

FOREWORD

This repair manual has been prepared to provide essential information on body panel repair methods (including cutting and welding operations, but excluding painting) for the TOYOTA LAND CRUISER

Applicable models: UZJ100, FZJ10_ series
HDJ10_, HZJ105 series

This manual consists of body repair methods, exploded diagrams and illustrations of the body components and other information relating to body panel replacement such as handling precautions, etc. However, it should be noted that the front fenders of the TOYOTA model is bolted on and require no welding

When repairing, don't cut and join areas that are not shown in this manual. Only work on the specified contents to maintain body strength.

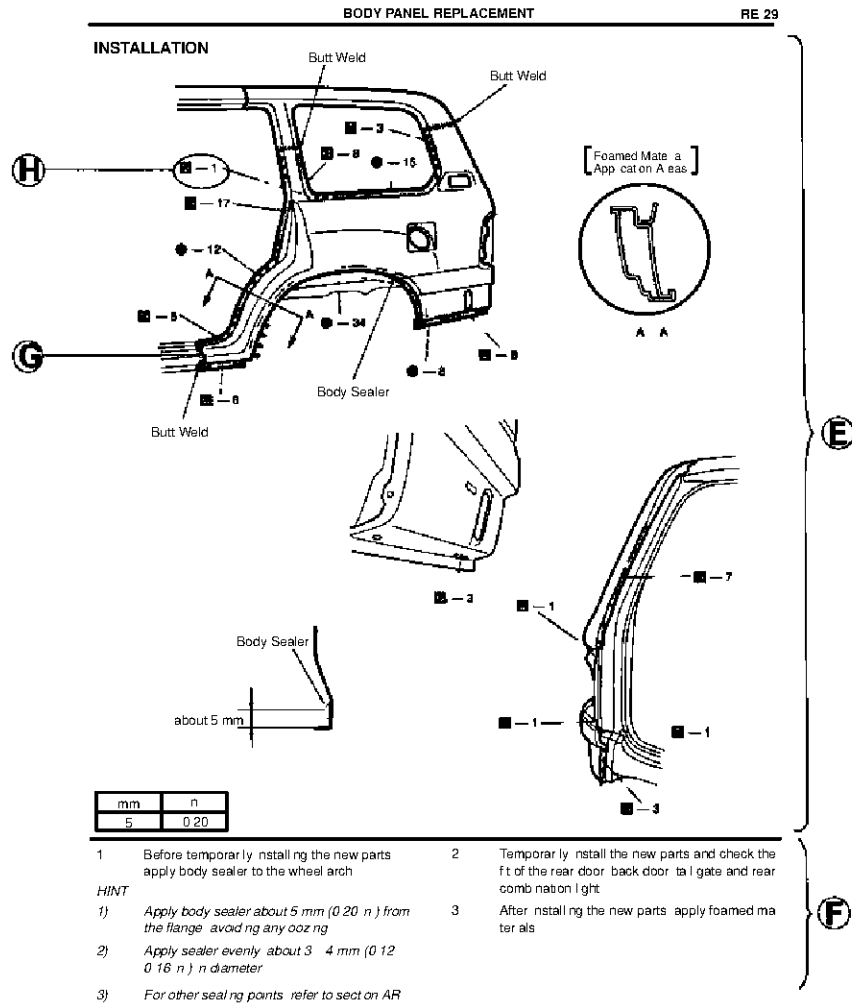
Body construction will sometimes differ depending on specifications and country of destination. Therefore, please keep in mind that the information contained herein is based on vehicles for general destinations.

For the repair procedures and specifications other than collision-damaged body components of the TOYOTA LAND CRUISER refer to the repair manuals.

If you require the above manuals, please contact your TOYOTA Dealer.

All information contained in this manual is the most up-to-date at the time of publication. However, specifications and procedures are subject to change without prior notice.

TOYOTA MOTOR CORPORATION

**Ⓔ : INSTALLATION DIAGRAM**

Describes in detail installation of the new parts involving repair by welding and/or cutting, but excluding painting.

Ⓕ : INSTALLATION GUIDE

Provides additional information to more efficiently help you perform the installation.

Ⓖ : SYMBOLS

See page IN-4.

Ⓕ : ILLUSTRATION of WELD POINTS

Weld method and panel position symbols.
See page IN-5.

SYMBOLS

The following symbols are used in the welding Diagrams in Section RE of this manual to indicate cutting areas and the types of weld required

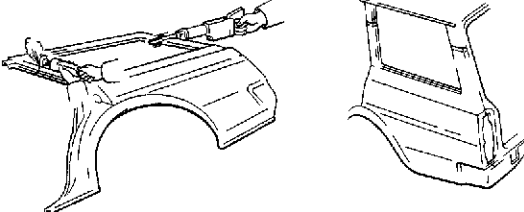
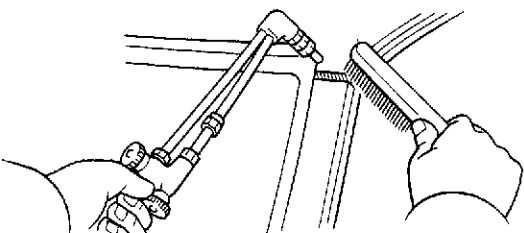
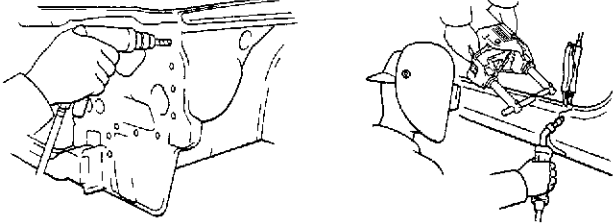
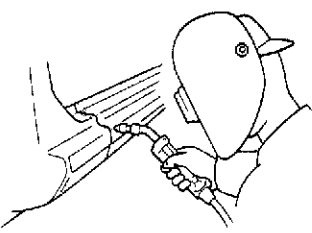
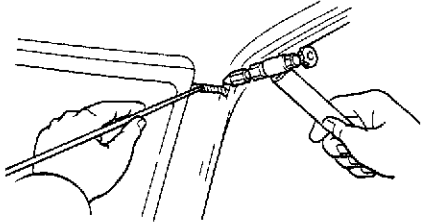
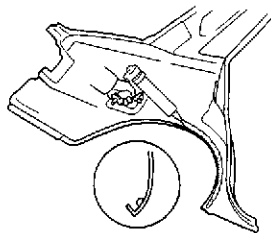
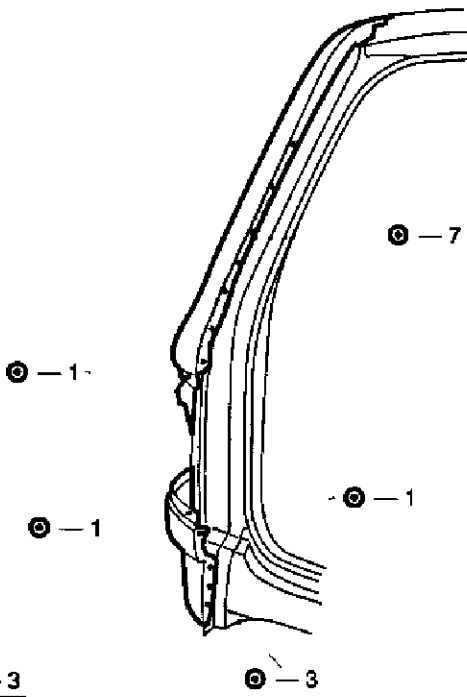
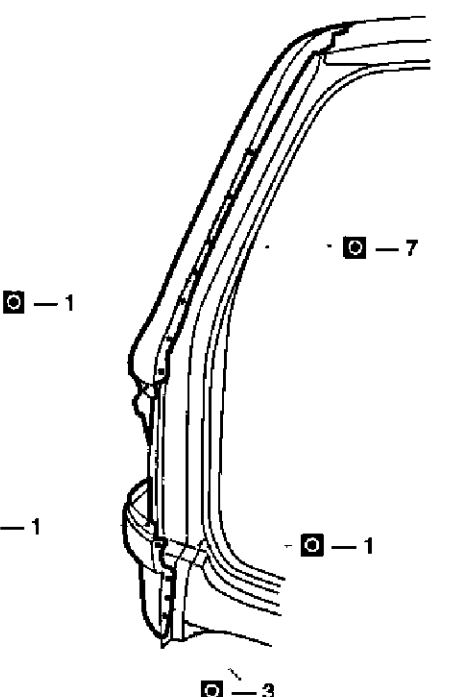
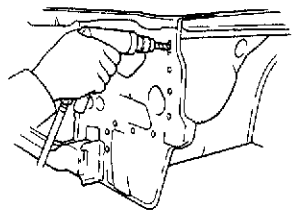
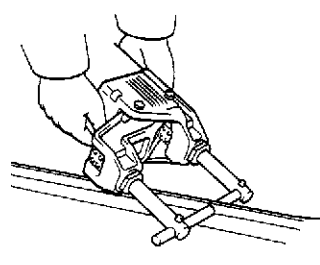
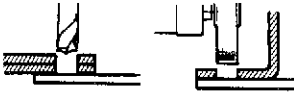
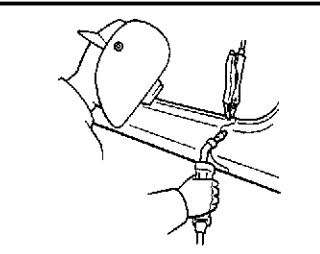
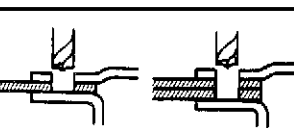
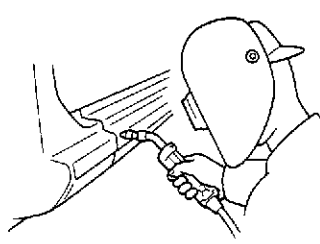
SYMBOLS	MEANING	ILLUSTRATION
	SAW CUT OR ROUGH CUT	
	REMOVE BRAZE	
 	WELD POINTS SPOT WELD OR MIG PLUG WELD (See page IN-5)	
	CONTINUOUS MIG WELD (BUTT WELD OR TACK WELD)	
	BRAZE	
	BODY SEALER	

Illustration of Weld Point Symbols

EXAMPLE:

REMOVAL			INSTALLATION		
 Weld points Remove weld point and panel position			 Weld points Weld method and panel position		
SYMBOL	MEANING	ILLUSTRATION	SYMBOL	MEANING	ILLUSTRATION
○ M I	Remove Weld Points		○ M I	Spot Weld	
○	(Outside)		○ M I	Mig Plug Weld	
M	(Middle)		○ M I		
I	(Inside)		+	Spot MIG Weld	
<i>HINT Panel position symbols are as seen from the working posture</i>					

HANDLING PRECAUTIONS ON RELATED COMPONENTS

1. FOR VEHICLES EQUIPPED WITH SRS AIRBAG AND SEAT BELT PRETENSIONER

The TOYOTA LAND CRUISER is equipped with an SRS (Supplemental Restraint System), such as the driver airbag and front passenger airbag and seat belt pretensioners. Failure to carry out service operations in the correct sequence could cause the supplemental restraint system to unexpectedly deploy during servicing, possibly leading to a serious accident. Further, if a mistake is made in servicing the supplemental restraint system, it is possible the SRS may fail to operate when required. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the following items carefully, then follow the correct procedure described in this manual.

- Malfunction symptoms of the supplemental restraint system are difficult to confirm, so the diagnostic trouble codes become the most important source of information when troubleshooting. When troubleshooting the supplemental restraint system, always inspect the diagnostic trouble codes before disconnecting the battery.
- Work must be started after 90 seconds from the time the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.
(The supplemental restraint system is equipped with a back-up power source so that if work is started within 90 seconds of disconnecting the negative (-) terminal cable from the battery, the SRS may deploy.)
When the negative (-) terminal cable is disconnected from the battery, memory of the clock and audio systems will be cancelled. So before starting work, make a record of the contents memorized by the audio memory system.
Then when work is finished, reset the clock and audio systems as before.
To avoid erasing the memory of each memory system, never use a back-up power supply from outside the vehicle.
- Even in cases of a minor collision where the SRS does not deploy, the passenger's airbag assembly, the steering wheel pad and seat belt pretensioners should be inspected.
Never use SRS parts from another vehicle. When replacing parts, replace them with new parts.
- Before repairs, remove the airbag sensor if shocks are likely to be applied to the sensor during repairs.
- Never disassemble and repair the airbag sensor assembly, steering wheel pad in order to reuse it.
- If the airbag sensor assembly, steering wheel pad have been dropped, or if there are cracks, dents or other defects in the case, bracket or connector, replace them with new ones.
- Do not expose the airbag sensor assembly, steering wheel pad directly to hot air or flames.
- Use a volt/ohmmeter with high impedance (10 k Ω /V minimum) for troubleshooting of the electrical circuit.
- Information labels are attached to the periphery of the SRS components. Follow the instructions on the notices.
- After work on the supplemental restraint system is completed, check the SRS warning light.
- Before repairing the body, remove the SRS parts if, during repair, shocks are likely to be applied to the sensors due to vibrations of the body or direct tapping with tools or other parts.
- Do not expose the SRS parts directly to hot air or flames.

NOTICE:

- 1) The maximum ambient temperature tolerance is 120°C (248°F) for the front airbag sensor, 105°C (221°F) for the center airbag sensor assembly and 93°C (200°F) for the steering wheel pad, and front passenger airbag assembly. If it is possible that the ambient temperature may reach or exceed the temperature limit, remove the sensors and the steering wheel pad from the vehicle or protect them with a hot insulation material before starting work.
 - 2) Prior to welding, remove adjacent SRS parts from the vehicle or protect them with fire-proof covers.
- If the vehicle is damaged, visually inspect for damage to the steering wheel pad using the inspection procedures described in section RS of the repair manual for the relevant model year.

STEERING WHEEL PAD (with Airbag)

- When removing the steering wheel pad or handling a new steering wheel pad, it should be placed with the pad top surface facing up
In this case, the twin-lock type connector lock lever should be in the locked state and care should be taken to place it so the connector will not be damaged. In addition do not store a steering wheel pad on top of another one. Storing the pad with its metallic surface up may lead to a serious accident if the airbag inflates for some reason
- Never measure the resistance of the airbag squib (This may cause the airbag to deploy, which is very dangerous)
- Grease should not be applied to the steering wheel pad and the pad should not be cleaned with detergents of any kind
- Store the steering wheel pad where the ambient temperature remains below 93°C (200°F), without high humidity and away from electrical noise
- When using electric welding, first disconnect the airbag connector (yellow color and 2 pins) under the steering column near the combination switch connector before starting work
- When disposing of a vehicle or the steering wheel pad alone, the airbag should be deployed using an SST before disposal
Carry out the operation in a safe place away from electrical noise

FRONT PASSENGER AIRBAG ASSEMBLY

- Always store a removed or new front passenger airbag assembly with the airbag deployment direction facing up. Storing the airbag assembly with the airbag deployment direction facing down could cause a serious accident if the airbag inflates
- Never measure the resistance of the airbag squib
(This may cause the airbag deploy, which is very dangerous)
- Grease should not be applied to the front passenger airbag assembly and the airbag door should not be cleaned with detergents of any kind
- Store the airbag assembly where the ambient temperature remains below 93°C (200°F), without high humidity and away from electrical noise
- When using electric welding, first disconnect the airbag connector (yellow color and 2 pins) installed on the glove compartment finish plate at the left side of the glove compartment before starting work
- When disposing of a vehicle or the airbag assembly alone, the airbag should be deployed using an SST before disposal
Perform the operation in a safe place away from electrical noise

SEAT BELT PRETENSIONER

- Before doing any operation which will apply a strong shock to the vehicle, or before removing the seat belt pretensioner, be sure to apply the sensor shock
- Never disassemble the seat belt pretensioner
- Do not subject the seat belt pretensioner to shocks or bring magnets close to it
- Do not expose the seat belt pretensioner to high temperature or fire
- Do not drop the seat belt pretensioner. Never use a seat belt pretensioner which has been dropped
- Never install the seat belt pretensioner in another vehicle
- Store removed seat belt pretensioners on a flat, stable surface
- After frontal collision, always check whether the seat belt pretensioners have been activated
- When disposing of a vehicle or the pretensioner by itself, always activate the pretensioner before disposal
- The seat belt pretensioner is hot when activated, so let it cool down fully before you dispose of it. Never apply water to the seat belt pretensioner

AIRBAG SENSOR ASSEMBLY

- Never reuse the airbag sensor assembly involved in a collision when the SRS has deployed
- The connectors to the airbag sensor assembly should be connected or disconnected with the sensor mounted on the floor. If the connectors are connected or disconnected while the airbag sensor assembly is not mounted to the floor, it could cause undesired ignition of the supplemental restraint system
- Work must be started after 90 seconds from the time the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery, even if only loosening the set bolts of the airbag sensor assembly

WIRE HARNESS AND CONNECTOR

- The SRS wire harness is integrated with the cowl wire harness assembly and floor wire harness assembly. The wires for the SRS wire harness are encased in a yellow corrugated tube. All the connectors for the system are also a standard yellow color. If the SRS wire harness becomes disconnected or the connector becomes broken due to an accident, etc., repair or replace it as shown on page

2. BRAKE SYSTEM

The brake system is one of the most important safety components. Always follow the directions and notes given in section BR of the repair manual for the relevant model year when handling brake system parts.

NOTICE: When repairing the brake master cylinder or TRAC system, bleed the air out of the TRAC system.

3. DRIVE TRAIN AND CHASSIS

The drive train and chassis are components that can have great effects on the running performance and vibration resistance of the vehicle. After installing components in the sections listed in the table below, perform alignments to ensure correct mounting angles and dimensions. Particularly accurate repair of the body must also be done to ensure correct alignment.

HINT: Correct procedures and special tools are required for alignment. Always follow the directions given in the repair manual for the relevant model during alignment and section DI of this manual.

Component to be aligned	Section of repair manual for relevant model
Front Wheels	Suspension and Axle (SA) section
Rear Wheels	Suspension and Axle (SA) section
Propeller Shaft	Propeller Shaft (PR) section

4. COMPONENTS ADJACENT TO THE BODY PANELS

Various types of component parts are mounted directly on or adjacently to the body panels. Strictly observe the following precautions to prevent damaging these components and the body panels during handling.

- Before repairing the body panels, remove their components or apply protective covers over the components
- Before prying components off using a screwdriver or a scraper, etc., attach protective tape to the tool tip or blade to prevent damaging the components and the body paint
- Before removing components from the outer surface of the body, attach protective tape to the body to ensure no damage to painted areas

HINT: Apply touch-up paint to any damaged paint surfaces.

- Before drilling or cutting sections, make sure that there are no wires, etc. on the reverse side

5. ECU (ELECTRONIC CONTROL UNIT)

Many ECUs are mounted in this vehicle

Take the following precautions during body repair to prevent damage to the ECUs

- Before starting electric welding operations, disconnect the negative (-) terminal cable from the battery
When the negative (-) terminal cable is disconnected from the battery, memory of the clock and audio systems will be cancelled. So before starting work, make a record of the contents memorized by each memory system. Then when work is finished, reset the clock and audio systems as before.
When the vehicle has tilt and telescopic steering, power seat and outside rear view mirror, which are all equipped with memory function, it is not possible to make a record of the memory contents. So when the operation is finished, it will be necessary to explain this fact to the customer, and request the customer to adjust the features and reset the memory.
- Do not expose the ECUs to ambient temperatures above 80°C (176°F)
NOTICE: If it is possible the ambient temperature may reach 80° (176° F) or more, remove the ECUs from the vehicle before starting work
- Be careful not to drop the ECUs and not to apply physical shocks to them

ABBREVIATIONS USED IN THIS MANUAL

For convenience, the following abbreviations are used in this manual

ABS	Antilock Brake System
A/C	Air Conditioner
assy	assembly
ECT	Electronic Controlled Transmission
ECU	Electronic Control Unit
e g	Exempli Gratia (for Example)
Ex	Except
4WD	Four Wheel Drive Vehicles
in	inch
LH	Left-hand
LHD	Left-hand Drive
MIG	Metal Inert Gas
M/Y	Model Year
PPS	Progressive Power Steering
RH	Right-hand
RHD	Right-hand Drive
SRS	Supplemental Restraint System
SSM	Special Service Materials
w/	with
w/o	without

GENERAL REPAIR INSTRUCTIONS

Work Precautions

SAFETY

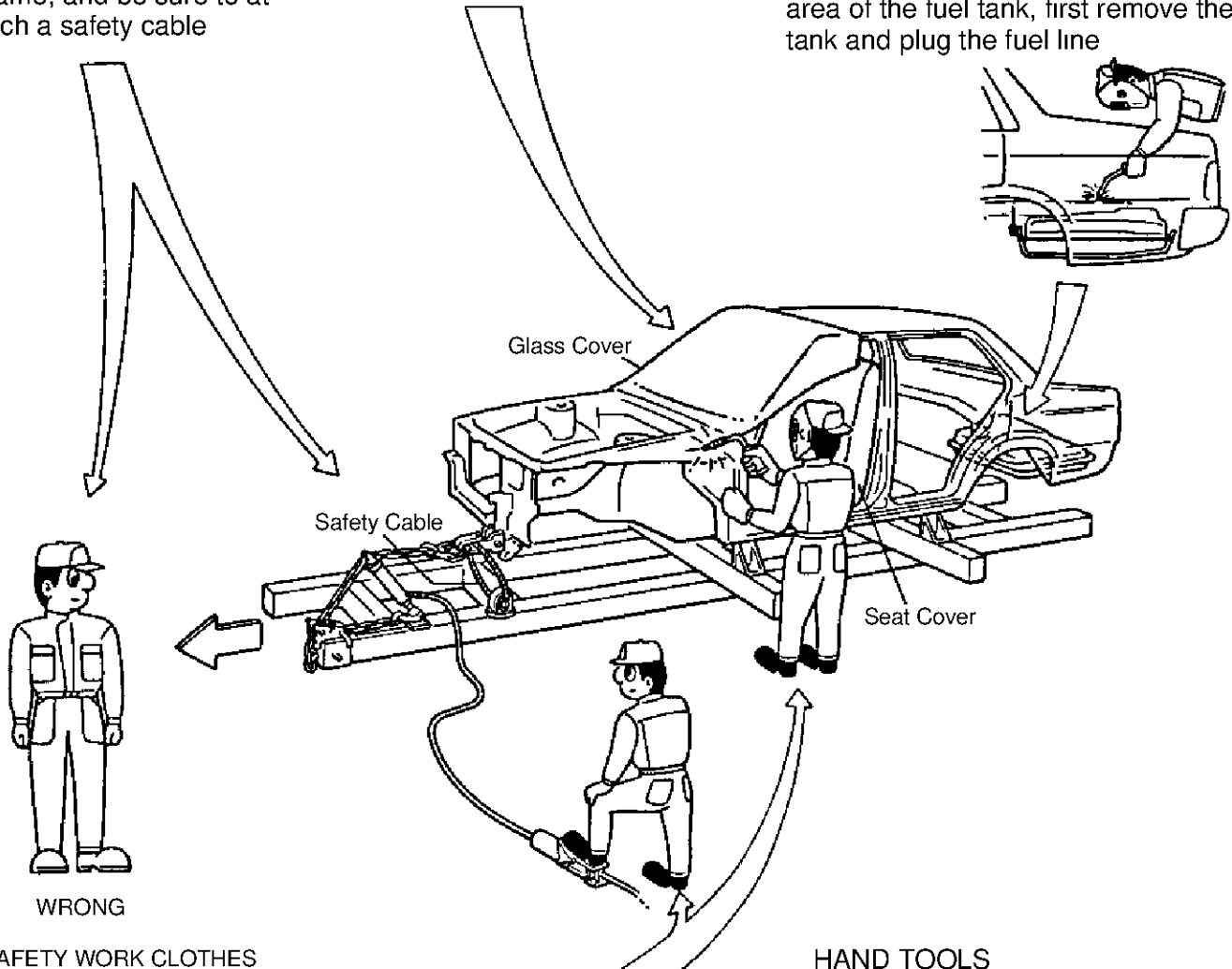
Never stand in direct line with the chain when using a puller on the body or frame, and be sure to attach a safety cable

VEHICLE PROTECTION

When welding, protect the painted surfaces, windows, seats and carpet with heat-resistant, fire-proof covers

SAFETY

- 1 Before performing repair work, check for fuel leaks. If a leak is found, be sure to close the opening totally
- 2 If it is necessary to use a frame in the area of the fuel tank, first remove the tank and plug the fuel line



SAFETY WORK CLOTHES

In addition to the usual mechanic's wear, cap and safety shoes, the appropriate gloves, head protector, glasses, ear plugs, face protector, dust-prevention mask, etc. should be worn as the situation demands

Dust-Prevention Mask



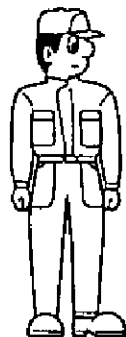
Face Protector



Eye Protector



Safety Shoes



Welder's Glasses



Ear Plugs



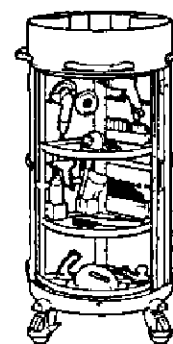
Head Protector



Welder's Gloves

HAND TOOLS

Keeping your hand tools in neat order improve your work efficiency



Body Tools Stand

Donated by Andrew Schauer cruisercult.com

Proper and Efficient Work Procedures

REMOVAL

PRE-REMOVAL MEASURING

Before removal or cutting operations, take measurements in accordance with the dimension diagram. Always use a puller to straighten a damaged body or frame.

NUMBER OF SPOT WELDS AND PANEL POSITIONS

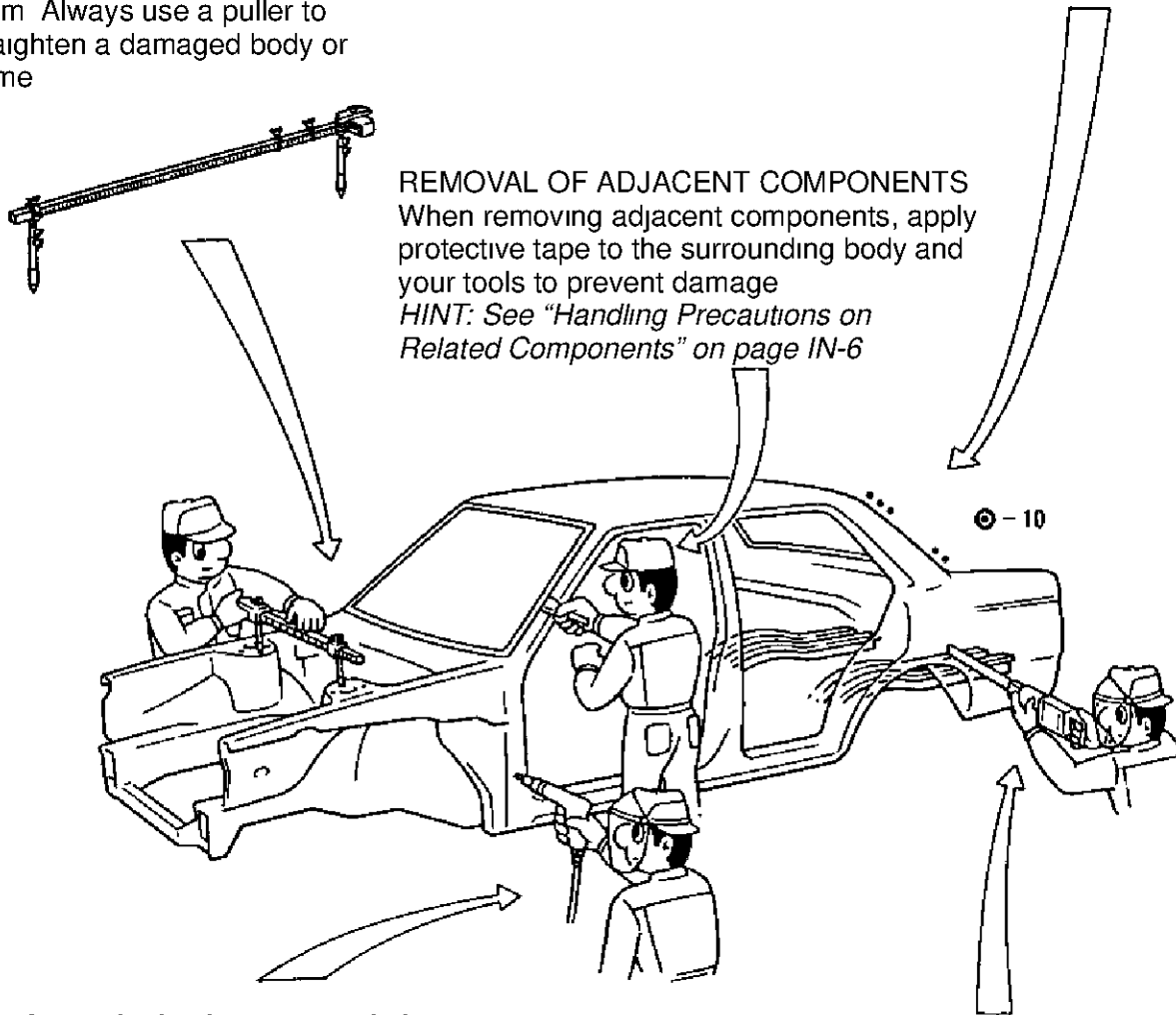
The number of spot welds and the panel positions to be removed are shown for your reference.

HINT: See "Symbols" on page IN-4, 5

REMOVAL OF ADJACENT COMPONENTS

When removing adjacent components, apply protective tape to the surrounding body and your tools to prevent damage.

HINT: See "Handling Precautions on Related Components" on page IN-6



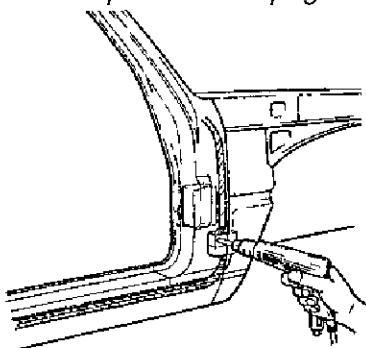
PRECAUTIONS FOR DRILLING OR CUTTING

Check behind any area to be drilled or cut to insure that there are no hoses, wires, etc., that may be damaged.

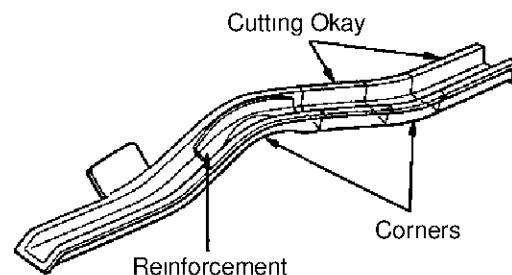
HINT: See "Handling Precautions on Related Components" on page IN-6

CUTTING AREA

Always cut in a straight line and avoid reinforced area.

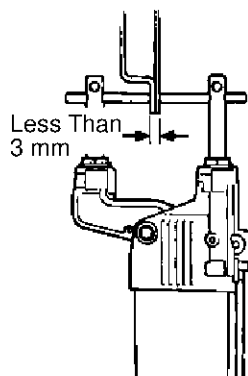


WRONG



PREPARATION FOR INSTALLATION

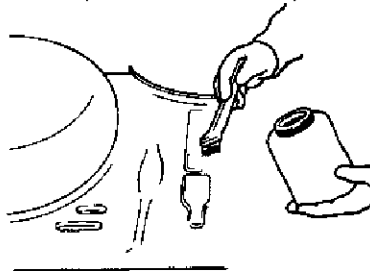
SPOT WELD POINTS



When welding panels with a combined thickness of over 3 mm (0.12 in.), use a MIG (Metal Inert Gas) welder for plug welding.

HINT: Spot welding will not provide sufficient durability for panels over 3 mm (0.12 in.) thick.

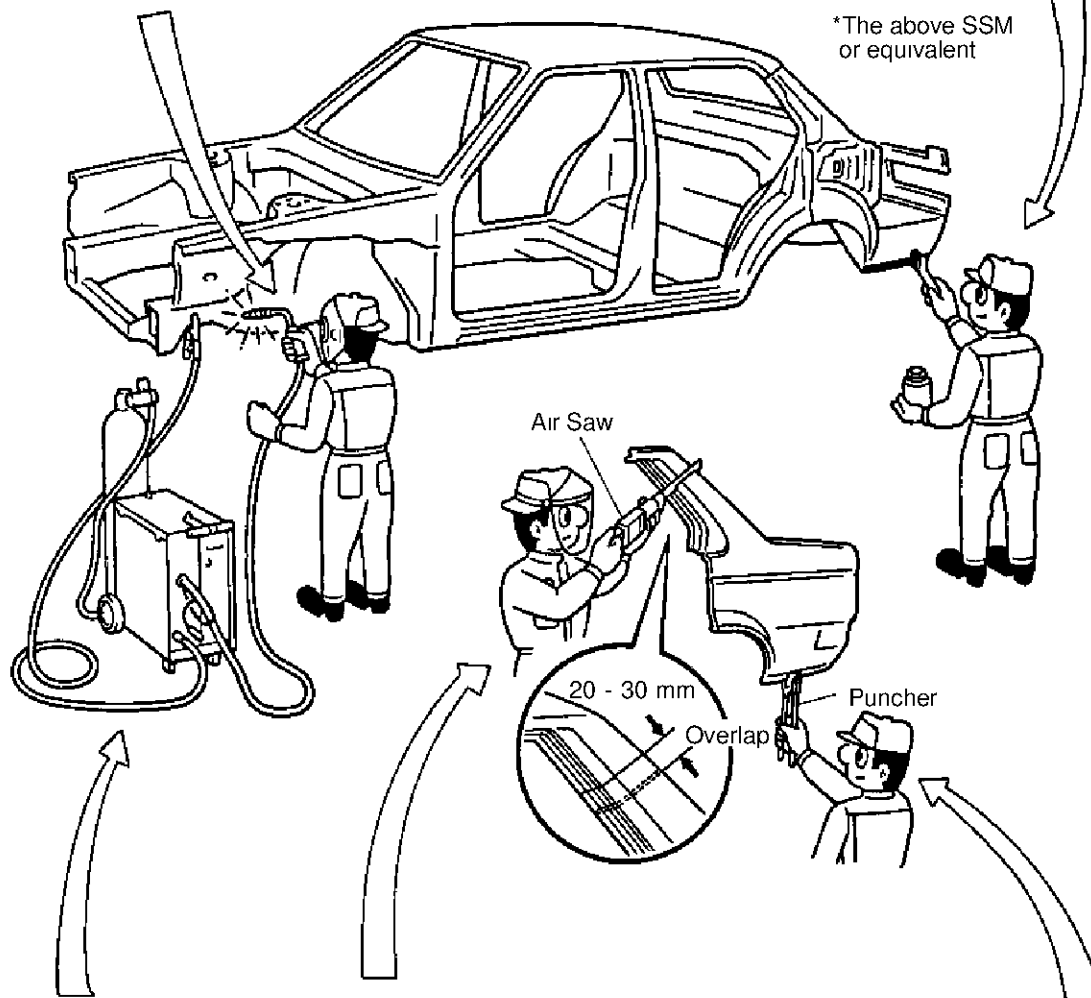
APPLICATION OF WELD-THROUGH PRIMER (SPOT SEALER)



Remove the paint from the portion of the new parts and body to be welded, and apply weld-through primer. *HINT: See "ANTIRUST TREATMENT" on page AR-2.*

Parts Name	Parts Number
Spot Sealer	08839 - 00070

*The above SSM or equivalent



SAFETY PRECAUTIONS FOR ELECTRICAL COMPONENTS

When welding there is a danger that electrical components will be damaged by the electrical current flowing through the body. Before starting work disconnect the negative terminal of the battery and ground the welder near the welding location of the body.

ROUGH CUTTING OF JOINTS

For joint areas, rough cut the new parts, leaving 20 - 30 mm (0.79 - 1.18 in.) overlap.

MAKING HOLES FOR PLUG WELDING

For areas where a spot welder cannot be used, use a puncher or drill to make holes for plug welding.

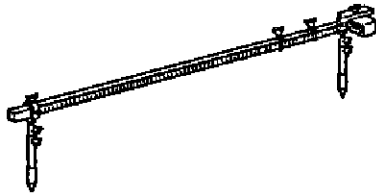
REFERENCE: mm (in.)

Thickness of welded portion	Size of plug hole
1.0 (0.04) under	5 (0.20) ϕ over
1.0 (0.04) - 1.5 (0.06)	6.5 (0.26) ϕ over
1.5 (0.06) over	8 (0.31) ϕ over

INSTALLATION

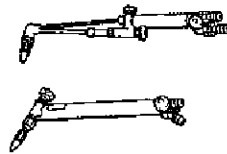
PRE-WELDING MEASUREMENTS

Always take measurements before installing underbody or engine components to insure correct assembly. After installation, confirm proper fit.



WELDING PRECAUTIONS

- 1 The number of welding spots should be as follows:
Spot weld: 1 3 x No. of manufacturer's spots
Plug weld: More than No. of manufacturer's plugs



WRONG

POST WELDING REFINISHING

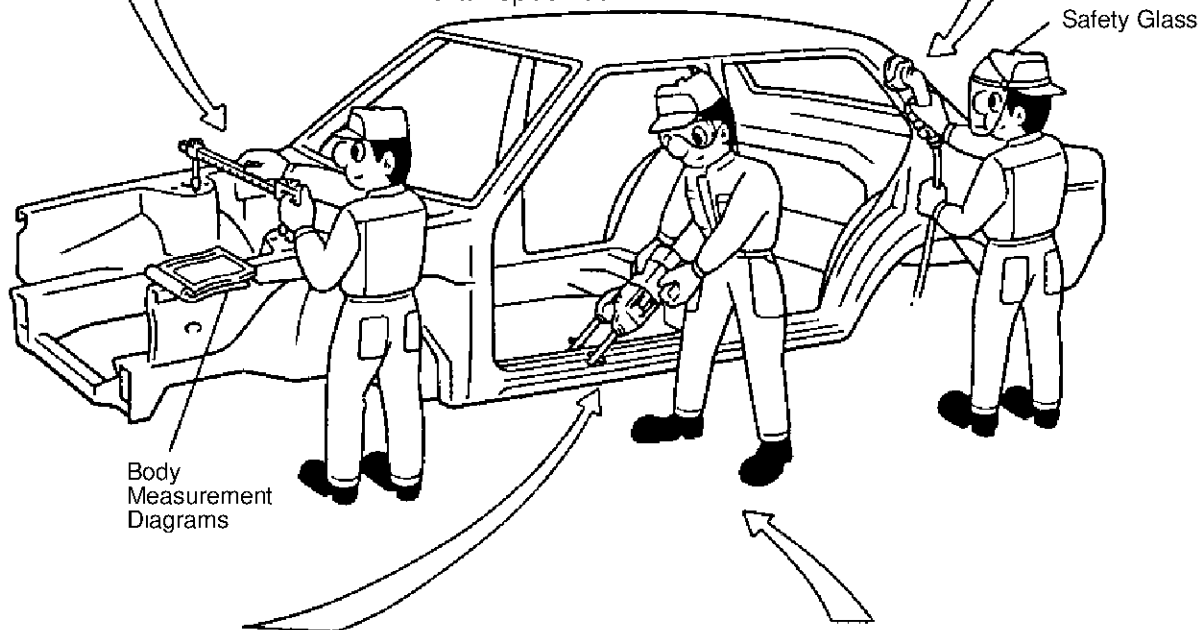
- 1 Always check the welded spots to insure they are secure.
- 2 When smoothing out the weld spots with a disc grinder, be careful not to grind off too much as this would weaken the weld.



OKAY

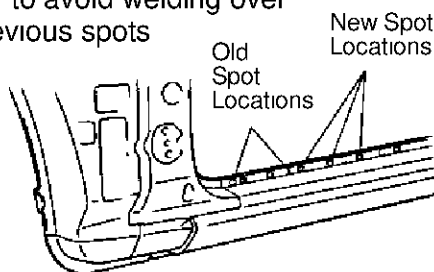
WRONG

- 2 Plug welding should be done with a MIG (Metal Inert Gas) welder. Do not gas weld or braze panes at areas other than specified.



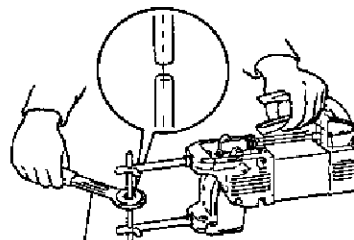
SPOT WELD LOCATIONS

Try to avoid welding over previous spots.



SPOT WELDING PRECAUTIONS

- 1 The shape of the welding tip point has an effect on the strength of the weld.
- 2 Always insure that the seams and welding tip are free of paint.



Tip Cutter

ANTI-RUST TREATMENT

When replacing body panels, always apply body sealer, anti-rust agent or undercoat according to the requirements of your country

HINT: For further details, see the description given in Section AR of this manual

BODY SEALER

Apply body sealer to the required areas



Cartridge Type

Tube Type

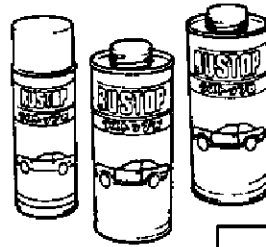
Parts Name	Parts Number
Body Sealer, White (Cartridge Type)	08839-00020
Body Sealer, White (Tube Type)	08839-00030
Body Sealer, Black (Cartridge Type)	08839-00040

*The above SSM or equivalent

ANTI-RUST AGENT (WAX)

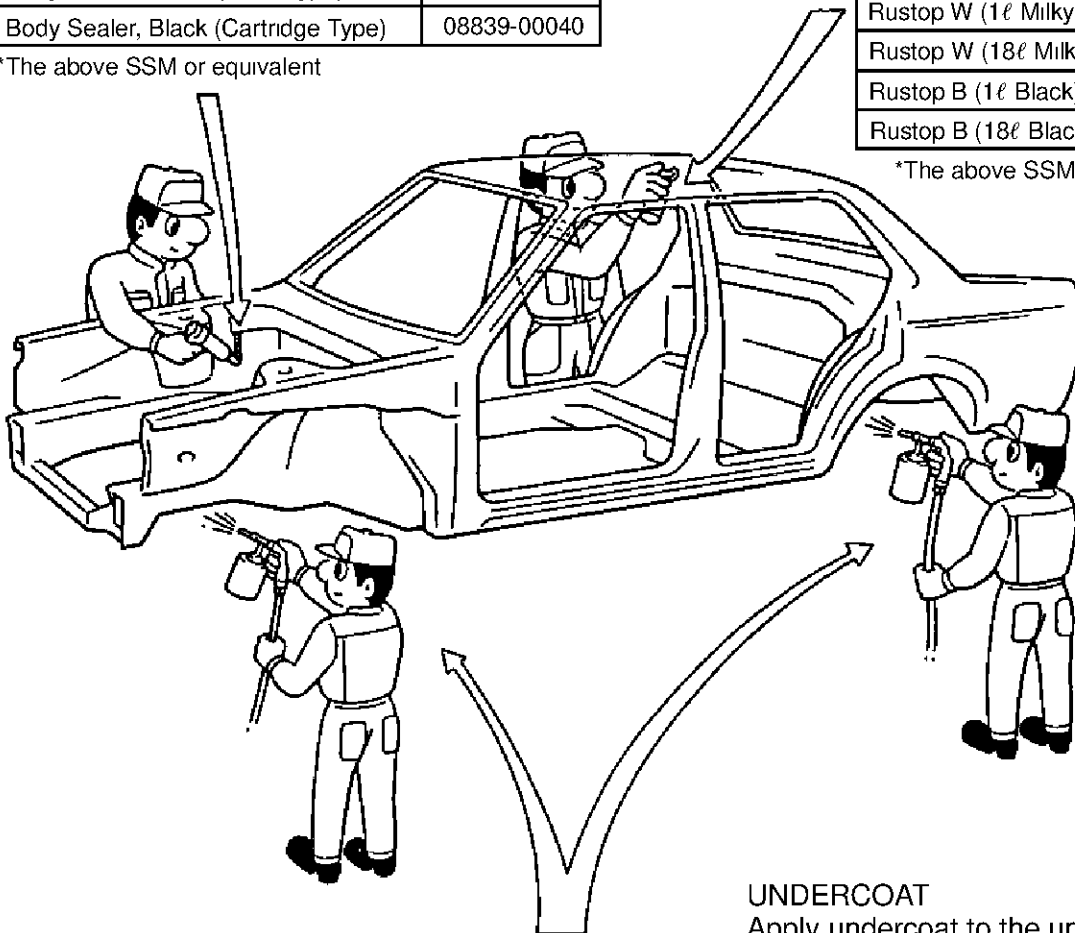
Apply anti-rust agent to following sections

- Inside of the hems of the doors and hood
- Around the hinges of the doors and hood
- Inside of the welded parts with boxed cross-section



Parts Name	Parts Number
Rustop W (Aerosol)	08860-00200
Rustop W (1ℓ Milky White)	08860-00210
Rustop W (18ℓ Milky White)	08860-00230
Rustop B (1ℓ Black)	08860-00220
Rustop B (18ℓ Black)	08860-00240

*The above SSM or equivalent



UNDERCOAT

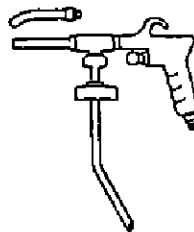
Apply undercoat to the underbody and wheel housings



Undercoating
(Oil base)



Undercoating
(Water base)



Spray Gun

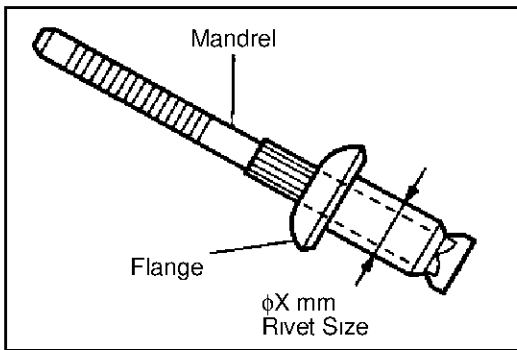
Parts Name	Parts Number
Pastar UC (Oil Base)	08836-00155
Pastar UW (Water Base)	08836-001 15
Pastar Gun (For thick application)	08836-00091

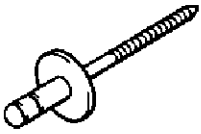
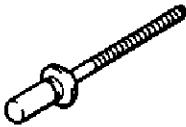
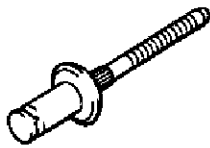
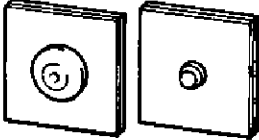
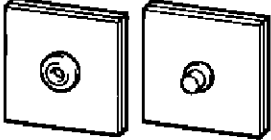
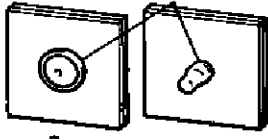
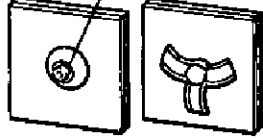
*The above SSM or equivalent

Donated by Andrew Schauer cruisercult.com

RIVET REMOVAL AND INSTALLATION

PARTS NAME AND VARIETY OF RIVET

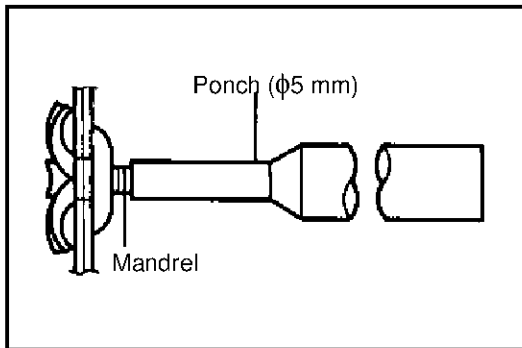


	Aluminum-Rivet	Steel-Rivet	Waterproof-Rivet	T-Rivet
External Appearance	Before installation 	Before installation 	Before installation 	Before installation 
	After installation 	After installation 	After installation Waterproof Seal 	After installation Mandrel 
Characteristics	- Small nonwaterproof rivet - No magnetic adherence	- Small nonwaterproof rivet - Magnetic adherence	- Small waterproof rivet - Waterproof seal	- Large waterproof rivet - Mandrel sticks out after installation

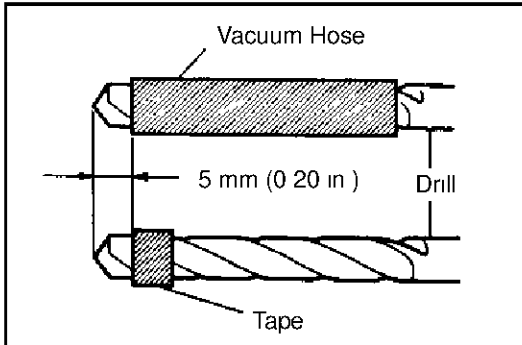
RIVET REMOVAL

1. SELECTION OF CUTTING TOOL

	Cutting tool	Note								
Aluminum-Rivet Steel-Rivet T-Rivet with $\phi 6.4$ mm	Drill blade <table><tr><th>Rivet size</th><th>Blade size</th></tr><tr><td>$\phi 4$ mm</td><td>$\phi 4$ mm</td></tr><tr><td>$\phi 4.8$ mm</td><td>$\phi 5$ mm</td></tr><tr><td>$\phi 6.4$ mm</td><td>$\phi 6.5$ mm</td></tr></table>	Rivet size	Blade size	$\phi 4$ mm	$\phi 4$ mm	$\phi 4.8$ mm	$\phi 5$ mm	$\phi 6.4$ mm	$\phi 6.5$ mm	• Cutting can be done with drill blade or rivet cutter for an aluminum-rivet with $\phi 4.8$ mm • When a rivet cutter is used for an aluminum-rivet (except $\phi 4.8$ mm), a steel-rivet, or a Trivet with $\phi 6.4$ mm, it is possible that the drill will spin abnormally damaging the rivet hole and breaking the rivet cutter
Rivet size	Blade size									
$\phi 4$ mm	$\phi 4$ mm									
$\phi 4.8$ mm	$\phi 5$ mm									
$\phi 6.4$ mm	$\phi 6.5$ mm									
Waterproof special-Rivet with $\phi 4.0$ mm	Drill blade with $\phi 4.0$ mm									
Aluminum-Rivet with $\phi 4.8$ mm Waterproof-Rivet with $\phi 4.8$ mm or $\phi 6.0$ mm	Rivet Cutter (P/N 09060-60350) 									

Donated by Andrew Schauer cruisercult.com**2. RIVET REMOVAL**

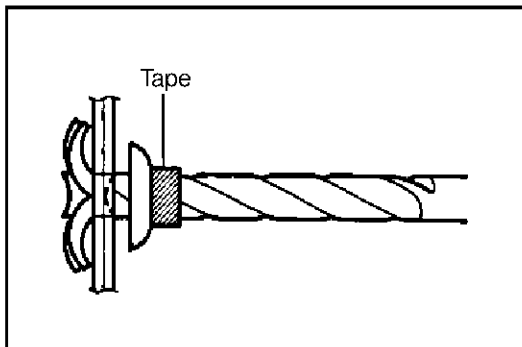
- (1) T-Rivet with φ6.4 mm:
Using a punch with φ5 mm, stamp out the mandrel



- (2) Put tape around the drill blade 5 mm (0.20 in) from the tip or insert a vacuum hose

NOTE: Use of tape or a vacuum hose prevents damage to the rivet hole.

- (3) Attach the drill blade or a rivet cutter to the drill

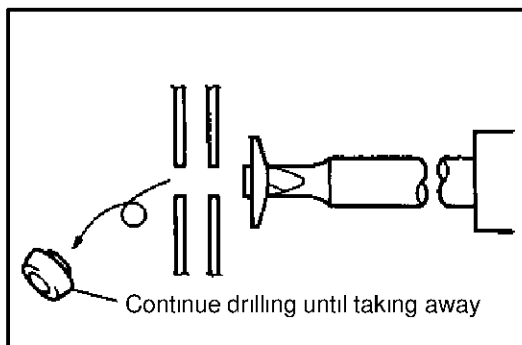


- (4) Gently and vertically put the drill to the rivet, and cut the rivets flange

NOTE:

- While upward drilling, wear a protective glasses.
- If a drill is strongly pushed deeply in to a rivet, the rivet can't be cut as it spins together with the drill.
- Prizing the hole with a drill can lead to damage to the rivet hole or the breaking of the rivet cutter.
- Take care as the cut rivet is hot.

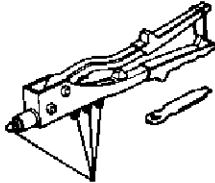
- (5) Aluminum-Rivet and Waterproof-Rivet with φ4.8 mm or φ6.0 mm:
Even if flange is taken off, continue drilling and push out remaining fragments with the drill



- (6) Steel-Rivet:
If the flange is taken off, stop drilling and pull out the remaining fragments with a pliers
- (7) T-Rivet with φ6.4 mm:
If the flange is taken off, stop drilling and push out the remaining fragments with a punch with φ5 mm or pull out the remaining fragments with pliers

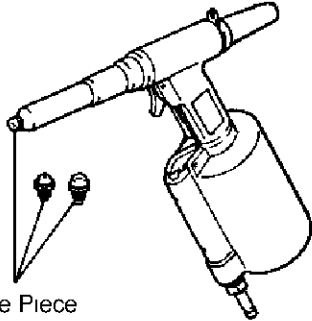
RIVET INSTALLATION

Hand Riveter



Nose Piece

Air Riveter (P/N 09050 - 20010)



Nose Piece

1. RIVET INSTALLATION

- (1) Apply touch-up paint at the area
- (2) Select an installation tool

Item	Installation tool
Aluminum-Rivet Waterproof-Rivet with $\phi 4.8$ mm	Hand Riveter or Air Riveter
Steel-Rivet Waterproof-Rivet T-Rivet with $\phi 6.0$ mm with $\phi 6.4$ mm	Air Riveter

- (3) Select the smallest a nosepiece possible for a rivets mandrel

NOTE: Wrong selection of a nose piece may cause the riveter to be damaged or bad tightening.

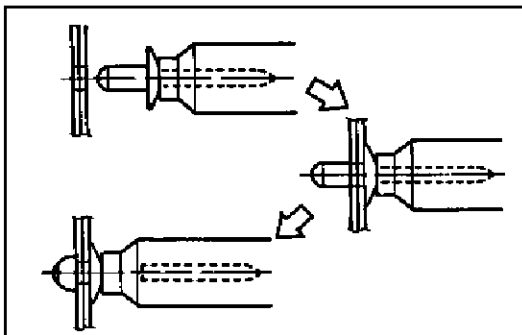
<Reference> Nose piece of Air Riveter

Parts Name	Parts Number	Color	Rivet type
Nose piece No 1	09050-02020	Silver	$\phi 4.0$ mm Aluminum $\phi 4.0$ mm Steel $\phi 4.8$ mm Waterproof
Nose piece No 2	09050-02030	Copper	$\phi 4.8$ mm Aluminum $\phi 4.8$ mm Steel
Nose piece No 3	09050-02040	Black	$\phi 6.4$ mm T-Rivet
Nose piece No 4	09050-02050	Black	$\phi 4.0$ mm Waterproof Special

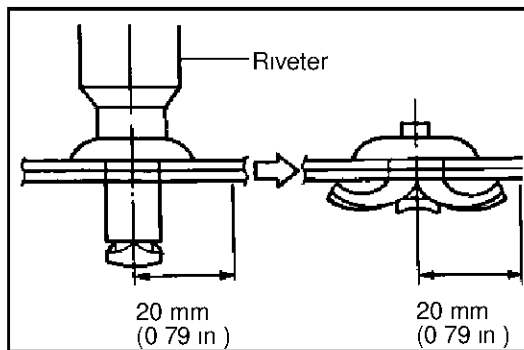
- (4) Insert the nosepiece to the riveter and then the mandrel of the new rivet into the nose piece
- (5) Vertically insert the rivet into a hole and keep place it strongly

NOTE:

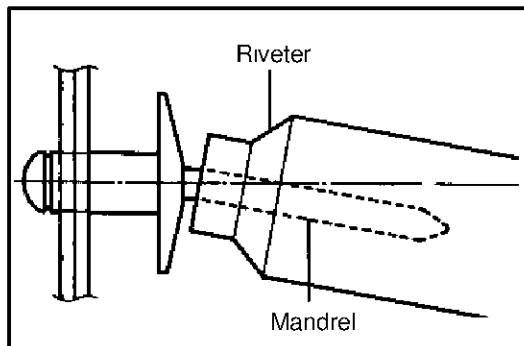
- If the tip of the rivet is not deformed or the mandrel is not cut, repeat process (5) again.



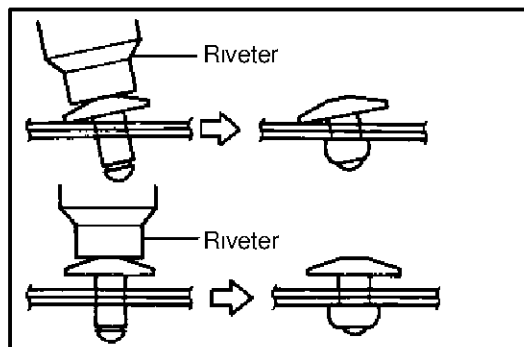
Donated by Andrew Schauer cruisercult.com



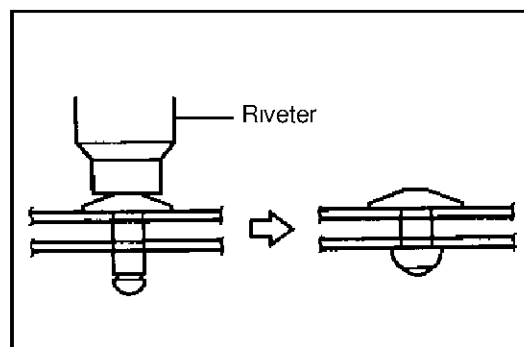
- **T-Rivet with of $\phi 6.4$ mm:**
Do not place your hands or the wire harness within a radius of 20 mm (0.70 in.) from the rivet, as the rivet is cut and opened in this area.



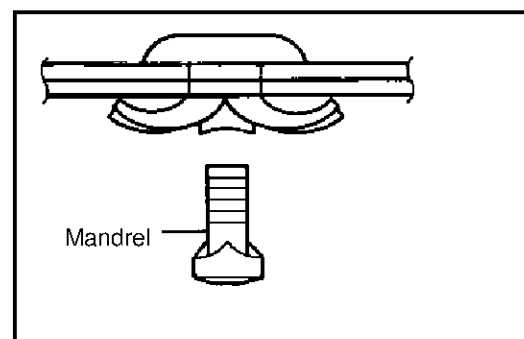
- **Prizing a riveter damages the riveter showing that it is not tightened correctly and bends the mandrel.**



- **Loose tightening may result from either tilting the riveter while handling or the riveter not connecting to the material.**



- **Loose tightening also occurs when a rivet is applied between materials without touching.**



- **T-Rivet with $\phi 6.4$ mm:**
When a mandrel of a rivet is lost, the rivet should be replaced to prevent loose tightening.

HANDLING PRECAUTIONS

- 1 The repair procedure for plastic body parts must conform with the type of plastic material
- 2 Plastic body parts are identified by the codes in the following chart
- 3 When repairing metal body parts adjoining plastic body parts (by brazing, frame cutting, welding, painting etc), consideration must given to the property of the plastic

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
AAS	Acrylonitrile Acrylic Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e g , quick wiping to remove grease)	Avoid gasoline and organic or aromatic solvents
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e g , quick wiping to remove grease)	Avoid gasoline and organic or aromatic solvents
AES	Acrylonitrile Ethylene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e g , quick wiping to remove grease)	Avoid gasoline and organic or aromatic solvents
ASA	Acrylonitrile Styrene Acrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e g , quick wiping to remove grease)	Avoid gasoline and organic or aromatic solvents
CAB	Cellulose Acetate	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e g , quick wiping to remove grease)	Avoid gasoline and organic or aromatic solvents
EPDM	Ethylene Propylene	100 (212)	Alcohol is harmless Gasoline is harmless if applied only for short time in small amounts	Most solvents are harmless but avoid dipping in gasoline, solvents, etc
FRP	Fiber Reinforced Plastics	180 (356)	Alcohol and gasoline are harmless	Avoid alkali
EVA	Ethylene Acetate	70 (158)	Alcohol is harmless if applied only for short time in small amounts (e g , quick wiping to remove grease)	Avoid gasoline and organic or aromatic solvents
PA	Polyamide (Nylon)	80 (176)	Alcohol and gasoline are harmless	Avoid battery acid
PBT	Polybutylene Terephthalate	160 (320)	Alcohol and gasoline are harmless	Most solvents are harmless
PC	Polycarbonate	120 (248)	Alcohol is harmless	Avoid gasoline, brake fluid, wax, wax removers and organic solvents Avoid alkali

*Temperatures higher than those listed here may result in material deformation during repair

Donated by Andrew Schauer cruisercult.com

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
PE	Polyethylene	80 (176)	Alcohol and gasoline are harmless	Most solvents are harmless
PET	Polyethylene Terephthalate	75 (167)	Alcohol and gasoline are harmless	Avoid dipping in water
PMMA	Polymethyl Methacrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts	Avoid dipping or immersing in alcohol, gasoline, solvents, etc
POM	Polyoxymethylene (Polyacetal)	100 (212)	Alcohol and gasoline are harmless	Most solvents are harmless
PP	Polypropylene	80 (176)	Alcohol and gasoline are harmless	Most solvents are harmless
PPO	Modified Polyphenylene Oxide	100 (212)	Alcohol is harmless	Gasoline is harmless if applied only for quick wiping to remove grease
PS	Polystyrene	60 (140)	Alcohol and gasoline are harmless if applied only for short time in small amounts	Avoid dipping or immersing in alcohol, gasoline, solvents, etc
PUR	Polyurethane	80 (176)	Alcohol is harmless if applied only for very short time in small amounts (e.g., quick wiping to remove grease)	Avoid dipping or immersing in alcohol, gasoline, solvents, etc
PVC	Polyvinylchloride (Vinyl)	80 (176)	Alcohol and gasoline are harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease)	Avoid dipping or immersing in alcohol, gasoline, solvents, etc
SAN	Styrene Acrylonitrile	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease)	Avoid dipping or immersing in alcohol, gasoline, solvents etc
TPO	Thermoplastic Olefine	80 (176)	Alcohol is harmless Gasoline is harmless if applied only for short time in small amounts	Most solvents are harmless but avoid dipping in gasoline, solvents, etc
TPU	Thermoplastic Polyurethane	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease)	Avoid dipping or immersing in alcohol, gasoline, solvents, etc
TSOP	TOYOTA Super Olefine Polymer	80 (176)	Alcohol and gasoline are harmless	Most solvents are harmless
UP	Unsaturated Polyester	110 (233)	Alcohol and gasoline are harmless	Avoid alkali

*Temperatures higher than those listed here may result in material deformation during repair

LOCATION OF PLASTIC BODY PARTS

Parts Name	Code
Radiator Grille	ABS
Front Bumper Cover	TSOP
Fog Light	PC/PP
Front Turn Signal Light	PMMA/PC/AAS
Side Turn Signal Light	SAN/AAS
Cowl Top Ventilator Louver	TSOP
Outer Rear View Mirror	ABS
Outside Moulding (Fender, Front & Rear Door, Quarter)	TSOP
Outside Handle (Front & Rear Door)	PC
Rocker Panel Moulding	TSOP
Side Door Step Plate Cover (Front, Rear)	PP
Quarter Ventilator Louver	PPO/PA
Rear Combination Light	PMMA/PP/AAS
Rear Light	PMMA/PP
Back Door Outside Moulding	TSOP
License Plate Light	PC
License Plate Light Cover	AAS
Back Door Outside Handle	POM
Rear Bumper Cover	TSOP
Reflex Reflector	PMMA/ABS
Rear Fog Light	PC/PP
Outer Under Rear View Mirror	PC/PBT
Roof Moulding	PVC

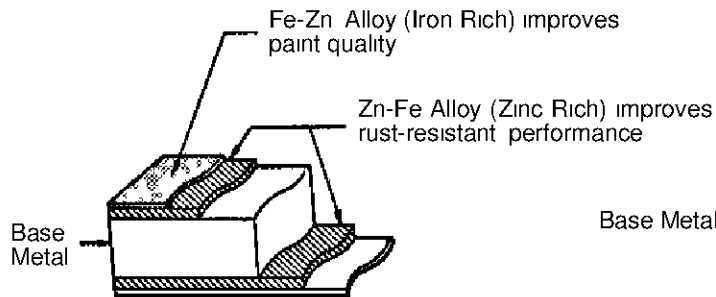
HINT:

- Resin material differs with model
- / Made up of 2 or more kinds of materials

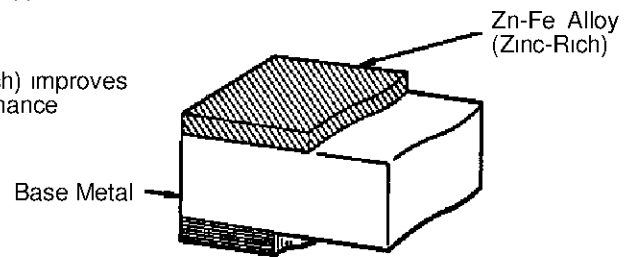
RUST-RESISTANT SHEET STEEL PARTS

Rust-Resistant Sheet Steel have zinc, tin or aluminum etc, plating over the base metal surface in order to improve the corrosion resistance of the sheet metal. This sheeting is used on areas that require anticorrosive abilities but there is no need to distinguish the differences between rust resistant sheet steel and ordinary sheet steel in body repair.

Body panels on TOYOTA models are made of two different melted galvanized sheet steel. The ordinary melted galvanized sheet has a zinc plating over the base metal surface and when heated a zinc-iron alloy plating. The zinc-iron double layered galvanized sheet has a iron rich and another zinc-rich layer above the sheet steel. These 2 layers improve paint adhesion. These two melted galvanized sheet steels are used selectively according to need.



Double Layered Zinc-Iron Galvanized Sheet Steel

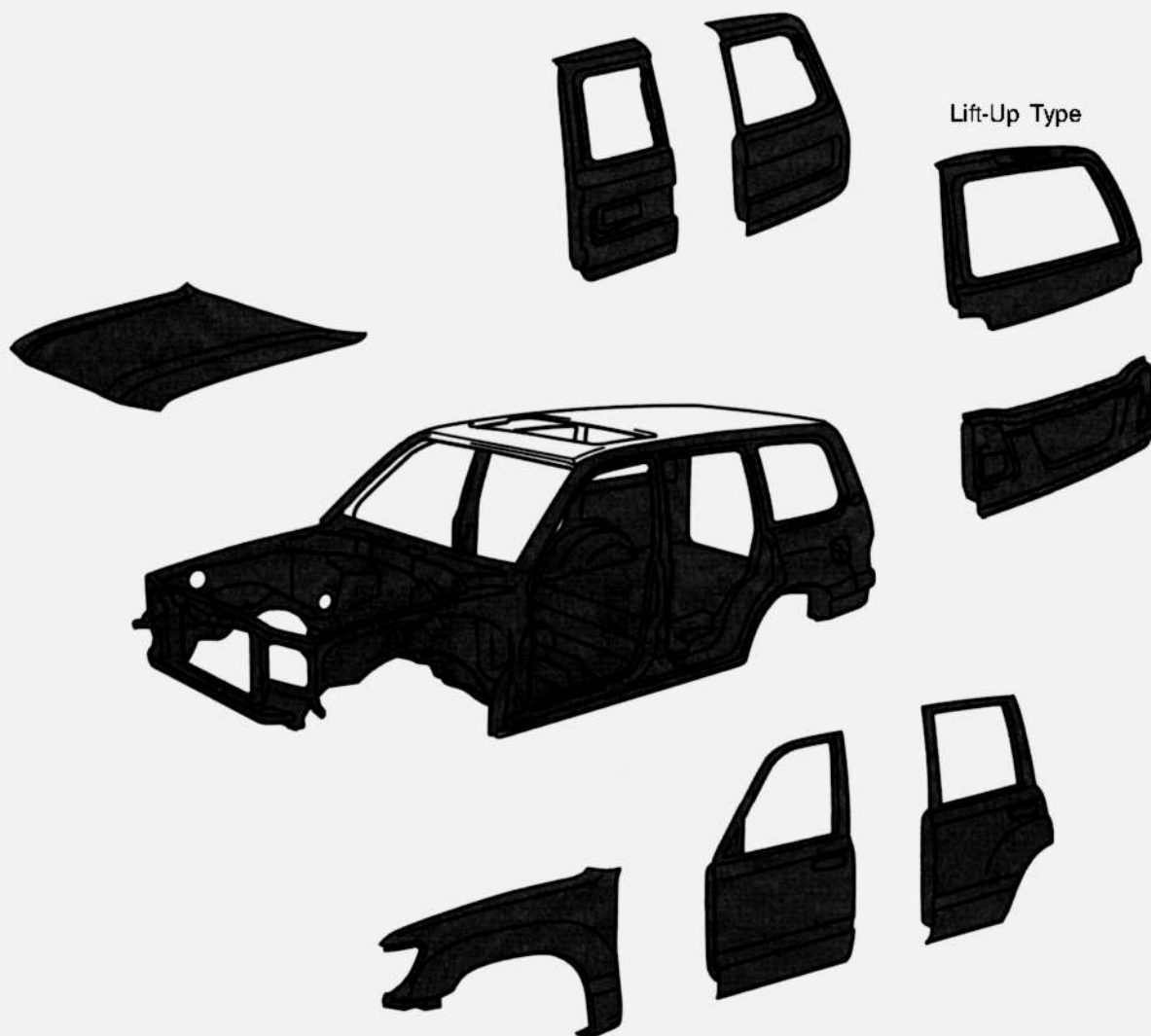


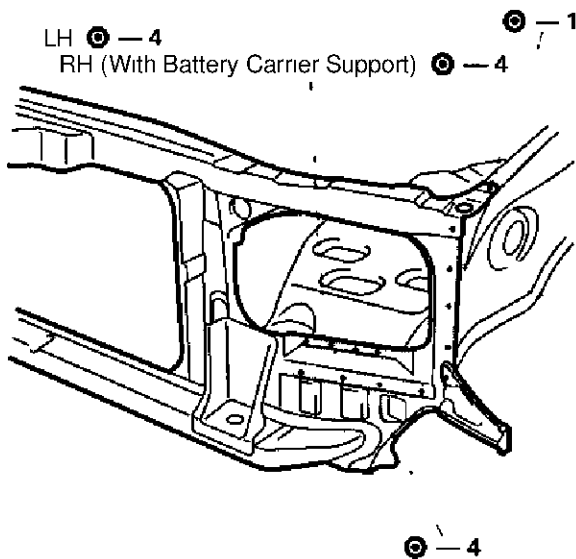
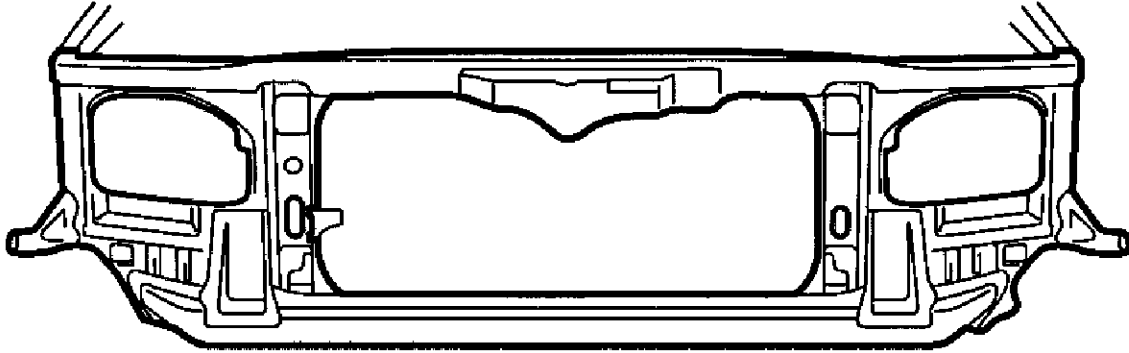
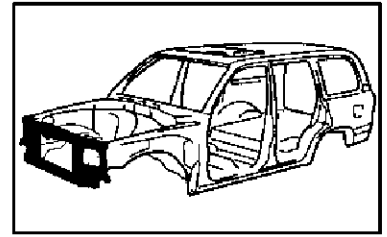
Galvanized Sheet Steel

The handling of Rust-Resistant Sheet Steel is the same as for ordinary sheet steel, but the following should be observed:

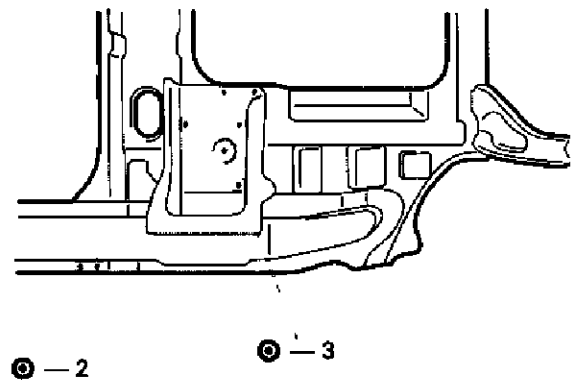
- 1 Panel Welding: The paint as well as the zinc portion must be removed completely from the welding area to guarantee good welding integrity.
- 2 Anti-Rust Treatment: Since the zinc plating is lost after welding, anti-rust treatment of the welded area must be thoroughly performed (refer to section AR).

Lift-Up Type

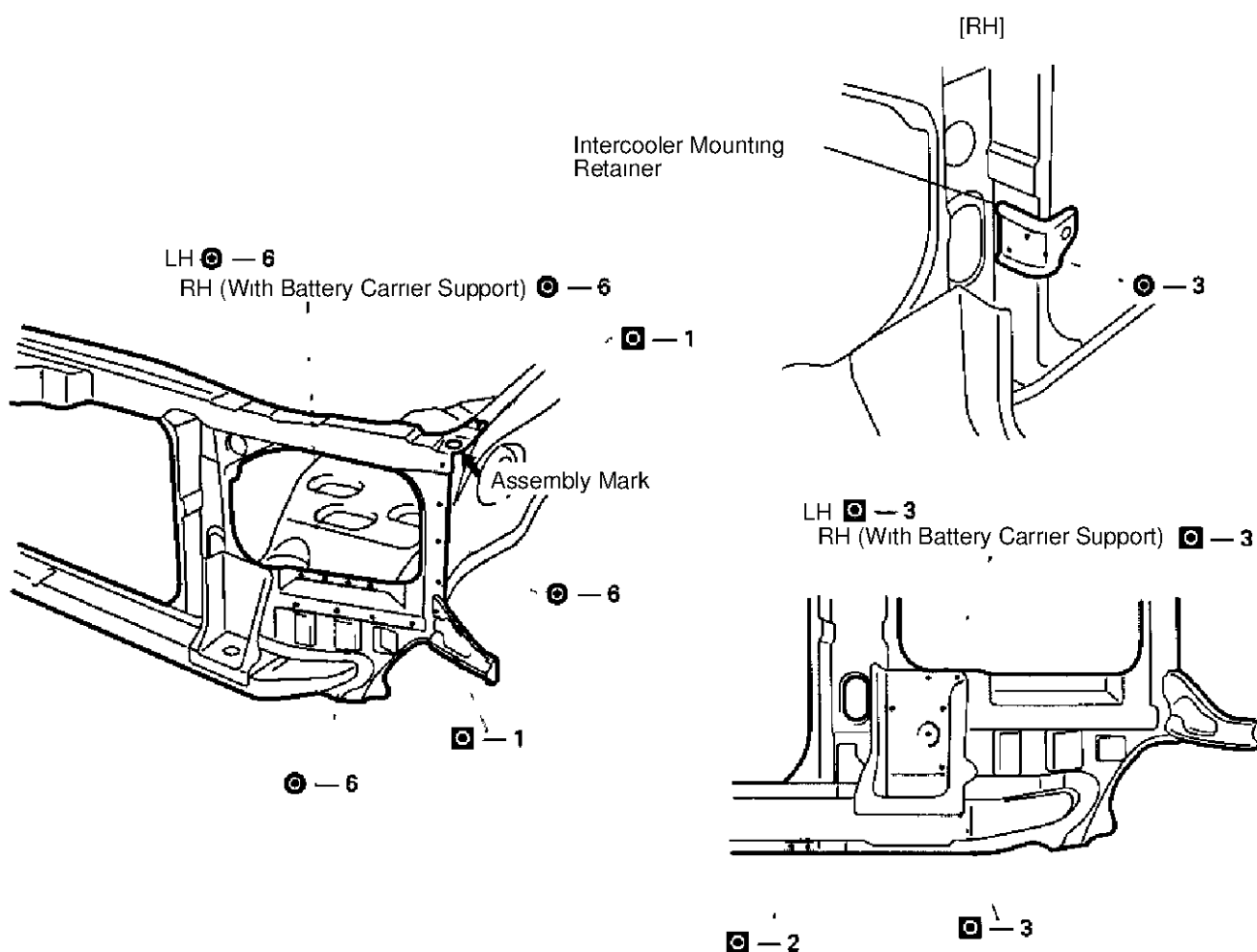
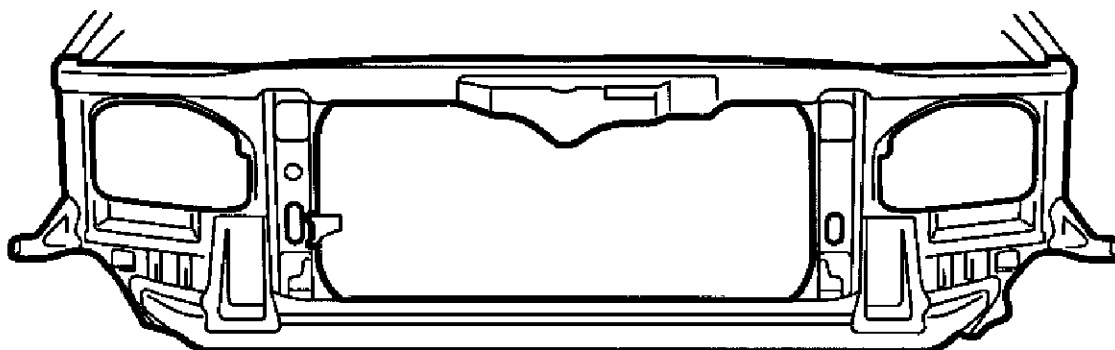


RADIATOR SUPPORT (ASSY)**REMOVAL**

LH ⑤ — 3
RH (With Battery Carrier Support) ⑤ — 3



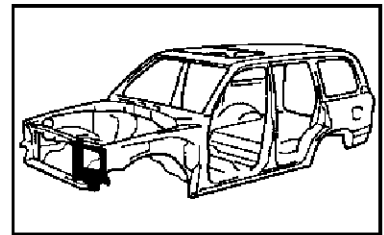
INSTALLATION



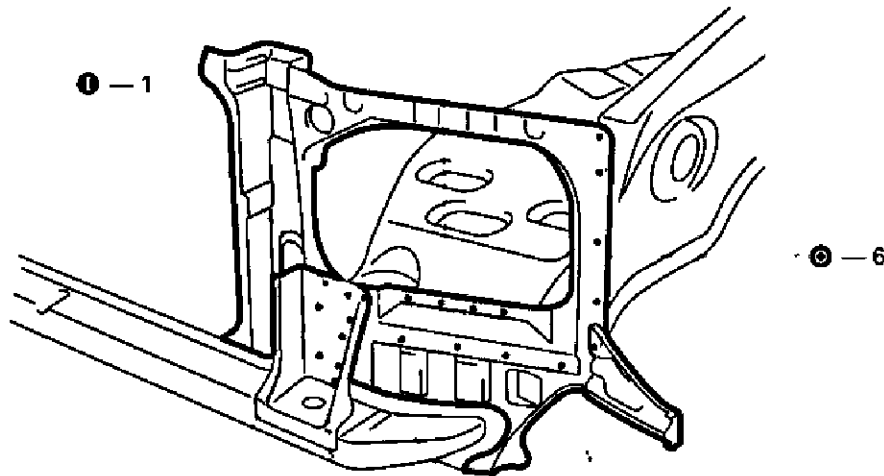
- 1 When temporarily installing the new parts, determine the installation position by the assembly mark. Then, measure each part in accordance with the body dimension diagram.

RADIATOR SIDE SUPPORT (ASSY)

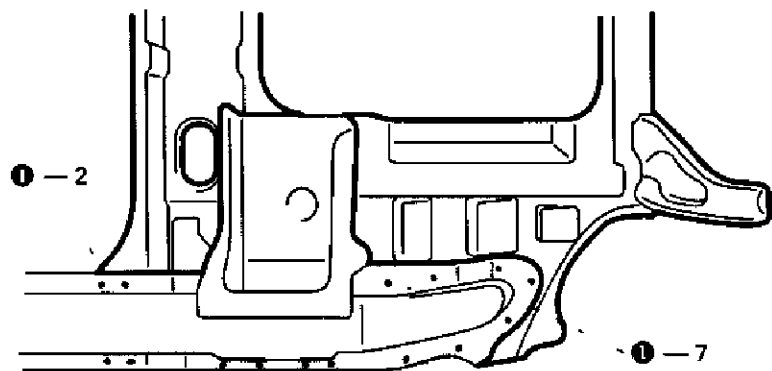
REMOVAL (With the radiator upper support removed.)



LH ⑥ — 4
RH (With Battery Carrier Support) ⑥ — 4

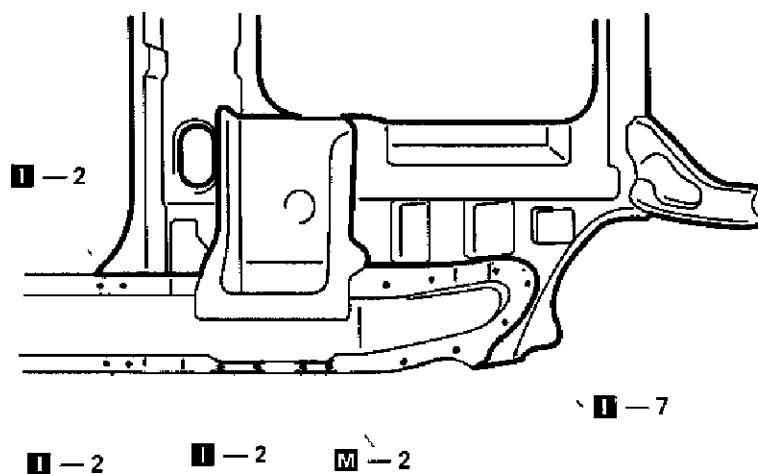
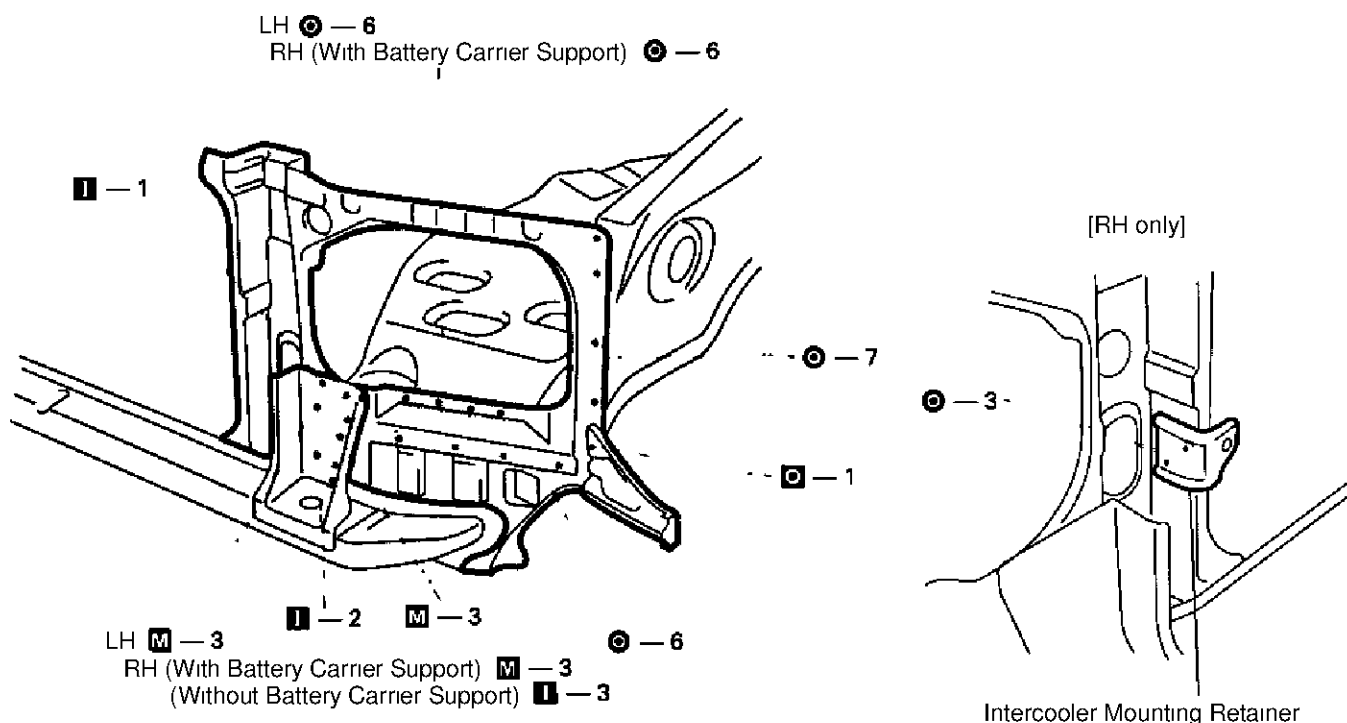


LH ④ — 3 ① — 2 ④ — 3 ⑥ — 4
RH (With Battery Carrier Support) ④ — 3
(Without Battery Carrier Support) ① — 3



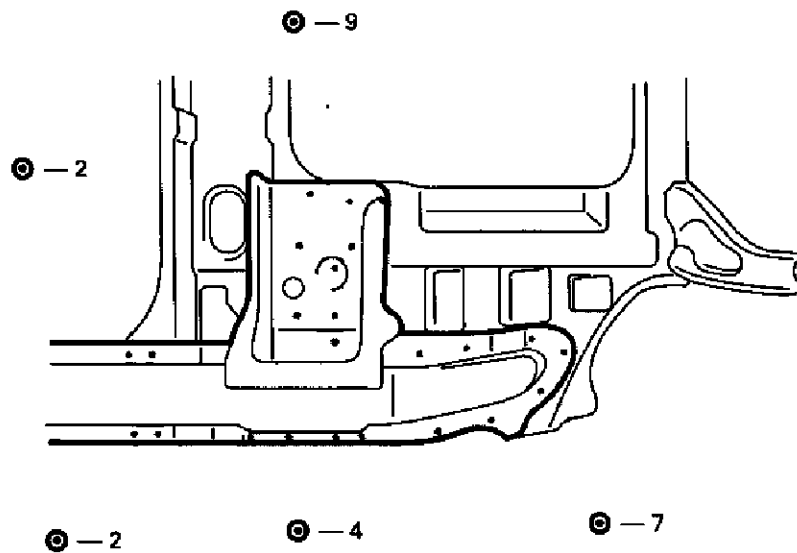
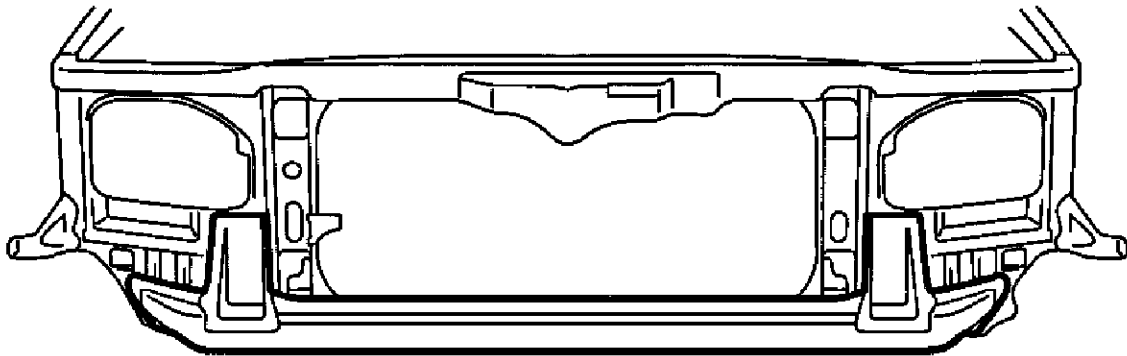
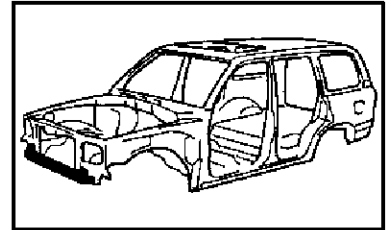
① — 2 ① — 2 ④ — 2

INSTALLATION

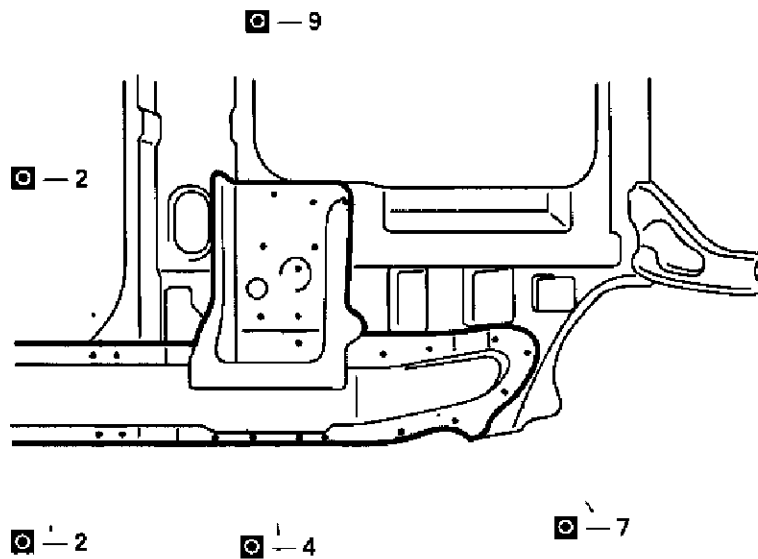
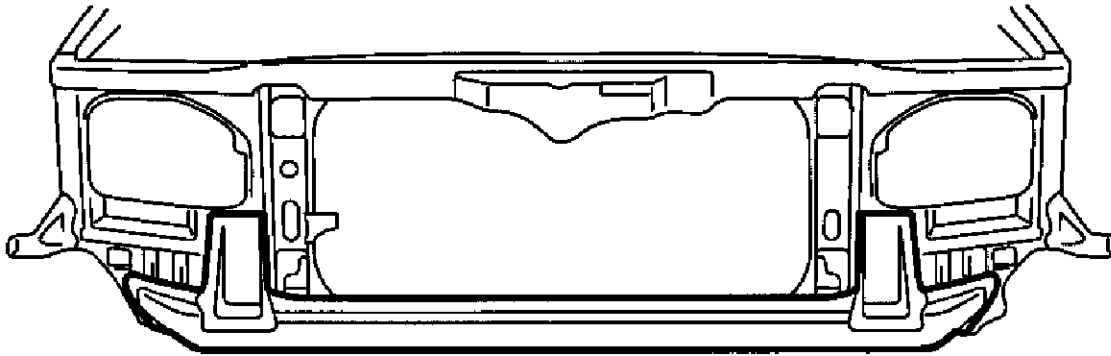


- 1 Temporarily install the new parts and measure each part in accordance with the body dimension diagram

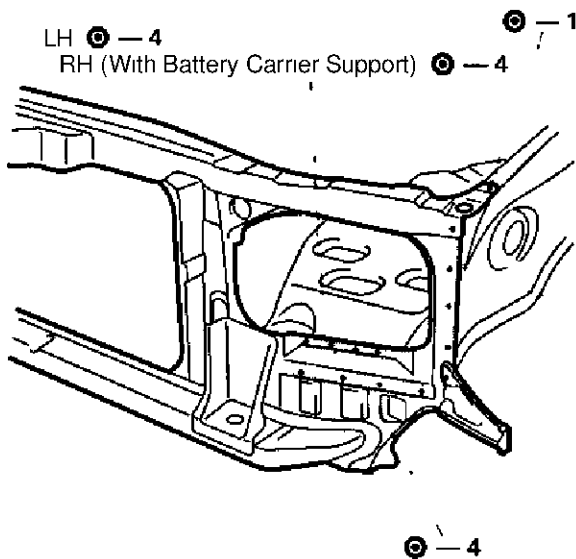
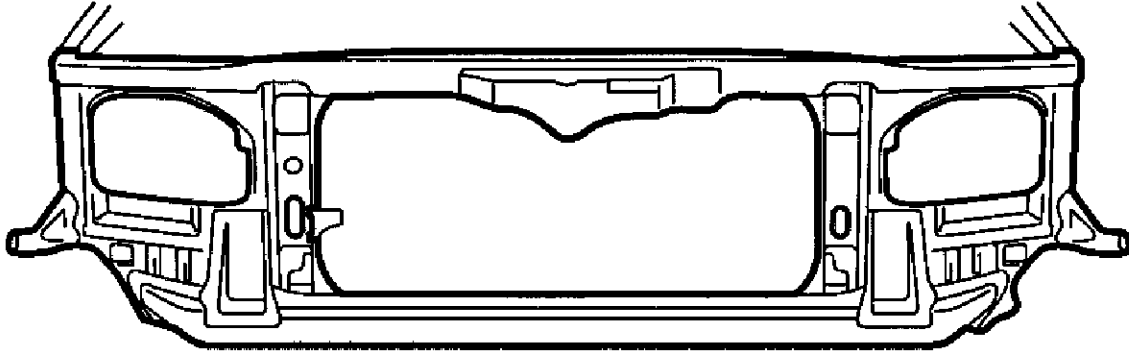
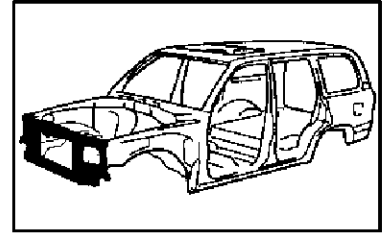
HINT: First install the radiator upper support

FRONT CROSSMEMBER (ASSY)**REMOVAL**

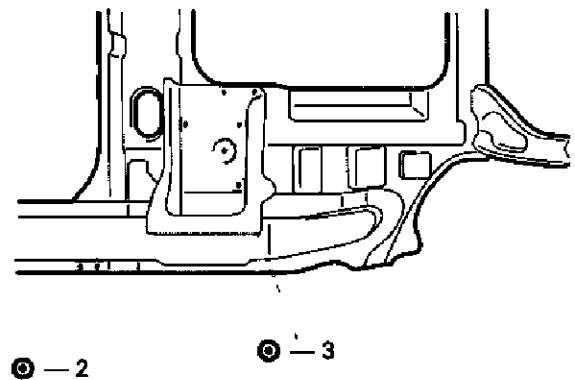
INSTALLATION



- 1 Temporarily install the new parts and measure each part in accordance with the body dimension diagram

RADIATOR SUPPORT (ASSY)**REMOVAL**

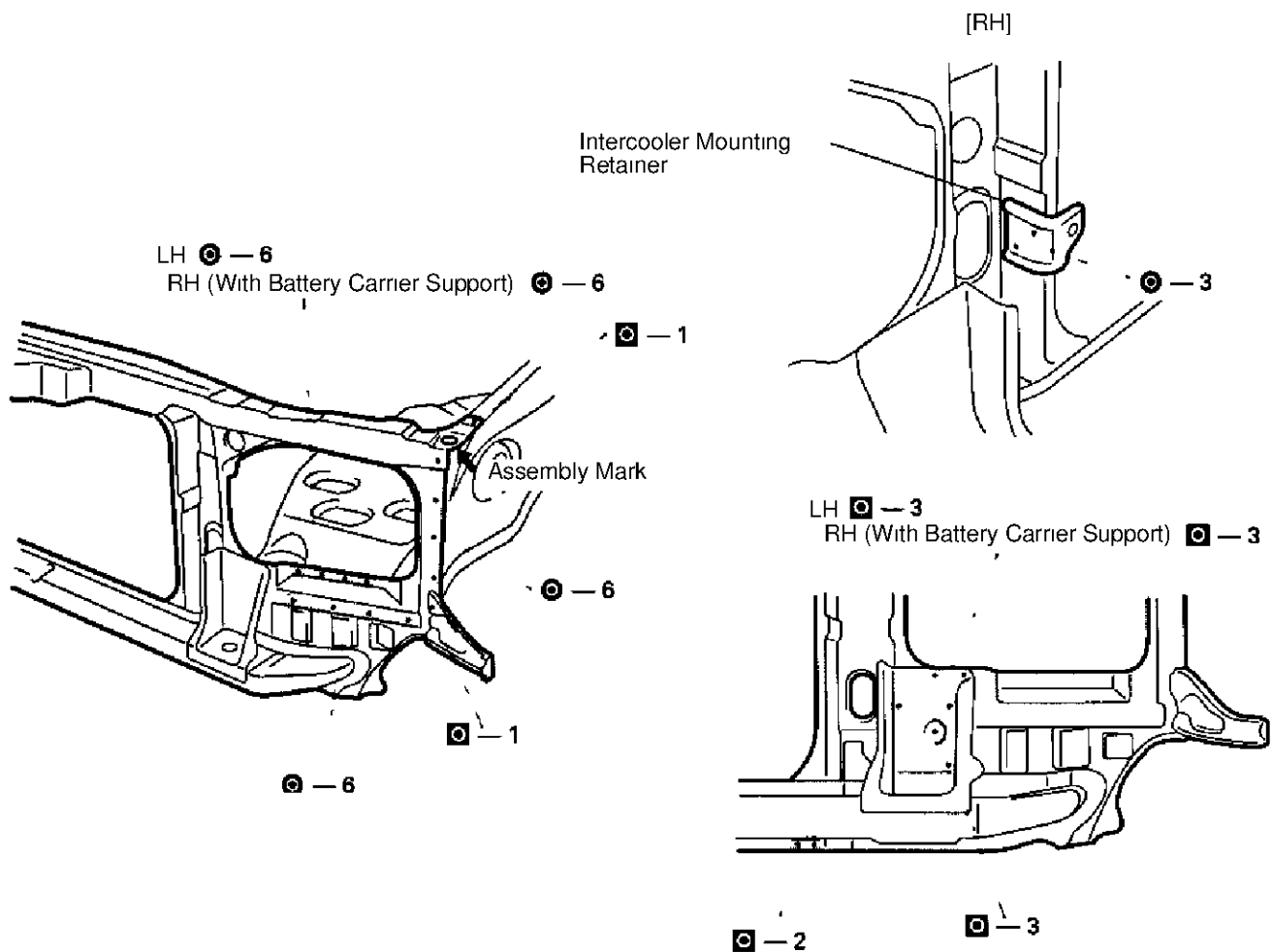
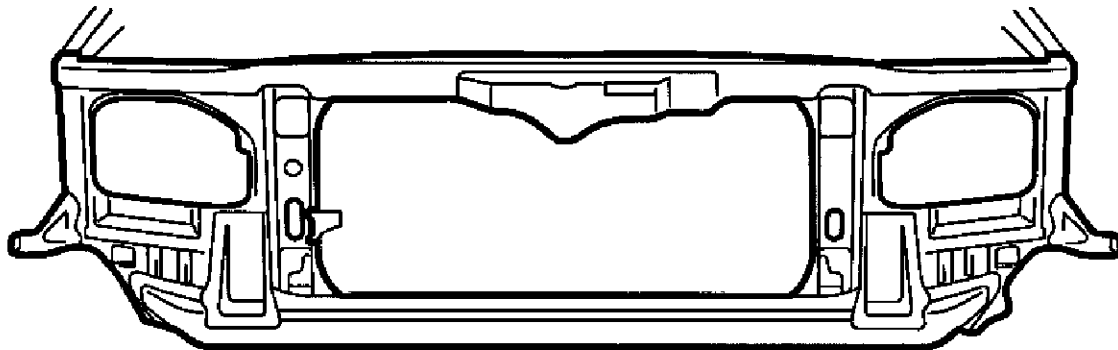
LH 3 — 3
RH (With Battery Carrier Support) 3 — 3



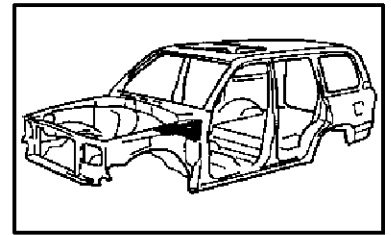
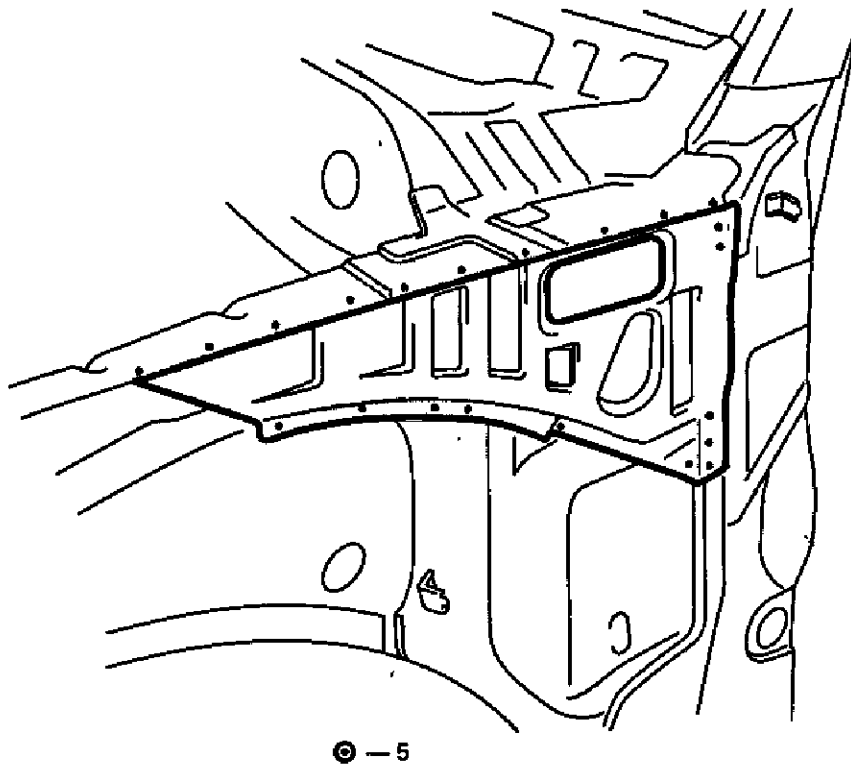
2 — 2

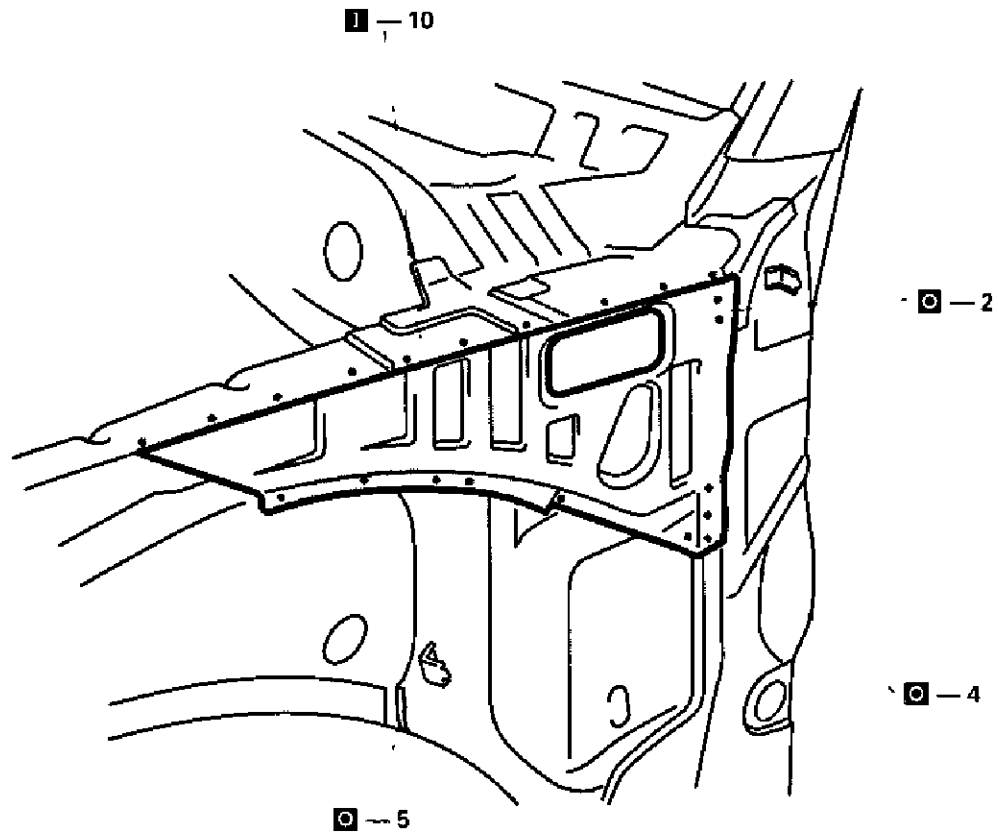
3 — 3

INSTALLATION



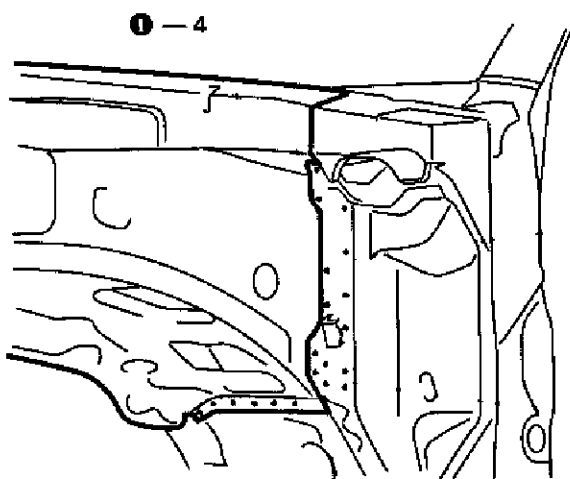
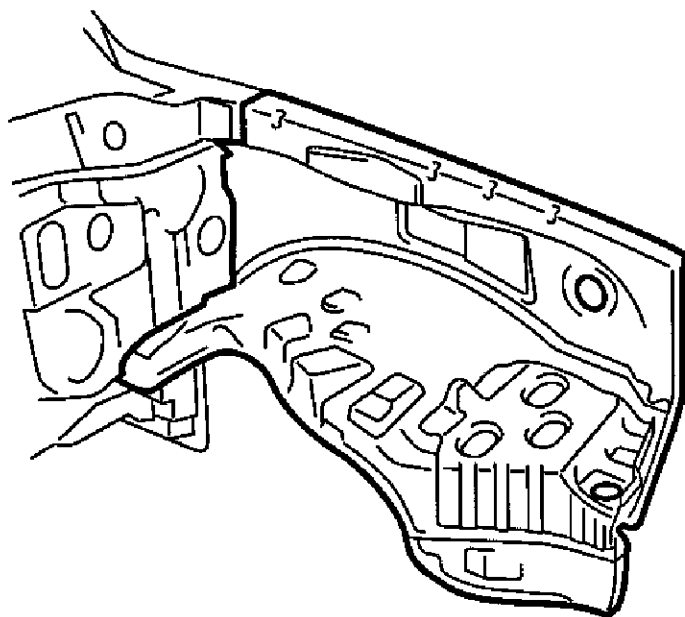
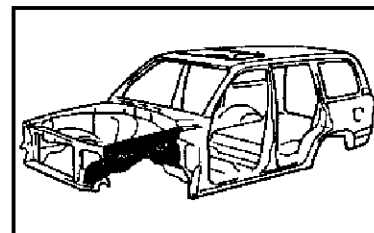
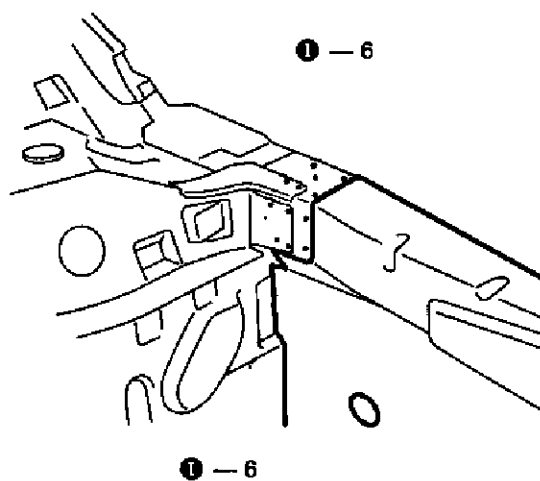
- 1 When temporarily installing the new parts, determine the installation position by the assembly mark. Then, measure each part in accordance with the body dimension diagram.

COWL TOP SIDE PANEL (ASSY)**REMOVAL****1 — 10****2 — 2****4 — 4****5 — 5**

INSTALLATION

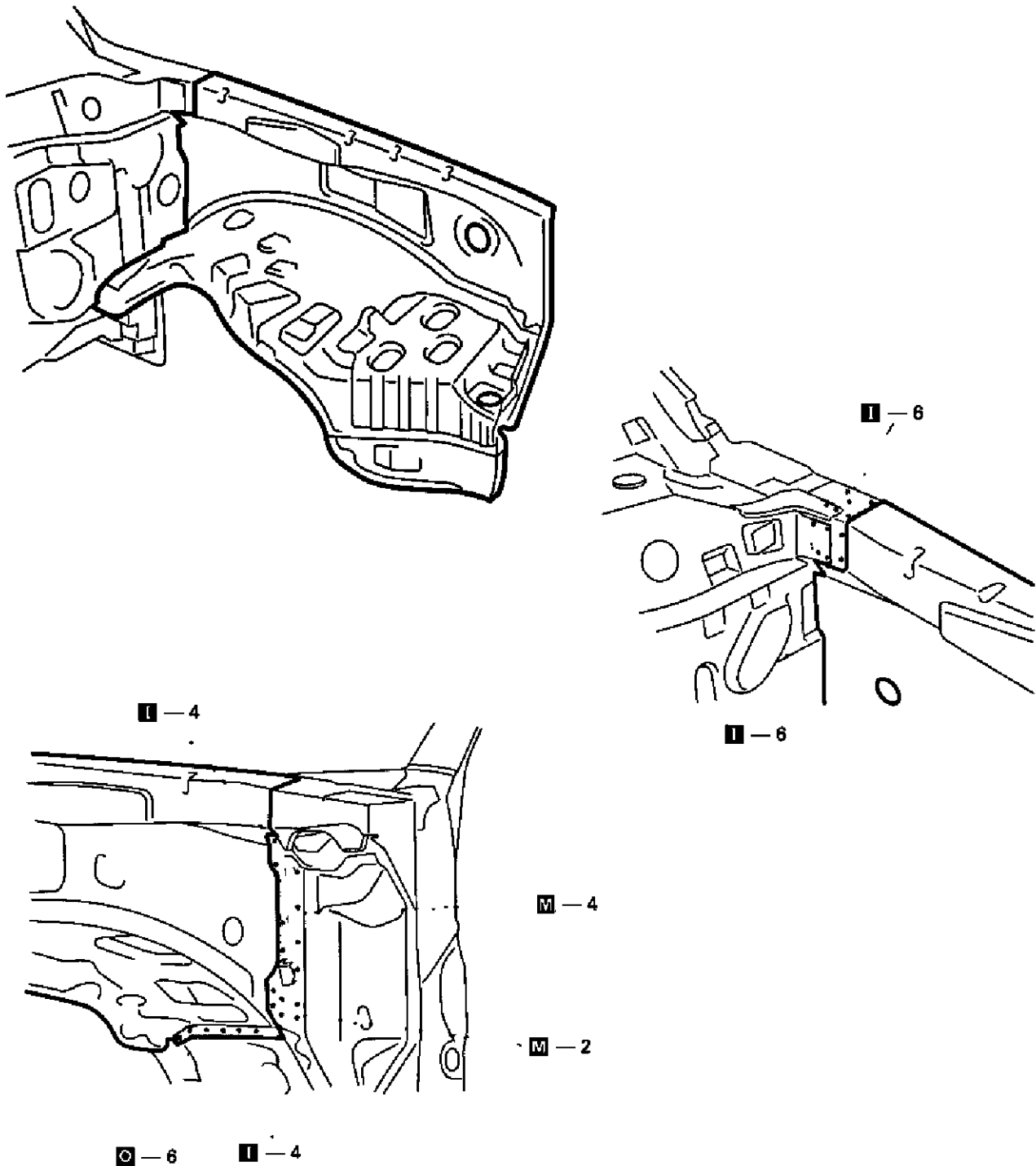
FRONT FENDER APRON (ASSY)

REMOVAL (With the radiator support, cowl top side panel removed.)

**1** — 4- **M** — 4**M** — 2**6** — 6**1** — 4**1** — 6**1** — 6

Donated by Andrew Schauer cruisercult.com

INSTALLATION

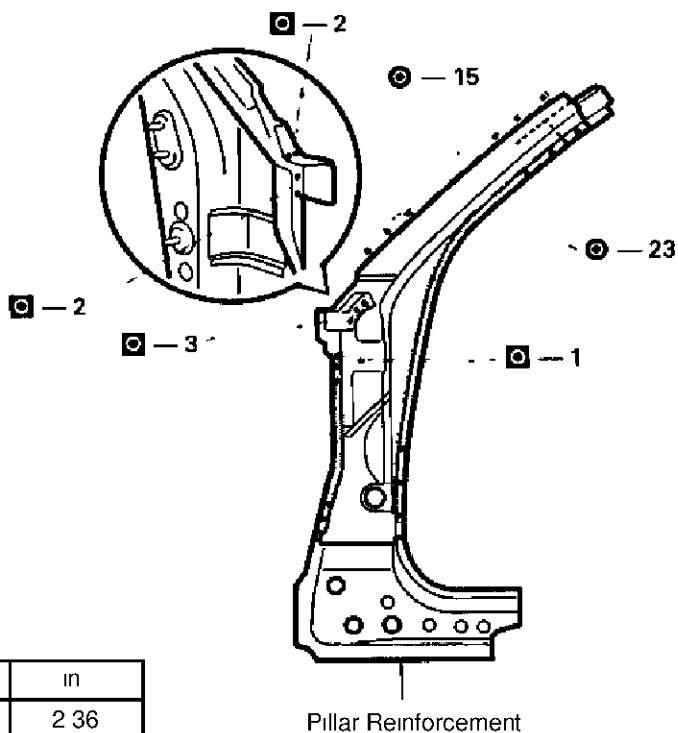
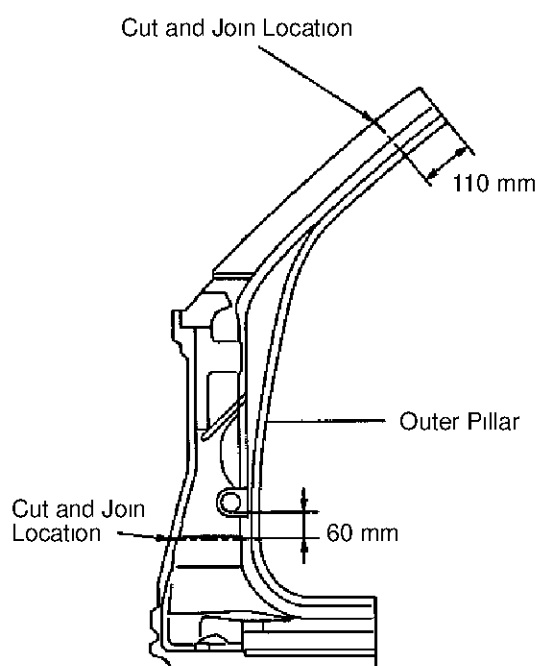
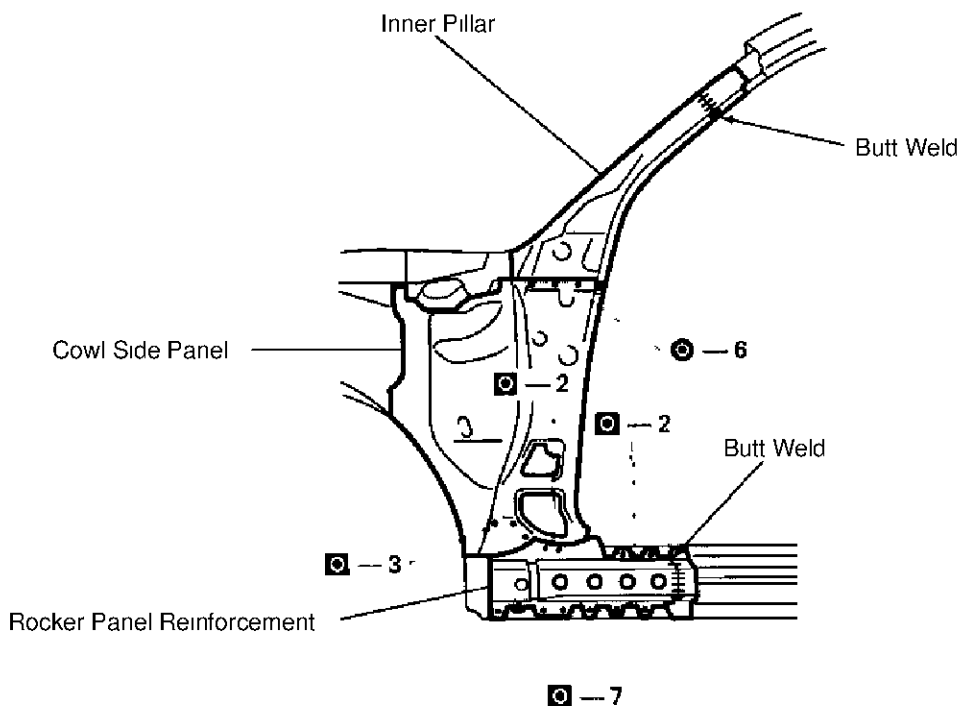


- 1 Temporarily install the new parts and measure each part in accordance with the body dimension diagram
- 2 Temporarily install the front fender and hood, and check the fit

Donated by Andrew Schauer cruisercult.com

-MEMO-

INSTALLATION

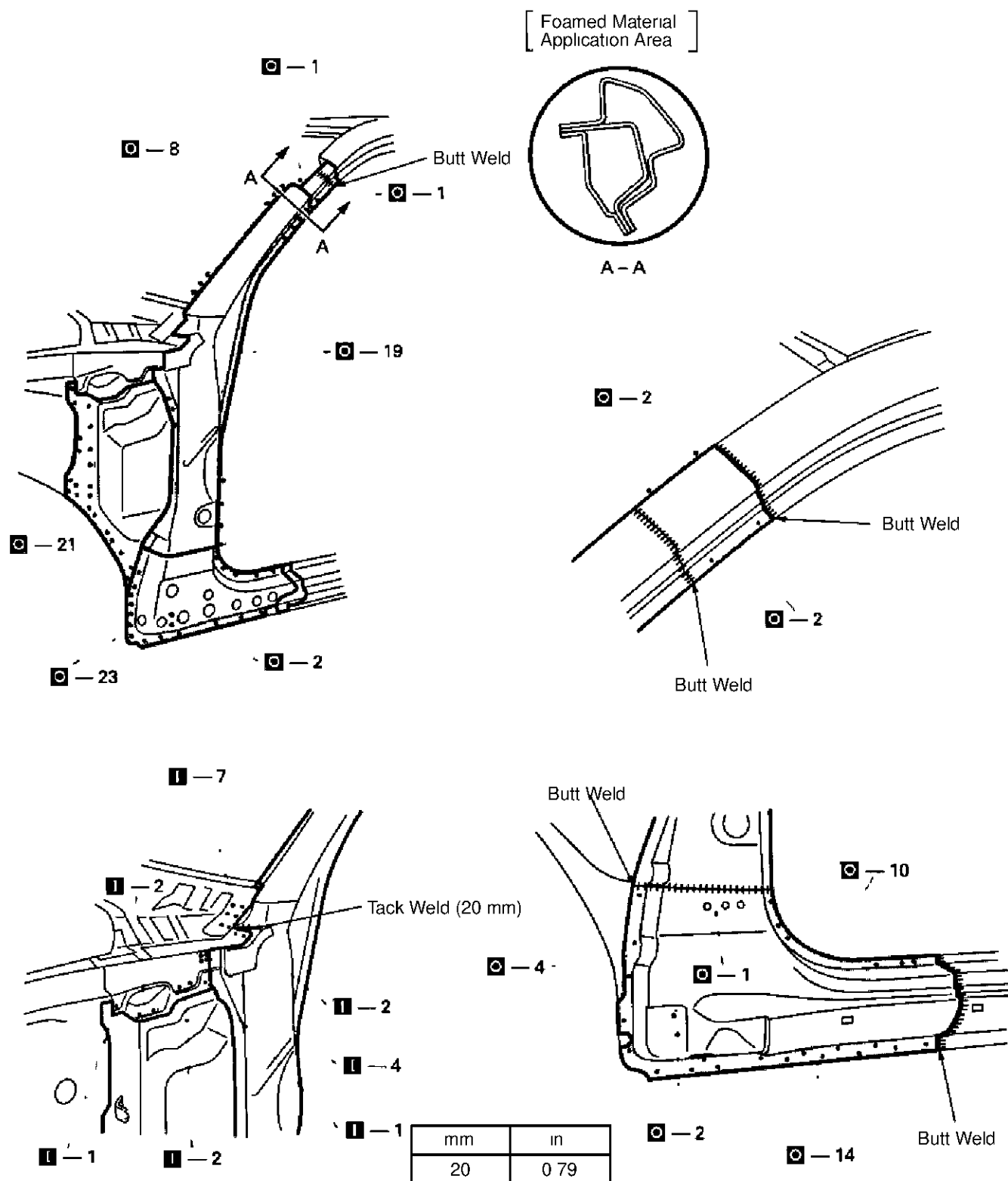


mm	in
60	2 3/8
110	4 3/8

- 1 Install the inner pillar and rocker panel reinforcement to the vehicle side
- 2 Cut the new parts for the outer pillar at the locations as shown above
- 3 Before temporarily installing the new parts Weld the pillar reinforcement and outer pillar with standard points

HINT: After welding the pillar reinforcement finally attach it to the cut and join location tips

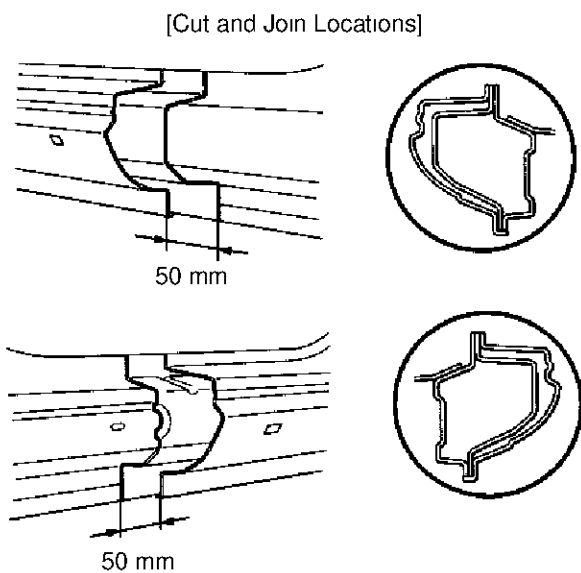
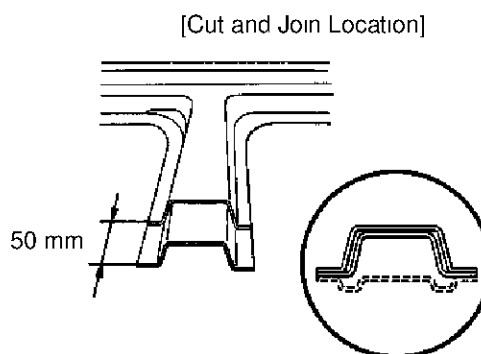
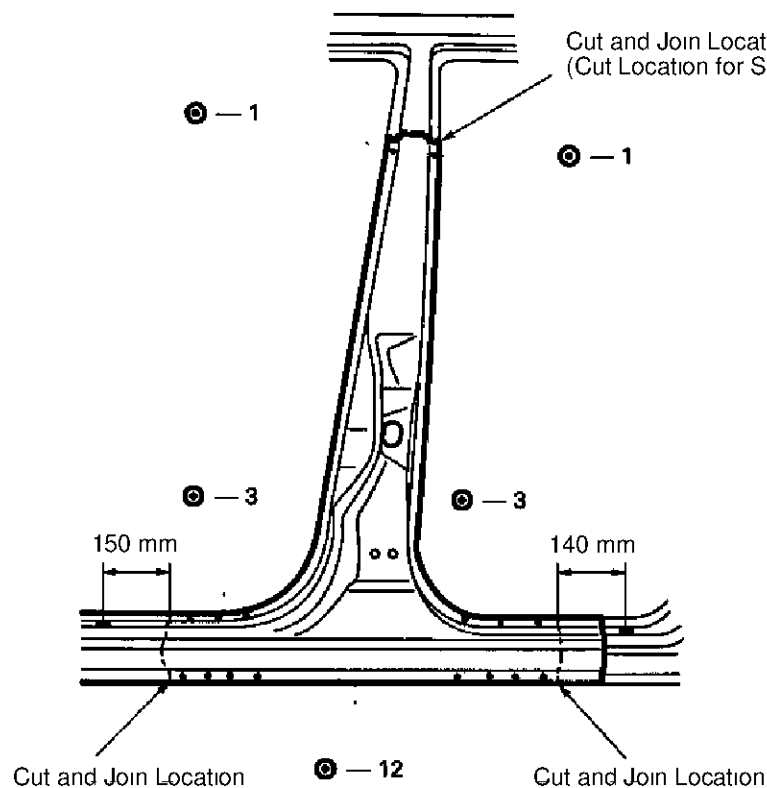
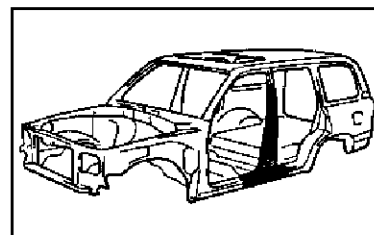
Donated by Andrew Schauer cruisercult.com



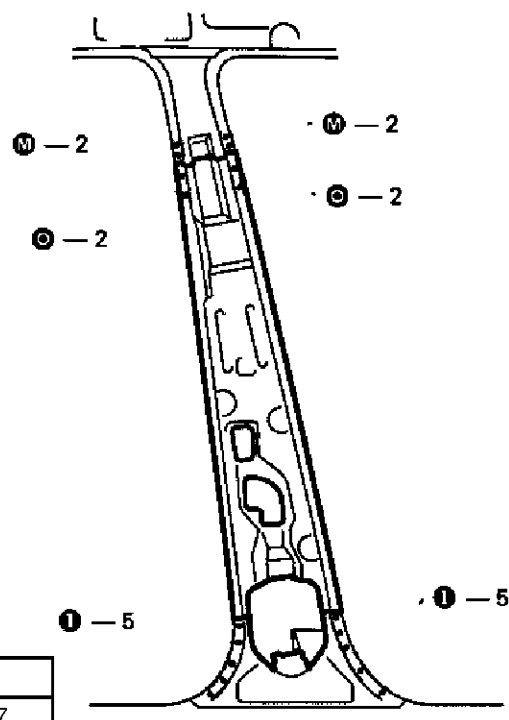
- 4 Temporarily install the new parts and measure each part in accordance with the body dimension diagram
- 5 Before welding the new parts, check the fit of the front door, front fender and windshield glass
- 6 Apply foamed material to the pillar section

CENTER BODY PILLAR (CUT)

REMOVAL

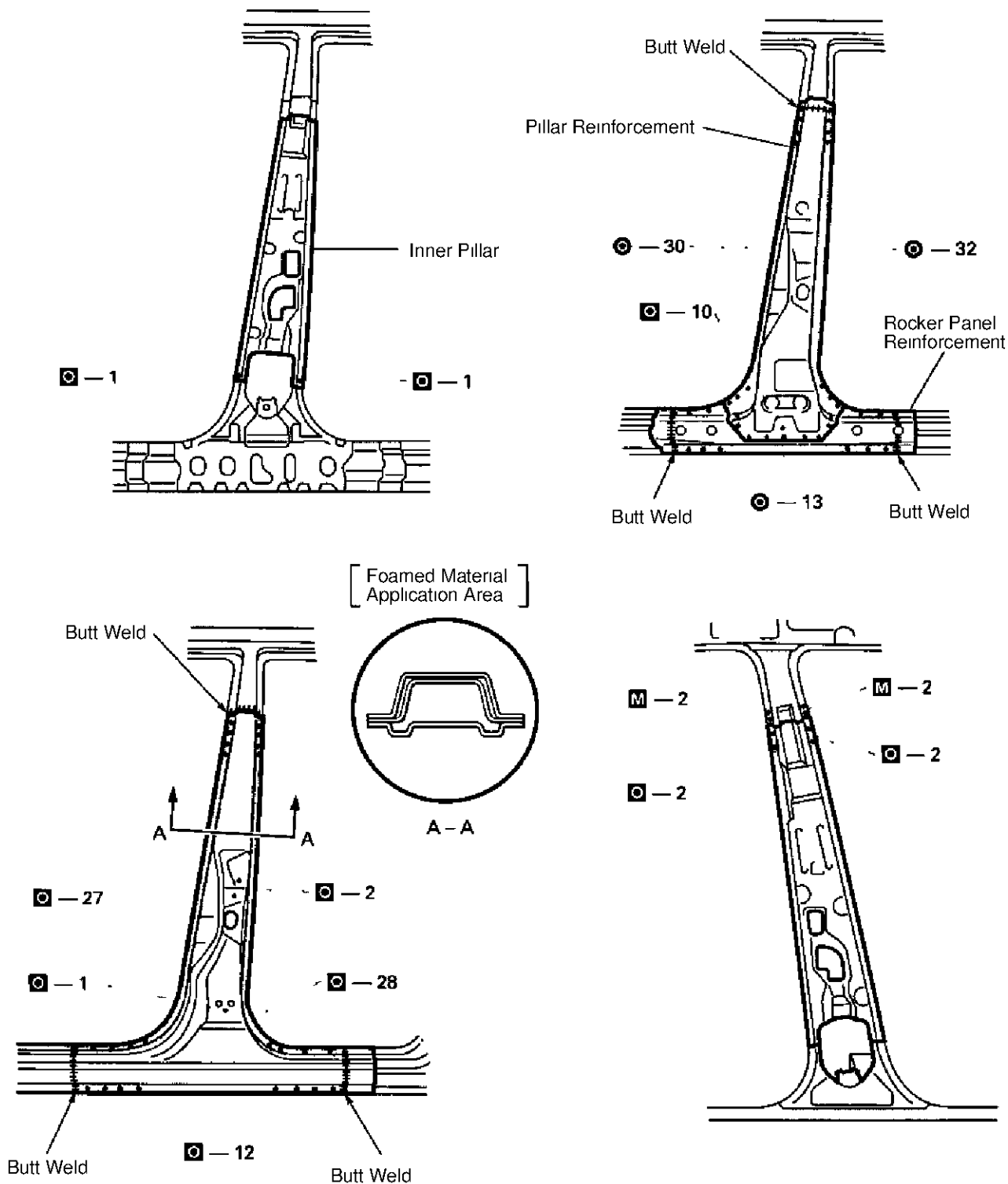


mm	in
50	1 97
140	5 51
150	5 91

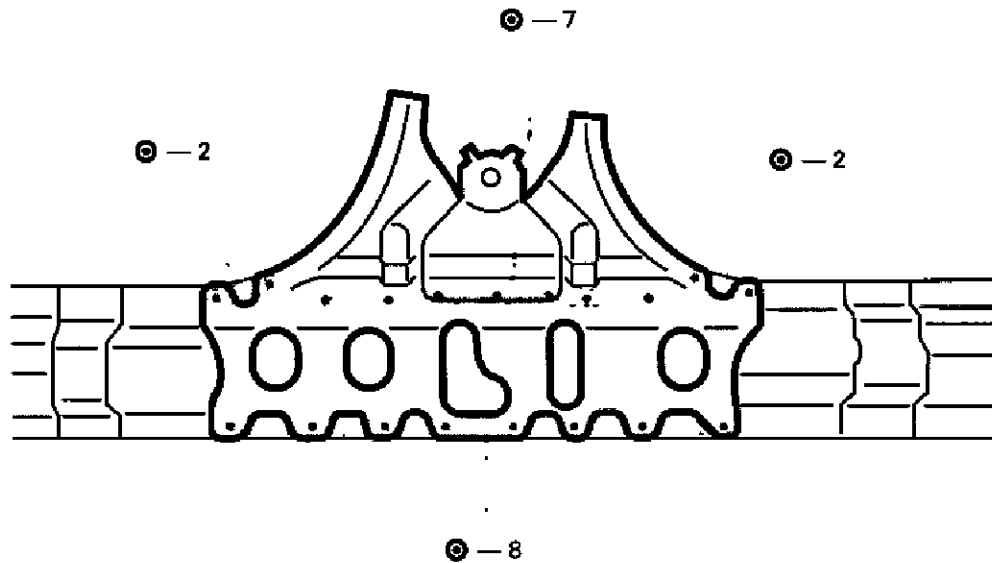
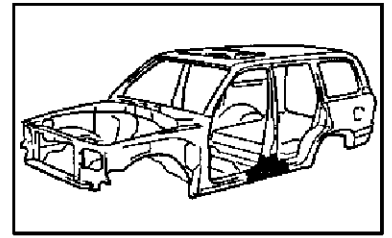


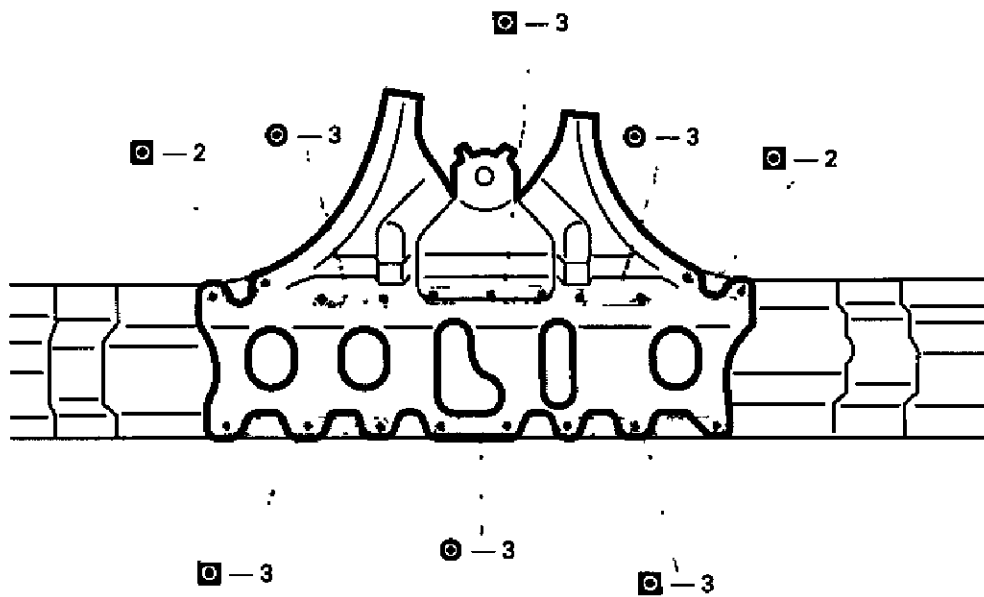
- 1 Cut and join the parts at the locations as shown above
- 2 Cut and join the outer pillar and pillar reinforcement at position shifted about 50 mm (1 97 in)
- 3 Cut and join the rocker outer panel and rocker panel reinforcement at position shifted about 50 mm (1 97 in)

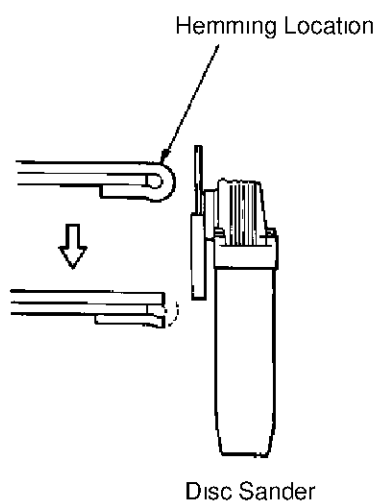
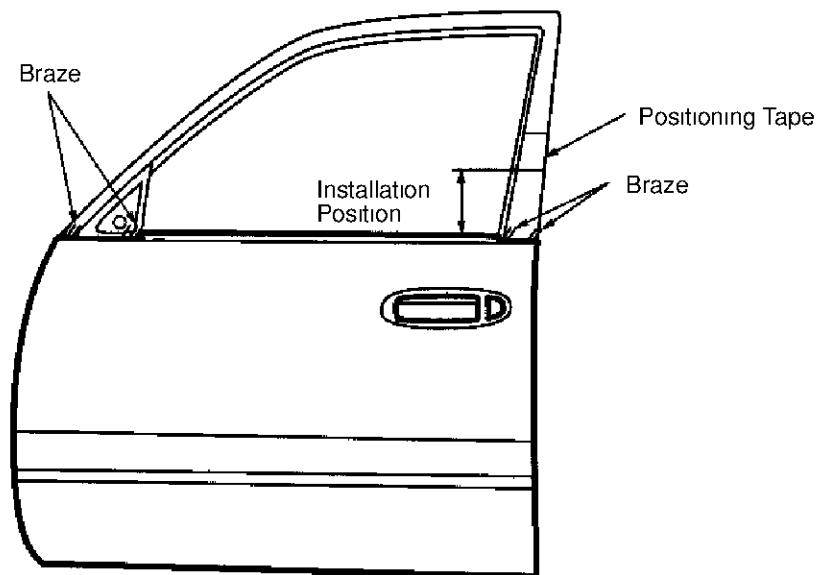
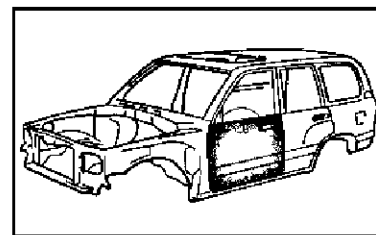
INSTALLATION



- 1 Temporarily install the new parts and measure each part in accordance with the body dimension diagram
- 2 Temporarily install the new parts and check the fit of the front door and rear door
- 3 After welding inner pillar and rocker panel reinforcement and pillar reinforcement to the vehicle install the outer pillar
- 4 After installing the new parts, apply foamed materials

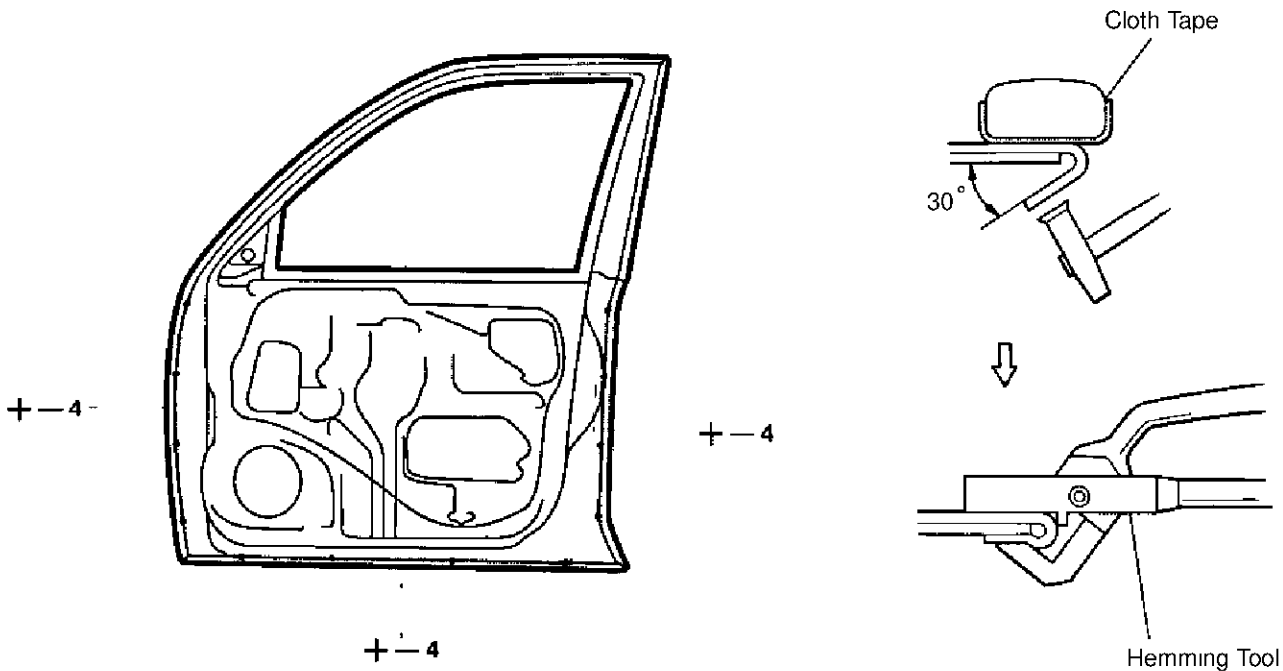
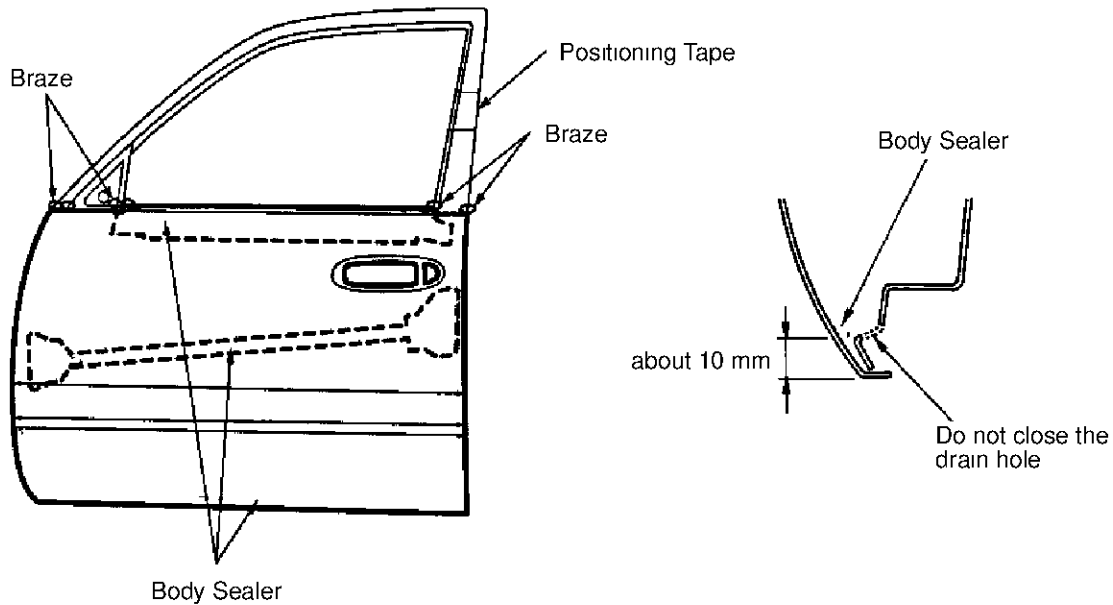
FLOOR SIDE INNER REAR MEMBER (ASSY)**REMOVAL (With the center body pillar removed.)**

INSTALLATION

FRONT DOOR OUTER PANEL (ASSY)**REMOVAL**

- 1 Before removing the outer panel, make the installation position with a tape
- 2 After grinding off the hemming location, remove the outer panel

INSTALLATION



mm	in
10	0.39

- Before temporarily installing the new parts, apply body sealer to the reinforcement, side impact protection beam and back side of the new parts

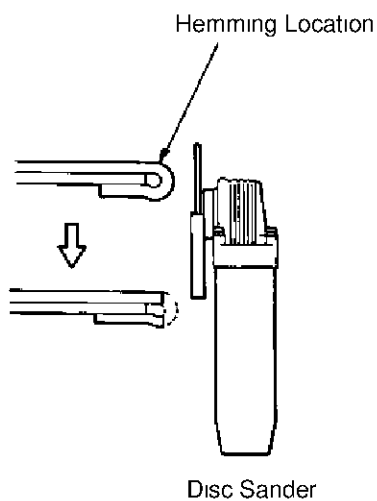
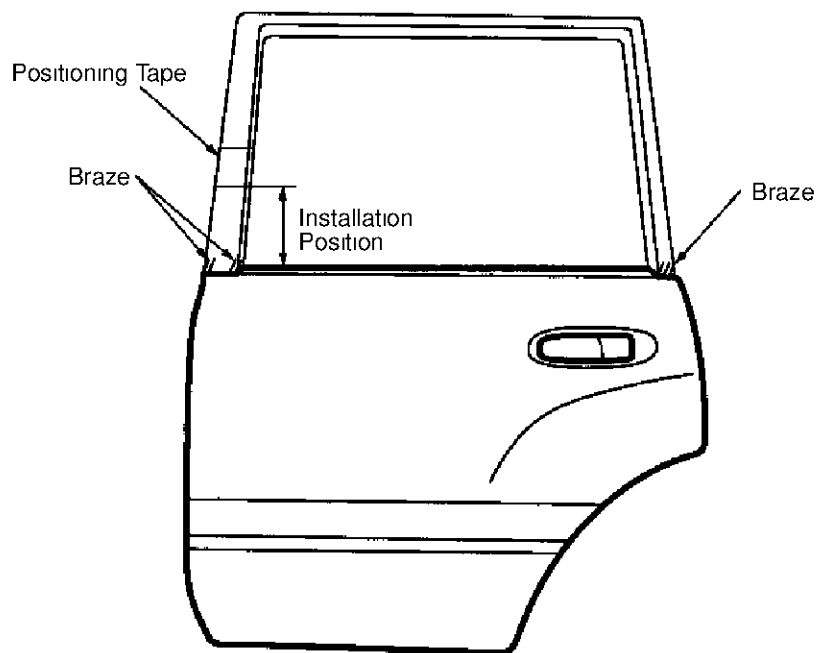
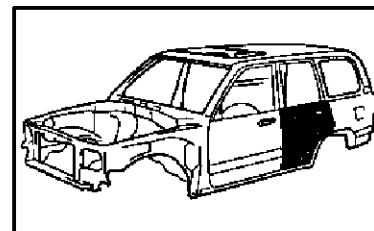
HINT:

- Apply sealer evenly about 10 mm (0.39 in) from the flange and 3 mm (0.12 in) in diameter to the outer panel and apply just enough sealer for the reinforcement and side impact protection beam to make contact
- For other sealing points, refer to section AR

- Bend the flange hem about 30° with a hammer and dolly, then fasten tightly with a hemming tool

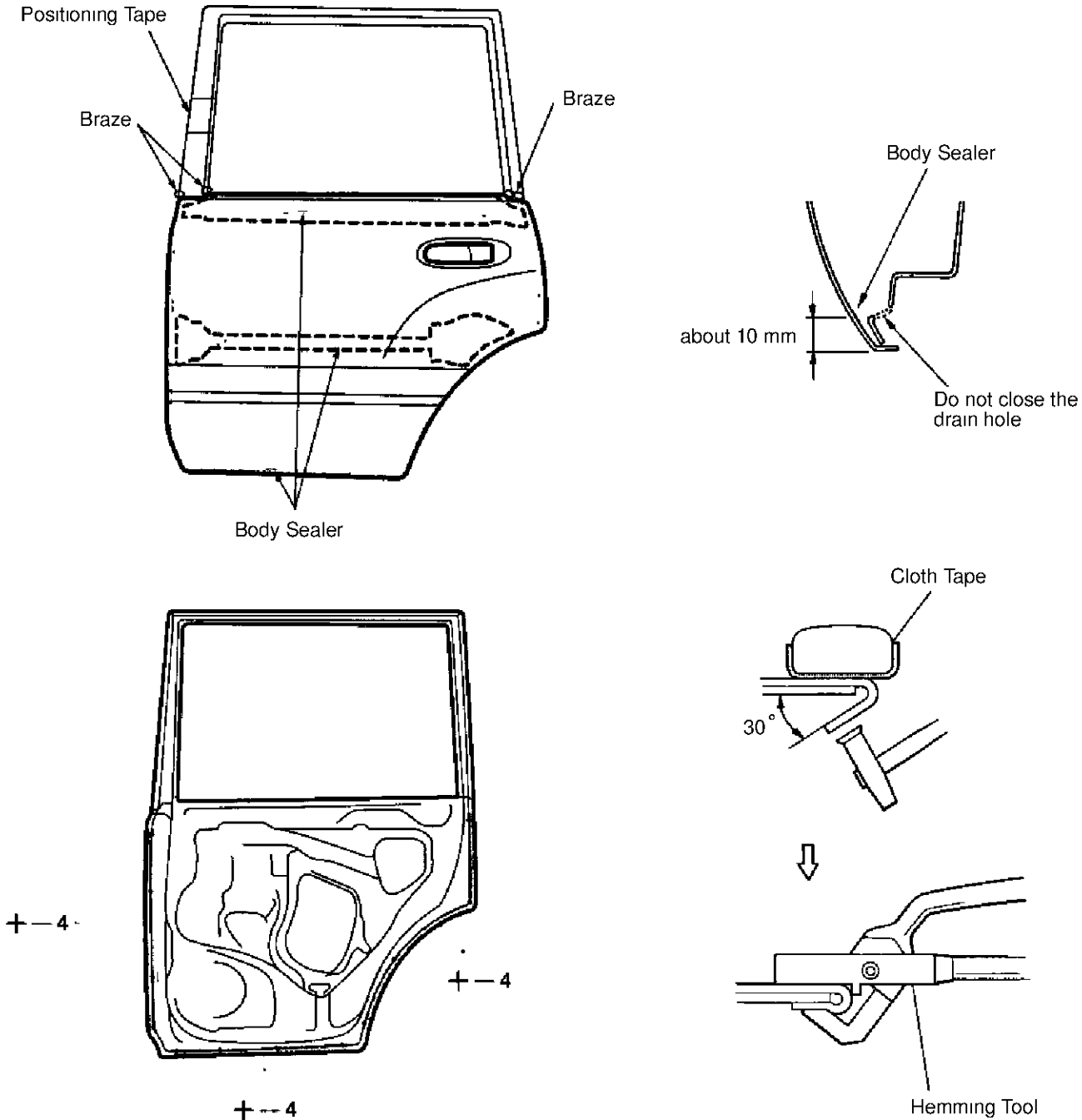
HINT:

- Perform hemming in three steps, being careful not to warp the panel
- If a hemming tool cannot be used, hem with a hammer and dolly

REAR DOOR OUTER PANEL (ASSY)**REMOVAL**

- 1 Before removing the outer panel, make the installation position with a tape
- 2 After grinding off the hemming location, remove the outer panel

INSTALLATION



mm	in
10	0.39

- 1 Before temporarily installing the new parts, apply body sealer to the reinforcement, side impact protection beam and back side of the new parts

HINT:

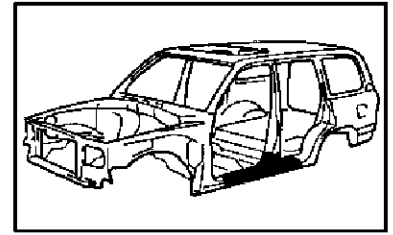
- 1) Apply sealer evenly about 70 mm (0.39 in) from the flange and 3 mm (0.12 in) in diameter to the outer panel and apply just enough sealer for the reinforcement and side impact protection beam to make contact

- 2 Bend the flange hem about 30° with a hammer and dolly, then fasten tightly with a hemming tool

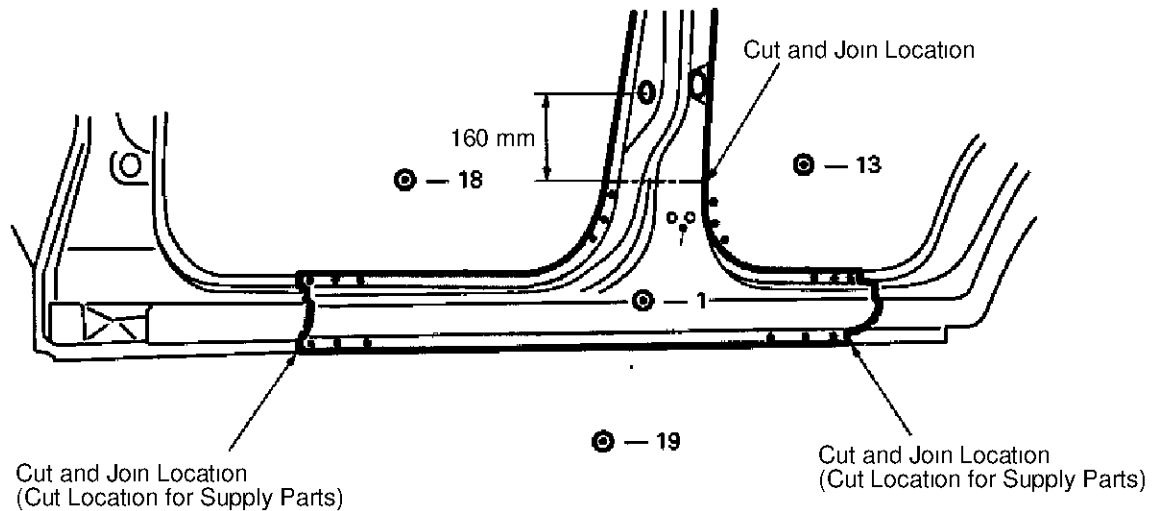
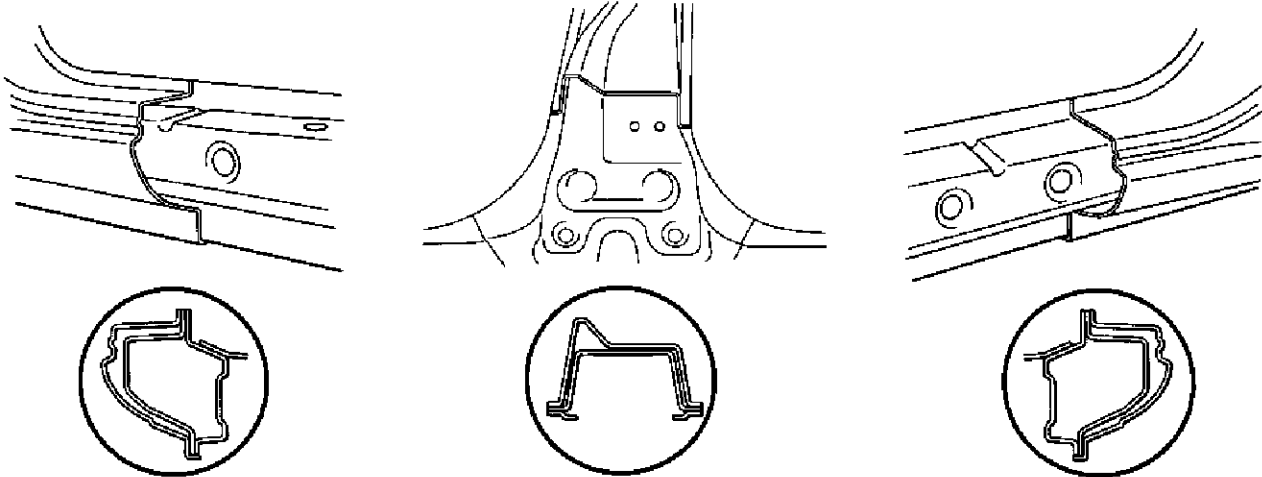
- 2) For other sealing points, refer to section AR

HINT:

- 1) Perform hemming in three steps, being careful not to warp the panel
- 2) If a hemming tool cannot be used, hem with a hammer and dolly

ROCKER OUTER PANEL (CUT)**REMOVAL**

[Cut and Join Locations]

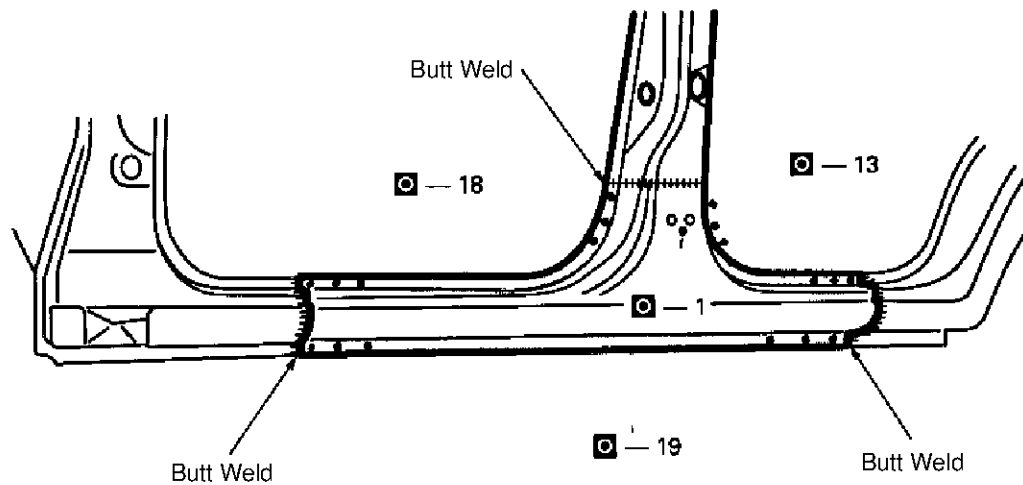


- 1 Cut and join the parts at the locations as shown above

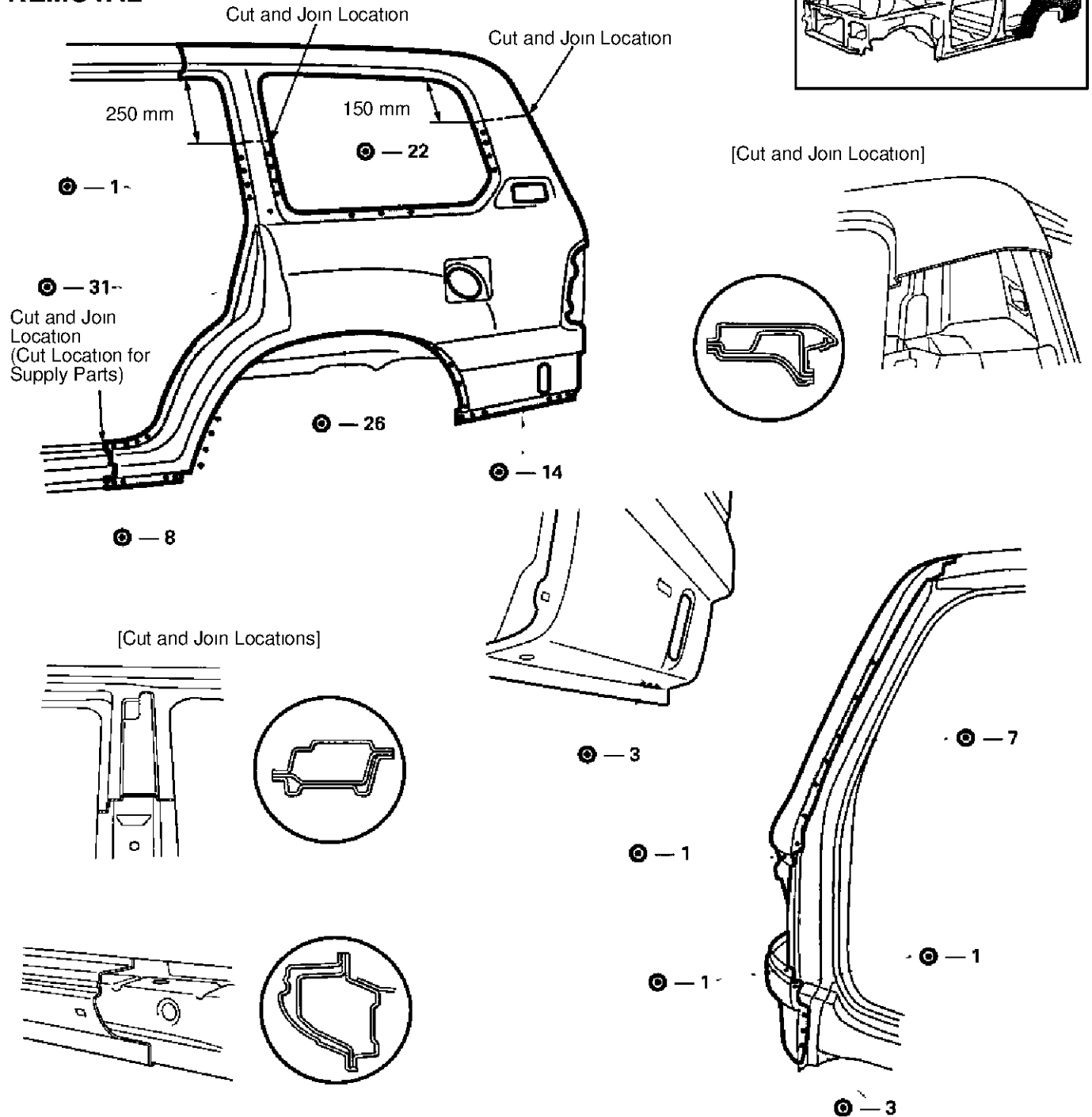
HINT: Take care not to damage the internal reinforcement

mm	in
160	6 30

INSTALLATION



- 1 Before welding the new parts, check the fit of the front door and rear door

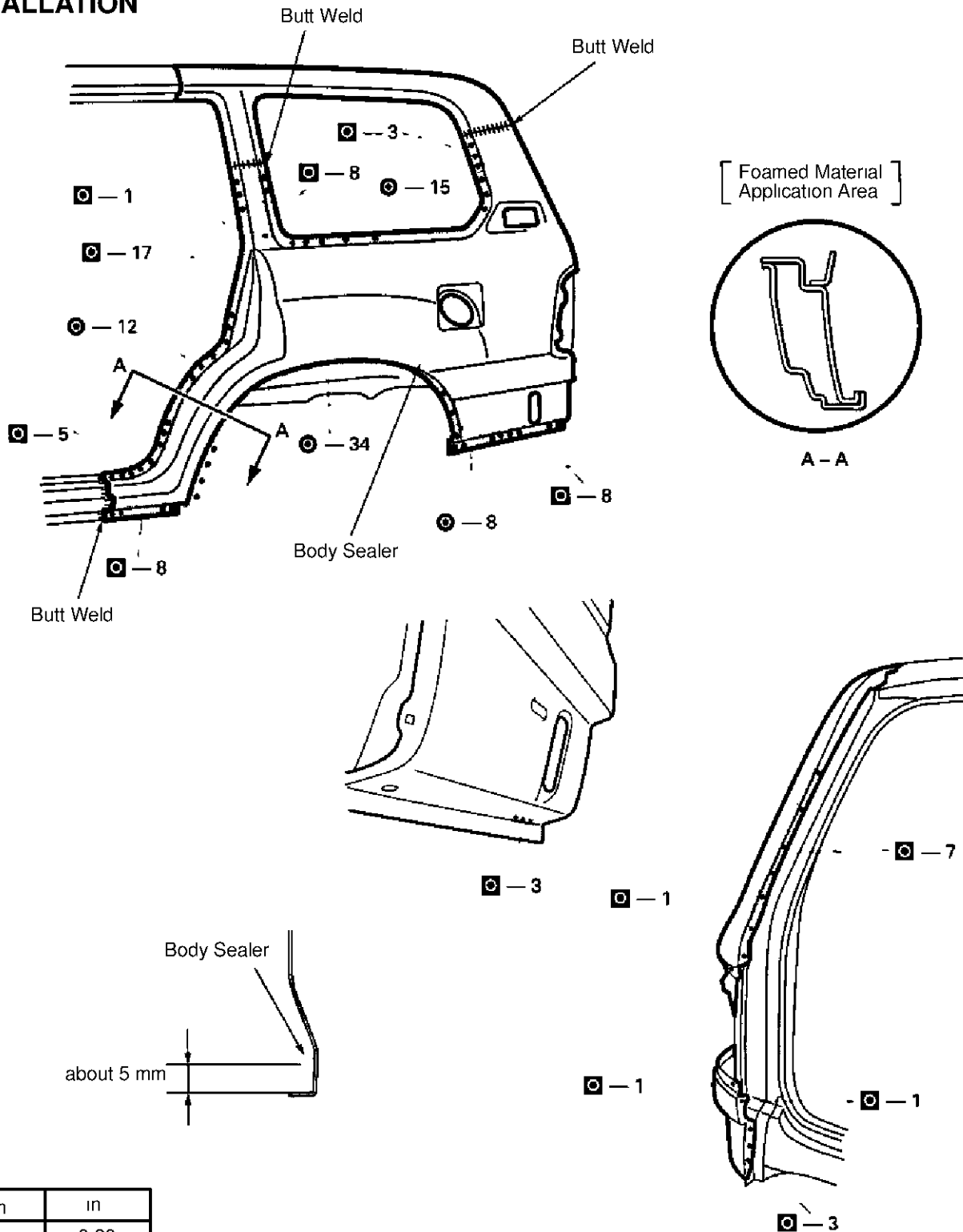
QUARTER PANEL (CUT)**REMOVAL**

- 1 Cut and join the parts at the locations as shown above

mm	in
150	5 91
260	9 84

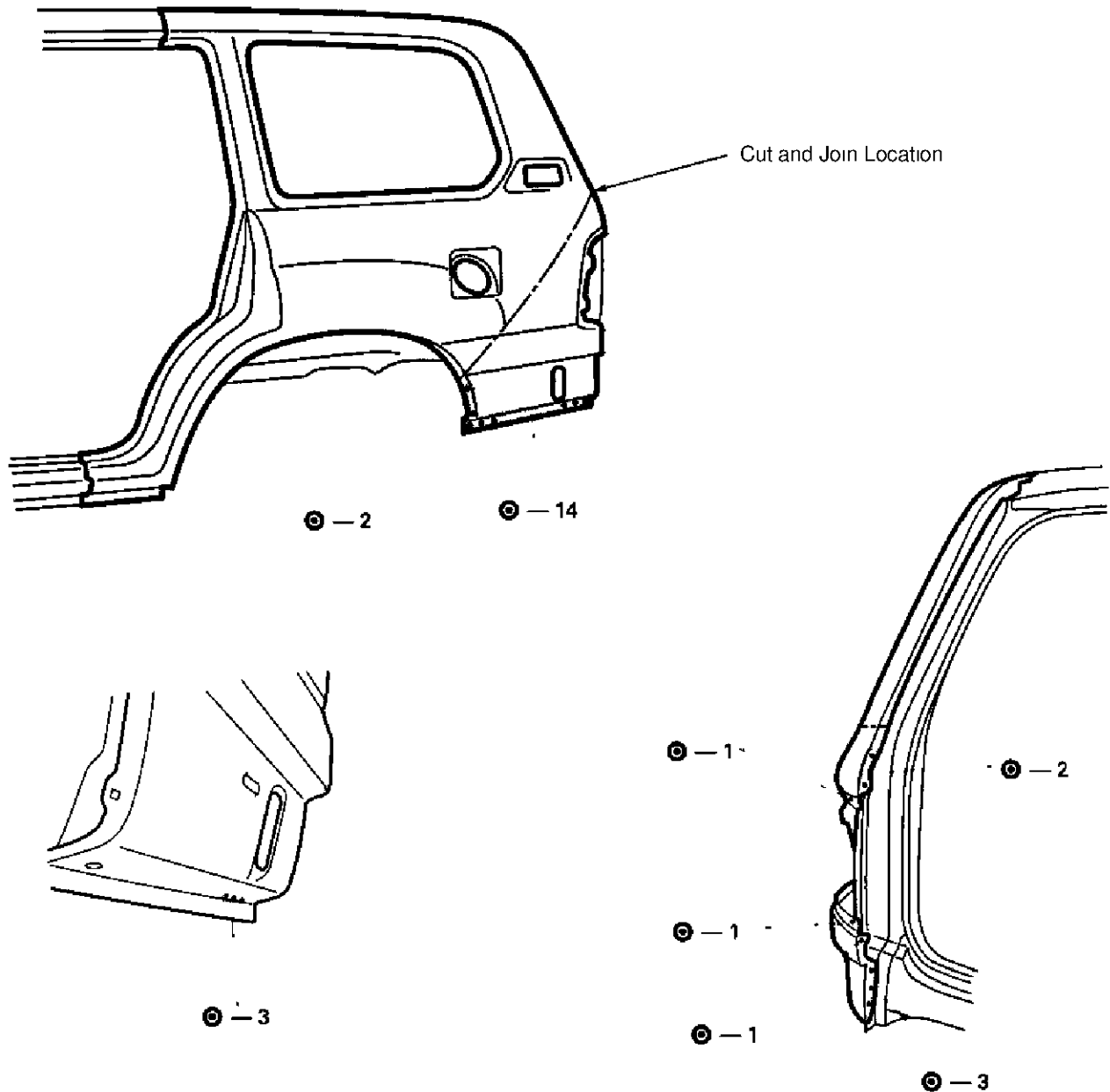
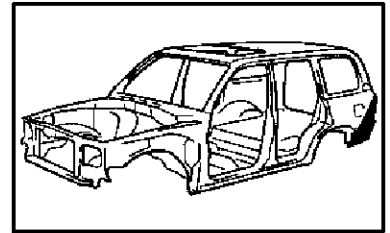
Donated by Andrew Schauer cruisercult.com

INSTALLATION



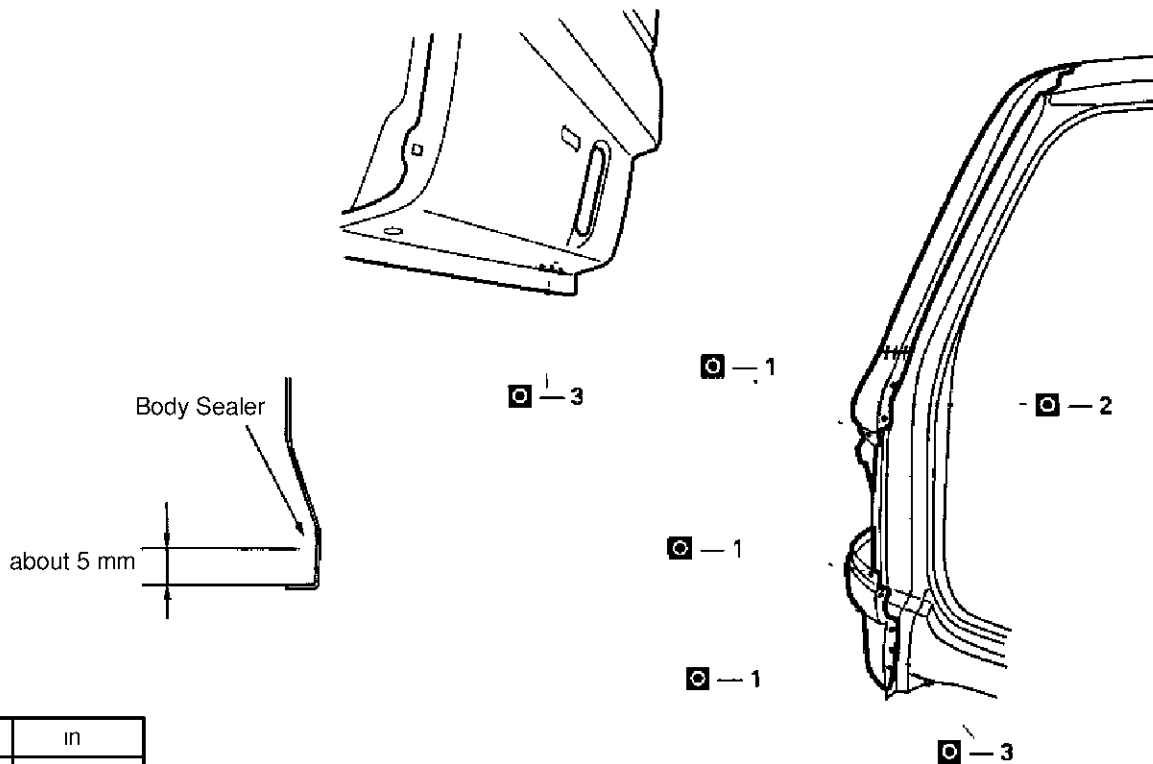
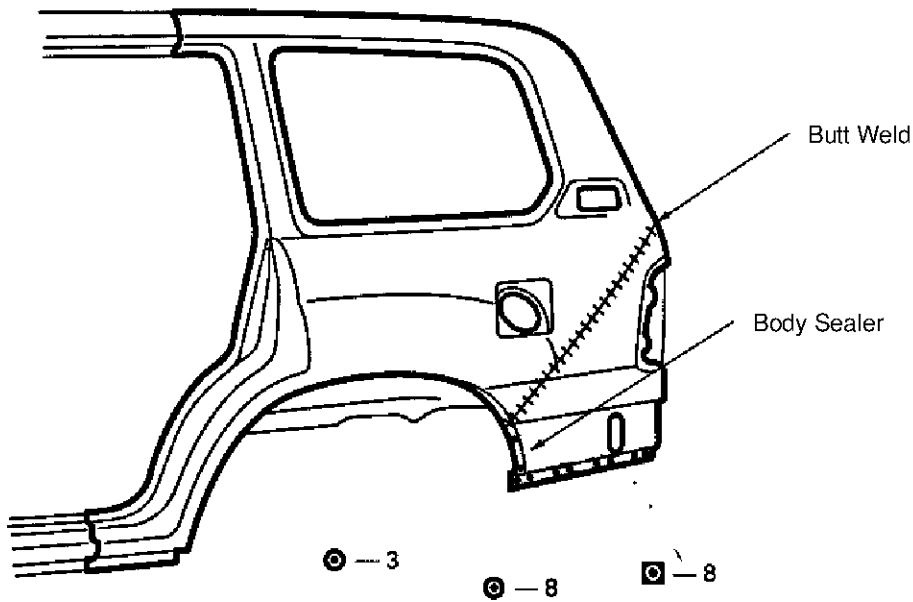
mm	in
5	0 20

- Before temporarily installing the new parts, apply body sealer to the wheel arch
 - Temporarily install the new parts and check the fit of the rear door, back door, tail gate or back door and rear combination light
 - After installing the new parts, apply foamed materials
- HINT:**
- Apply body sealer about 5 mm (0 20 in) from the flange, avoiding any oozing
 - Apply sealer evenly, about 3 - 4 mm (0 12 - 0 16 in) in diameter
 - For other sealing points, refer to section AR

QUARTER PANEL (CUT-P)**REMOVAL**

- 1 Cut and join the parts at the location as shown above

INSTALLATION



mm	in
5	0 20

- 1 Before temporarily installing the new parts, apply body sealer to the wheel arch

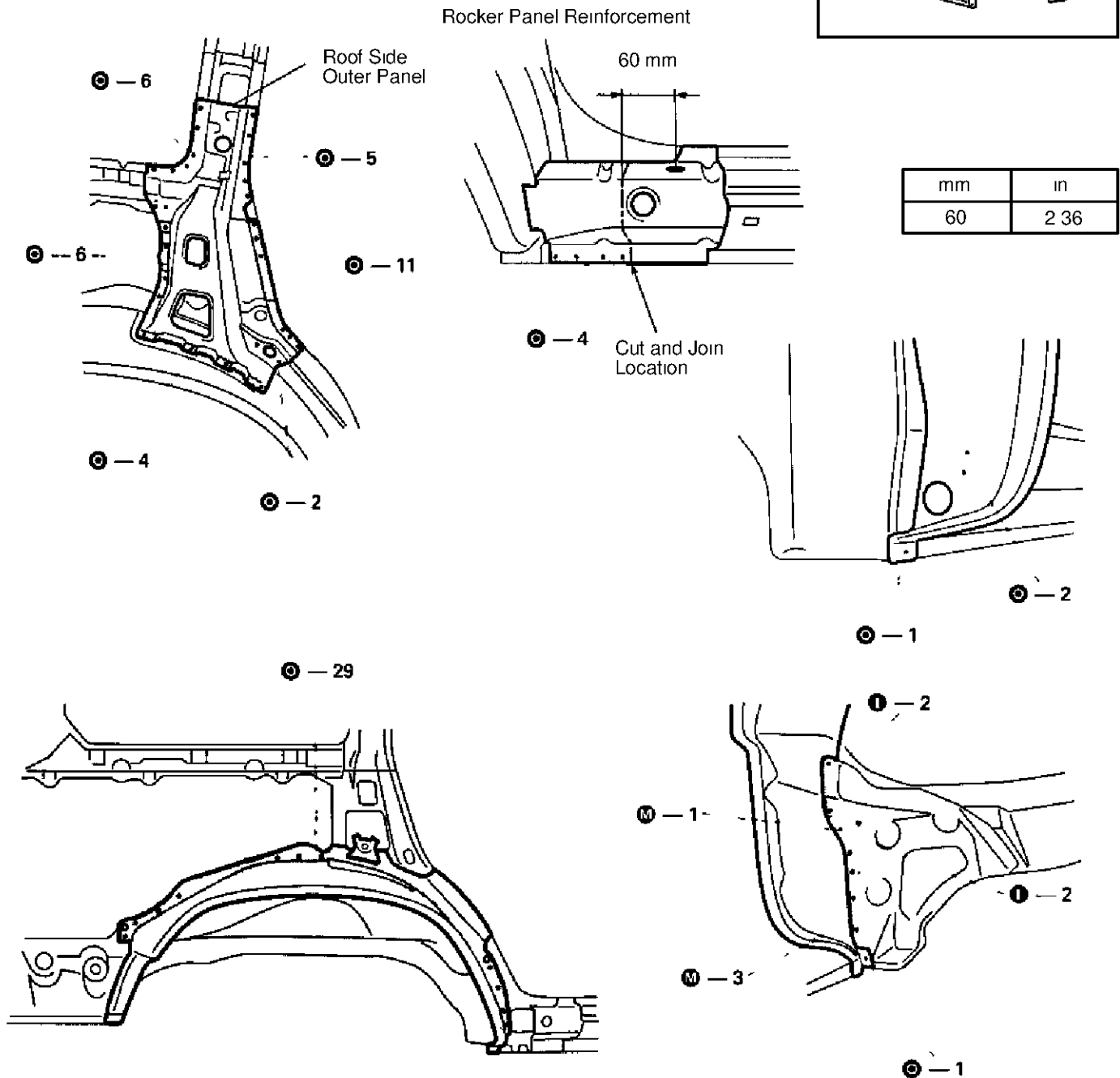
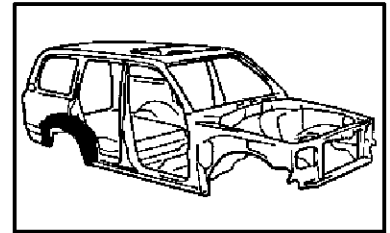
HINT:

- 1) Apply body sealer about 5 mm (0 20 in) from the flange, avoiding any oozing
- 2) Apply sealer evenly, about 3 - 4 mm (0 12 - 0 16 in) in diameter
- 3) For other sealing points, refer to section AR

- 2 Temporarily install the new parts and check the fit of the tail gate or back door and rear combination light

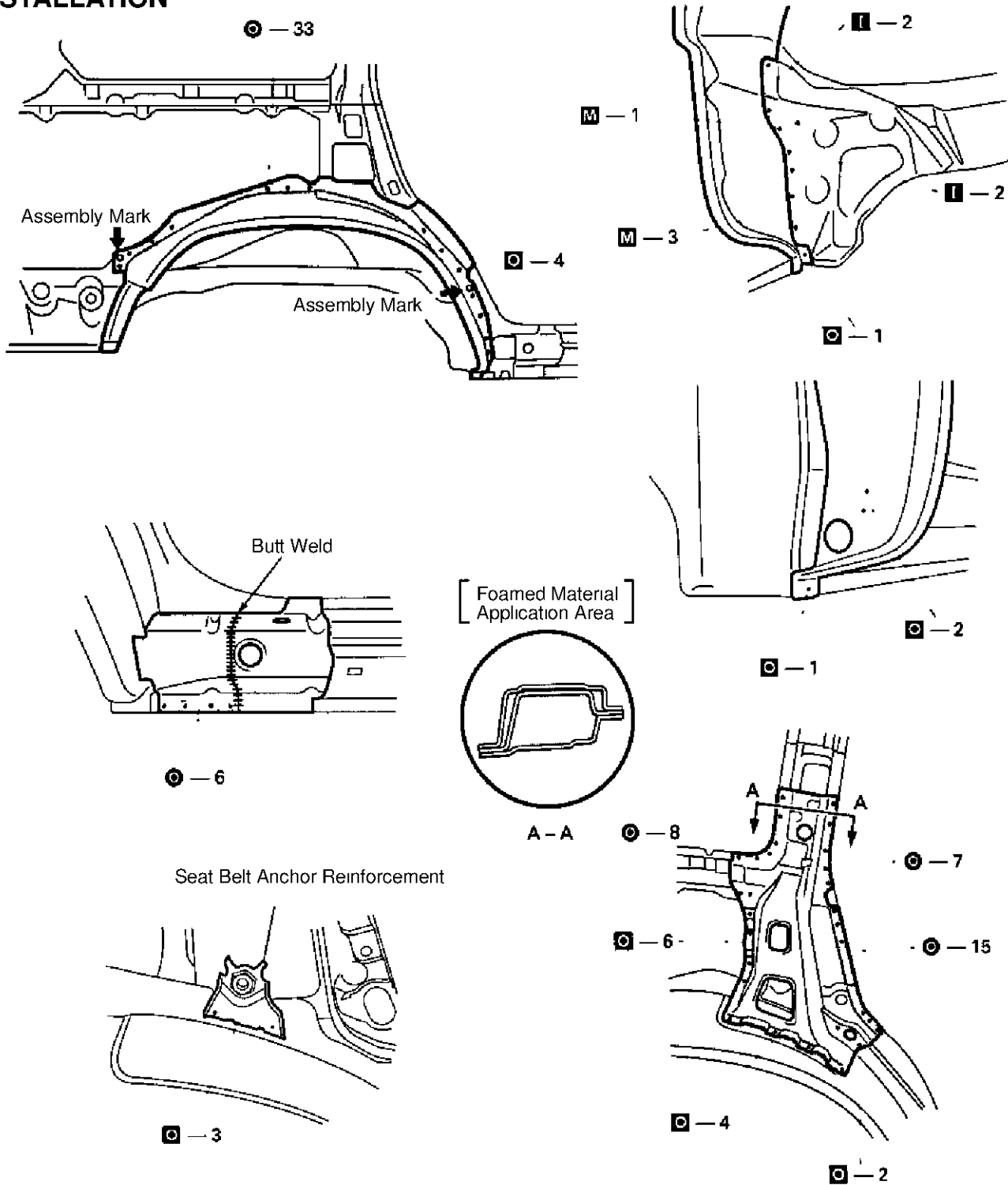
QUARTER WHEEL HOUSING OUTER PANEL (ASSY): Right Side

REMOVAL (With the quarter panel removed.)



- 1 Cut and join the rocker panel reinforcement at the location as shown above
- 2 After removing the roof side outer panel, remove the quarter wheel housing outer panel

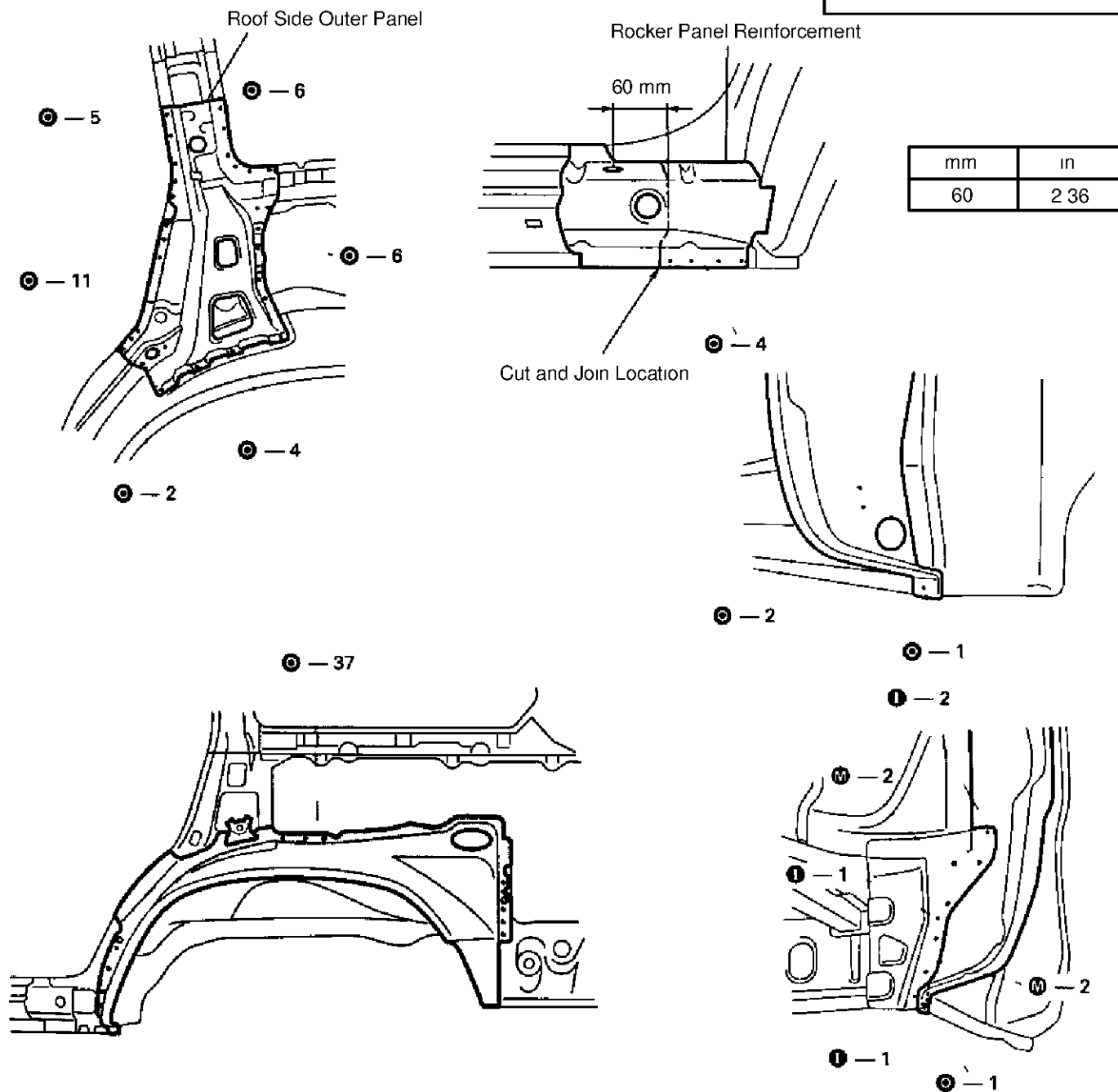
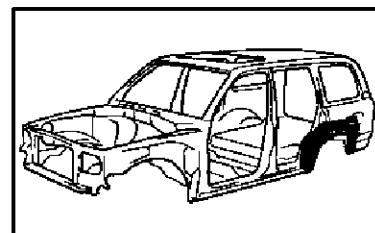
INSTALLATION



- 1 Determine the position of the new parts by the assembly marks of the inner and outer panels
- 2 Before welding the new parts, temporarily install the quarter panel and check the fit
- 3 After installing the new parts, apply foamed materials

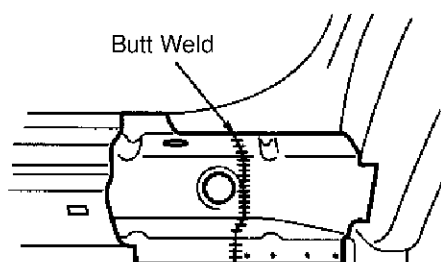
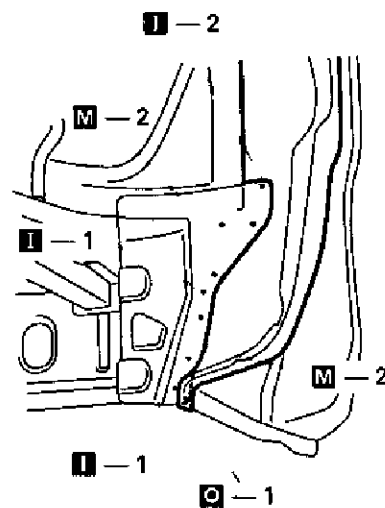
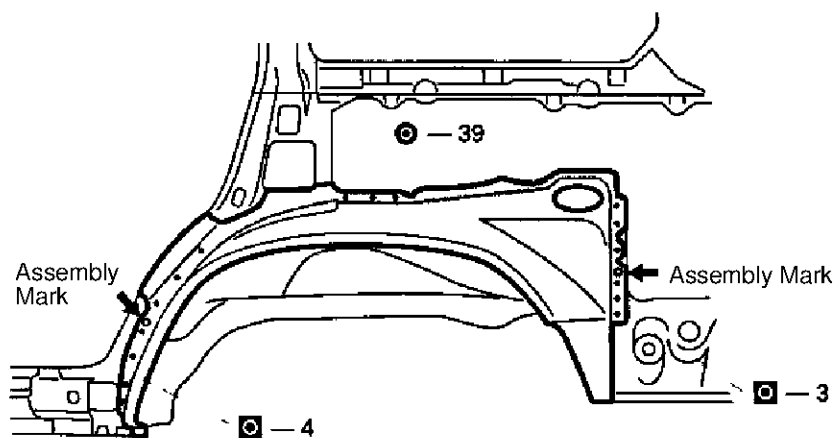
QUARTER WHEEL HOUSING OUTER PANEL (ASSY): Left Side

REMOVAL (With the quarter panel removed.)



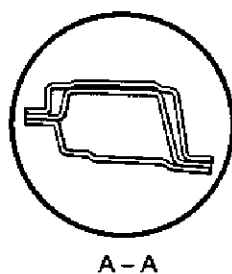
- 1 Cut and join the rocker panel reinforcement at the location as shown above
- 2 After removing the roof side outer panel, remove the quarter wheel housing outer panel

INSTALLATION

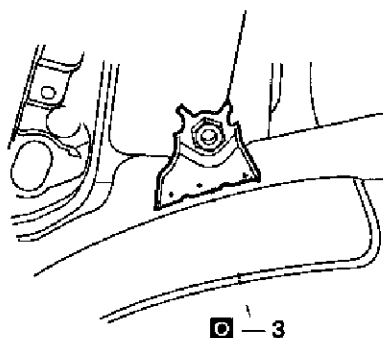


6

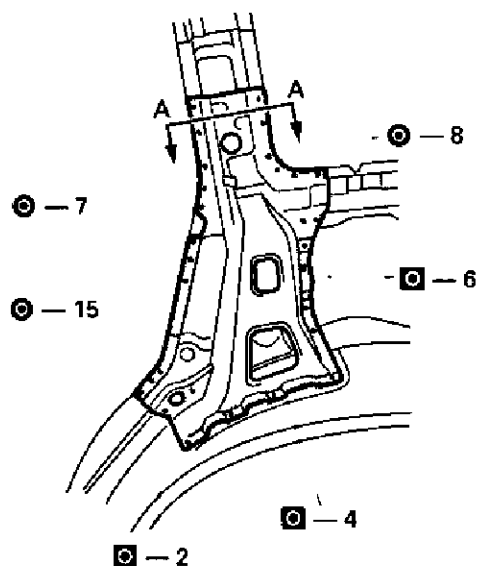
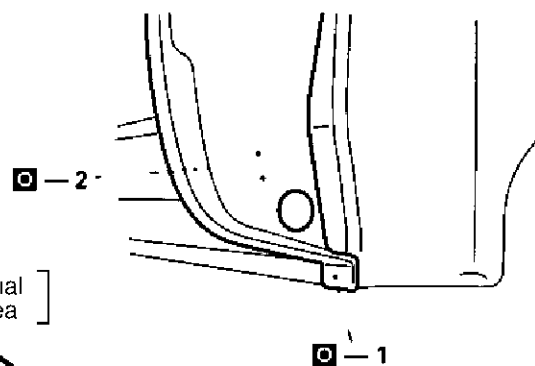
[Foamed Material
Application Area]



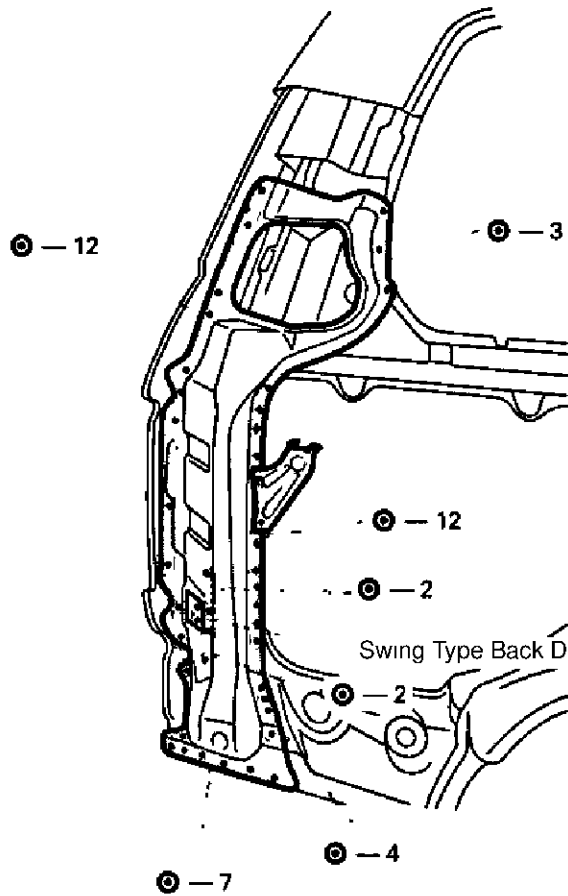
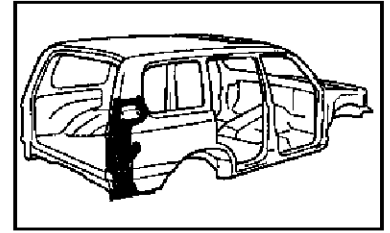
Seat Belt Anchor Reinforcement



3

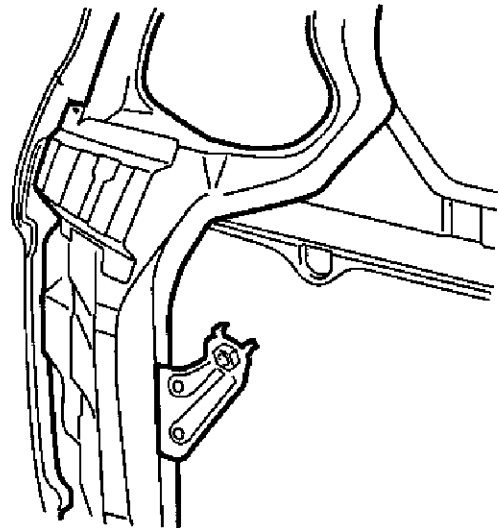


- 1 Determine the position of the new parts by the assembly marks of the inner and outer panels
- 2 Before welding the new parts, temporarily install the quarter panel and check the fit
- 3 After installing the new parts, apply foamed materials

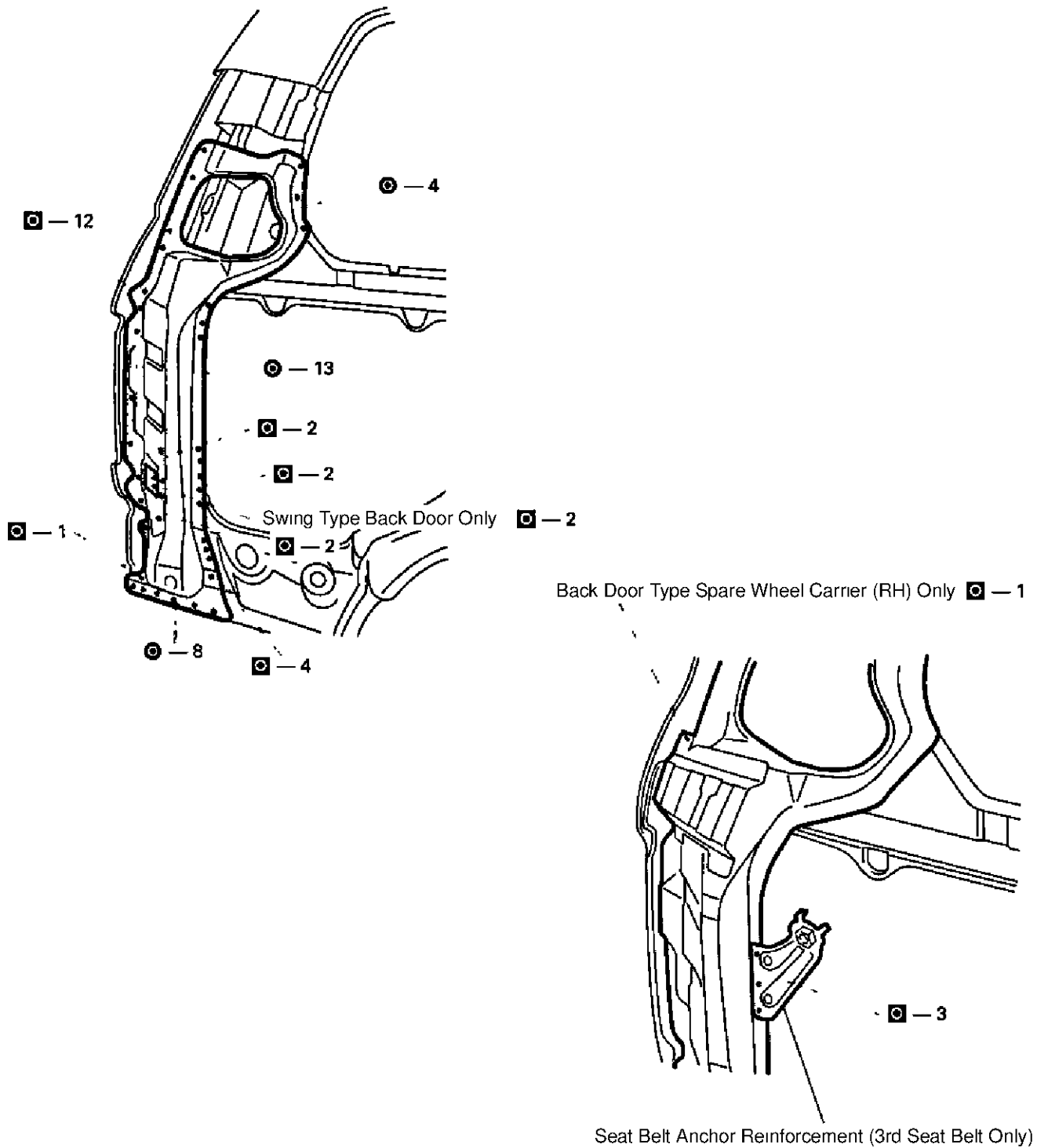
**BACK DOOR OPENING REINFORCEMENT
(ASSY)****REMOVAL (With the quarter panel removed.)**

Swing Type Back Door Only 2

Back Door Type Spare Wheel Carrier (RH) Only 1

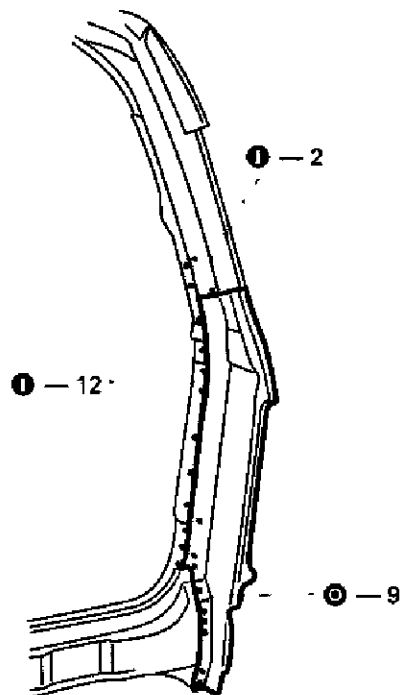
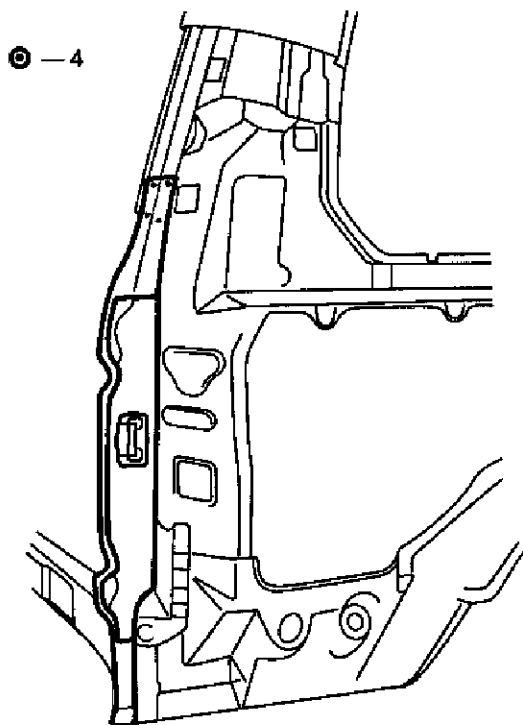
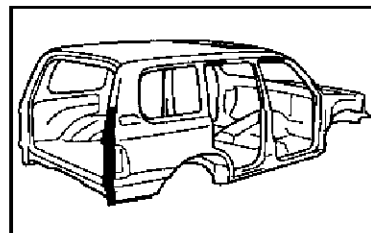


INSTALLATION

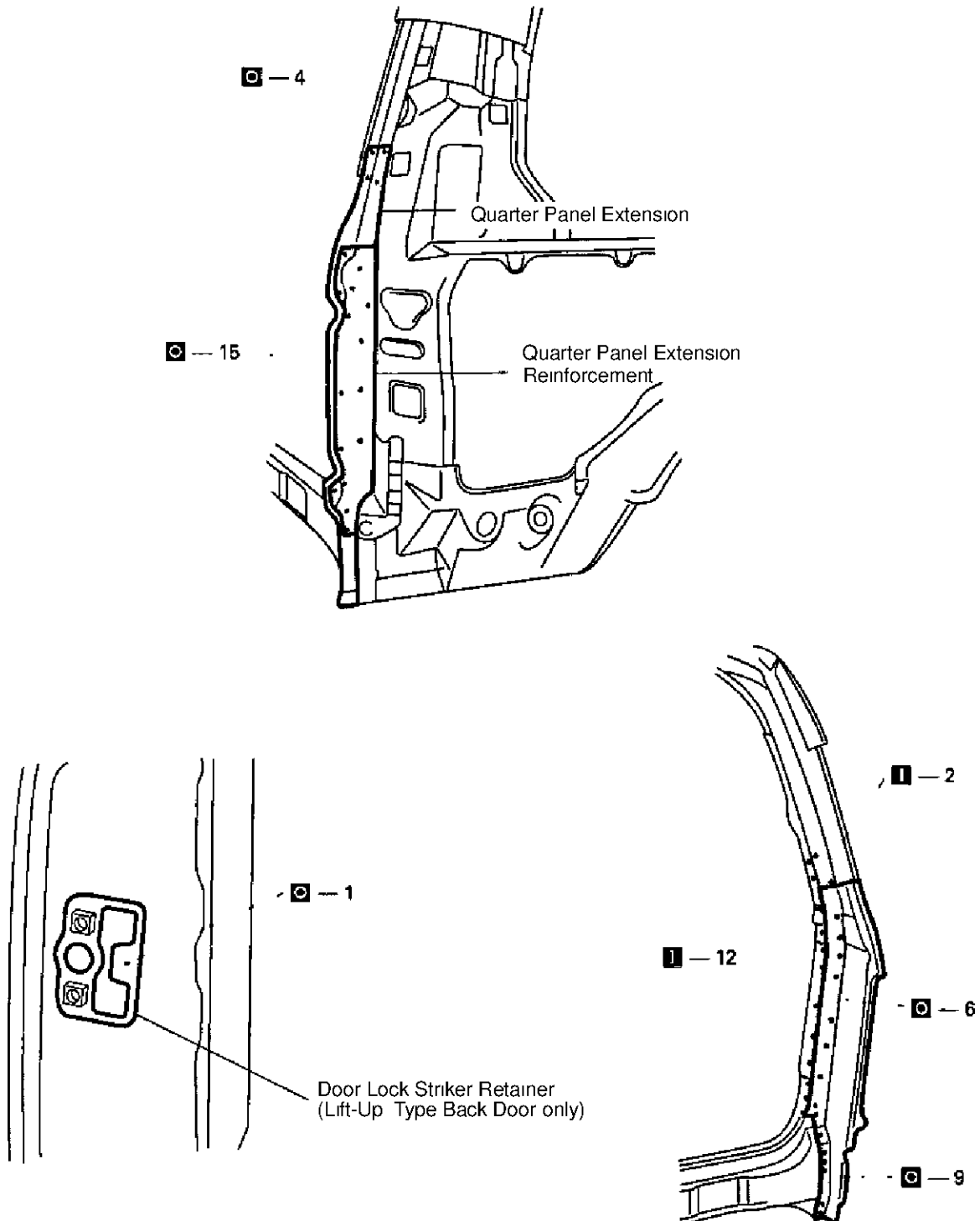


QUARTER PANEL REAR EXTENSION (ASSY)

REMOVAL (With the back door opening reinforcement removed.)



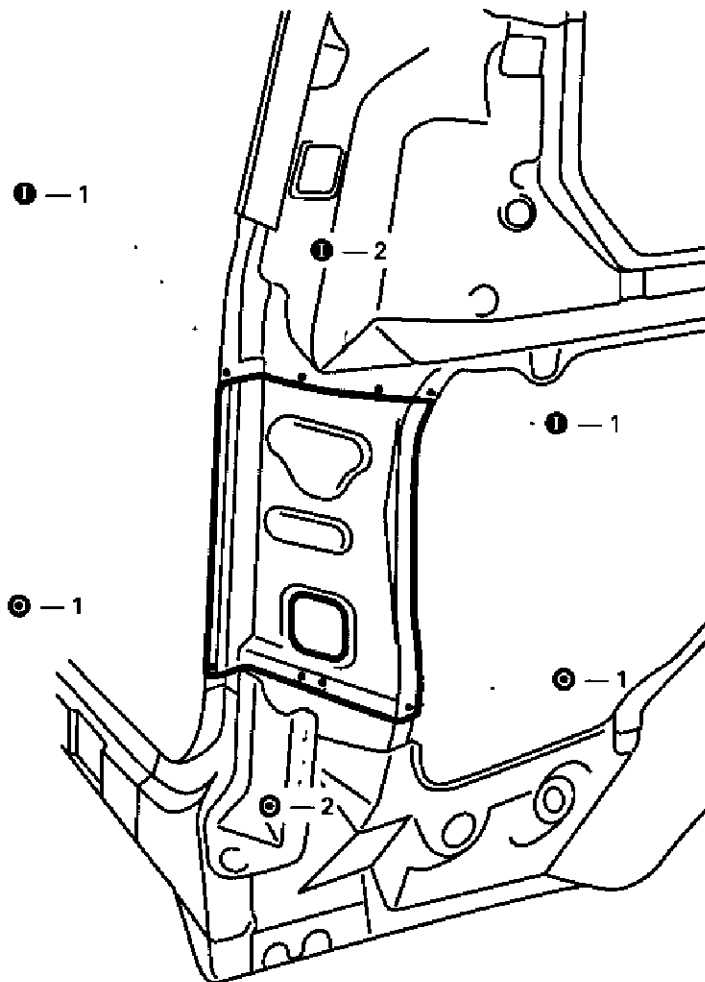
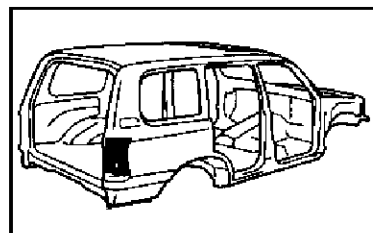
INSTALLATION

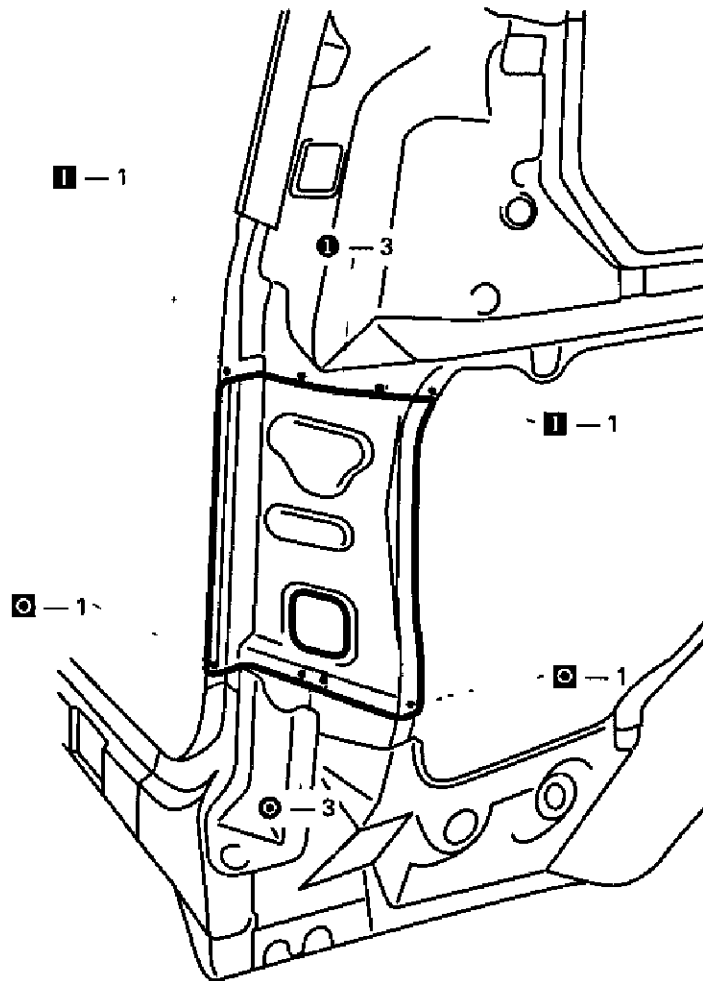


- 1 Before welding the new parts, temporarily install the back door opening reinforcement and check the fit

ROOF SIDE INNER REAR PANEL (ASSY)

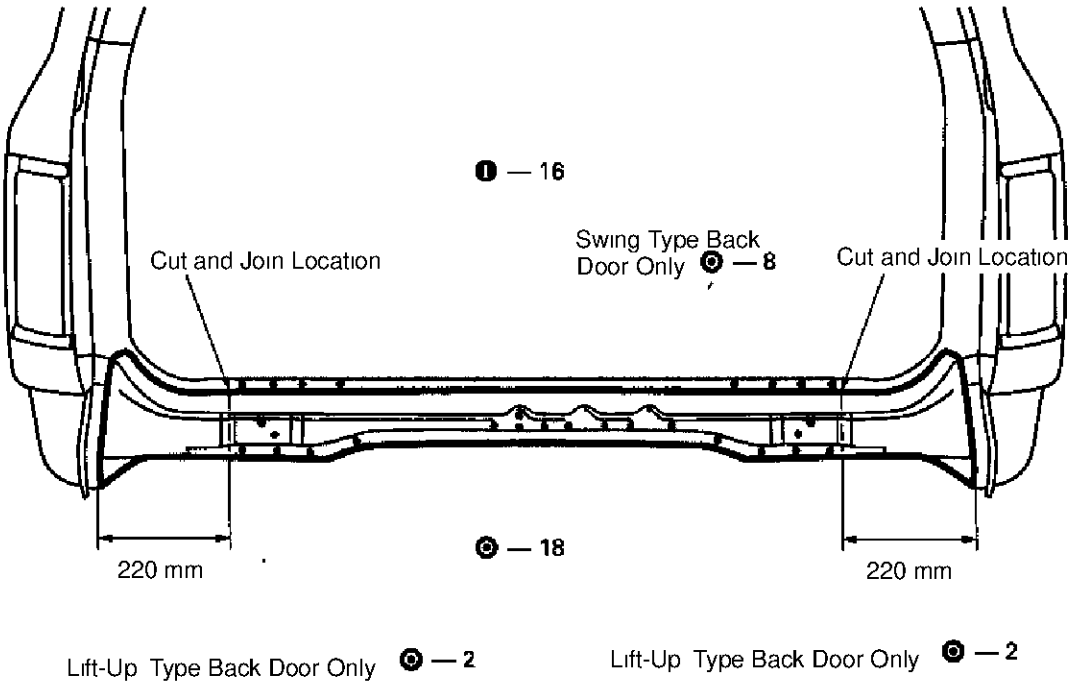
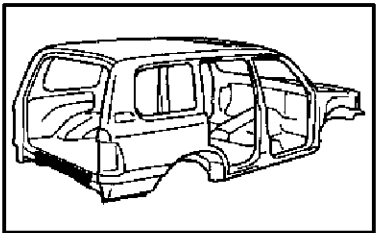
REMOVAL (With the quarter panel rear extension removed.)



INSTALLATION

BODY LOWER BACK OUTER PANEL (CUT)

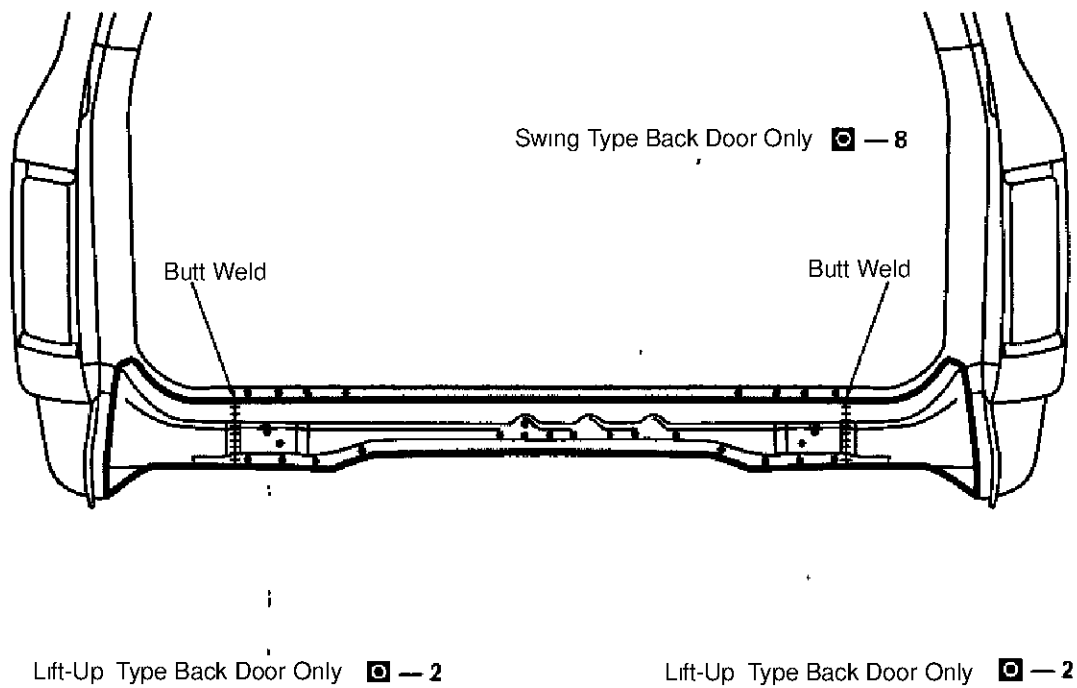
REMOVAL



mm	in
220	8 66

- 1 Cut and join the parts at the locations as shown above
- 2 Leave the body lower back inner panel to the vehicle side

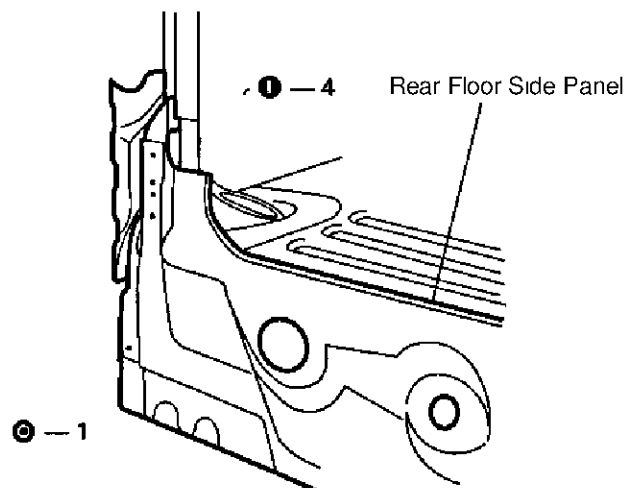
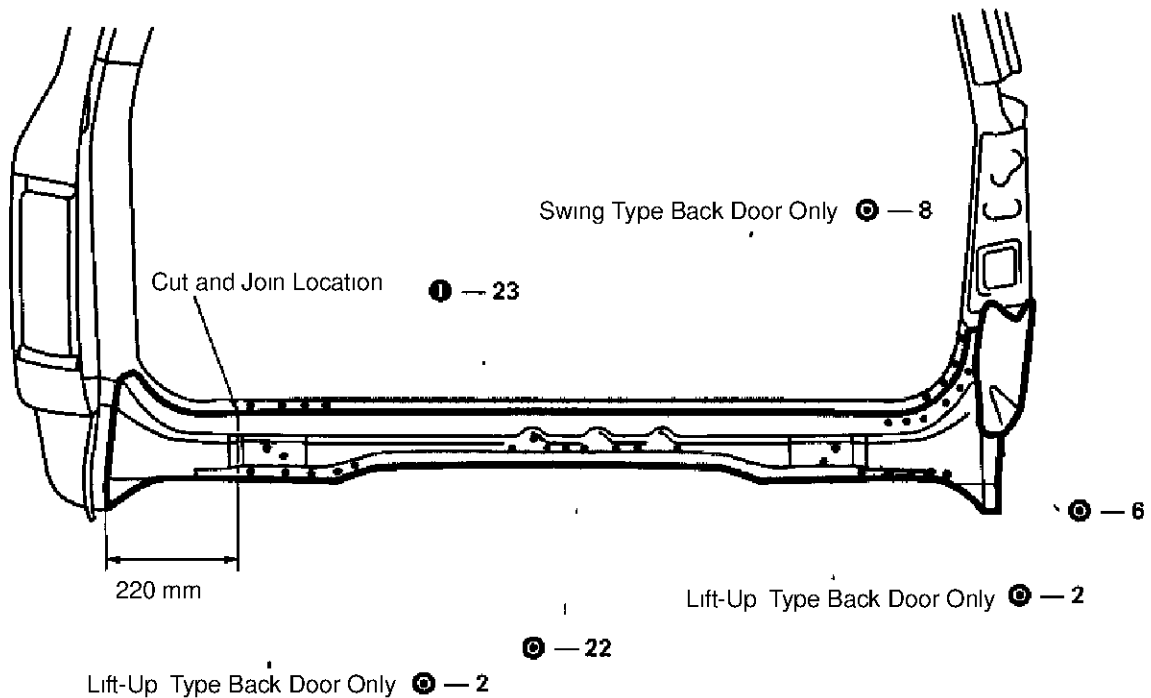
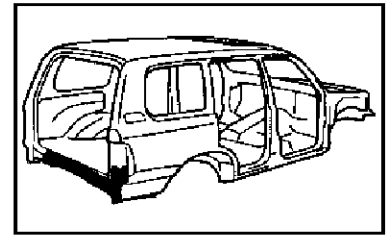
INSTALLATION



- 1 Temporarily install the new parts and check the fit of the tail gate or back door

BODY LOWER BACK OUTER PANEL (CUT)

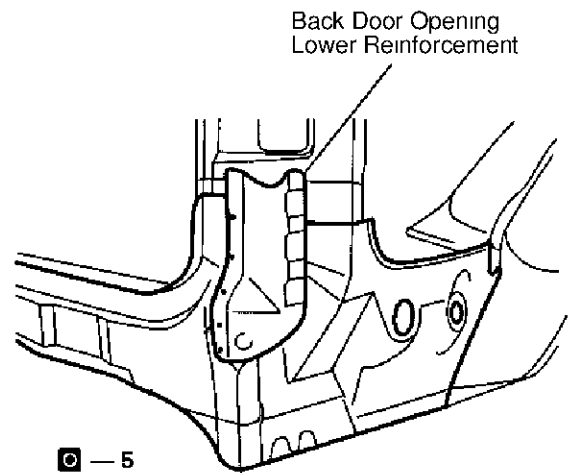
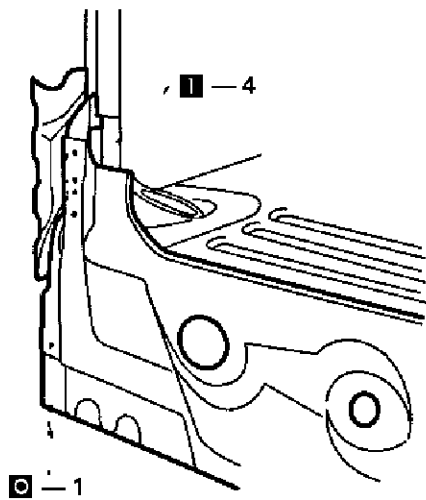
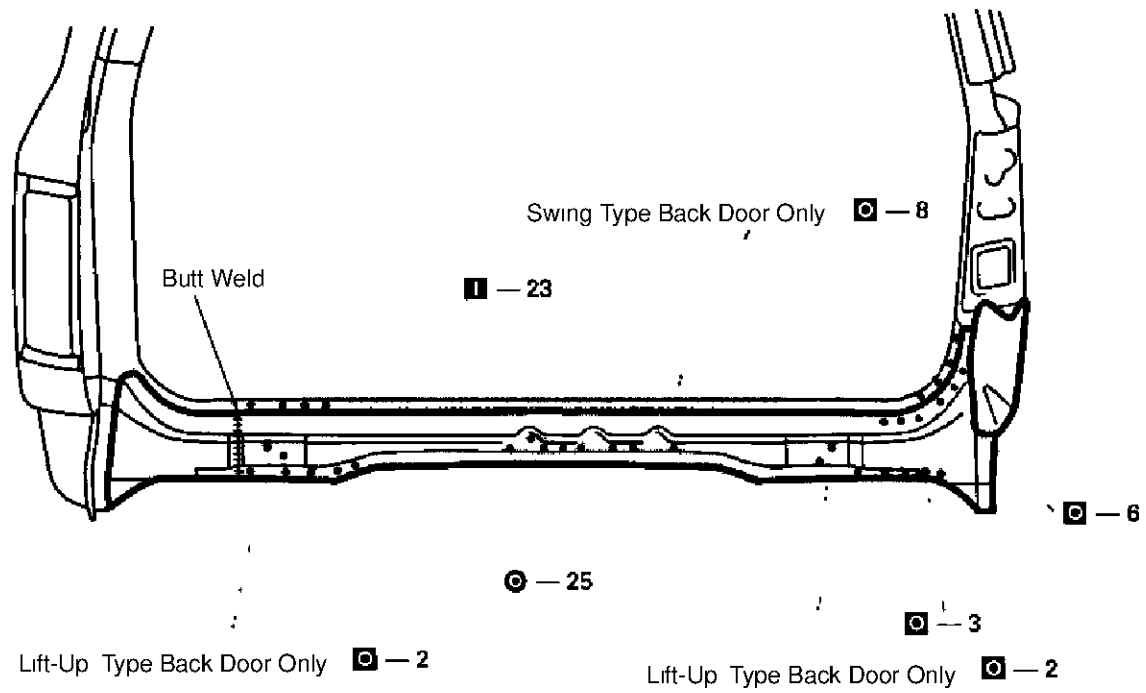
REMOVAL (With the quarter panel rear extension removed.)



mm	in
220	8 66

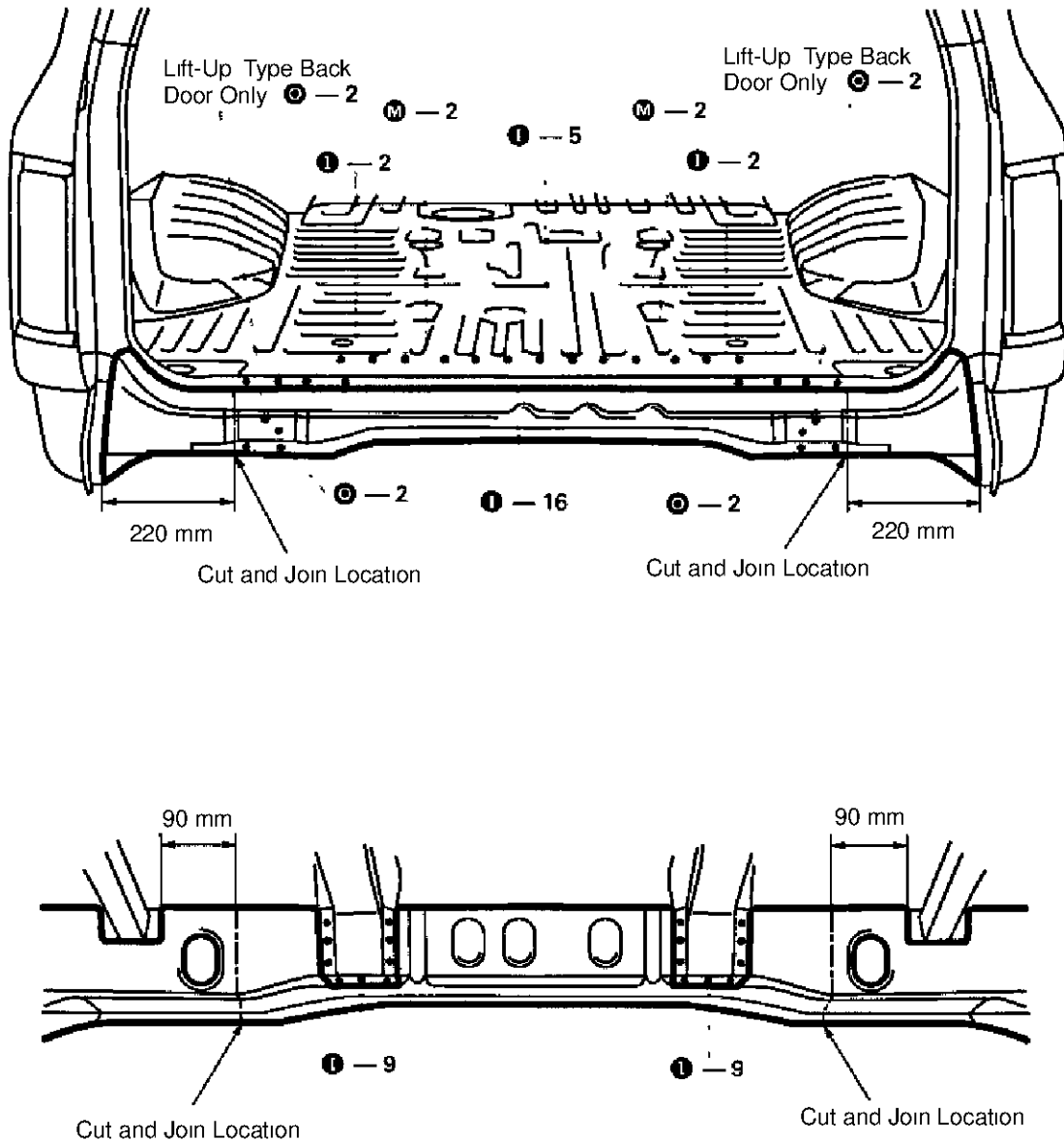
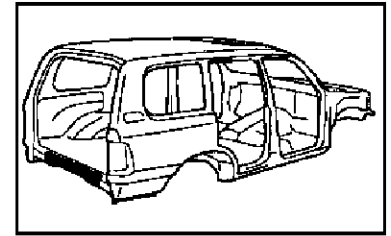
- 1 Cut and join the parts at the location as shown above
- 2 Leave the body lower back inner panel and rear floor side panel to the vehicle side and remove the body lower back outer panel

INSTALLATION



BODY LOWER BACK PANEL (CUT)

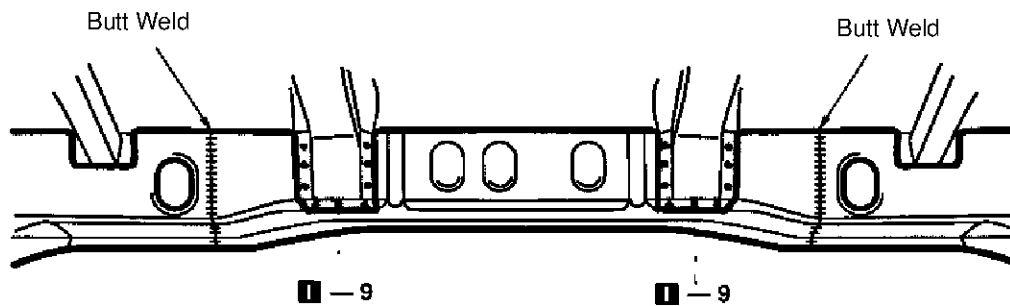
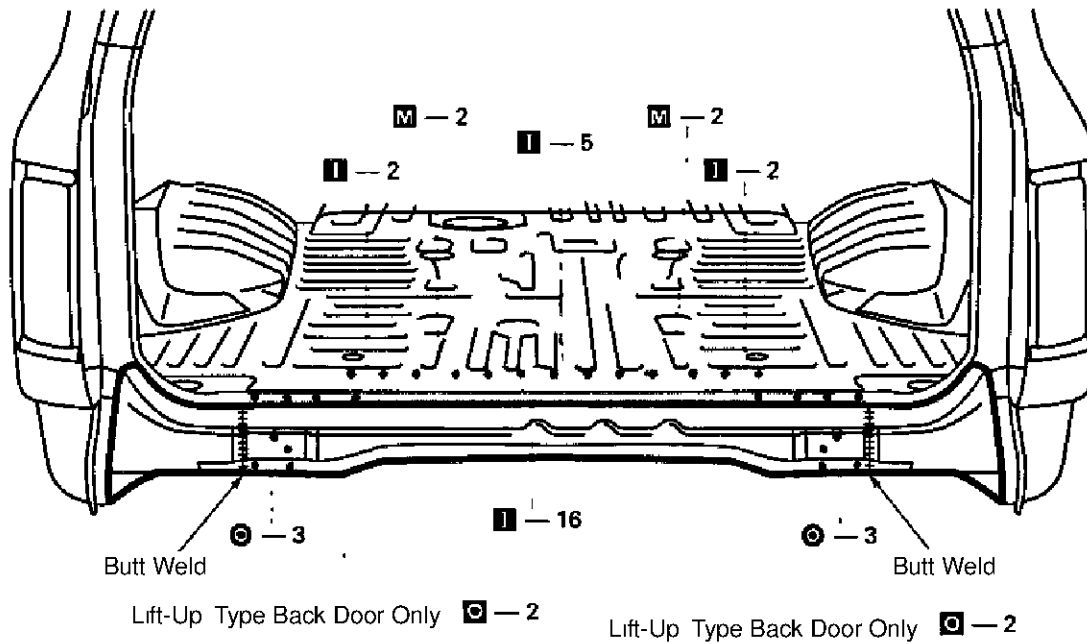
REMOVAL



- 1 Cut and join the parts at the locations as shown above

mm	in
220	8 66
90	3 54

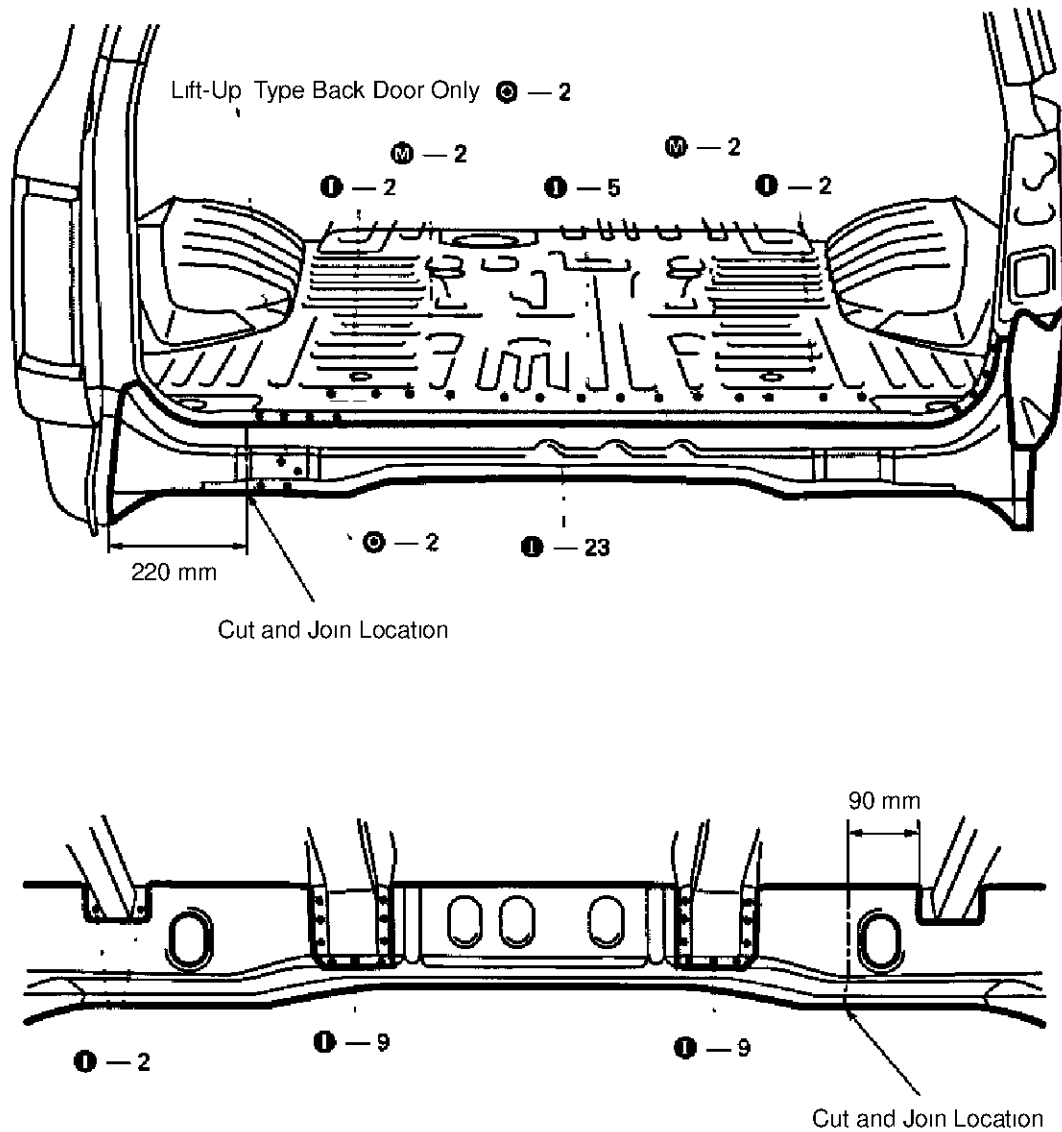
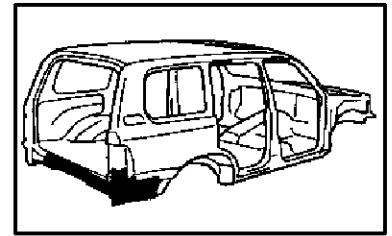
INSTALLATION



- 1 Temporarily install the new parts and check the fit of the tail gate or back door

BODY LOWER BACK PANEL (CUT)

REMOVAL (With the quarter panel rear extension removed.)

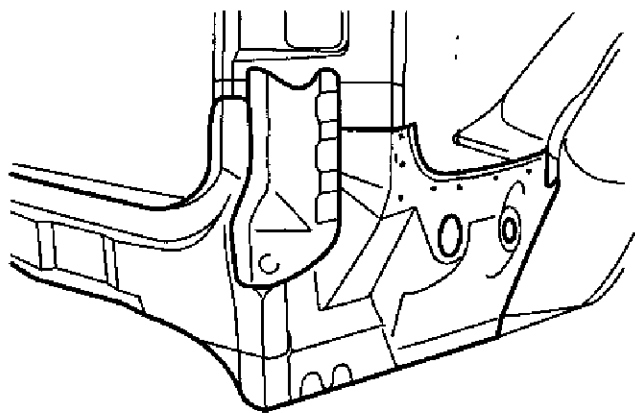


- 1 Cut and join the parts at the locations as shown above

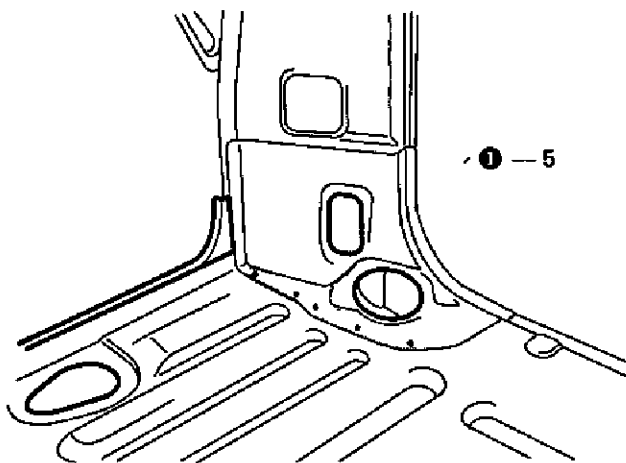
mm	in
220	8 66
90	3 54

Donated by Andrew Schauer cruisercult.com

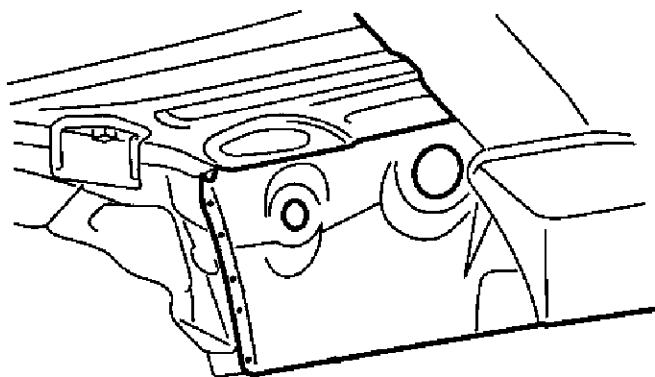
⑦ — 7



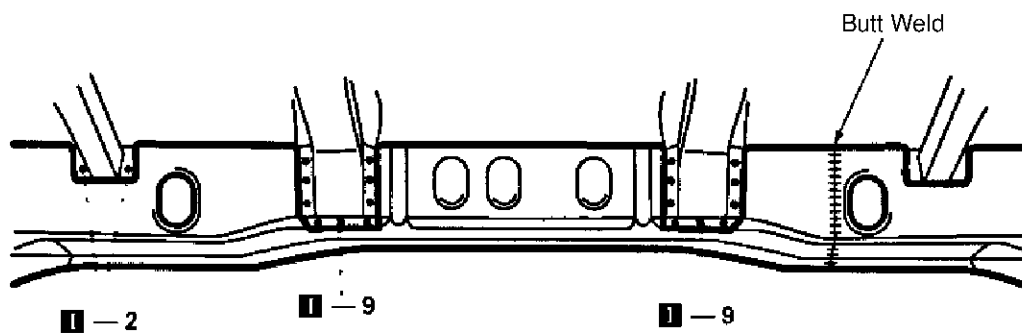
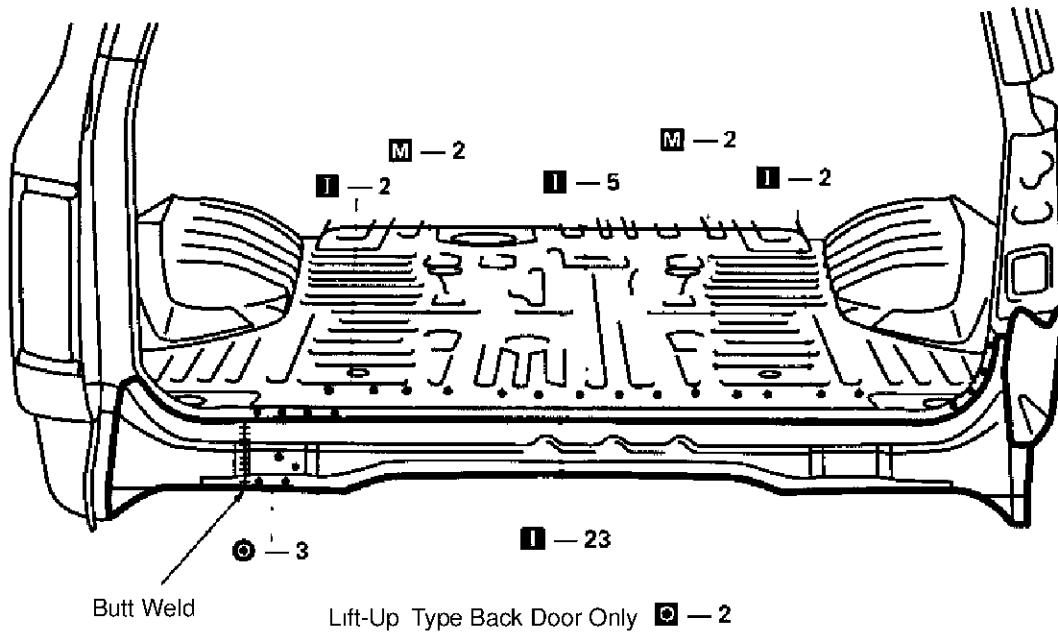
① — 5



⑥ — 5

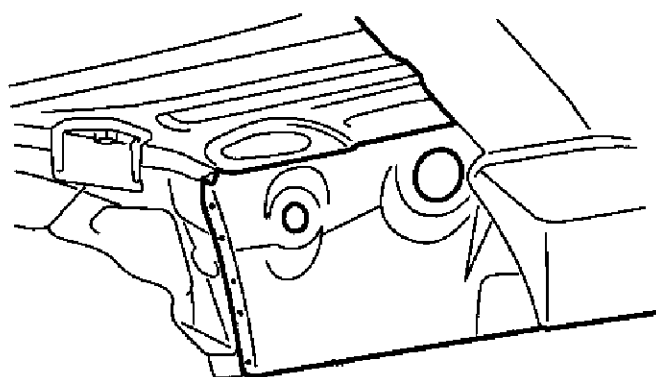
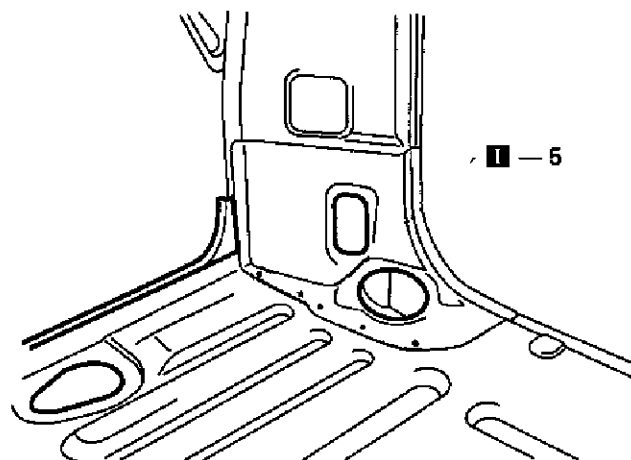
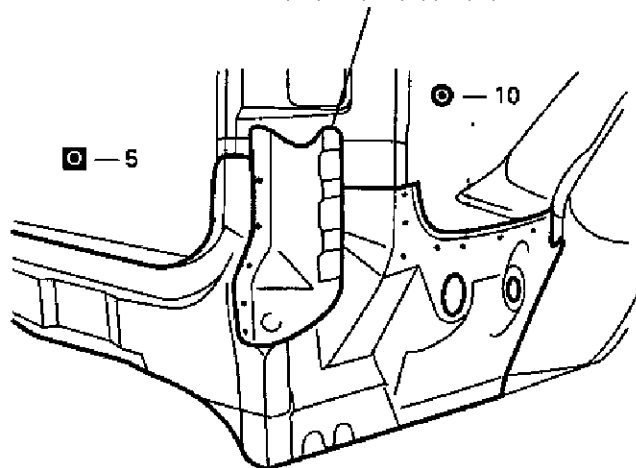


INSTALLATION



Donated by Andrew Schauer cruiscult.com

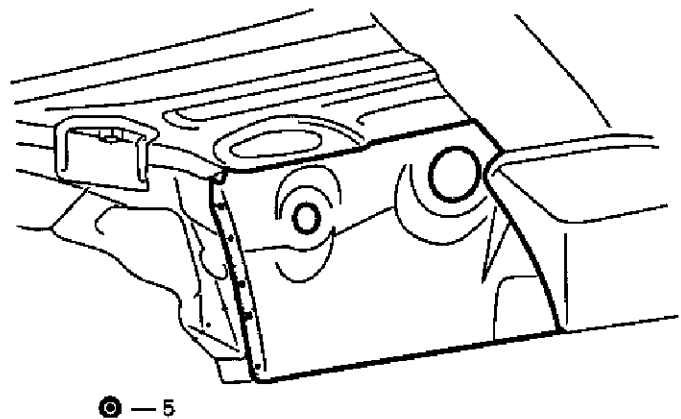
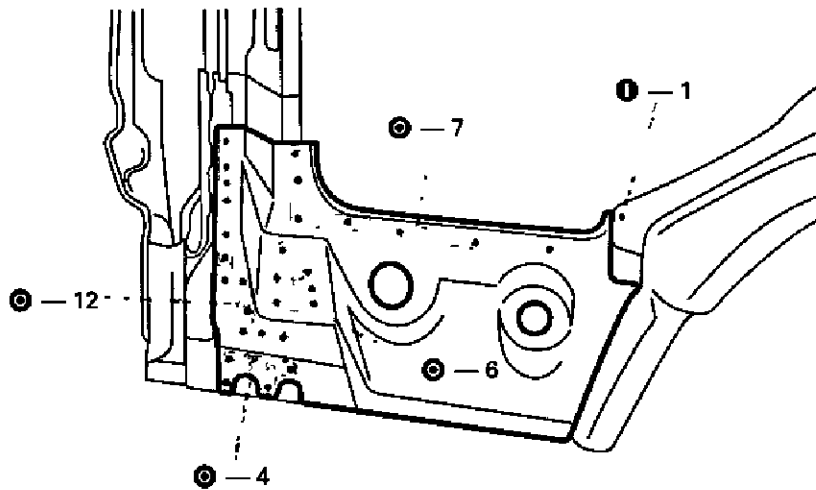
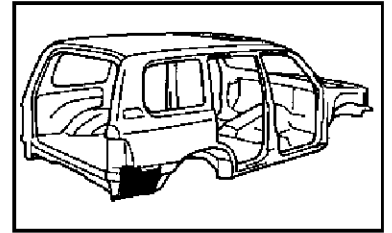
Back Door Opening
Lower Reinforcement



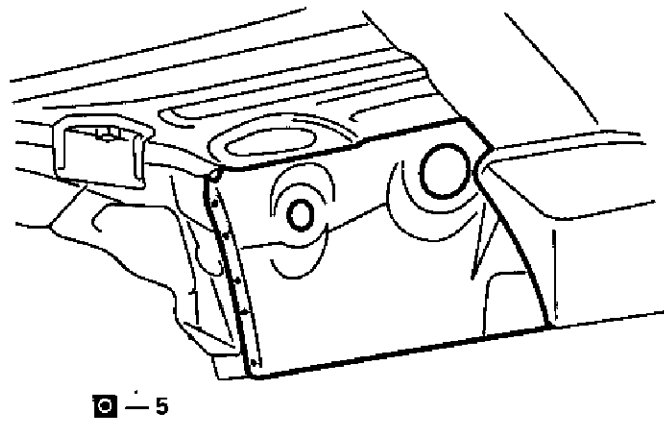
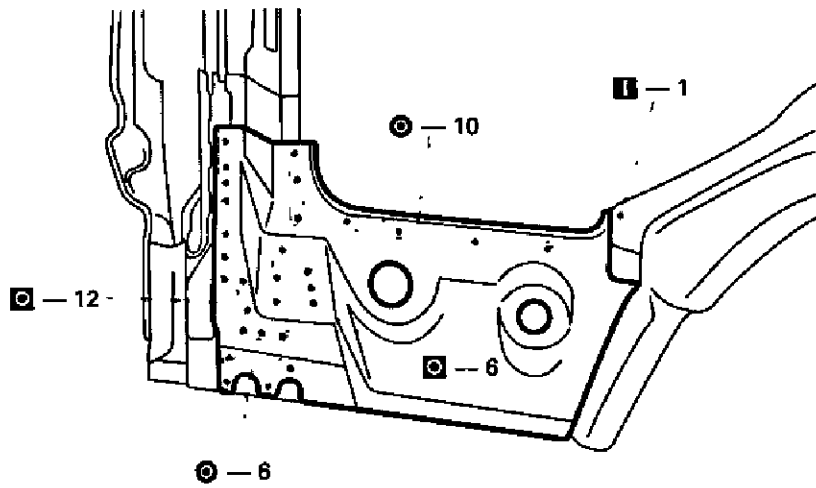
□ — 5

REAR FLOOR SIDE PANEL (ASSY): Right Side

REMOVAL (With the back door opening reinforcement removed.)

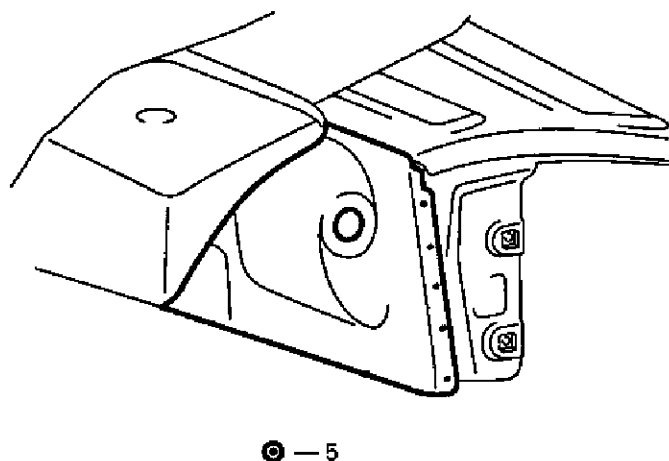
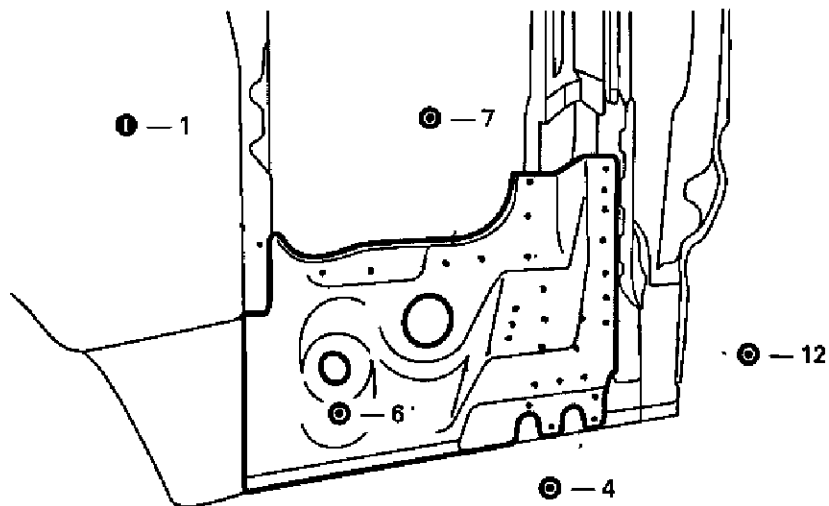
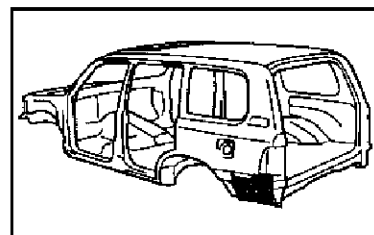


INSTALLATION

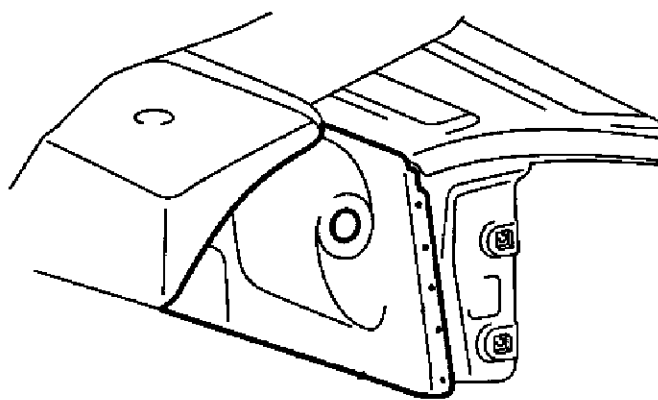
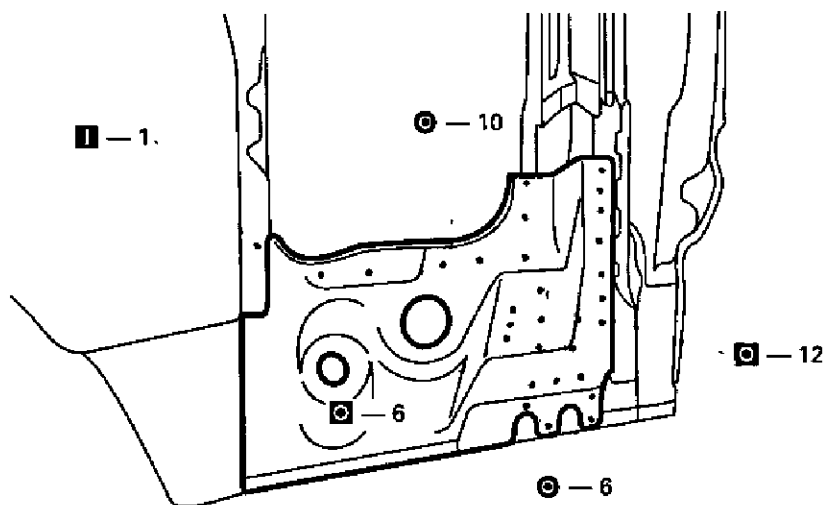


REAR FLOOR SIDE PANEL (ASSY): Left Side

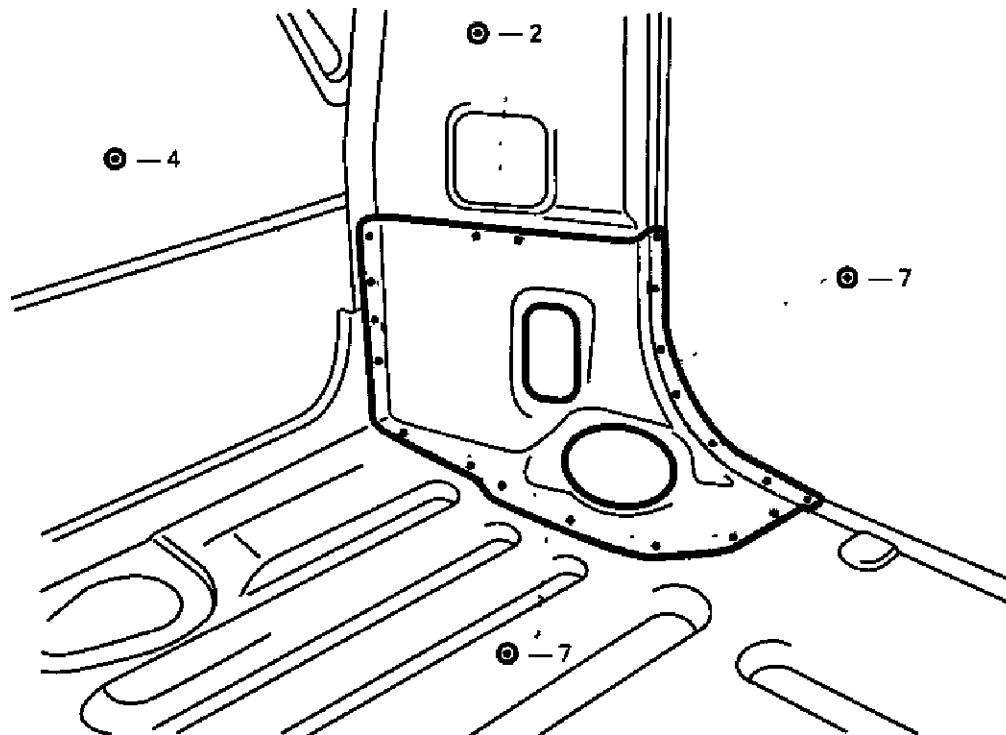
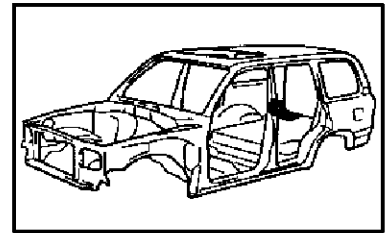
REMOVAL (With the back door opening reinforcement removed.)



INSTALLATION

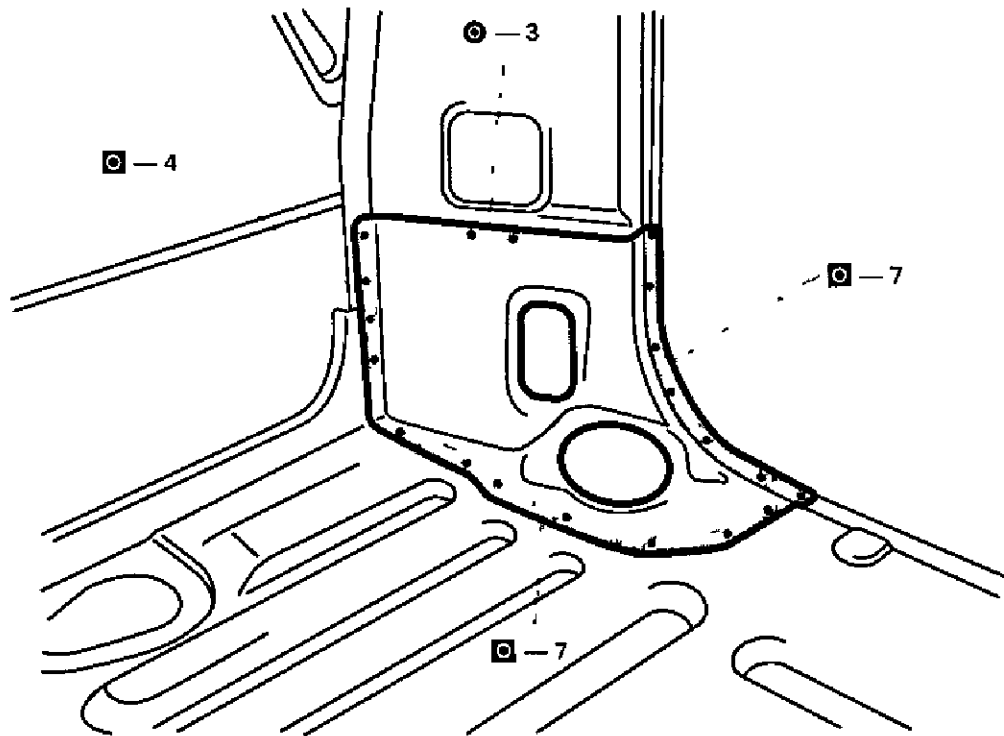


5 - 5

LOWER BACK UPPER GUSSET (ASSY)**REMOVAL**

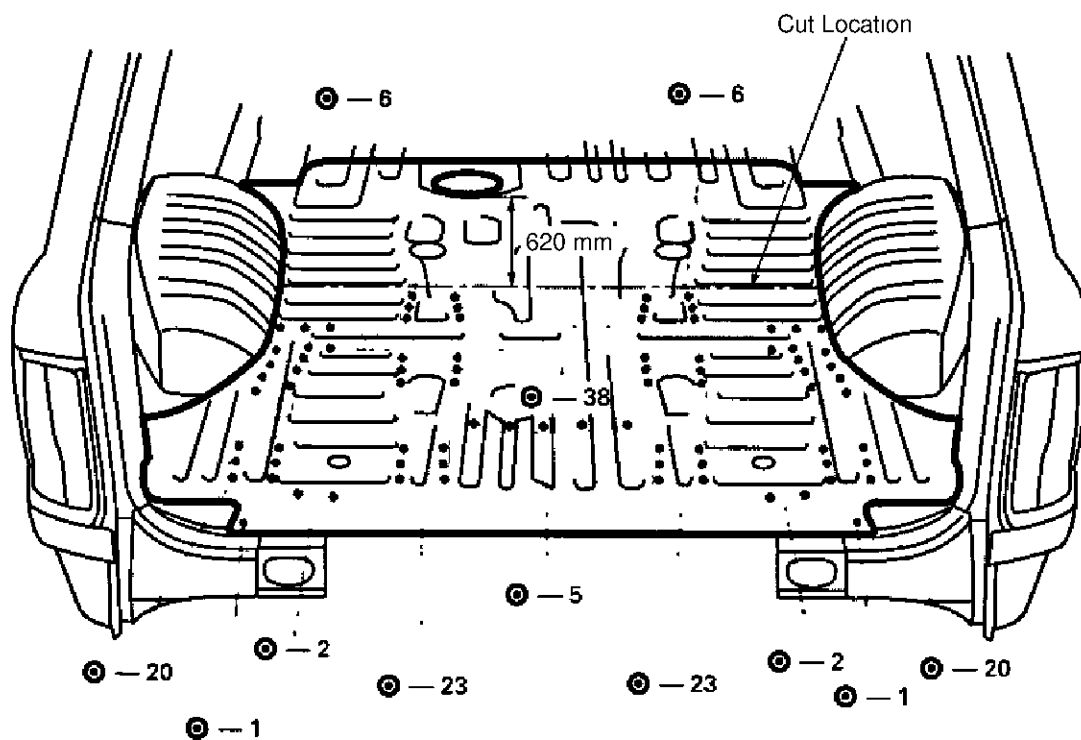
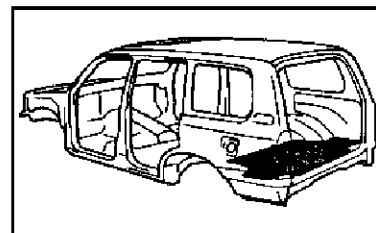
Donated by Andrew Schauer cruisercult.com

INSTALLATION



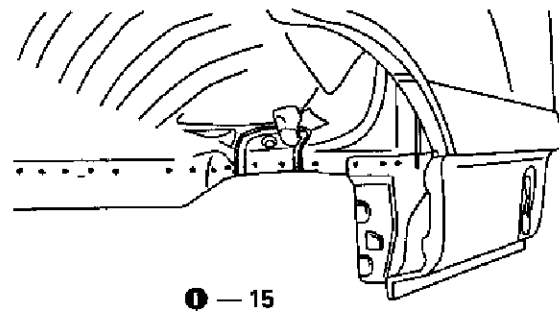
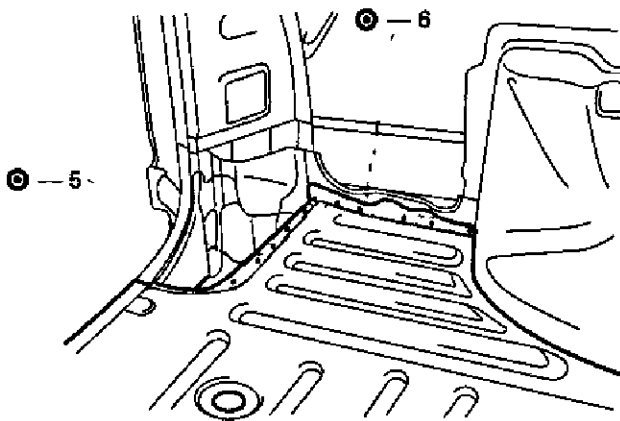
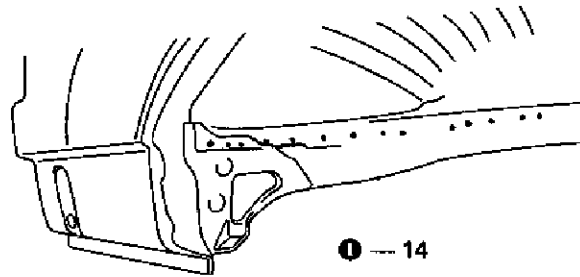
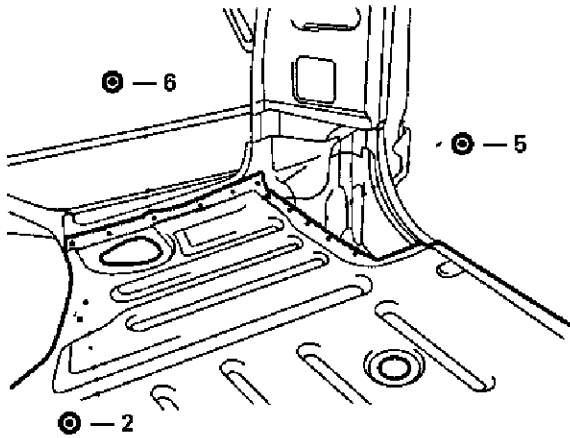
REAR FLOOR PAN (CUT)

REMOVAL (With the body lower back panel, lower back upper gusset removed.)

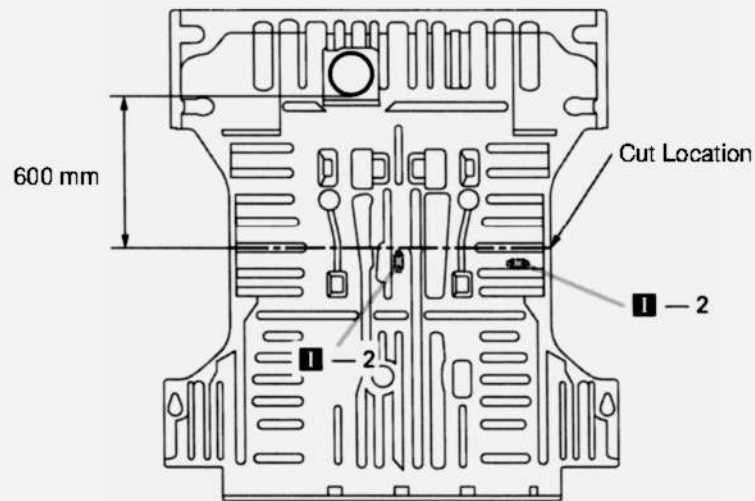


mm	in
620	24 41

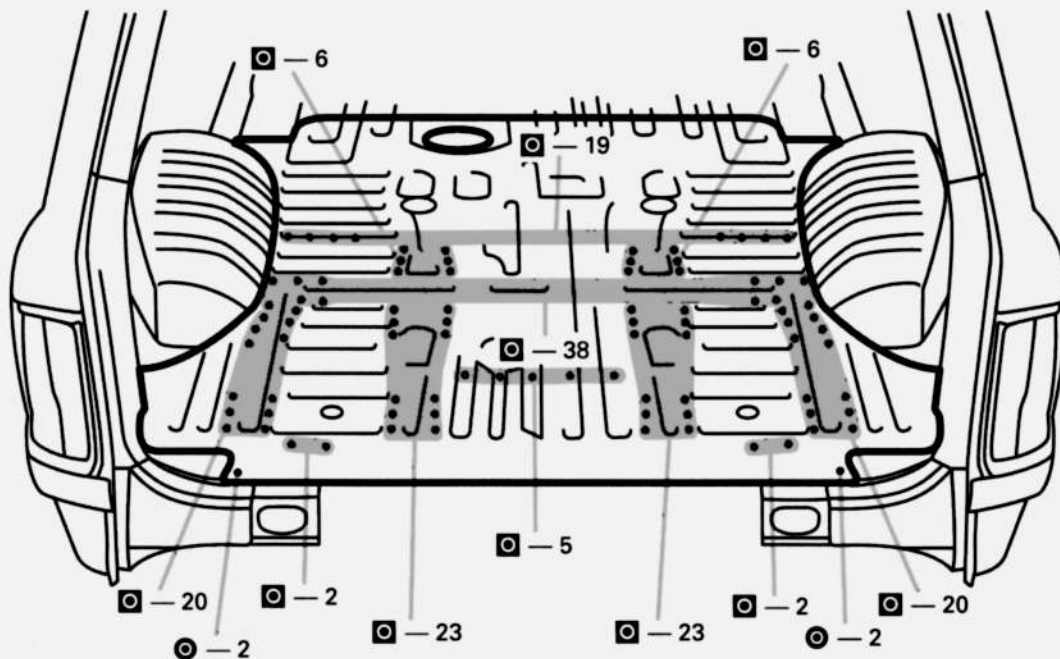
- 1 Cut the parts at the location as shown above



INSTALLATION

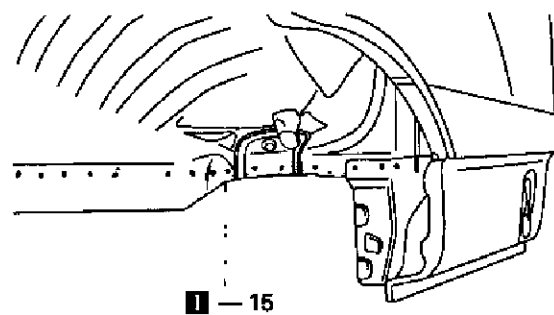
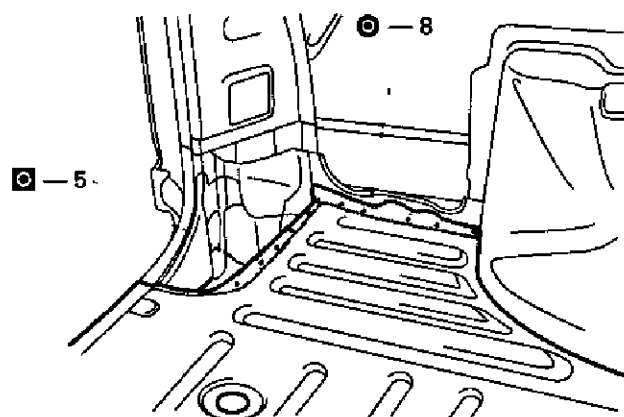
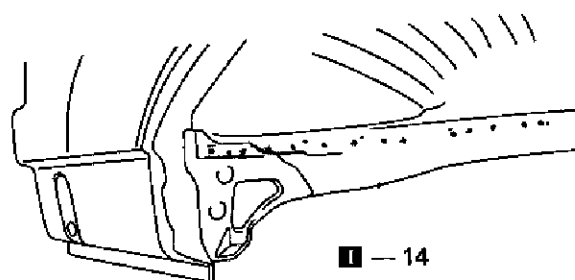
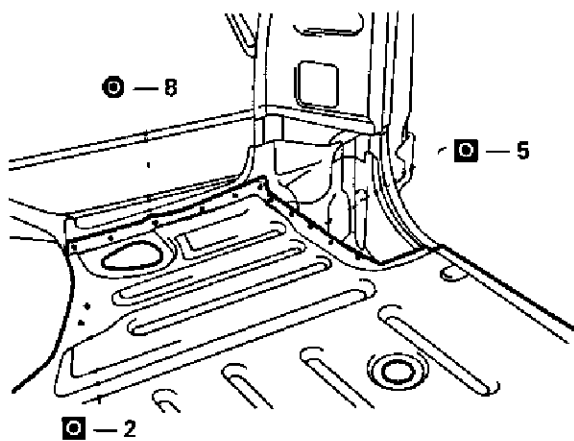


mm	in.
600	23.62



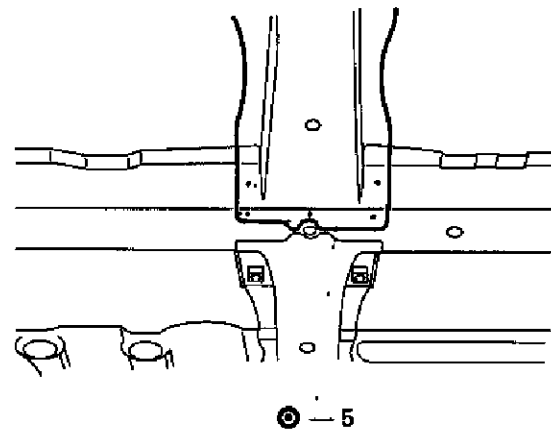
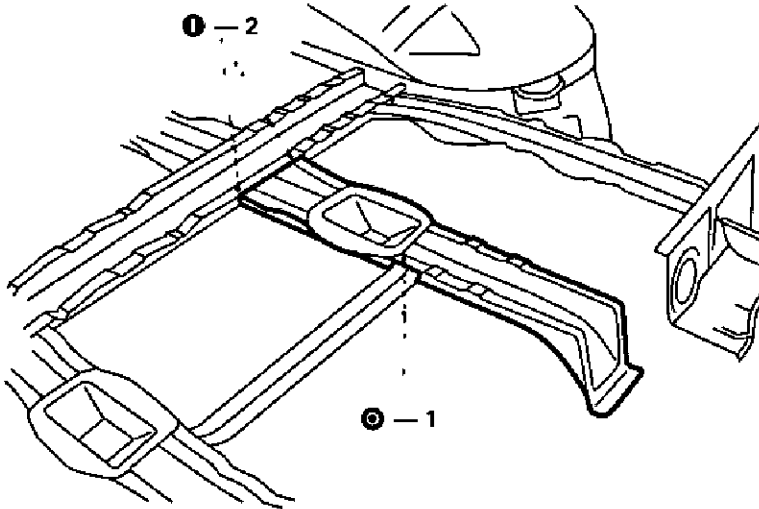
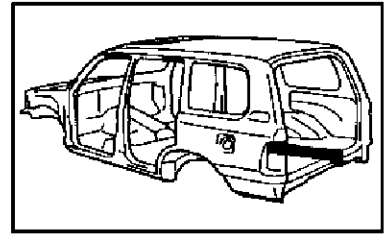
1. Cut the new parts at the location as shown above.
2. Plug weld the overlapping portion of the new parts.
3. Coat the overlapping opening portion from the both sides with body sealer.

HINT: Be sure the portion to be welded are align and not loose.

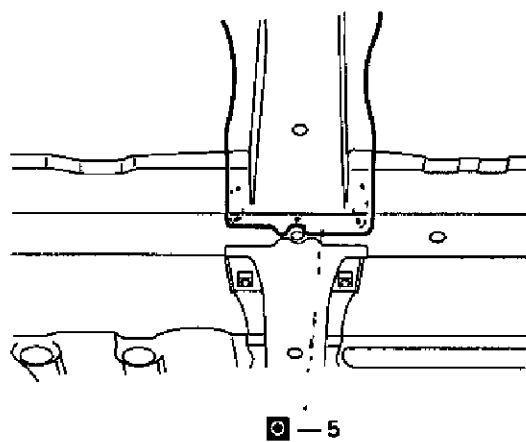
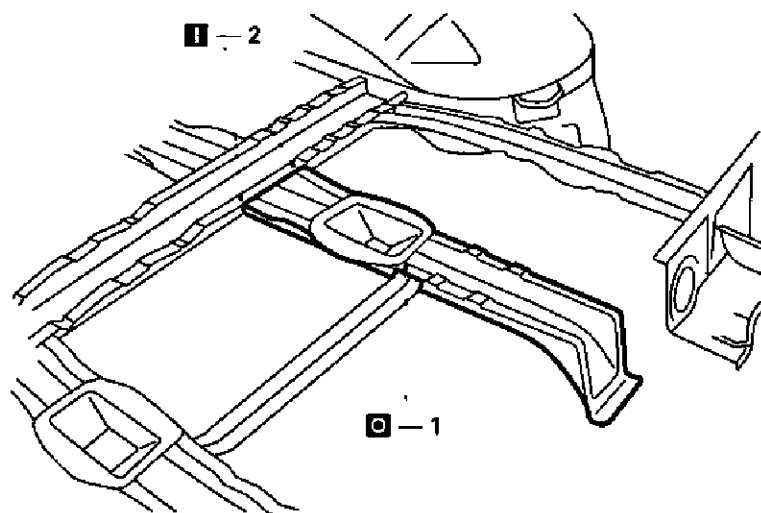


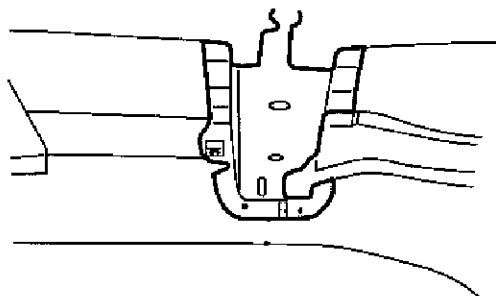
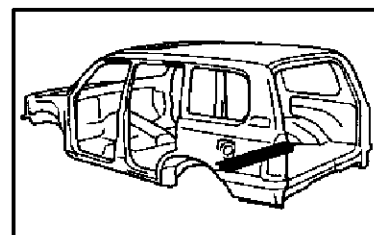
REAR FLOOR SIDE REAR CENTER MEMBER (ASSY)

REMOVAL (With the body lower back panel, rear floor pan removed.)

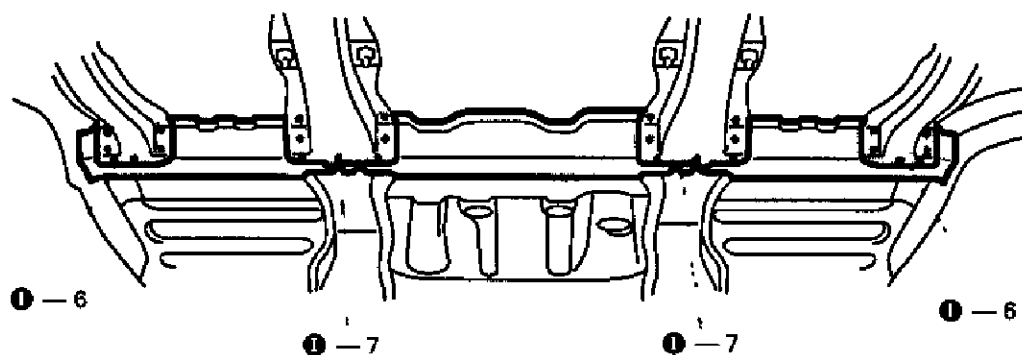
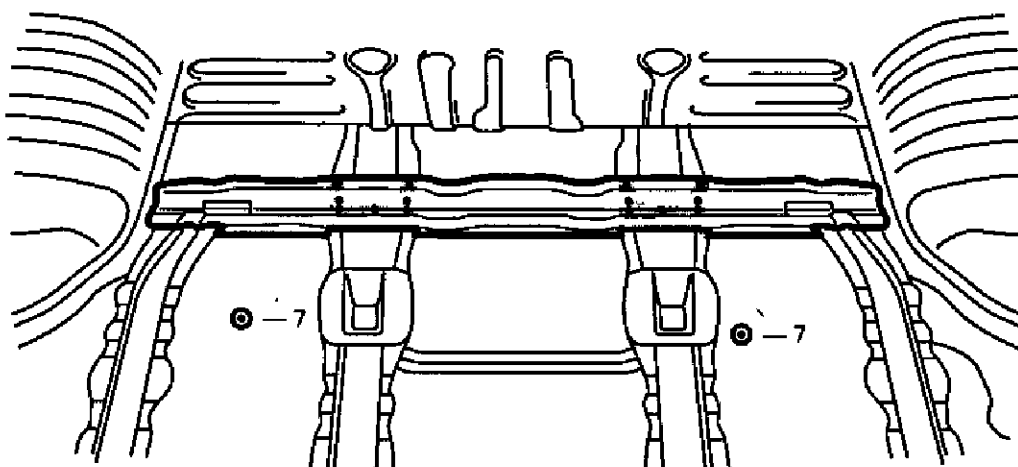


INSTALLATION

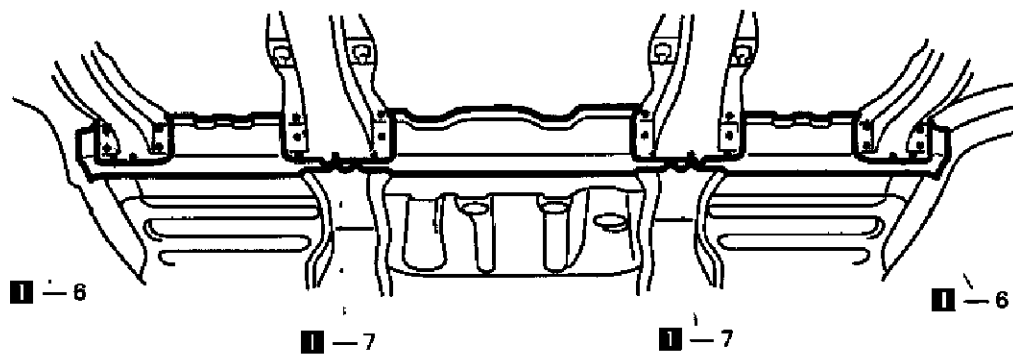
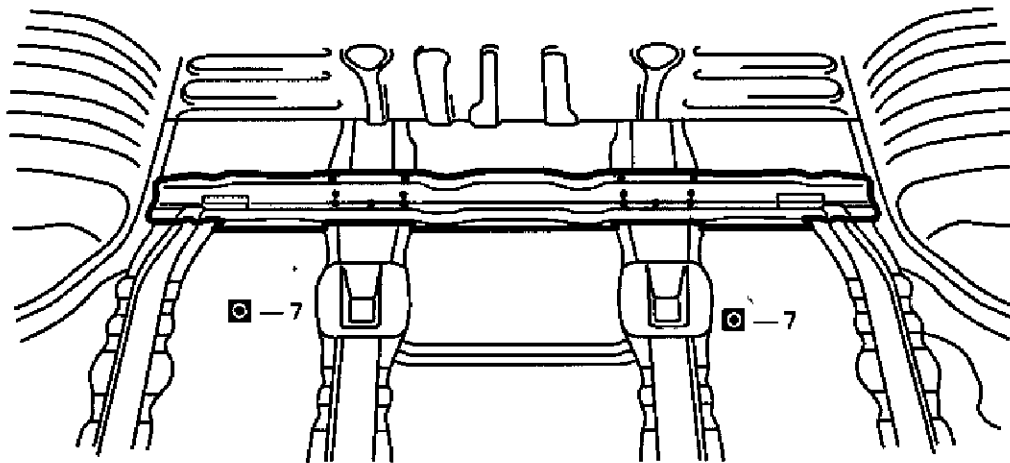
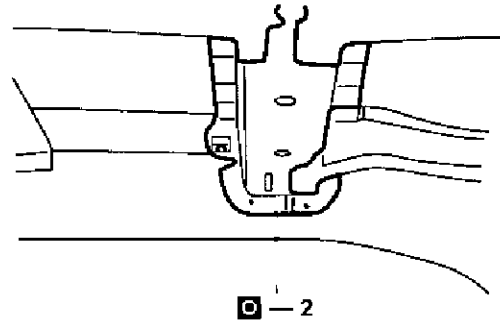


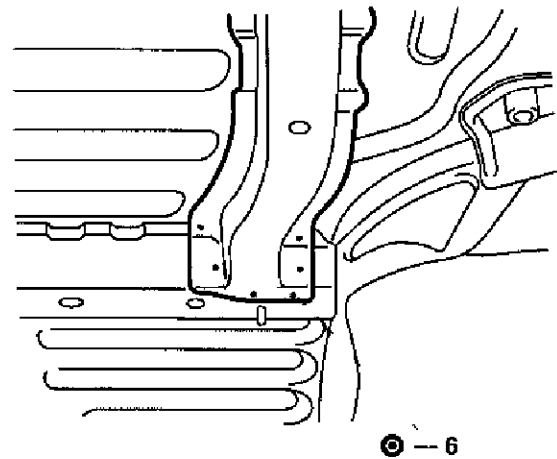
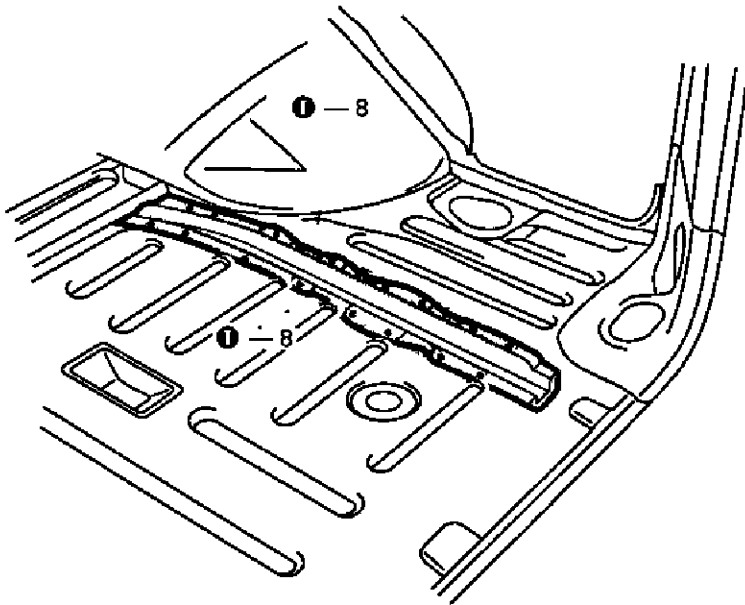
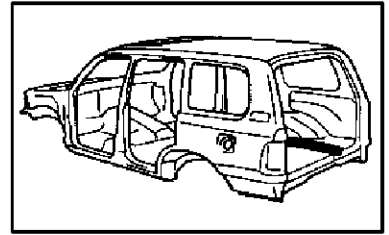
REAR FLOOR No. 3 CROSSMEMBER (ASSY)**REMOVAL (With the rear floor pan removed.)**

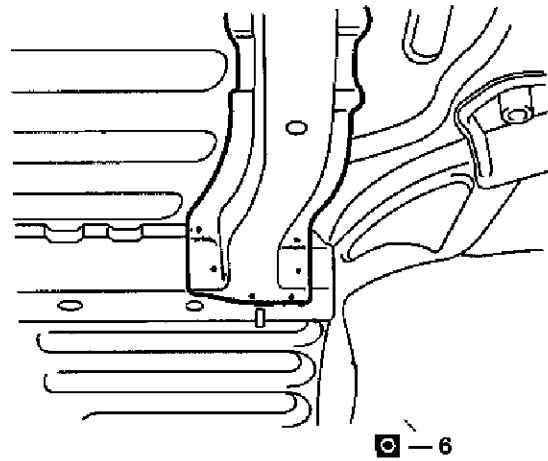
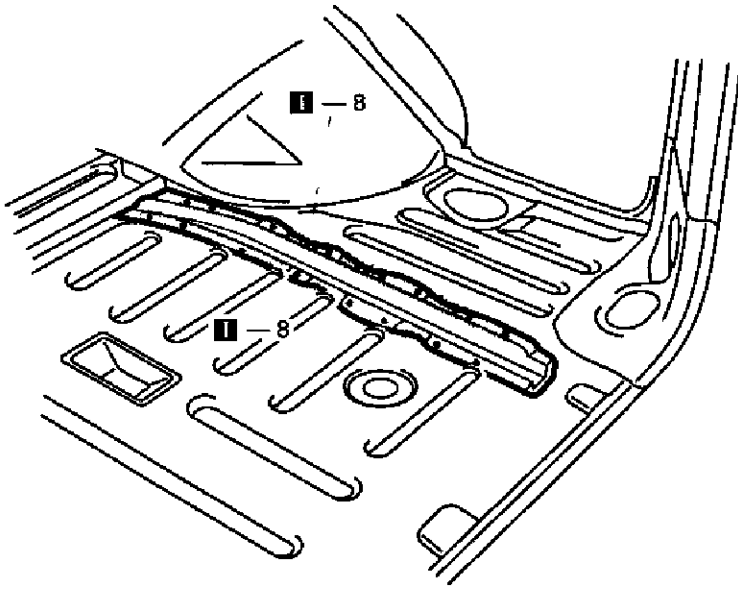
② — 2

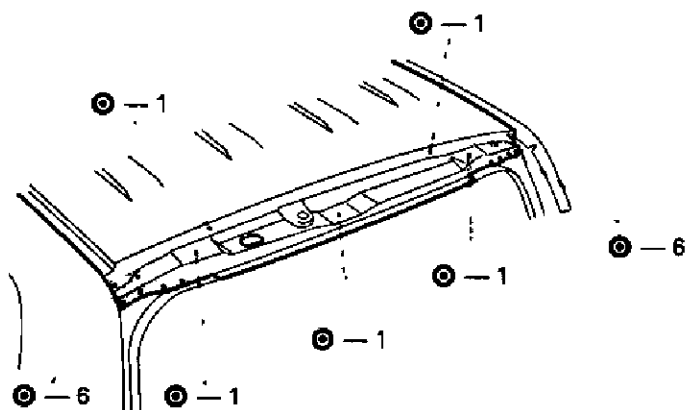
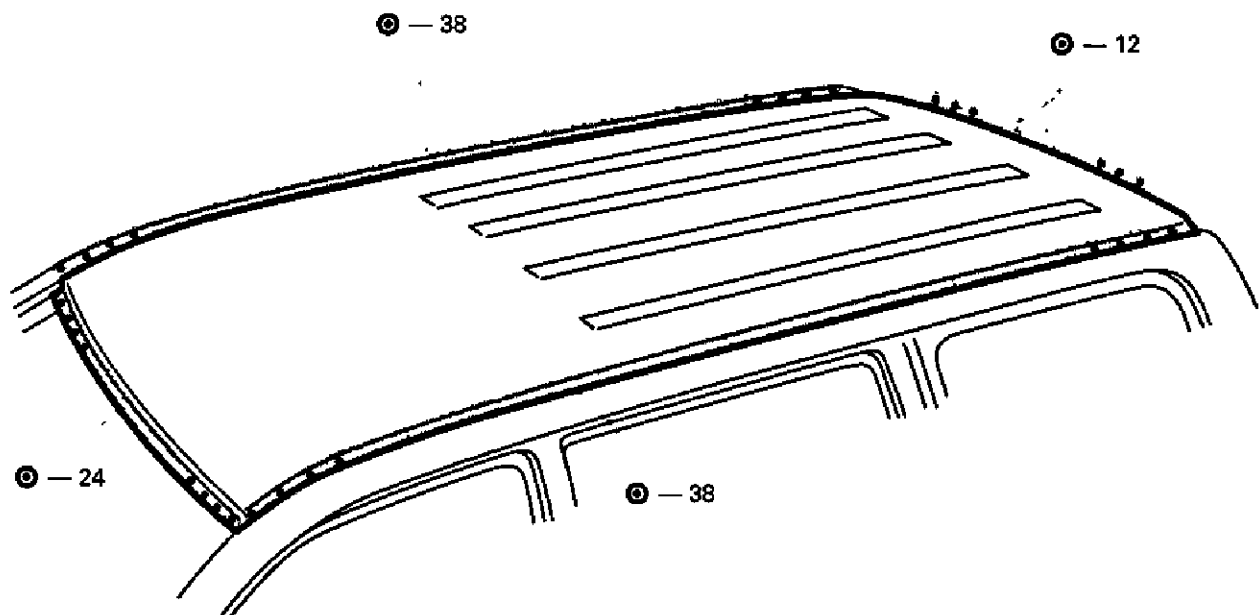
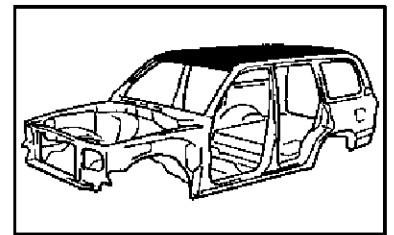


INSTALLATION



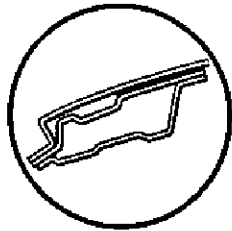
**REAR FLOOR SIDE MEMBER REAR No. 2
REINFORCEMENT (ASSY)****REMOVAL (With the body lower back panel removed.)**

INSTALLATION

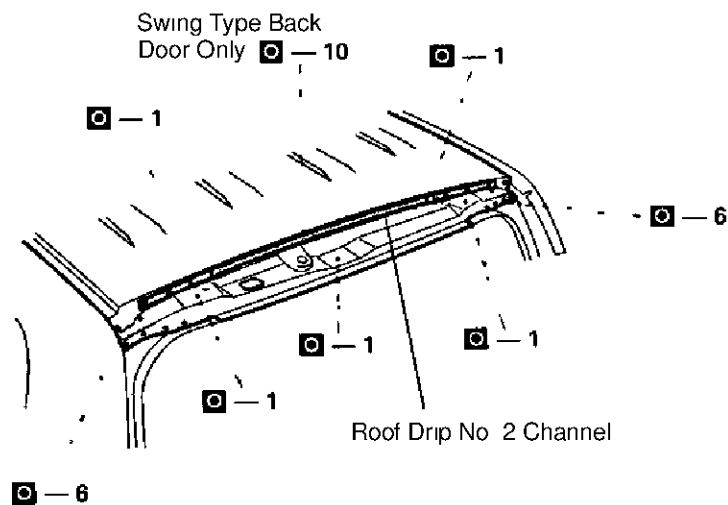
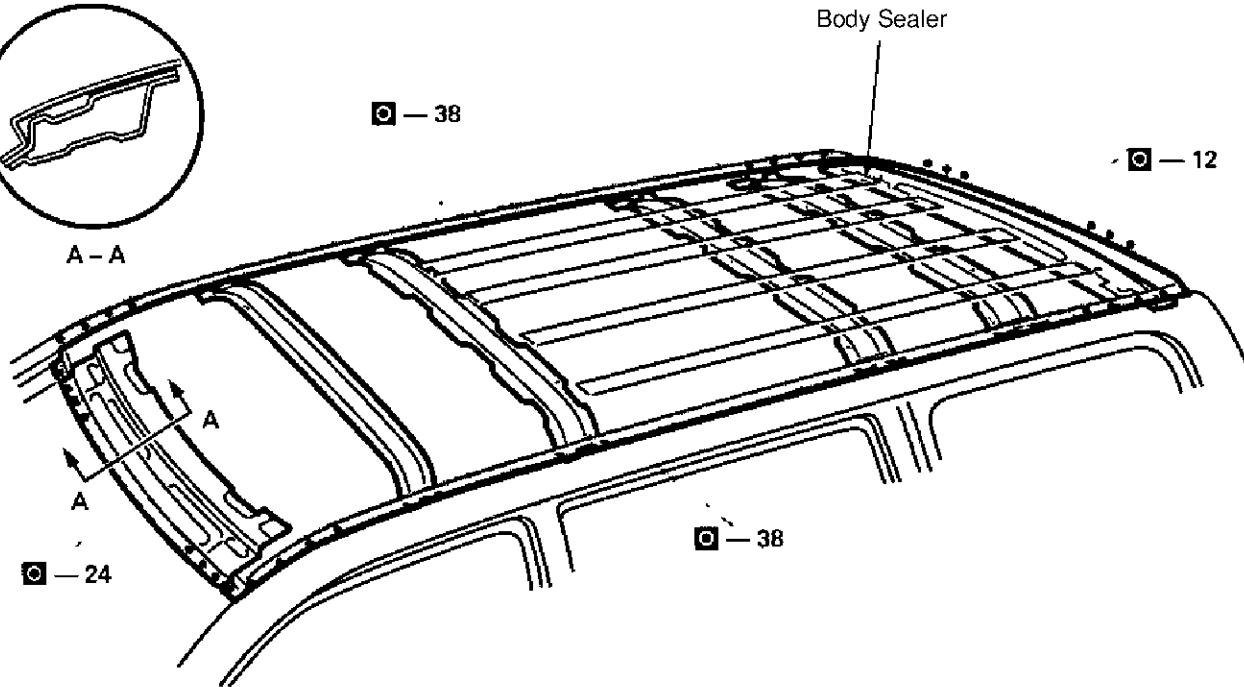
ROOF PANEL (ASSY): Normal Roof**REMOVAL**

INSTALLATION

[Foamed Material
Application Area]



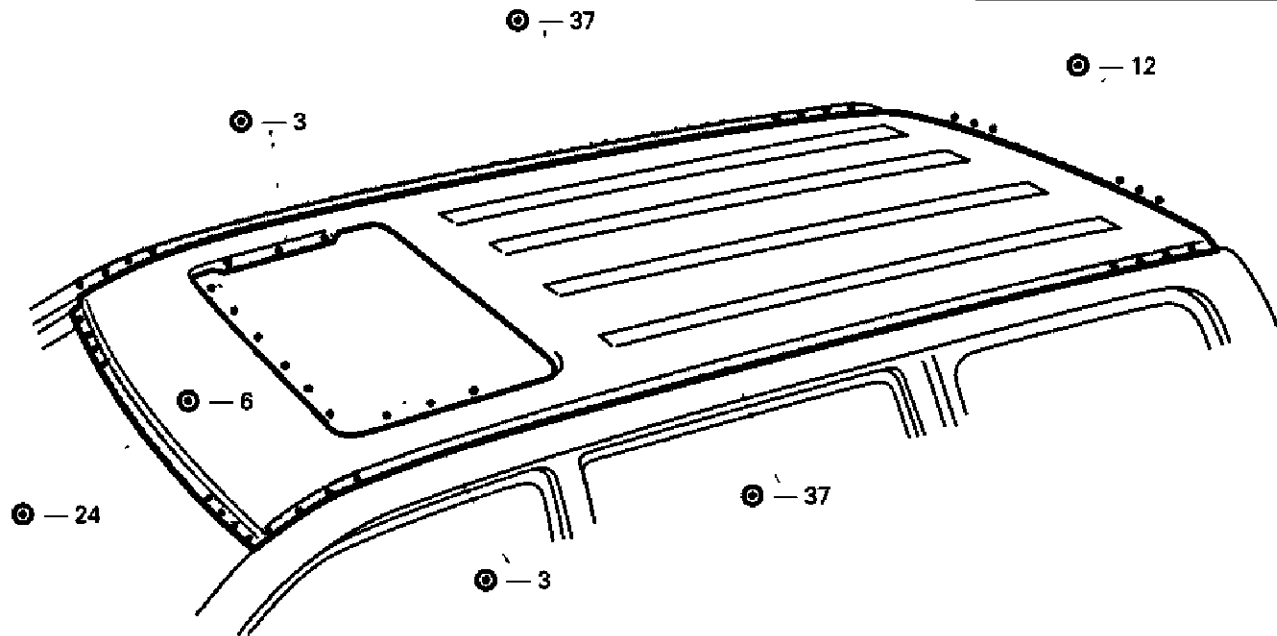
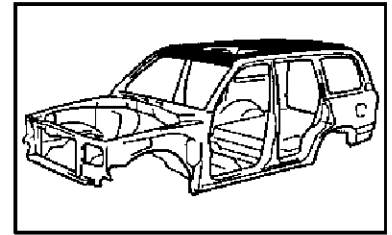
A - A



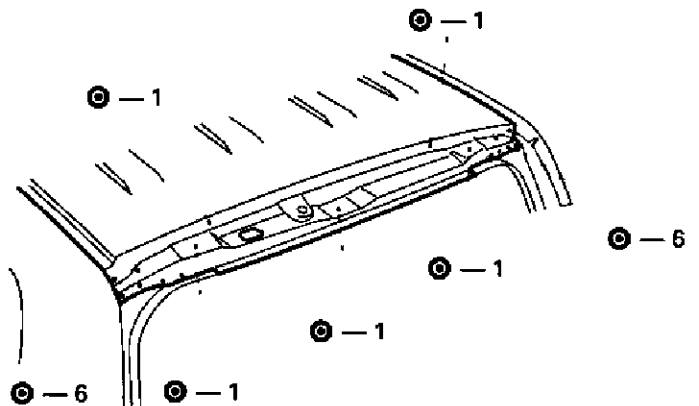
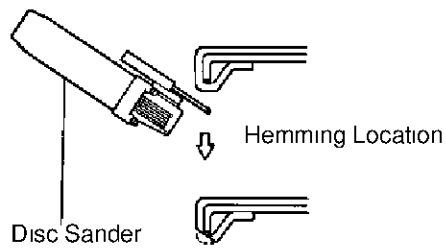
- 1 Before temporarily installing the new parts, apply body sealer to the windshield header panel, roof panel reinforcement and back door opening upper frame
- 2 After installing the new parts, apply foamed materials

HINT:

- 1) Apply just enough sealer for the new parts to make contact
- 2) For other sealing points, refer to Section AR

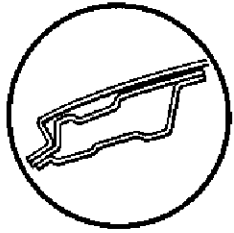
ROOF PANEL (ASSY): Moon Roof**REMOVAL**

[If reusing the roof panel reinforcement]

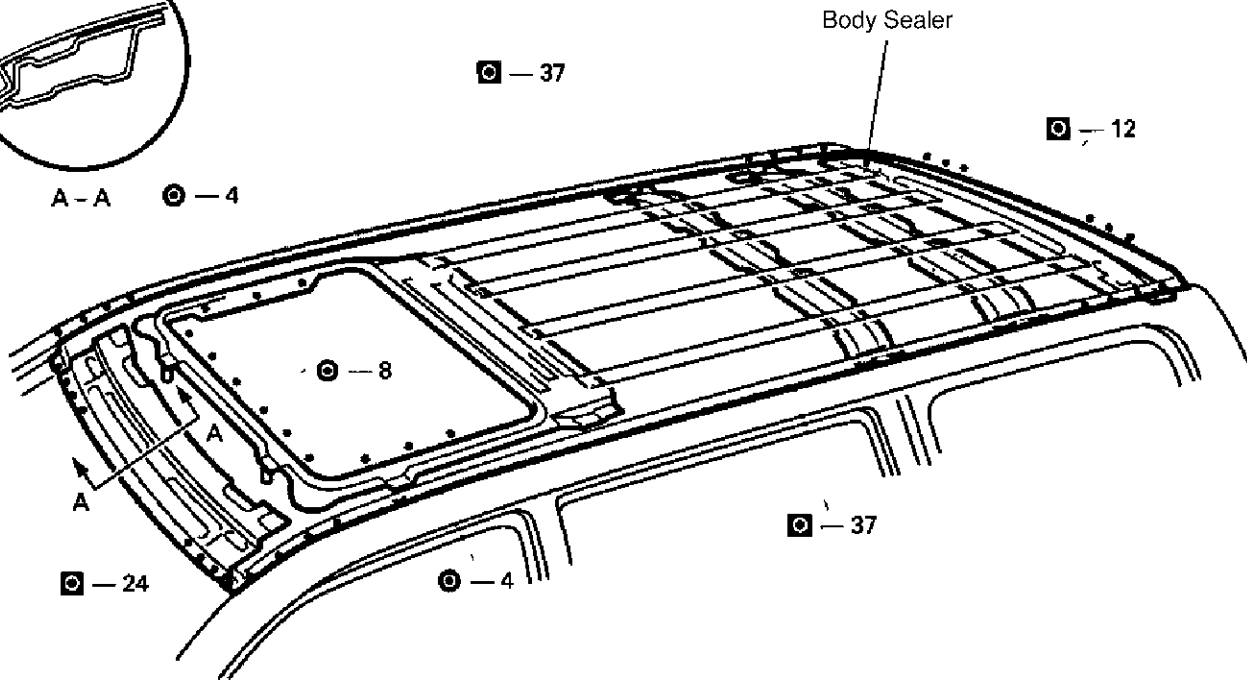


INSTALLATION

[Foamed Material
Application Area]

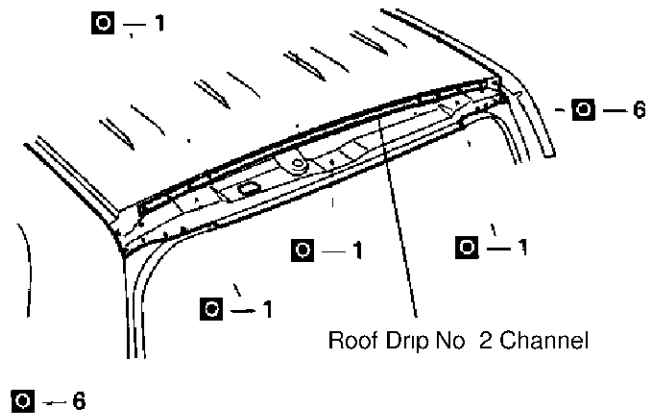
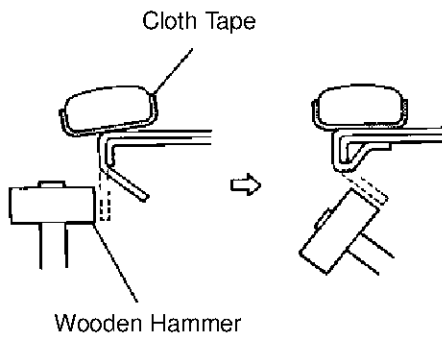


A - A ④ - 4



Swing Type Back Door only

④ - 10 ④ - 1



Before temporarily installing the new parts, apply body sealer to the windshield header panel, roof panel reinforcement and back window frame

HINT:

- 1) Apply just enough sealer for the new parts to make contact
- 2) For other sealing points, refer to Section AR

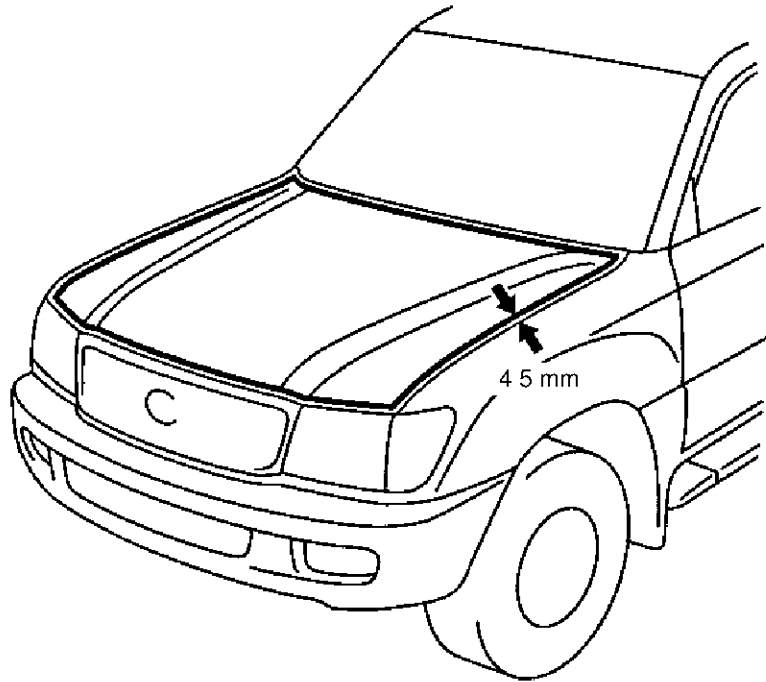
- 2 Bend the flange hem with a wooden hammer and dolly

HINT: Perform hemming three steps, being careful not to warp the panel

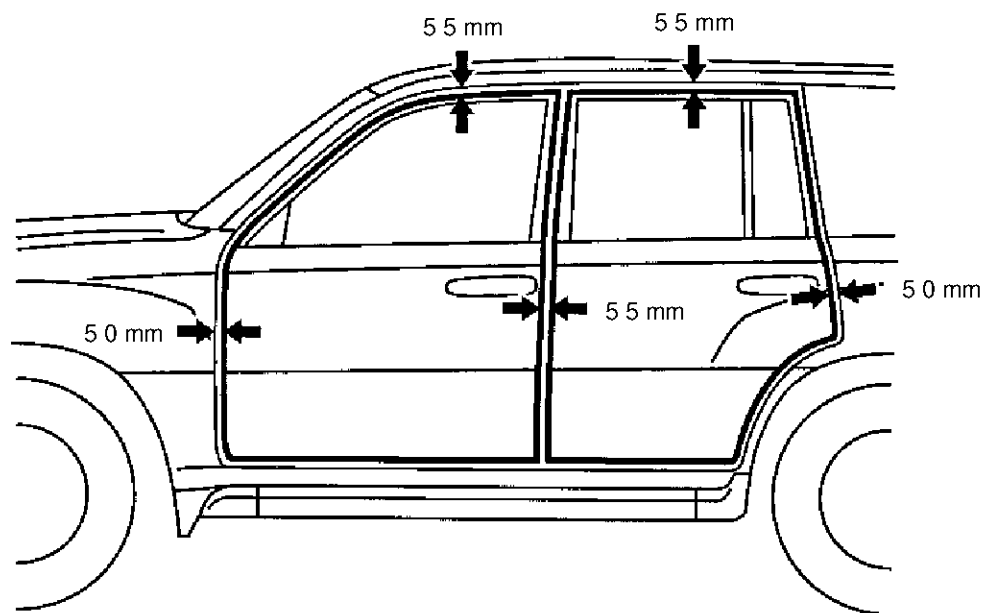
- 3 After installing the new parts, apply foamed materials

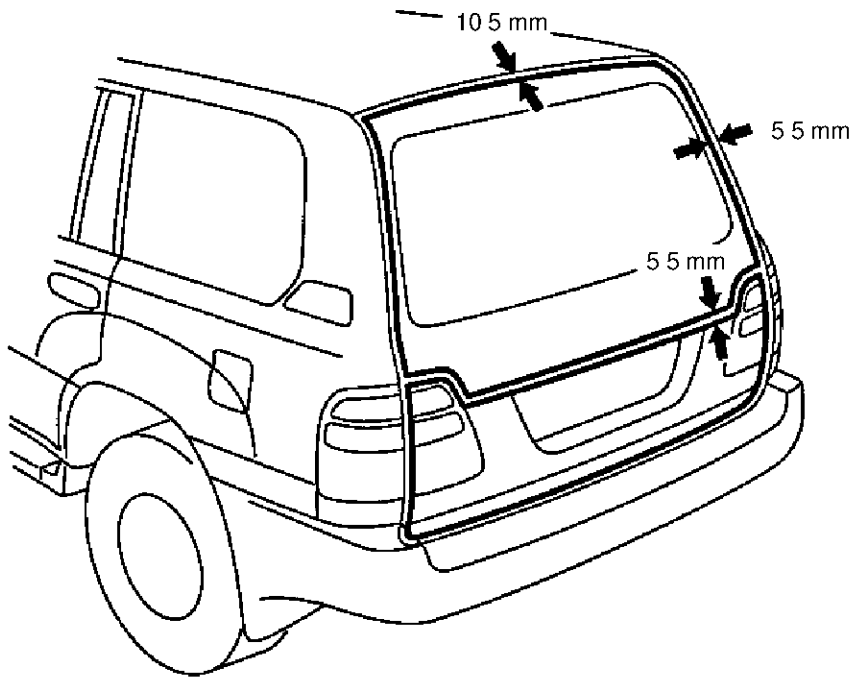
FIT STANDARDS

After doors and the engine hood are installed, be sure to perform fit adjustment to prevent abnormal wind noise and ensure a good appearance

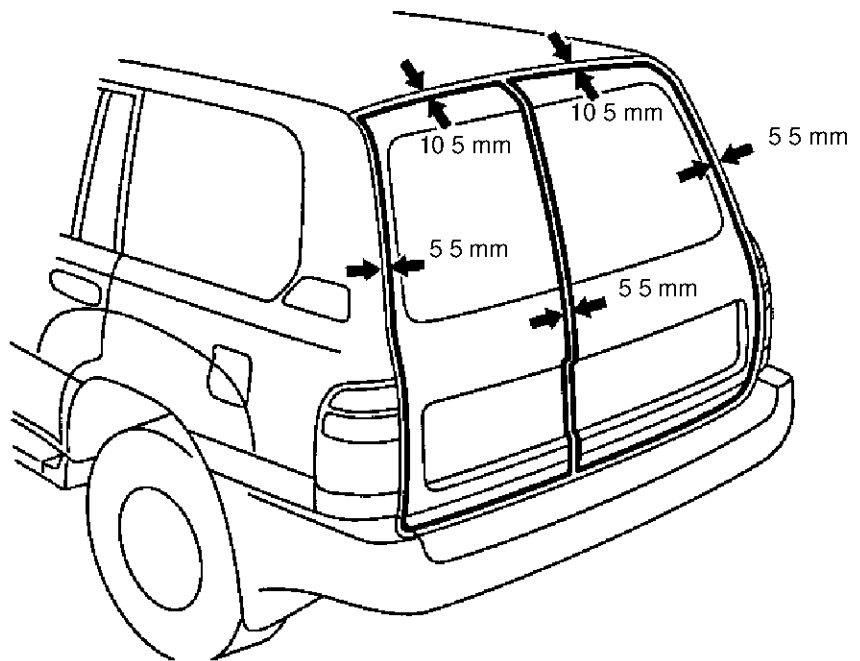


mm	in
4.5	0.177
5.0	0.197
5.5	0.217



Donated by Andrew Schauer cruisercult.com

mm	in
55	0.217
105	0.413



GENERAL INFORMATION

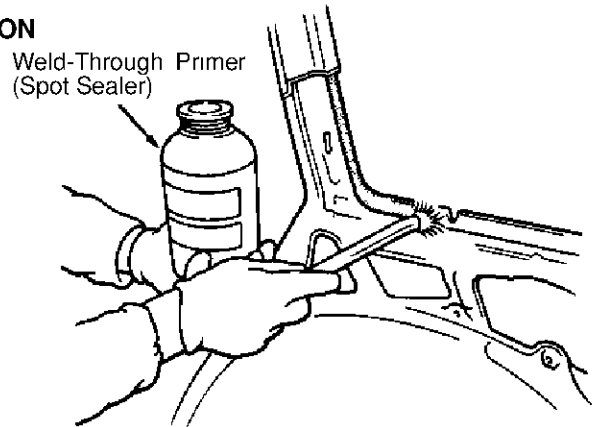
Anti-rust treatment is necessary before welding and before and after the painting process

ANTI-RUST TREATMENT BEFORE WELDING

1. WELD-THROUGH PRIMER (SPOT SEALER) APPLICATION

For anti-corrosion measures, always apply the weld-through primer (spot sealer) to welding surfaces where the paint film has been removed

HINT: Apply the weld-through primer (spot sealer) so that it does not ooze out from the joining surfaces

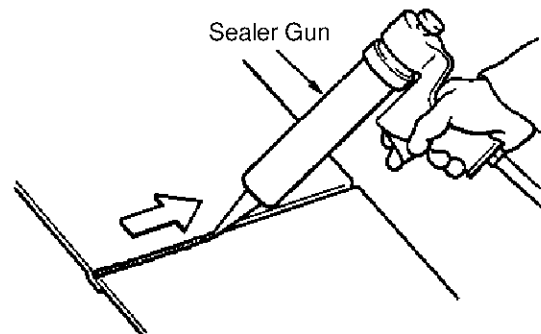


WELD-THROUGH PRIMER (SPOT SEALER) APPLICATION

ANTI-RUST TREATMENT BEFORE PAINTING PROCESS

1. BODY SEALER APPLICATION

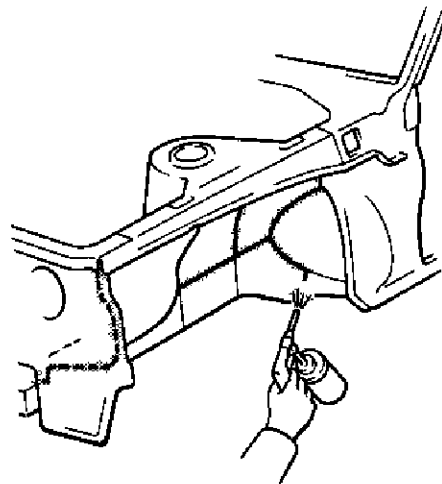
For water-proofing and anti-corrosion measures, always apply the body sealer to the body panel seams and hems of the doors, hoods, etc



BODY SEALER APPLICATION

2. UNDERCOAT APPLICATION

To prevent corrosion and protect the body from damage by flying stones, always apply sufficient undercoat to the bottom surface of the under body and inside of the wheel housings

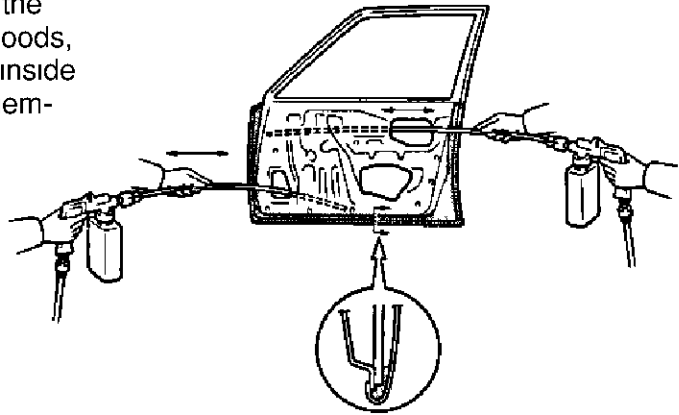


UNDERCOAT APPLICATION

ANTI-RUST TREATMENT AFTER PAINTING PROCESS

1. ANTI-RUST AGENT (WAX) APPLICATION

To preserve impossible to paint areas from corrosion, always apply sufficient anti-rust agent (wax) to the inside of the hemming areas of the doors and hoods, and around the hinges, or the welded surfaces inside the boxed cross-section structure of the side member, body pillar, etc



ANTI-RUST AGENT (WAX) APPLICATION

REFERENCE: ANTI-RUST TREATMENT BY PAINTING

Painting prevents corrosion and protects the sheet metal from damage. In this section, anti-chipping paint only for anti-corrosion purpose is described.

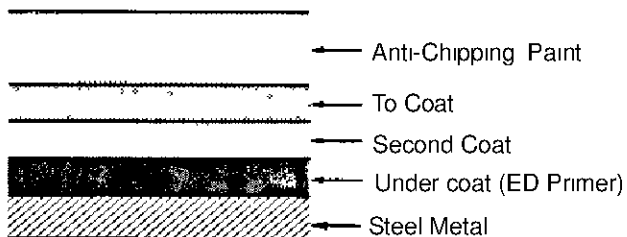
1. ANTI-CHIPPING PAINT

To prevent corrosion and protect the body from damage by flying stones, etc., apply anti-chipping paint to the rocker panel, wheel arch areas, valance panel, etc.

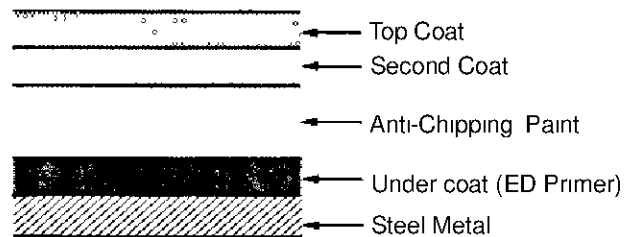
HINT:

Depending on the model or the application area, there are cases where the application of anti-chipping paint is necessary before the second coat or after the top coat.

- Apply the anti-chipping paint after the top coat



- Apply the anti-chipping paint before the second coat

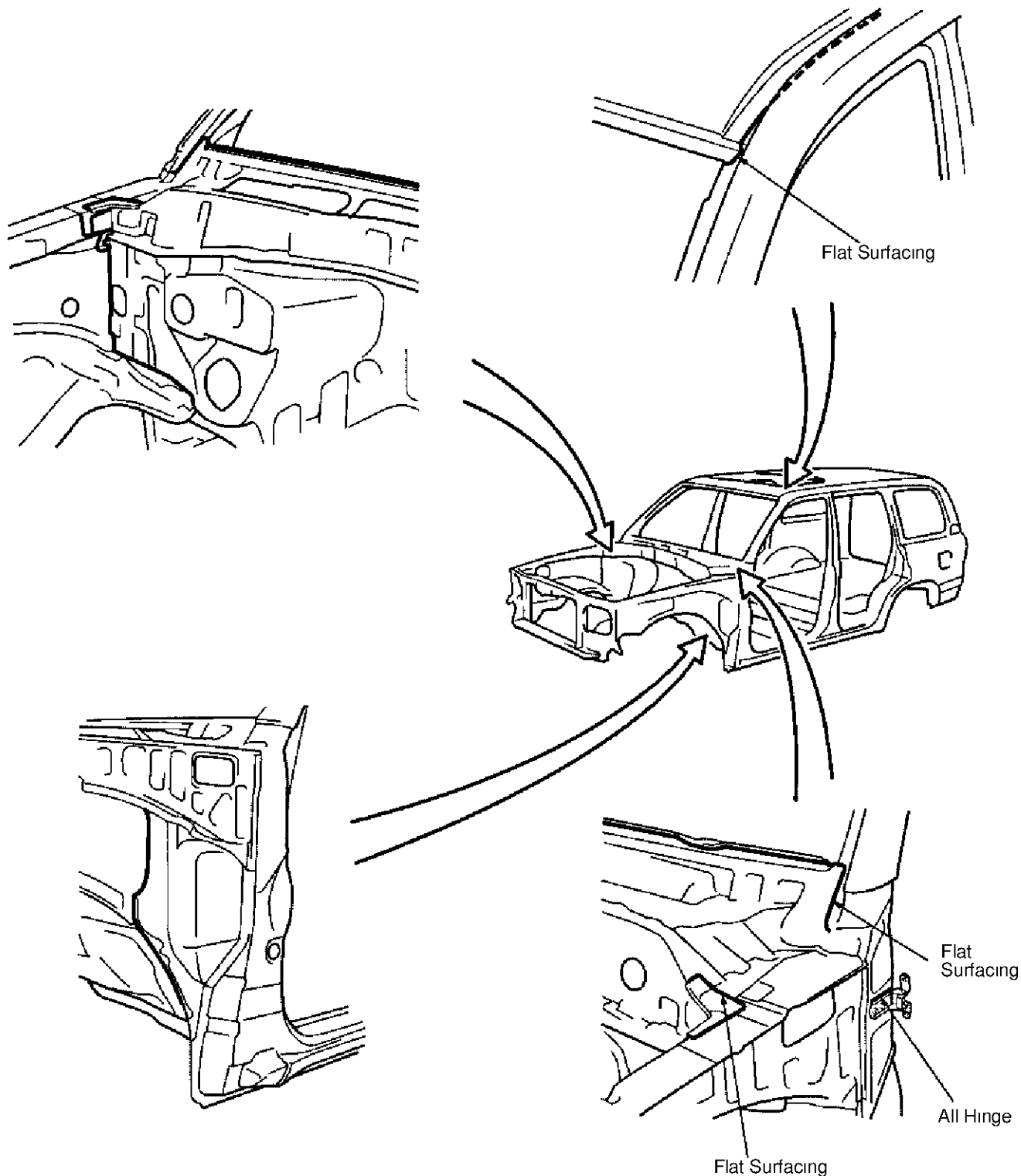


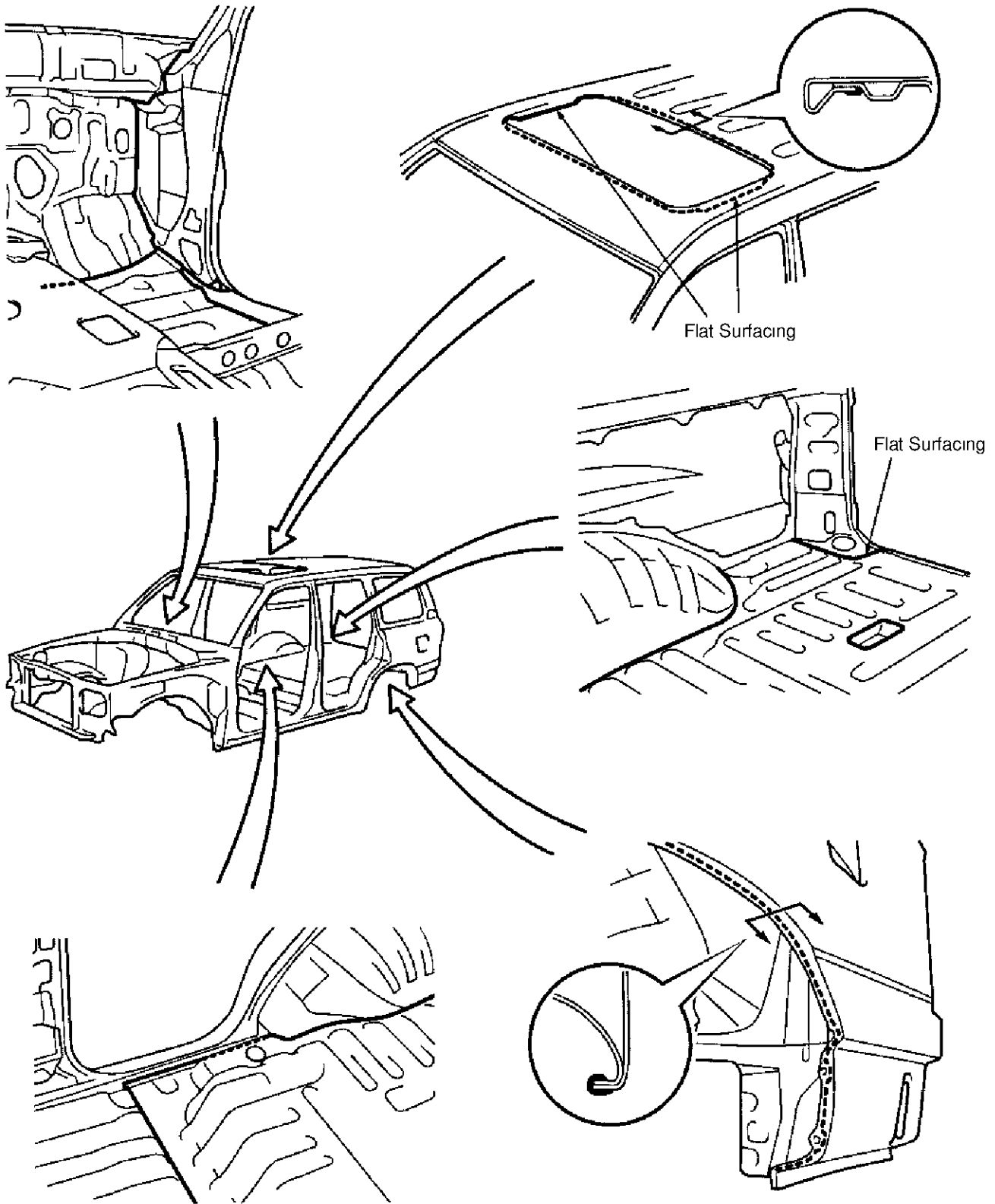
Donated by Andrew Schauer cruisercult.com

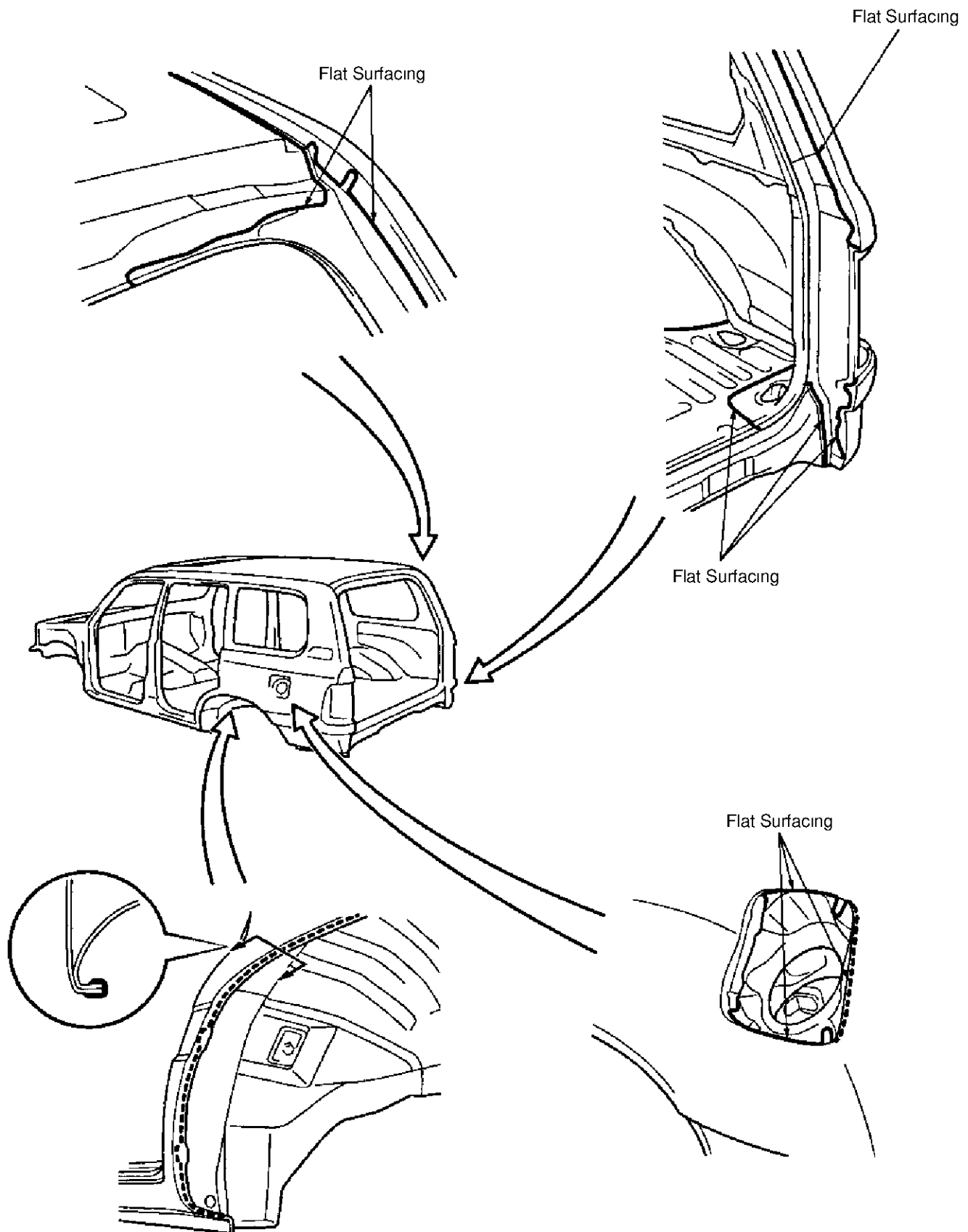
BODY PANEL SEALING AREAS

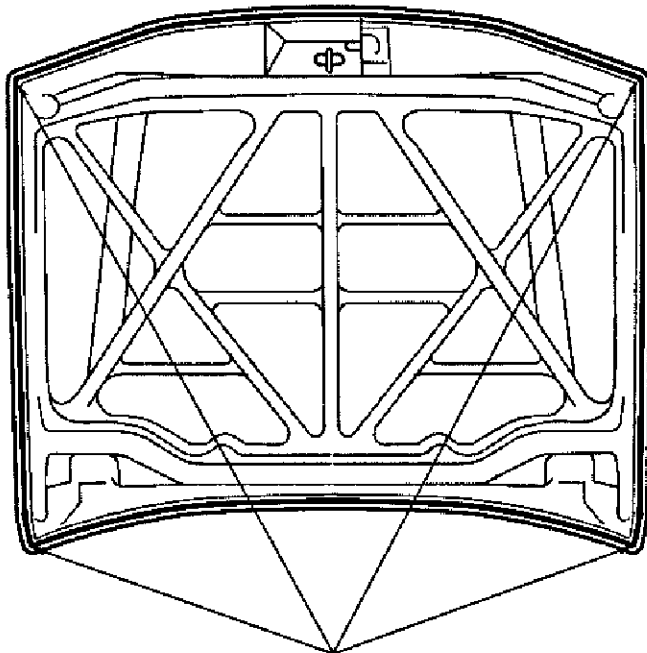
HINT:

- 1 Prior to applying body sealer, clean the area with a rag soaked in a grease, wax and silicone remover
- 2 If weld-through primer was used, first wipe off any excess and coat with anti-corrosion primer before applying body sealer
- 3 Wipe off excess body sealer with a rag soaked in a grease, wax and silicone remover
- 4 If body sealer is damaged by peeling, cracks, etc , be sure to repair as necessary

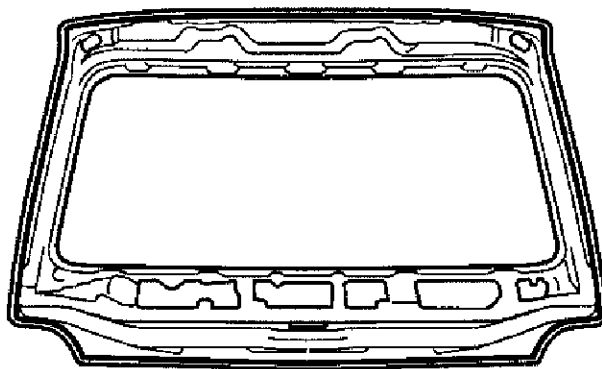




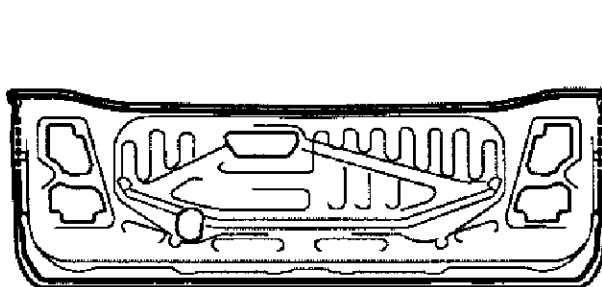
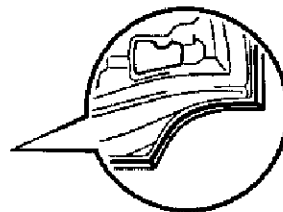




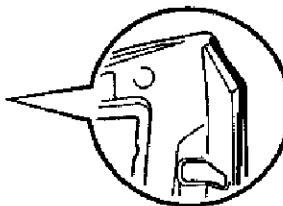
Flat Surfacing



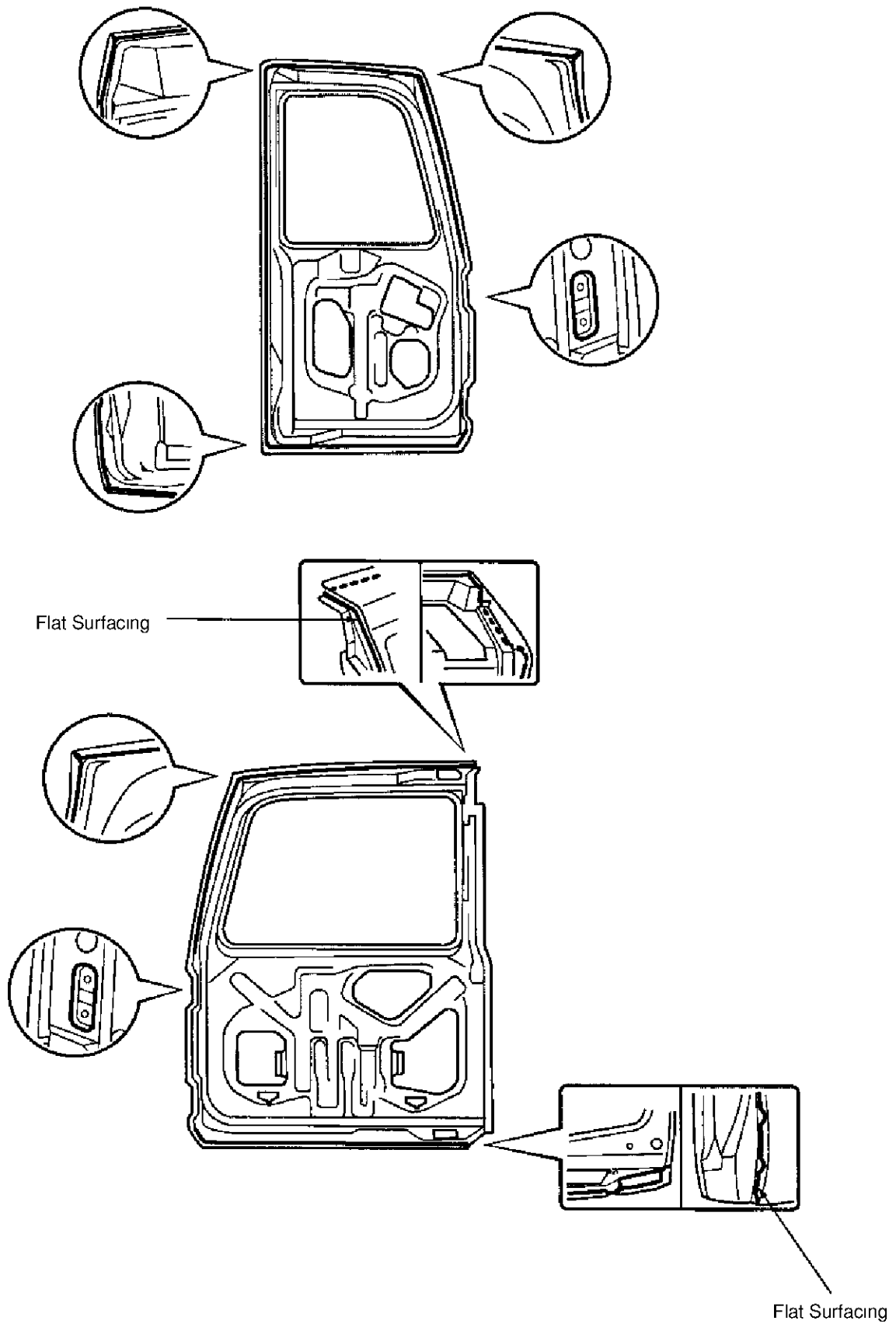
Lift-Up Type Back Door

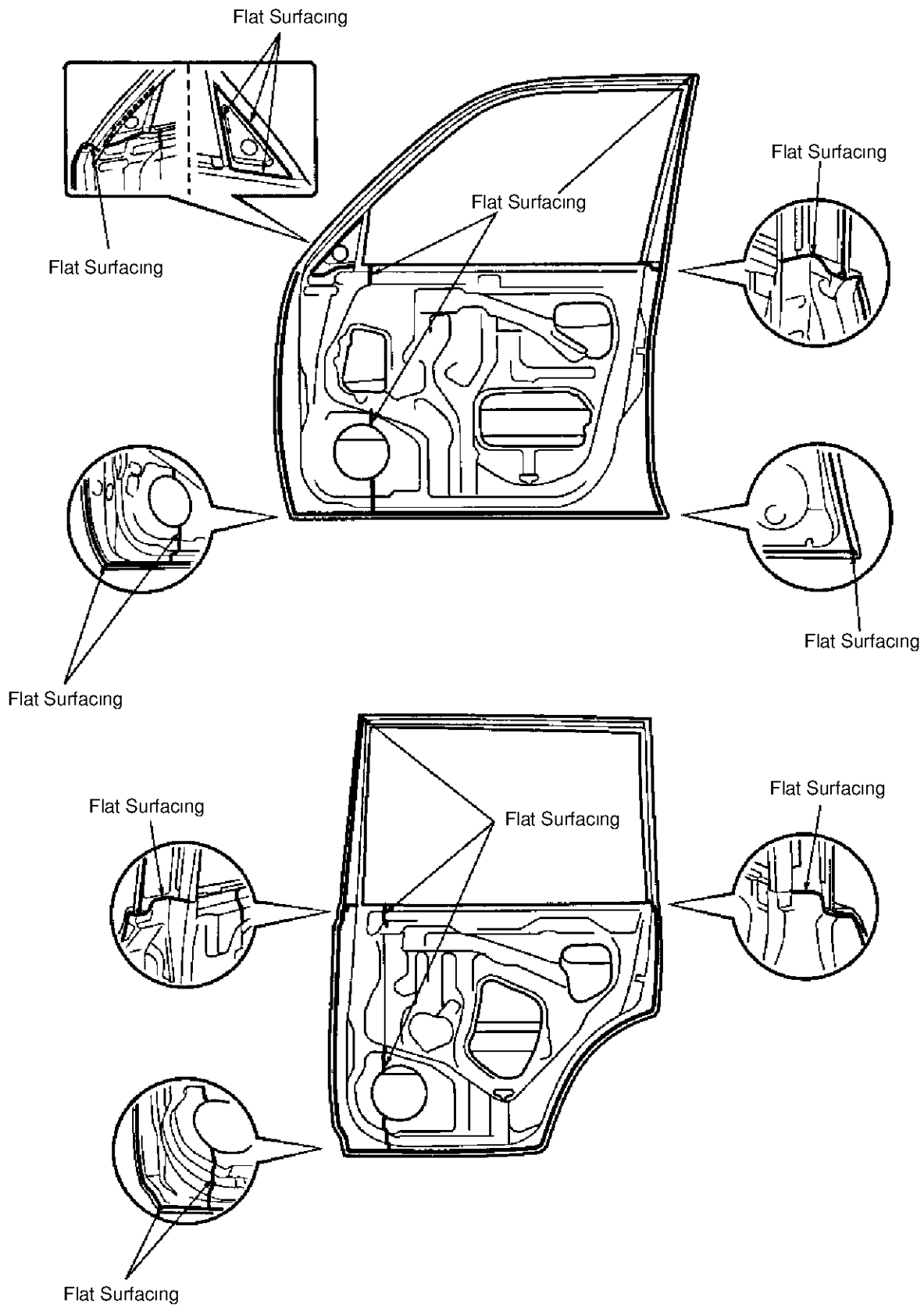


Lift-Up Type Back Door



Swing Type Back Door



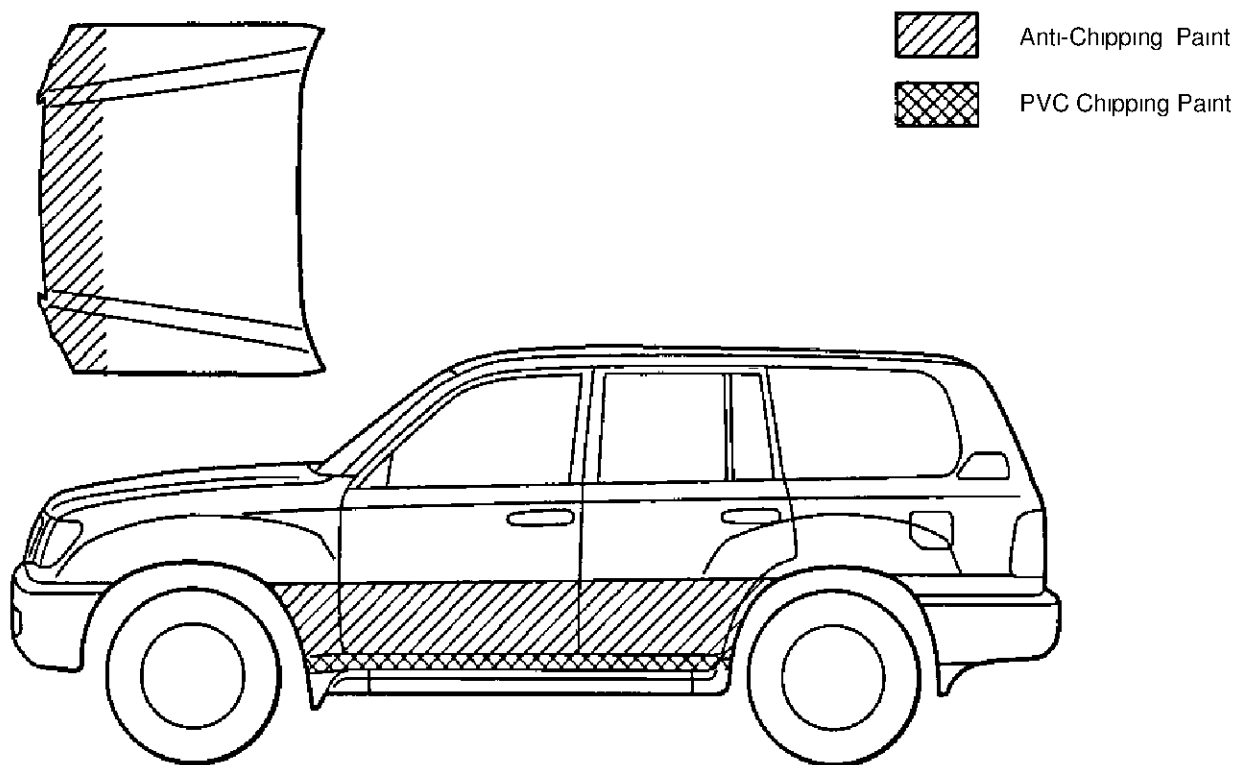


Donated by Andrew Schauer cruisercult.com

BODY PANEL ANTI-CHIPPING PAINT APPLICATION AREAS

HINT:

- 1 *Anti-chipping paint should be applied to some areas before the second coat and to others after the top coat*
- 2 *If other areas are accidentally coated, wipe off the paint immediately with a rag soaked in grease, wax and silicone remover*

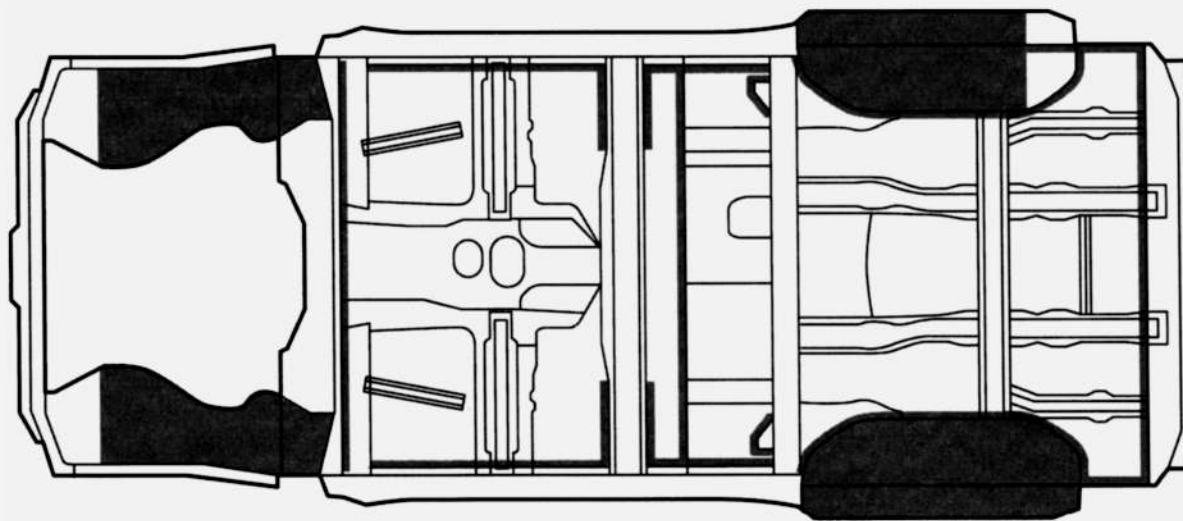


Donated by Andrew Schauer . cruisercult.com

BODY PANEL UNDERCOATING AREAS

HINT:

1. First wipe off any dirt, grease or oil with a rag soaked in a grease, wax and silicone remover.
2. Cover the surrounding areas with masking paper to avoid coating unnecessary areas. If other areas are accidentally coated, wipe off the coating immediately.
3. Apply the first coating of undercoat to all welded areas and panel joints, then apply a second coat over the entire area.
4. Do not coat parts which become hot, such as the tailpipe, or moving parts, such as the propeller shaft.
5. Besides the locations described below, apply undercoating to all weld points under the body to insure corrosion prevention.
6. Be sure to seal the edge of the flange of the member and bracket with undercoating.
7. If undercoat is damaged by peeling, cracks, etc., be sure to repair as necessary.
8. Before the undercoat apply sealer allowing rust prevention to be attained.



REFERENCE: Referring to the notes above, undercoating should be applied according to the specifications for your country.

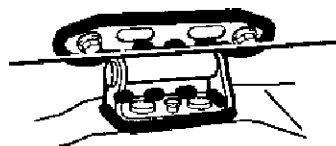
Donated by Andrew Schauer cruisercult.com

BODY PANEL ANTI-RUST AGENT (WAX) APPLICATION AREAS

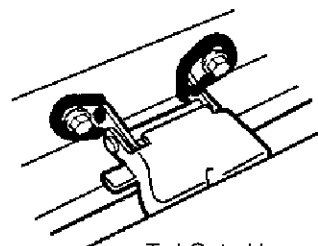
HINT:

- 1 Whenever adjusting the doors and hoods, apply anti-rust agent (wax) around the hinges
- 2 Even if partially repairing a part, apply anti-rust agent (wax) over the entire application area of the part
- 3 Wipe off the anti-rust agent immediately with a rag soaked in a grease, wax and silicone remover, if accidentally applied to other areas

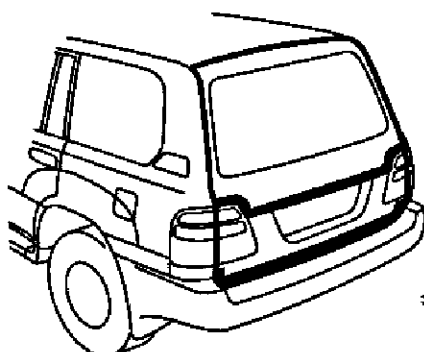
LIFT-UP TYPE BACK DOOR



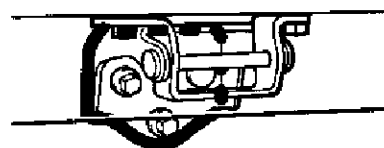
Back Door Hinge



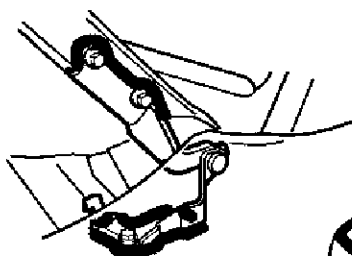
Tail Gate Hinge



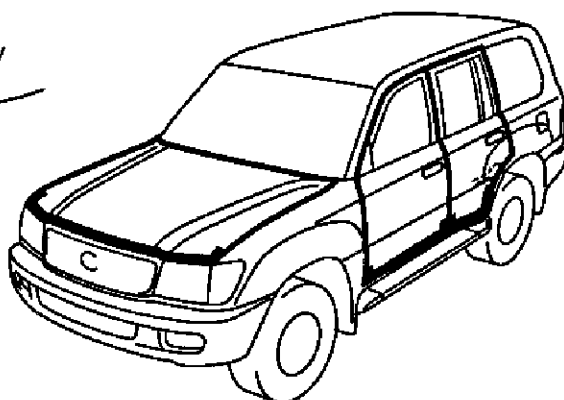
Back Door, Tail Gate



Tail Gate Hinge



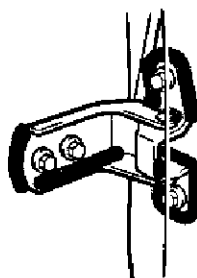
Hood Hinge



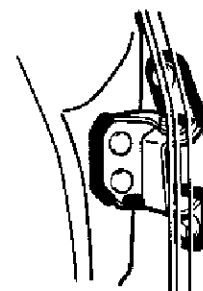
Door



Hood



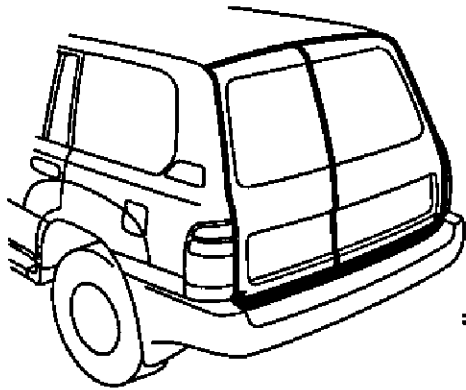
Door Hinge



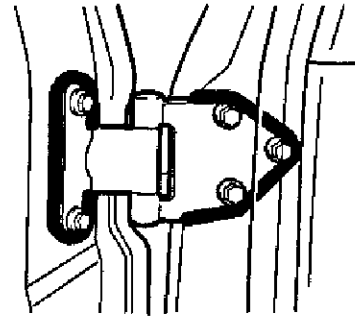
Door Hinge

Donated by Andrew Schauer cruisercult.com

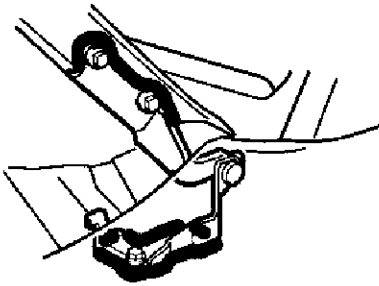
SWING TYPE BACK DOOR



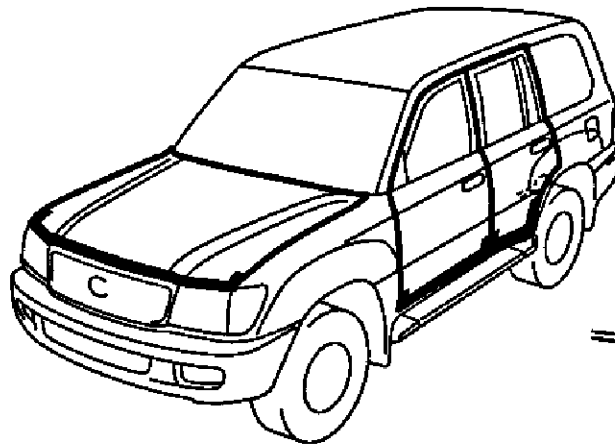
Back Door



Back Door Hinge



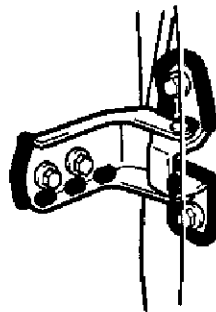
Hood Hinge



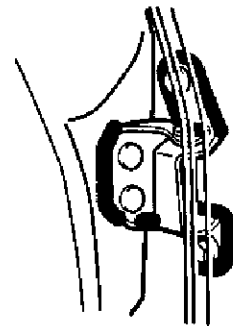
Door



Hood



Door Hinge



Door Hinge

SILENCER SHEET INSTALLATION AREAS

1 + 1 SEATER MODELS

Thickness of Asphalt Sheet

 0.8 mm (0.031 in.)

 1.5 mm (0.059 in.)

 2.0 mm (0.079 in.)

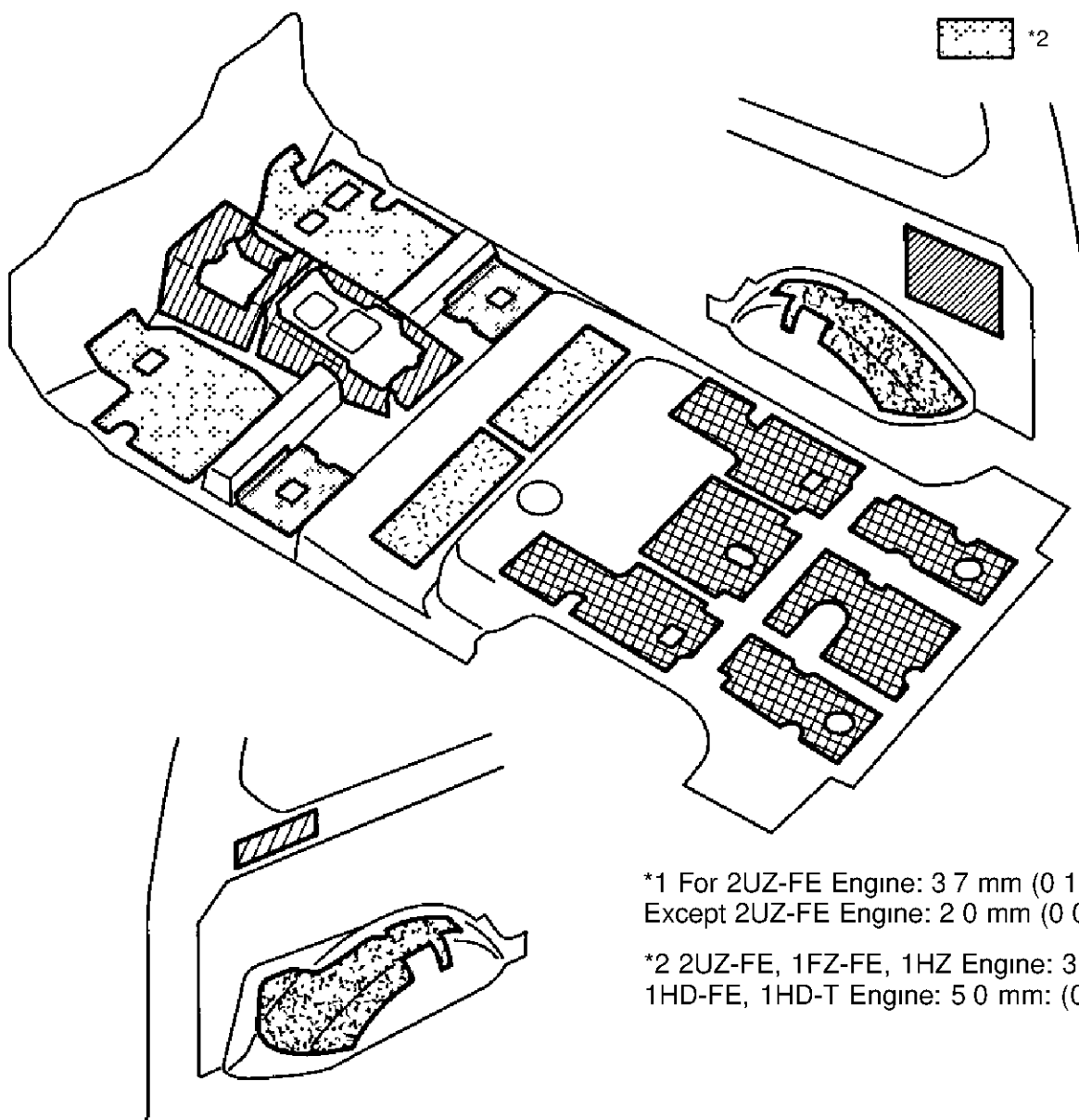
 3.0 mm (0.118 in.)

 3.5 mm (0.138 in.)

 3.7 mm (0.146 in.)

 *1

 *2



*1 For 2UZ-FE Engine: 3.7 mm (0.146 in.)
Except 2UZ-FE Engine: 2.0 mm (0.079 in.)

*2 2UZ-FE, 1FZ-FE, 1HZ Engine: 3.0 mm (0.118 in.)
1HD-FE, 1HD-T Engine: 5.0 mm (0.197 in.)

Donated by Andrew Schauer cruisercult.com

1 + 2 SEATER MODELS

Thickness of Asphalt Sheet

 0.8 mm (0.031 in.)

 1.5 mm (0.059 in.)

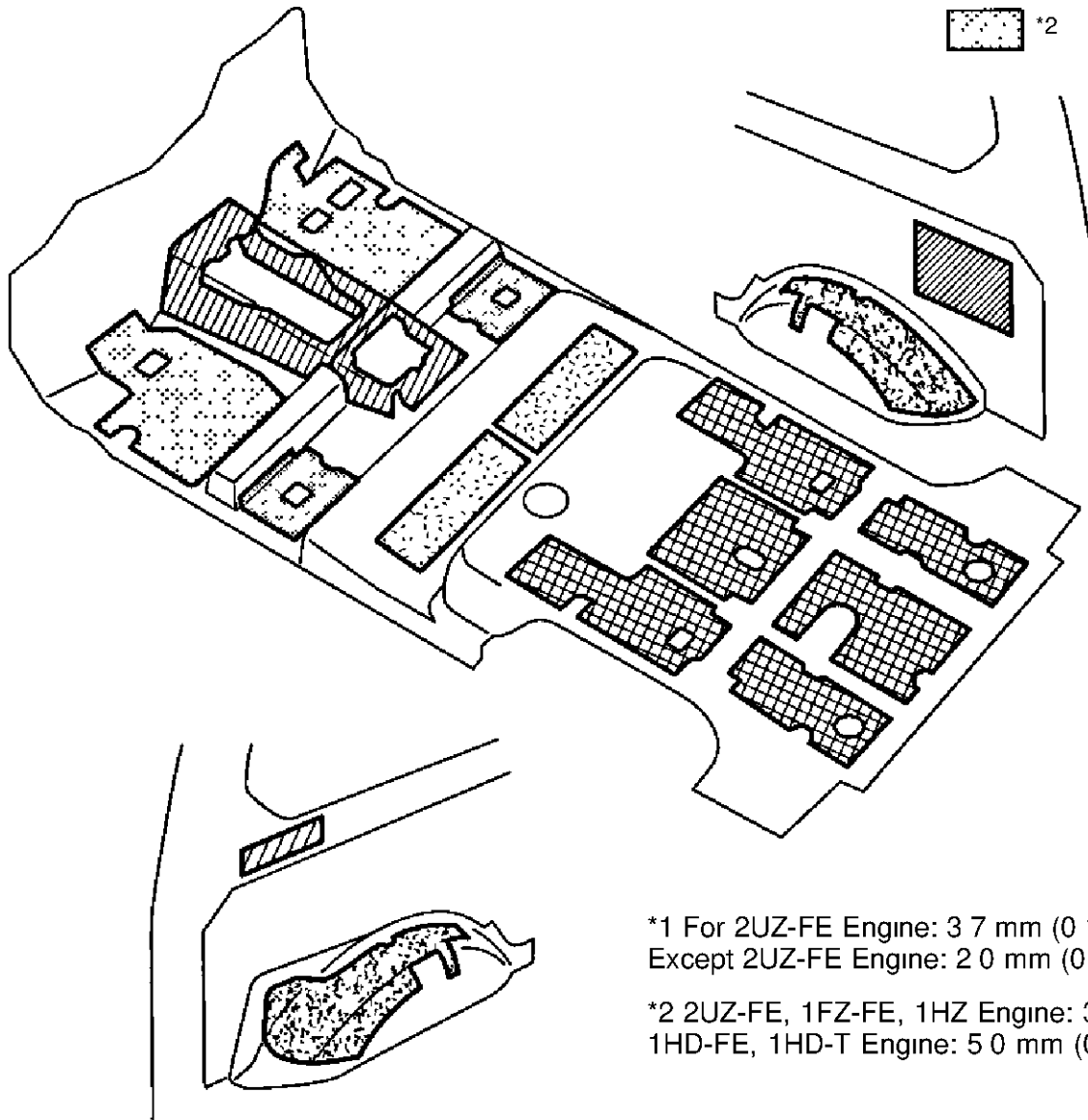
 2.0 mm (0.079 in.)

 3.0 mm (0.118 in.)

 3.5 mm (0.138 in.)

 3.7 mm (0.146 in.)

 *1

 *2


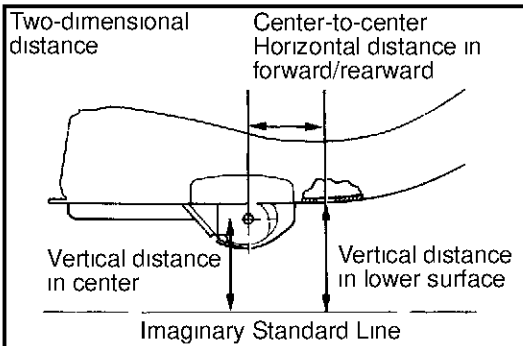
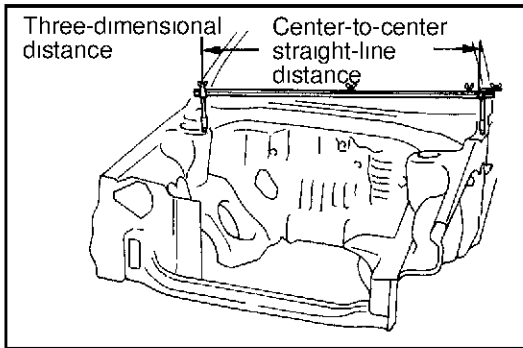
*1 For 2UZ-FE Engine: 3.7 mm (0.146 in.)
 Except 2UZ-FE Engine: 2.0 mm (0.079 in.)

*2 2UZ-FE, 1FZ-FE, 1HZ Engine: 3.0 mm (0.118 in.)
 1HD-FE, 1HD-T Engine: 5.0 mm (0.197 in.)

GENERAL INFORMATION

1. BASIC DIMENSIONS

- (a) There are two types of dimensions in the diagram (Three-dimensional distance)
- Straight-line distance between the centers of two measuring points

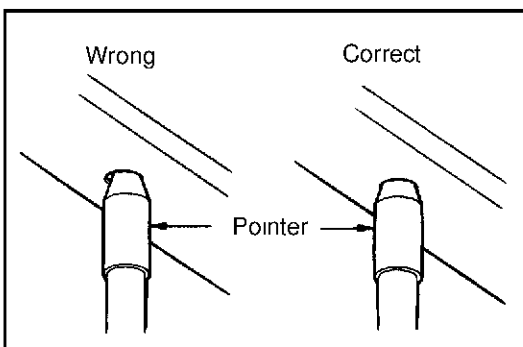
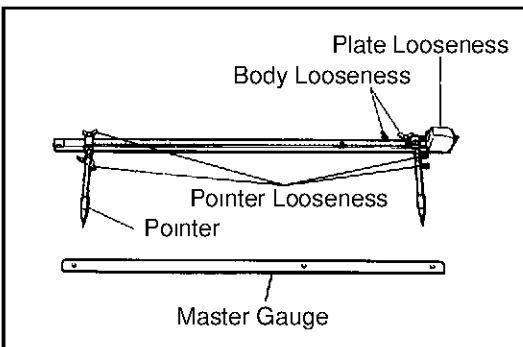


(Two-dimensional distance)

- Horizontal distance in forward/rearward between the centers of two measuring points
 - The height from an imaginary standard line
- (b) In cases in which only one dimension is given, left and right are symmetrical
- (c) The dimensions in the following drawing indicate actual distance. Therefore, please use the dimensions as a reference

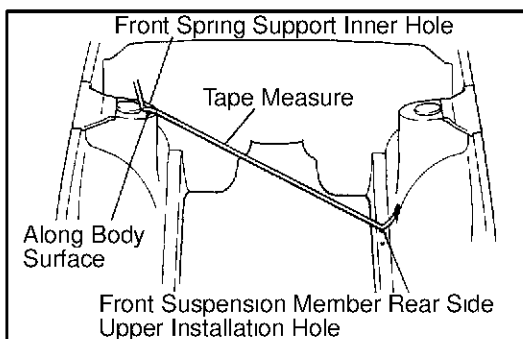
2. MEASURING

- (a) Basically, all measurements are to be done with a tracking gauge. For portions where it is not possible to use a tracking gauge, a tape measure should be used
- (b) Use only a tracking gauge that has no looseness in the body, measuring plate, or pointers



HINT:

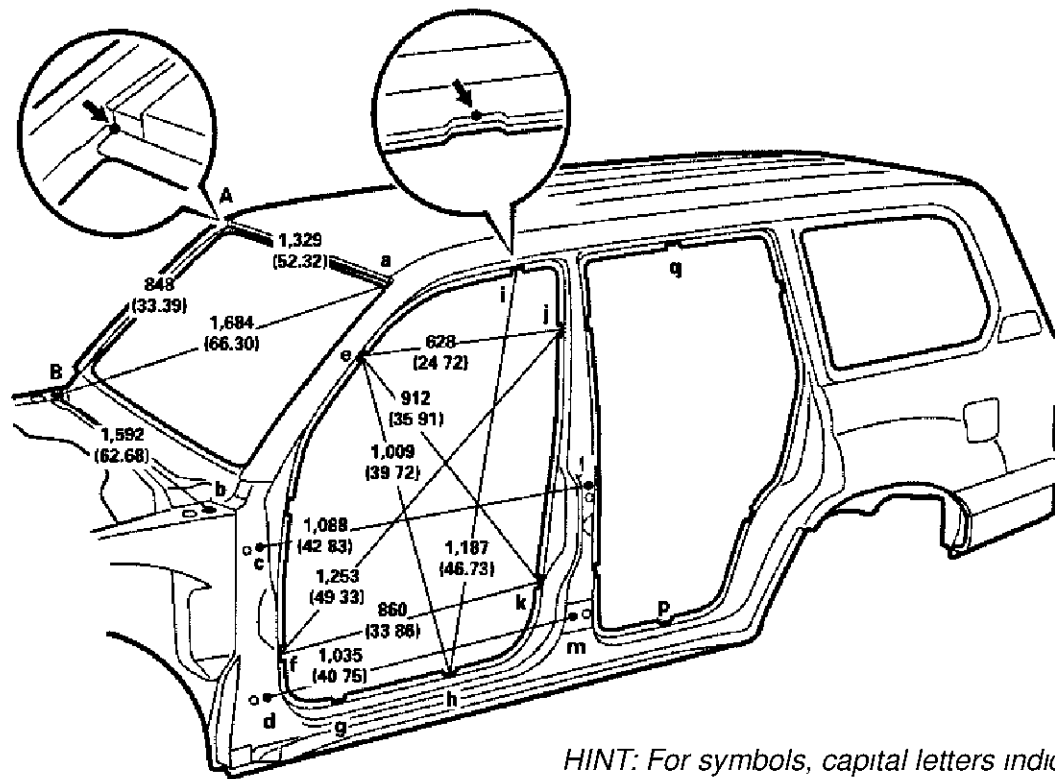
- 1 The height of the left and right pointers must be equal
- 2 Always calibrate the tracking gauge before measuring or after adjusting the pointer height
- 3 Take care not to drop the tracking gauge or otherwise shock it
- 4 Confirm that the pointers are securely in the holes



- (c) When using a tape measure, avoid twists and bends in the tape
- (d) When tracking a diagonal measurement from the front spring support inner hole to the suspension member upper rear installation hole, measure along the front spring support panel surface

BODY OPENING AREAS
(Side View-Front)

(Three-Dimensional Distance)



HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (Seen from rear)

Vehicle Dimensions Left ↔ Right

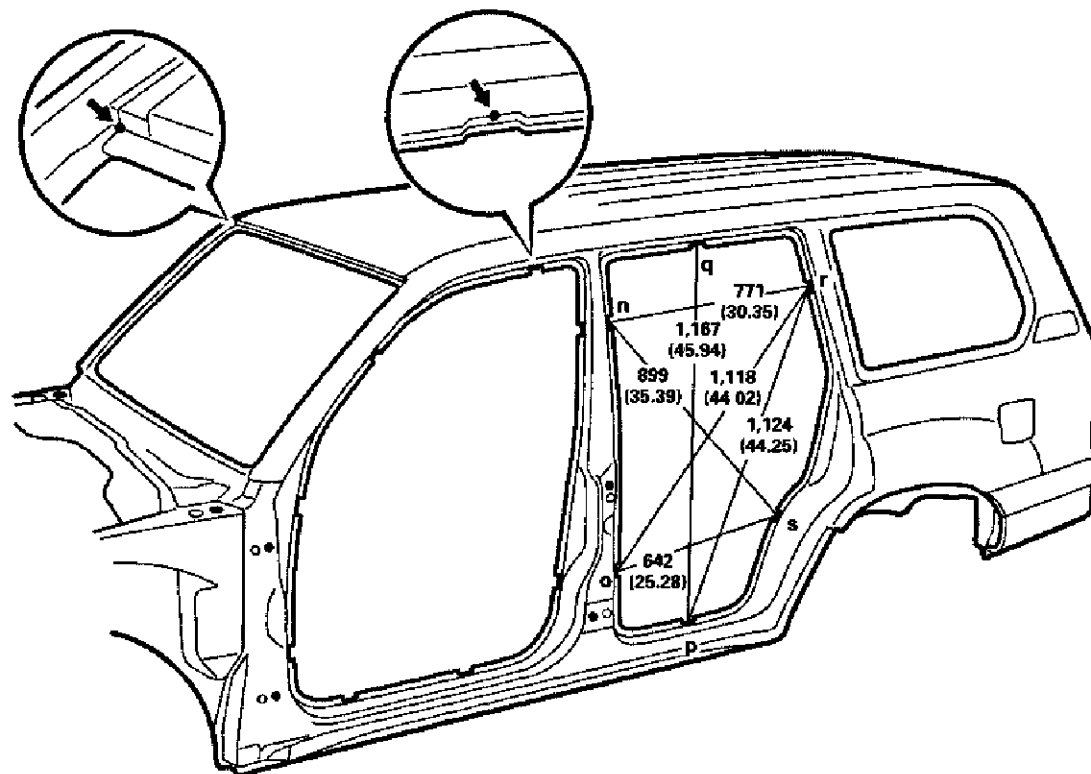
E-e	F-f	G-g	H-h	I-i	J-j	K-k
1 438 (56 61)	1 599 (62 95)	1 608 (63 31)	1 614 (63 54)	1 340 (52 76)	1 472 (57 95)	1 610 (63 39)

E-f or e-F	E-h or e-H	E-j or e-J	F-j or f-J	F-k or f-K	G-p or g-P	H-i or h-I	I-q or i-Q	J-k or j-K
1 757 (69 17)	1 827 (71 93)	1 585 (62 40)	1 980 (77 95)	1 821 (71 69)	1 979 (77 91)	1 890 (74 41)	1 459 (57 44)	1 706 (67 17)

mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Roof panel/Front body pillar adjoining portion	—	I i	Roof side rail assembly mark	—
B b	Hood hinge installation nut-rear	8 (0 31) nut	J j	Center body pillar assembly mark	—
C c	Front door hinge installation nut	8 (0 31) nut	K k	Center body pillar assembly mark	—
D d	Front door hinge installation nut	8 (0 31) nut	L l	Rear door hinge installation hole	13 (0 51)
E e	Front body pillar assembly mark	—	M m	Rear door hinge installation nut	8 (0 31) nut
F f	Front body pillar assembly mark	—	P p	Rocker panel assembly mark	—
G g	Rocker panel assembly mark	—	Q q	Roof side rail assembly mark	—
H h	Rocker panel assembly mark	—	—	—	—

(Three-Dimensional Distance)



HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (Seen from rear)

Vehicle Dimensions Left ↔ Right

N-n	O-o	P-p	Q-q	R-r	S-s
1 472 (57.95)	1 613 (63.50)	1 619 (63.74)	1 330 (52.36)	1 442 (56.77)	1 607 (63.27)

N-r or n-R	N-s or n-S	O-s or o-S	P-q or p-Q	R-s or r-S
1 649 (64.92)	1 782 (70.16)	1 734 (68.27)	1 875 (73.82)	1 692 (66.61)

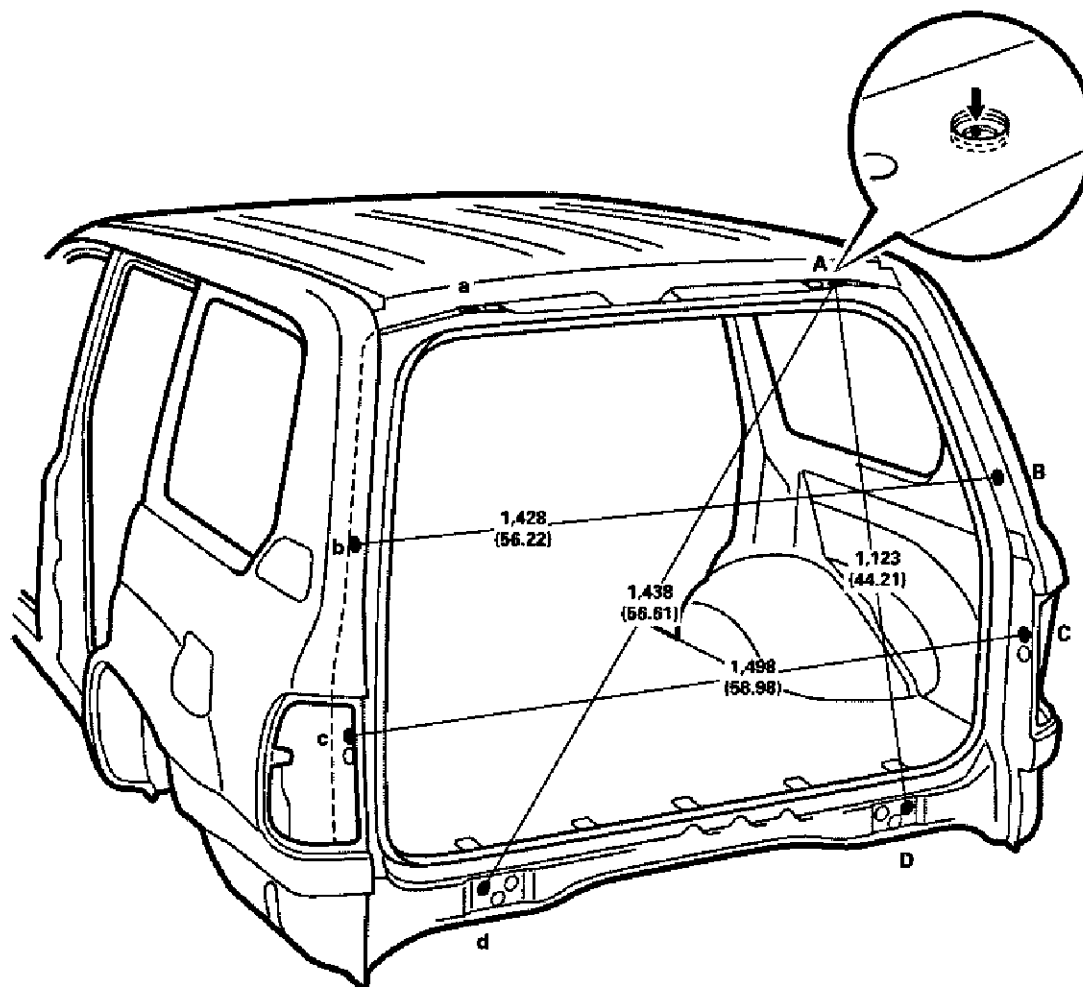
mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
N n	Center body pillar assembly mark	—	Q q	Roof side rail assembly mark	—
O o	Center body pillar assembly mark	—	R r	Quarter panel assembly mark	—
P p	Rocker panel assembly mark	—	S s	Quarter panel assembly mark	—

BODY OPENING AREAS (Side View-Rear)

BODY OPENING AREAS
(Rear View: Lift-Up Type)

(Three-Dimensional Distance)



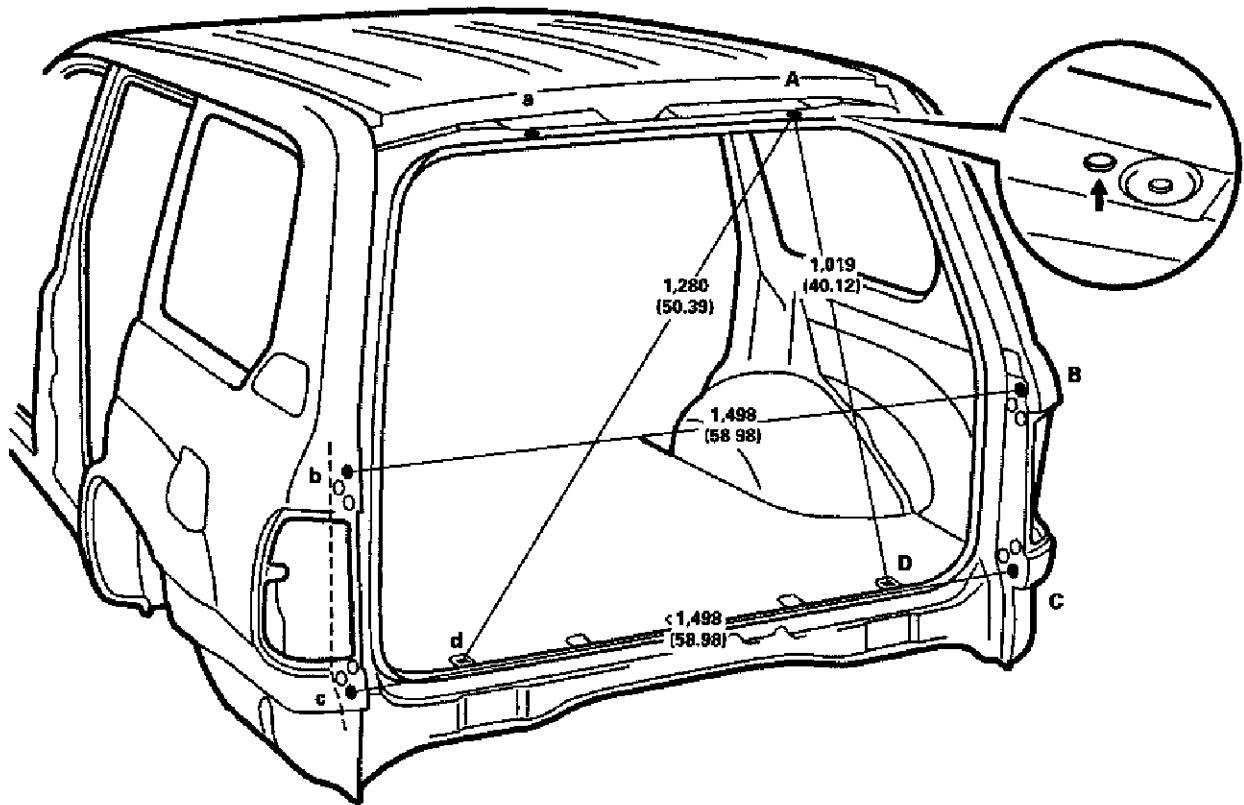
*HINT: For symbols, capital letters indicate right side of vehicle,
small letters indicate left side of vehicle (Seen from rear)*

mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A	Back door hinge installation hole-outer = front tip RH	8 2 (0 323)	C c	Tail gate lock striker installation nut	8 (0 31) nut
a	Back door hinge installation hole-outer = front tip LH	11X8 2 (0 43X0 323)	D d	Tail gate hinge installation nut-outer	8 (0 31) nut
B b	Back door damper stay installation nut	8 (0 31) nut	—		—

BODY OPENING AREAS
(Rear View: Swing Type)

(Three-Dimensional Distance)

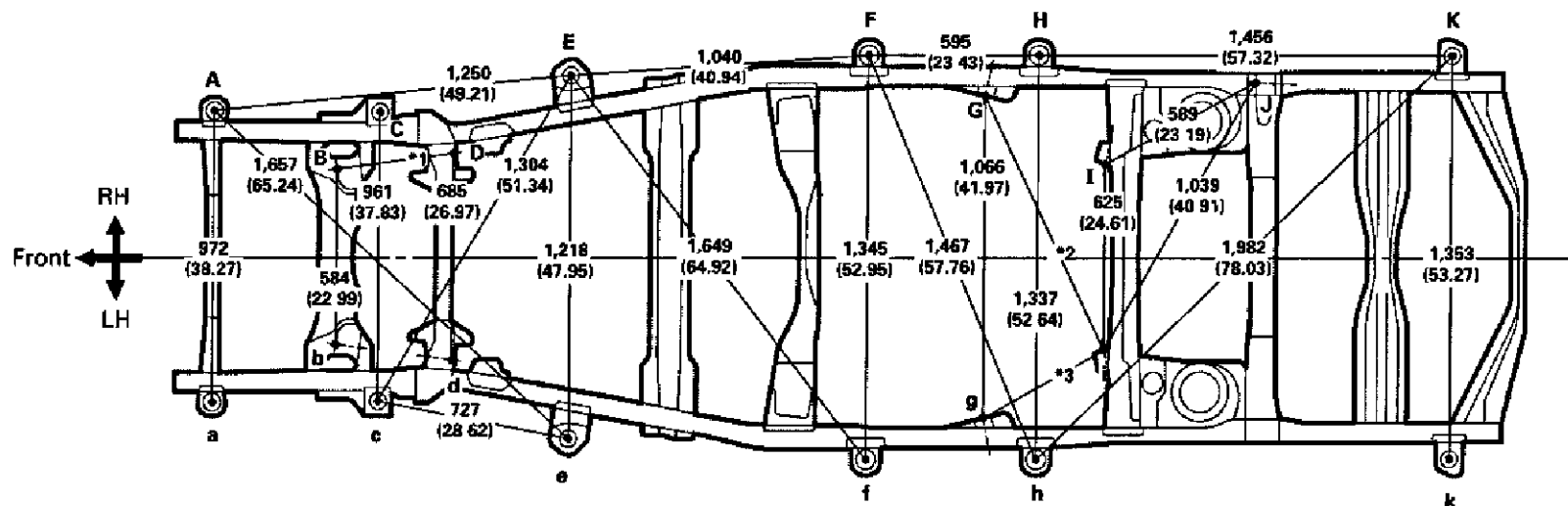


*HINT: For symbols, capital letters indicate right side of vehicle,
small letters indicate left side of vehicle (Seen from rear)*

mm (in)

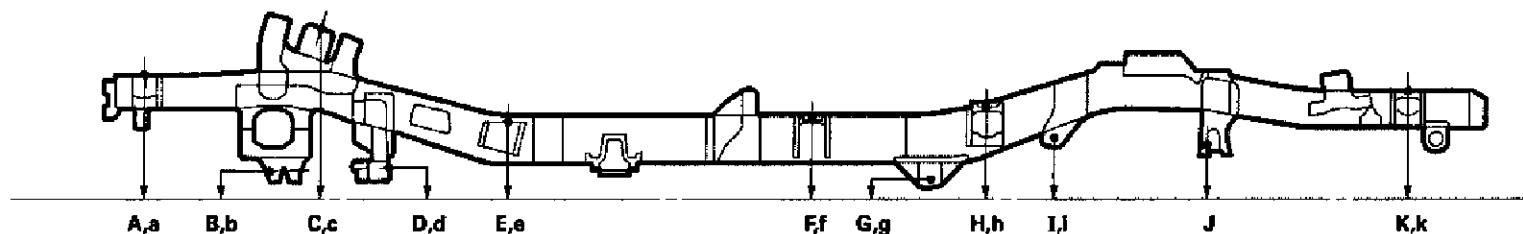
Symbol	Name	Hole dia	Symbol	Name	Hole dia
A, a	Back door opening frame standard hole	10 (0.39)	C, c	Back door hinge installation nut-lower	8 (0.31) nut
B, b	Back door hinge installation nut-upper	8 (0.31) nut	D, d	Rear floor finish plate installation hole	12.5×8.5 (0.492×0.335)

(Three-Dimensional Distance)



*1 401 (15.79)

*2 959 (37.76)
*3 503 (19.80)



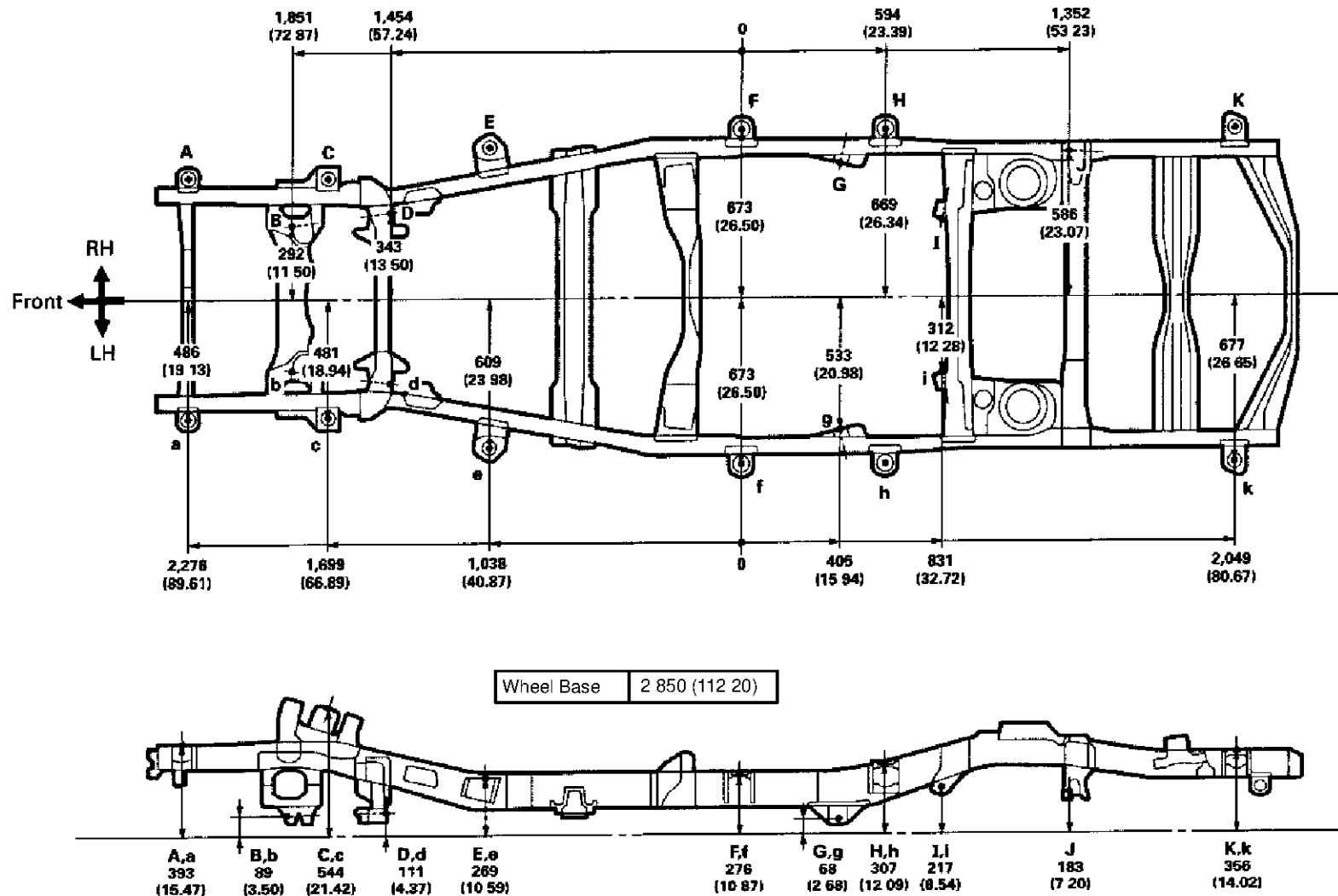
mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Body mounting hole	24 (0.94)	G g	Lower control link installation hole	14.5 (0.571)
B b	Suspension lower arm installation hole	20 (0.79)	H h	Body mounting hole	30 (1.18)
C c	Shock absorber installation hole	29.5 (1.161)	I i	Upper control link installation hole	14.5 (0.571)
D d	Suspension lower arm installation hole	48 (1.89)	—	Lateral control rod installation hole	14.5 (0.571)
E e	Body mounting hole	60 (2.36)	K k	Body mounting hole	70 (2.76)
F f	Body mounting hole	30 (1.18)	—	—	—

FRAME DIMENSION
UZJ100 series • HDJ100, 101 series • FZJ100 series

FRAME DIMENSION
UZJ100 series • HDJ100,101 series • FZJ100
series (Cont'd)

(Two-Dimensional Distance)

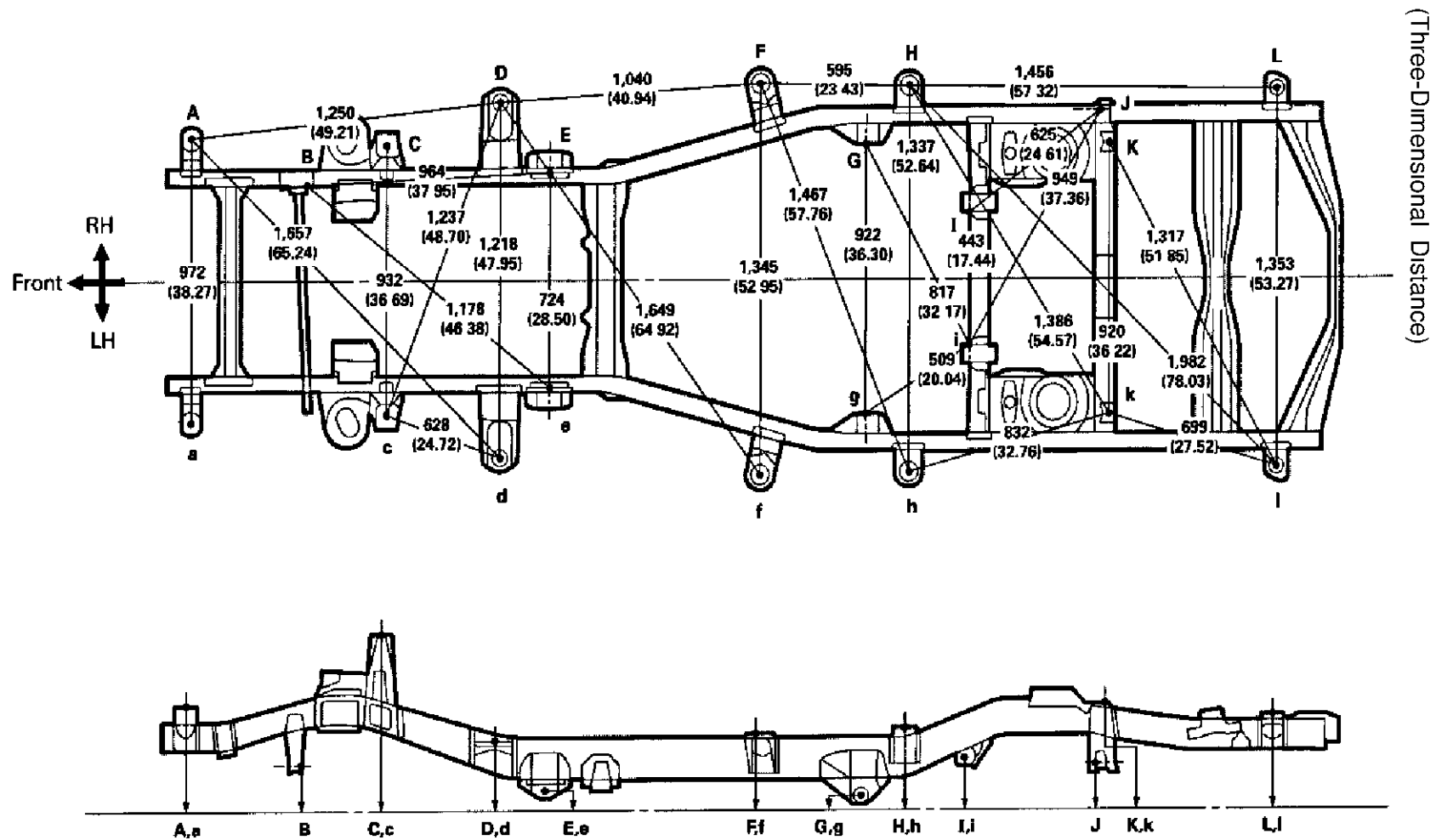


Imaginary
Standard
Line

mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Body mounting hole	24 (0.94)	G g	Lower control link installation hole	14.5 (0.571)
B b	Suspension lower arm installation hole	20 (0.79)	H h	Body mounting hole	30 (1.18)
C c	Shock absorber installation hole	29.5 (1.161)	I i	Upper control link installation hole	14.5 (0.571)
D d	Suspension lower arm installation hole	48 (1.89)	J	Lateral control rod installation hole	14.5 (0.571)
E e	Body mounting hole	60 (2.36)	K k	Body mounting hole	70 (2.76)
F f	Body mounting hole	30 (1.18)	—	—	—

FRAME DIMENSION
FZJ105 series (RHD) • HZJ105 series (RHD)

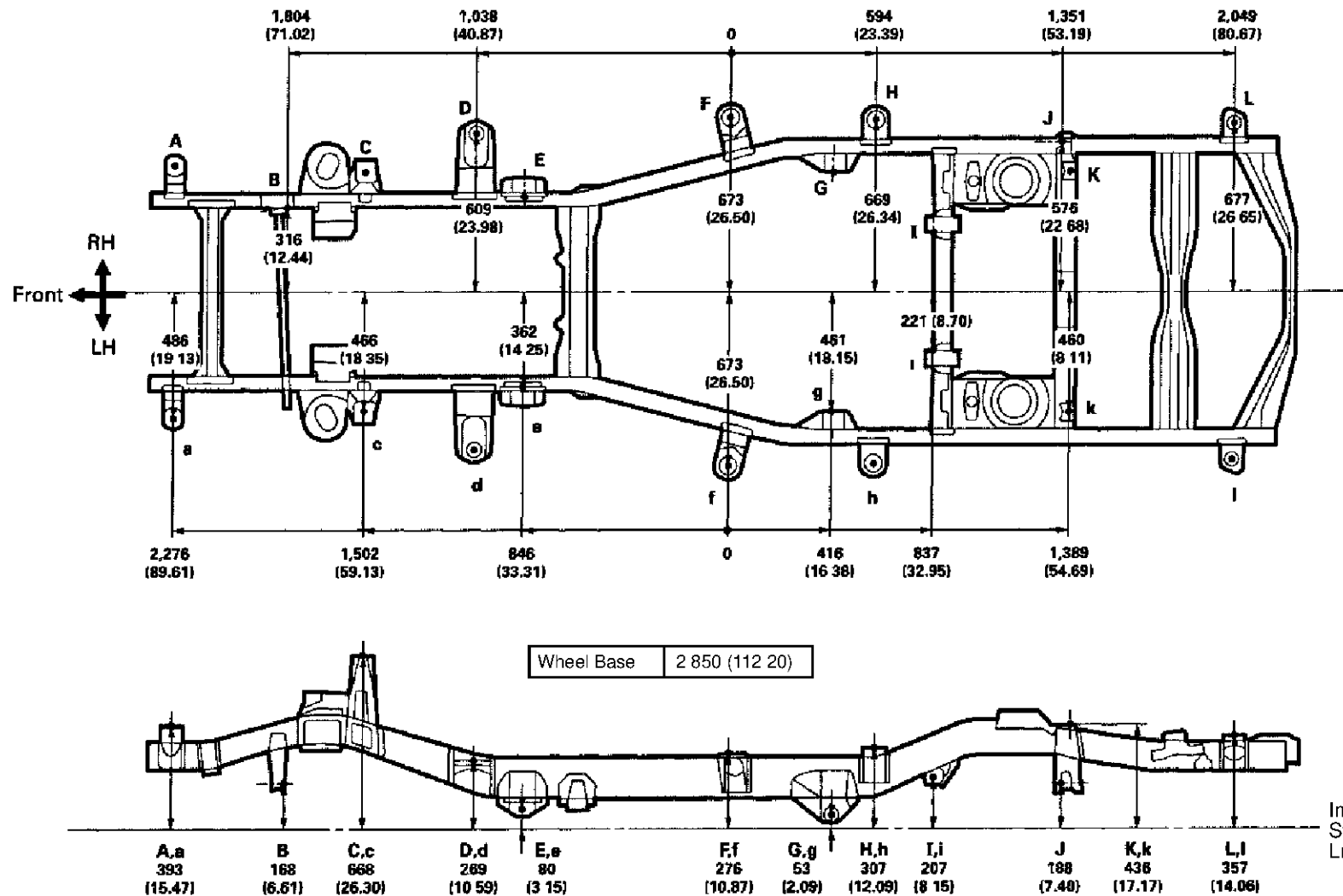


mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Body mounting hole	24 (0.94)	G g	Lower control arm installation hole-inner	18.5 (0.728)
B	Lateral control rod installation hole-rear	16.5 (0.650)	H h	Body mounting hole	30 (1.18)
C c	Shock absorber installation hole	24 (0.94)	I i	Upper control arm installation hole-inner	18.5 (0.728)
D d	Body mounting hole	60 (2.36)	J	Lateral control rod installation hole-front	18.5 (0.728)
E e	Leading arm installation hole-inner	18.5 (0.728)	K k	Body mounting hole	16 (0.63)
F f	Body mounting hole	30 (1.18)	L l	Body mounting hole	70 (2.76)

FRAME DIMENSION
FZJ105 series (RHD) • HZJ105 series (RHD) (Cont'd)

(Two-Dimensional Distance)

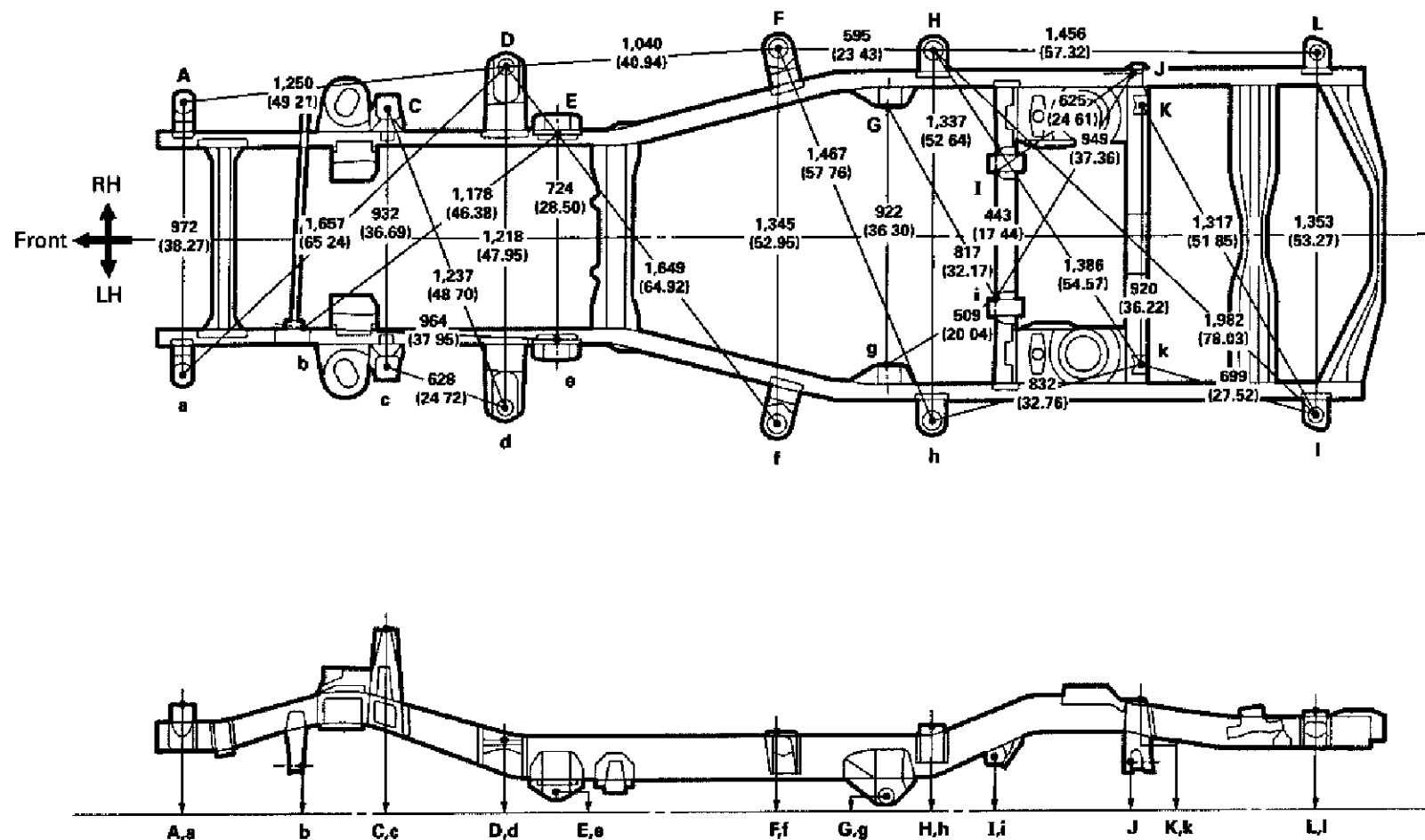


mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Body mounting hole	25 (0.94)	G g	Lower control arm installation hole-inner	18.5 (0.728)
B	Lateral control rod installation hole-rear	16.5 (0.650)	H h	Body mounting hole	30 (1.18)
C c	Shock absorber installation hole	24 (0.94)	I i	Upper control arm installation hole-inner	18.5 (0.728)
D d	Body mounting hole	60 (2.36)	J	Lateral control rod installation hole-front	18.5 (0.728)
E e	Leading arm installation hole-inner	18.5 (0.728)	K k	Body mounting hole	16 (0.63)
F f	Body mounting hole	30 (1.18)	L l	Body mounting hole	70 (2.76)

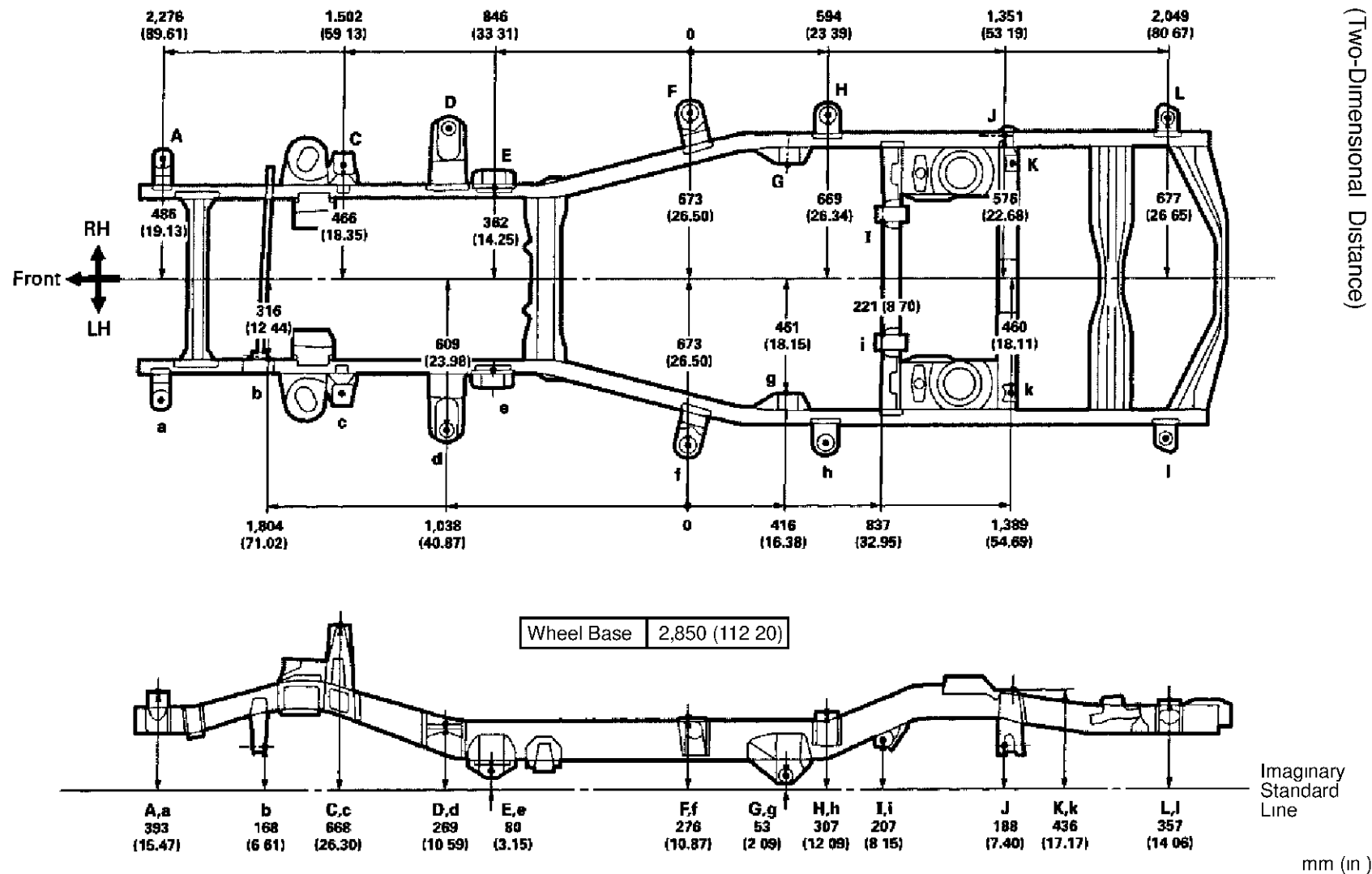
FRAME DIMENSION
FZJ105 series (LHD) • HZJ105 series (LHD)

(Three-Dimensional Distance)



mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Body mounting hole	24 (0 94)	G g	Lower control arm installation hole-inner	18 5 (0 728)
b	Lateral control rod installation hole-rear	16 5 (0 650)	H h	Body mounting hole	30 (1 18)
C c	Shock absorber installation hole	24 (0 94)	I i	Upper control arm installation hole-inner	18 5 (0 728)
D d	Body mounting hole	60 (2 36)	J	Lateral control rod installation hole-front	18 5 (0 728)
E e	Leading arm installation hole-inner	18 5 (0 728)	K k	Body mounting hole	16 (0 63)
F f	Body mounting hole	30 (1 18)	L l	Body mounting hole	70 (2 76)



(Two-Dimensional Distance)

FRAME DIMENSION
FZJ105 series (LHD) • HZJ105 series (LHD) (Cont'd)

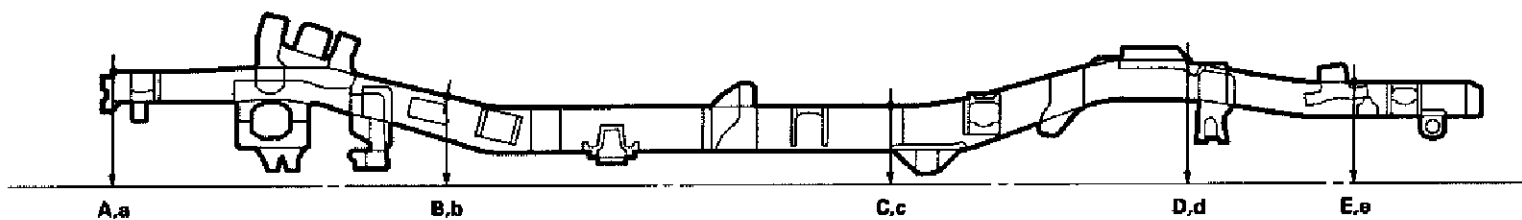
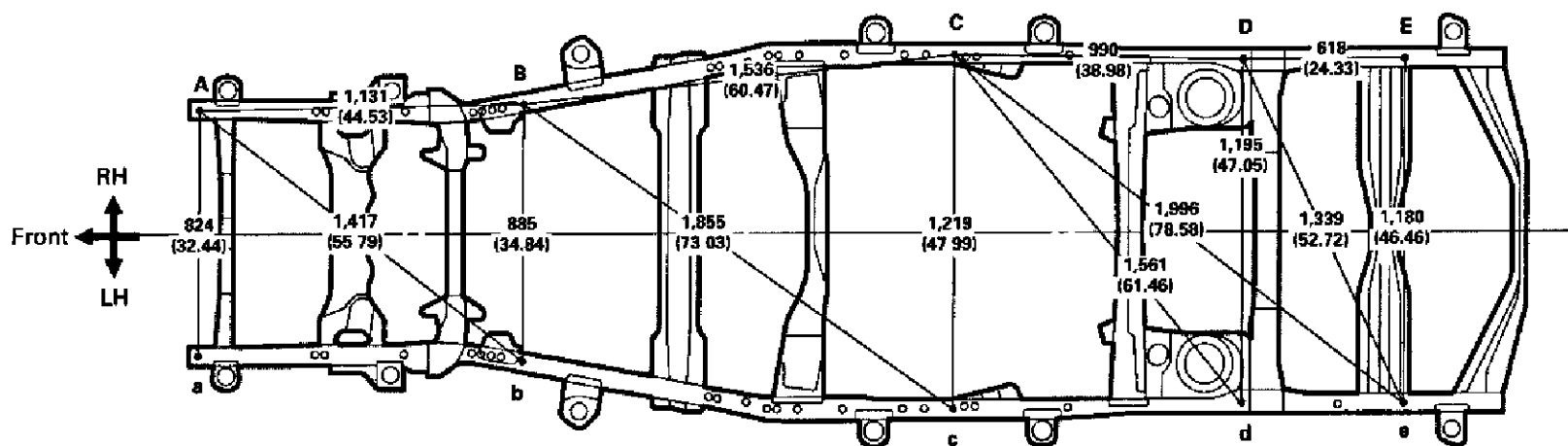
BODY DIMENSIONS

DI-13

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Body mounting hole	24 (0.94)	G g	Lower control arm installation hole-inner	18.5 (0.728)
b	Lateral control rod installation hole-rear	16.5 (0.650)	H h	Body mounting hole	30 (1.18)
C c	Shock absorber installation hole	24 (0.94)	I i	Upper control arm installation hole-inner	18.5 (0.728)
D d	Body mounting hole	60 (2.36)	J	Lateral control rod installation hole-front	18.5 (0.728)
E e	Leading arm installation hole-inner	18.5 (0.728)	K k	Body mounting hole	16 (0.63)
F f	Body mounting hole	30 (1.18)	L l	Body mounting hole	70 (2.76)

FRAME DIMENSION-Upper Face
UZJ100 series • HDJ100, 101 series • FZJ100 series

(Three-Dimensional Distance)

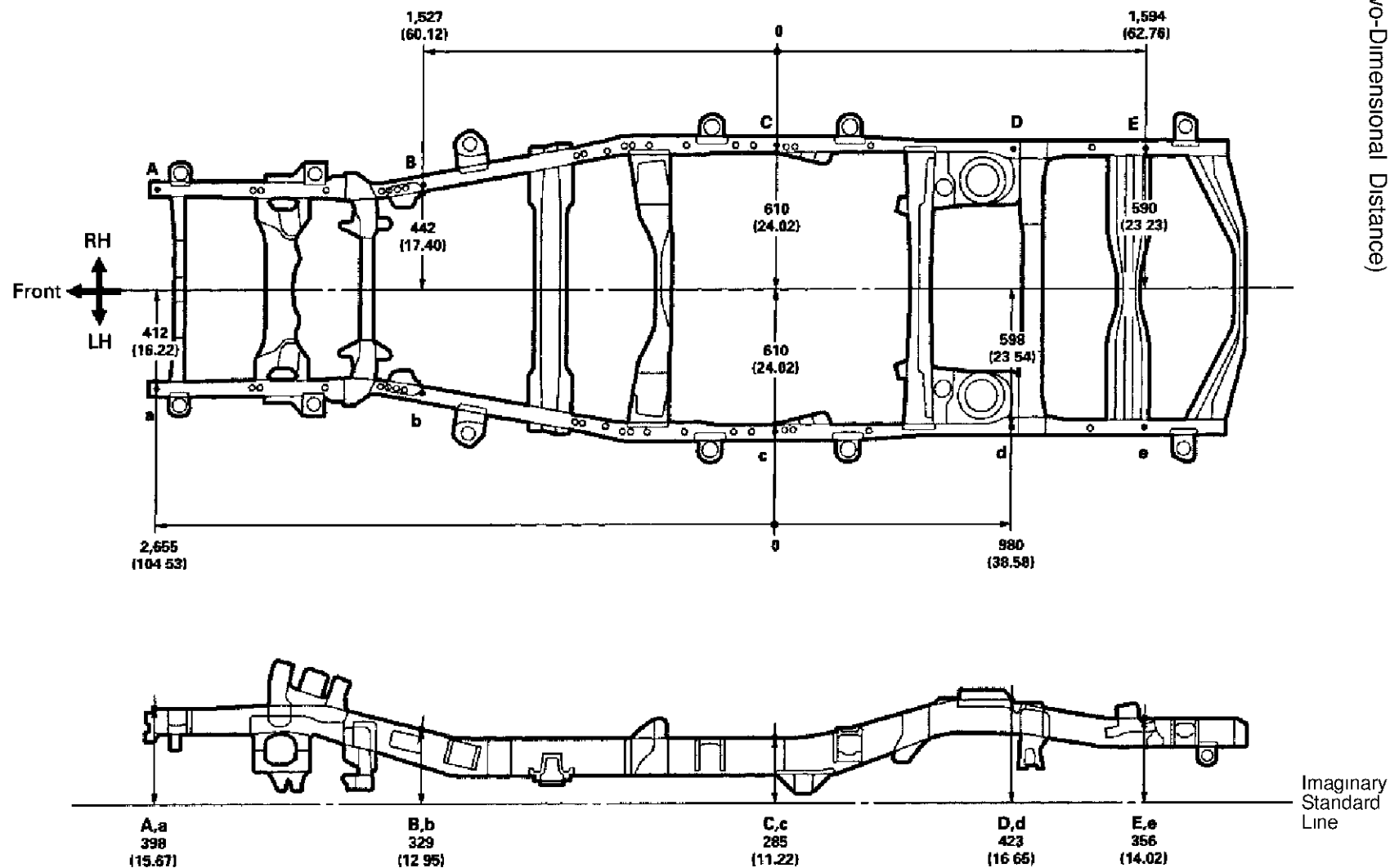


mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Winch installation nut	12 (0 47) nut	D d	Frame side rail working hole	7 (0 28)
B b	Accumulator installation nut	8 (0 31) nut	E e	Wire harness installation hole	12x7 (0 47x0 28)
C c	Frame side rail standard hole	16x16 (0 63x0 63)	—	—	—

FRAME DIMENSION-Upper Face
UZJ100 series • HDJ100,101 series • FZJ100
series (Cont'd)

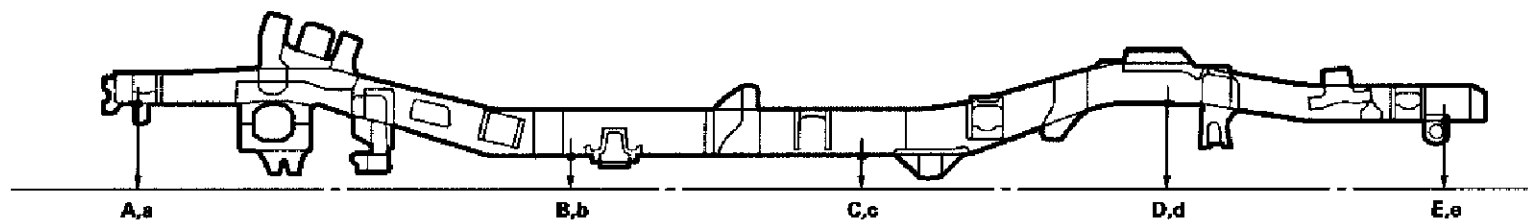
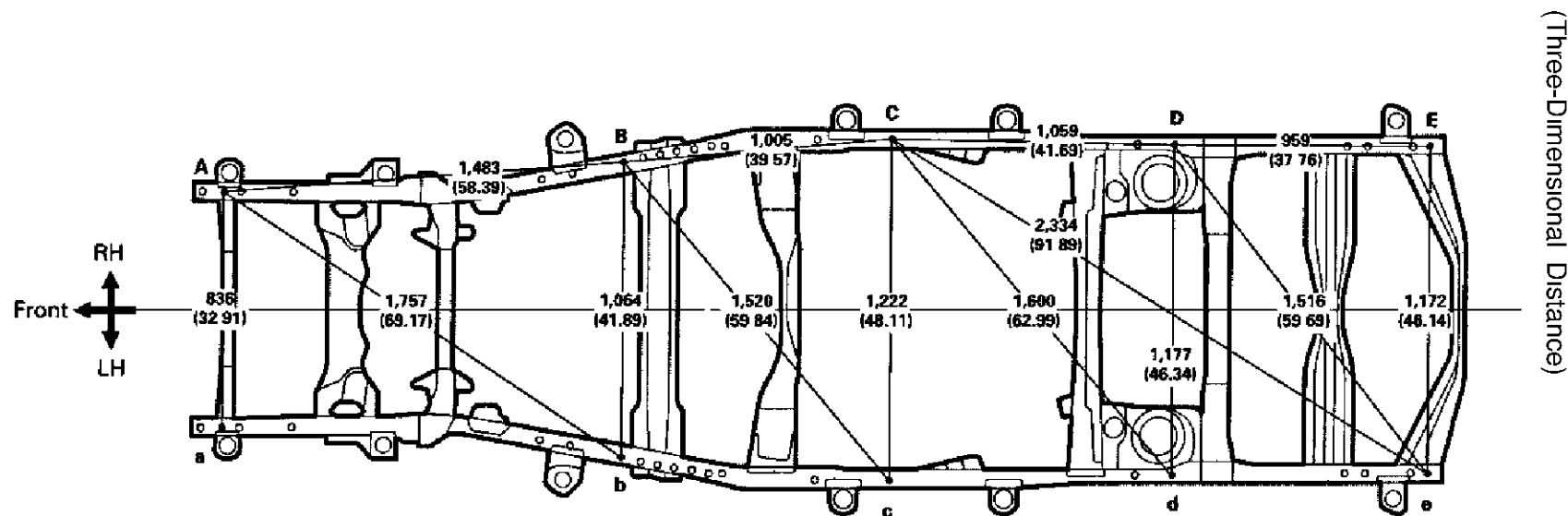
(Two-Dimensional Distance)



Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Winch installation nut	12 (0 47) nut	D d	Frame side rail working hole	7 (0 28)
B b	Accumulator installation nut	8 (0 31) nut	E e	Wire harness installation hole	12×7 (0 47×0 28)
C c	Frame side rail standard hole	16×16 (0 63×0 63)	—	—	—

mm (in)

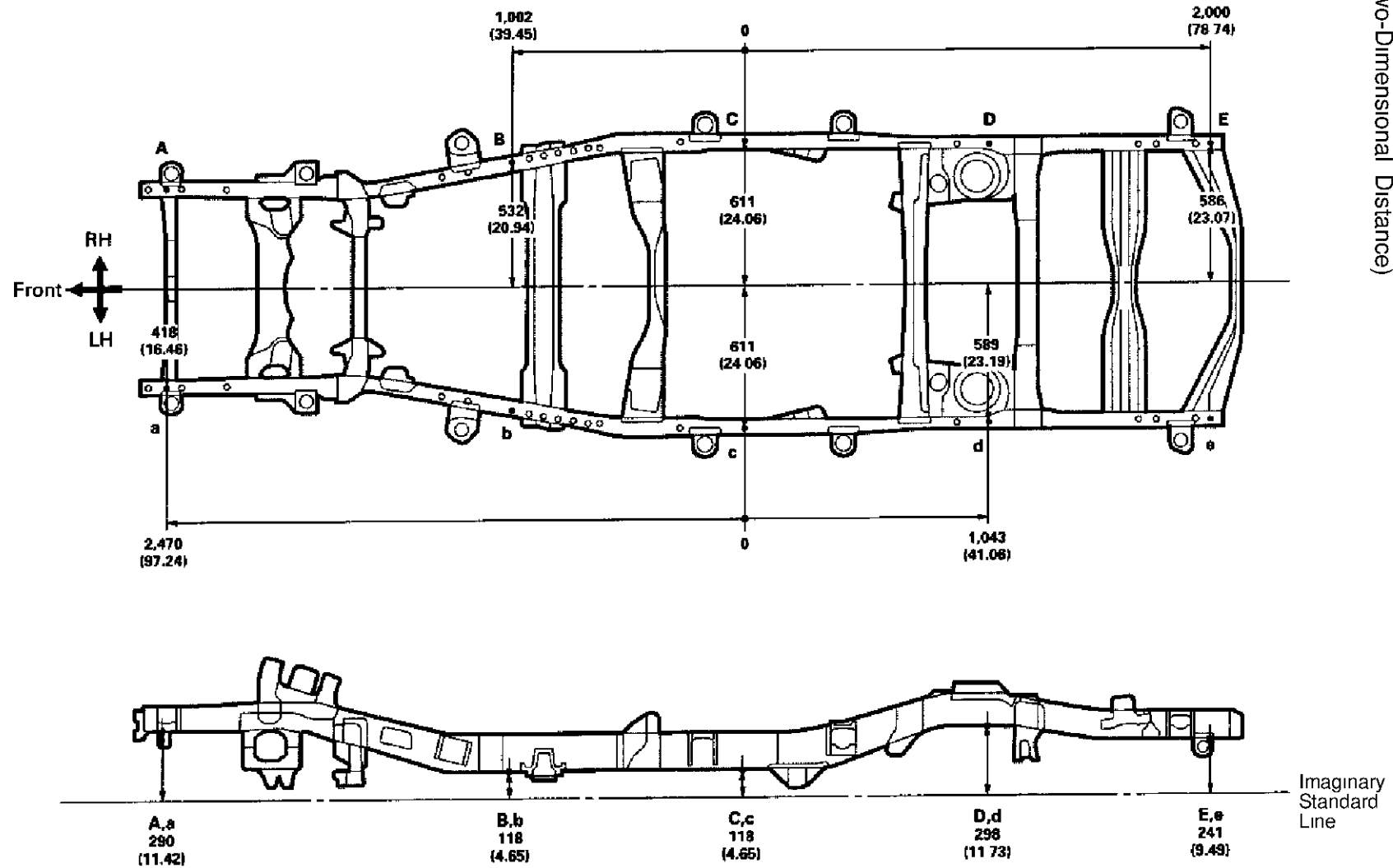
FRAME DIMENSION-Lower Face
UZJ100 series • HDJ100,101 series • FZJ100 series



mm (in)					
Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Hook installation nut	14 (0.55) nut	D d	Stopper rubber installation nut	8 (0.31) nut
B b	Under cover installation nut	8 (0.31) nut	E e	Hook installation nut	14 (0.55) nut
C c	Frame side rail standard hole	16X16 (0.63X0.63)	—	—	—

FRAME DIMENSION-Lower Face
UZJ100 series • HDJ100, 101 series • FZJ100
series (Cont'd)

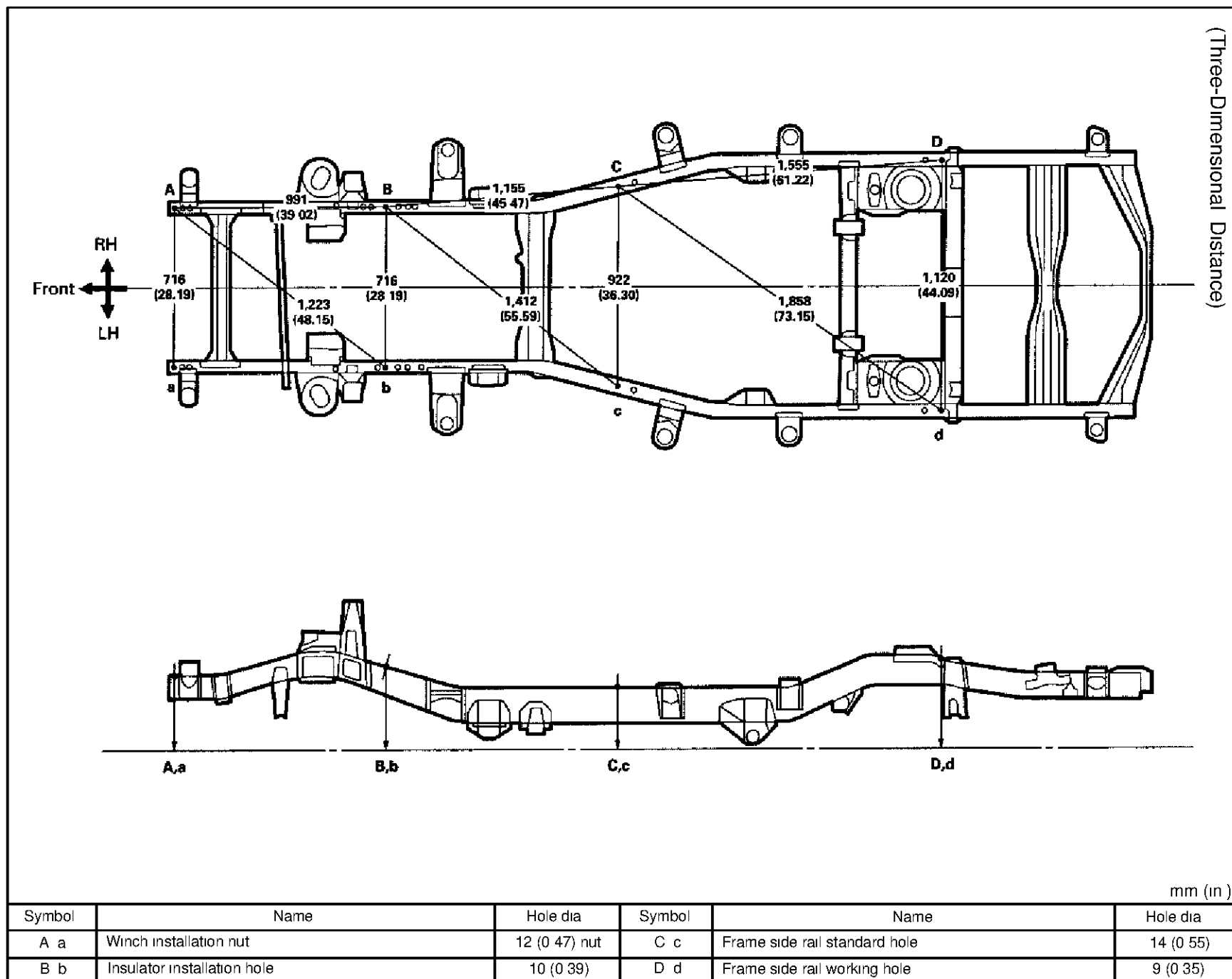
(Two-Dimensional Distance)



mm (in)

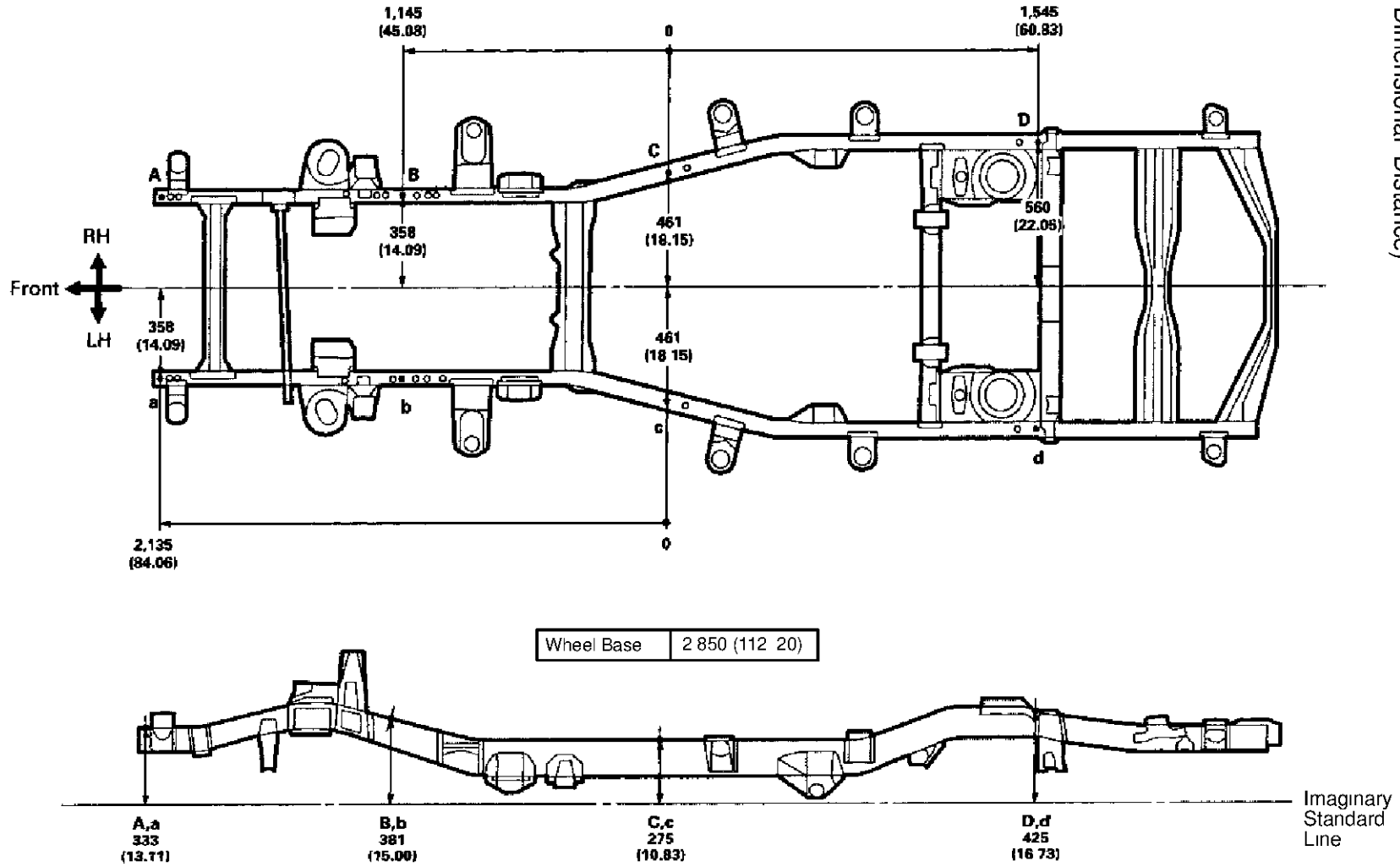
Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Hook installation nut	14 (0.55) nut	D d	Stopper rubber installation nut	8 (0.31) nut
B b	Undercover installation nut	8 (0.31) nut	E e	Hook installation nut	14 (0.55) nut
C c	Frame side rail standard hole	16X16 (0.63X0.63)	—	—	—

FRAME DIMENSION-Upper Face
FZJ105 series • HZJ105 series



FRAME DIMENSION-Upper Face
FZJ105 series • HZJ105 series
(Cont'd)

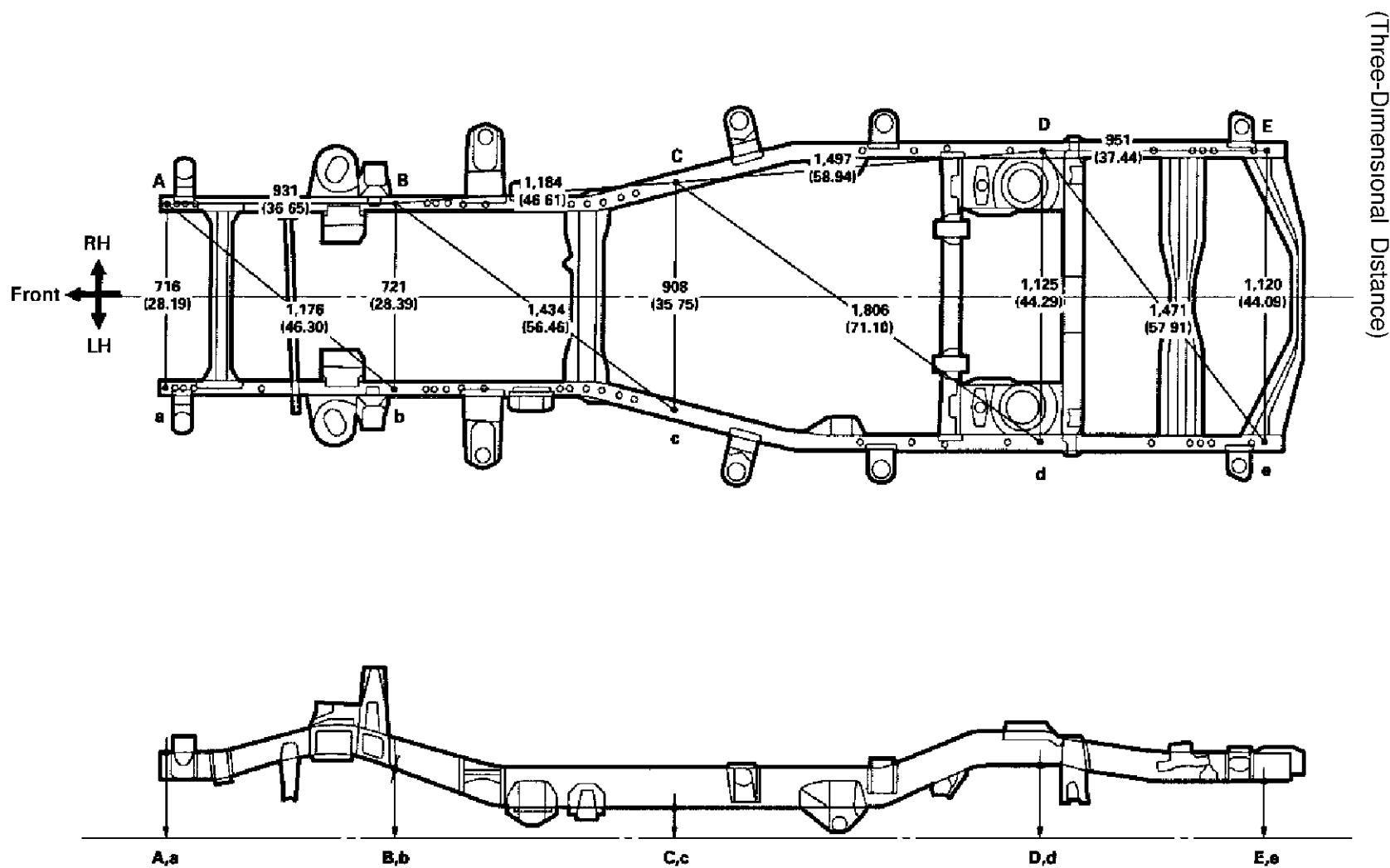
(Two-Dimensional Distance)



mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Winch installation nut	12 (0.47) nut	C c	Frame side rail standard hole	14 (0.55)
B b	Insulator installation hole	10 (0.39)	D d	Frame side rail working hole	9 (0.35)

FRAME DIMENSION-Lower Face
FZJ105 series • HZJ105 series

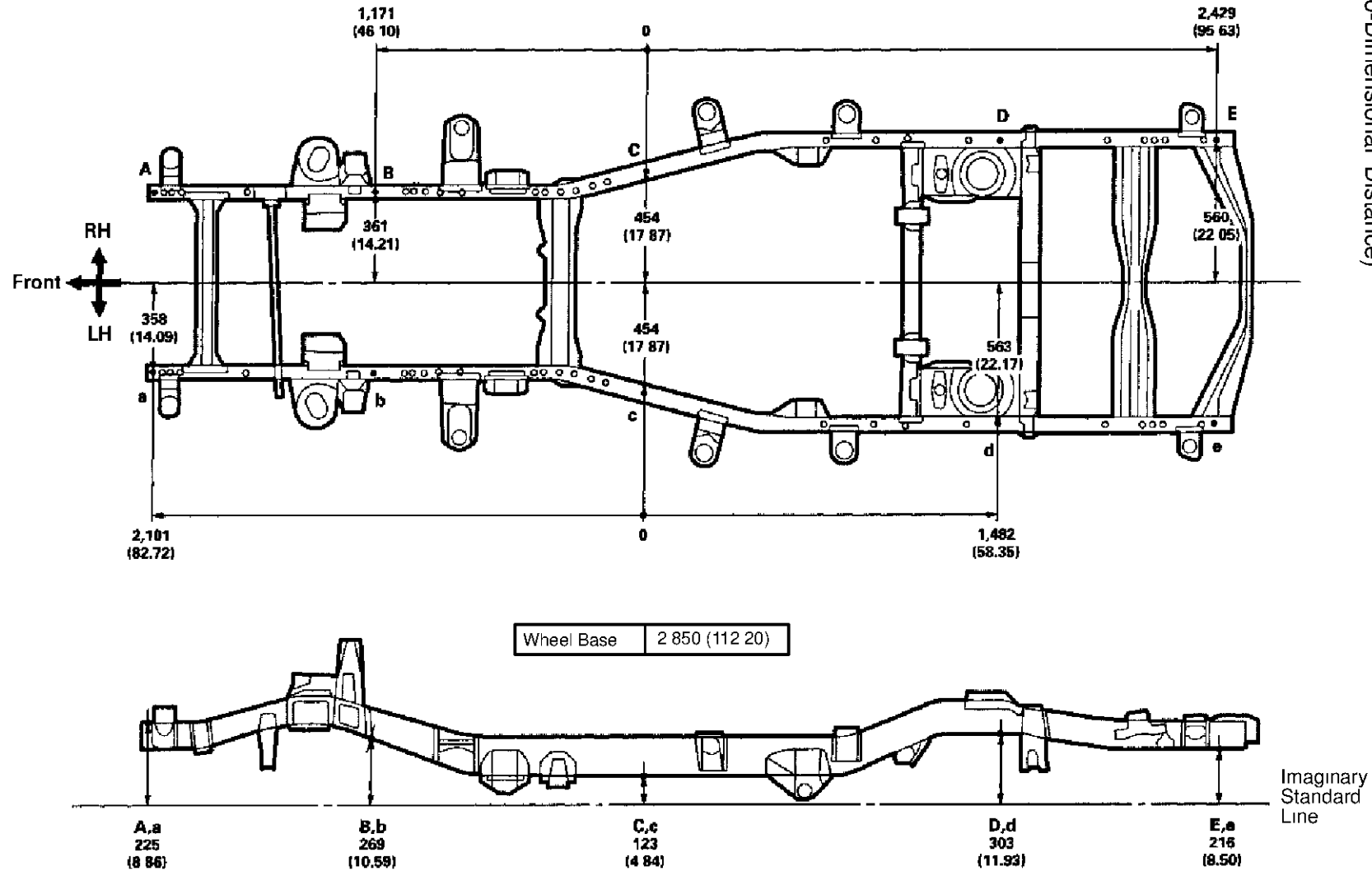


mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Hook installation nut	12 (0 47) nut	D d	Stopper lubber installation nut	8 (0 31) nut
B b	Frame side rail working hole	9 (0 35)	E e	Hook installation nut	12 (0 47) nut
C c	Undercover installation nut	8 (0 31) nut	—	—	—

FRAME DIMENSION-Lower Face
FZJ105 series • HZJ105 series
(Cont'd)

(Two-Dimensional Distance)

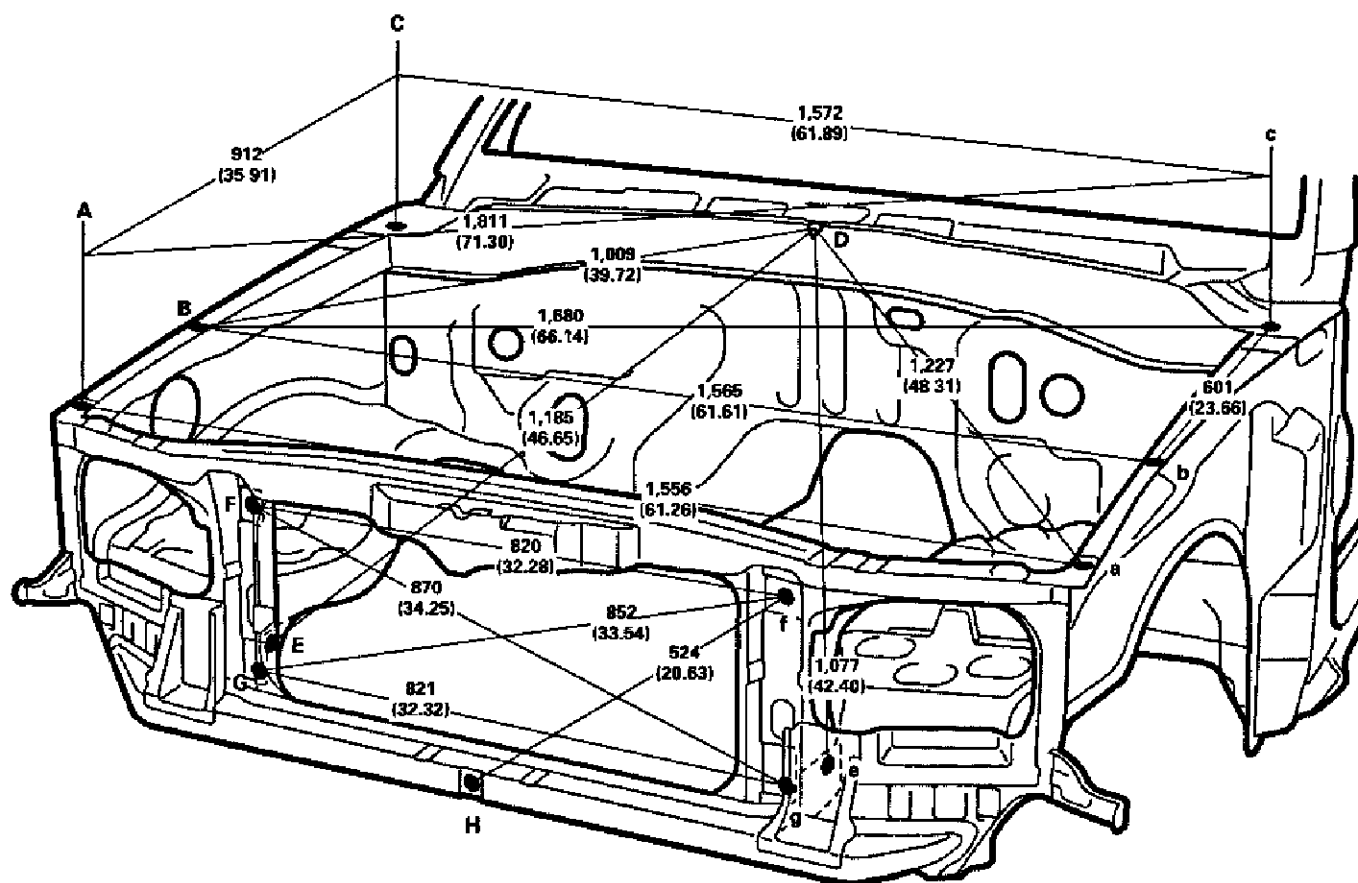


mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A, a	Hook installation nut	12 (0.47) nut	D, d	Stopper rubber installation nut	8 (0.31) nut
B, b	Frame side rail working hole	9 (0.35)	E, e	Hook installation nut	12 (0.47) nut
C, c	Undercover installation nut	8 (0.31) nut	—	—	—

BODY DIMENSION DRAWINGS **ENGINE COMPARTMENT**

(Three-Dimensional Distance)



HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (Seen from rear)

mm (in)

Symbol	Name	Hole dia	Symbol	Name	Hole dia
A a	Front fender installation nut	6 (0 24) nut	F f	Radiator installation hole	12 (0 47)
B b	Front fender installation nut	6 (0 24) nut	G	Radiator installation hole	9 (0 35)
C c	Front fender installation nut	6 (0 24) nut	g	Radiator installation hole	11×9 (0 43×0 35)
D	Cowl top panel vehicle center mark	—	H	Hood lock support installation nut	6 (0 24) nut
E e	Front fender apron standard hole	10 (0 39)	—	—	—