

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 CAMRY.

Applicable models: SXV20 series
MCV20 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 CAMRY refer to the following repair manuals.

Manual Name	Pub. No.
(USA & CANADA)	
• 1997 Camry Repair Manual	RM503U
• 1997 Camry Electrical Wiring Diagram	EWD280U
• Camry New Car Features (Models except USA and CANADA)	NCF134U
• Camry Chassis and Body Repair Manual	RM536E
• 5S-FE Engine Repair Manual Supplement	RM547E
• 1MZ-FE Engine Repair Manual Supplement	RM550E
• Camry Electrical Wiring Manual	EWD275Y
• Camry NewCar Features (All Countries)	NCF136E
• Fundamental Painting Procedures	BRM024E
• Fundamental Body Repair Procedures	BRM002E

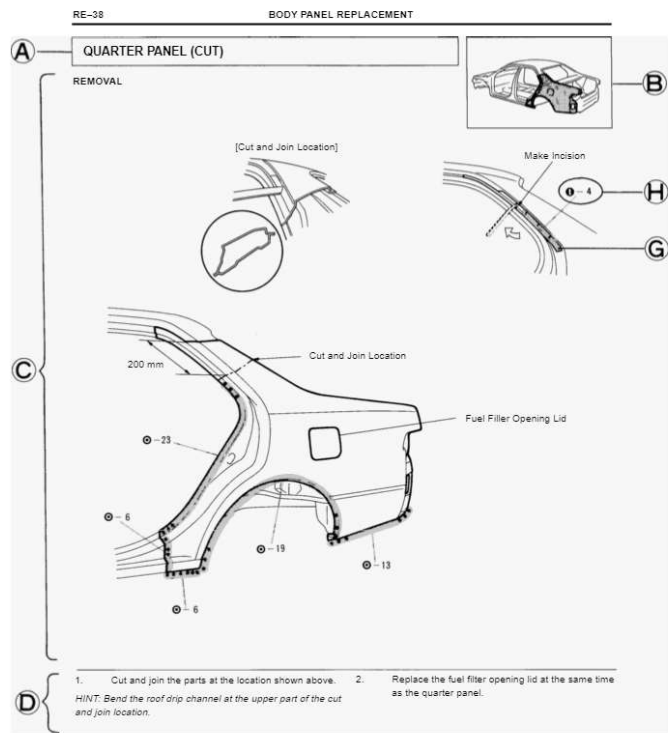
If you require the above manuals, please contact your TOYOTA Dealer.

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.

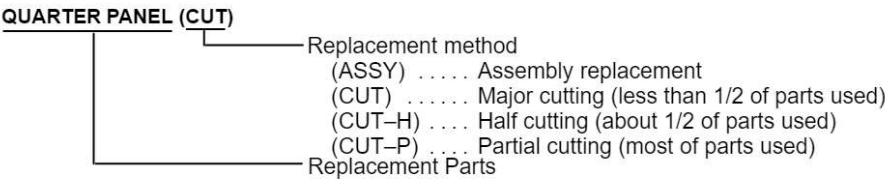
TOYOTA MOTOR CORPORATION

HOW TO USE THIS MANUAL

Each repair method description provided in Section RE of this manual comprises two pages, divided into 2 blocks (REMOVAL AND INSTALLATION) and includes illustrations to facilitate body repair.



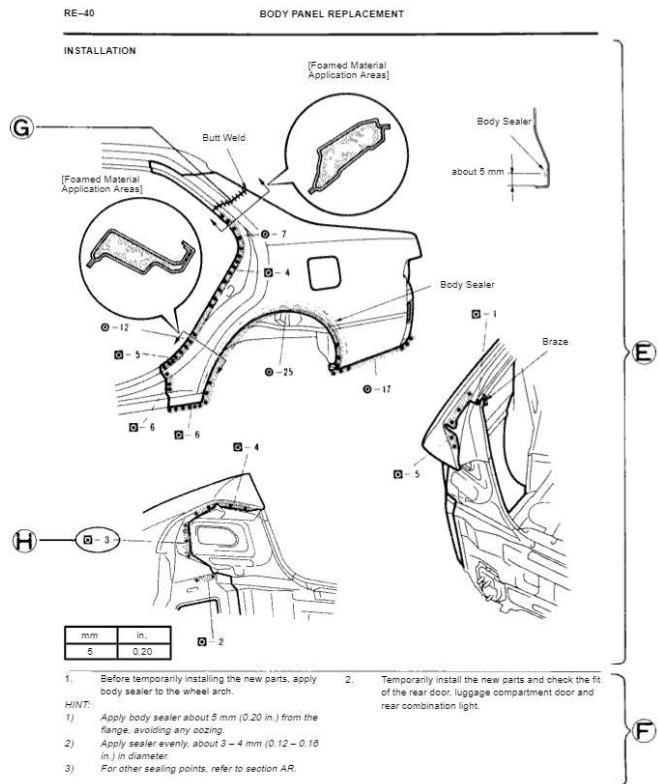
A : REPLACEMENT PARTS AND METHOD



B : PARTS LOCATION

C : REMOVAL DIAGRAM
Describes in detail removal of the damaged parts involving repair by cutting.

D : REMOVAL GUIDE
Provides additional information to more efficiently help you perform the removal.



- E

: INSTALLATION DIAGRAM

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

: INSTALLATION GUIDE

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

: SYMBOLS

See page [IN-4](#).
- H

: 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.

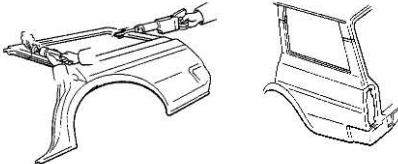
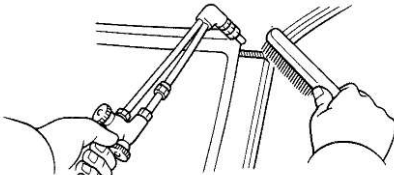
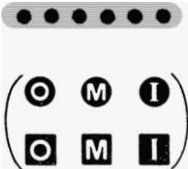
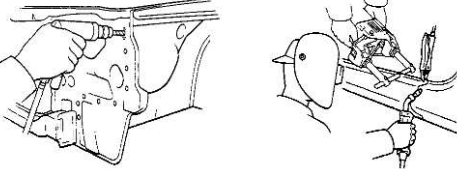
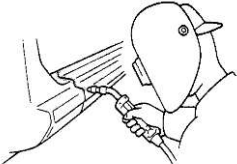
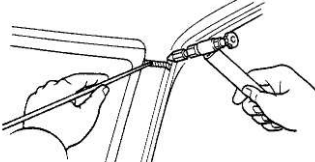
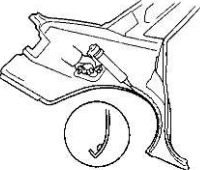
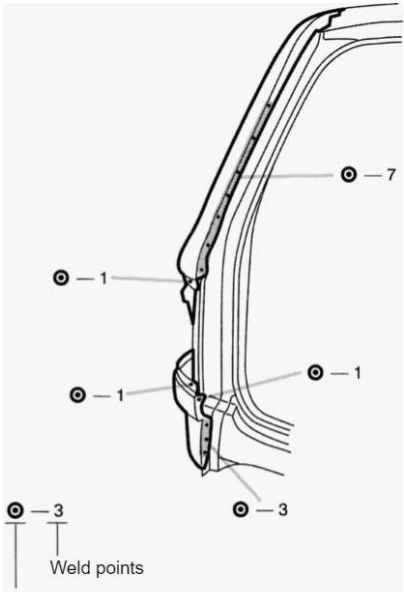
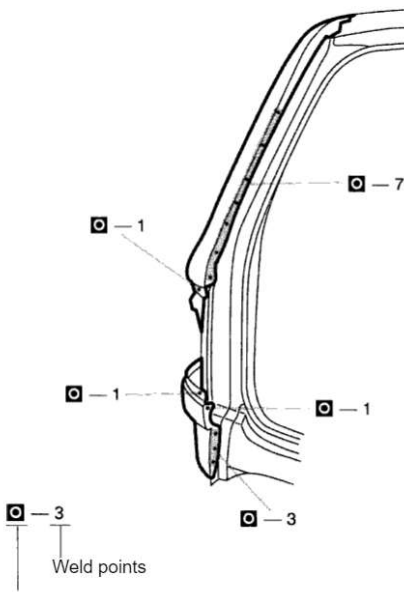
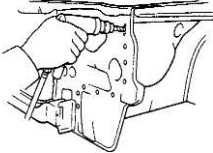
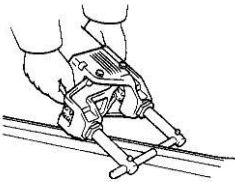
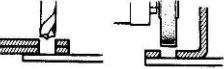
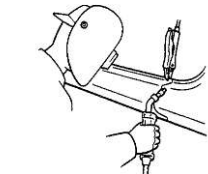
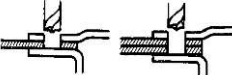
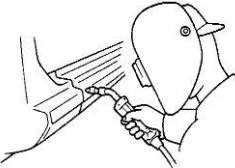
SYMBOLS	MEANING	ILLUSTRATION
	SAW CUT OR ROUGH CUT	
	REMOVE BRAZE	
	WELD POINTS SPOT WELD OR MIG PLUG WELD (See page IN-5)	
	CONTINUOUS MIG WELD (BUTT WELD OR TACK WELD)	
	BRAZE	
	BODY SEALER	

Illustration of Weld Point Symbols

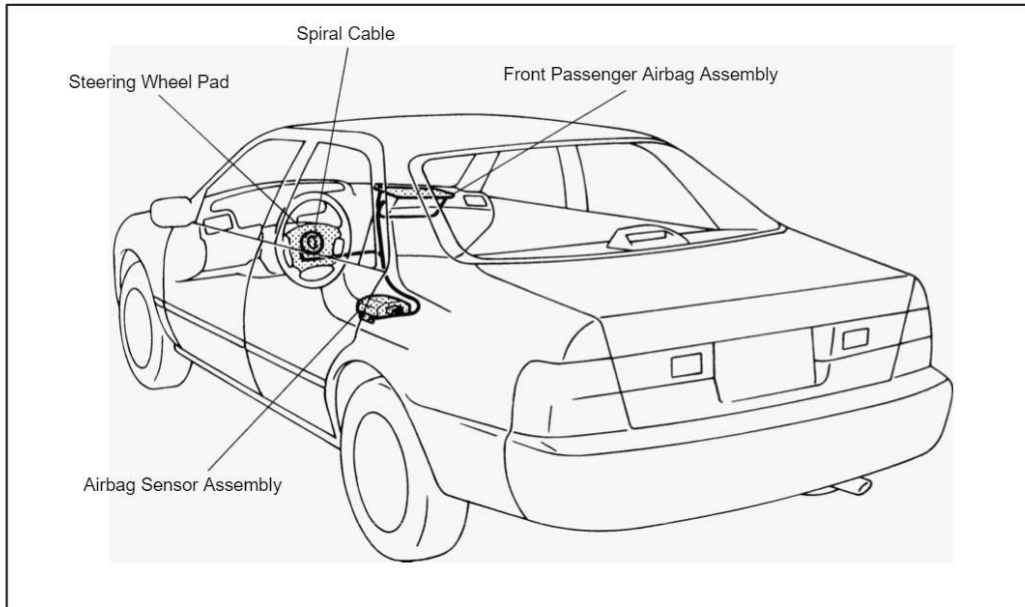
EXAMPLE:

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

HANDLING PRECAUTIONS ON RELATED COMPONENTS

1. SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

Locations of SRS Components



Servicing vehicle with a Supplemental Restraint System (referred to as the SRS in the remainder of this manual) installed.

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

Also take the following precautions when repairing the body:

- Work must be started after 90 seconds or longer from the time the ignition switch is set to the LOCK position and the negative (–) terminal cable is disconnected from the battery.
(The airbag system is equipped with a back-up power source so that if work is started within 90 seconds of disconnecting the negative (–) terminal cable of the battery, the airbag may be deployed.)
When the negative (–) terminal cable is disconnected from the battery, memory of the clock and audio systems will be cancelled. So before starting work, make a record of the contents memorized by 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, outside rear view mirror and power shoulder belt anchorage, 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.
- When using electric welding, first disconnect the SRS connector (yellow color and 2 pins) under the steering column near the combination switch connector on the glove compartment finish plate and lower the front scuff plate before starting work.

- 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 tire 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.
 - When removing or handling the steering wheel pad, and front passenger airbag assembly keep the pad upper surface facing upward. Also, lock the lock lever of the twin lock type connector at the rear of the pad and take care not to damage the connector.
(Storing the pad or front passenger airbag assembly with its metallic surface up may lead to a serious accident if the airbag inflates for some reason.)
 - Store the steering wheel pad and the front passenger airbag assembly where the ambient temperature remains below 93° C (200° F), without high humidity and away from electrical noise.
 - Be careful not to let painting materials contact the SRS parts.
 - Information labels are attached to the periphery of the SRS components. Follow the NOTICES.
 - Store the airbag assembly where the ambient temperature remains below 93° C (200° F), without high humidity and away from electrical noise.

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 year during alignment and section DI of this manual.

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

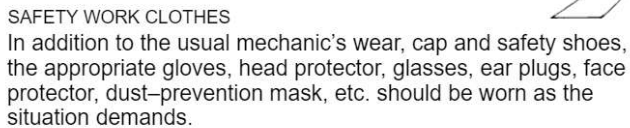
- Before drilling or cutting sections, make sure that there are no wires, etc. on the reverse side.

Work Precautions

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.

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

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.



Ear
Pugs

Welder's
Gloves

Keeping your hand tools in neat order improve your work efficiency.



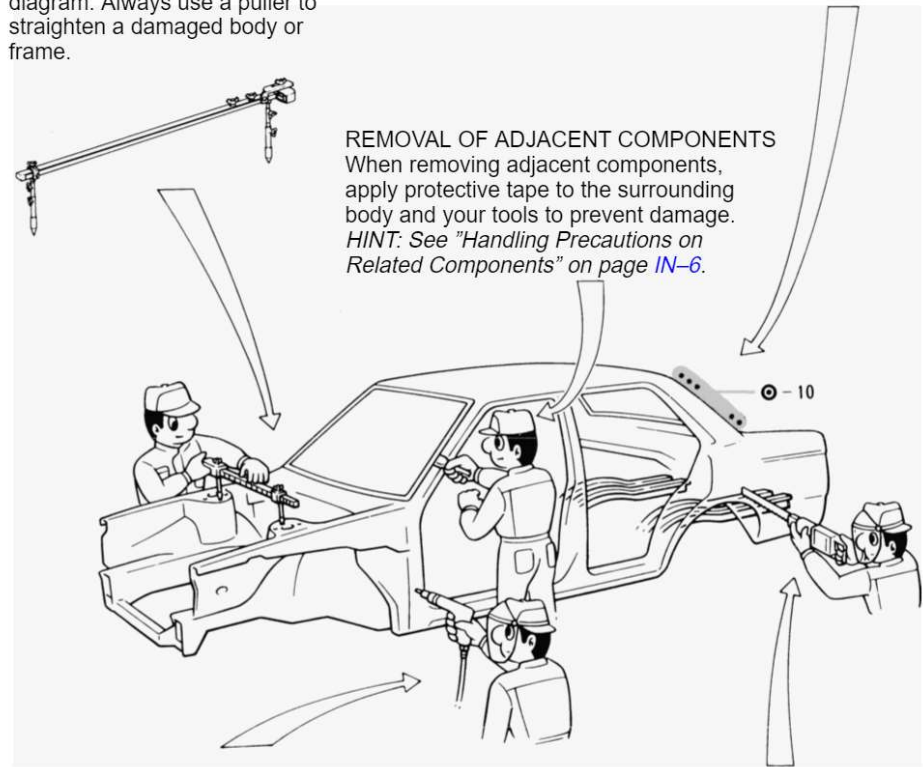
Body
Tools
Stand

Proper and Efficient Work Procedures

REMOVAL

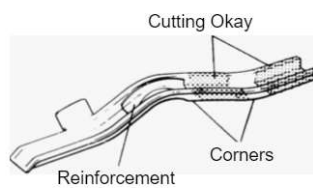
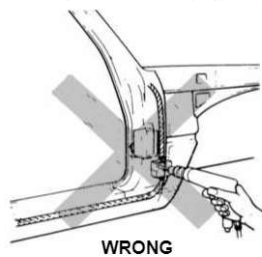
PRE-REMOVAL MEASURING
Before removal or cutting operations, take measurements in accordance with the dimension diagram. Always use a puller to straighten a damaged body or frame.

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.



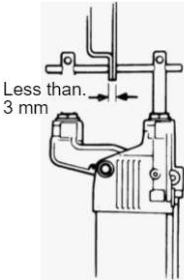
PRECAUTIONS FOR DRILLING OR CUTTING
Check behind any area to be drilled or cut to insure that there are no hoses, wires, etc., that may be damaged.
HINT: See "Handling Precautions on Related Components" on page IN-6.

CUTTING AREA
Always cut in a straight line and avoid reinforced area.



PREPARATION FOR INSTALLATION

SPOT WELD POINTS

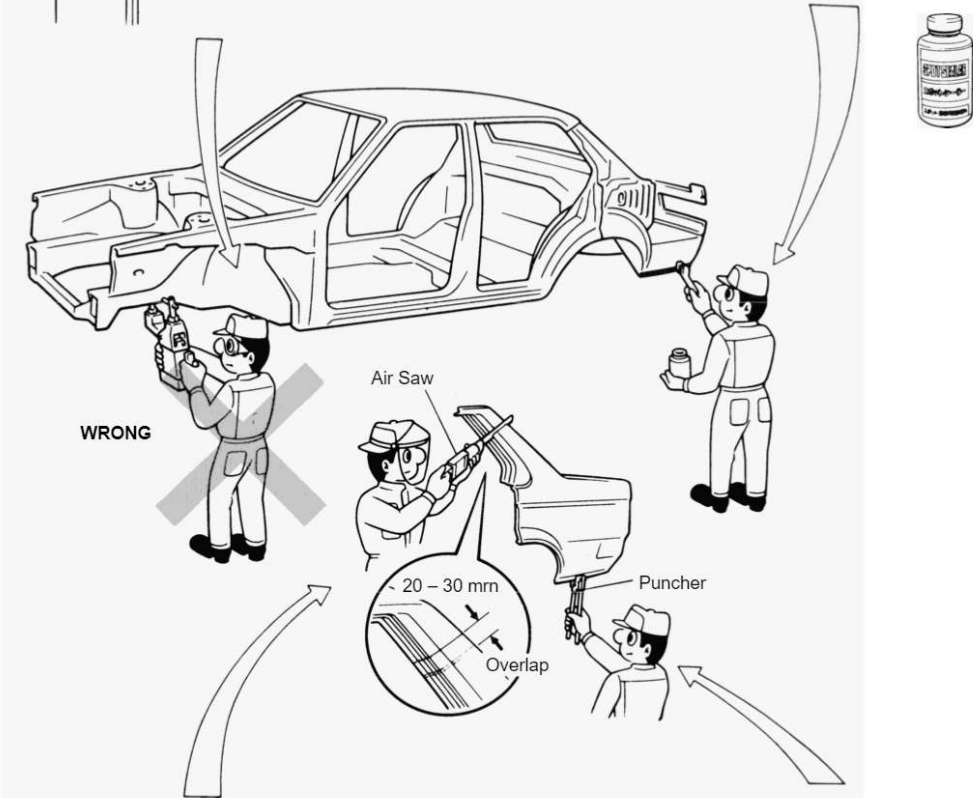


When welding panels with a combined thickness of over 3 mm (0.12 in.), use a MIG (Metal Inert Gas) welder for plug welding. *HINT: Spot welding will not provide sufficient durability for panels over 3 mm (0.12 in.) thick.*

APPLICATION OF WELD-THROUGH PRIMER (SPOT SEALER)



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



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.)

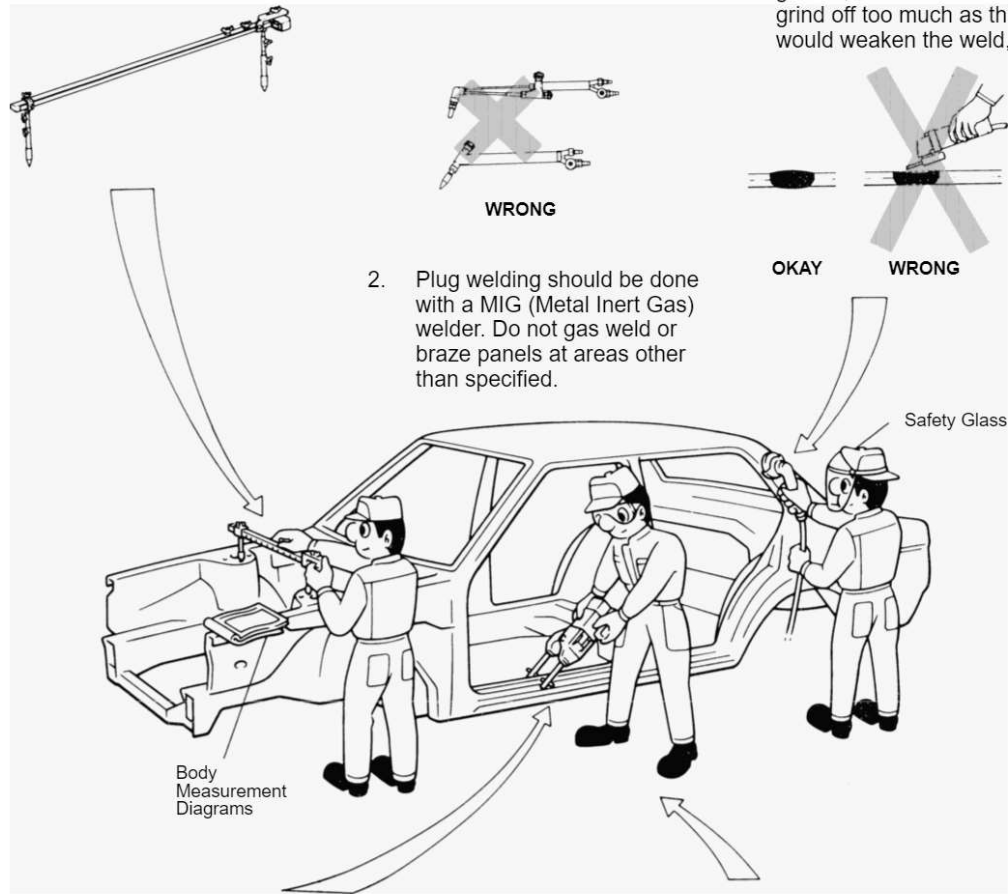
Thickness of welded portion	Size of plug hole
1.0 (0.04) under	5 (0.20) φ over
1.0 (0.04) – 1.5 (0.06)	6.5 (0.26) φ over
1.5 (0.06) over	8 (0.31) φ over

INSTALLATION

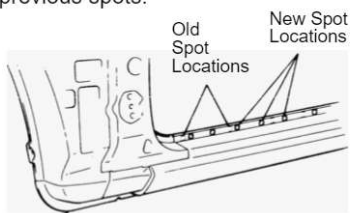
PRE-WELDING MEASUREMENTS
Always take measurements before installing underbody or engine components to insure correct assembly. After installation, confirm proper fit.

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

- POST-WELDING REFINISH-ING**
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.

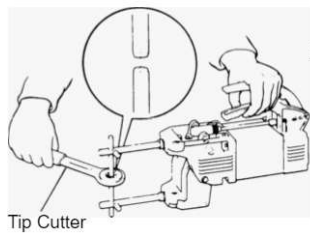


SPOT WELD LOCATIONS
Try to avoid welding over previous spots.



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.



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

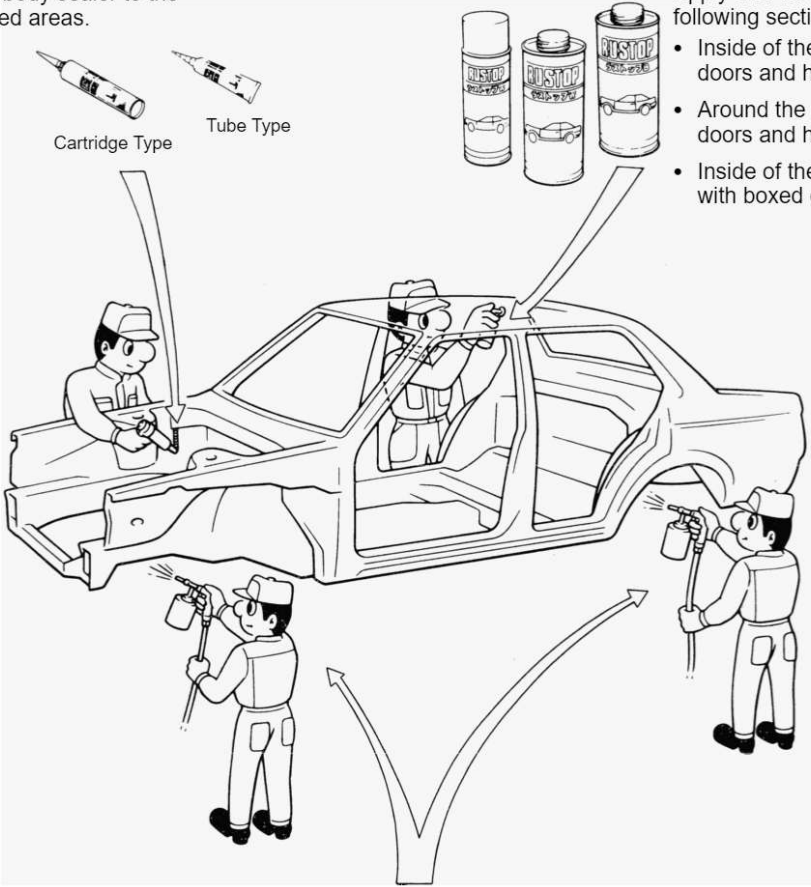
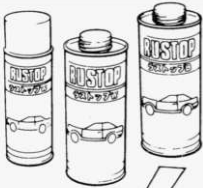
Apply body sealer to the required areas.



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.



Undercoating
(Oil base)



Undercoating
(Water base)

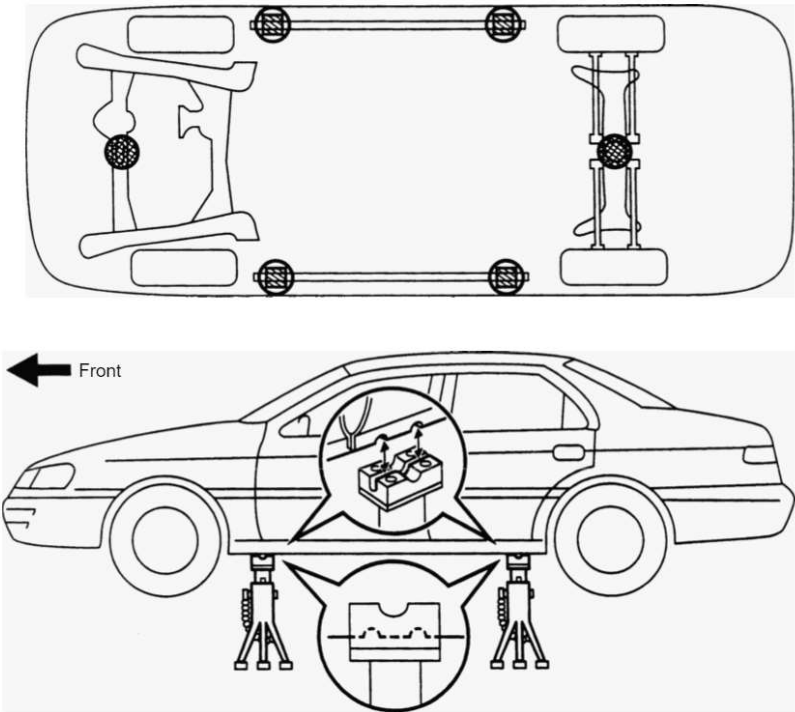


Spray Gun

UNDERCOAT

Apply undercoat to the underbody and wheel housings.

VEHICLE LIFT AND SUPPORT LOCATIONS

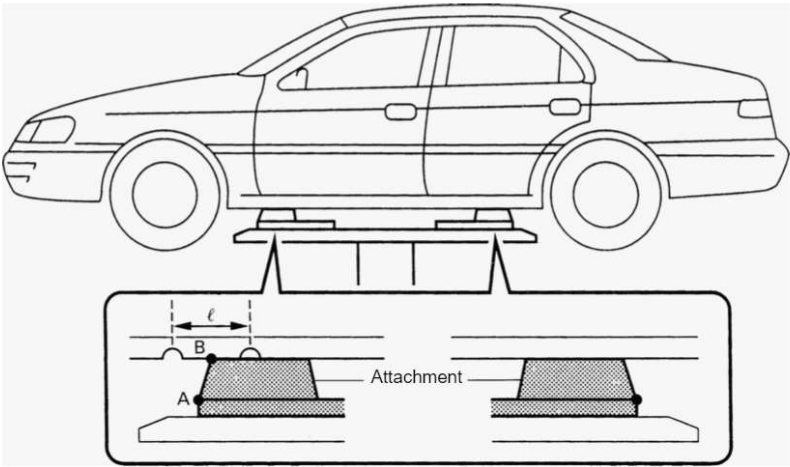


JACK POSITION _____ ●
Front Front crossmember
Rear Rear axle beam
CAUTION: Before jacking-up the rear and front, make sure the car is not carrying any extra weight.

PANTOGRAPH JACK POSITION _____ ○

SUPPORT POSITION
Safety stand and swing arm type lift ▨

PLATE TYPE LIFT



HINT:

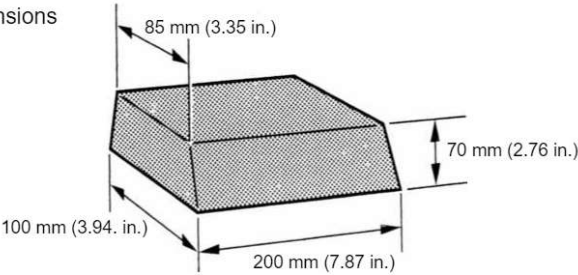
Left and right set position

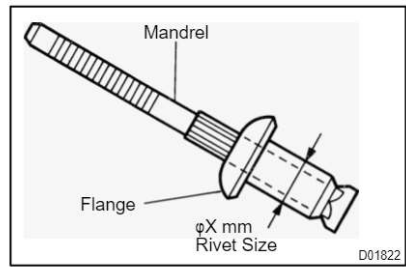
Front and rear set position

Place the vehicle over the center of the lift.

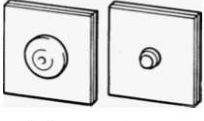
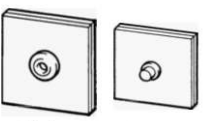
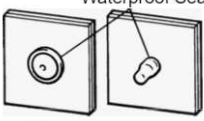
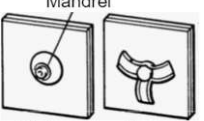
- Align the cushion gum ends of the plate with the attachment lower ends (A, C).
- Align the attachment upper end (B) with the front jack supporting point (ℓ).

Attachment dimensions





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 
Charac- teristics	• Small nonwaterproof rivet • No magnetic adherence	• Small nonwaterproof rivet • Magnetic adherence	• Small waterproof rivet • Waterproof seal	• Large waterproof rivet • Mandrel sticks out after installation

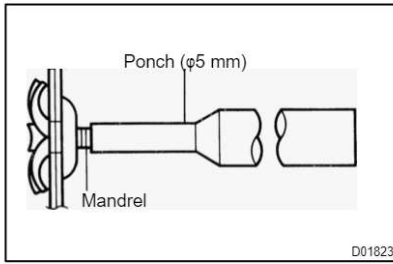
RIVET REMOVAL

1. SELECTION OF CUTTING TOOL

	Cutting tool	Note								
Aluminum-Rivet Steel-Rivet T-Rivet with φ6.4 mm	Drill blade <table><tr><th>Rivet size</th><th>Blade size</th></tr><tr><td>φ4 mm</td><td>φ4 mm</td></tr><tr><td>φ4.8 mm</td><td>φ5 mm</td></tr><tr><td>φ6.4 mm</td><td>φ6.5 mm</td></tr></table>	Rivet size	Blade size	φ4 mm	φ4 mm	φ4.8 mm	φ5 mm	φ6.4 mm	φ6.5 mm	• Cutting can be done with drill blade or rivet cutter for an aluminum-rivet with φ4.8 mm. • When a rivet cutter is used for an aluminum-rivet (except φ4.8 mm), a steel-rivet, or a T-rivet with φ6.4 mm, it is possible that the drill will spin abnormally damaging the rivet hole and breaking the rivet cutter.
Rivet size	Blade size									
φ4 mm	φ4 mm									
φ4.8 mm	φ5 mm									
φ6.4 mm	φ6.5 mm									
Waterproof special-Rivet with φ4.0 mm	Drill blade with φ4.0 mm									
Aluminum-Rivet with φ4.8 mm Waterproof-Rivet with φ4.8 mm or φ6.0 mm	Rivet Cutter (P/N 09060-60350) A technical drawing of a rivet cutter tool, showing a long, tapered handle and a specialized cutting head with two sharp, angled blades.	• When an ordinary cutter is used for a waterproof-rivet with φ4.8 mm or φ6.0 mm, the rivet can not be cut as it spins with the cutter.								

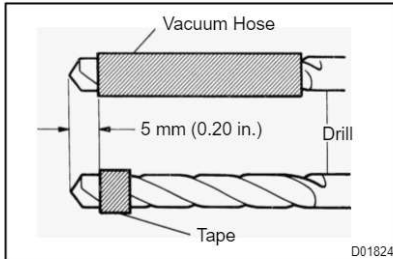
INTRODUCTION

IN-17



2. RIVET REMOVAL

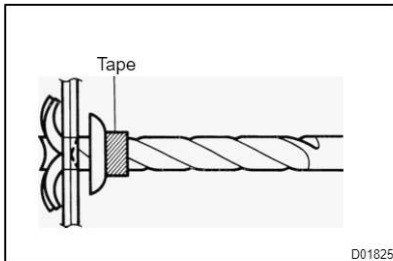
- (1) T-Rivet with $\phi 6.4$ mm:
Using a punch with $\phi 5$ mm, stamp out the mandrel.



- (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.

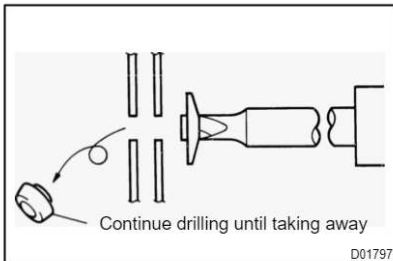


- (4) Gently and vertically put the drill to the rivet, and cut the rivets flange.

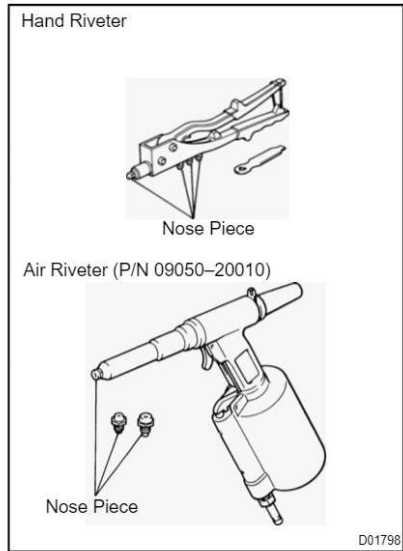
NOTE:

- 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 $\phi 4.8$ mm or $\phi 6.0$ 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 $\phi 6.4$ mm:
If the flange is taken off, stop drilling and push out the remaining fragments with a punch with $\phi 5$ mm or pull out the remaining fragments with pliers.

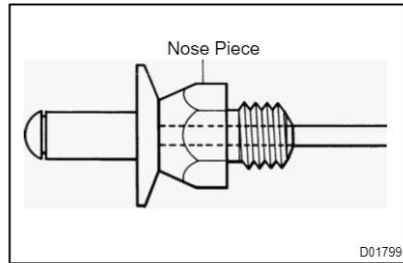


RIVET INSTALLATION

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 with $\phi 6.0$ mm T-Rivet with $\phi 6.4$ mm	Air Riveter

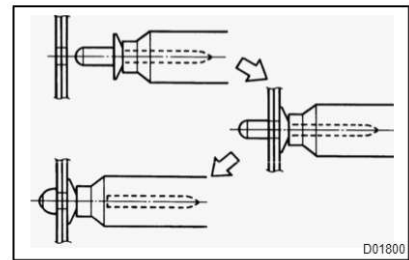


- (3) Select the smallest a nose piece possible for a rivets mandrel.

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



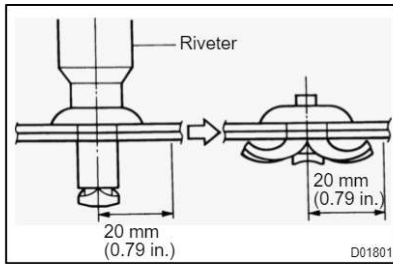
- (4) Insert the nose piece to the riveter and then the mandrel of the new rivet into the nose piece.
- (5) Vertically insert the rivet into a hole and keep place it strongly.

NOTE:

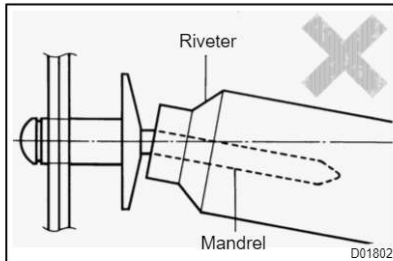
- If the tip of the rivet is not deformed or the mandrel is not cut, repeat process (5) again.

INTRODUCTION

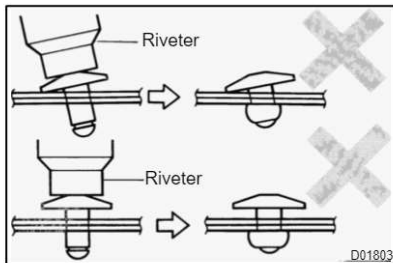
IN-19



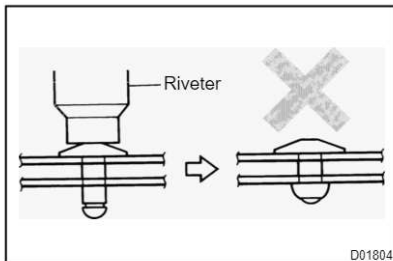
- **T-Rivet with $\phi 6.4$ mm:**
Do not place your hands or the wire harness within a radius of 20 mm (0.79 in.) from the rivet, as the rivet is cut and opened in this area.



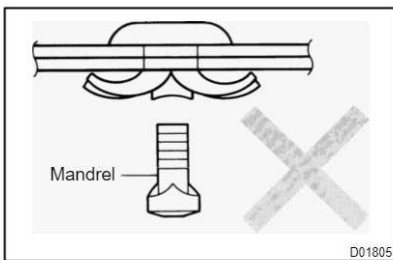
- **Prizing a riveter damages the riveter showing that it is not tightened correctly and bends the mandrel.**



- **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.

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
FWD	Front Wheel Drive Vehicles
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
w/	with
w/o	without

PP-2

PLASTIC BODY PARTS

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.

PLASTIC BODY PARTS

PP-3

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

PP-4

PLASTIC BODY PARTS

LOCATION OF PLASTIC BODY PARTS

Parts Name	Code
Front Bumper Cover	TSOP
Radiator Grille (Models Except USA & CANADA)	ABS
Headlight (For USA & CANADA)	PC/PP
Front Turn Signal Light	PMMA/ASA
Front Fog Light (Models Except USA & CANADA)	PC/PP
Side Turn Signal Light (Models Except USA & CANADA)	SAN/AAS
Outer Rear View Mirror	ABS
Outside Handle (Front, Rear)	PC/PBT
Front Fender Outside Moulding	PVC
Door Outsider Moulding (Front, Rear)	PVC
Quarter Panel Outside Moulding (Front, Rear) (For Europe)	PVC
Front Fender Mudguard (For USA & CANADA)	PP/PMMA
Front Fender Mudguard (Models Except USA & CANADA)	PP/EPDM
Quarter Panel Mudguard (For USA & CANADA)	PP/PMMA
Quarter Panel Mudguard (Models Except USA & CANADA)	PP/EPDM
Rear Bumper Cover (For USA & CANADA)	PUR
Rear Bumper Cover (Models Except USA & CANADA)	TSOP
Rear Combination Light (For USA & CANADA)	PMMA/ASA•PMMA/ABS/PC
Rear Combination Light (Models Except USA & CANADA)	PMMA/ASA
Licence Plate Light	PC
Back-up Light (Rear Light)	PMMA/ASA

HINT:

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

CN-2

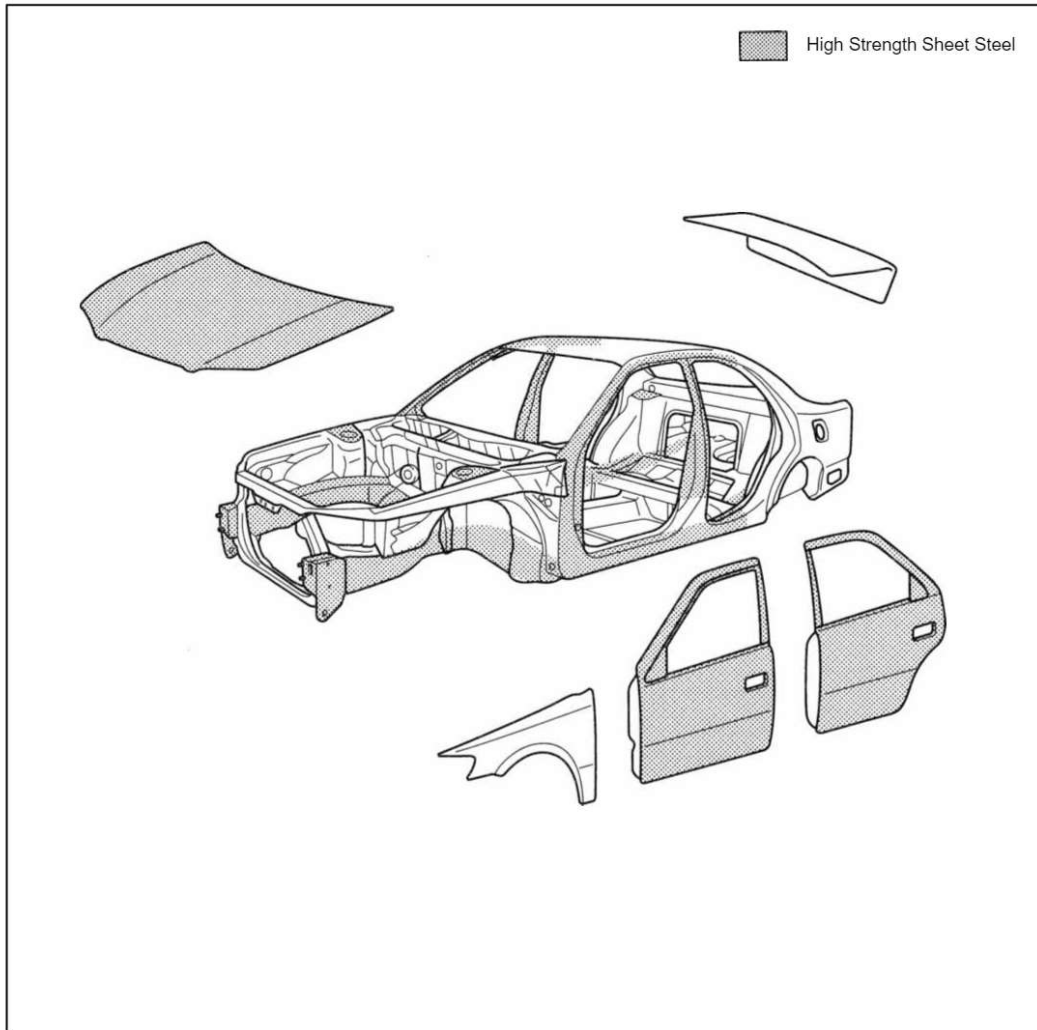
BODY PANEL CONSTRUCTION

HIGH-STRENGTH STEEL (HSS) PARTS

Generally, High-Strength Steel (HSS) is that which has an intensity value of at 35 kgf/mm² (343 MPa), and distinguished from mild steel.

The handling of HSS is the same as for mild steel, but the following should be observed.

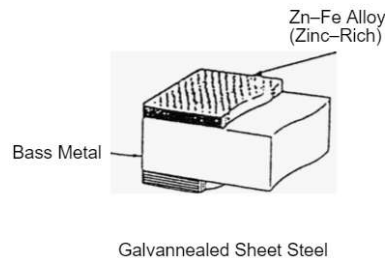
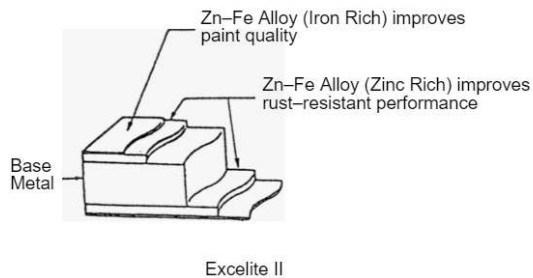
1. Panel Hammering: Because HSS is thinner than mild steel, care should be taken to avoid warping during hammering operations.
2. Removing Spot Welds: Because HSS is tougher than mild steel, damage will occur more easily to a regular drill. Therefore, an HSS Spot Cutter is recommended. Also, use a high-torque drill at low speed, and supply grinding oil to the drill during use.
3. Panel Welding: Panel welding procedures for HSS are exactly the same as for mild steel. Plug welding should be done with MIG (Metal Inert Gas) welder. Do not gas weld or braze panels at areas other than specified.



RUST-RESISTANT SHEET STEEL PARTS

Rust-Resistant Sheet have zinc, tin or aluminum etc, plating over the base metal surface in order to improve the corrosion resistance of the sheet metal. For the vehicle's body panels, galvanized sheet steel is widely used.

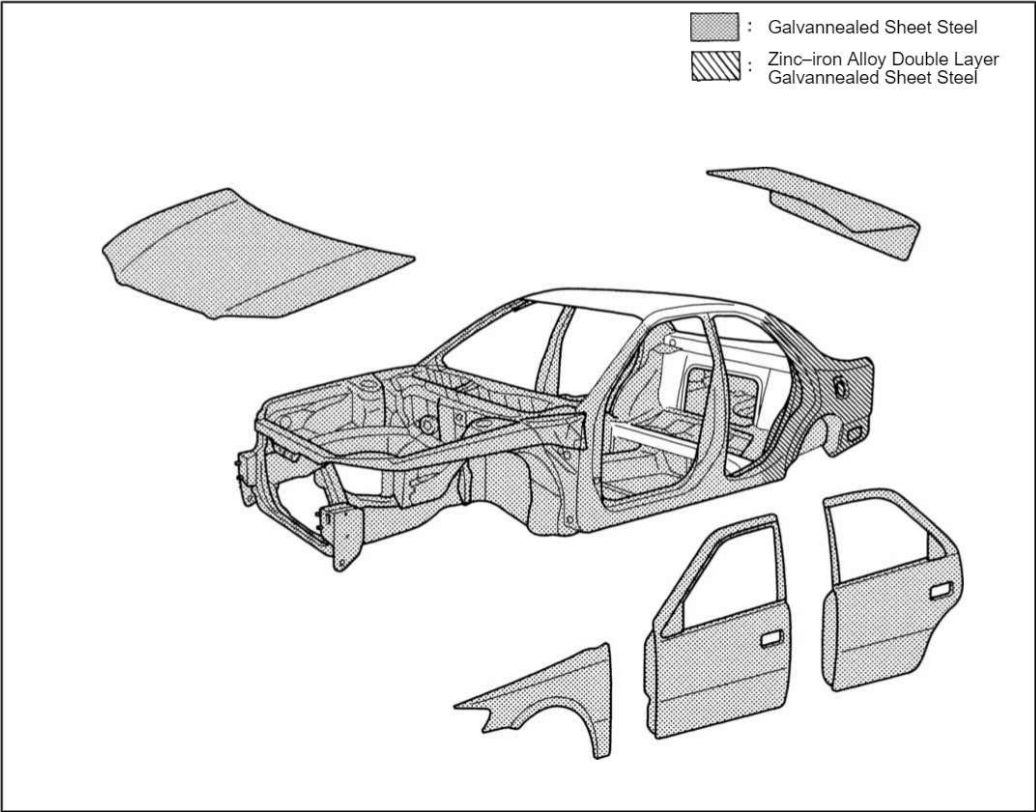
Body panel on TOYOTA models are made of two different galvanized sheet steel. The ordinary galvanized sheet steel has a zinc-iron alloy plating over the base metal surface. Zinc-iron alloy double-layer galvanized sheet steel has zinc-iron alloy plating on both the outside and the back surface, plus a further iron-rich zinc-iron alloy plating which has good paint adhesion. These two galvanized sheet steels are used selectively according to need.



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

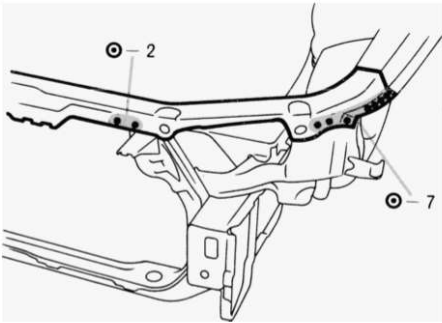
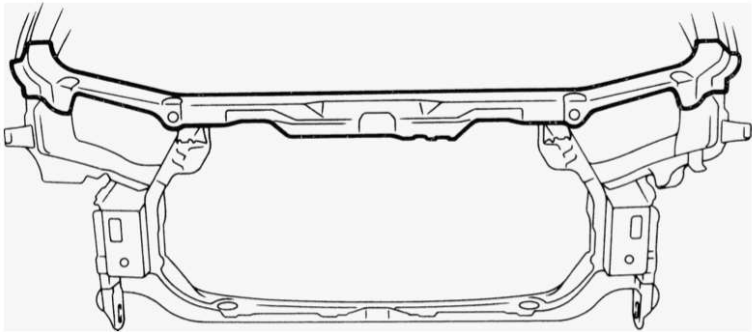
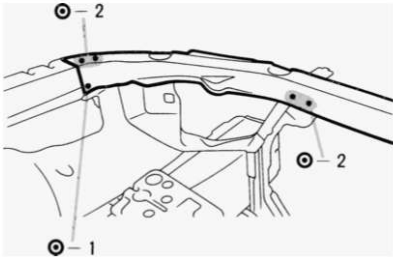
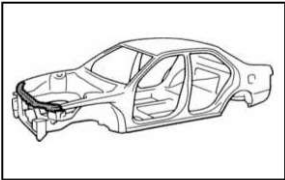
1. Panel welding: The paint as well as the zinc portion must be removed completely from the welding area to guarantee good welding integrity.
2. Anti-Rust Treatment: Since the zinc plating is lost after welding, anti-rust treatment of the welded area must be thoroughly performed (refer to section AR).

CN-4 BODY PANEL CONSTRUCTION

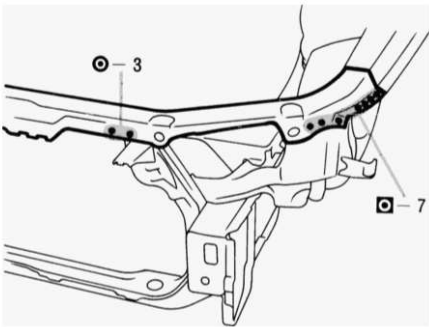
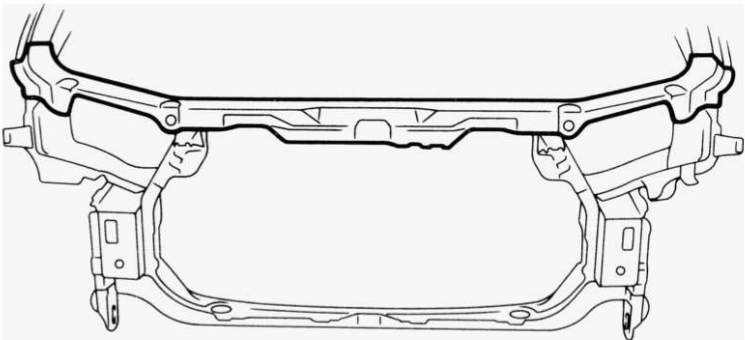
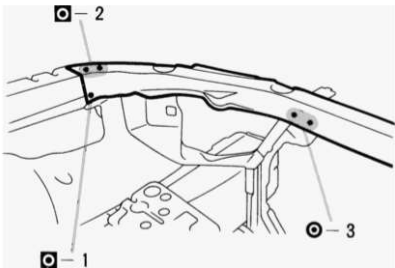


RADIATOR UPPER SUPPORT (ASSY)

REMOVAL



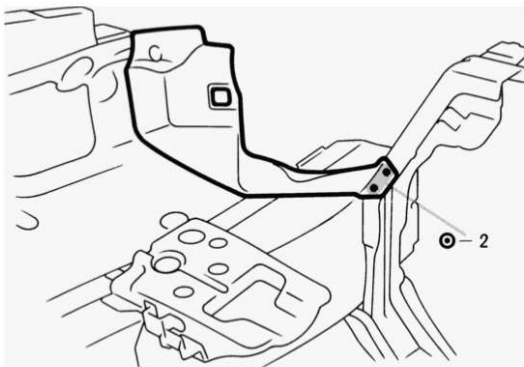
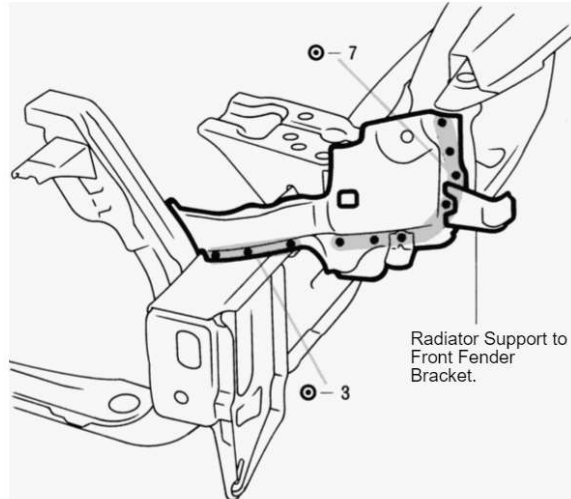
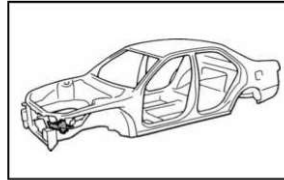
INSTALLATION



1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
HINT: First install the hood lock support.

RE-4

BODY PANEL REPLACEMENT

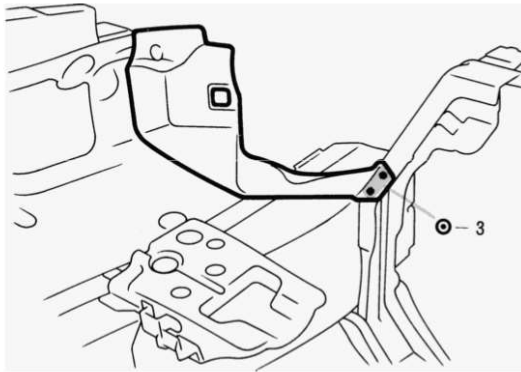
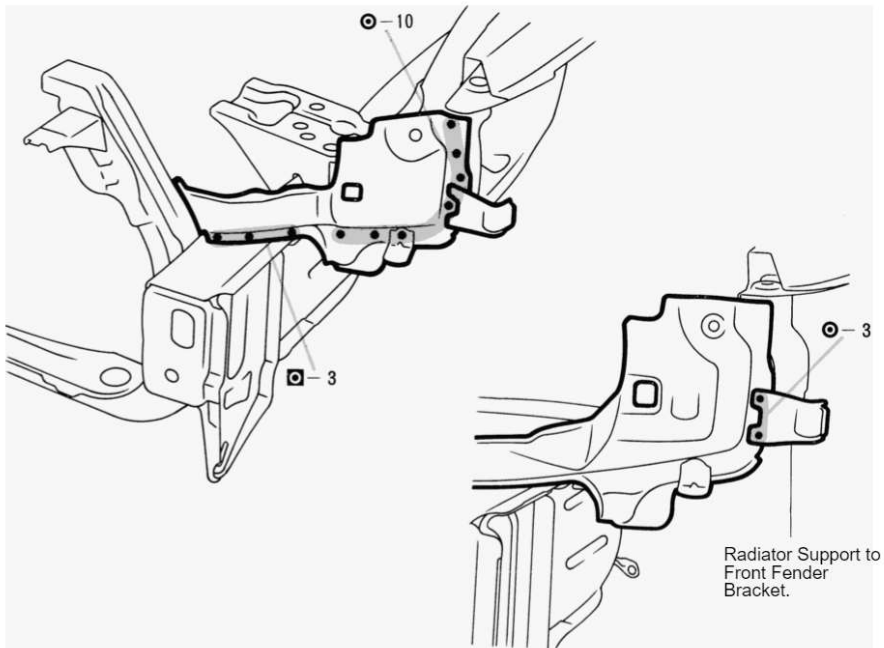
RADIATOR SIDE SUPPORT (ASSY)**REMOVAL (With the radiator upper support removed.)**

1. Replace the radiator support to front fender bracket at the same time.

BODY PANEL REPLACEMENT

RE-5

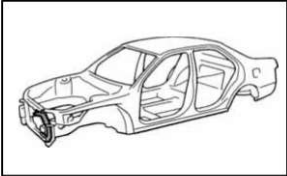
INSTALLATION



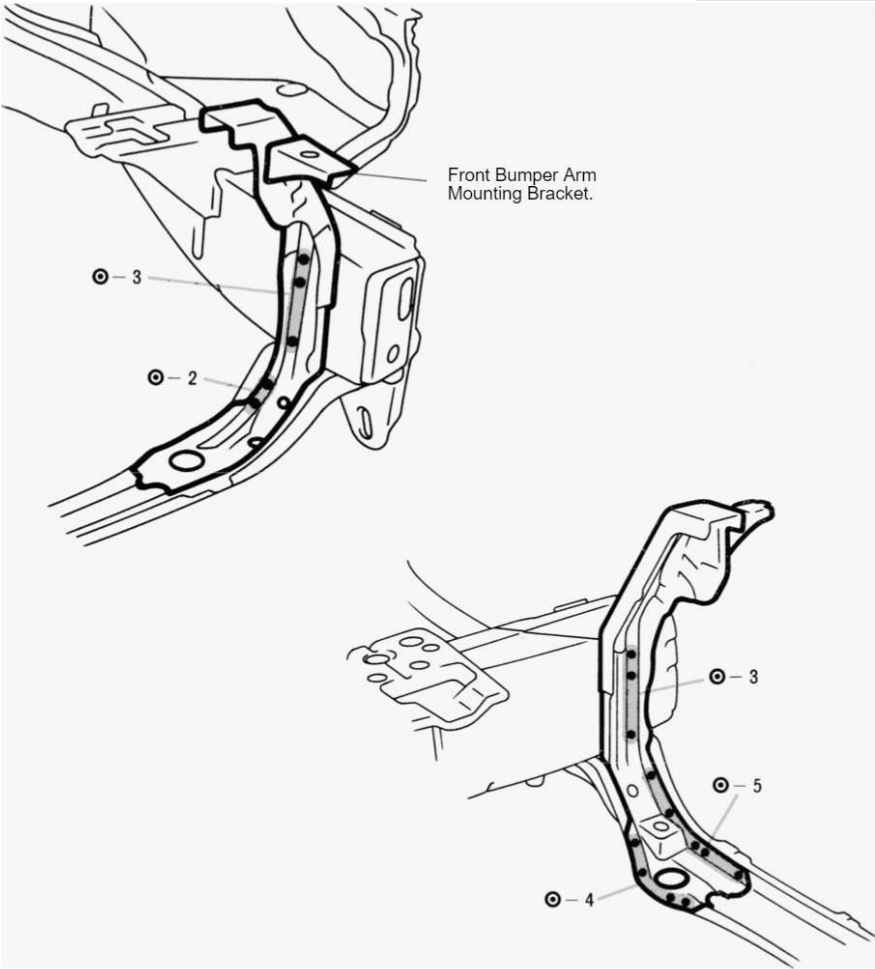
1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

HINT: First install the radiator upper support.

FRONT CROSSMEMBER SIDE GUSSET (ASSY)

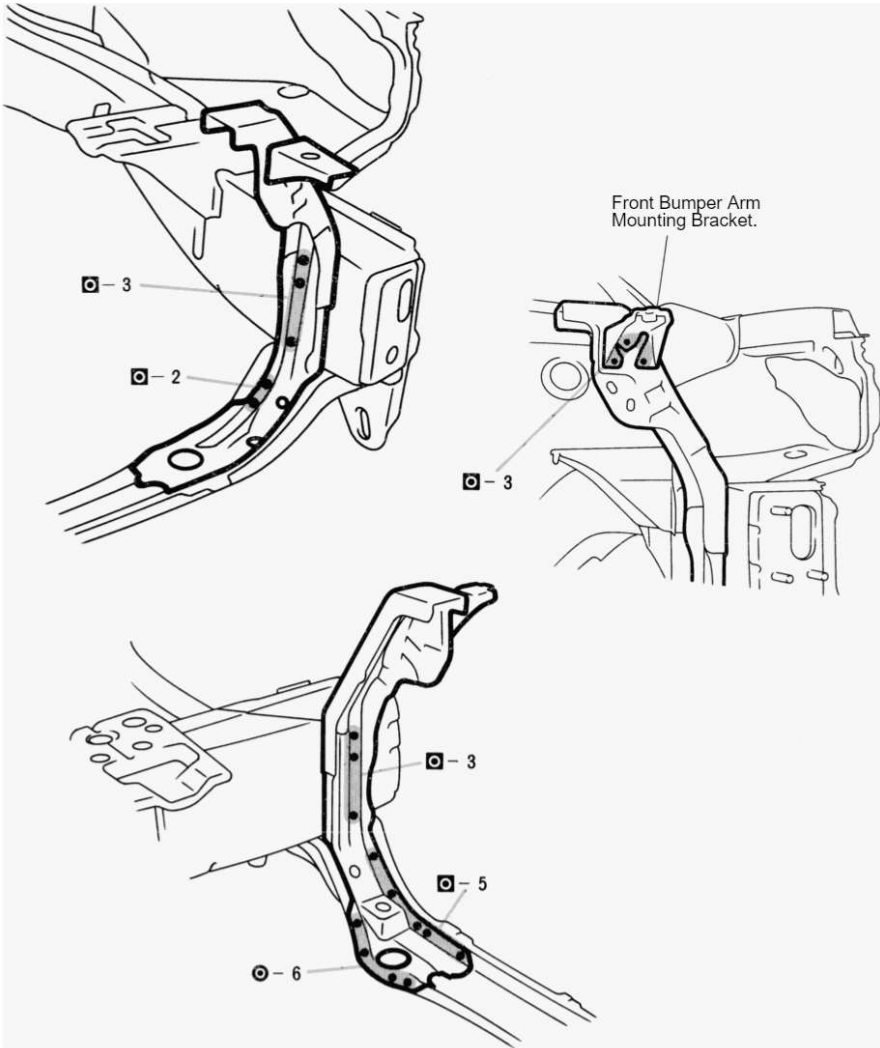


REMOVAL (With the radiator side support removed.)



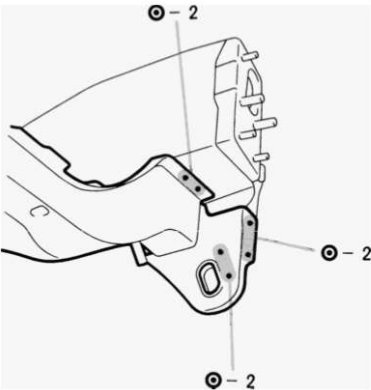
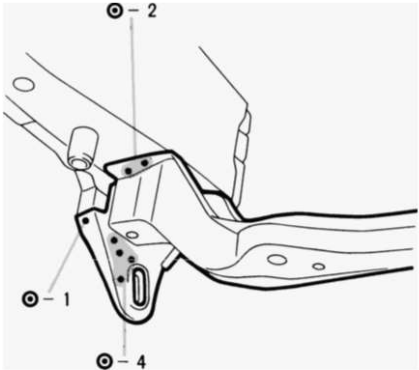
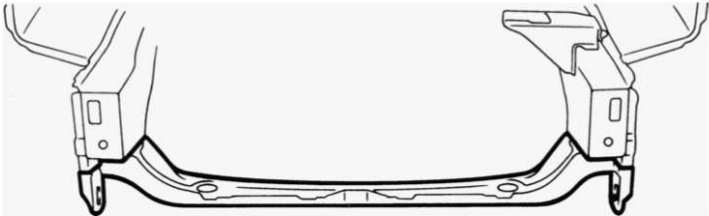
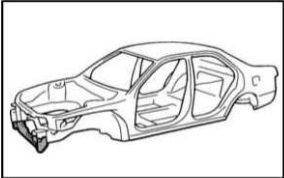
1. Replace the front bumper arm mounting bracket at the same time.

INSTALLATION

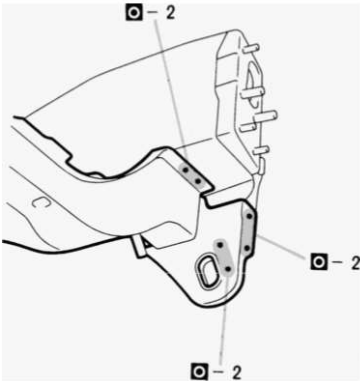
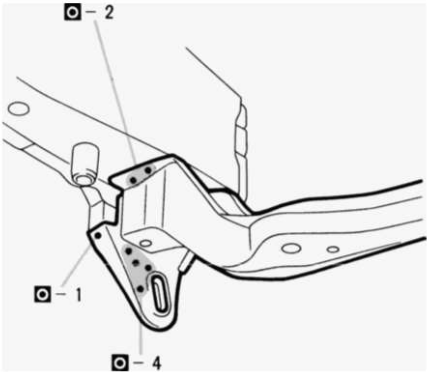
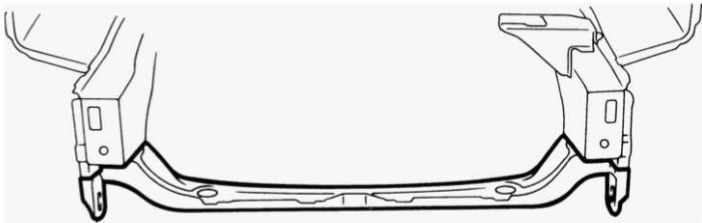


FRONT CROSSMEMBER (ASSY)

REMOVAL (With the front crossmember side gusset removed.)



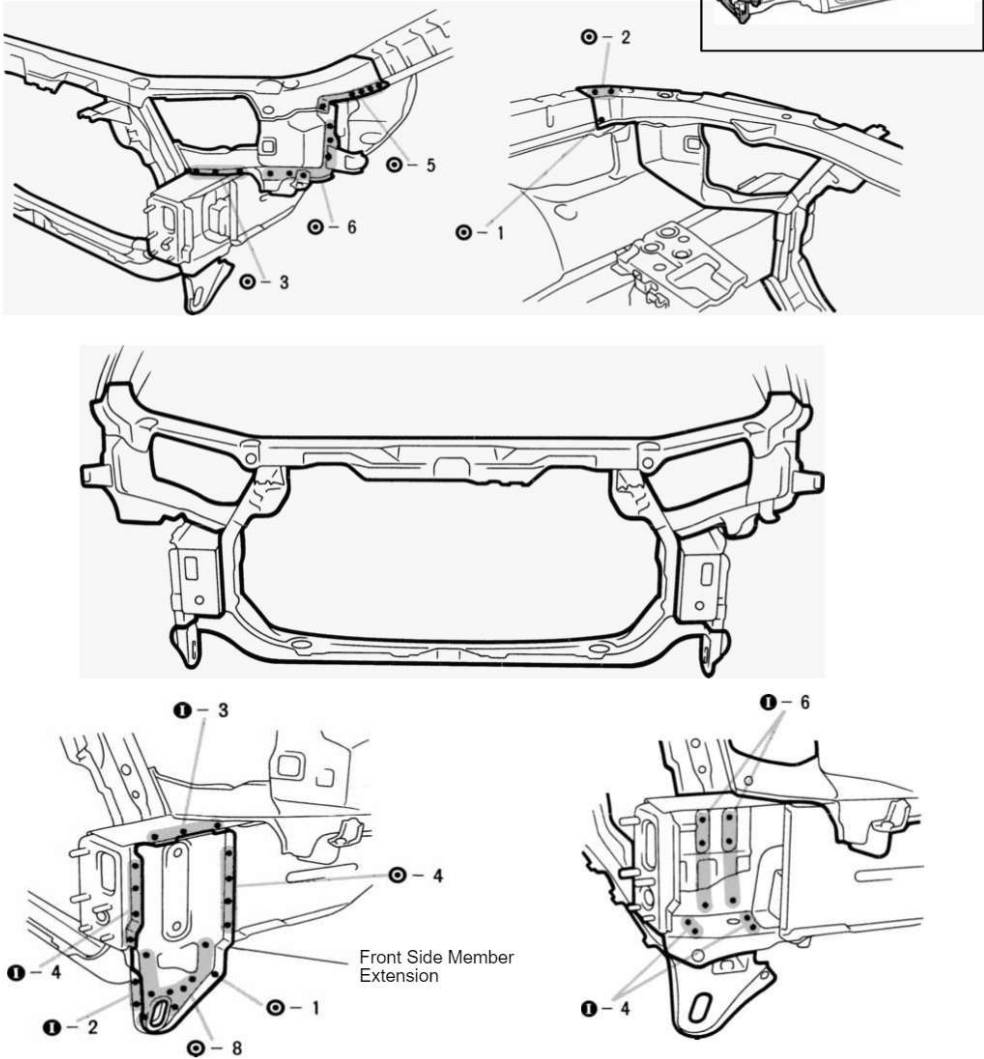
INSTALLATION



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

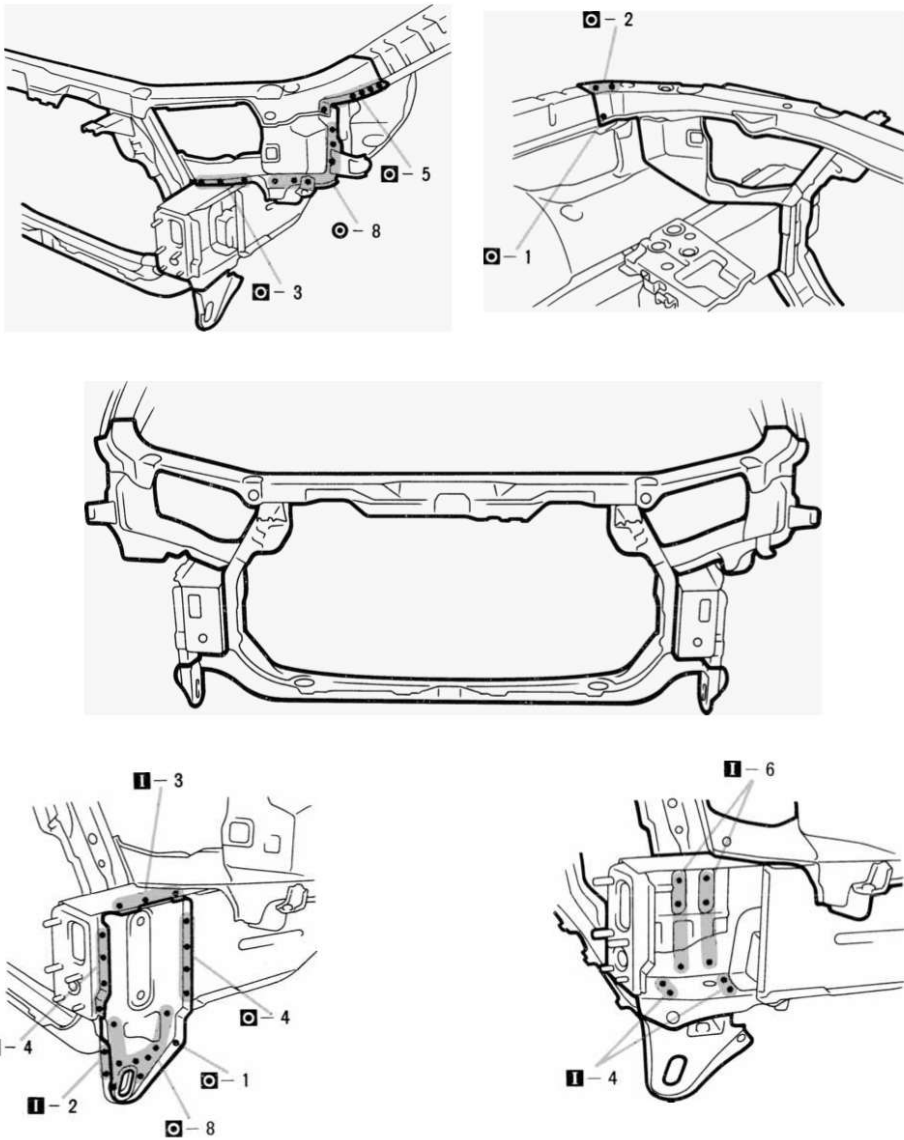
RADIATOR SUPPORT (ASSY)

REMOVAL



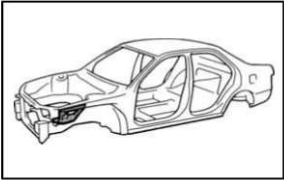
1. After removing the front side member extension, removing the radiator support.

INSTALLATION

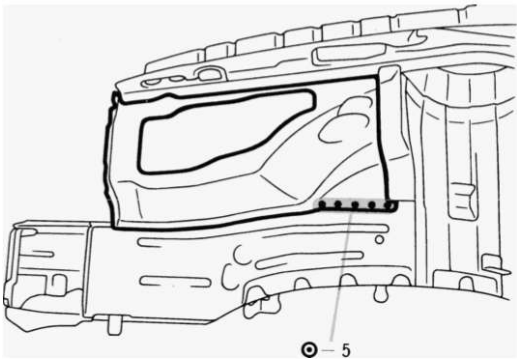
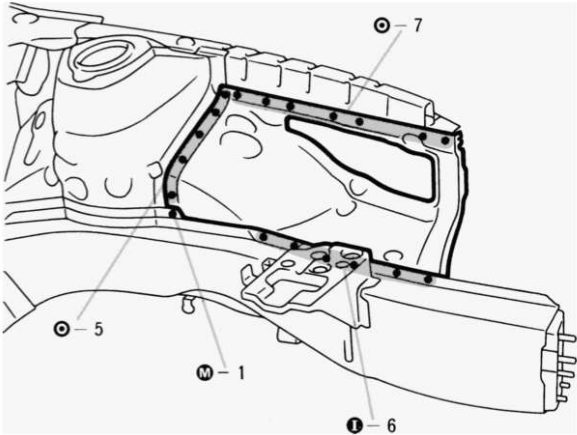


1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
- HINT: First install the hood lock support.*

FRONT FENDER FRONT APRON (ASSY)



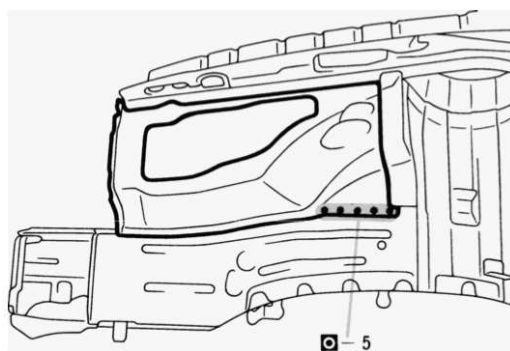
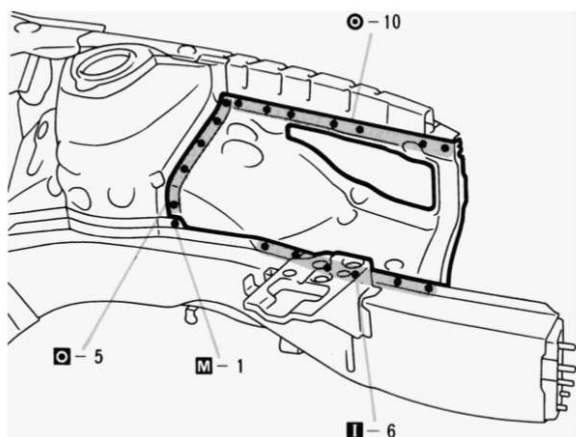
REMOVAL (With the radiator support removed.)



BODY PANEL REPLACEMENT

RE-13

INSTALLATION



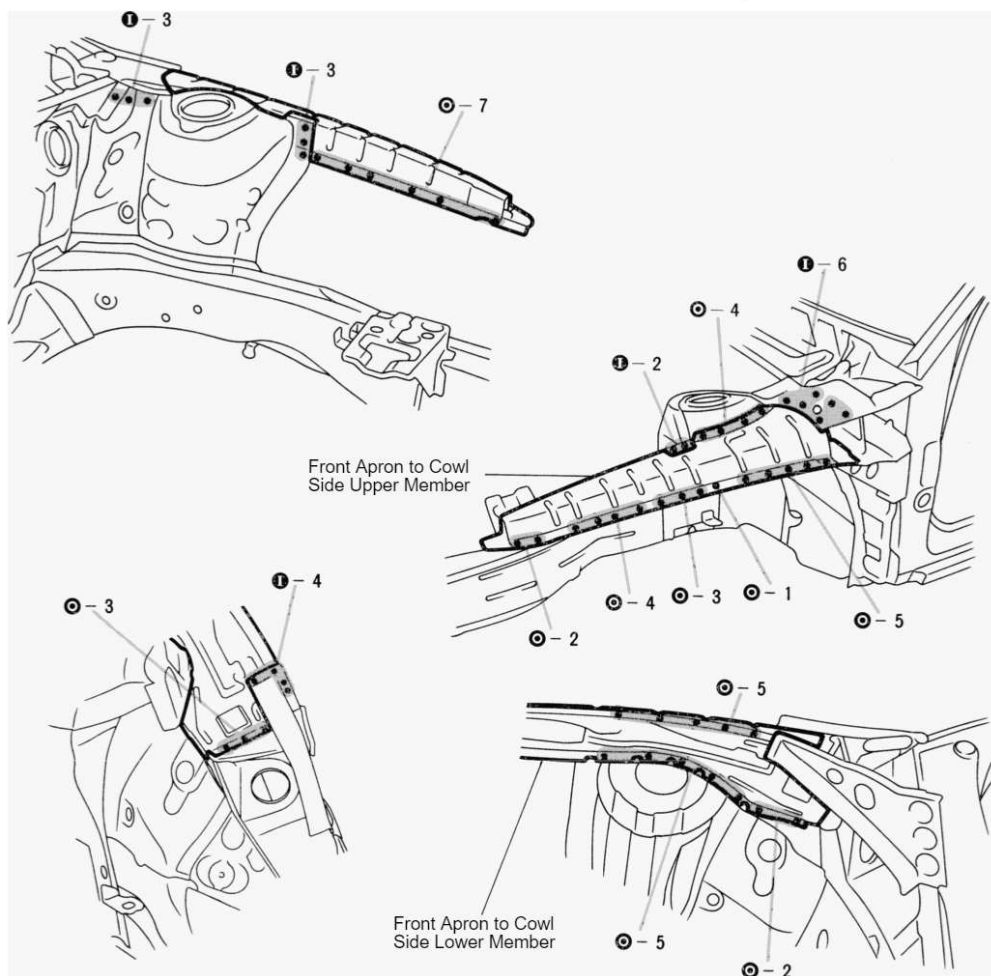
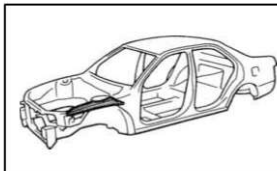
1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

RE-14

BODY PANEL REPLACEMENT

FRONT APRON TO COWL SIDE MEMBER (ASSY)

REMOVAL (With the front fender front apron, cowl top side panel removed.)

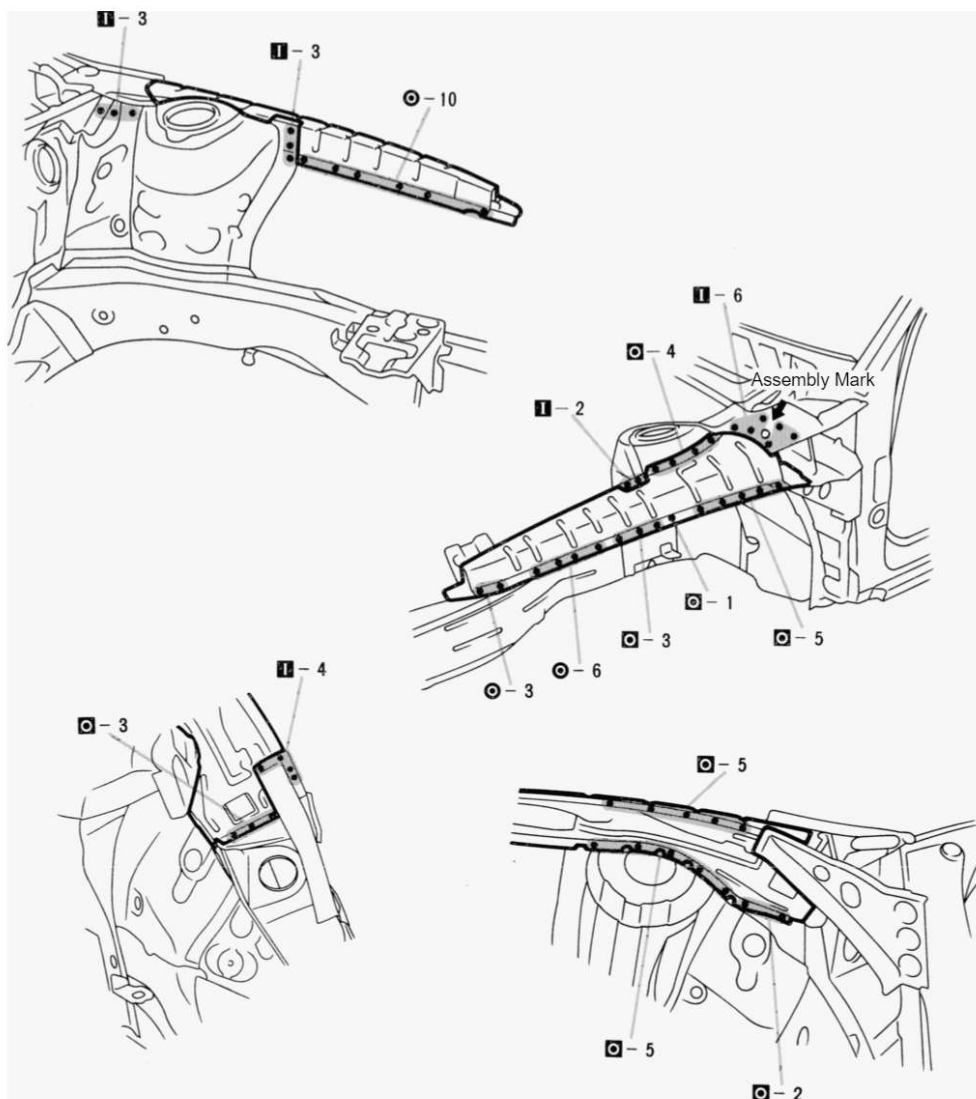


1. After removing the front apron to cowl side lower member, remove the front apron to cowl side upper member.

BODY PANEL REPLACEMENT

RE-15

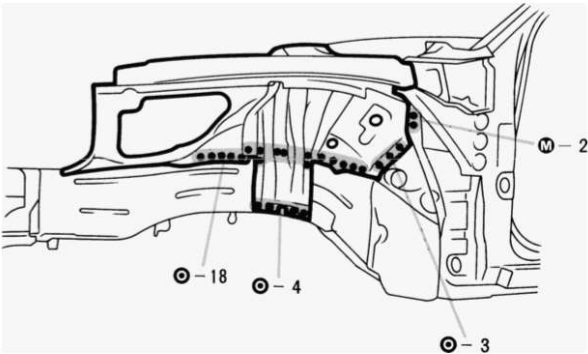
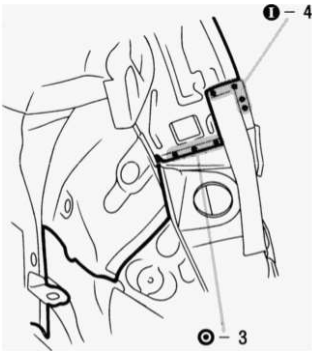
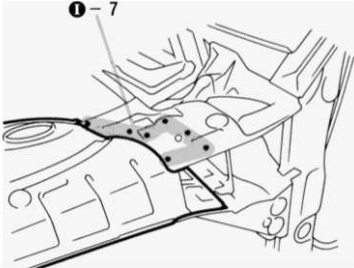
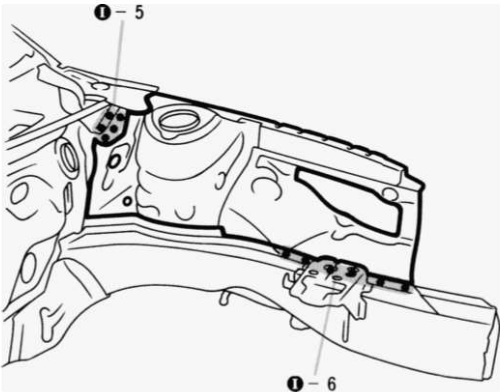
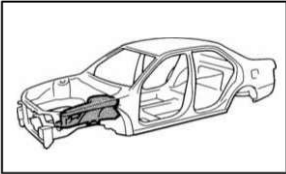
INSTALLATION



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.
2. Temporarily install the front fender and hood, and check the fit.

FRONT FENDER APRON (ASSY)

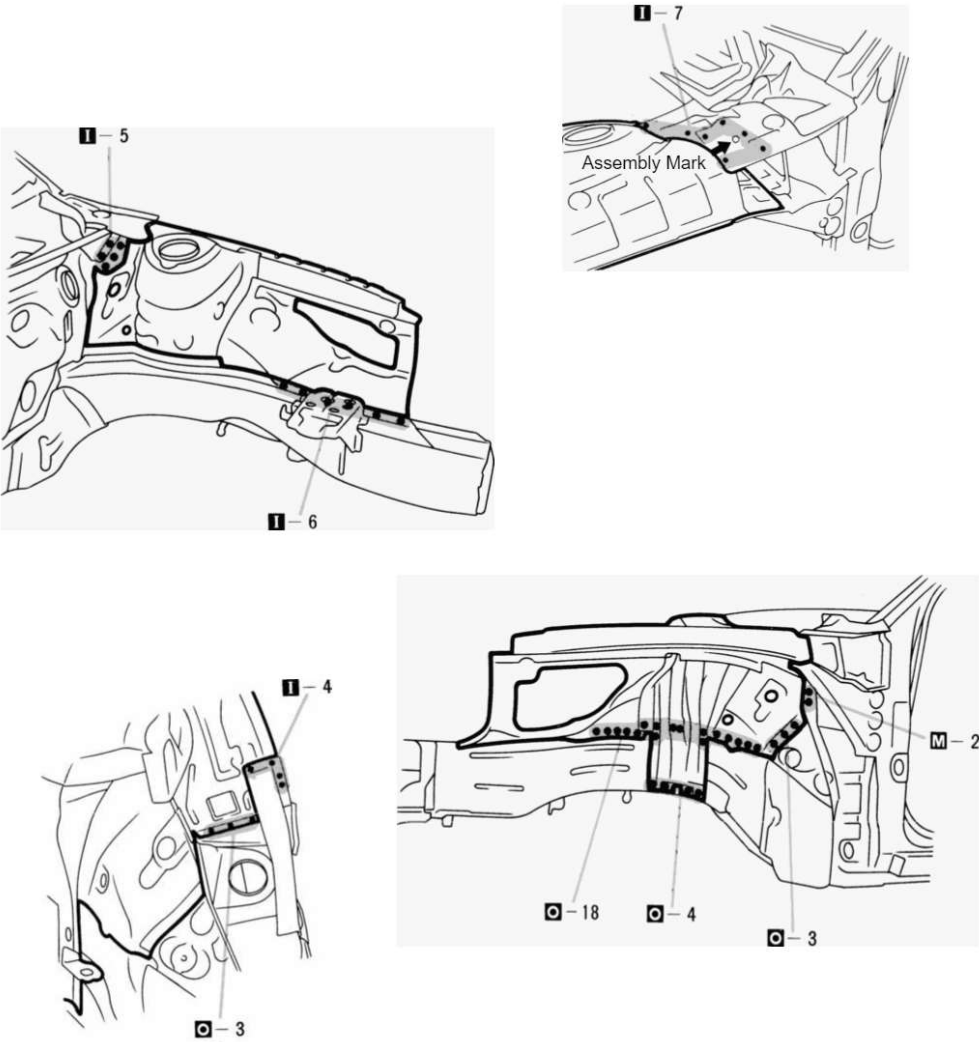
REMOVAL (With the radiator support, cowl top side panel removed.)



BODY PANEL REPLACEMENT

RE-17

INSTALLATION



1.

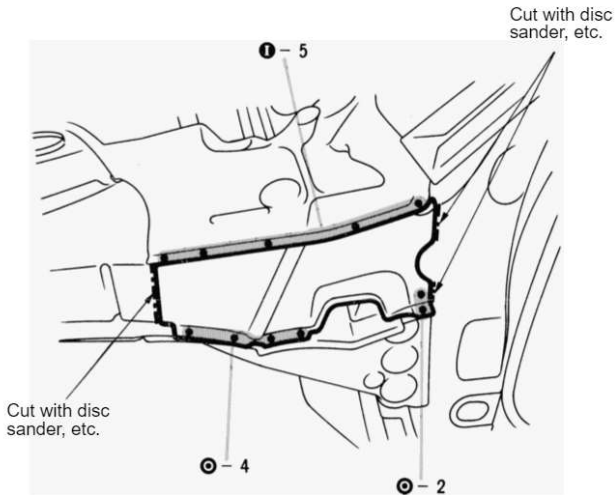
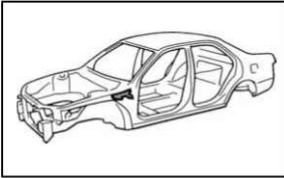
When temporarily installing the new parts, determine the installation position by the assembly mark.
2.

Measurements must be accurate with the body dimension diagram, as this affects the front wheel alignment.
3.

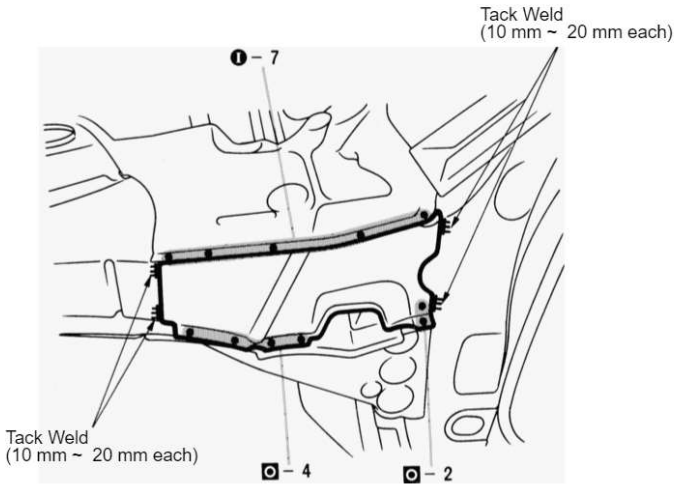
Temporarily install the front fender and hood, and check the fit.

COWL TOP SIDE PANEL (ASSY)

REMOVAL



INSTALLATION



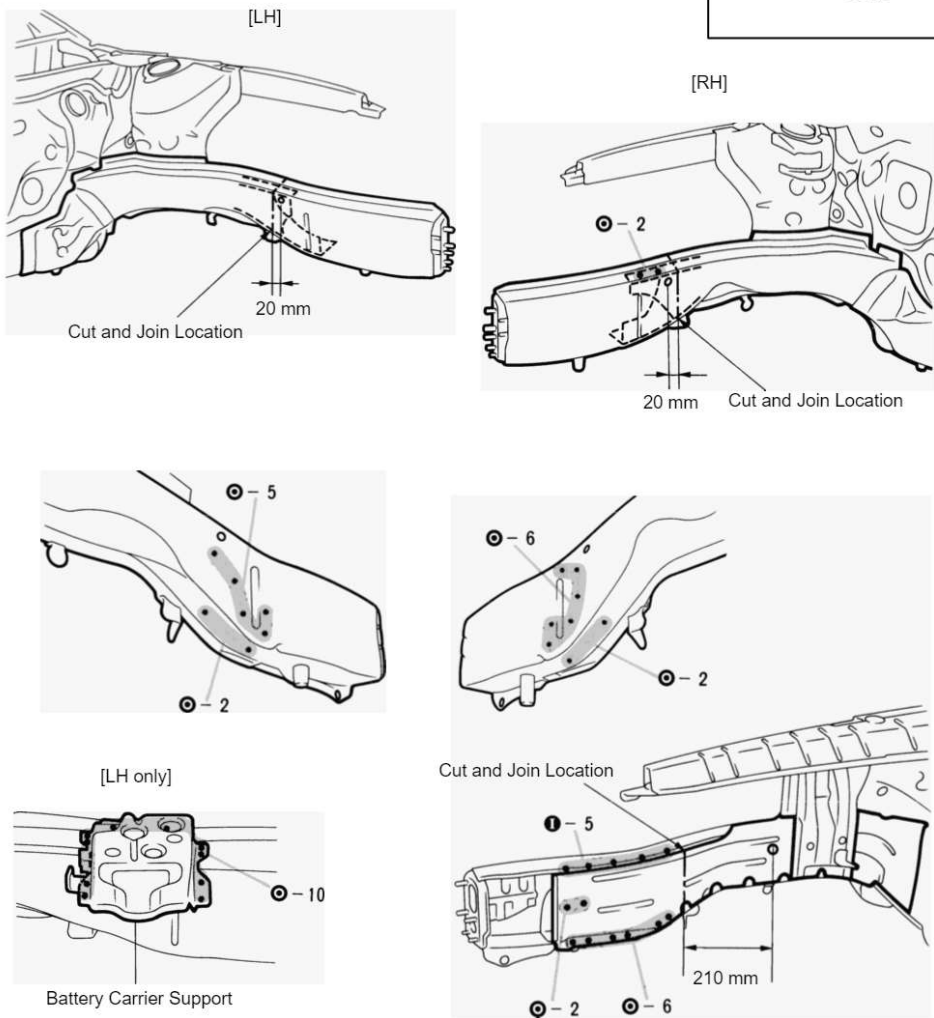
mm	in.
10	0.39
20	0.79

RE-20

BODY PANEL REPLACEMENT

FRONT SIDE MEMBER (CUT-P)

REMOVAL (With the front fender front apron removed.)



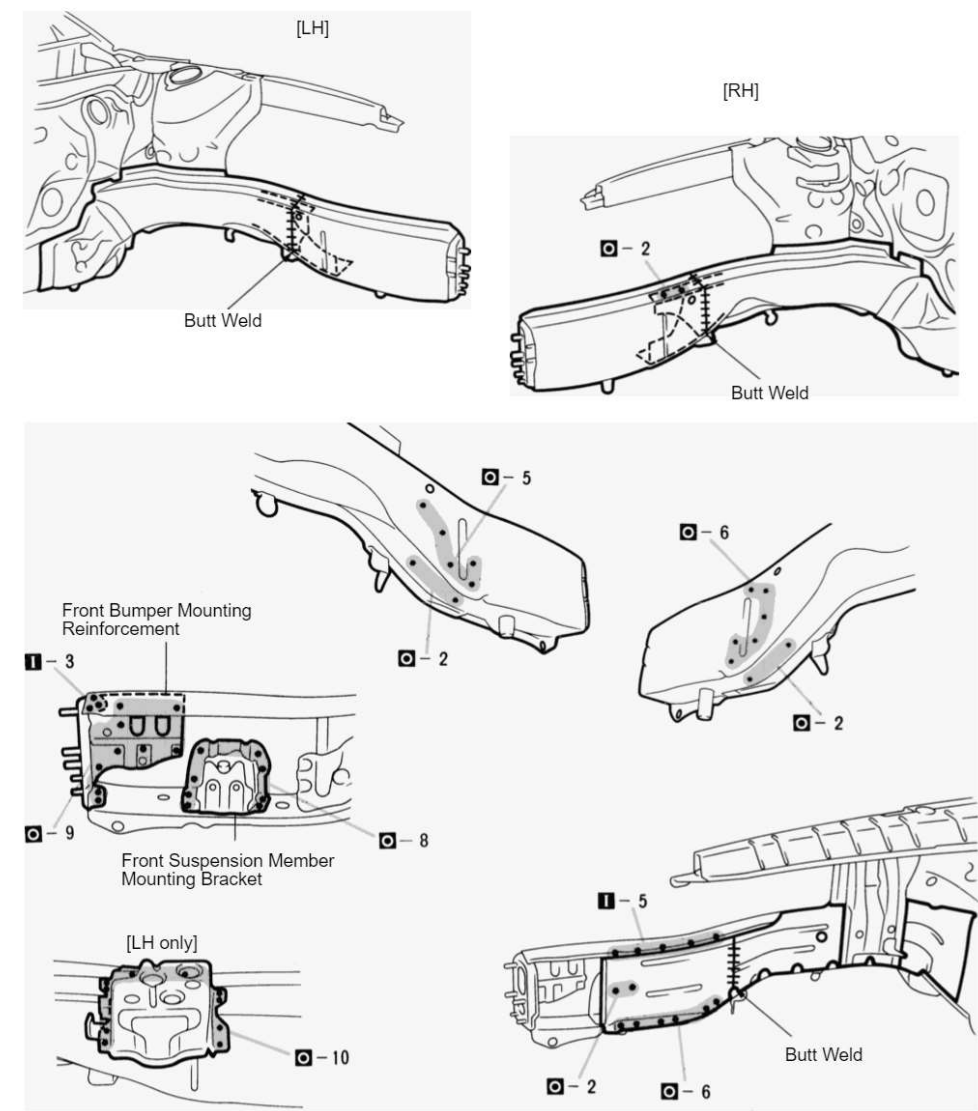
1. Cut and join the part at the locations as shown above.

HINT:

- 1) Be careful not to damage the reinforcement when cutting the member.
- 2) Before cutting the side member, remove the battery carrier support. (LH only)

mm	in.
20	0.79
210	8.27

INSTALLATION



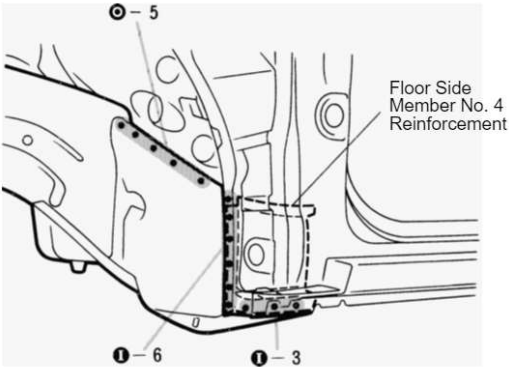
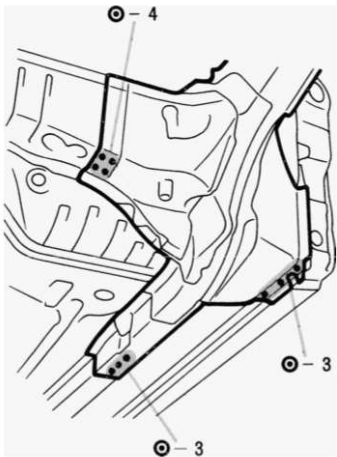
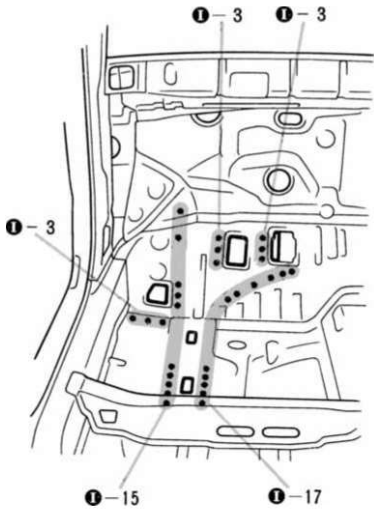
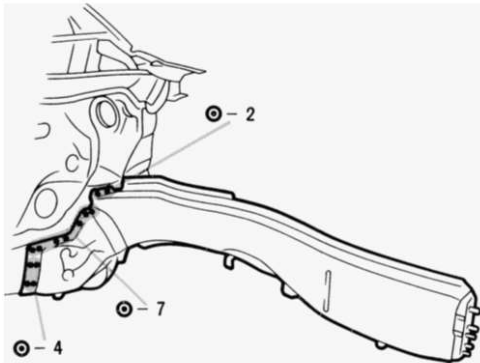
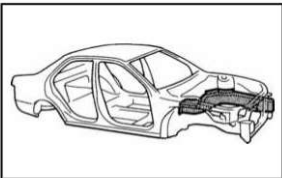
1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

RE-22

BODY PANEL REPLACEMENT

FRONT SIDE MEMBER (ASSY)

REMOVAL (With the front fender apron removed.)

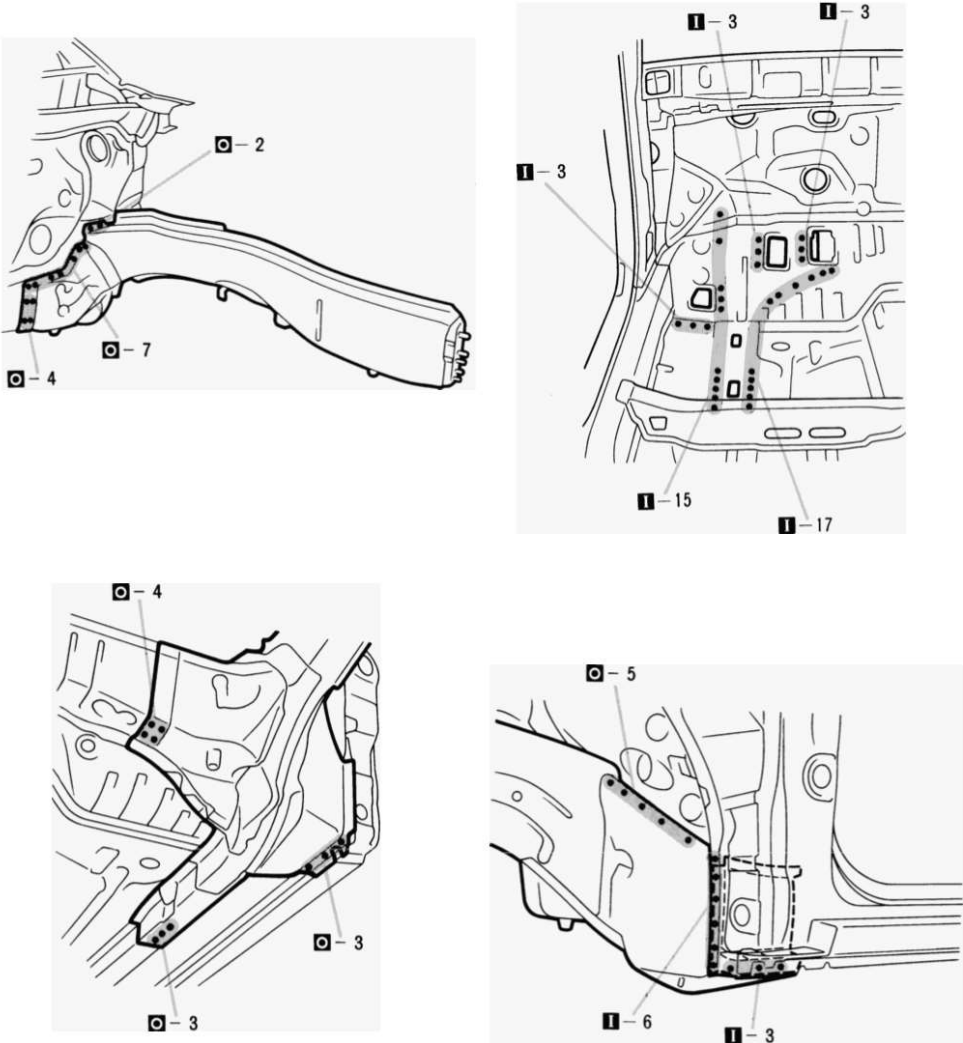


1. Leave the floor side member No. 4 reinforcement to the vehicle. Remove the front side member.

BODY PANEL REPLACEMENT

RE-23

INSTALLATION



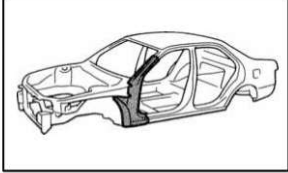
1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
- HINT: Make sure each measurement is correct, as this parts affects the front wheel alignment.*

RE-24

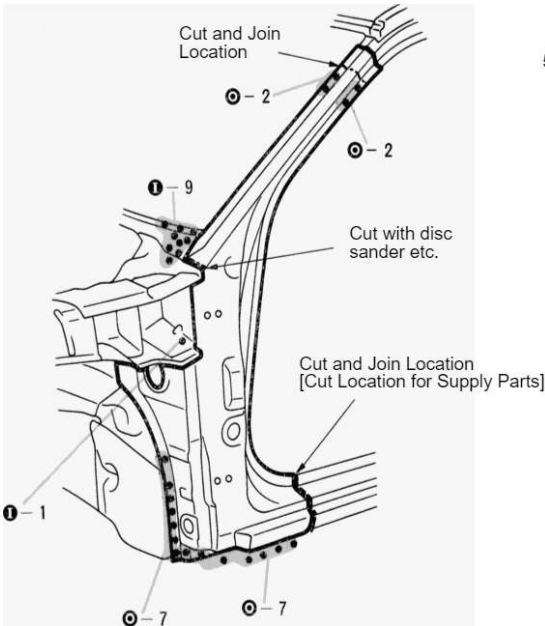
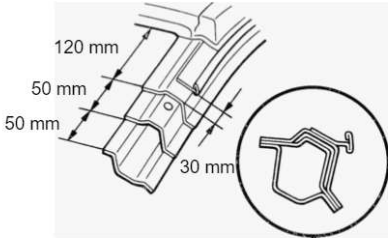
BODY PANEL REPLACEMENT

FRONT BODY PILLAR (CUT)

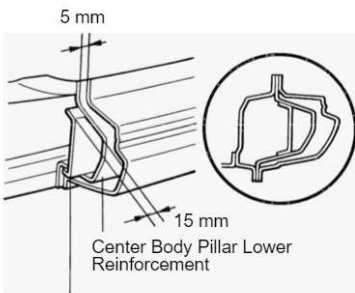
REMOVAL (With the cowl top side panel removed.)



[Cut and Join Location]



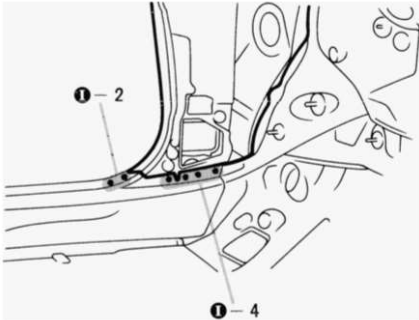
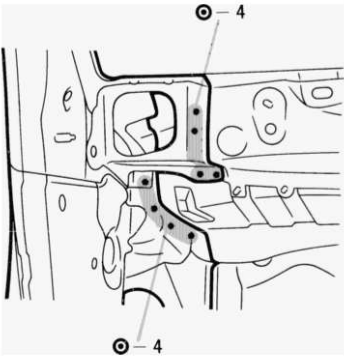
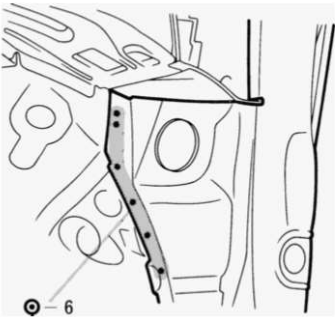
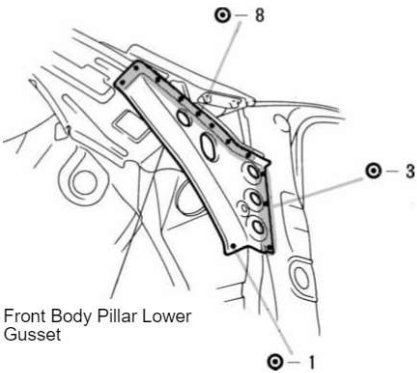
[Cut and Join Location]



Rocker Panel No. 5 Reinforcement

1. Cut and join the parts at the locations shown above.
- HINT:
1. Shift the each cut and join locations of the outer pillar, reinforcement, inner pillar and roof drip channel.
2. Shift the each cut and join locations of the outer panel, center body pillar lower reinforcement and rocker panel No. 5 reinforcement.

mm	in.
5	0.20
15	0.59
30	1.18
50	1.97
120	4.72

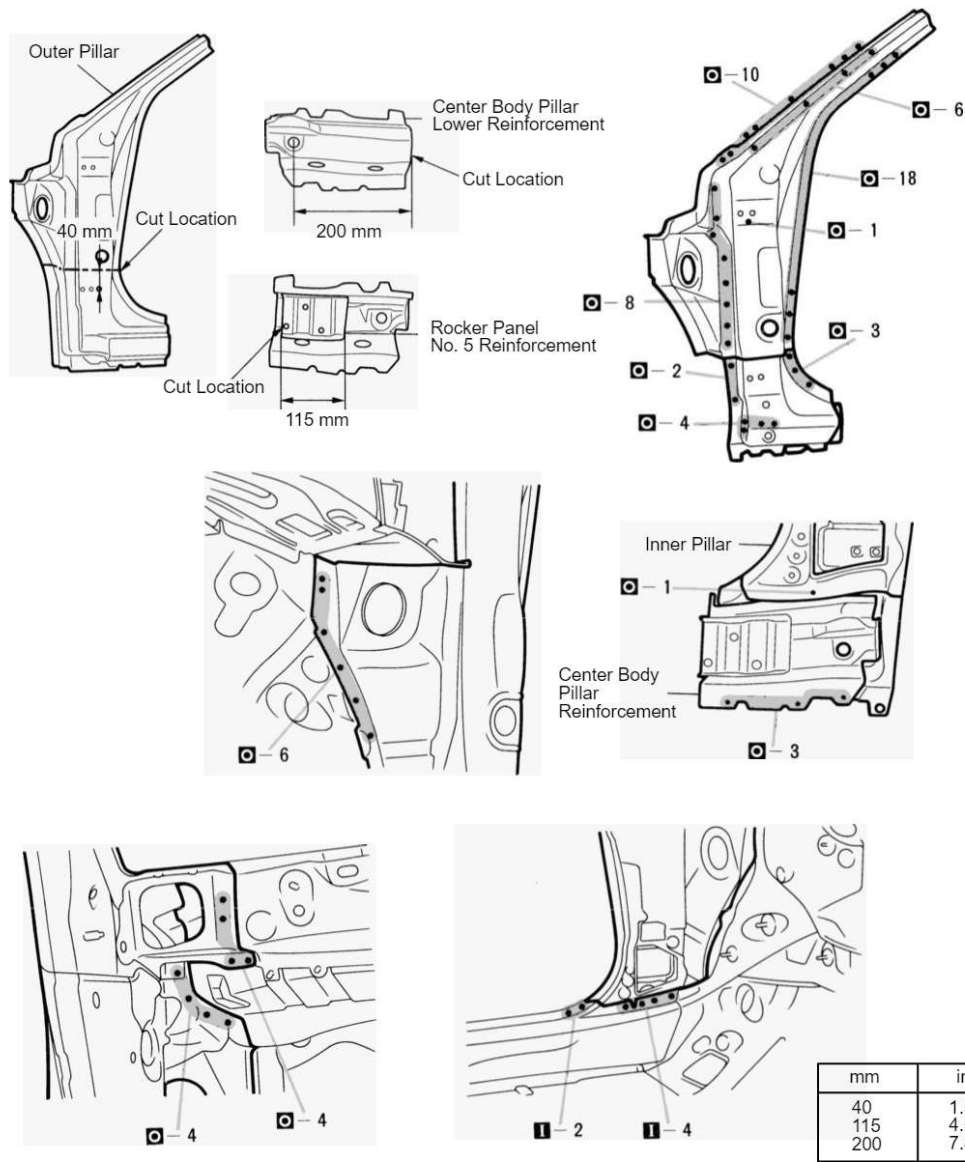


2. After removing the front body pillar lower gusset, remove the front body pillar.

RE-26

BODY PANEL REPLACEMENT

INSTALLATION

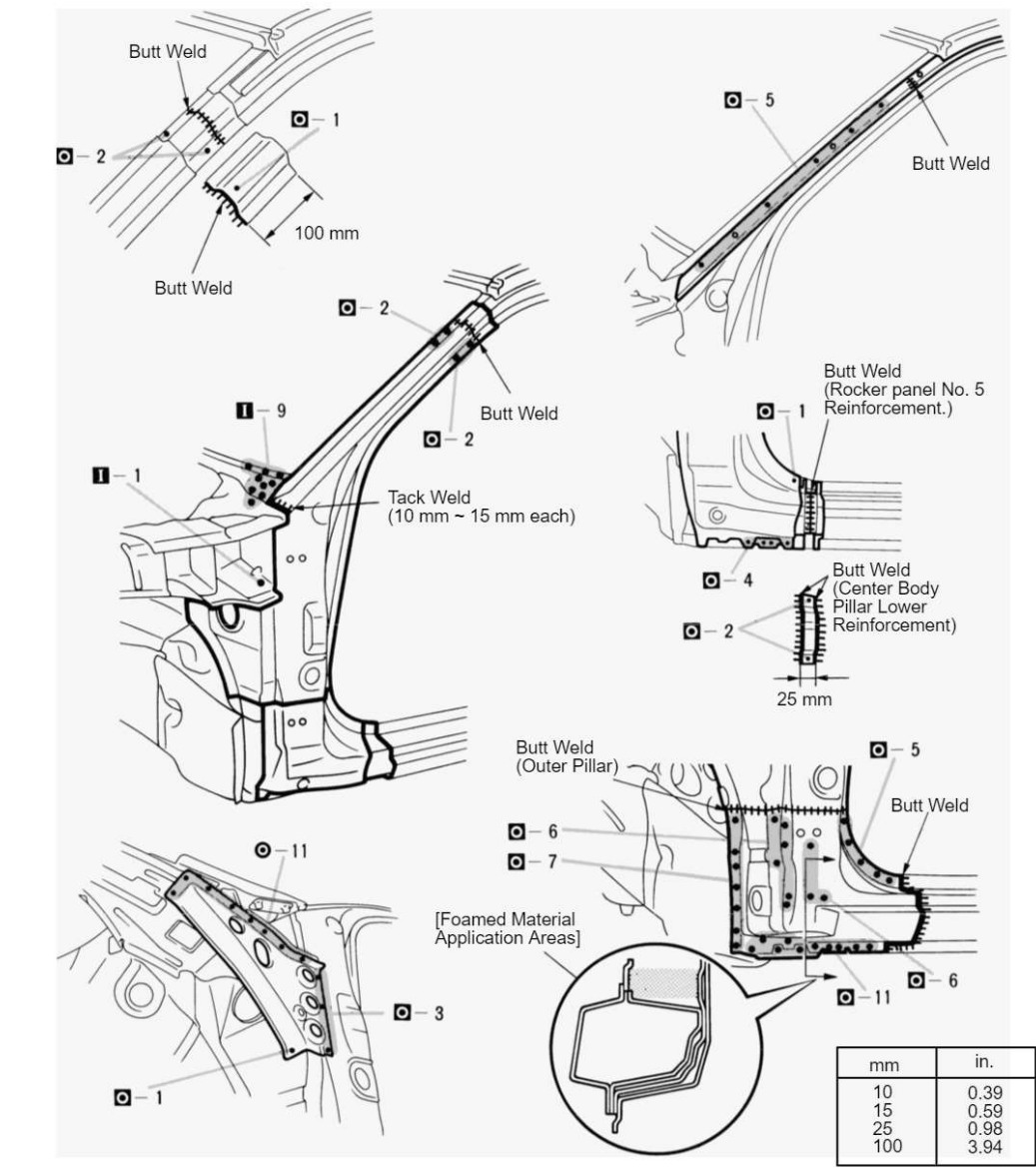


1.

Cut the new parts for the outer pillar, center body pillar lower reinforcement and rocker panel No. 5 reinforcement at the locations shown above.
HINT: After butt welding the center body pillar lower reinforcement attach it to the lower area of the outer pillar.
2.

Before temporarily installing the new parts. Weld the outer pillar, reinforcement, inner pillar and the center body pillar lower reinforcement with standard points.
3.

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



4.

Before welding the new parts, check the fit of the front door, front fender and windshield glass.
5.

Cut the upper part of the outer pillar 100 mm (3.94 in.) from its cut and join location and after butt welding the reinforcement, attach the outer pillar.
6.

Cut the center body pillar lower reinforcement 25 mm (0.98 in.) from its previous cut and joining location. Butt weld the rocker panel No. 5 reinforcement and butt weld the center body pillar lower reinforcement.
7.

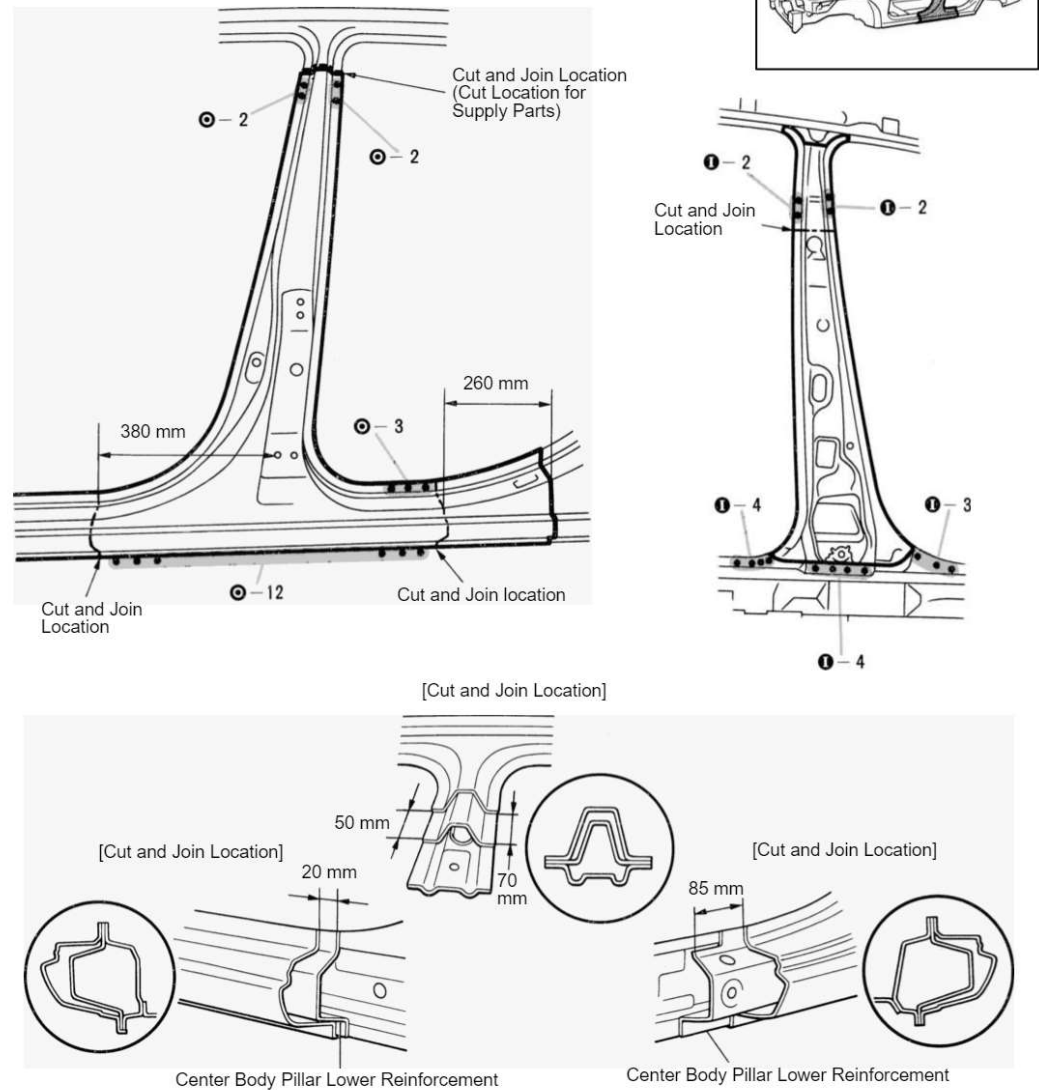
Apply foamed material to the pillar section.

RE-28

-MEMO-

CENTER BODY PILLAR (CUT)

REMOVAL



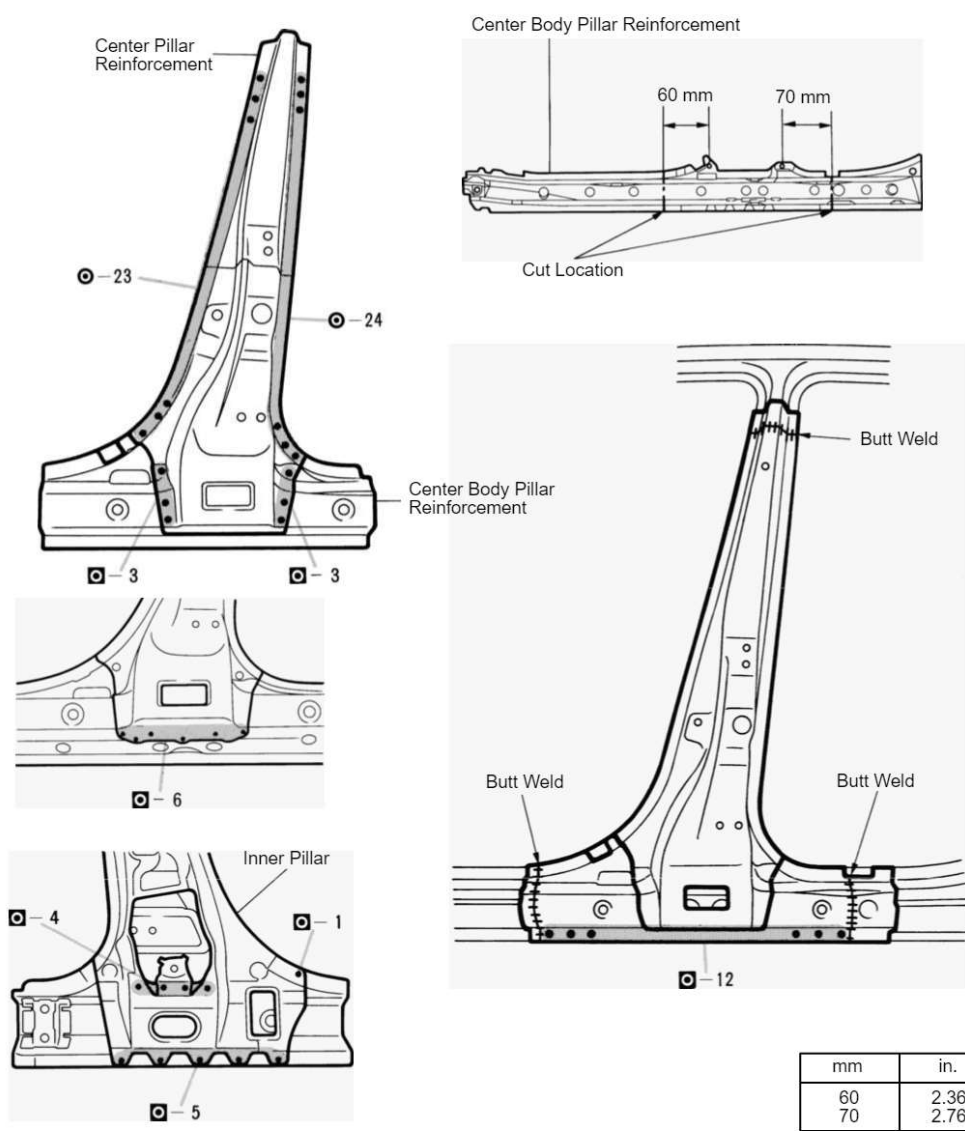
1. Cut and join the parts at the locations shown above.
- HINT:**
- 1) Sift the each cut and join locations of the center outer pillar, reinforcement and inner pillar.
 - 2) Sift the each cut and join locations of the rocker outer and center body pillar lower reinforcement.

mm	in.
20	0.79
50	1.97
70	2.76
85	3.35
260	11.42
380	14.96

RE-30

BODY PANEL REPLACEMENT

INSTALLATION



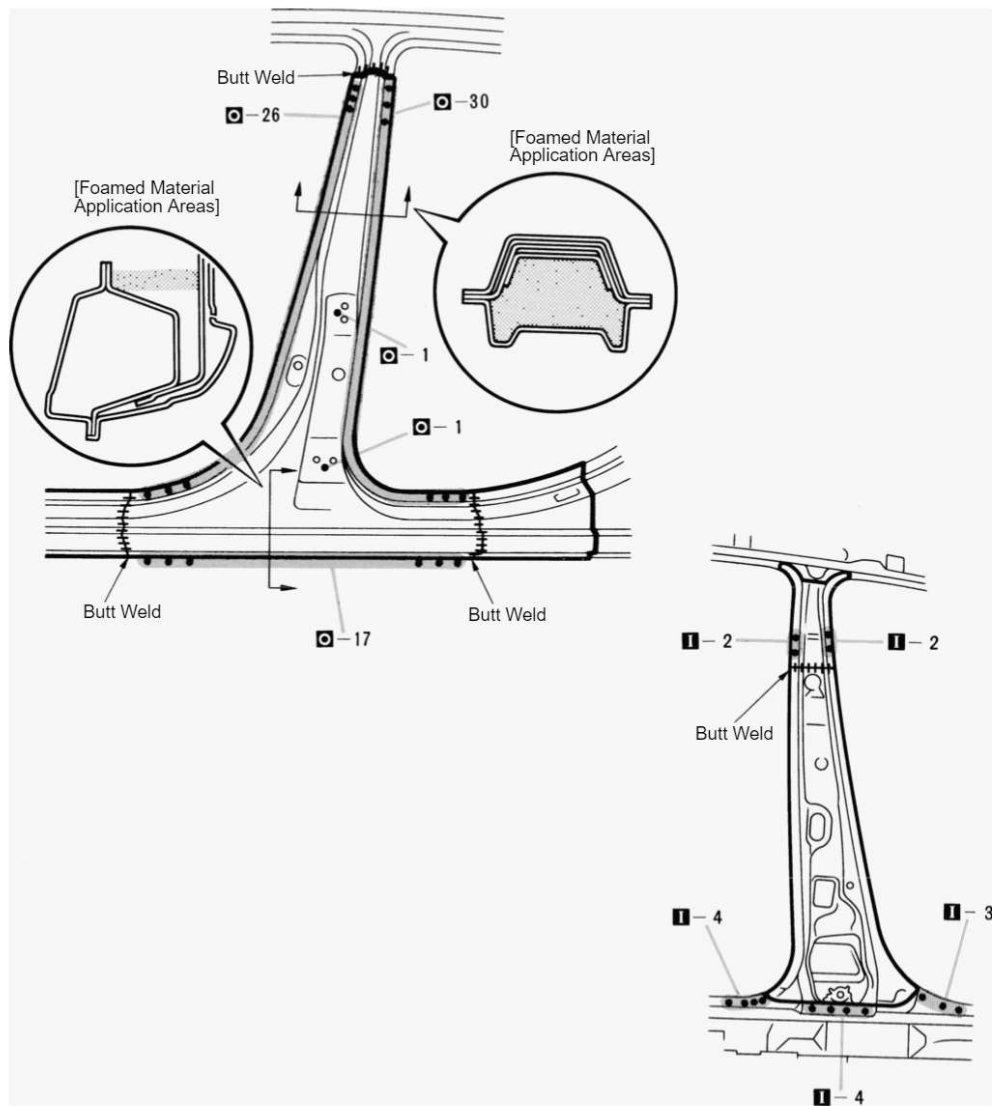
1.

Cut the new parts for the center body pillar reinforcement at the locations shown above.
2.

Before temporarily installing the new parts, weld the inner pillar, center pillar reinforcement and center body pillar reinforcement with standard points.
3.

Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
4.

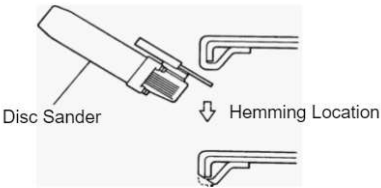
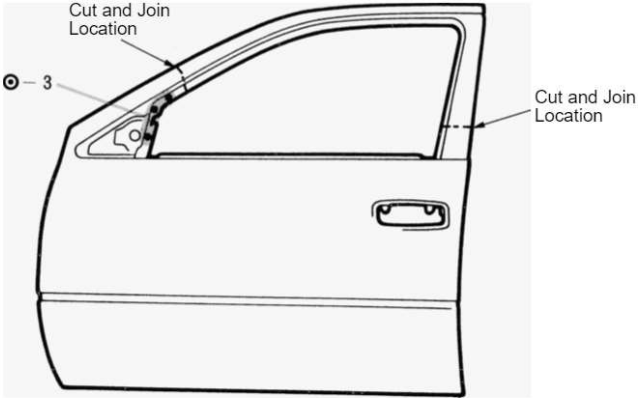
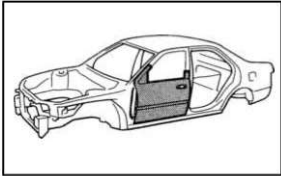
Before welding the new parts, check the fit of the front door and rear door.



5. After welding the inner pillar, reinforcement and center body pillar reinforcement to the vehicle install the outer pillar.
6. Apply framed material to the pillar section.

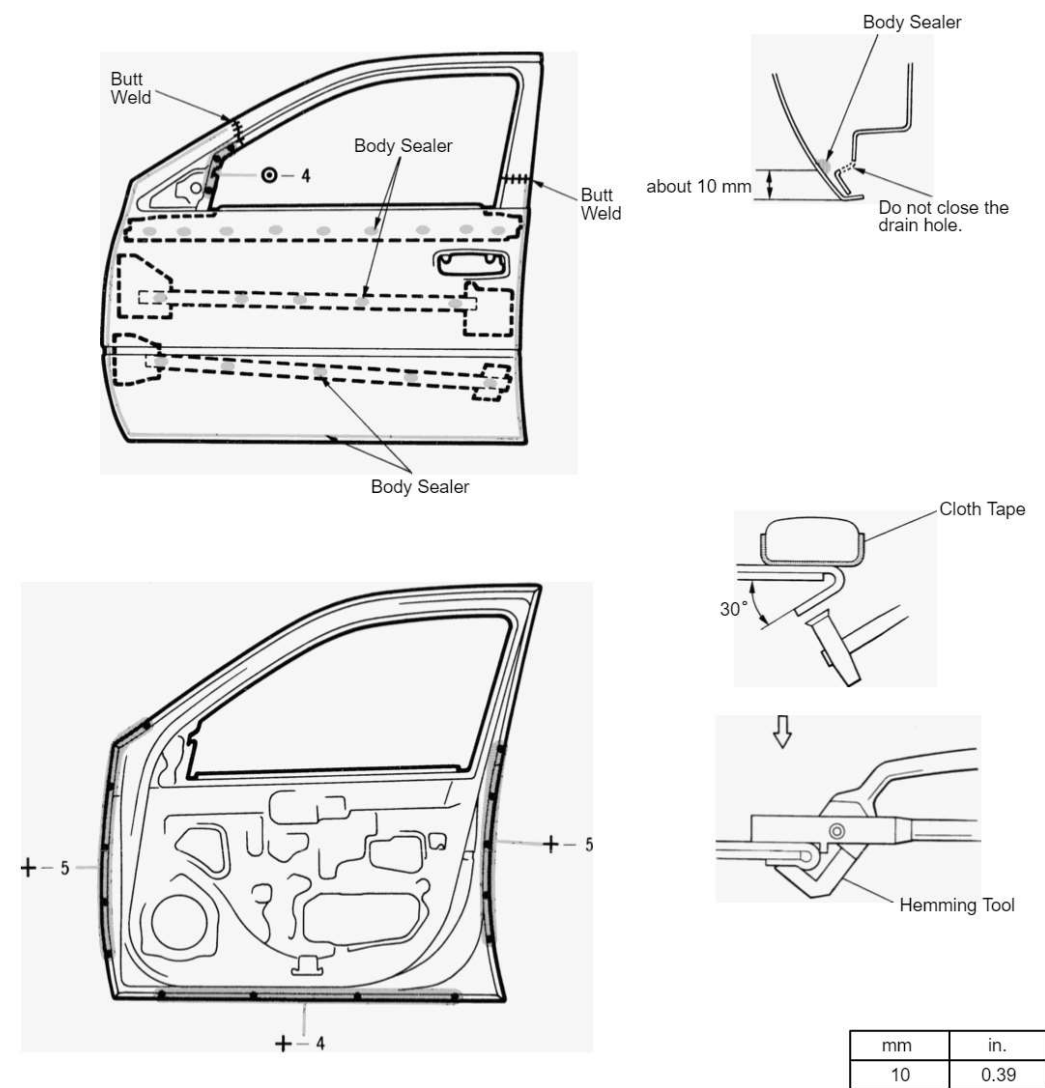
FRONT DOOR OUTER PANEL (CUT)

REMOVAL



1. Cut and join the parts at the location shown above.
2. After grinding off the hemming location, remove the outer panel.

INSTALLATION



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 just enough sealer for the reinforcement and side impact beam to touch the new panel. Apply sealer evenly around the flange area, about 10 mm (0.39 in.) from the edge, as shown.

2) For other sealing points, refer to section AR.
2. Bend the flange hem about 30° with a hammer and dolly, then fasten tightly with a hemming tool.

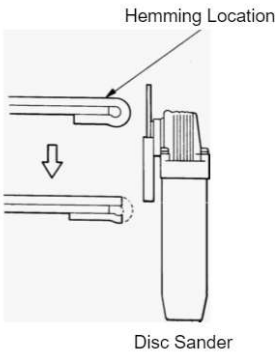
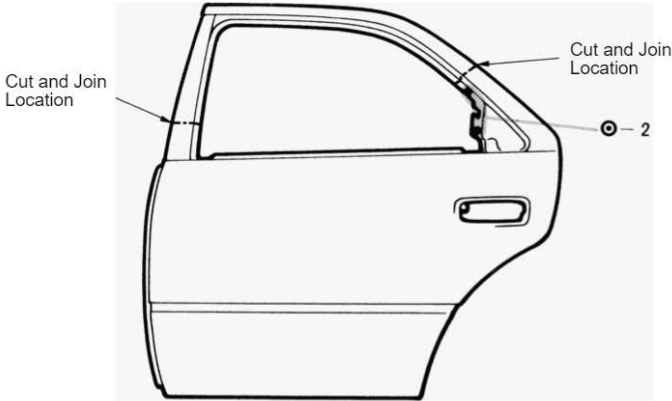
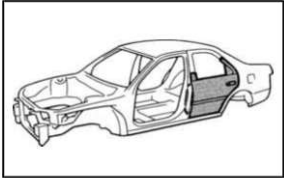
HINT:

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.

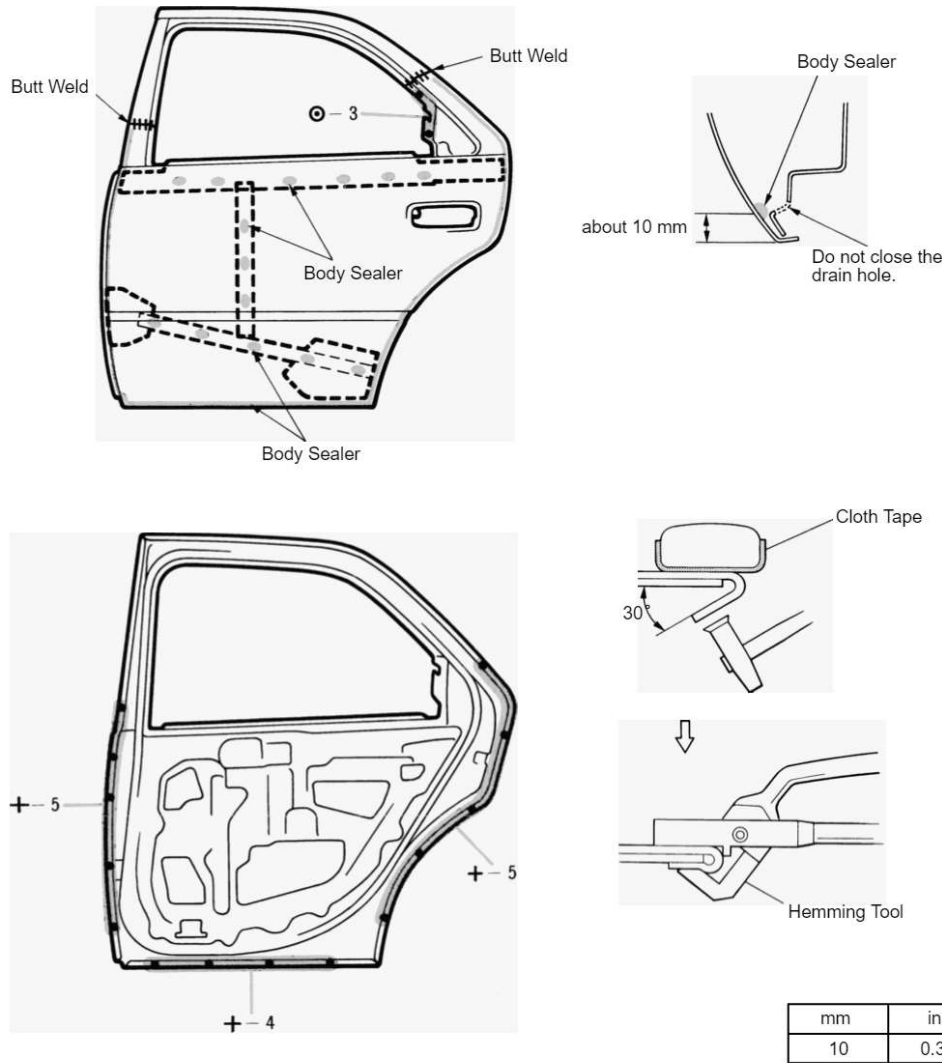
REAR DOOR OUTER PANEL (CUT)

REMOVAL



1. Cut and join the parts at the location shown above.
2. After grinding off the hemming location, remove the outer panel.

INSTALLATION



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 just enough sealer for the reinforcement and side impact beam to touch the new panel. Apply sealer evenly around the flange area, about 10 mm (0.39 in.) from the edge, as shown.

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

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

1) Perform hemming in three steps, being careful not to warp the panel.

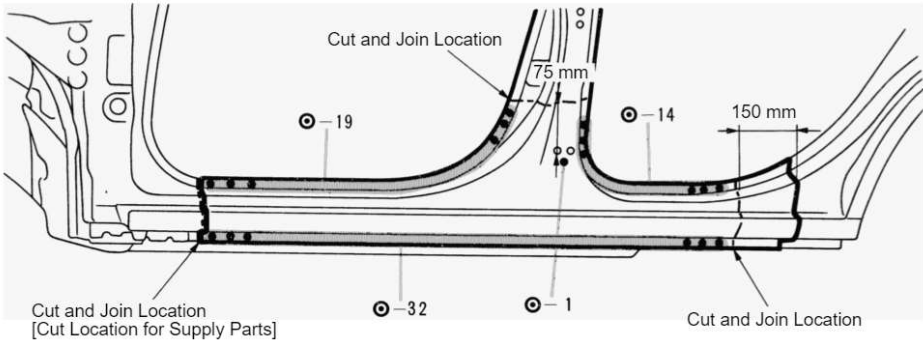
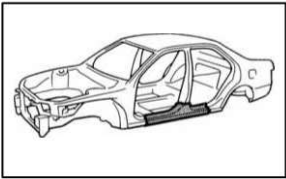
2) If a hemming tool cannot be used, hem with a hammer and dolly.

RE-36

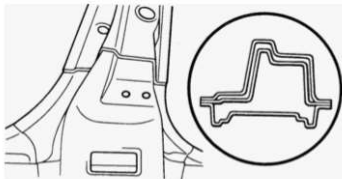
BODY PANEL REPLACEMENT

ROCKER OUTER PANEL (CUT)

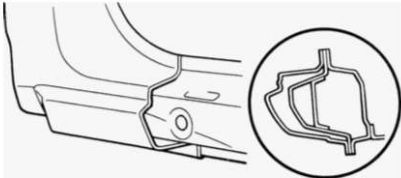
REMOVAL



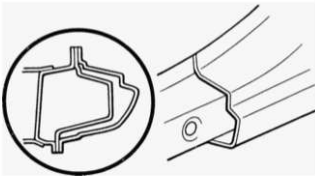
[Cut and Join Location]



[Cut and Join Location]



[Cut and Join Location]



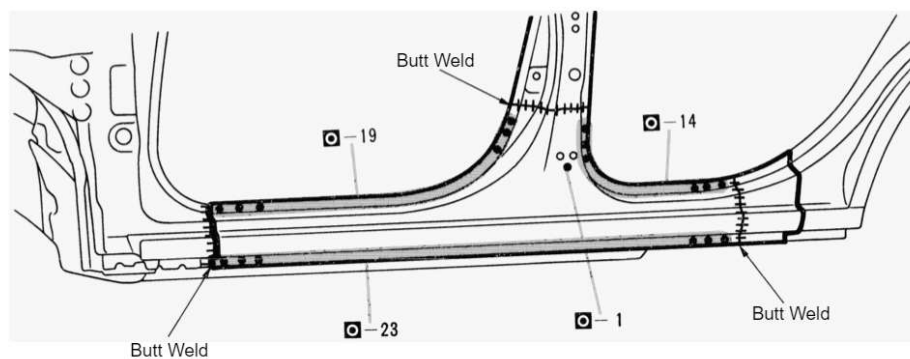
1. Cut and join the new parts at the location shown above.

HINT: Take care not to damage the internal reinforcement of the center body pillar and rocker panel.

mm	in.
75	2.95
150	5.91

BODY PANEL REPLACEMENT

RE-37

INSTALLATION

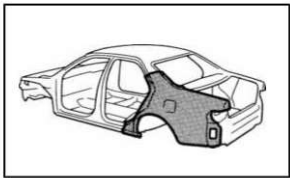
1. Temporarily install the new parts and check the fit of the front door and rear door.

RE-38

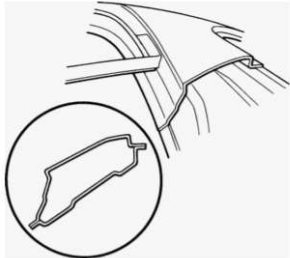
BODY PANEL REPLACEMENT

QUARTER PANEL (CUT)

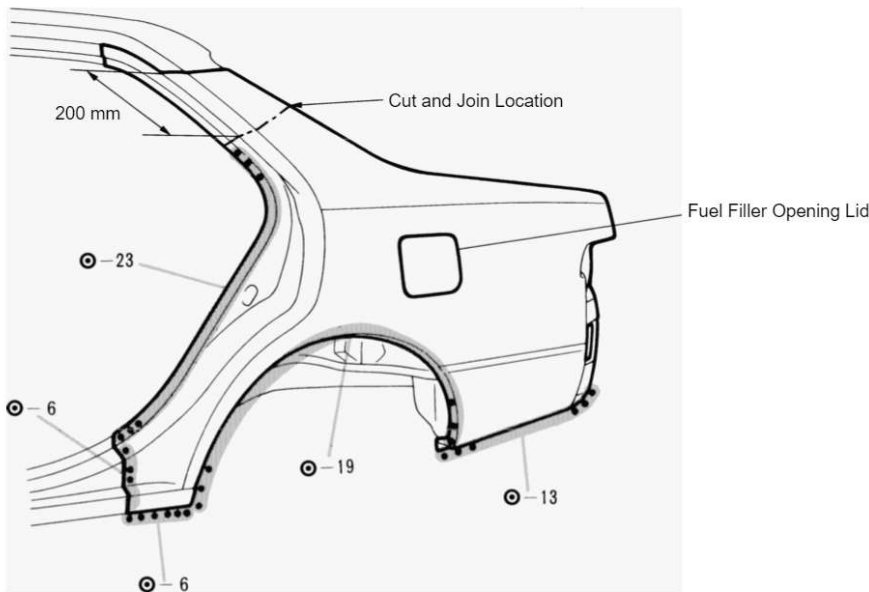
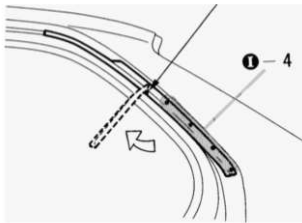
REMOVAL



[Cut and Join Location]



Make Incision

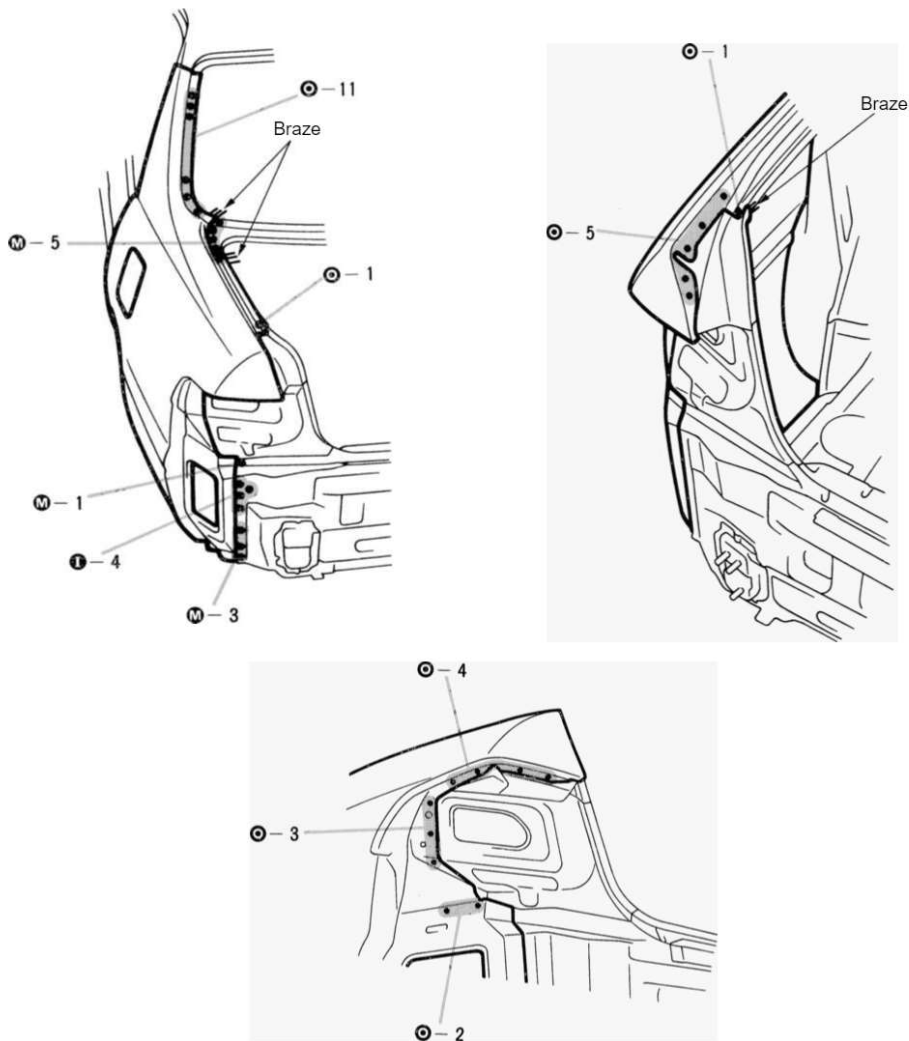


1.

Cut and join the parts at the location shown above.
2.

Replace the fuel filler opening lid at the same time as the quarter panel.
- HINT:

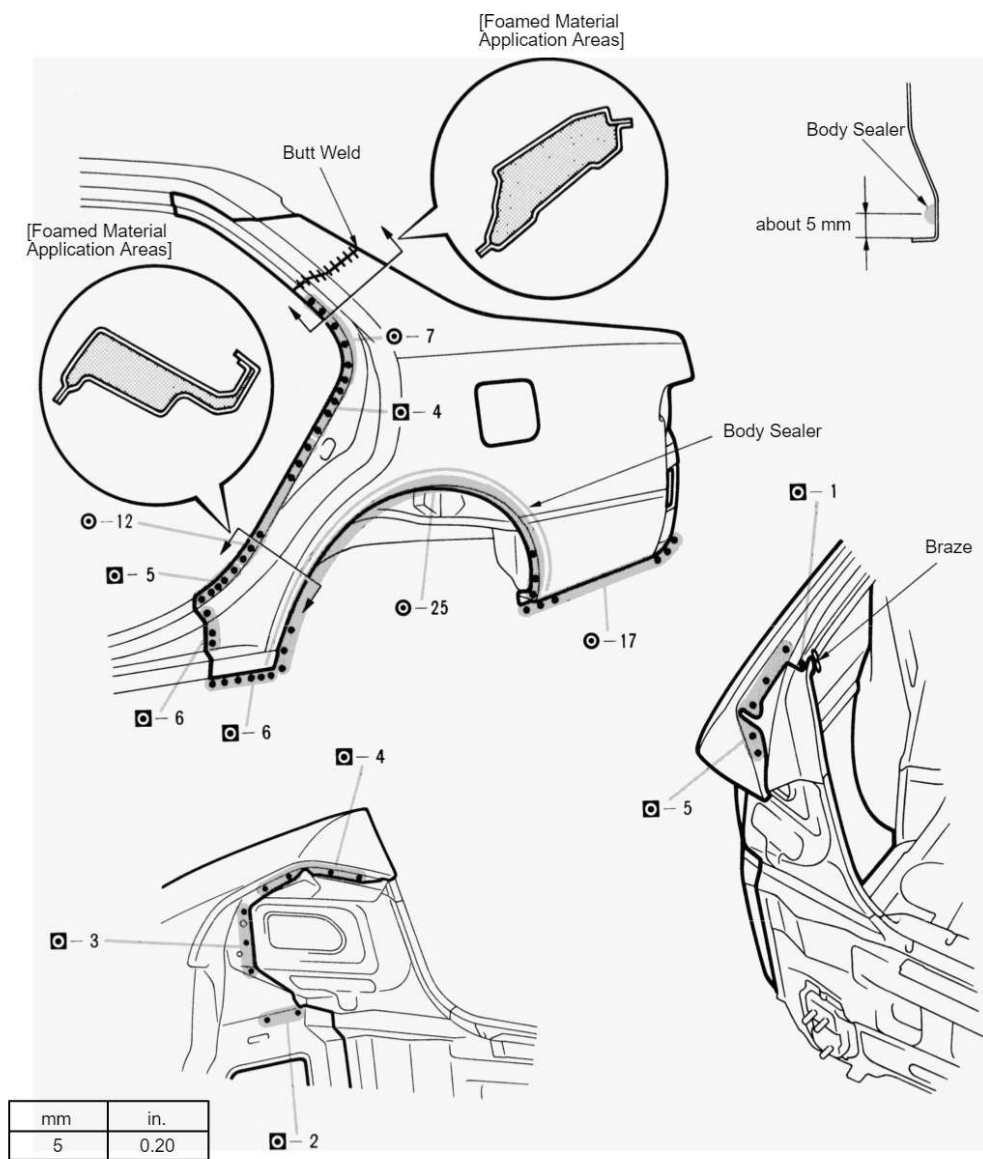
Bend the roof drip channel at the upper part of the cut and join location.



RE-40

BODY PANEL REPLACEMENT

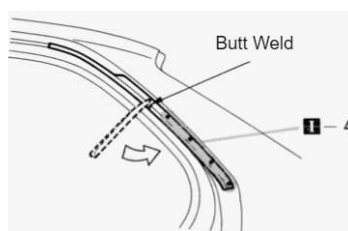
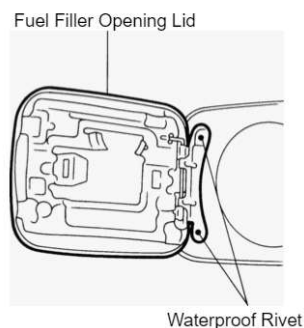
INSTALLATION



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 rear door, luggage compartment door and rear combination light.

RE-41



4. Apply foamed material to the pillar section.

1) *Use waterproof rivets.*

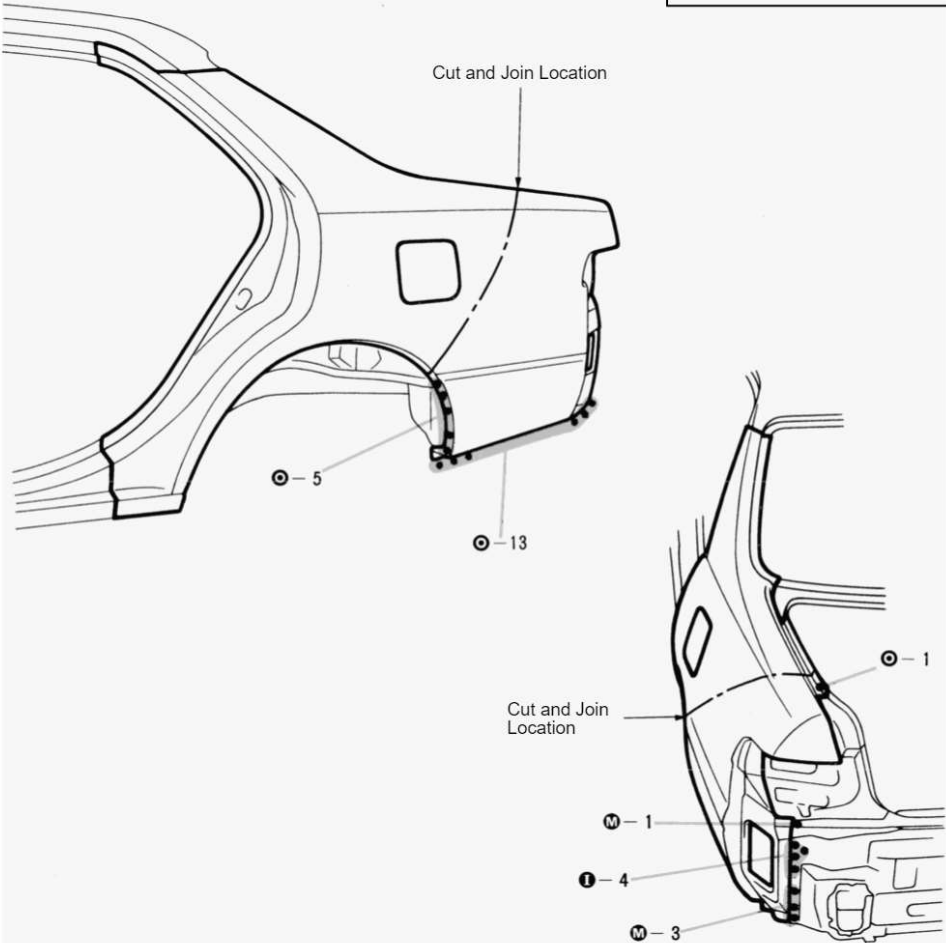
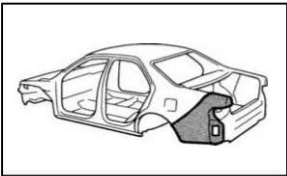
- 2) Refer to the introduction when installation rivets.

RE-42

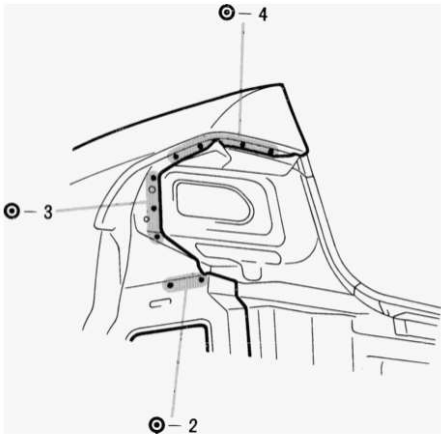
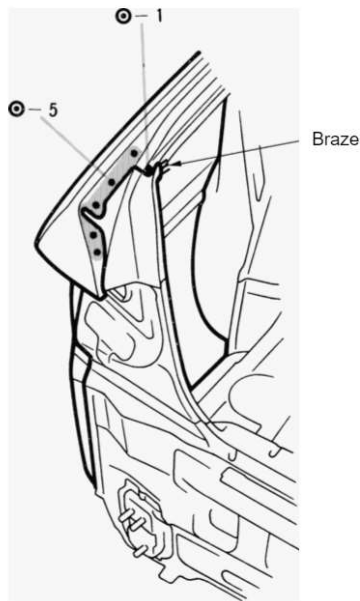
BODY PANEL REPLACEMENT

QUARTER PANEL (CUT-P)

REMOVAL



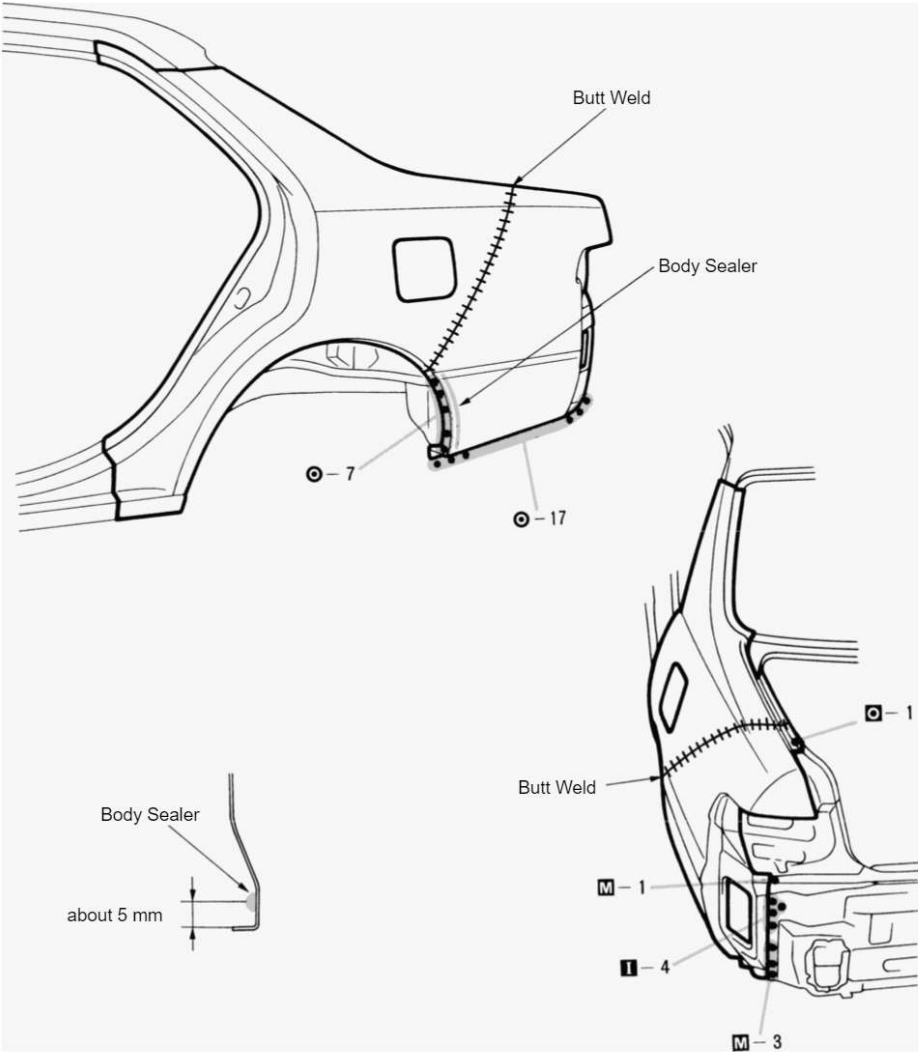
1. Cut and join the panels at the location shown above.



RE-44

BODY PANEL REPLACEMENT

INSTALLATION

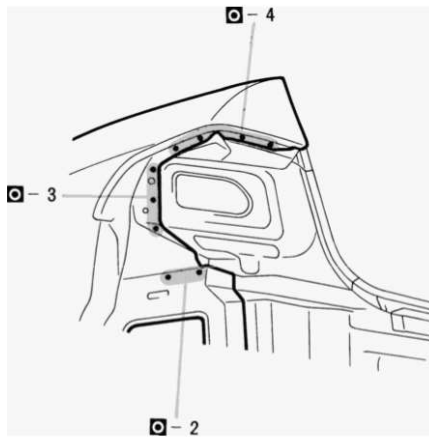
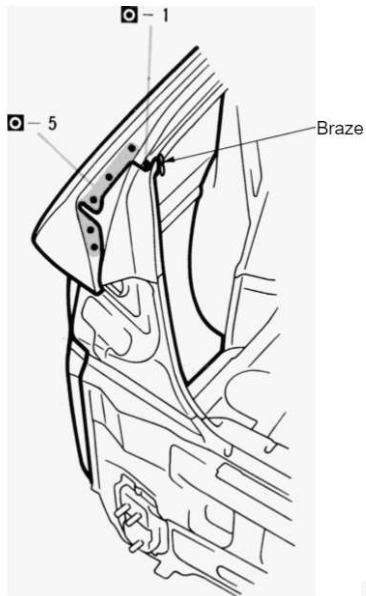


1. Before temporarily installing the new parts, apply body sealer to the wheel arch.
- HINT:
- 1) Apply body sealer about 5 mm (0.20 in.) from the flange, avoiding any oozing.
- 2) Apply sealer evenly, about 3 – 4 mm (0.12 – 0.16 in.) in diameter.
- 3) For other sealing points, refer to section AR.

mm	in.
5	0.20

BODY PANEL REPLACEMENT

RE-45



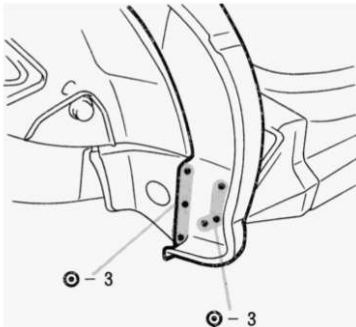
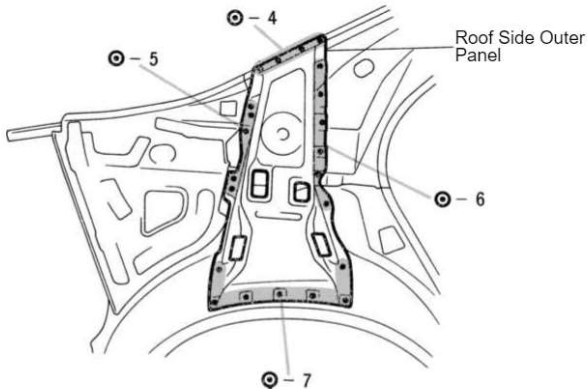
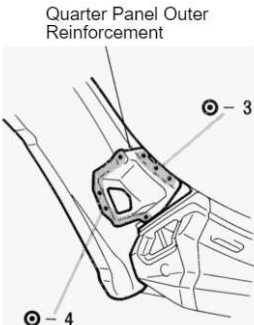
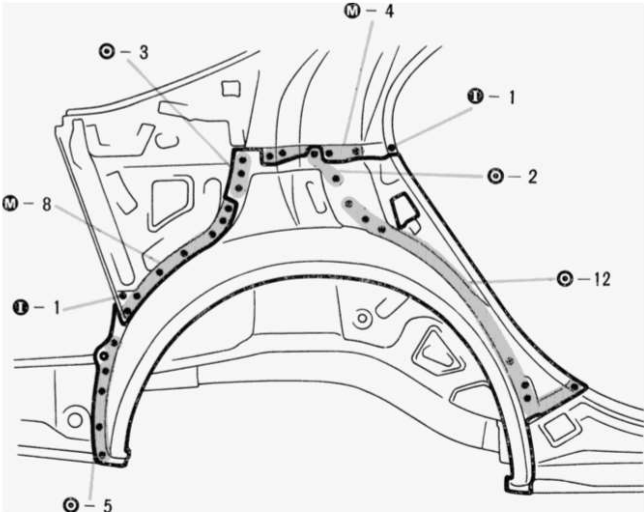
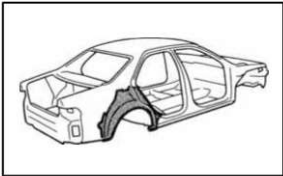
2. Temporarily install the new parts and check the fit of the luggage compartment door and rear combination light.

RE-46

BODY PANEL REPLACEMENT

QUARTER WHEEL HOUSING OUTER PANEL (ASSY): Right Side

REMOVAL (With the quarter panel removed.)

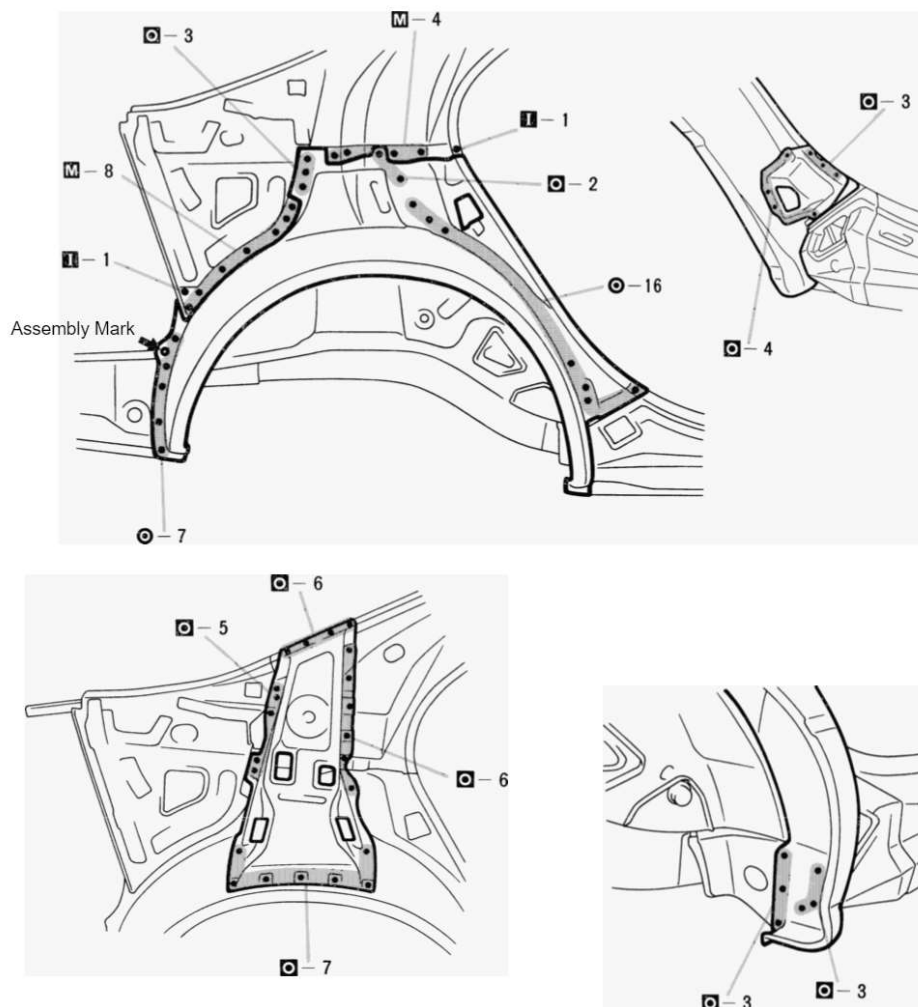


1. After removing the roof side outer panel and quarter panel outer reinforcement, remove the quarter wheel housing outer panel.

BODY PANEL REPLACEMENT

RE-47

INSTALLATION



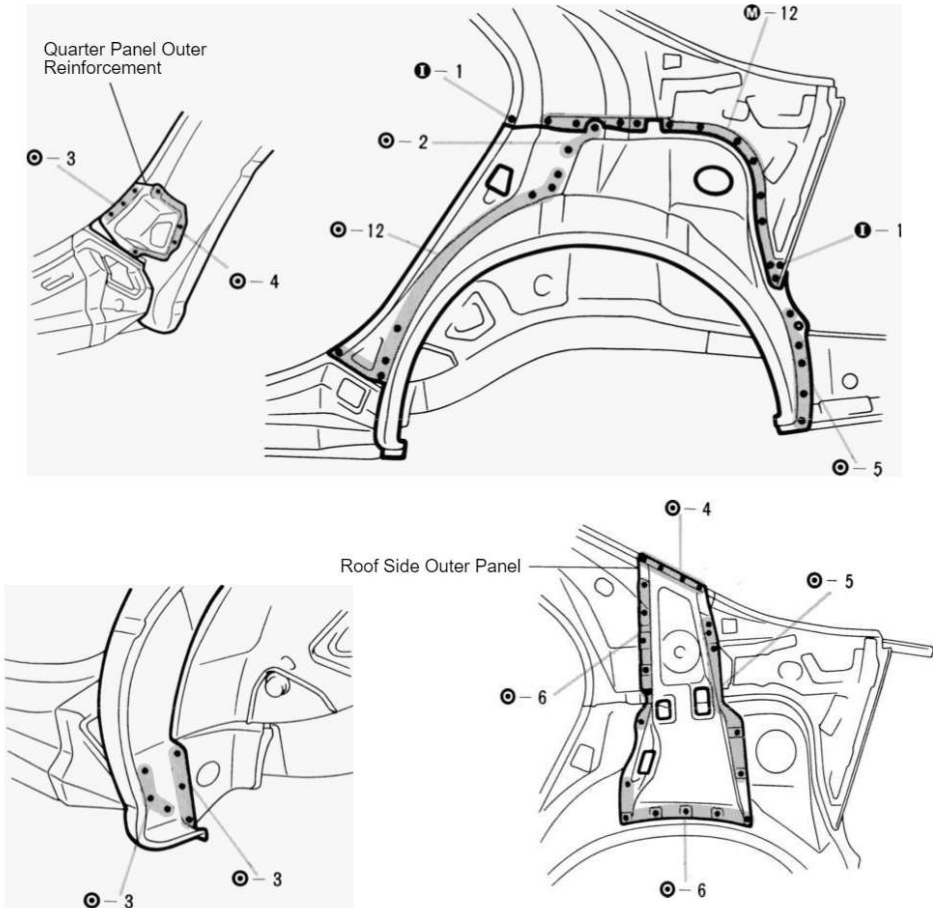
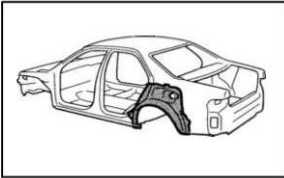
1. Determine the position of the new parts by the assembly marks of the inner and outer panels.
2. Before welding the new parts, temporarily install the quarter panel and check the fit.

RE-48

BODY PANEL REPLACEMENT

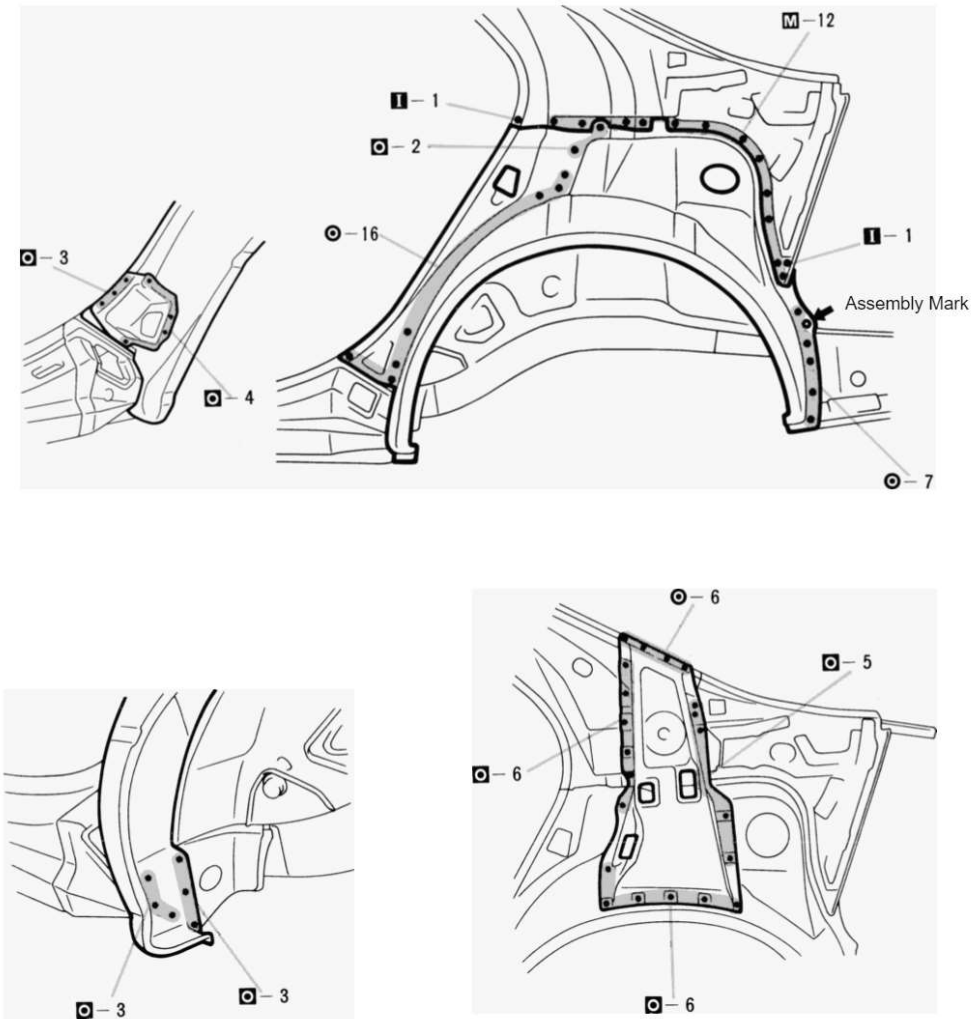
QUARTER WHEEL HOUSING OUTER PANEL (ASSY): Left Side

REMOVAL (With the quarter panel removed.)



1. After removing the roof side outer panel and quarter panel outer reinforcement, remove the quarter wheel housing outer panel.

INSTALLATION



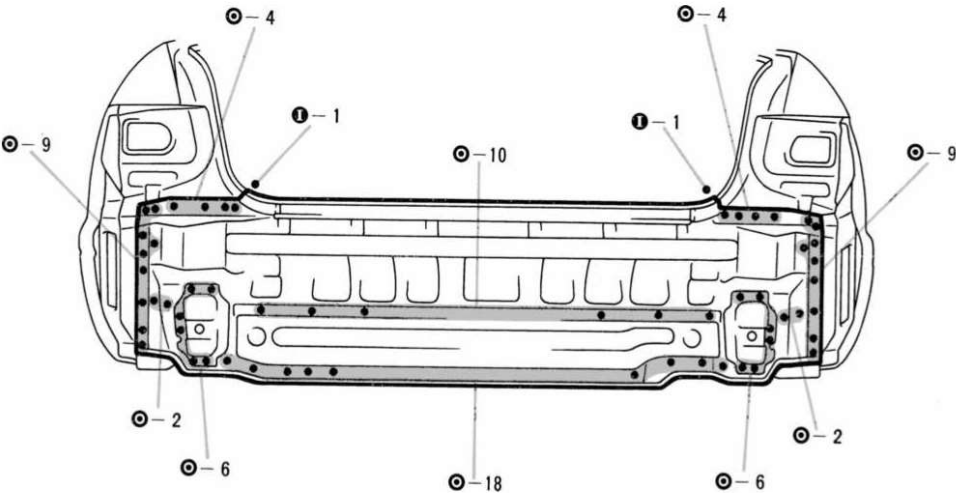
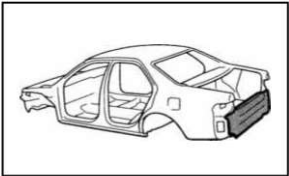
1. Determine the position of the new parts by the assembly marks of the inner and outer panels.
2. Before welding the new parts, temporarily install the quarter panel and check the fit.

RE-50

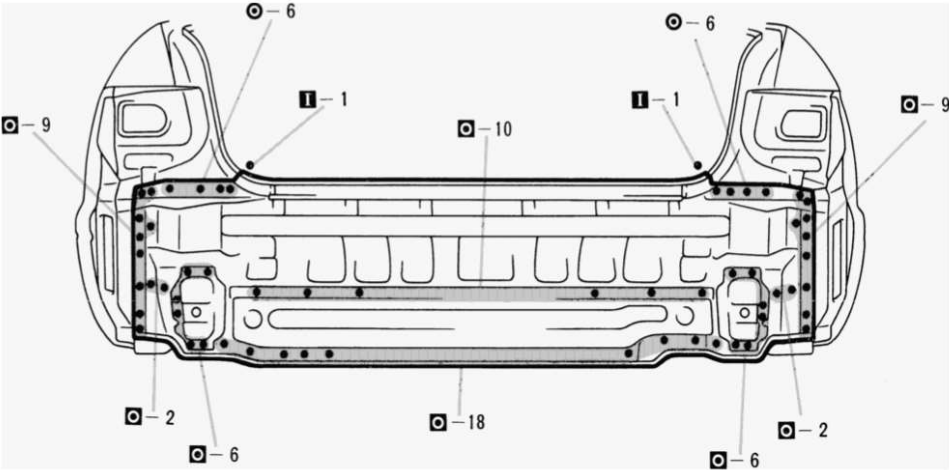
BODY PANEL REPLACEMENT

BODY LOWER BACK PANEL (ASSY)

REMOVAL



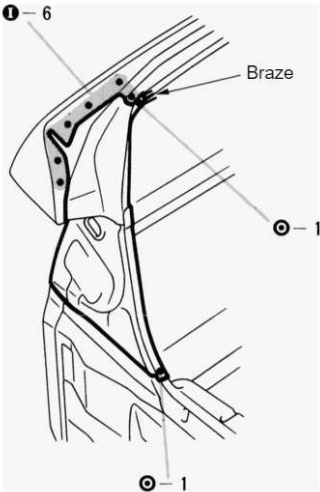
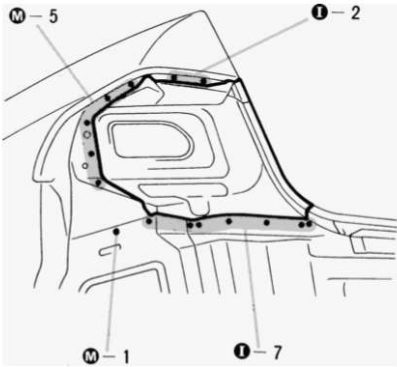
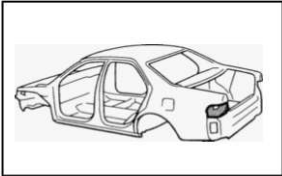
INSTALLATION



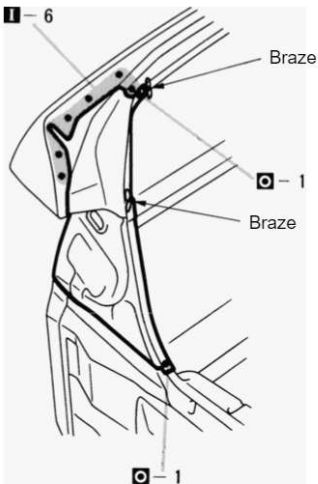
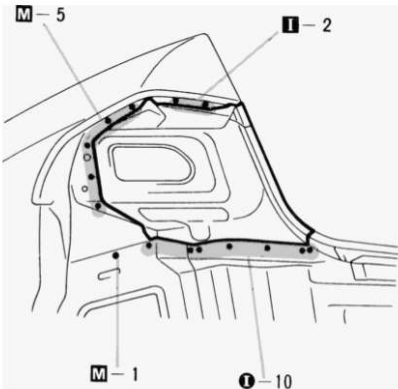
1. Temporarily installing the new parts, check the fit of the luggage compartment door and rear combination light.

LUGGAGE COMPARTMENT OPENING TROUGH (ASSY)

REMOVAL



INSTALLATION



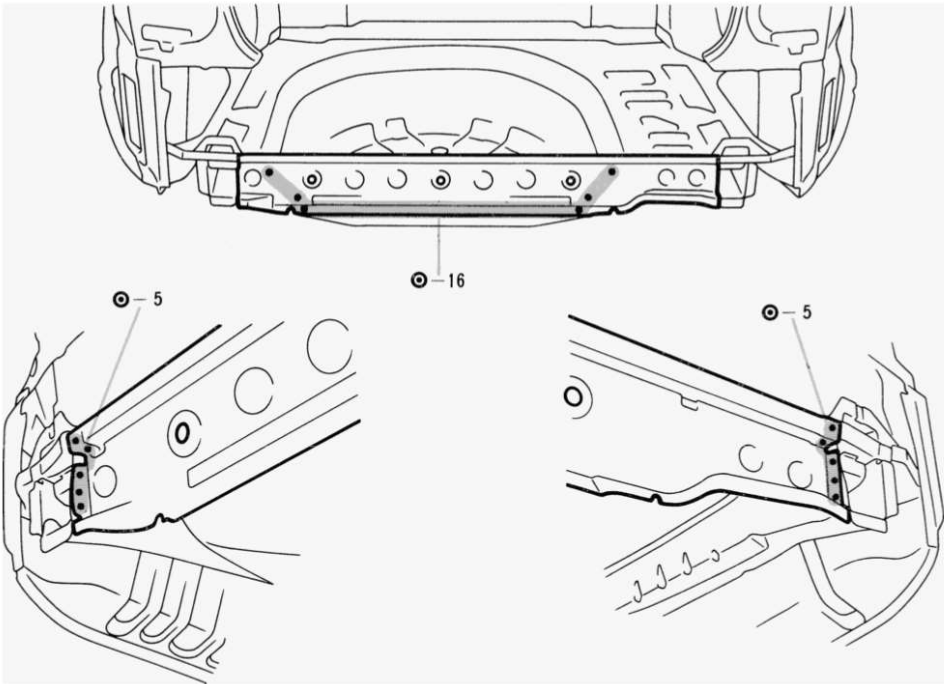
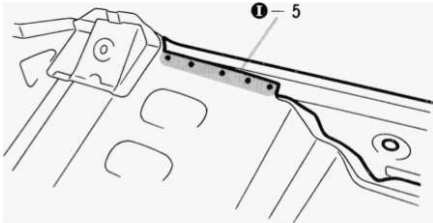
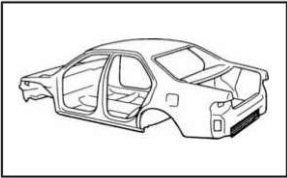
1. Temporarily install the new parts and check the fit of the luggage compartment door and rear combination light.

RE-54

BODY PANEL REPLACEMENT

REAR FLOOR NO. 3 CROSSMEMBER (ASSY)

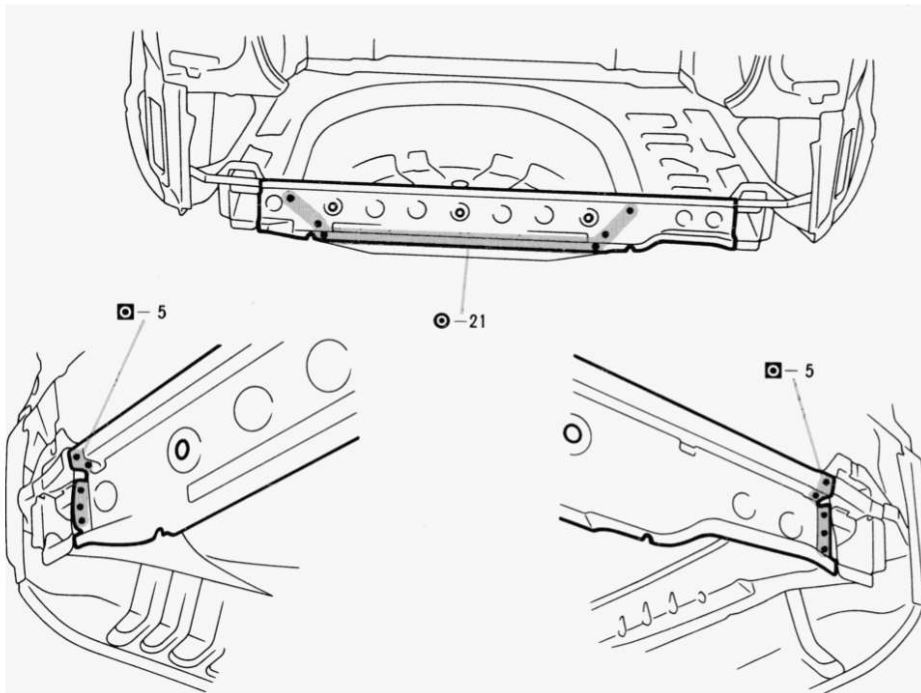
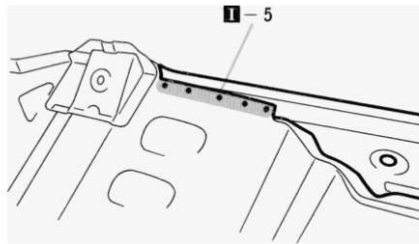
REMOVAL (With the body lower back panel removed.)



BODY PANEL REPLACEMENT

RE-55

INSTALLATION



1. Before welding the new parts, temporarily install the body lower back panel and check the fit.

RE-56

BODY PANEL REPLACEMENT

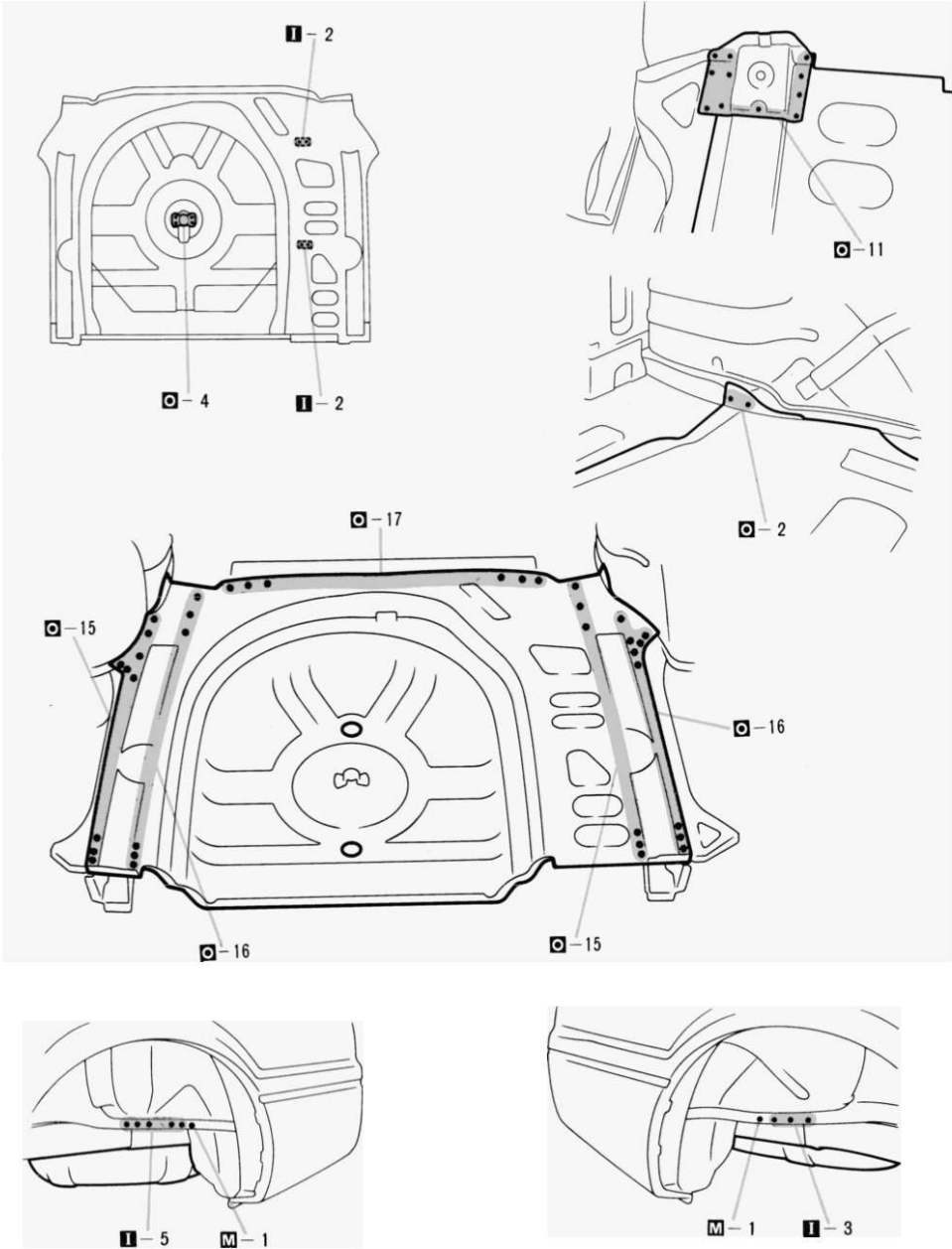
REAR FLOOR PAN (ASSY)

REMOVAL (With the rear floor No. 3 crossmember removed.)

The diagrams illustrate the removal of the rear floor pan assembly. The top right inset shows the car's chassis with the rear floor pan highlighted. The main diagrams show: 1) A side view of the rear floor pan reinforcement (callout 11) being removed from the chassis (callout 2). 2) A top-down view of the rear floor pan assembly with callouts 15, 16, and 17. 3) Two side views of the rear floor pan reinforcement (callout 1) being removed from the chassis (callout 5 and 3).

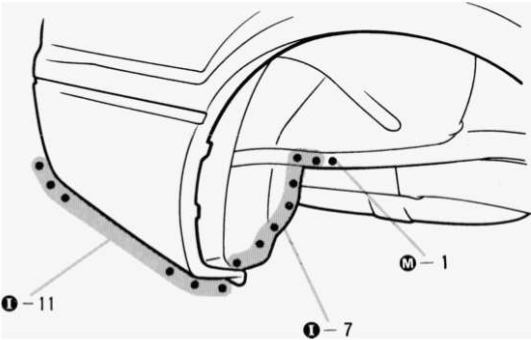
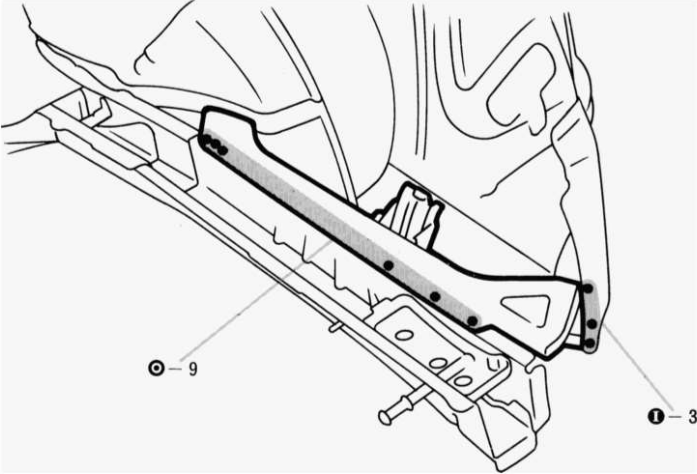
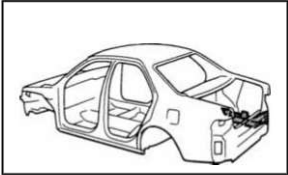
1.
- After removing the rear floor pan reinforcement, remove the rear floor pan.

INSTALLATION

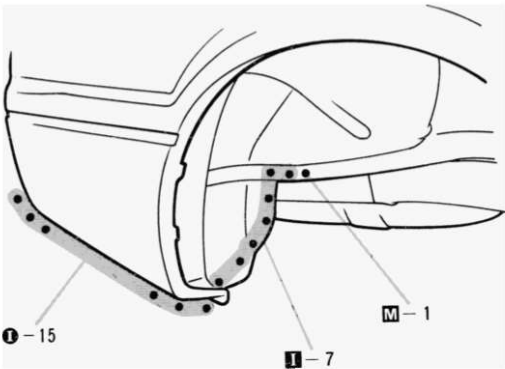
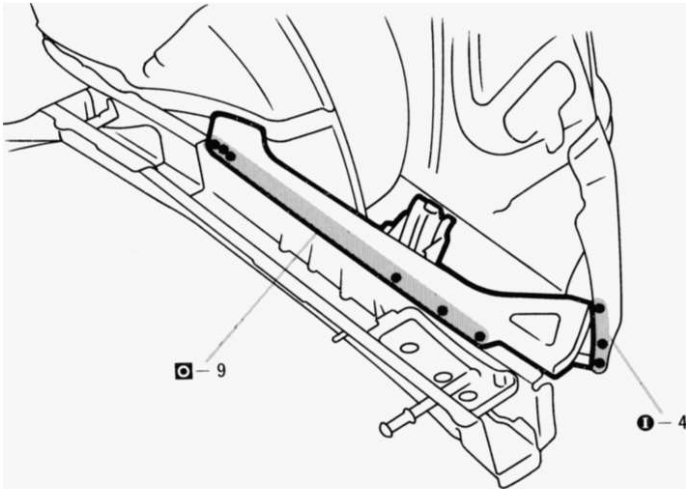


REAR FLOOR SIDE PANEL (ASSY): Right Side

REMOVAL (With the rear floor pan removed.)

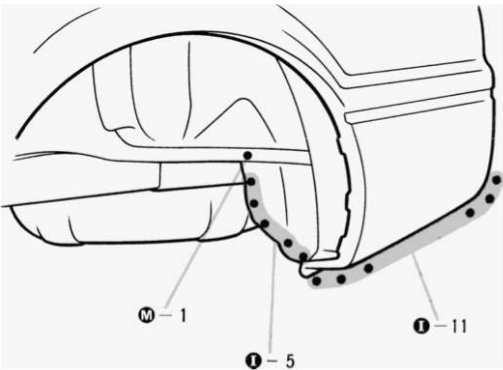
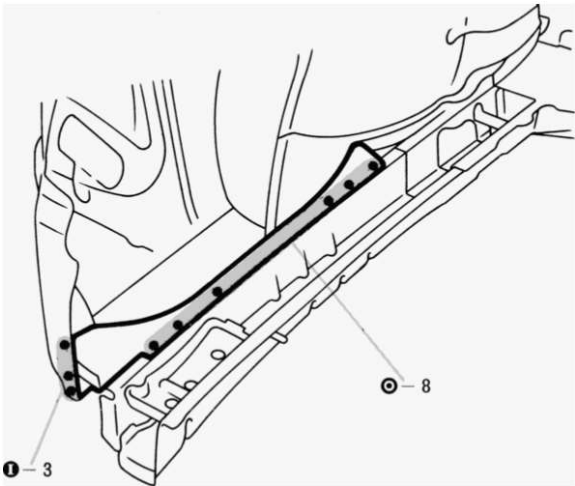
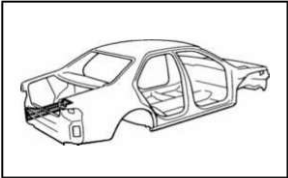


INSTALLATION

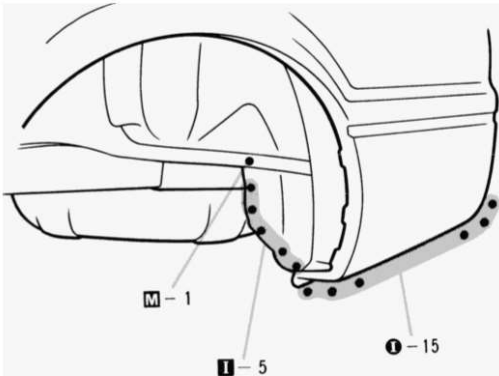
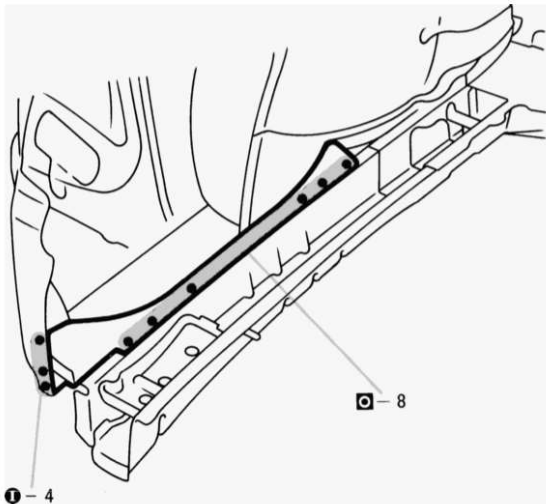


REAR FLOOR SIDE PANEL (ASSY): Left Side

REMOVAL (With the rear floor pan removed.)

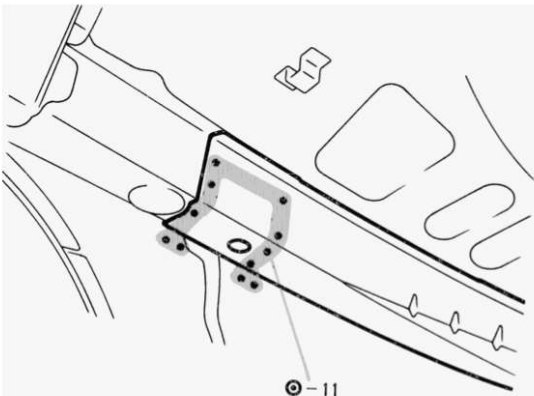
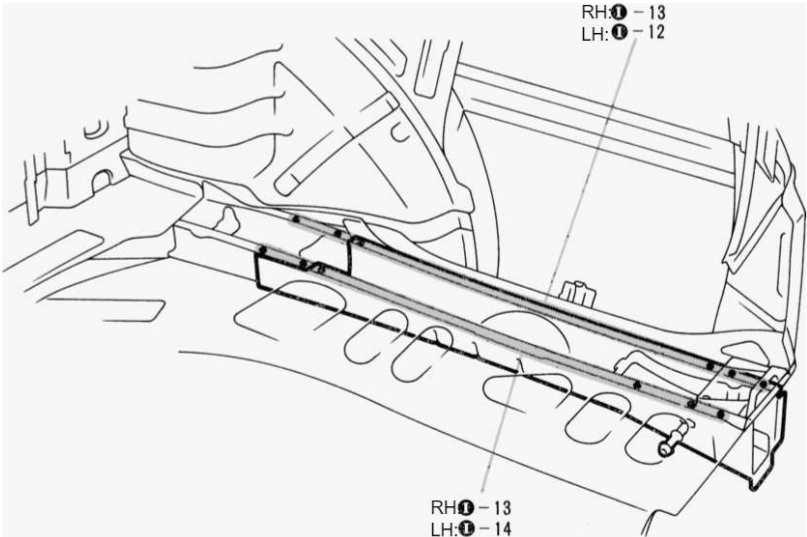
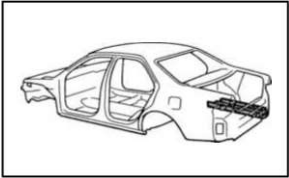


INSTALLATION



REAR FLOOR SIDE REAR MEMBER (ASSY)

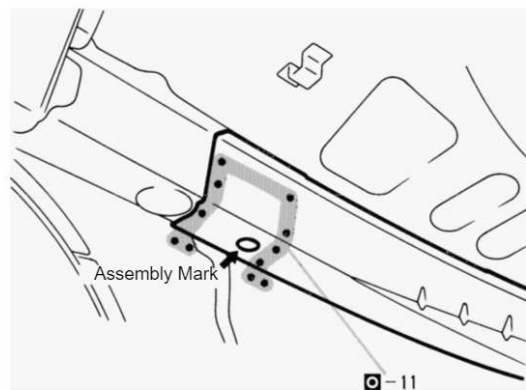
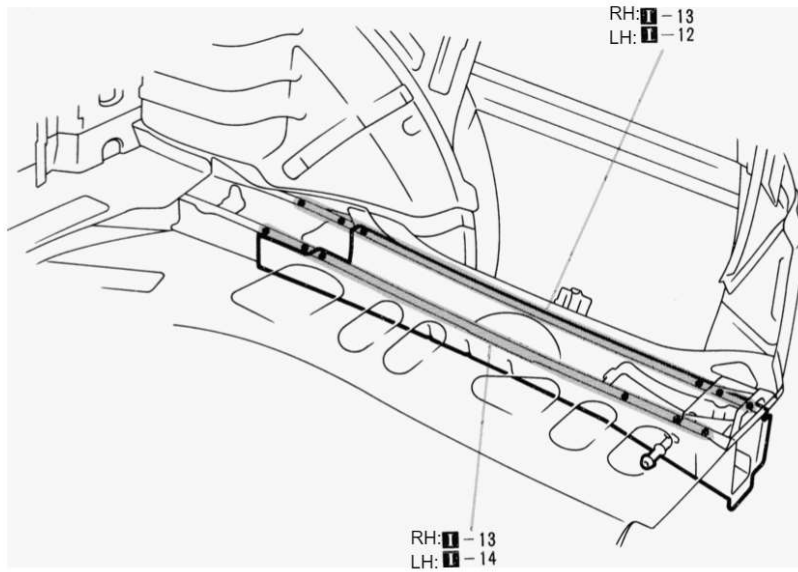
REMOVAL (With the rear floor No. 3 crossmember removed.)



BODY PANEL REPLACEMENT

RE-63

INSTALLATION



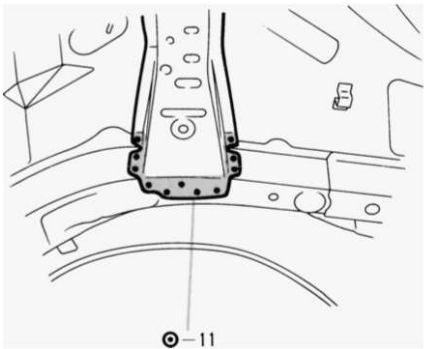
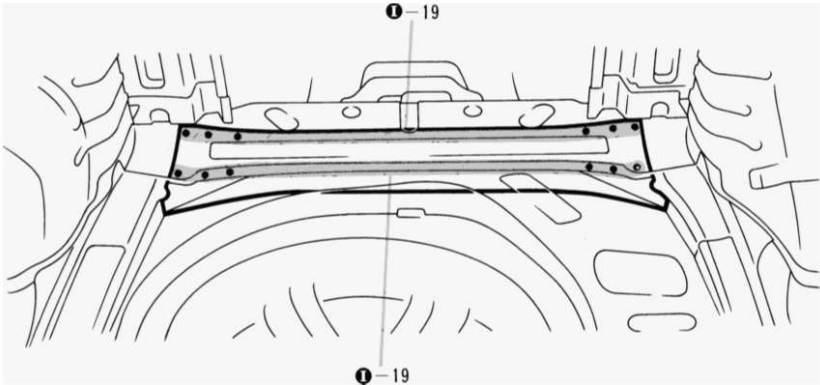
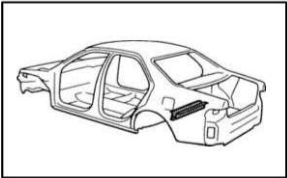
1. When temporarily installing the new parts, determine the installation position by the assembly mark. Then, measure each part in accordance with the body dimension diagram.

RE-64

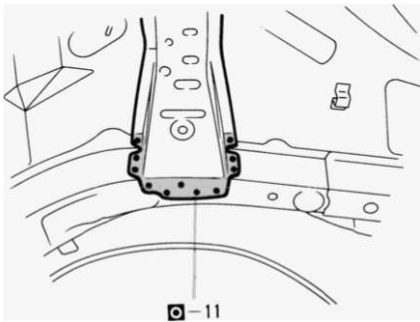
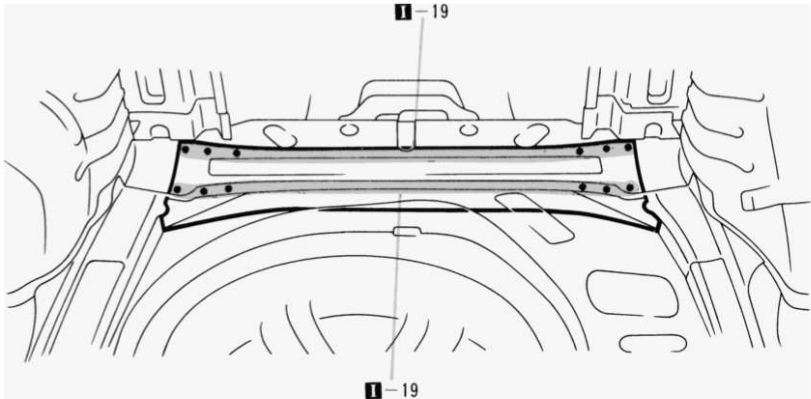
BODY PANEL REPLACEMENT

REAR FLOOR NO. 2 CROSSMEMBER (ASSY)

REMOVAL

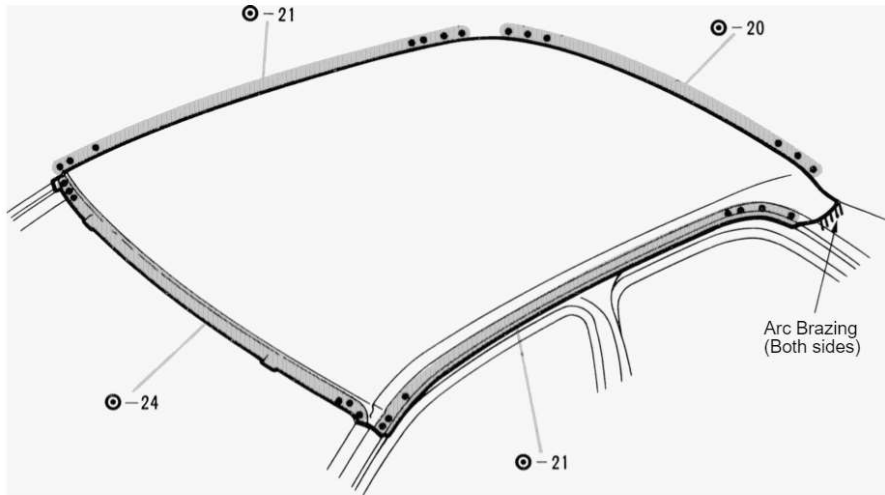
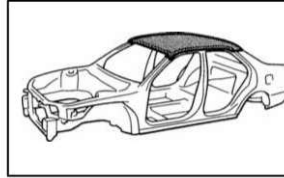


INSTALLATION



RE-66

BODY PANEL REPLACEMENT

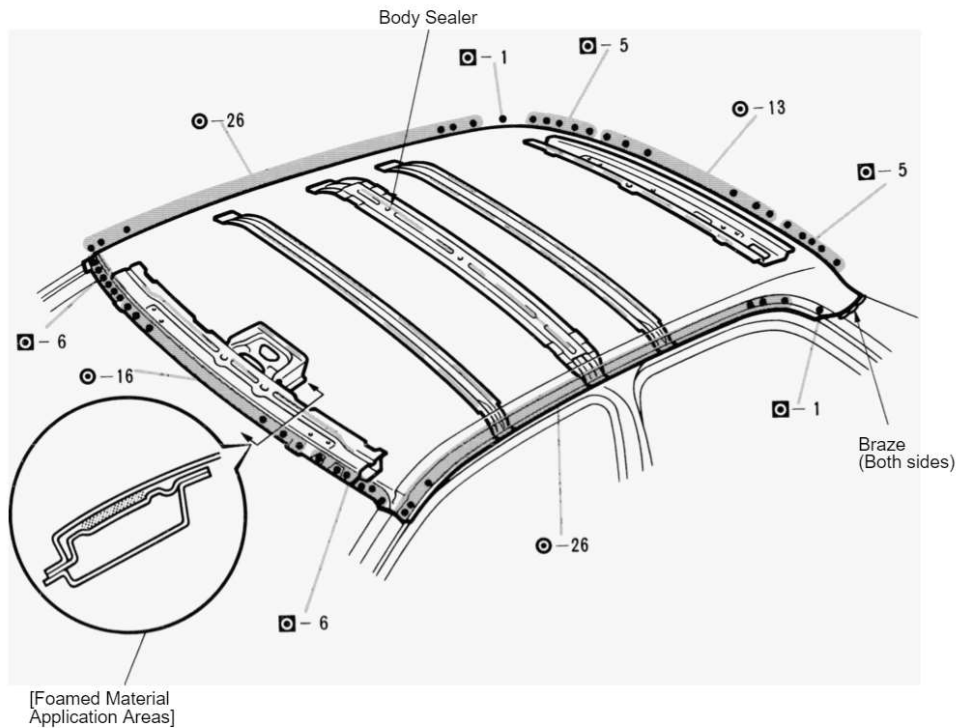
ROOF PANEL (ASSY): w/o Moon Roof**REMOVAL**

1. Grind off the roof panel tip at the quarter panel arc brazing connection with a cut grinder.

BODY PANEL REPLACEMENT

RE-67

INSTALLATION



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

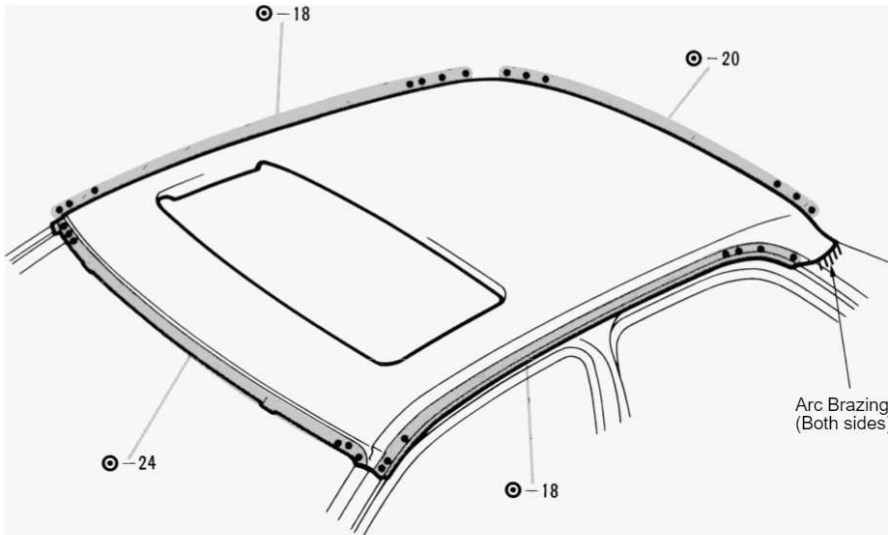
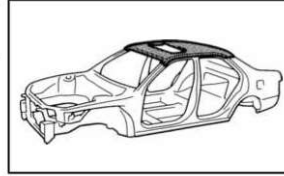
HINT: Apply just enough sealer for the new parts to make contact.

2. Braze the quarter panel connection.

HINT: Before performing these operations, place a wet rag on the roof panel to protect it from damage.

RE-68

BODY PANEL REPLACEMENT

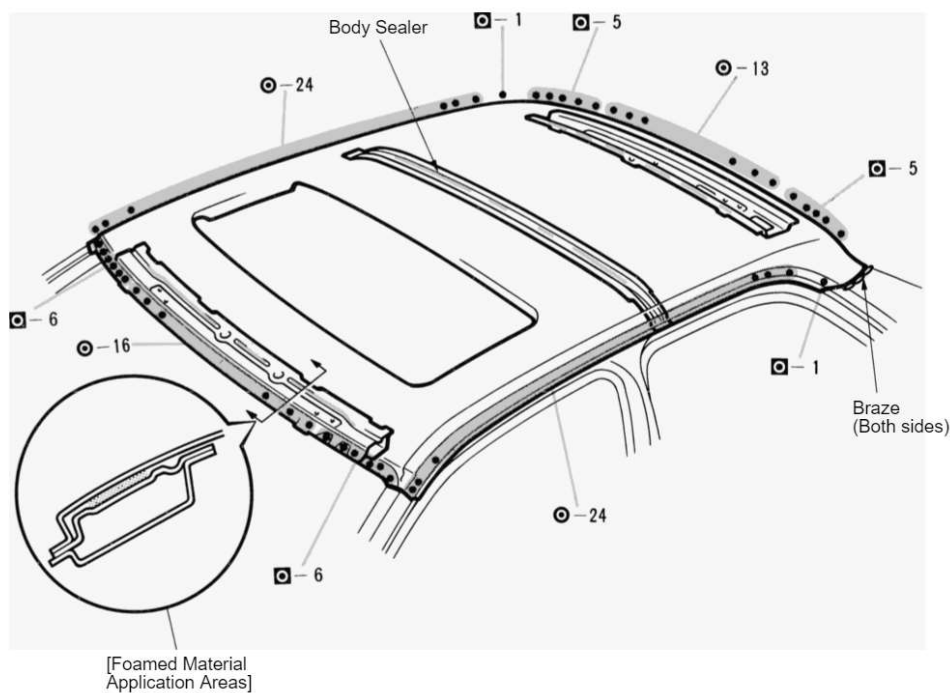
ROOF PANEL: w/ Moon Roof**REMOVAL**

1. Grind off the roof panel tip at the quarter panel arc brazing connection with a cut grinder.

BODY PANEL REPLACEMENT

RE-69

INSTALLATION



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

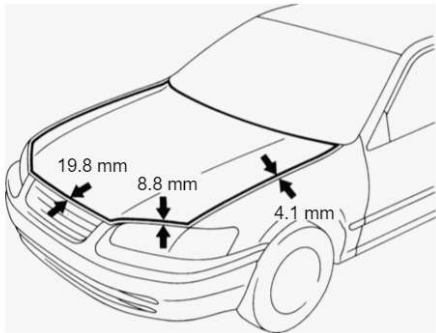
HINT: Apply just enough sealer for the new parts to make contact.

2. Braze the quarter panel connection.

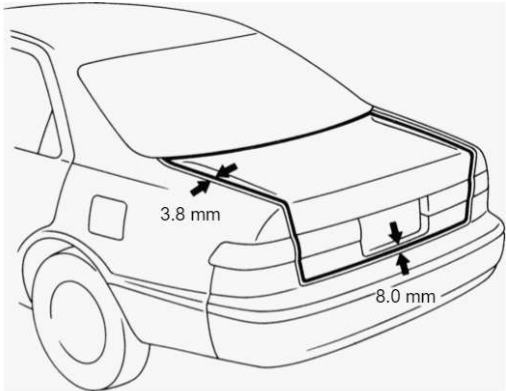
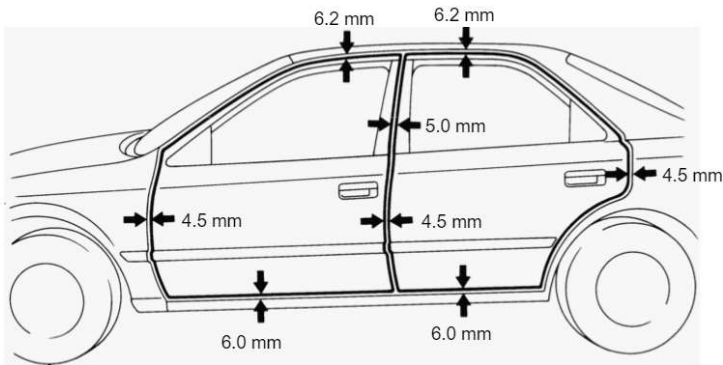
HINT: Before performing these operations, place a wet rag on the roof panel to protect it from damage.

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.
3.8	0.150
4.1	0.161
4.5	0.177
5.0	0.197
6.0	0.236
6.2	0.244
8.0	0.315
8.8	0.346
19.8	0.780



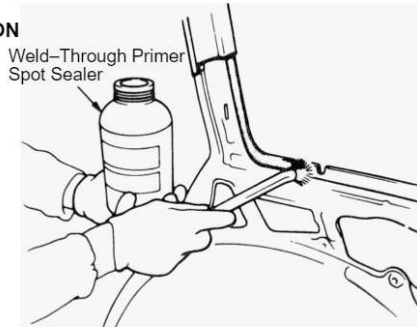
GENERAL INFORMATION

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.

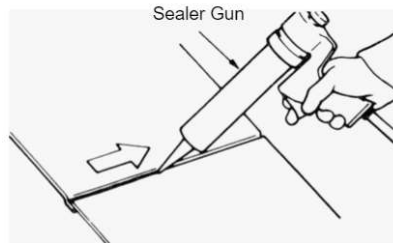


WELD-THROUGH PRIMER (SPOT SEALER) APPLICATION

ANTI-RUST TREATMENT BEFORE PAINTING PROCESS

1. BODY SEALER APPLICATION

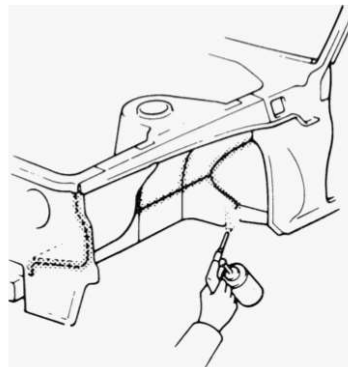
For water-proofing and anti-corrosion measures, always apply the body sealer to the body panel seams and hems of the doors, hoods etc.



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.

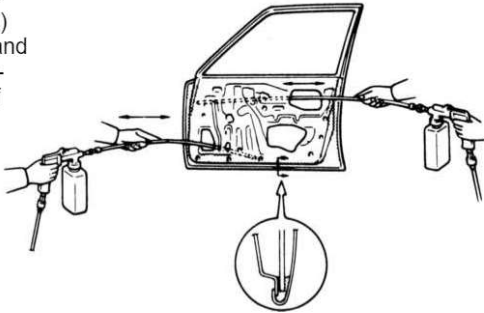


UNDERCOAT APPLICATION

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.

This diagram shows a cross-section of the paint layers. From bottom to top, the layers are: Steel Metal, Undercoat (ED Primer), Second Coat, Top Coat, and Anti-Chipping Paint. Arrows point from the text labels to the corresponding layers.

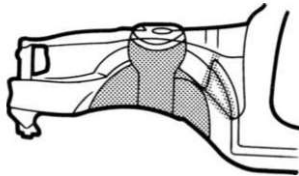
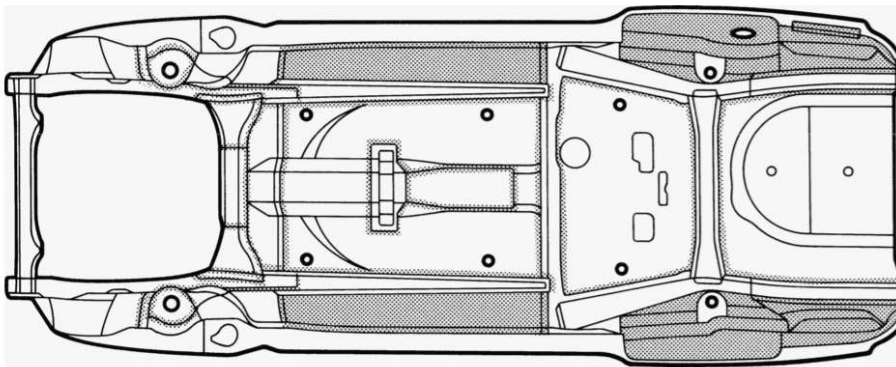
- Apply the anti-chipping paint before the second coat.

This diagram shows a cross-section of the paint layers. From bottom to top, the layers are: Steel Metal, Undercoat (ED Primer), Anti-Chipping Paint, Second Coat, and Top Coat. Arrows point from the text labels to the corresponding layers.

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.

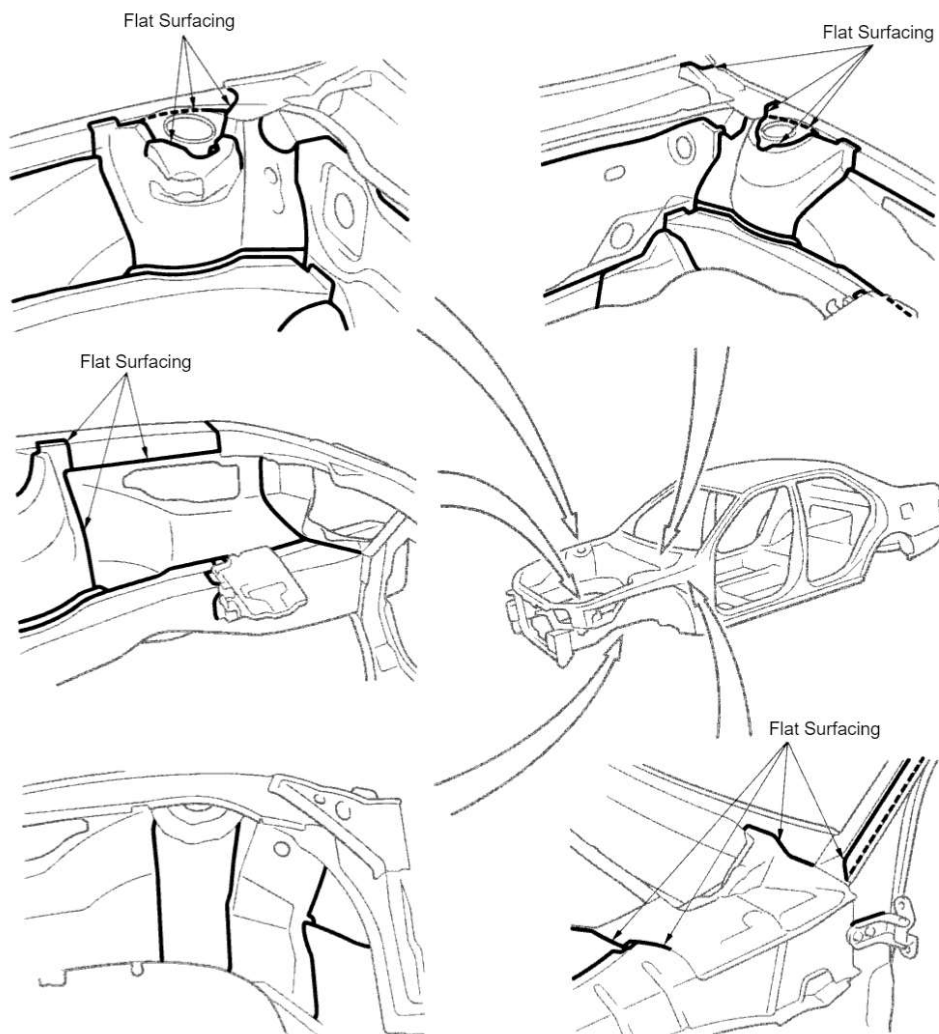


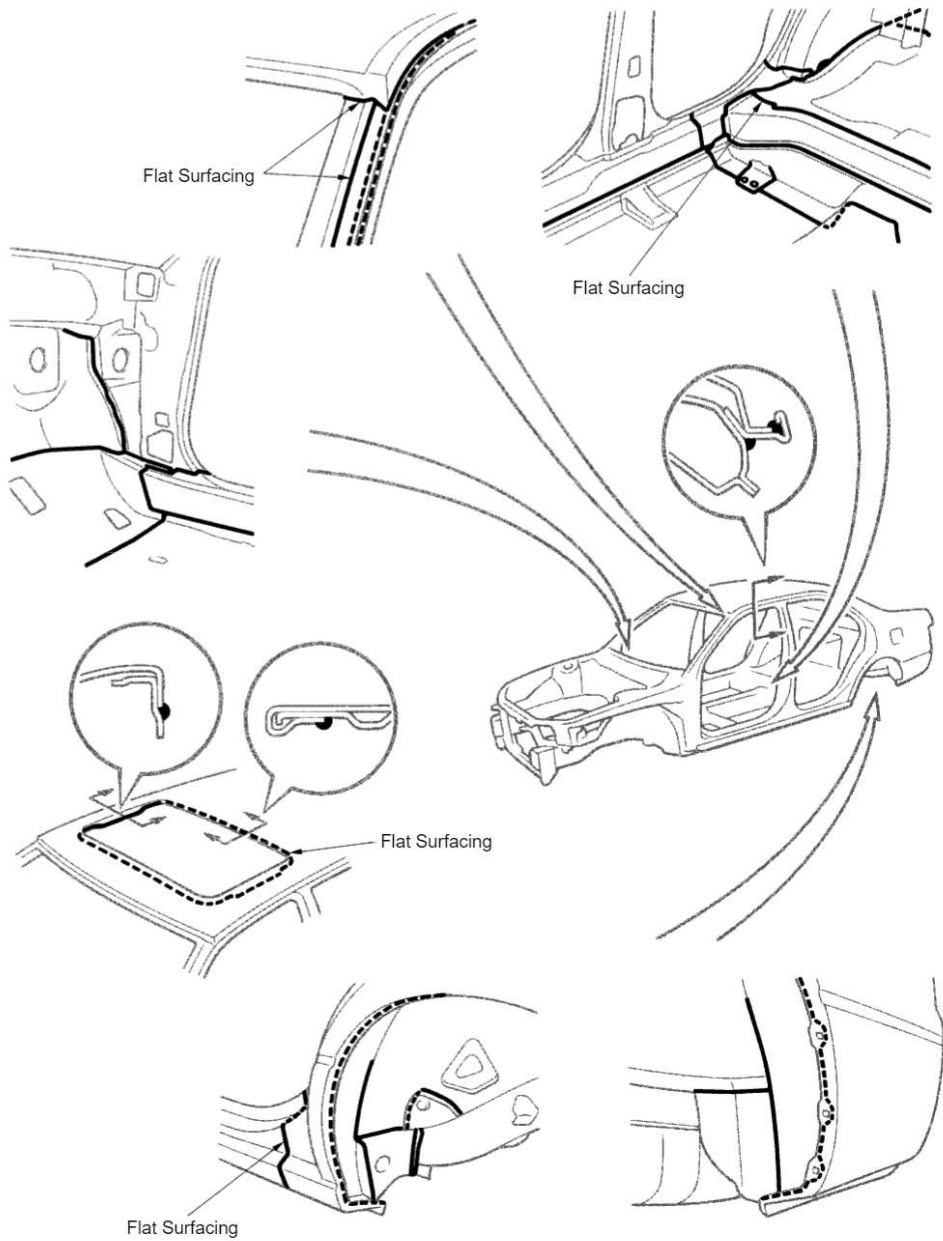
REFERENCE: Referring to the notes above, undercoating should be applied according to the specifications for your country.

BODY PANEL SEALING AREAS

HINT:

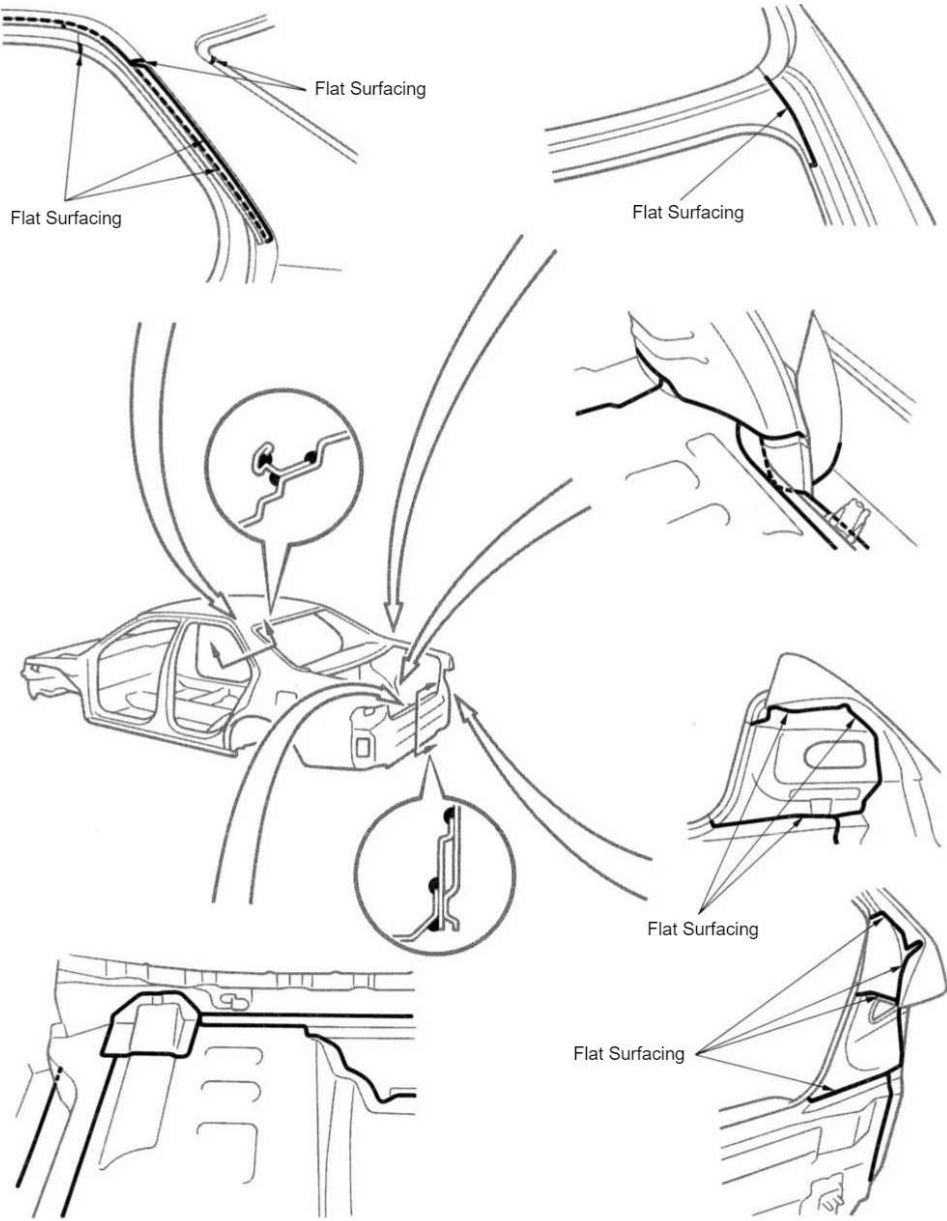
1. Prior to applying body sealer, clean the area with a rag soaked in a grease, wax and silicone remover.
2. If weld-through primer was used, first wipe off any excess and coat with anti-corrosion primer before applying body sealer.
3. Wipe off excess body sealer with a rag soaked in a grease, wax and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

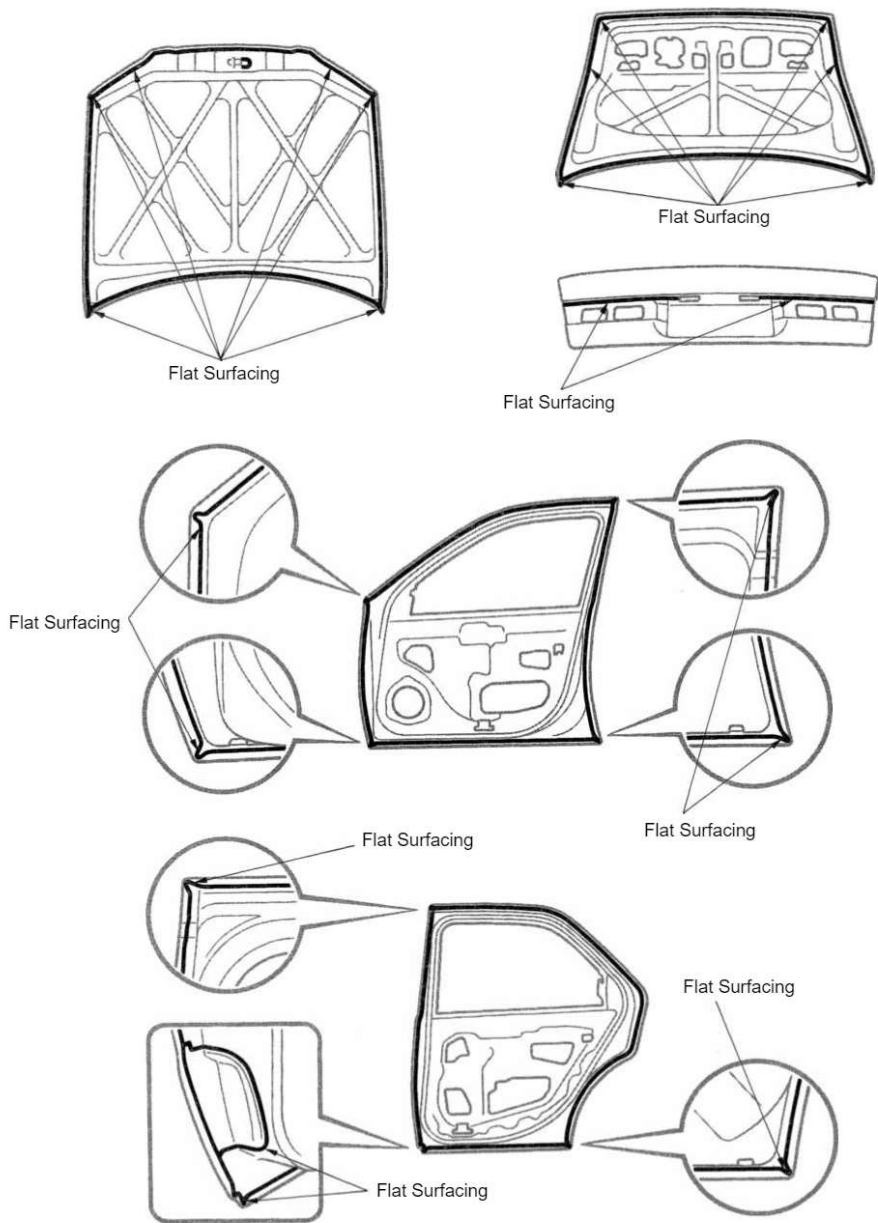




AR-6

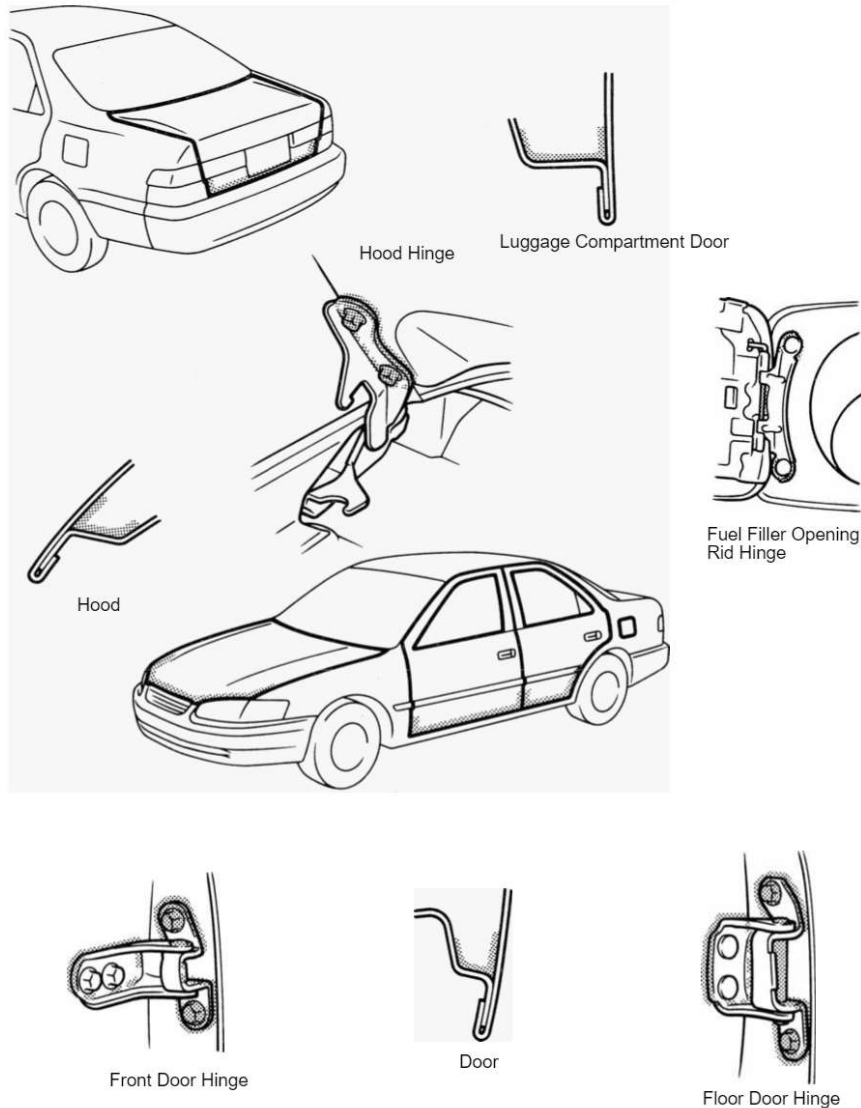
ANTI-RUST TREATMENT





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.



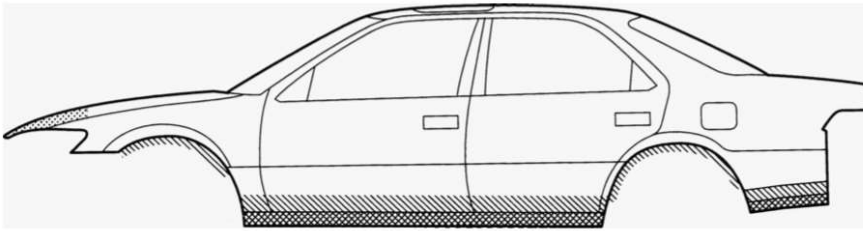
AR-10

ANTI-RUST TREATMENT

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 of the paint immediately with a rag soaked in a grease, wax and silicone remover.*

-  : Soft-Chip Primer
 : Anti-Chipping Paint
 : PVC Chipping Primer



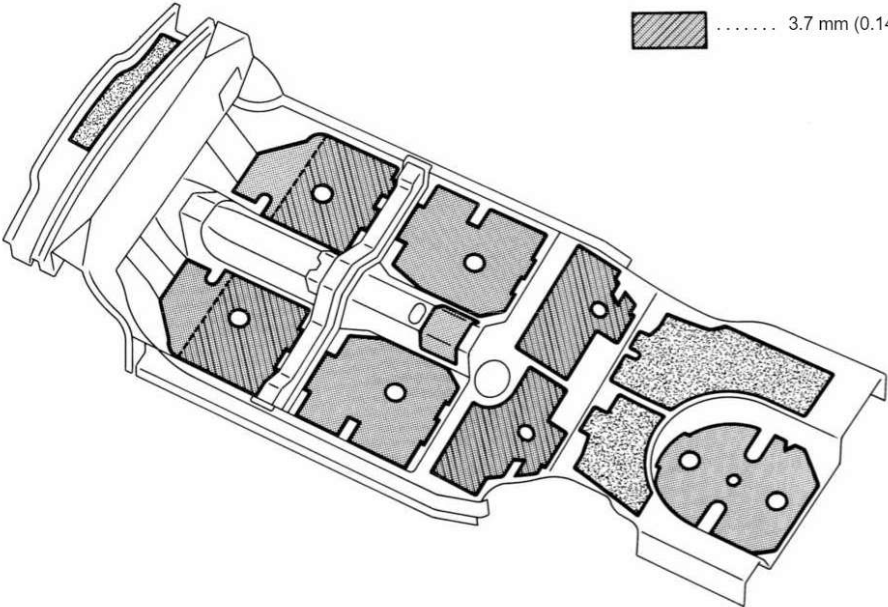
APPENDIX

AP-3

SILENCER SHEET INSTALLATION AREAS

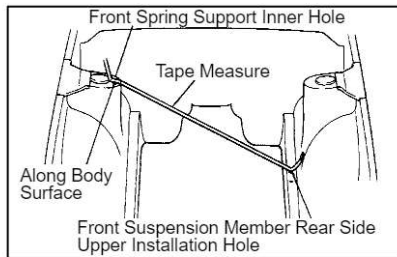
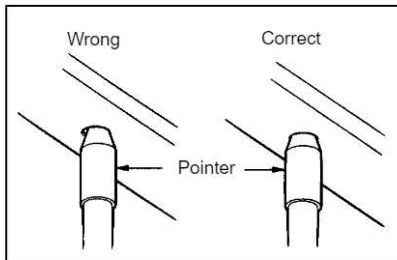
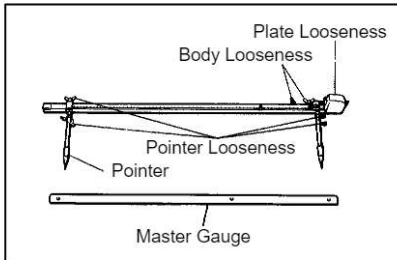
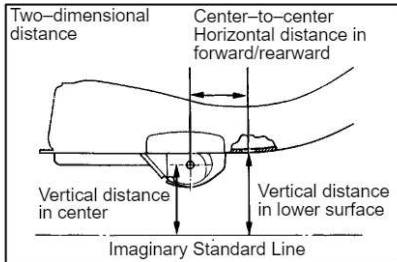
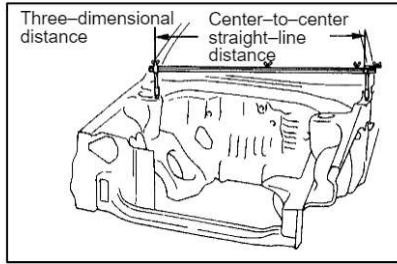
Thickness of Asphalt Sheet

- 1.5 mm (0.059 in.)
- 2.5 mm (0.098 in.)
- 3.7 mm (0.146 in.)



DI-2

BODY DIMENSIONS



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.

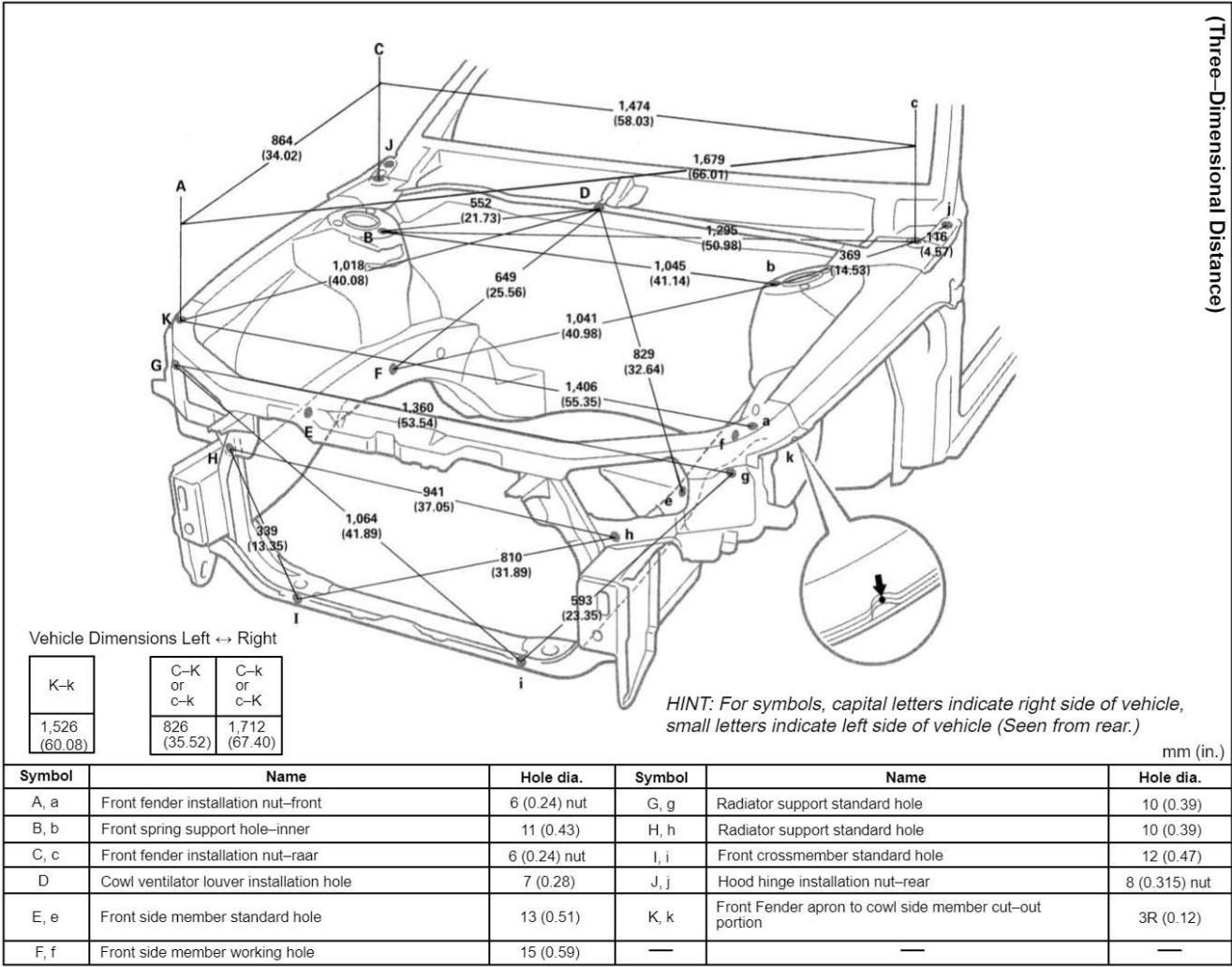
2. MEASURING

- (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:

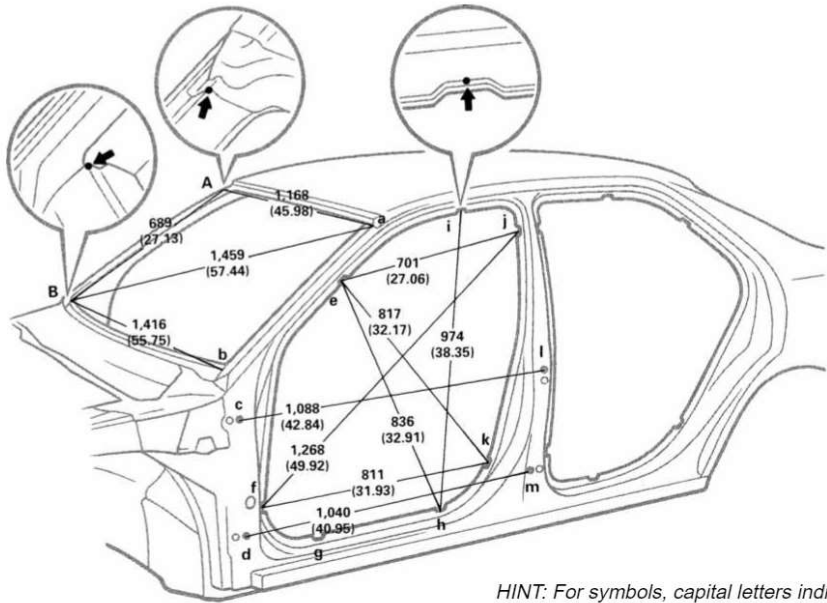
1. The height of the left and right pointers must be equal.
2. Always calibrate the tracking gauge before measuring or after adjusting the pointer height.
3. Take care not to drop the tracking gauge or otherwise shock it.
4. Confirm that the pointers are securely in the holes.

- (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)



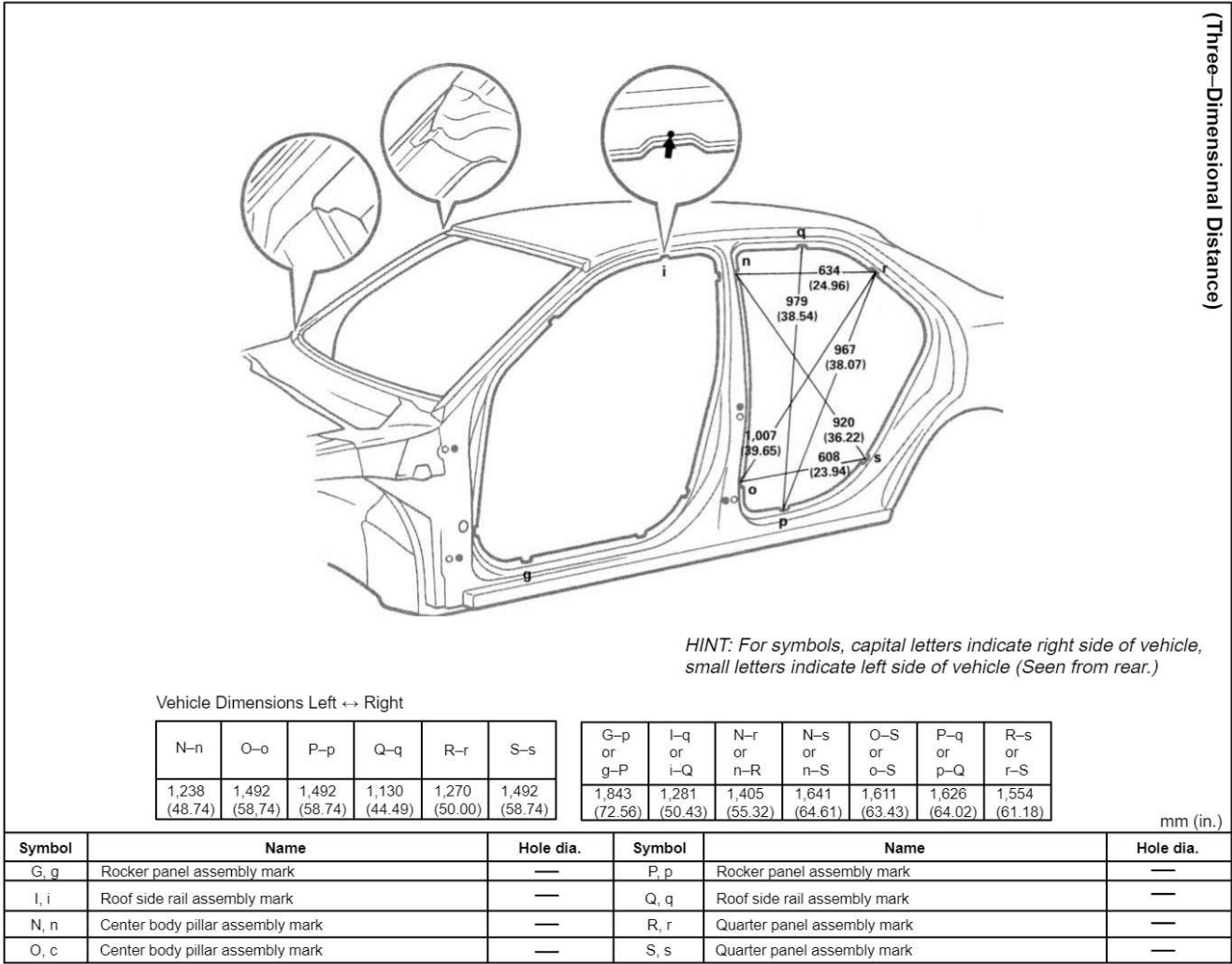
HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (Seen from rear).

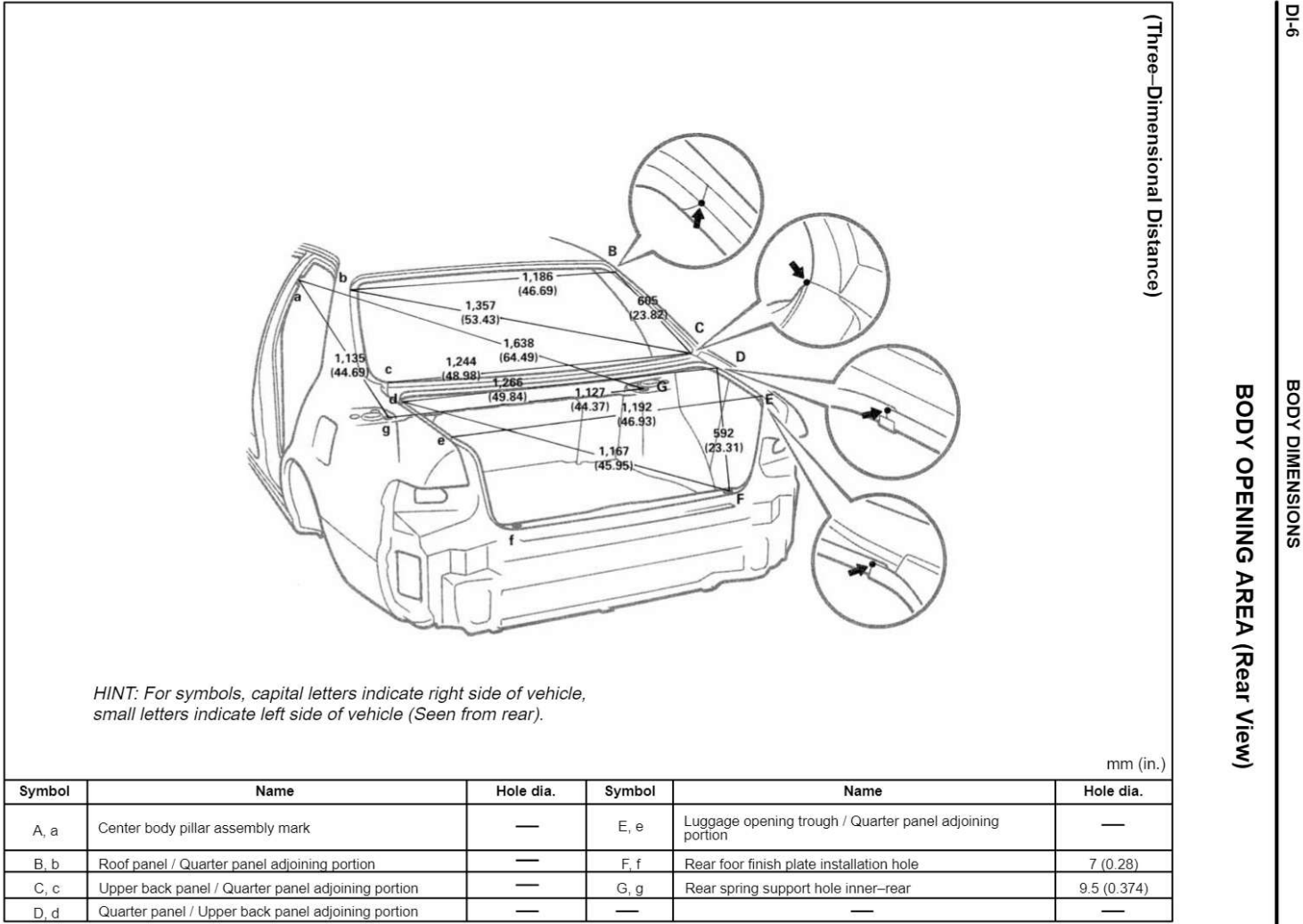
Vehicle Dimensions Left ↔ Right

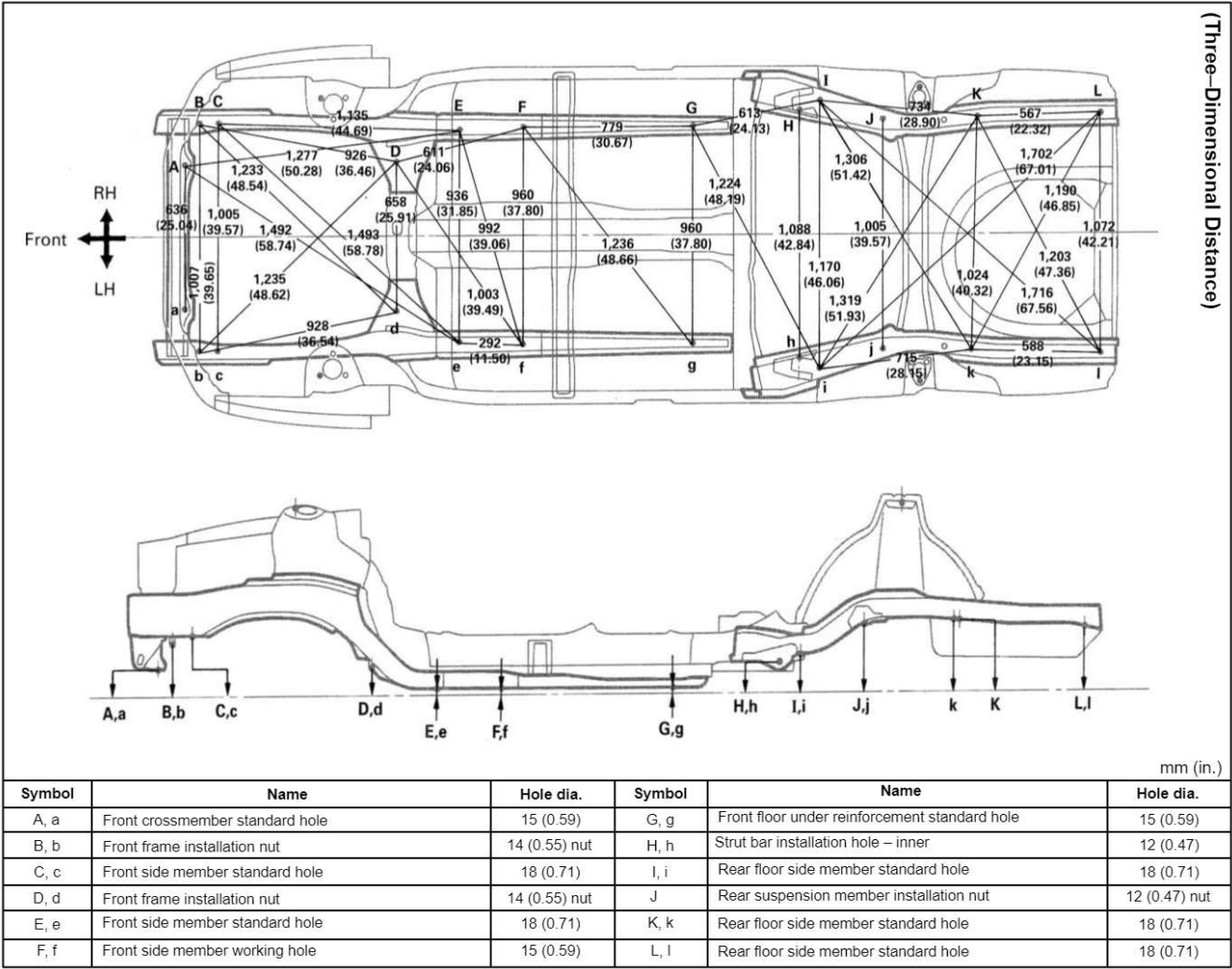
E-e	F-f	G-g	H-h	I-i	J-j	K-k	E-f or e-F	E-h or e-H	E-j or e-J	F-j or f-J	F-k or f-K	H-i or h-I	J-k or j-K
1,312 (51.65)	1,484 (58.43)	1,494 (58.82)	1,496 (58.90)	1,134 (44.65)	1,238 (48.74)	1,492 (58.74)	1,577 (62.09)	1,632 (64.25)	1,454 (57.24)	1,856 (69.13)	1,695 (66.73)	1,626 (64.02)	1,568 (61.73)

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Roof panel / Front body pillar assembly mark	—	H, h	Rocker panel assembly mark	—
B, b	Cowl top panel / Front body pillar assembly mark	—	I, i	Roof side rail assembly mark	—
C, c	Front door hinge installation nut—rear	10 (0.39) nut	J, j	Center body pillar assembly mark	—
D, d	Front door hinge installation nut—rear	10 (0.39) nut	K, k	Center body pillar assembly mark	—
E, e	Front body pillar assembly mark	—	L, l	Rear door hinge installation hole – upper	13 (0.51)
F, f	Front body pillar assembly mark	—	M, m	Rear door hinge installation hole – front	13 (0.51)
G, g	Rocker panel assembly mark	—	—	—	—







UNDER BODY (Cont'd)

