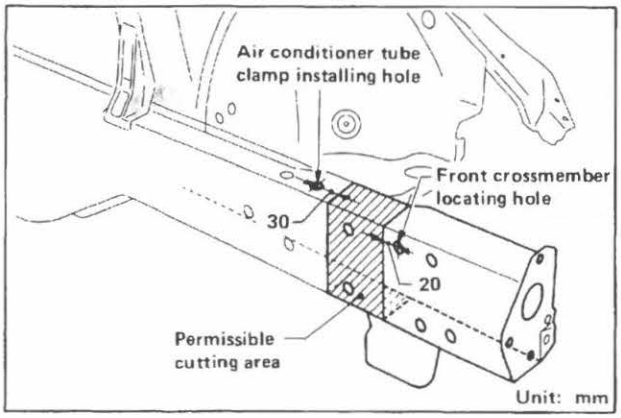


- Cut off damaged portion to facilitate removal. But be careful not to cut off tension rod mounting reinforcement.

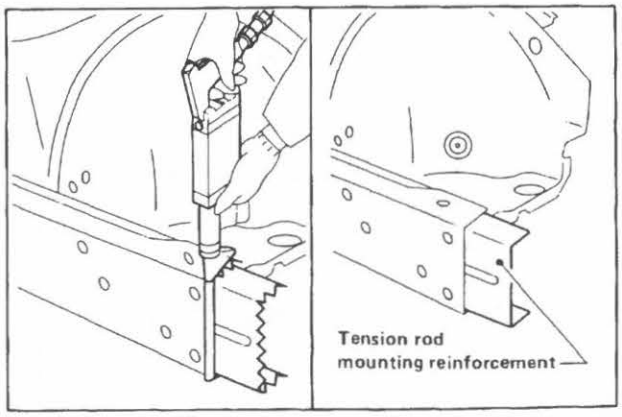




- Scribe a straight line on front side member along the hole centers as shown in the figure.



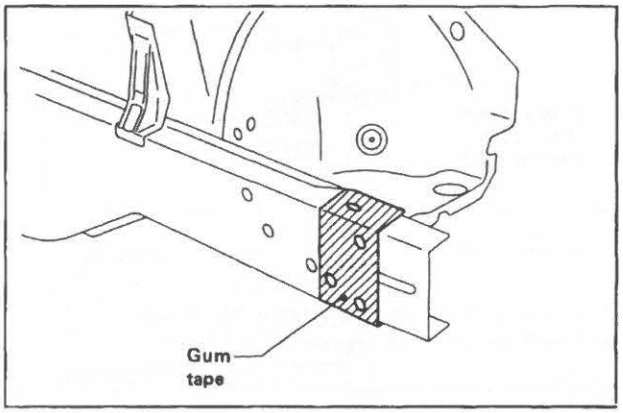
- Cut off front side member along the scribe line. Be careful not to damage tension rod mounting reinforcement.



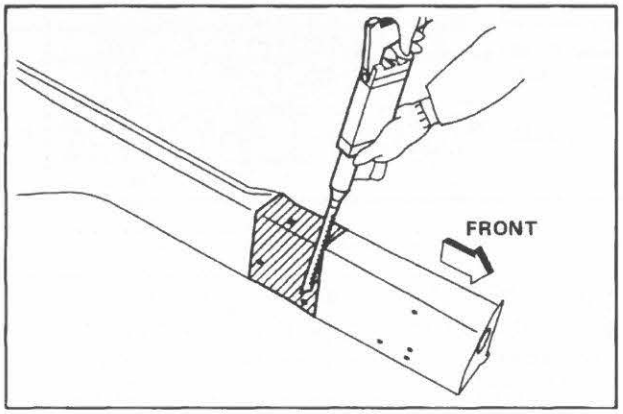
FRONT SIDE MEMBER (Partial Replacement)

INSTALLATION NOTES

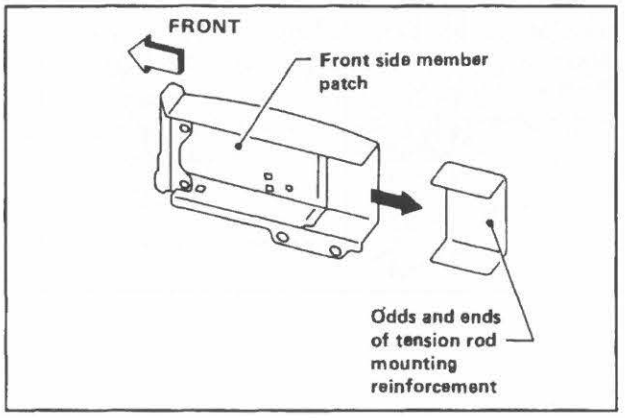
- Put gum tape on the front side member. Cut off gum tape along front side member edge and make holes in the gum tape at front side member holes.



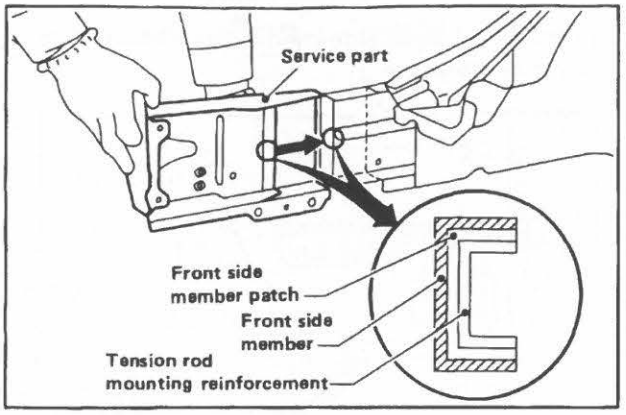
- Remove gum tape and fix it to service part, aligning the front side member flange end and holes.
- Scribe a line at the end of the gum tape.
- Cut off service part along the line.



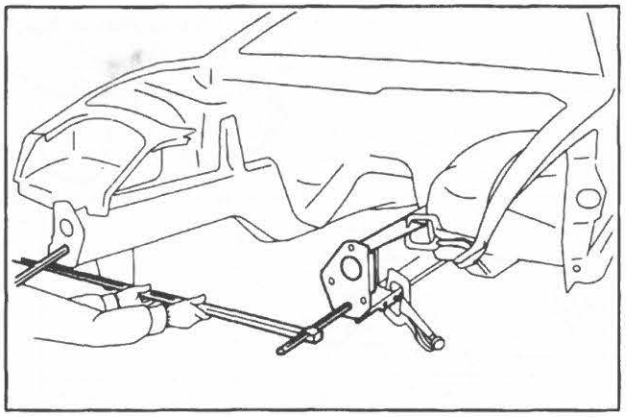
- Remove tension rod mounting reinforcement odds and ends.



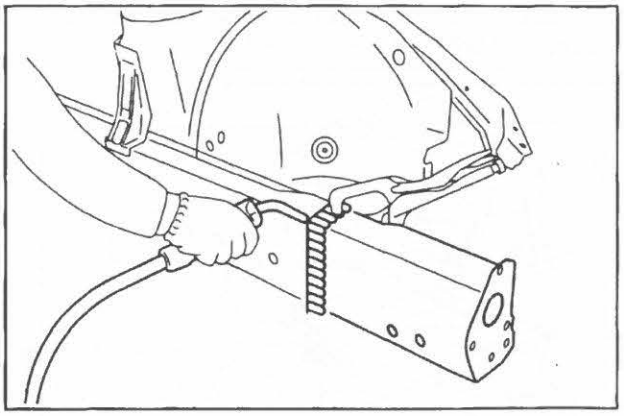
- Install service part as shown in the figure.



- Measure various dimensions of part locations. Refer to "BODY ALIGNMENT" drawing.

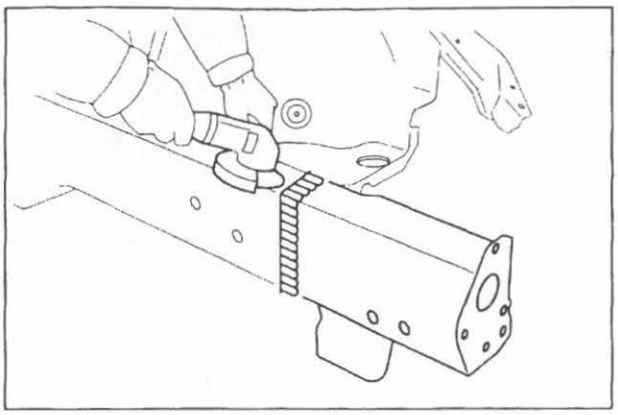


- Positively weld part to be butt welded as far as flange end portion.

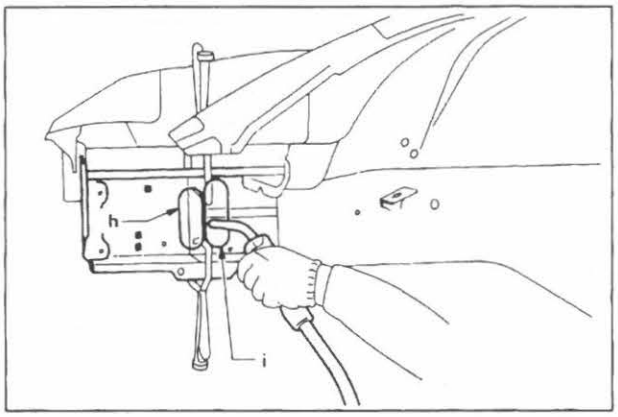


FRONT SIDE MEMBER (Partial Replacement)

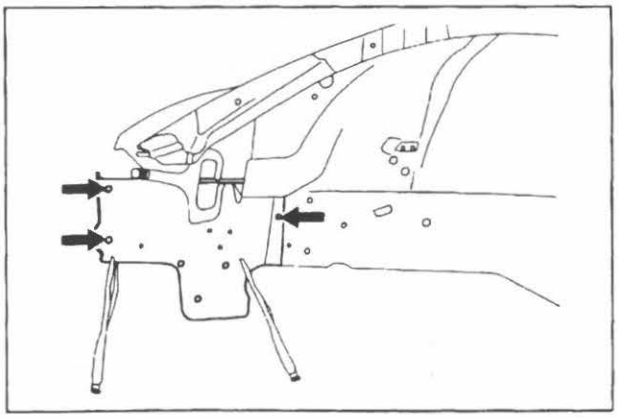
- Finish welded part with an air grinder.



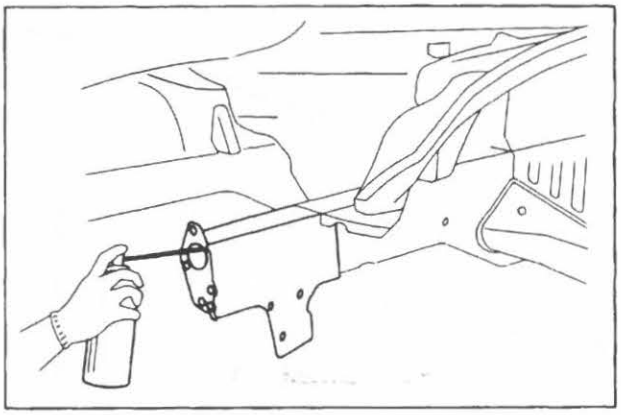
- Before installing front side member front closing plate, M.I.G. plug weld portions (h) and (i) from the outside.



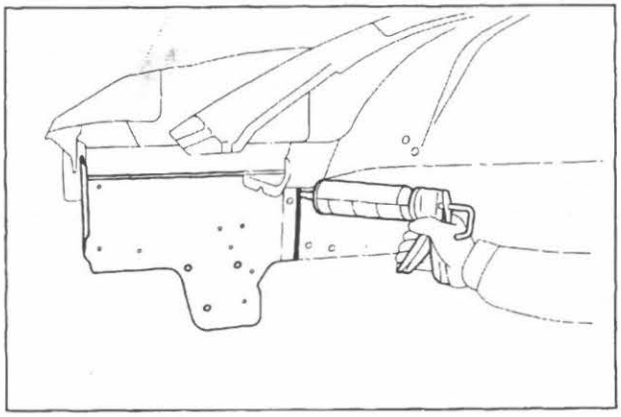
- When installing front side member front closing plate, be sure to align locating holes.



- After welding, apply an anti-corrosive agent to the inside of front side member.

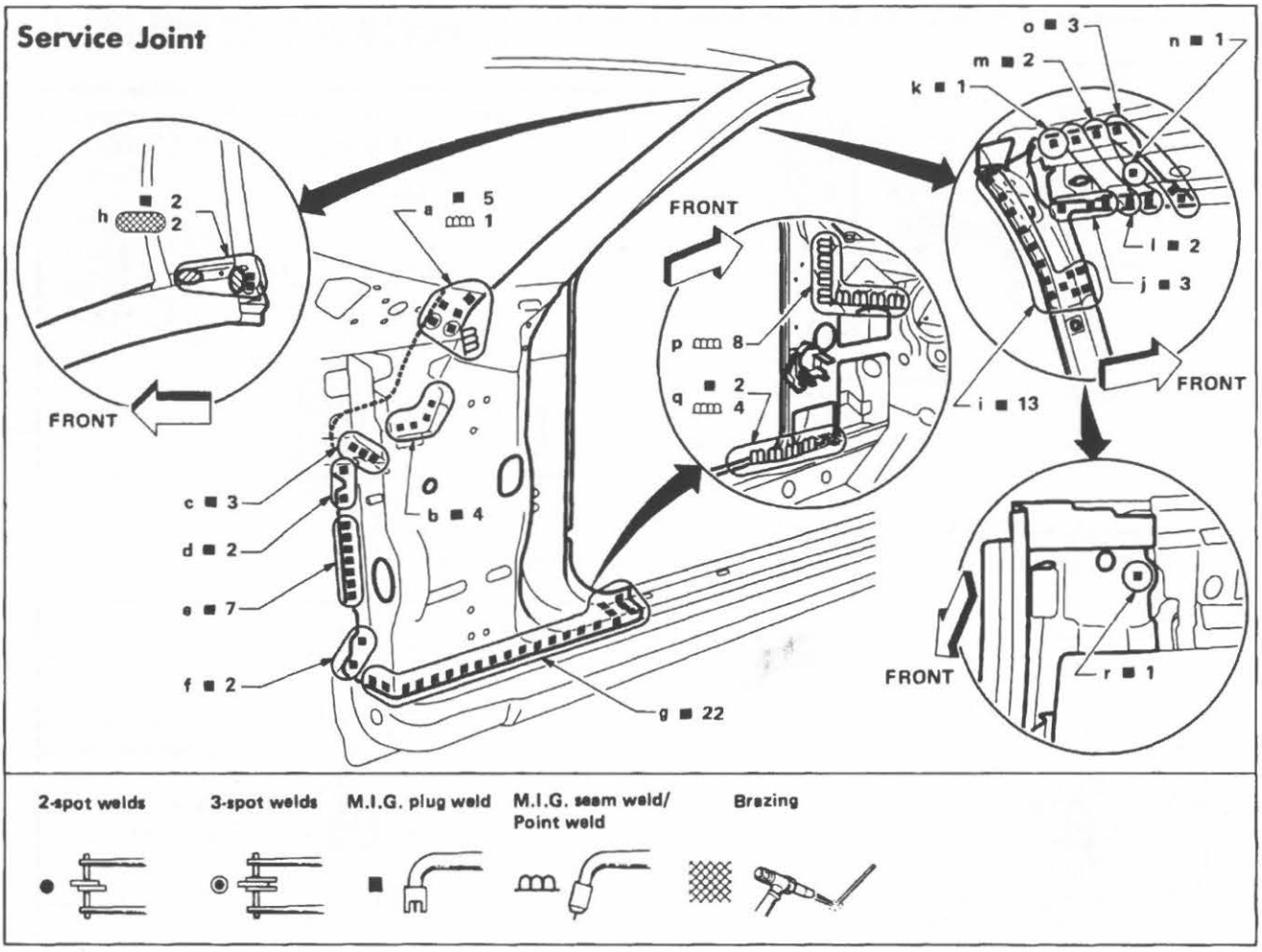


- Apply sealant.



FRONT PILLAR

(Work after hoodledge reinforcement gusset has been removed.)



Portions to be welded

a Upper dash crossmember, outer front pillar & inner front pillar
Upper dash crossmember, cowl top & front pillar reinforcement
Upper dash crossmember
Side cowl top

b Upper dash

c Hoodledge reinforcement patch

d Hoodledge & lower dash

e Lower dash & inner front pillar stay
Lower dash

f Lower dash & lower dash crossmember
Lower dash crossmember, inner sill & sill reinforcement

g Outer sill
Outer sill, inner sill & sill reinforcement

h Outer roof
Outer roof & outer front pillar

i Outer main front pillar
Inner front pillar
Inner front pillar & outer main front pillar

j Outer roof & outer main front pillar

k Outer roof & outer main front pillar

l Front roof reinforcement & outer main front pillar

m Inner roof, front roof reinforcement & outer roof
Front roof reinforcement & outer roof

n Inner roof

o Inner roof
Inner roof & front roof reinforcement

p Upper dash extension

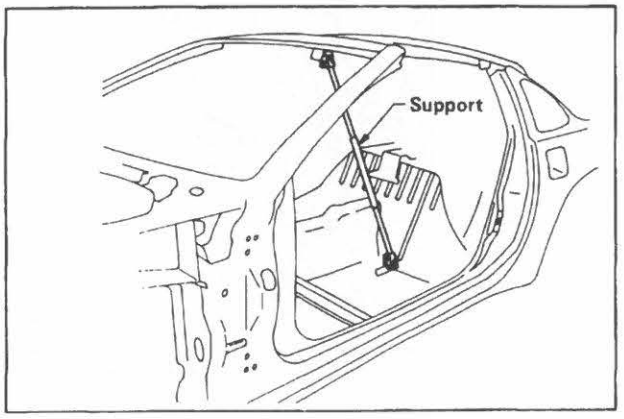
q Inner sill, sill reinforcement & outer sill
Outer sill

r Outer main front pillar

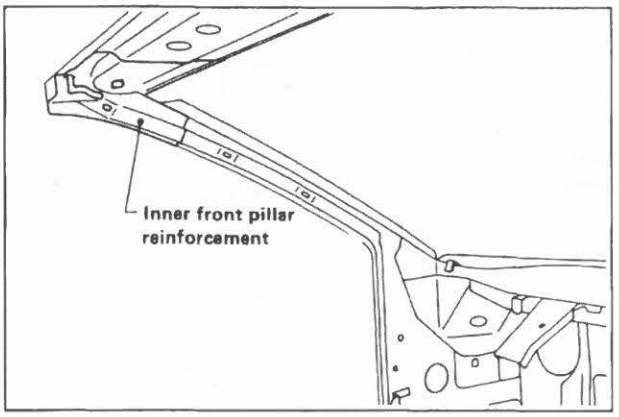
FRONT PILLAR

REMOVAL NOTES

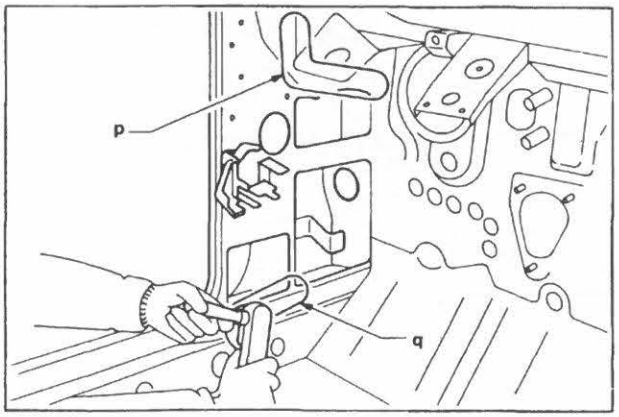
- Before cutting off welded portions, be sure to support roof.



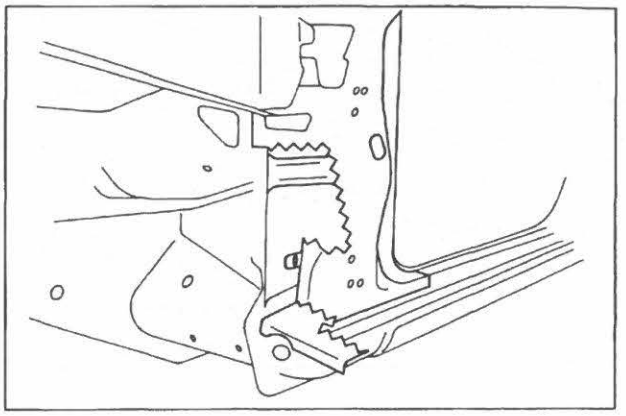
- When spot cutting portion (r), first spot cut inner front pillar reinforcement.

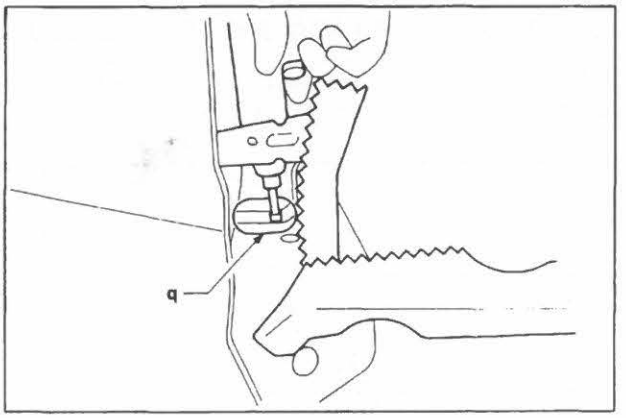


- Cut welded parts with an air grinder at portions (p) and (q).

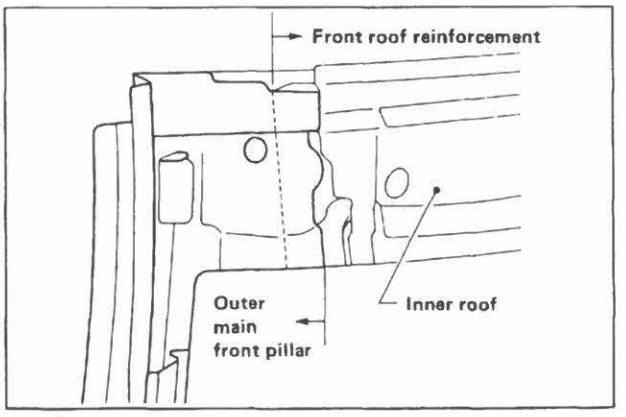


- When spot cutting portion (q), first cut off outer main front pillar and cut welds with a spot cutter.



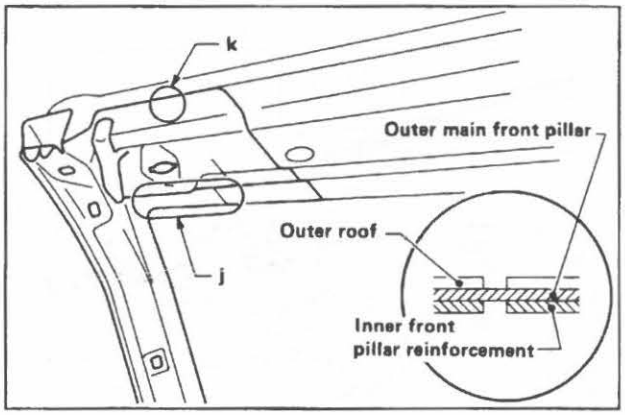


- The inside of inner front pillar reinforcement construction is shown in the figure.



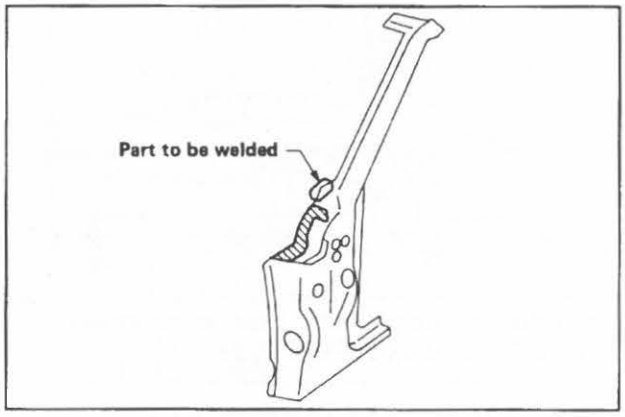
FRONT PILLAR

- Cut one panel on both sides at portions (j) and (k).

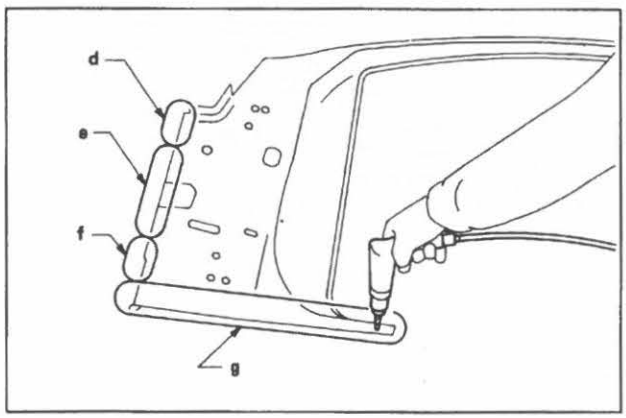


INSTALLATION NOTES

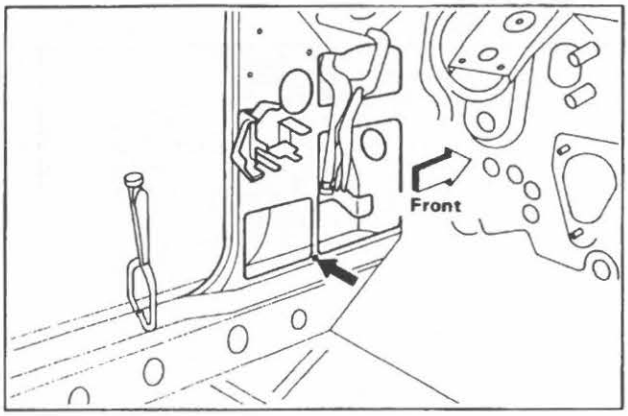
- Before installing service part, apply sealer. Do not apply sealer to welded portions.

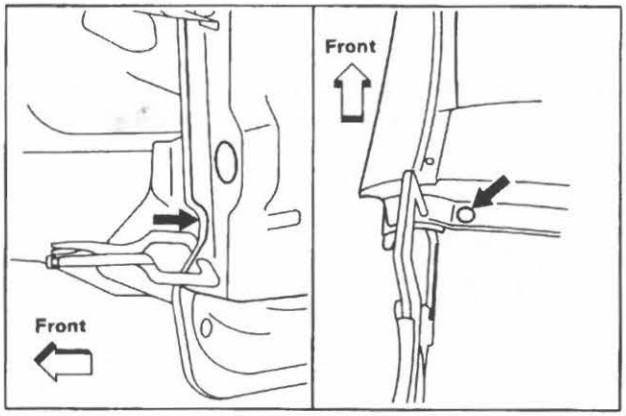


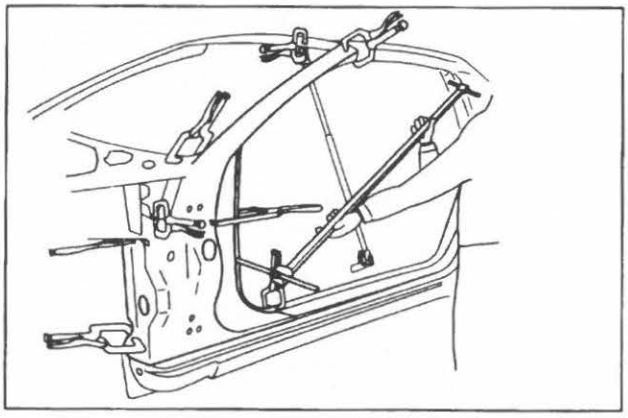
- Drill M.I.G. plug weld holes in service part portions (d), (e), (f), (g), (q) and (r).



- When installing service part, measure various dimensions of parts locations. Refer to "BODY ALIGNMENT" drawing and align locating holes.

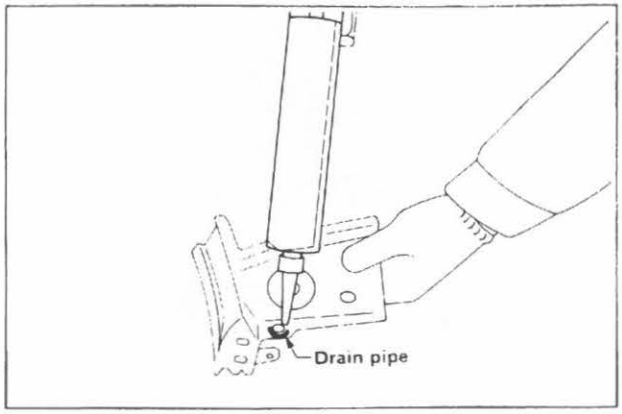




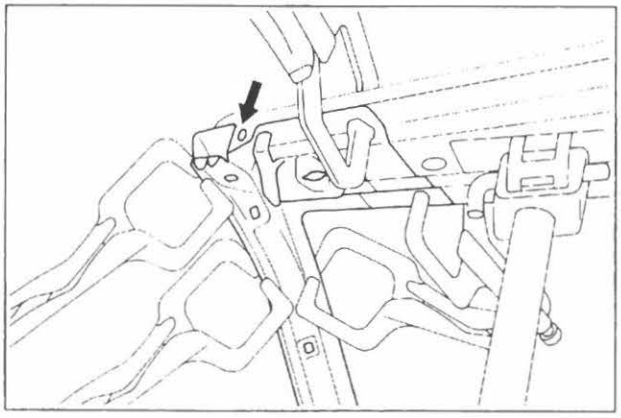


FRONT PILLAR

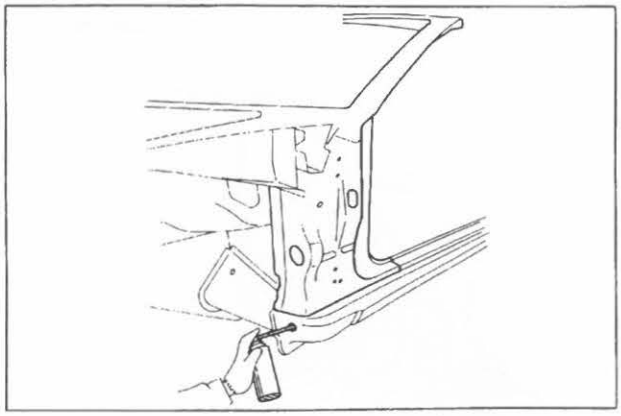
- Before installing inner front pillar reinforcement, apply sealer.

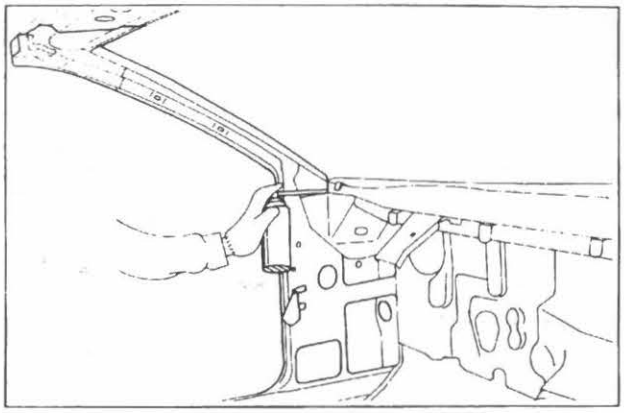


- When installing inner front pillar reinforcement, be sure to align locating holes.

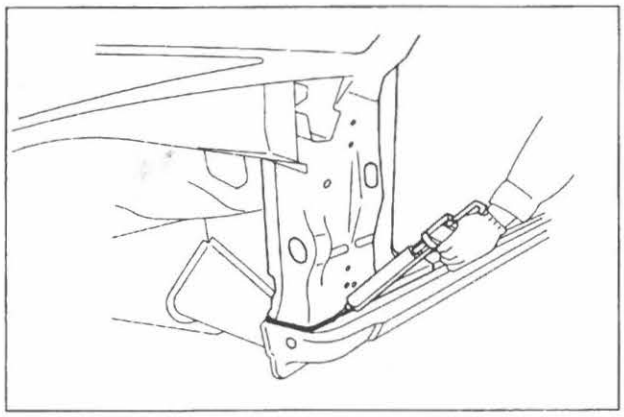


- Apply an anti-corrosive agent to the inside of welded parts.

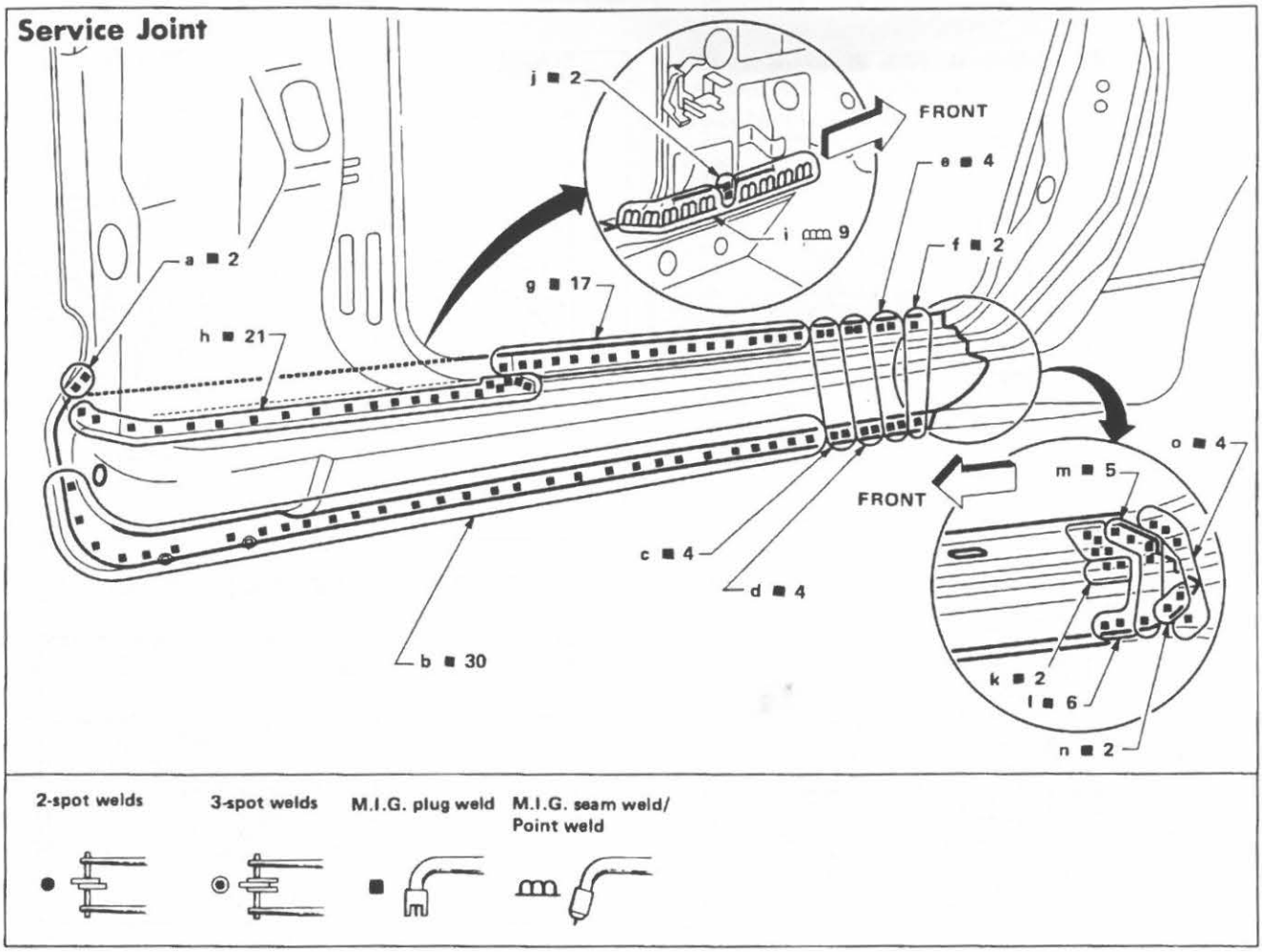




- Apply sealer.



OUTER SILL



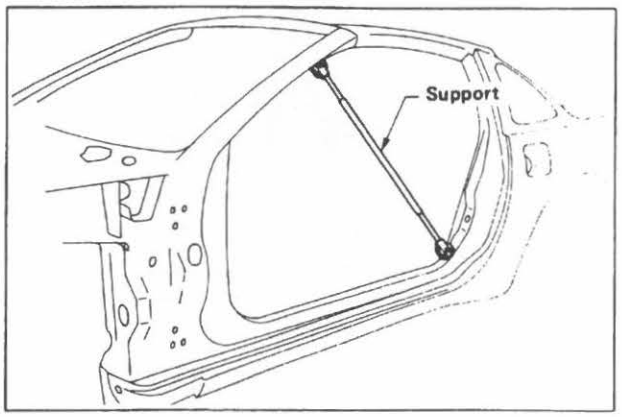
Portions to be welded

a Front pillar, lower dash & lower dash crossmember
Front pillar, lower dash crossmember, inner sill & sill reinforcement (Not welded to outer sill)
b Inner sill & sill reinforcement
c Inner sill, front & rear sill reinforcement
d Inner sill & rear sill reinforcement
e Inner sill extension, inner center pillar & rear sill reinforcement
f Rear fender, inner rear pillar & rear sill reinforcement
g Inner sill & sill reinforcement
Front pillar, inner sill & sill reinforcement
h Front pillar
i Front pillar, inner sill & sill reinforcement
Inner sill & sill reinforcement
j Front pillar
k Inner center pillar
l Inner center pillar & outer sill reinforcement
m Rear fender & inner rear pillar
Rear fender, inner rear pillar & outer sill reinforcement
n Rear fender
o Rear fender & inner rear pillar

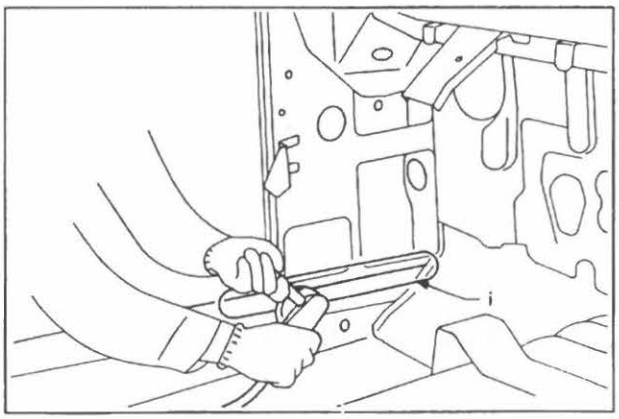
OUTER SILL

REMOVAL NOTES

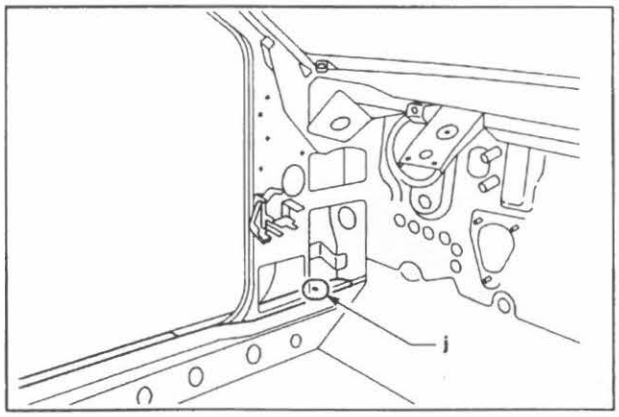
- Before cutting welded portions, be sure to support front pillar.



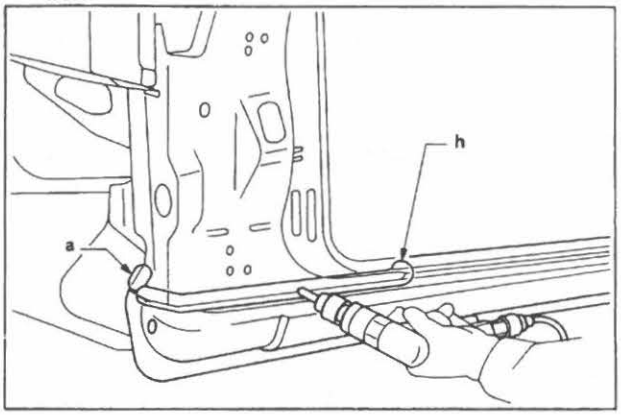
- Cut welded parts with an air grinder at portion (i).



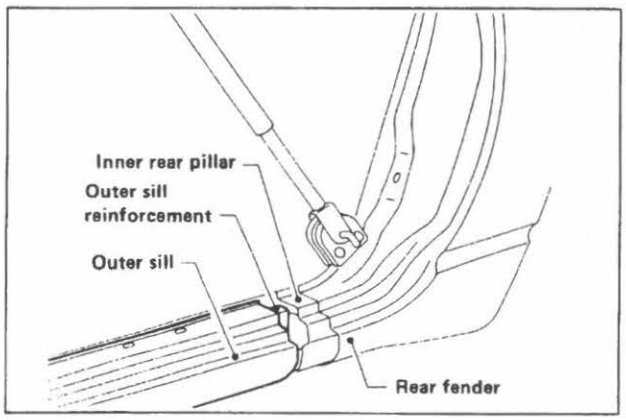
- Spot cut welded portion (j) with a mini belt sander from inside.



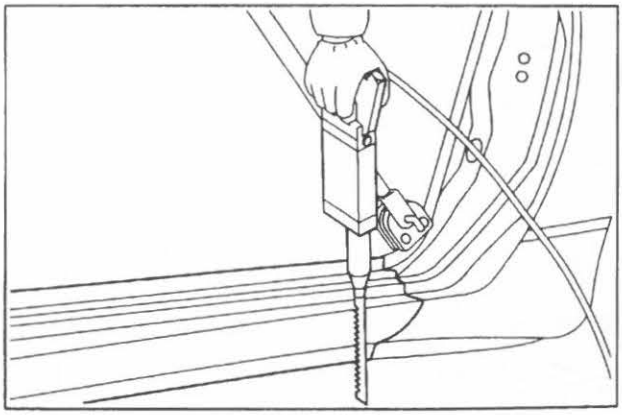
- Spot cut completely through welded parts at portion (h). Use these holes as M.I.G. plug weld holes when installing service part.
- Spot cut welded portion (a) to facilitate installation.



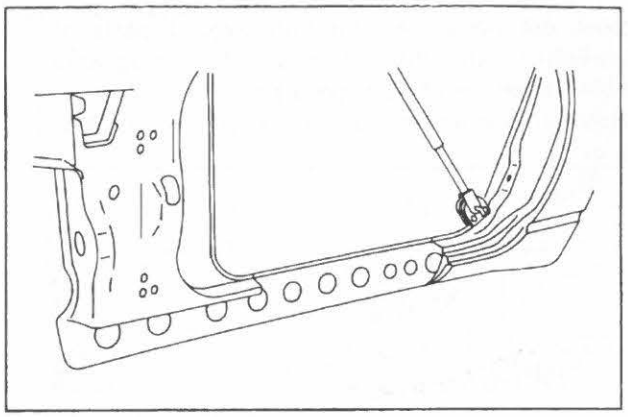
- The outer sill and rear fender construction are shown in the figure.



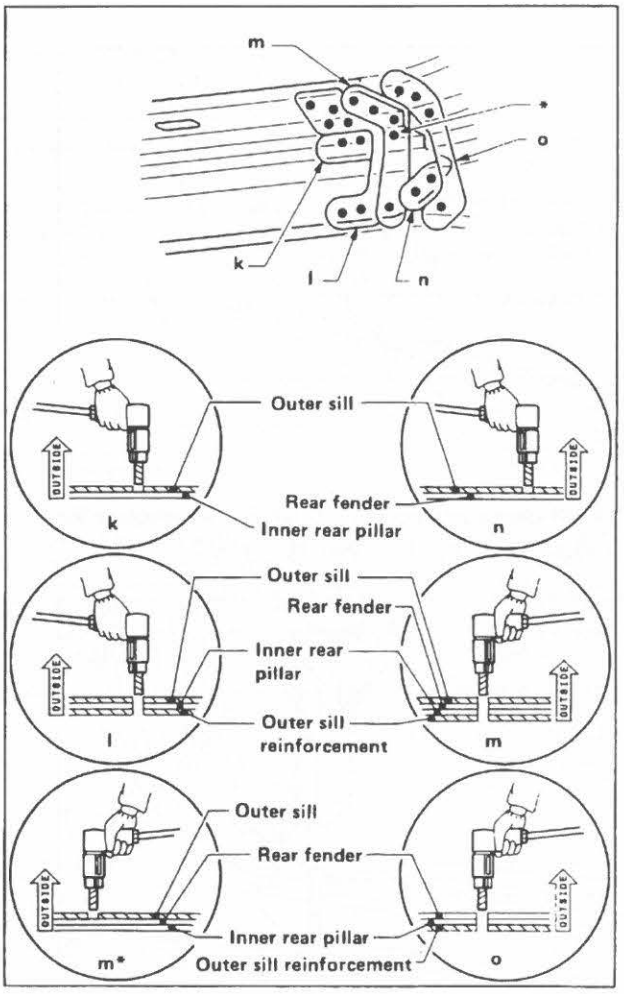
- Cut off damaged portion to facilitate removal. Be careful not to cut off inner rear pillar.



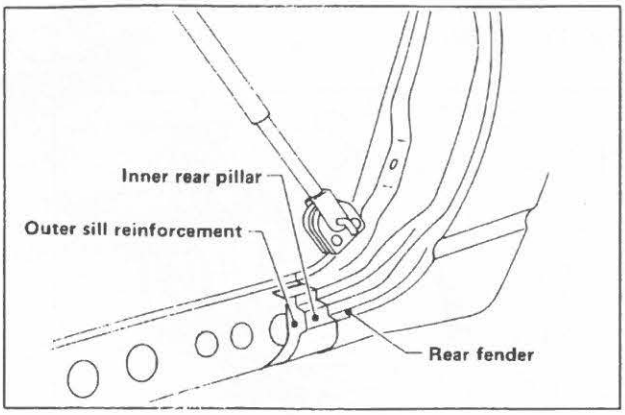
OUTER SILL

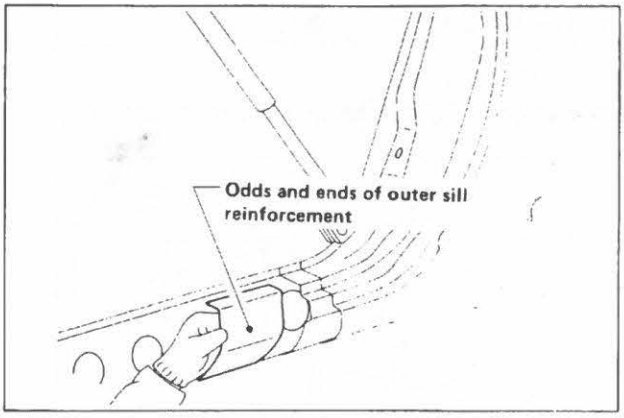


- Spot cut only one panel at portions (k) (n) and (m*).
- Spot cut completely through 3-layered and 4-layered welds at portions (l) (m) and (o). When installing service parts, use those holes at M.I.G. plug weld holes.



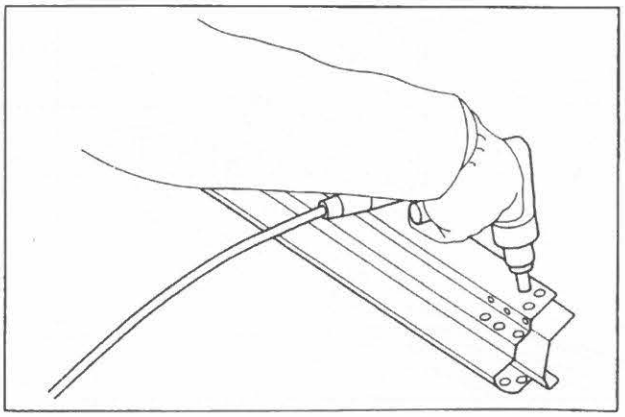
- Remove odds and ends of outer sill and outer sill reinforcement.





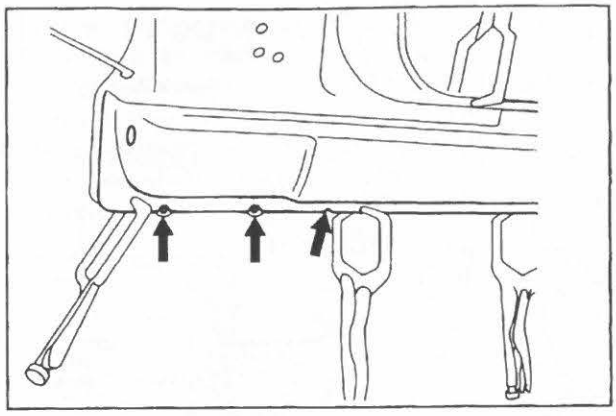
INSTALLATION NOTES

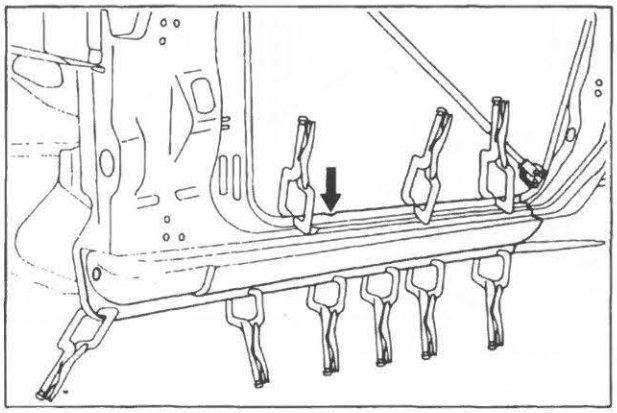
- Place removed panel on service part and mark M.I.G. plug weld holes on the latter at portions (k) (l) (m) and (n), in relation to spot cut holes on the outer sill. And then drill M.I.G. plug weld holes.



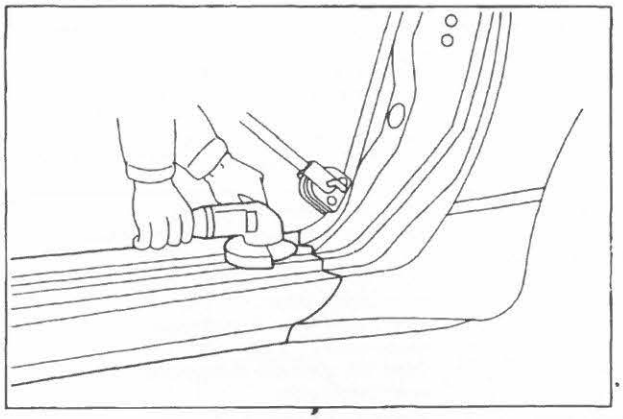
OUTER SILL

- When installing, be sure to align locating holes.

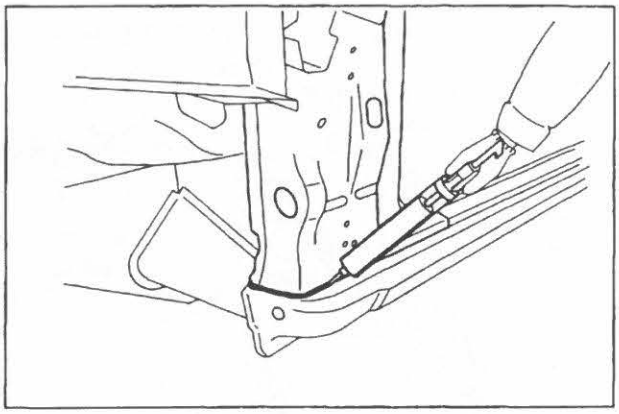




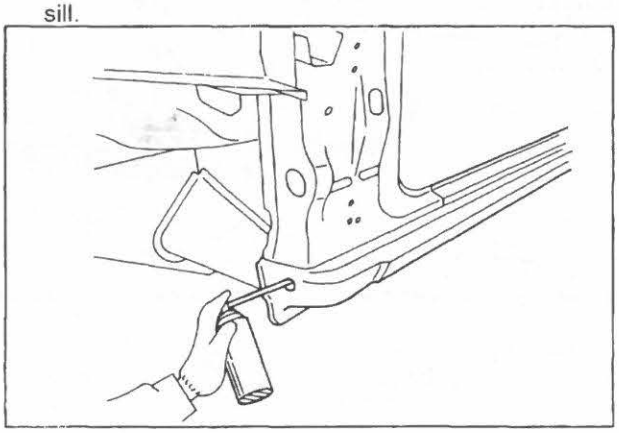
- Dress M.I.G. plug welded parts with an air grinder.



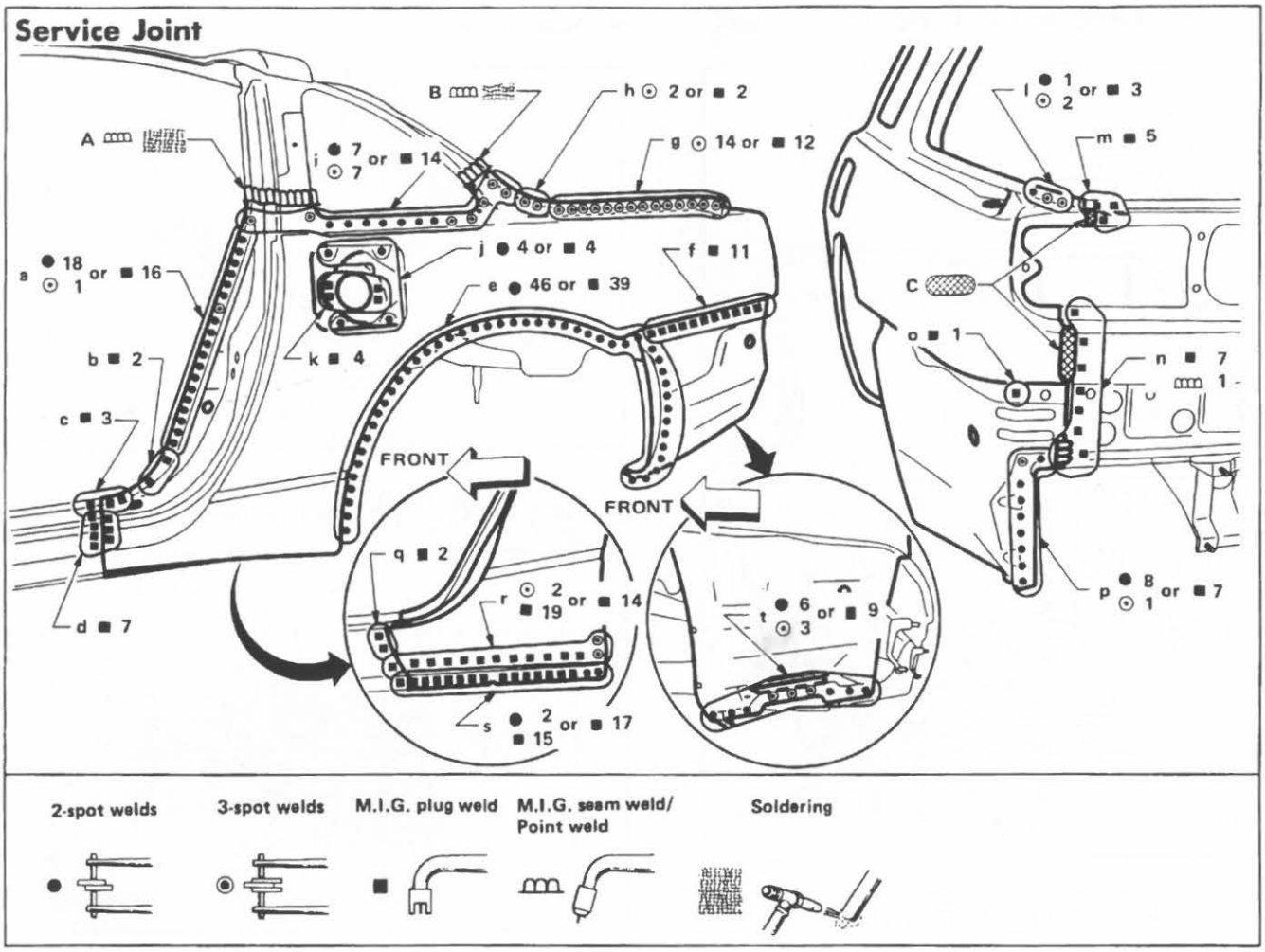
- Apply sealer.



- Apply anti-corrosive agent to the inside of outer sill.



REAR FENDER



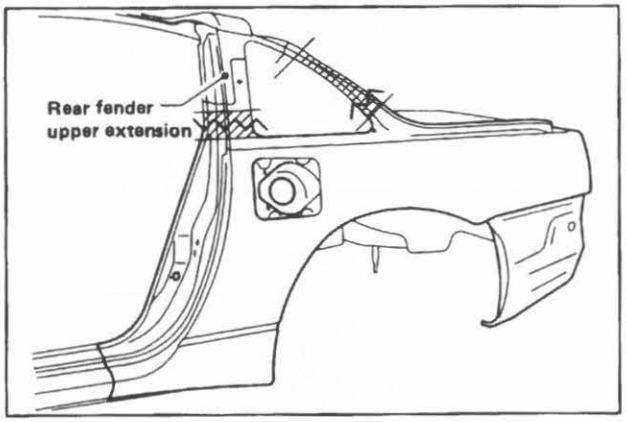
Portions to be welded

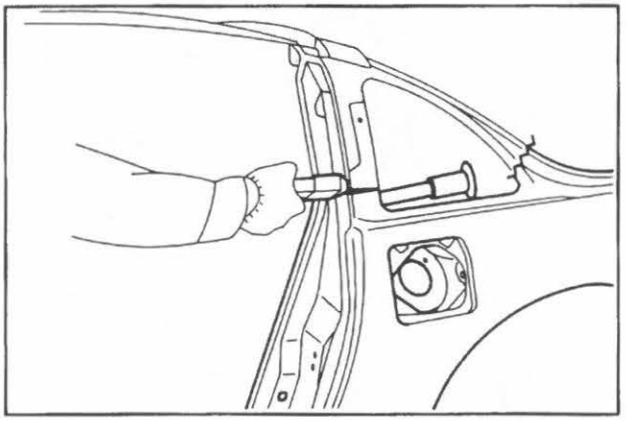
A Rear fender
B Rear fender
C Rear panel
a Inner side panel
Inner side panel & front lower inner side panel
Front lower inner side panel
b Front lower inner side panel, inner center pillar & rear sill reinforcement
Inner center pillar & rear sill reinforcement
c Inner center pillar, rear sill reinforcement & inner sill extension
Inner center pillar & rear sill extension
d Outer sill reinforcement
Outer sill, outer sill reinforcement & inner center pillar
Outer sill & inner center pillar
e Outer rear wheelhouse
f Rear fender extension
Rear fender extension & outer rear wheelhouse
g Rear inner side panel extension & side panel reinforcement
Rear inner side panel & side panel reinforcement
h Rear inner side panel & rear pillar reinforcement
Inner side panel, rear inner side panel & rear pillar reinforcement
i Inner side panel
Inner side panel & rear pillar reinforcement
Inner side panel & inner center pillar
j Fuel filler lid base
k Outer rear wheelhouse
(Not welded to rear fender)
l Rear inner side panel
Rear inner side panel extension & rear fender patch
m Rear fender patch & rear panel
Rear panel
n Rear panel
Rear panel & rear fender patch
Rear panel & rear fender extension
Rear panel & rear floor rear
o Rear fender extension
p Rear floor rear
Rear lower inner side panel
Rear floor rear & rear lower inner side panel
q Outer sill
r Inner center pillar
Inner center pillar & outer rear wheelhouse
Outer sill, outer sill reinforcement & inner center pillar
s Inner sill extension & rear sill reinforcement
Outer sill, inner center pillar & rear sill reinforcement
Outer rear wheelhouse
t Rear lower inner side panel
Outer rear wheelhouse
Rear lower inner side panel & drafter cover

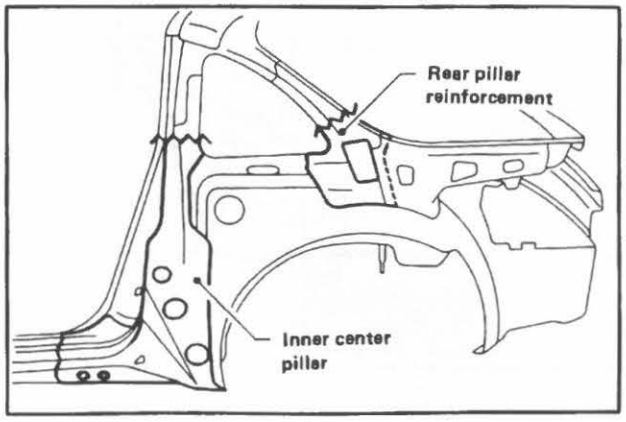
REAR FENDER

REMOVAL NOTES

- Butted portions (A) and (B) can be determined anywhere in shaded area shown in figure. To increase job efficiency, butting should be where zig-zag lines are indicated.
- When cutting portions (A) and (B), be careful not to damage inner center pillar and rear pillar reinforcement.

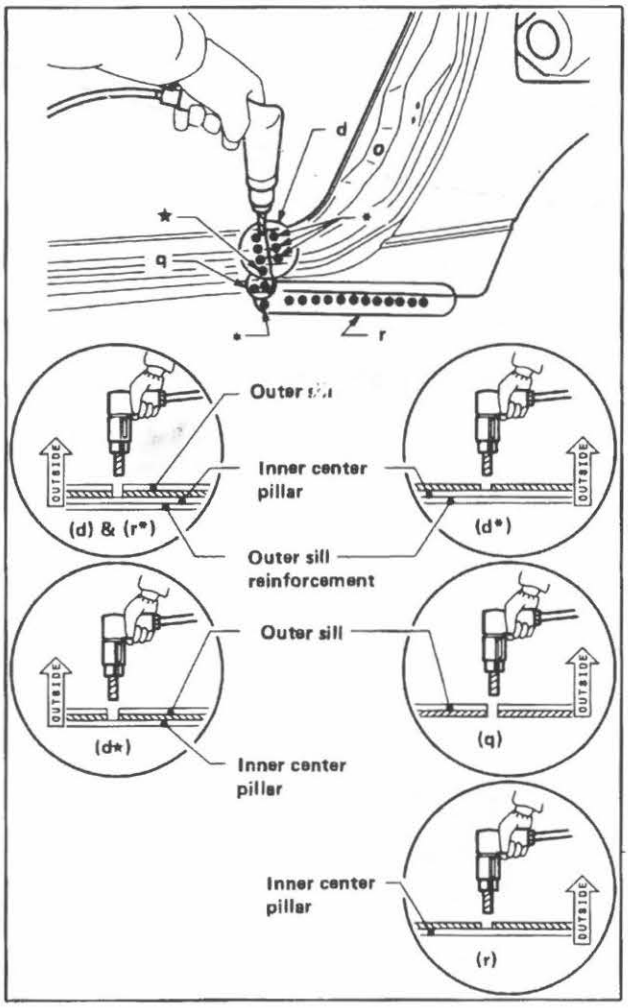






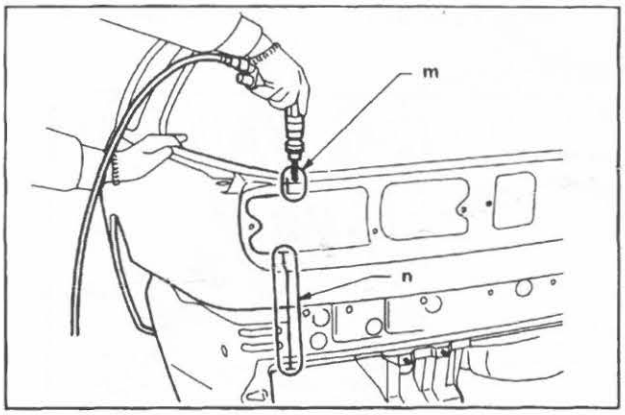
- Spot cut completely portion (q).
- Cut welds on outer two panels of 3 layered part and 4 layered part at portions (d) and (r*).
- Spot cut only one panel of 2 layered part and 3 layered part at portions (d*) and (r).

When installing, use these holes as M.I.G. plug weld holes.



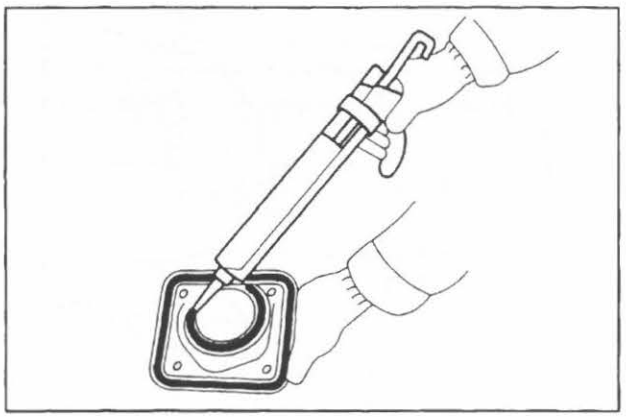
REAR FENDER

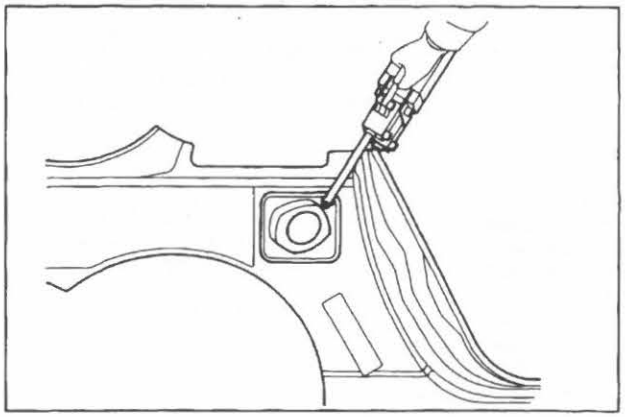
- Spot cut completely through welded parts at portions (m) and (n).
  When installing, M.I.G. plug weld from outside or both sides.



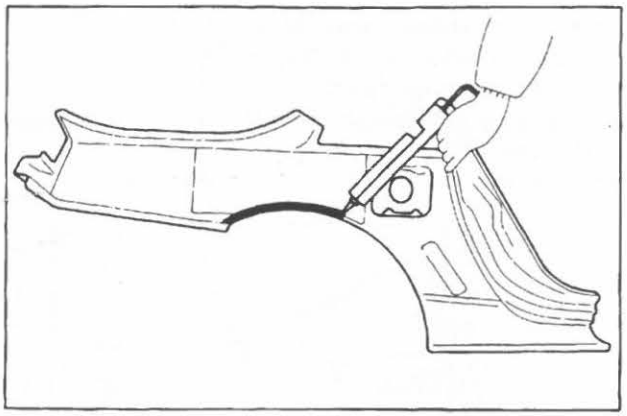
INSTALLATION NOTE

- Before installing rear fender, apply sealant to fuel filler lid base and spot weld it to rear fender.

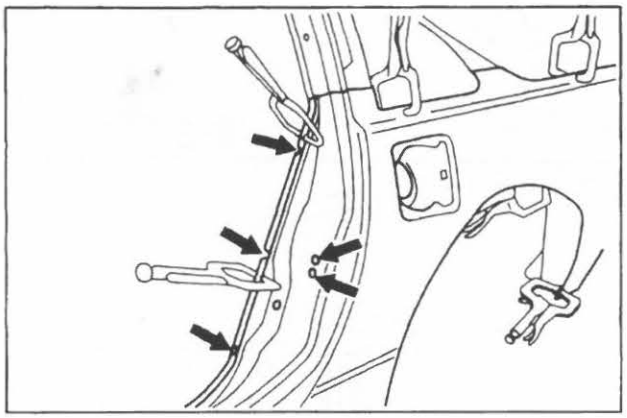


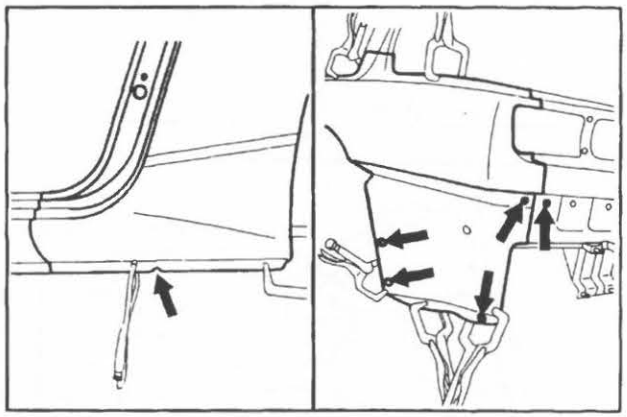


- Before installing service part, apply sealer to inside of rear fender.



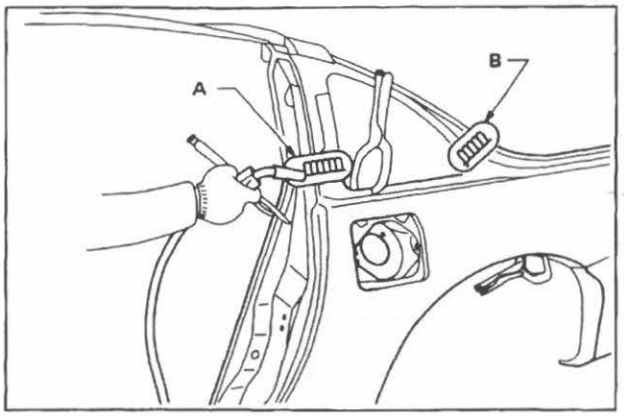
- When installing, be sure to align locating holes.



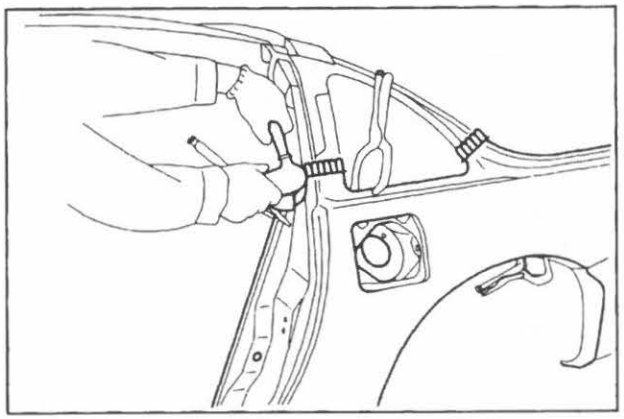


REAR FENDER

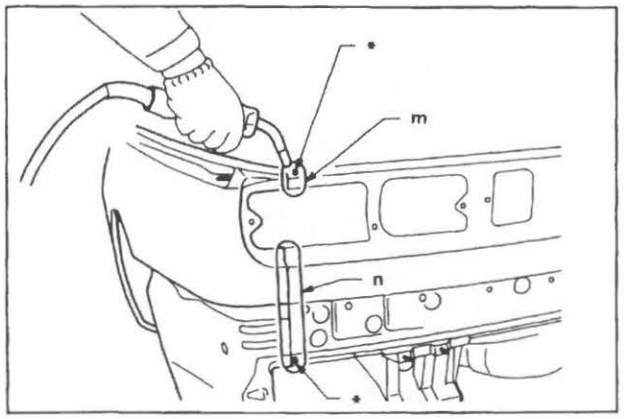
- Positively weld parts to be butt welded up to flange end portion.



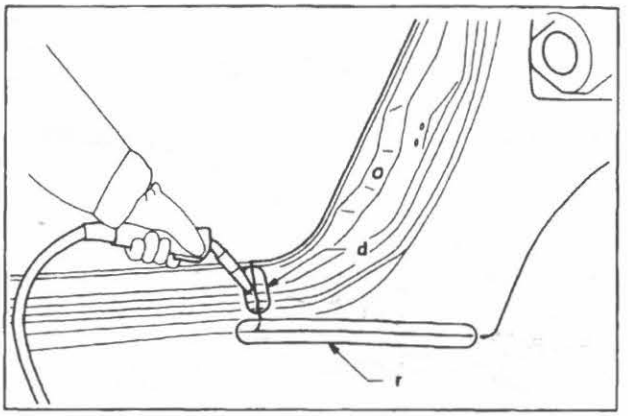
- Finish welded part with an air grinder.



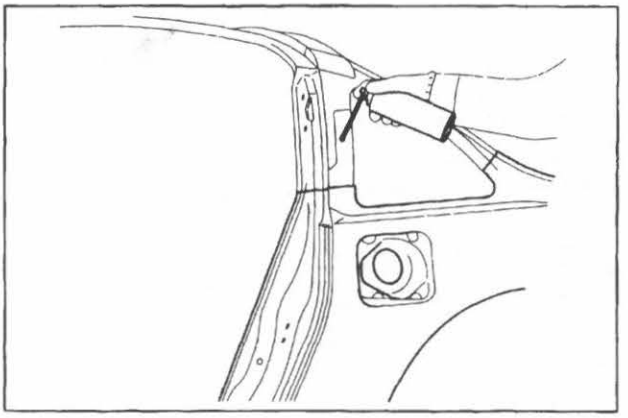
- M.I.G. plug weld portions (m*) and (n*) from both sides.



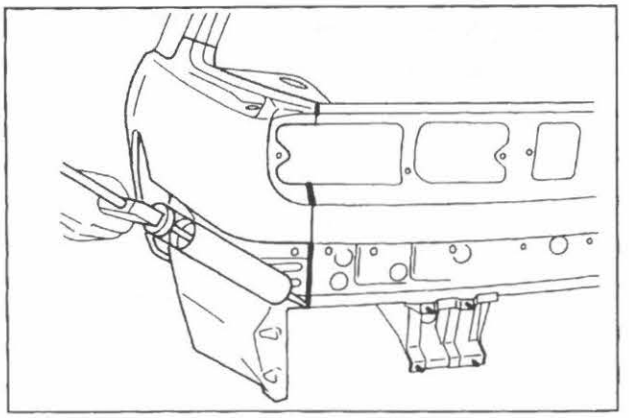
- Drill M.I.G. plug weld holes in rear fender only at portions (d) and (r), then M.I.G. plug weld.



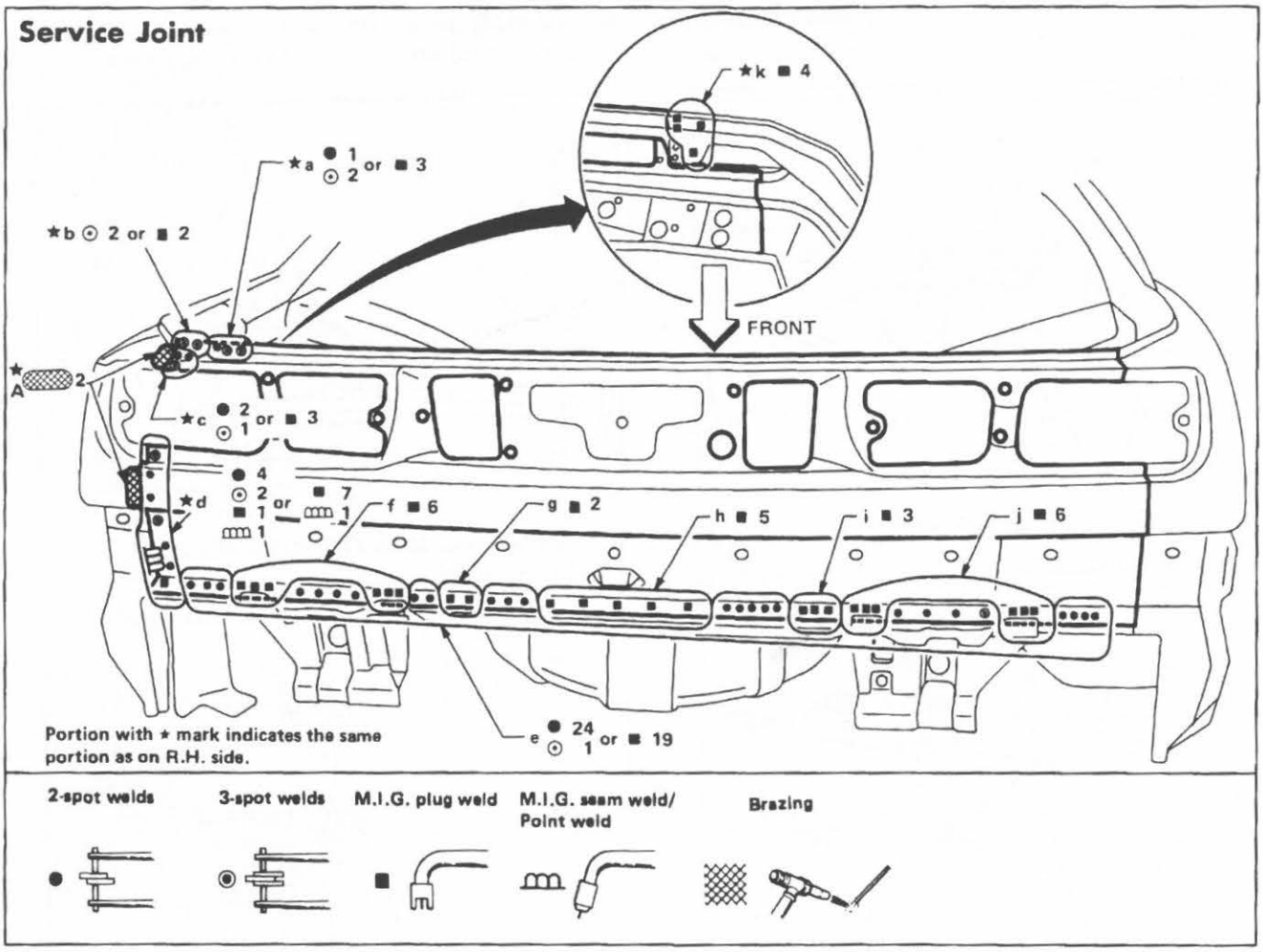
- After welding, apply anti-corrosive agent to inside of rear fender.



- Apply sealant.



REAR PANEL



Portions to be welded

A Rear fender

a Rear panel reinforcement & rear inner side panel
Rear inner side panel

b Rear fender & rear inner side panel

c Rear fender
Rear fender & rear fender patch

d Rear fender
Rear fender extension
Rear fender & rear fender extension
Rear fender extension & rear floor rear
Rear fender & rear fender patch

e Rear floor rear
Rear floor rear & rear floor rear extension
Rear floor rear extension

f Rear floor rear & rear bumper stay

g Rear floor rear & bolt plate

h Rear floor rear & back door lock support

i Rear floor rear & child seat belt anchor

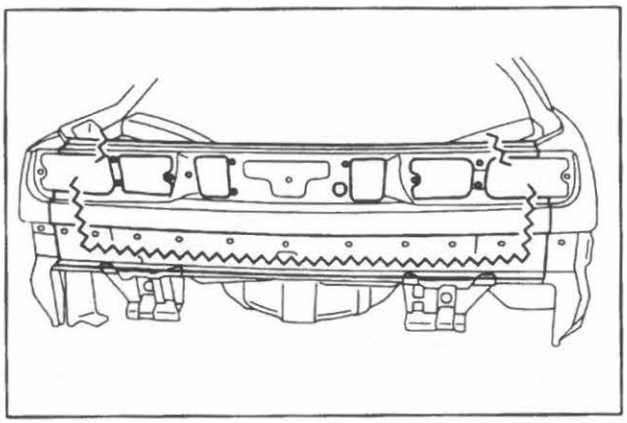
j Rear floor rear & rear bumper stay
Rear floor rear extension & rear bumper stay

k Rear inner side panel

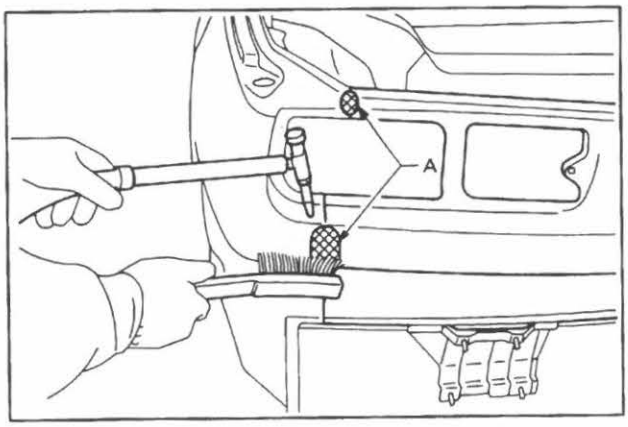
REAR PANEL

REMOVAL NOTES

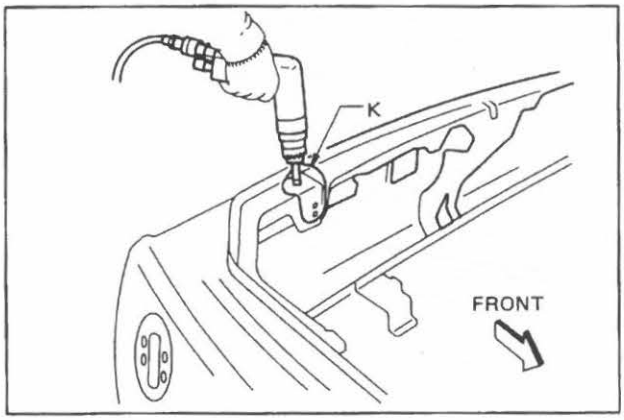
- Cut off damaged portion so that welded part can be easily spot cut later.



- Remove brazing from portion (A).

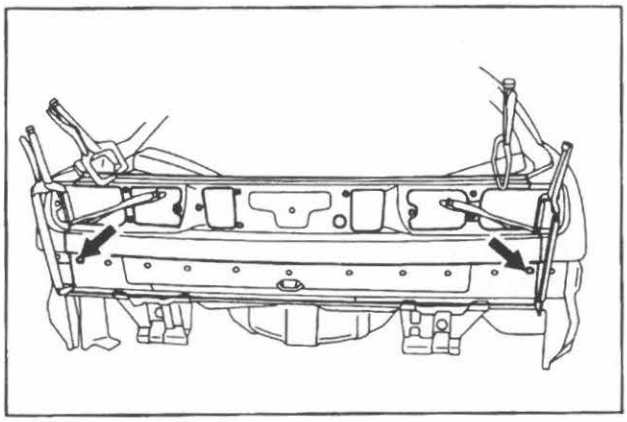


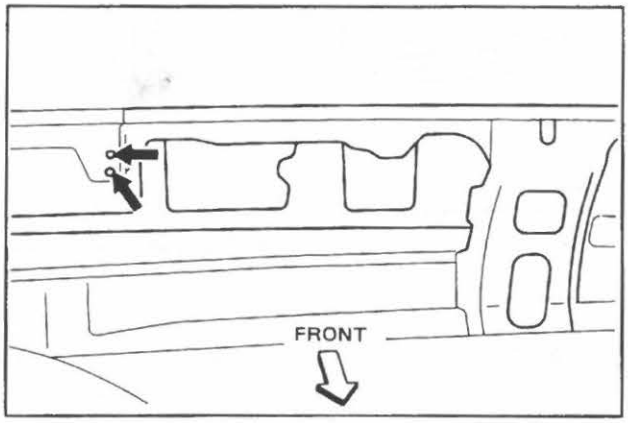
- Spot cut completely through welded parts at portion (k). Use these holes as M.I.G. plug weld holes when installing service part.



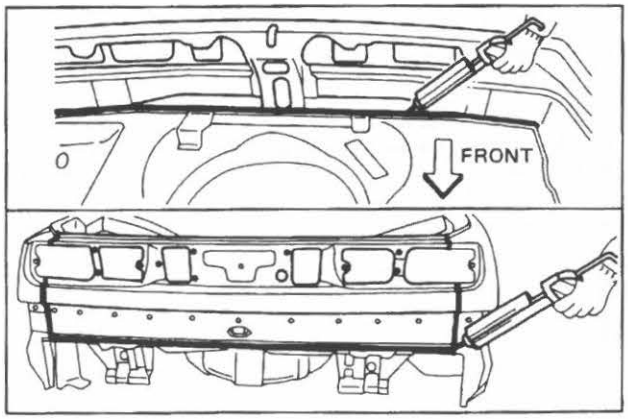
INSTALLATION NOTES

- Install service part with locating holes aligned accurately.



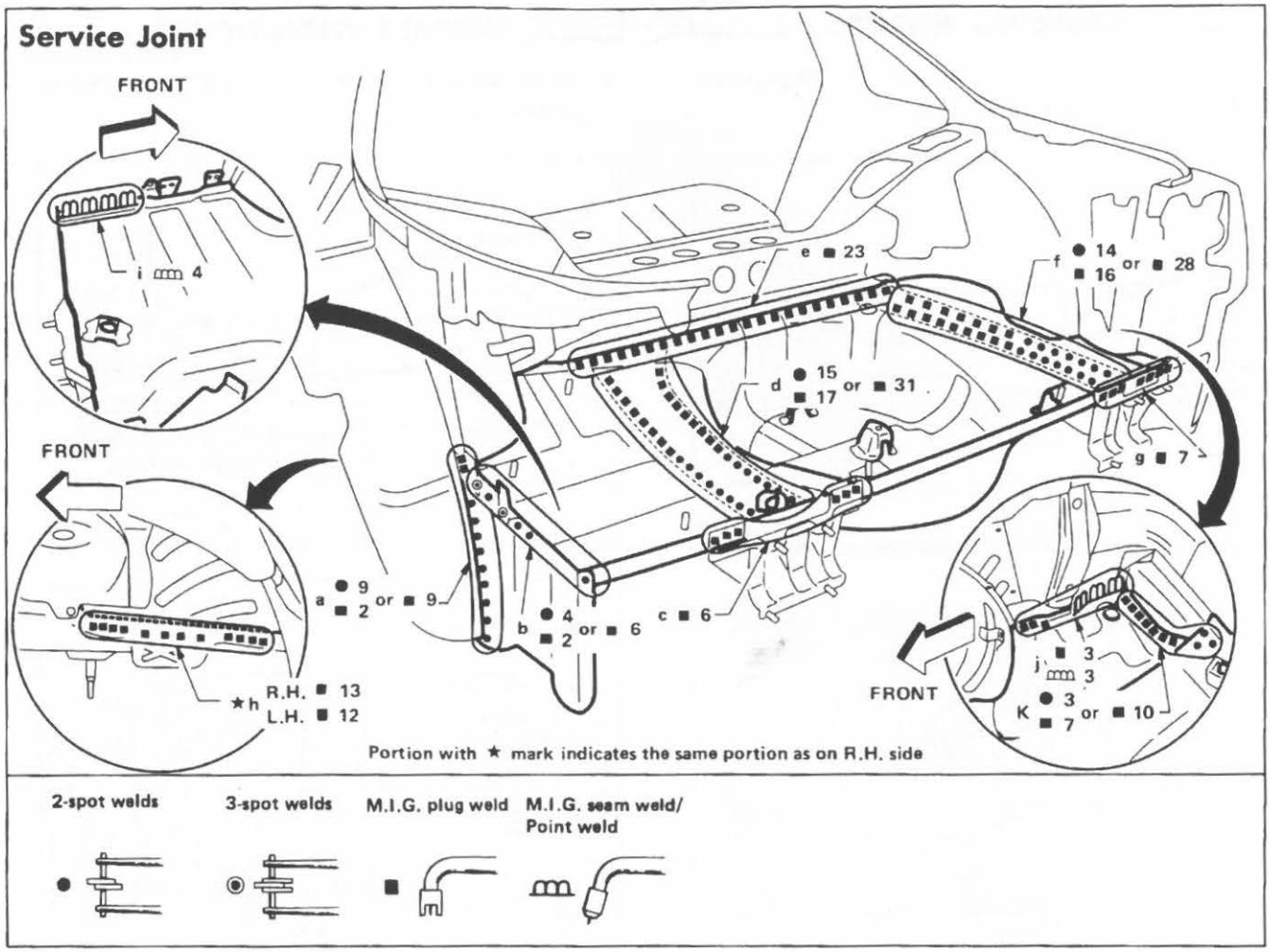


- Apply sealer.



REAR FLOOR REAR

(Work after rear panel has been removed.)



Portions to be welded

a Outer rear wheelhouse
Outer rear wheelhouse & side panel plate
Outer, inner rear wheelhouse
Side panel plate & rear lower inner side panel

b Rear lower inner side panel
Rear lower inner side panel & washer tank bracket

c Rear bumper stay

d Rear side member

e Rear floor front
Rear floor front & rear side member
Rear floor front, rear side member & rear 2nd crossmember
Rear floor front & rear 2nd crossmember

f Rear side member

g Rear bumper stay
Rear bumper stay & rear floor rear extension
Rear floor rear extension

h Inner rear wheelhouse
Inner rear wheelhouse & rear floor front

i Rear lower inner side panel

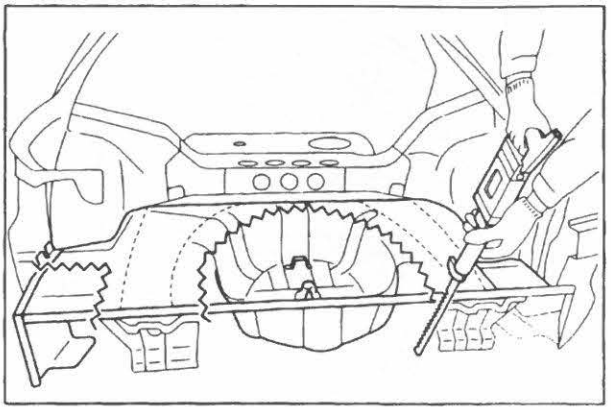
j Rear lower inner side panel
Rear lower inner side panel & side panel reinforcement

k Rear floor rear extension

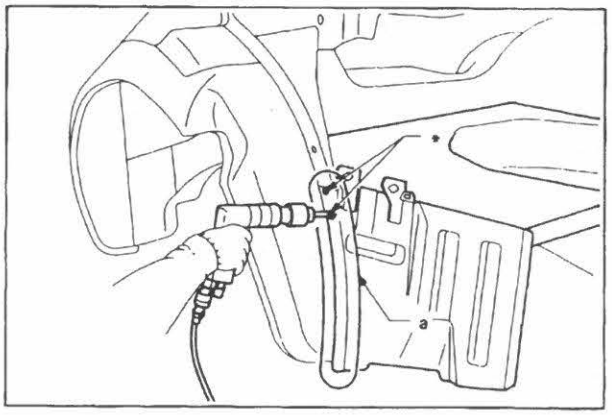
REAR FLOOR REAR

REMOVAL NOTES

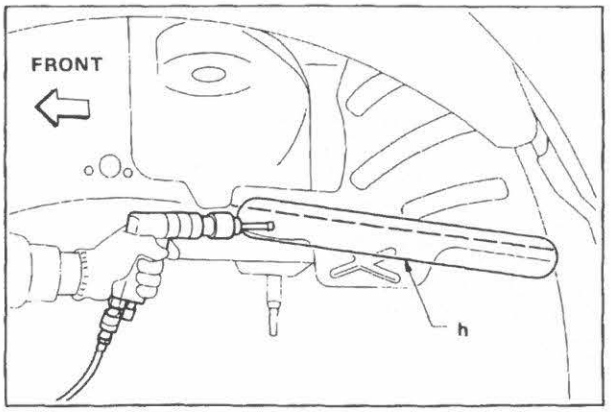
- Cut off damaged portion so that it is easy to work with.



- Spot cut completely through welded parts of portion (a*). Use these holes as M.I.G. plug weld holes when installing service part.

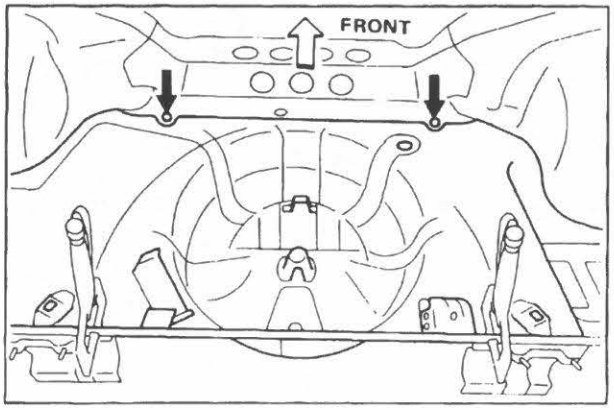


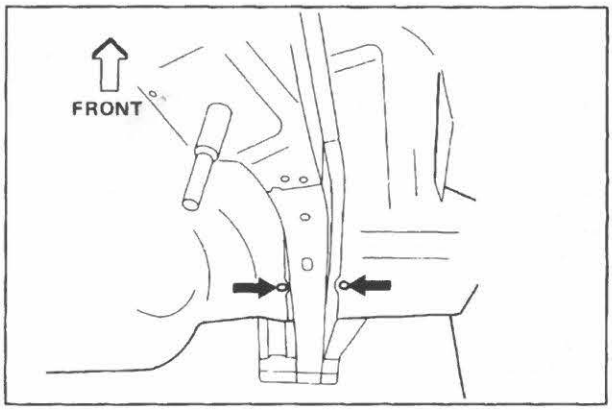
- Spot cut completely through welded parts of portion (h) from outer rear wheelhouse. Use these holes as M.I.G. plug weld holes when installing service part.



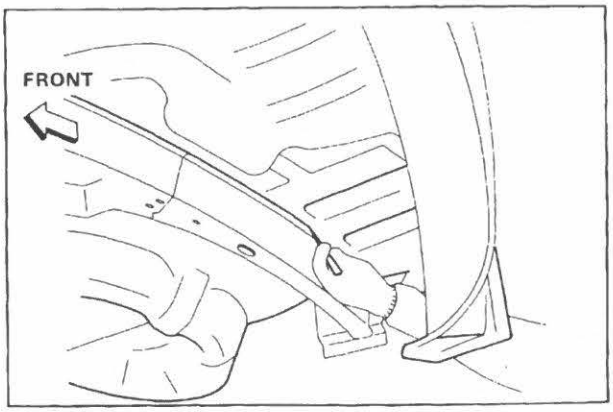
INSTALLATION NOTES

- Align service part with positioning marks.



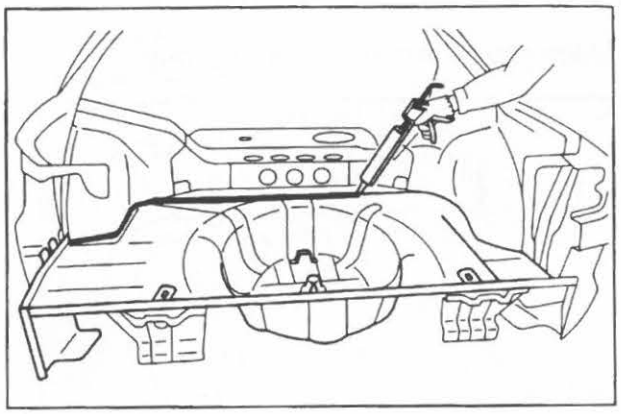


- For use as a reference for drilling M.I.G. plug weld holes, scribe a line on service part along flanged end of rear side member.
- Drill M.I.G. plug holes in service part along the scribe line.



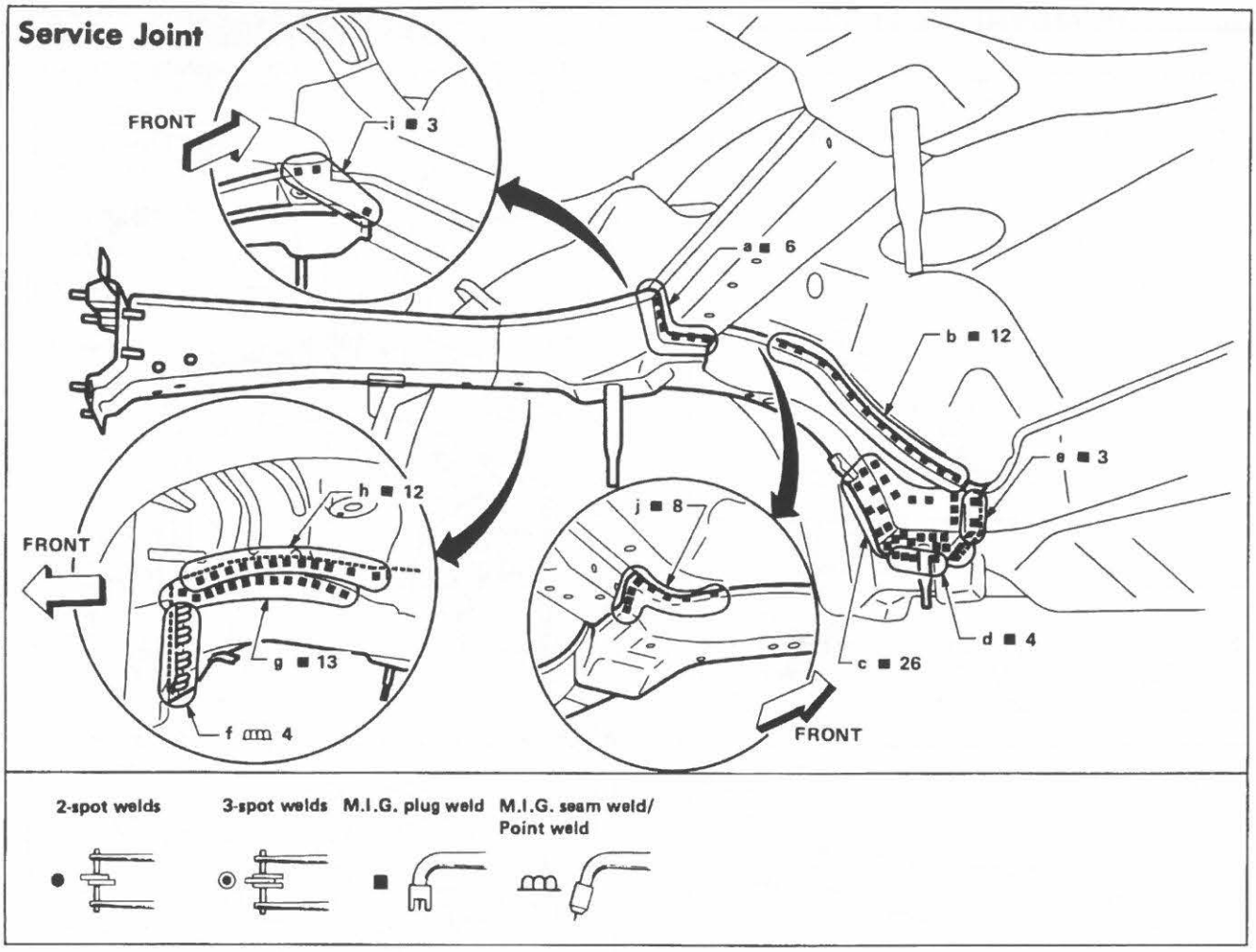
REAR FLOOR REAR

- After welding, apply sealer.



REAR SIDE MEMBER (Partial Replacement)

(Work after rear floor rear has been removed.)



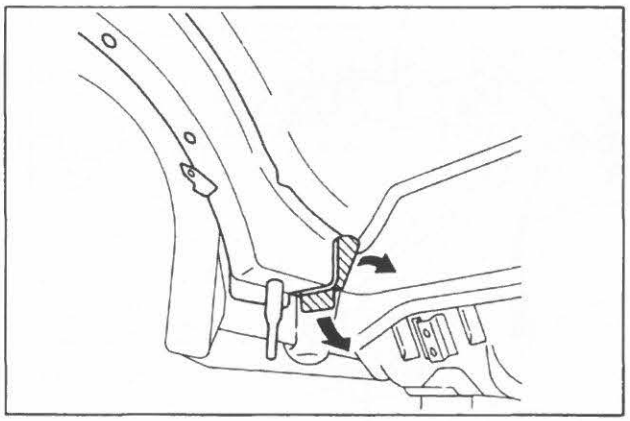
Portions to be welded

a Rear 2nd crossmember
b Rear floor front
Rear floor front & rear floor front extension
c Rear side member extension
d Inner sill extension
e Rear side member extension & rear 1st crossmember
f Inner sill extension
g Sill reinforcement
Rear floor front
Rear floor front & rear floor front extension
h Inner rear wheelhouse
Inner rear wheelhouse & rear floor front extension
Inner rear wheelhouse & shock absorber mounting bracket
i Rear floor front
Rear floor front & rear 2nd crossmember
j Rear floor front
Rear floor front & rear 2nd crossmember
Rear 2nd crossmember

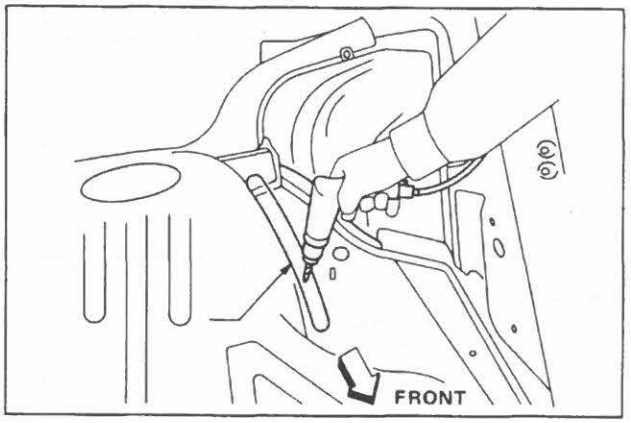
REAR SIDE MEMBER (Partial Replacement)

REMOVAL NOTES

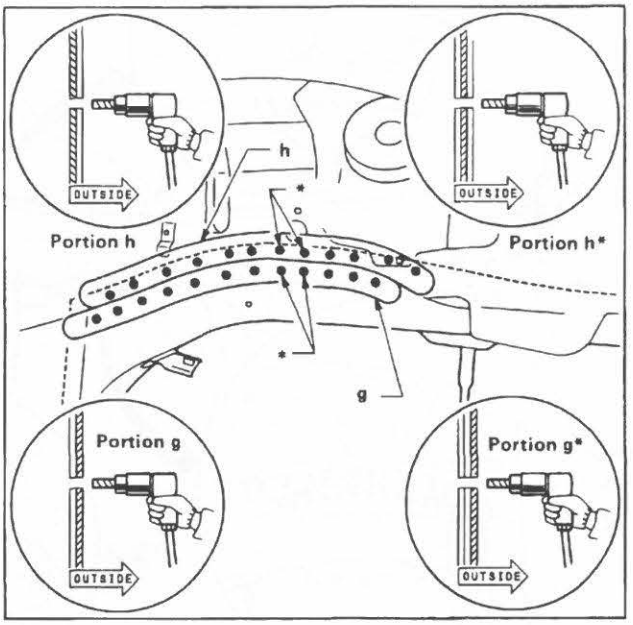
- Spot cut portion (e) and bend rear 1st cross-member as shown in figure.
  This facilitates removal and installation of rear side member.



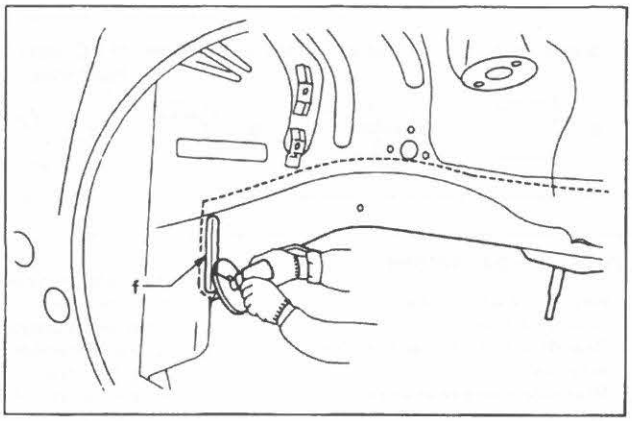
- Spot cut portion (b) from rear floor front side. Use these holes as M.I.G. plug weld holes when installing service part.



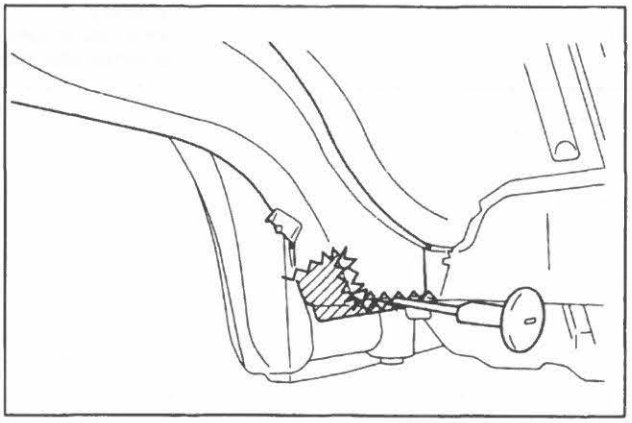
- Spot cut completely through 2- and 3-layered parts at portions (g) and (h). Use these holes as M.I.G. plug weld holes when installing service part.



- Cut welded part at portion (f) with a sander.



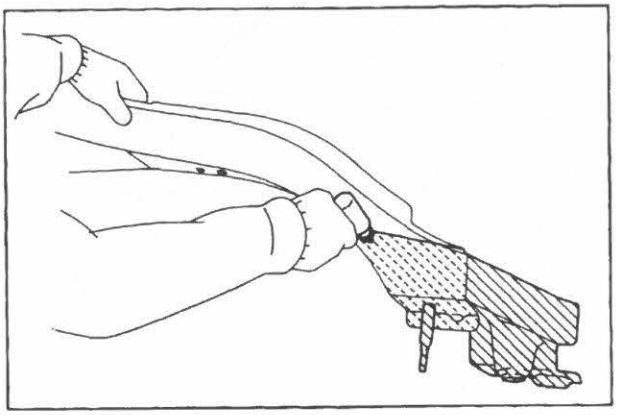
- Cut off rear side member to facilitate removal.



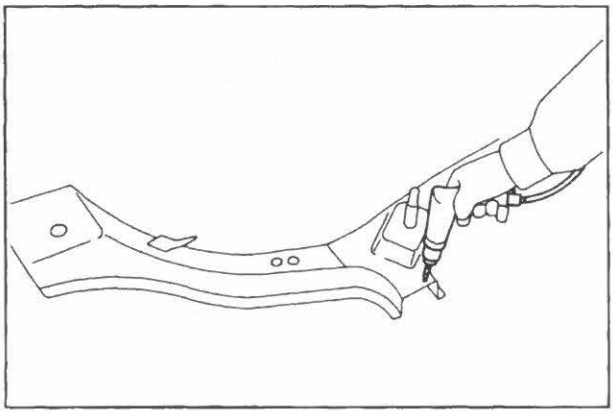
REAR SIDE MEMBER (Partial Replacement)

INSTALLATION NOTES

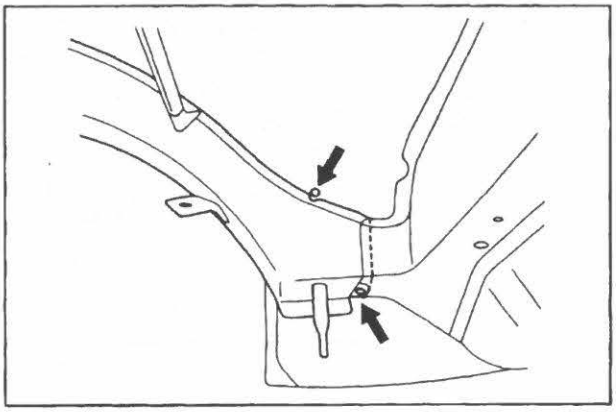
- Spot cut and remove rear side member extension from service part. Use these holes as M.I.G. plug weld holes when installing service part at portions (c) and (d).

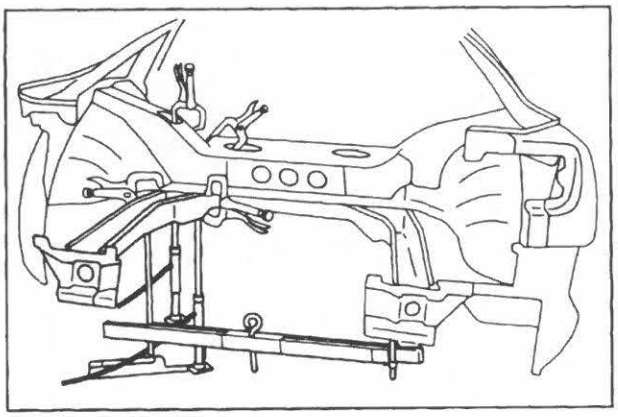


- Drill M.I.G. plug weld holes in service part portions (a), (d) and (j).

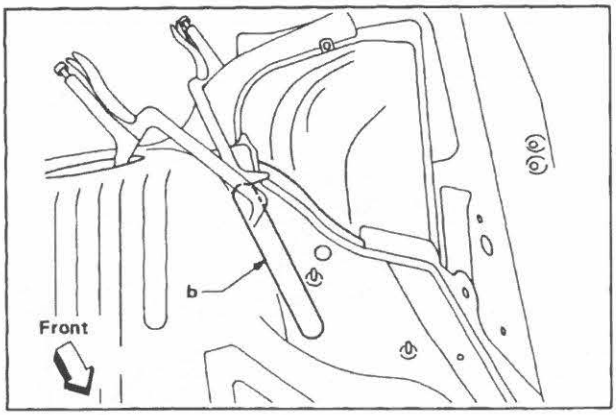


- When installing service part, measure various dimensions of part locations. Refer to "BODY ALIGNMENT" drawing and align locating holes and positioning marks.



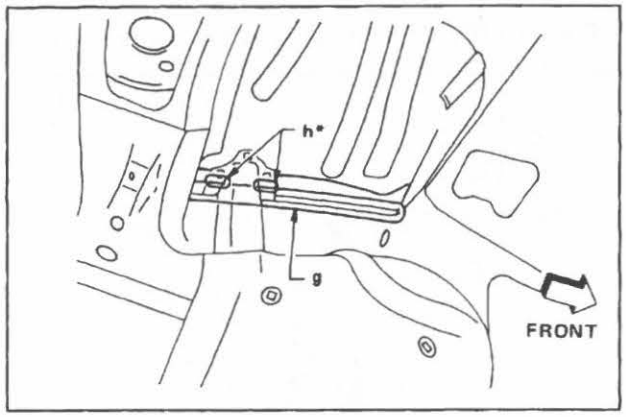


- M.I.G. plug weld at portion (b) from rear floor front.

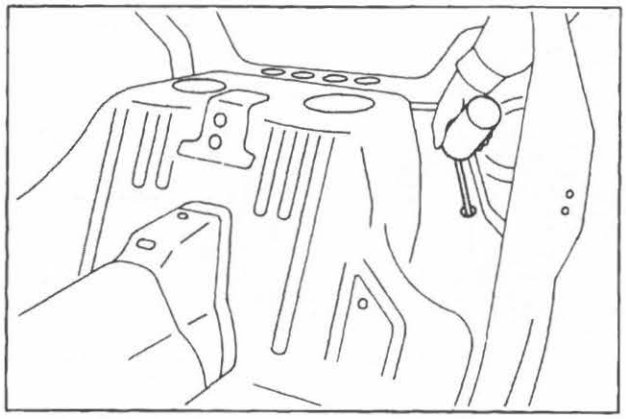


REAR SIDE MEMBER (Partial Replacement)

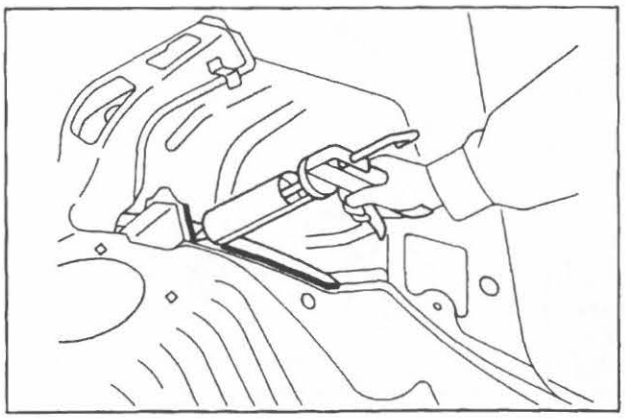
- M.I.G. plug weld at portion (g) from rear floor front and both sides at portion (h*).



- After welding, apply an anti-corrosive agent to welded parts and inside of rear side member.

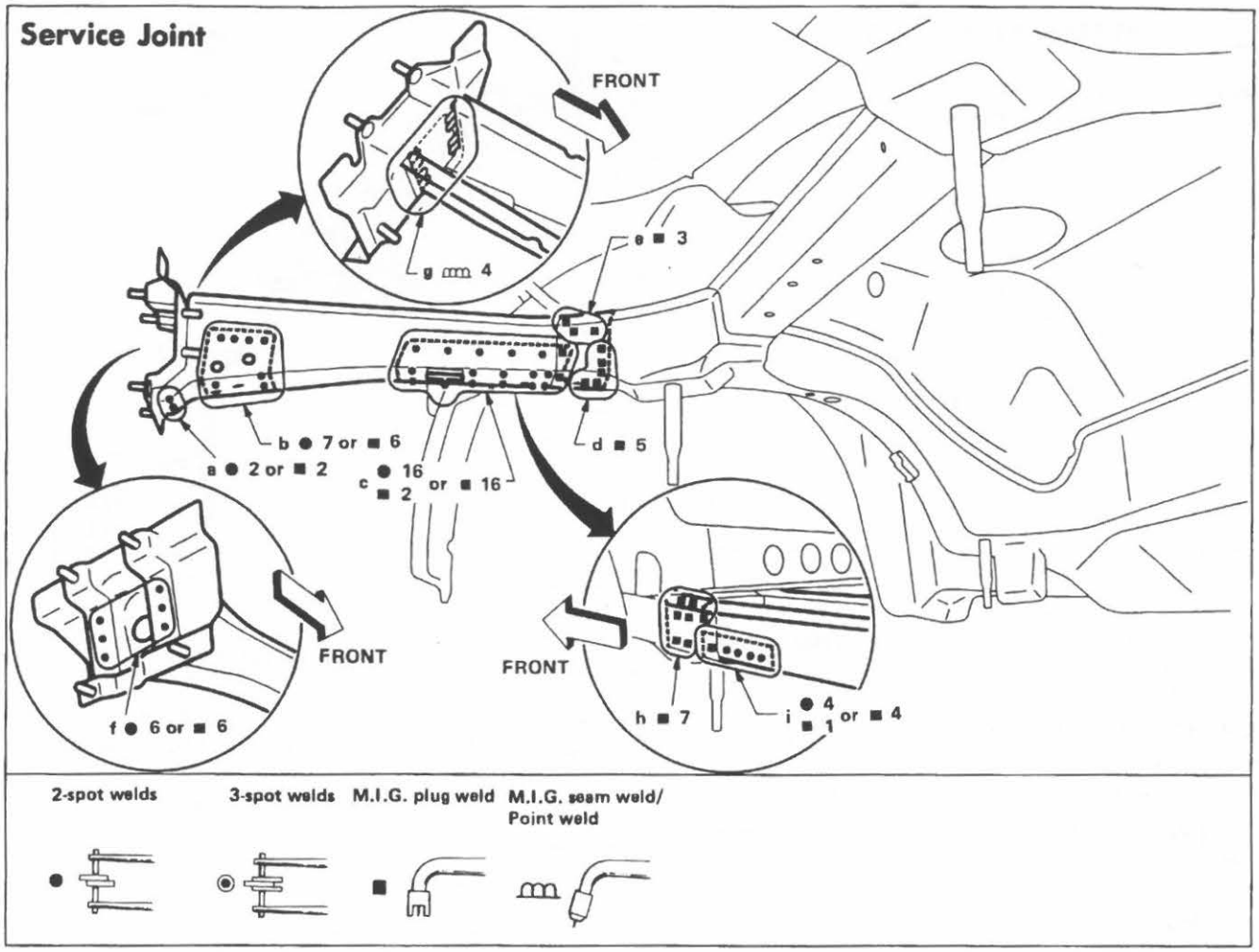


- Apply sealant.



REAR SIDE MEMBER REAR

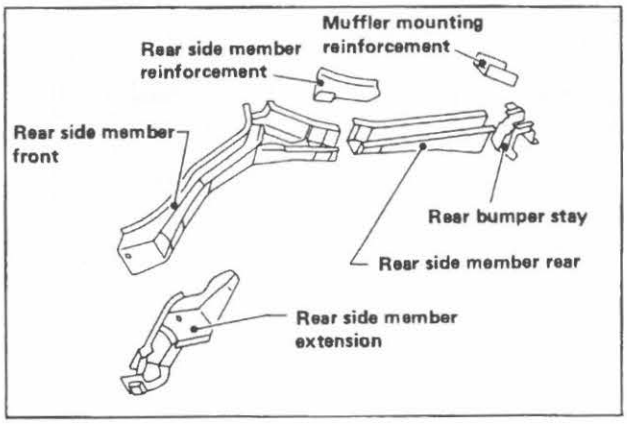
(Work after rear floor rear has been removed.)



Portions to be welded

a Rear bumper stay
b Muffler mounting reinforcement
c Rear side member reinforcement
Rear side member reinforcement & rear side member front
d Rear side member front
e Rear side member front
f Rear bumper stay
g Rear bumper stay
h Rear side member front
i Rear side member front & rear side member reinforcement
Rear side member reinforcement

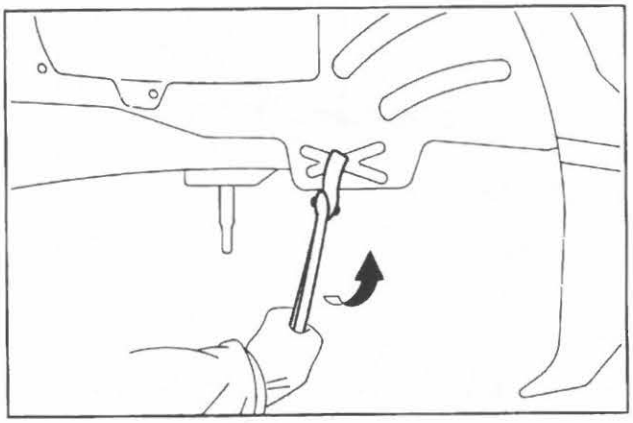
Service parts for the rear side member are available in 6 parts.
Thus, only the damaged part needs to be replaced. The procedure, whereby the rear bumper stay, muffler mounting reinforcement, rear side member rear and rear side member reinforcement are replaced simultaneously, is described on the following pages.



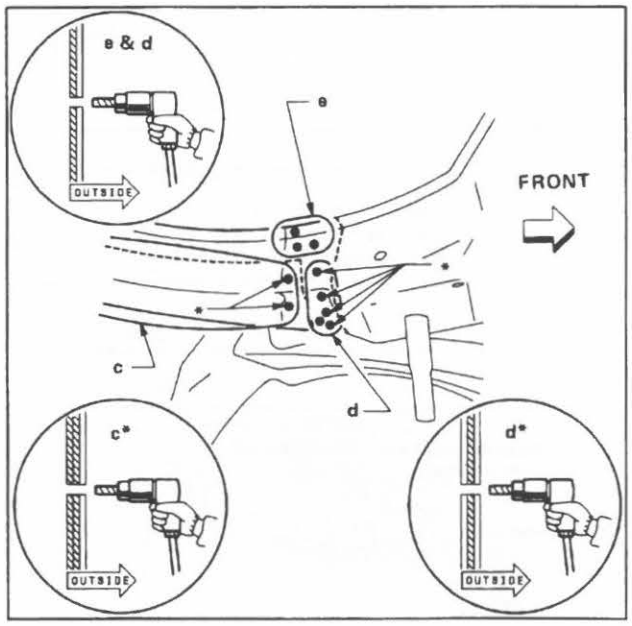
REAR SIDE MEMBER REAR

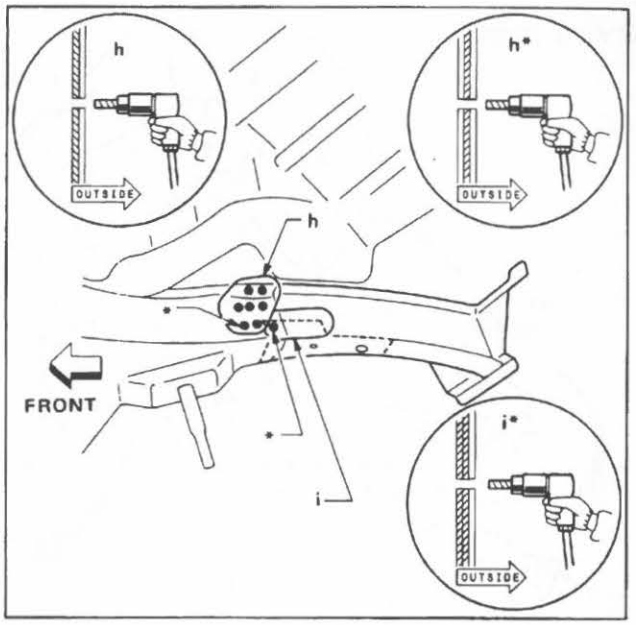
REMOVAL NOTES

- Bend panel as shown in figure to facilitate removal of welds at portions (h) and (i).



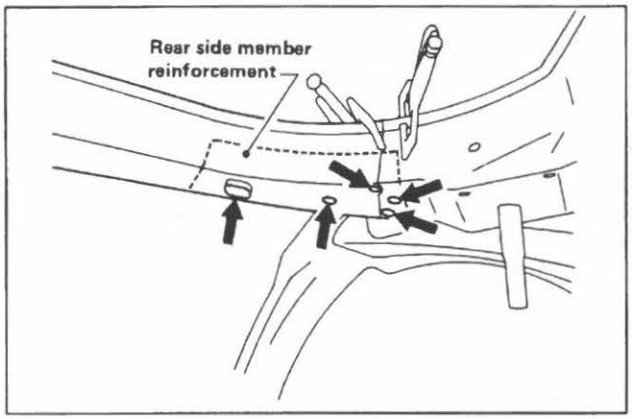
- Spot cut completely through 2- and 3-layered parts at portions (e) (d) (c*) (h) and (i*). When installing, use these holes as M.I.G. plug weld holes.
- Spot cut completely through 3-layered part at portions (d*) and (h).
  When installing, M.I.G. weld from both sides.



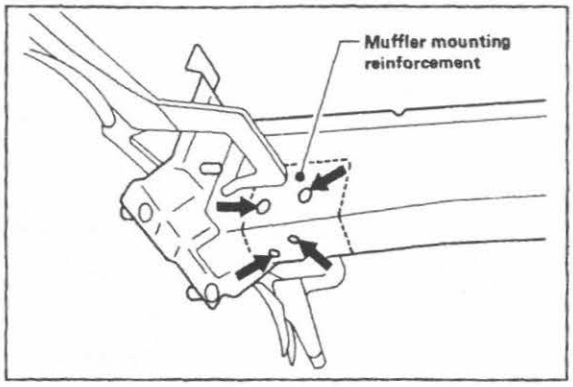


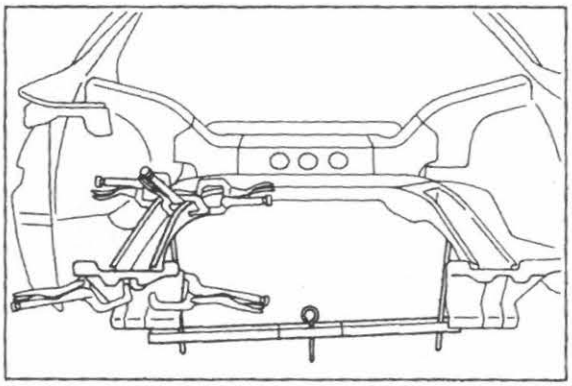
INSTALLATION NOTES

- When installing service parts, align the positioning mark and locating holes, measure various dimensions of part locations.
  Refer to "BODY ALIGNMENT" drawing.

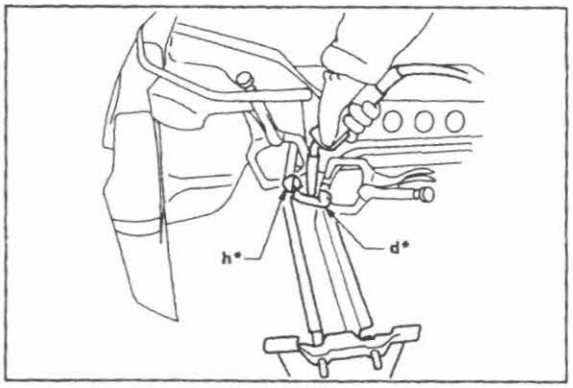


REAR SIDE MEMBER REAR

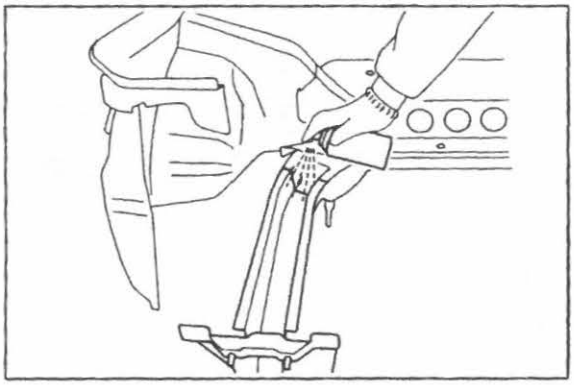




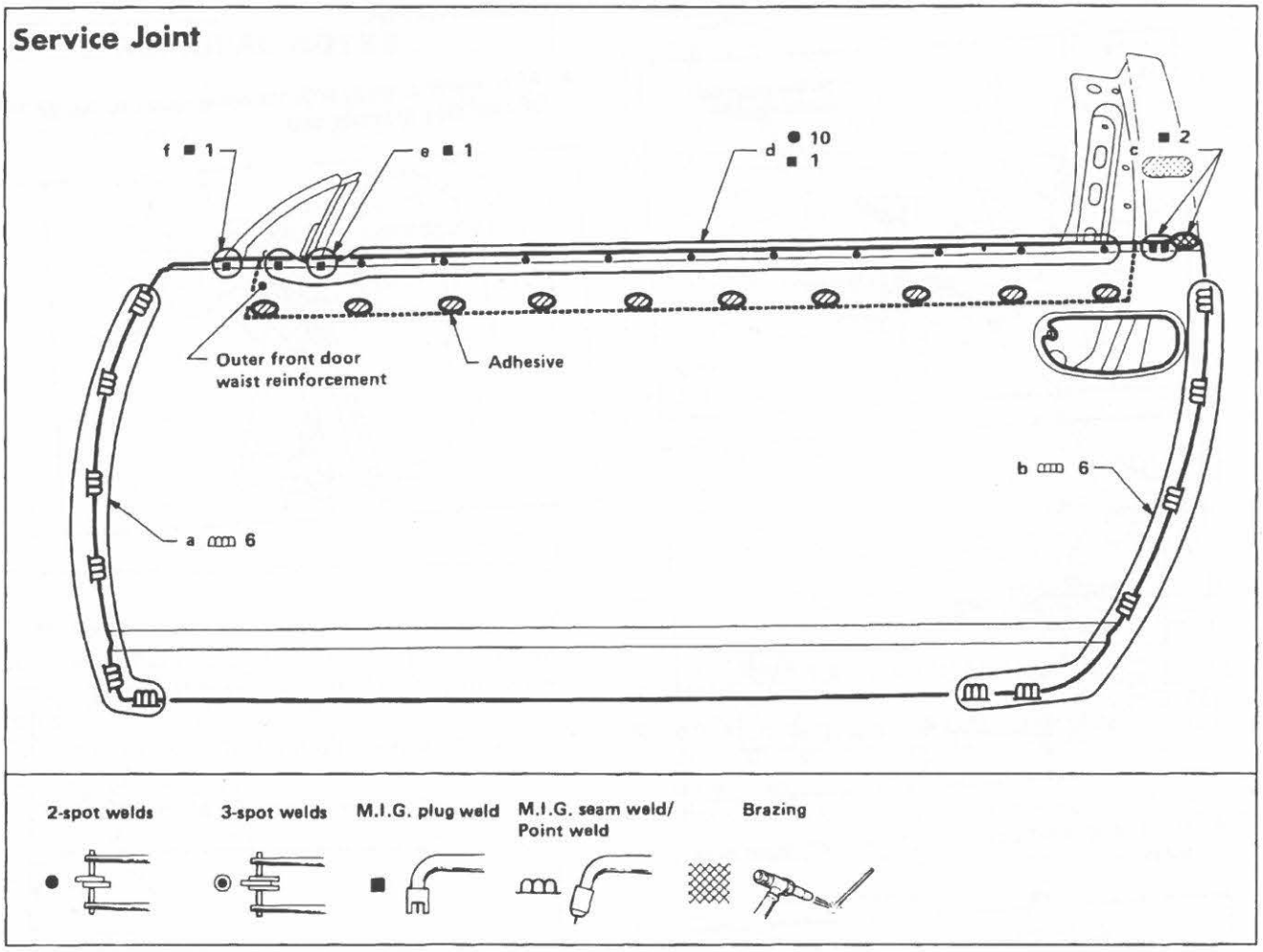
- M.I.G. plug weld portions (d*) and (h*) from both sides.



- After welding, apply anti-corrosive agent to inside of rear side member rear.



OUTER DOOR PANEL

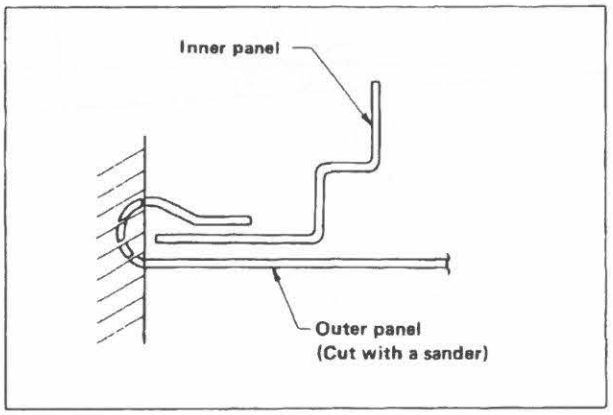


Portions to be welded

a Inner front door
b Inner front door
c Upper outer front door
d Outer front door waist reinforcement
e Outer corner piece & outer front door waist reinforcement
f Outer corner piece

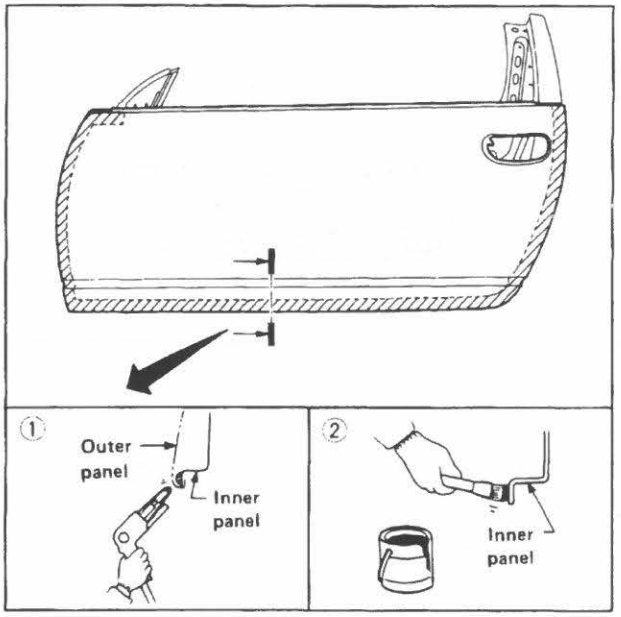
REMOVAL NOTES

- Cut off outer door panel hem with a sander. Be careful not to cut inner panel.



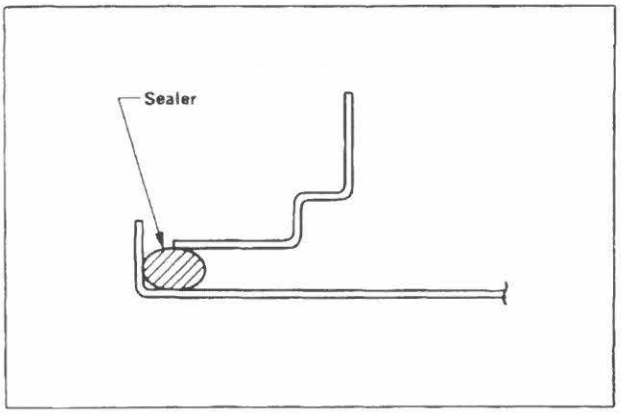
OUTER DOOR PANEL

- After removing outer door panel, polish inner panel with a sander and apply an anti-corrosive agent.



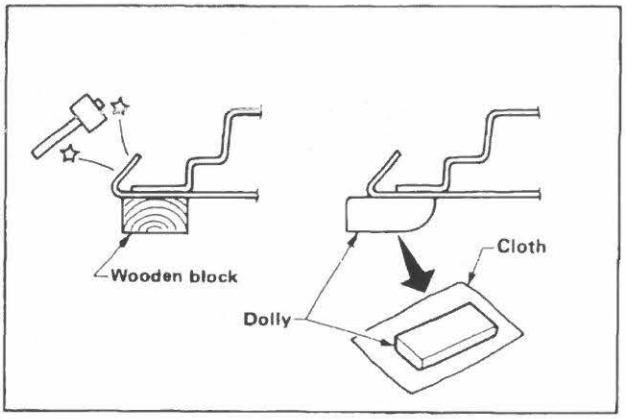
INSTALLATION NOTES

- Apply sealant to outer panel hem.

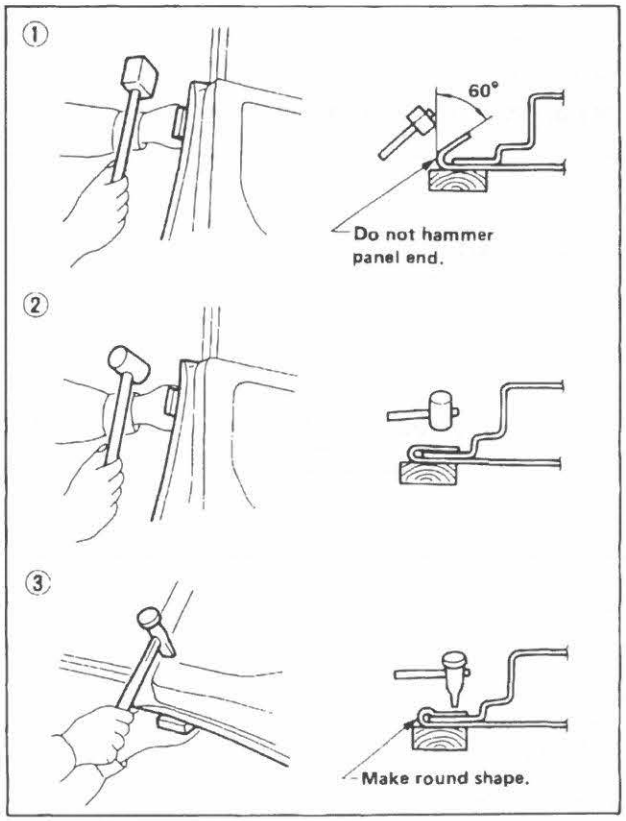


- Hemming work of outer door panel should be done, referring to the following tips.

(1) Use a wooden block as a dolly to avoid distorting outer panel. If one is not available, use a dolly covered with cloth or other soft material.

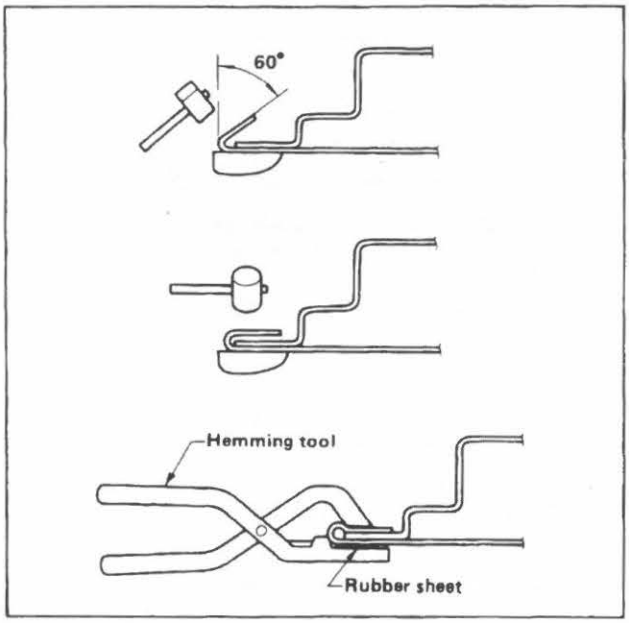


(2) Hemming work should be done in three steps as shown in figure.

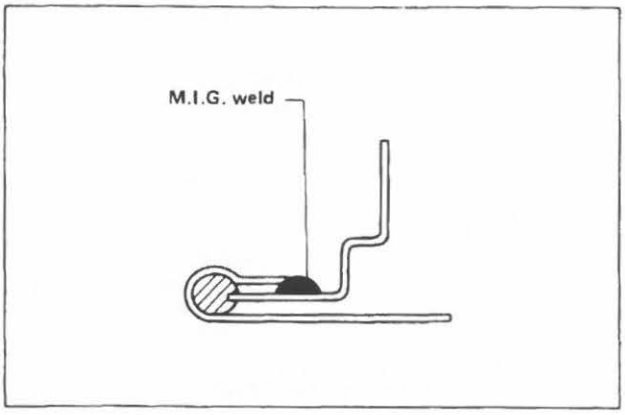


OUTER DOOR PANEL

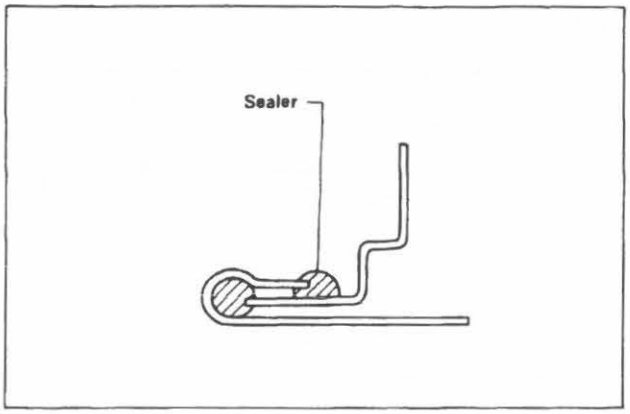
(3) When using hemming tool, partially bend panel with hammer in advance and then use hemming tool.
Be sure to protect outer panel with rubber sheet.



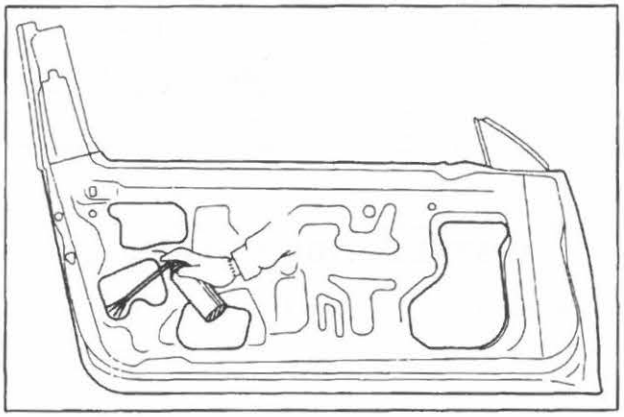
- M.I.G. weld edge after hemming outer panel.



- Apply sealant to whole panel edge.



- Apply anti-corrosive wax to inside of door.



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