MITSUBISHI MOTORS

Body Repair Manual

FTO '98

Pub. No. PBME9801

0 GENERAL

VEHICLE IDENTIFICATION

MODELS

Model code		Engine model	Transmission model	Fuel supply system
DE3A	HNGHR	6A12 <V6-MIVEC> (1.998 m ℓ)	F5M42 (2WD-5M/T)	MPI
	HYGHR		F5A42 (2WD-5A/T)	

MAJOR SPECIFICATIONS

Items		DE3A
		HNGHR, HYGHR
Dimensions	mm	
Overall length		4,365
Overall width		1,735
Overall height (unladen)		1,300 1,305*
Wheelbase		2,500
Tread-front		1,490
Tread-rear		1,485
Body overhang		
Front		800
Rear		775
Ground clearance (unladen)		150
Wheel alignment		
Front wheel alignment		
Toe-in (at the centre of tyre tread)	mm	0 ± 3
Toe angle (per wheel)		0°00' ± 08'
Camber		–0°30' ± 30'
Caster		2°48' ± 30'
Kingpin inclination angle		14°10'
Rear wheel alignment		
Toe-in (at the centre of tyre tread)	mm	3 ± 2
Toe angle (per wheel)		0°08' ± 05'
Camber		–1°00' ± 30'
Wheels and tyres		
Tyre size		205/50R16 87V
Wheel size		16 x 6 1/2JJ
Offset	mm	38

NOTE: * indicates vehicles equipped with sunroof.

FTO

BODY REPAIR MANUAL

FOREWORD

This manual has been prepared for the use of all service mechanics engaged in the body repair service. Body dimensions, welded panel replacement procedures, body sealing application instructions, and all the other information required to provide quick and accurate body repair service are contained herein. One especially important point is the welding method. All of the vehicle's original strength and durability can be maintained by following the welding procedures contained in this manual.

Note that, in order to maximize the efficiency of the repair work, first, both the extent of the damage and the replacement parts that are needed must be calculated accurately, and then the actual work must be performed accurately and efficiently.

The publications shown on the following page are also available, and should be used in conjunction with this manual.

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GROUP INDEX

MITSUBISHI MOTORS CORPORATION

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RELATED PUBLICATIONS

- TECHNICAL INFORMATION MANUAL
  Pub. No. PYME9801
- WORKSHOP MANUAL
  CHASSIS GROUP
  Pub. No. PWME9801
  ENGINE GROUP
  Pub. No. PWEE9801
  ELECTRICAL WIRING
  Pub. No. PHME9801
- PARTS CATALOGUE
  Pub. No. B806G208A□
- BODY REPAIR MANUAL
  Pub. No. PBAE9216 (PASSENGER CARS & LIGHT COMMERCIAL VEHICLES)

MANUAL DESCRIPTION

CONTENTS

The first page of this manual contains a table of contents which lists the title and number of each group.

TEXT

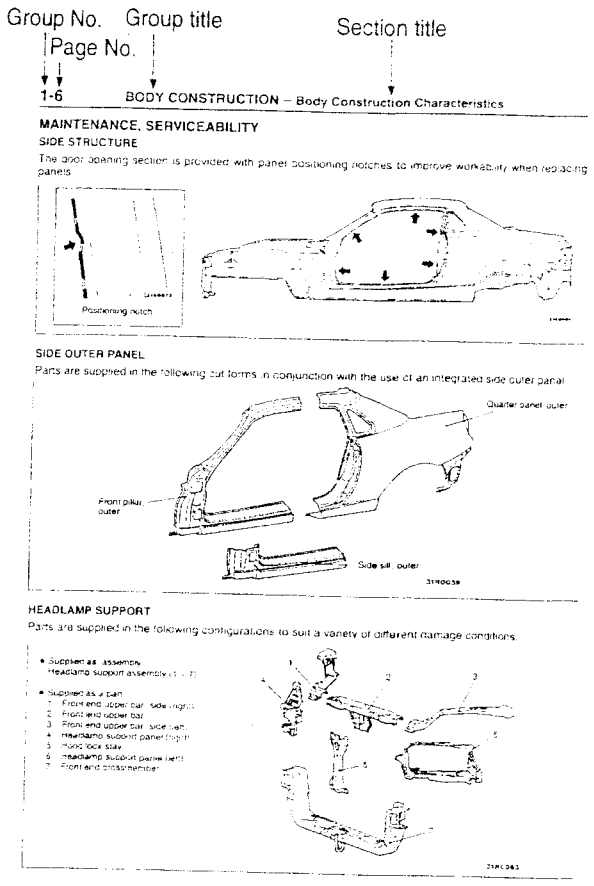
The vehicles to which the information in the text pertains are generally designated according to their body classification. In some cases, other limiting designations such as name, type of drive system, etc., are given. If there are no such limiting designations, the information can be assumed to cover all models.

PAGE NUMBERS

All pages are numbered consecutively within each group. The page numbers can be found on the upper left or right of each page.

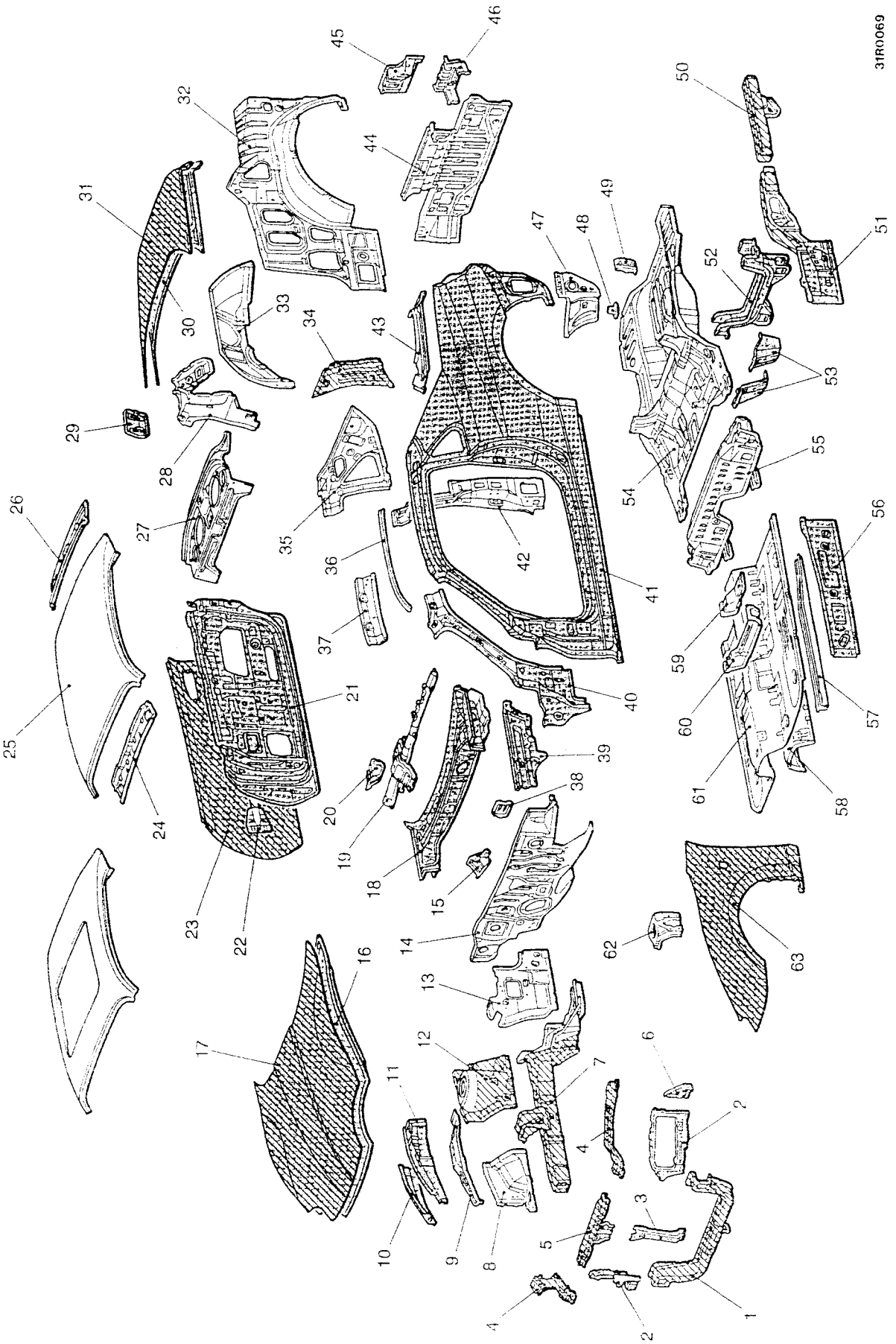
SECTION TITLES

The section titles can be found at the upper centre of each page.



1 BODY CONSTRUCTION

BODY COMPONENTS



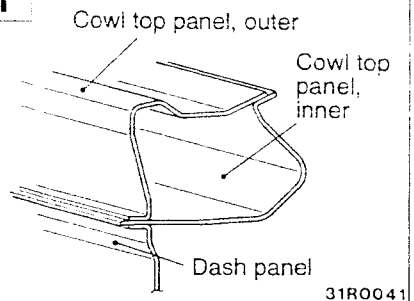
: High-tensile steel panels.
: Anticorrosion steel panels.

1. Front end cross member
2. Headlamp support panel
3. Hood lock stay
4. Front end upper bar, side
5. Front end upper bar
6. Fender support bracket
7. Front side member
8. Front fender shield
9. Front upper frame, lower
10. Front upper frame, outer
11. Front upper frame, inner
12. Spring house panel
13. Front floor side sill, inner, front
14. Dash panel
15. Footrest bracket
16. Hood inner panel
17. Hood outer panel
18. Cowl top panel
19. Deck crossmember
20. Steering column support bracket
21. Front door inner panel
22. Front door side door beam
23. Front door outer panel
24. Front roof rail
25. Roof panel
26. Rear roof rail
27. Rear shelf panel
28. Rear shelf brace
29. Fuel filler door
30. Trunk lid inner panel
31. Trunk lid outer panel
32. Quarter panel, inner, lower
33. Rear wheel house panel, inner
34. Rear pillar seat belt reinforcement
35. Quarter panel, inner, upper
36. Drip channel
37. Side roof rail, inner
38. Upper frame extension silencer
39. Front upper frame extension, outer
40. Front pillar, inner
41. Side panel, outer
42. Center pillar reinforcement
43. Quarter outer extension, upper
44. Rear end panel
45. Rear combination lamp housing
46. Licence plate bracket
47. Rear floor side brace
48. Spare tyre bracket
49. Jack bracket
50. Rear floor sidemember extension
51. Rear sidemember
52. Rear floor crossmember
53. Fuel tank bracket, rear
54. Rear floor pan
55. Rear floor extension
56. Front floor side sill, inner
57. Front floor sidemember
58. Backbone reinforcement
59. Front seat center bracket, rear
60. Front floor crossmember, front
61. Front floor pan
62. Battery pan stay
63. Front fender

BODY CONSTRUCTION CHARACTERISTICS

BODY MAIN CROSS-SECTIONAL VIEWS

1



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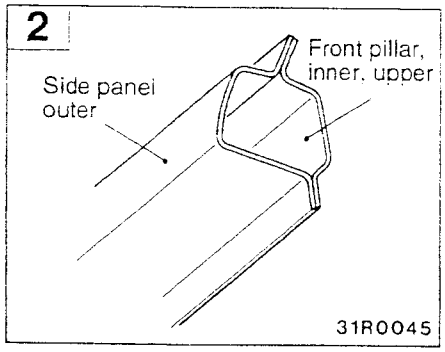

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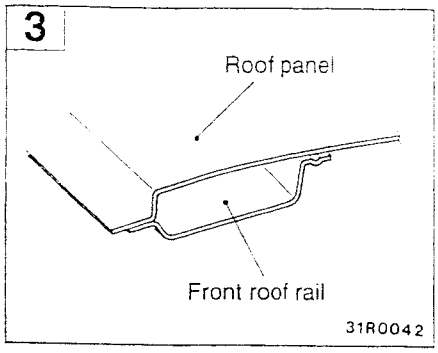

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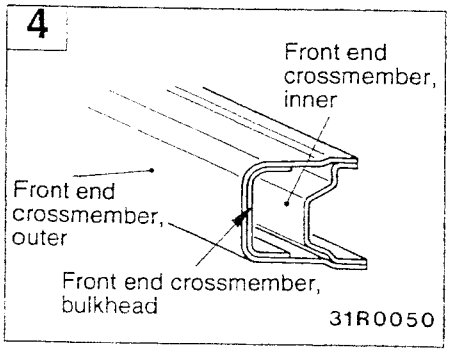

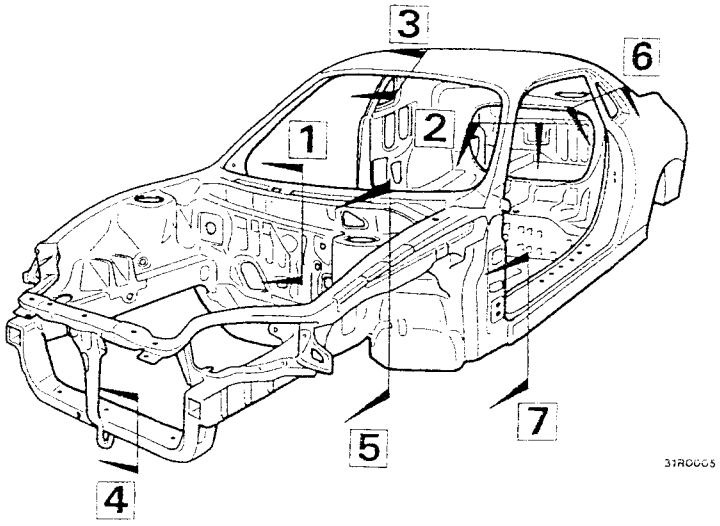

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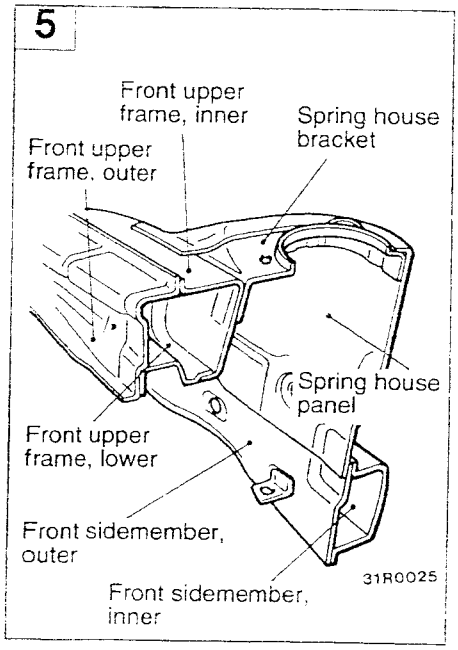

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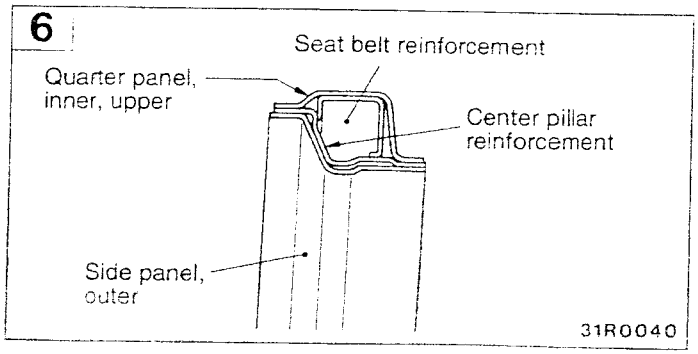

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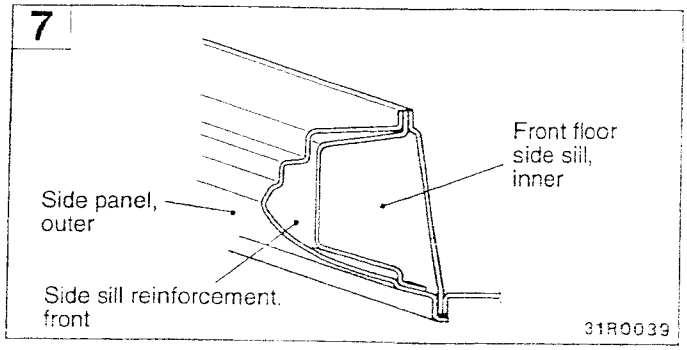

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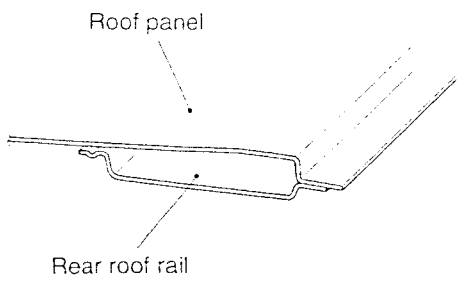

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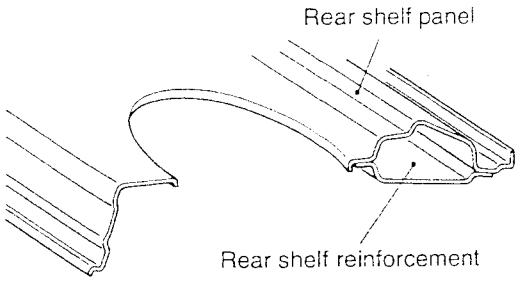

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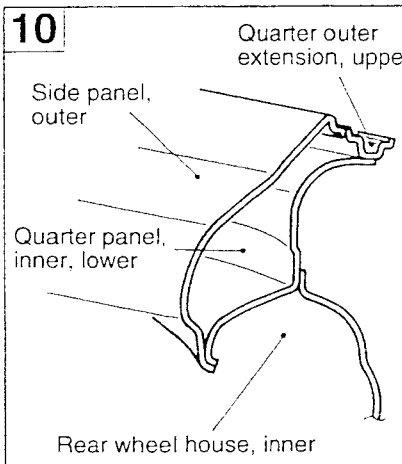

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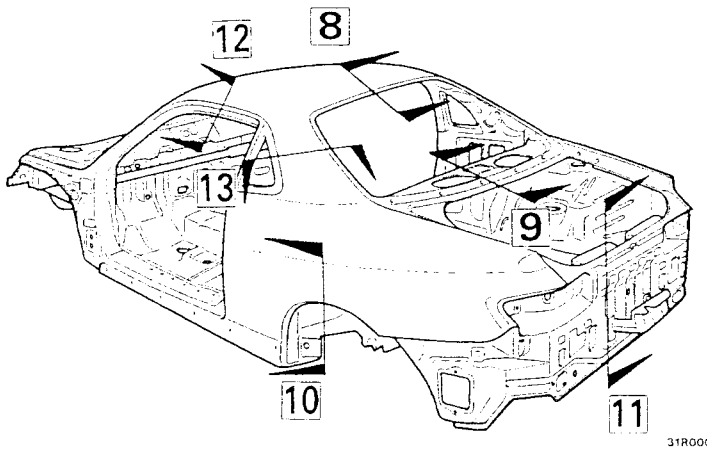

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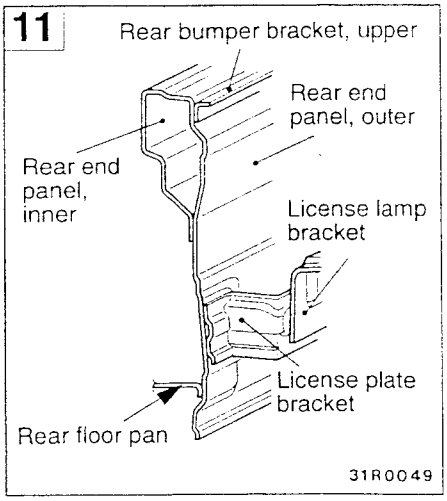

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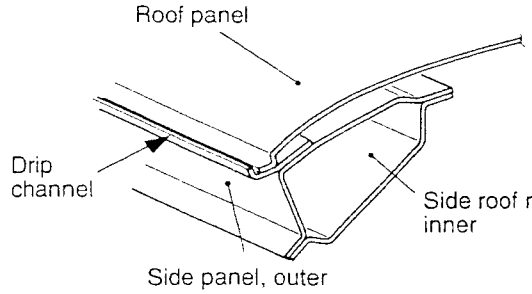

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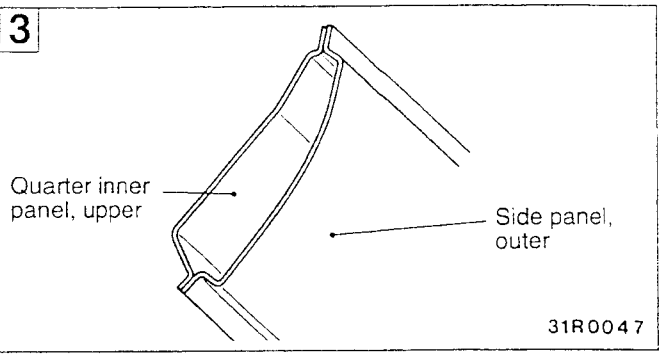

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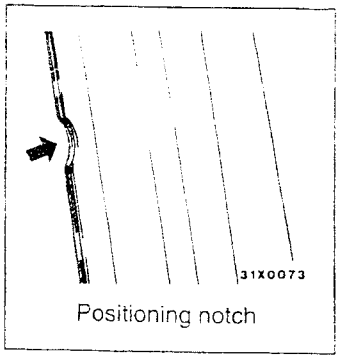
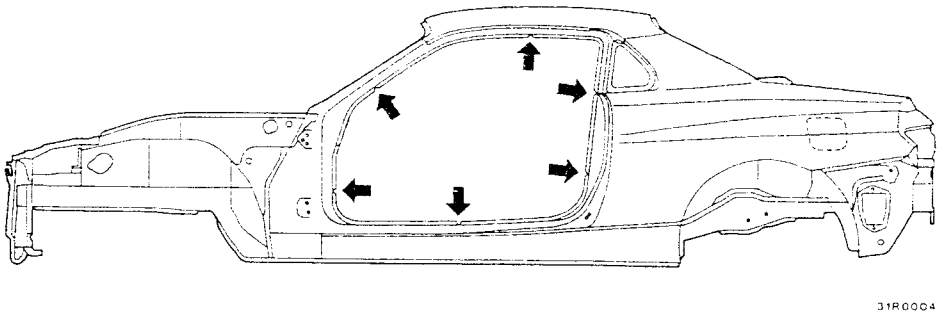
MAINTENANCE, SERVICEABILITY

SIDE STRUCTURE

The door opening section is provided with panel positioning notches to improve workability when replacing panels.

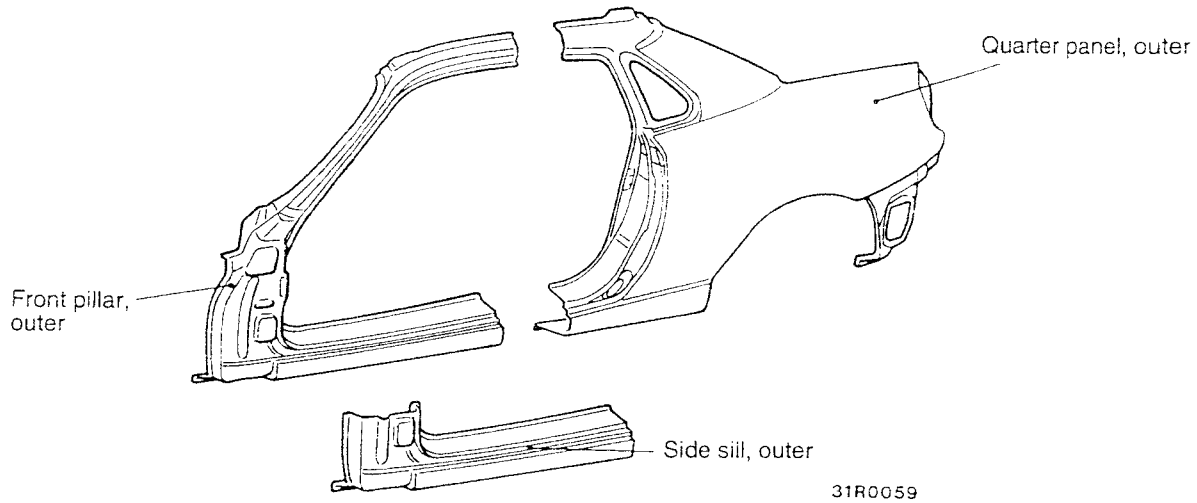


Positioning notch



SIDE OUTER PANEL

Parts are supplied in the following cut forms in conjunction with the use of an integrated side outer panel.

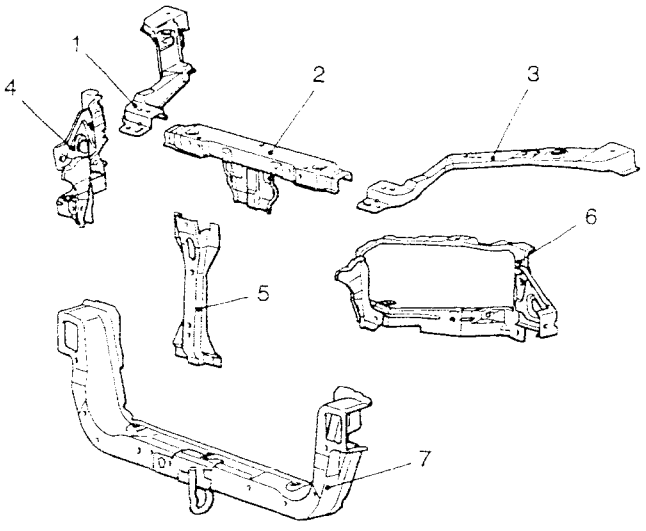


HEADLAMP SUPPORT

Parts are supplied in the following configurations to suit a variety of different damage conditions.

- Supplied as assembly
  Headlamp support assembly (1 – 7)

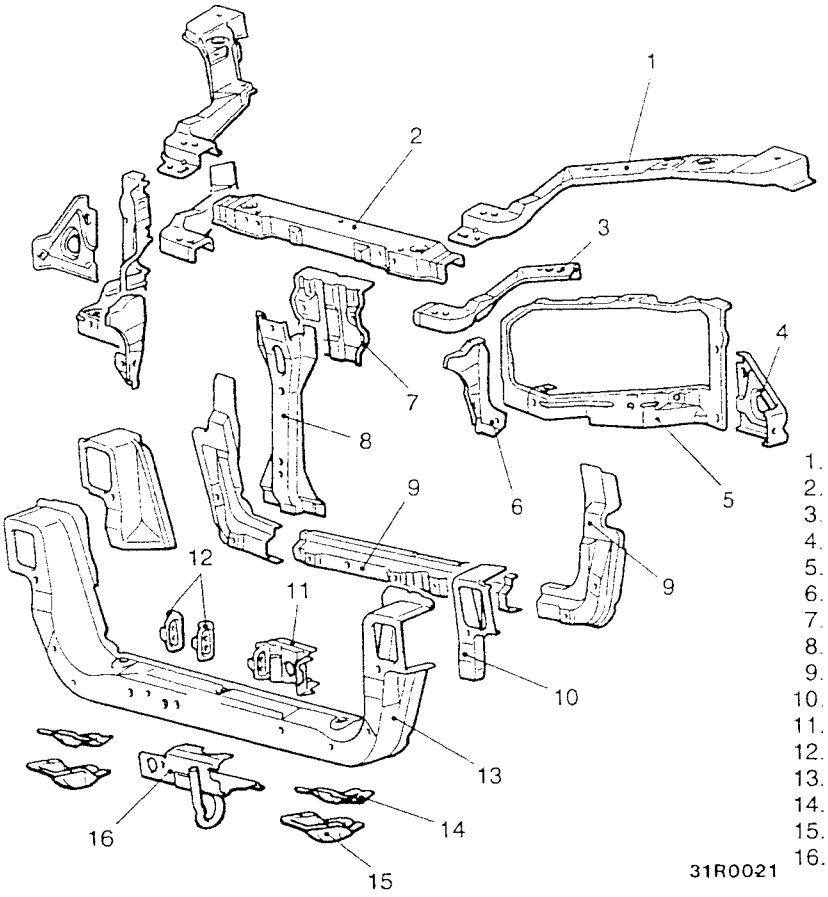
- Supplied as a part
  1. Front end upper bar, side (right)
  2. Front end upper bar
  3. Front end upper bar, side (left)
  4. Headlamp support panel (right)
  5. Hood lock stay
  6. Headlamp support panel (left)
  7. Front end crossmember



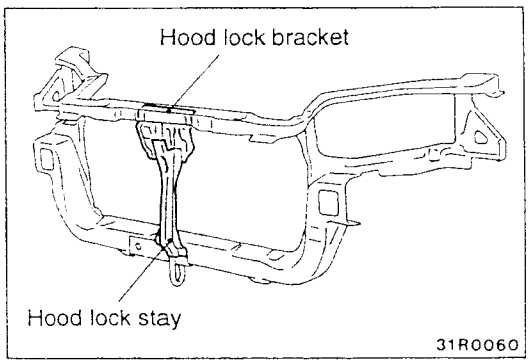
FRONT BODY

HEADLAMP SUPPORT

(1) The front end upper bar has a three-part construction which improves workability when replacing panels.



1. Front end upper bar, side
2. Front end upper bar
3. Radiator reinforcement, side, upper
4. Fender support bracket
5. Headlamp support panel
6. Radiator reinforcement, side, lower
7. Hood lock reinforcement
8. Hood lock stay
9. Front end crossmember, inner
10. Front end crossmember, side reinforcement
11. Front end crossmember, bulkhead
12. Front end crossmember, bulkhead
13. Front end crossmember, outer
14. Radiator bracket (A)
15. Radiator bracket (B)
16. Toeing hook

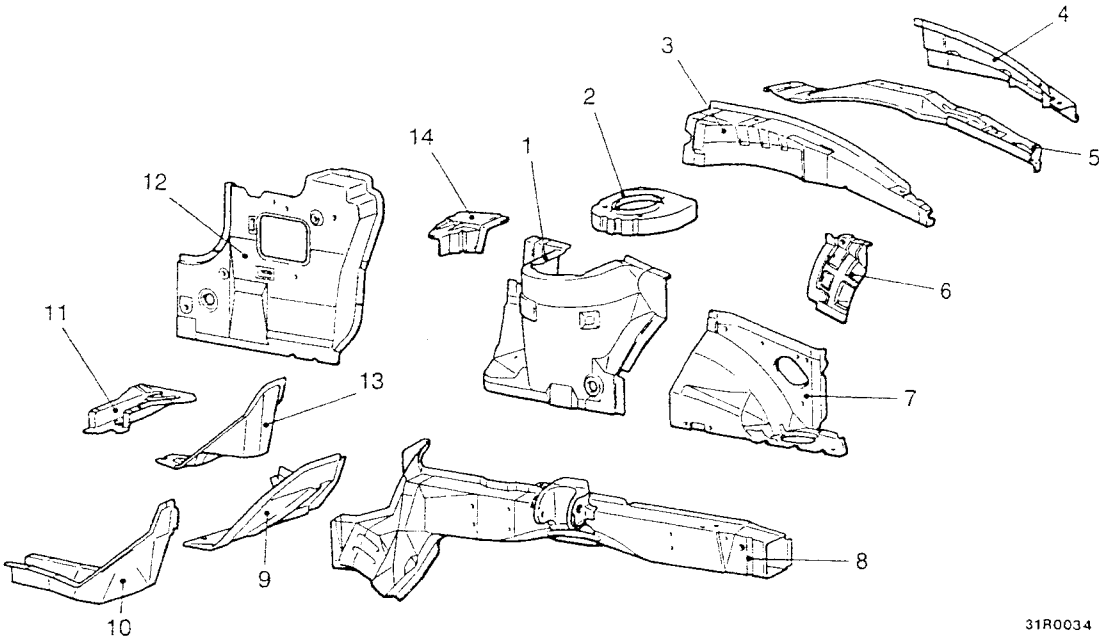


(2) The hood lock stay has a welded construction to increase the rigidity and precision of the hood latch mounting section.

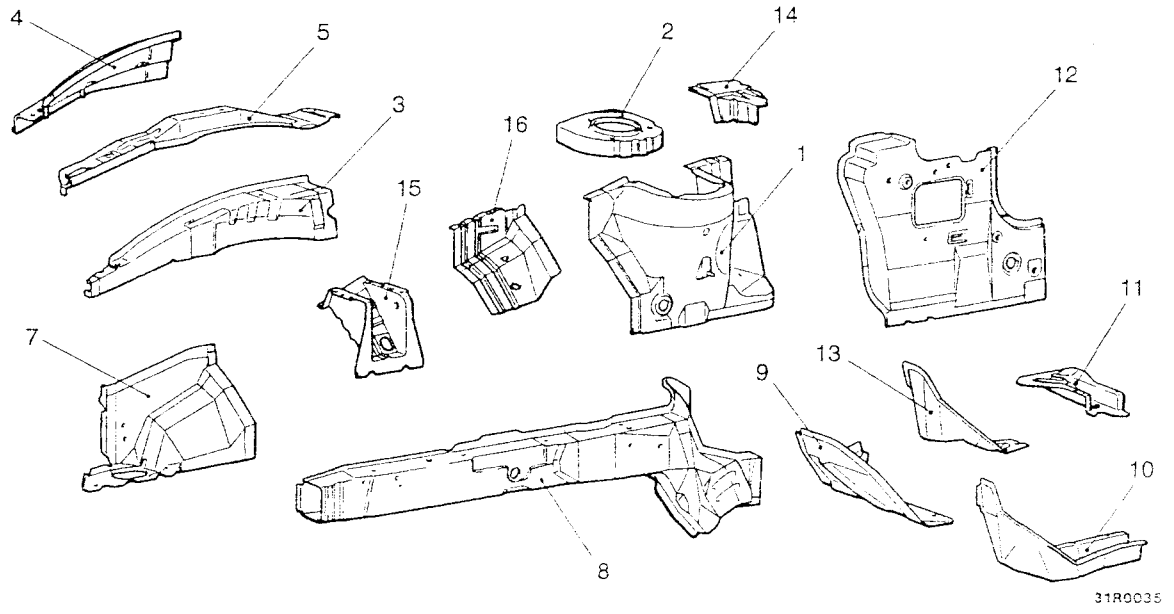
FENDER SHIELD

(1) The plate thickness of the front sidemember has been increased and a large-sized reinforcement has been provided in order to increase the backbone strength.
(2) The upper frame cross-section has been increased in size and crash beads have been added in order to improve energy absorption in the event of an impact.

(Left side)



(Right side)

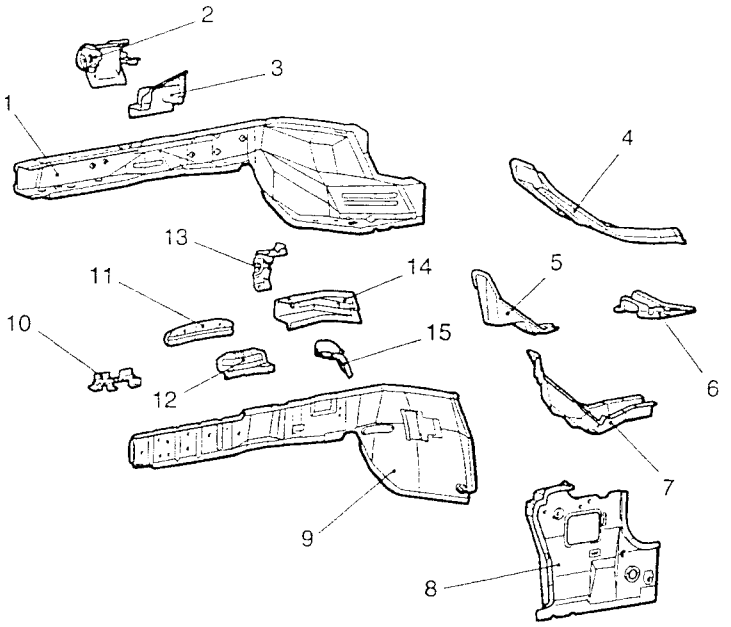


1. Spring house panel
2. Spring house bracket
3. Front upper frame, inner
4. Front upper frame, outer
5. Front upper frame, lower
6. Fender shield inner reinforcement
7. Front fender shield
8. Front sidemember
9. Dash panel extension
10. Front side member, rear
11. Side member to floor brace
12. Front floor side sill, inner, front
13. Suspension crossmember support bracket
14. Upper frame extension gusset
15. Engine mount bracket
16. Engine mount reinforcement

FRONT SIDE MEMBER REINFORCEMENT

(Left side)

1. Front sidemember, inner
2. Transmission mount bracket
3. Transmission mount reinforcement
4. Dash panel extension
5. Suspension crossmember support bracket
6. Sidemember to floor brace
7. Front sidemember, rear
8. Front floor side sill, inner, front
9. Front sidemember, outer
10. Front bumper stay bracket
11. Front sidemember outer reinforcement
12. Front sidemember inner reinforcement
13. Front sidemember rear gusset
14. Front sidemember reinforcement, outer, rear
15. Mode control reinforcement, lower



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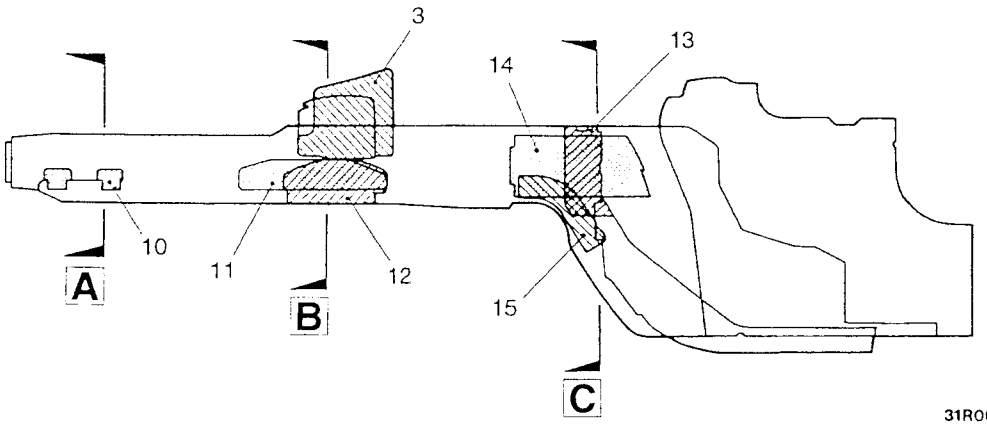

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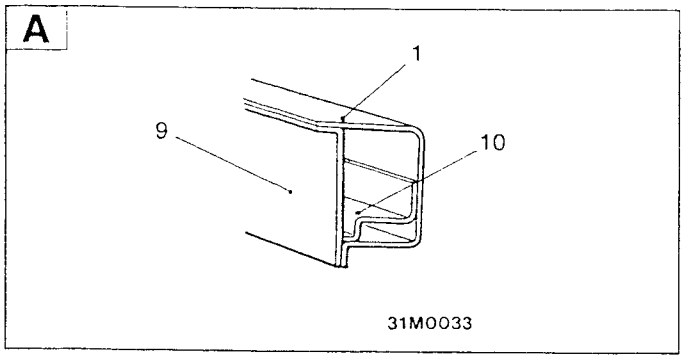

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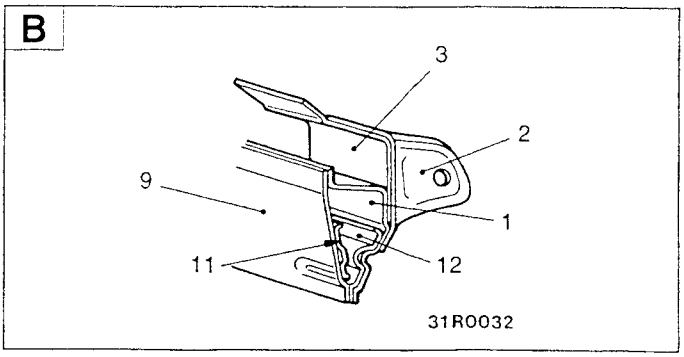

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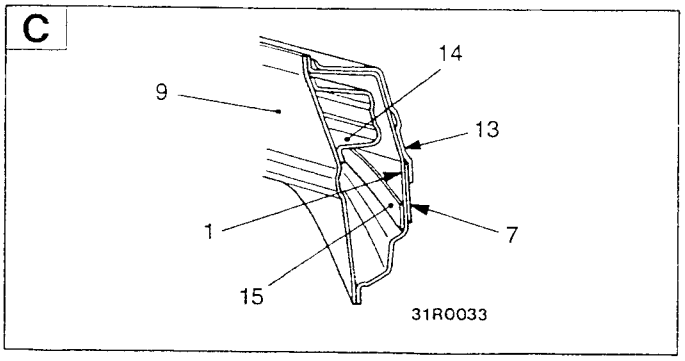

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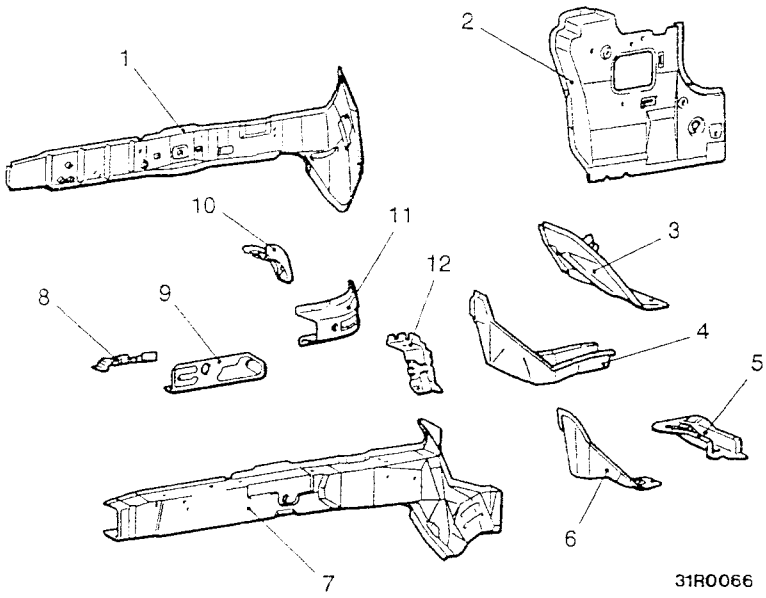
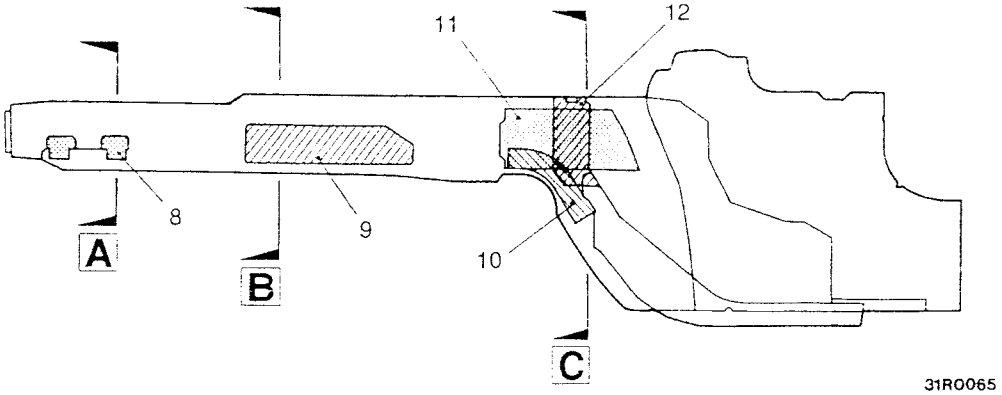
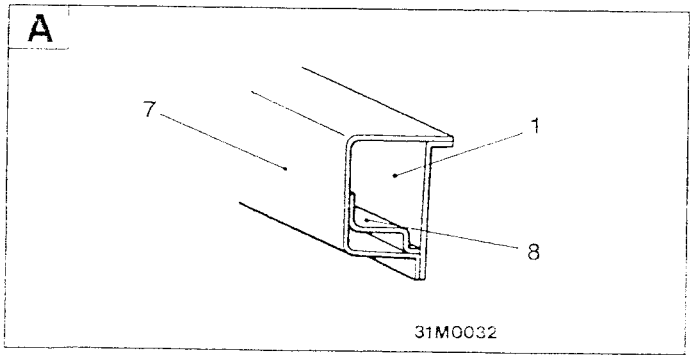
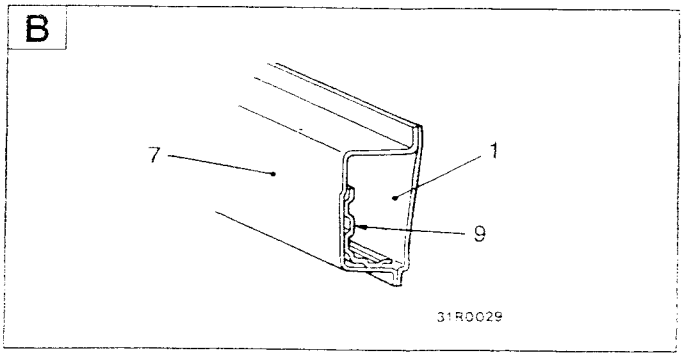
(Right side)

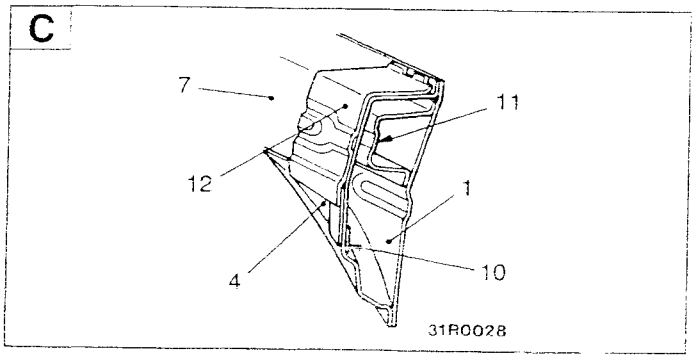
1. Front sidemember, outer
2. Front floor side sill, inner, front
3. Dash panel extension
4. Front sidemember, rear
5. Sidemember to floor brace
6. Suspension crossmember support bracket
7. Front sidemember, inner
8. Front bumper stay bracket
9. Front sidemember inner reinforcement
10. Mode control reinforcement, lower
11. Front sidemember reinforcement, outer, rear
12. Front sidemember rear gusset



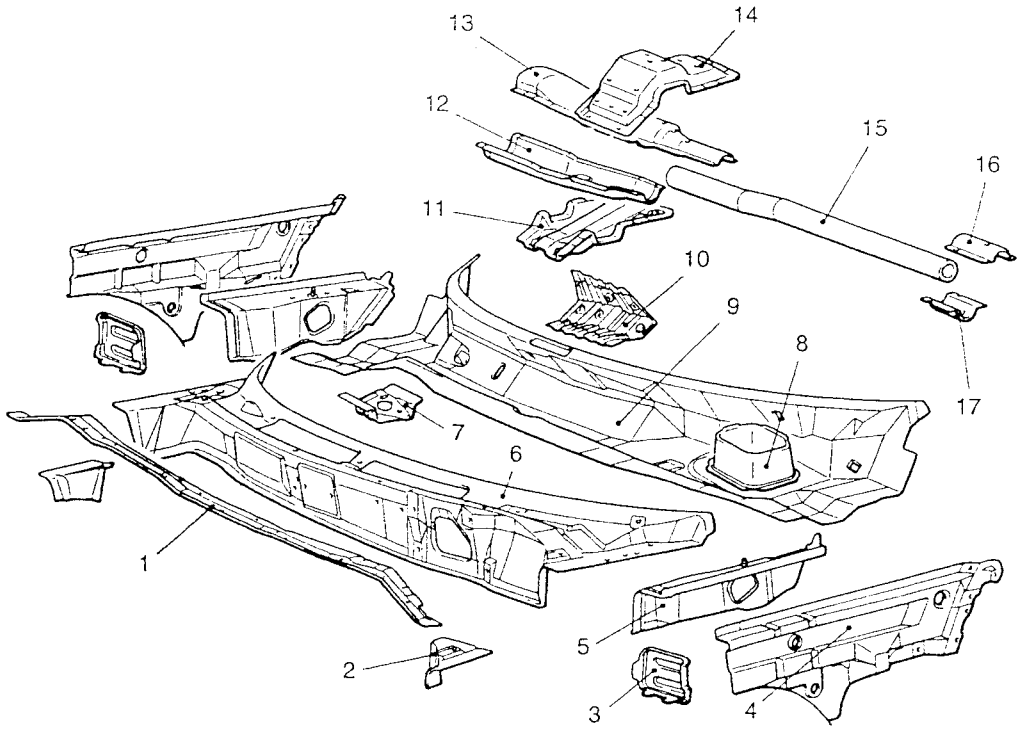




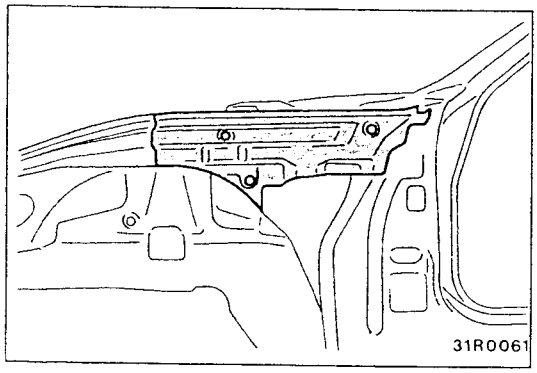




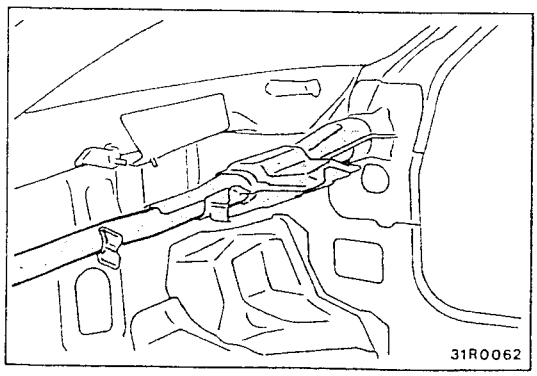
FRONT DECK



1. Cowl top outer extension
2. Cowl top outer gusset
3. Upper frame extension silencer
4. Front upper frame extension, outer
5. Front upper frame extension, inner
6. Cowl top panel, outer
7. Wiper bracket, center
8. Air intake duct
9. Cowl top panel, inner
10. Pedal support bracket
11. Steering column support bracket, lower
12. Deck crossmember bracket,lower
13. Deck crossmember bracket, upper
14. Steering column support bracket,upper
15. Pipe
16. Deck crossmember plate, upper
17. Deck crossmember plate, lower



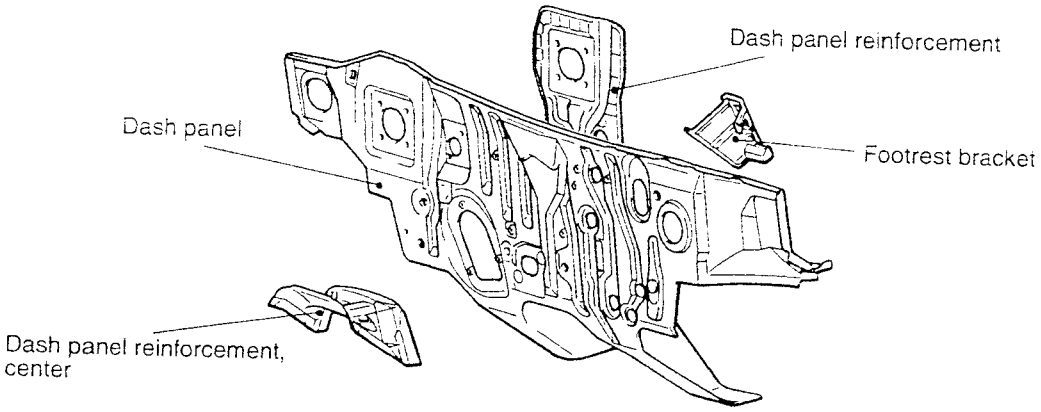
(1) The upper frame extension outer has strengthened the joint between the fender shield and front pillar to increase joining rigidity.



(2) A highly-rigid front deck crossmember has been adopted and the rigidity of the steering wheel supports has been increased, in order to reduce the amount of backward movement of the steering wheel and to maintain room for passengers in the event of a front impact.

DASH PANEL

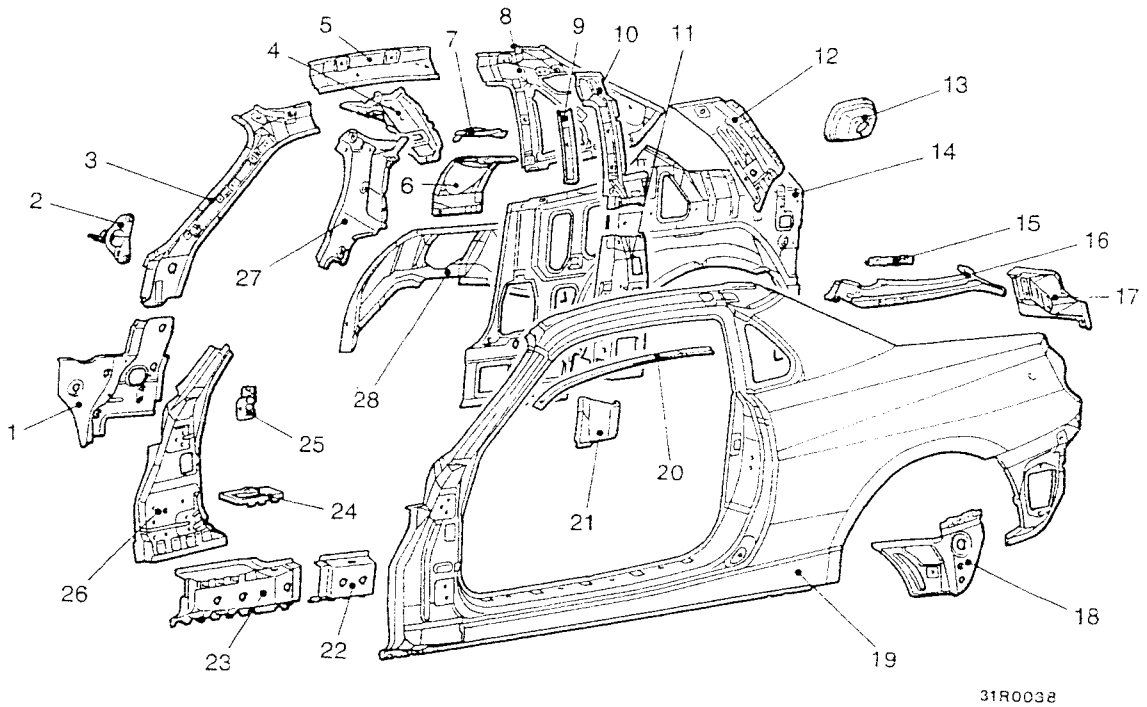
The reduction in size of the dash panel reinforcement provides a large degree of weight reduction for the vehicle body.



SIDE BODY

SIDE STRUCTURE

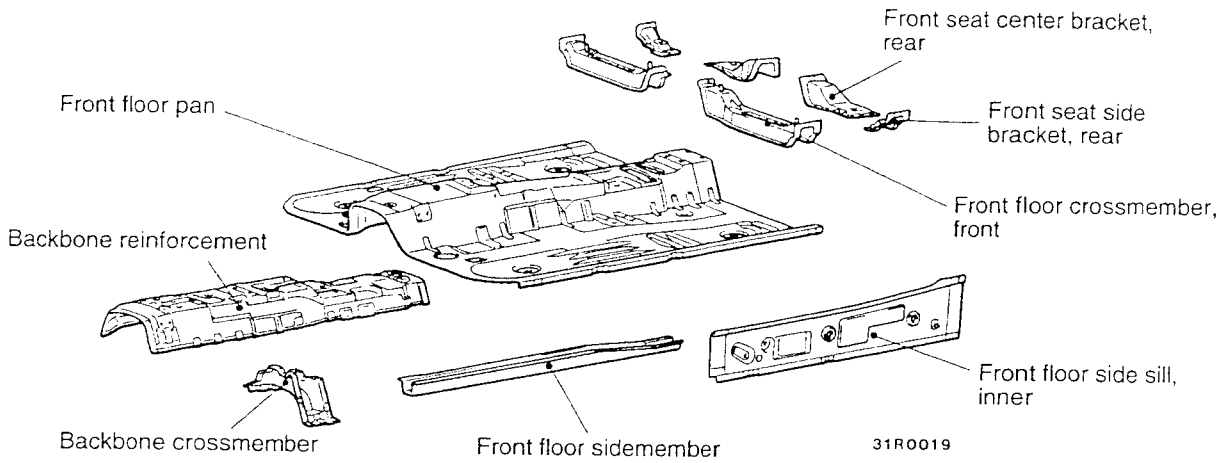
(1) The side sill has a large cross-sectional area to improve the rigidity of the vehicle body.
(2) The side panel outer has been integrated in order to improve door fitting precision.

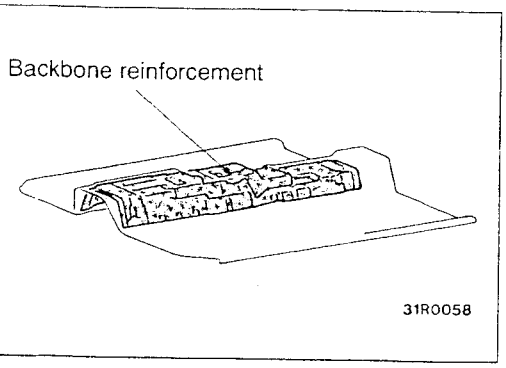


1. Front pillar, inner, lower
2. Crossmember bracket
3. Front pillar, inner, upper
4. Rear shelf brace
5. Side roof rail, inner
6. Spring house panel
7. Spring house bracket
8. Quarter panel, inner, upper
9. Seat belt center pillar reinforcement
10. Center pillar reinforcement, upper
11. Center pillar reinforcement, lower
12. Seat belt rear pillar reinforcement
13. Fuel filler neck bracket (right side)
14. Quarter panel, inner, lower
15. Trunk lid hinge plate
16. Quarter outer extension, upper
17. Rear combination lamp housing
18. Rear floor side brace
19. Side panel, outer
20. Drip channel
21. Quarter inner panel corner, lower
22. Side sill reinforcement, front
23. Front pillar reinforcement, lower
24. Front door checker reinforcement
25. Front pillar deck cross bulkhead
26. Front pillar reinforcement, upper
27. Rear seatback brace
28. Rear wheel house panel, inner

UNDER BODY

FRONT FLOOR

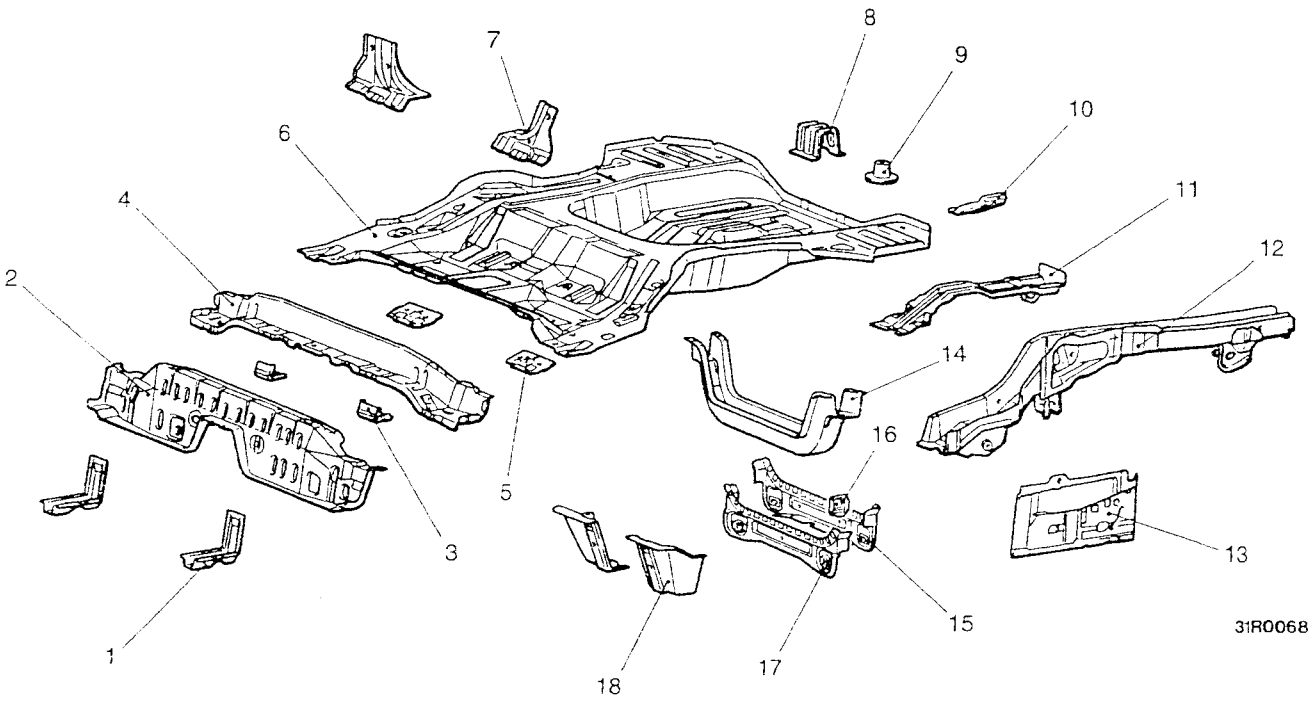




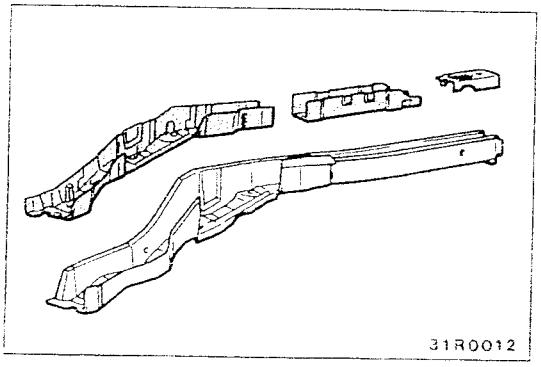
(1) A large reinforcement at the front floor backbone (backbone reinforcement) has increased the overall rigidity of the floor together with the side sill and crossmember.

REAR FLOOR

(1) A reinforcement has been provided at the rear suspension mounting section in order to increase strength.



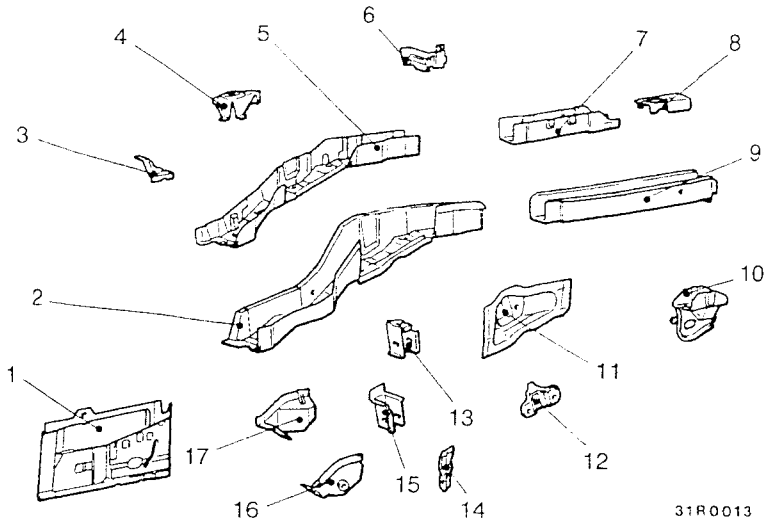
1. Front floor sidemember extension
2. Rear seat crossmember
3. Seat crossmember bulkhead
4. Rear floor extension
5. Seat belt rear floor reinforcement
6. Rear floor pan
7. Rear seatback reinforcement
8. Spare tyre support
9. Spare tyre bracket
10. Jack bracket
11. Shipping bracket
12. Rear floor sidemember
13. Rear floor side sill
14. Rear floor crossmember
15. Lower arm bracket, rear
16. Lower arm bulkhead
17. Lower arm bracket, front
18. Fuel tank bracket, rear

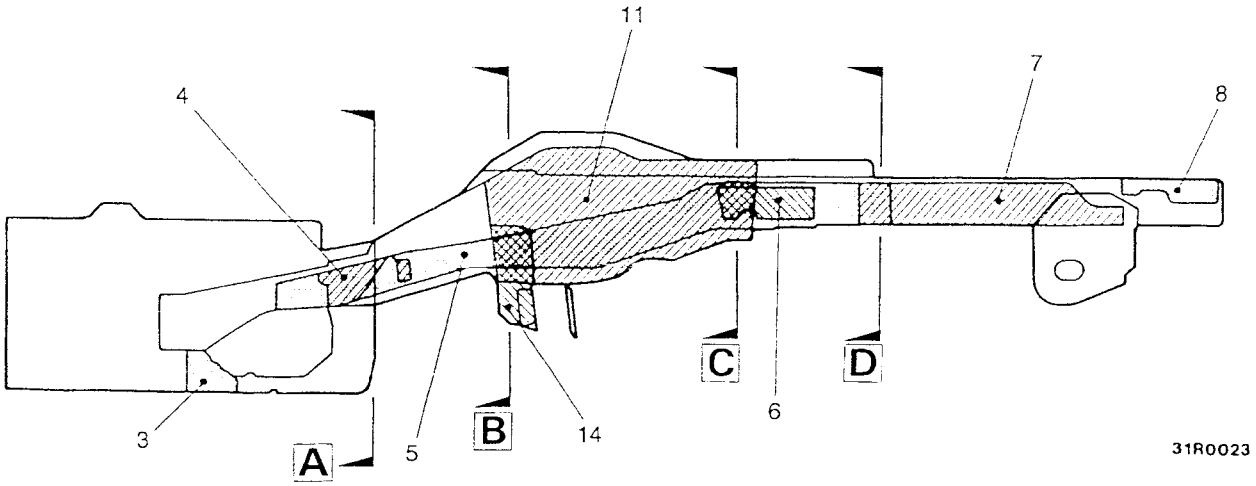


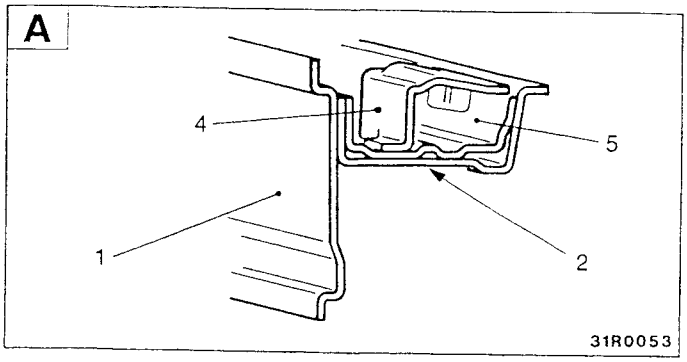
(2) A large-sized reinforcement has been added to the rear sidemember in order to increase the backbone strength.

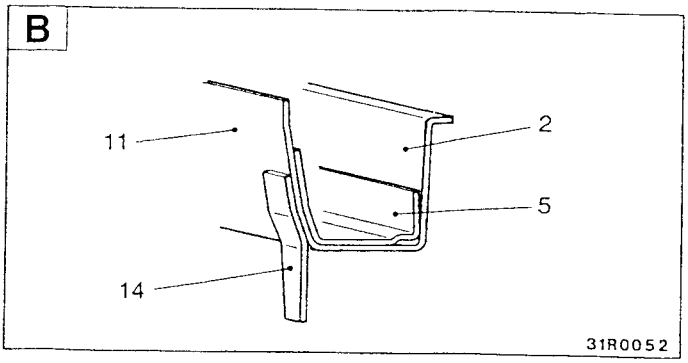
REAR FLOOR SIDEMEMBER REINFORCEMENT

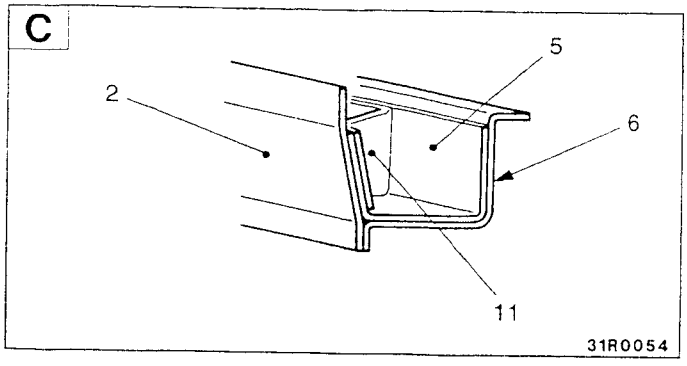
1. Rear floor side sill
2. Rear floor sidemember
3. Rear floor sidemember support
4. Rear floor seat belt reinforcement, side
5. Rear floor sidemember reinforcement, front
6. Rear floor sidemember bulkhead
7. Rear floor sidemember reinforcement, rear
8. Rear bumper stay reinforcement
9. Rear floor sidemember extension
10. Shipping hook reinforcement
11. Rear floor sidemember reinforcement
12. Upper link bracket
13. Toe control link reinforcement
14. Toe control link reinforcement, side
15. Toe control link bracket
16. Trailing arm bracket, outer
17. Trailing arm bracket, inner

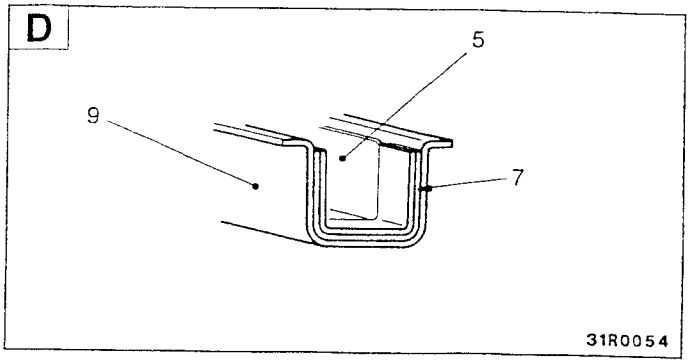








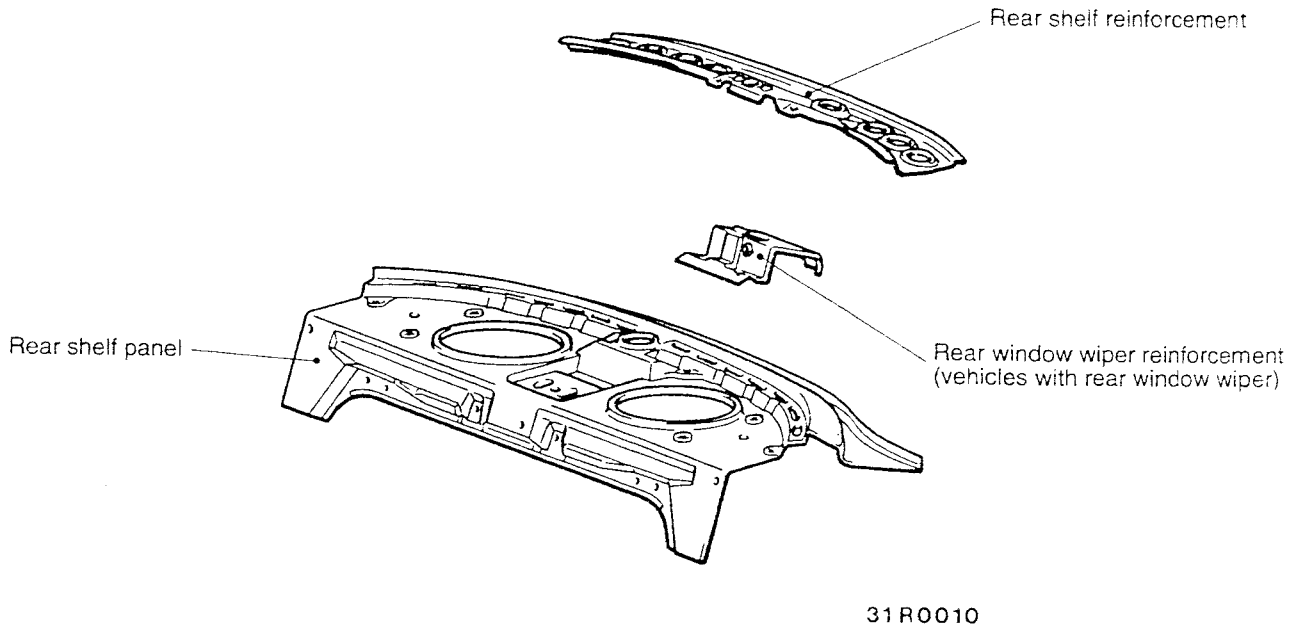




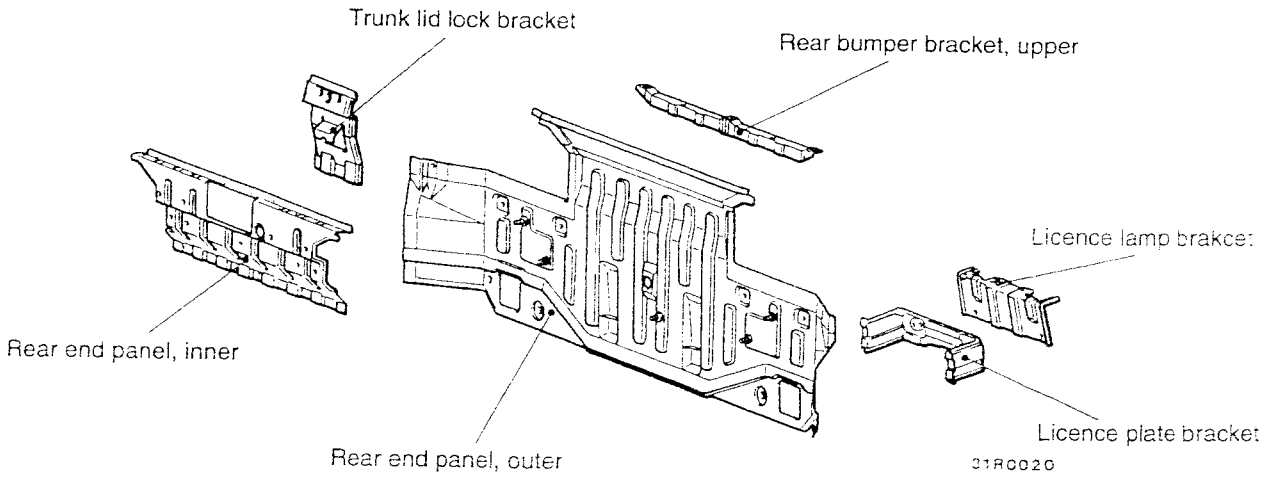
REAR BODY

REAR DECK

A large-sized reinforcement has been provided inside the rear shelf in order to increase the rigidity of the rear deck.

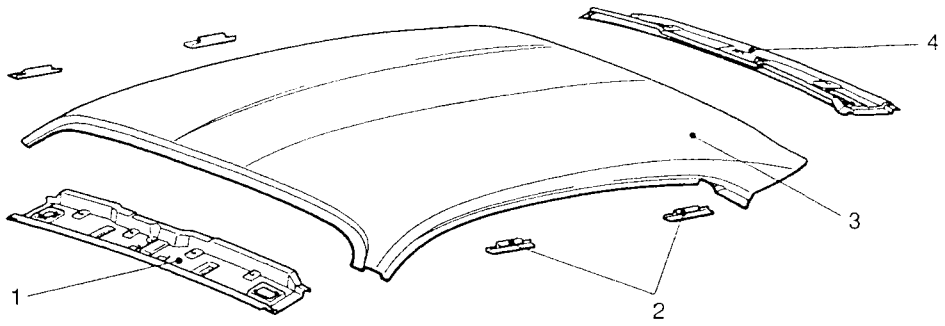


REAR END PANEL



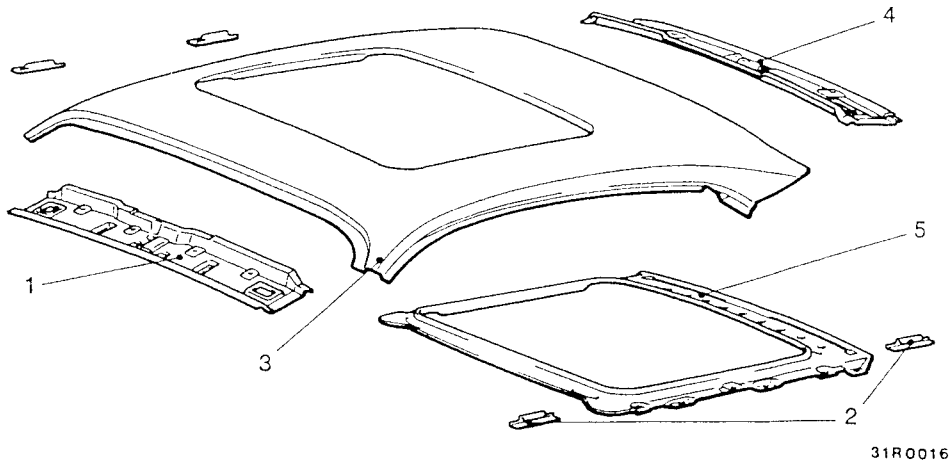
ROOF

(Standard roof)



31R0015

(Sunroof)

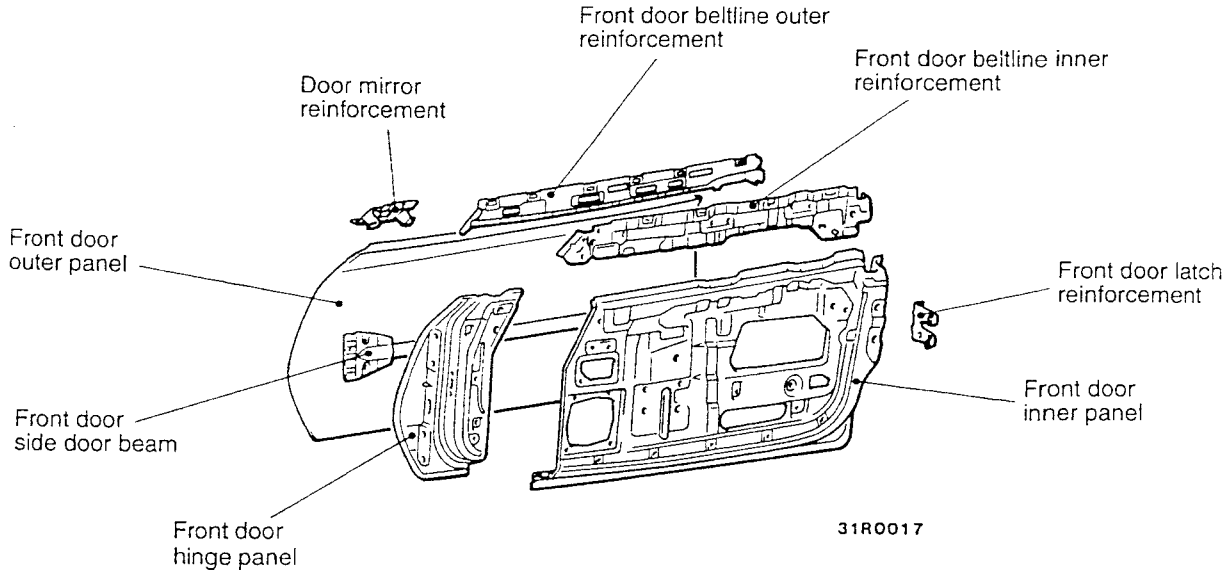


31R0016

1. Front roof rail
2. Roof carrier plate
3. Roof panel
4. Rear roof rail
5. Roof reinforcement

DOOR

The side door beam has been used inside the door to protect occupants in the event of a side collision.

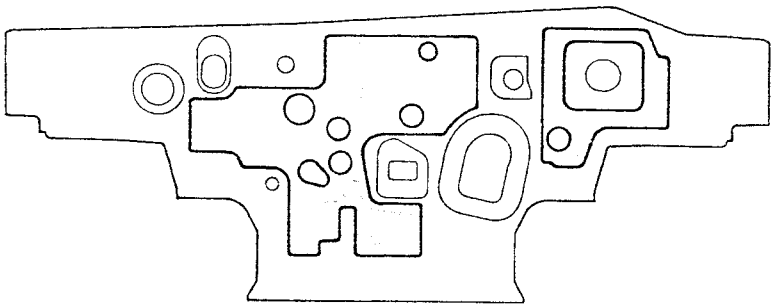


31R0017

SILENCER APPLICATION LOCATION

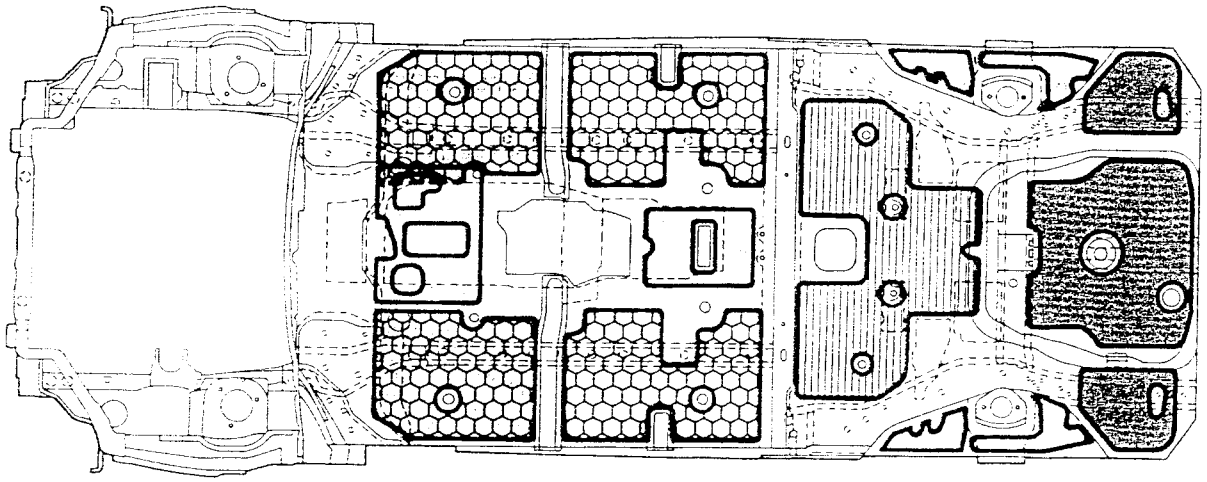
In order to reduce vibration and screen out heat from the exhaust gas, silencer (melting sheets) are applied to the top of the floor and to the dash panel.
In addition, MD-12 sheet and MD-10 sheet have been attached to the front floor panel to further improve noise insulation.

NOTE: MD-12 sheet and MD-10 sheet
High-performance sheets with improved vibration reduction characteristics, consisting of asphalt with materials such as mica and thermosetting plastic resin added.



31R0056

Passenger compartment side of the dash panel

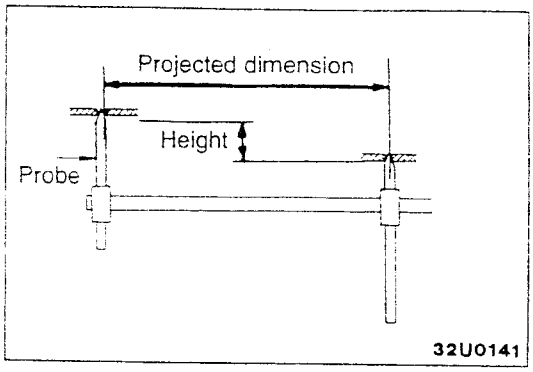


31R0070

: 1.6 mm thick
: 3.2 mm thick (two layers of 1.6 mm-thick silencer)
: 4.8 mm thick (three layers of 1.6 mm-thick silencer)

: MD-10 sheet 3.2 mm thick (two layers of 1.6 mm-thick silencer)
: MD-12 sheet 4.8 mm thick (three layers of 1.6 mm-thick silencer)

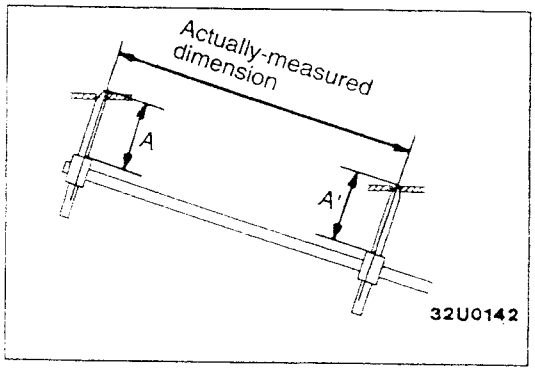
2 BODY DIMENSIONS



BODY DIMENSIONS AND MEASUREMENT METHODS

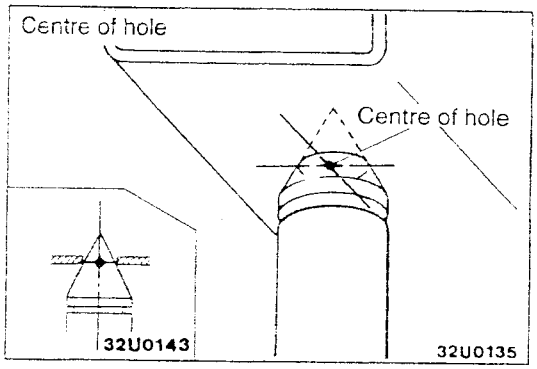
STANDARD DIMENSIONS INDICATIONS AND MEASUREMENT METHODS

(1) Type A (projected dimensions)
Indicates the dimension when a measurement location is projected onto a plane. The difference in height of the measurement points should be taken into consideration when measuring.

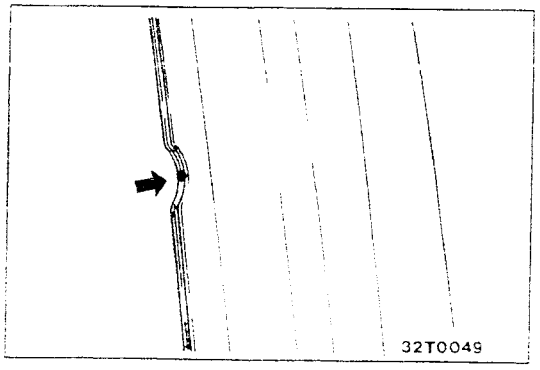


(2) Type B (actual-measurement dimensions)
Indicates the actual distance between the measurement points.
Measure using a tracking gauge or a measuring tape, etc.

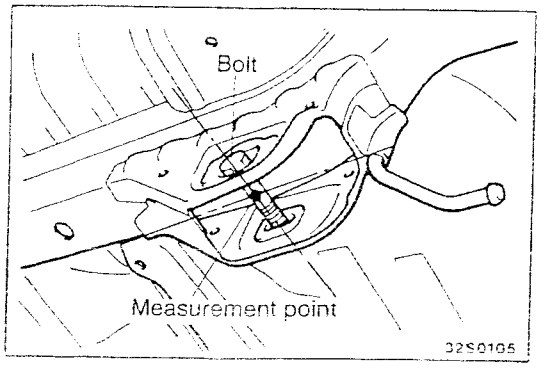
NOTE
- Make the lengths of the tracking gauge probes the same (A=A').
- Do not bend or twist the measuring tape.



(3) Insert the tracking gauge probes securely into the measurement holes.
(4) When the standard dimensions in the illustration are enclosed by □, this indicates that the symmetrical left and right positions have the same dimensions.



(5) When using a notch for dimension measurement, make the measuring point at the centre of the notch.



(6) When measuring the suspension mounting arm or the link mounting position, use the suspension mounting bolt as the measuring point.

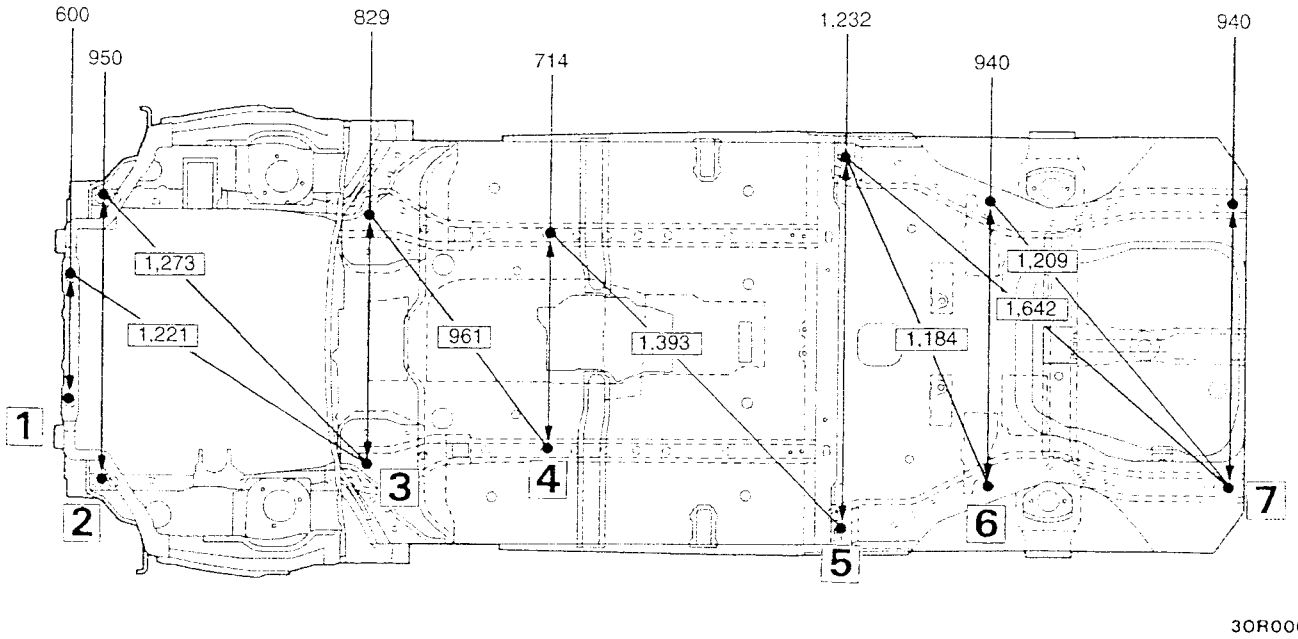
BODY CENTRE POINT

The body centre points are shown for the purpose of checking the position of the left and right symmetry locations.

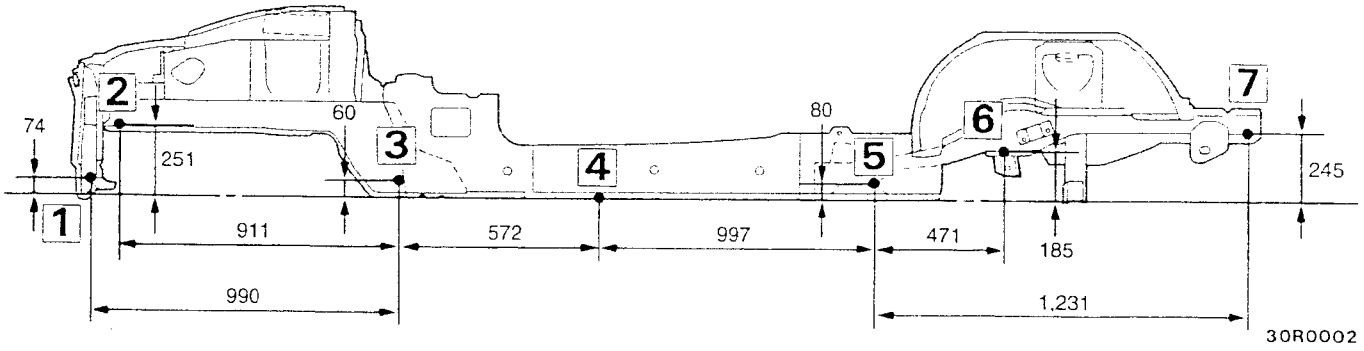
TYPE A (PROJECTED DIMENSIONS)

Unit : mm

UNDER BODY



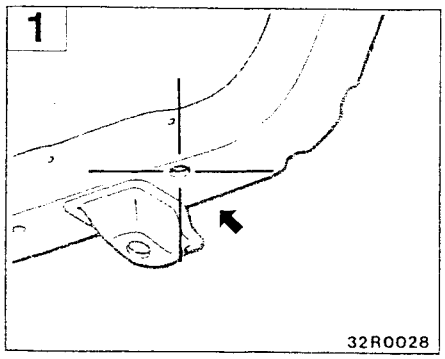
30R0001



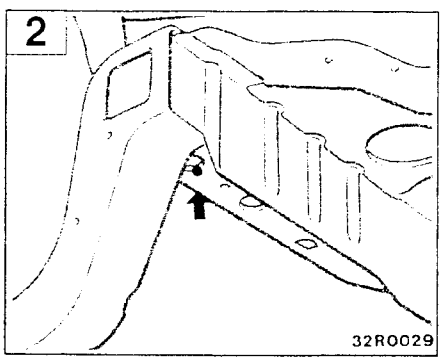
30R0002

No.	Standard measurement point	Hole shape – Size mm
1*	Centre of front bumper mounting hole	○ – 8
2	Rear portion of front bumper stay mounting hole	○ – 30
3*	Centre of suspension crossmember mounting hole	left ○ – 14 right ○ – 18
4*	Rear portion of front floor sidemember positioning hole	○ – 25
5*	Rear portion of rear seat crossmember positioning hole	▭ – 22x38
6	Centre of rear floor sidemember drain hole	○ – 20
7*	Centre of rear floor sidemember extension drain hole	○ – 20

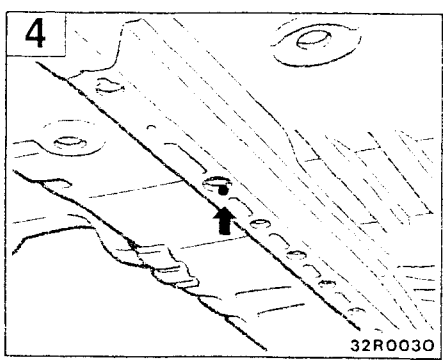
NOTE: The * mark indicates the mounting position for the frame centering gauge.



32R0028



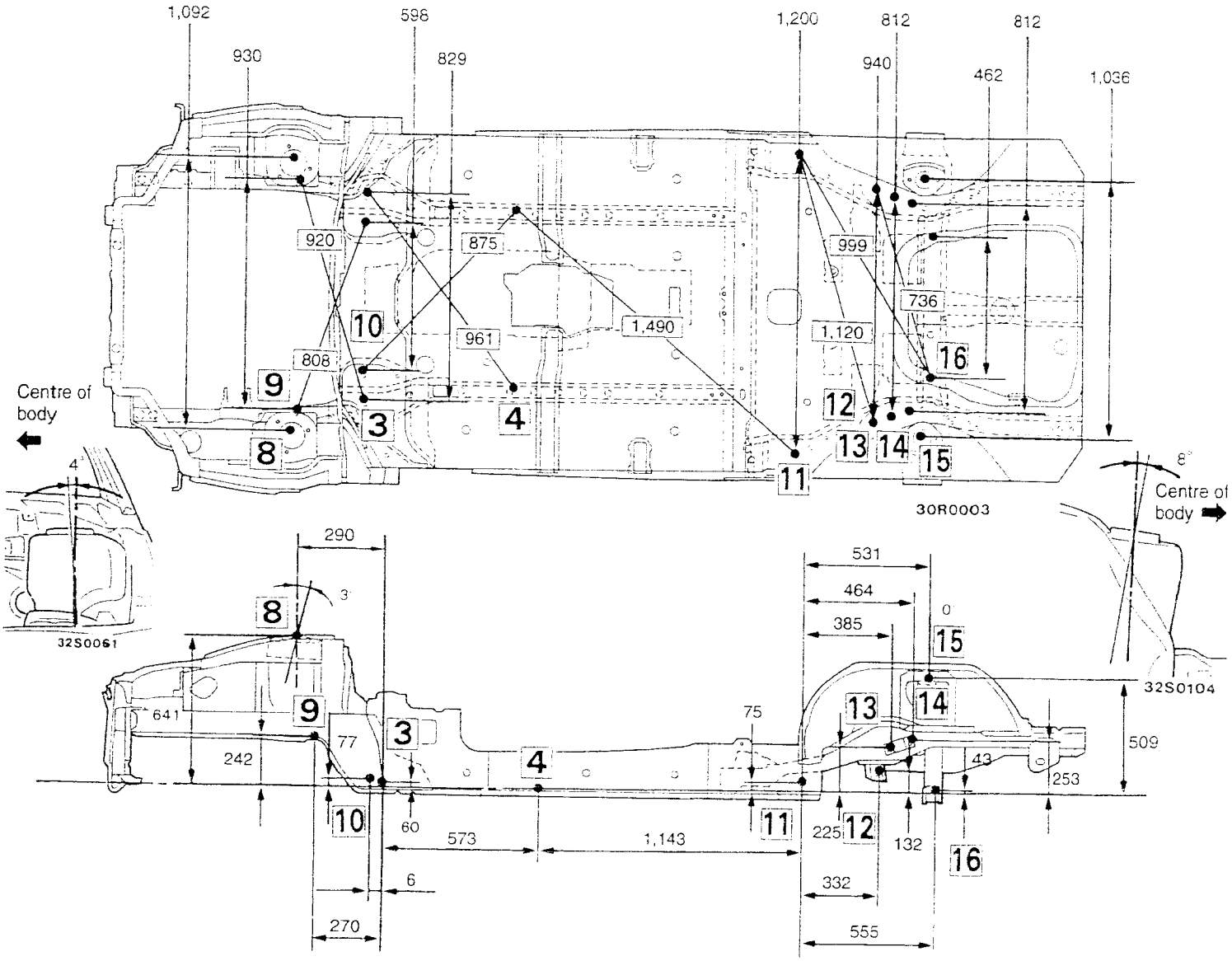
32R0029



32R0030

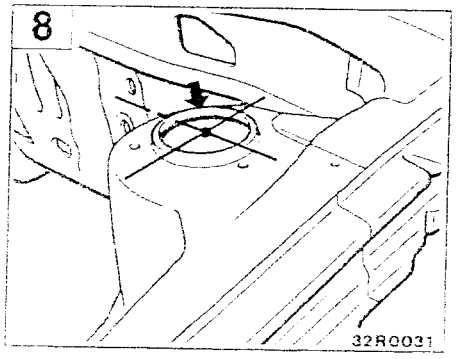
SUSPENSION INSTALLATION DIMENSIONS

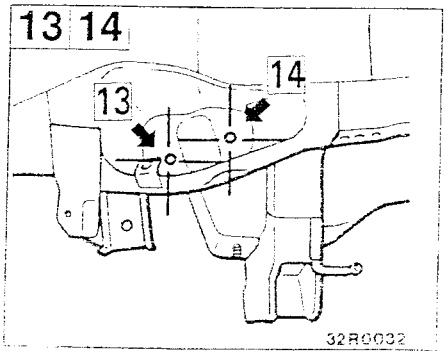
Unit : mm

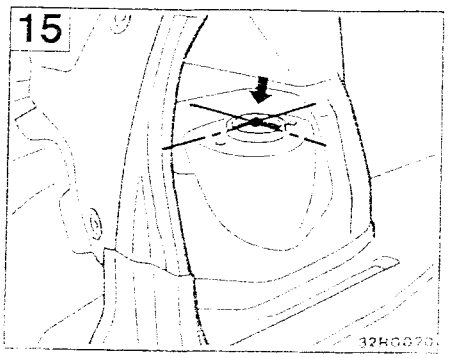


No.	Standard measurement point	Hole shape	Size mm
8	Centre of strut insulator	○	110
9	Centre of suspension crossmember mounting hole	○	15
10	Centre of suspension crossmember mounting hole	○	16
11	Centre of trailing arm mounting hole	—	
12	Centre of control link mounting hole	—	

No.	Standard measurement point	Hole shape	Size mm
13	Centre of upper link mounting hole	○	14
14	Centre of upper link mounting hole	○	14
15	Centre of rear shock absorber mounting hole	○	68
16	Lower arm mounting position	—	



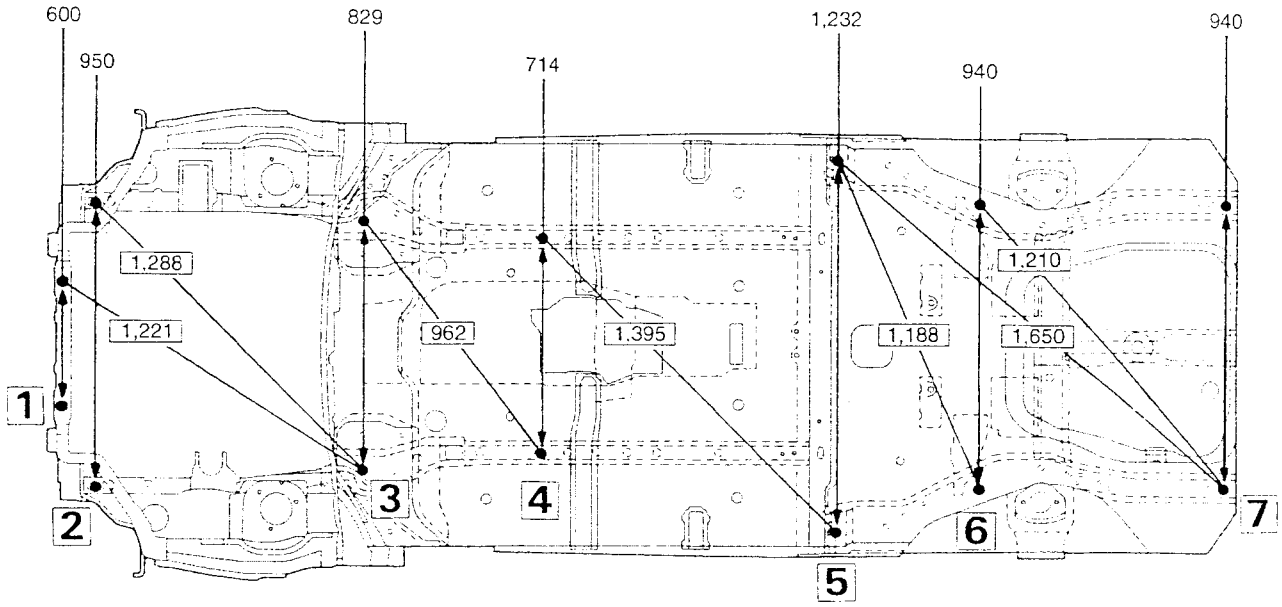




TYPE B (ACTUAL-MEASUREMENT DIMENSION)

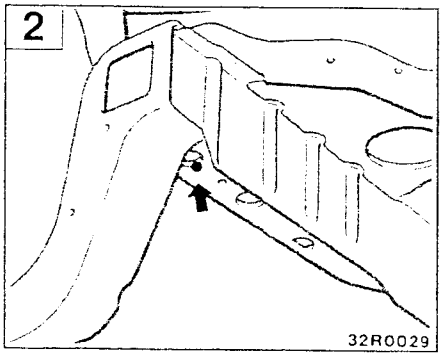
Unit : mm

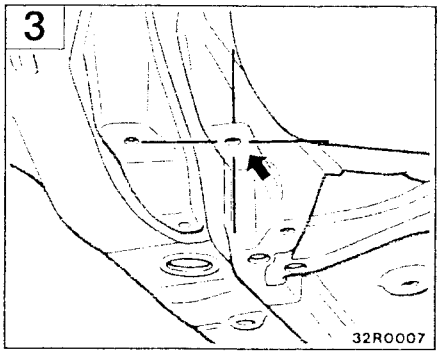
UNDER BODY

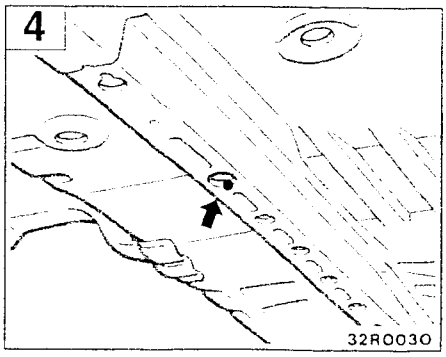


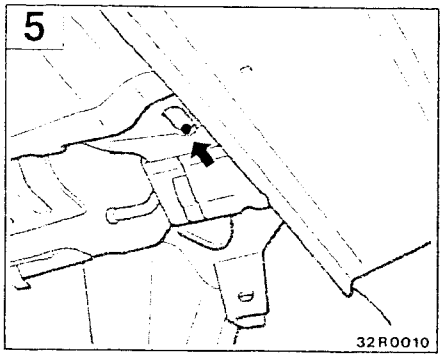
30R0001

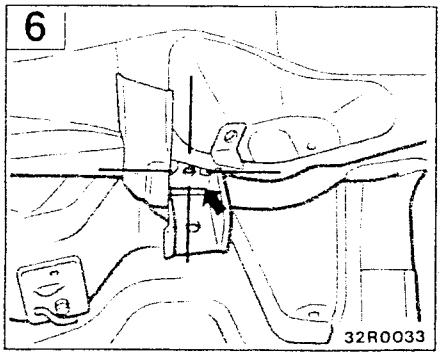
No.	Standard measurement point	Hole shape – Size mm
1	Centre of front bumper mounting hole	○ – 8
2	Centre of front bumper stay mounting hole	○ – 30
3	Centre of suspension crossmember mounting hole	left ○ – 14 right ○ – 18
4	Rear portion of front floor sidemember positioning hole	○ – 25
5	Rear portion of rear seat crossmember positioning hole	⬭ – 22x38
6	Centre of rear floor sidemember drain hole	○ – 20
7	Centre of rear floor sidemember extension drain hole	○ – 20

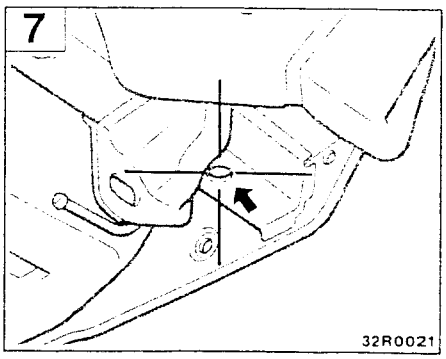






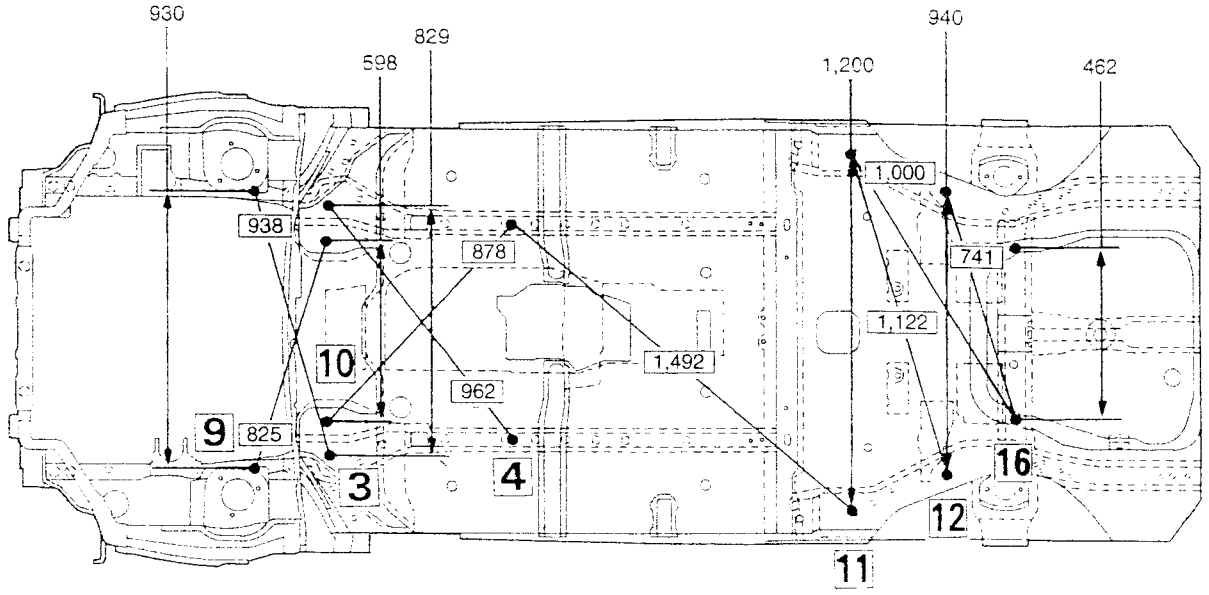






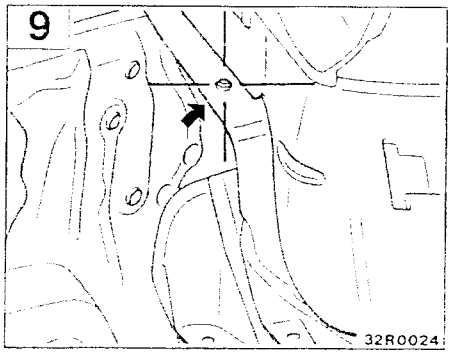
SUSPENSION INSTALLATION DIMENSIONS

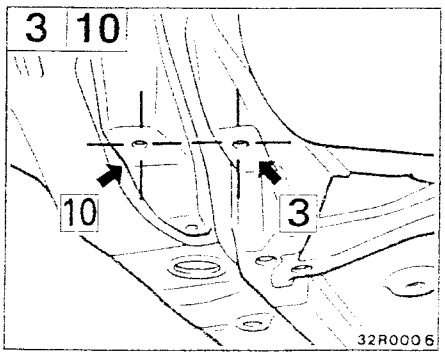
Unit : mm

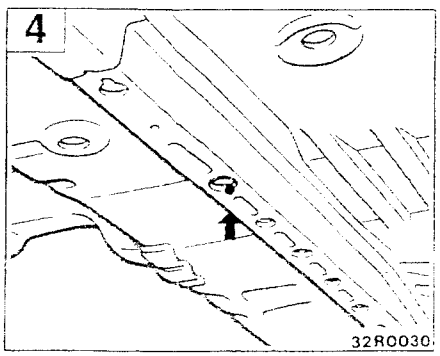


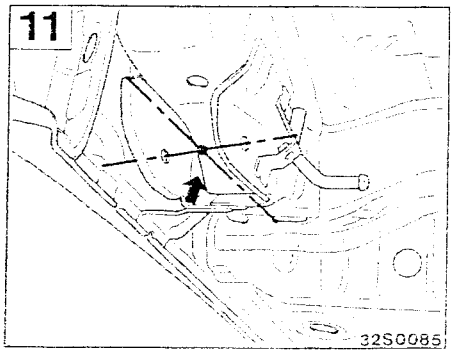
30R0005

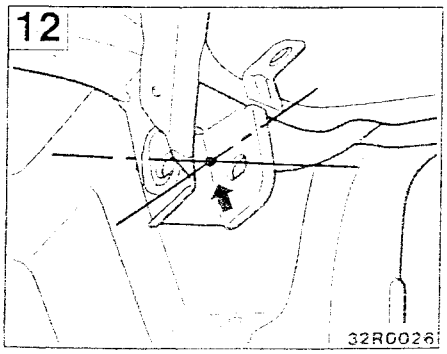
No.	Standard measurement point	Hole shape — Size mm
3	Centre of suspension crossmember mounting hole	left ○ – 14 right ○ – 18
4	Rear portion of front floor sidemember positioning hole	○ – 25
9	Centre of suspension crossmember mounting hole	○ – 15
10	Centre of suspension crossmember mounting hole	○ – 16
11	Trailing arm mounting position	—
12	Control link mounting position	—
16	Lower arm mounting position	—

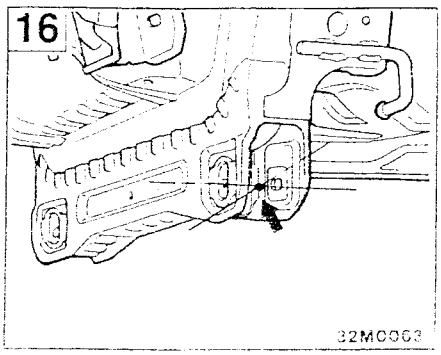






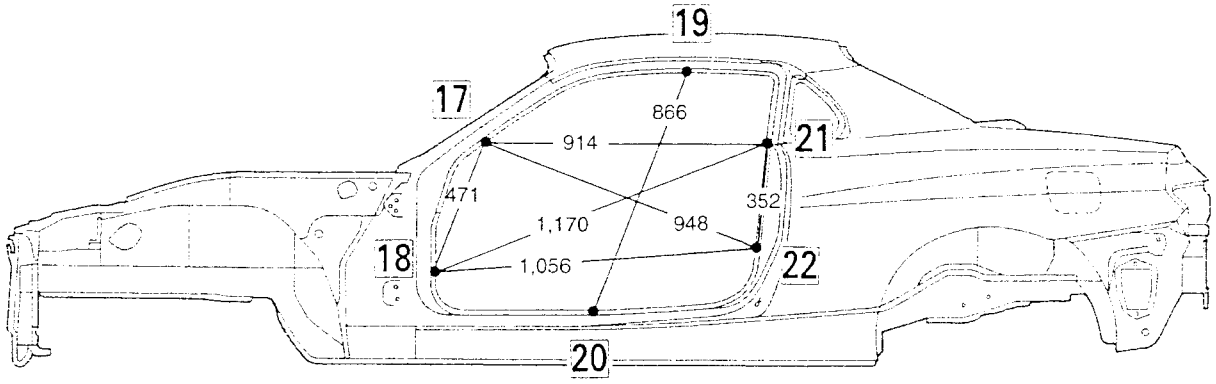




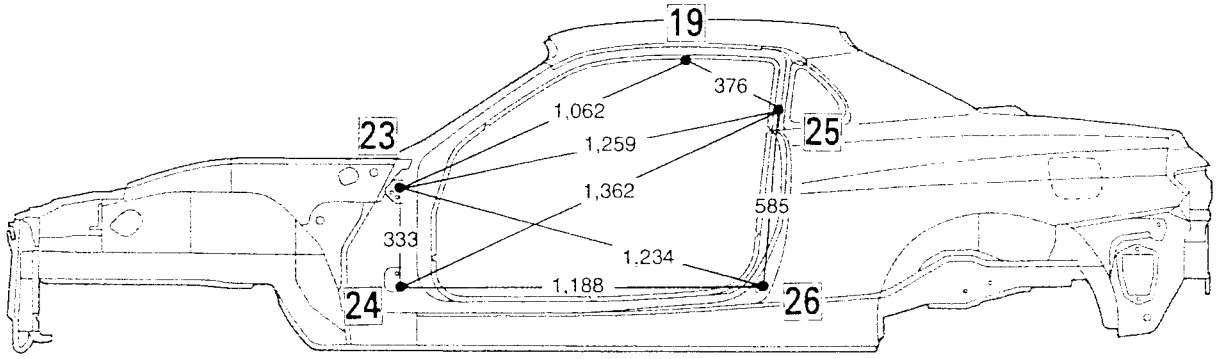


SIDE BODY

Unit : mm

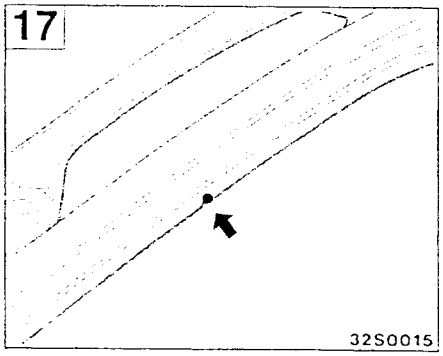


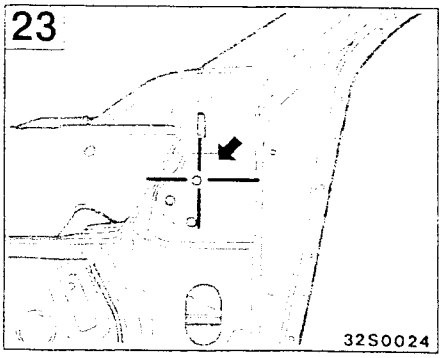
30R0009

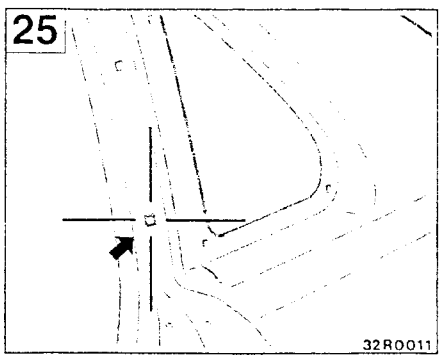


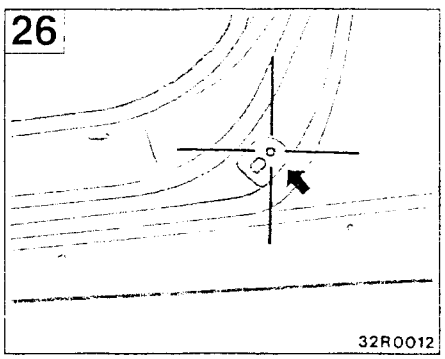
30R0010

No.	Standard measurement point	Hole shape — Size mm
17	Front pillar positioning notch (upper section)	—
18	Front pillar positioning notch (lower portion)	—
19	Side roof rail positioning notch	—
20	Side sill positioning notch	—
21	Centre pillar positioning notch (upper section)	—
22	Centre pillar positioning notch (lower section)	—
23	Centre of door hinge mounting hole	○ – 10
24	Centre of door hinge mounting hole	○ – 10
25	Centre of weatherstrip holder mounting hole	□ – 6.7x6.7
26	Centre of door switch mounting hole	○ – 5



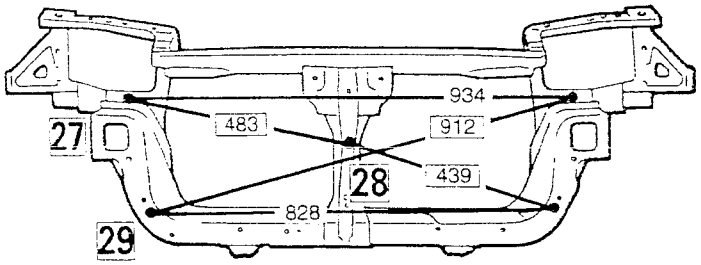




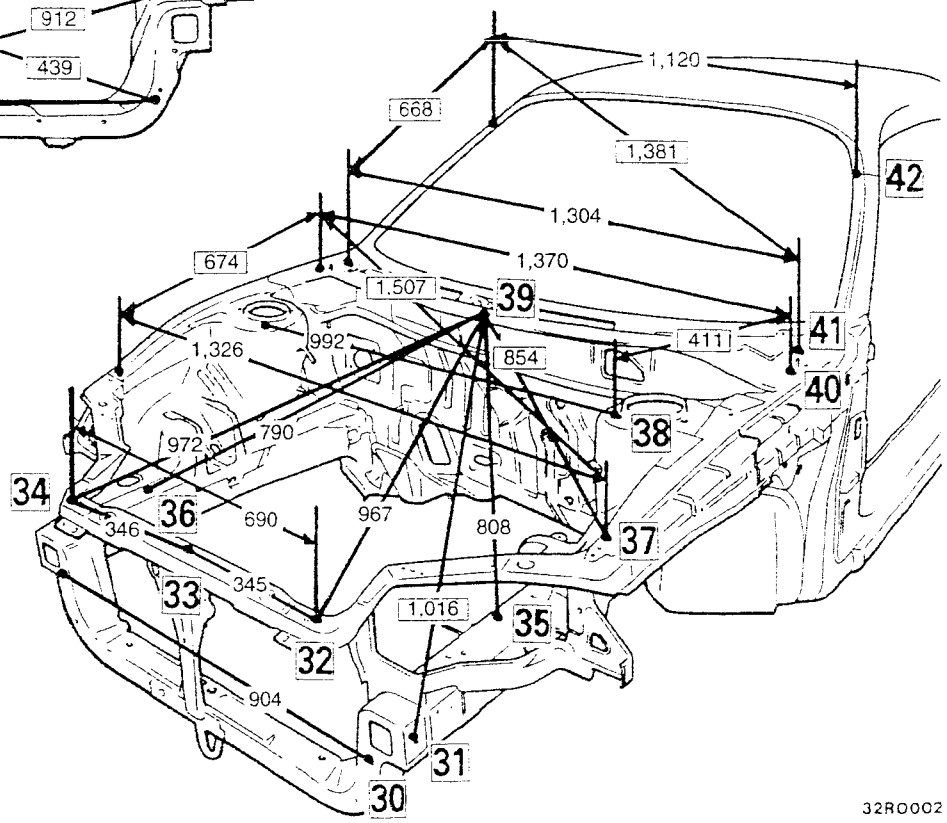


FRONT BODY

Unit : mm

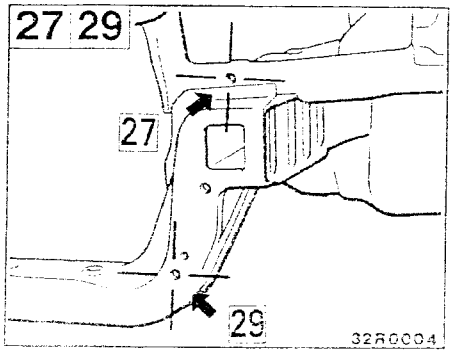


32R0001

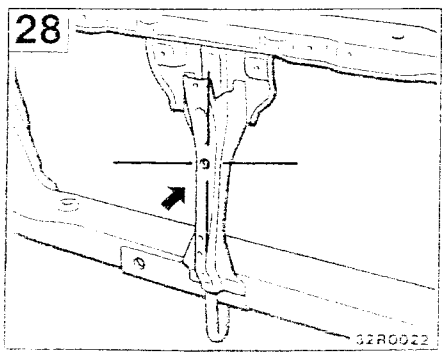


32R0002

No.	Standard measurement point	Hole shape — Size mm
27	Centre of headlamp support panel positioning hole	○ – 10
28	Centre of hood lock stay guide hole	○ – 9
29	Centre of front end crossmember duct mounting hole	○ – 9
30	Centre of front end crossmember positioning hole	○ – 12
31	Left side: Centre of washer tank mounting hole	○ – 6.6
	Right side: Centre of under cover mounting hole	○ – 9
32	Centre of radiator mounting hole	○ – 11
33	Centre of front end upper bar positioning hole (body center)	○ – 10
34	Centre of radiator mounting hole	○ – 11
35	Centre of air cleaner mounting hole	○ – 6.6
35	Centre of power steering hose mounting hole	○ – 9
37	Centre of fender panel mounting hole	○ – 6.6
38	Centre of front strut mounting hole	○ – 11.5
39	Body centre point	—
40	Centre of fender panel mounting hole	○ – 9
41	Centre of hood hinge mounting hole	○ – 11
42	Joint between side outer panel and roof panel	—



32R0004



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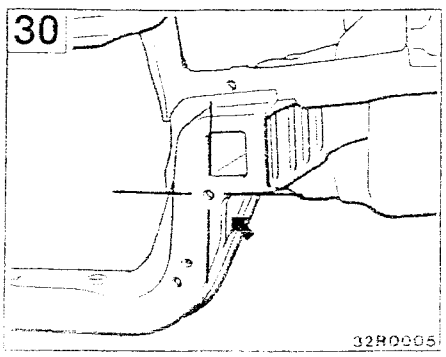

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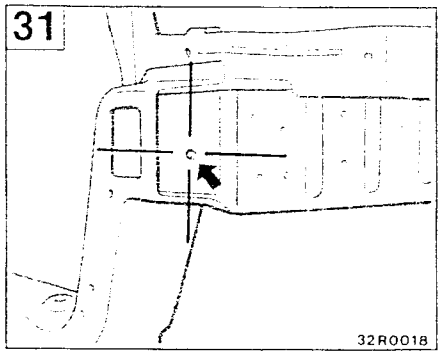
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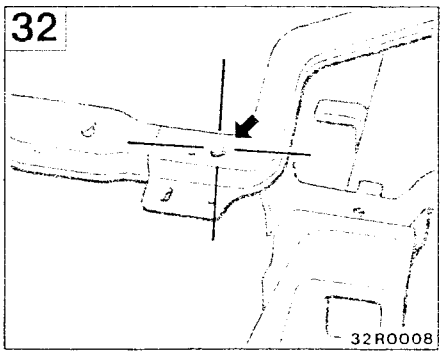
32R0018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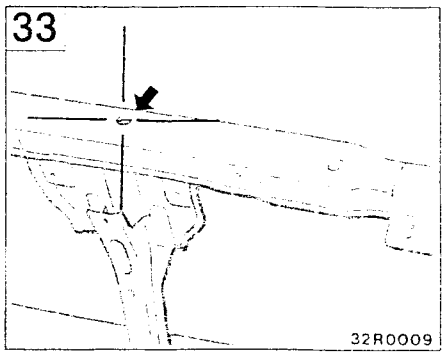
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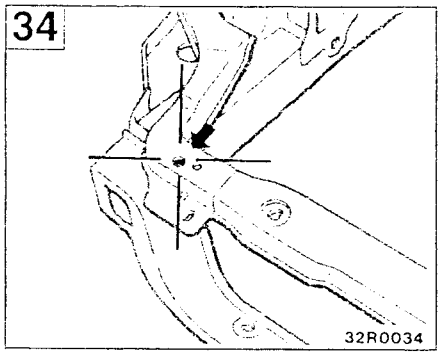
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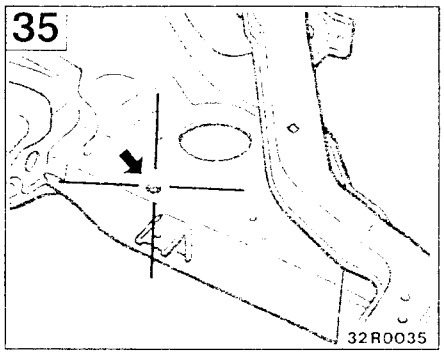
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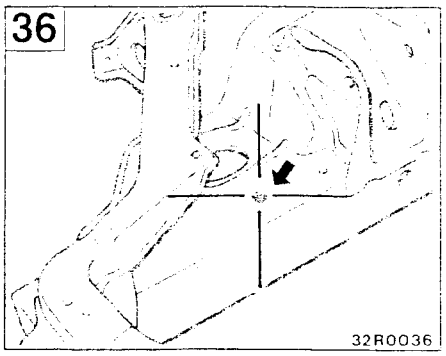
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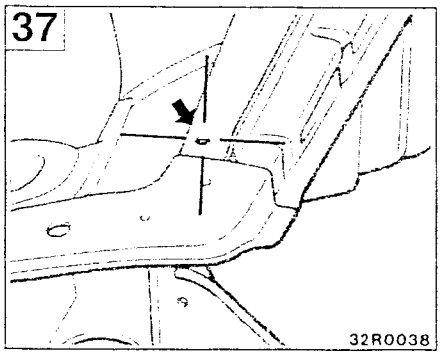
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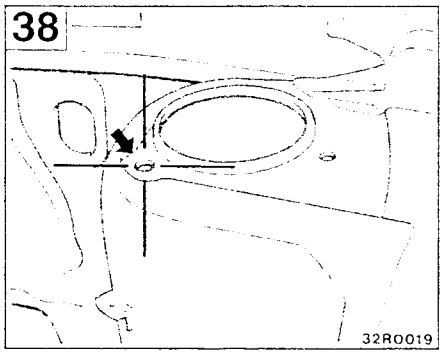
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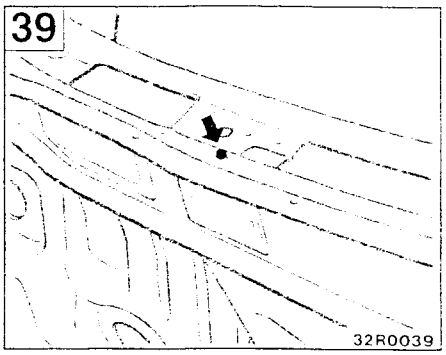
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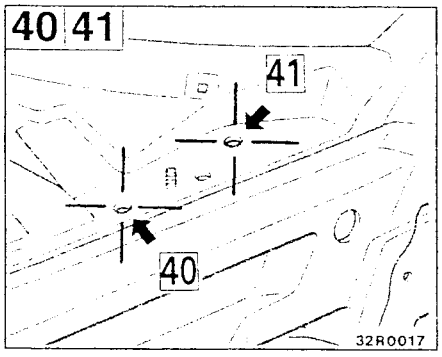
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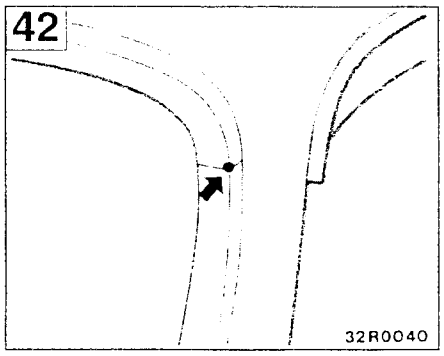
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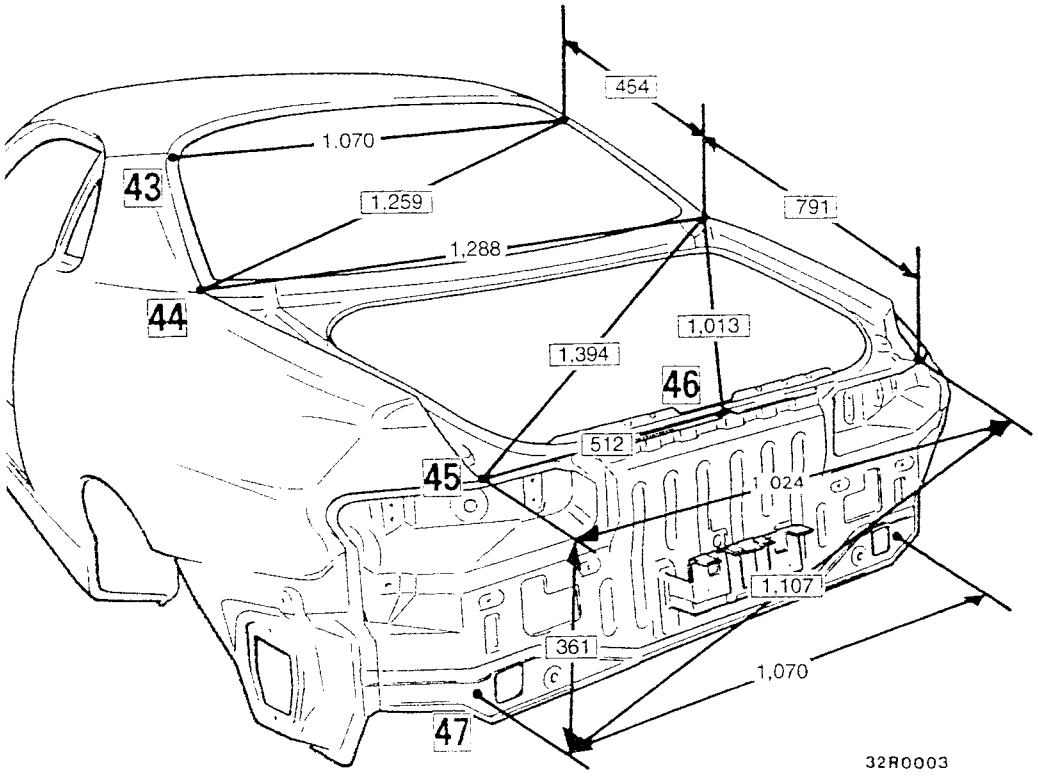
32R0040

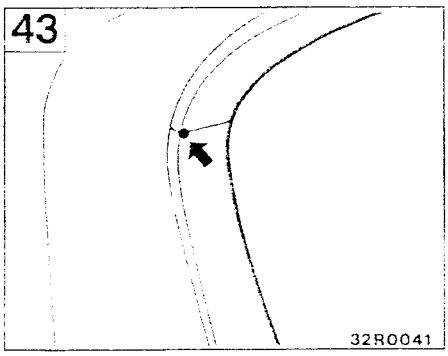
REAR BODY

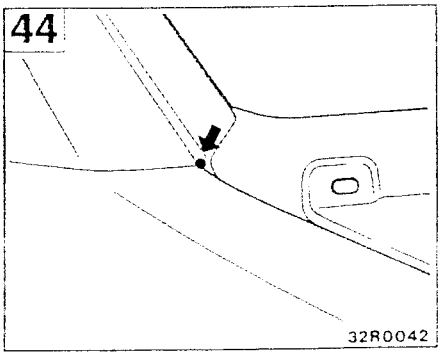
Unit : mm

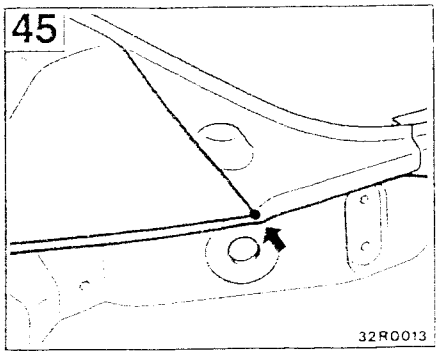


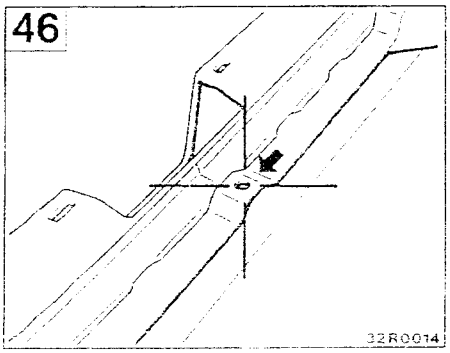
No.	Standard measurement point	Hole shape — Size mm
43	Joint between side outer panel and roof panel	—
44	Side outer panel press-line end	—
45	Side outer panel projection	—

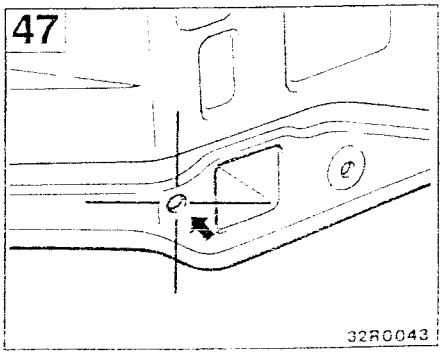
No.	Standard measurement point	Hole shape — Size mm
46	Centre of rear bumper mounting hole	○ – 7
47	Centre of rear end panel positioning hole	○ – 16





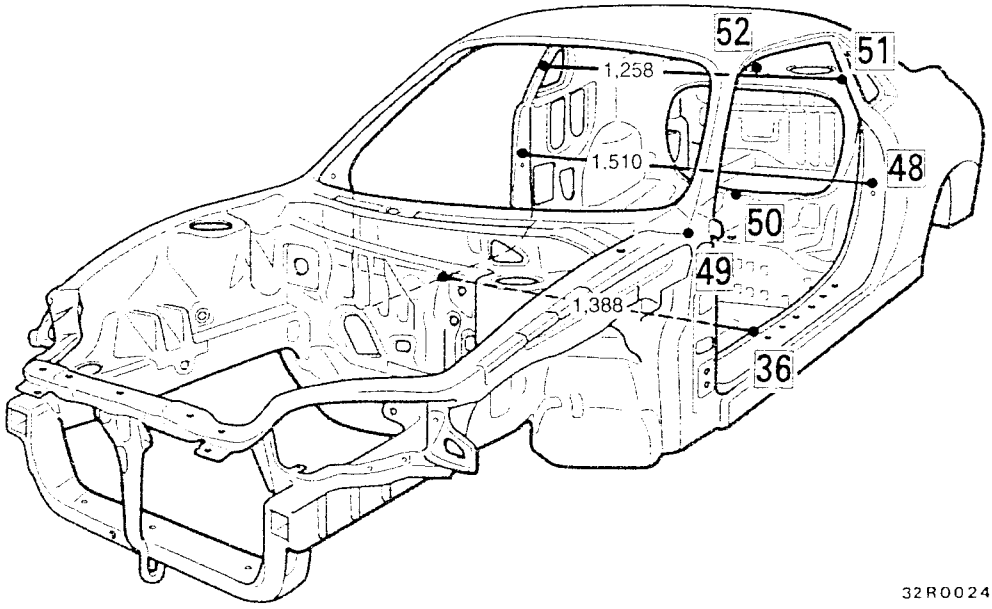




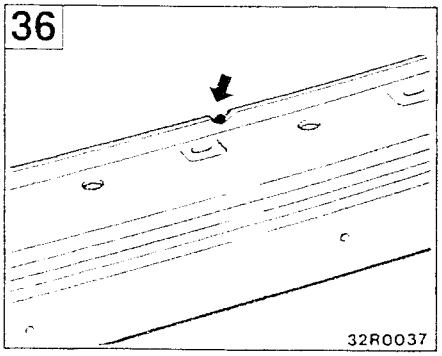


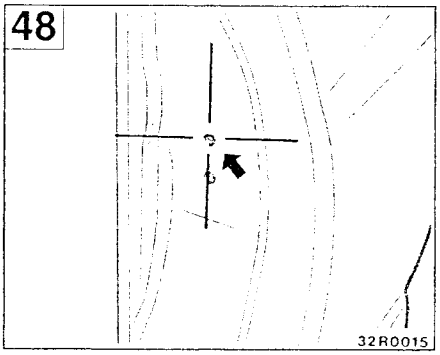
INTERIOR

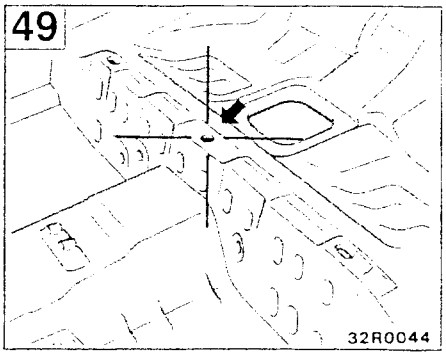
Unit : mm

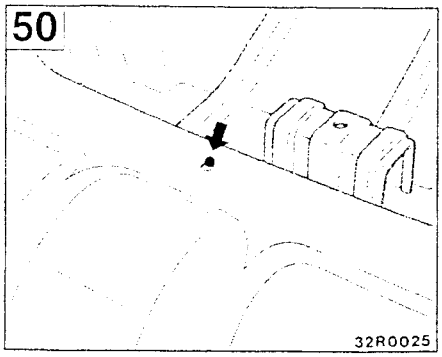


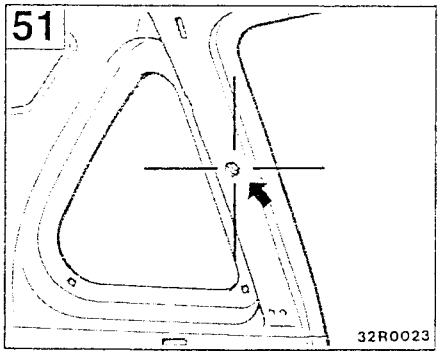
No.	Standard measurement point	Hole shape — Size mm	No.	Standard measurement point	Hole shape — Size mm
36	Side sill positioning notch	—	50	Body centre point	—
48	Centre of door striker mounting hole	○ – 14	51	Centre of seat belt anchor mounting hole	○ – 15
49	Centre of floor carpet mounting hole (body centre)	○ – 6	52	Body centre point	○ – 15

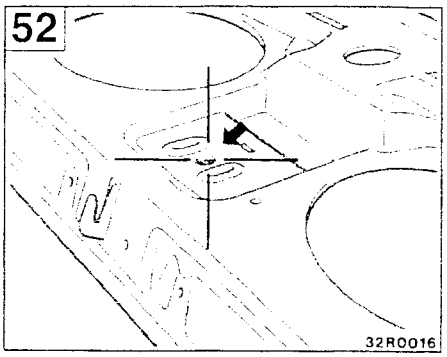








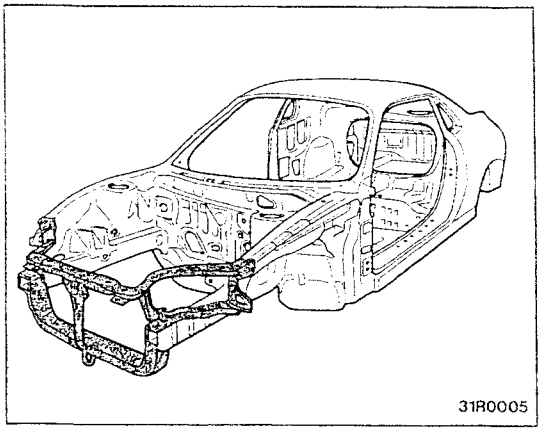




NOTES

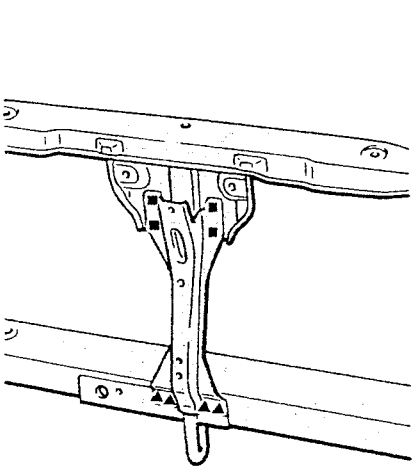
3 WELDED PANEL REPLACEMENT

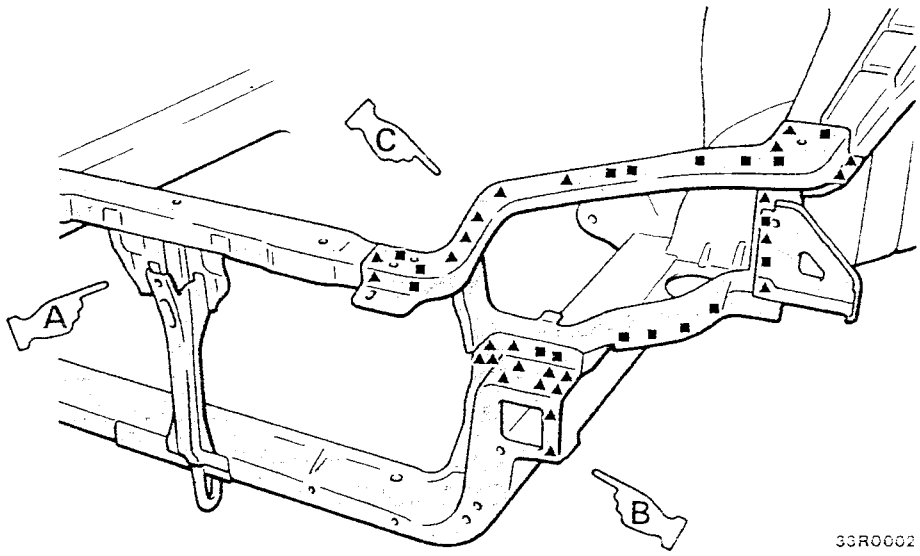
HEADLAMP SUPPORT

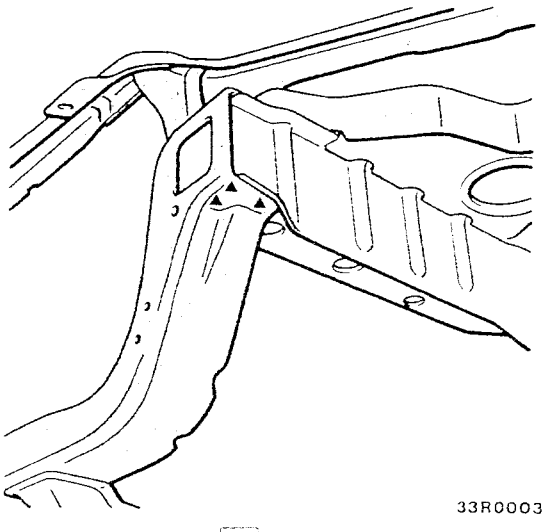


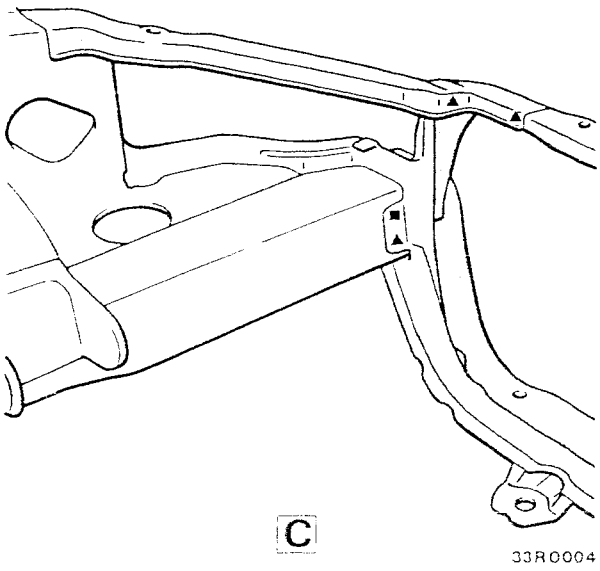
Symbol	Operation description
● ● ● ●	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
|||||||||||	MIG arc welding (continuous)
∞∞∞∞∞∞∞∞	Braze welding
	Anti-corrosion agent application locations (Use access holes to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

REPAIR WELDS

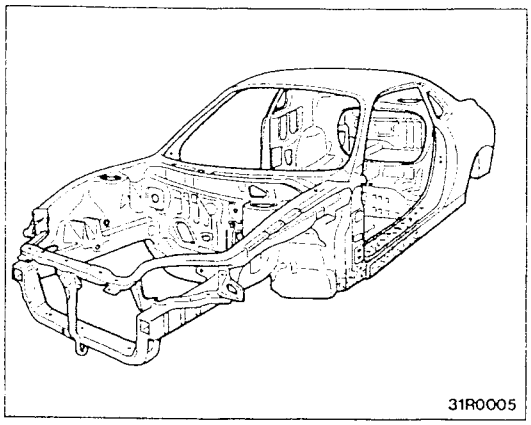






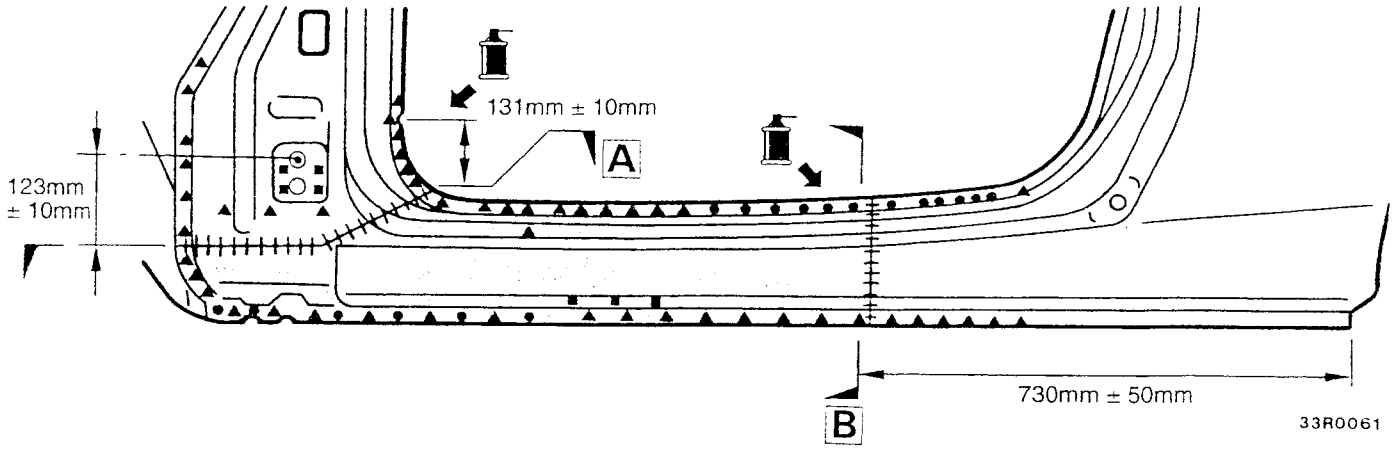


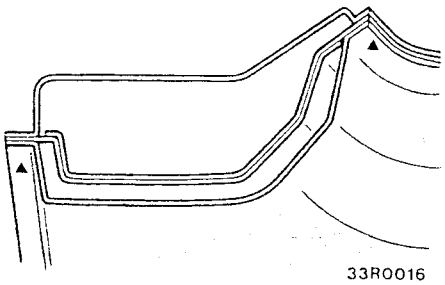
SIDE SILL



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

REPAIR WELDS





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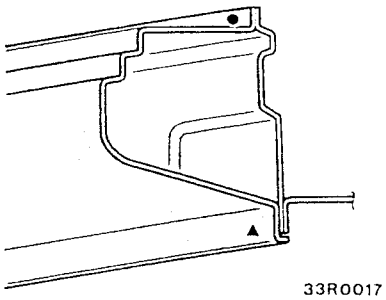

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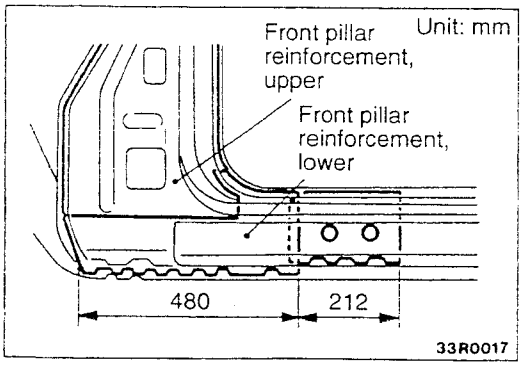
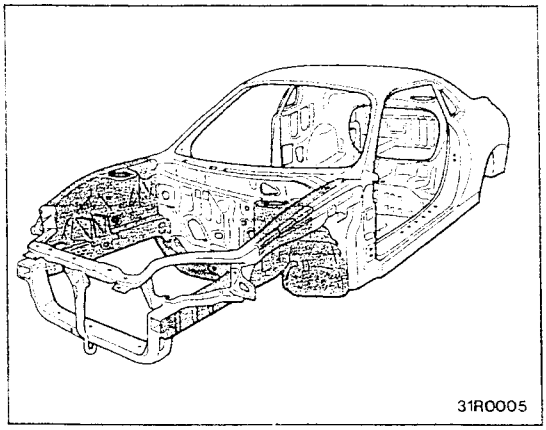


NOTES WITH REGARD TO REPAIR WORK

REMOVAL

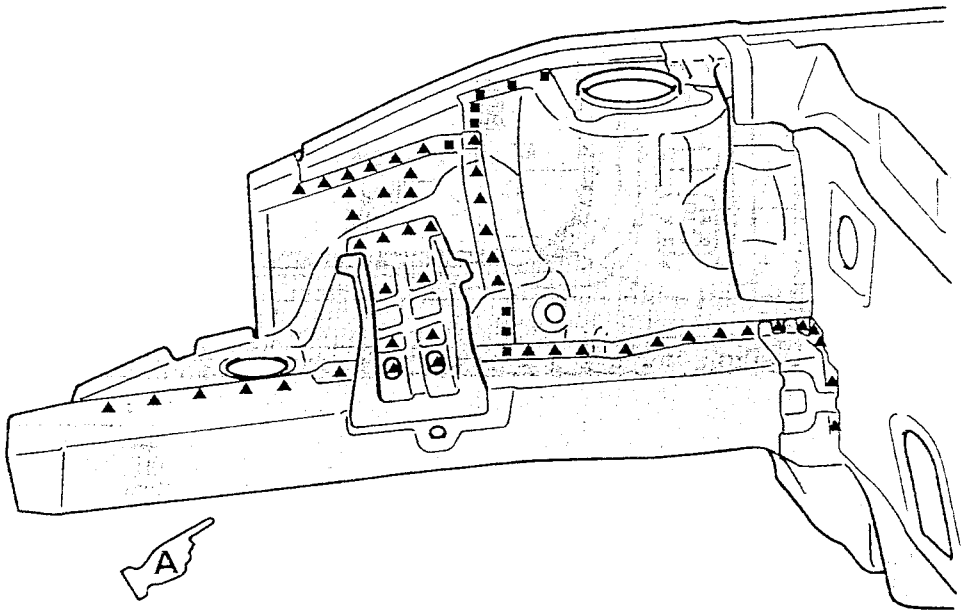
Take care not to damage the front pillar reinforcement upper and front pillar reinforcement lower when cutting the front pillar outer lower.

FENDER SHIELD

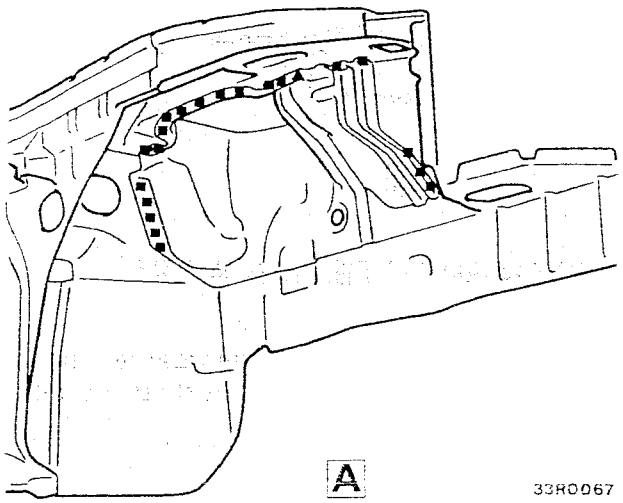


Symbol	Operation description
● ● ● ●	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
⫴⫴⫴⫴⫴⫴⫴⫴⫴⫴	MIG arc welding (continuous)
∞∞∞∞∞∞∞∞∞	Braze welding
	Anti-corrosion agent application locations (Use access holes to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

REPAIR WELDS

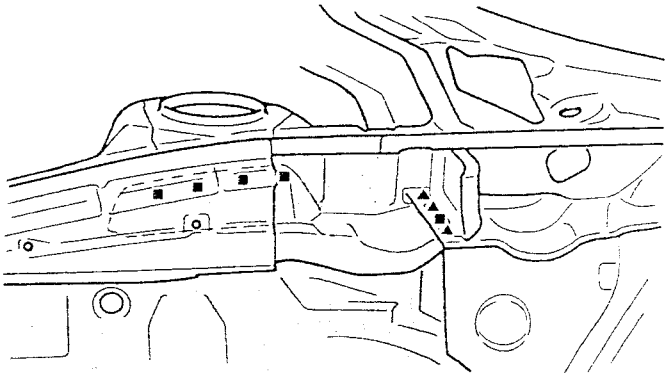


33R0066



A

33R0067

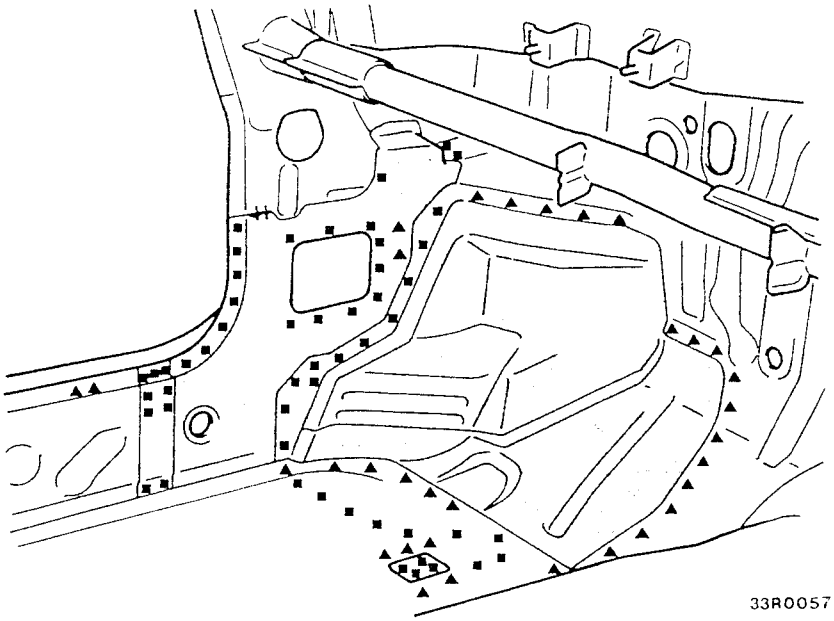


33R0049

B

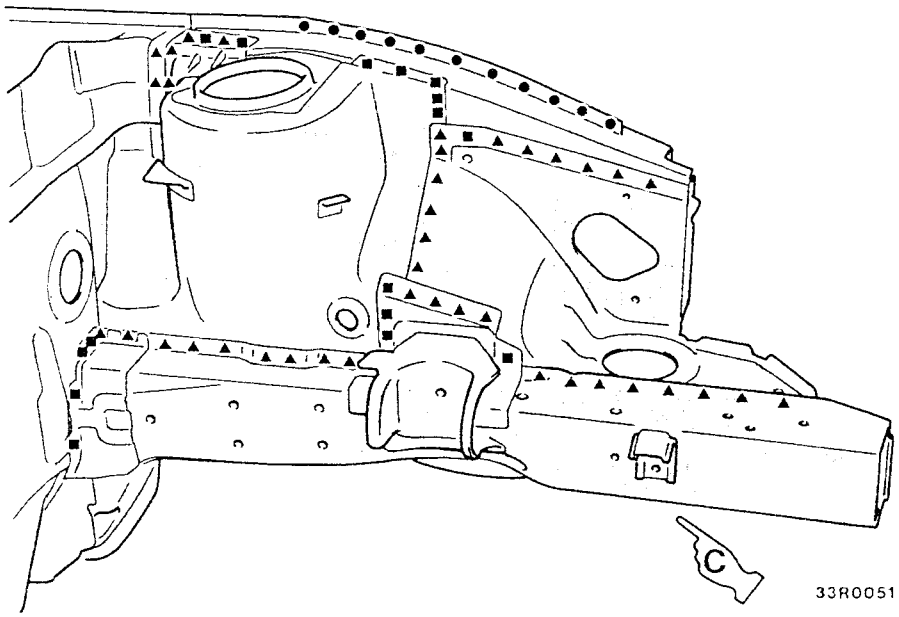
(with the front upper frame extension outer removed.)

NOTE: (1) Refer to page 3-2 for the headlamp support weld points.
(2) Refer to page 3-6 FRONT PILLAR for the front upper frame extension outer weld points.

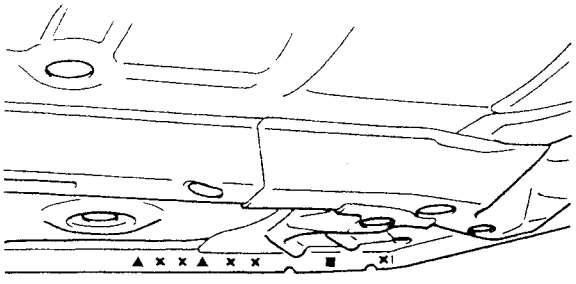


33R0057

E



33R0051



33R0052

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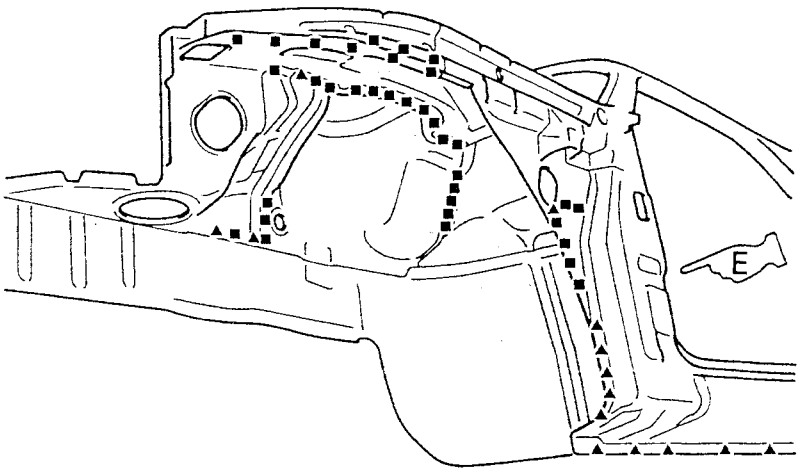
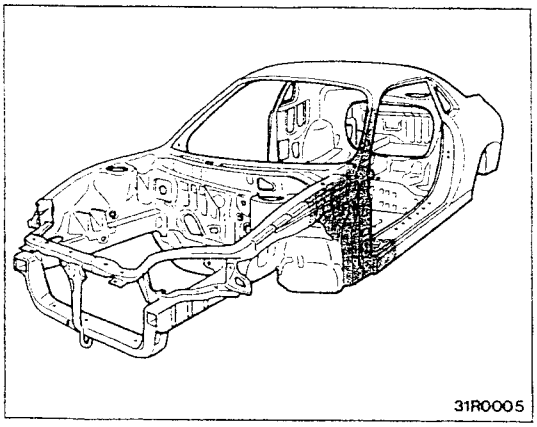


C

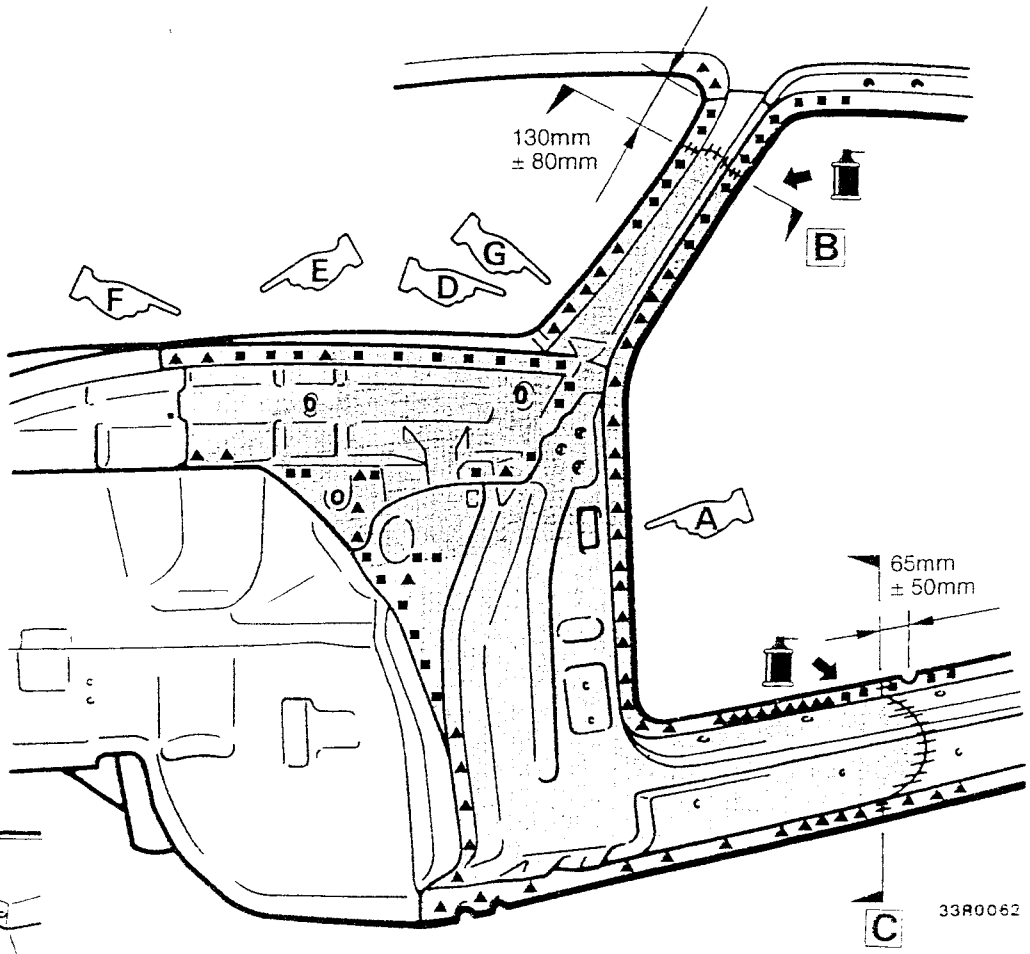
33R0050

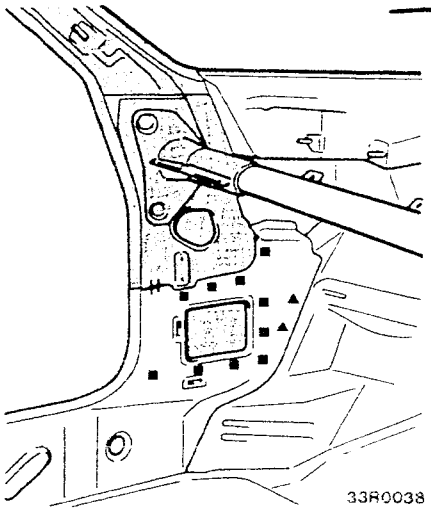
FRONT PILLAR

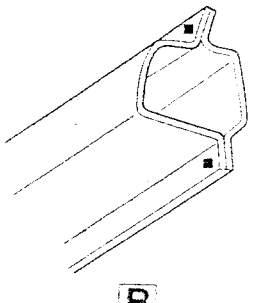


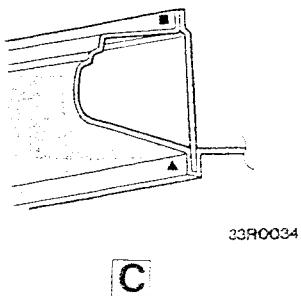
Symbol	Operation description
● ● ● ●	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
|||||||||||	MIG arc welding (continuous)
∞∞∞∞∞∞∞∞∞	Braze welding
	Anti-corrosion agent application locations (Use access holes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

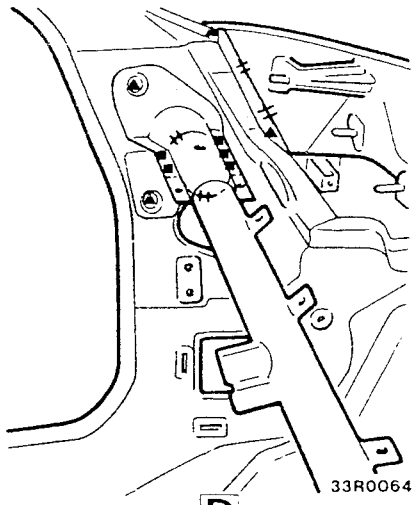
REPAIR WELDS



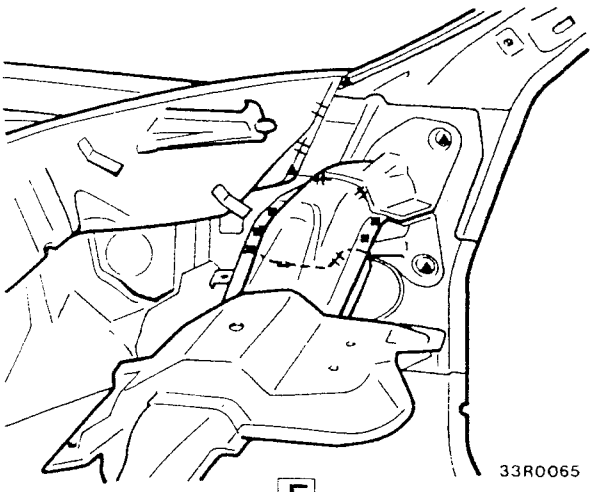








D



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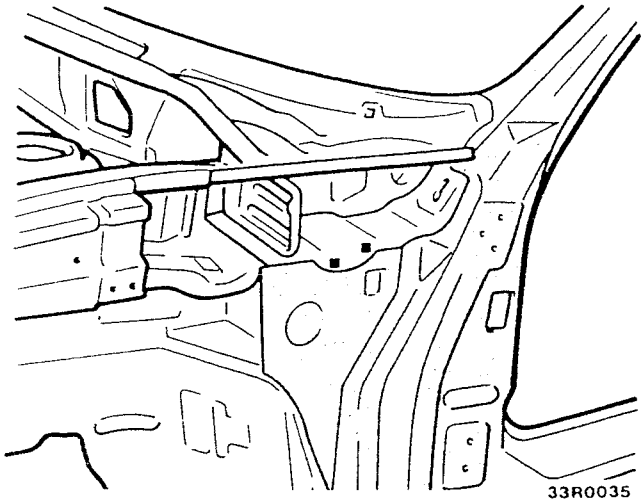
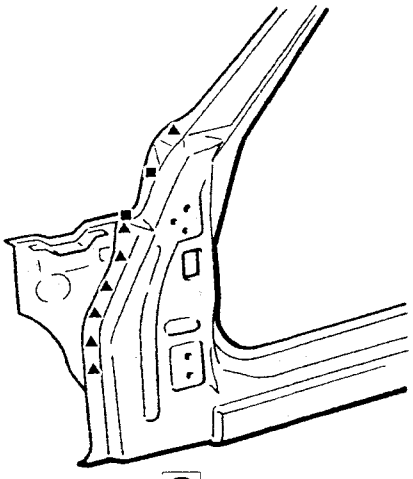
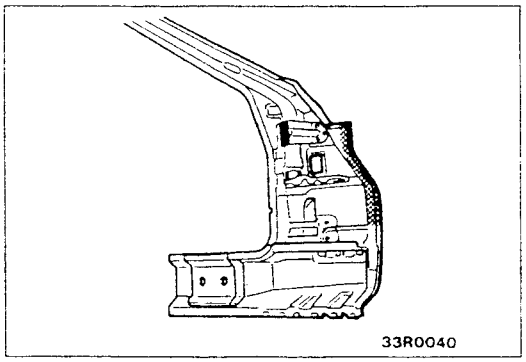
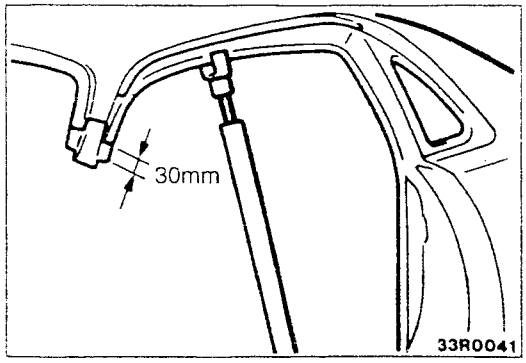


F (with front upper frame extension outer removed.)



G (Front pillar outer and front pillar inner assembled.) 33R0039





NOTES WITH REGARD TO REPAIR WORK

INSTALLATION

(1) When installing the front pillar outer and front pillar inner, apply sealant and adhesive to indicated area.

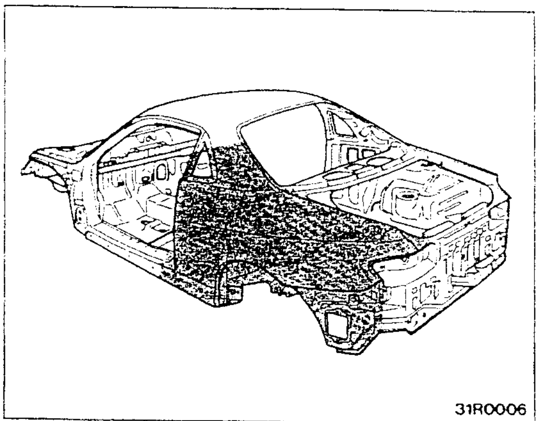
▒ : Sealant

■ : Adhesive

	Type	Brand
Adhesive	Epoxyresin adhesive	3M DP-420

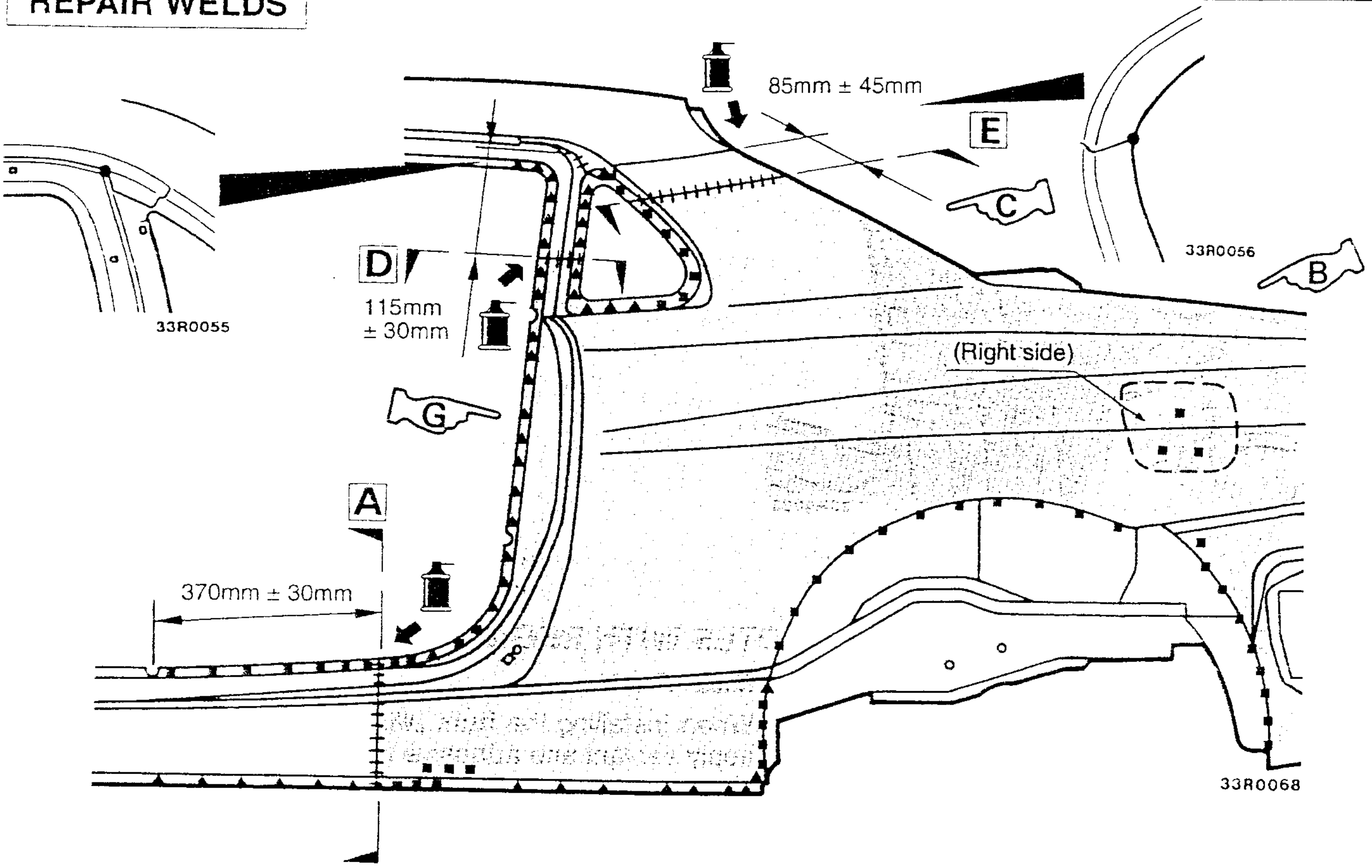
(2) Cut the front pillar outer panel 30 mm above the cut line of the inner panel to butt weld a new front pillar to the body. Then cut the new front pillar to correspond to it.

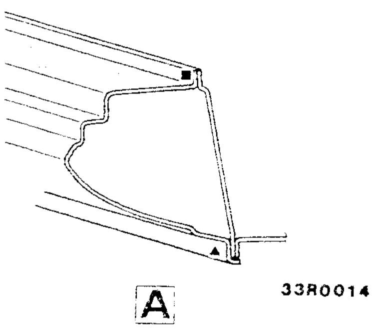
QUARTER OUTER

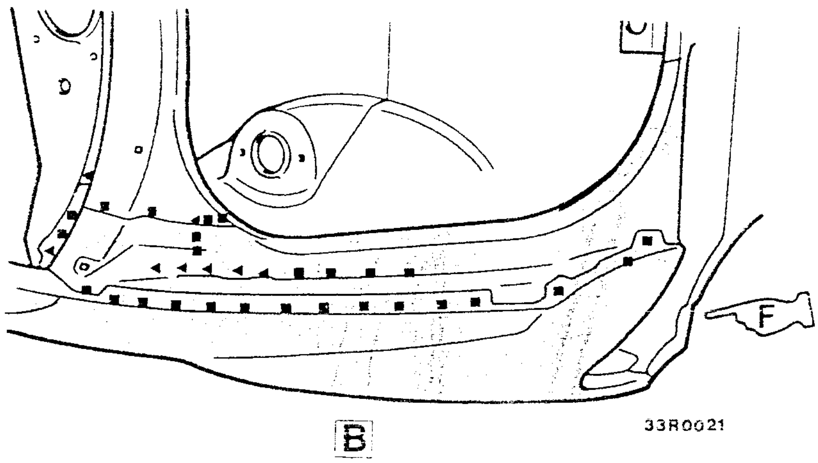


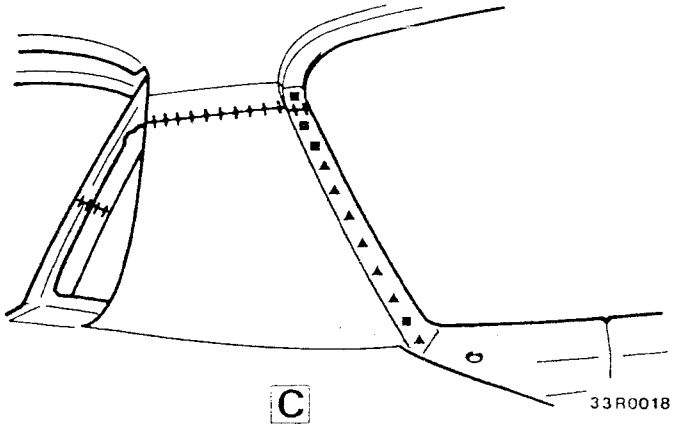
Symbol	Operation description
● ● ● ●	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
++++++++++	MIG arc welding (continuous)
oooooooooo	Braze welding
(anti-corrosion agent symbol)	Anti-corrosion agent application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

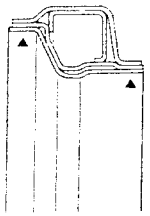
REPAIR WELDS

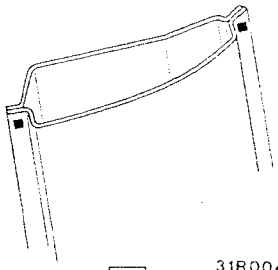







C
33R0018


31R0040
D


31R0047
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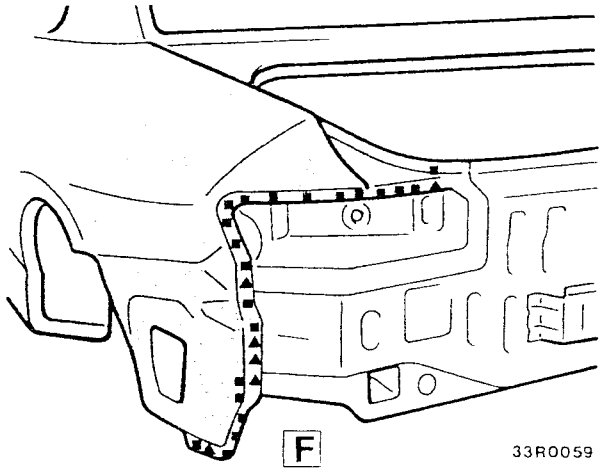
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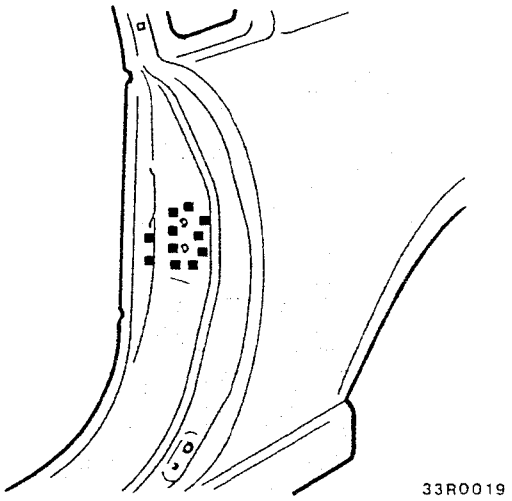
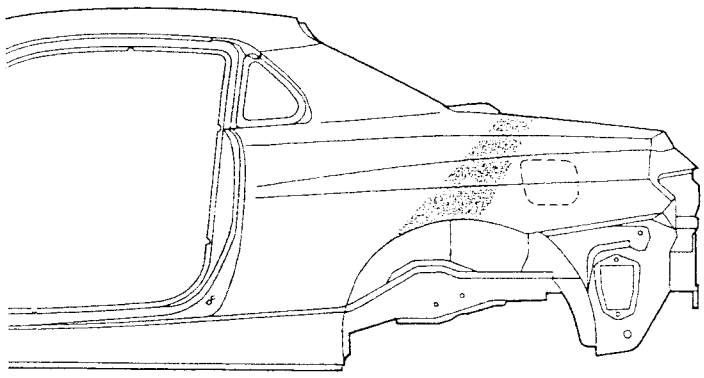
33R0059

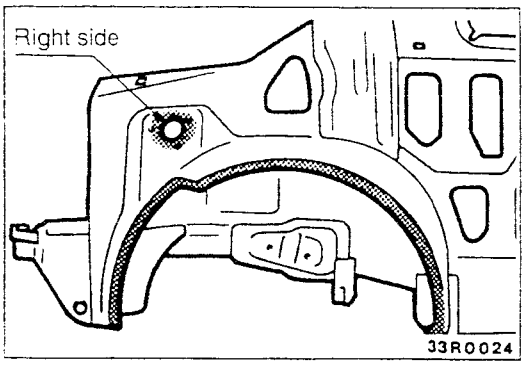

33R0019
G

NOTE: Depending on the size of the damaged area, parts can be replaced.


31R0004

: Area that can be cut

* Do not cut the fuel filler bracket (left side).



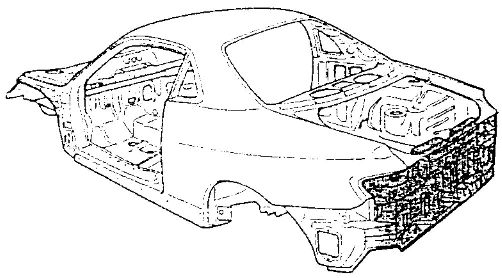
33R0024

NOTES WITH REGARD TO REPAIR WORK

INSTALLATION

(1) Apply body sealant to the shown position.

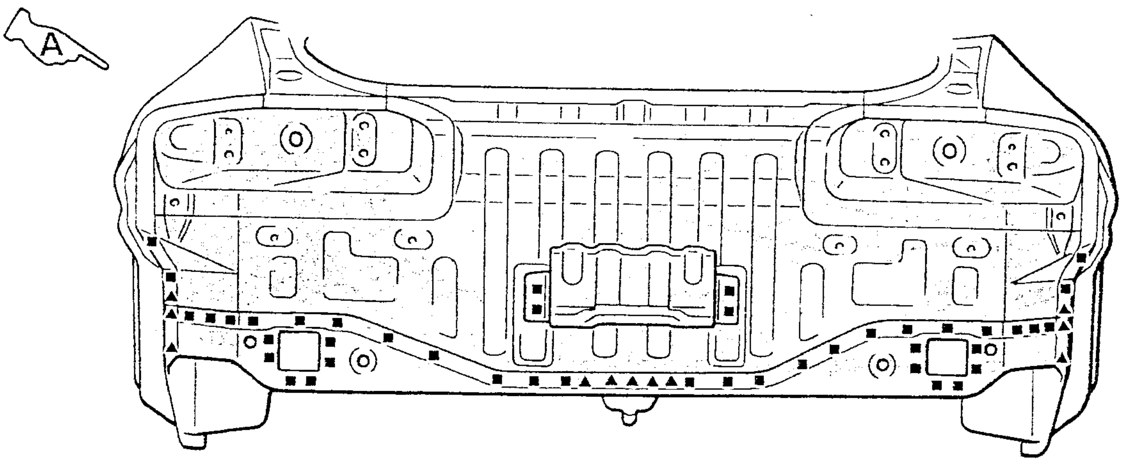
REAR END PANEL



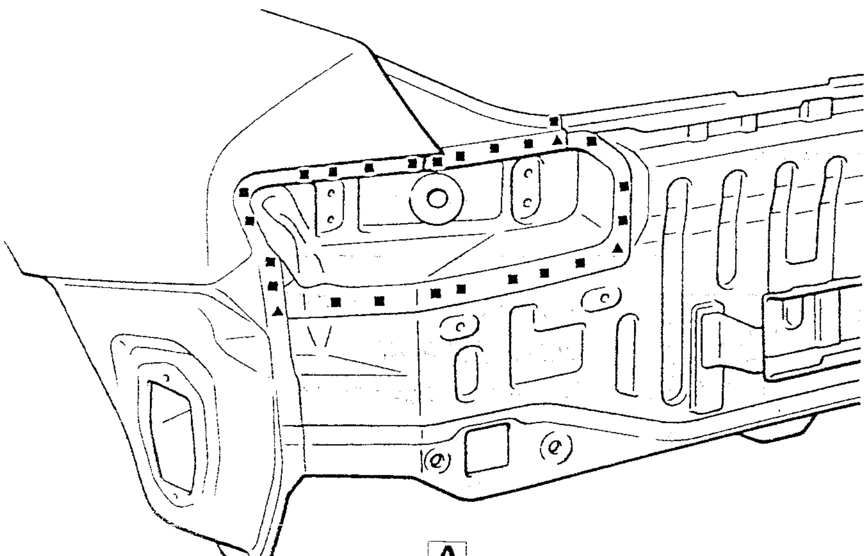
31R0006

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

REPAIR WELDS



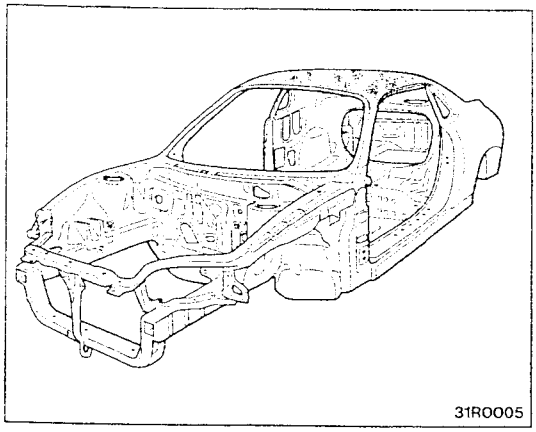
33R0005



A

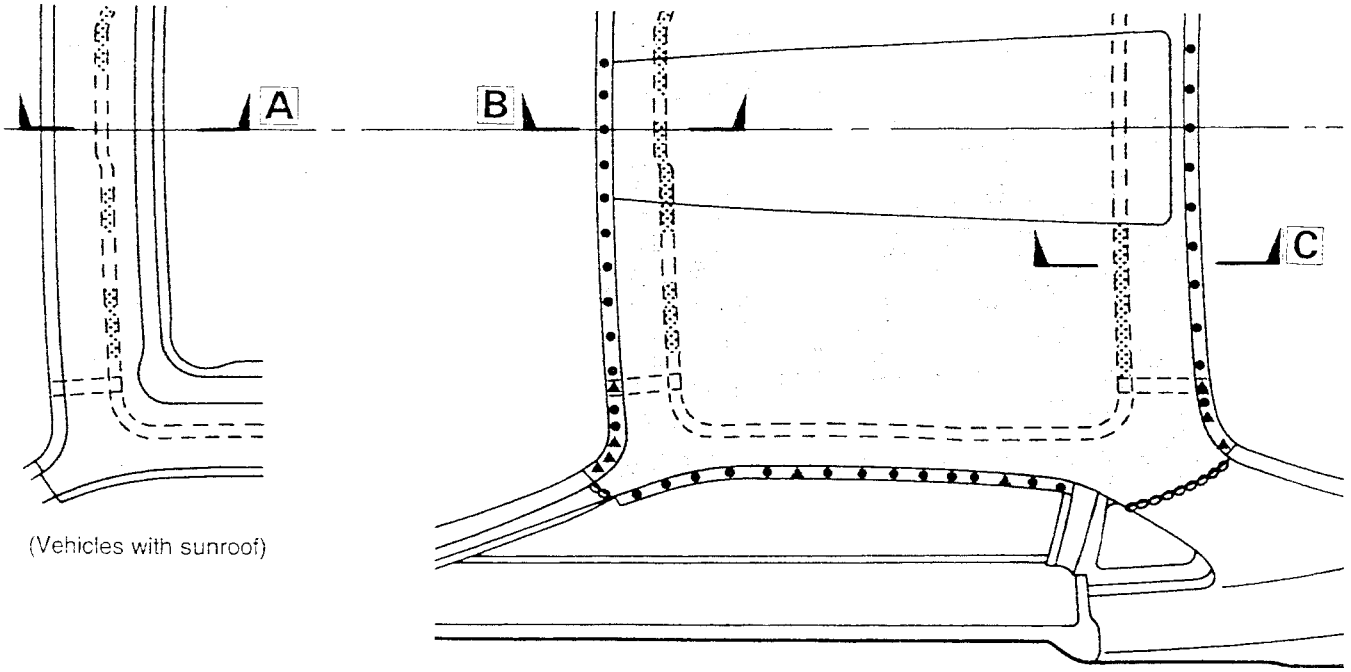
33R0006

ROOF

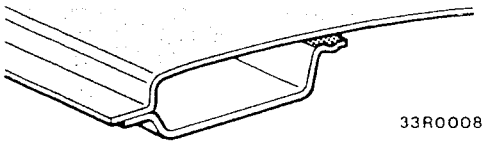


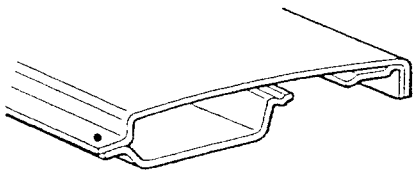
Symbol	Operation description
● ● ● ●	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
|||||||||||	MIG arc welding (continuous)
oooooooooo	Braze welding
	Anti-corrosion agent application locations (Use access holes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

REPAIR WELDS



(Vehicles with sunroof)





A

33RC054

(Vehicles with sunroof)

B

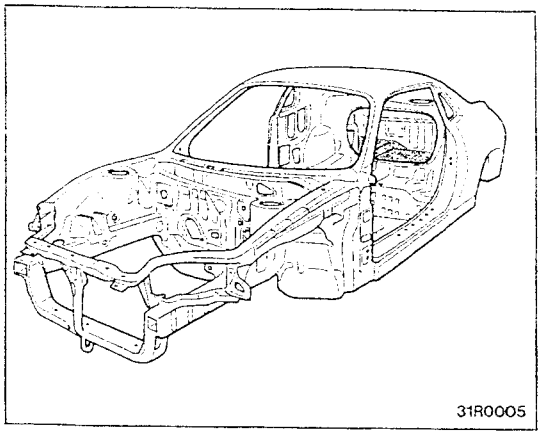
C

33R0009

▒▒ : Adhesive

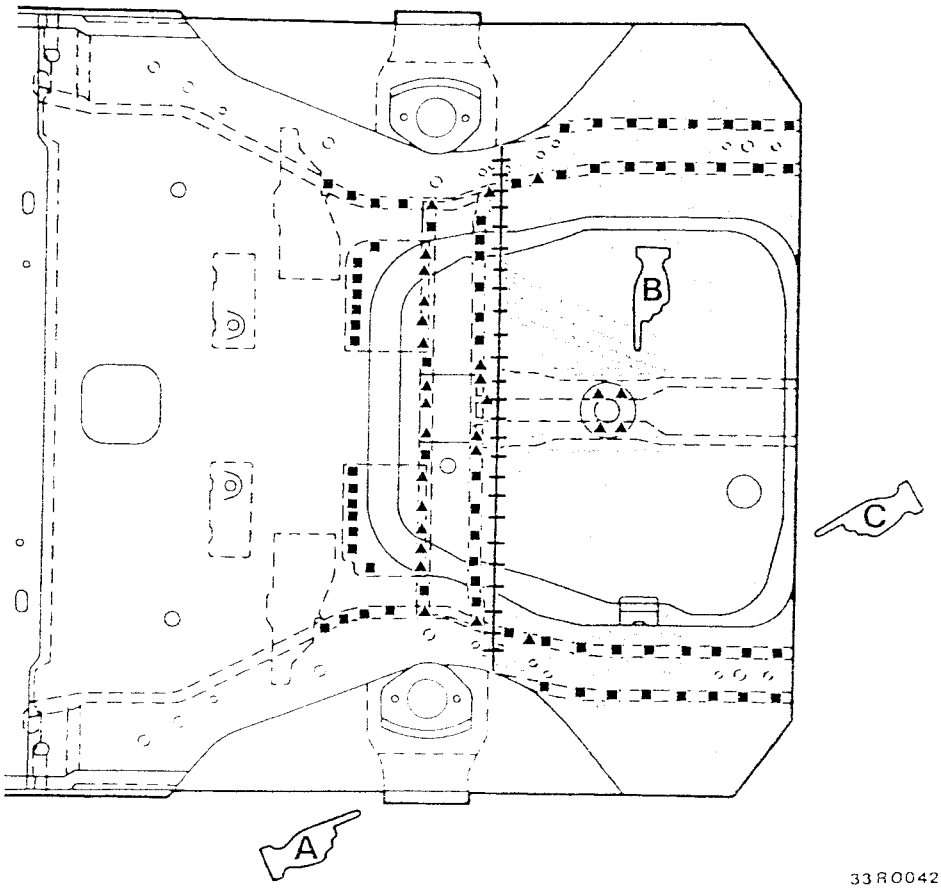
Adhesive	Type
	Chloroprene-base drying sealant

REAR FLOOR

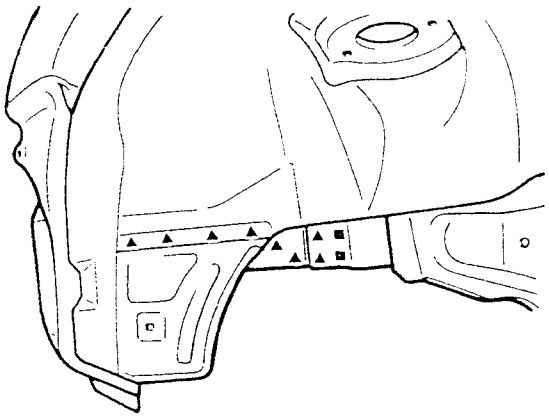


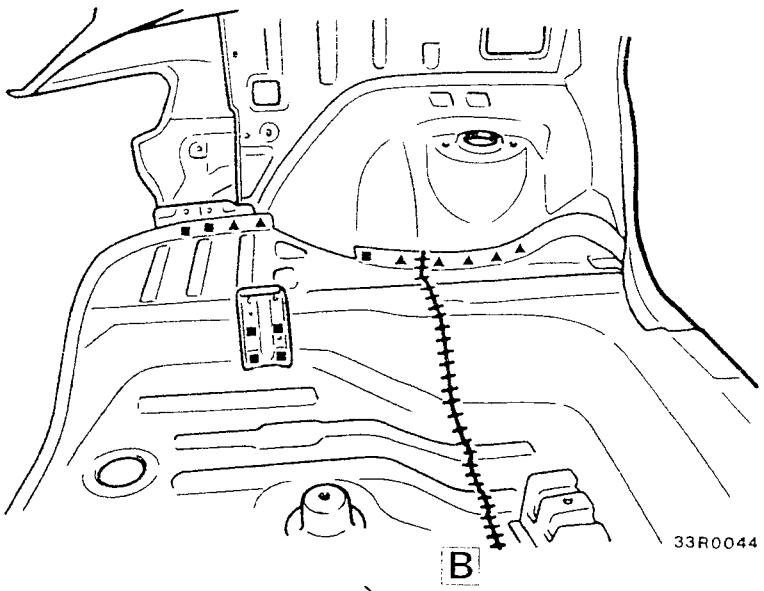
Symbol	Operation description
● ● ● ●	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
|||||||||||	MIG arc welding (continuous)
∞∞∞∞∞∞∞∞∞	Braze welding
	Anti-corrosion agent application locations (Use access holes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

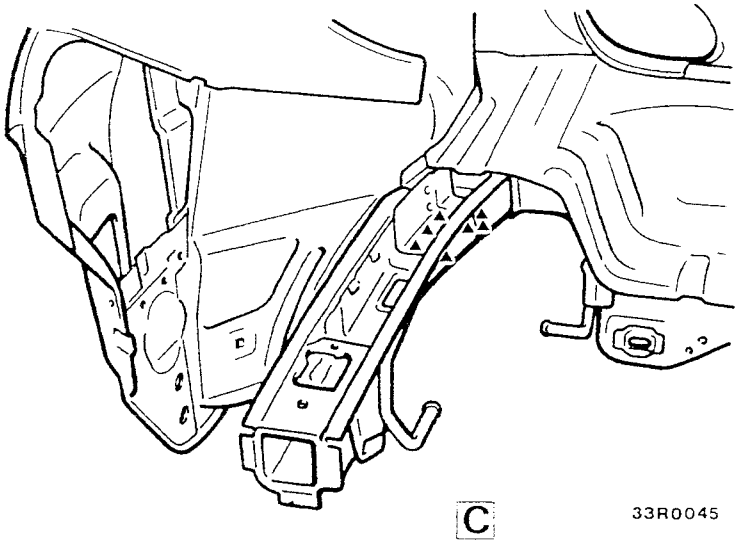
REPAIR WELDS

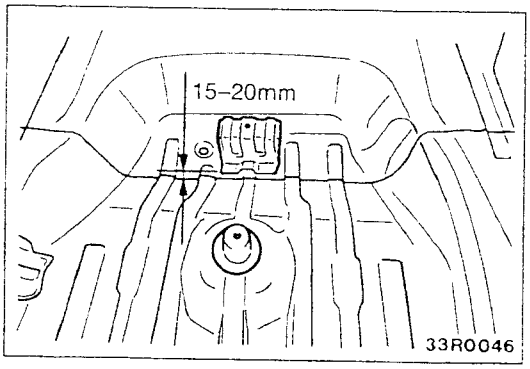


NOTE: Refer to page 3-10 for the rear end panel weld points.







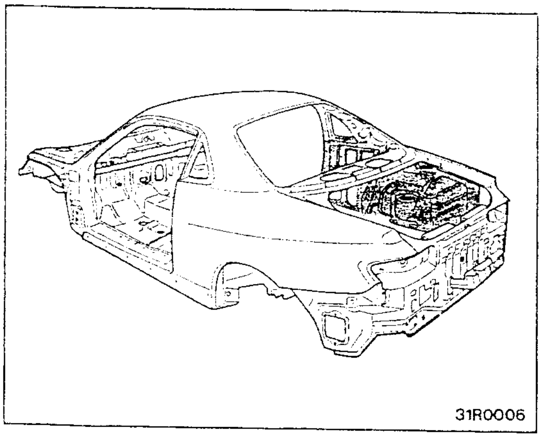


NOTES WITH REGARD TO REPAIR WORK

REMOVAL

Cut the rear floor pan 15 – 20 mm back from the spare tyre support bracket end.

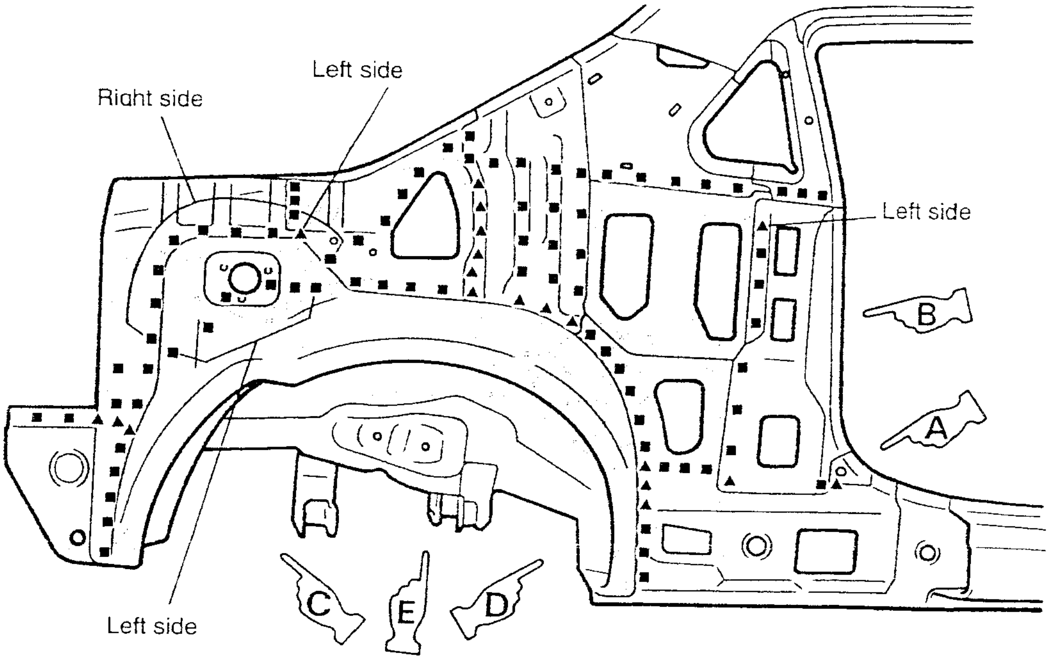
QUARTER INNER



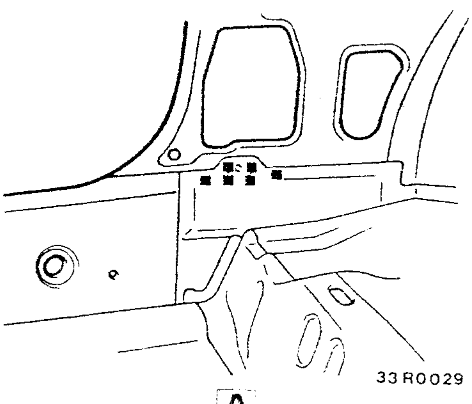
31R0006

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

REPAIR WELDS

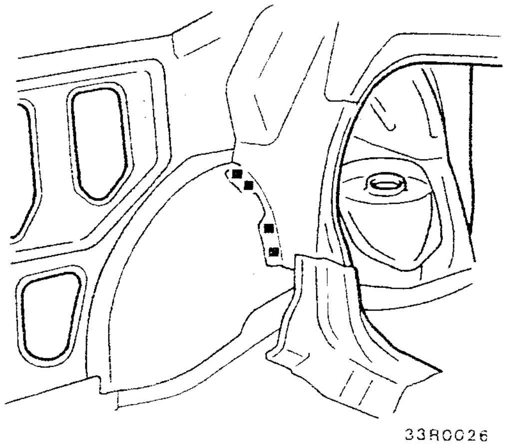


33R0025



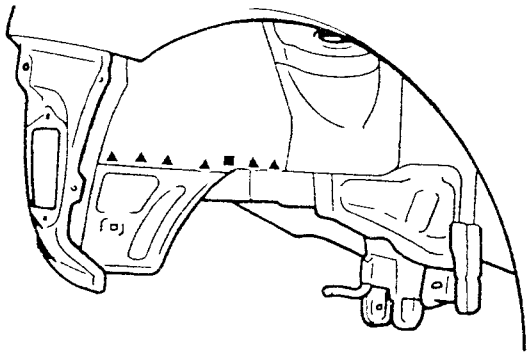
33R0029

A



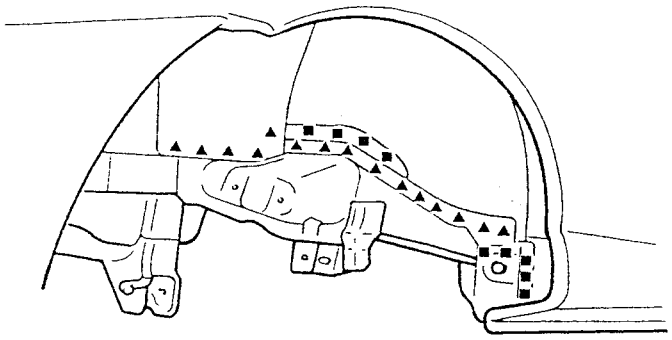
33R0026

B



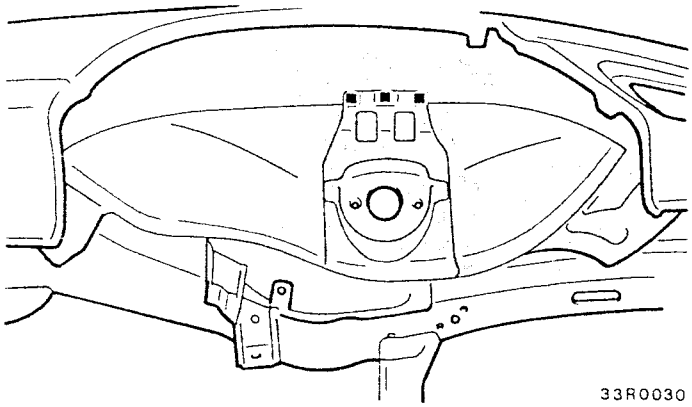
C

33R0028



D

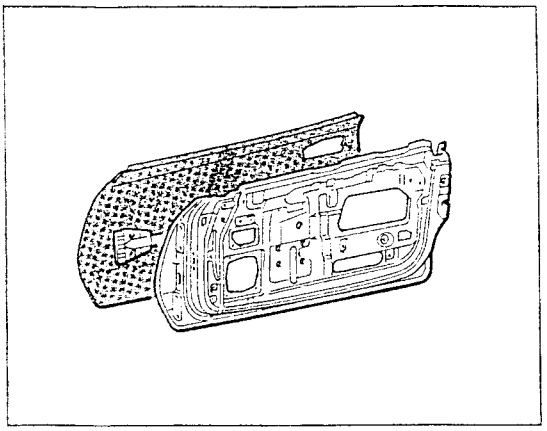
33R0027



33R0030

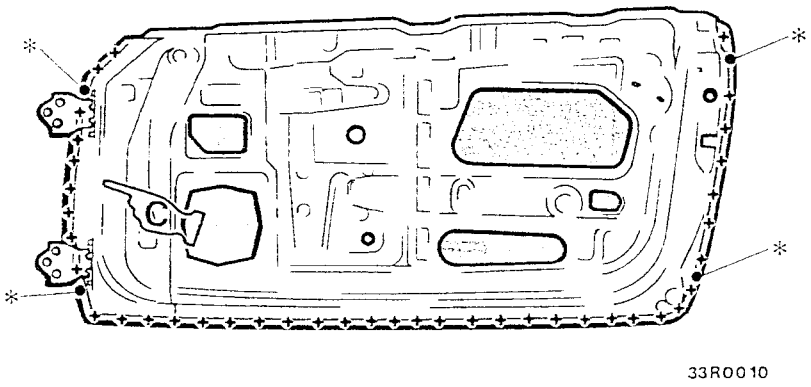
E

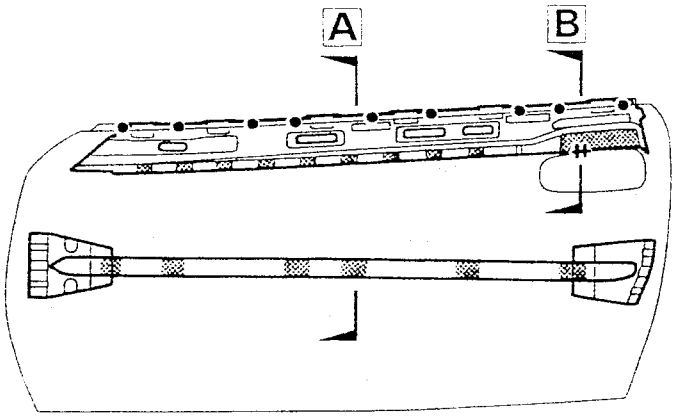
FRONT DOOR OUTER PANEL

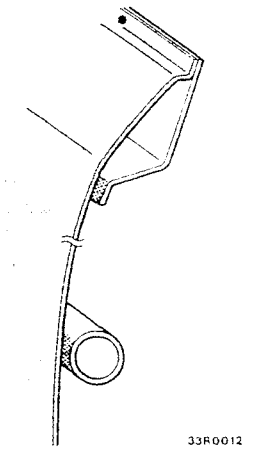


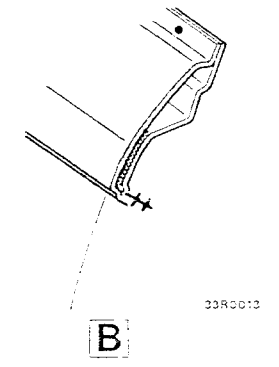
Symbol	Operation description
● ● ● ●	Spot welding
■ ■ ▲ ▲	MIG plug welding ■ indicates two panels to be welded ▲ indicates three panels to be welded
+ + + +	MIG spot welding
⫴⫴⫴⫴⫴⫴⫴⫴⫴⫴	MIG arc welding (continuous)
∞∞∞∞∞∞∞∞∞∞	Braze welding
	Anti-corrosion agent application locations (Use access holes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

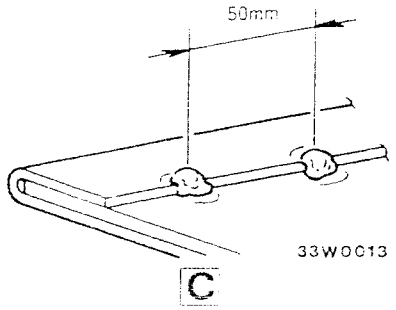
REPAIR WELDS











▒▒ : Adhesive

Adhesive	Type
	Chloroprene-base drying sealant

NOTE: (1) Weld point* indicates manufacturer's welding point. (Unnecessary at repair work)
(2) After hemming the front door outer panel, MIG spot weld the flange overlap section at a pitch of approximately 50 mm.

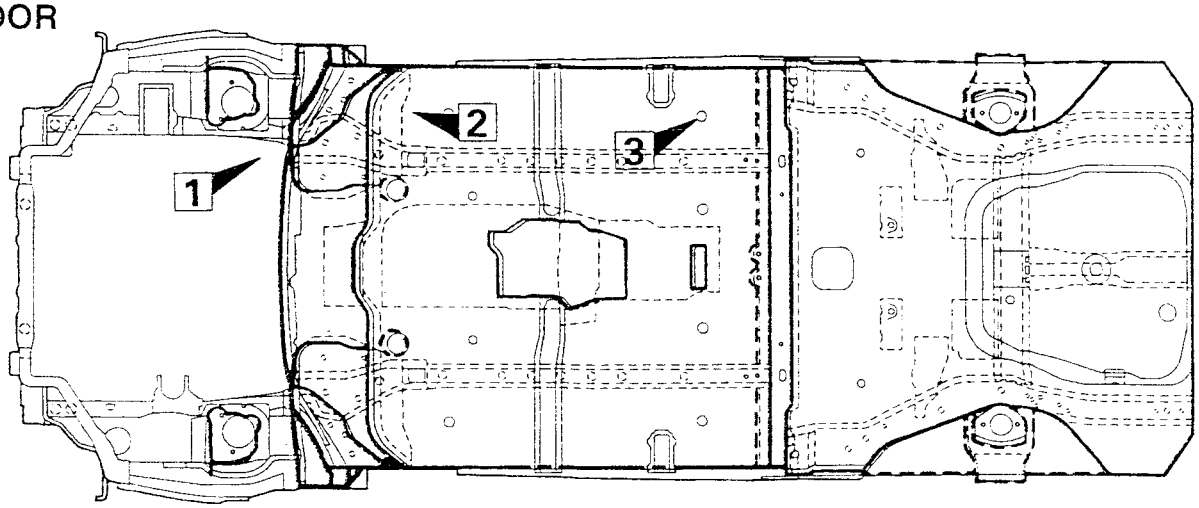
4 CORROSION PROTECTION

BODY SEALING LOCATIONS

NOTES WITH REGARD TO REPAIR WORK

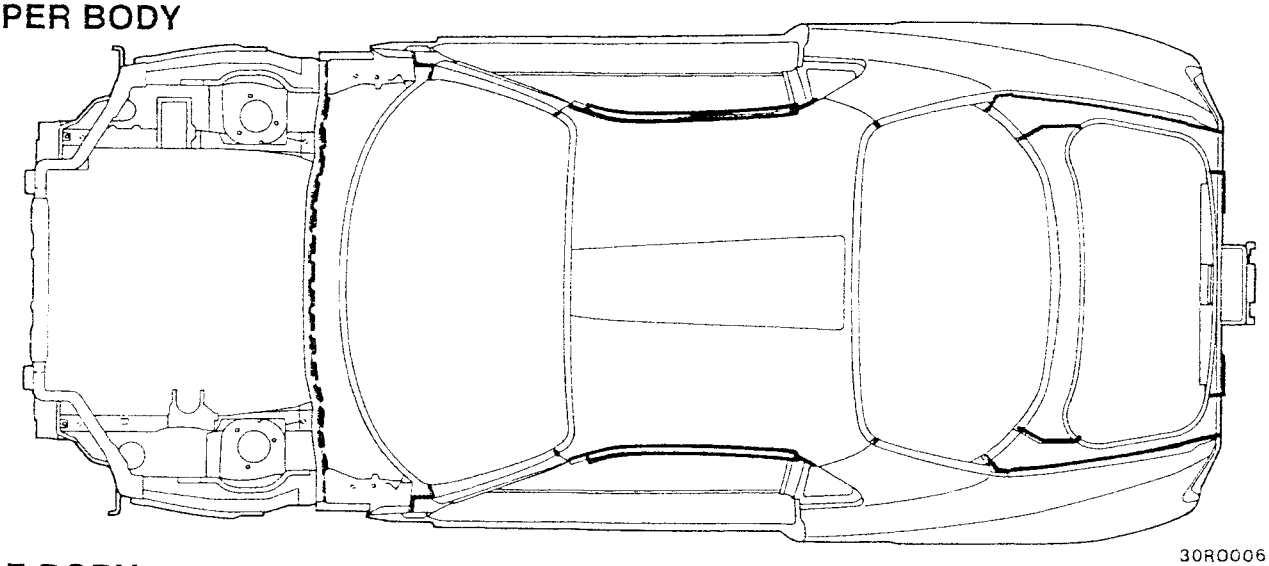
In places where the sealant can be directly seen on surfaces such as drip rails, pillars or clinch, and where the appearance of the paint surface is important, apply sealant or wipe away sealant after application to make the amount of sealant even. Be careful not to cover the drain hole.
Places indicated by thick dotted lines indicate application locations on the underside of the vehicle.

■ FLOOR



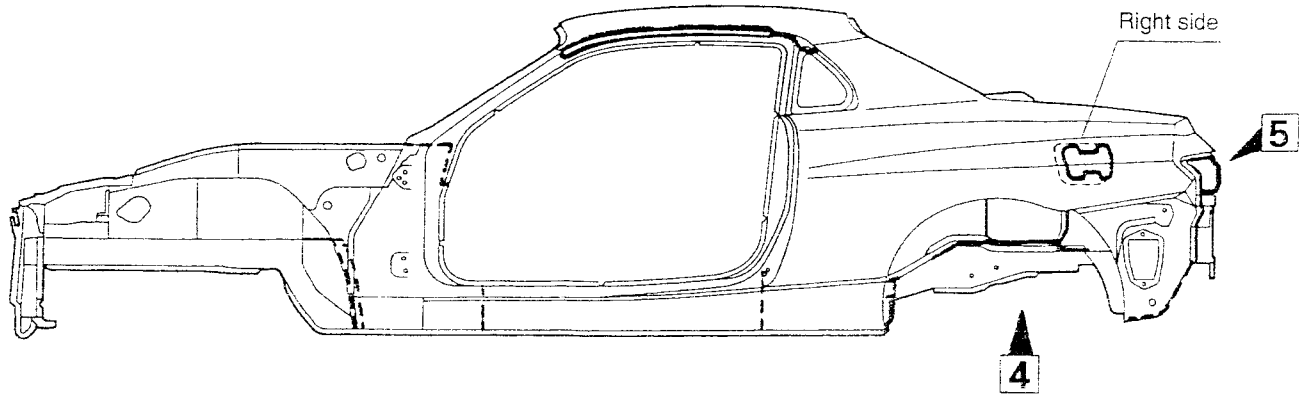
30R0008

■ UPPER BODY



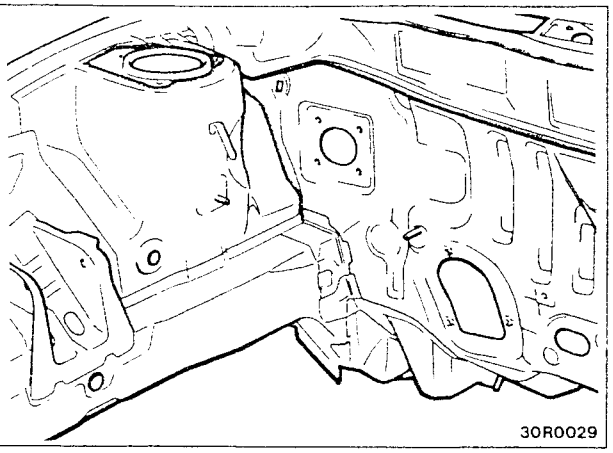
30R0006

■ SIDE BODY



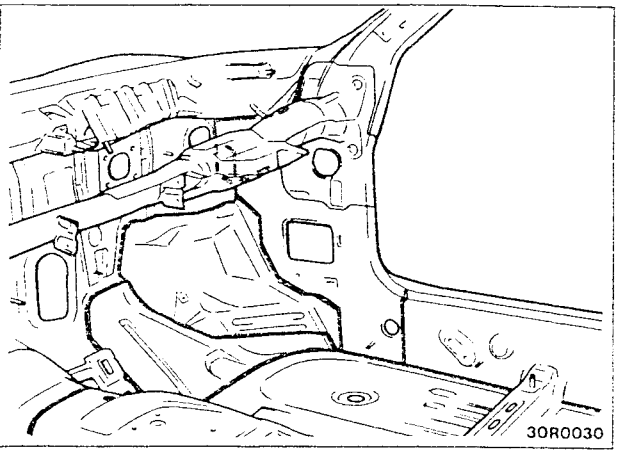
30R0007

1



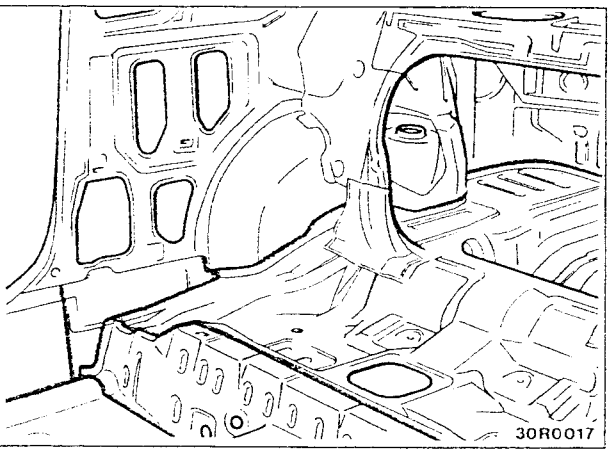
30R0029

2



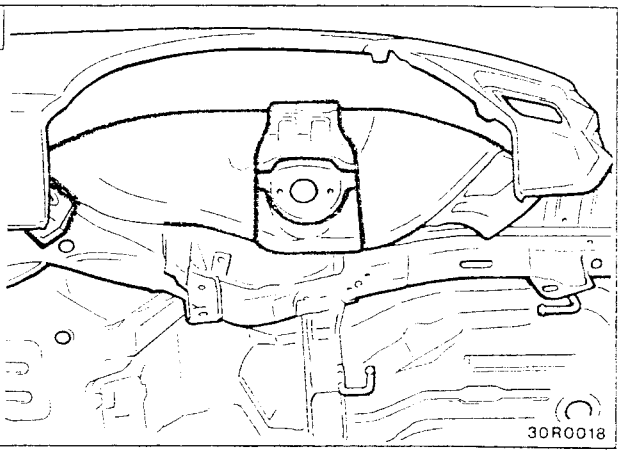
30R0030

3



30R0017

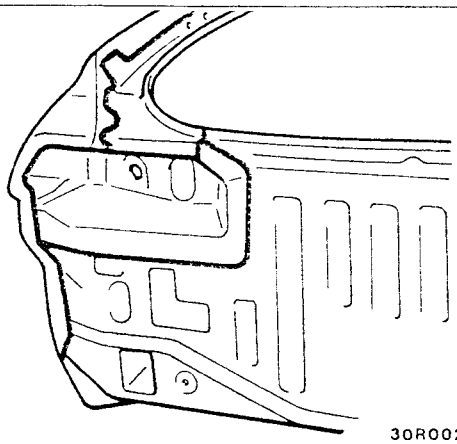
4



30R0018

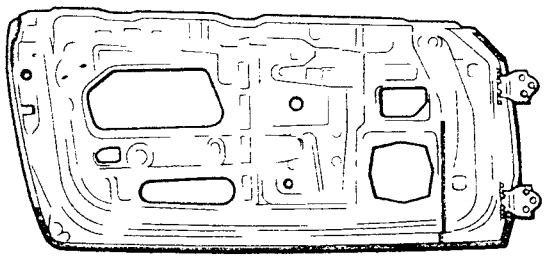
4

5



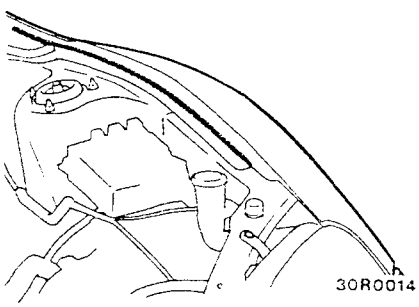
30R0023

Door



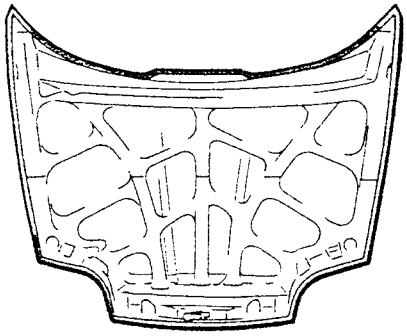
30R0027

Front fender



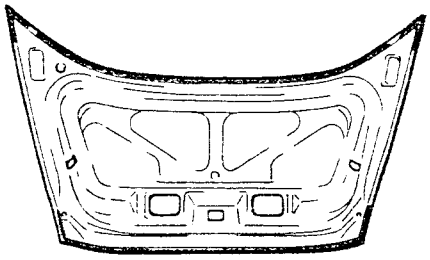
30R0014

Hood



30R0026

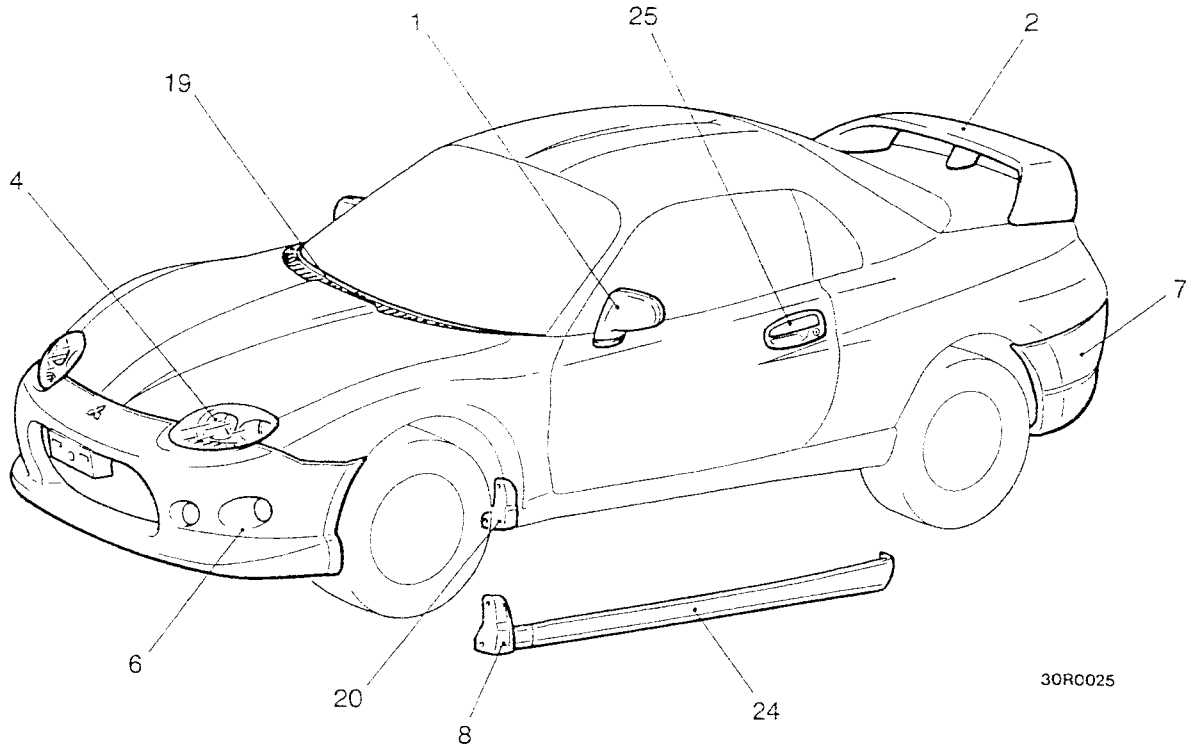
Trunk lid

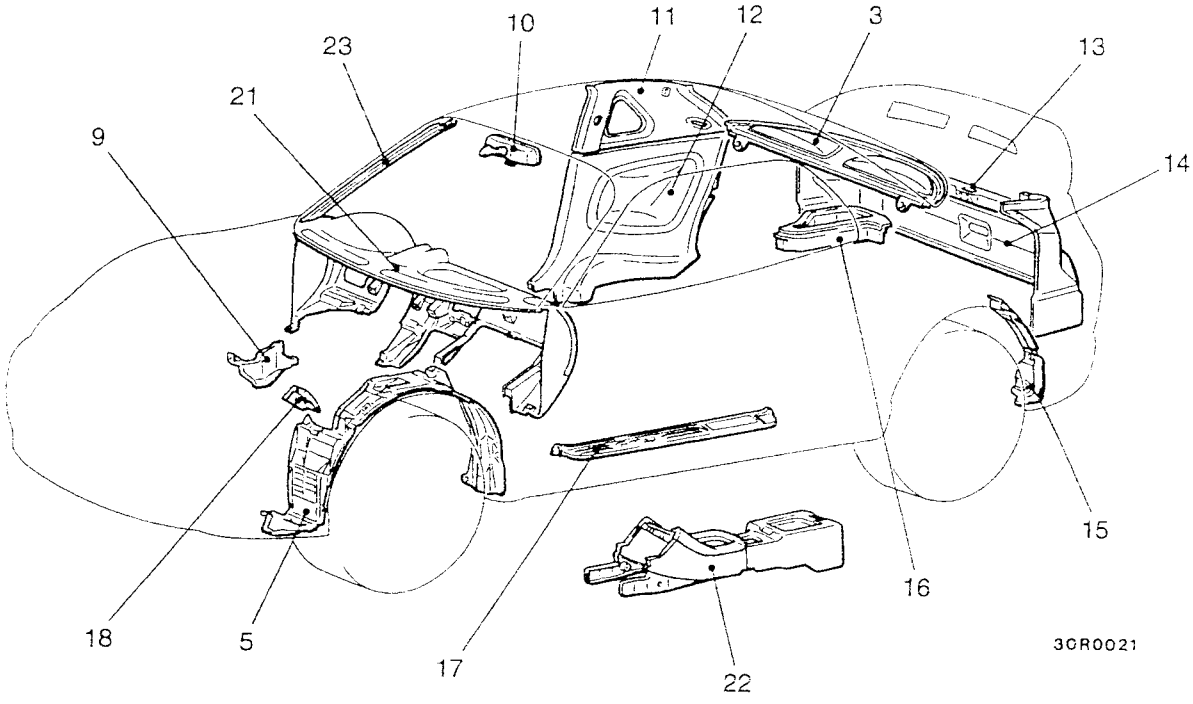


30R0028

5 SYNTHETIC-RESIN PARTS

LOCATION OF SYNTHETIC-RESIN PARTS



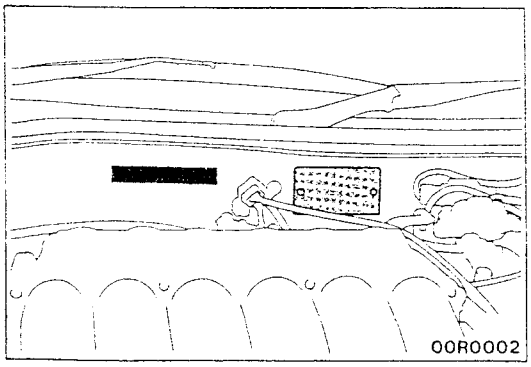


No.	Part name	Name of resin	Abbreviation	Heat-withstand. temp (°C)
1 2 3	Door mirror Air spoiler Rear shelf trim	Acrylonitrile butadiene styrene	ABS	75 – 105
4	Headlamp	Polycarbonate	PC	130
5	Splash shield	Polyethylene	PE	40 – 80
6 7 8 9 10 11 12 13 14 15 16 17 18	Front bumper face Rear bumper face Front side air dam Cowl side trim Inside rear view mirror Rear pillar trim Quarter trim, lower Rear end trim cover Trunk rear trim Rear splash shield Trunk side box Front scuff plate Footrest	Polypropylene	PP	60 – 100
19 20 21 22	Front deck garnish Stone guard Instrument panel Floor console	Talc filled polypropylene	PP-TD (PPF)	100 – 110
23	Front pillar trim	Talc filled polypropylene	PP-TD20 (PPF)	100 – 110
24	Rear side air dam	Thermoplastic elastomer (olefine-base)	TPO	80
25	Front door outside handle	Polycarbonate+ polybutylene telephtalate	PC+PET	115

NOTE:
(1) The indicated heat-resistance temperature for parts which are composed of two or more types or more materials is the value for the material with the lowest heat resistance temperature.
(2) If the new material symbols designated by the ISO differ from the old symbols, both are given, with the old symbol being enclosed in brackets. ISO: International Organization for Standalization
(3) The materials symbols for synthetic resin parts are embossed on the parts in hidden places.
(4) A slash (/) in the materials symbol indicates that two different materials make 2-layer construction. A plus sign (+) indicates that the two different materials mix each other.

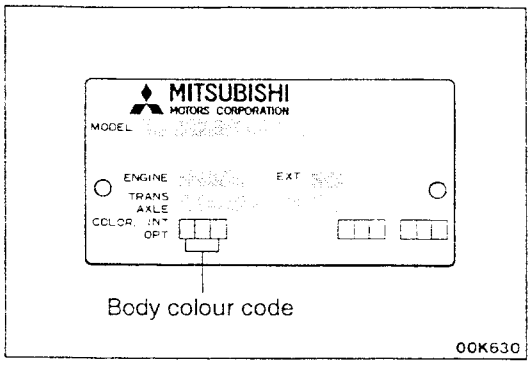
NOTES

6 BODY COLOUR



BODY COLOUR CODE

1. The body colour code is imprinted on the vehicle information code plate, which is mounted on the underside of the hood.



2. The information contained in the body colour code is explained in the body colour charts.

BODY COLOUR CHARTS

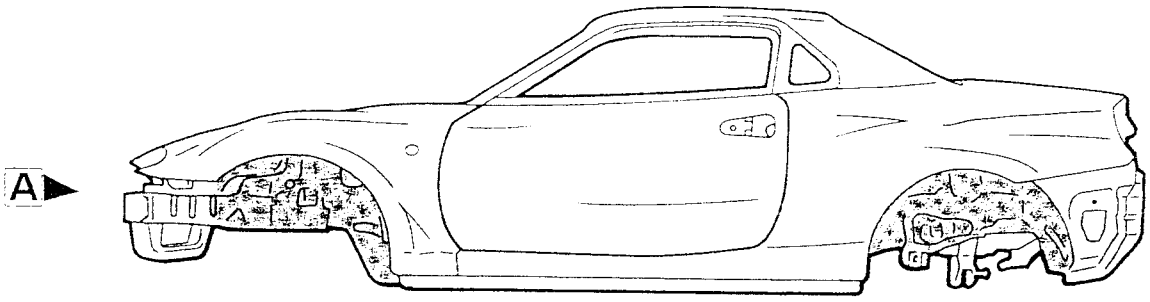
Check the vehicle's body colour code and then use this body colour chart to determine the refinishing paint supplier from which the colour can be purchased.

Paint used by manufacturer	Colour	Body colour code	Colour number	Body colour name	Composition of film	Engine compartment and luggage compartment colour	
						Colour Number	Colour
	SILVER	A26	AC11126	Symphonic Silver	Metallic	AC11235	LIGHT GRAY
	DARK BLUE	T73	AC11173	Ijssel Blue	Interference Pearl	AC11194	DARK BLUE
	DARK GREEN	G13	AC11213	Timber Green	Interference Pearl	AC11255	GREEN
	BLACK	X08	AC11008	Pyreness Black	Coloured Pearl	AC10903	BLACK
	WHITE	W83	AC10983	Scotia White	Solid	AC10863	WHITE
	RED	R71	AC11071	Passion Red	Solid	AC10795	RED

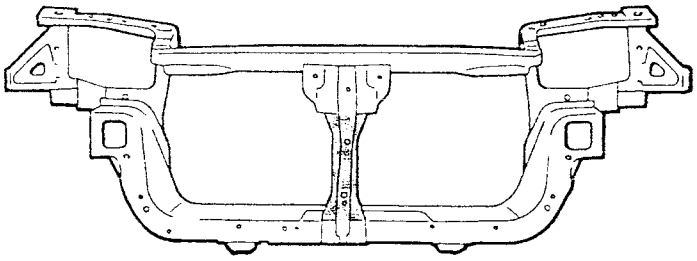
BODY COLOURING

BLACK COLOURING

(Except for Pyrenees Black AC11008)



31R0007



32R0001

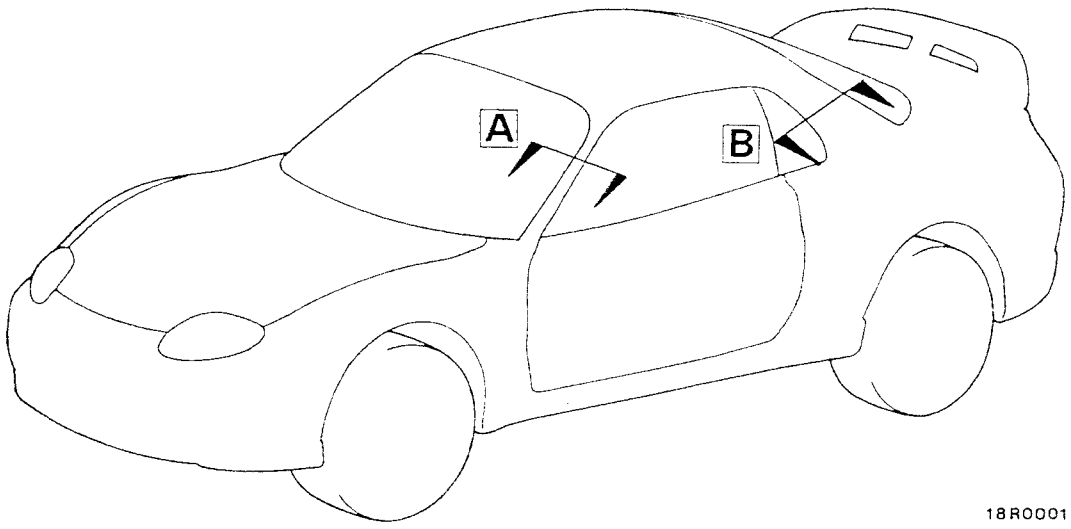
: AC10657 (Black)

NOTES

7 WIRING AND PIPING DIAGRAM

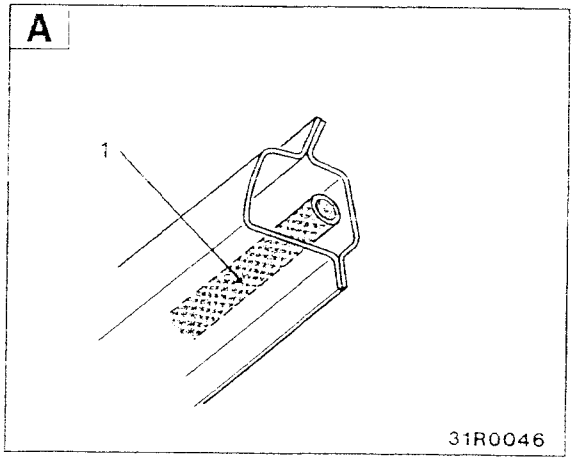
WIRING AND PIPING DIAGRAM

There are hoses routed through closed-section structures in some areas of the body; before cutting a panel in any these areas, be sure to remove the hoses.

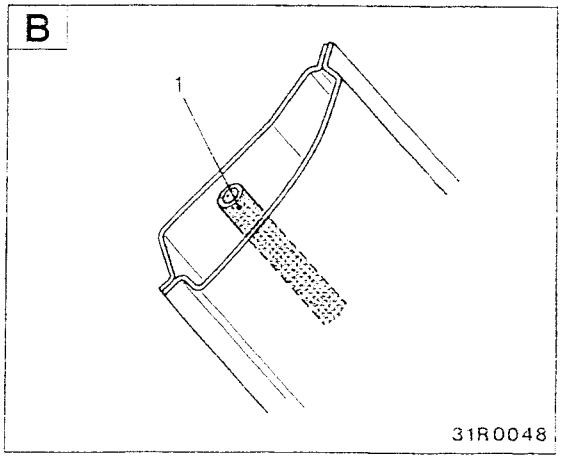


18R0001

1. Drain hose (vehicles with sunroof)

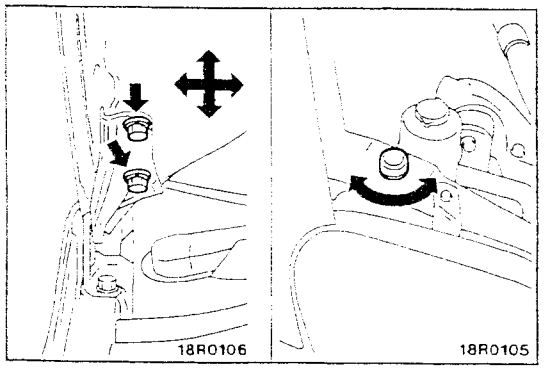


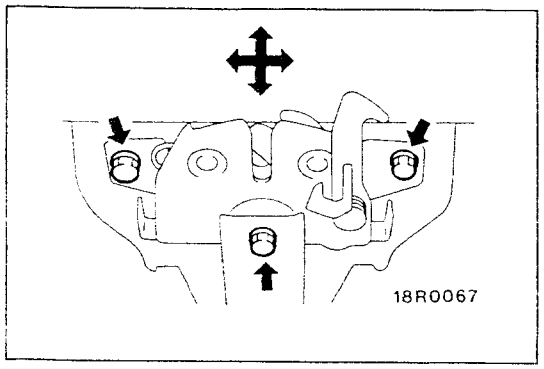
31R0046



31R0048

8 REFERENCE MATERIAL





BOLTED PANEL FIT AND ADJUSTMENT

HOOD

HOOD FIT ADJUSTMENT

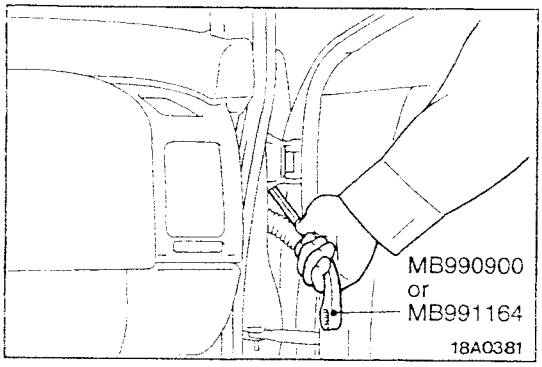
(1) If the clearance between the hood and body is not uniform, loosen the hood mounting bolts and move the hood to adjust so that the clearance around the hood is uniform.

Hood mounting bolt tightening torque: 12 Nm

(2) Turn the hood bumpers either left or right to adjust the height of the hood.

(3) If the step, floating, locking and unlocking of the hood are heavy, check the condition of the release cable, and then loosen the hood latch mounting bolt and adjust the meshing with the hood striker.

Hood latch mounting bolt tightening torque: 9.0 Nm



DOOR

DOOR FIT ADJUSTMENT

(1) If the clearance between the door and body is not uniform, attach the protection tape to the fender around the hinge installation position and door edge. Then use the special tool to loosen the door hinge mounting bolts at the body side, and move the door to adjust so that the clearance around the door is uniform.

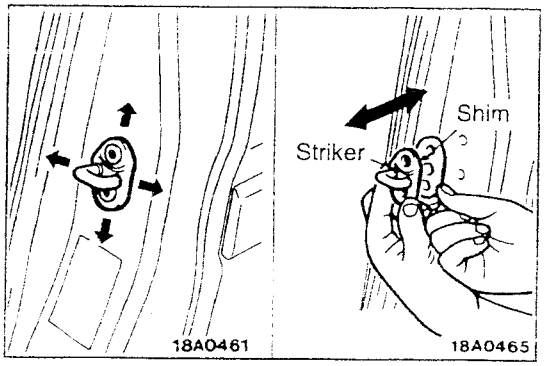
Door hinge mounting bolt tightening torque: 26 Nm

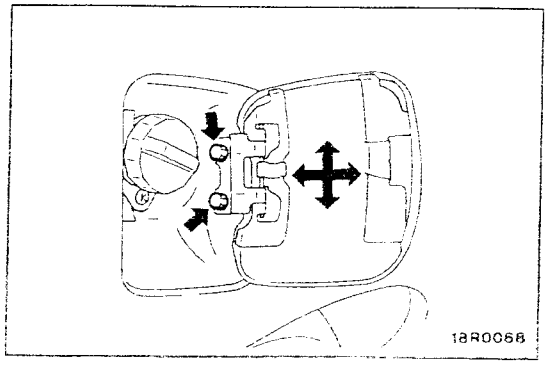
(2) If there is a stepped section on the door and body, remove the door check spring pin, and use the special tool to loosen the door hinge mounting bolts on the door side. Remove the door to adjust the door fit.

Caution
Do not apply the force of 98 Nm or more to the special tool (MB991164).

(3) If the door opening and closing is heavy, adjust the meshing between the striker and the door latch (forward-back direction) with the striker mounting shims and by moving the striker up and down and to the left and right.

Striker mounting bolt tightening torque: 22 Nm

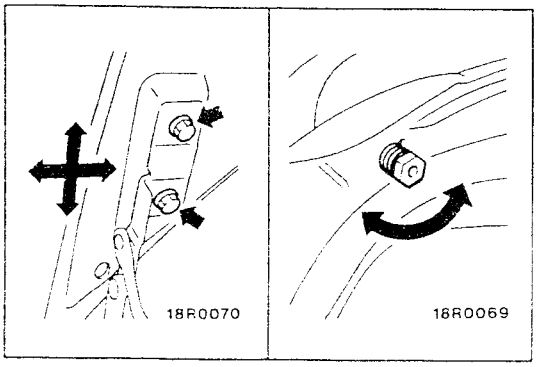




FUEL FILLER DOOR

FUEL FILLER DOOR FIT ADJUSTMENT

Loosen the fuel filler door mounting screws and adjust the fuel filler door so that the clearance around the fuel filler door is even without any height difference.



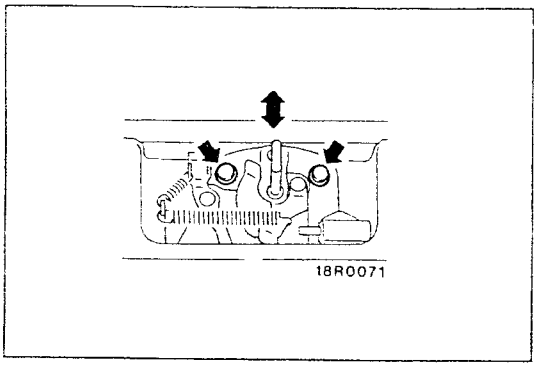
TRUNK LID

TRUNK LID FIT ADJUSTMENT

(1) If the clearance between the trunk lid and the body is not uniform, loosen the trunk lid mounting bolts and move the trunk lid to adjust so that the clearance around the trunk lid is uniform.

Trunk lid mounting bolt tightening torque: 12 Nm

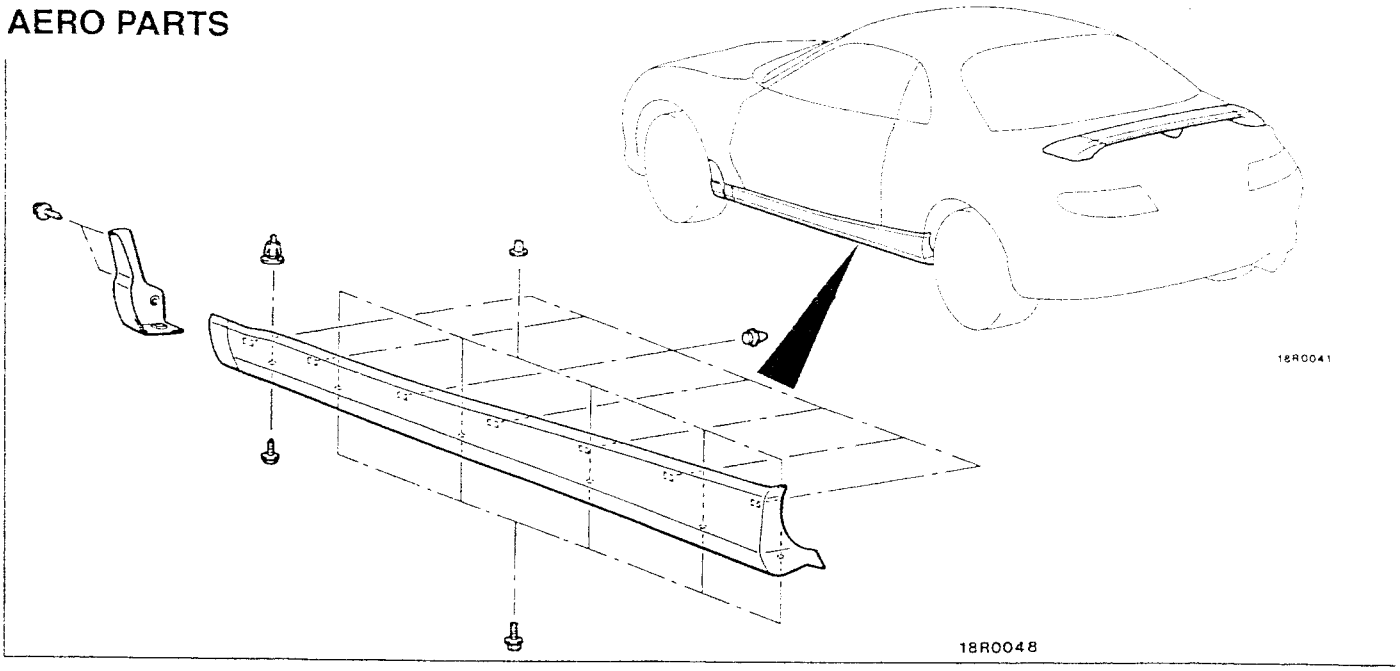
(2) Turn the trunk lid bumper to adjust the step of the trunk lid.

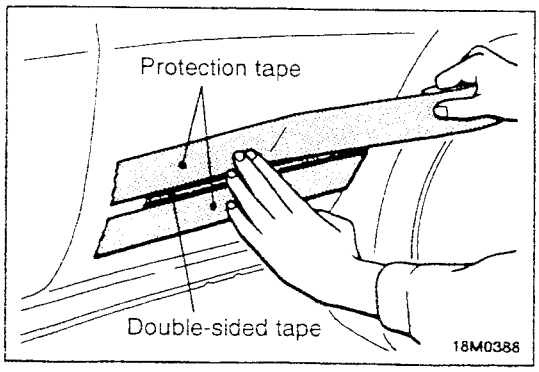


(3) If the floating, locking and unlocking of the trunk lid are heavy, check the condition of the release cable, and then loosen the trunk lid latch mounting bolts and move the trunk lid striker to adjust the meshing with the trunk lid latch.

INSTALLATION AND REMOVAL OF ADHESIVE COMPONENTS

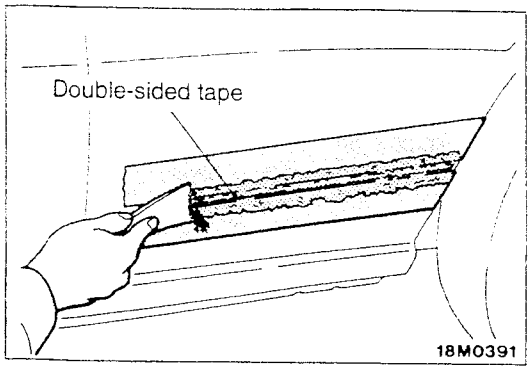
AERO PARTS



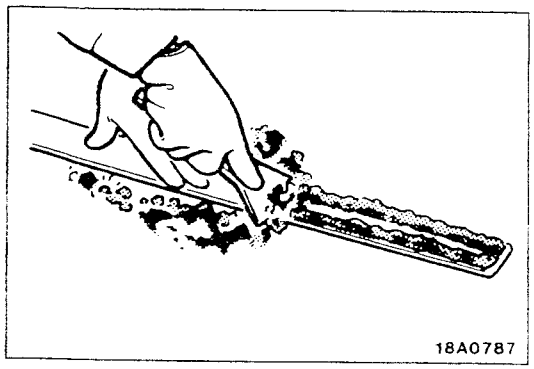


REMOVAL

1. Attach protection tape all the way along the edges of the double-sided tape which is still adhering to the body.



2. Use a resin spatula to scrape off the double-sided tape.
3. Peel off the protection tape.
4. Wipe the body surface and clean it with a rag moistened with isopropyl alcohol.

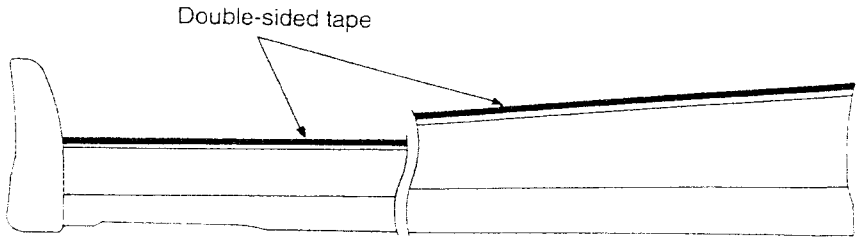


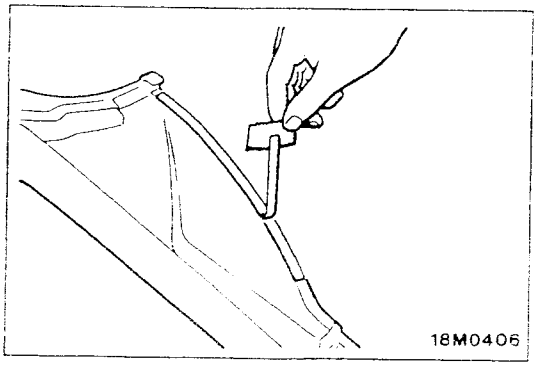
INSTALLATION

Double-sided tape affixing to the side protect moulding (when reusing)

1. Scrape off the double-sided tape with resin spatula or gasket scraper.
2. Wipe the side protector moulding adhesion surface and clean it with a rag moistened with isopropyl alcohol.
3. Affix specified pressure sensitive double-sided tape to the side protector moulding.

Specified adhesive tape: Double-sided tape <5 mm width and 1.2 mm thickness>





4. Remove strip paper from the pressure sensitive double-sided tape.

   NOTE
   Affix double-sided tape to the end of strip paper for ease of strip paper removal.

5. Install the side protector moulding.

   NOTE
   If it is hard to affix the pressure sensitive double-sided tape in winter, heat the application surface of the body and the adhesive surface of the side protector moulding before affixing the tape.

   Body .....40 – 60°C
   Side protect moulding .....20 – 30°C

   Apply pressure fully to the side protector moulding.

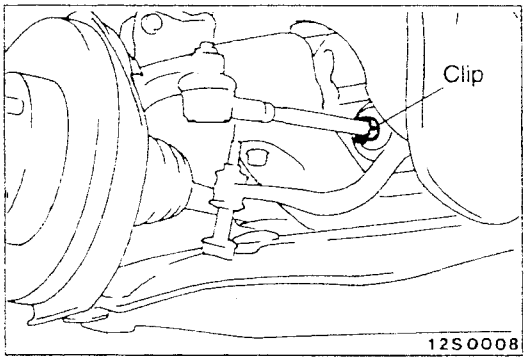
ADJUSTMENT OF OTHER PARTS

FRONT WHEEL ALIGNMENT

Measure the wheel alignment with the vehicle parked on a level surface.
The front suspension, steering system, and wheels should be serviced to normal condition prior to measurement of wheel alignment.

TOE-IN

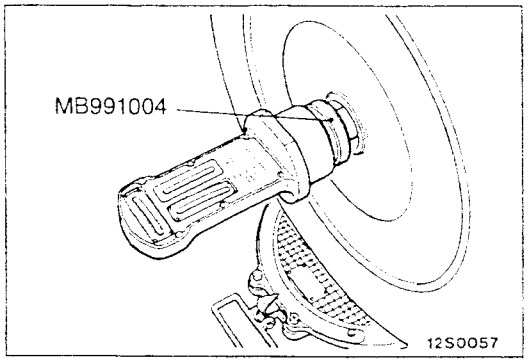
Standard value:
At the centre of tyre tread 0 ± 3 mm
Toe angle (per wheel) 0°00' ± 08'



(1) If the toe-in is not within the standard value, adjust the toe-in by undoing the clips and turning the left and right tie rod turnbuckles by the same amount (in opposite directions).

NOTE
The toe will move out as the left turnbuckle is turned toward the front of the vehicle and the right turnbuckle is turned toward the rear of the vehicle.

(2) Use a turning radius gauge to check that the steering angle is at the standard value.



CAMBER, CASTER AND KINGPIN INCLINATION

Standard value:
Camber
0°00' ± 30' (The difference between the left and right wheels should be 30' or less)
Caster
2°48' ± 30' (The difference between the left and right wheels should be 30' or less)
Kingpin inclination 12°52'

NOTE
1. Camber and caster are preset at the factory and cannot be adjusted.
2. If camber is not within the standard value, check and replace bent or damaged parts.
3. For vehicles with aluminium type wheels, attach the camber/caster/kingpin gauge to the drive shaft by using the special tool. Tighten the special tool to the same torque 200 – 250 Nm as the drive shaft nut.

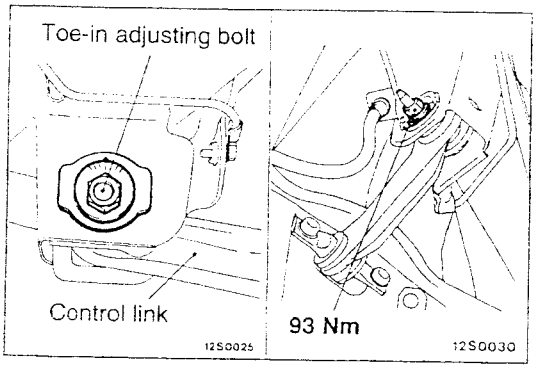
Caution
Never subject the wheel bearings to the vehicle load when the drive shaft nuts are loosened.

REAR WHEEL ALIGNMENT

Measure the wheel alignment with the vehicle parked on level ground.
The rear suspension and wheels should be serviced to the normal condition prior to measurement of wheel alignment.

TOE-IN

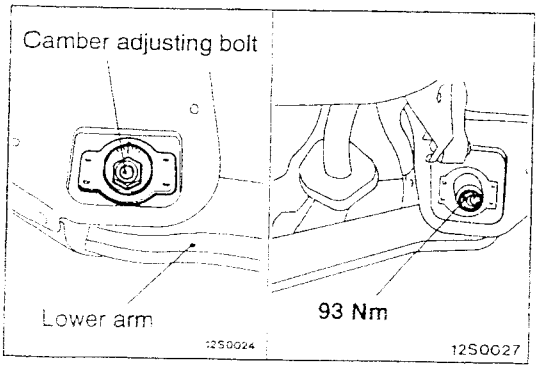
Standard value:
At the centre of tyre tread 3 ± 2 mm
Toe angle (per wheel) 0°08' ± 05'



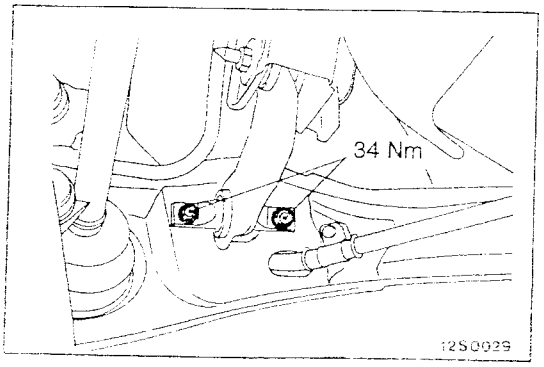
If outside the standard value, adjust by the following procedure.
(1) Be sure to adjust the camber before adjusting the toe-in.
(2) Adjust by turning the toe adjusting bolt (mounting bolt on the inside of the control link).
LH: Turning clockwise → toe-in direction
RH: Turning clockwise → toe-out direction
The scale has gradations of approximately 2.6 mm (single side toe angle equivalent to 16').

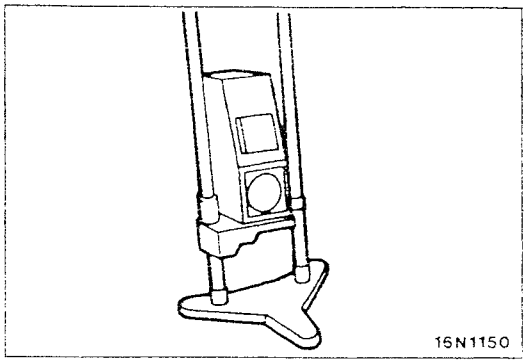
CAMBER

Standard value:
–1°00' ±.30' (The difference between the left and right wheels should be 30' or less.)



If outside the standard value, adjust by the following procedure.
(1) Remove the connection between the control link and the trailing arm.
(2) Adjust by turning the camber adjusting bolt (mounting bolt for the lower arm and rear crossmember).
Left wheel: clockwise + camber
Right wheel: clockwise – camber
The scale has gradations of approximately 14'
(3) Tighten the control link to the trailing arm at the specified torque.
(4) After adjusting the camber, be sure to adjust the toe-in.



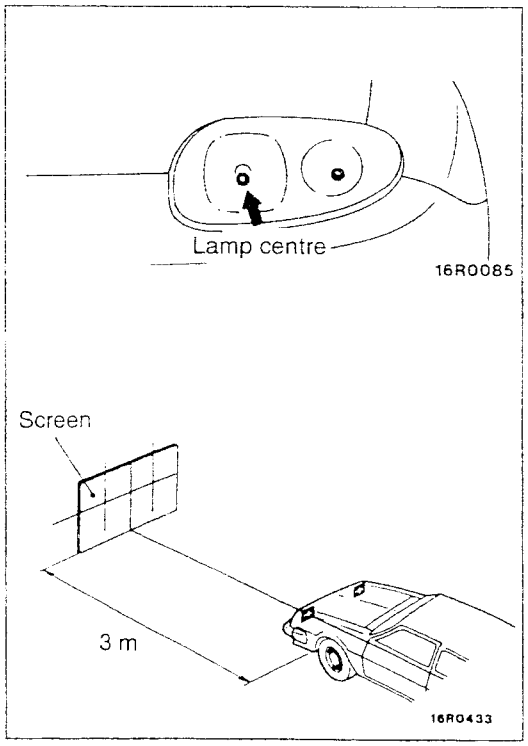


HEADLAMP AIMING

<USING A BEAMSETTING EQUIPMENT>

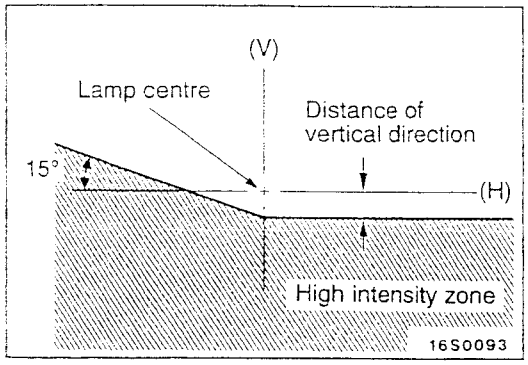
1. The headlamps should be aimed with the proper beamsetting equipment, and in accordance with the equipment manufacture's instructions.

   NOTE
   If there are any regulations pertinent to the aiming of headlamps in the area where the vehicle is to be used, adjust so as to meet those requirements.
2. Alternately turn the adjusting screw to adjust the headlamp aiming.
3. With the engine running at 2,000 r/min, aim the headlamp.



<USING A SCREEN>

1. Inflate the tyres to the specified pressures and there should be no other load in the vehicles other than driver or substituted weight of approximately 75 kg placed in driver's position.
2. Set the distance between the screen and the centre marks of the headlamps as shown in the illustration.



3. Check if the beam shining onto the screen is at the standard value.

Standard value:

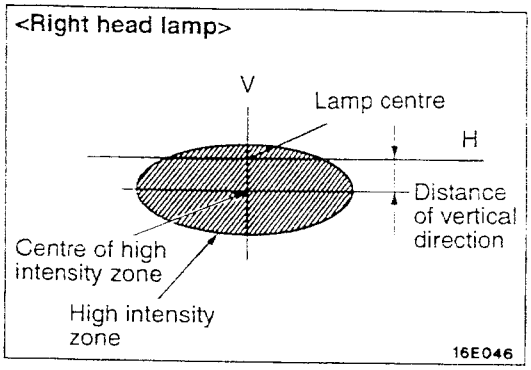
<For lower beam adjustment>

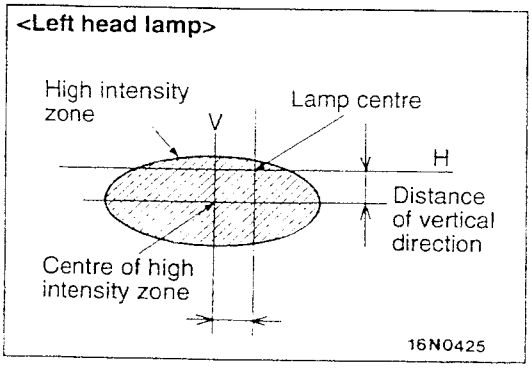
(Vertical direction)

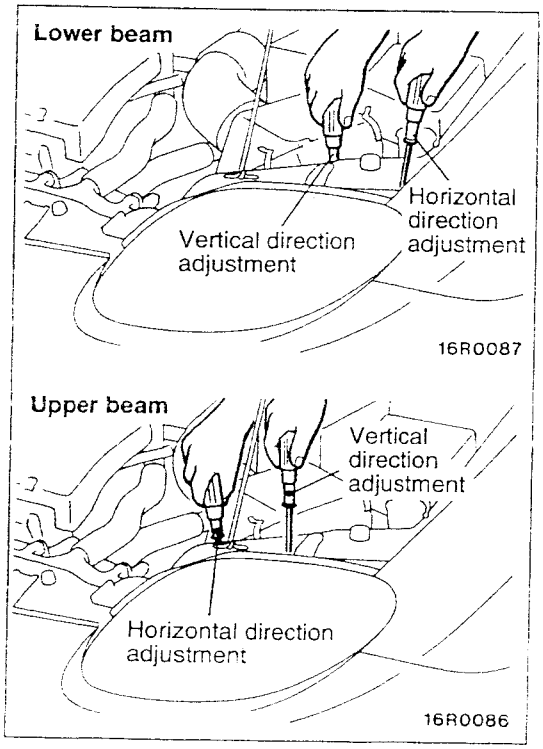
22 mm below horizontal (H)

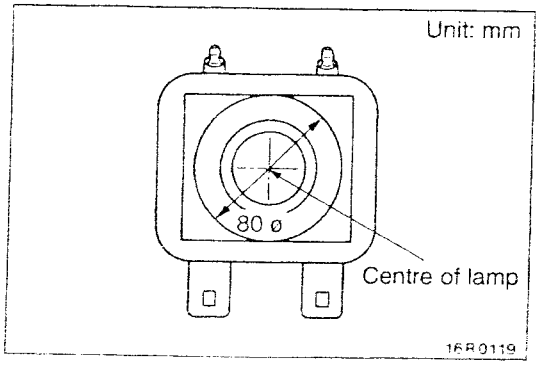
(Horizontal direction)

Position where the 15° sloping section intersects the vertical line (V)









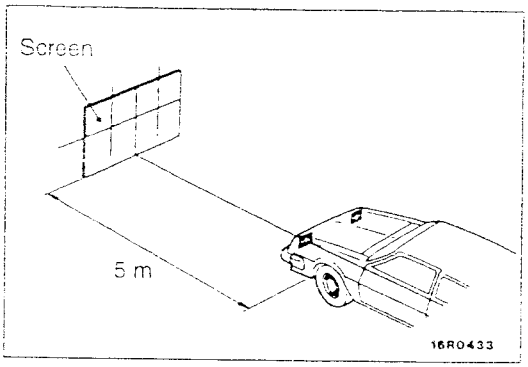
Standard value:
<For upper beam adjustment>
(Vertical direction)
22 mm below horizontal (H)
(Horizontal direction)
Left headlamp: Parallel to direction of vehicle travel
Right headlamp: 13 mm to the left

Caution
1. **When making the aiming adjustment, be sure to mask those lamps which are not being adjusted.**
2. **When it is difficult, because of outside light, to distinguish the light/dark dividing line, use a curtain, screen or similar material to reduce the effects of the outside light.**
4. Alternately turn the adjusting screw to adjust the headlamp aiming.

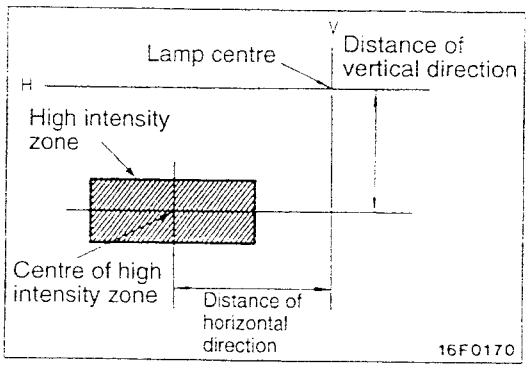
Caution
Be sure to adjust the aiming adjustment screw in the tightening direction.

FRONT FOG LAMP AIMING

1. Measure the centre of the fog lamps, as shown in the illustration.

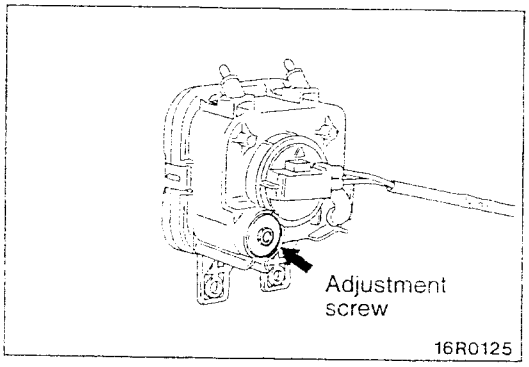


2. Set the distance between the screen and the centre of the fog lamps as shown in the illustrations.
3. Inflate the tyres to the specified pressures and there should be no other load in the vehicles other than driver or substituted weight of approximately 75 kg placed in the driver's position.
4. With the engine running at 2,000 r/min, aim the fog lamp.



5. Check if the beam shining onto the screen is at the standard value.

Standard value:
(Vertical direction)
47 mm below horizontal (H)
(Horizontal direction)
35 mm to left of vertical line (V)



NOTE
The horizontal direction is non-adjustable. If the deviation of the light beam axis exceeds the standard value, check to be sure that the mounting location or some other point is not defective.

Caution
When making the aiming adjustment, be sure to mask those lamps which are not being adjusted.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) – AIR BAG

WARNING!
(1) Improper service or maintenance of any component of the SRS or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to the driver and passenger (from rendering the SRS inoperative).
(2) SRS components should not be subjected to heat, so remove the SRS-ECU, air bag module and clock spring before drying or baking the vehicle after painting.
SRS-ECU, air bag module, clock spring: 93°C or more
(3) Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.
(4) MITSUBISHI dealer personnel must thoroughly review Workshop Manual, and especially its GROUP 52B – Supplemental Restraint System (SRS), before beginning any service or maintenance of any component of the SRS or any SRS-related component.

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