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# GENERAL INFORMATION



## GENERAL GUIDELINES AND PRECAUTIONS

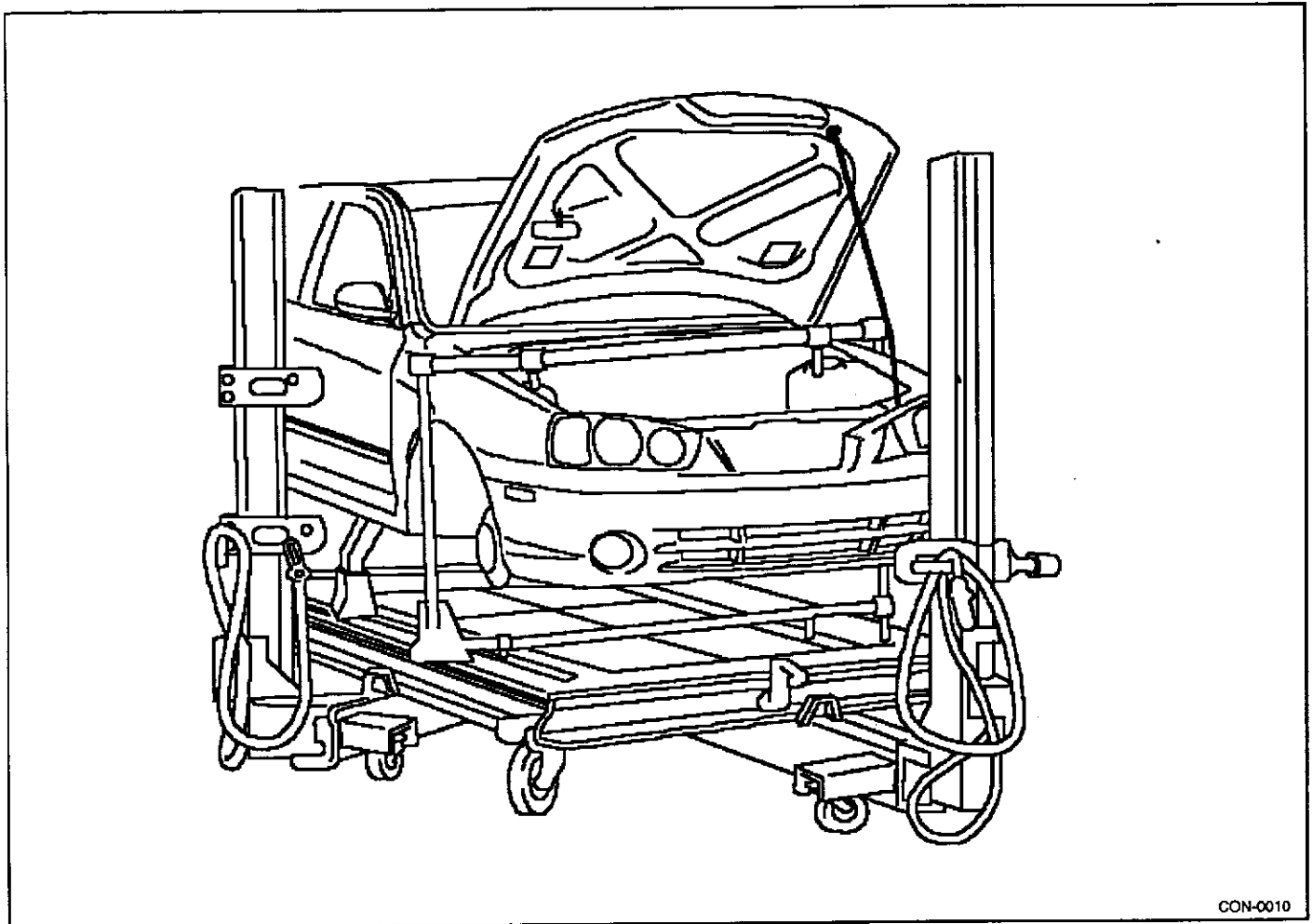
The Hyundai 2001 ELANTRA is a completely new vehicle design. During its development, close attention has been given to safety, stability, weight and corrosion protection. Typical of unit body design, the Hyundai 2001 ELANTRA is designed so that the front and rear compartments will absorb much of the collision energy so that the passengers are better protected. During collisions, these front and rear energy absorbing systems may be severely damaged. During repair, these damaged areas must be returned to their original strength and geometry. If this is not properly done, the vehicle will not provide the intended level of protection to its occupants in the event of another collision.

The repairs described in this manual were performed on 2001 ELANTRA body shells. In some instances special fixtures were welded in place to support the structure. During the repair of an actual vehicle, the interior would be fully disassembled and standard jack screws or portable braces may be used for temporary support.

During the repair of an accident involved vehicle, the vehicle must first be returned to pre-impact dimensions prior to beginning the sectioning repair procedures. The extent of damage that must be repaired should then be evaluated to determine the appropriate repair procedures. This manual provides locations and procedures where structural sectioning may be employed. It is the responsibility of the repair technician, based upon the extent of damage, to determine which location and procedure is suitable for the particular damaged vehicle.

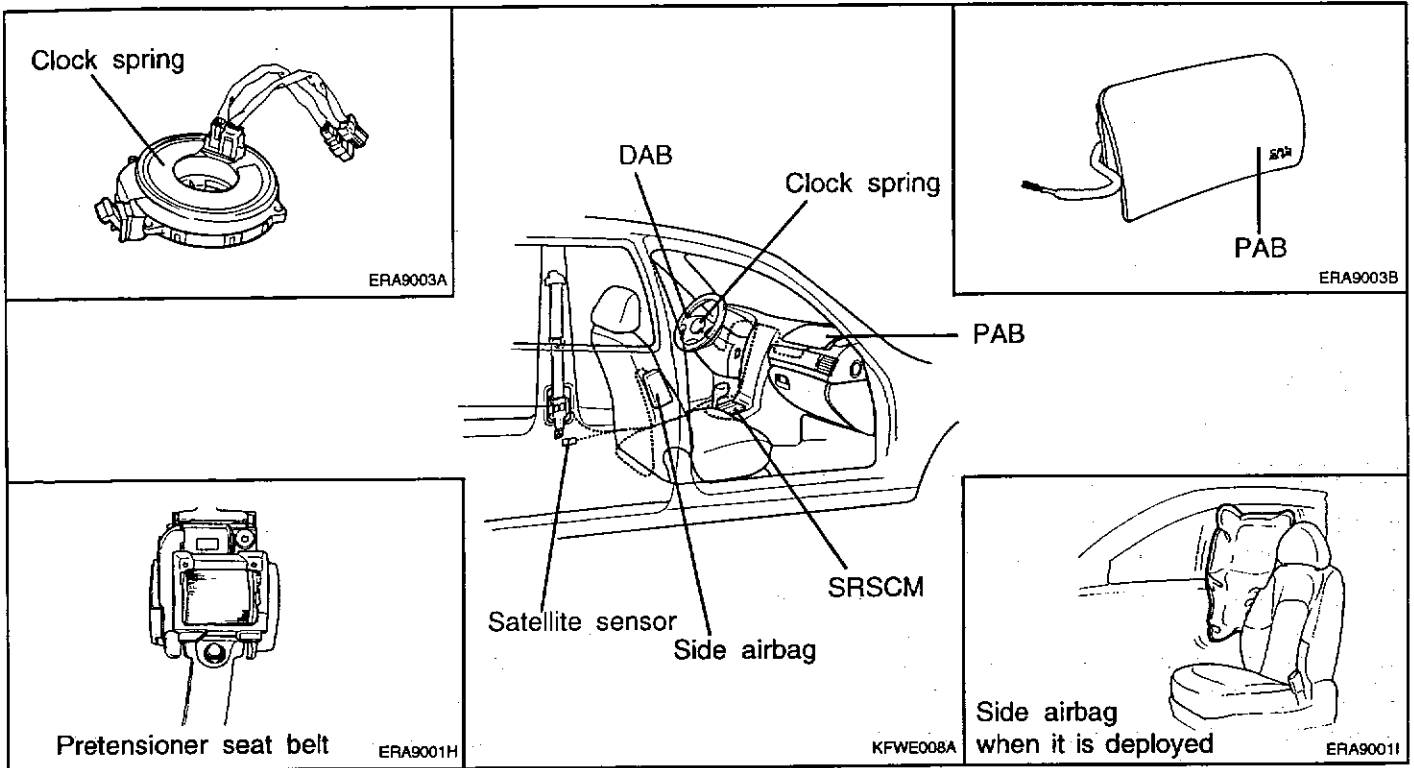
During the repair of a collision damaged automobile, it is impossible to fully duplicate the methods used in the factory during the vehicle manufacture. Therefore, auto body repair techniques have been developed to provide a repair that has strength properties equivalent to those of the original design and manufacture.

Certain guidelines and precaution are noted as follows.



**SRS AIRBAG**

**SYSTEM COMPONENT**



The Hyundai 2001 ELANTRA is equipped with a Supplemental Restraint System (AIRBAG) to provide the vehicle's driver and/or the front passenger with additional protection than that offered by the seat-belt system alone, in case of a frontal or lateral impact of sufficient severity.

When handling airbag components (removal, installation or inspection, etc.), always follow the directions given in the repair manual for the relevant model to prevent the occurrence of accidents and airbag malfunction.

Also take the following precautions when repairing the body :

1. Work must be started after approximately 30 seconds or longer from the time the ignition switch is turned to the LOCK position and the negative (-) terminal cable is disconnected from the battery. (The airbag system is equipped with a back-up power source so that if work is started within 30 seconds of disconnecting the negative (-) terminal cable of the battery, the airbag may be deployed.)  
When the negative(-) terminal cable is disconnected from the battery, memory of the clock and audio systems will be cancelled. So before starting work, make a record of the contents memorized by the audio memory system. Then when work is finished, reset the audio system as before and adjust the clock.
2. When using electric welding, first disconnect the SRSCM connectors under the lower crash pad center.
3. Store the airbag module where the ambient temperature remains below 80°C (176°F), without high humidity and away from electrical noise.
4. **WARNING/CAUTION** labels are attached to the periphery of the airbag components.  
Refer to the 2001 ELANTRA SHOP MANUAL.

## ELECTRONIC PARTS

Vehicles today include a great many electronic parts and components, and these are in general very susceptible to adverse effects caused by over current, reverse current, electromagnetic waves, high temperature, high humidity impacts, etc..

In particular such electronic components can be damaged if there is a large current flow during welding from the body side.

Therefore, take the following precautions during body repair to prevent damage to the CONTROL MODULES (ECM, TCM, ABS CM, SRS CM, etc.)

1. Before removing and inspecting the electrical parts or before starting electric welding operations, disconnect the negative (-) terminal cable from the battery.
2. Do not expose the CONTROL MODULES to ambient temperatures above 80°C (176°F).

**NOTE :**

**If it is possible the ambient temperatures may reach 80°C (176°F) or more, remove the CONTROL MODULES from the vehicle before starting work.**

3. Be careful not to drop the CONTROL MODULES and not to apply physical shocks to them.

## CORROSION PROTECTION AND SEALING

Proper corrosion protection and sealing is an important part of any repair. When reviewing these repair procedures, it is important to recognize the need for corrosion restoration to provide for long term strength of the repaired member.

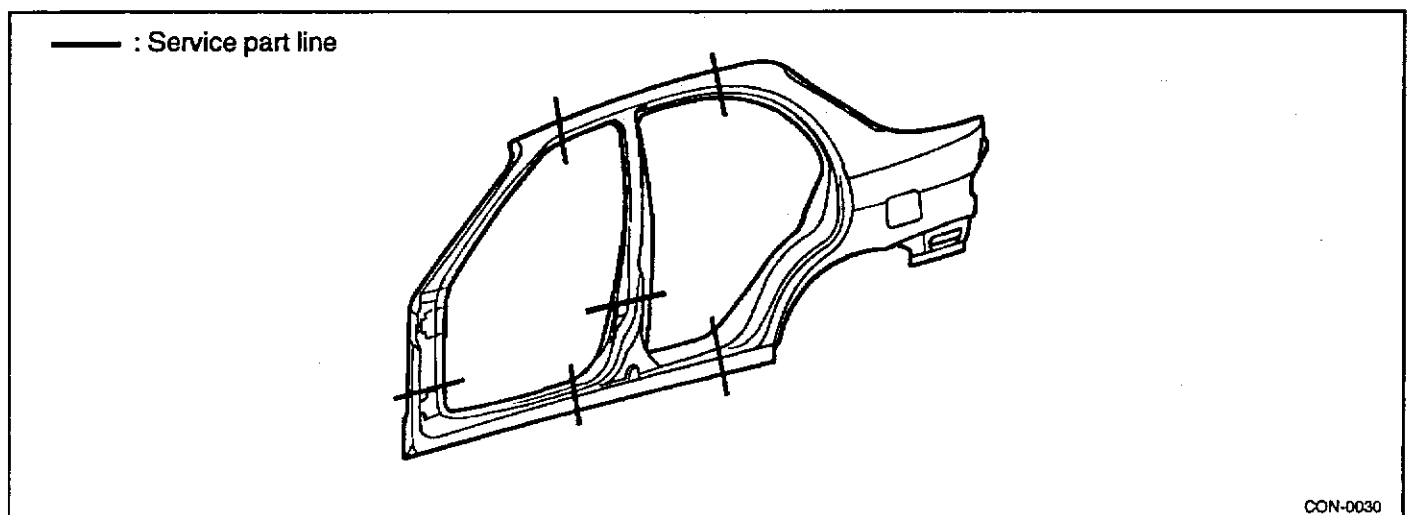
A two part epoxy primer was applied to the metal surfaces during the latter part of the repair. For closed sections, such as front and rear rails, rocker panels and pillars, the primer is applied without applying the metal conditioner and the conversion coating. These steps are omitted to insure that no rinse water is trapped in the closed sections. The primer application is followed by an application of an oil or wax based on rust proofing material.

After the corrosion restoration process for the closed sections are completed, then the process can be applied to all exterior sections. For exterior surfaces, both metal conditioner and conversion coating treatments are applied to the exterior surface prior to application of the epoxy primer. The procedure in applying the corrosion restoration process is important in order to insure that moisture, due to the water rinsing of the metal conditioner and conversion coating is not inadvertently trapped inside any closed section before the epoxy primer and rust proofing materials have been applied.

Appropriate seam sealers are then applied to all joints. Follow manufacturer's recommendations for the appropriate type of seam sealer to be used at each seam or joint.

## SIDE BODY PANELS

The side body panel for 2001 ELANTRA is designed and stamped as single piece of sheet metal in factory as shown in the figure. While the entire side panel is available for service, the partial panels sectioned by several damaged areas are also available. Therefore when repairing side body, select and use the appropriate part.



## WELDING

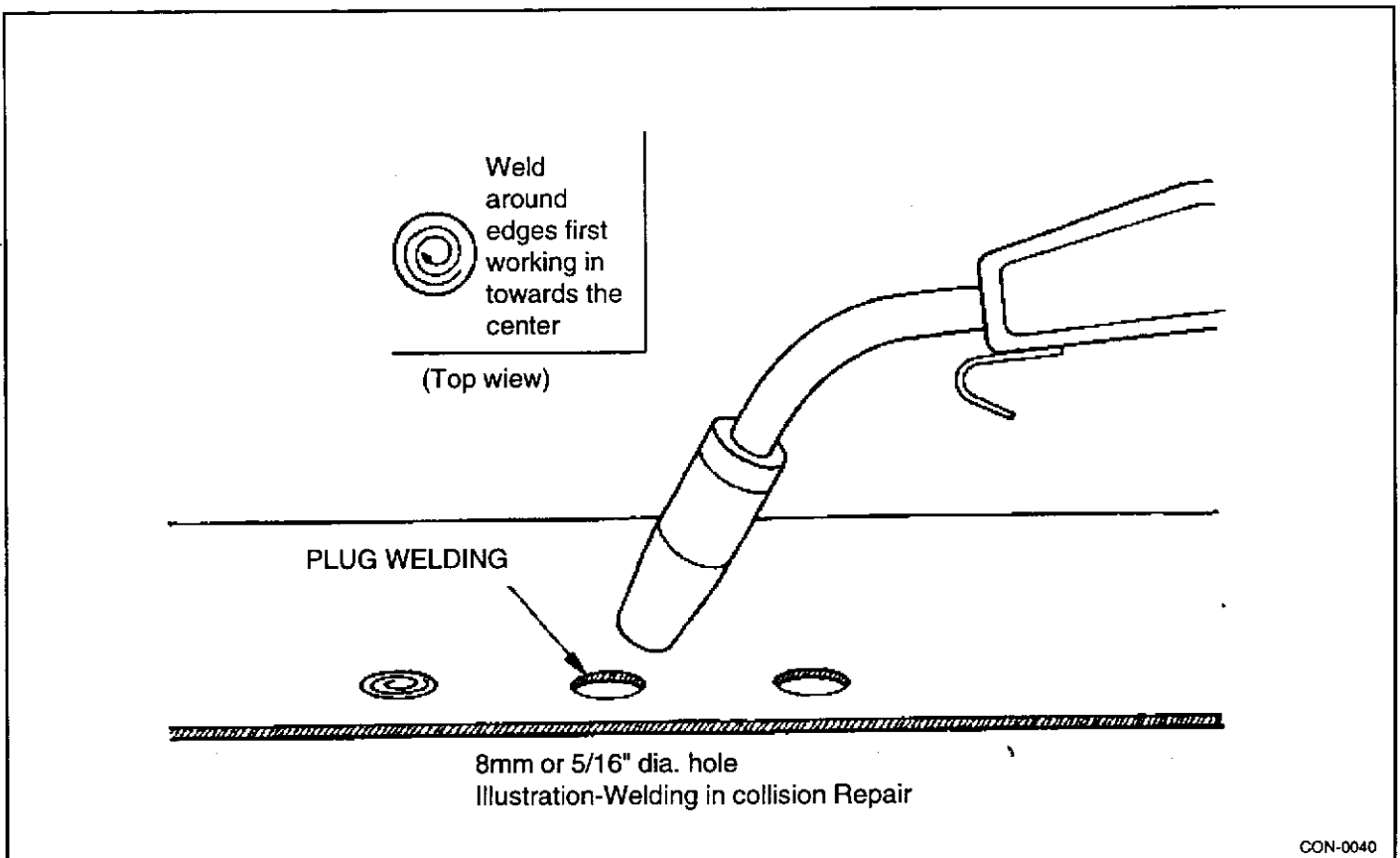
All repairs in this manual require the use of a Metal-Inert Gas (MIG) welder, Gas (oxyacetylene) welding must not be used.

Both high strength steel and mild steel can be welded using the MIG welder. The I-CAR recommendations for welding should be followed. The shielding gas should be 75% Argon and 25% CO<sub>2</sub>.

The recommended welding wire size is 0.23" and the wire should satisfy the American Welding Society Standard code AWSER70S-6.

During the repair process, plug welds are used to duplicate original factory spot welds. All plug welds should be done with the MIG welder. An 8 mm (5/16") hole is placed in the top (welding side) sheet metal.

You then begin welding along the edges and the spiral towards the center (see illustration). This is important so that weld penetration between the two metal pieces may take place along the circumference of the circle.



## SAFETY FACTORS

Disconnect the negative(-) battery cable before performing any work on the vehicle.

Protect yourself by wearing goggles, earplugs, respirators, gloves, safety shoes, caps, etc. when working on a vehicle.

Safely support the vehicle before any work is done. Block the front or rear wheels if the vehicle is not lifted off of the ground.

Cap or remove the fuel tank when working on the rear section of the car.

Insure proper ventilation of your working area. Some paint and sealant can generate toxic gases when heated.

Use an air chisel or saw to remove damaged panels instead of a gas torch.

Observe all local and national safety regulations when performing any work.

Cover interior with heat-resistant cover to insure safety when welding.

Take care when using gas or cutting torches so as not to burn body sealer or interior. Extinguish immediately if they should catch fire.



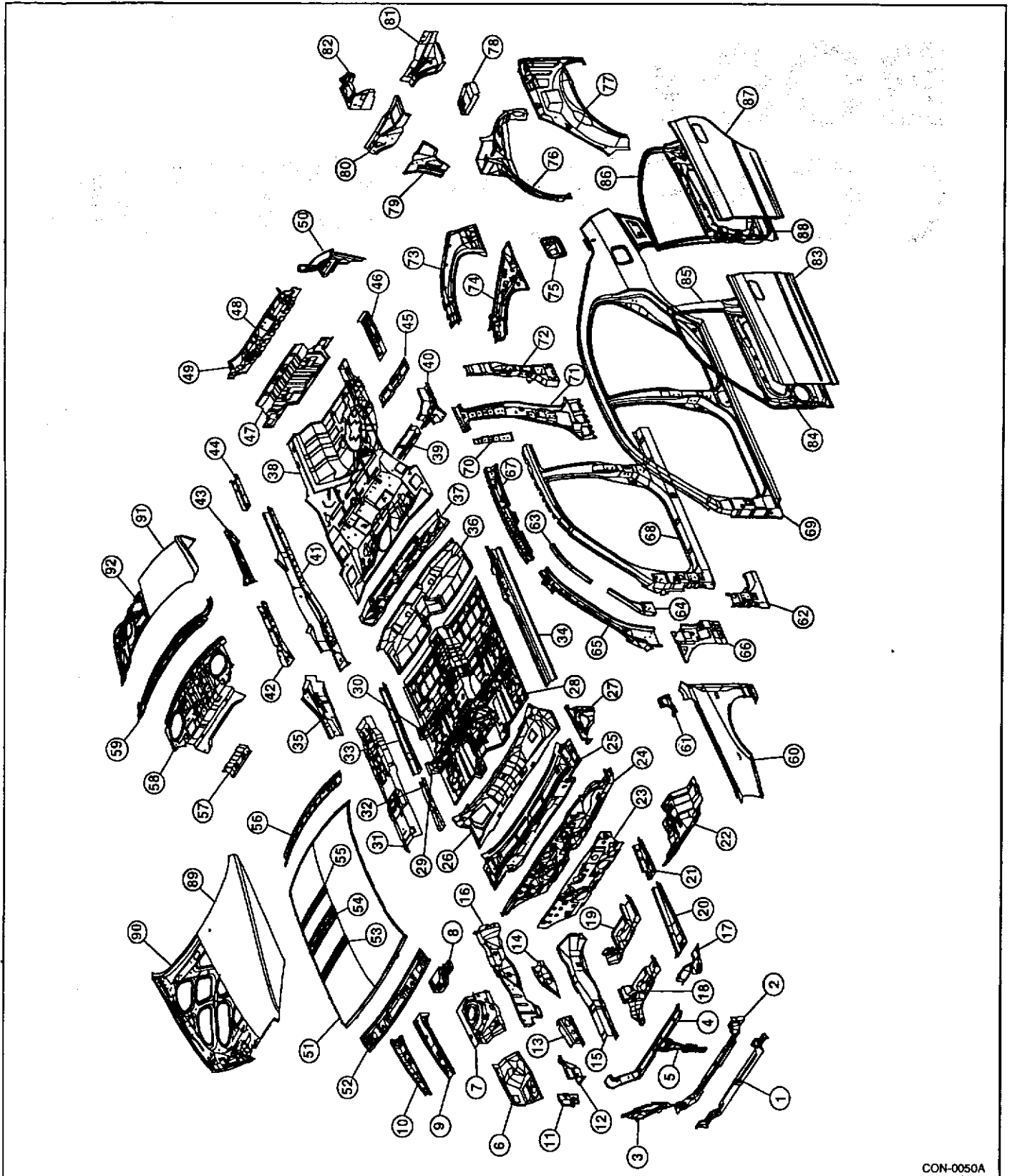


# **BODY CONSTRUCTION**

**E**

## BODY COMPONENTS

Body construction will sometimes differ depending on specifications and country of destination. Therefore, please keep in mind that the information contained herein is based on vehicles for general destination.



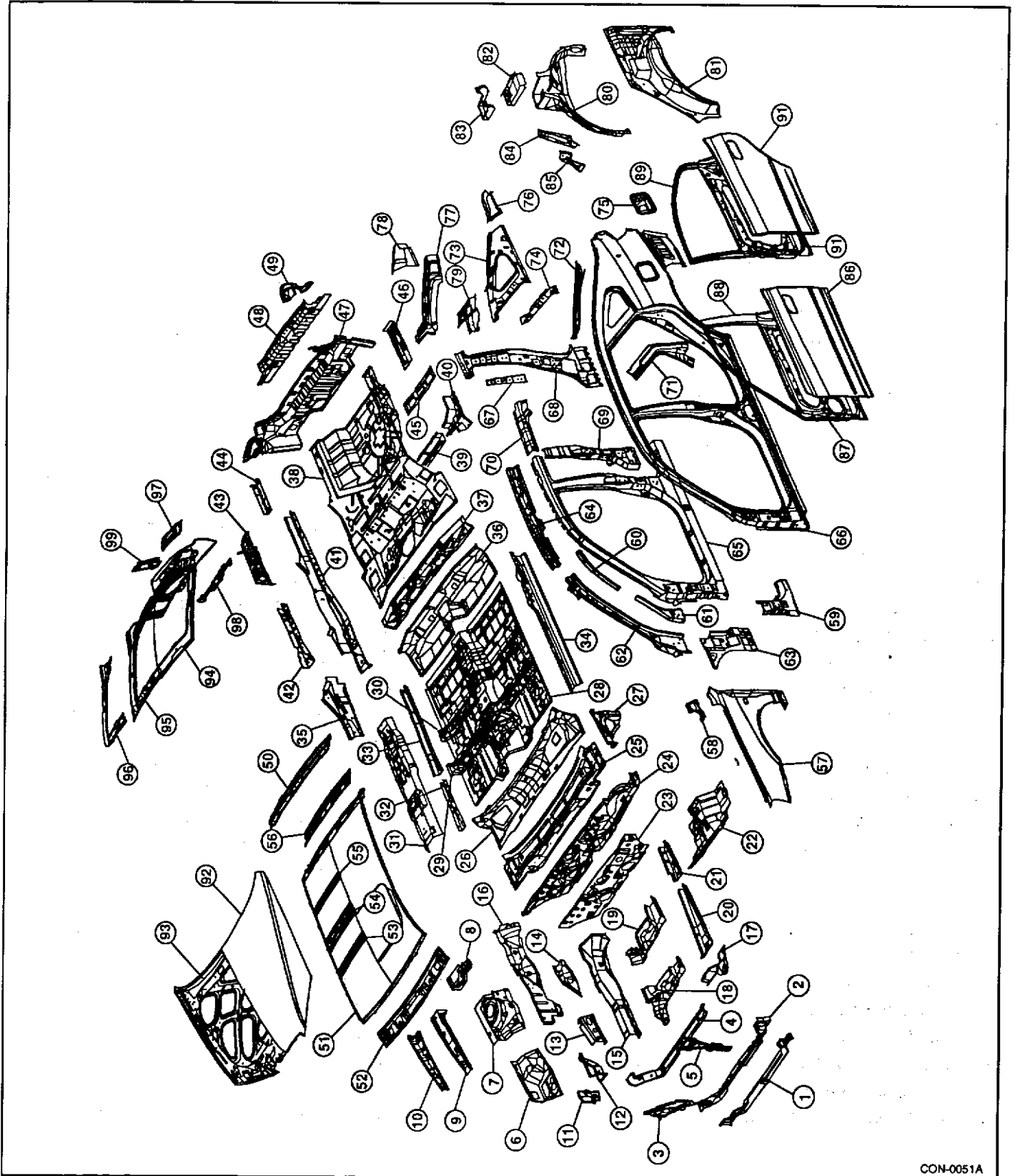
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## BODY CONSTRUCTION - Body components (4 Door)

1. Radiator support lower outer member
2. Radiator support lower inner member
3. Headlamp support panel
4. Radiator support upper side member
5. Radiator support center member
6. Fender apron inner front panel
7. Shock absorber housing panel
8. Fender apron inner rear extension
9. Fender apron upper inner panel
10. Fender apron upper outer panel
11. Front shipping hook bracket
12. Front side inner member gusset
13. Engine mounting reinforcement
14. Front side outer member reinforcement
15. Front side inner member
16. Front side outer member
17. Sub frame rear mounting bracket
18. Front side member rear upper member
19. Front side rear lower member
20. Front side rear lower extension
21. Front side member lower reinforcement
22. Dash lower member
23. Dash panel reinforcement
24. Dash panel
25. Cowl top outer panel
26. Cowl inner lower panel
27. Cowl side upper outer panel
28. Center floor panel
29. Front seat cross member
30. Front seat cross No. 2 member
31. Center floor reinforcement
32. Center floor side member reinforcement
33. Center floor side member
34. Side sill inner panel
35. Side sill inner rear panel
36. Rear floor front cross member
37. Rear floor front extension
38. Rear floor panel
39. Rear floor center cross member
40. Rear floor center cross extension
41. Rear floor side member
42. Rear floor side member center reinforcement
43. Rear floor side panel
44. Rear floor side member rear extension
45. Jack-up cross reinforcement
46. Rear towing hook bracket
47. Back panel
48. Rear transverse member
49. Rear transverse extension
50. Rear combi - lamp housing panel
51. Roof panel
52. Roof front lower rail
53. Roof center rail NO. 1
54. Roof center rail No. 2
55. Roof center rail No. 3
56. Roof rear rail
57. Rear package tray front lower member
58. Rear package tray center panel
59. Rear window opening outer frame
60. Fender panel
61. Fender rear upper extension
62. Front door hinge lower reinforcement
63. Front pillar outer upper reinforcement
64. Front door hinge upper reinforcement
65. Front pillar inner upper panel
66. Front pillar inner lower panel
67. Roof side inner rail
68. Side outer reinforcement
69. Side outer panel
70. Front seat belt upper mounting bracket
71. Center pillar inner panel
72. Rear door hinge lower reinforcement
73. Quarter inner front upper reinforcement
74. Quarter inner upper panel
75. Fuel filler housing
76. Front pillar inner panel
77. Quarter inner panel
78. Rear spring house cover
79. Rear package tray side lower extension
80. Rear package tray side lower panel
81. Rear package tray side upper member
82. Rear package tray side upper panel
83. Front door outer panel
84. Front door inner panel
85. Front door frame
86. Rear door frame
87. Rear door outer panel
88. Rear door inner panel
89. Hood outer panel
90. Hood inner panel
91. Trunk lid outer panel
92. Trunk lid inner panel

## BODY COMPONENTS

Body construction will sometimes differ depending on specifications and country of destination. Therefore, please keep in mind that the information contained herein is based on vehicles for general destination.



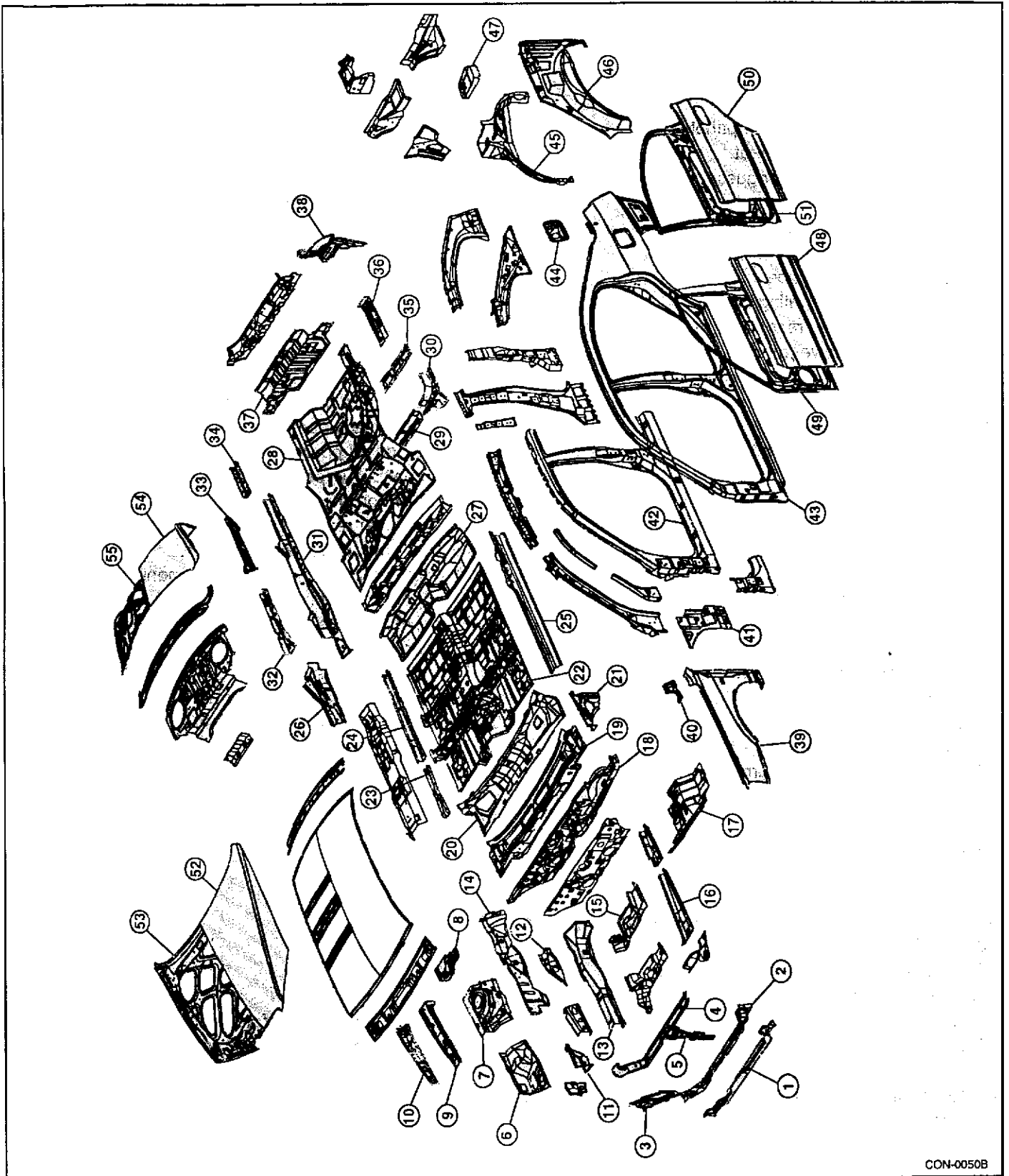
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## BODY CONSTRUCTION - Body components (5 Door)

1. Radiator support lower outer member
2. Radiator support lower inner member
3. Headlamp support panel
4. Radiator support upper side member
5. Radiator support center member
6. Fender apron inner front panel
7. Shock absorber housing panel
8. Fender apron inner rear extension
9. Fender apron upper inner panel
10. Fender apron upper outer panel
11. Front shipping hook bracket
12. Front side inner member gusset
13. Engine mounting reinforcement
14. Front side outer member reinforcement
15. Front side inner member
16. Front side outer member
17. Sub frame rear mounting bracket
18. Front side member rear upper member
19. Front side rear lower member
20. Front side rear lower extension
21. Front side member lower reinforcement
22. Dash lower member
23. Dash panel reinforcement
24. Dash panel
25. Cowl top outer panel
26. Cowl inner lower panel
27. Cowl side upper outer panel
28. Center floor panel
29. Front seat cross member
30. Front seat cross No. 2 member
31. Center floor reinforcement
32. Center floor side member reinforcement
33. Center floor side member
34. Side sill inner panel
35. Side sill inner rear panel
36. Rear floor front cross member
37. Rear floor front extension
38. Rear floor panel
39. Rear floor center cross member
40. Rear floor center cross extension
41. Rear floor side member
42. Rear floor side member center reinforcement
43. Rear floor side panel
44. Rear floor side member rear extension
45. Jack-up cross reinforcement
46. Rear towing hook bracket
47. Back panel
48. Rear transverse member
49. Rear transverse extension
50. Roof rear lower rail
51. Roof panel
52. Roof front lower rail
53. Roof center rail NO. 1
54. Roof center rail No. 2
55. Roof center rail No. 3
56. Roof rear rail
57. Fender panel
58. Fender rear upper extension
59. Front door hinge lower reinforcement
60. Front pillar outer upper reinforcement
61. Front door hinge upper reinforcement
62. Front pillar inner upper panel
63. Front pillar inner lower panel
64. Roof side inner rail
65. Side outer reinforcement
66. Side outer panel
67. Front seat belt upper mounting bracket
68. Center pillar inner panel
69. Rear door hinge lower reinforcement
70. Roof side outer rear rail
71. Quarter outer front reinforcement
72. Side outer rear upper extension
73. Quarter inner upper panel
74. Rear seat belt upper mounting reinforcement
75. Fuel filler housing
76. Quarter inner rear extension
77. Quarter outer upper reinforcement
78. Quarter outer upper rear reinforcement
79. Quarter inner upper extension
80. Wheel house inner panel
81. Quarter inner panel
82. Rear spring house cover
83. Wheel house upper reinforcement
84. Wheel house front reinforcement
85. Floor to wheel house inner gusset
86. Front door outer panel
87. Front door inner panel
88. Front door frame
89. Rear door frame
90. Rear door outer panel
91. Rear door inner panel
92. Hood outer panel
93. Hood inner panel
94. Tail gate outer panel
95. Tail gate inner panel
96. Tail gate hinge side reinforcement
97. Tail gate wiper motor reinforcement
98. Tail gate latch reinforcement
99. Back-up lamp mounting support

## ZINC-GALVANIZED STEEL PANELS

Because galvanized steel panel has excellent resistance, it is used in areas which have a high possibility of painting deficiency below.



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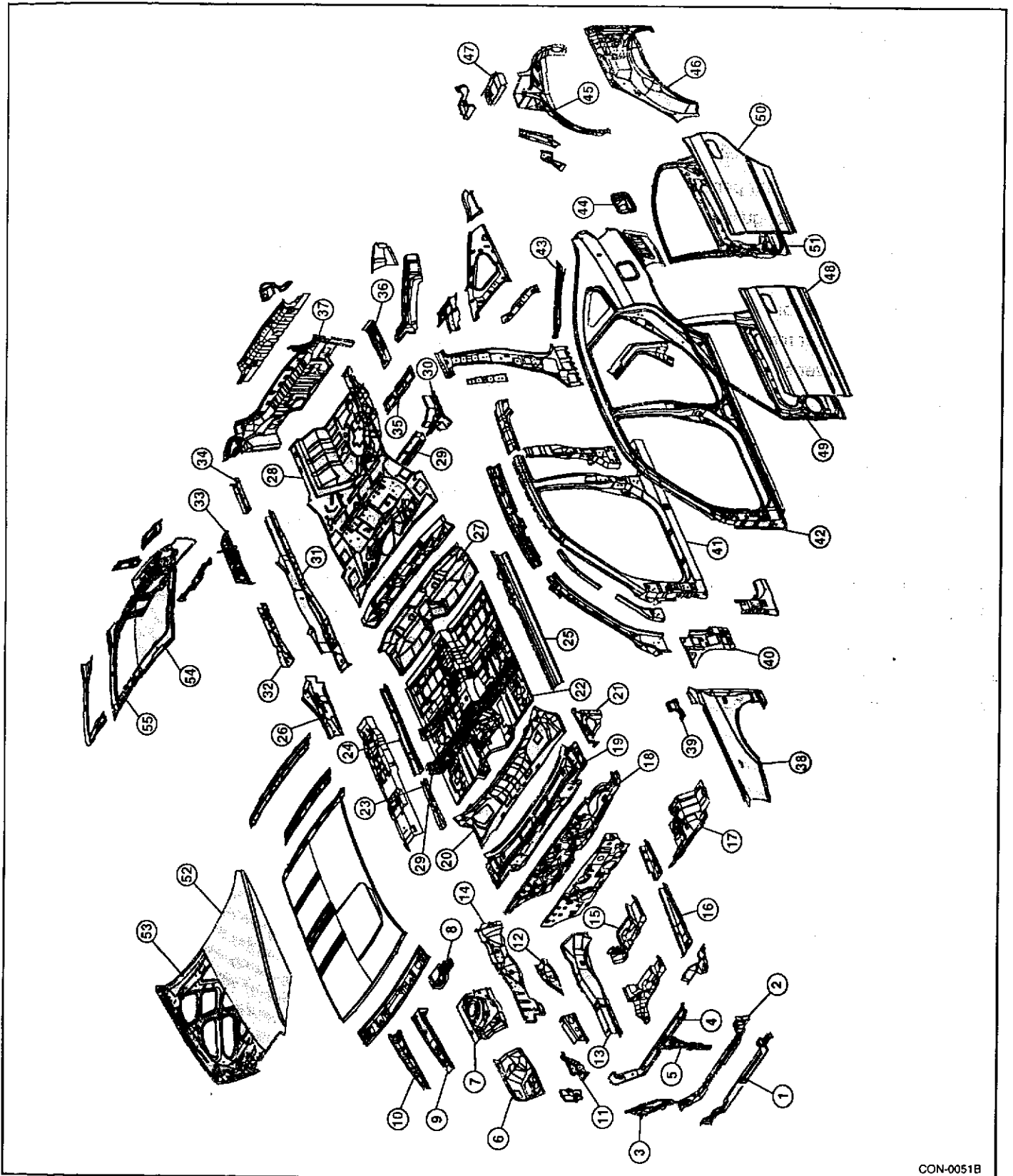
## BODY CONSTRUCTION - Zinc-galvanized steel panels (4 Door)

---

1. Radiator support lower outer member
2. Radiator support lower inner member
3. Headlamp support panel
4. Radiator support upper side member
5. Radiator support center member
6. Fender apron inner front panel
7. Shock absorber housing panel
8. Fender apron inner rear extension
9. Fender apron upper inner panel
10. Fender apron upper outer panel
11. Front side inner member gusset
12. Front side outer member reinforcement
13. Front side inner member
14. Front side outer member
15. Front side rear lower member
16. Front side rear lower extension
17. Dash lower member
18. Dash panel
19. Cowl top outer panel
20. Cowl inner lower panel
21. Cowl side upper outer panel
22. Center floor panel
23. Center floor side member reinforcement
24. Center floor side member
25. Side sill inner panel
26. Side sill inner rear panel
27. Rear floor front cross member
28. Rear floor panel
29. Rear floor center cross member
30. Rear floor center cross extension
31. Rear floor side member
32. Rear floor side member center reinforcement
33. Rear floor side panel
34. Rear floor side member rear extension
35. Jack-up cross reinforcement
36. Rear towing hook bracket
37. Back panel
38. Rear combi - lamp housing panel
39. Fender panel
40. Fender rear upper extension
41. Front pillar inner lower panel
42. Side outer reinforcement
43. Side outer panel
44. Fuel filler housing
45. Front pillar inner panel
46. Quarter inner panel
47. Rear spring house cover
48. Front door outer panel
49. Front door inner panel
50. Rear door outer panel
51. Rear door inner panel
52. Hood outer panel
53. Hood inner panel
54. Trunk lid outer panel
55. Trunk lid inner panel

## ZINC-GALVANIZED STEEL PANELS

Because galvanized steel panel has excellent resistance, it is used in areas which have a high possibility of painting deficiency below.



CON-0051B



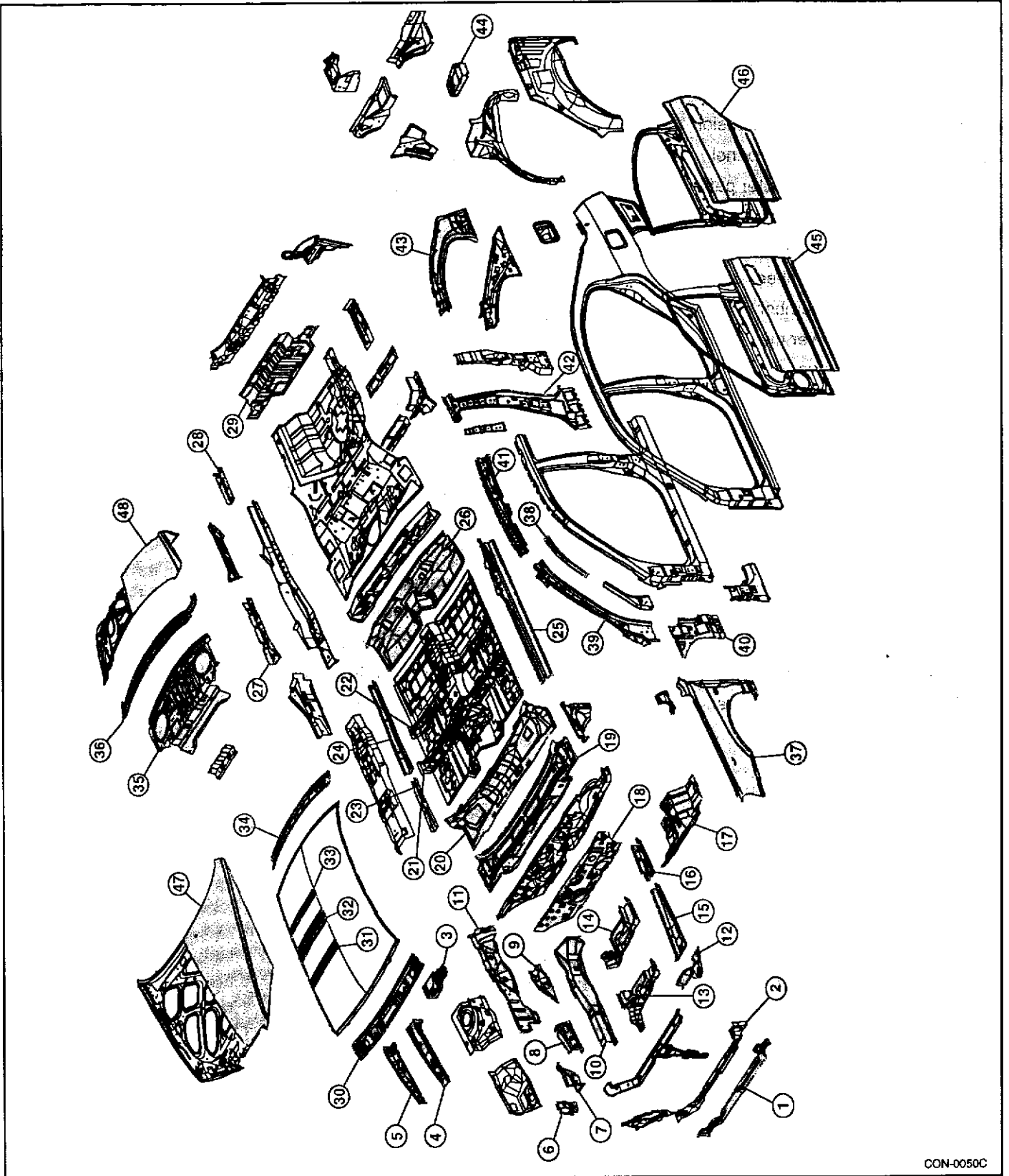
## BODY CONSTRUCTION - Zinc-galvanized steel panels (5 Door)

---

1. Radiator support lower outer member
2. Radiator support lower inner member
3. Headlamp support panel
4. Radiator support upper side member
5. Radiator support center member
6. Fender apron inner front panel
7. Shock absorber housing panel
8. Fender apron inner rear extension
9. Fender apron upper inner panel
10. Fender apron upper outer panel
11. Front side inner member gusset
12. Front side outer member reinforcement
13. Front side inner member
14. Front side outer member
15. Front side rear lower member
16. Front side rear lower extension
17. Dash lower member
18. Dash panel
19. Cowl top outer panel
20. Cowl inner lower panel
21. Cowl side upper outer panel
22. Center floor panel
23. Center floor side member reinforcement
24. Center floor side member
25. Side sill inner panel
26. Side sill inner rear panel
27. Rear floor front cross member
28. Rear floor panel
29. Rear floor center cross member
30. Rear floor center cross extension
31. Rear floor side member
32. Rear floor side member center reinforcement
33. Rear floor side panel
34. Rear floor side member rear extension
35. Jack-up cross reinforcement
36. Rear towing hook bracket
37. Back panel
38. Fender panel
39. Front rear upper extension
40. Front pillar inner lower panel
41. Side outer reinforcement
42. Side outer panel
43. Side outer rear upper extension
44. Fuel filler housing
45. Fuel house inner panel
46. Quarter inner panel
47. Rear spring house cover
48. Front door outer panel
49. Front door inner panel
50. Rear door outer panel
51. Rear door inner panel
52. Hood outer panel
53. Hood inner panel
54. Tail gate outer panel
55. Tail gate inner panel

## HIGH STRENGTH STEEL PANELS

Because High strength steel panel has excellent resistance, it is used in areas which have a high possibility of painting deficiency below.



CON-0050C

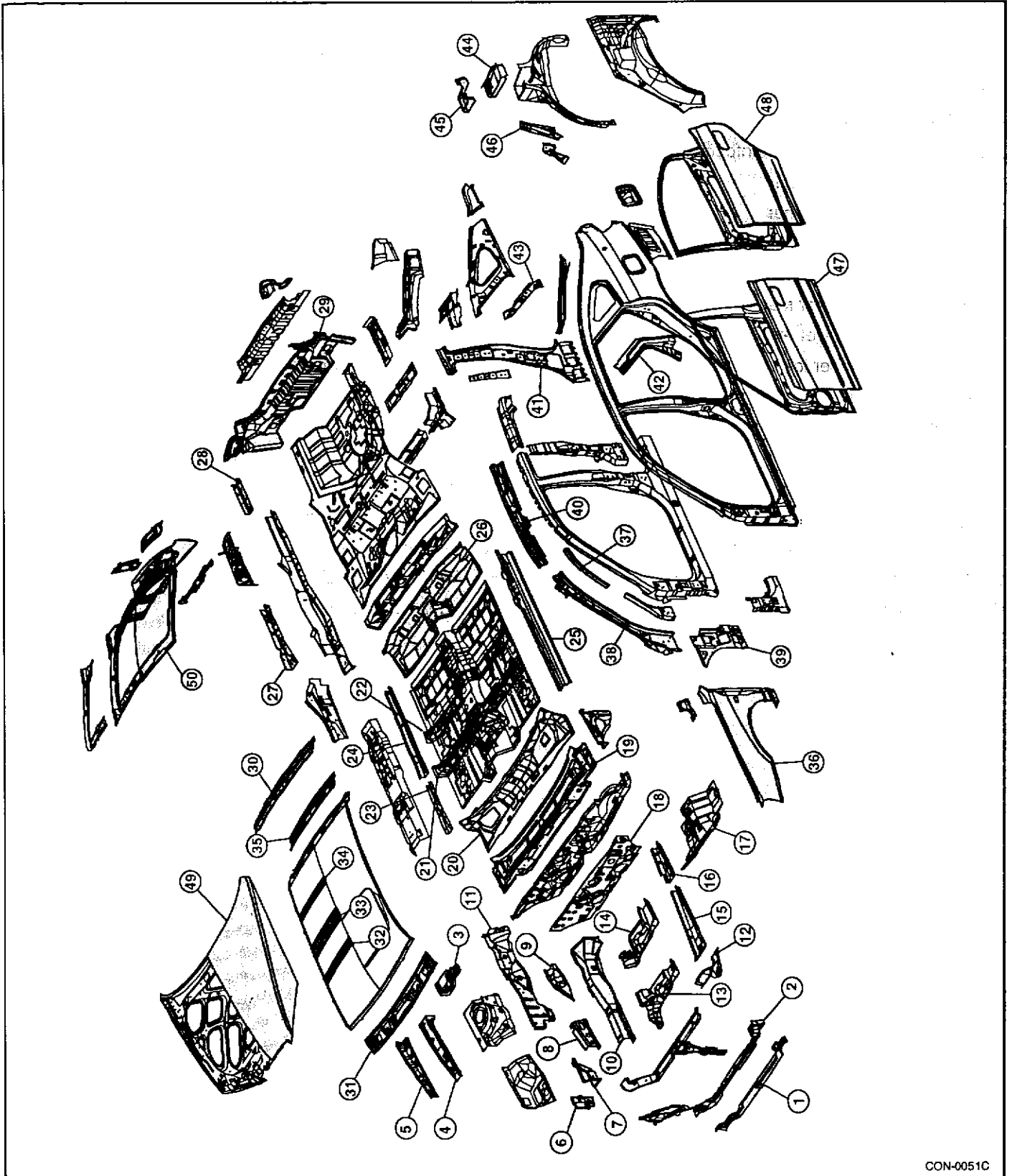
## BODY CONSTRUCTION - High-strength steel panels (4 Door)

---

1. Radiator support lower outer member
2. Radiator support lower inner member
3. Fender apron inner rear extension
4. Fender apron upper inner panel
5. Fender apron upper outer panel
6. Front shipping hook bracket
7. Front side member inner gusset
8. Engine mounting reinforcement
9. Front side member outer reinforcement
10. Front side inner member
11. Front side outer member
12. Sub frame rear mounting bracket
13. Front side member rear upper member
14. Front side rear lower member
15. Front side rear lower extension
16. Front side member lower reinforcement
17. Dash lower member
18. Dash panel reinforcement
19. Cowl top outer panel
20. Cowl inner lower panel
21. Front seat cross member
22. Front seat cross No. 2 member
23. Center floor side member reinforcement
24. Center floor side member
25. Side sill inner panel
26. Rear floor front cross member
27. Rear floor side member center reinforcement
28. Rear floor side member rear extension
29. Back panel
30. Roof front lower rail
31. Roof center rail No. 1
32. Roof center rail No. 2
33. Roof center rail No. 3
34. Roof rear rail
35. Rear package tray center panel
36. Rear window opening outer frame
37. Fender panel
38. Front pillar outer upper reinforcement
39. Front pillar inner upper panel
40. Front pillar inner lower panel
41. Roof side inner rail
42. Center pillar inner panel
43. Quarter inner front upper reinforcement
44. Rear spring house cover
45. Front door outer panel
46. Rear door outer panel
47. Hood outer panel
48. Trunk lid outer panel

## HIGH STRENGTH STEEL PANELS

Because High strength steel panel has excellent resistance, it is used in areas which have a high possibility of painting deficiency below.



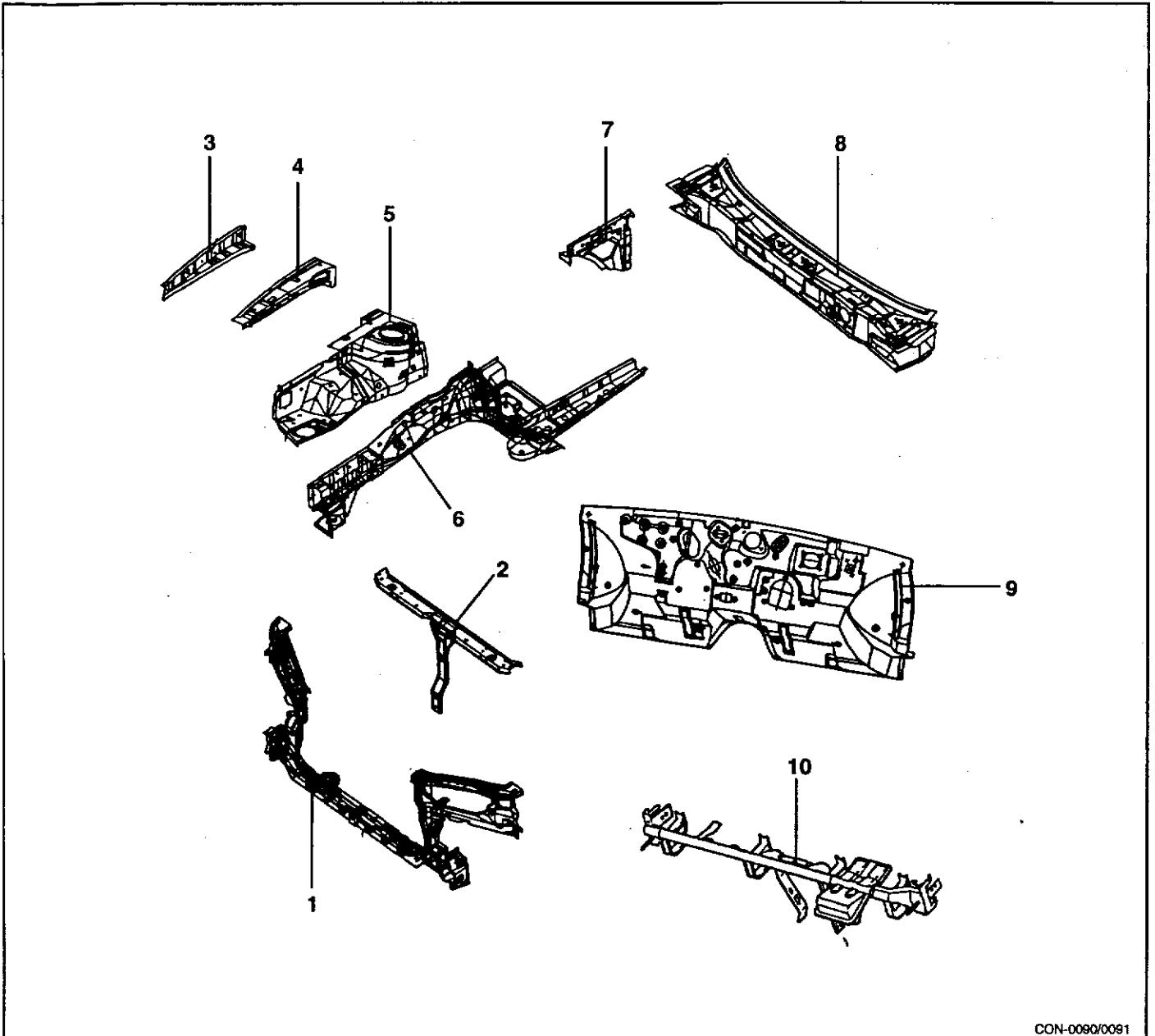
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## BODY CONSTRUCTION - High-strength steel panels (5 Door)

---

1. Radiator support lower outer member
2. Radiator support lower inner member
3. Fender apron inner rear extension
4. Fender apron upper inner panel
5. Fender apron upper outer panel
6. Front shipping hook bracket
7. Front side member inner gusset
8. Engine mounting reinforcement
9. Front side member outer reinforcement
10. Front side inner member
11. Front side outer member
12. Sub frame rear mounting bracket
13. Front side member rear upper member
14. Front side rear lower member
15. Front side rear lower extension
16. Front side member lower reinforcement
17. Dash lower member
18. Dash panel reinforcement
19. Cowl top outer panel
20. Cowl inner lower panel
21. Front seat cross member
22. Front seat cross No. 2 member
23. Center floor side member reinforcement
24. Center floor side member
25. Side sill inner panel
26. Rear floor front cross member
27. Rear floor side member center reinforcement
28. Rear floor side member rear extension
29. Back panel
30. Roof rear lower rail
31. Roof lower rail
32. Roof center rail No. 1
33. Roof center rail No. 2
34. Roof center rail No. 3
35. Roof rear rail
36. Fender panel
37. Front pillar outer upper reinforcement
38. Front pillar inner upper panel
39. Front pillar inner lower panel
40. Roof side inner rail
41. Center pillar inner panel
42. Quarter outer front reinforcement
43. Rear seat belt upper mounting reinforcement
44. Rear spring house cover
45. Wheel house upper reinforcement
46. Wheel house front reinforcement
47. Front door outer panel
48. Rear door outer panel
49. Hood outer panel
50. Tail gate outer panel

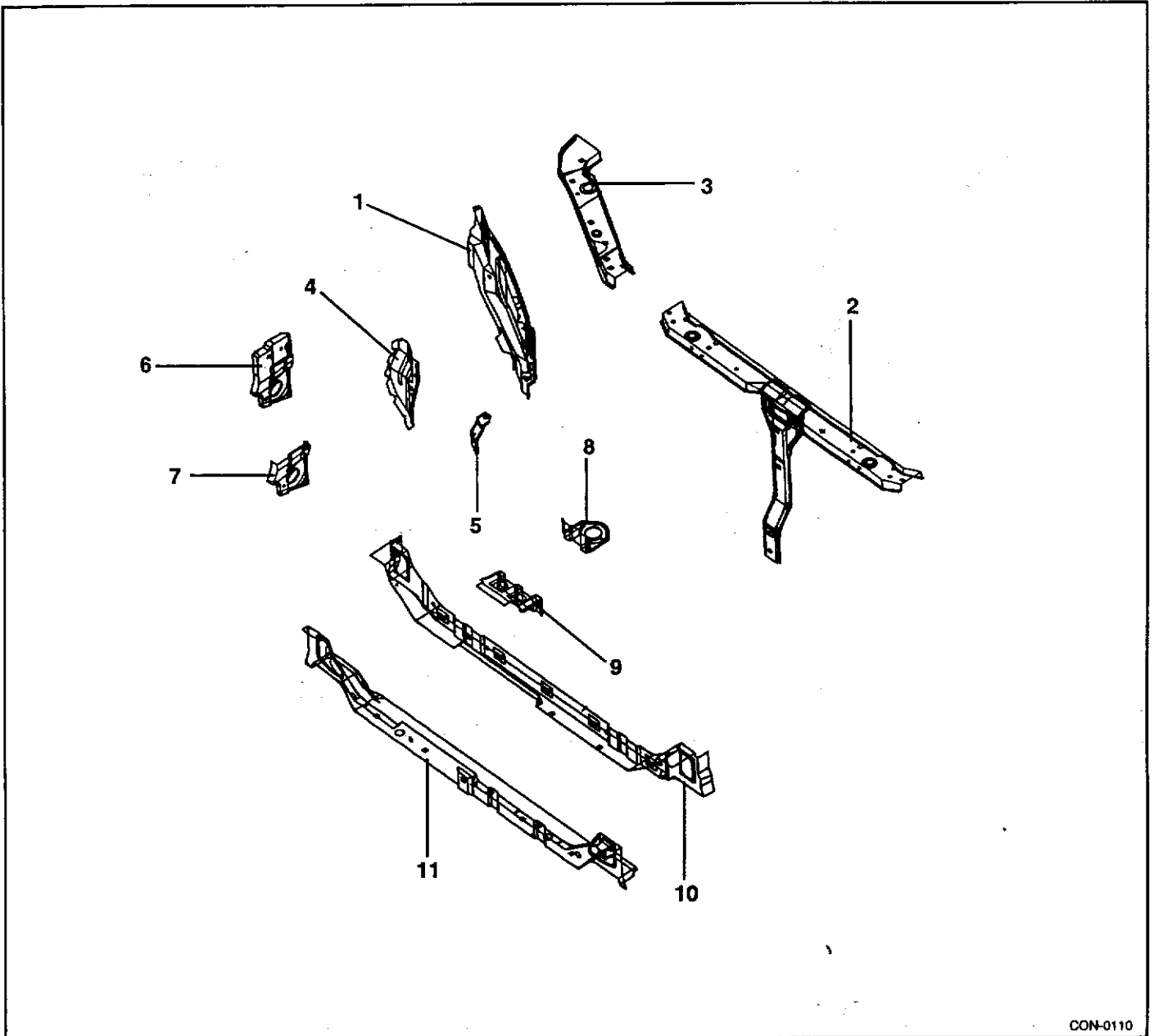
FRONT BODY



CON-0090/0091

No.	PART NAME
1	Radiator support panel
2	Radiator support center member
3	Fender apron upper outer panel
4	Fender apron upper inner panel
5	Fender apron panel
6	Front side member
7	Cowl side outer panel
8	Cowl panel
9	Dash panel
10	Cowl crossmember

1. RADIATOR SUPPORT PANEL

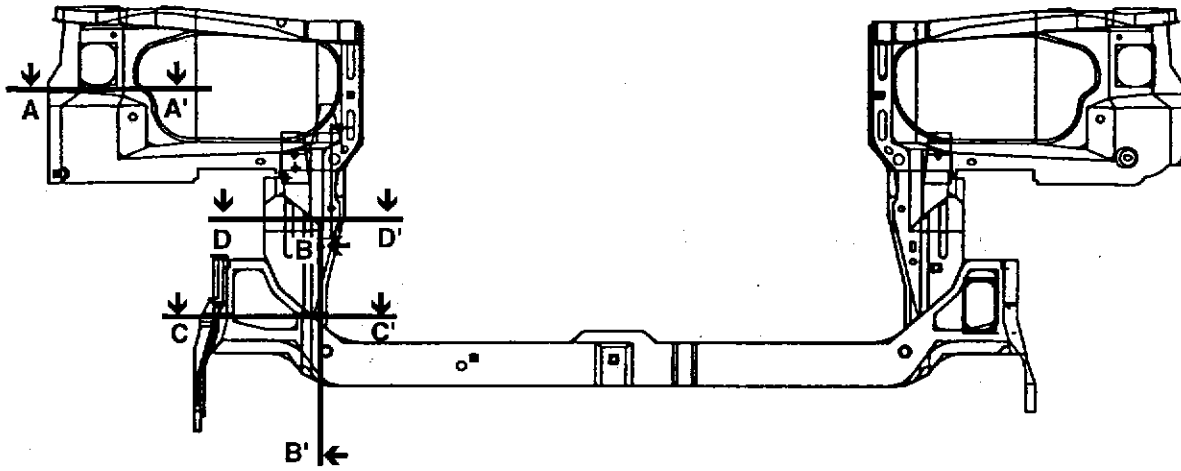


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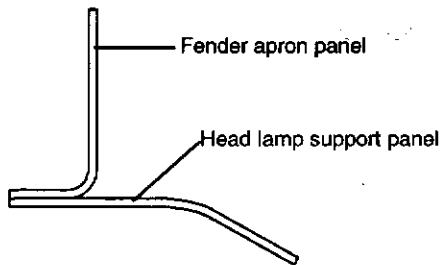
No.	PART NAME
1	Head lamp support panel
2	Radiator support center member
3	Radiator support upper side member
4	Head lamp support gusset
5	Head lamp mounting bracket
6	Front shipping hook bracket
7	Front shipping hook reinforcement
8	Radiator lower mounting bracket
9	Radiator lower mounting reinforcement
10	Radiator support lower inner member
11	Radiator support lower outer member

**BODY CONSTRUCTION-Front body <Radiator support panel>**

**<Cross-Sectional Views>**

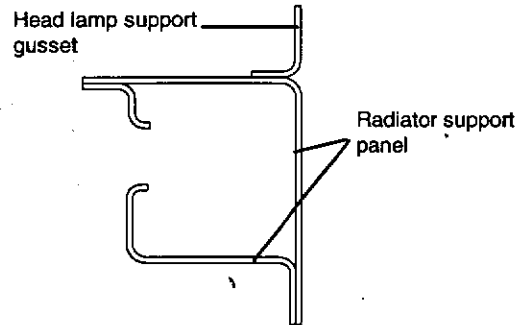


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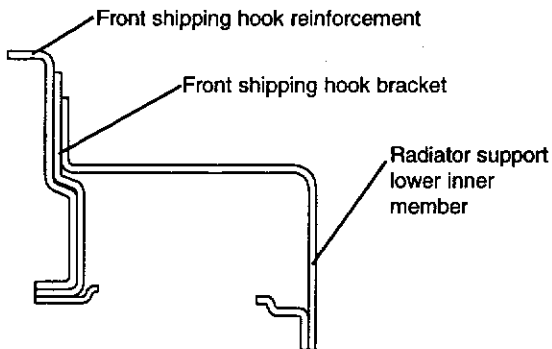
**SECTION A-A'**

CON-0130



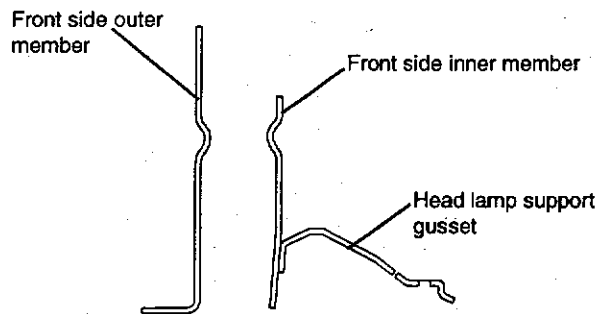
**SECTION B-B'**

CON-0140



**SECTION C-C'**

CON-0150



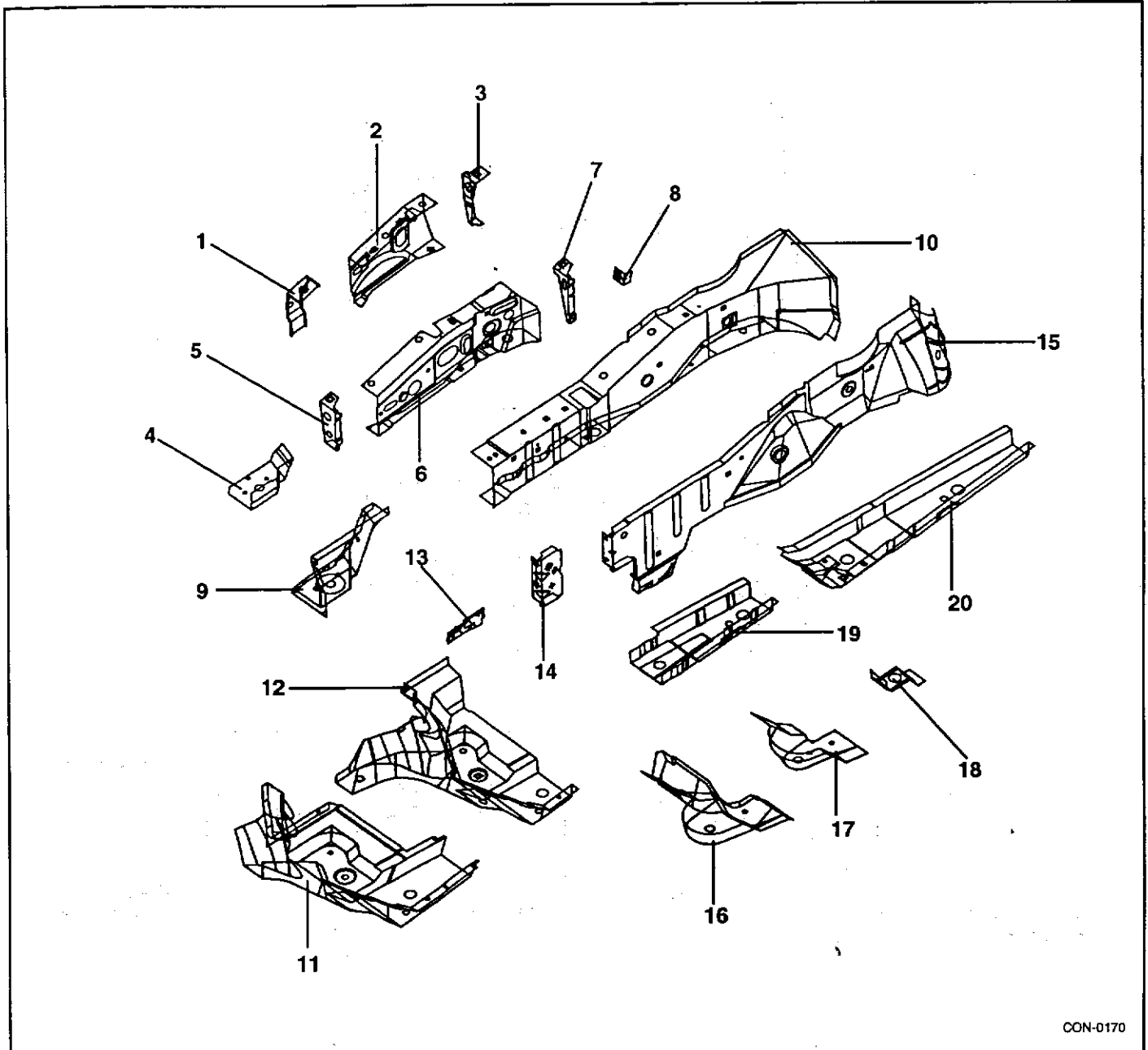
**SECTION D-D'**

CON-0160



**BODY CONSTRUCTION - Front body <Front side member>**

**2. FRONT SIDE MEMBER**



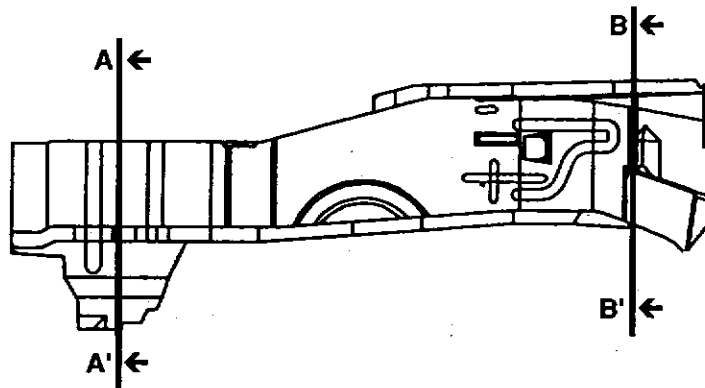
CON-0170

No.	PART NAME	No.	PART NAME
1	Transmission mounting front bracket	11	Front side rear lower member
2	Transmission mounting reinforcement	12	Front side rear upper member
3	Transmission mounting rear bracket	13	Front shipping hook gusset
4	Sub frame front mounting gusset	14	Front back beam mounting bracket
5	Engine mounting front bracket	15	Front side outer member
6	Engine mounting reinforcement	16	Sub frame rear mounting bracket
7	Engine mounting rear bracket	17	Sub frame rear mounting reinforcement
8	Brake hose mounting front bracket	18	Sub frame rear mounting support
9	Front side member inner gusset	19	Front side member lower reinforcement
10	Front side inner member	20	Front side member rear lower extension

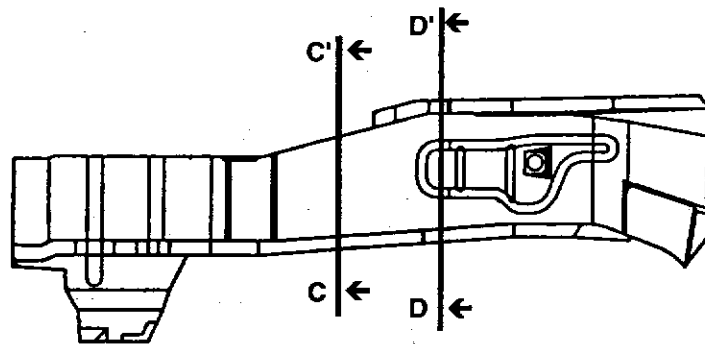
BODY CONSTRUCTION - Front body <Front side member, LH/RH>

<Cross-Sectional Views>

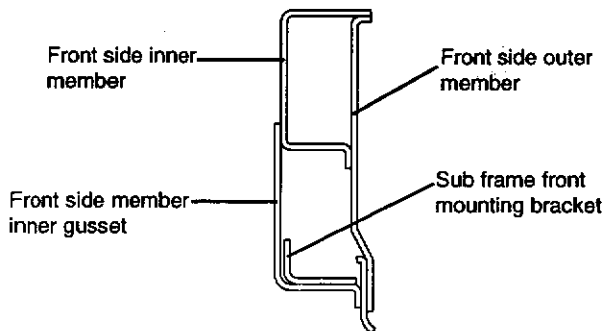
LH



RH

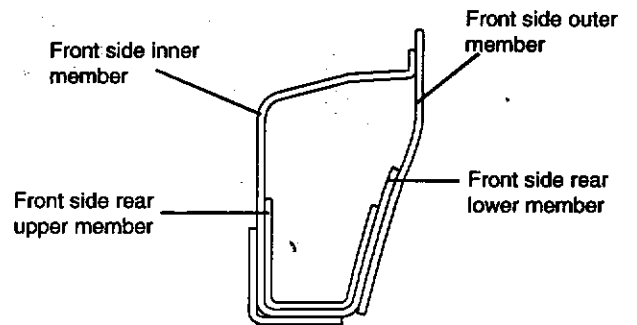


CON-0180



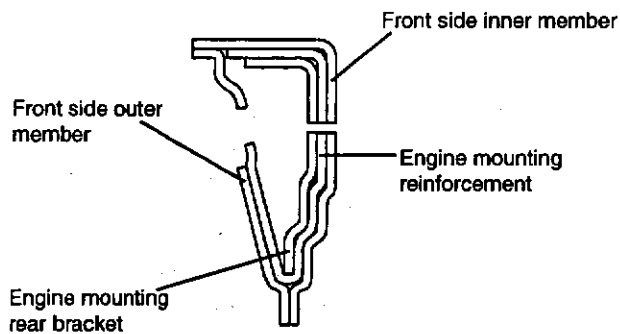
SECTION A-A'

CON-0180



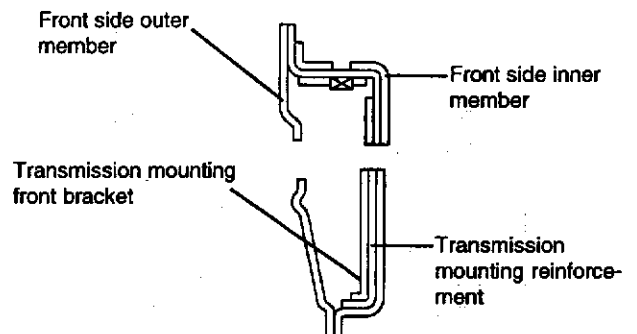
SECTION B-B'

CON-0200



SECTION C-C'

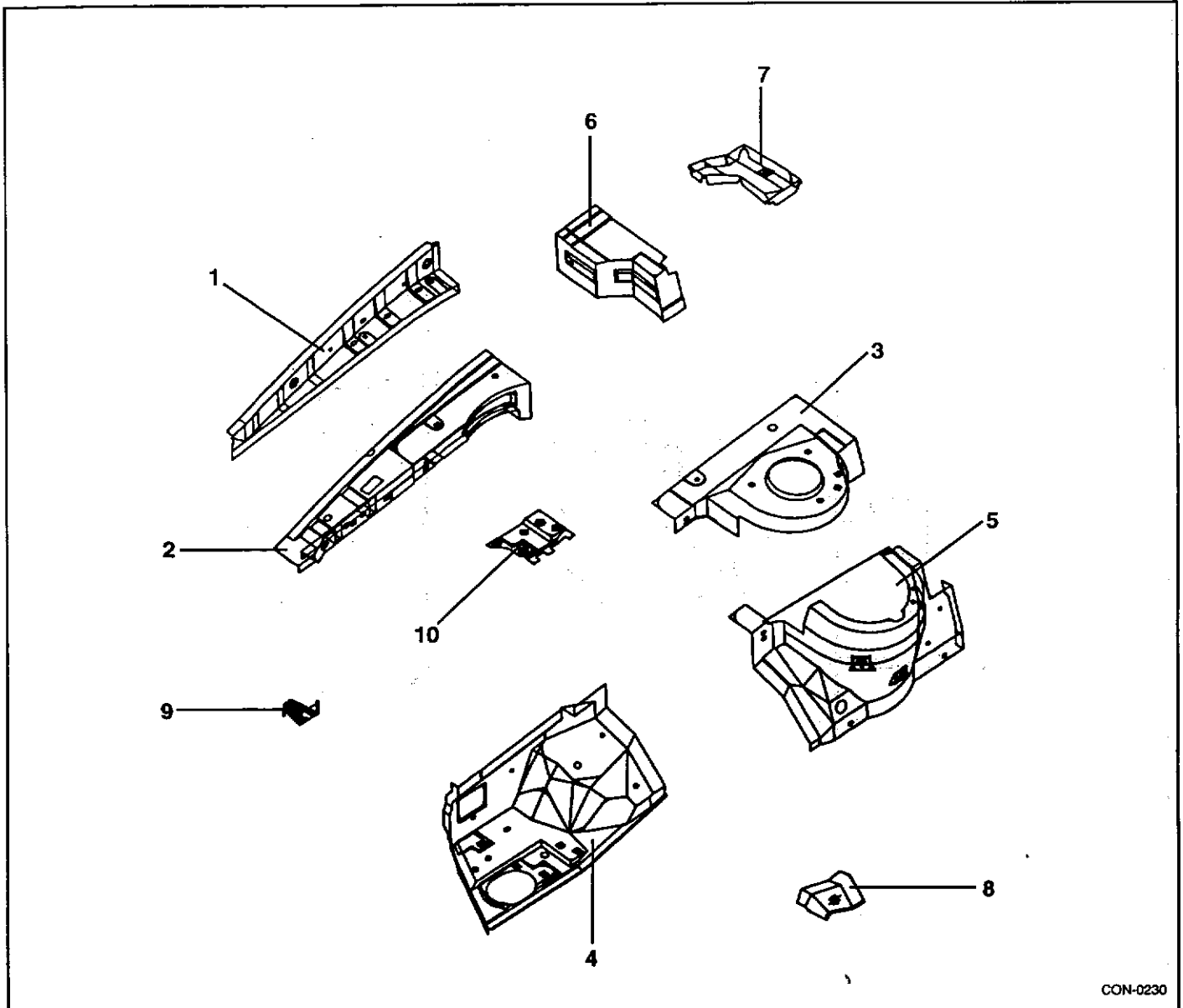
CON-0210



SECTION D-D'

CON-0220

3. FENDER APRON PANEL

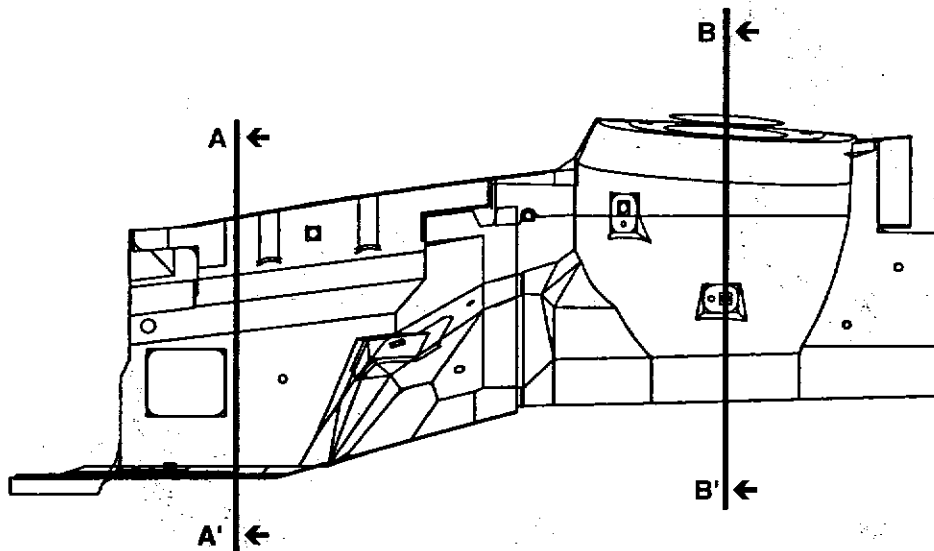


CON-0230

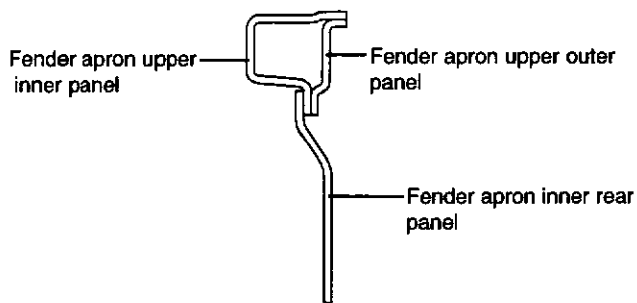
No.	PART NAME
1	Fender apron upper outer panel
2	Fender apron upper inner panel
3	Fender shock absorber housing upper panel
4	Fender apron inner front panel
5	Front shock absorber housing panel
6	Fender apron inner rear upper extension
7	Fender apron inner rear lower extension
8	Engine stay mounting bracket
9	Fender mounting bracket
10	Absorber module mounting bracket

**BODY CONSTRUCTION - Front body <Fender apron panel>**

**<Cross-Sectional Views>**

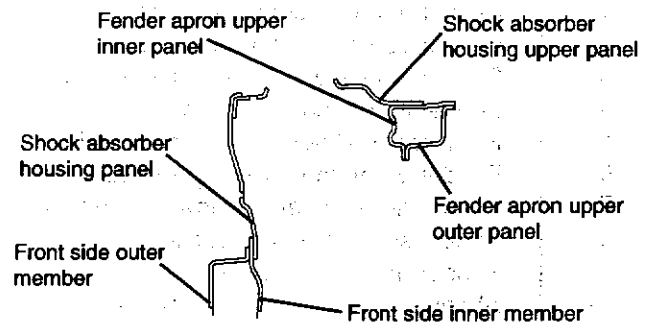


CON0200



**SECTION A-A'**

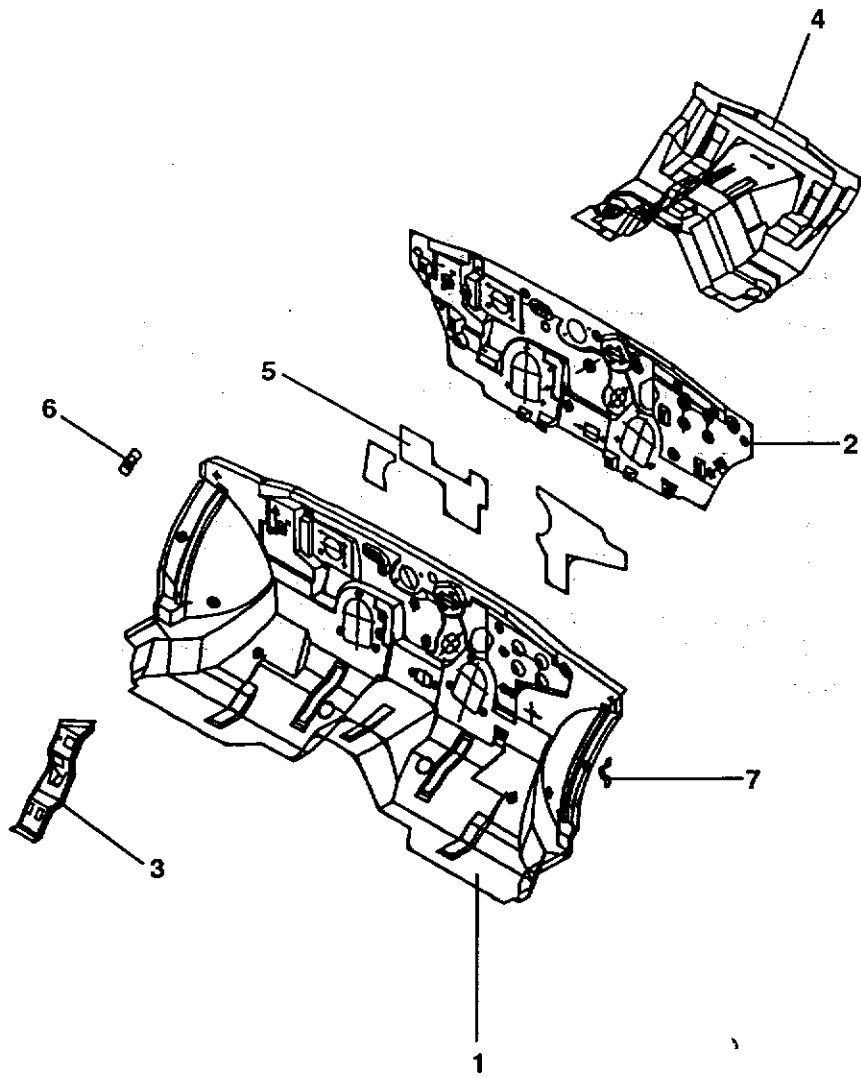
CON-0240



**SECTION B-B'**

CON-0250

4. DASH PANEL

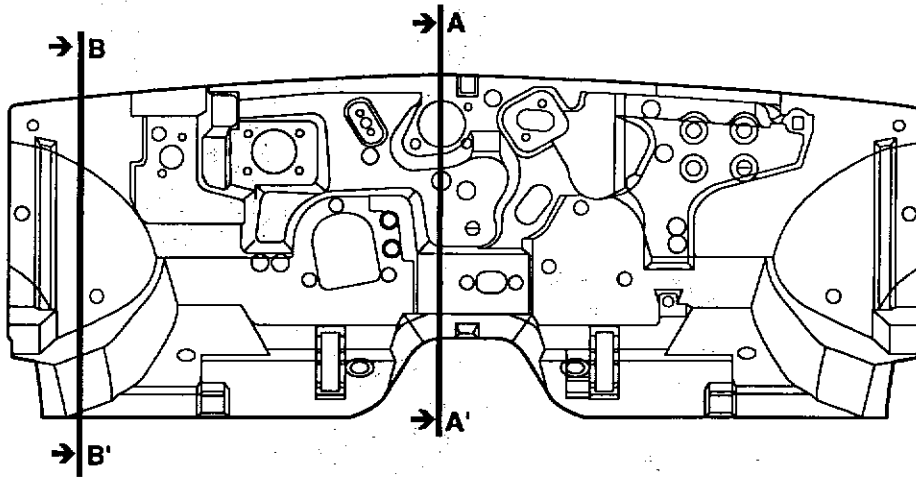


CON-0260

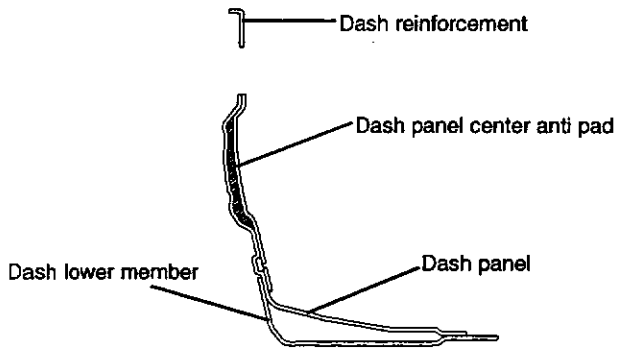
No.	PART NAME
1	Dash panel
2	Dash reinforcement
3	Foot rest bracket
4	Dash lower member
5	Dash center anti pad
6	ECU mounting bracket
7	Blower lower mounting bracket

**BODY CONSTRUCTION - Front body <Dash panel>**

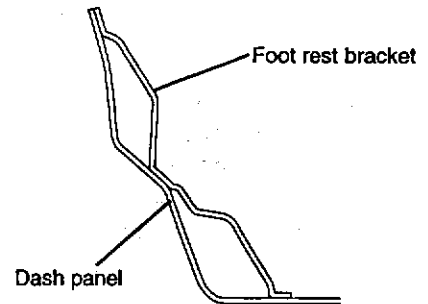
**<Cross-Sectional Views>**



CON-0270

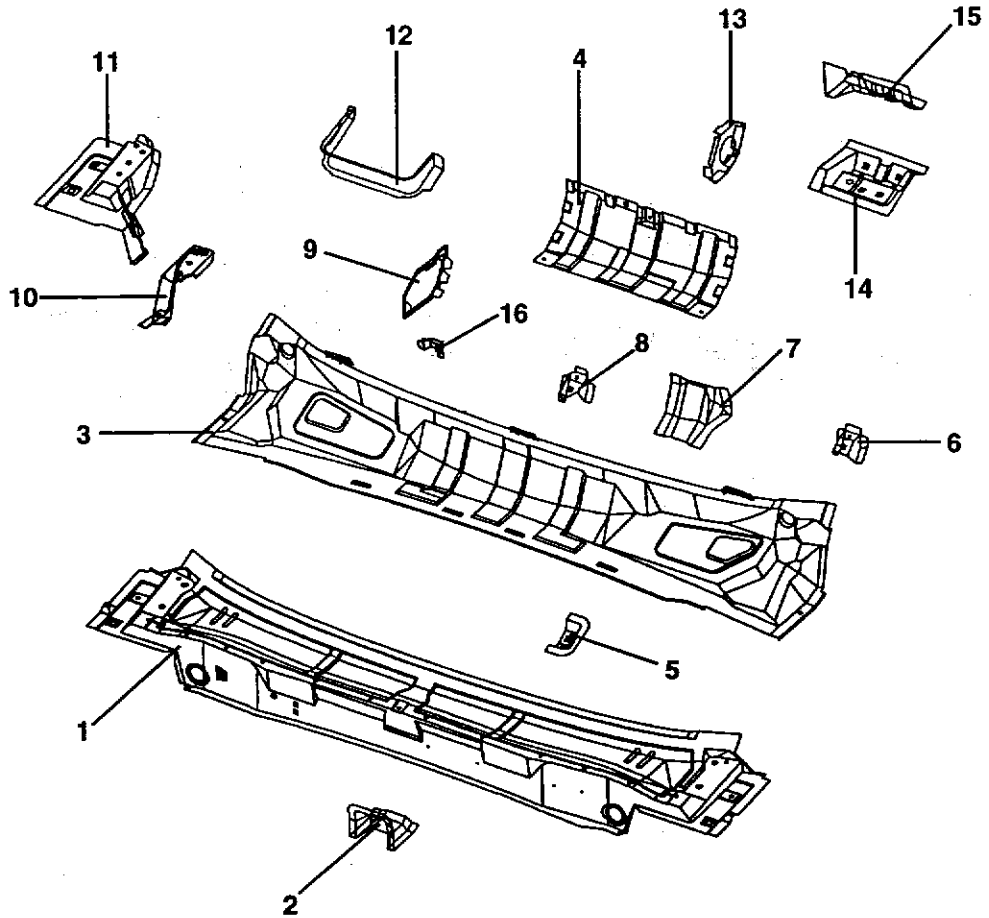


CON-0280



CON-0290

5. COWL PANEL

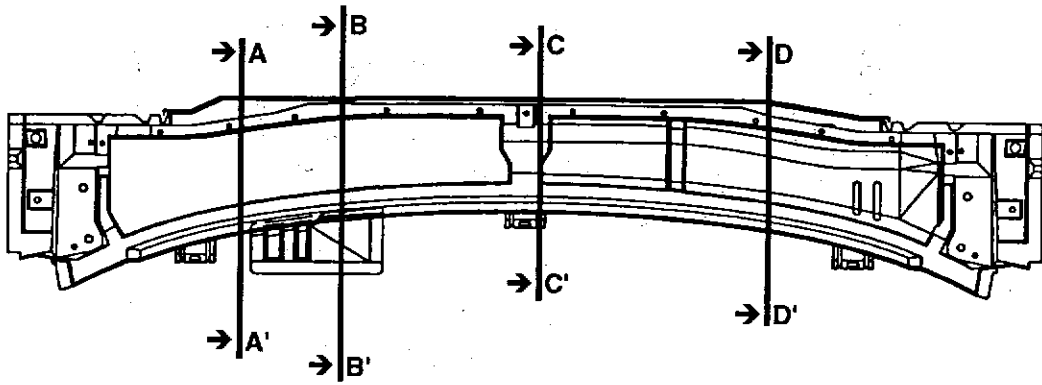


CON-0320

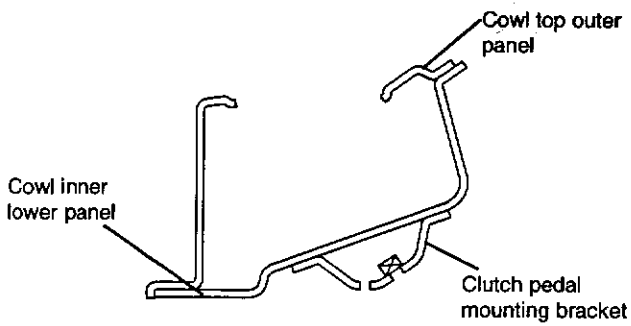
No.	PART NAME	No.	PART NAME
1	Cowl top outer panel	9	Cowl inner lower side reinforcement
2	Wiper motor mounting bracket	10	Hood hinge mounting reinforcement
3	Cowl inner lower panel	11	Cowl side inner upper panel
4	Cowl inner lower reinforcement	12	Plenum chamber guide panel
5	Clutch pedal mounting bracket	13	Cowl inner lower center reinforcement
6	Wiper pivot mounting side bracket	14	Steering column lower support extension
7	Wiper mounting side reinforcement	15	Steering column upper support extension
8	Wiper pivot mounting center bracket	16	Blower center mounting bracket

# BODY CONSTRUCTION - Front body <Cowl panel>

## <Cross-Sectional Views>

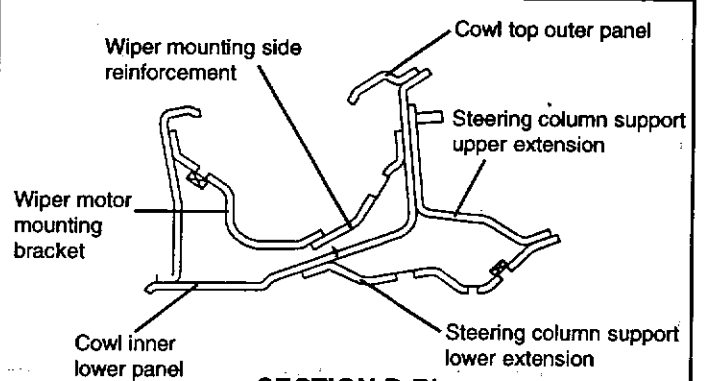


CON-0330



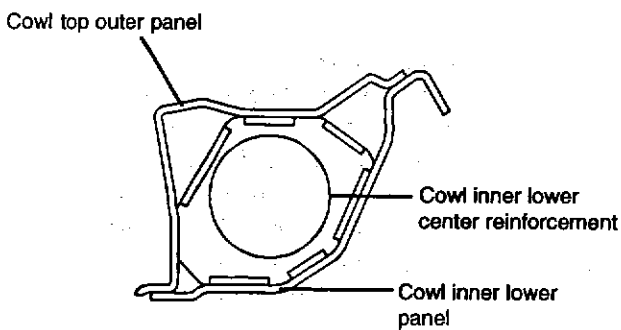
SECTION A-A'

CON-0340



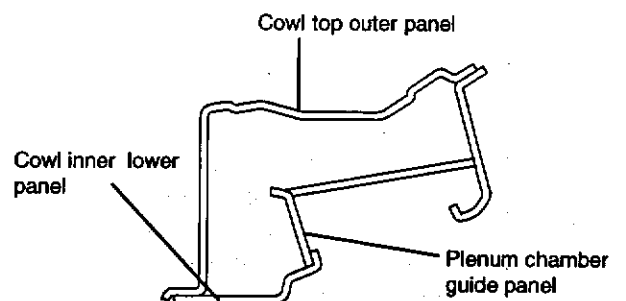
SECTION B-B'

CON-0350



SECTION C-C'

CON-0360

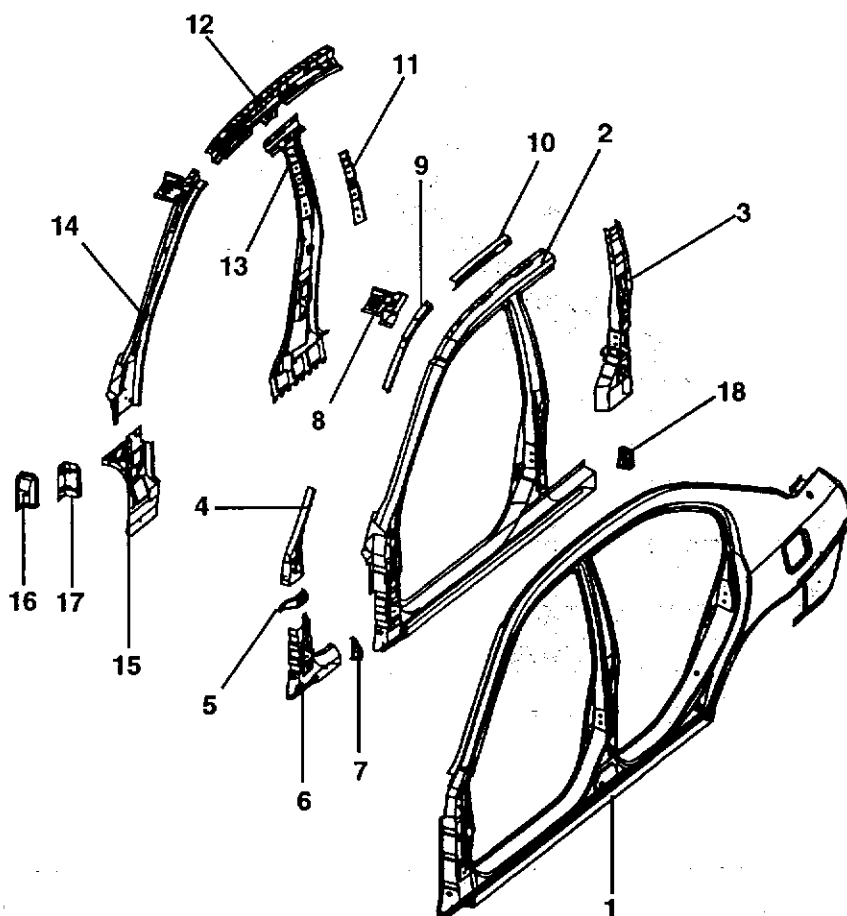


SECTION D-D'

CON-0370



**SIDE BODY**

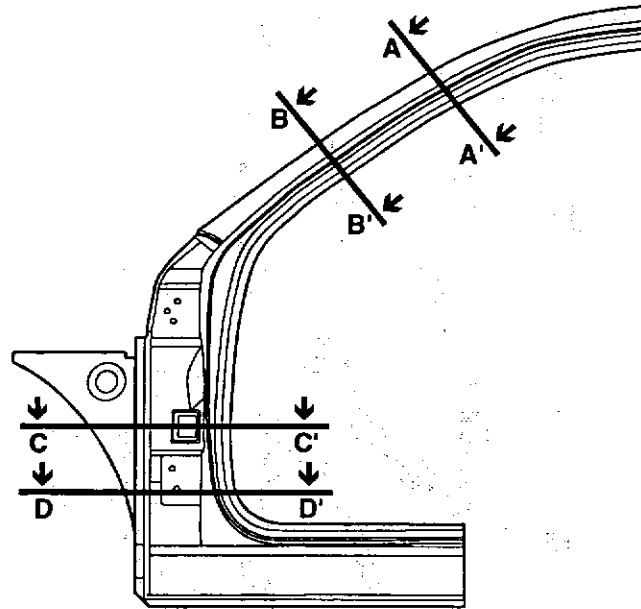


CON-0380

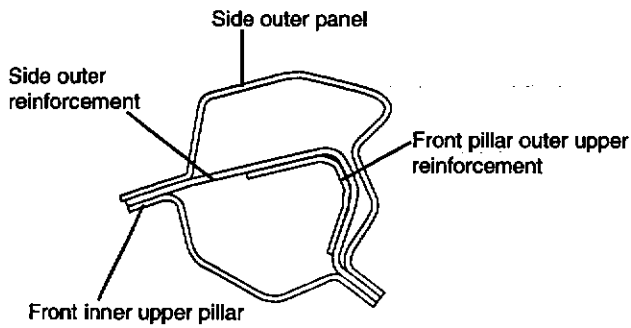
No.	PART NAME
1	Side outer panel
2	Side outer reinforcement
3	Rear door hinge mounting reinforcement
4	Front door hinge upper reinforcement
5	Front door checker mounting bracket
6	Front door hinge lower reinforcement
7	Front pillar outer lower reinforcement
8	Front pillar outer upper extension
9	Front pillar outer upper reinforcement
10	Center pillar outer upper reinforcement
11	Front seat belt upper mounting bracket
12	Roof side inner rail
13	Center pillar inner panel
14	Front inner upper pillar
15	Front inner lower pillar
16	Cowl cross member mounting bracket
17	Cowl cross member mounting rear bracket
18	Side outer reinforcement gusset

1. FRONT PILLAR

<Cross-Sectional Views>

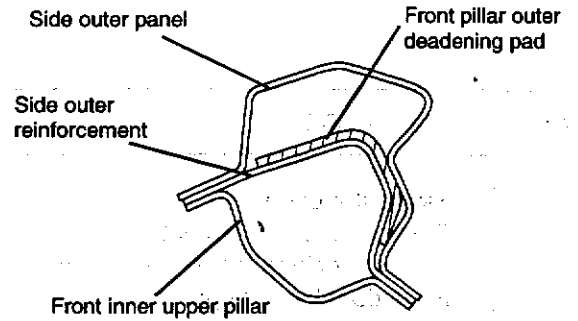


PRO-0800



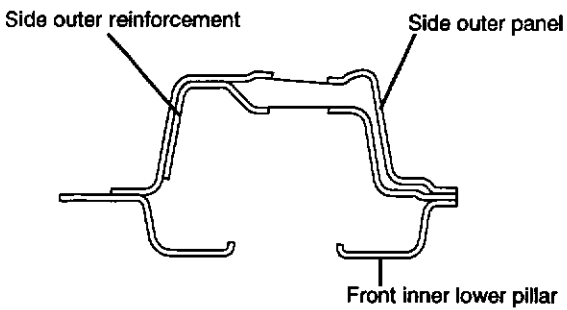
SECTION A-A'

CON-0390



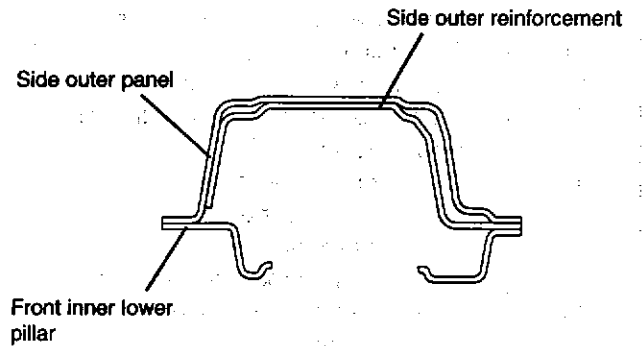
SECTION B-B'

CON-0400



SECTION C-C'

CON-0410

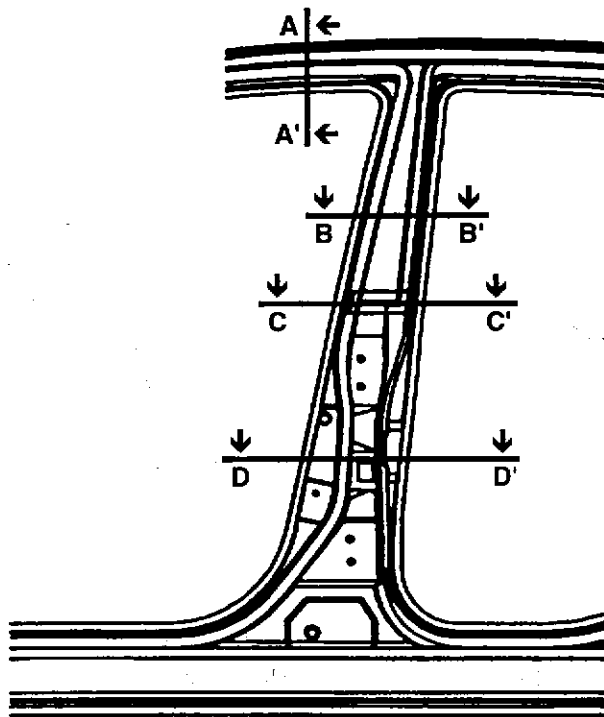


SECTION D-D'

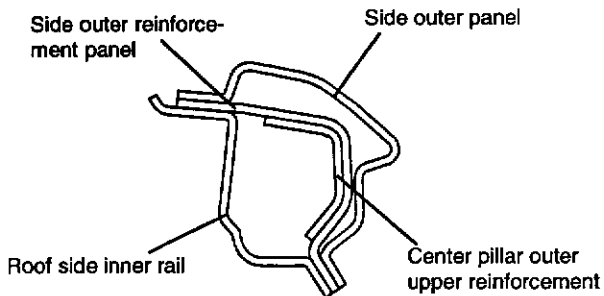
CON-0420

2. CENTER PILLAR

<Cross-Sectional Views>

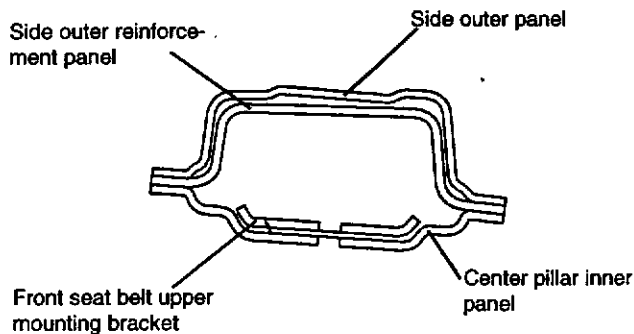


PRO0710



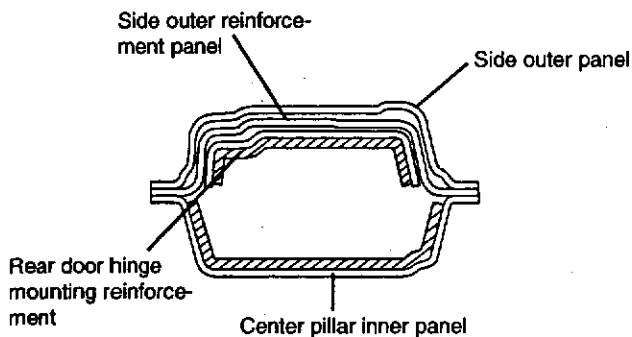
SECTION A-A'

CON-0430



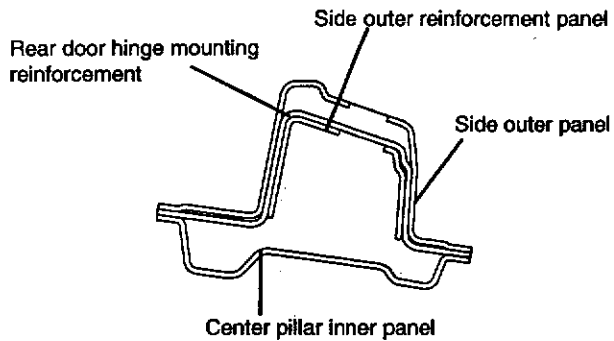
SECTION B-B'

CON-0440



SECTION C-C'

CON-0450

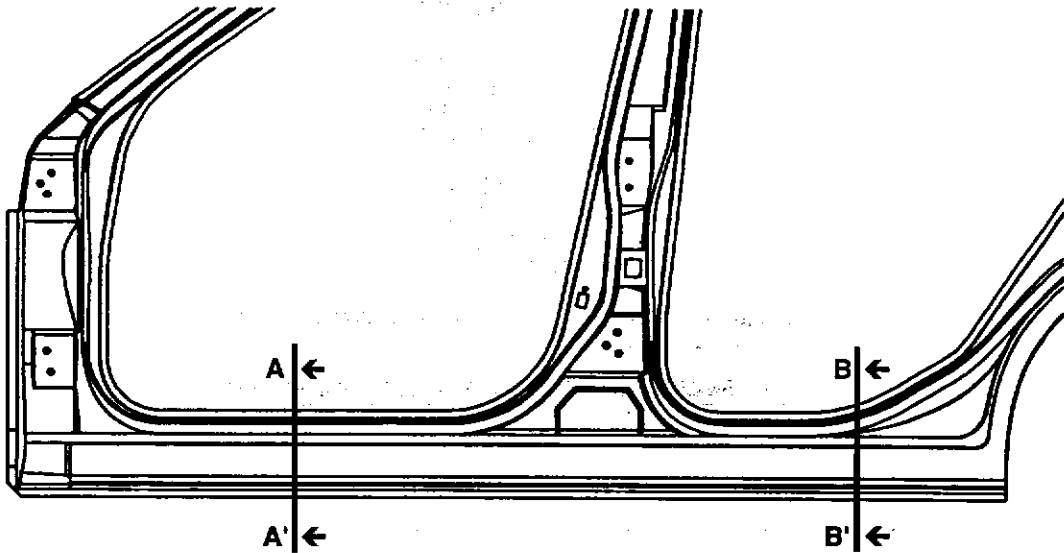


SECTION D-D'

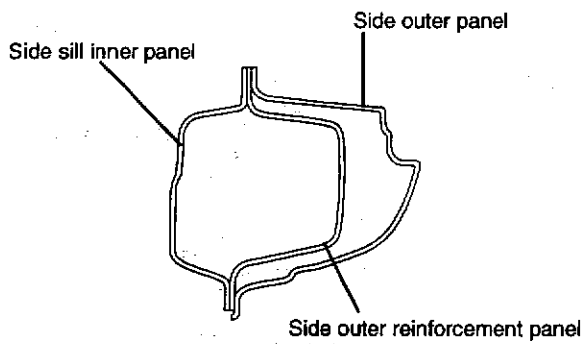
CON-0460

3. SIDE SILL

<Cross-Sectional Views>

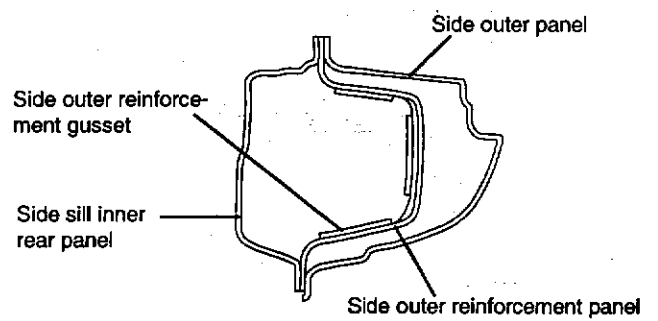


PRO-0950



SECTION A-A'

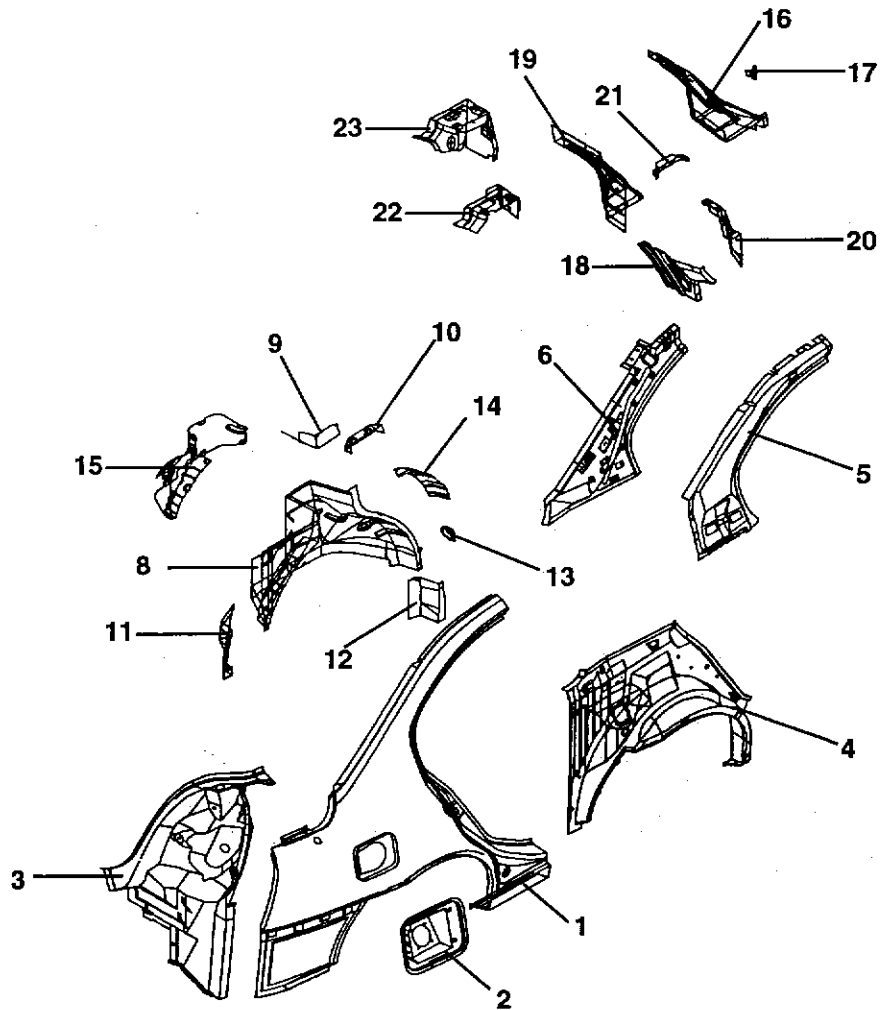
CON-0470



SECTION B-B'

CON-0480

4. QUARTER PANEL

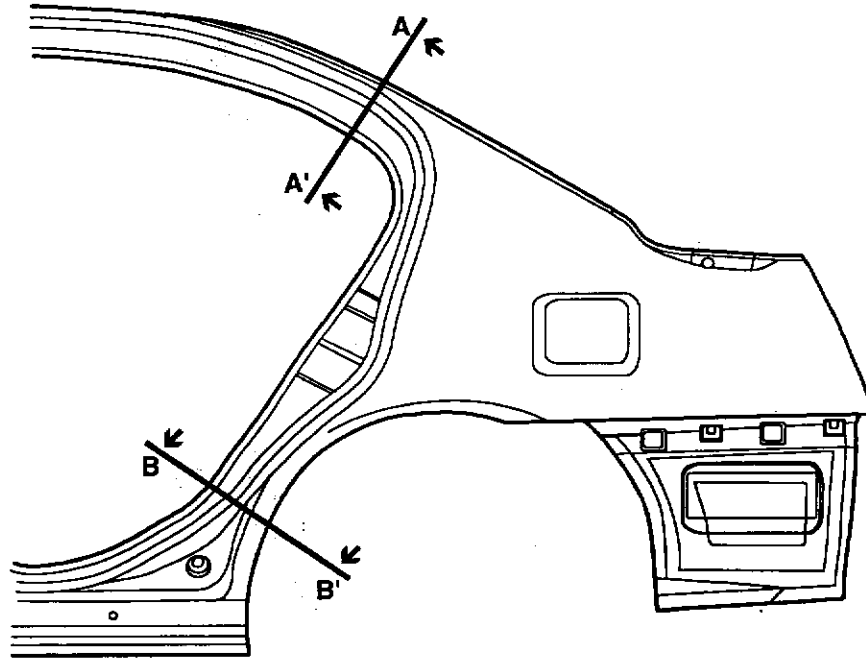


CON-0540

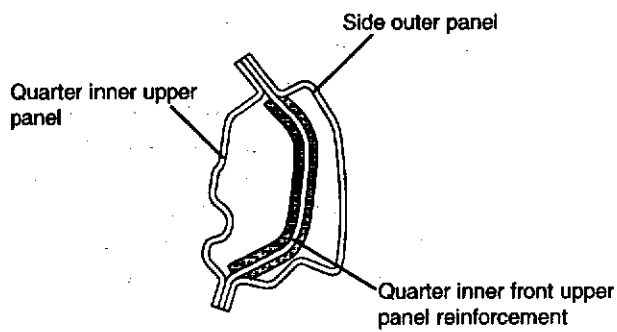
No.	PART NAME	No.	PART NAME
1	Rear side outer panel	12	Rear wheel house front extension
2	Fuel filler housing	13	Rear seat back side bracket
3	Rear combination lamp housing panel	14	Wheel house inner front cover
4	Quarter inner panel	15	Wheel house inner rear cover
5	Trunk lid inner panel	16	Rear package tray side lower panel
6	Quarter inner upper panel	17	Rear seat back mounting bracket
7	Quarter inner front upper reinforcement	18	Rear package tray side lower extension
8	Wheel house inner panel	19	Rear package tray side member
9	Rear spring house cover	20	Rear package tray side upper extension
10	Rear spring house gusset	21	Package tray side upper front panel
11	Rear wheel house inner rear extension		

# BODY CONSTRUCTION - Side body <Quarter panel>

## <Cross-Sectional Views>

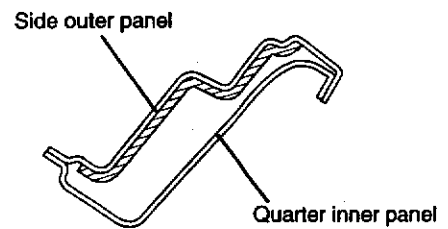


PRO-1220



SECTION A-A'

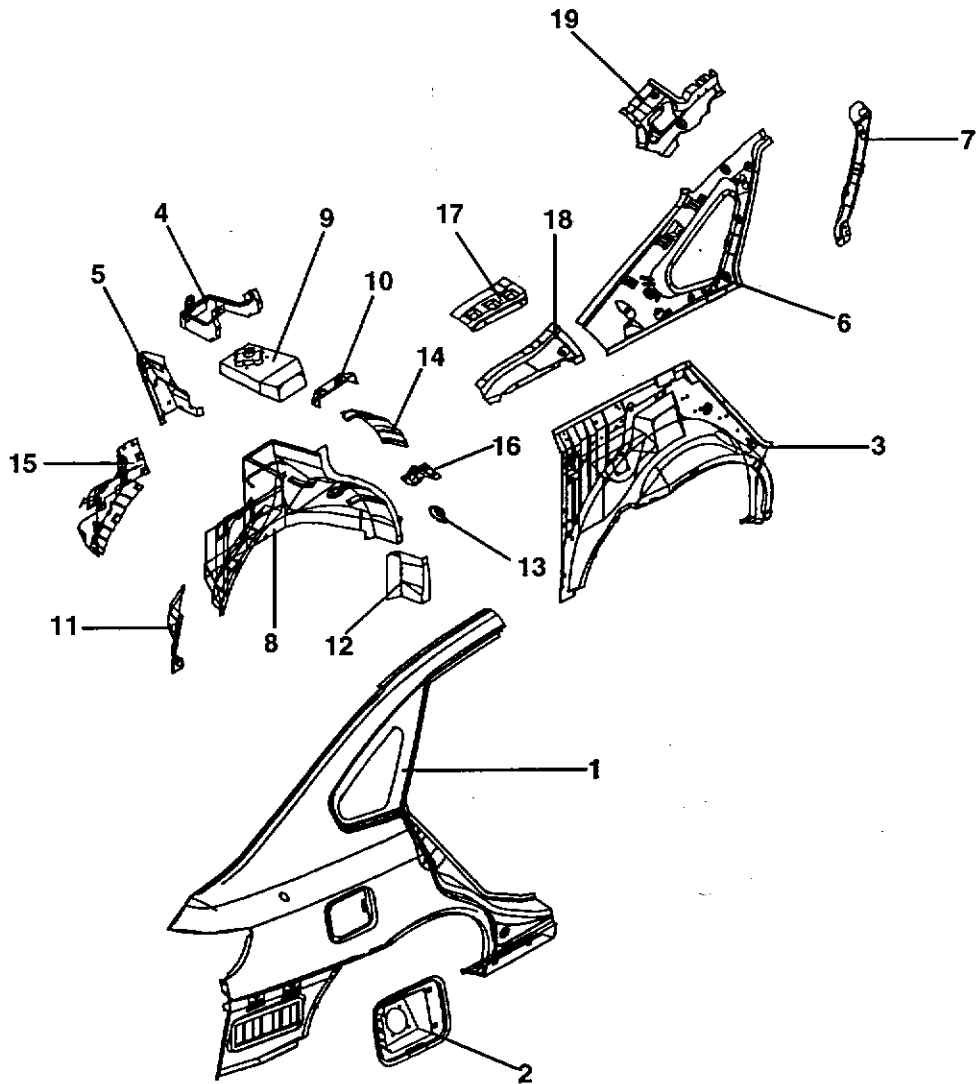
CON-0550



SECTION B-B'

CON-0560

4-1. QUARTER PANEL

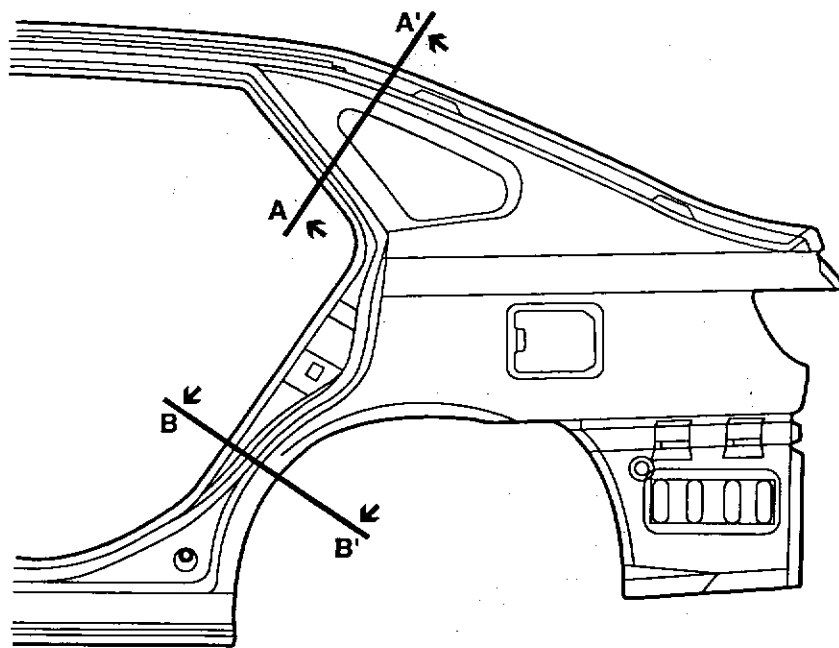


CON-0541

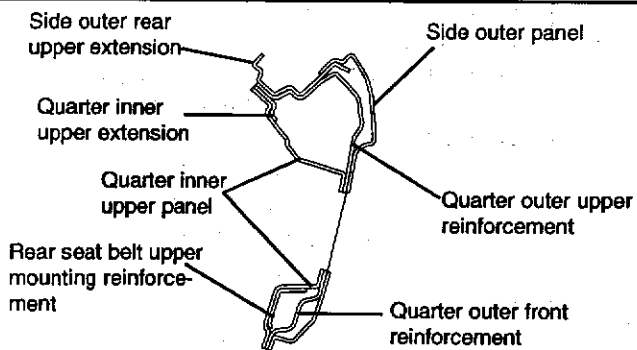
No.	PART NAME	No.	PART NAME
1	Rear side outer panel	9	Rear spring house cover
2	Fuel filler housing	10	Rear spring house gusset
3	Quarter inner assembly	11	Rear wheel house inner rear extension
4	Wheel house upper reinforcement assembly	12	Rear wheel house front extension
5	Wheel house upper front reinforcement assembly	13	Rear seat back side bracket
6	Quarter inner upper panel	14	Wheel house inner front cover
7	Rear seat belt upper mounting reinforcement	15	Wheel house inner rear cover
8	Wheel house inner panel	16	Rear seat back upper bracket
		17	Quarter inner rear reinforcement
		18	Quarter inner rear extension
		19	Quarter inner upper extension

BODY CONSTRUCTION - Side body < Quarter panel - 5 Door >

<Cross-Sectional Views>

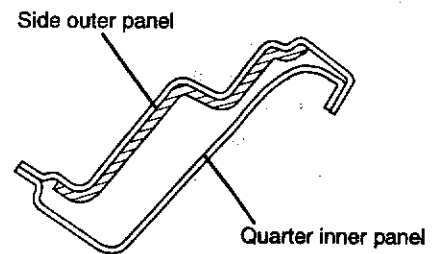


PRO-1221



SECTION A-A'

CON-0551

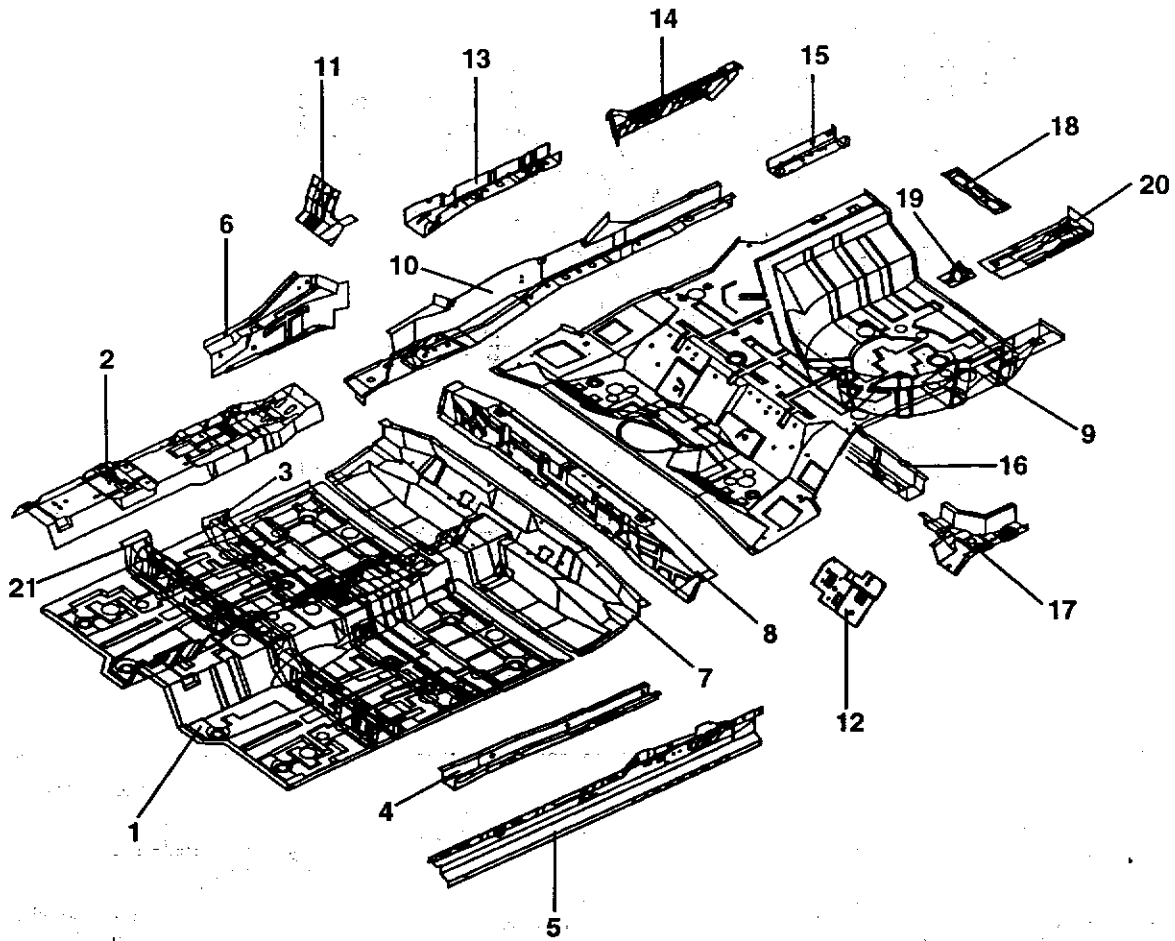


SECTION B-B'

CON-0560



UNDER BODY

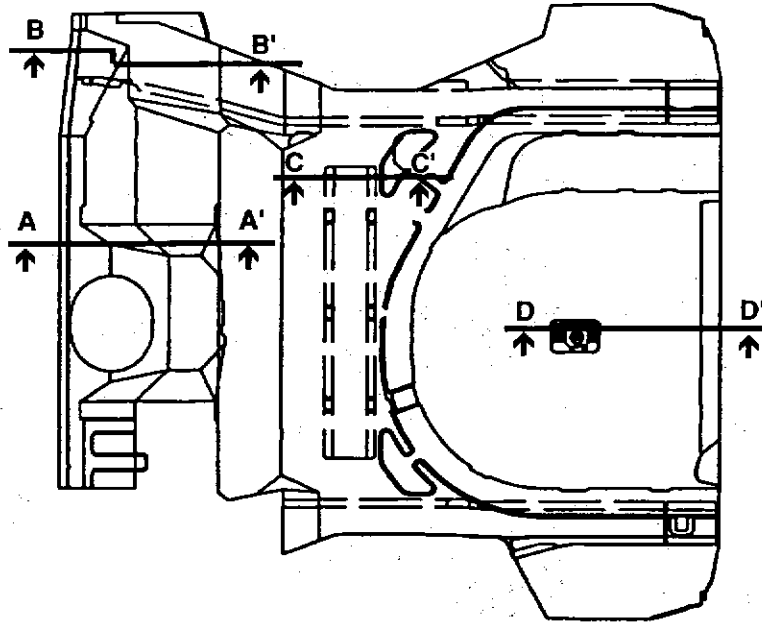


CON-0590

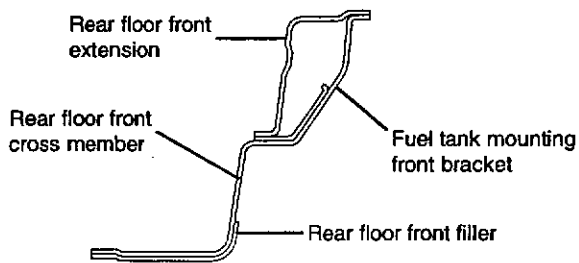
No.	PART NAME	No.	PART NAME
1	Center floor panel	12	Rear seat belt anchor bracket
2	Center floor reinforcement	13	Rear floor side member reinforcement
3	Front seat cross No.2 member	14	Rear floor side panel
4	Center floor side member	15	Rear floor side member rear extension
5	Side sill inner panel	16	Rear floor center cross member
6	Side sill inner rear panel	17	Rear floor center cross extension
7	Rear floor front cross member	18	Jack up cross reinforcement
8	Rear floor front extension	19	Spare tire mounting bracket
9	Rear floor panel	20	Rear towing hook bracket
10	Rear floor side member	21	Front seat cross member
11	Package tray side lower gusset		

1. REAR FLOOR

<Cross-section views>

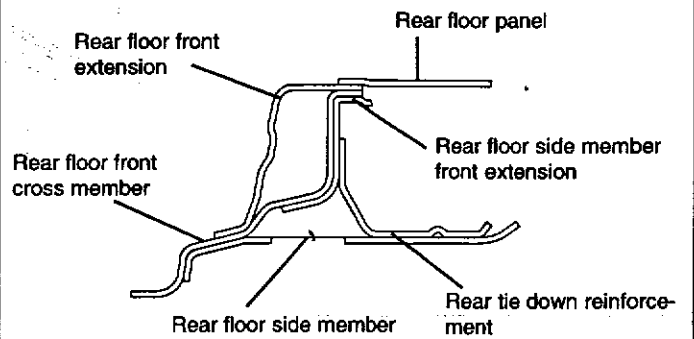


PRO-1522



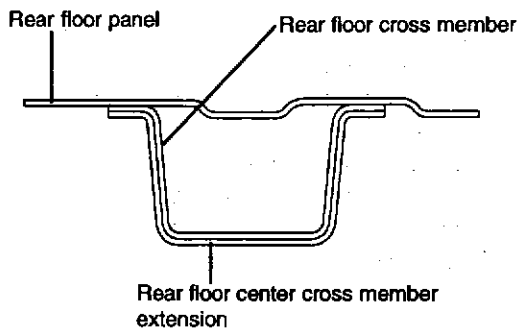
SECTION A-A'

CON-0600



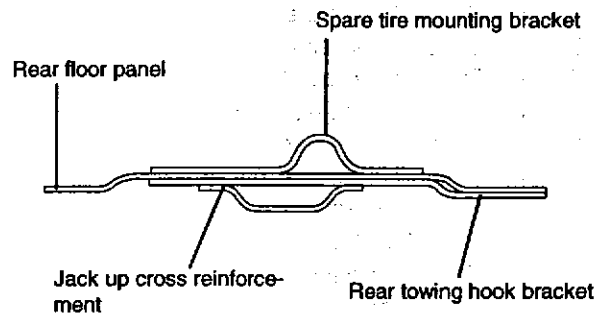
SECTION B-B'

CON-0610



SECTION C-C'

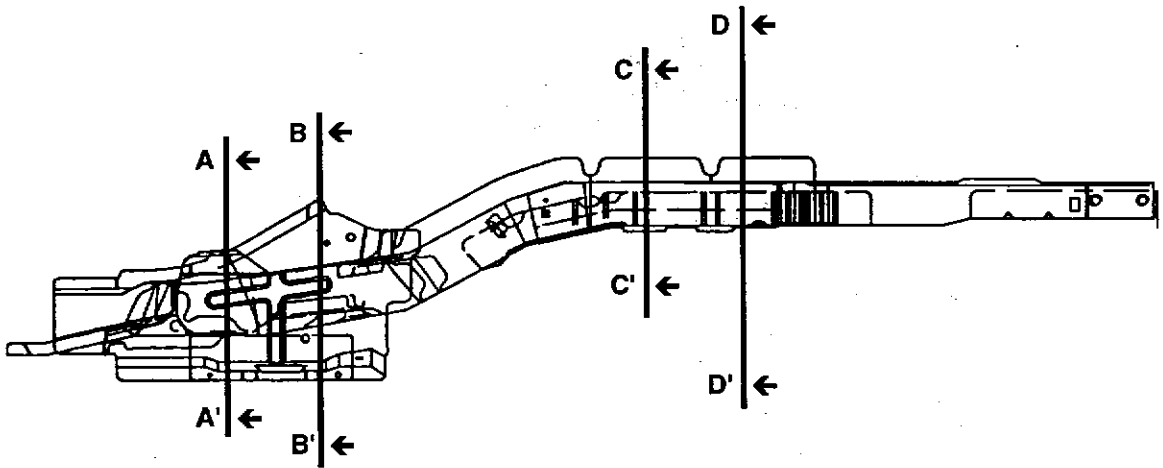
CON-0620



SECTION D-D'

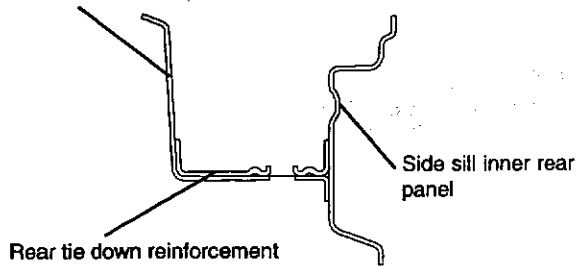
CON-0630

2. REAR SIDE MEMBER



CON-0640

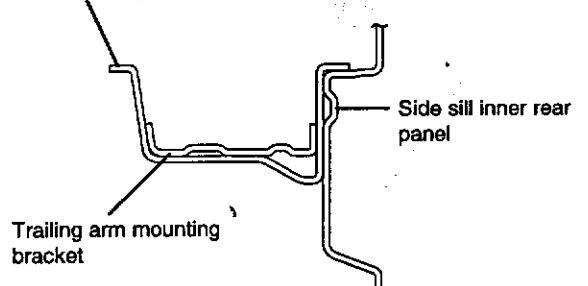
Rear floor side member



SECTION A-A'

CON-0650

Rear floor side member

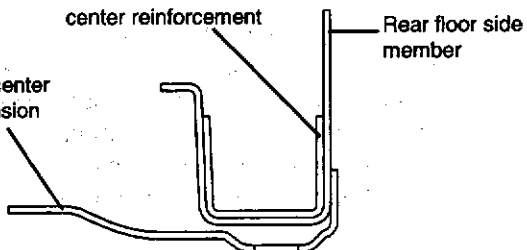


SECTION B-B'

CON-0660

Rear floor side member center reinforcement

Rear floor center cross extension

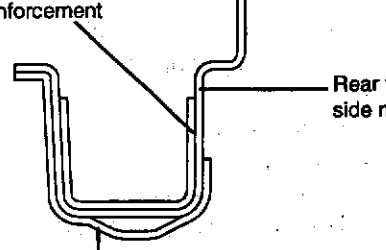


SECTION C-C'

CON-0670

Rear floor side member center reinforcement

Rear floor side member

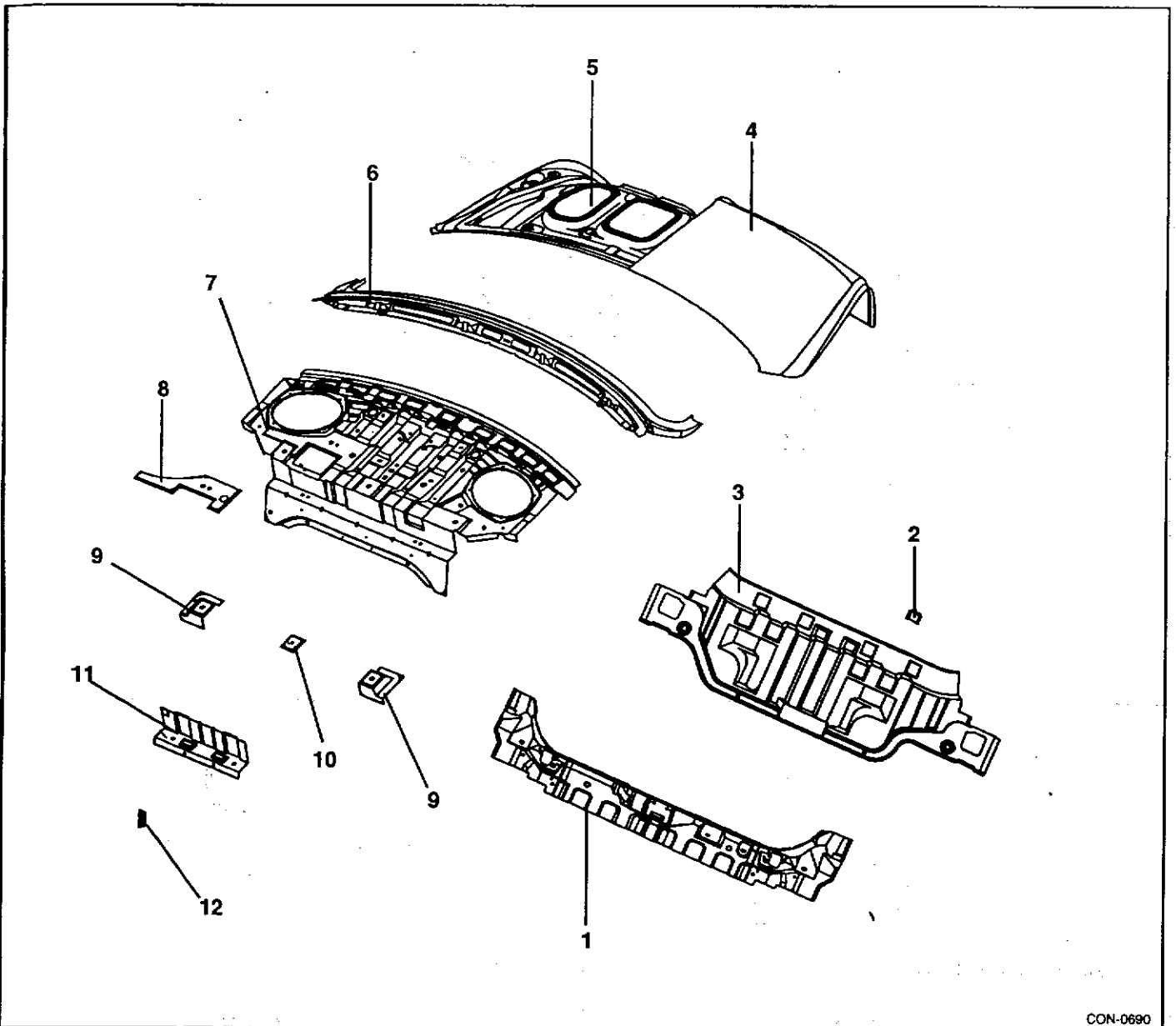


SECTION D-D'

CON-0680

REAR BODY

BACK PANEL & TRUNK LID

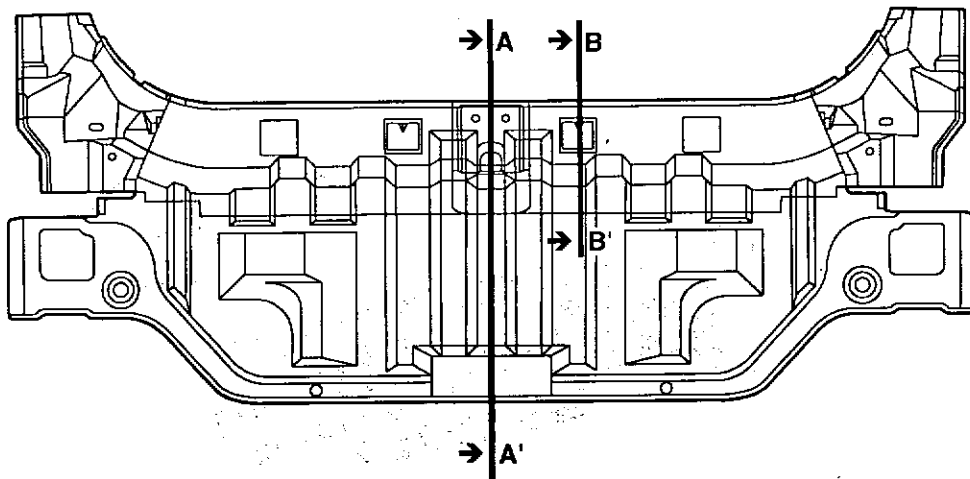


CON-0690

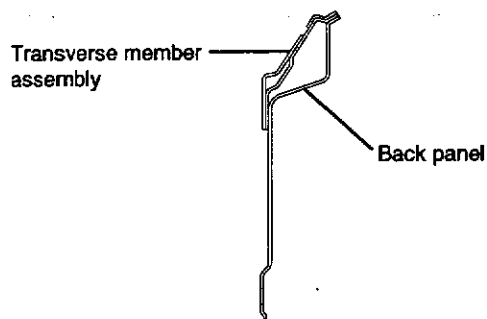
No.	PART NAME	No.	PART NAME
1	Rear transverse member	7	Rear package tray center panel
2	Rear bumper upper side mounting bracket	8	Rear seat belt anchor upper reinforcement
3	Back panel	9	Child restraint anchor reinforcement(LH/RH)
4	Trunk lid outer panel	10	Child restraint anchor reinforcement
5	Trunk lid inner panel	11	Rear package tray front lower member
6	Rear window opening outer frame	12	Rear seat package mounting bracket

# BODY CONSTRUCTION - Rear body <Back panel>

## <Cross-Sectional Views>

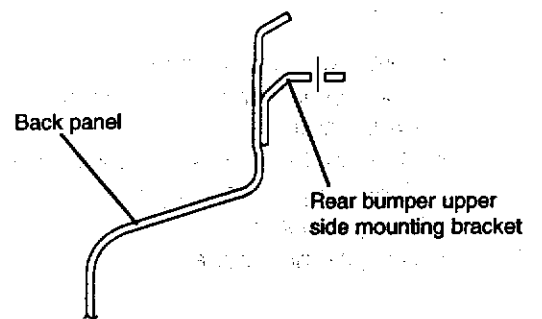


CON-0700



SECTION A-A'

CON-0721

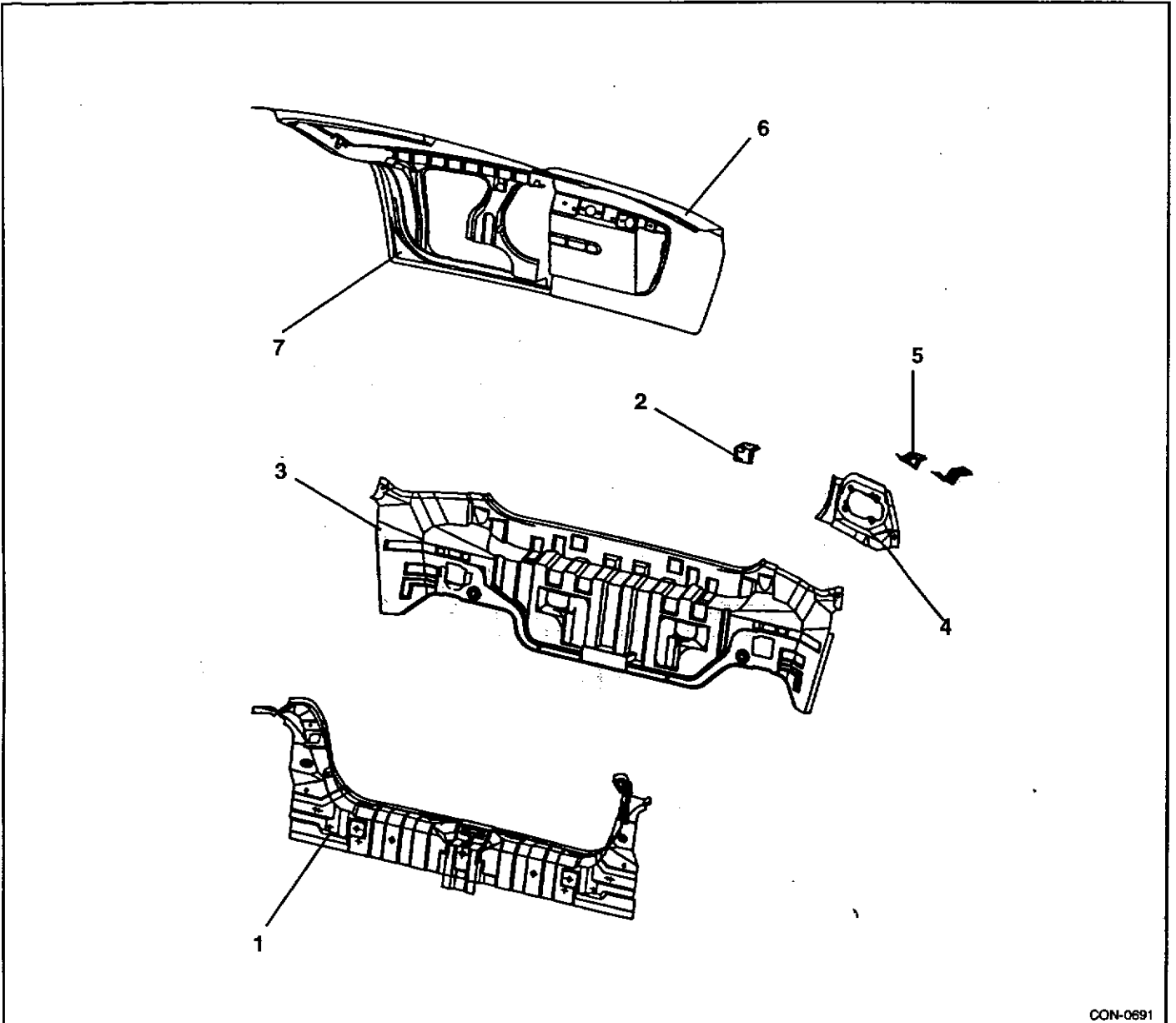


SECTION B-B'

CON-0720

**REAR BODY**

**BACK PANEL & TAILGATE PANEL**

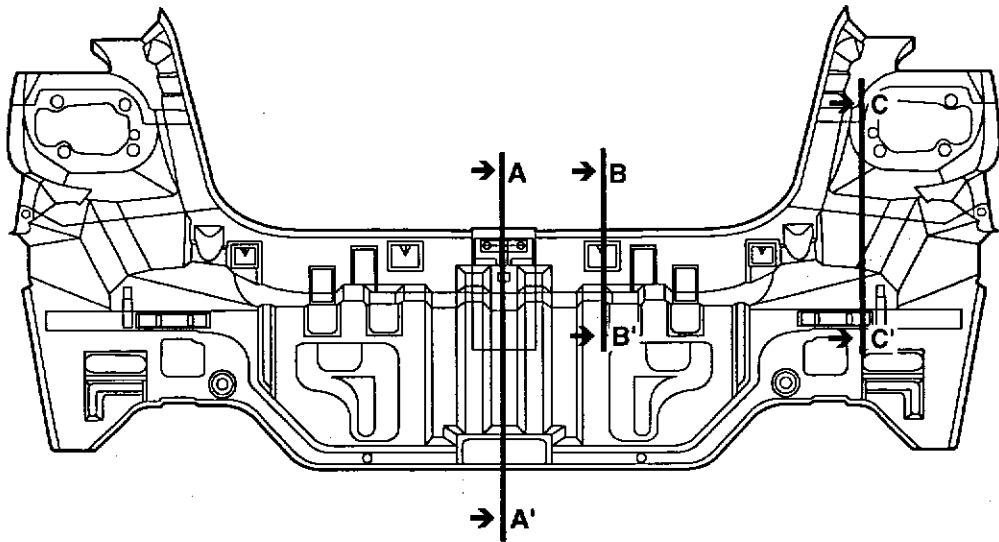


CON-0691

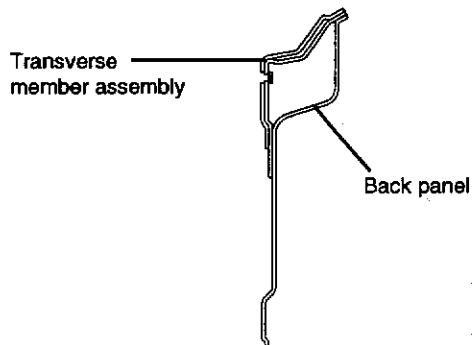
No.	PART NAME
1	Rear transverse member
2	Rear bumper upper side mounting bracket
3	Back panel
4	Rear combination lamp housing panel
5	Rear bumper mounting bracket
6	Tail gate outer panel
7	Tail gate inner panel

BODY CONSTRUCTION - Rear body < Back panel 5 door >

<Cross-Sectional Views>

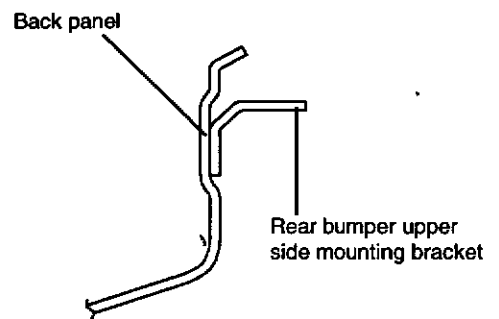


CON-0710



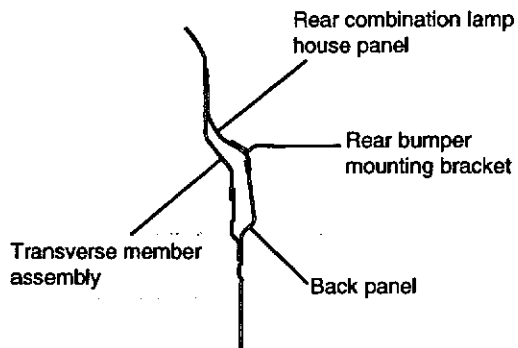
SECTION A-A'

CON-0711



SECTION B-B'

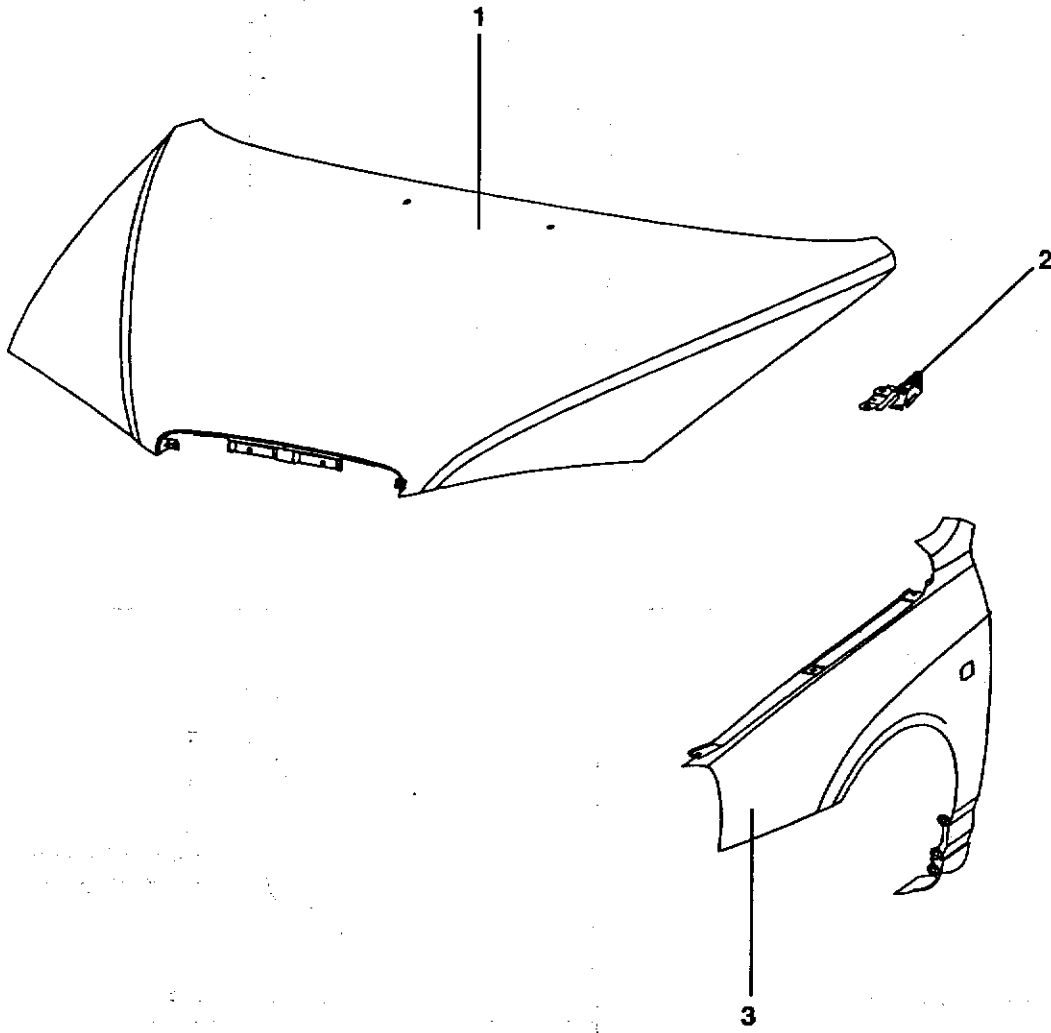
CON-0712



SECTION C-C'

CON-0713

FENDER & HOOD

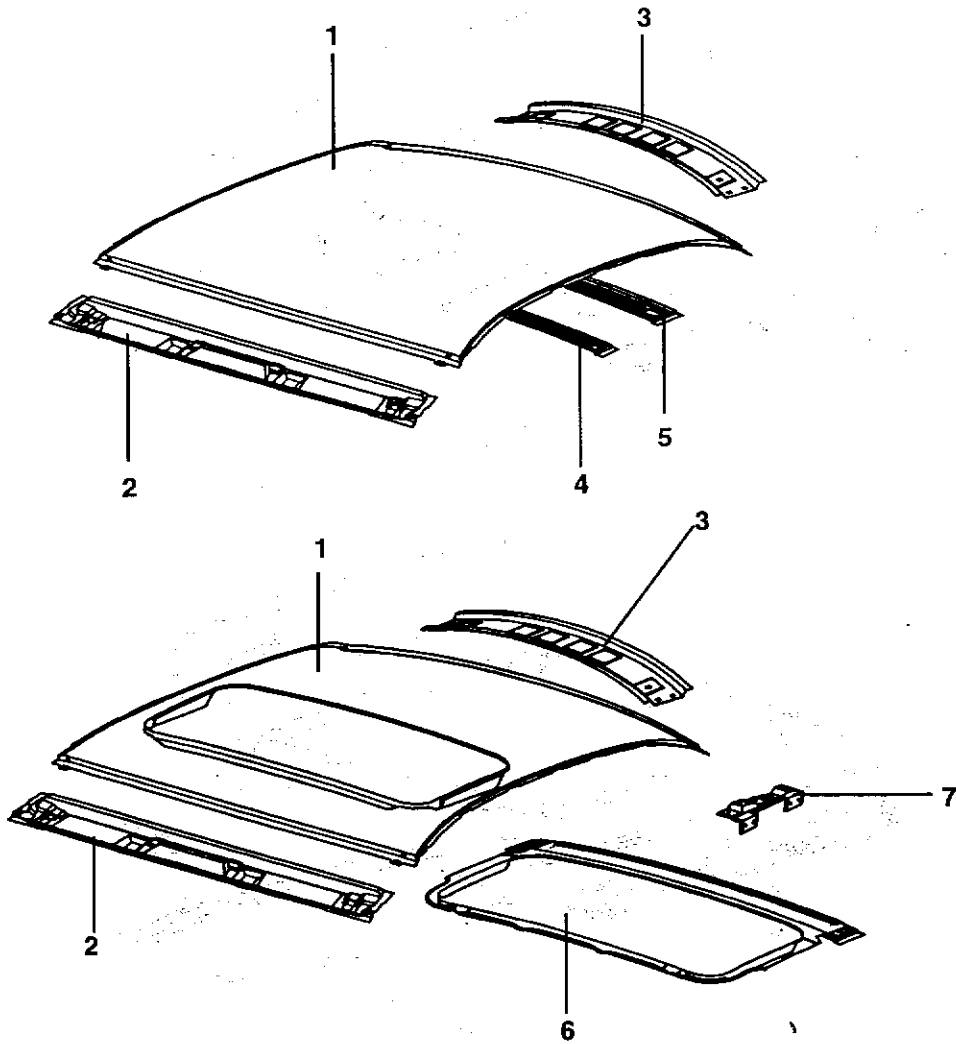


CON-0730

No	PART NAME
1	Hood panel assembly
2	Hood hinge assembly
3	Fender panel assembly



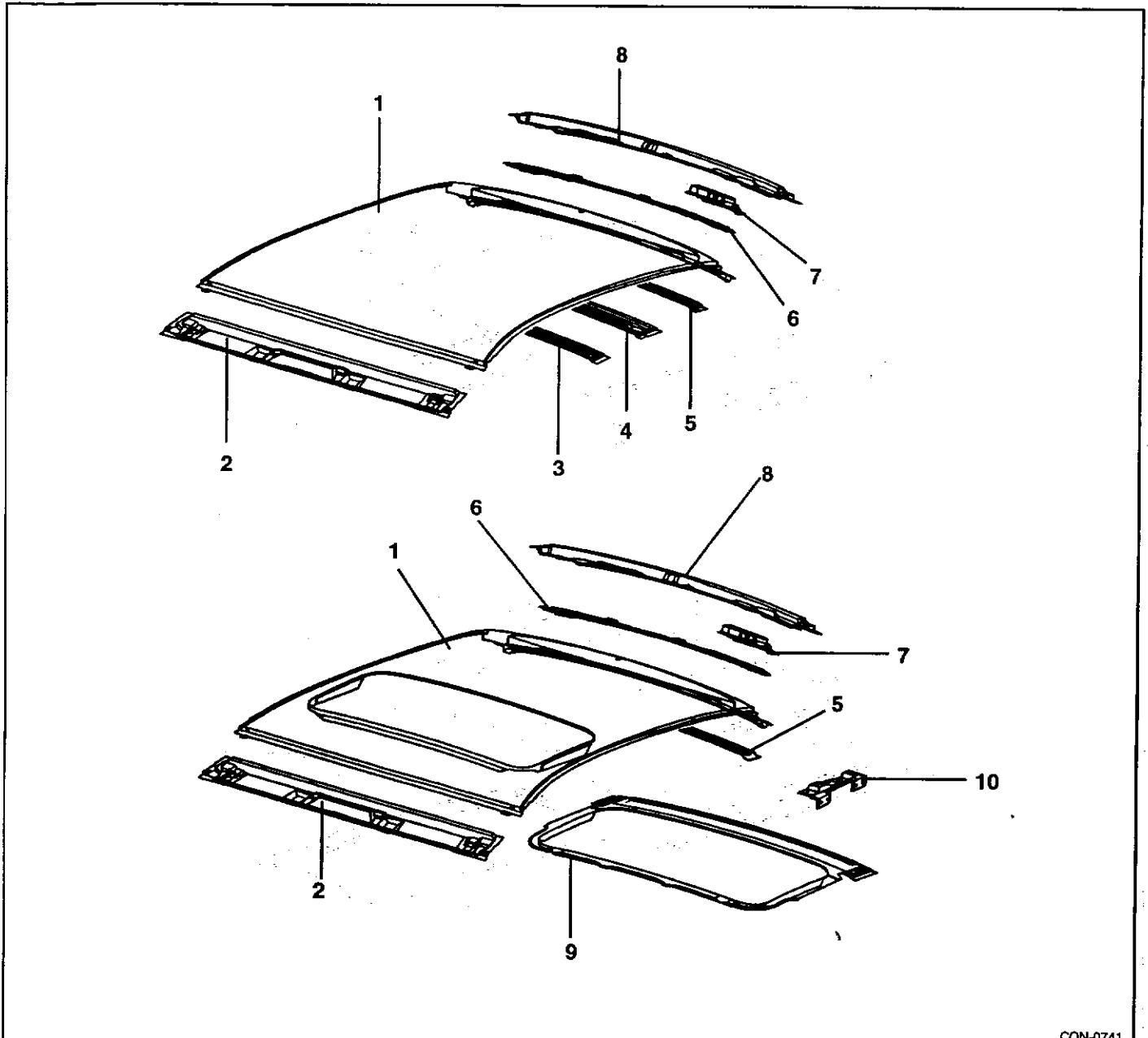
ROOF



CON-0740

No.	PART NAME
1	Roof panel
2	Roof front rail assembly
3	Roof rear rail assembly
4	Roof center rail
5	Roof center rail
6	Sunroof reinforcement ring assembly
7	Sunroof side mounting bracket

ROOF(5 DOOR)



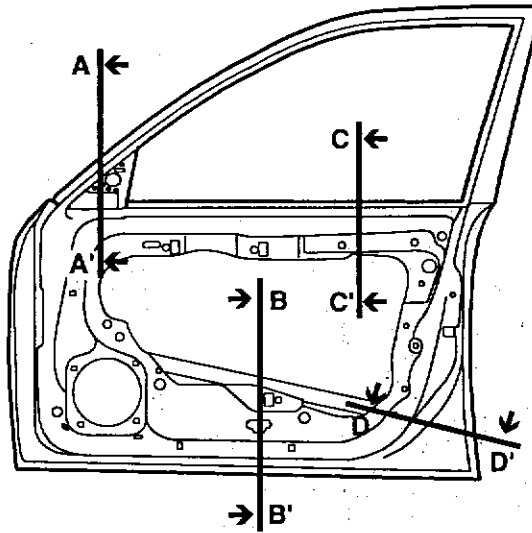
CON-0741

No.	PART NAME
1	Roof panel
2	Roof front rail assembly
3	Roof center rail
4	Roof center rail
5	Roof center rail
6	Roof rear lower rail assembly
7	Tail gate hinge mounting reinforcement
8	Roof rear upper rail
9	Sunroof reinforcement ring assembly
10	Sunroof side mounting bracket

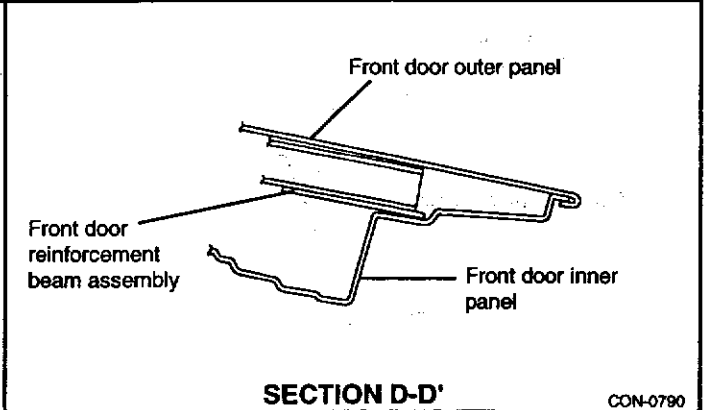
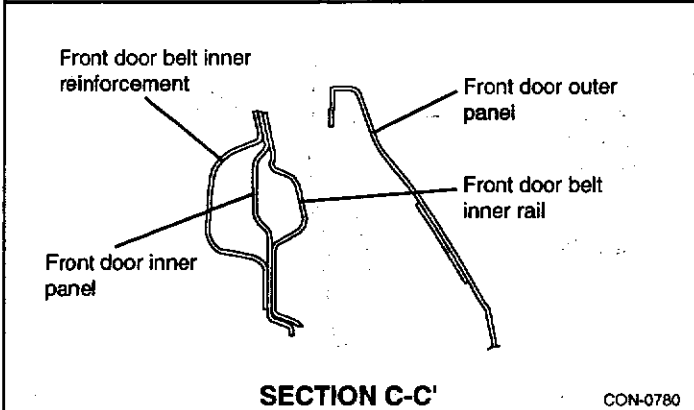
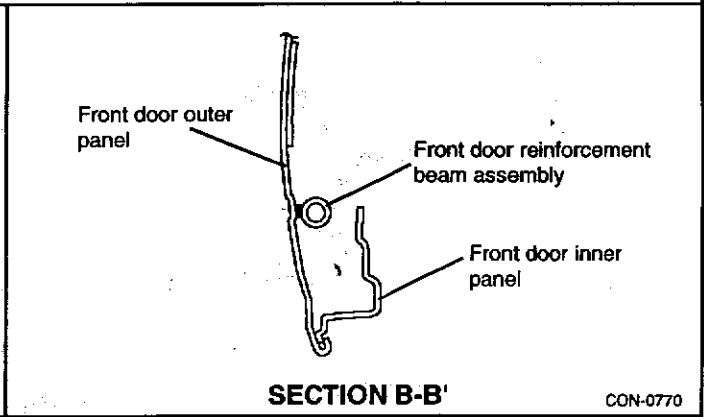
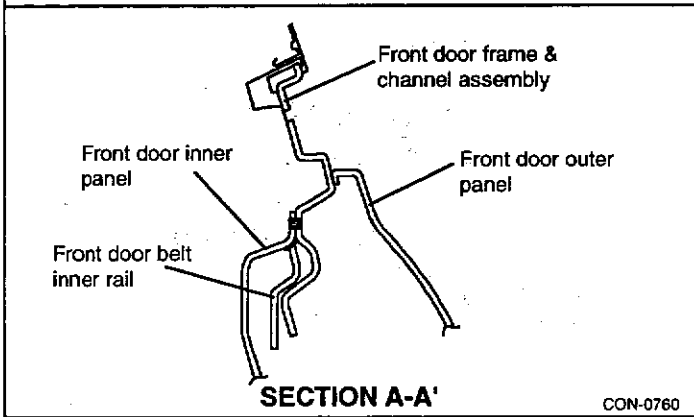
DOOR

1. FRONT DOOR

<Cross-Sectional Views>

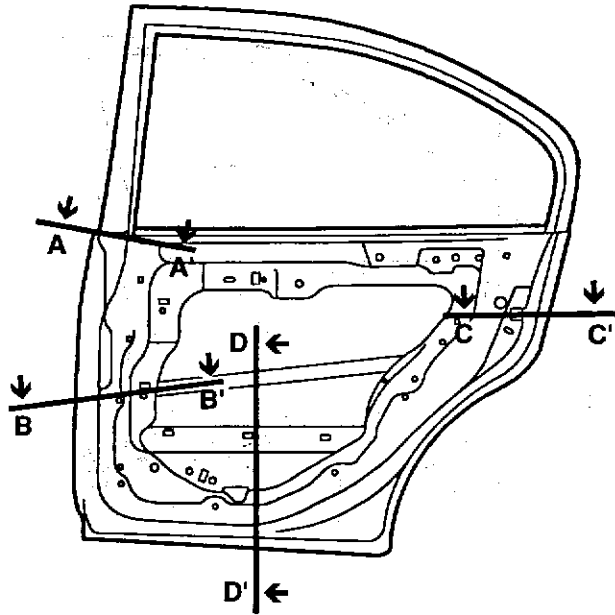


CON-0750

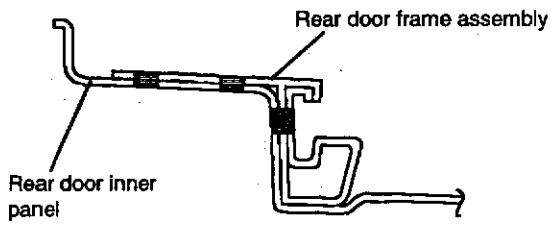


2. REAR DOOR

<Cross-Sectional Views>

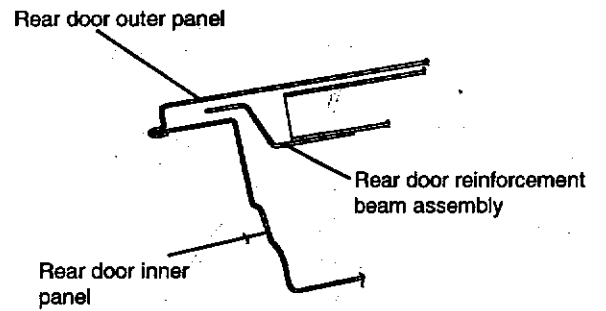


CON-0800



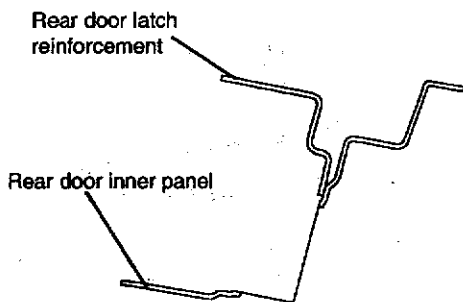
SECTION A-A'

CON-0810



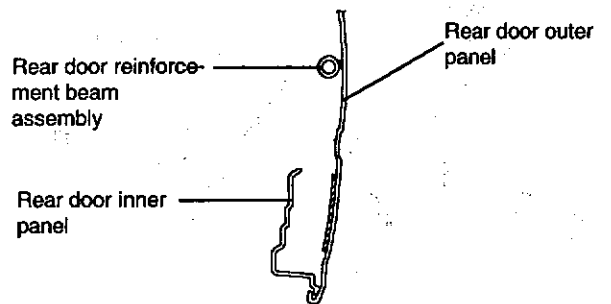
SECTION B-B'

CON-0820



SECTION C-C'

CON-0830



SECTION D-D'

CON-0840

# REPLACEMENT PARTS

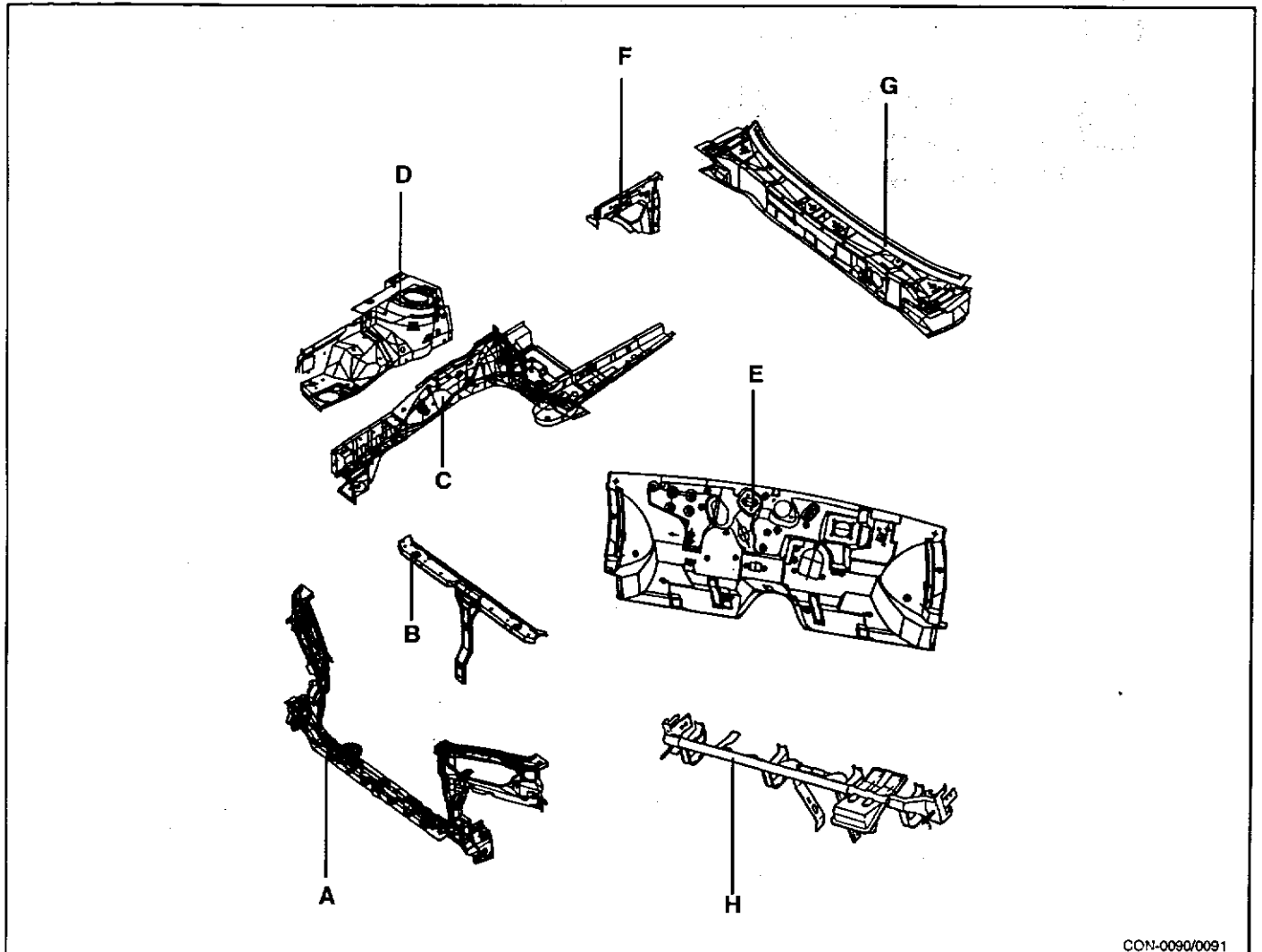
**E**

## REPLACEMENT PARTS

The following section illustrates replacement parts used in the repairs described in this manual. It is important that only Hyundai replacement parts be used in making these repairs to ensure the repairs are made with the highest possible standards for fit, safety and corrosion protection.

For a more complete listing of service parts, refer to an authorized Hyundai dealership.

### FRONT BODY

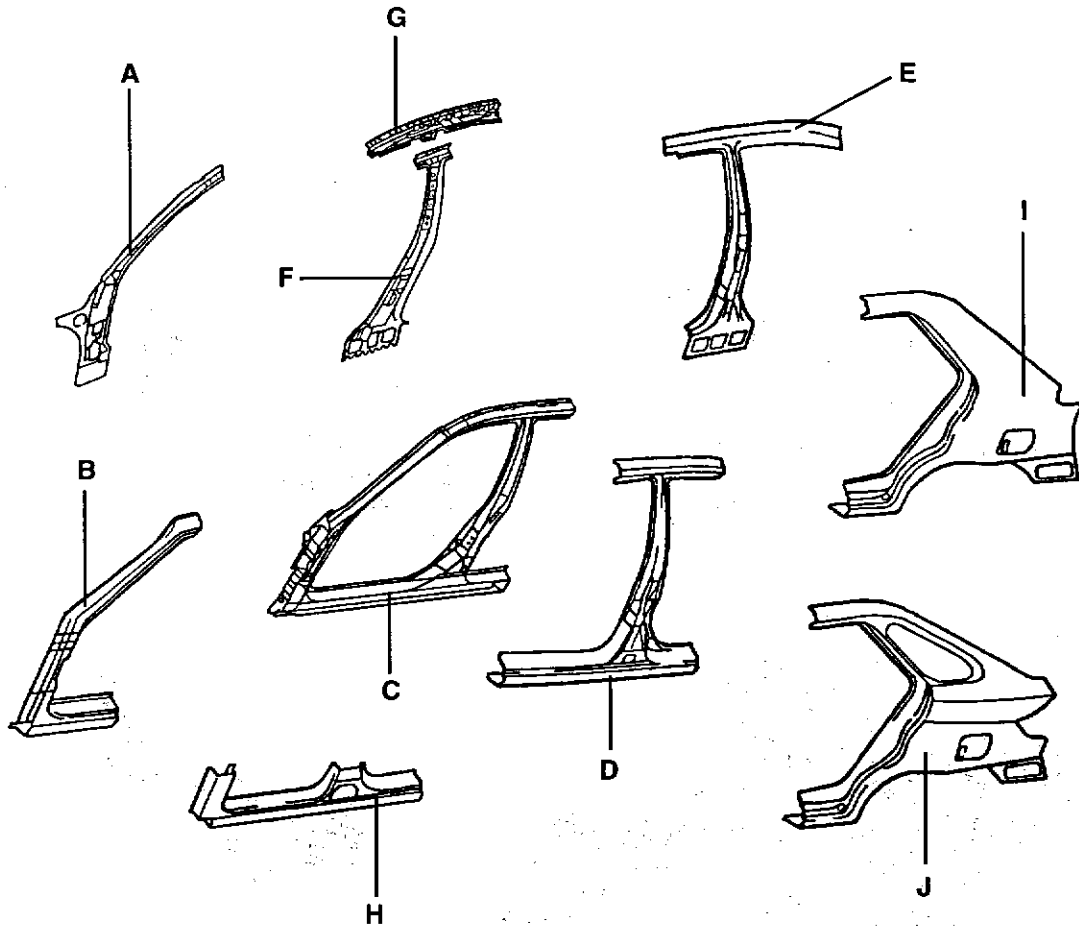


CON-0090/0091

PART NAME	
A	RADIATOR SUPPORT PANEL COMPLETE
B	RADIATOR SUPPORT CENTER MEMBER
C	FRONT SIDEMEMBER ASSEMBLY, LH/RH
D	FENDER APRON PANEL ASSEMBLY, LH/RH
E	DASH PANEL COMPLETE
F	COWL SIDE OUTER PANEL, LH/RH
G	COWL PANEL ASSEMBLY
H	COWL CROSSMEMBER ASSEMBLY

REPLACEMENT PARTS - Side body

SIDE BODY

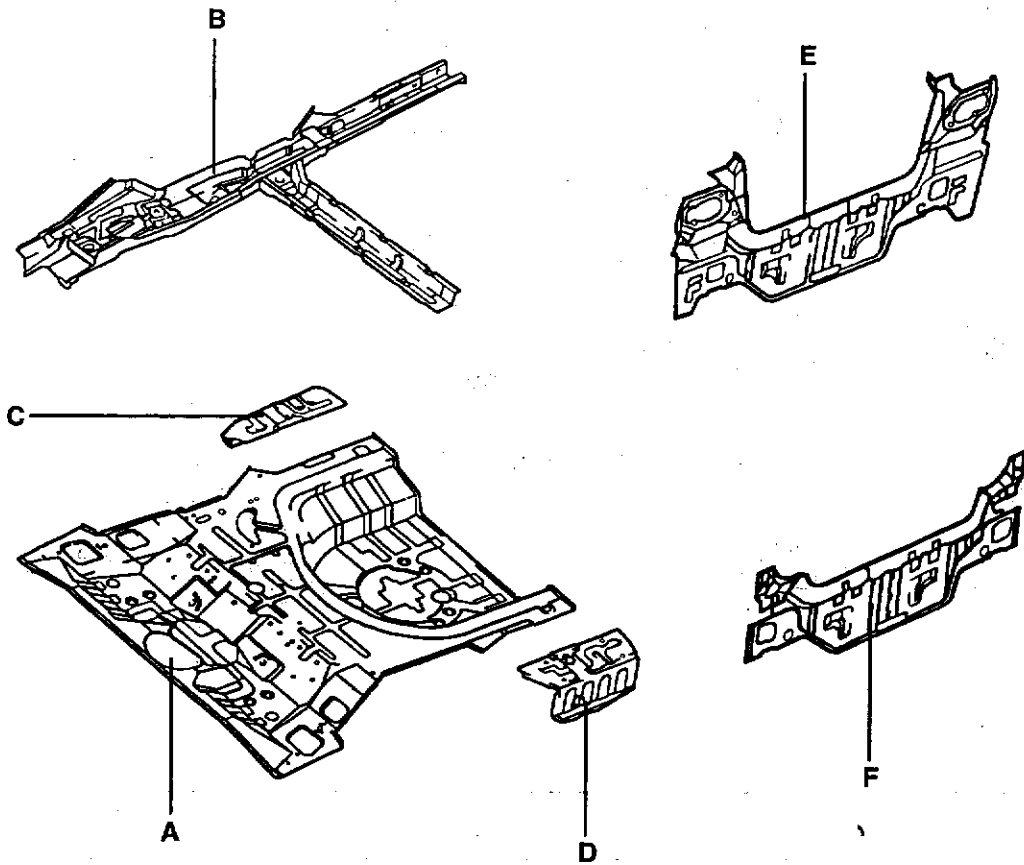


CON-0381

PART NAME		
A	FRONT INNER PILLAR ASSEMBLY,	LH/RH
B	PILLAR OUTER PANEL,	LH/RH
C	SIDE OUTER REINFORCEMENT,	LH/RH
D	CENTER OUTER PILLAR ASSEMBLY,	LH/RH
E	CENTER INNER PILLAR ASSEMBLY,	LH/RH
F	CENTER PILLAR INNER PANEL,	LH/RH
G	ROOF SIDE INNER RAIL,	LH/RH
H	SIDE SILL OUTER PANEL,	LH/RH
I	QUARTER OUTER PANEL,	LH/RH
J	QUARTER OUTER PANEL, 5 DOOR	LH/RH

# REPLACEMENT PARTS - Rear body

## REAR BODY



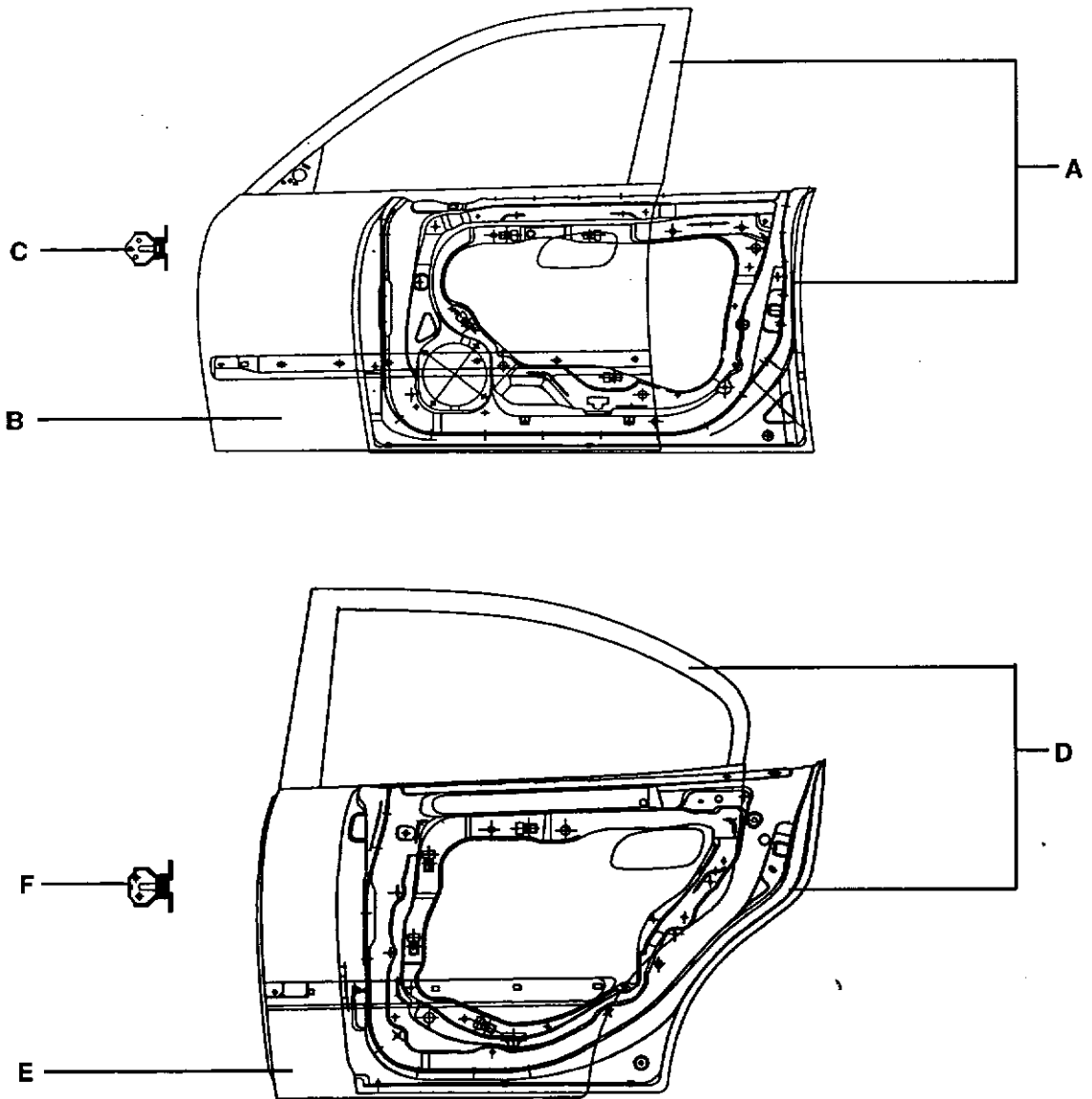
CON-0860

	PART NAME
A	REAR FLOOR PANEL
B	REAR FLOOR SIDE MEMBER ASSEMBLY, LH/RH
C	REAR FLOOR SIDE PANEL ASSEMBLY, RH
D	REAR FLOOR SIDE PANEL ASSEMBLY, LH
E	BACK PANEL ASSEMBLY (5 DOOR)
F	BACK PANEL ASSEMBLY (4 DOOR)



# REPLACEMENT PARTS - Door

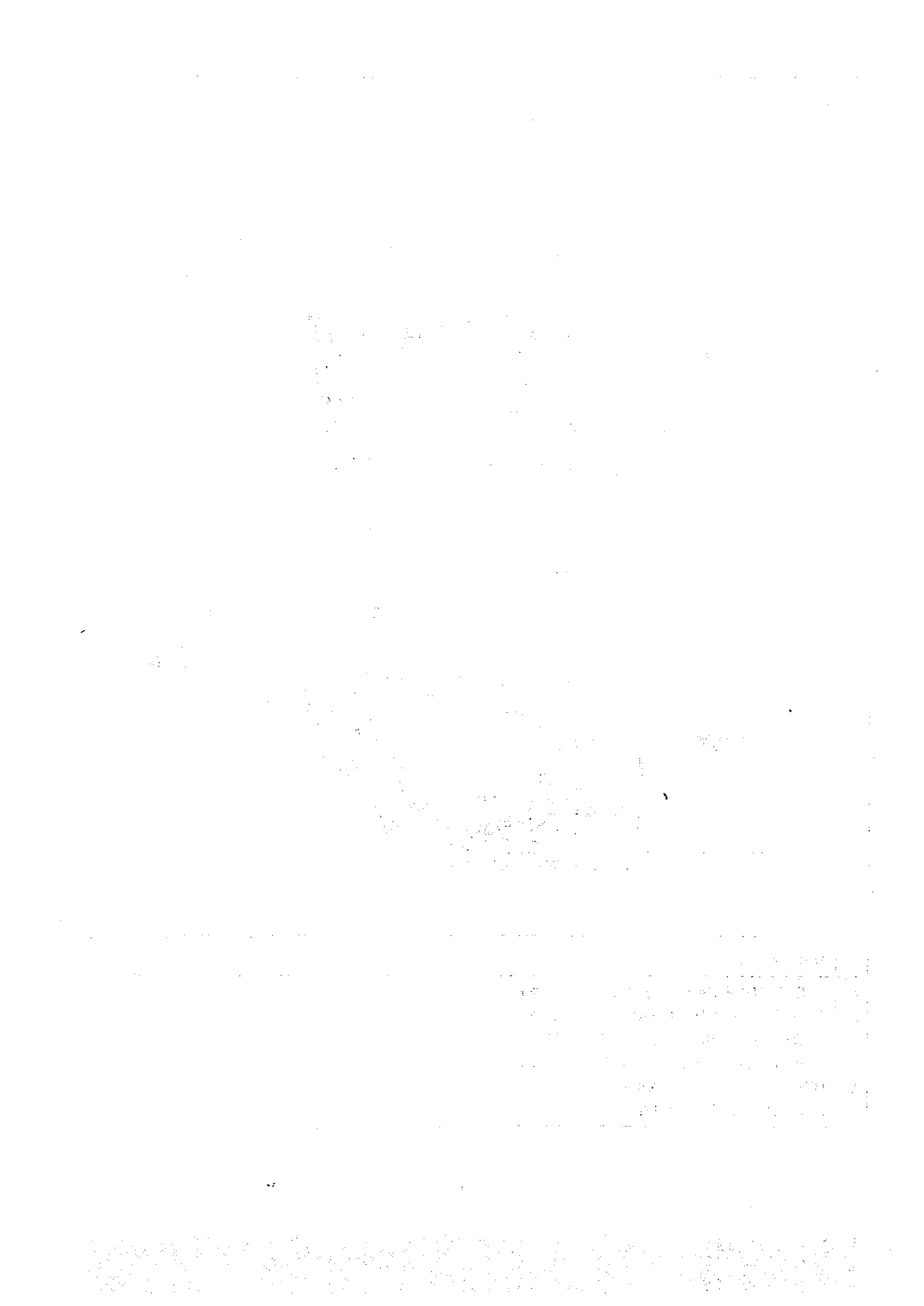
## DOOR



CON-0870/0872

### PART NAME

A	FRONT DOOR PANEL ASSEMBLY, LH/RH
B	FRONT DOOR OUTER PANEL, LH/RH
C	FRONT DOOR HINGE ASSEMBLY, LH/RH
D	REAR DOOR PANEL ASSEMBLY, LH/RH
E	REAR DOOR OUTER PANEL, LH/RH
F	REAR DOOR HINGE ASSEMBLY, LH/RH



# BODY DIMENSIONS

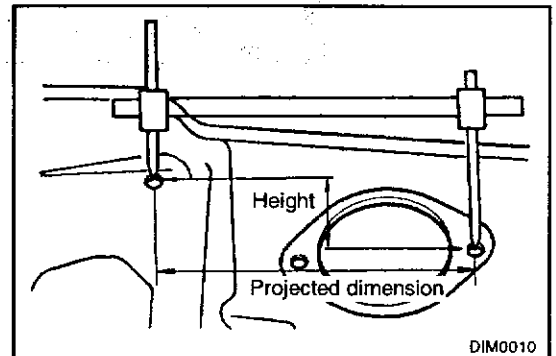
**GENERAL**

1. Basically, all measurements in this manual are taken with a tracking gauge.
2. When a measuring tape is used, check to be sure there is no elongation, twisting or bending.
3. For measuring dimensions, both projected dimension and actual-measurement dimension are used in this manual.

**MEASUREMENT METHOD**

**PROJECTED DIMENSIONS**

1. These are the dimensions measured when the measurement points are projected into the reference plane, and are the reference dimensions used for body alterations.
2. If the length of the tracking gauge probes are adjustable, make the measurement by lengthening one probe by the amount equivalent to the difference in height of the two surfaces.

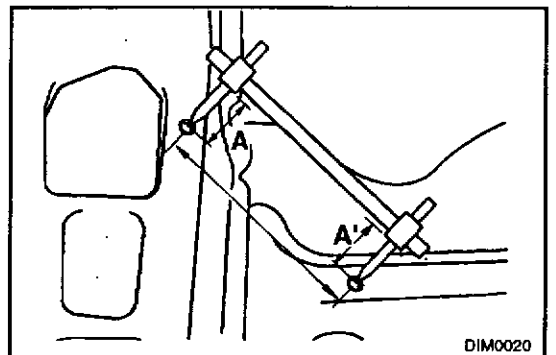


**ACTUAL-MEASUREMENT DIMENSIONS**

1. These dimensions indicate the actual linear distance between measurement points, and are the reference dimensions for use if a tracking gauge is used for measurement.
2. Measure by first adjusting both probes to the same length ( $A=A'$ ).

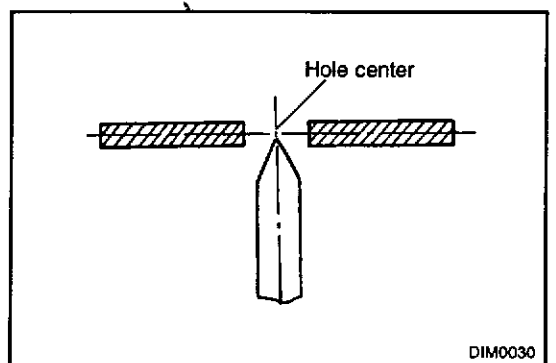
**NOTE**

Check the probes and gauge itself to make sure there is no free play.

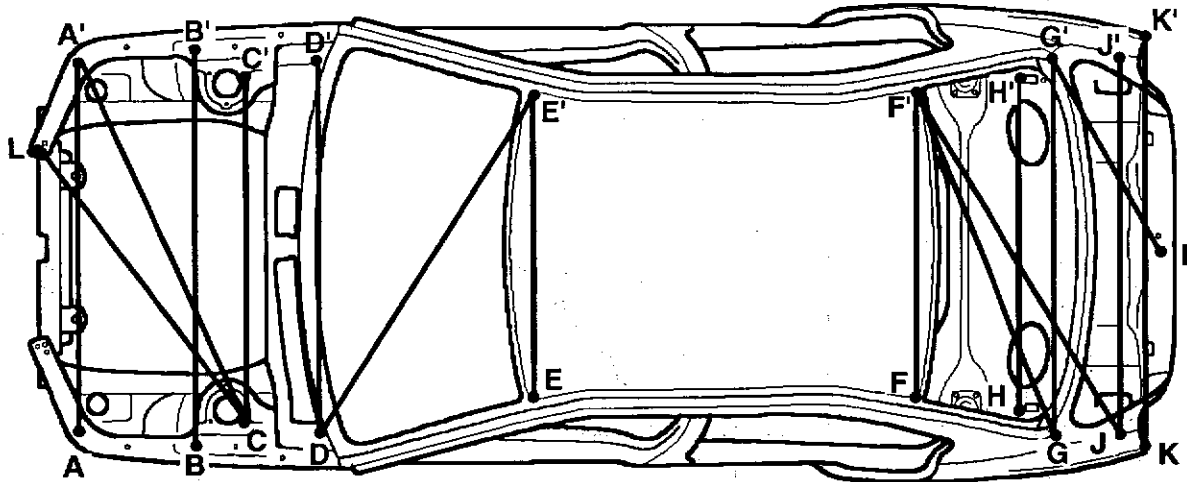


**MEASUREMENT POINT**

1. Measurements should be taken at the hole center.



UPPER BODY

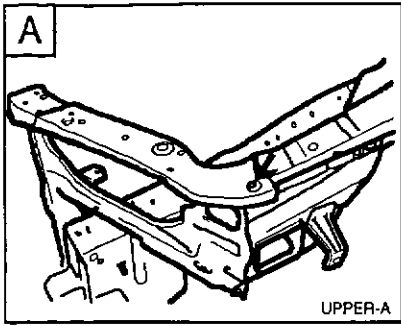


UP-ASS'Y

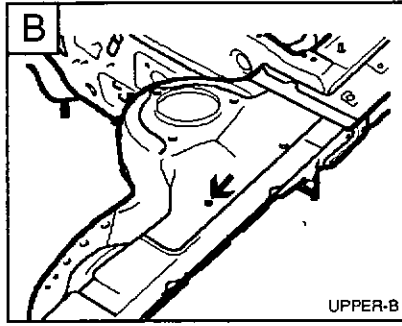
\* These dimensions indicated in this figure are **actual-measurement dimensions**.

Point symbol	A-A'	A'-C	B-B'	C-C'	D-D'	E-E'	F-F'	D-E'
Length (mm)	1434	1443	1434	1216	1326	1081	1062	1462
Point symbol	G-G'	H-H'	I-G'	J-J'	K-K'	L-C	G-F'	J-F'
Length (mm)	1278	1130	949	1301	1466	1245	1321	1522

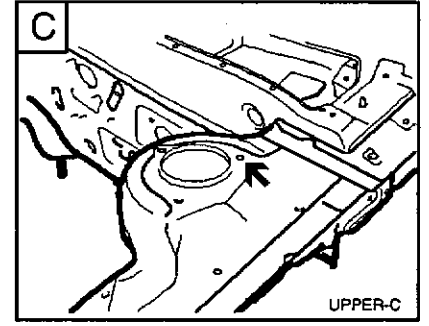
**BODY DIMENSIONS - Upper body**



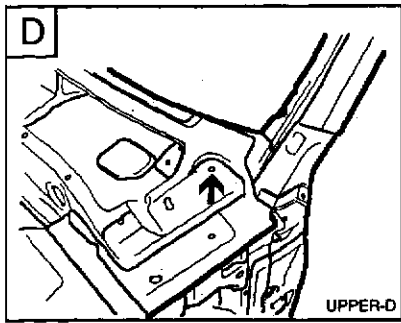
Body tooling hole (Ø10)



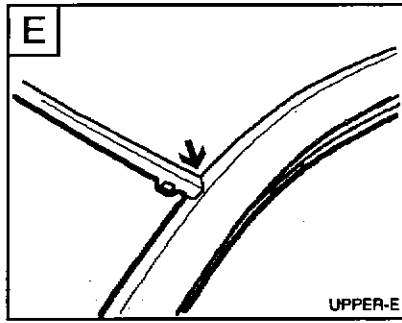
Fender center mounting hole (Ø8)



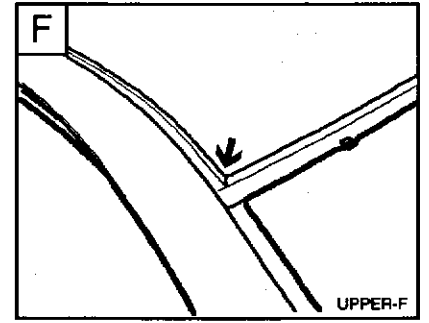
Front shock absorber mounting hole(Ø11)



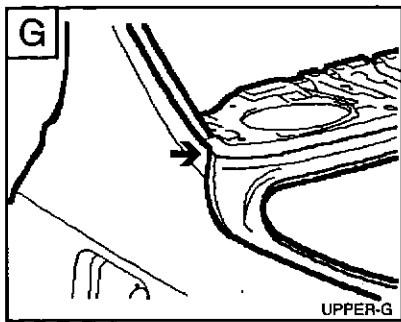
Hood hinge mounting hole (Ø12)



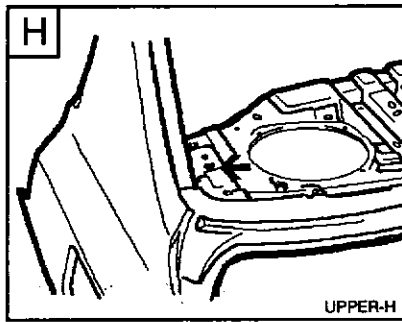
Roof panel corner (Front section)



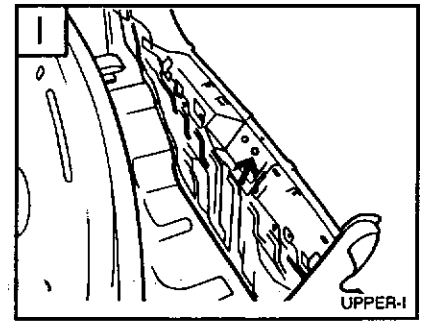
Roof panel corner (Rear section)



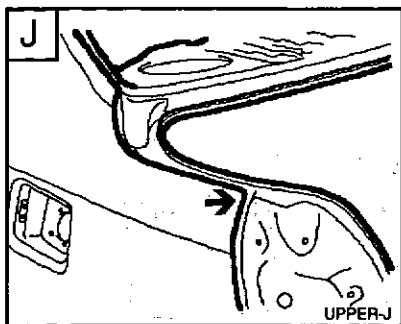
Quarter outer panel left rear corner



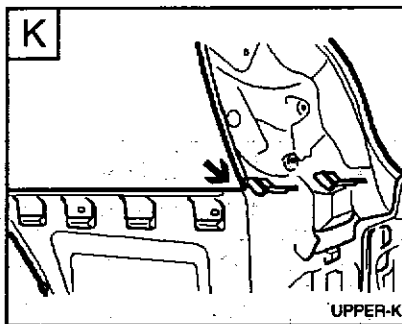
Trunk lid hinge rear mounting hole(Ø10)



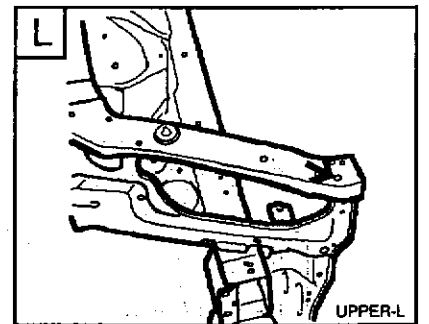
Trunk lid striker mounting hole (Ø7)



Quarter outer panel left rear end

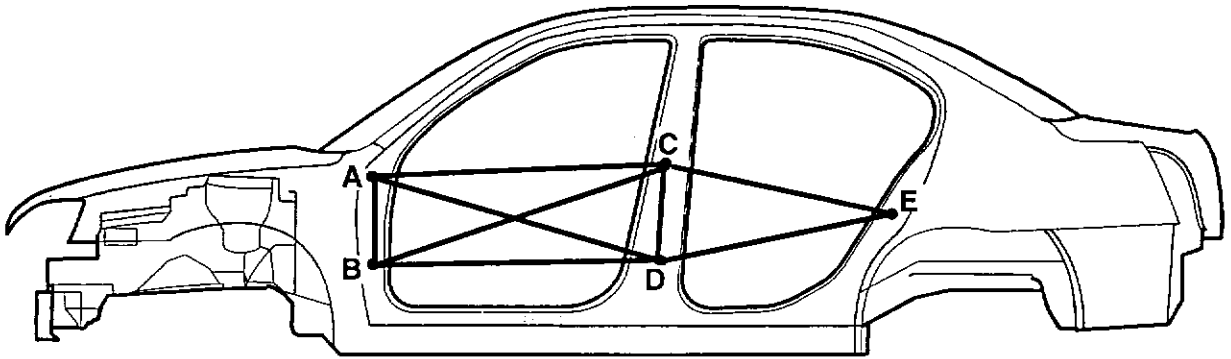


Quarter outer panel lower corner



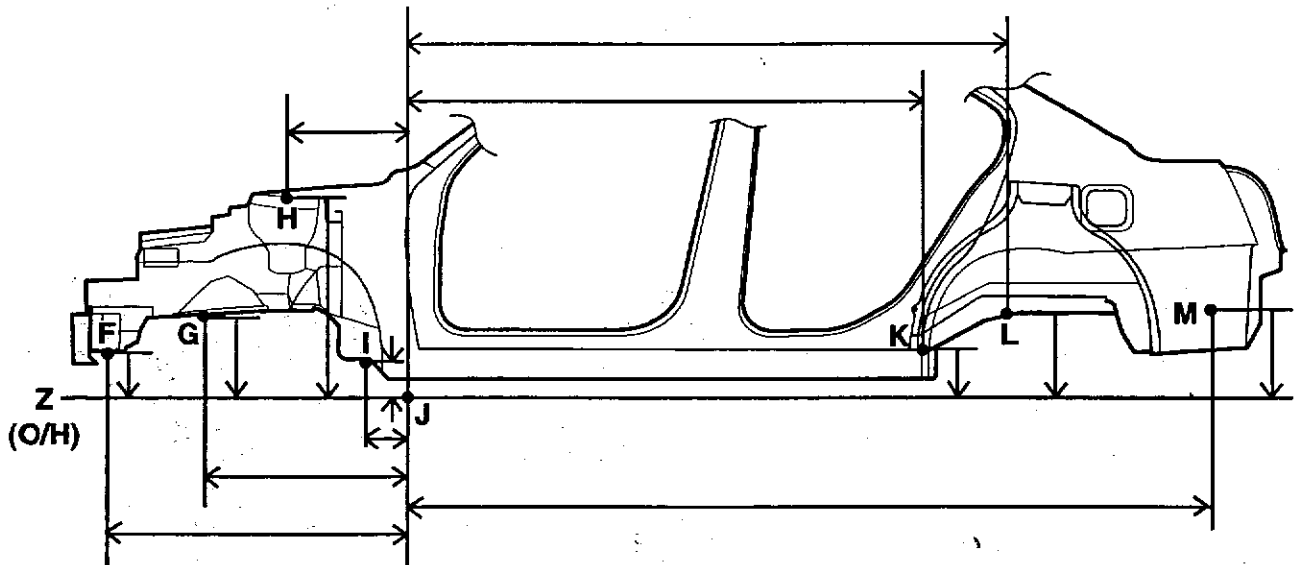
Radiator upper panel mounting hole(Ø6.6)

SIDE BODY



SIDE-2

\* These dimensions indicated in this figure are **actual-measurement dimensions**.

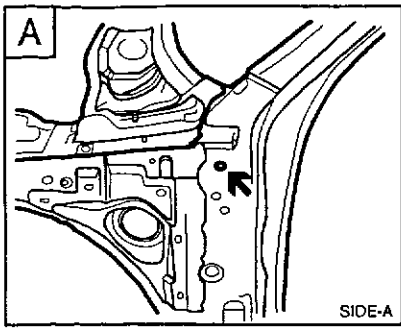


SIDE-1

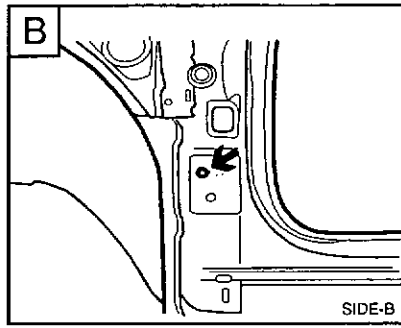
\* These dimensions indicated in this figure are **projected dimensions**.

Point symbol	A-B	A-C	A-D	B-C	B-D	C-D	C-E	D-E
Length (mm)	337	1083	1118	1150	1073	365	864	905
Point symbol	F-Z	G-Z	H-Z	I-Z	K-Z	L-Z	M-Z	F-J
Length (mm)	59	176	582	-35	47	160	212	1033
Point symbol	G-J	H-J	I-J	J-K	J-L	J-M	J-Z	
Length (mm)	785	410	33	1698	2160	2797	-56	

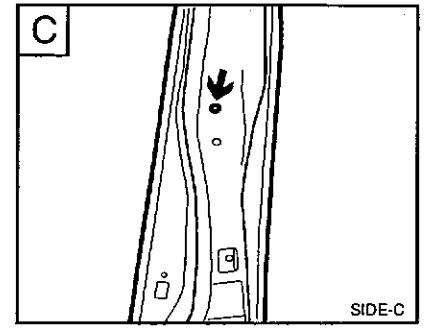
**BODY DIMENSIONS - Side body**



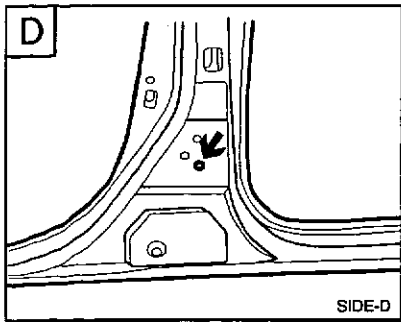
Front door hinge upper mounting hole(Ø11)



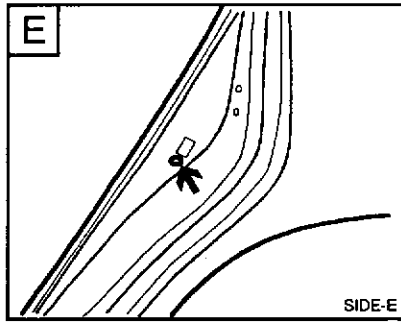
Front door hinge lower mounting hole(Ø11)



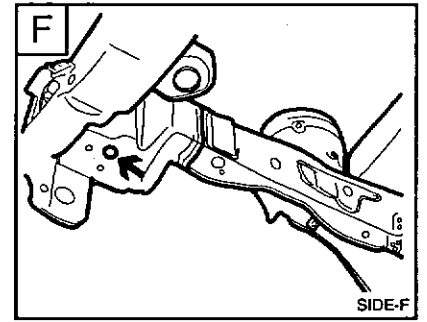
Rear door hinge upper mounting hole(Ø11)



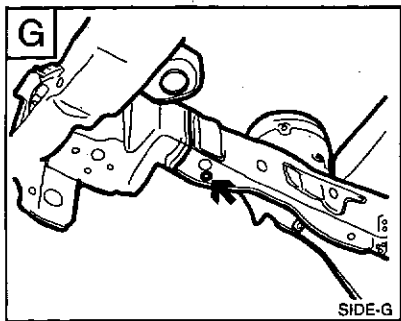
Rear door hinge lower mounting hole(Ø11)



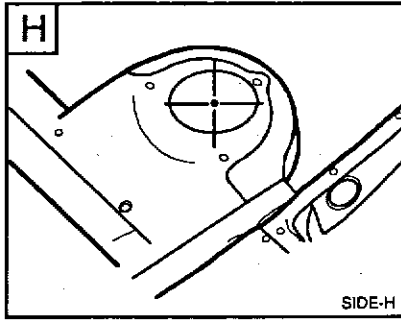
Rear door switch mounting hole(Ø8)



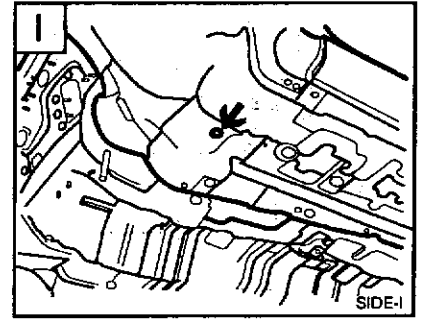
Sub-frame mounting hole(Ø24)



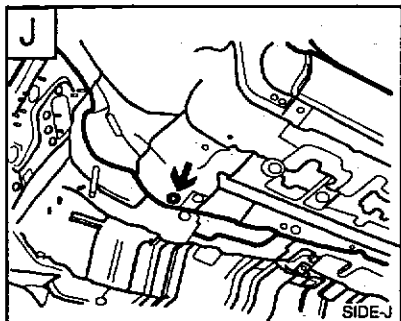
Under cover mounting hole(Ø6.6)



Front shock absorber upper mounting hole(Ø100)



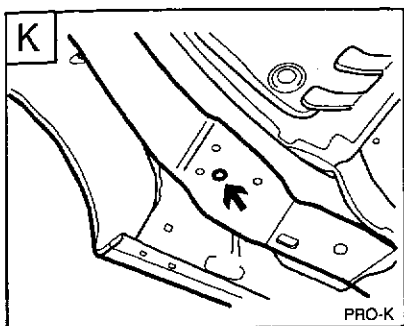
Front side rear lower member stay mounting hole(Ø14)



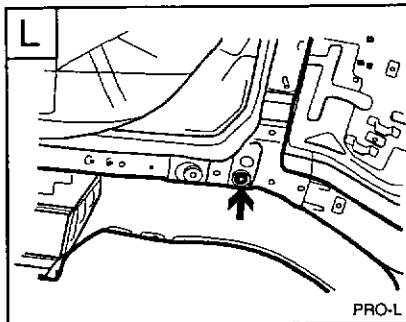
Front side rear lower member stay mounting hole(Ø14)



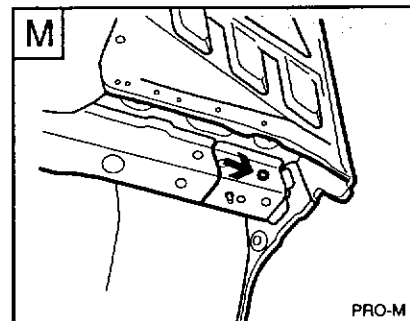
# BODY DIMENSIONS - Side body



Rear floor side member tooling hole(Ø12)

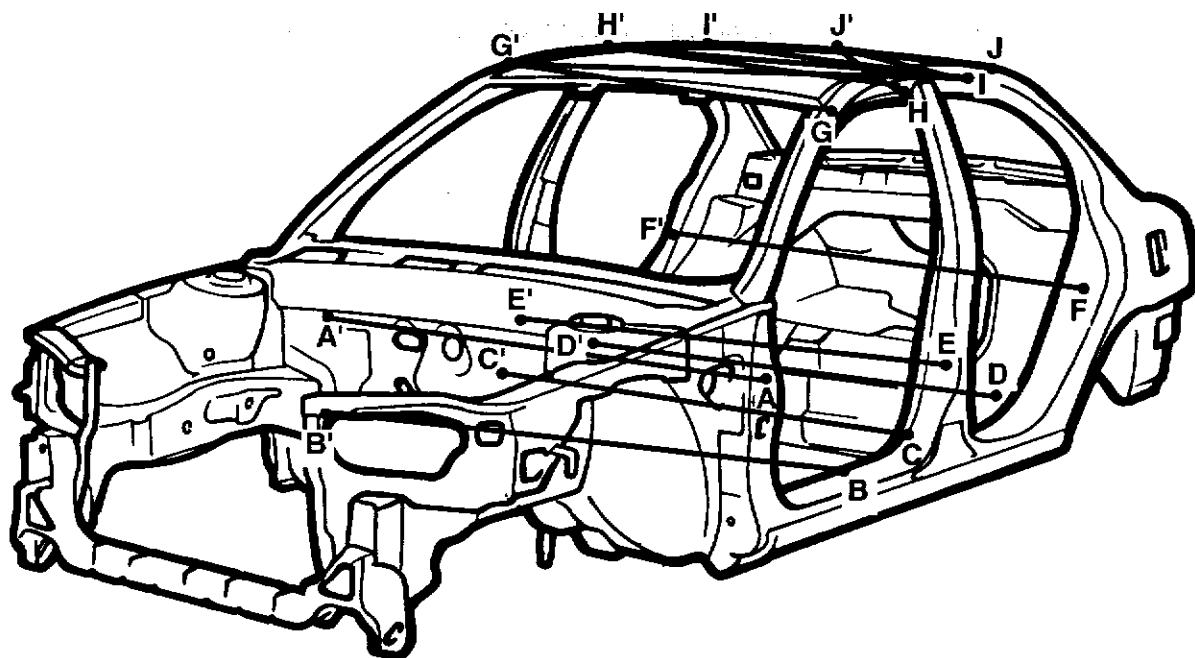


Rear crossmember mounting hole(Ø14)



Rear bumper stay mounting hole (Ø13)

INTERIOR

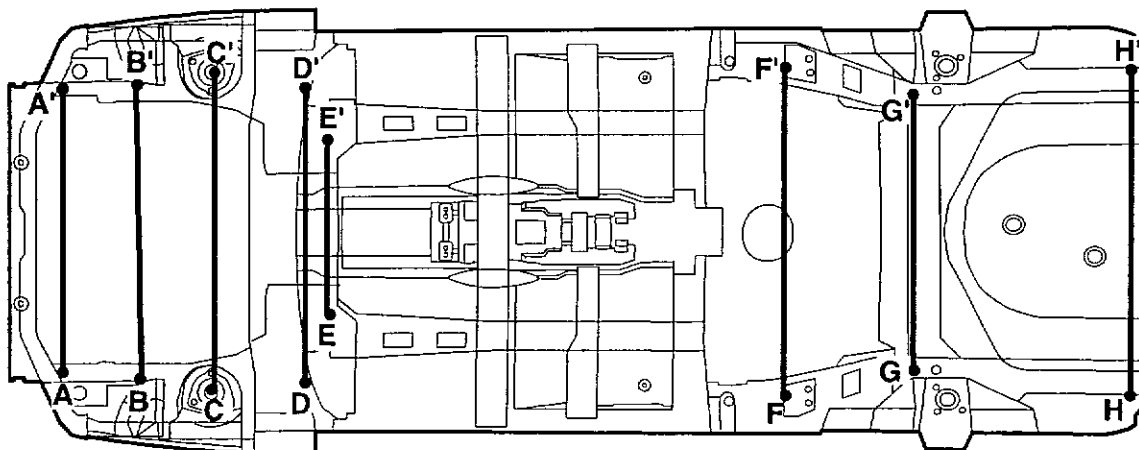


INT-ASSY

\* These dimensions indicated in this figure are actual-measurement dimensions.

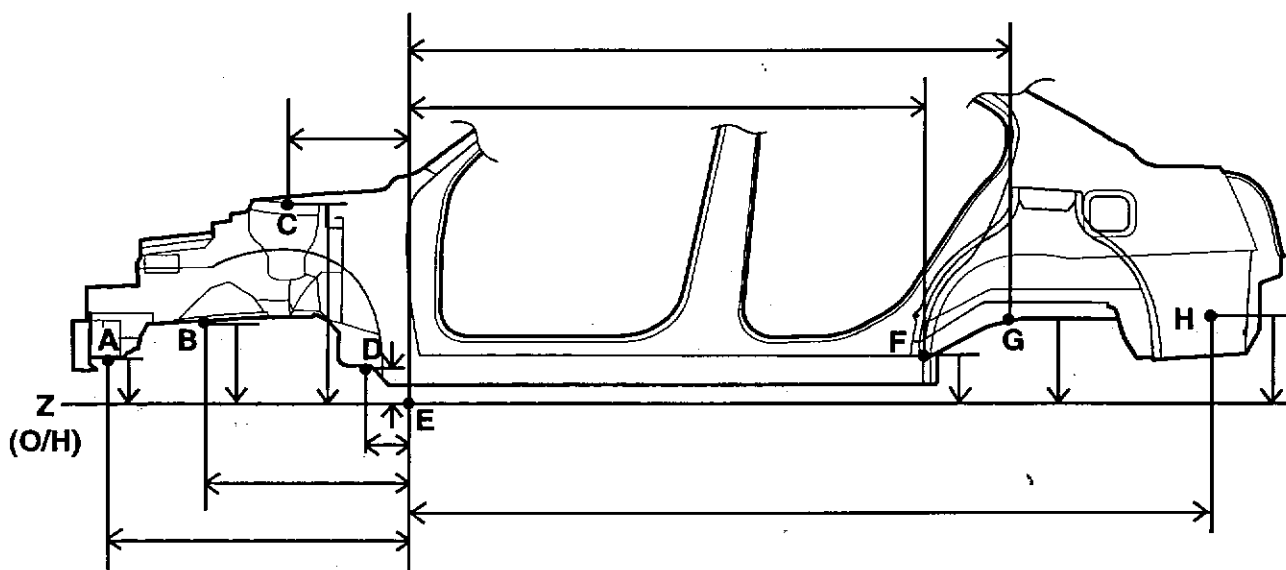
Point symbol	A-A'	B-B'	C-C'	D-D'	E-E'	F-F'	G-G'	H-H'
Length (mm)	1467	1322	1329	1122	1498	1498	1062	1043
Point symbol	I-I'	J-J'	I-G'	I-J'	H-J'			
Length (mm)	1047	830	1300	978	1088			

UNDER BODY



UND-ASSY

\* These dimensions indicated in this figure are actual-measurement dimensions.

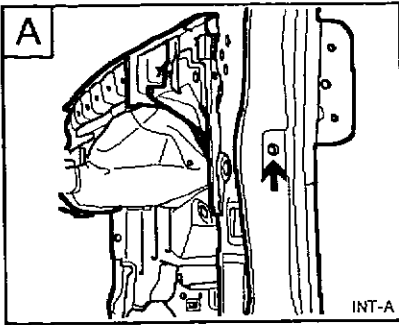


SIDE-1

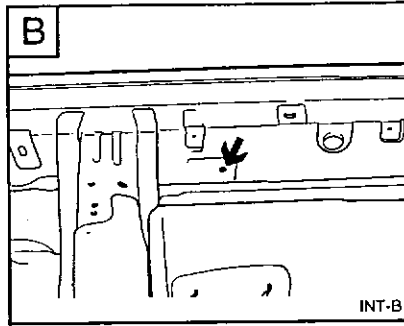
\* These dimensions indicated in this figure are projected dimensions.

Point symbol	A-A'	B-B'	C-C'	D-D'	E-E'	F-F'	G-G'	H-H'
Length (mm)	960	990	1136	996	682	1126	959	1020
Point symbol	A-Z	B-Z	C-Z	D-Z	F-Z	G-Z	H-Z	A-E
Length (mm)	59	176	582	-35	47	160	212	1033
Point symbol	B-E	C-E	D-E	E-F	E-G	E-H	E-Z	
Length (mm)	785	410	33	1698	2160	290	-56	

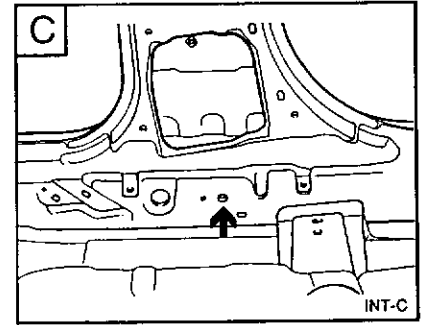
**BODY DIMENSIONS - Interior**



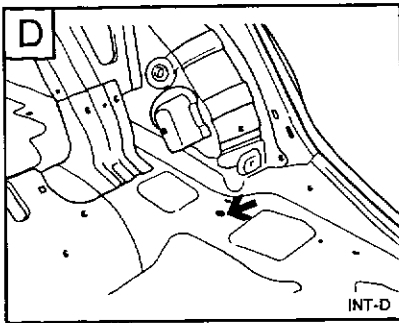
Front door checker mounting hole(Ø11)



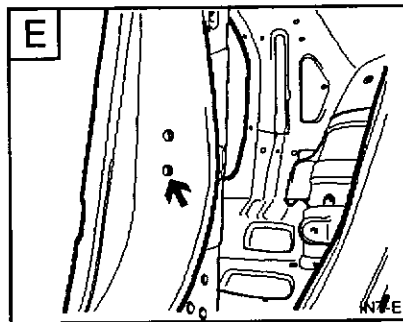
Fuel filler door handle mounting hole(Ø6.5)



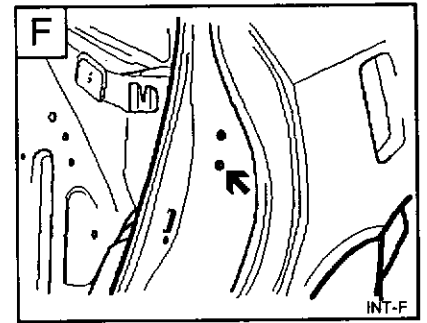
Seat belt anchor mounting hole (Ø12.2)



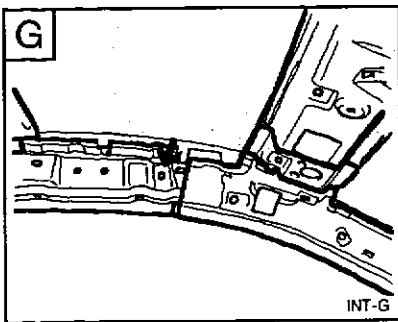
Rear seat belt mounting hole (Ø15.7)



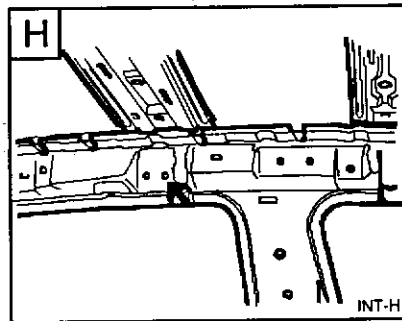
Front door striker mounting hole(Ø11)



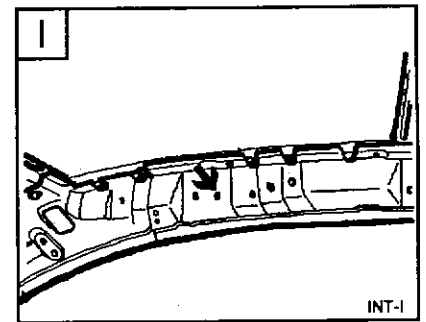
Rear door striker mounting hole(Ø11.5)



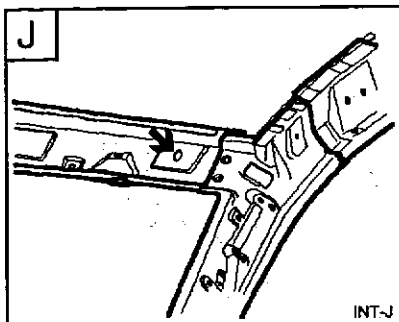
Tooling hole(Ø8)



Sun roof bracket mounting hole (Ø 6.6)

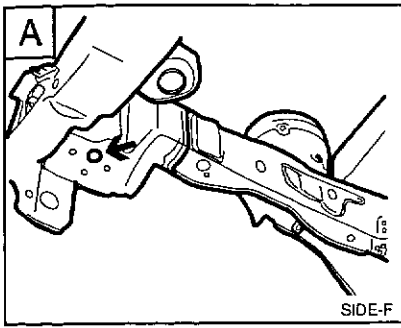


Sun roof bracket mounting hole(Ø6.6)

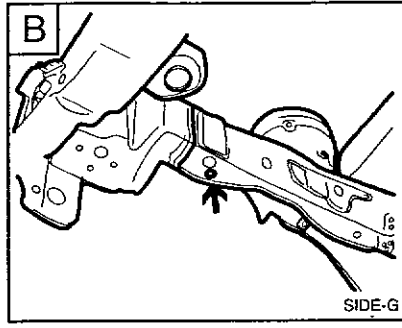


Tooling hole(Ø15)

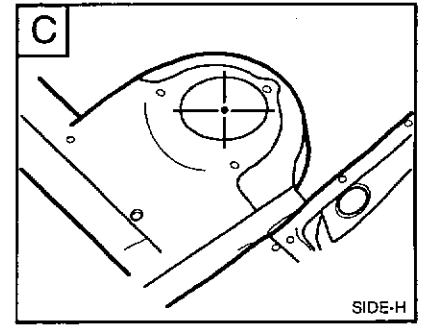
**BODY DIMENSIONS - Under body**



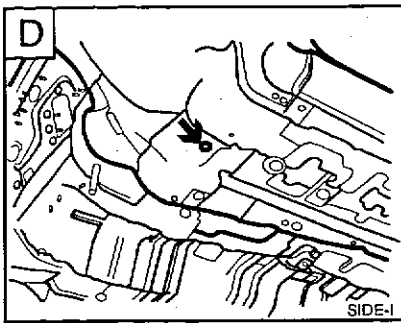
Sub-frame mounting hole(Ø24)



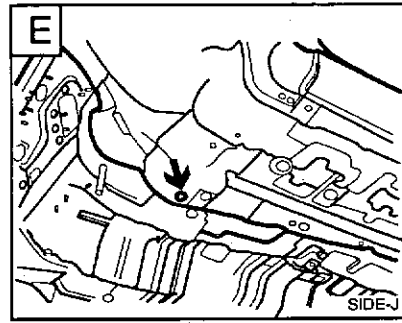
Front side member inner under cover mounting hole(Ø6.6)



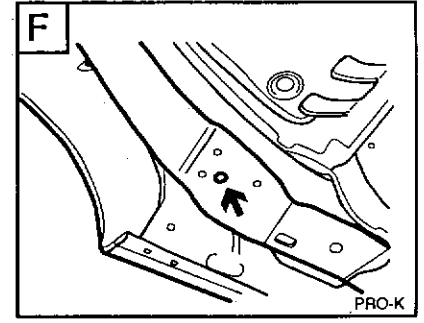
Front shock absorber upper mounting hole(Ø100)



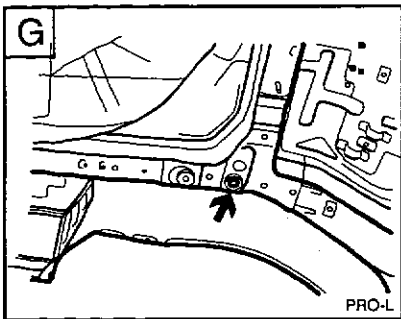
Front side rear lower member stay mounting hole(Ø14)



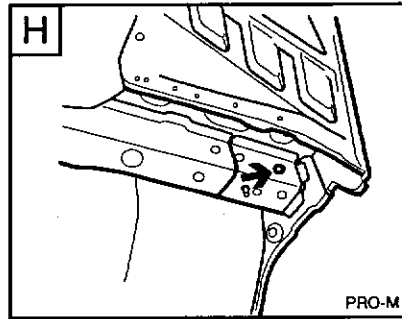
Front side rear lower member stay mounting hole(Ø14)



Rear floor side member tooling hole(Ø12)

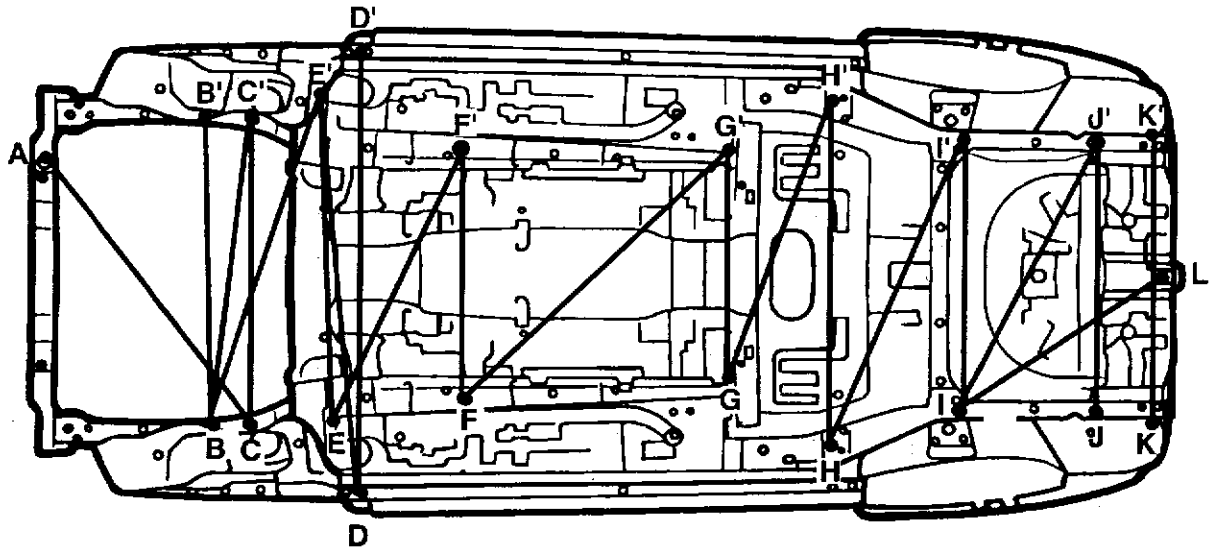


Chassis rear crossmember mounting hole(Ø14)



Rear bumper stay mounting hole(Ø13)

UNDER BODY

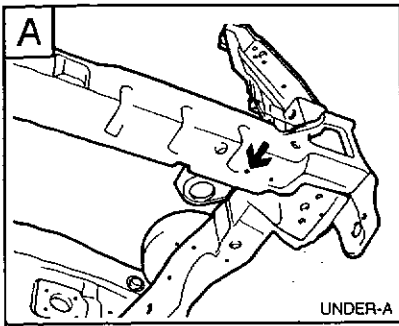


ACT-ASSY

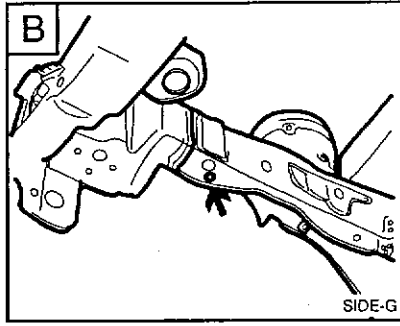
\* These dimensions indicated in this figure are actual-measurement dimensions.

Point symbol	A-C	B-B'	B-E'	B-C'	C-C'	D-D'	E-E'	D-E'
Length (mm)	1087	990	1262	1052	956	1440	994	1218
Point symbol	E-F'	F-F'	F-G'	G-G'	G-H'	H-H'	H-I'	I-I'
Length (mm)	963	754	1214	754	1044	1180	1171	959
Point symbol	I-J'	J-J'	K-K'	I-L	K-L			
Length (mm)	1087	960	1020	870	550			

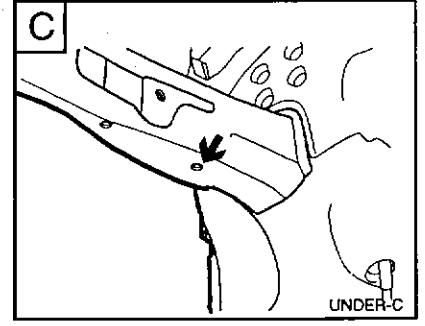
**BODY DIMENSIONS - Under body**



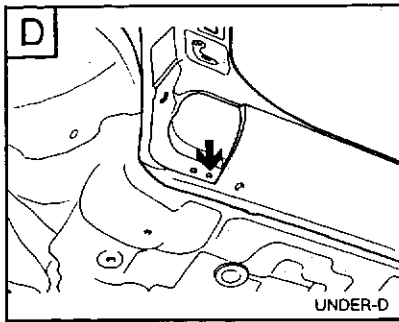
Product ID tag mounting hole (Ø5.2)



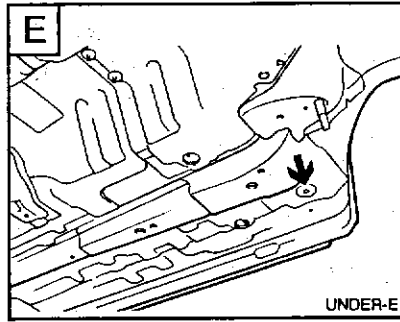
Front side inner member under cover mounting hole(Ø6.6)



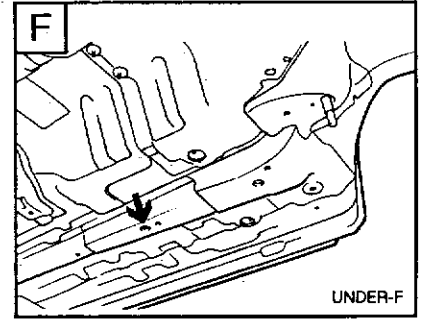
Tooling hole(Ø15)



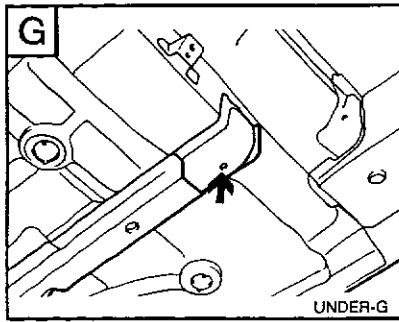
Fender panel mounting hole (Ø9)



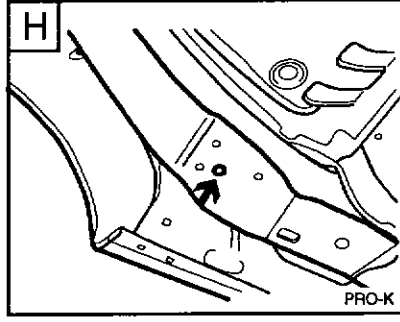
Front side lower member stay mounting hole(Ø14)



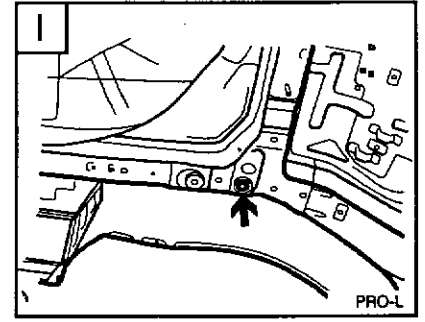
Center floor side member tooling hole(Ø28)



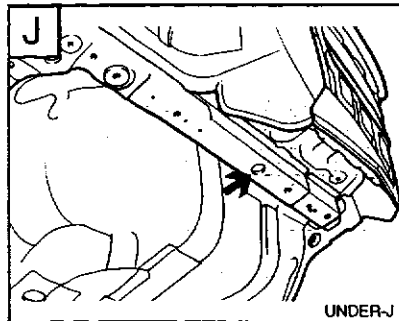
Rear floor side member tooling hole(Ø10)



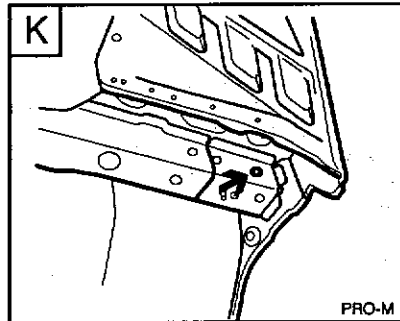
Rear floor side member tooling hole(Ø12)



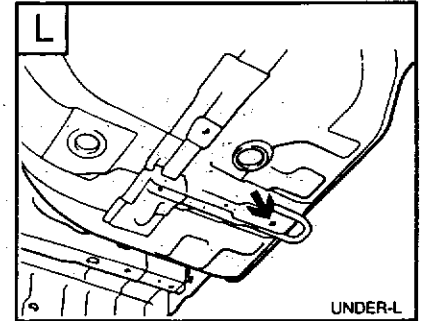
Chassis rear crossmember mounting hole(Ø14)



Rear floor side member tooling hole(Ø31.4)

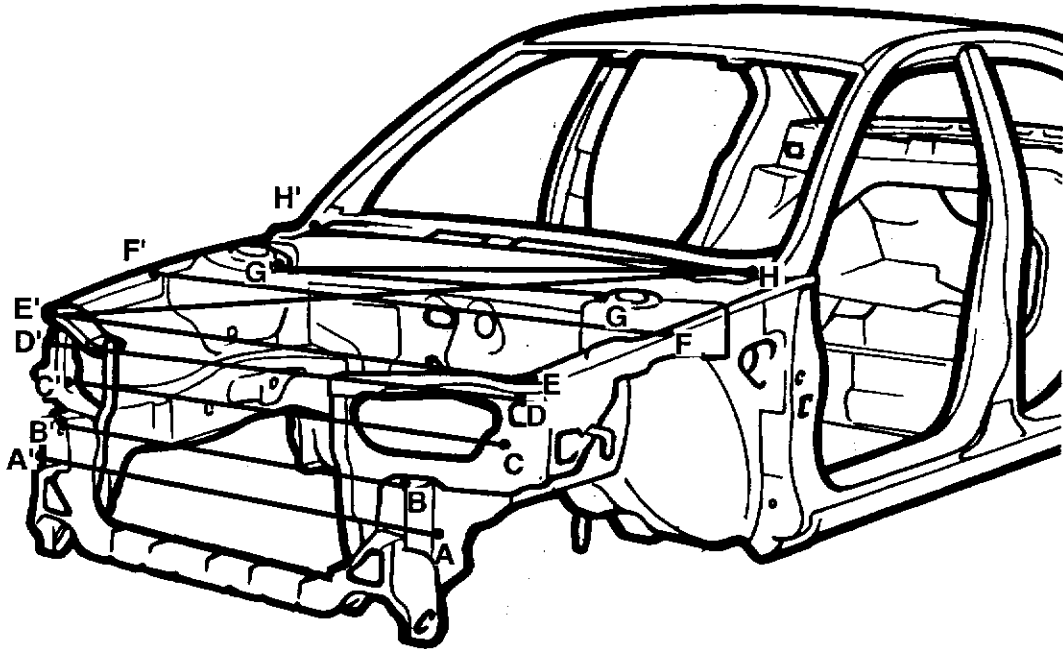


Rear bumper stay mounting hole(Ø13)



Tooling hole(Ø12)

ENGINE COMPARTMENT



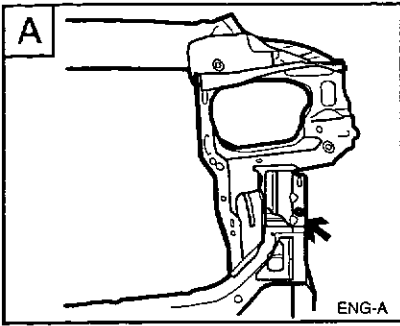
ENG-ASSY

\* These dimensions indicated in this figure are actual-measurement dimensions.

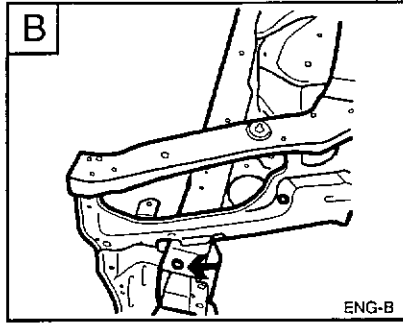
Point symbol	A-A'	B-B'	C-C'	D-D'	E-E'	F-F'	G-G'	H-H'
Length (mm)	1070	980	1274	1324	1434	1434	998	1326
Point symbol	H-E'	H-G'						
Length (mm)	1626	1216						



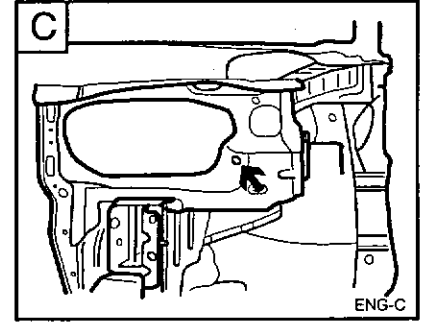
**BODY DIMENSIONS - Engine compartment**



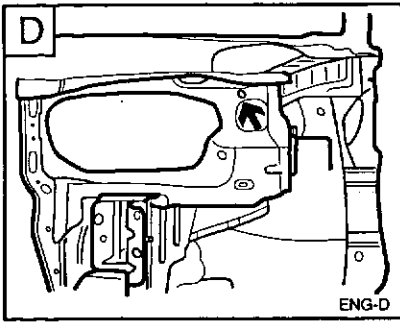
Front bumper back beam mounting hole(Ø13)



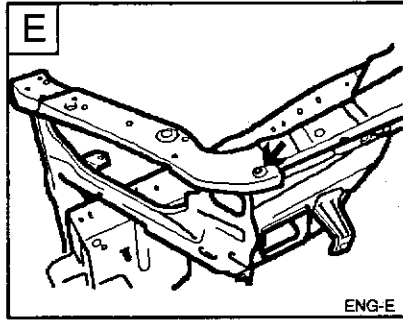
Front bumper back beam mounting hole(Ø9)



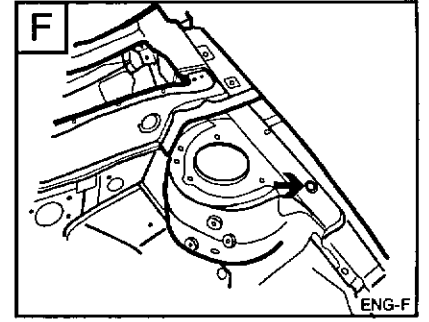
Head lamp support panel tooling hole(Ø10)



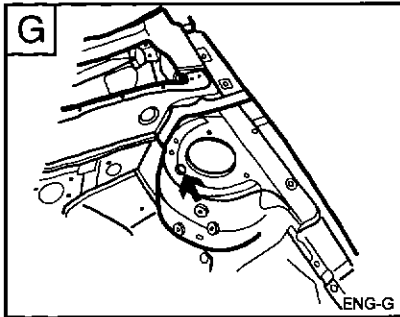
Hood release cable mounting hole(Ø7)



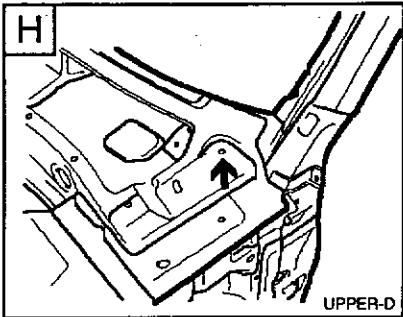
Tooling hole(Ø10)



Fender panel mounting hole (Ø8)

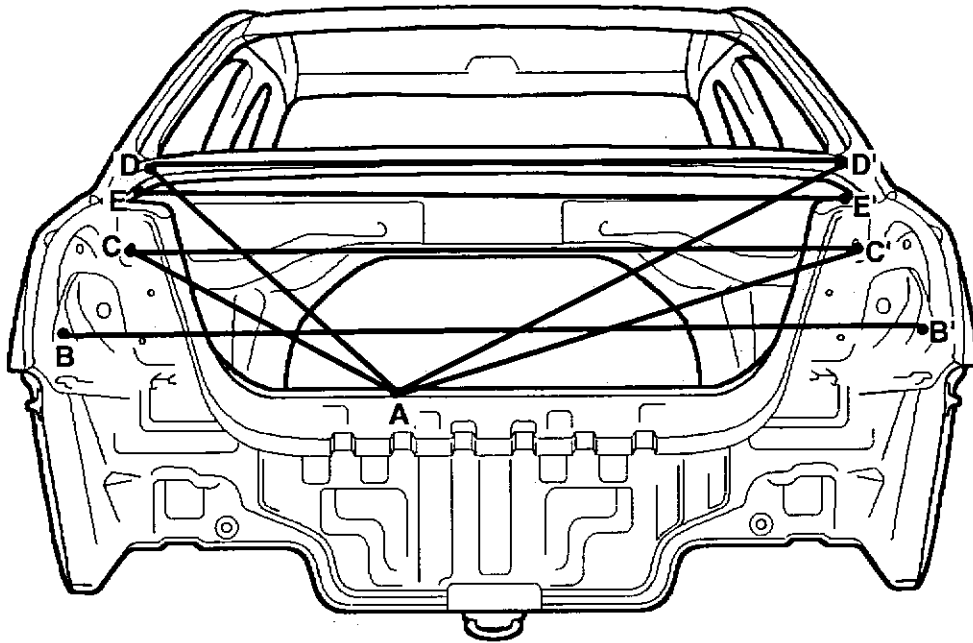


Shock absorber mounting hole (Ø11)



Hood hinge mounting hole (Ø12)

LUGGAGE COMPARTMENT

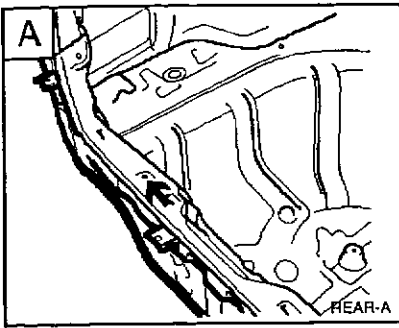


LUG-ASSY

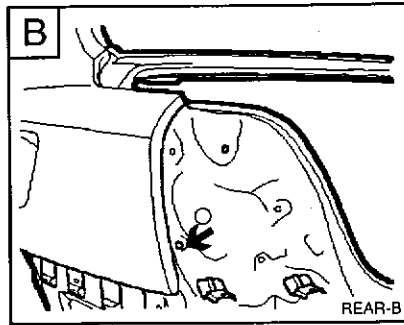
\* These dimensions indicated in this figure are **actual-measurement dimensions**.

Point symbol	A-C'	B-B'	C-C'	D-D'	E-E'	A-D'	A-C	A-D
Length (mm)	832	1370	1168	1130	1219	1024	474	772

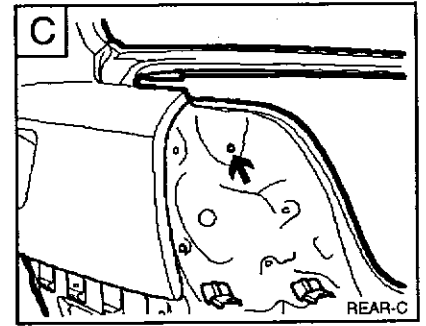
## BODY DIMENSIONS - Luggage compartment



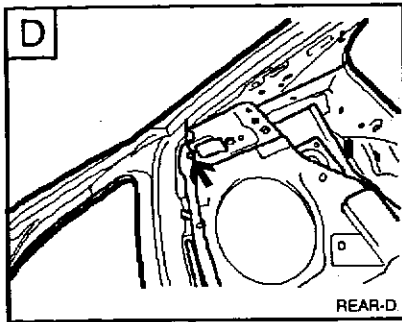
Trim mounting hole(Ø6)



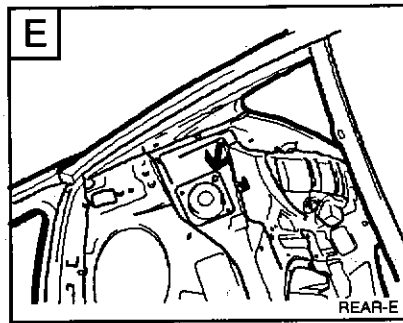
Rear combination lamp mounting hole(Ø10)



Rear combination lamp mounting hole(Ø9)

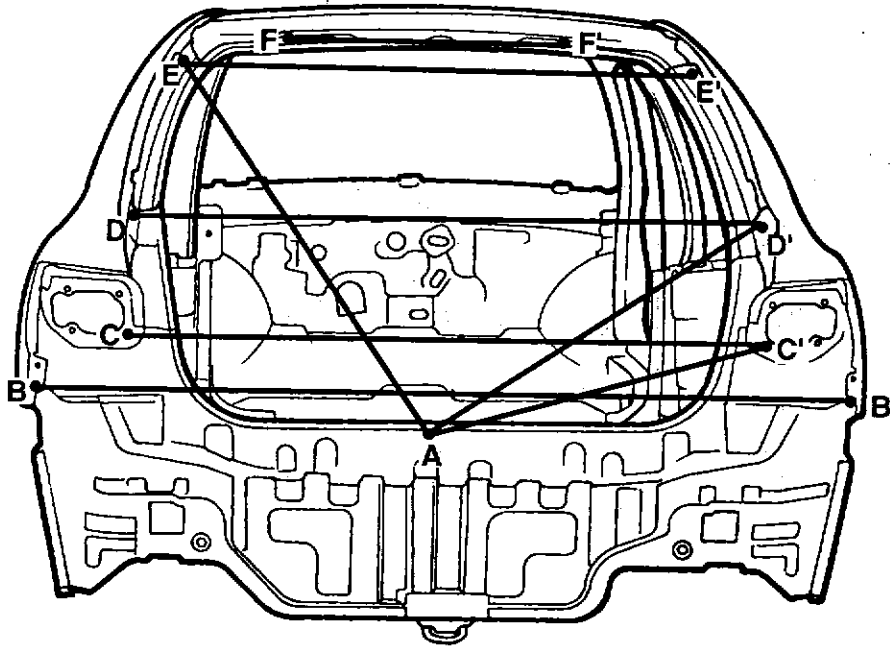


Trunk lid hinge mounting hole (Ø14)



Rear shock absorber mounting hole(Ø11)

LUGGAGE COMPARTMENT (5 DOOR)

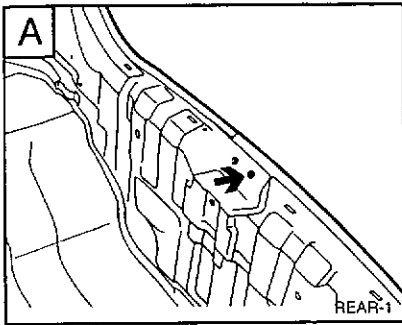


LUG-2

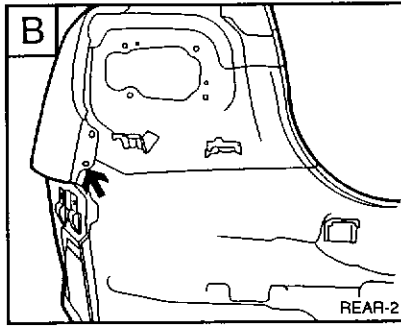
\* These dimensions indicated in this figure are actual-measurement dimensions.

Point symbol	A-C'	B-B'	C-C'	D-D'	E-E'	F-F'	A-D'	A-E
Length (mm)	604	1431	1109	1117	1076	625	704	1160

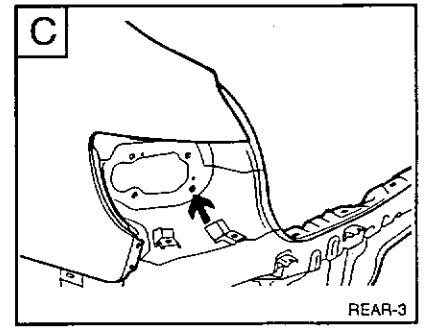
## BODY DIMENSIONS - Luggage compartment (5 Door)



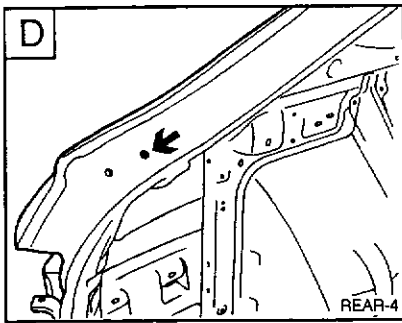
Tail gate striker mounting hole(Ø14)



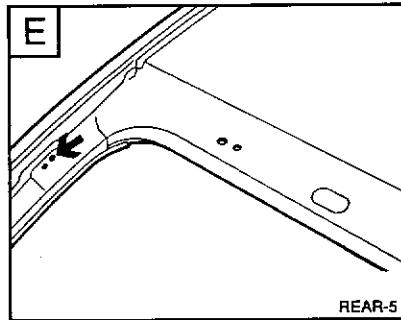
Rear bumper mounting hole(Ø6.5)



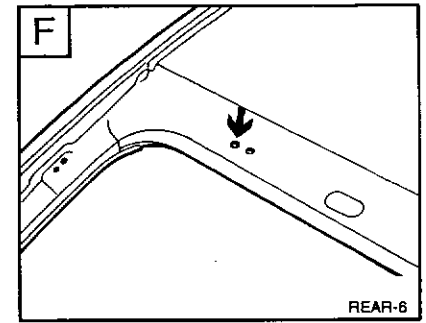
Rear combination lamp mounting hole(Ø6)



Tail gate guide bumper mounting hole(Ø8)



Gas lifter mounting hole(Ø11)



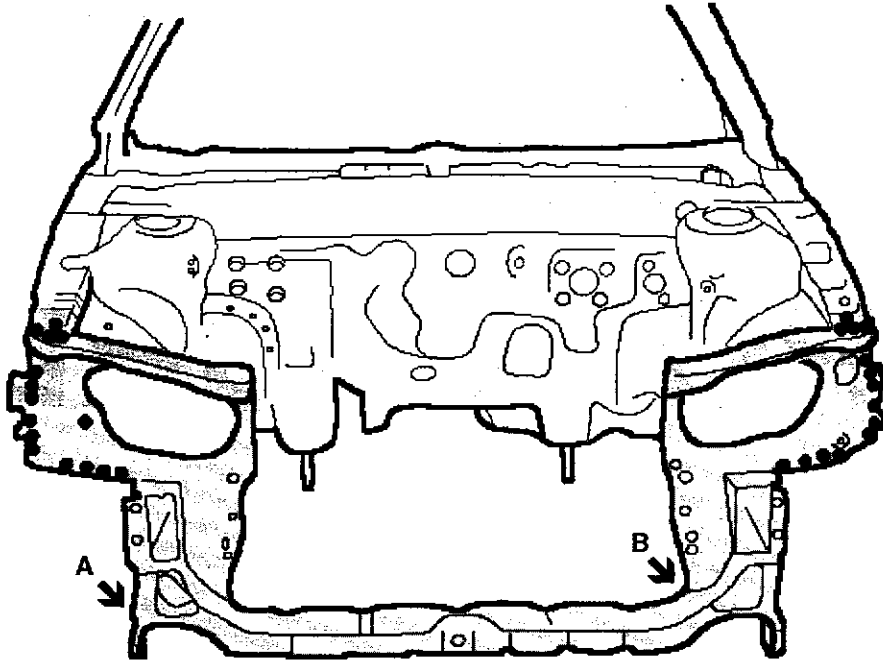
Tail gate hinge mounting hole(Ø12)



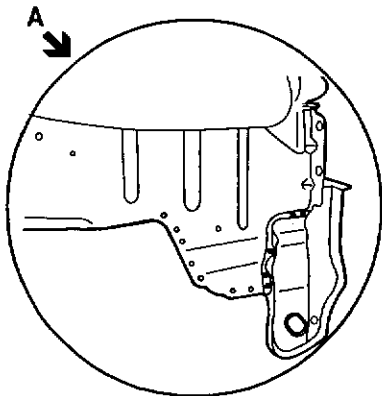
# **BODY PANEL REPAIR PROCEDURE**

# RADIATOR SUPPORT PANEL

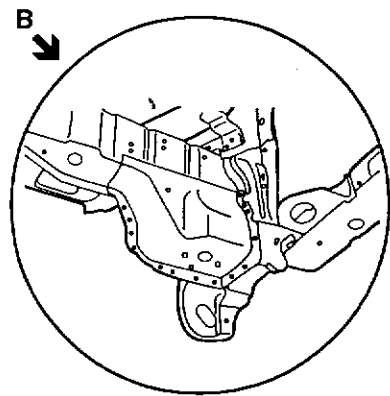
## WELDING POINTS



PRO-0020



PRO-0320A



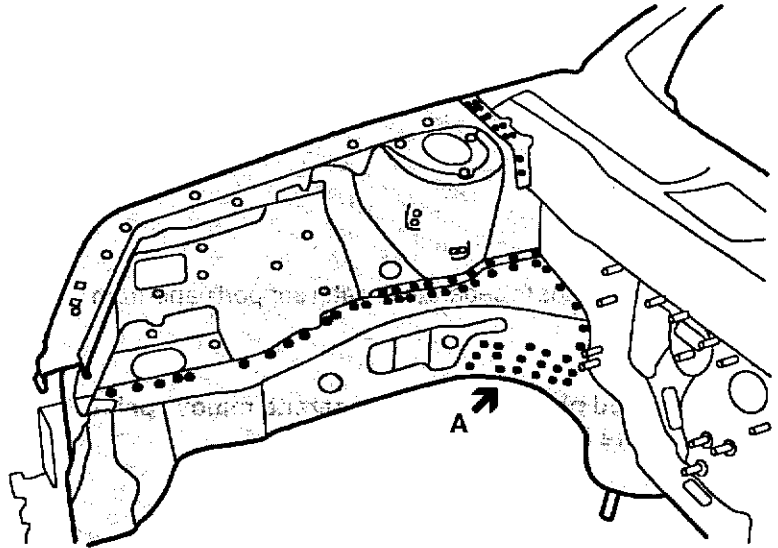
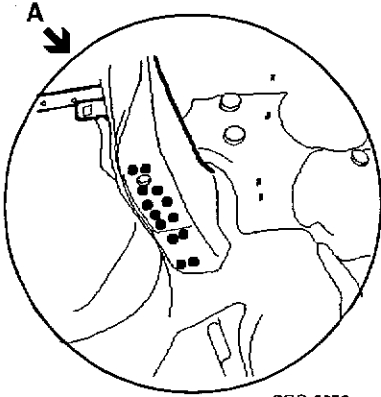
PRO-0040

- MIG plug welding

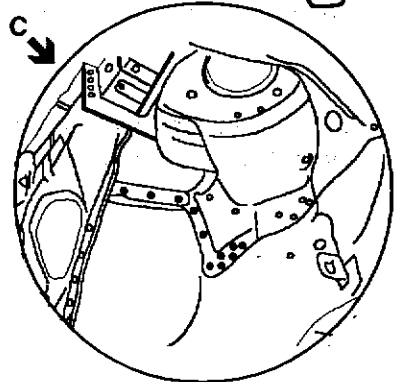
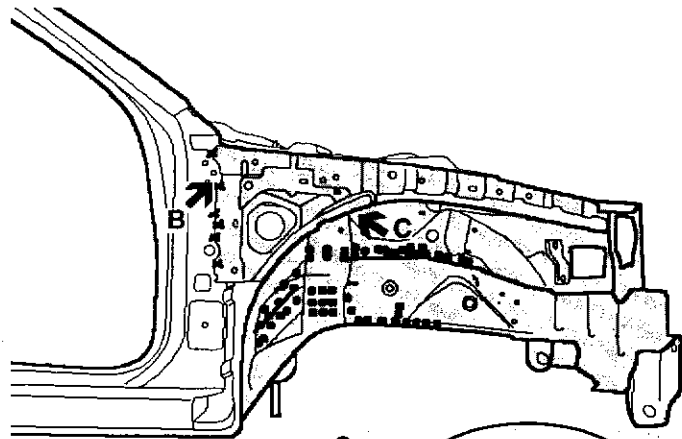
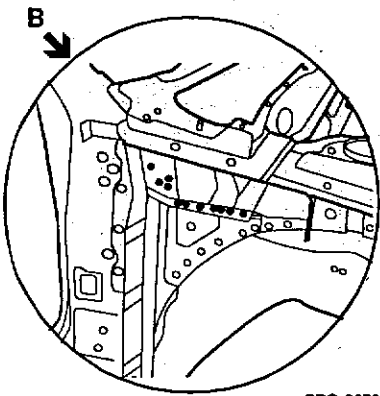


# FENDER APRON AND FRONT SIDE MEMBER (ASSEMBLY)

## WELDING POINTS



- MIG plug welding

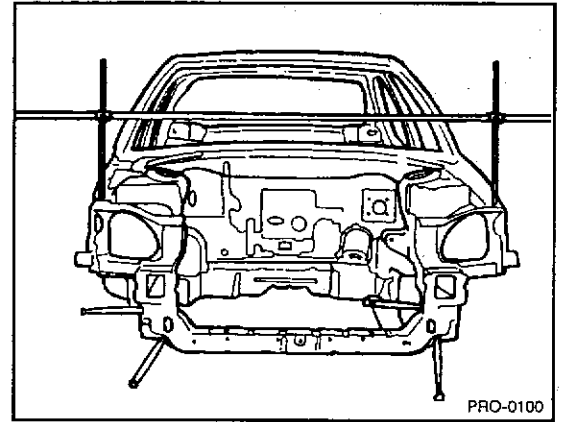


- MIG plug welding
- ≡≡≡ MIG butt welding
- ××× MIG lap welding

## BODY PANEL REPAIR PROCEDURE - Fender apron and front side member (Assembly)

### NOTE

Before repairing, remove Engine and Suspension Components. Refer to the body dimension charts and measure the vehicle to determine straightening and alignment requirements. The body must be returned to its original dimension before you begin the repair procedure.

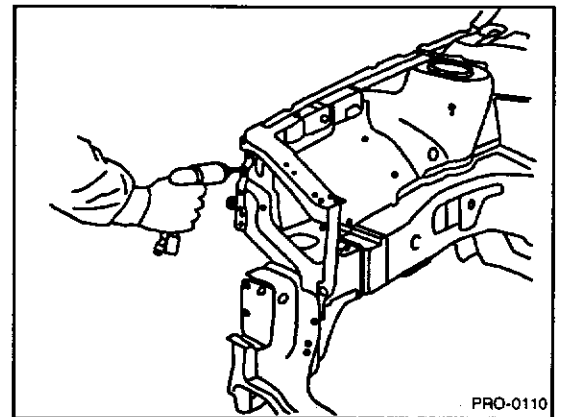


### REMOVAL

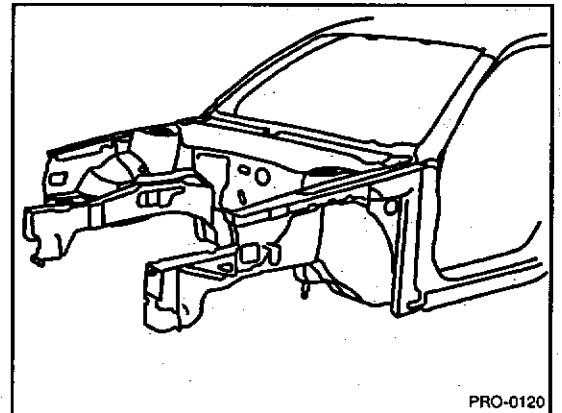
1. Drill out all the spotwelds to separate radiator support panel from front side member.

### NOTE

When spotwelded portions are not apparent, remove paint with a rotary wire brush.



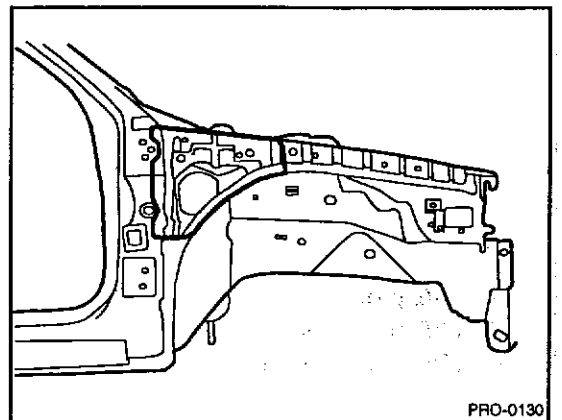
2. Remove the radiator support panel.



3. Drill out all the spotwelds attaching the cowl side upper outer panel.

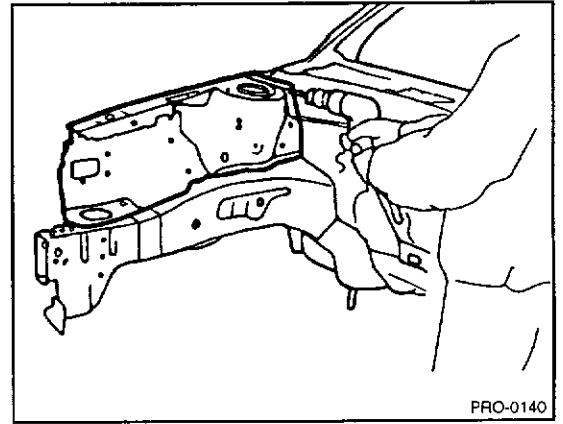
### NOTE

If it is possible that the cowl side upper outer panel is reusable, be careful not to damage it while removing.



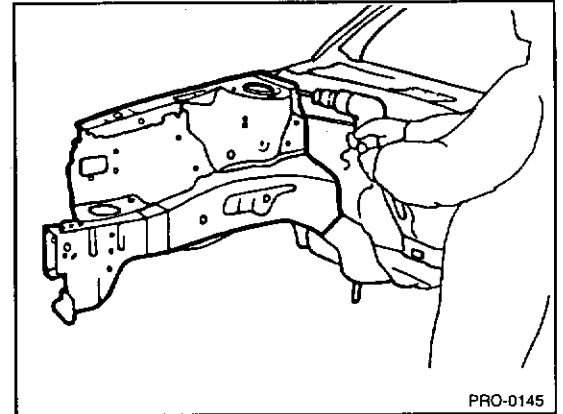
## BODY PANEL REPAIR PROCEDURE - Fender apron and front side member (Assembly)

- Using a spotweld cutter, drill out all the spotwelds attaching the fender apron to the dash panel and front side member.
- Remove the fender apron panel.

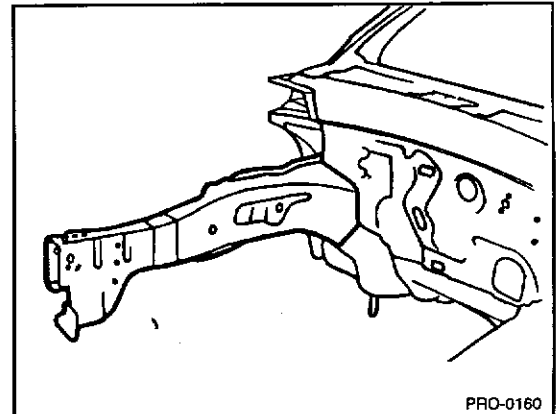


### NOTE

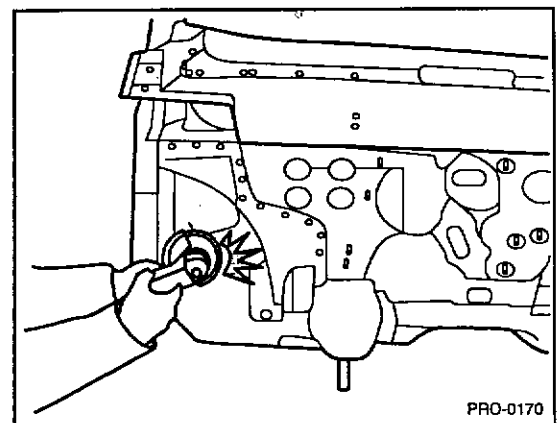
If collision damage requires replacement of fender apron and front side member together, remove both of them at the same time.



- Using a spotweld cutter, remove the front side member by drilling out the spotwelds.

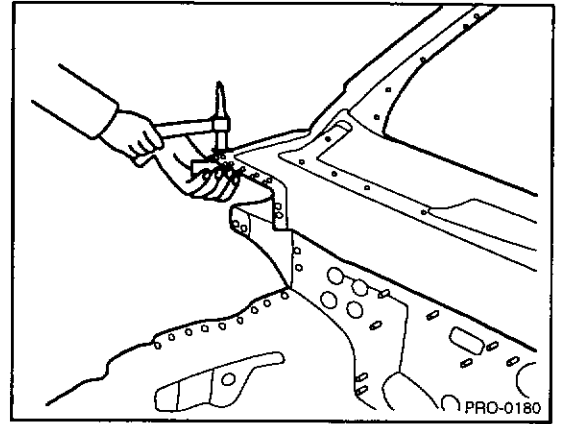


- Grind and smooth any weld traces which might be left on the body surface by using an air grinder or similar tool, being careful not to damage any of the panels which is not to be replaced.



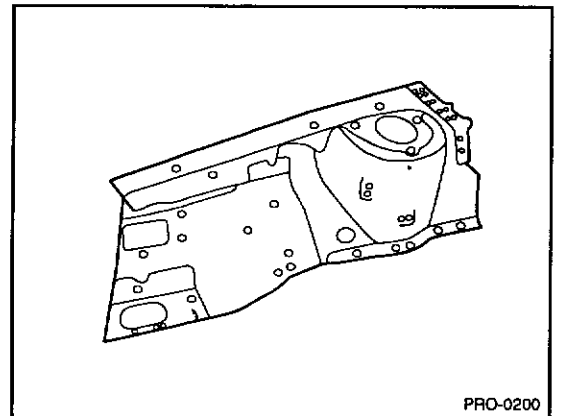
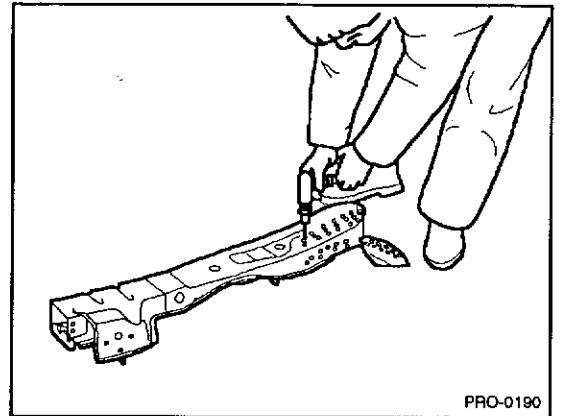
## BODY PANEL REPAIR PROCEDURE - Fender apron and front side member (Assembly)

- Using a hammer and dolly, correct any flanges that become bent or deformed when spotwelds are broken.

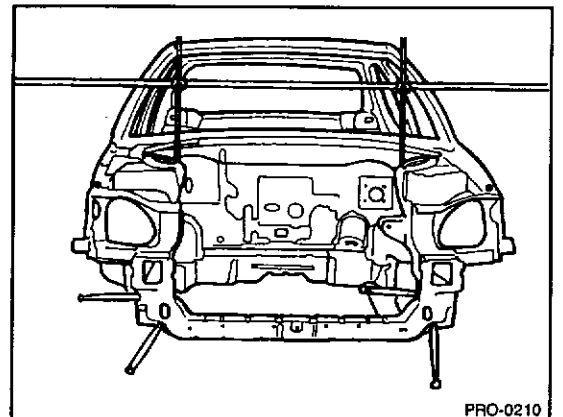


### INSTALLATION

- Drill 8 mm holes in the new fender apron and front side member for MIG plug welding.
- Remove paint from both sides of all portions that are to be welded such as peripheries of MIG plug weld holes.

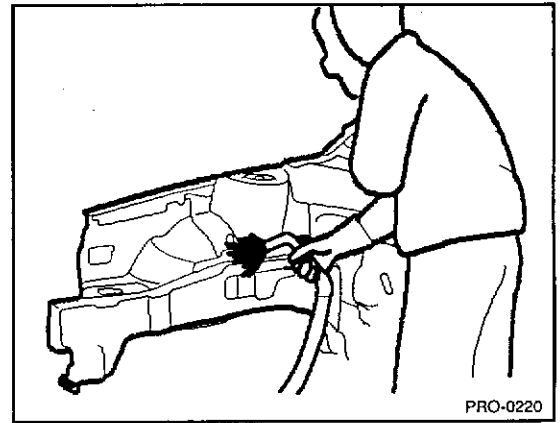


- Temporarily install new parts in place.
- Measure each measurement point (Refer to the BODY DIMENSIONS) and correct the installation position.

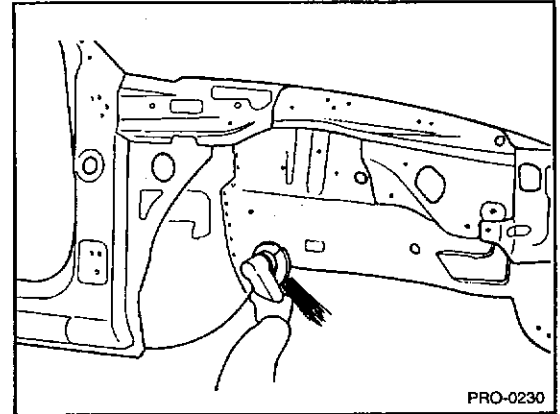


## BODY PANEL REPAIR PROCEDURE - Fender apron and front side member (Assembly)

5. MIG plug weld all holes

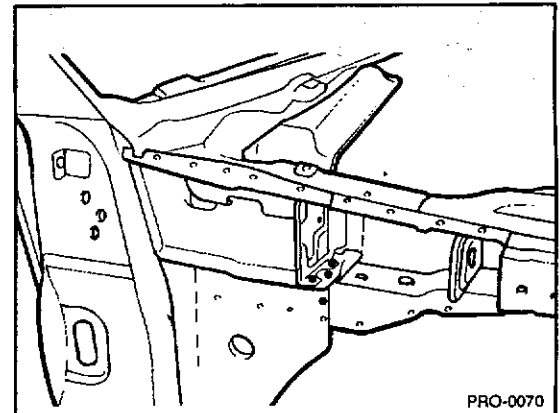


6. Clean MIG welds with a disc grinder.

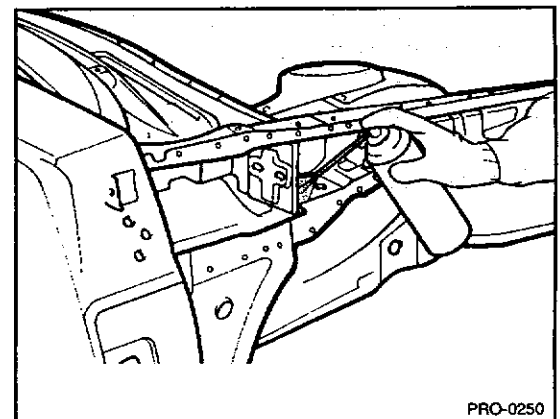


### NOTE

1. Be careful not to grind welded portions too much.
2. The internal parts will be stronger if the weld traces are not ground.

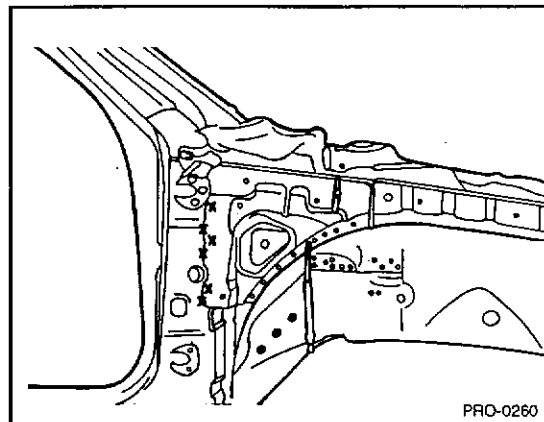


7. Before welding the cowl side upper outer panel, apply the two part epoxy primer and anti-corrosion agent to the interior of the fender apron panel.

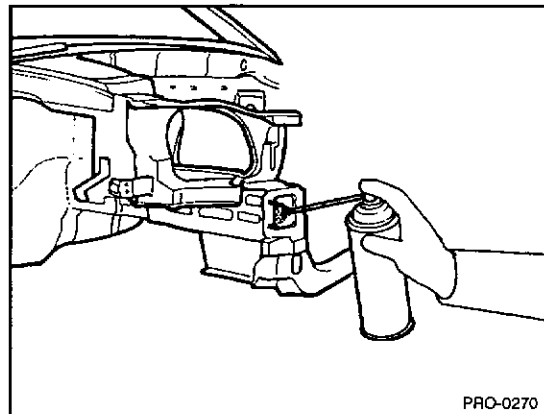


## BODY PANEL REPAIR PROCEDURE - Fender apron and front side member (Assembly)

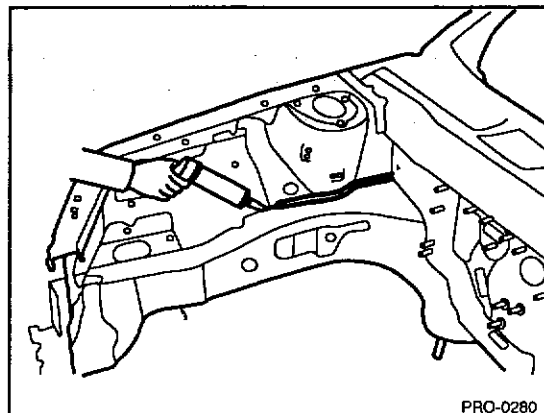
8. Install the cowl side upper outer panel in place.
9. MIG plug weld all holes.
10. Clean and prepare all welds, remove all residue.
11. Apply the two part epoxy primer to the interior of the each panel.



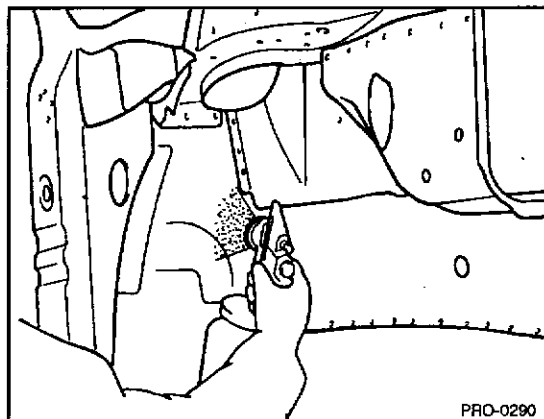
12. Apply an anti-corrosion agent as required (Refer to the CORROSION PROTECTION).
13. Prepare the exterior surfaces for priming using wax and grease remover.
14. Apply metal conditioner and water rinse.
15. Apply conversion coating and water rinse.
16. Apply the two-part epoxy primer.



17. Apply the correct seam sealer to all joints carefully (Refer to the BODY SEALING LOCATION).
18. Reprime over the seam sealer to complete the repair.



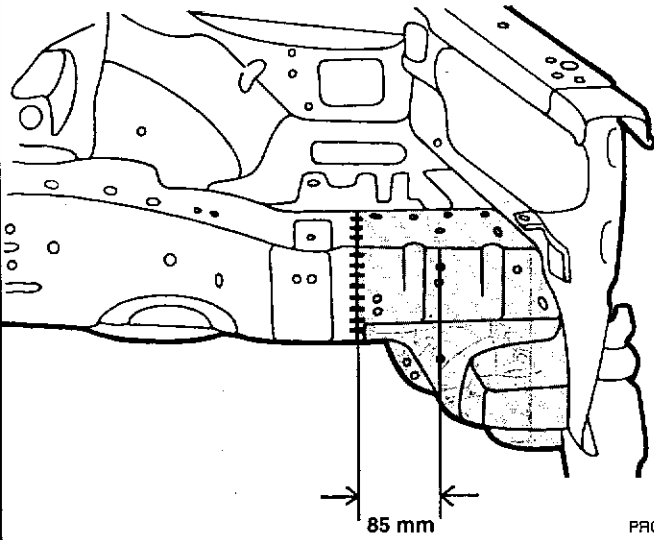
19. After completing body repairs, carefully apply under coating to the front sidemember and fender apron (Refer to the CORROSION PROTECTION).
20. In order to improve corrosion resistance, if necessary, apply an under body anti-corrosion agent to the panel which is repaired or replaced (Refer to the CORROSION PROTECTION).



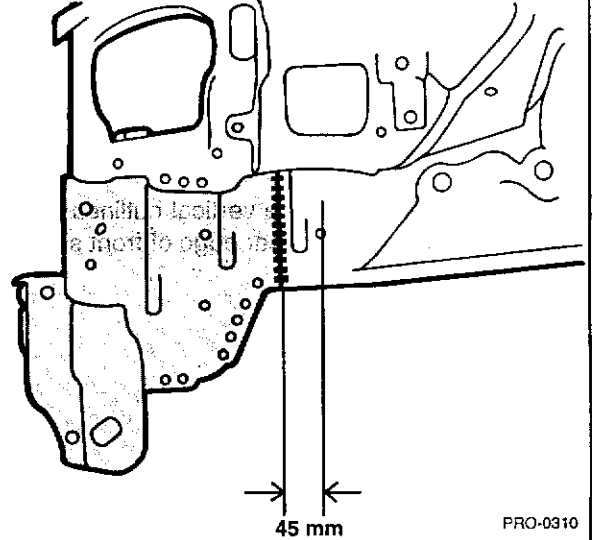
FRONT SIDE MEMBER (PARTIAL)

WELDING POINTS

L/H



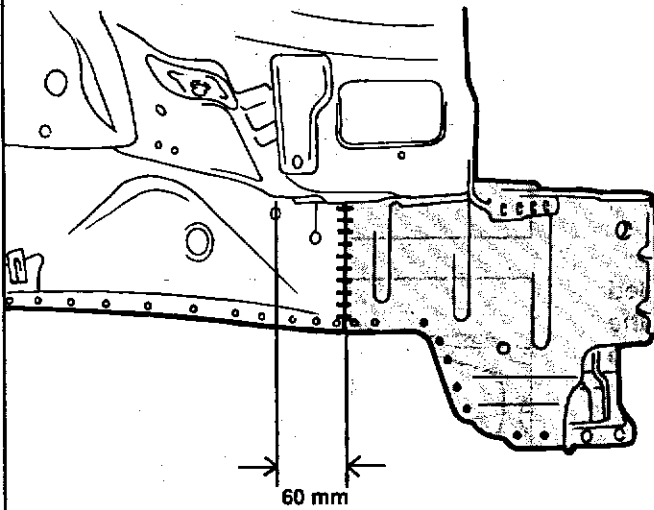
PRO-0300



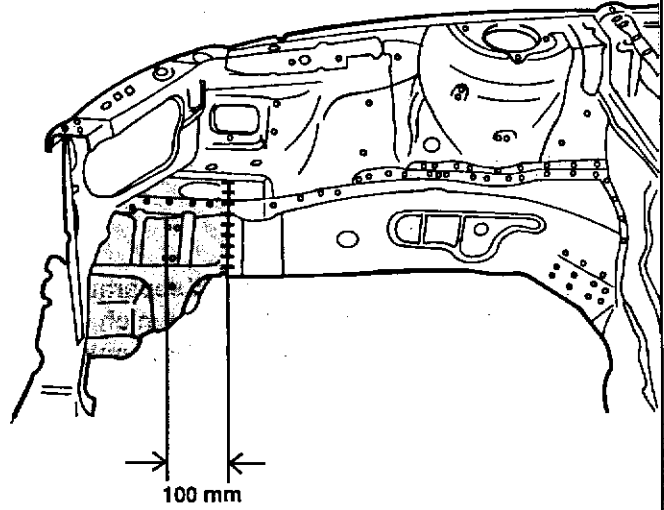
PRO-0310

- MIG plug welding
- +++ MIG butt welding

R/H



PRO-0320



PRO-0330

- MIG plug welding
- +++ MIG butt welding

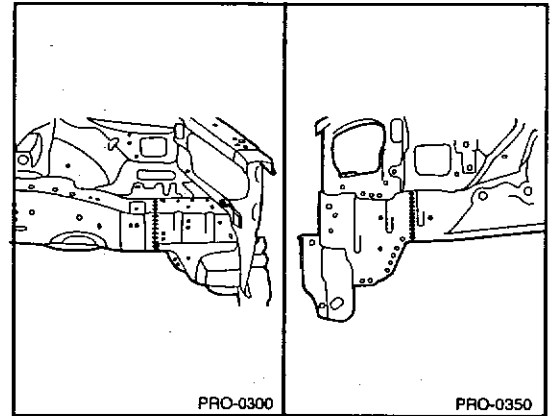
**REMOVAL**

**NOTE**

This procedure is to be used only for repair of minor damage to the front side member and when it is impossible to straighten the damaged side member. The following procedure illustrates a repair for the front left side member.

The procedure may also be applied to the front right side-member.

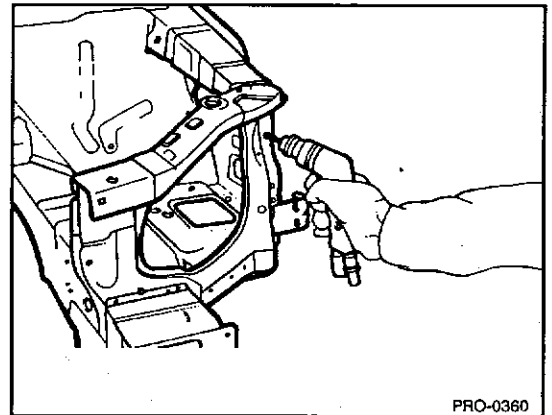
1. Measure and mark the vertical cutlines on front side member outer and inner from rear edge of front side member gusset.



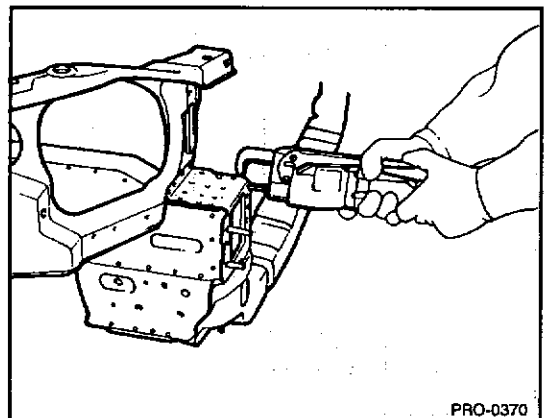
2. Drill out all the spotwelds to separate radiator support panel from front side member.

**NOTE**

1. When spotwelded portions are not apparent, remove paint with a rotary wire brush.



2. In order to perform cutting and separation of spotwelded points use a spot weld cutter which is larger than the size of the nugget to make a hole only in the panels to be replaced.





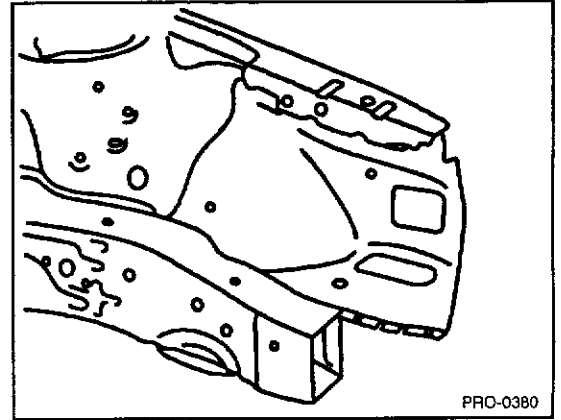
## BODY PANEL REPAIR PROCEDURE - Front side member (Partial)

3. Cut through the front side member inner and outer at cutlines.

### NOTE

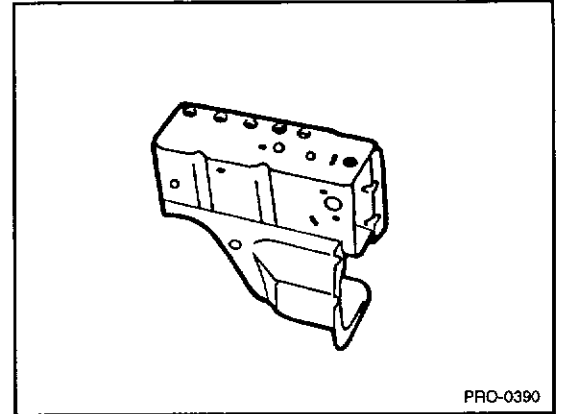
Take care not to cut through front side member inner reinforcement.

4. Prepare all surfaces to be welded.

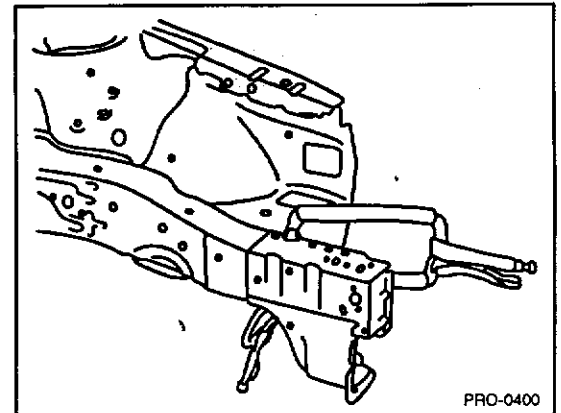


## INSTALLATION

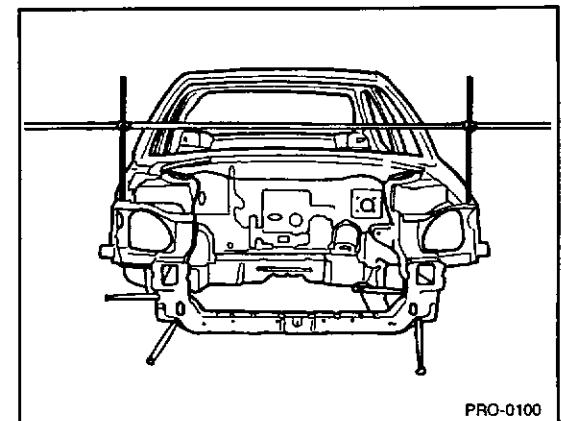
1. Transcribe the front side member inner and outer cutline to the new front side member, cut to length and chamfer butt end to improve weld surface.
2. Drill 8mm holes in new front side member for MIG plug welding.



3. Fit and clamp the front side member inner and outer in place.
4. MIG plug weld all holes and MIG butt weld all seams.

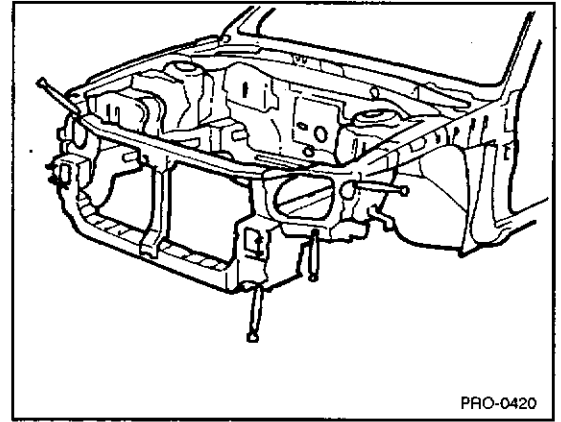


5. Measure each measurement point (Refer to the BODY DIMENSIONS) and correct the installation position.

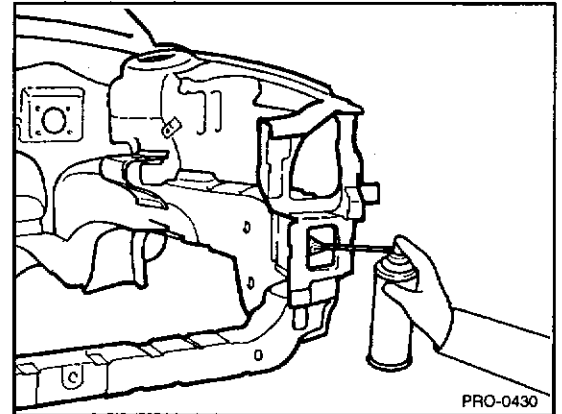


## BODY PANEL REPAIR PROCEDURE - Front side member (Partial)

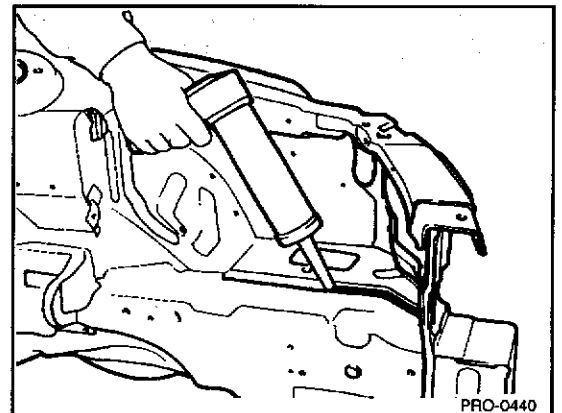
6. Fit and clamp the radiator support panel in place.
7. MIG plug weld all holes.
8. Clean and prepare all welds, remove all residue.
9. Apply the two-part epoxy primer to the interior of the front side member.



10. Apply an anti-corrosion agent as required (Refer to the CORROSION PROTECTION).
11. Prepare the exterior surfaces for priming using wax and grease remover.
12. Apply metal conditioner and water rinse.
13. Apply conversion coating and water rinse.
14. Apply the two-part epoxy primer.

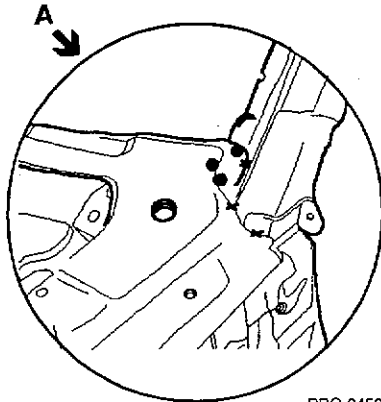


15. Apply the correct seam sealer to all joints carefully (Refer to the BODY SEALING LOCATIONS).
16. Reprime over the seam sealer to complete the repair.

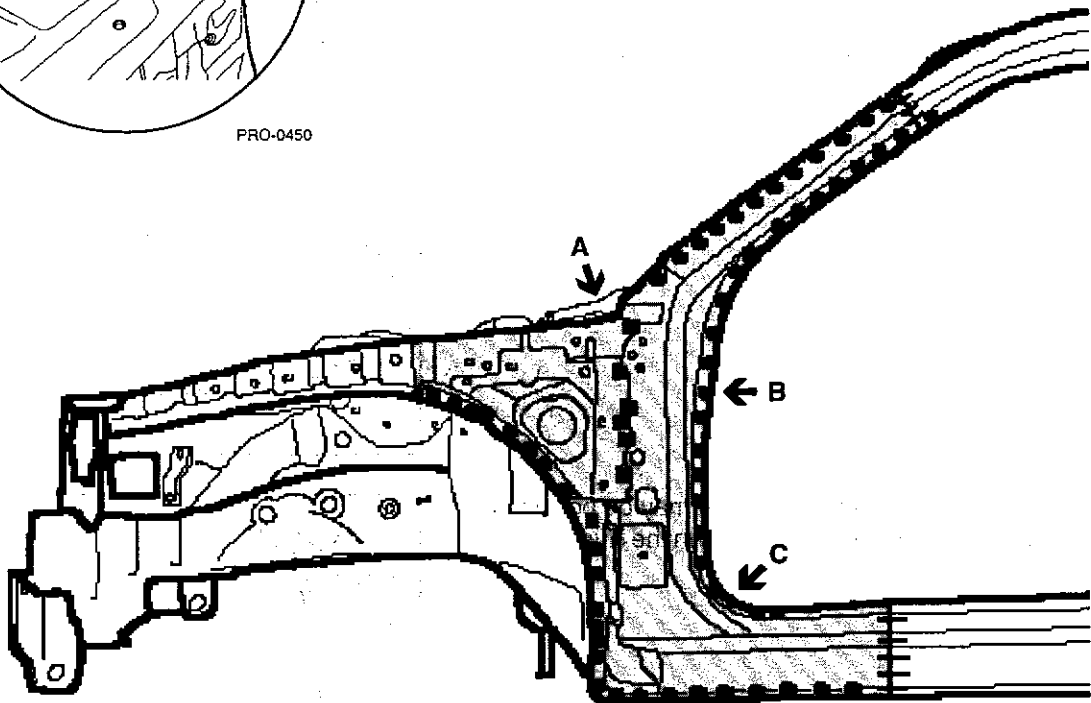


FRONT PILLAR

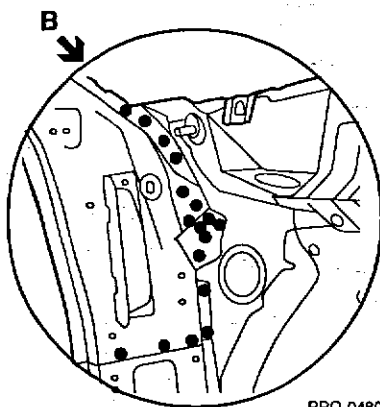
WELDING POINTS



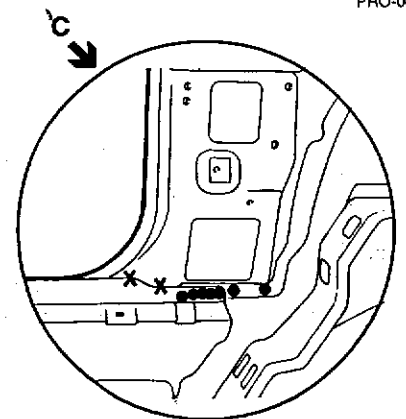
PRO-0450



PRO-0470



PRO-0480



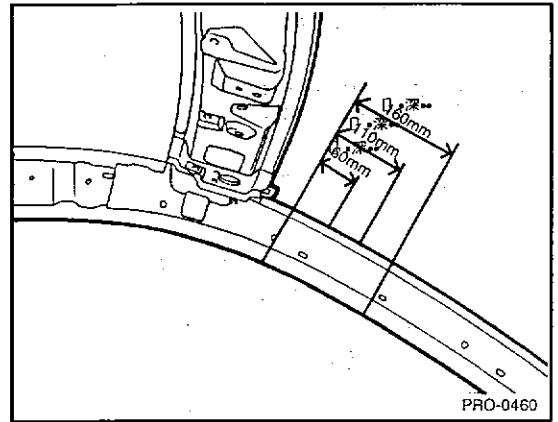
PRO-0490

- MIG plug welding
- ### MIG butt welding
- \*-\* MIG lap welding

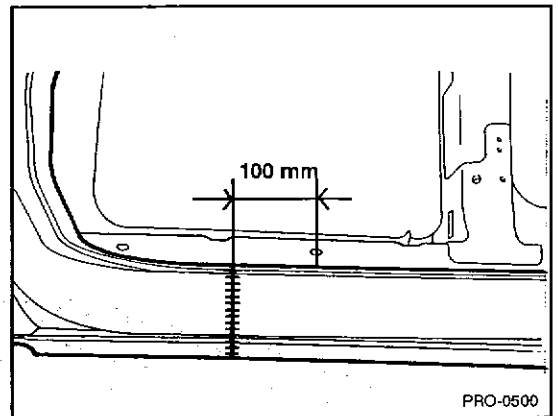
## BODY PANEL REPAIR PROCEDURE - Front pillar

### REMOVAL

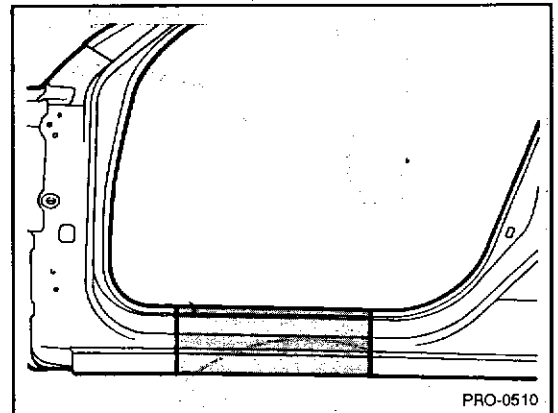
1. Measure and mark the each cutline on the front outer pillar and front outer upper pillar, front inner upper pillar from the front pillar trim mounting hole indicated in the illustration.



2. Measure and mark the cutline on front side sill outer panel as shown in the illustration.



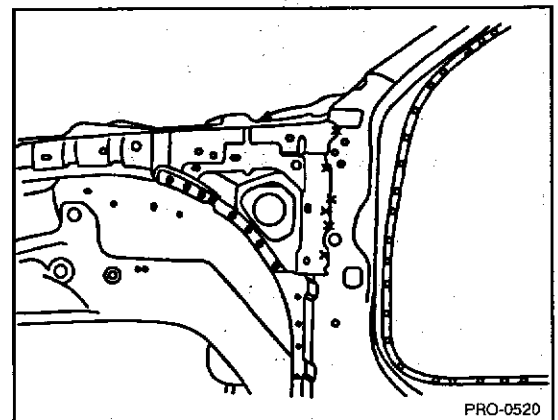
3. Depending on the extend of damaged area, it may be possible to determine the cutting range within indicated in the illustration.



4. To remove the front pillar, grind away and drill out all welds attaching the cowl side upper outer panel as illustration.

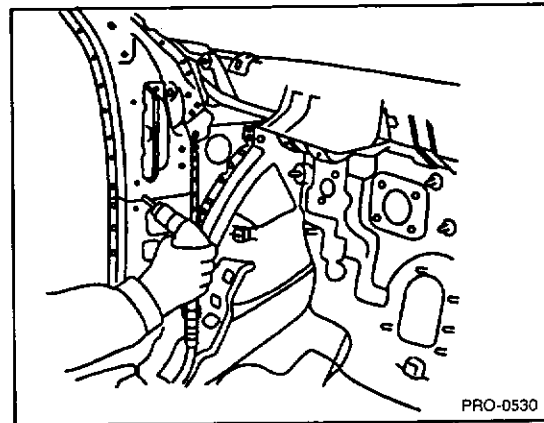
#### NOTE

If it is possible that the cowl side upper outer panel is reusable, be careful not to damage it while removing.

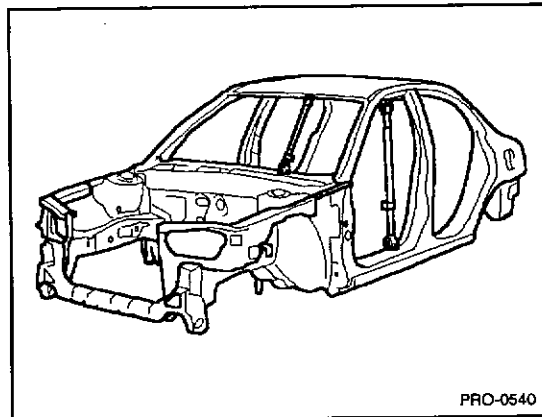


## BODY PANEL REPAIR PROCEDURE - Front pillar

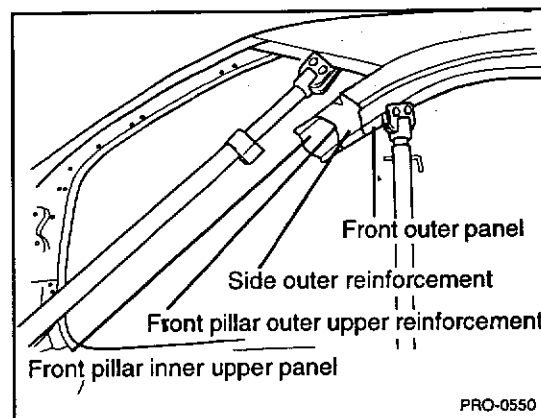
5. Drill out all welds attaching the front pillar to dash and cowl top outer, cowl inner lower panel.
6. Remove spotwelds and lap welds attaching cowl crossmember bar mounting upper bracket to remove front pillar.



7. Before cutting front pillar, be sure to support roof panel.



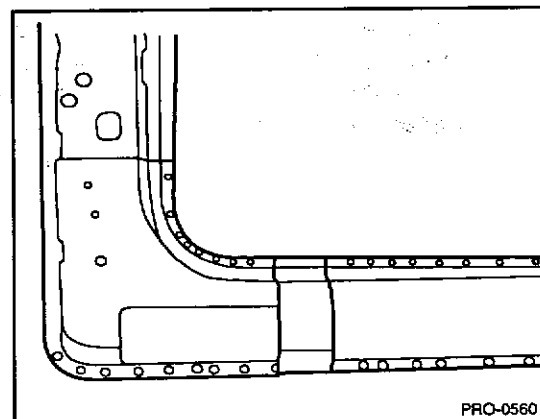
8. Cut the front pillar through each outline, taking care not to damage the other panel as illustration.



9. Before cutting the front side sill outer panel, make a rough cut the front side sill outer panel only.

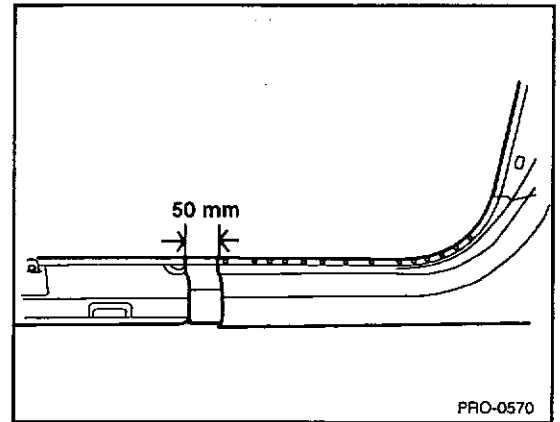
### NOTE

When cutting the front side sill outer panel, be careful not to cut side sill outer front reinforcement.

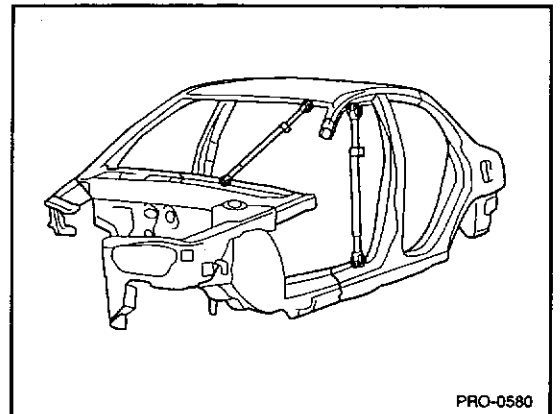


## BODY PANEL REPAIR PROCEDURE - Front pillar

10. Cut the side outer reinforcement as illustration.
11. Cut the front side sill outer panel vertical outline and remove the front pillar.

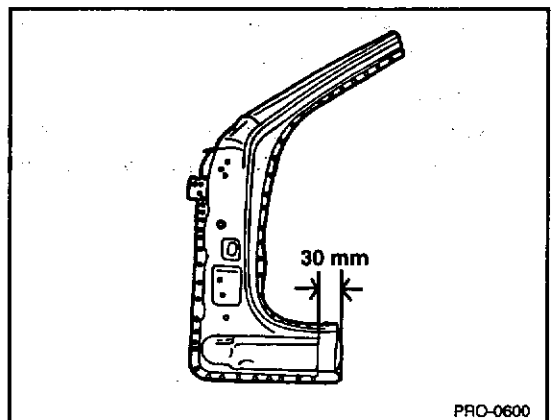
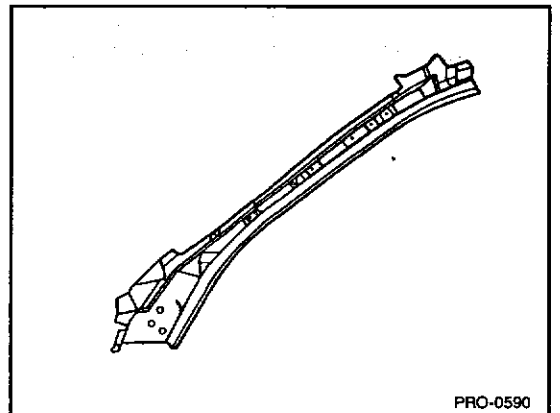


12. Straighten all flanges as necessary, prepare all surfaces to be welded.



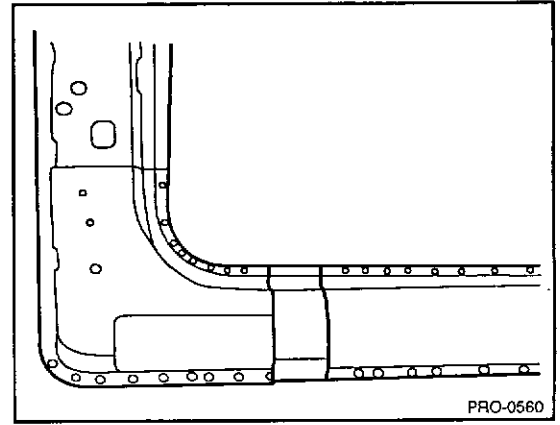
### INSTALLATION

1. Transcribe the cutline to the new front inner upper pillar, cut to length and chamfer butt end to improve weld surface.
2. Transcribe the cutline to the new side outer reinforcement and new front pillar, adding 30mm overlap to end and cut to length.
3. Drill 8mm holes along outer panel flanges in production location for attachment to other panels.

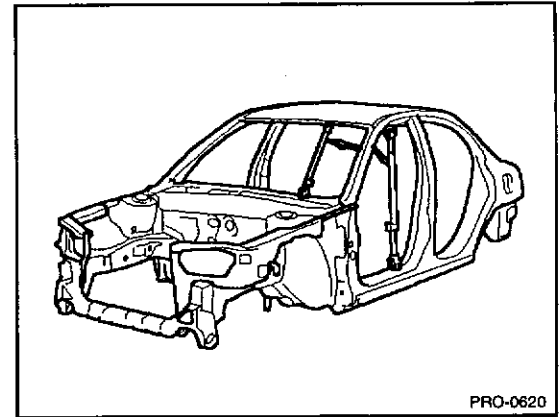


## BODY PANEL REPAIR PROCEDURE - Front pillar

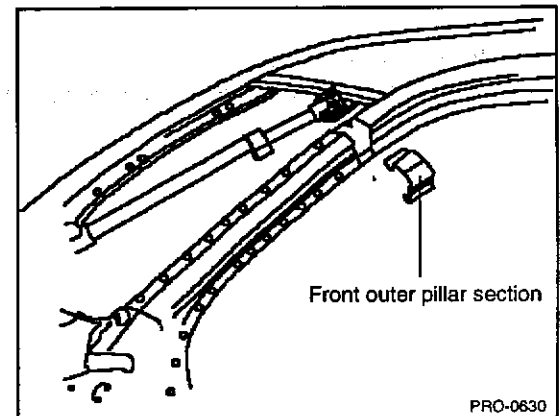
4. Transcribe the cutline to the new side outer reinforcement panel, adding 30mm overlap to end and cut to length.
5. Drill 8mm holes in the side outer reinforcement for MIG plug welding.
6. Fit and clamp the new side outer reinforcement panel in place for welding.
7. MIG plug weld all holes and MIG butt weld the seams.



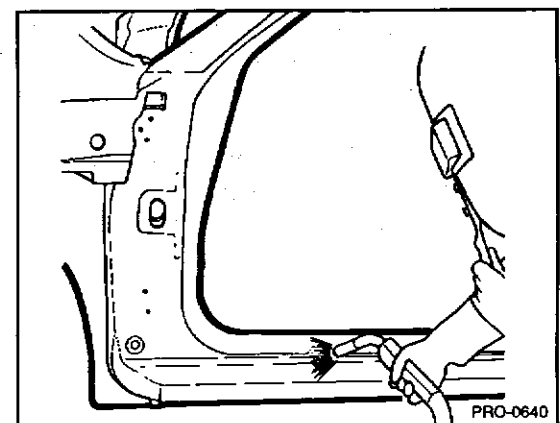
8. Temporarily install front inner pillar and side outer panel in place.
9. Measure and each measurement point (Refer to the BODY DIMENSIONS) and correct the installation position.
10. If necessary, make temporary welds, and then check to confirm that the closing and fit for windshield glass, door and fender are correct.



11. MIG butt weld front outer pillar and side outer reinforcement seams.
12. Reattach the cut away front inner pillar section, then MIG butt weld.



13. MIG plug weld all holes and MIG butt weld all seams in the side outer panel.
14. Clean and prepare all welds, removing all residue.
15. Apply body filler to joints and sand as needed.
16. Apply the two-part epoxy primer to the interior of the front pillar.

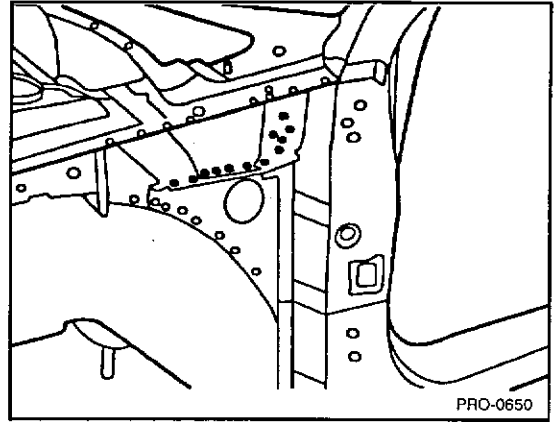


## BODY PANEL REPAIR PROCEDURE - Front pillar

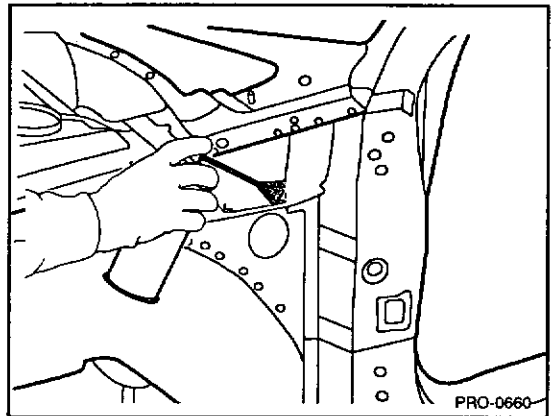
17. Clean all welds with a disc grinder.

### NOTE

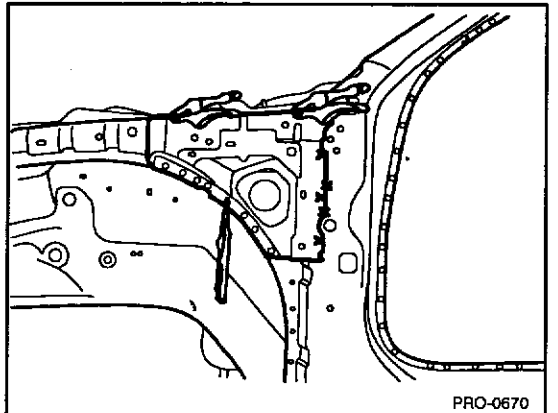
1. Be careful not to grind welded portions too much.
2. The internal parts will be stronger if the weld traces are not ground.



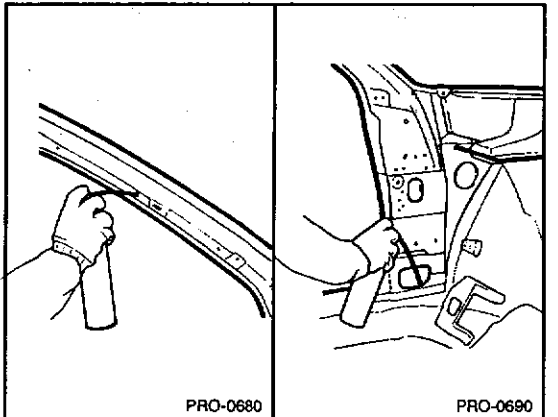
18. Before welding the cowl side upper outer panel, apply the two part epoxy primer and anti-corrosion agent to the interior of the fender apron panel.



19. Install the cowl side upper outer panel in place.  
20. MIG plug weld all holes.  
21. Clean and prepare all welds, removing all residue.



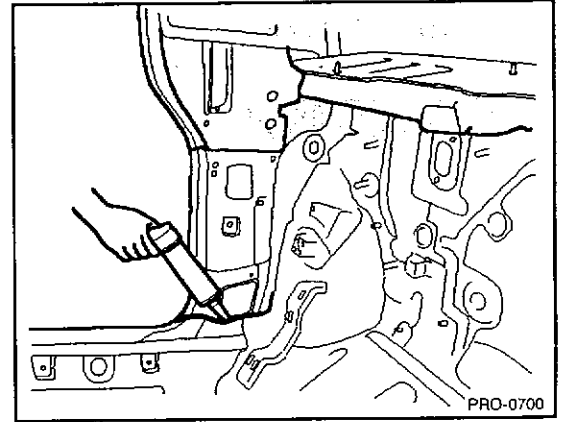
22. Apply an anti-corrosion agent to the welded parts and inside of front pillar (Refer to the CORROSION PROTECTION).  
23. Prepare exterior surfaces for priming, using wax and grease remover.  
24. Apply metal conditioner and water rinse.  
25. Apply conversion coating and water rinse.  
26. Apply the two-part epoxy primer.





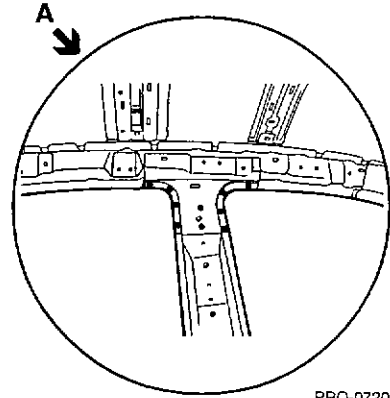
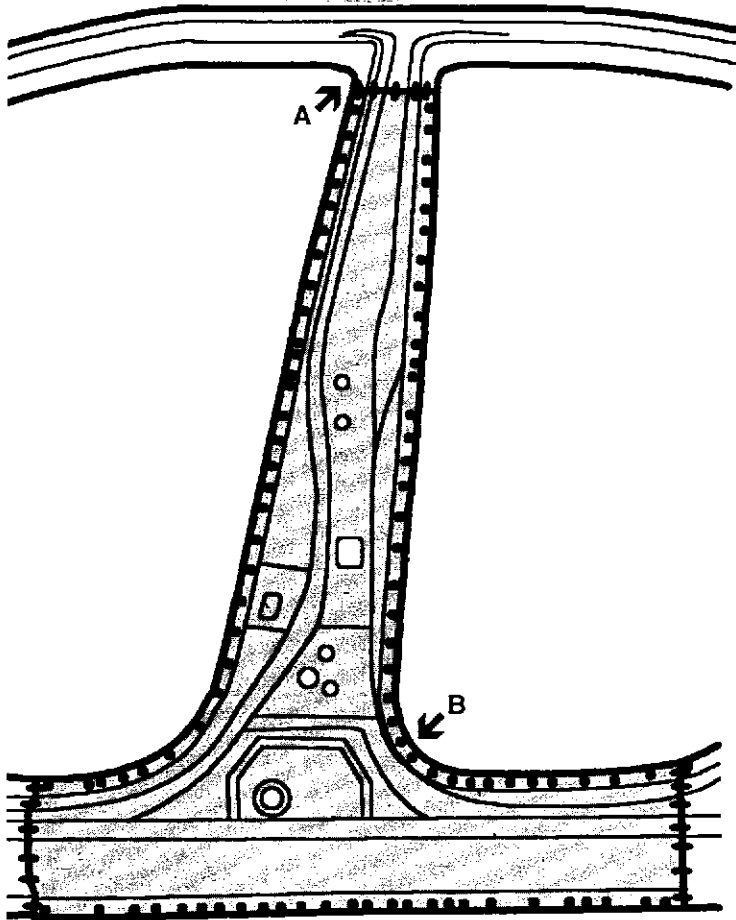
## BODY PANEL REPAIR PROCEDURE - Front pillar

27. Apply the correct seam sealer to all joints carefully  
(Refer to the BODY SEALING LOCATIONS).
28. Reprime over the seam sealer to complete the repair.

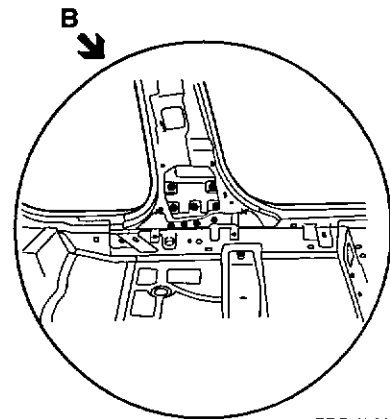


CENTER PILLAR

WELDING POINTS



PRO-0720



PRO-0730

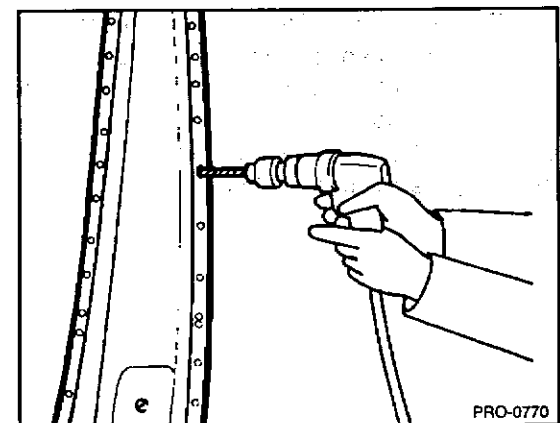
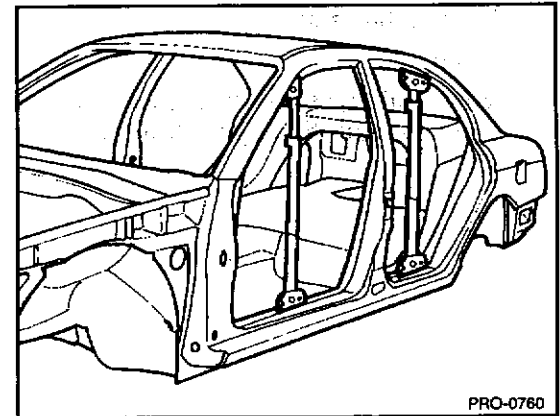
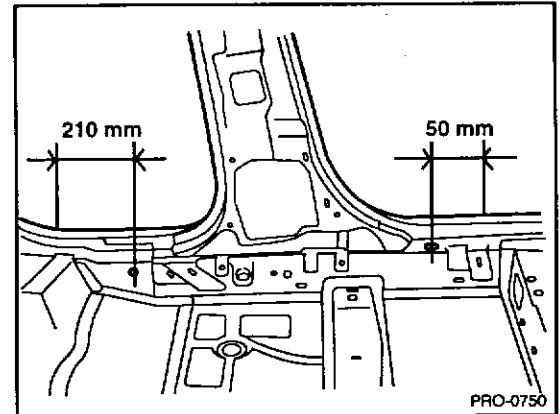
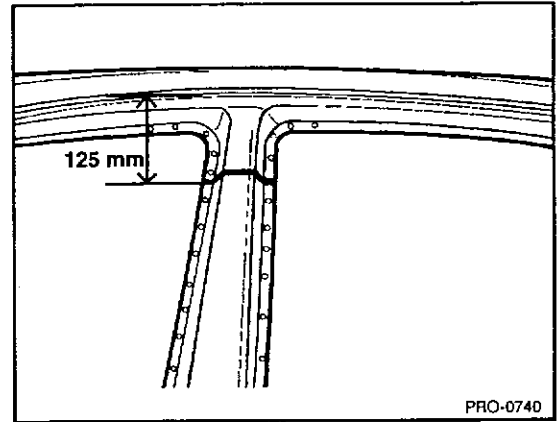
PRO-0710

- MIG plug welding
- +++ MIG butt welding

## BODY PANEL REPAIR PROCEDURE - Center pillar

### REMOVAL

1. Measure and mark the horizontal cutline on center outer pillar as illustration.
2. Measure and mark the vertical cutline on side sill outer panel 50mm from the front door scuff trim mounting hole and tooling hole.
3. Before cutting center pillar, be sure to support roof panel.
4. Drill out all spotwelds attaching the center outer pillar to the body to remove center outer pillar.

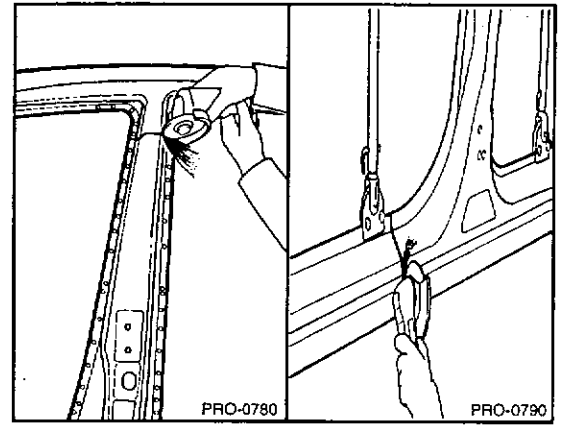


## BODY PANEL REPAIR PROCEDURE - Center pillar

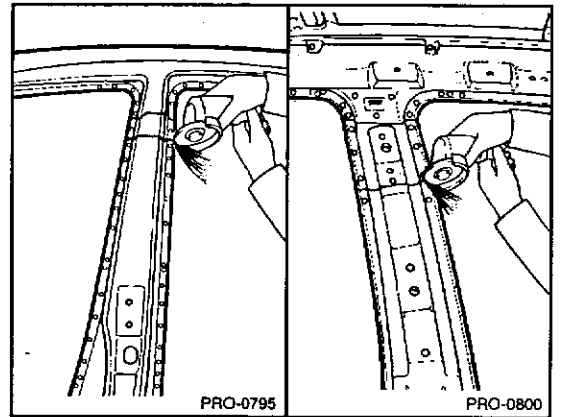
5. Cut through center outer pillar and side sill outer panel at cutlines.

### NOTE

When cutting side sill outer panel take care not to cut through mating flanges or side outer reinforcement.



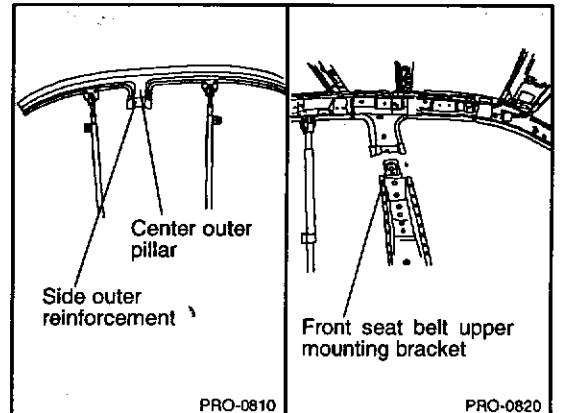
6. After cutting side outer panel (center outer pillar & side sill), cut the side outer reinforcement and center inner pillar.



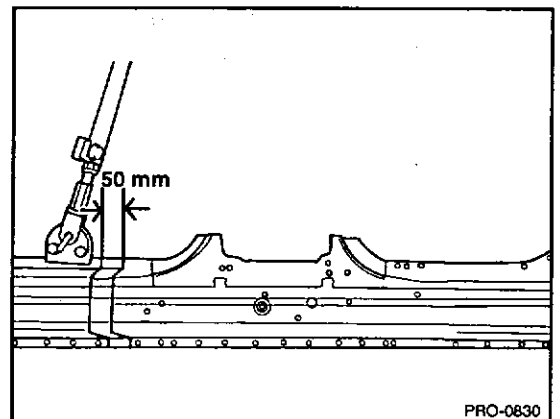
7. Remove the center pillar.

### NOTE

When cutting center inner pillar, be careful not to cut front seat belt mounting upper bracket.

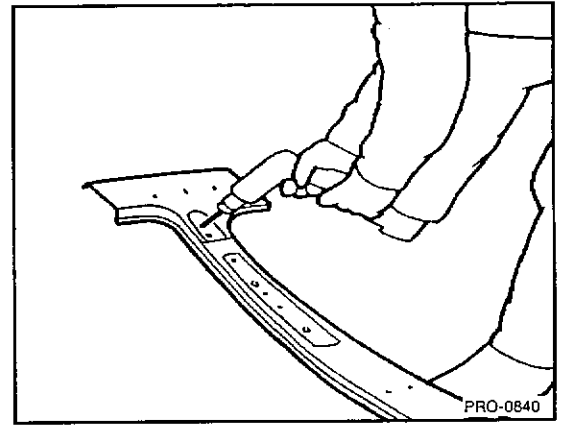


8. Determine if the side outer reinforcement is damaged and needs to be replaced. If replacing is necessary, mark out the damaged portion of the reinforcement. Cut at cutlines and remove damaged portion.
9. Straighten all flanges as necessary.
10. Prepare all surfaces to be welded.

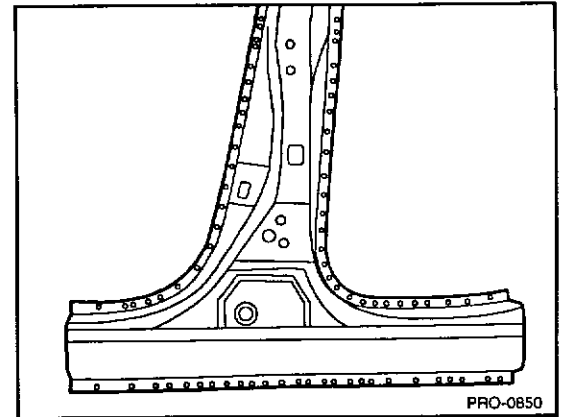


## INSTALLATION

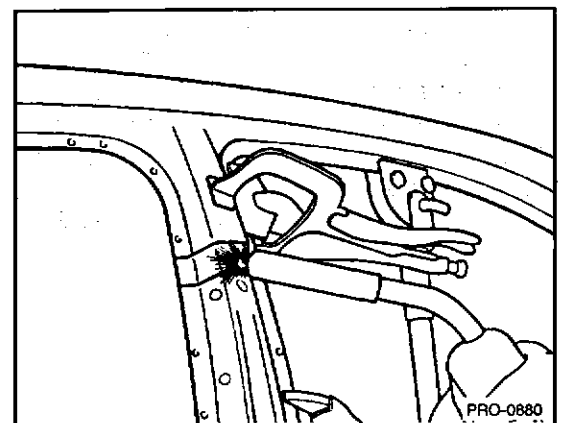
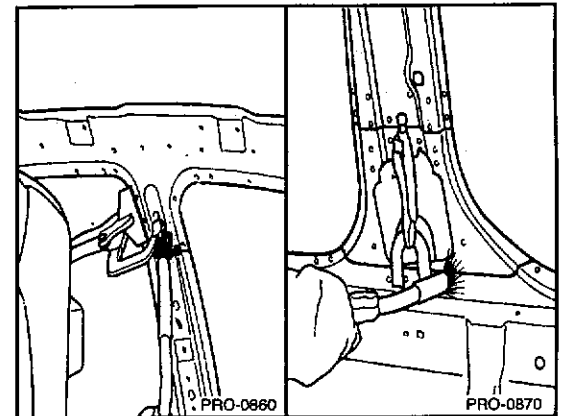
1. In order to install center inner pillar drill out all spotwelds attaching the roof side inner rail to center inner pillar to separate them.



2. Transcribe the center outer pillar cutlines to the new center outer pillar, adding 30mm overlap at center lower pillar ends.
3. Cut and chamfer butt end to improve weld surface.
4. Drill 8mm holes in overlap area and along outer panel flanges.

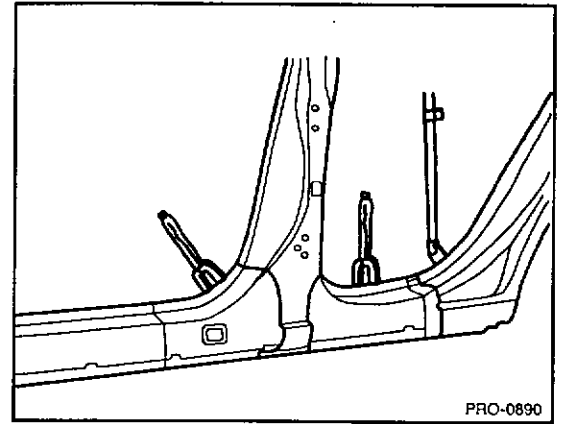


5. MIG butt weld all seams in center inner pillar and side outer reinforcement as illustration.



## BODY PANEL REPAIR PROCEDURE - Center pillar

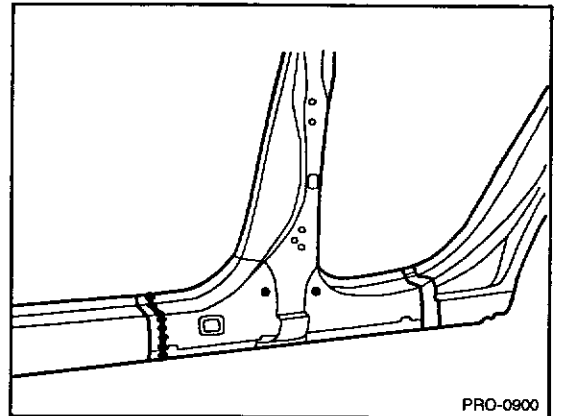
6. Transcribe the outline dimensions to the new side outer reinforcement, adding 30mm overlap to each end and cut to length.
7. Drill 8mm holes in overlap areas on each end of new side outer reinforcement and clamp the new side outer reinforcement in place.



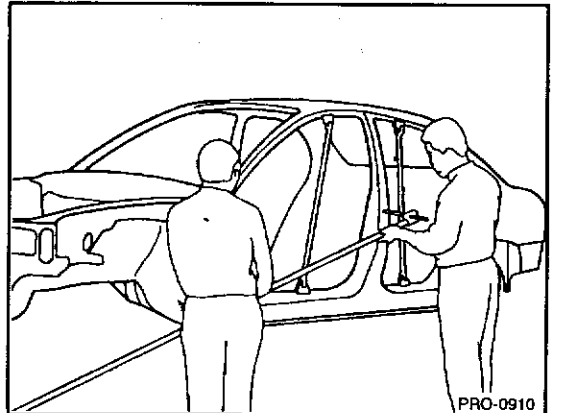
8. MIG plug weld all holes MIG butt weld seams.

### NOTE

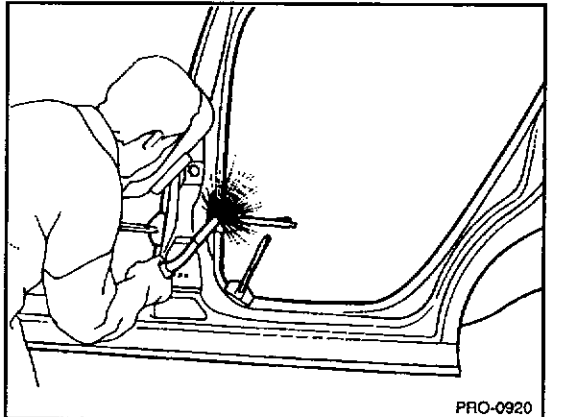
The reinforcement will be stronger if the weld traces are not ground.



9. Temporarily install new center outer panel in place.
10. Screw center pillar in place.
11. Measure at each measurement point (Refer to the BODY DIMENSIONS) and correct the installation position.
12. Check the fit of the front and rear doors.

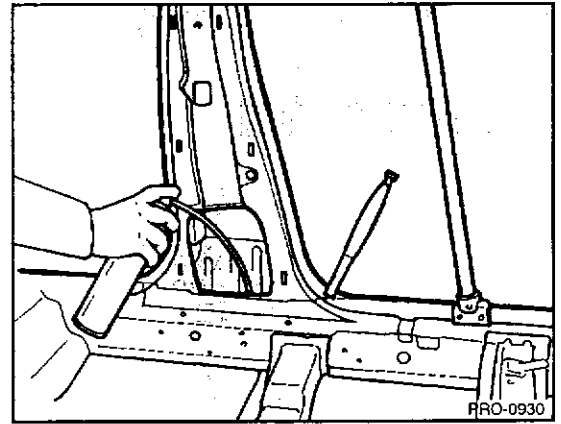


13. Reinstall center outer pillar and screw in place.
14. MIG plug weld all holes and MIG butt weld all seams.
15. Clean and prepare all welds, and remove all residue.
16. Apply body filler to the outer center pillar seam. Sand and finish.
17. Apply the two-part epoxy primer to the interior of the center pillar.
18. Apply an anti-corrosion agent to the welded parts and interior of the center pillar (Refer to the CORROSION PROTECTION).

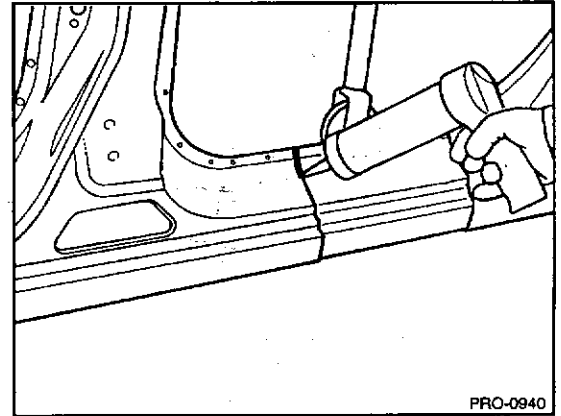


## BODY PANEL REPAIR PROCEDURE - Center pillar

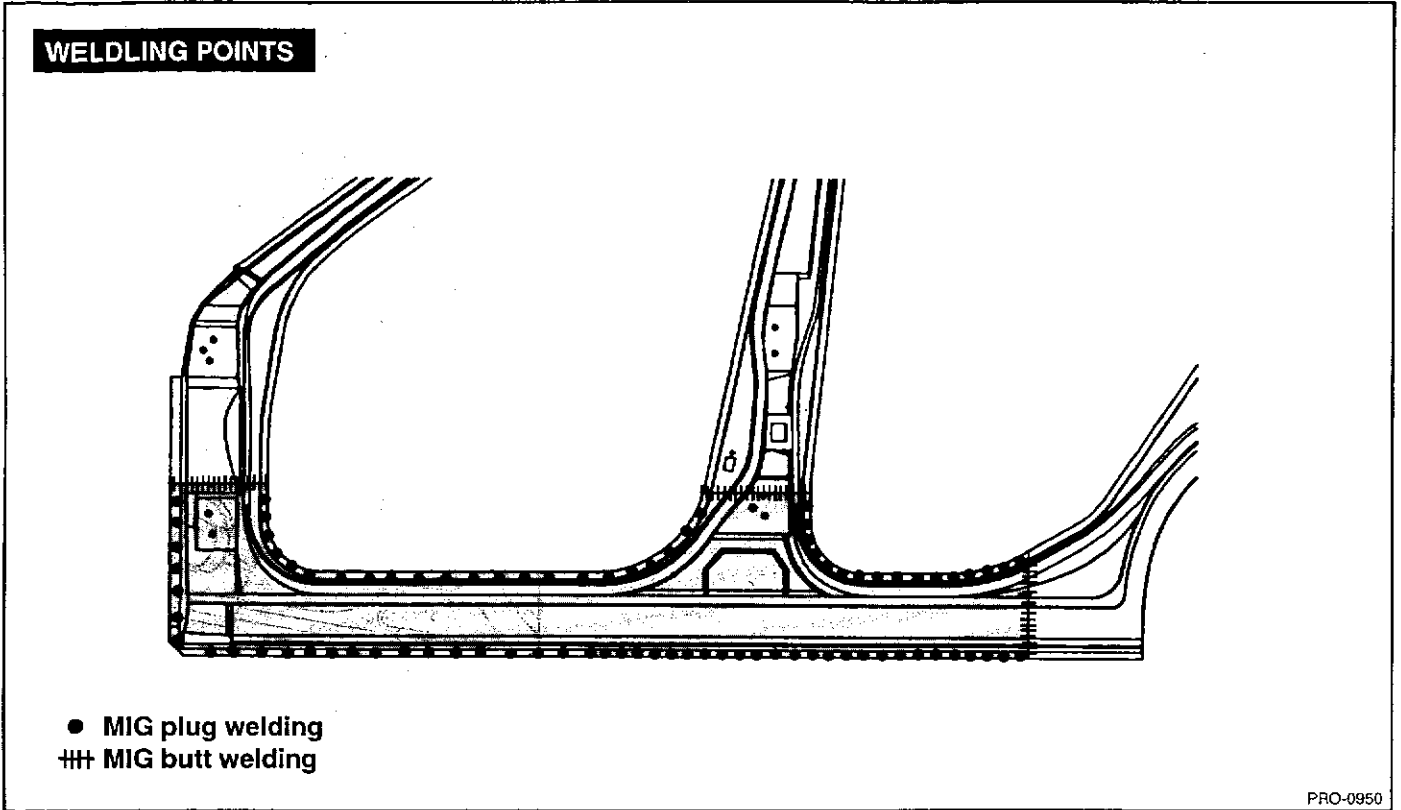
19. Prepare exterior surfaces for priming, using wax and grease remover.
20. Apply metal conditioner and water rinse.
21. Apply conversion coating and water rinse.
22. Apply the two-part epoxy primer.
23. Apply the correct seam sealer to all joints carefully (Refer to the BODY SEALING LOCATIONS).



24. Reprime over the seam sealer to complete the repair.

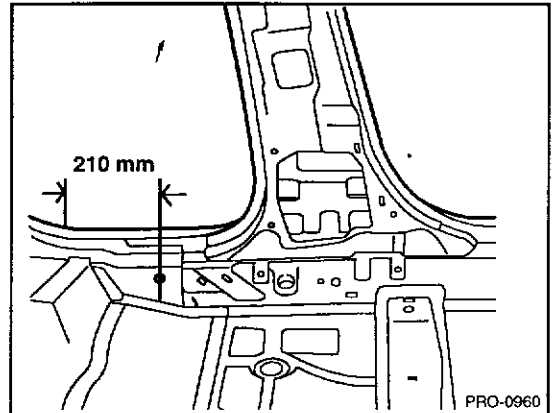


**SIDE SILL (ASSEMBLY)**

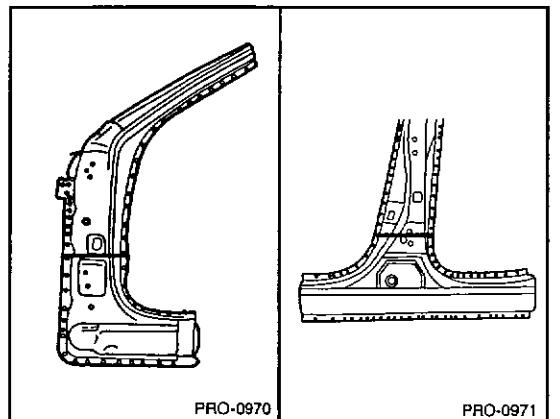


**REMOVAL**

1. Measure and mark vertical cutline from the rear door scuff trim mounting hole on the rear side sill inner panel.



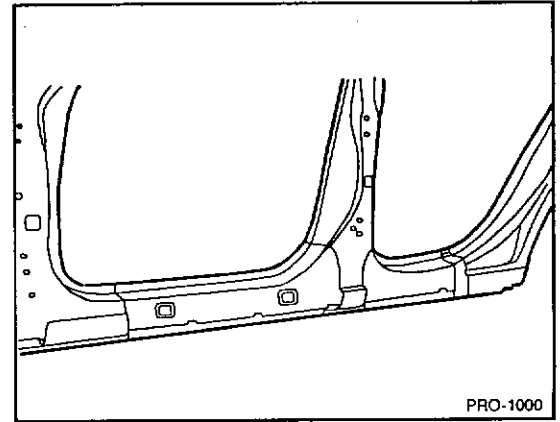
2. At the front and center pillar, measure and mark horizontal cutlines from the door hinge mounting hole on the side outer panel as illustration.



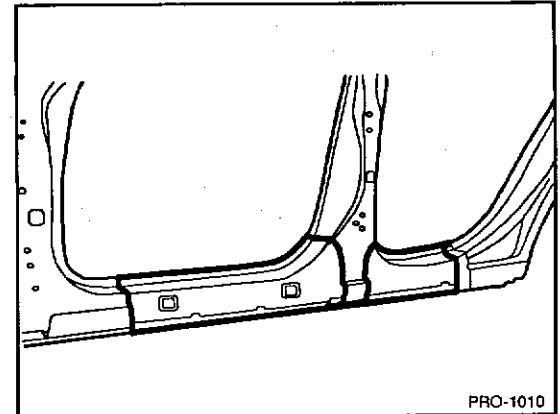


## BODY PANEL REPAIR PROCEDURE - Side sill (Assembly)

3. Cut the side sill outer panel along cutlines. Be careful not to cut mating flanges.
4. Drill out all spotwelds, attaching the side sill outer panel to side outer reinforcement.
5. Remove the side sill outer panel.

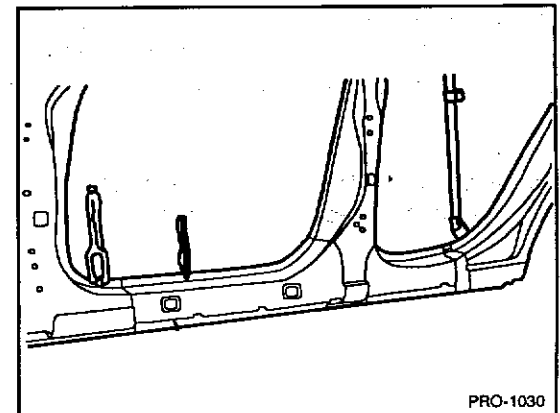


6. Determine if the side outer reinforcement is damaged and needs to be replaced, measure cutline on reinforcement as illustration.
7. Cut side sill outer along the cutline.
8. Drill out spotwelds attaching the side outer reinforcement to the body and remove side outer reinforcement.
9. Prepare all surfaces to be welded.



### INSTALLATION

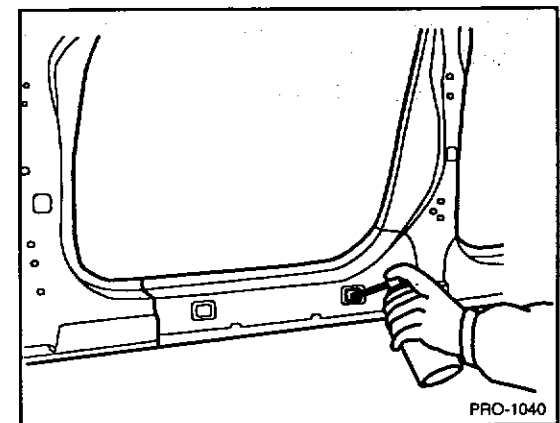
1. Transcribe cutline dimension to side sill outer panel, adding 30mm overlap to rear end and cut to length.
2. Drill 8mm holes in overlap area on rear end and along front flange.
3. Fit and clamp the side sill outer reinforcement in place.
4. MIG plug weld all holes and MIG butt weld seams.



5. Before welding the side sill outer panel, apply the two-part epoxy primer and anti-corrosion agent to the welded parts.

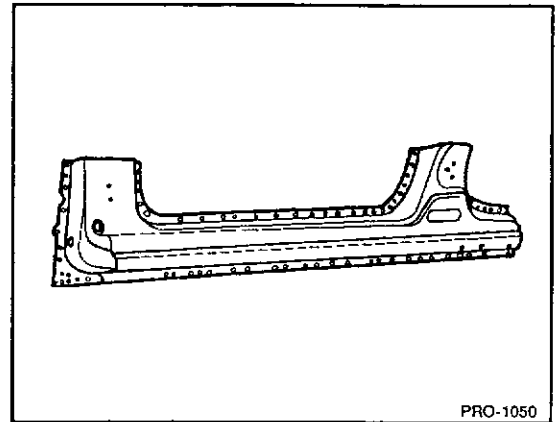
#### NOTE

The reinforcement will be stronger if the weld traces are not ground.

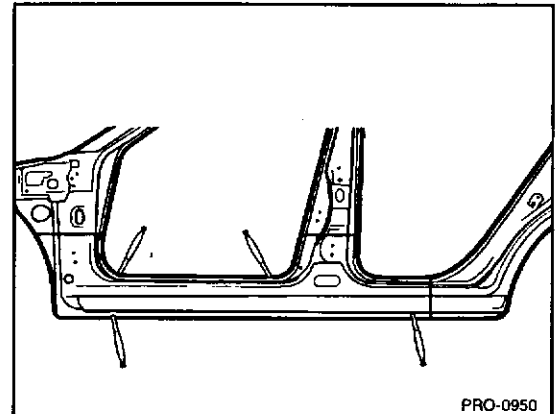


## BODY PANEL REPAIR PROCEDURE - Side sill (Assembly)

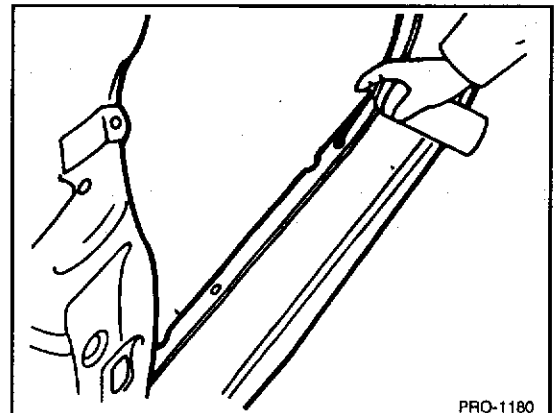
- Using service panel for replacement of side sill outer panel, drill 8mm holes in overlap areas and along upper and lower flanges.



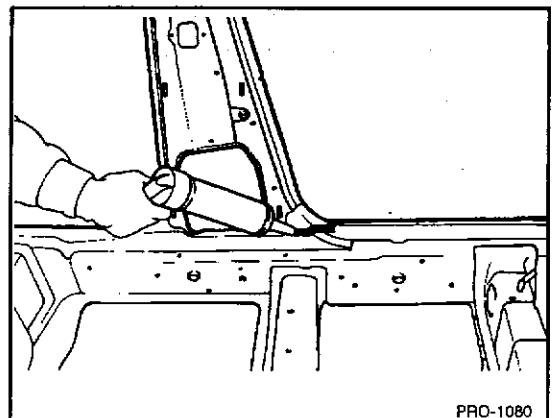
- Crimp flanges on the remaining portion of the side sill outer panel at all joint for overlap.
- Fit and clamp the side sill outer panel in place.
- MIG plug weld all holes and MIG butt weld seams.
- Clean and prepare all welds and remove all residue.
- Apply body filler to the side sill outer seams.
- Apply the two-part epoxy primer to the interior of the side sill.



- Apply an anti-corrosion agent to welded parts and interior of the side sill (Refer to the CORROSION PROTECTION).
- Prepare the exterior surfaces for priming, using wax and grease remover.
- Apply metal conditioner and water rinse.
- Apply conversion coating and water rinse.
- Apply the two-part epoxy primer.

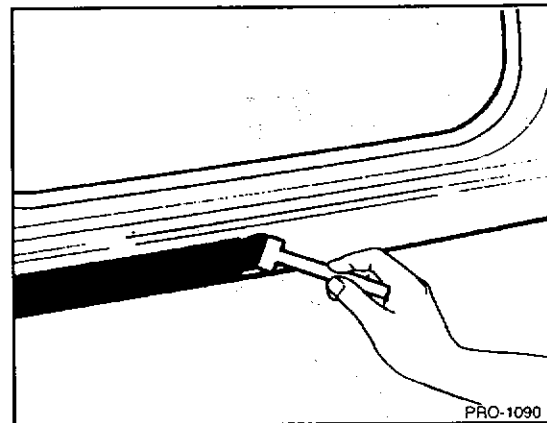


- Apply the correct seam sealer to all joints (Refer to the BODY SEALING LOCATIONS).
- Reprime over the seam sealer.



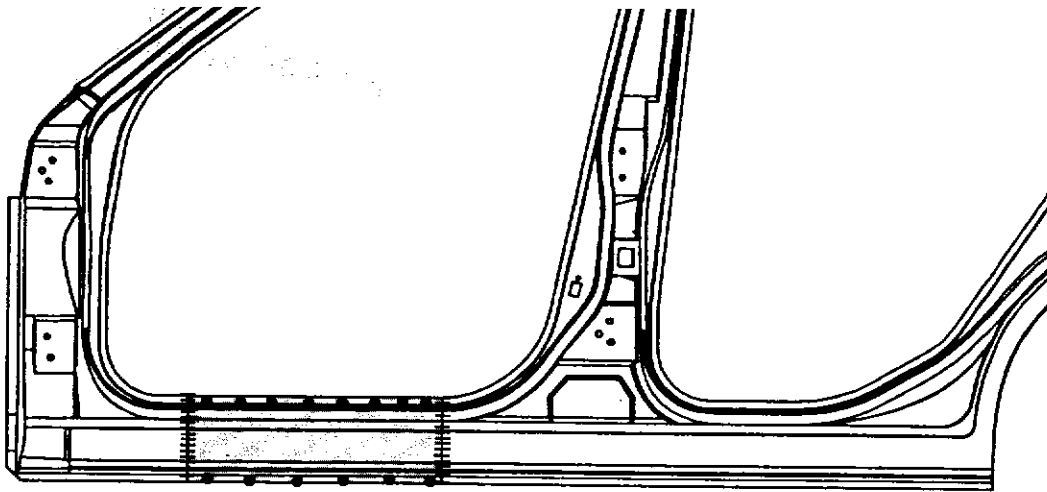
## BODY PANEL REPAIR PROCEDURE - Side sill (Assembly)

20. Apply the anti-corrosion primer to the side sill outer panel to complete the repair (Refer to the CORROSION PROTECTION).



## SIDE SILL (PARTIAL)

### WELDING POINTS

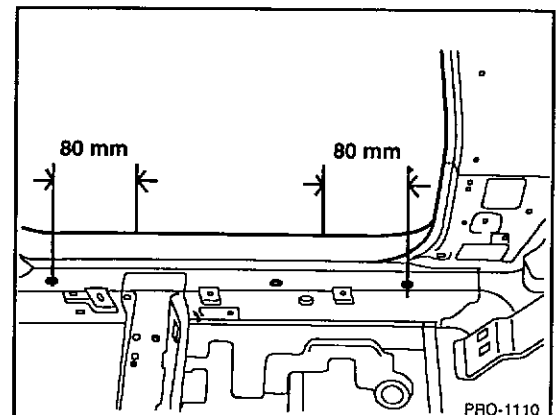


- MIG plug welding
- ⦶ MIG butt welding

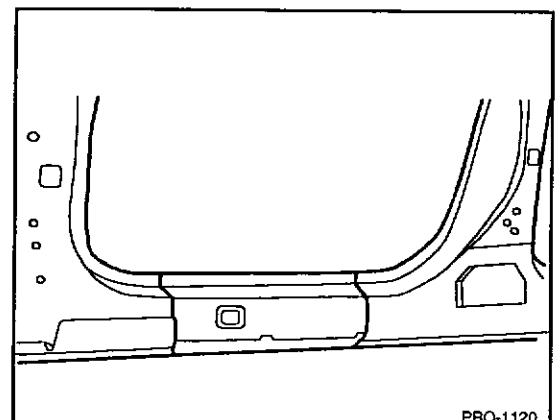
PRO-0950

### REMOVAL

1. Depending on the extent of damage, mark out the damaged portion of the side sill.



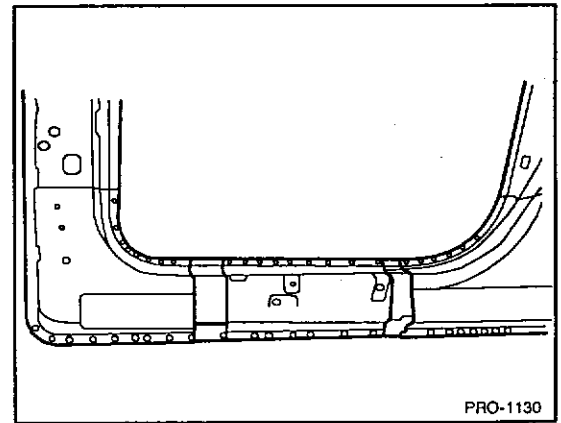
2. Drill out the spotwelds in upper and lower flanges of side sill between cutlines to remove side sill outer panel and cut the damaged portion of the side sill at the cutlines.



PRO-1120

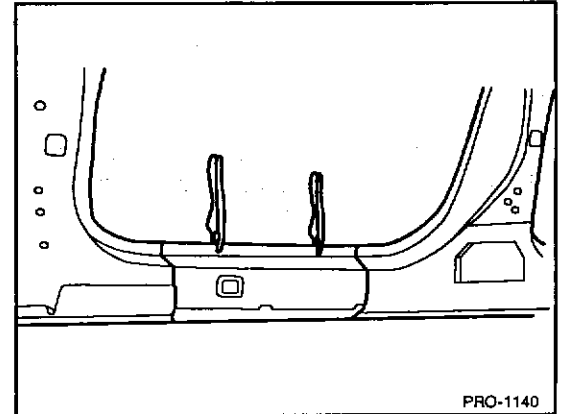
## BODY PANEL REPAIR PROCEDURE - Side sill (partial)

3. Determine if the side outer reinforcement is damaged and needs to be replaced. If replacing is necessary, mark out the damaged portion of the side outer reinforcement. Cut at cutlines and remove the damaged portion.
4. Prepare all surfaces to be welded.



### INSTALLATION

1. Transcribe the cutline to the new front side outer reinforcement, adding 30 mm overlap to each end and cut to length.
2. Drill 8 mm holes in overlap areas on each end and upper flange of new side outer reinforcement and clamp the new side outer reinforcement in place.

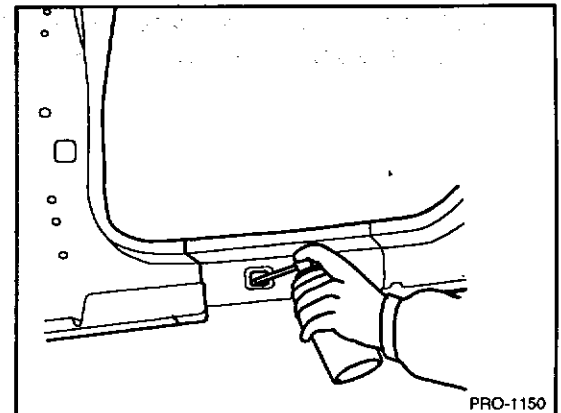


3. MIG plug weld all holes and MIG butt weld all seams.

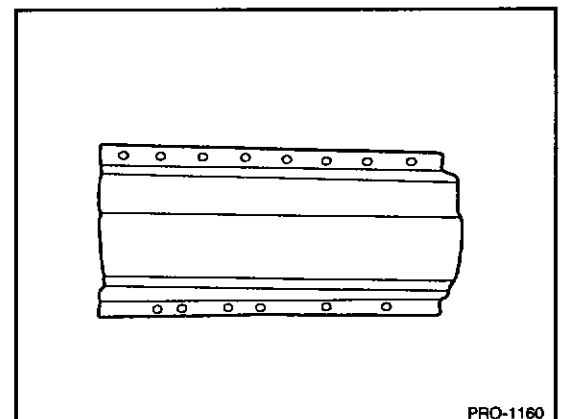
#### NOTE

The reinforcement will be stronger if the weld traces are not ground.

4. Before welding the side sill outer panel, apply the two part epoxy primer and anti-corrosion agent to the welded parts.

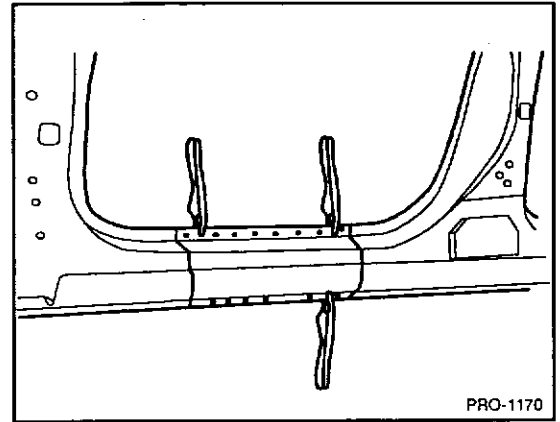


5. Transcribe the side sill outer panel cutline to the new side sill, adding 30 mm overlap to each end, cut and chamfer butt end to improve weld surface.
6. Drill 8 mm holes in overlap areas on each end and along upper and lower flanges of the new side sill outer panel for MIG plug welding.

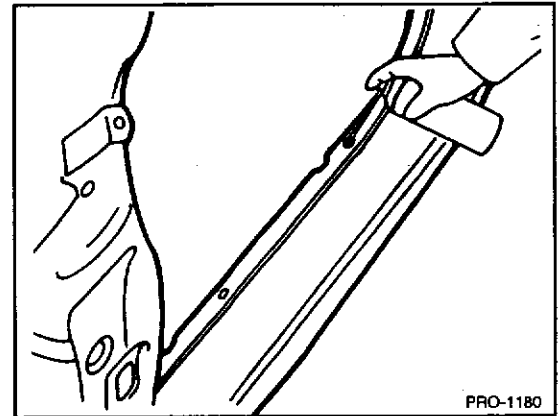


## BODY PANEL REPAIR PROCEDURE - Side sill (partial)

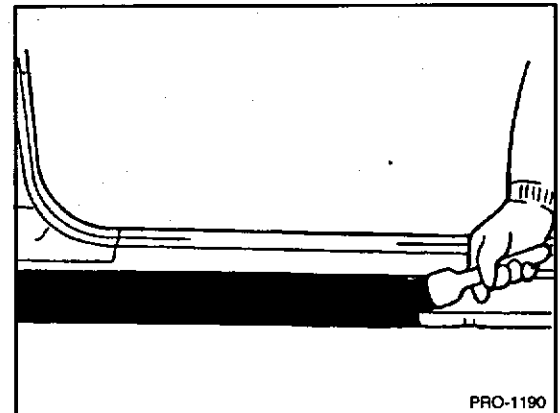
7. Fit and clamp the side sill in place.
8. MIG plug weld all holes and MIG butt weld seams.
9. Clean and prepare all welds, removing all residue.
10. Apply body filler to the side sill outer seams.
11. Apply the two-part epoxy primer to the interior of the side sill.



12. Apply an anti-corrosion agent to the welded parts and interior of the side sill (Refer to the CORROSION PROTECTION).
13. Prepare the exterior surfaces for priming, using wax and grease remover.
14. Apply metal conditioner and water rinse.
15. Apply conversion coating and water rinse.
16. Apply the two-part epoxy primer.

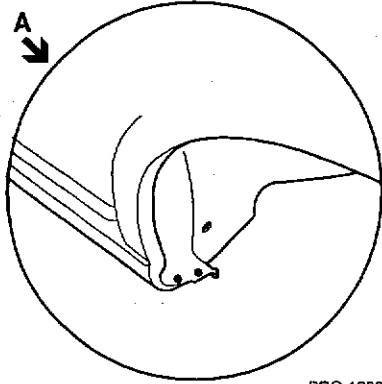


17. Apply the anti-corrosion primer to the side sill outer panel to complete the repair (Refer to the CORROSION PROTECTION).

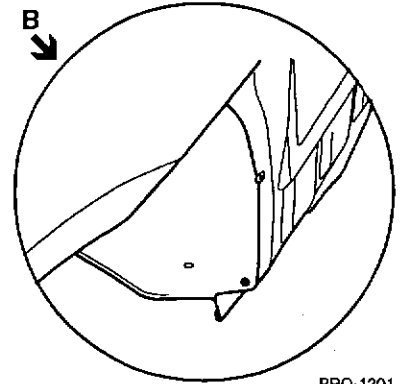


QUARTER PANEL

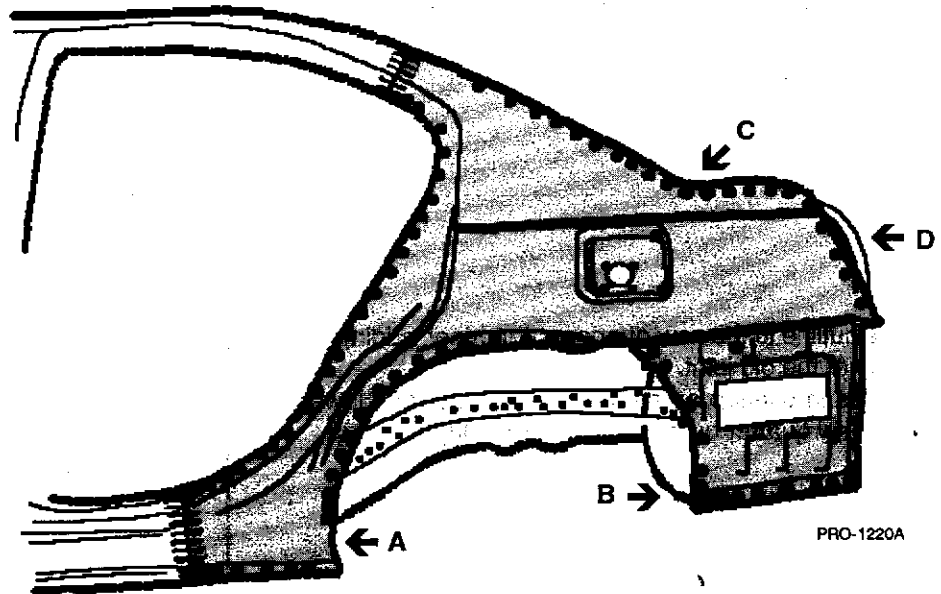
WELDING POINTS



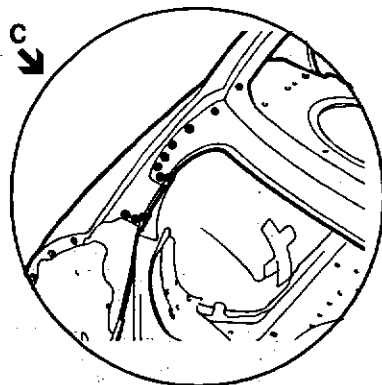
PRO-1200



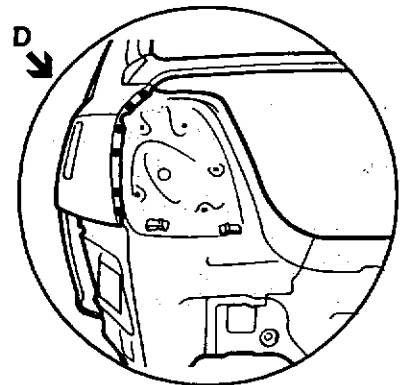
PRO-1201



PRO-1220A



PRO-1202



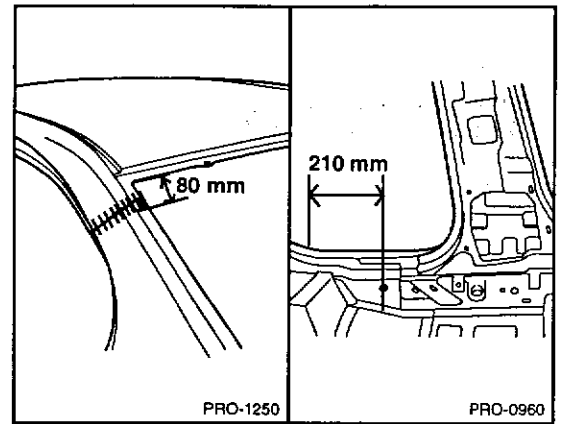
PRO-1203

- MIG plug welding
- +++ MIG butt welding

## BODY PANEL REPAIR PROCEDURE - Quarter panel

### REMOVAL

1. Depending on the extent of damage, measure and mark cutlines on the quarter outer panel as illustration.

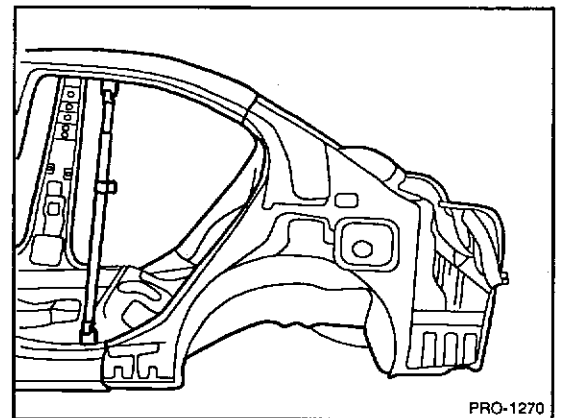


2. Drill out all attaching spotwelds on the quarter outer panel, including the seam around the door lip opening.
3. Cut the quarter outer panel at cutlines and remove the quarter outer panel as illustration.

#### NOTE

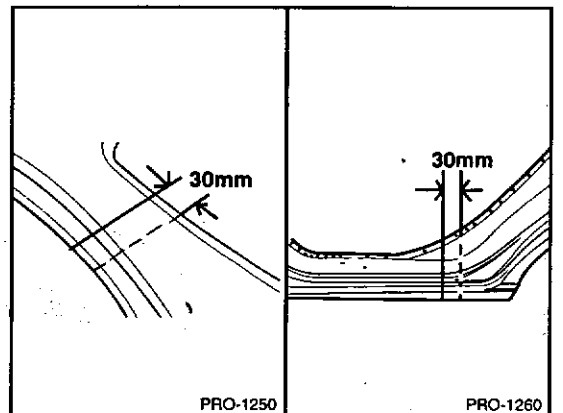
**When cutting the quarter outer panel, be careful not to cut quarter inner panel.**

4. Prepare all surfaces to be welded.

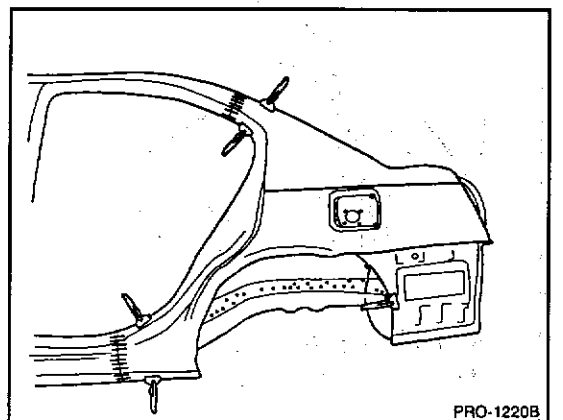


### INSTALLATION

1. Transcribe the cutline to the new quarter outer panel, adding 30 mm for overlap at the old joint.
2. Drill 8 mm holes in overlap areas and along upper and lower flanges of the new quarter outer panel for MIG plug welding.



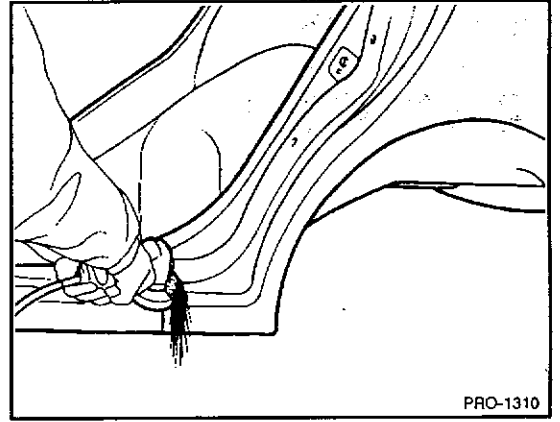
3. Fit and clamp the quarter outer panel in place.
4. MIG plug weld all holes and MIG butt weld seams. At the wheel well the edge must be crimped over the wheel housing. This joint may be welded after crimping or may be made by applying a bead of adhesive may be applied to the joint before or after crimping.
5. Clean and prepare all welds, removing all residue.



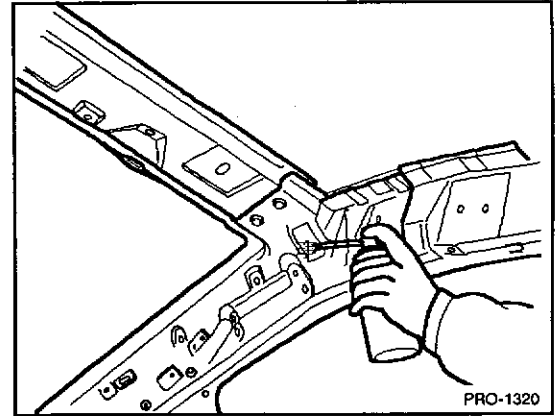


## BODY PANEL REPAIR PROCEDURE - Quarter panel

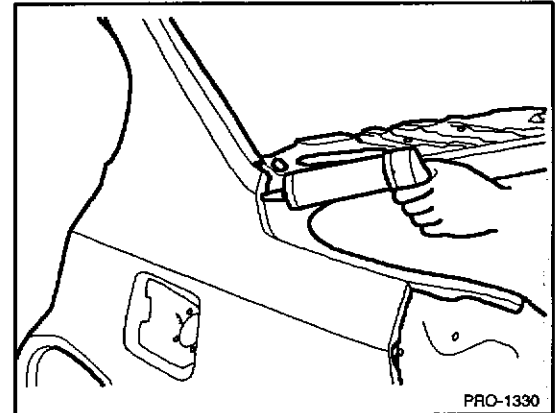
6. Apply body filler to the welded seam. Sand and finish.  
Apply the two-part epoxy primer to the interior of the quarter outer panel.



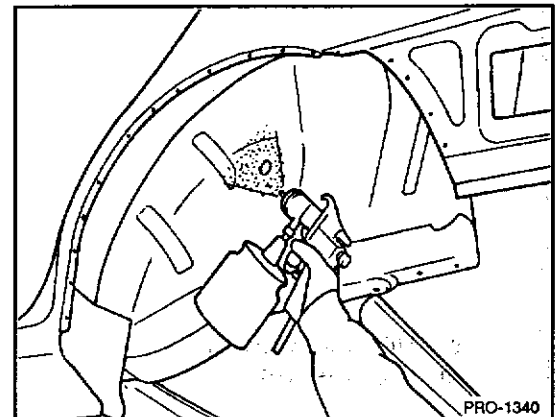
7. Apply an anti-corrosion agent to the welded parts and interior of the quarter outer panel (Refer to the CORROSION PROTECTION).
8. Prepare exterior surfaces for priming, using wax and grease remover.
9. Apply metal conditioner and water rinse.
10. Apply conversion coating and water rinse.
11. Apply the two-part epoxy primer.



12. Apply the correct seam sealers to all joints.
13. Reprime over the seam sealer to complete the repair.

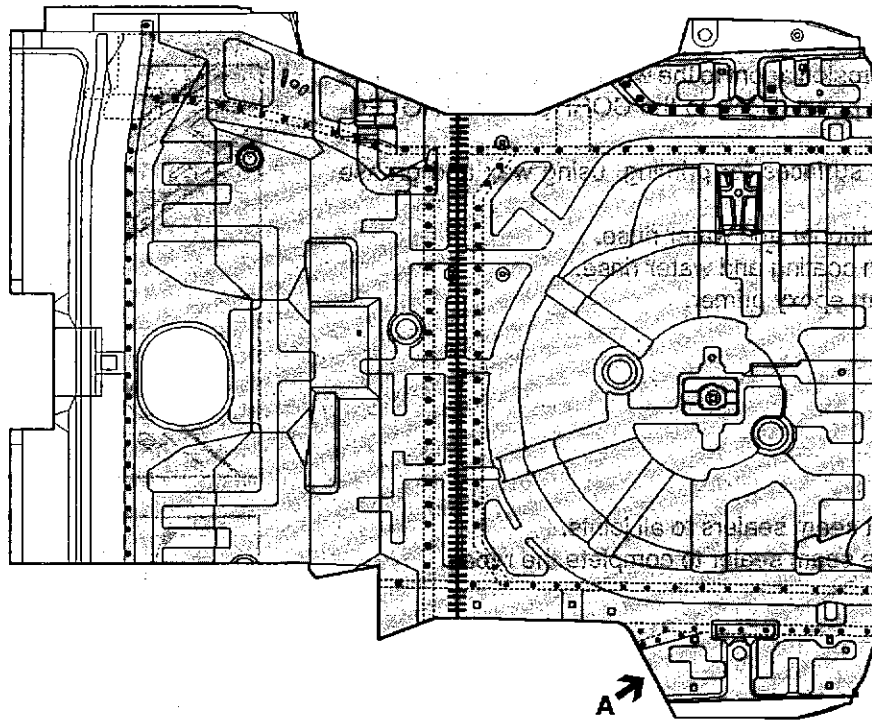


14. In order to improve corrosion resistance, if necessary, apply an under body anti-corrosion agent to the wheel well (Refer to the CORROSION PROTECTION).

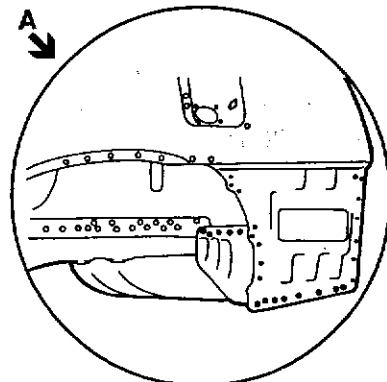


REAR FLOOR

WELDING POINTS



PRO-1520

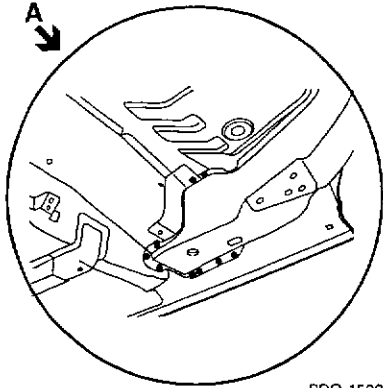


PRO-1521

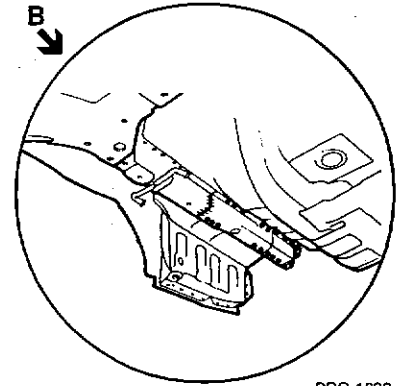
- MIG plug welding
- ### MIG butt welding

REAR SIDE MEMBER (ASSEMBLY)

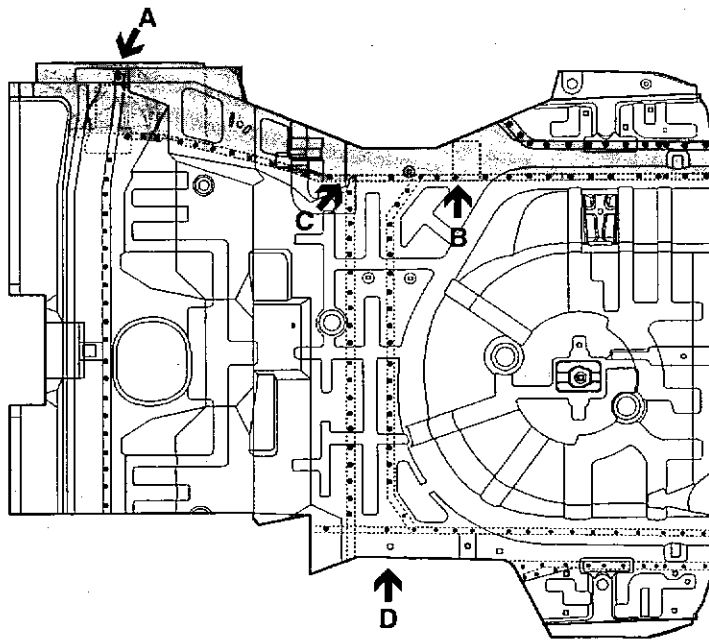
WELDING POINTS



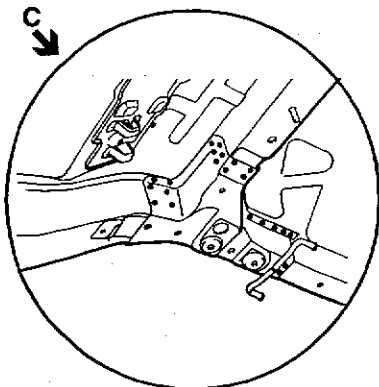
PRO-1500



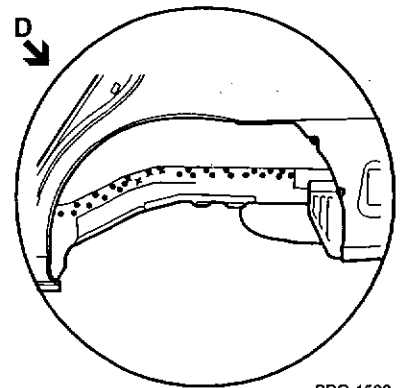
PRO-1690



PRO-1520



PRO-1502



PRO-1503

- MIG plug welding
- +++ MIG butt welding

## BODY PANEL REPAIR PROCEDURE - Rear floor and rear side member (assembly)

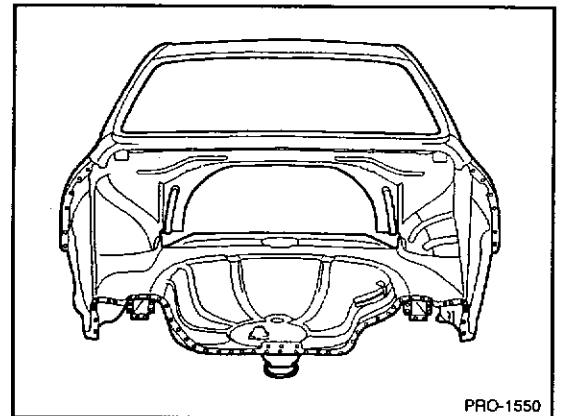
### NOTE

Because the rear side members are designed to absorb energy during a rear collision, care must be taken when deciding to use this repair method. This repair is recommended only for moderate damage to vehicle, where distortions do not extend forward of the trunk region. If the damage is more severe, then the entire side member assembly should be replaced at factory seams without employing this sectioning procedure.

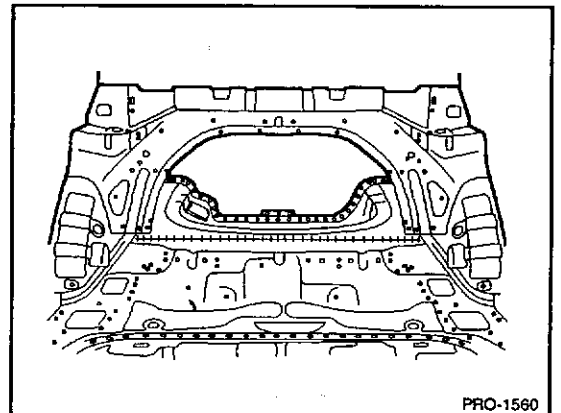
Refer to the body dimension chart and measure the vehicle to determine straightening and alignment requirements. **The body must be returned to its original dimension before beginning the repair procedure.**

### REMOVAL

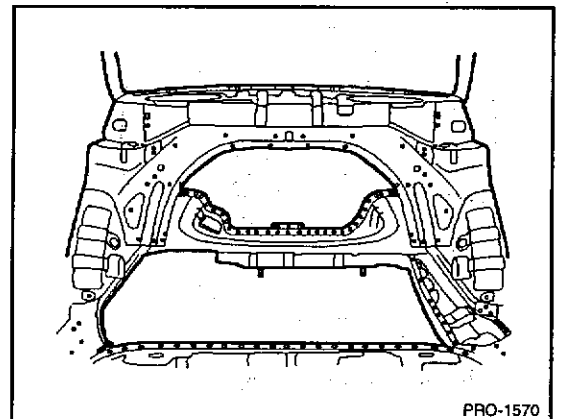
1. Drill out all the spotwelds attaching the rear floor panel to the wheel housings and rear side members.
2. Make a rough cutting of the rear floor panel where shown in the figure.



3. Remove the rear floor panel (front section).

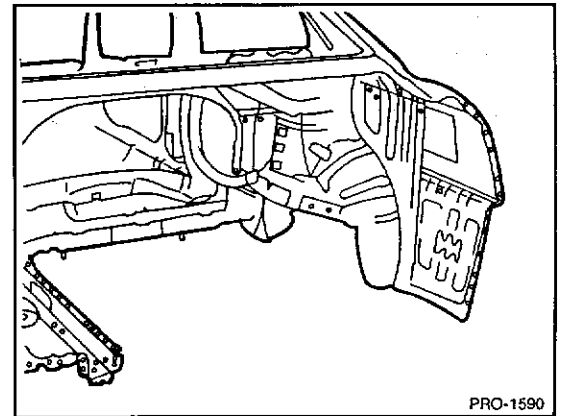
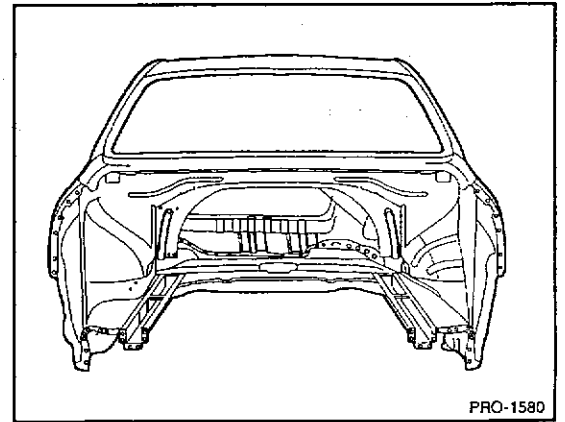


4. Remove the back panel by drilling out all attaching spotwelds.



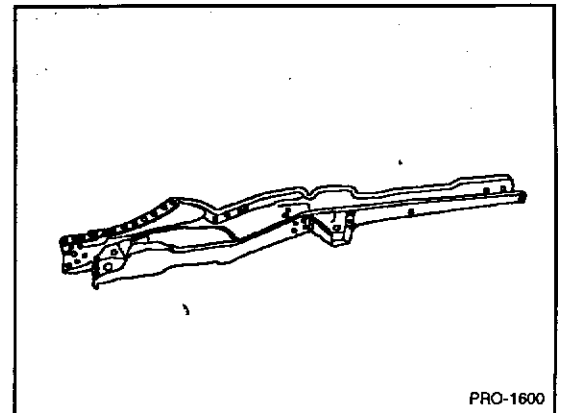
## BODY PANEL REPAIR PROCEDURE - Rear floor and rear side member (assembly)

5. Remove the rear floor panel (rear section) and rear side member from the rear body.



### INSTALLATION

1. Transcribe the cutline to the new rear side members. Drill out the spotwelds attaching the inner reinforcements. Remove remaining portions of side members.

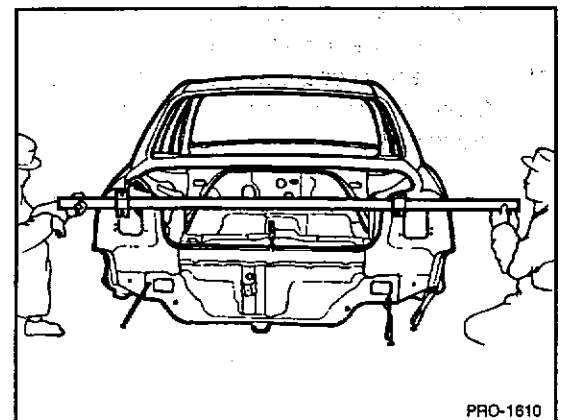


2. Temporarily fit and clamp the rear side members in place.

#### NOTE

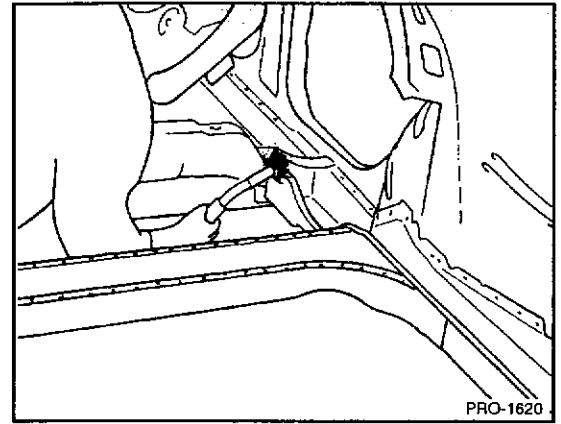
**When installing the rear floor side member, temporarily install the back panel to measure each measurement point.**

3. Measure each measurement point (Refer to BODY DIMENSIONS) and correct the installation position.
4. If necessary, make temporarily welds, and then check to confirm that the fit of rear floor panel is correct.

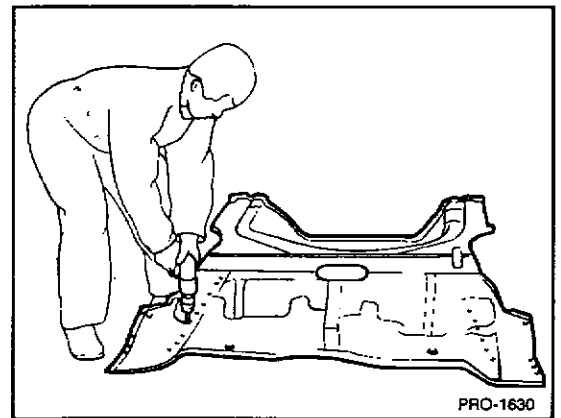


## BODY PANEL REPAIR PROCEDURE - Rear floor and rear side member (assembly)

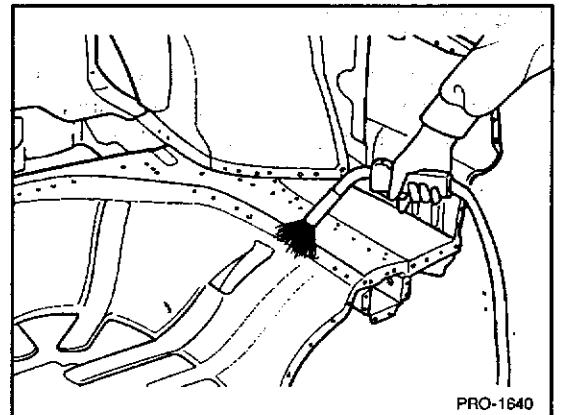
5. MIG plug weld the rear side members and MIG butt weld seams.
6. Prepare the welds and surfaces to which the rear floor will attach.
7. Transcribe the cutline to the new rear floor panel, adding 30mm for overlap at the old joint.



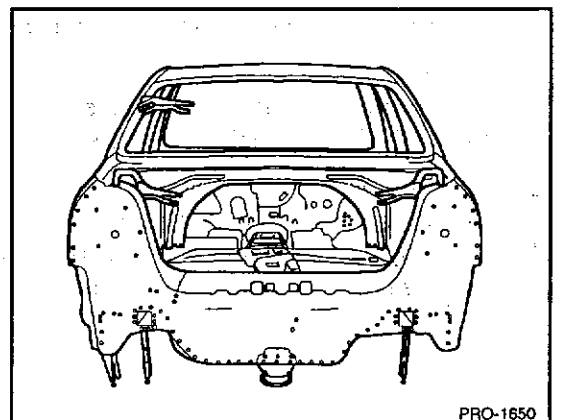
8. Drill 8mm holes in overlap area and production locations of the new rear floor panel for MIG plug welding.
9. Fit and clamp the rear floor panel and attach the rear floor panel to the rear side members and other panels.



10. MIG plug weld all holes and MIG butt weld the seams.
11. Clean all welded surfaces.
12. Drill 8 mm holes on the flange attaching the back panel to the rear floor and side member ends.

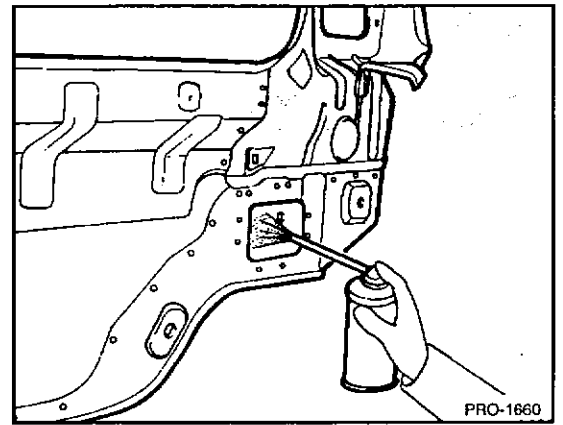


13. Fit and clamp the back panel in place.
14. MIG plug weld the back panel.
15. Clean and prepare all welds, remove all residue.
16. Apply the two-part epoxy primer to the interior of the rear side members.

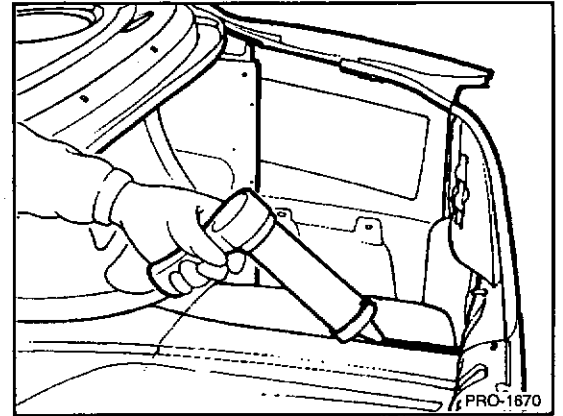


## BODY PANEL REPAIR PROCEDURE - Rear floor and rear side member (assembly)

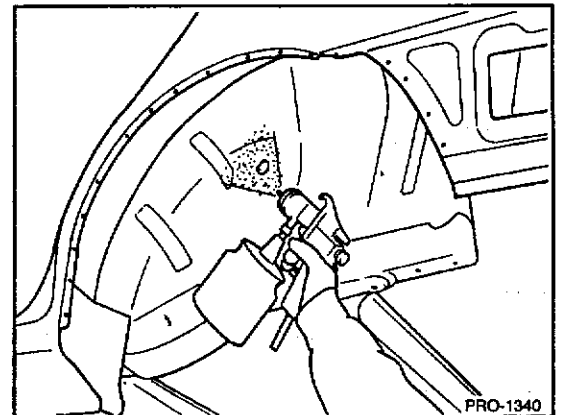
17. Apply an anti-corrosion to the interior of the rear side members (Refer to the CORROSION PROTECTION).
18. Prepare exterior surfaces for priming, using wax and grease remover.
19. Apply metal conditioner and water rinse.
20. Apply the two-part epoxy primer.



21. Apply the correct seam sealer to all joints (Refer to the BODY SEALING LOCATIONS).
22. Reprime over the seam sealer to complete the repair.

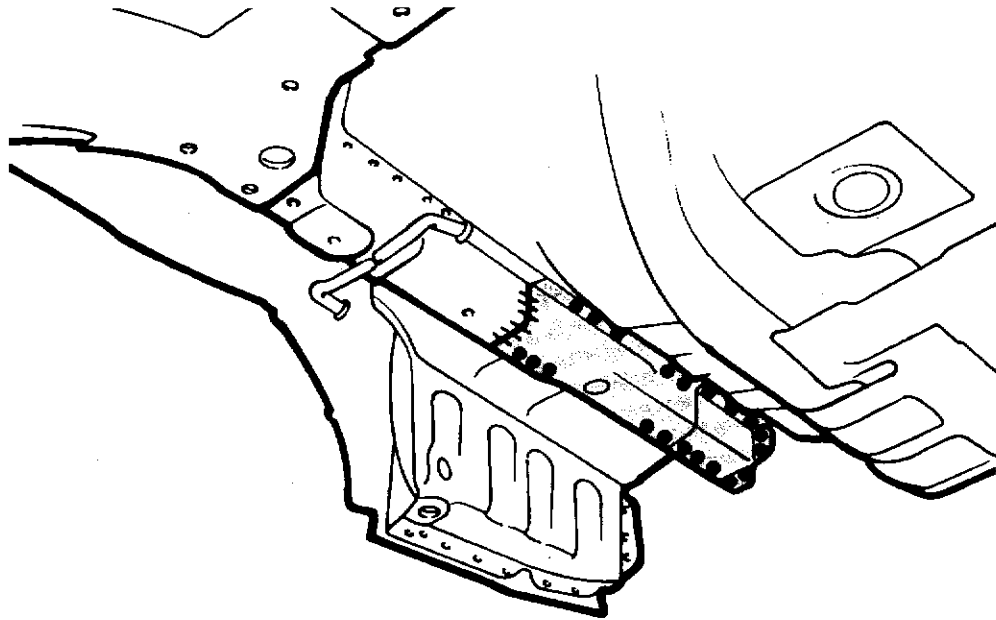


23. After completing body repairs, carefully apply under coating to the under body (Refer to the CORROSION PROTECTION).
24. In order to improve corrosion resistance, if necessary, apply an under body anti-corrosion agent to the panel which is repaired or replaced (Refer to the CORROSION PROTECTION).



## REAR SIDE MEMBER (PARTIAL)

### WELDING POINTS



- MIG plug welding
- ### MIG butt welding

PRO-1690

## REMOVAL

### NOTE

Because the rear side members are designed to absorb energy during a rear collision, care must be used when deciding to use this repair method. This repair is recommended only for moderate damage to the vehicle, where distortions do not extend forward of the trunk region. If the damage is more severe, then the entire side member assembly should be replaced at the factory seams without employing this sectioning procedure.

The following procedure applies when only one rear side member needs to be replaced. If both side members are damaged and need to be replaced, then the procedure of Rear Side members And Rear Floor Section should be followed.

Refer to the body dimension charts and measure the vehicle to determine straightening and alignment requirements. **The body must be returned to its original dimensions before beginning the repair procedure.**



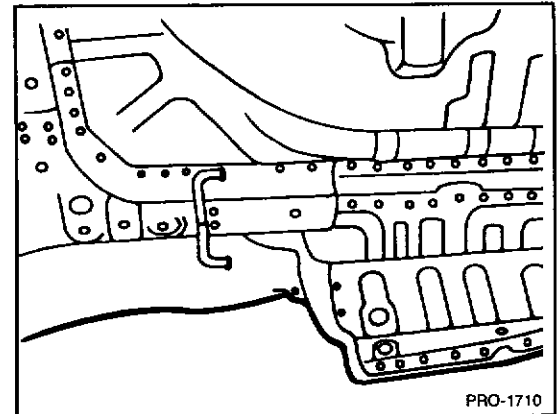
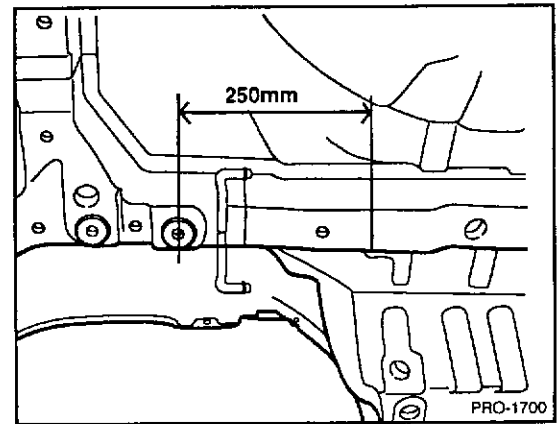
## BODY PANEL REPAIR PROCEDURE - Rear side member (Partial)

1. Depending on the extent of damage, if the right side member is to be replaced it should be measured and marked 250mm from the chassis rear cross member mounting hose center of the rear floor side member.

### NOTE

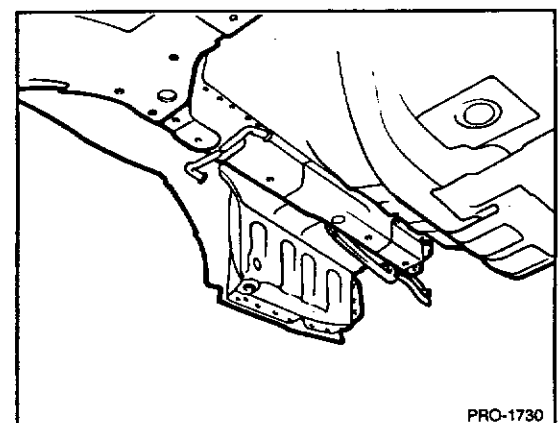
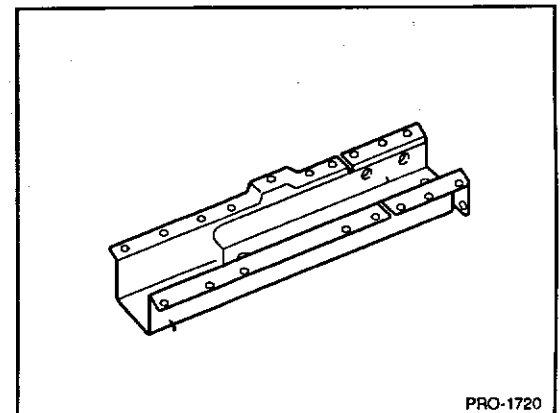
The following procedure illustrates a repair for the right rear side member. The procedure may also be applied to the left rear side member.

2. Cut through rear side member at cutline being careful not to cut rear side member reinforcement.
3. Removing the rear floor side member by drilling out all attaching spotwelds.
4. Prepare all surfaces to be welded.



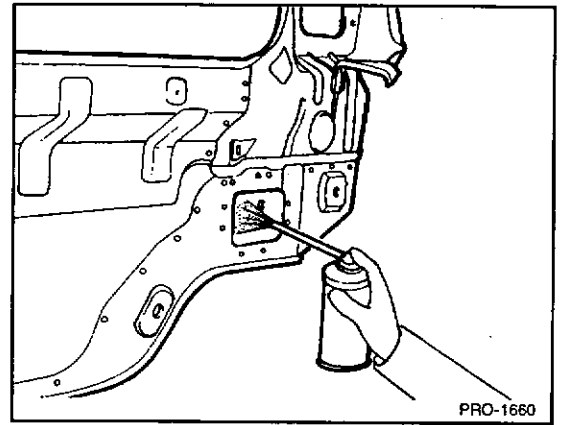
## INSTALLATION

1. Transcribe the cutline to the new rear side member. Cut at line and drill out the spotwelds attaching the inner reinforcement and separate it.
2. Fit and clamp the new rear side member in place for welding. Measure to ensure dimensions are accurate as given in the body dimension charts.
3. MIG plug weld at the holes and MIG butt weld the seam in the side member.
4. Clean and prepare all surfaces to be welded and remove all residue.
5. Apply the two-part epoxy primer to the interior of the rear side member.

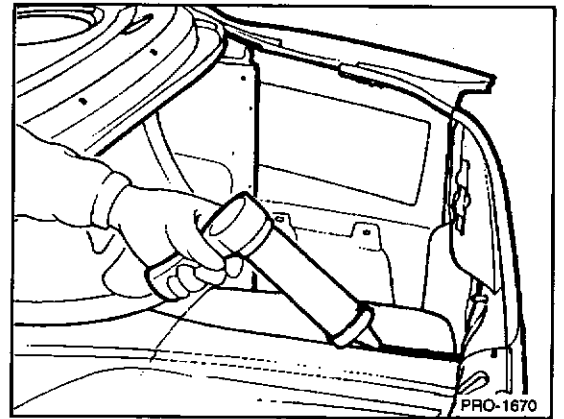


## BODY PANEL REPAIR PROCEDURE - Rear side member (Partial)

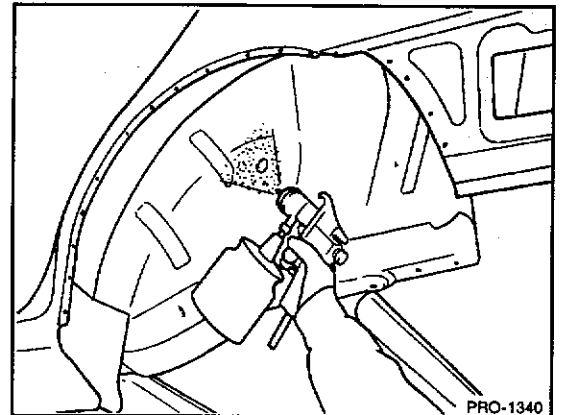
6. Apply an anti-corrosion to the interior of the rear side member (Refer to the CORROSION PROTECTION).
7. Prepare exterior surfaces for priming, using wax and grease remover.
8. Apply metal conditioner and water rinse.
9. Apply conversion coating and water rinse.
10. Apply the two-part epoxy primer.



11. Apply the correct seam sealer to all joints (Refer to the BODY SEALING LOCATIONS).
12. Reprime over the seam sealer to complete the repair.



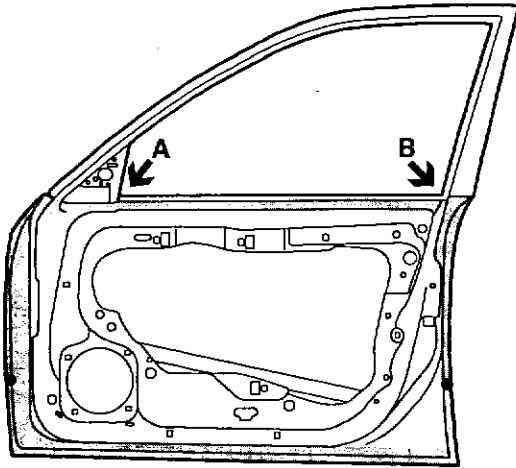
13. After completing body repairs, carefully apply under coating to the under body (Refer to the CORROSION PROTECTION).
14. In order to improve corrosion agent to the panel which is repaired or replaced (Refer to the CORROSION PROTECTION).



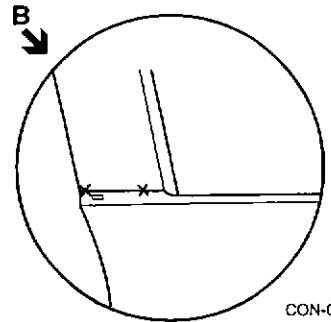
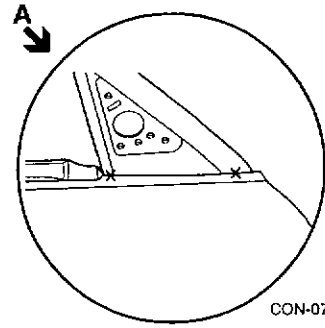
FRONT AND REAR DOOR OUTER PANELS

**WELDING POINTS**

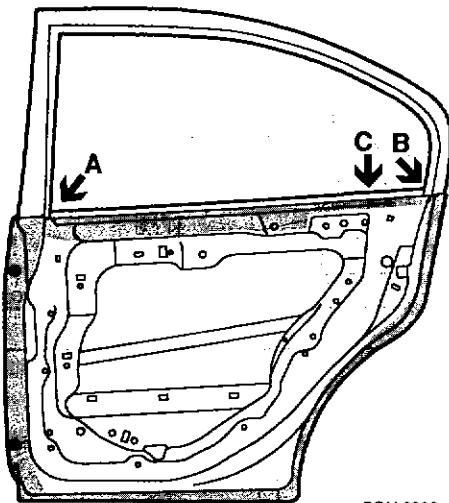
**FRONT DOOR**



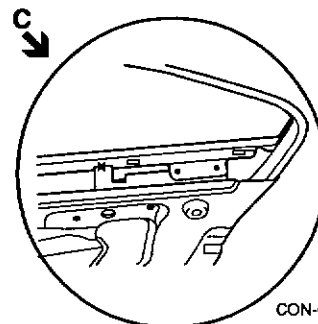
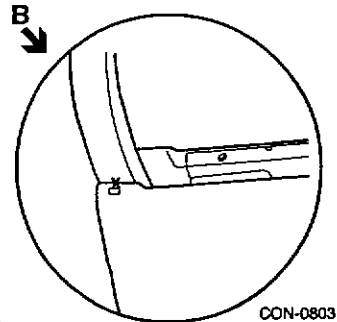
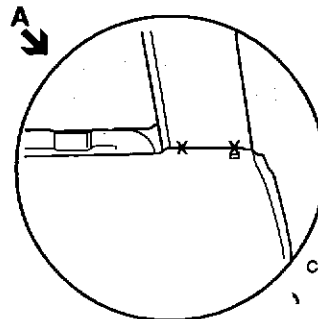
CON-0750



**REAR DOOR**



CON-0800

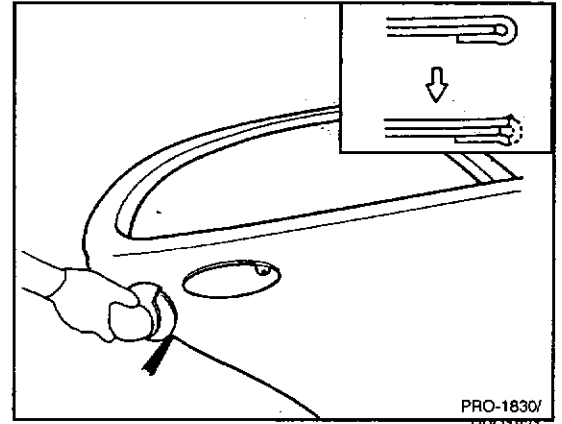


- MIG plug welding
- ✕ MIG lap welding

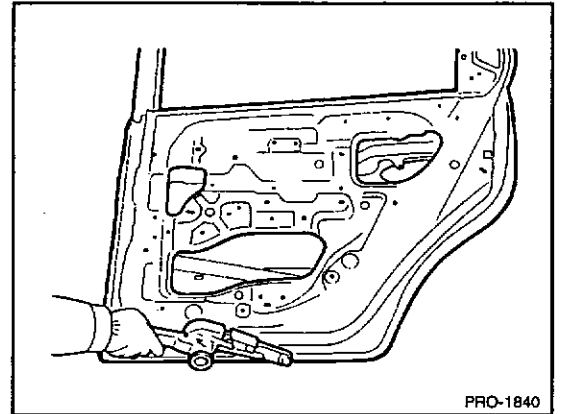
## BODY PANEL REPAIR PROCEDURE - Front and rear door outer panels

### REMOVAL

1. Cut door outer panel hem with a sander.
2. After grinding off the hemming location, remove the outer panel.

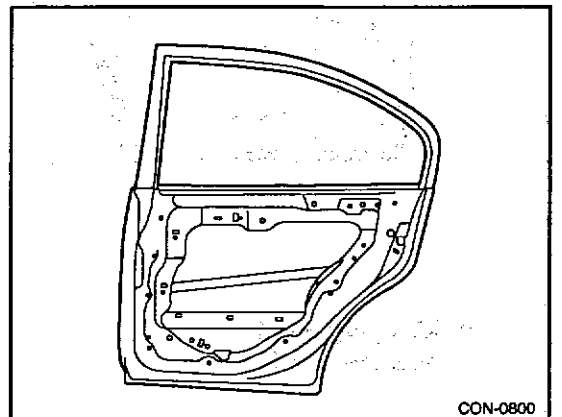
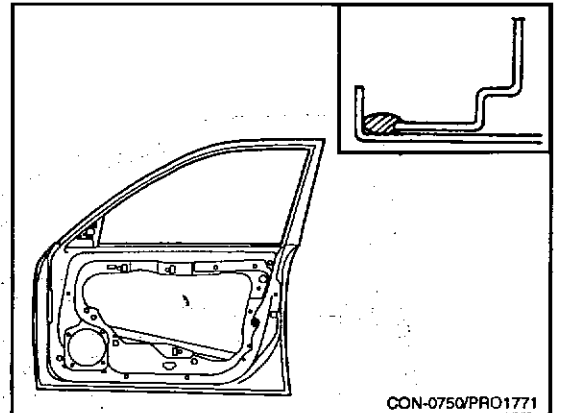


3. Dress rusty part with a sander and prepare surface to be hemmed.



### INSTALLATION

1. Apply adhesive or equivalent to outer panel hem.
2. Apply mastic sealer or equivalent to the door upper member and door reinforcement beam as shown in the figure.

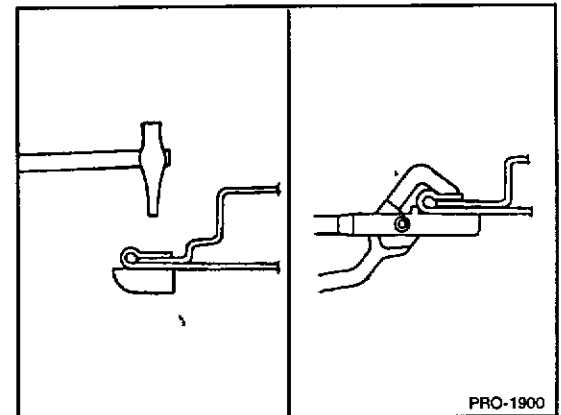
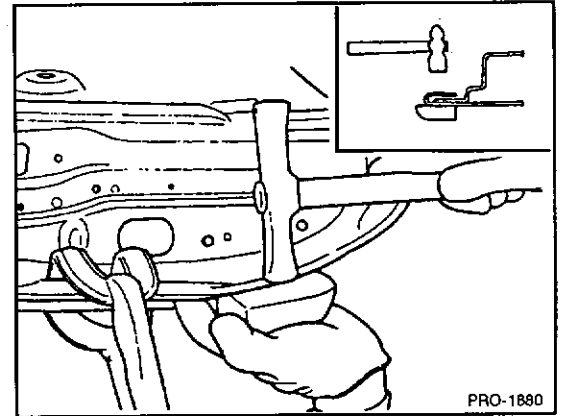
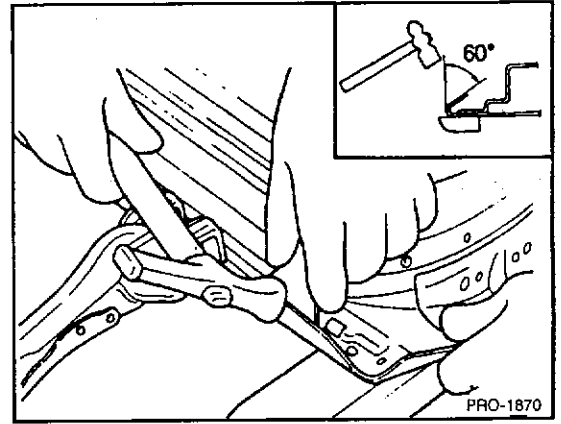


## BODY PANEL REPAIR PROCEDURE - Front and rear door outer panels

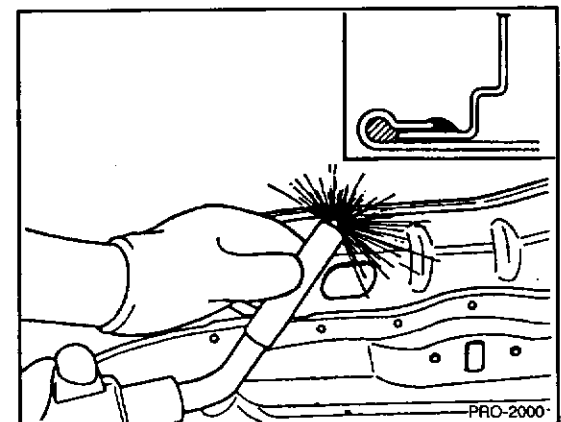
3. Bend the flange hem with a hammer and dolly, then fasten tightly with a hemming tool.

### NOTE

1. Hemming work should be done in three steps as illustration.
2. If a hemming tool cannot be used, hem with a hammer and dolly.

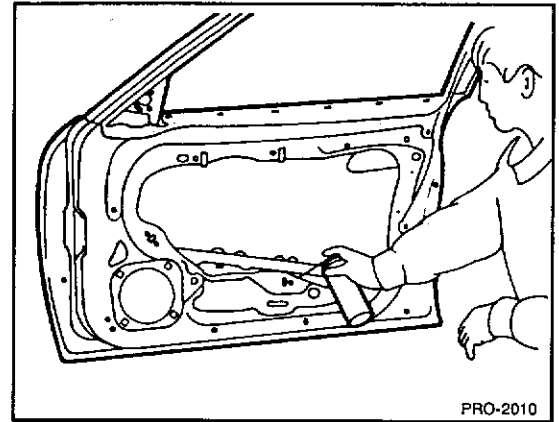


4. After completing the hemming work, make MIG spot welds at 50 mm intervals on the inside.
5. Clean and prepare all welds, remove all residue.
6. Apply the two-part epoxy primer to the interior of the door panel.

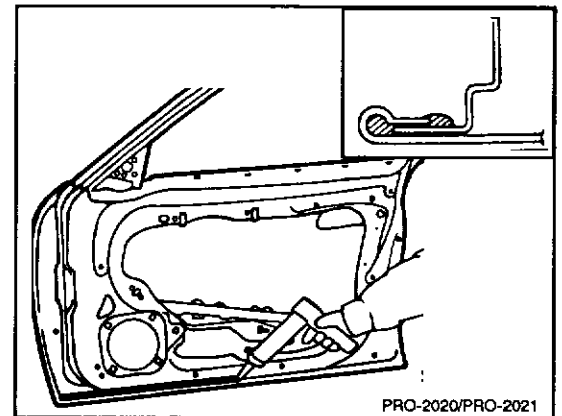


## BODY PANEL REPAIR PROCEDURE - Front and rear door outer panels

7. Apply an anti-corrosion agent to the welded parts and lower inside of the door panel (Refer to the CORROSION PROTECTION).
8. Prepare exterior surfaces for priming, using wax and grease remover.
9. Apply metal conditioner and water rinse.
10. Apply conversion coating and water rinse.
11. Apply the two-part epoxy primer.



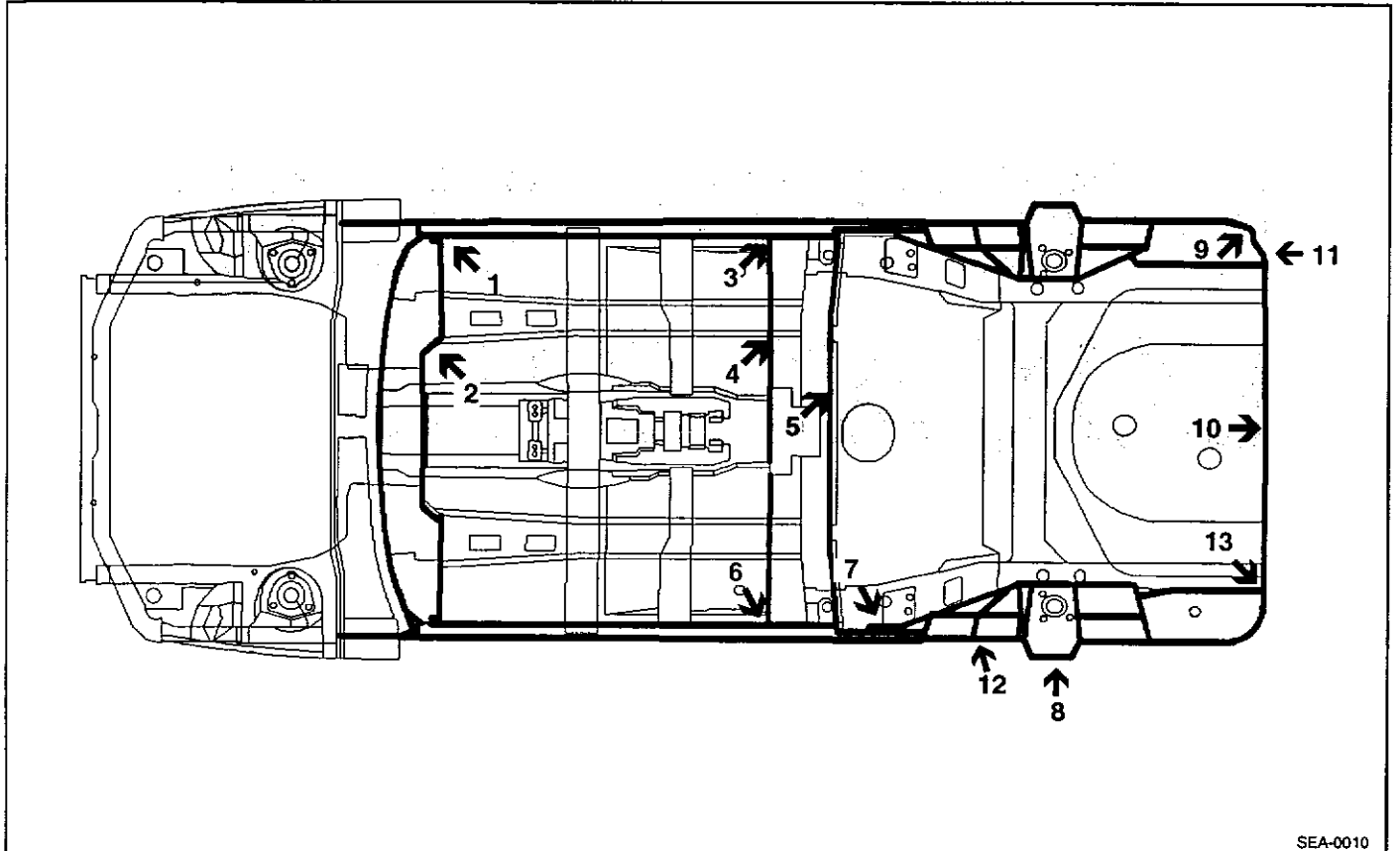
12. Apply the correct seam sealer to whole panel edge.
13. Reprime over the seam sealer to complete the repair.



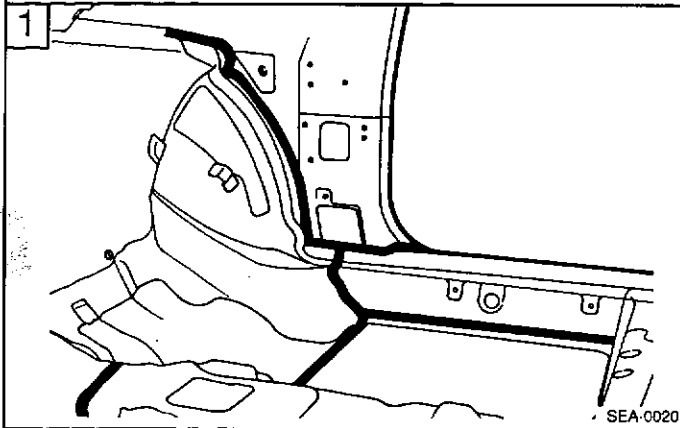
# BODY SEALING LOCATIONS

BODY SEALING LOCATIONS - Floor

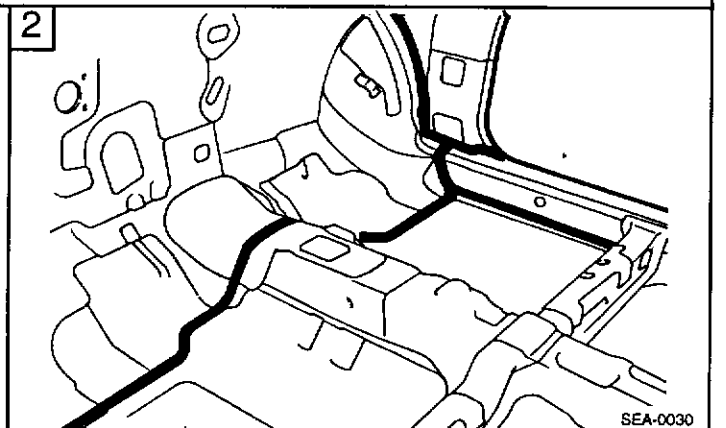
FLOOR



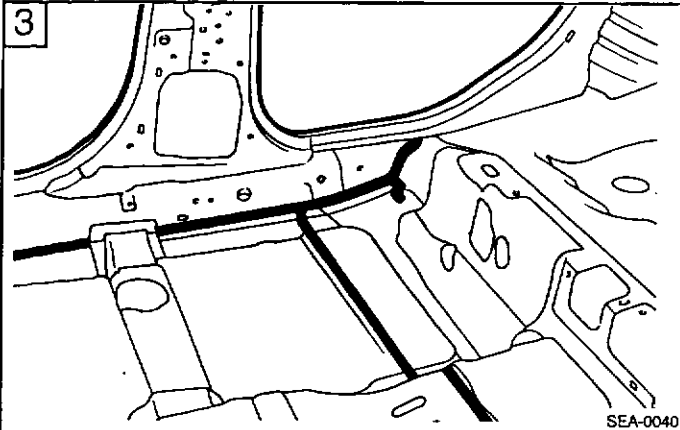
SEA-0010



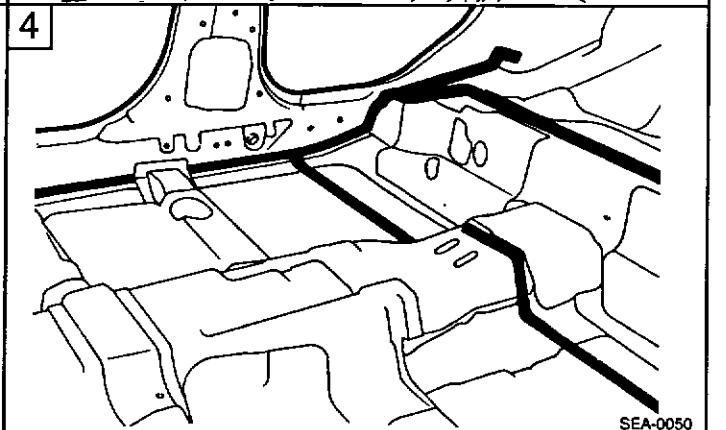
SEA-0020



SEA-0030



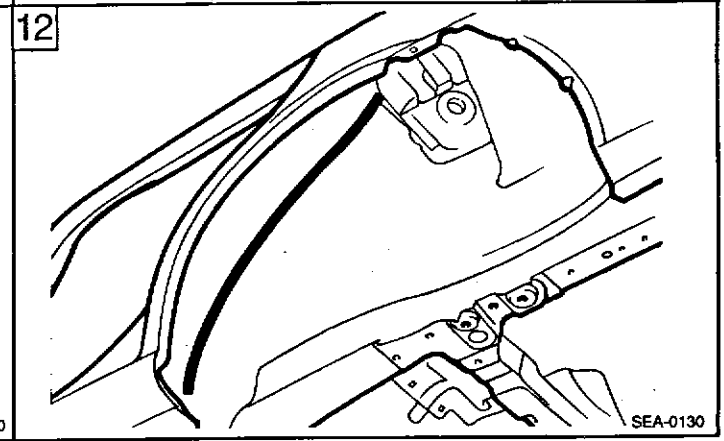
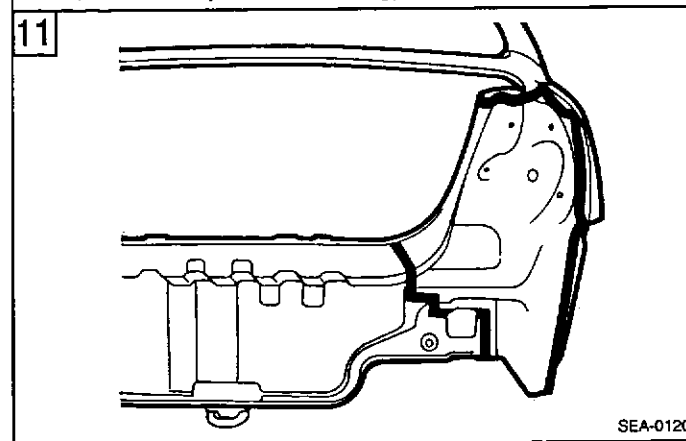
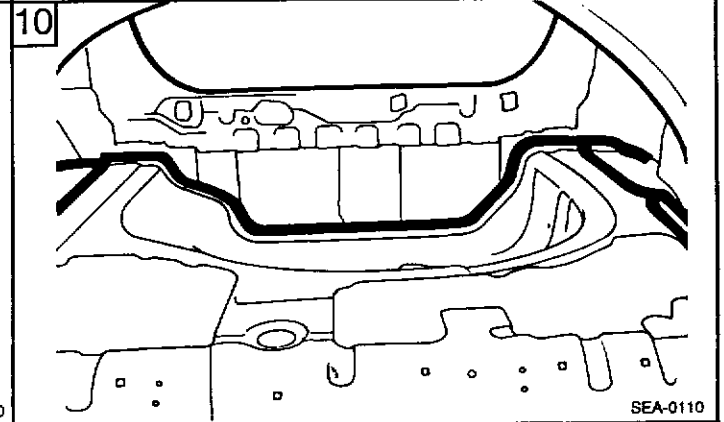
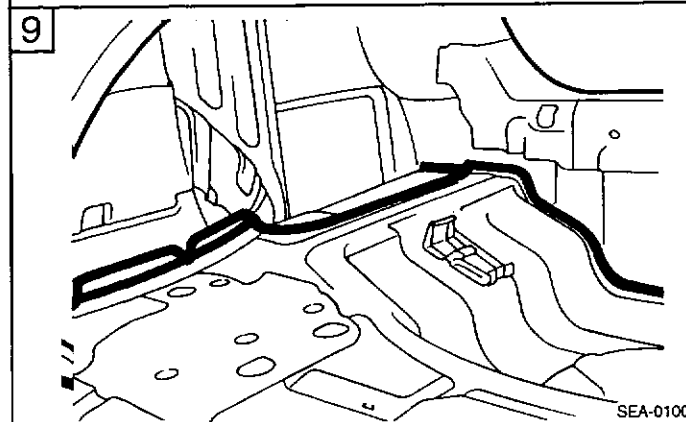
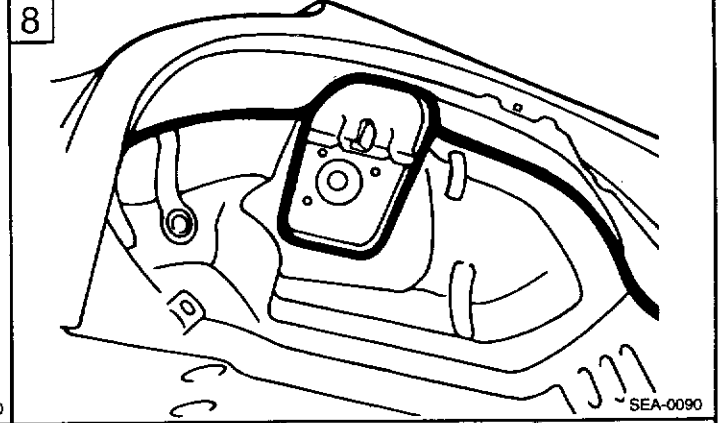
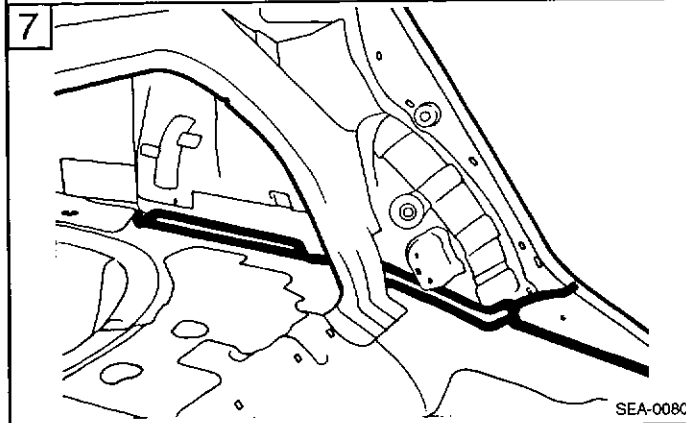
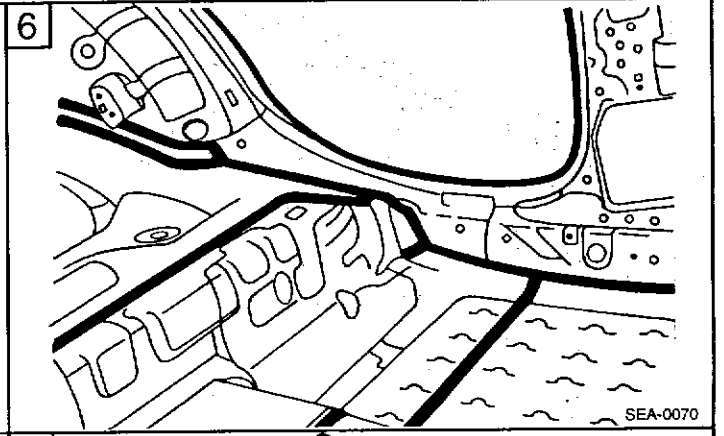
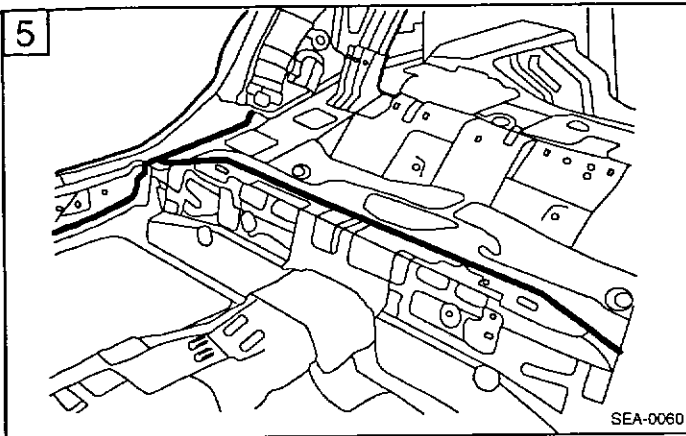
SEA-0040



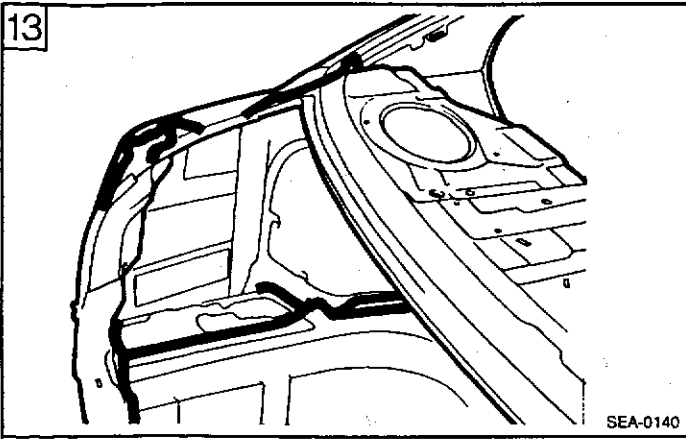
SEA-0050



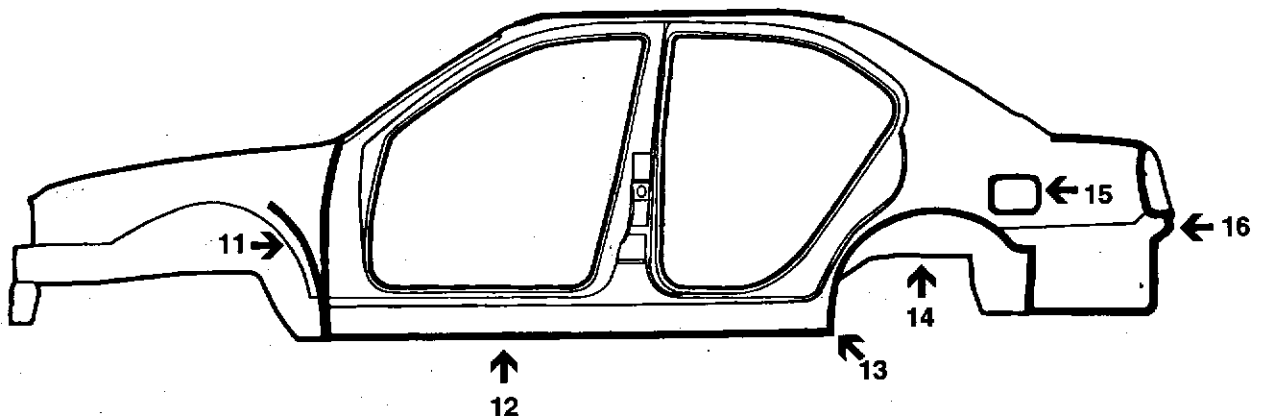
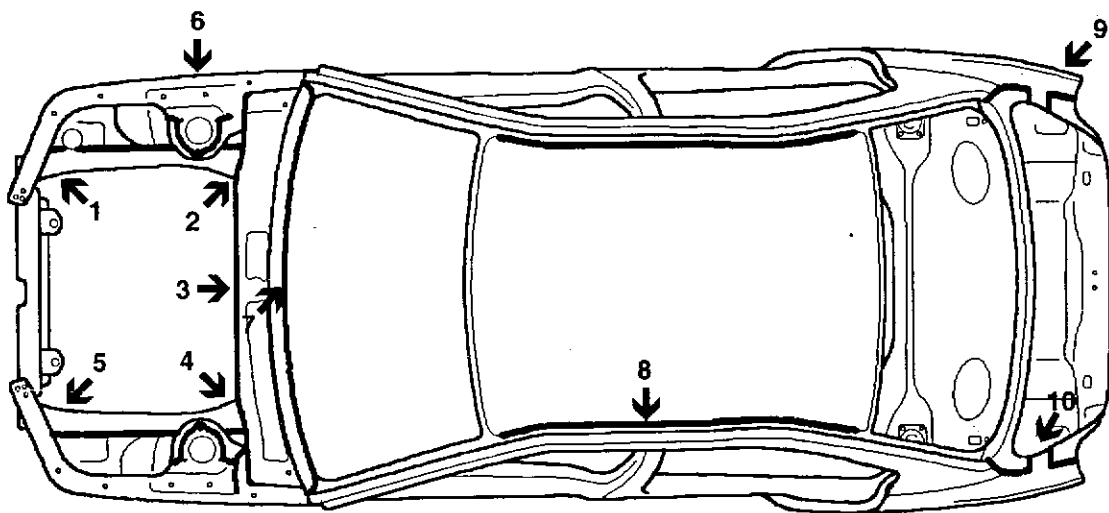
BODY SEALING LOCATIONS - Floor



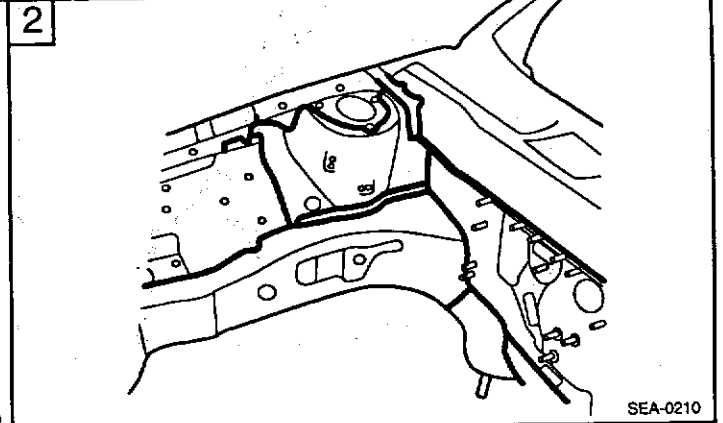
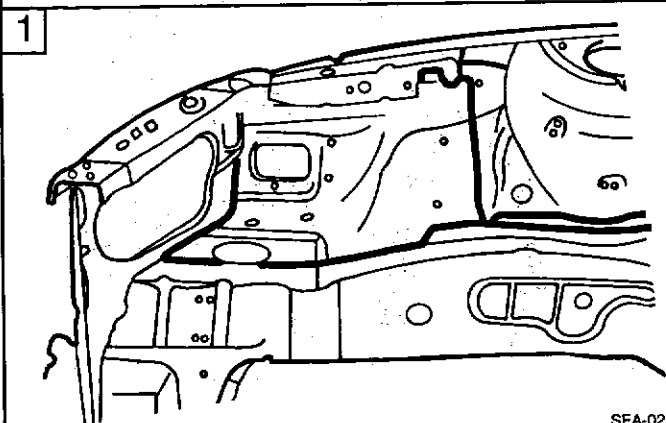
**BODY SEALING LOCATIONS - Floor**



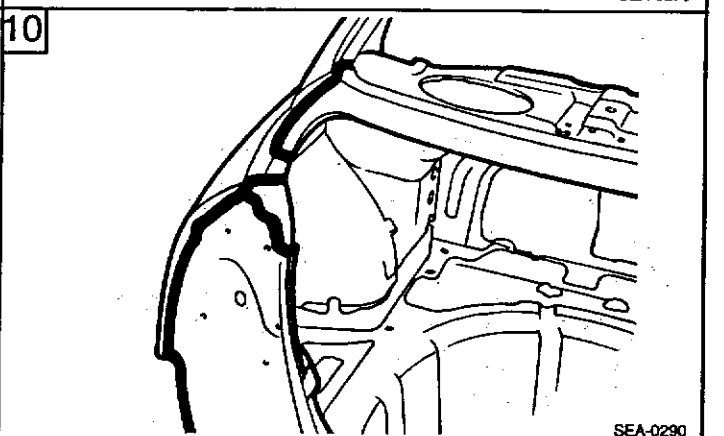
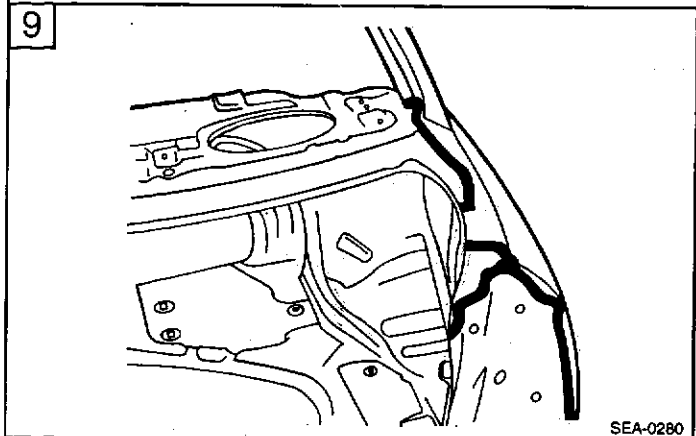
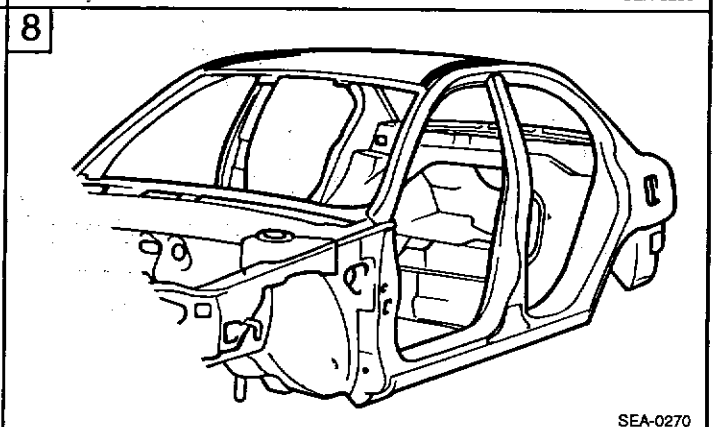
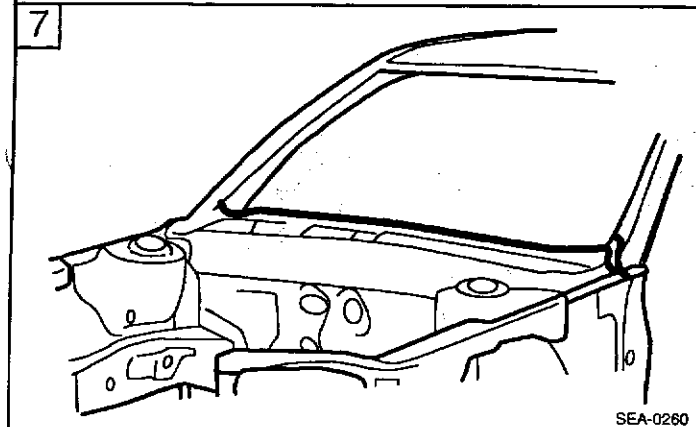
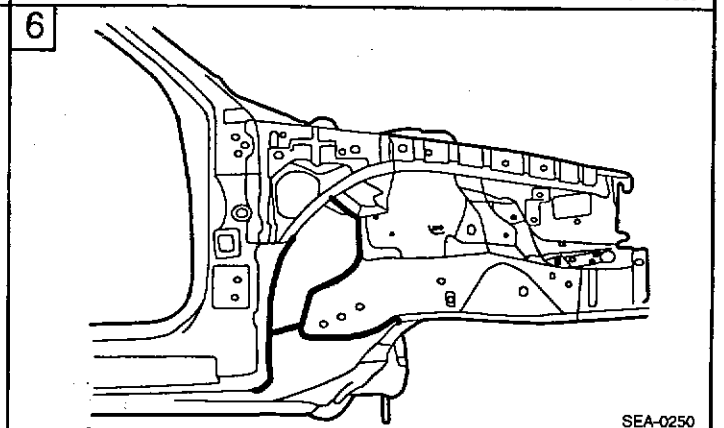
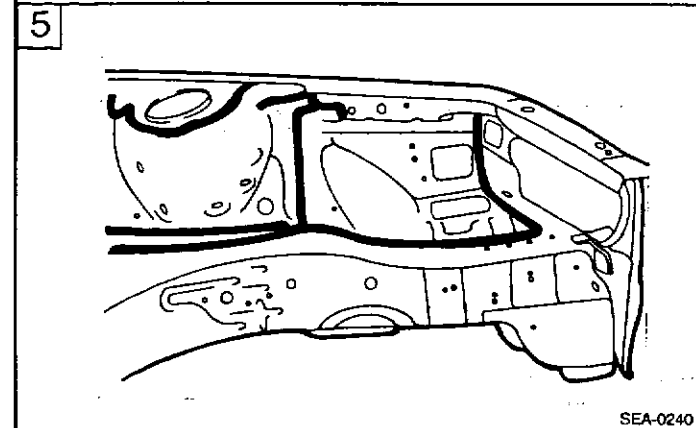
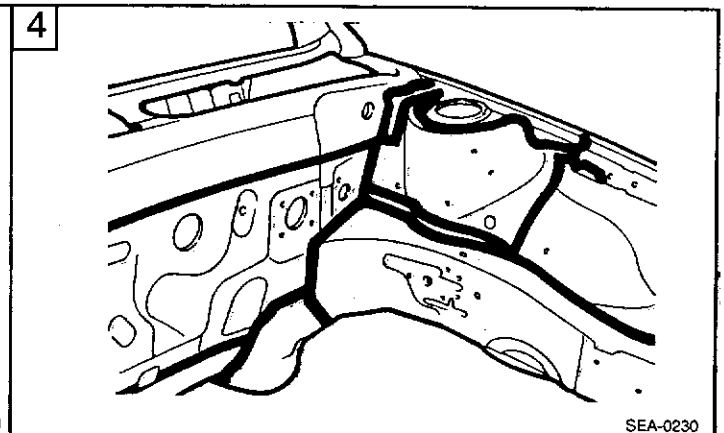
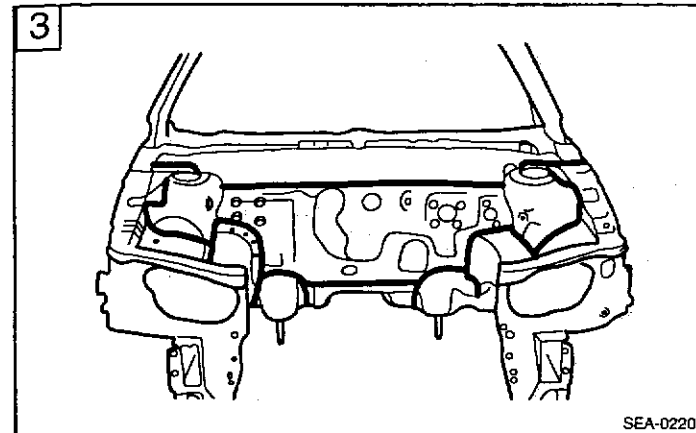
UPPER AND SIDE BODY



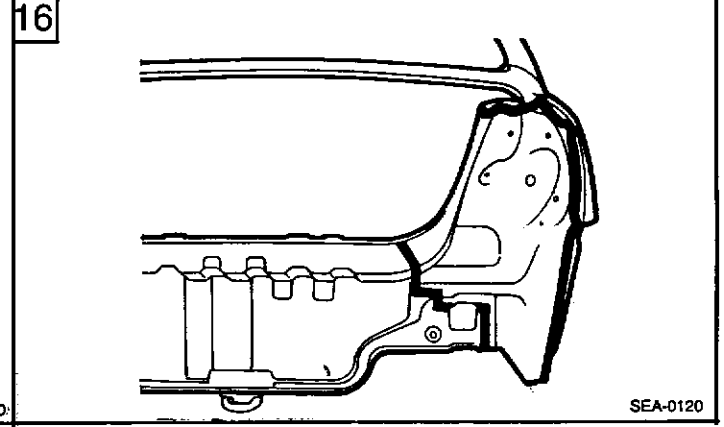
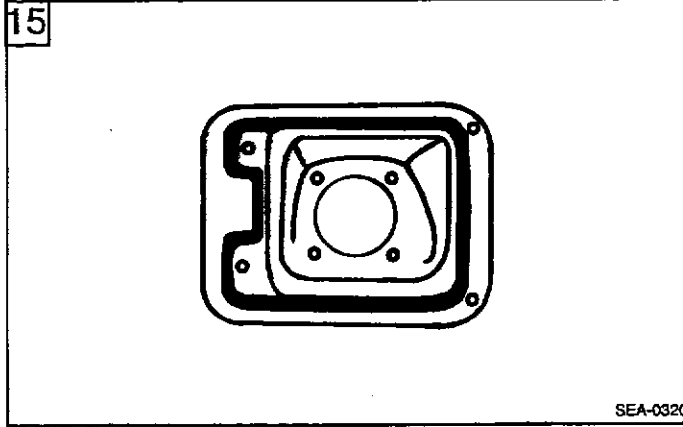
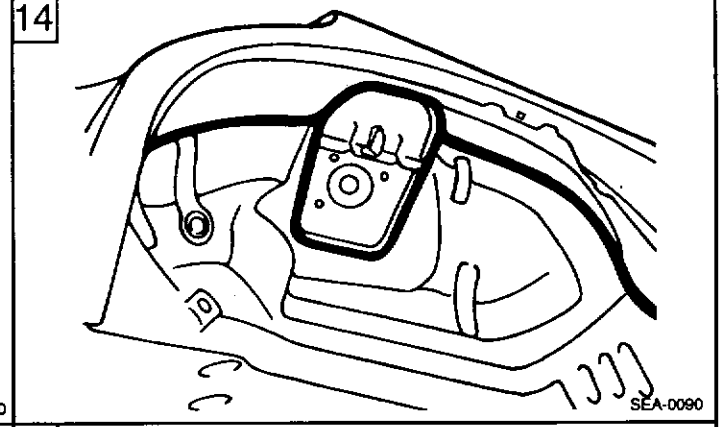
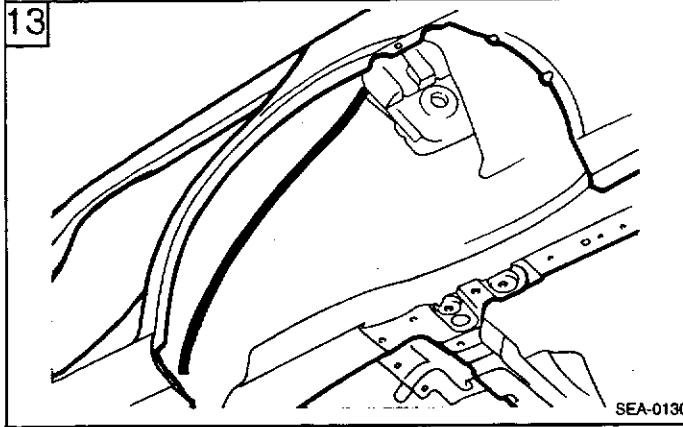
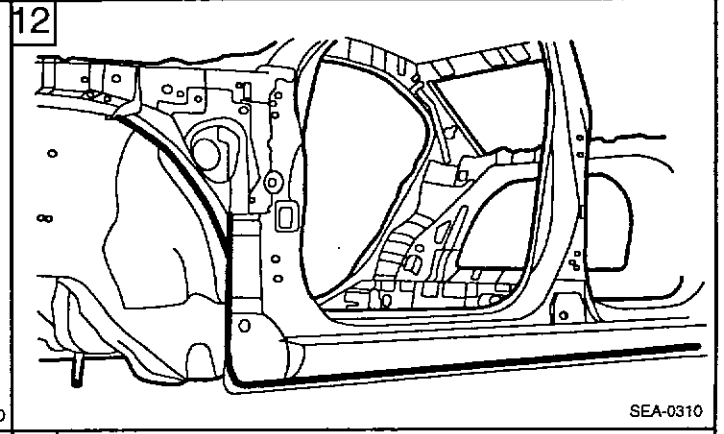
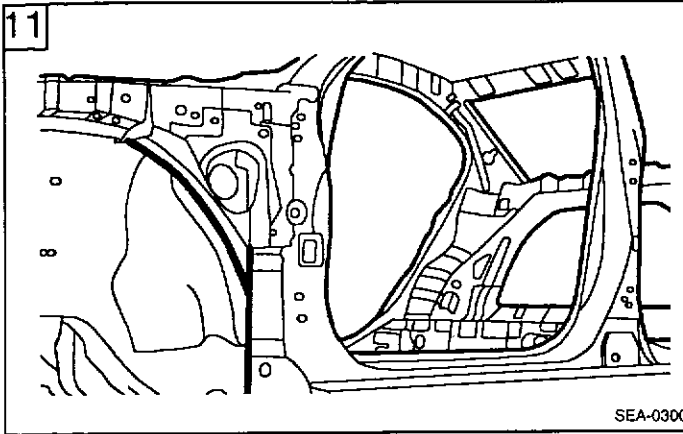
SEA-0160, SEA-0170

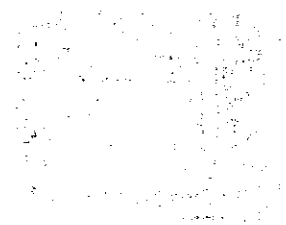


BODY SEALING LOCATIONS - Upper and side body



BODY SEALING LOCATIONS - Upper and side body

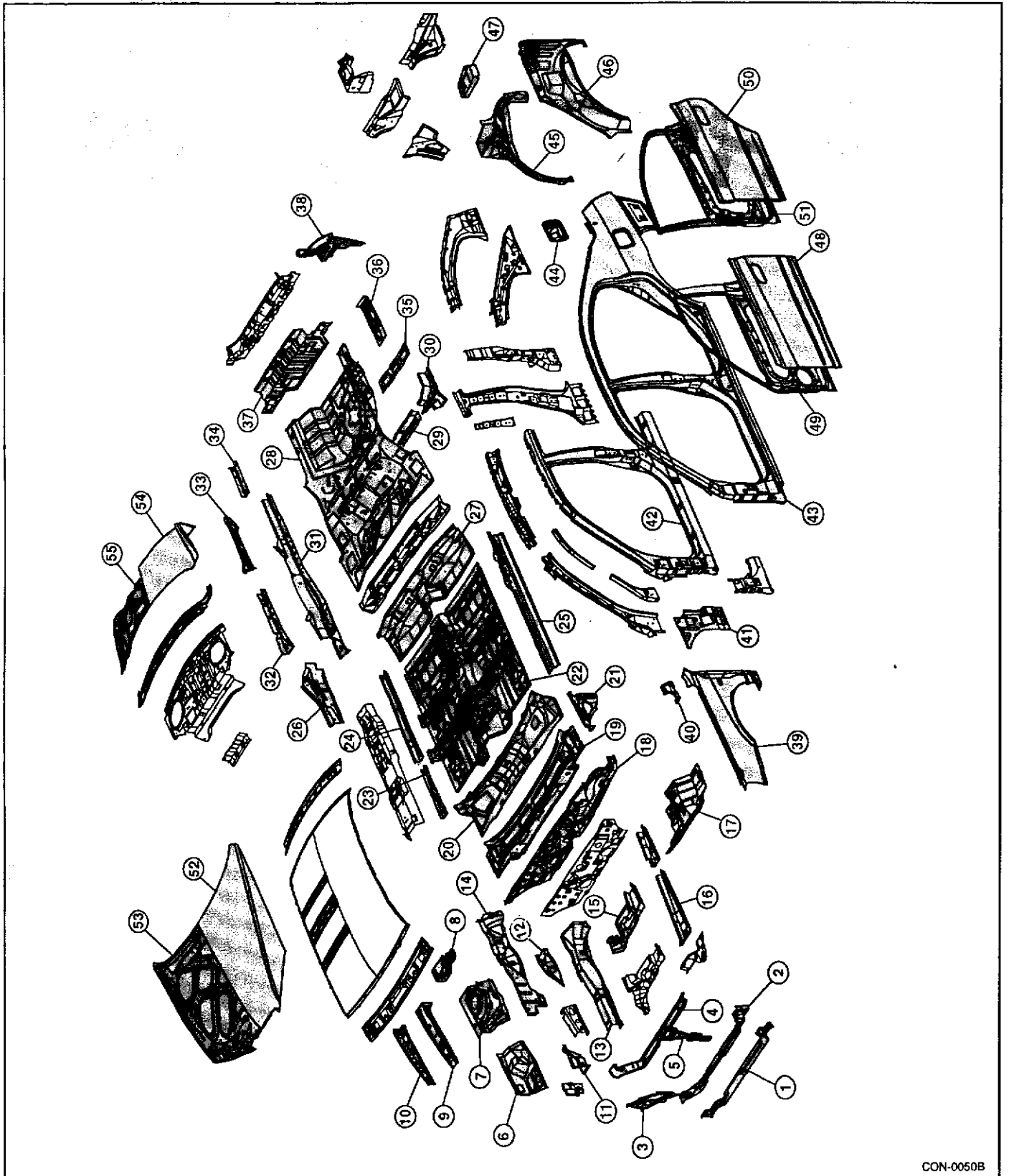




# CORROSION PROTECTION

## ZINC-GALVANIZED STEEL PANELS

Because galvanized steel panel has excellent resistance, it is used in areas which have a high possibility of painting deficiency below.



CON-0050B



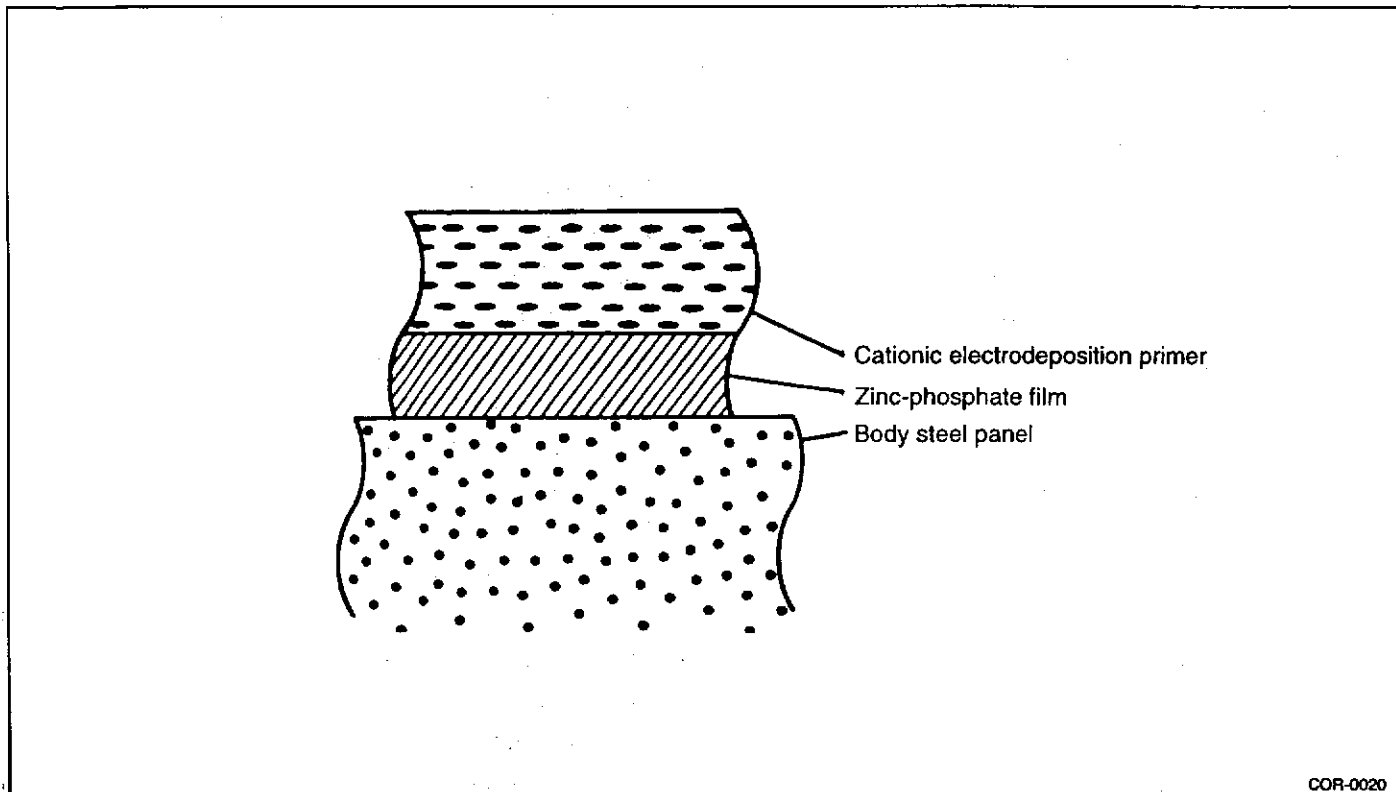
## CORROSION PROTECTION - Zinc-galvanized steel panels

---

1. Radiator support lower outer member
2. Radiator support lower inner member
3. Headlamp support panel
4. Radiator support upper side member
5. Radiator support center member
6. Fender apron inner front panel
7. Shock absorber housing panel
8. Fender apron inner rear extension
9. Fender apron upper inner panel
10. Fender apron upper outer panel
11. Front side inner member gusset
12. Front side outer member reinforcement
13. Front side inner member
14. Front side outer member
15. Front side rear lower member
16. Front side rear lower extension
17. Dash lower member
18. Dash panel
19. Cowl top outer panel
20. Cowl inner lower panel
21. Cowl side upper outer panel
22. Center floor panel
23. Center floor side member reinforcement
24. Center floor side member
25. Side sill inner panel
26. Side sill inner rear panel
27. Rear floor front cross member
28. Rear floor panel
29. Rear floor center cross member
30. Rear floor center cross extension
31. Rear floor side member
32. Rear floor side member center reinforcement
33. Rear floor side panel
34. Rear floor side member rear extension
35. Jack-up cross reinforcement
36. Rear towing hook bracket
37. Back panel
38. Rear combi - lamp housing panel
39. Fender panel
40. Fender rear upper extension
41. Front pillar inner lower panel
42. Side outer reinforcement
43. Side outer panel
44. Fuel pillar housing
45. Front pillar inner panel
46. Quarter inner panel
47. Rear spring house cover
48. Front door outer panel
49. Front door inner panel
50. Rear door outer panel
51. Rear door inner panel
52. Hood outer panel
53. Hood inner panel
54. Trunk lid outer panel
55. Trunk lid inner panel

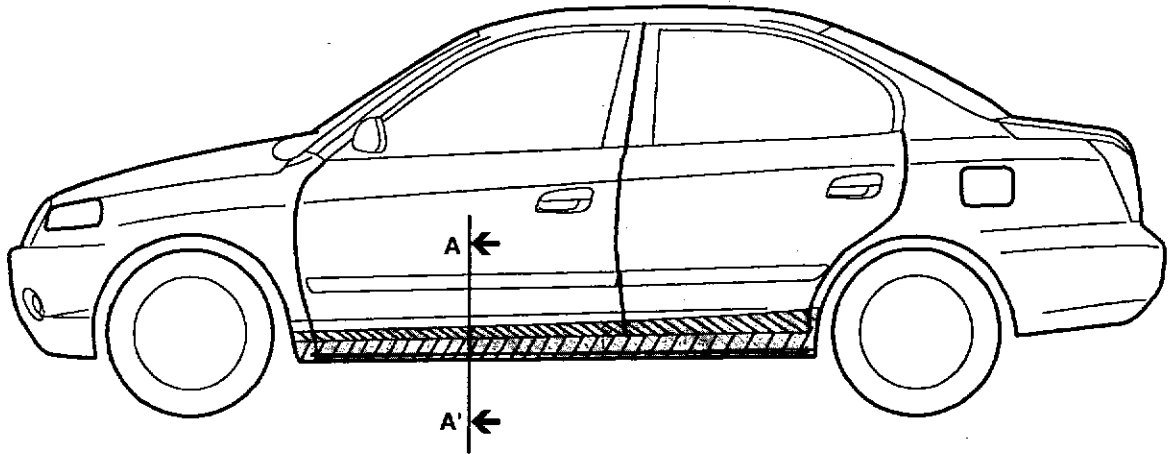
## ZINC-PHOSPHATE COAT & CATIONIC ELECTRODEPOSITION PRIMER

In order to improve the adhesion of the paint coat on the steel panel, and also to improve the corrosion resistance, the entire body is coated with a film of Zinc-phosphate and a cationic electrodeposition primer.

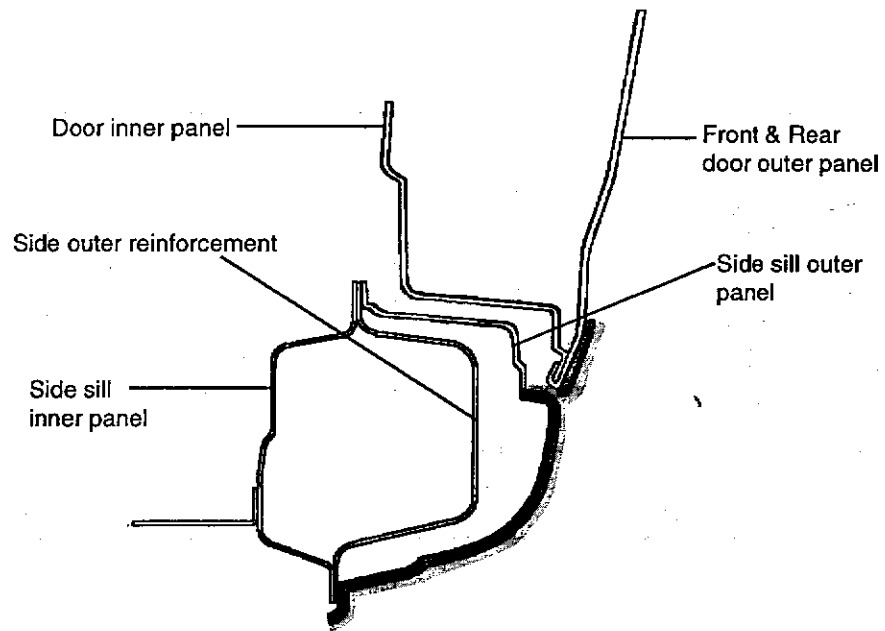


## ANTI-CORROSION PRIMER

An anti-corrosion primer has been applied to the side sill outer panel for the purposes of corrosion prevention and abrasion protection. If this panel is replaced, apply an anti-corrosion primer between the undercoat and the intermediate coat, as shown in the following illustrations.



COR-0030



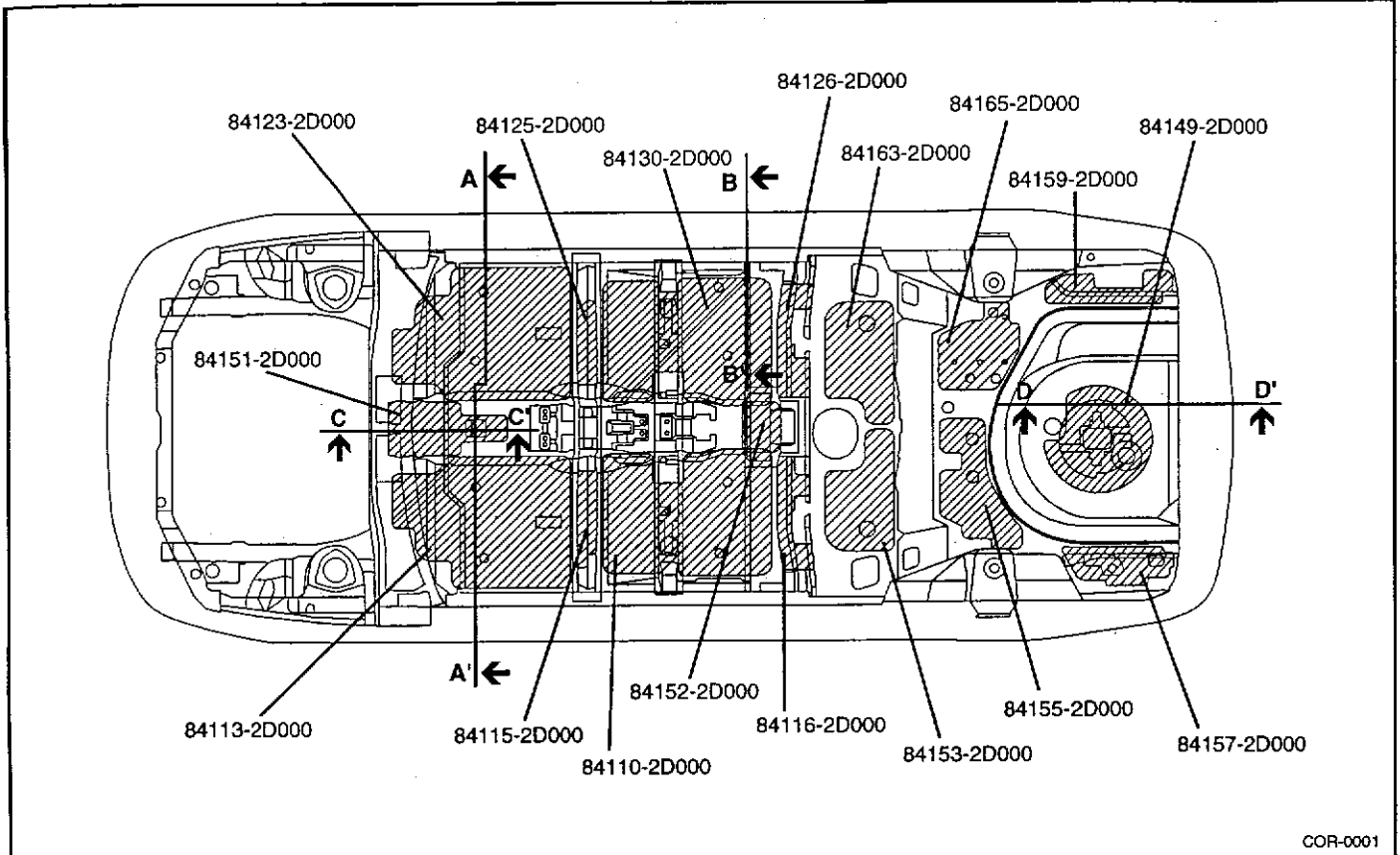
COR-0040

SECTION A-A'

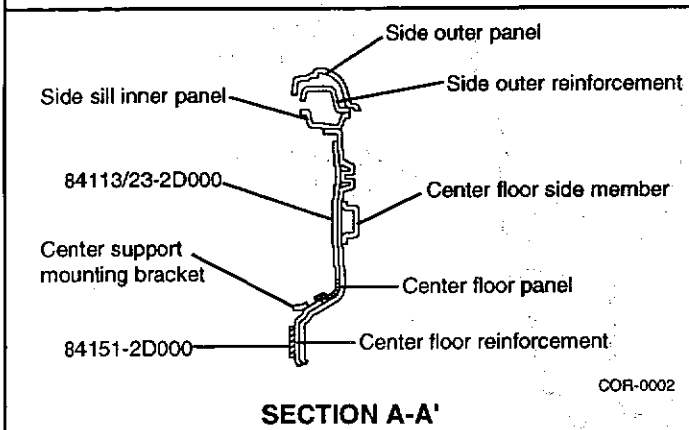


Rock panel primer (Thickness 180 $\mu$ )

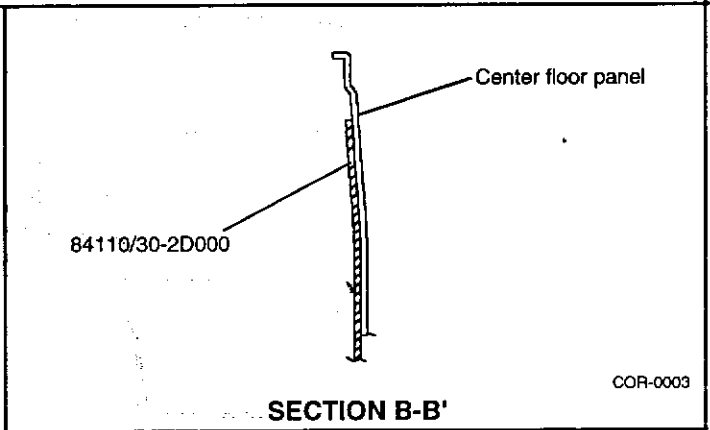
ANTIVIBRATION PADS-LOCATION & SECTION



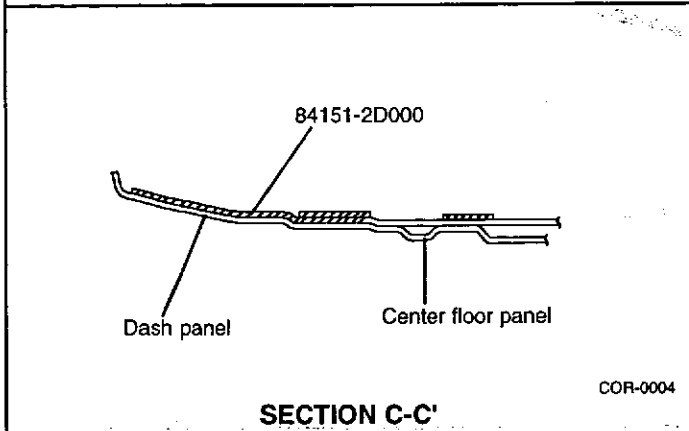
COR-0001



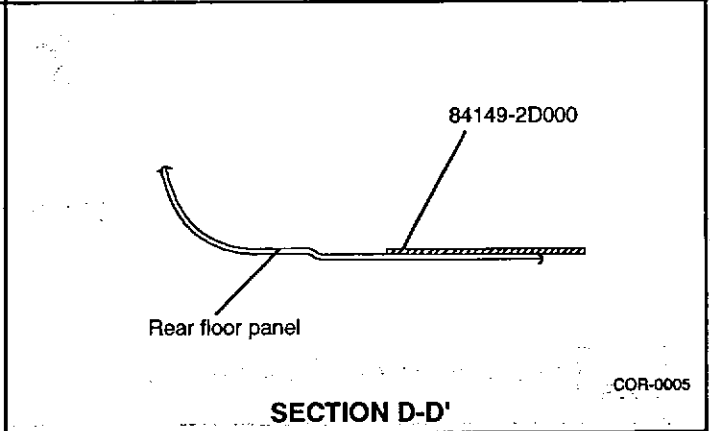
COR-0002



COR-0003



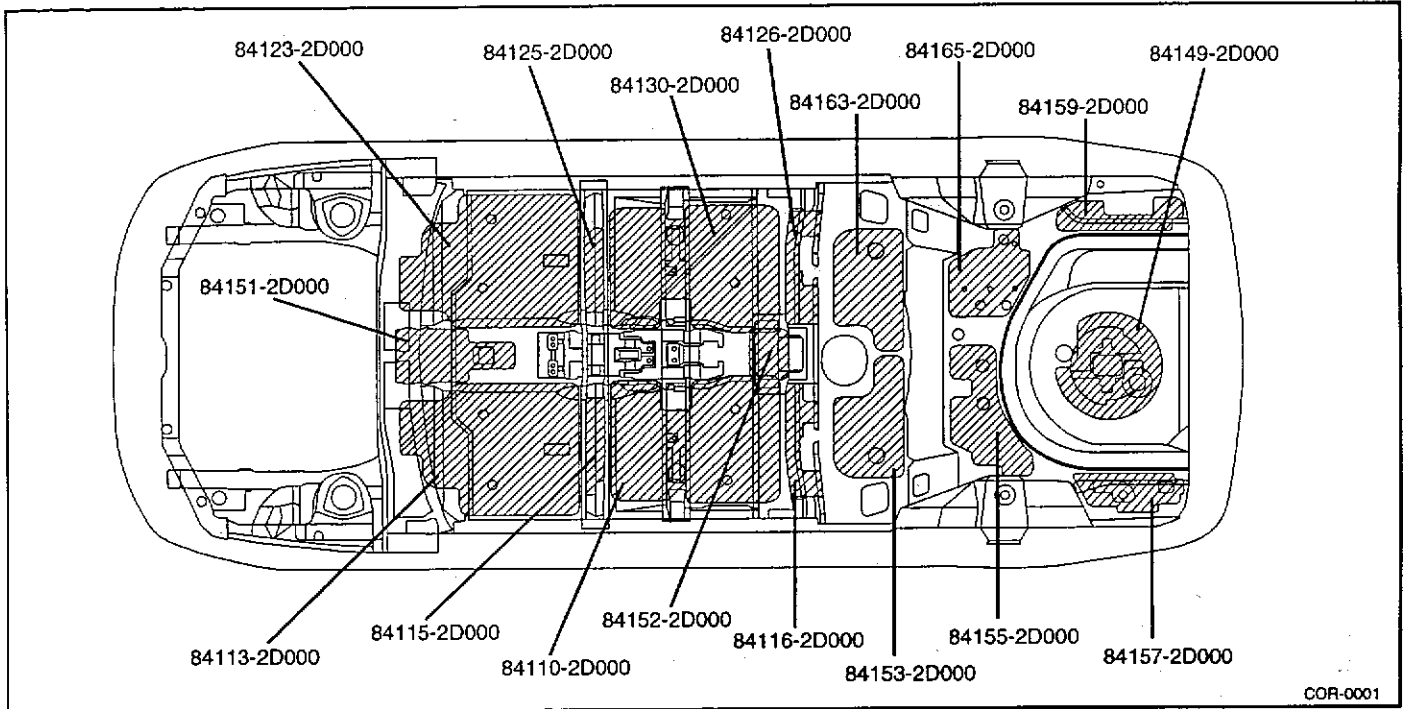
COR-0004



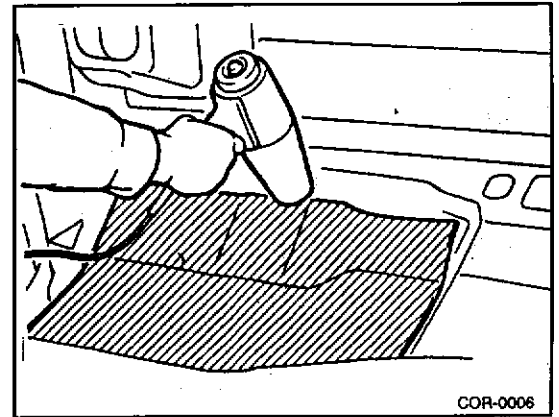
COR-0005

## ATTACHMENT OF ANTIVIBRATION PADS

Antivibration pads are attached to the upper surface of the floor and at the interior side of the dash panel in order to absorb vibrations and shut out exhaust gas heat. If these antivibration pads are peeled off in the course of replacement or repair of a welded panel, cut and attach replacement material (in the shape shown in the figure). For detailed information concerning the locations where antivibration pads are to be attached for individual models, refer to the manual for that model.



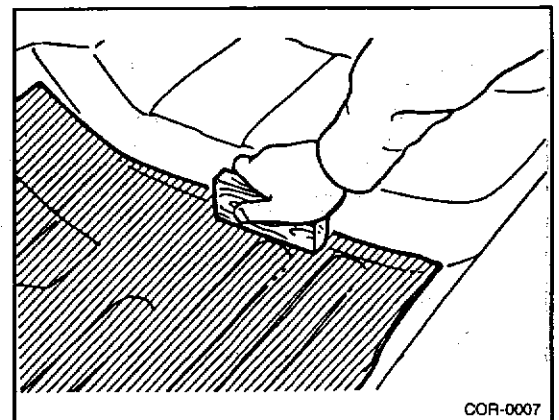
1. Heat the "antivibration pad" with a blow drier to soften it.



2. Align the antivibration pad layer in the position where it is to be installed, and then press it down with a roller or a block of wood so that it adheres well.

### NOTE

An infrared lamp can also be used to heat both the antivibration pad layer and the body panels (be sure to wear gloves).

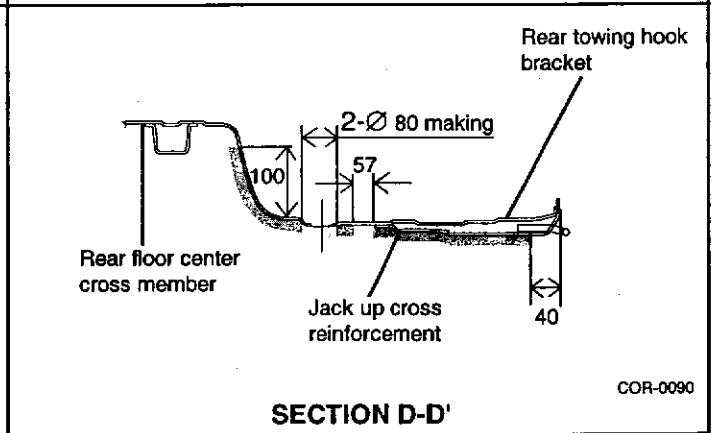
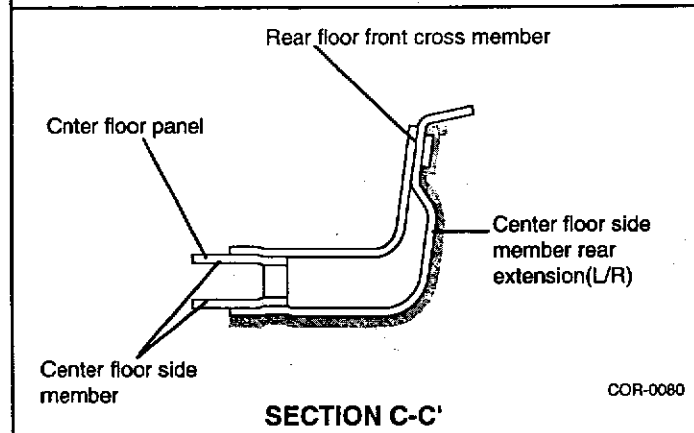
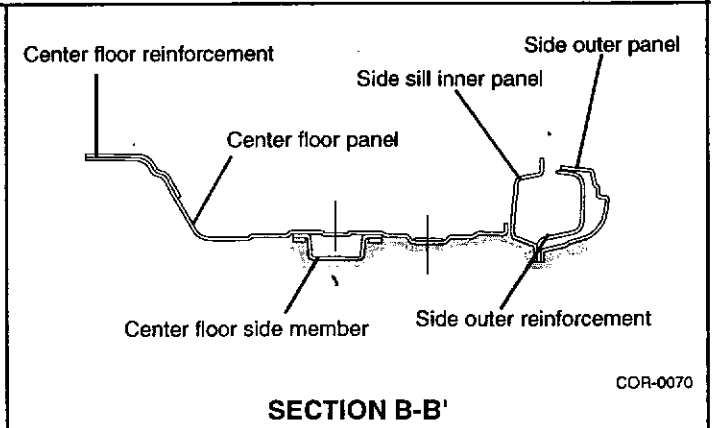
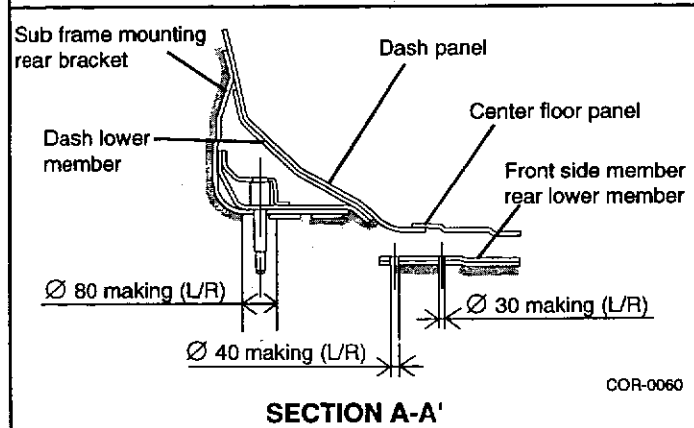
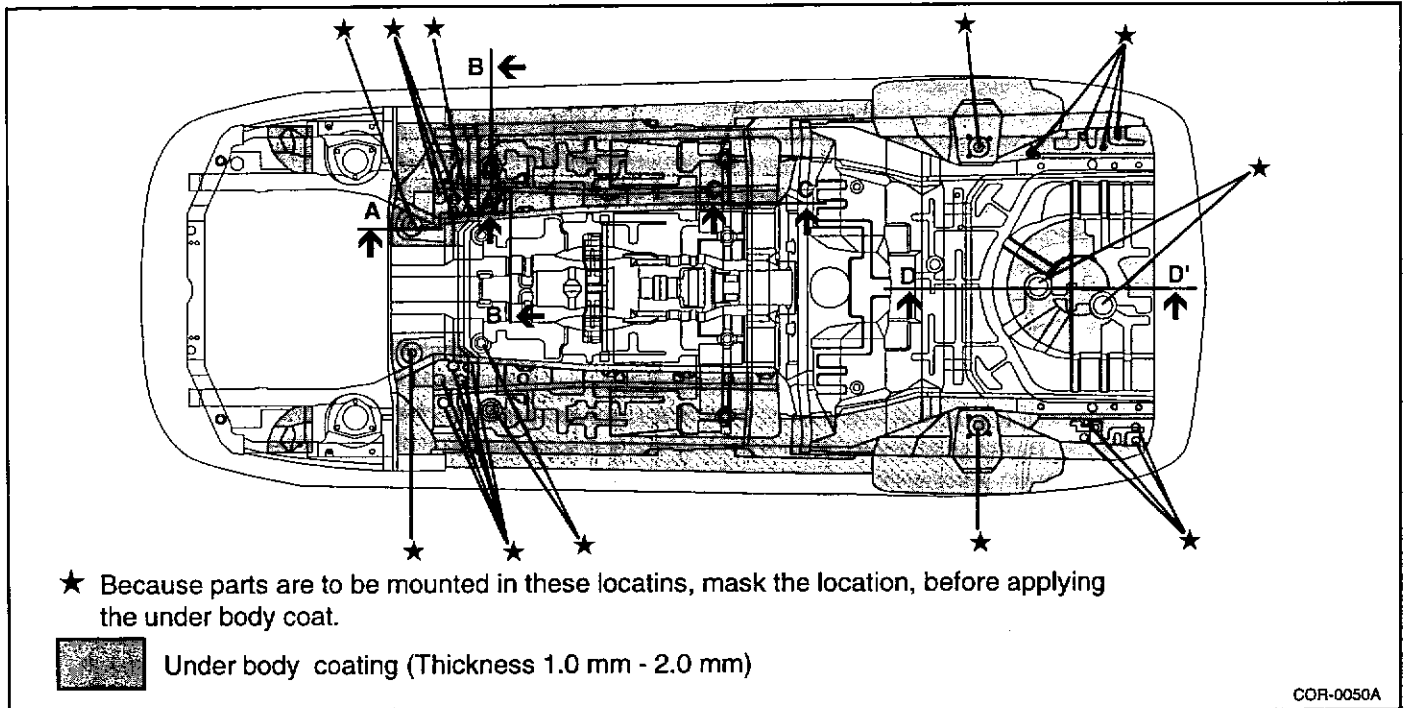


**UNDER BODY COAT**

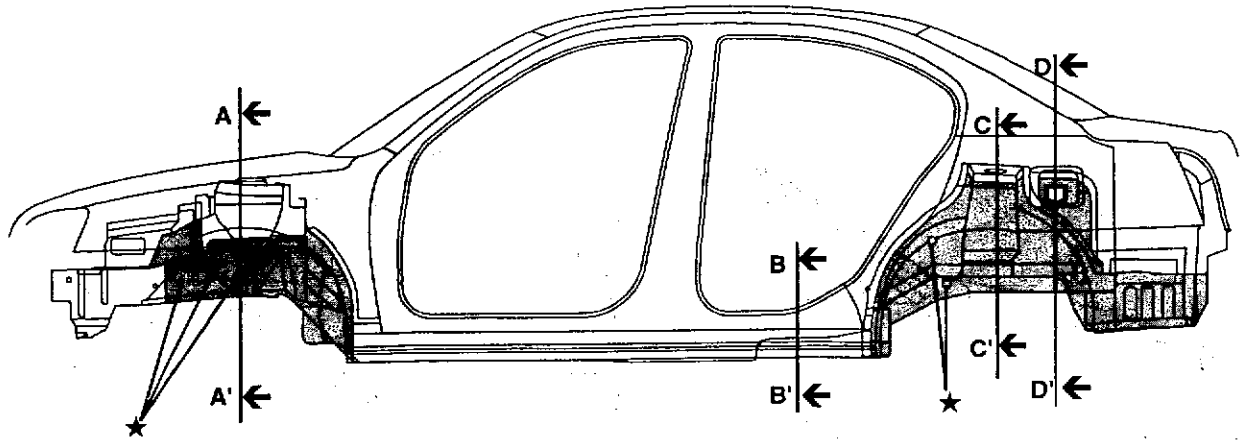
In order to provide corrosion, stone chipping and vibration resistance, and under body coat is applied to the under sides of the floor and wheel house.

Therefore, when such panel is replaced or repaired, apply under body coat to that part.

**FLOOR**



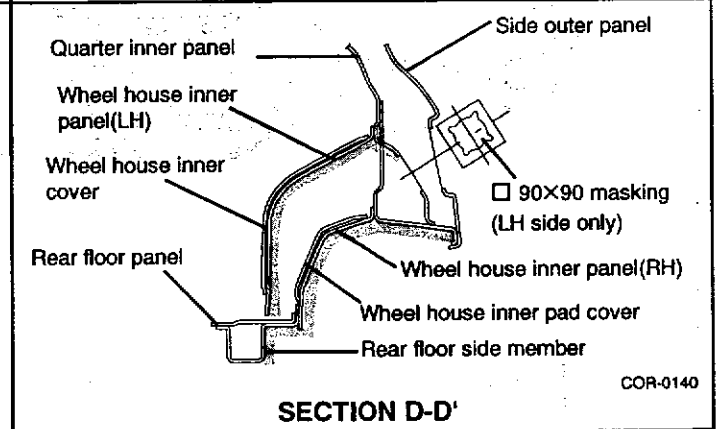
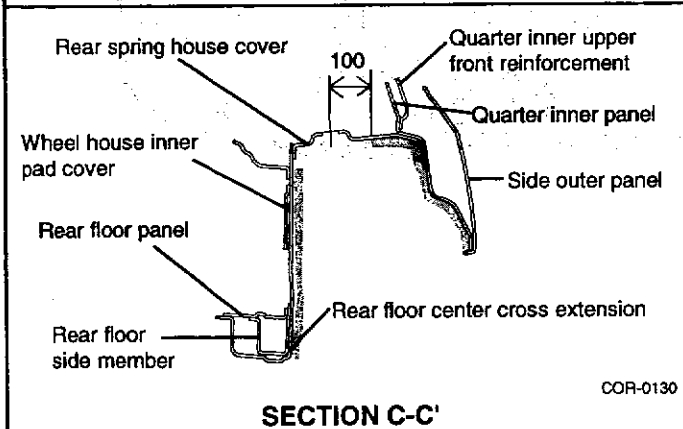
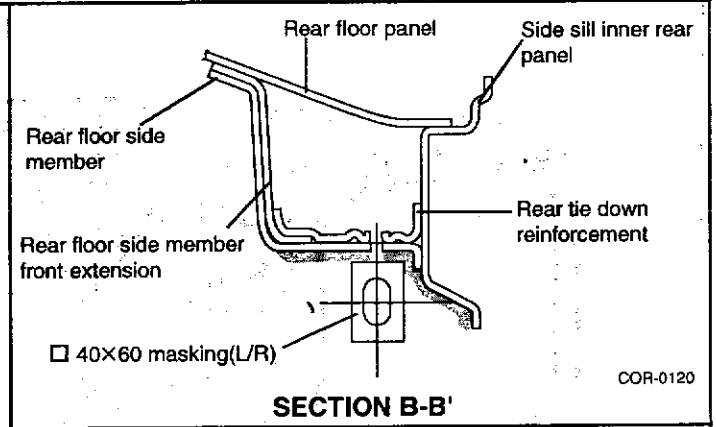
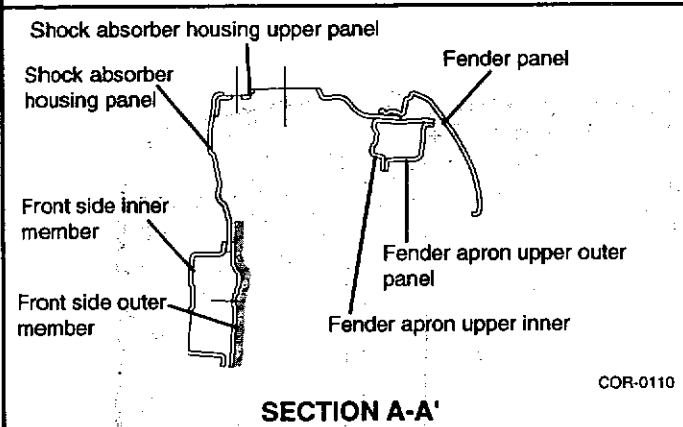
SIDE BODY



★ Because parts are to be mounted in these locations, mask the location, before applying the under body coat.

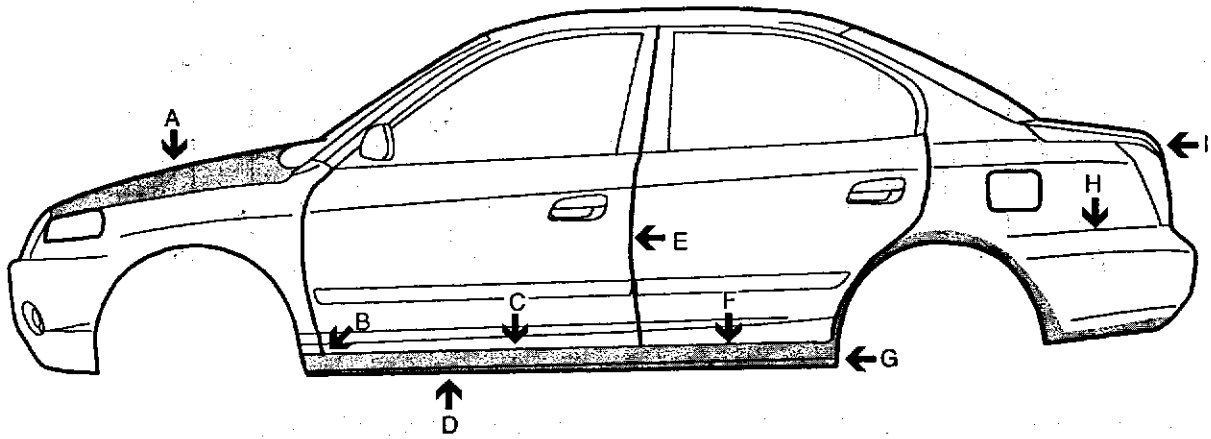
 Under body coating (Thickness 1.0 mm)

COR-0100

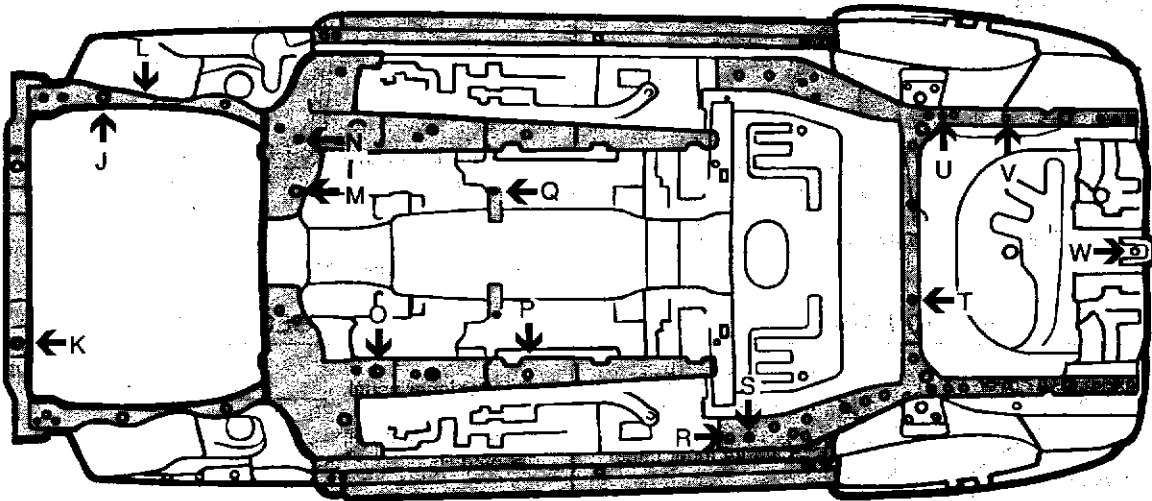


## CAVITY WAX INJECTION

In order to provide greater corrosion resistance, cavity wax injection has been performed for the lower areas of the vehicle, such as the sidemember, the side sill and the inside of other panels which are a hollow construction. When replacing these parts, be such to apply cavity wax to the appropriate areas of the new parts.



COR-0031



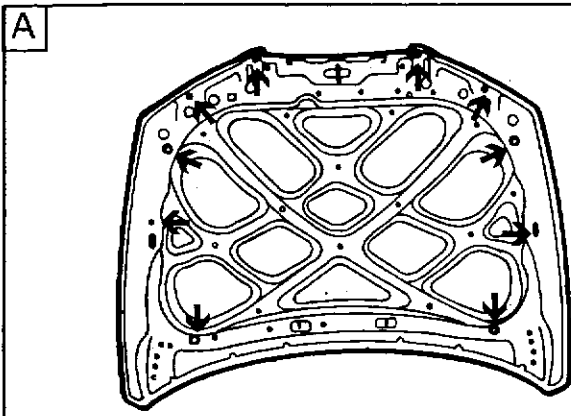
COR-0150



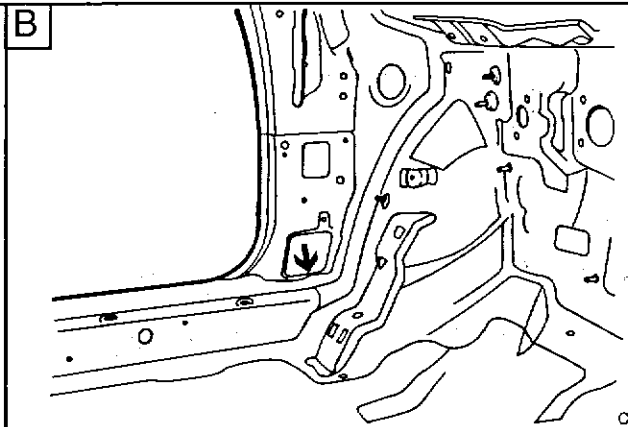
Cavity wax injection (Thickness  $40\mu$  -  $50\mu$ )



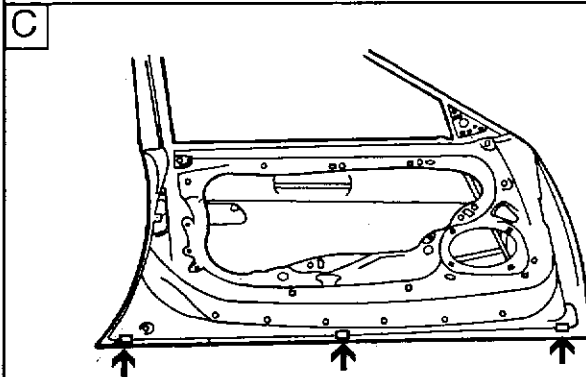
CORROSION PROTECTION - Cavity wax injection



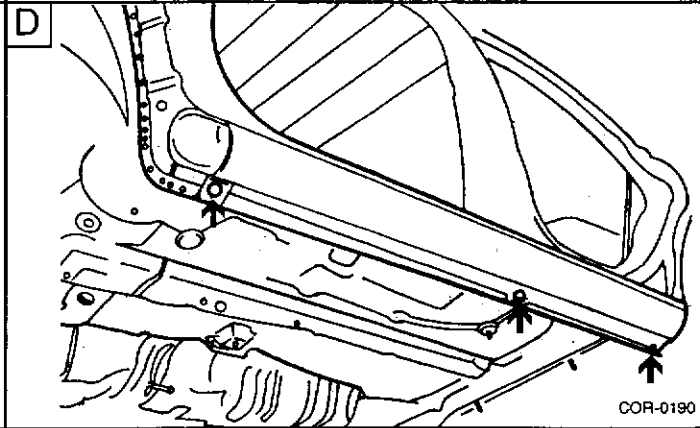
COR-0160



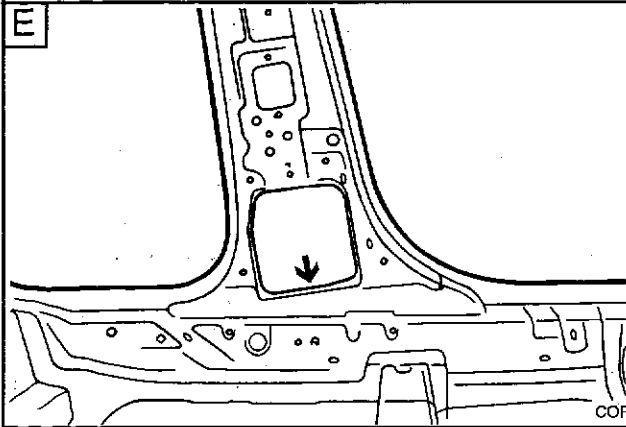
COR-0170



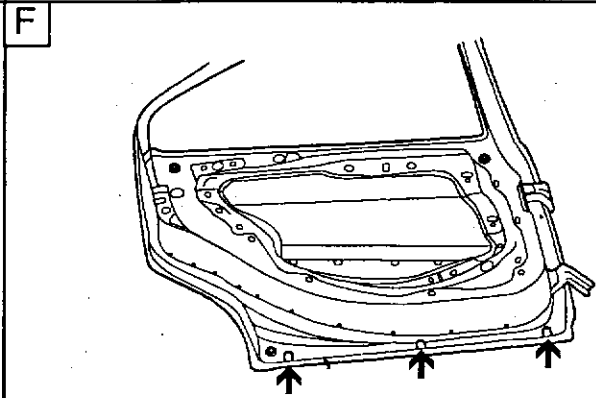
COR-0180



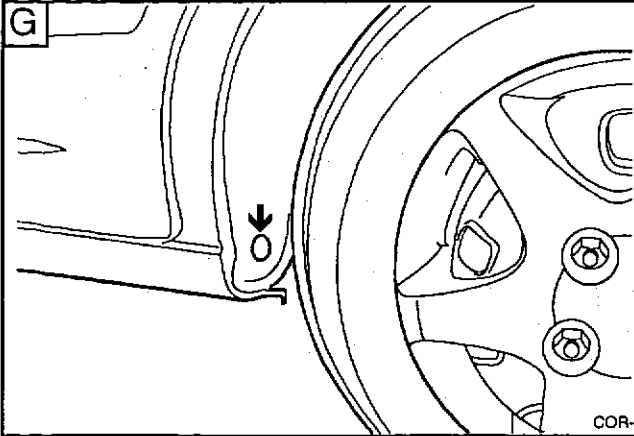
COR-0190



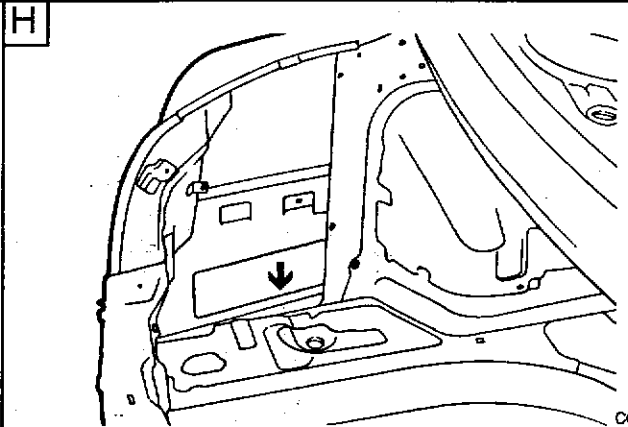
COR-0200



COR-0210

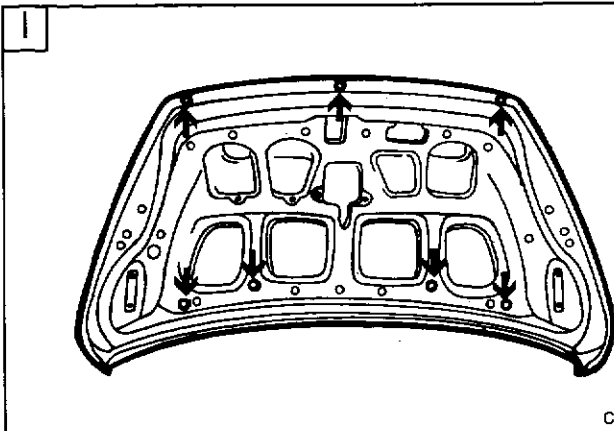


COR-0220

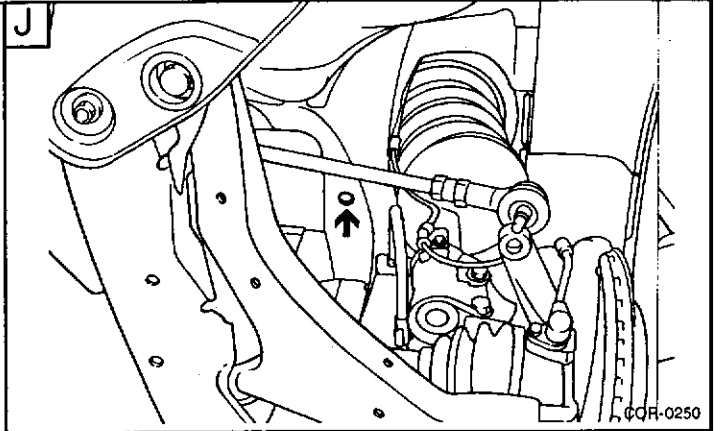


COR-0230

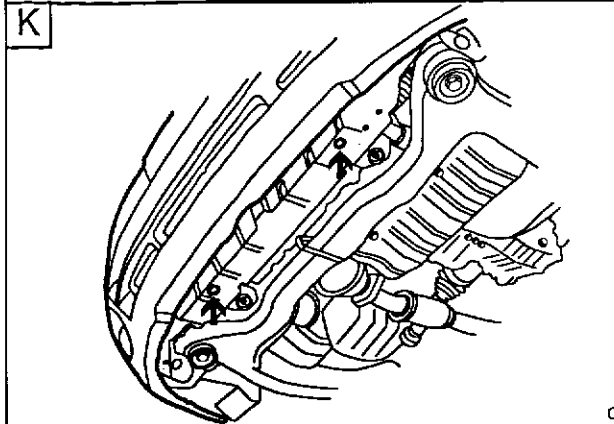
CORROSION PROTECTION - Cavity wax injection



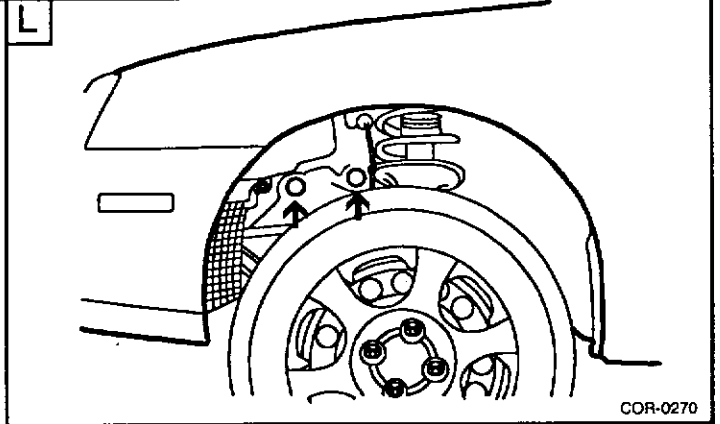
COR-0240



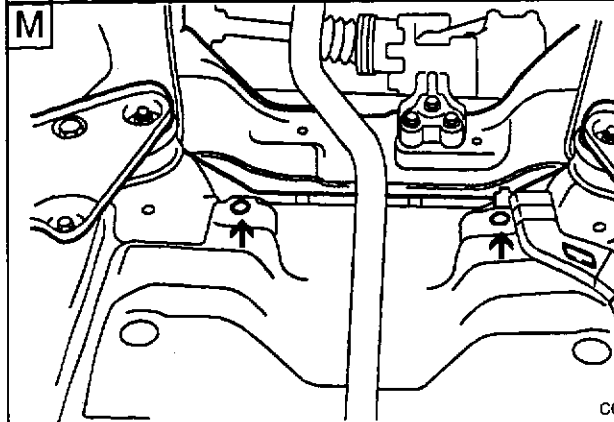
COR-0250



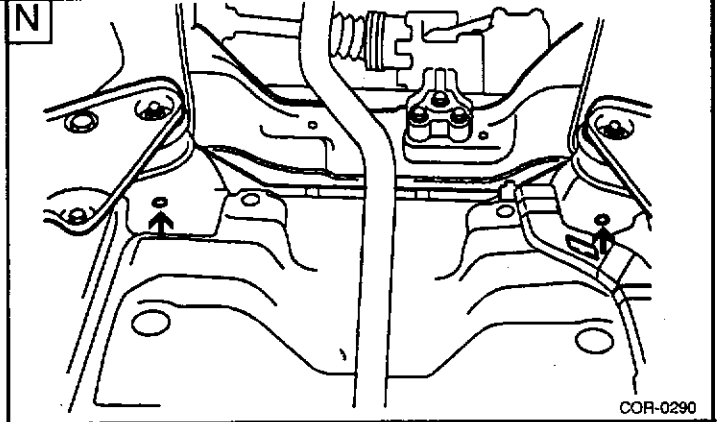
COR-0260



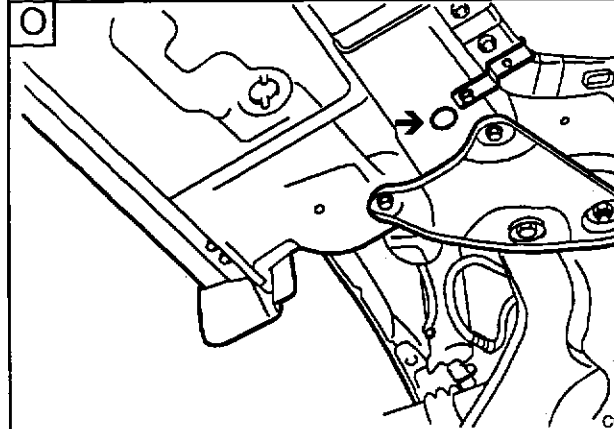
COR-0270



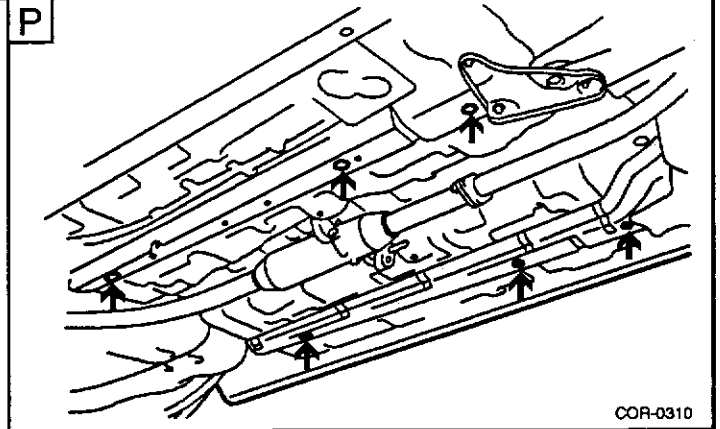
COR-0280



COR-0290

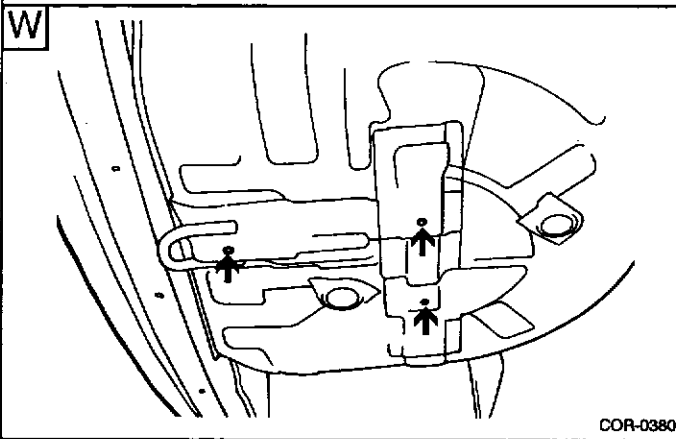
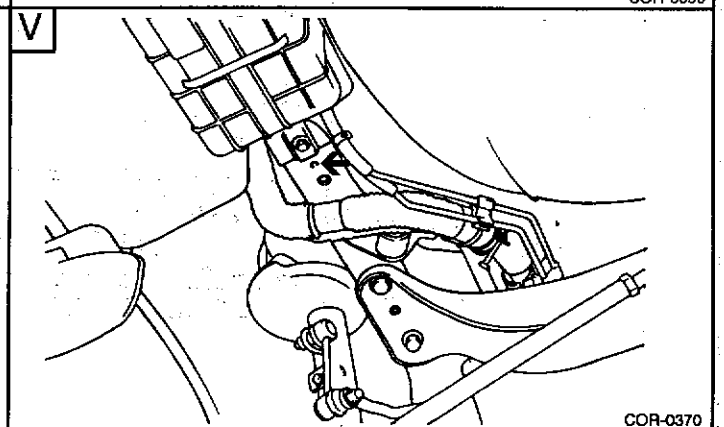
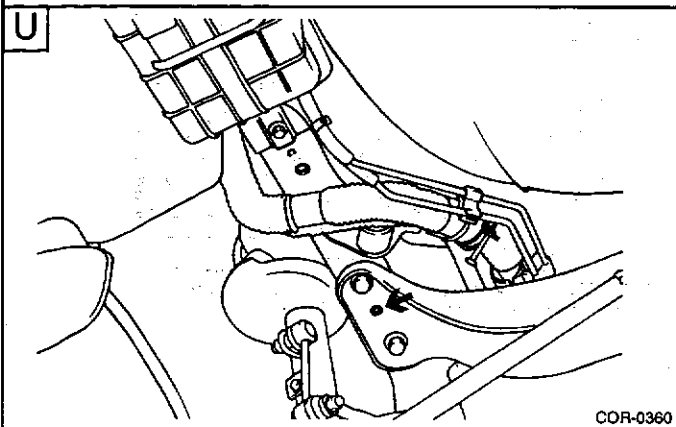
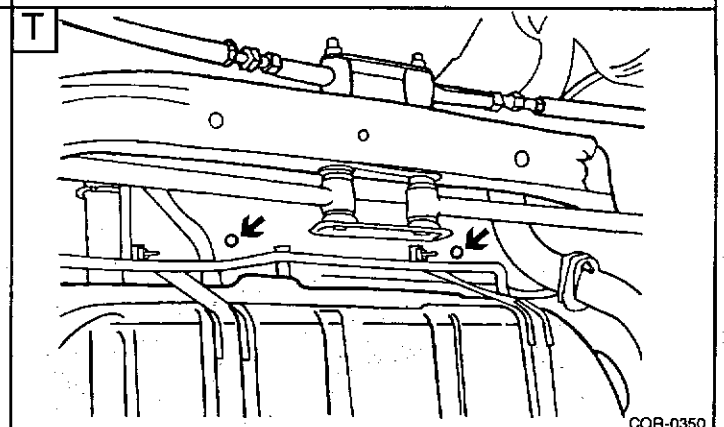
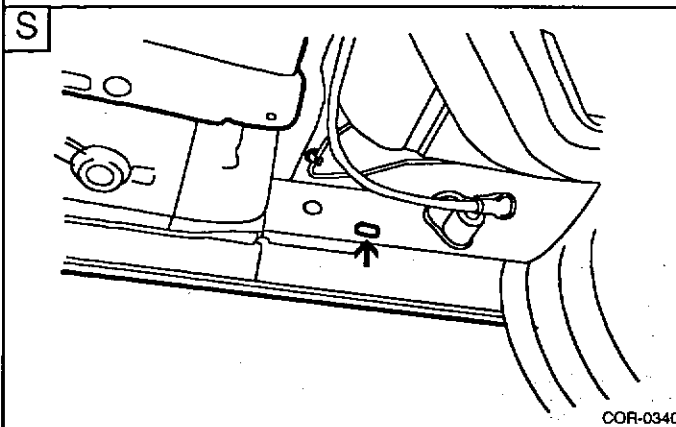
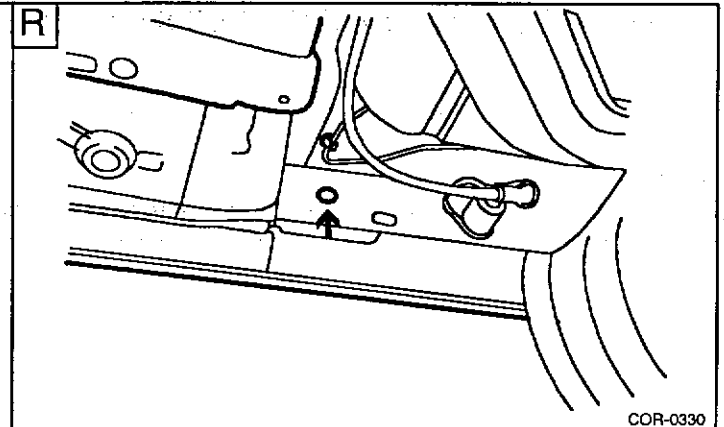
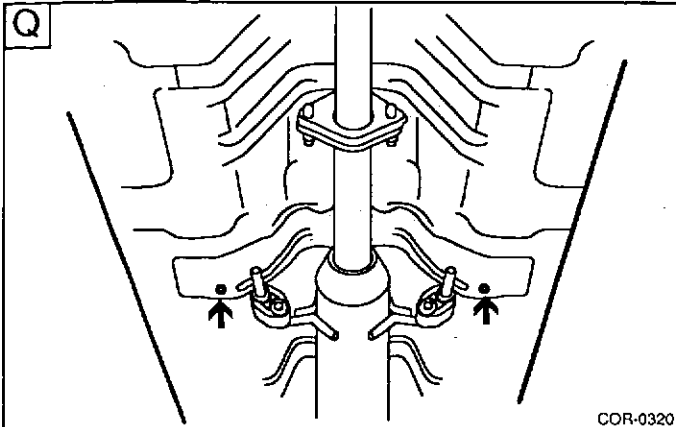


COR-0300



COR-0310

# CORROSION PROTECTION - Cavity wax injection

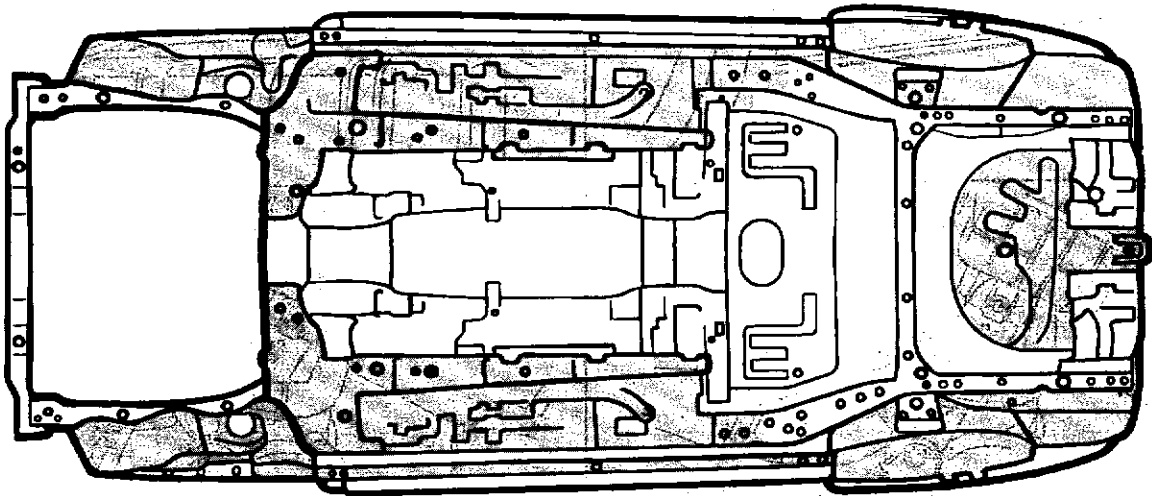



## UNDER BODY ANTI-CORROSION AGENT

The undersides of the floor and wheel house are undercoated to provide greater corrosion resistance. Therefore, when such panel is replaced or repaired, apply under body anti-corrosion agent to that part.

### NOTE

Do not apply the under body anti-corrosion agent to come in contact with tires, muffler and exhaust pipe.



 Under body anti-corrosion agent (Thickness 400 $\mu$  - 500 $\mu$ )

COR-0390