

# 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 4RUNNER.

Applicable models: TRN280, 285 series  
GRN280, 285 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 this TOYOTA model are bolted on and require no welding.

When repairing, do not 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 4RUNNER 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**



## ABOUT THIS MANUAL

### Scope of the repair work explanation

- This text explains the welding panel replacement instructions from the vehicle's white body condition. We have abbreviated the explanations of the removal and reinstallation of the equipment parts up to the white body condition and of the installation, inspection, adjustment and final inspection of equipment parts after replacing the weld panel.

### Section categories

- This manual has been divided as shown below.

Section Title	Contents	Examples
INTRODUCTION	Explanation of general body repair. Views of welded panel replacement instructions.	Cautionary items. Views of weld panel replacement instructions.
BODY PANEL REPLACEMENT	Instructions for replacing the weld panels from the white body condition, from which bolted parts have been removed, with individual supply parts.	Front side member replacement. Quarter panel replacement.
BODY DIMENSIONS	Body aligning measurements.	Dimension diagrams.
PAINT • COATING	Scope and type of anti-rust treatment, etc. together with weld panel replacement.	Under coating. Body sealer.

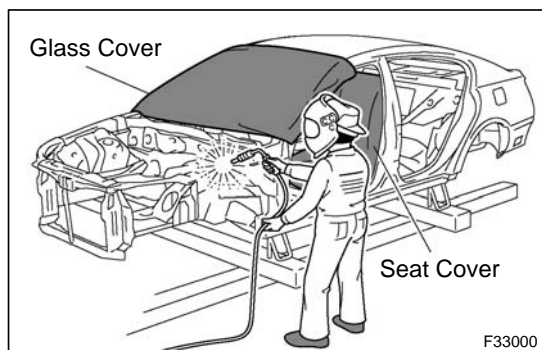
### Contents omitted from this manual.

- Make sure to perform the following essential procedures, although they are omitted in this manual.
  - (1) Clean and wash removed parts, if necessary.
  - (2) Visual inspection.



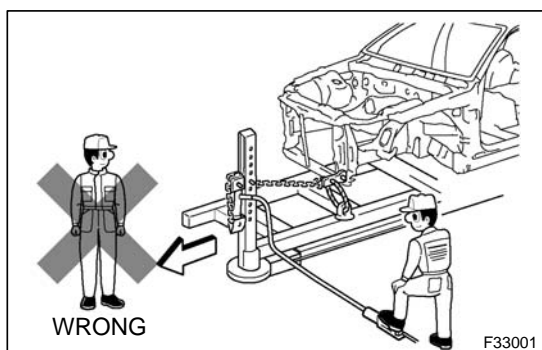
# PRECAUTION

## 1. WORK PRECAUTIONS



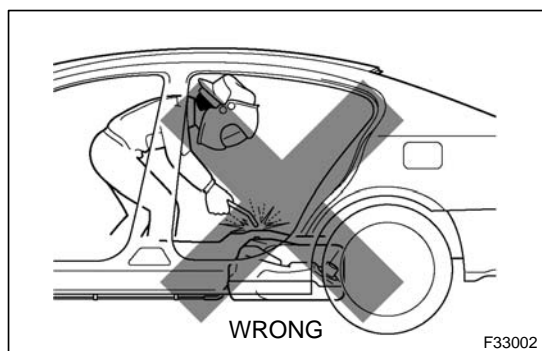
### (a) VEHICLE PROTECTION

- (1) When welding, cover glass, seats, carpets, etc. with heat resistant fireproof covers to protect them.

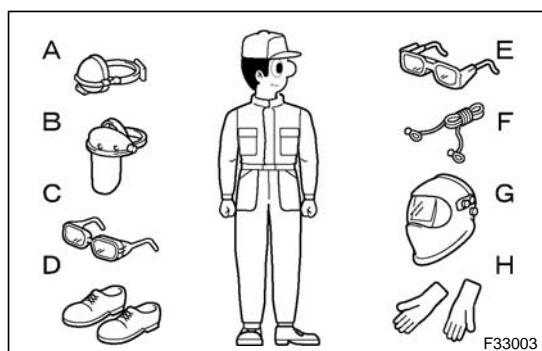


### (b) SAFETY

- (1) Never stand in the path of the chain when using a puller on the body or frame, and be sure to attach a safety cable.



- (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.

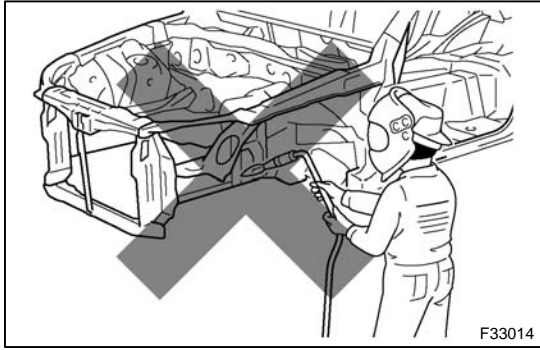


### (c) SAFETY WORK CLOTHES

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

Code	Name
A	Dust mask
B	Face protector
C	Safety glasses
D	Safety shoes
E	Welder's glasses
F	Ear plugs
G	Head protector
H	Welder's gloves

## 2. PRECAUTIONS WHEN REPAIRING BODY FRAME PARTS (INCLUDING CRUSH BOX)



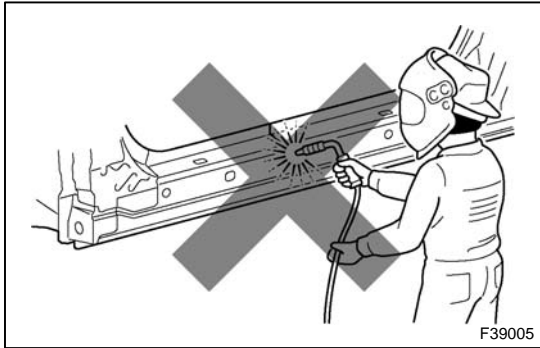
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### (a) PROHIBITION OF HEAT REPAIR FOR BODY FRAME PARTS

- (1) Rustproof high strength steel sheets are used for the body frame. Therefore, if these parts are heat repaired using an acetylene torch or equivalent, the crystalline structure changes, causing the strength of the steel sheets to decrease. Also, the zinc coating which is used to protect the body from rust will be damaged. This causes the surface of the steel sheets to become oxidized, which reduces their ability to resist rust.

### (b) NOTES ON ULTRA HIGH STRENGTH STEEL PANEL REPAIR

- (1) Make sure that the frame aligning machine does not affect undamaged areas when aligning the frame.

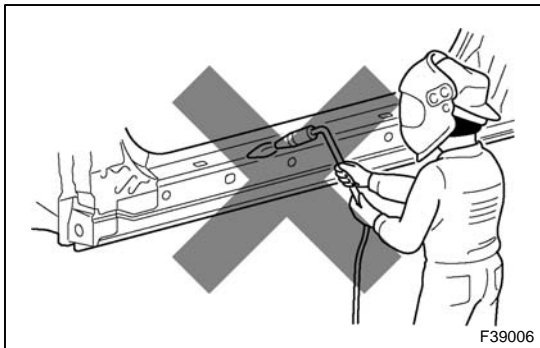


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- (2) Do not butt weld because the heat decreases the strength of the steel.

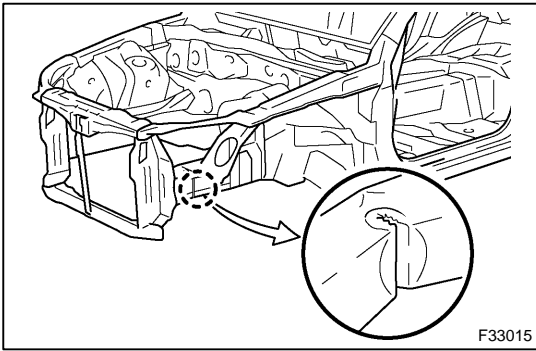
- (3) Use a spot cutter suitable for high strength steel when removing spot welds. The cutter should be able to cut welding nuggets smoothly.

- (4) Always follow the welding instructions when welding. (See the IN-4)



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- (5) Do not heat the panel when repairing.



### (c) WHEN TO REPLACE FRAME PARTS

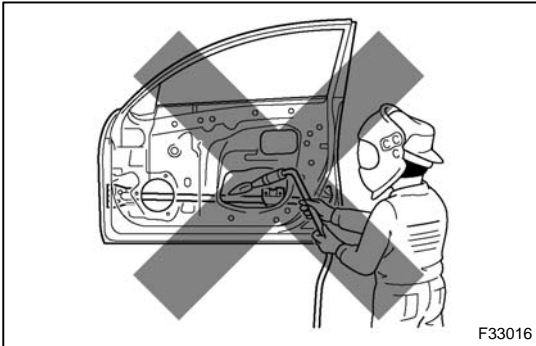
#### NOTICE:

Replace the sections of the frame where kinks have occurred.

#### HINT:

What is kink?

*A deformation on a steel sheet that cannot be returned to its original shape by pulling or hammering due to the deformation angle being sharp.*

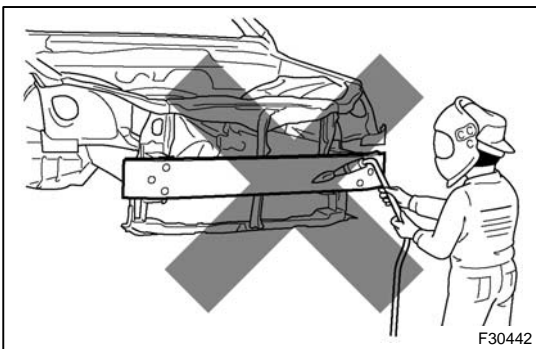
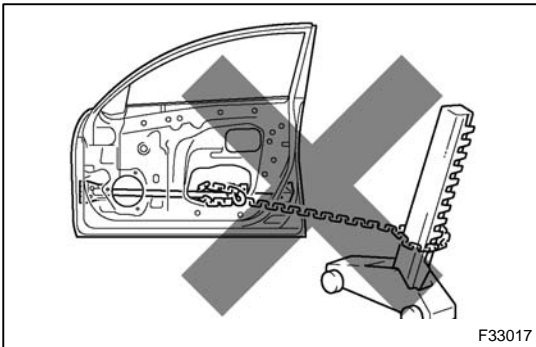


### (d) REPAIR OF DOOR SIDE IMPACT BEAM IS PROHIBITED

- (1) The impact beam is designed so that it performs at 100% in its original shape. However, if the impact beam is repaired, its performance may not be the same as before the accident.

#### PARTS WHICH ARE PROHIBITED TO BE REPAIRED:

Door side impact beam



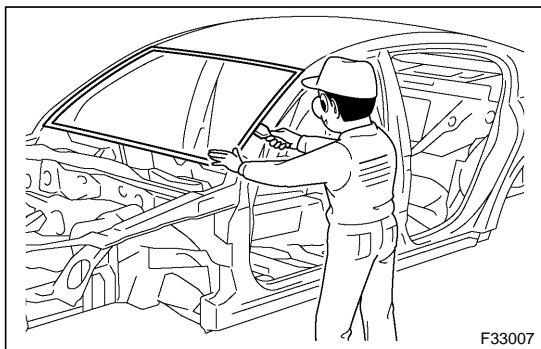
### (e) REPAIR OF BUMPER REINFORCEMENT IS PROHIBITED

- (1) The bumper reinforcement is designed so that it performs at 100% in its original shape. However, if the bumper reinforcement is repaired, its performance may not be the same as before the accident.

#### PARTS WHICH ARE PROHIBITED TO BE REPAIRED:

Bumper reinforcement

### 3. PRECAUTIONS FOR CORRECT REPAIR

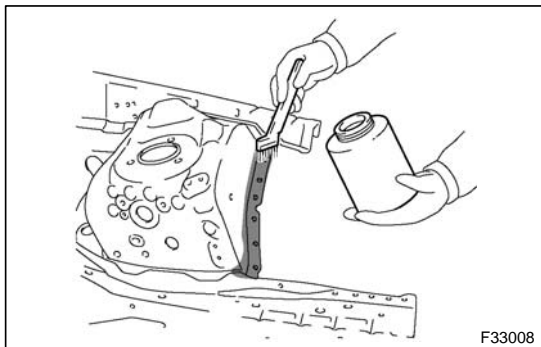


#### (a) REMOVAL OF ADJACENT COMPONENTS

- (1) To prevent damage to the body and parts, apply protective tape to the body and tools before removing the parts.

**NOTICE:**

If the paint film is damaged, make sure to re-finish the paint.



#### (b) ANTI-RUST TREATMENT BEFORE WELDING

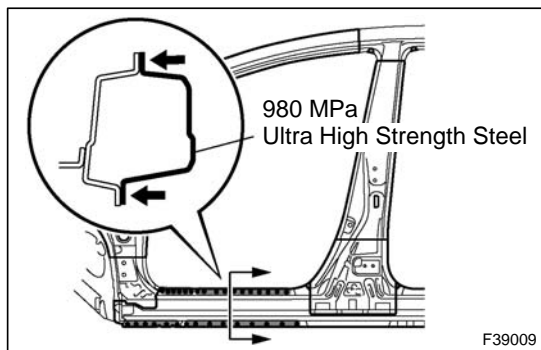
- (1) Apply welding primer to the contact surfaces of the welding areas to protect them from rust.

**NOTICE:**

Do not apply welding primer outside of the contact surfaces.

#### (c) WELDING WORK

- (1) Follow the welding conditions below when welding ultra high strength steel to assure sufficient weld strength.



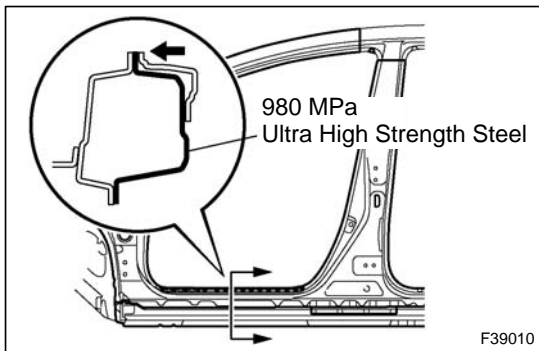
**When welding 2 panels together including 980 MPa ultra high strength steel.**

Spot weld	Pressure	2940 N (300 kgf, 661 lbf)
	Weld current	10000 A
	Weld time	18 Cyc. (0.30 Sec.)
Plug weld	Plug diameter	10 mm (0.39 in.)
	Wire type	AWS A5.18 ER70S-3
	Shield gas	Metal active gas

**NOTICE:**

Be sure to use Metal active gas (Ar 80% + CO<sub>2</sub> 20%) as the shield gas when plug welding. Sufficient weld strength cannot be assured when using 100% CO<sub>2</sub> shield gas.





When welding more than 3 panels together including 980 MPa ultra high strength steel. (When plug welding a panel to the welded panels with the weld condition above.)

Plug weld	Plug diameter	Same as the standard method (See the introduction)
	Wire type	AWS A5.18 ER70S-3
	Shield gas	Metal active gas

**NOTICE:**

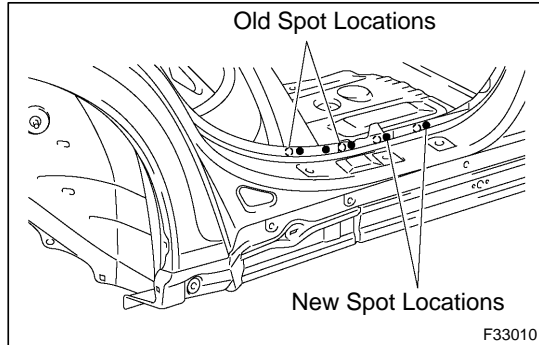
Be sure to use Metal active gas (Ar 80% + CO<sub>2</sub> 20%) as the shield gas when plug welding. Sufficient weld strength cannot be assured when using 100% CO<sub>2</sub> shield gas.

(2) Standard Number of Welds

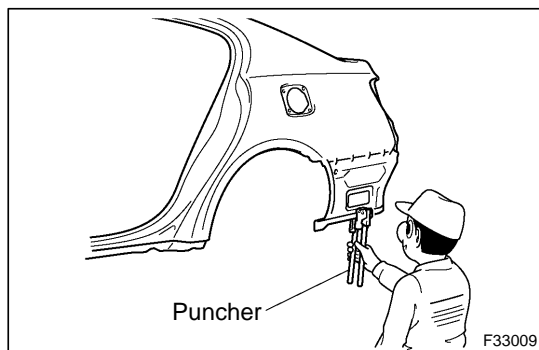
980 MPa ultra high strength steel	Number of spot welds	More than the number of welds made by the manufacturer
	Number of plug welds	More than the number of welds made by the manufacturer
Normal steel or high strength steel	Number of spot welds	More than 1.3x the number of welds made by the manufacturer
	Number of plug welds	More than the number of welds made by the manufacturer

**NOTICE:**

Inspect the welds after spot welding. For points with insufficient weld strength join the panels using plug welds.



- (3) Spot weld locations  
Avoid welding over previously welded areas.

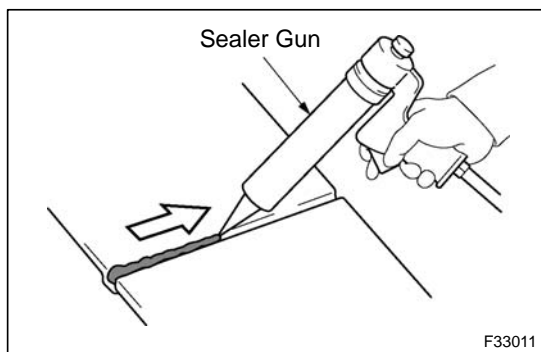


**(d) MAKING HOLES FOR PLUG WELDING**

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

Thickness of welded portion	Diameter of plug hole
Under 1.0 mm (0.04 in.)	Over 5.0 mm (0.20 in.)
1.0 to 1.6 mm (0.04 to 0.06 in.)	Over 6.5 mm (0.26 in.)
1.7 to 2.3 mm (0.07 to 0.09 in.)	Over 8.0 mm (0.31 in.)
Over 2.4 mm (0.09 in.)	Over 10 mm (0.39 in.)

## 4. ANTI-RUST TREATMENT AFTER INSTALLATION



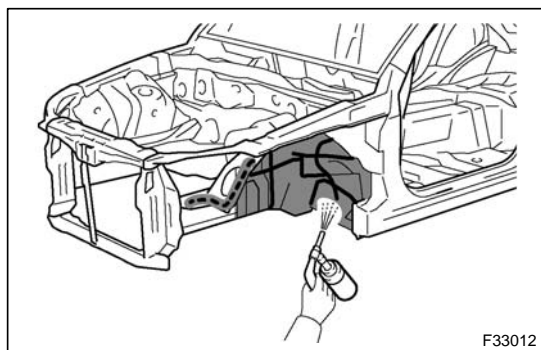
### (a) BODY SEALER APPLICATION

#### PURPOSE:

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

#### NOTICE:

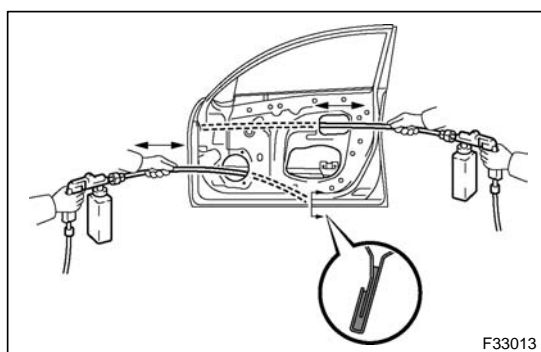
Apply body sealer neatly to parts that require a high quality appearance.



### (b) UNDERCOAT APPLICATION

#### PURPOSE:

To prevent corrosion and protect the body from gravel, always apply a sufficient undercoating to the areas indicated.



### (c) VEHICLE BODY ANTI-RUST AGENT APPLICATION

#### PURPOSE:

The purpose is to protect areas from rust which are difficult to paint such as the backside of the box-shaped cross section frame parts.

#### METHOD:

Apply anti-rust agent through the service holes and/or installation holes of the parts.

## 6. PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED

### (a) THE WORK LIST: USA, Canada

(1) Each inspection procedure refers to the TOYOTA Repair Manual.

Replacement Part	Necessary Procedure	Effect or Inoperative Function when Necessary Procedure is not Performed
ECM (for 1GR-FE)	Register VIN.	DTC P0630 is output
<ul style="list-style-type: none"> <li>ECM (for 1GR-FE)</li> <li>Throttle body with motor assembly</li> </ul>	<ul style="list-style-type: none"> <li>Learning values save</li> <li>Learning values write</li> </ul>	Engine starting
<ul style="list-style-type: none"> <li>Automatic transmission assembly (for A750F)</li> <li>Valve body assembly (for A750F)</li> <li>Any of the shift solenoid valve (for A750F)</li> </ul>	Reset memory	Large shift shock
<ul style="list-style-type: none"> <li>Automatic transmission assembly (for A750E)</li> <li>Valve body assembly (for A750E)</li> <li>Any of the shift solenoid valve (for A750E)</li> </ul>	Reset memory	Large shift shock
<ul style="list-style-type: none"> <li>Tire pressure warning ECU</li> <li>Tire pressure warning valve and transmitter</li> </ul>	Code registration	Tire pressure warning system
<ul style="list-style-type: none"> <li>Master cylinder solenoid</li> <li>Yaw rate and acceleration sensor</li> <li>Spiral cable sub-assembly (steering angle sensor)</li> </ul>	Calibration	Vehicle stability control system
Garage door opener transmitter	Registration	Garage door opener system
DCM (Telematics Transceiver)	DCM Activation	Safety connect system does not operative
<ul style="list-style-type: none"> <li>Steering lock actuator assembly</li> <li>Certification ECU</li> <li>ID code box</li> <li>Key</li> </ul>	Code registration	<ul style="list-style-type: none"> <li>Engine immobiliser system (w/ Smart Key System)</li> <li>Engine start</li> <li>Steering lock and unlock</li> </ul>
<ul style="list-style-type: none"> <li>Transponder key ECU</li> <li>ECM</li> <li>Key</li> </ul>	Code registration	<ul style="list-style-type: none"> <li>Engine immobiliser system (w/o Smart Key System)</li> <li>Engine start</li> </ul>
<ul style="list-style-type: none"> <li>Door control receiver assembly</li> <li>Key</li> </ul>	Code registration	Wireless door lock control system (w/o Smart Key System)
<ul style="list-style-type: none"> <li>Front power window regulator motor LH</li> <li>Front power window regulator motor RH</li> <li>Rear power window regulator motor LH</li> <li>Rear power window regulator motor RH</li> <li>Back door power window regulator motor</li> </ul>	Motor initialization	Power window control system
<ul style="list-style-type: none"> <li>Sliding roof ECU (sliding roof drive gear sub-assembly)</li> <li>Sliding roof glass</li> <li>Sliding roof housing</li> </ul>	Sliding roof system initialization	Auto operation

**(b) THE WORK LIST: Except USA, Canada**

(1) Each inspection procedure refers to the TOYOTA Repair Manual.

Replacement Part	Necessary Procedure	Effect or Inoperative Function when Necessary Procedure is not Performed
Throttle body with motor assembly	Clear crank time compensation data	crank
<ul style="list-style-type: none"> <li>Automatic transmission assembly (for A750F)</li> <li>Valve body assembly (for A750F)</li> <li>Any of the shift solenoid valve (for A750F)</li> </ul>	Reset memory	Large shift shock
<ul style="list-style-type: none"> <li>Automatic transmission assembly (for A750E)</li> <li>Valve body assembly (for A750E)</li> <li>Any of the shift solenoid valve (for A750E)</li> </ul>	Reset memory	Large shift shock
<ul style="list-style-type: none"> <li>Master cylinder solenoid</li> <li>Yaw rate and acceleration sensor</li> <li>Front Wheel Alignment Adjustment</li> </ul>	Calibration	Vehicle stability control system
<ul style="list-style-type: none"> <li>Transponder key ECU</li> <li>ecm</li> <li>Key</li> </ul>	Code registration	Engine immobiliser system
<ul style="list-style-type: none"> <li>Door control receiver assembly</li> <li>Key</li> </ul>	Code registration	Wireless door lock control system
<ul style="list-style-type: none"> <li>Front power window regulator motor LH</li> <li>Front power window regulator motor RH</li> <li>Rear power window regulator motor LH</li> <li>Rear power window regulator motor RH</li> <li>Back power window regulator motor</li> </ul>	Motor initialization	Power window control system
<ul style="list-style-type: none"> <li>Sliding roof ECU (sliding roof drive gear sub-assembly)</li> <li>Sliding roof glass</li> <li>Sliding roof housing</li> </ul>	Sliding roof system initialization	Auto operation

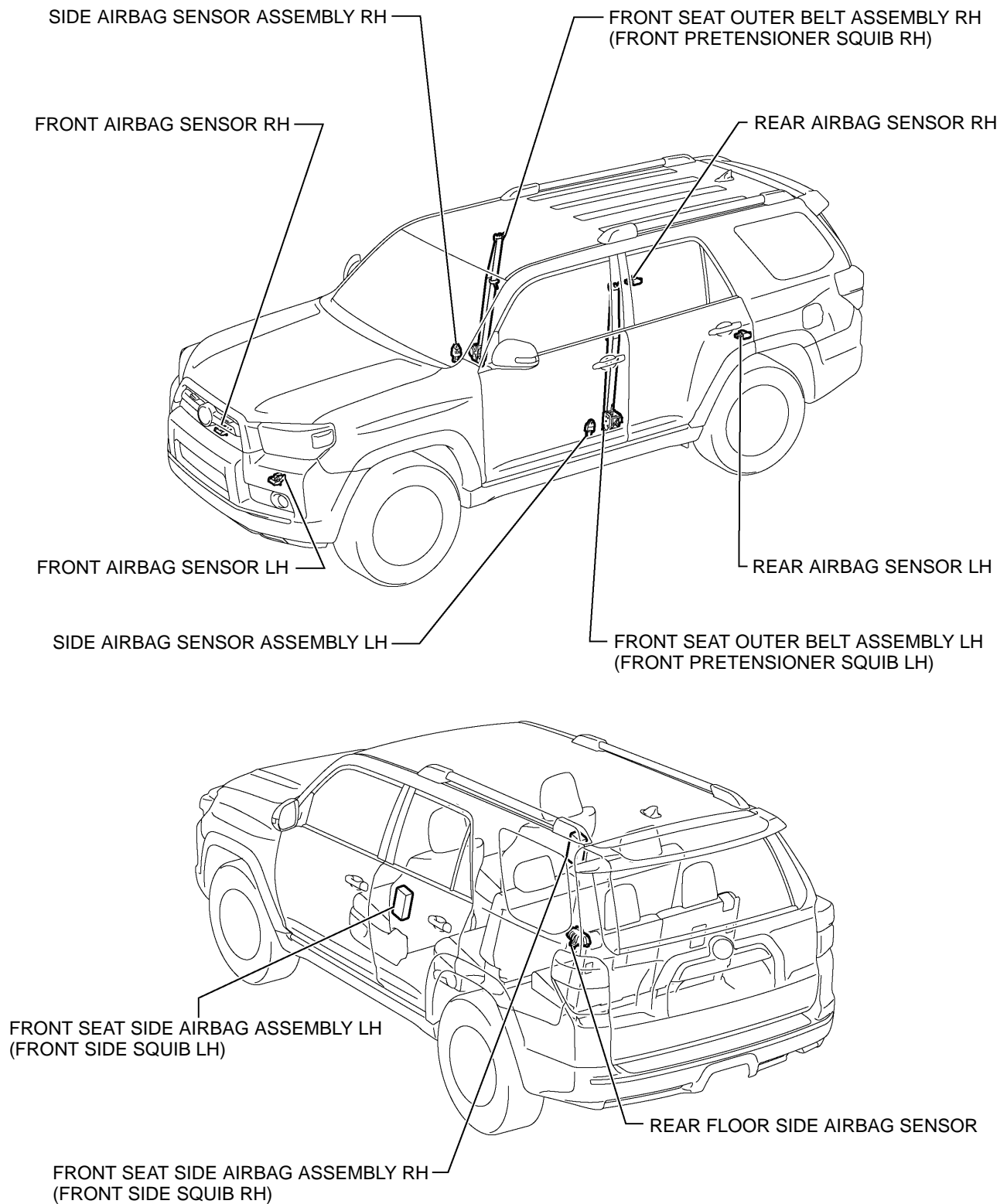
## **7. PRECAUTIONS FOR SRS AIRBAG SYSTEM**

### **(a) HANDLING OF A VEHICLE THAT HAS BEEN DAMAGED IN A COLLISION**

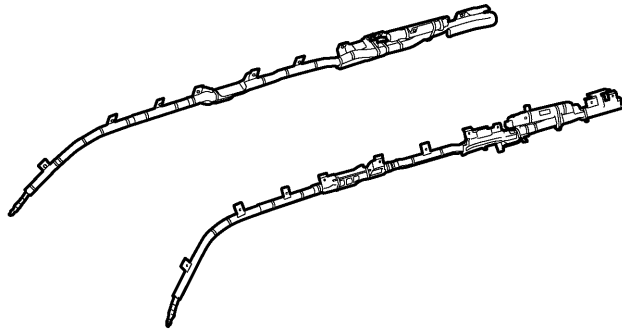
- (1) Refer to the TOYOTA Repair Manual for the SRS airbag system inspection procedures.
- (2) If impacts are likely to occur to the front airbag sensors, side airbag sensors, rear airbag sensors, rear floor side airbag sensors or center airbag sensor remove each sensor as necessary beforehand.
- (3) Do not allow the front airbag sensors, side airbag sensors, rear airbag sensors, rear floor side airbag sensors or center airbag sensor to become heated to high temperatures.
- (4) Check the wire harnesses and connectors for damage and/or melting, as some areas of the airbags and seat belt pretensioners may heat up to several hundred degrees when they operate.

### **(b) PRECAUTIONS FOR USING AN ELECTRIC WELDER**

- (1) Check the Diagnostic Trouble Codes (DTCs).
  1. If one or more DTCs are displayed;
    - Disconnect the negative (–) terminal cable from the battery.
    - Disconnect all the malfunctioning circuit connectors.
    - Disconnect the center airbag sensor assembly connector.
  2. If DTCs are NOT displayed;
    - Inspect for damage to the electric wiring harnesses and connectors.
    - Disconnect the negative (–) terminal cable from the battery.
    - Disconnect the center airbag sensor assembly connector.

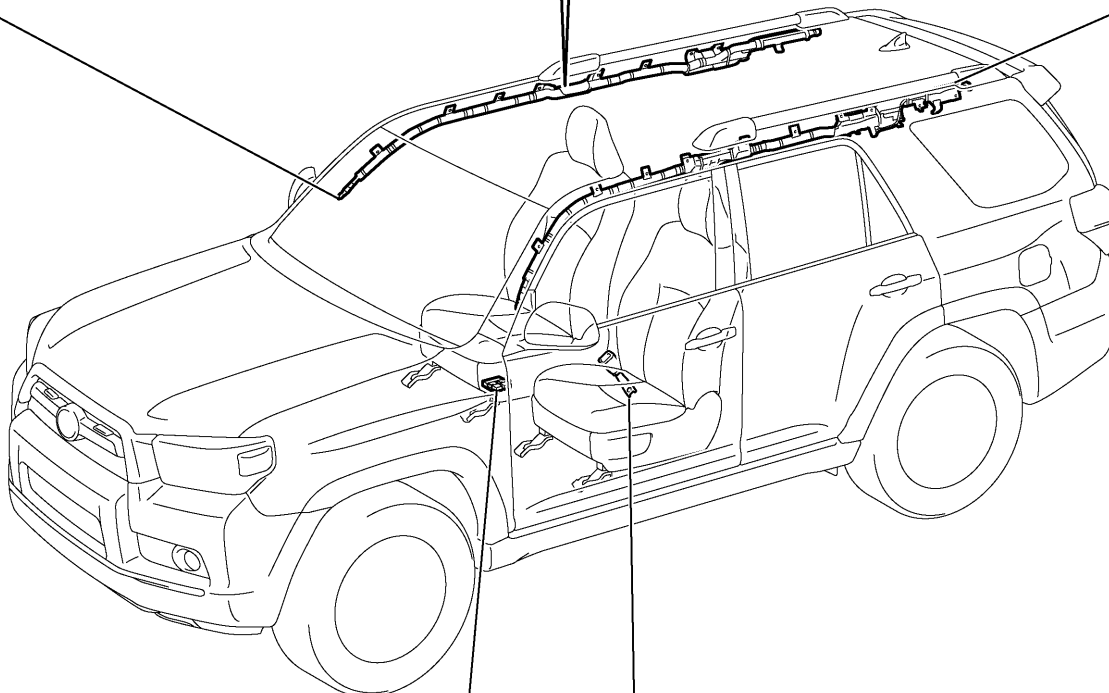


w/ No. 2 Rear Seat:



CURTAIN SHIELD AIRBAG ASSEMBLY RH  
(CURTAIN SHIELD SQUIB RH)

CURTAIN SHIELD AIRBAG ASSEMBLY LH  
(CURTAIN SHIELD SQUIB LH)

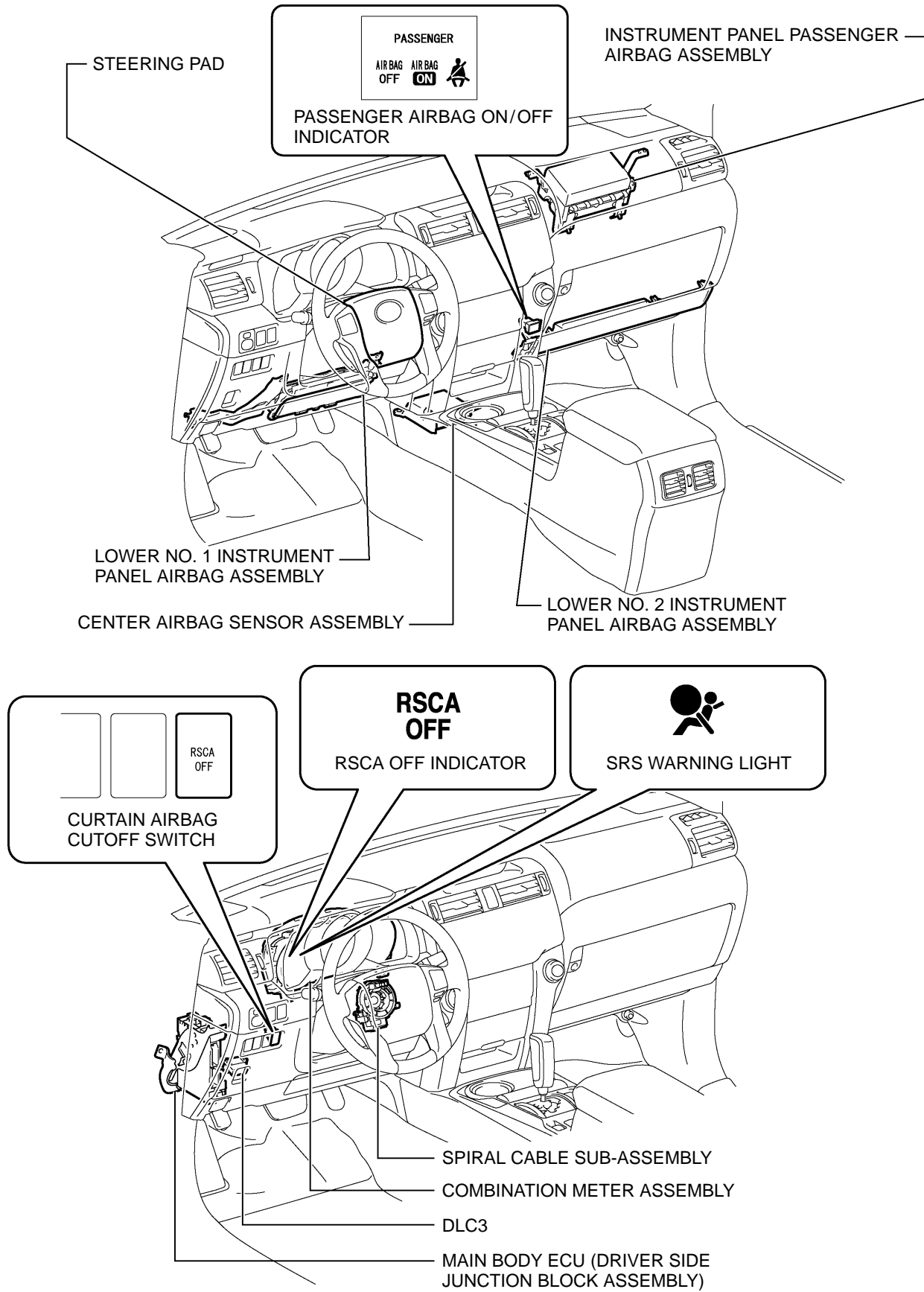


OCCUPANT CLASSIFICATION  
ECU ASSEMBLY\*

FRONT SEAT INNER BELT ASSEMBLY LH  
(FRONT SEAT BELT BUCKLE SWITCH LH)

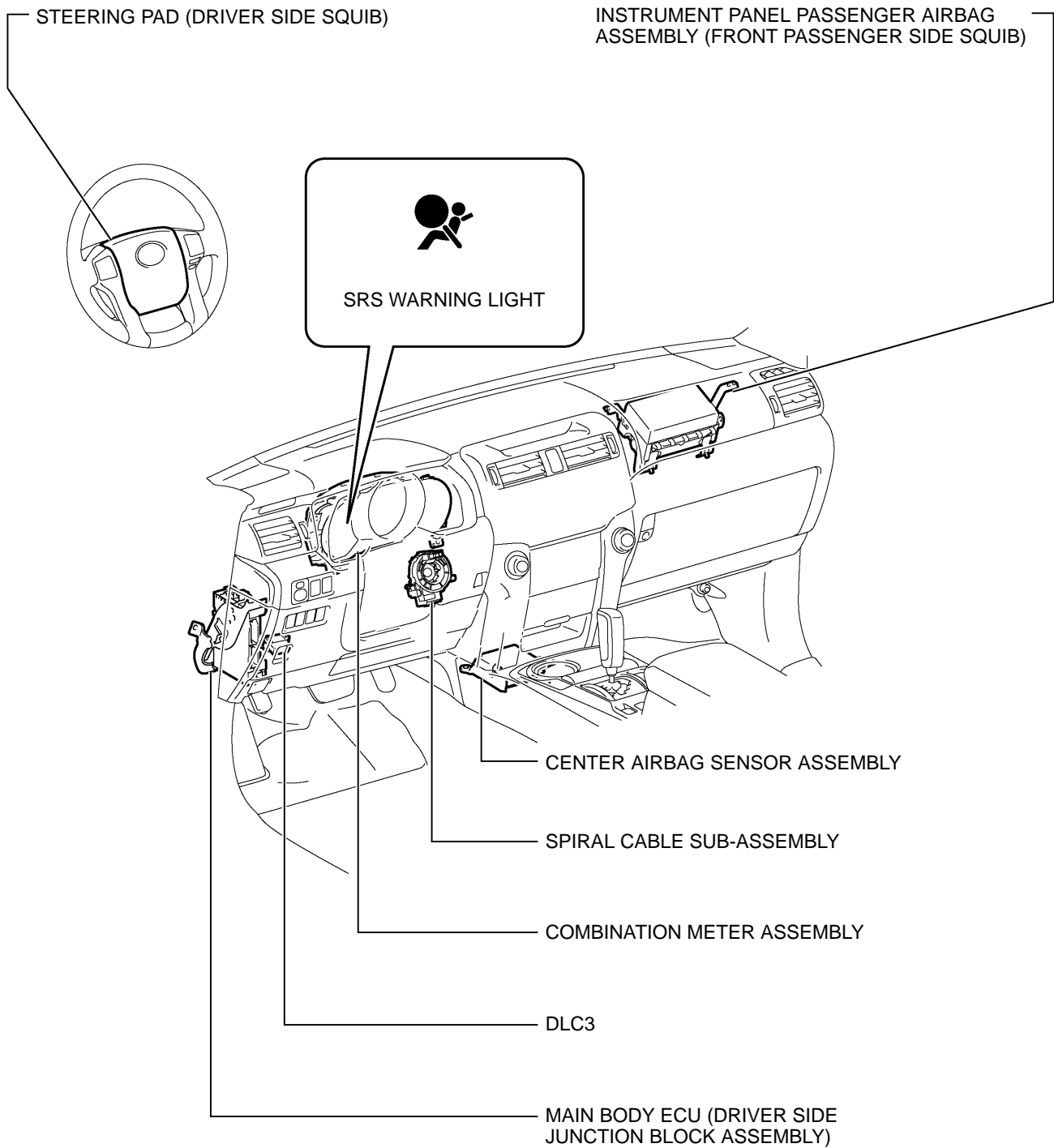
\*: for USA, Canada

for USA, Canada:





Except USA, Canada:



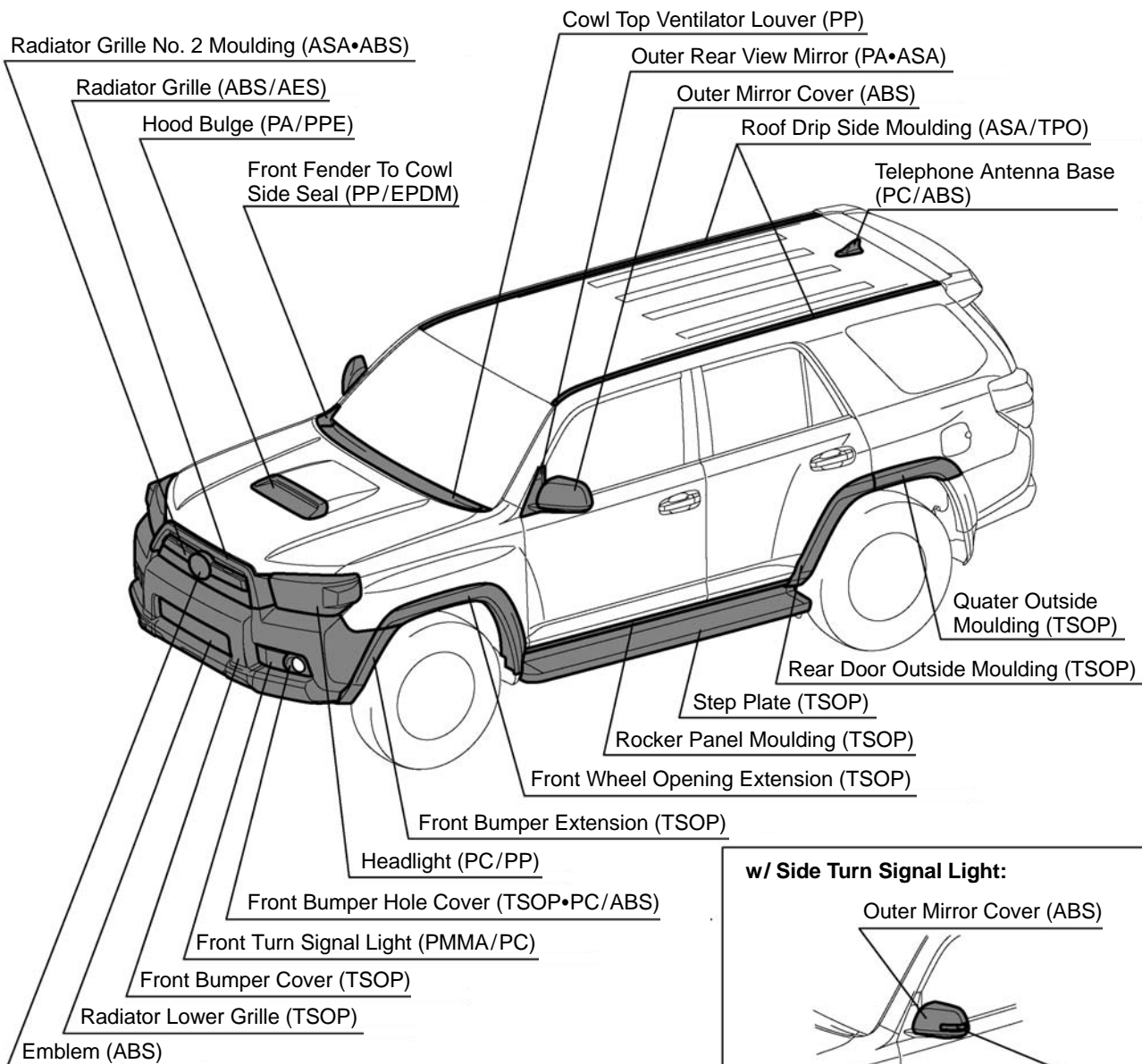
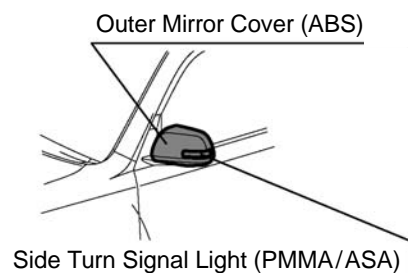
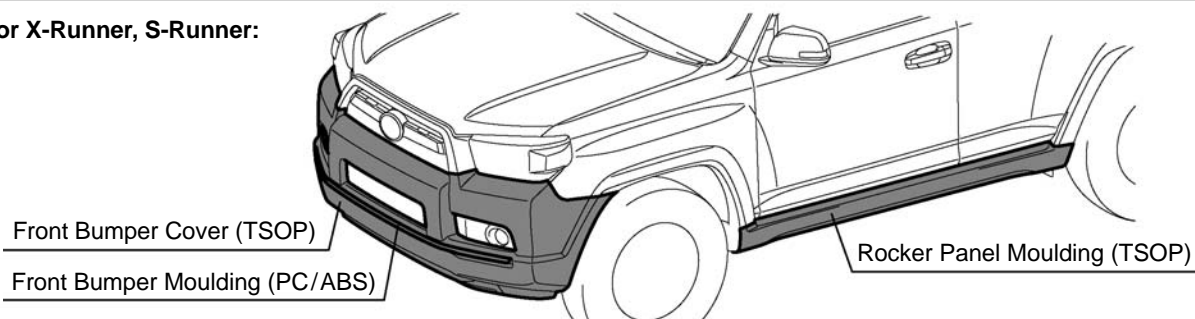
## 8. PRECAUTIONS FOR RESIN PARTS

### (a) PLASTIC PROPERTIES CHART

- (1) When repairing, some parts may be deformed by the heat. Therefore, confirm the properties of the plastic parts, and remove parts beforehand as necessary.

Code	Material name	Heat resistant temperature limit* °C (°F)	Resistance to alcohol or gasoline	Notes
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.
EPDM	Ethylene Propylene	100 (212)	Alcohol is harmless. Gasoline is harmless if applied only for short time in small amounts.	Most solvent are harmless but avoid dipping in gasoline, solvents, etc.
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.
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.
PP	Polypropylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PPE	Polyphenylene Ether	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.
TSOP	TOYOTA Super Olefine Polymer	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.

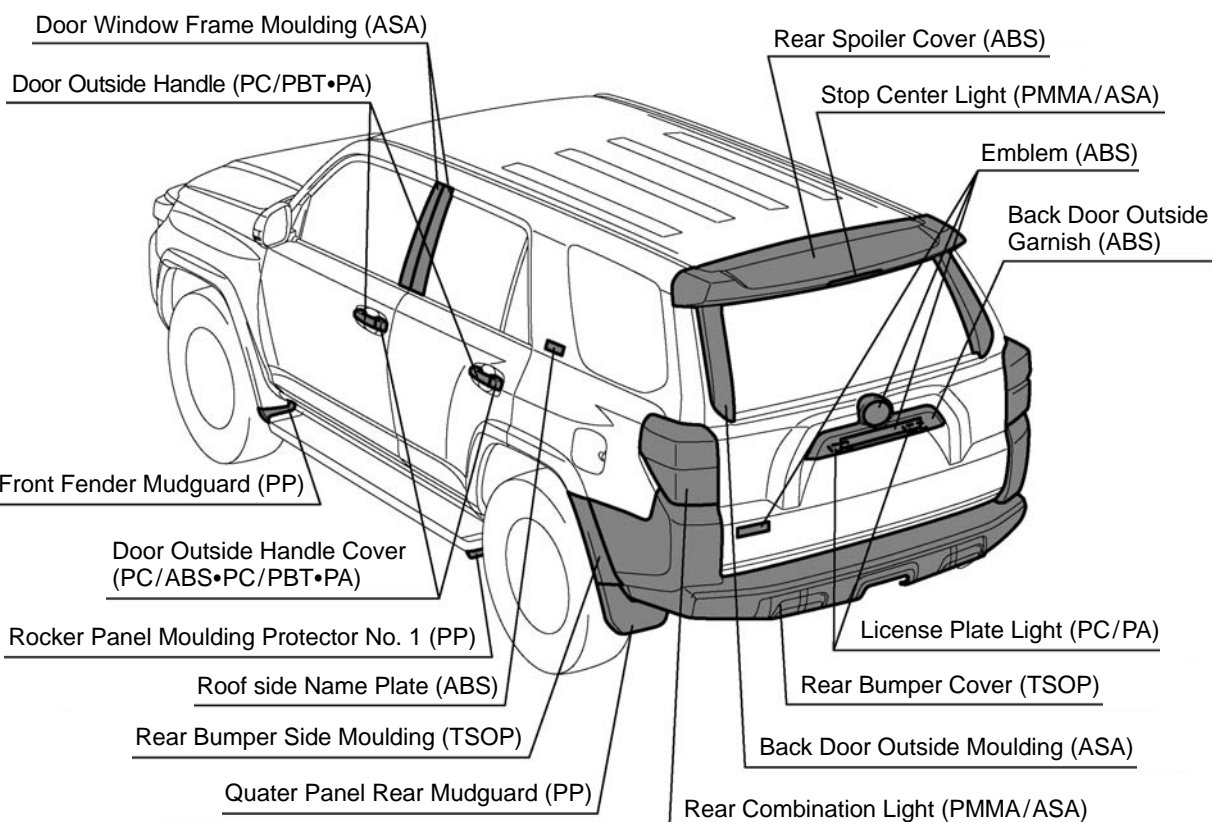
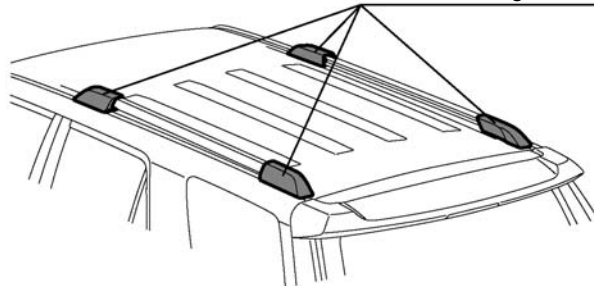
\* The heat resistant temperature means a temperature that may cause heat deformation during a procedure.

**(b) THE PLASTIC BODY PARTS MATERIAL LIST****w/ Side Turn Signal Light:****for X-Runner, S-Runner:****HINT:**

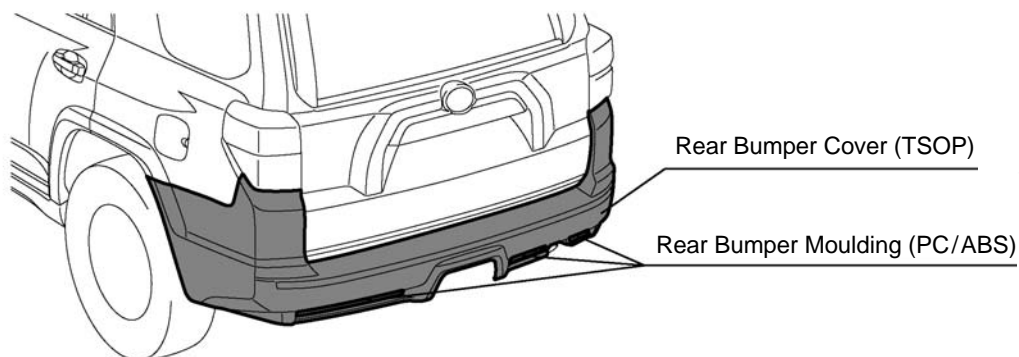
- Resin material differs with model.
- / Made up of 2 or more kinds materials.

**w/ Roof Rack:**

Roof Rack Leg Cover (PC/ASA•ABS)



**for X-Runner, S-Runner:**

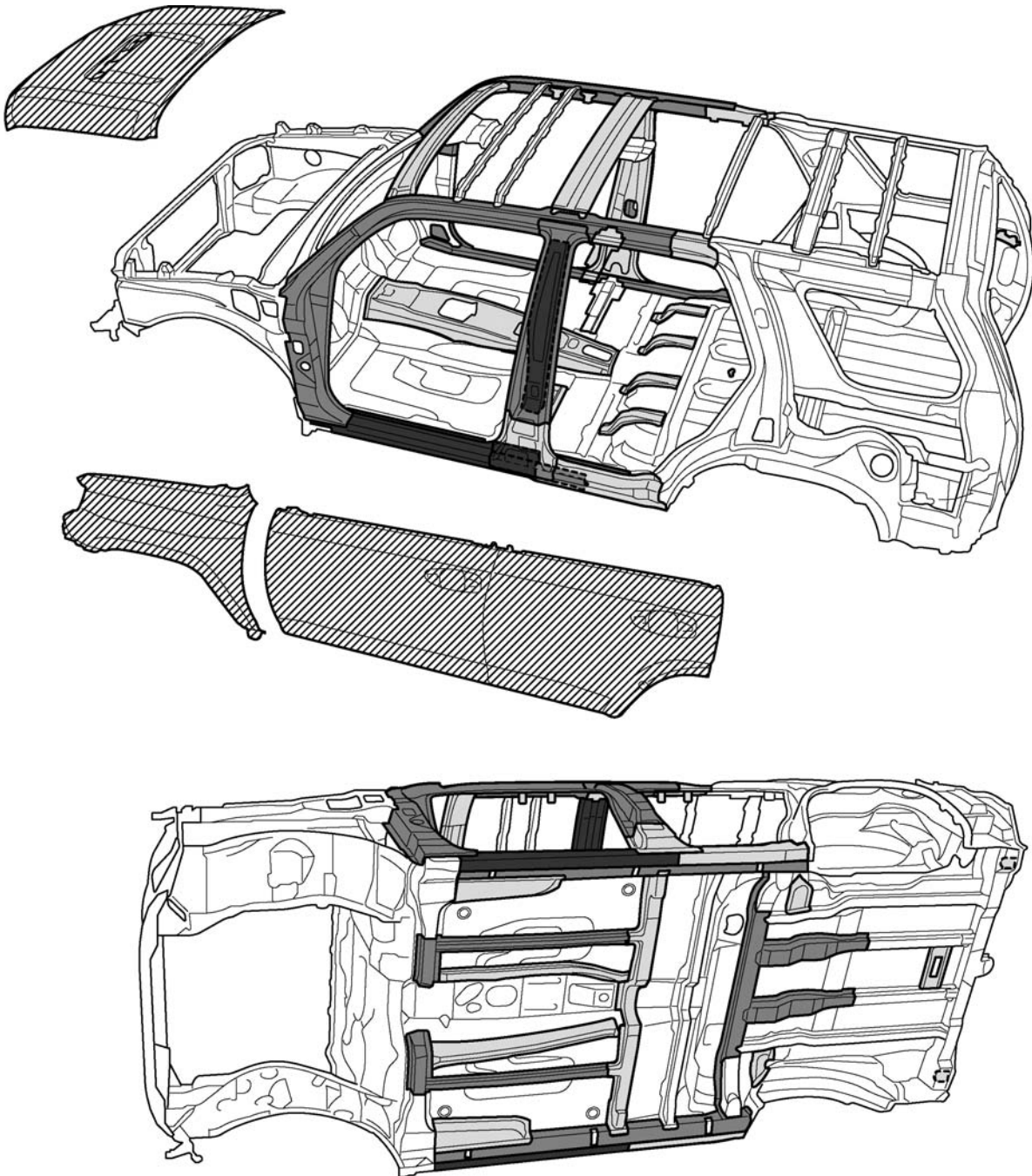






**HINT:**

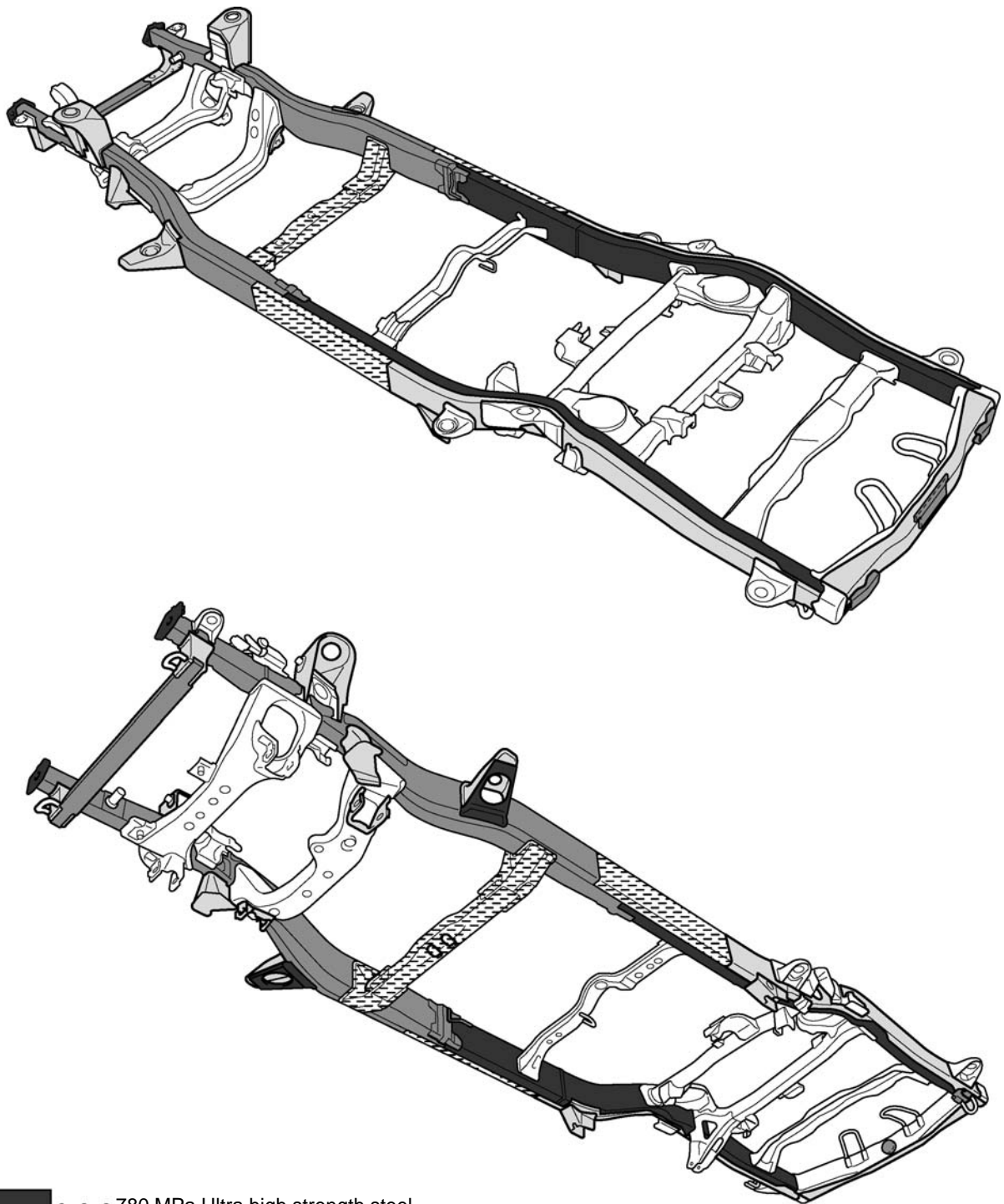
- Resin material differs with model.
- / Made up of 2 or more kinds materials.

# ABOUT THIS VEHICLE

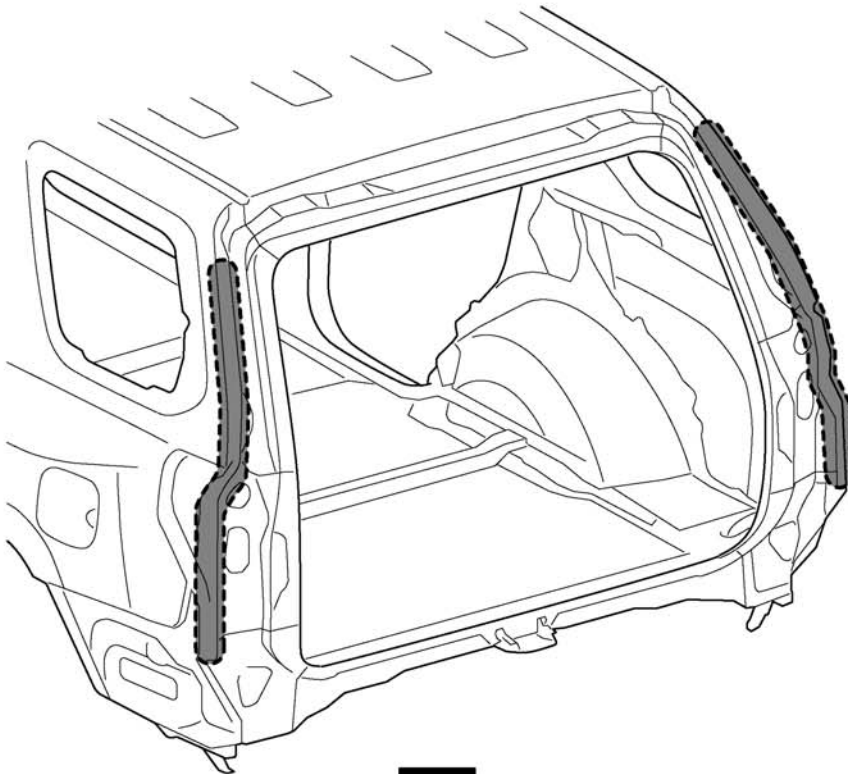
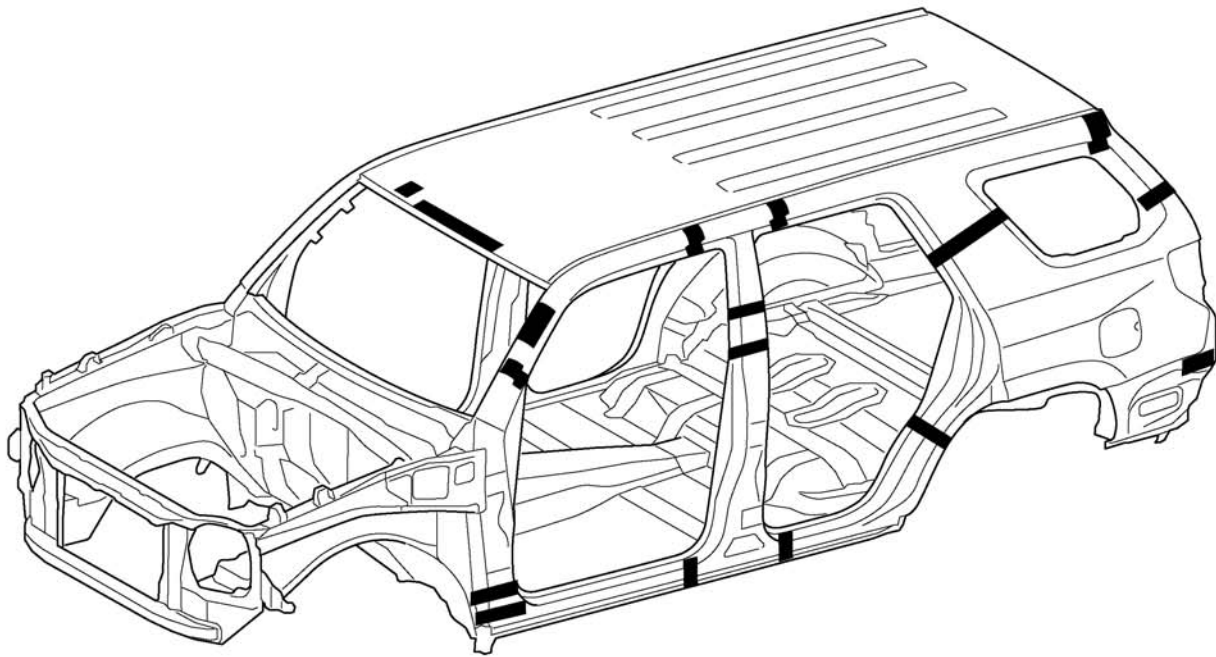
## 1. STRUCTURAL OUTLINE





-  • • • 980 MPa Ultra high strength steel
-  • • • 590 MPa High strength steel
-  • • • 440 MPa High strength steel
-  • • • 340 MPa High strength steel

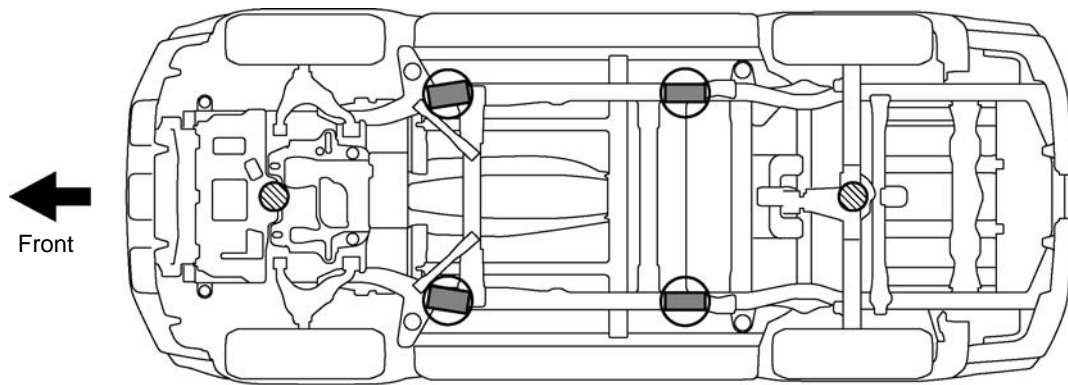


- • • 780 MPa Ultra high strength steel
- • • 590 MPa High strength steel
- • • 440 MPa High strength steel
- • • 370 MPa High strength steel



-  . . . Foamed sealing material application areas
-  . . . Laser welding

## 2. NOTICE ABOUT VEHICLE CONDITION WHEN JACKING UP VEHICLE



 : JACK POSITION

Front: Center of crossmember  
Rear: Protruding part of rear suspension member

**CAUTION:**

When jacking up the vehicle, make sure the vehicle is not carrying any extra weight.

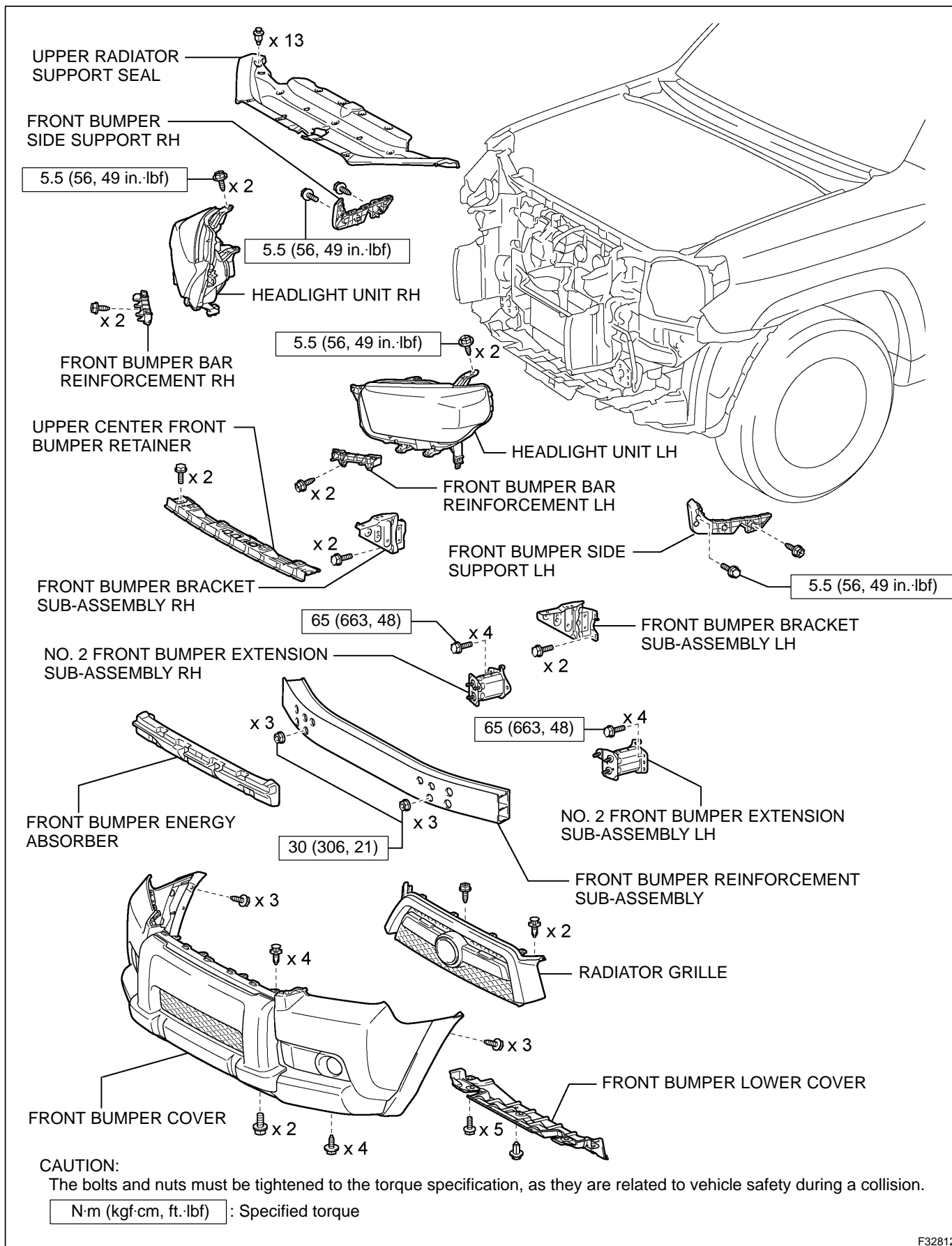
 : SUPPORT POSITION

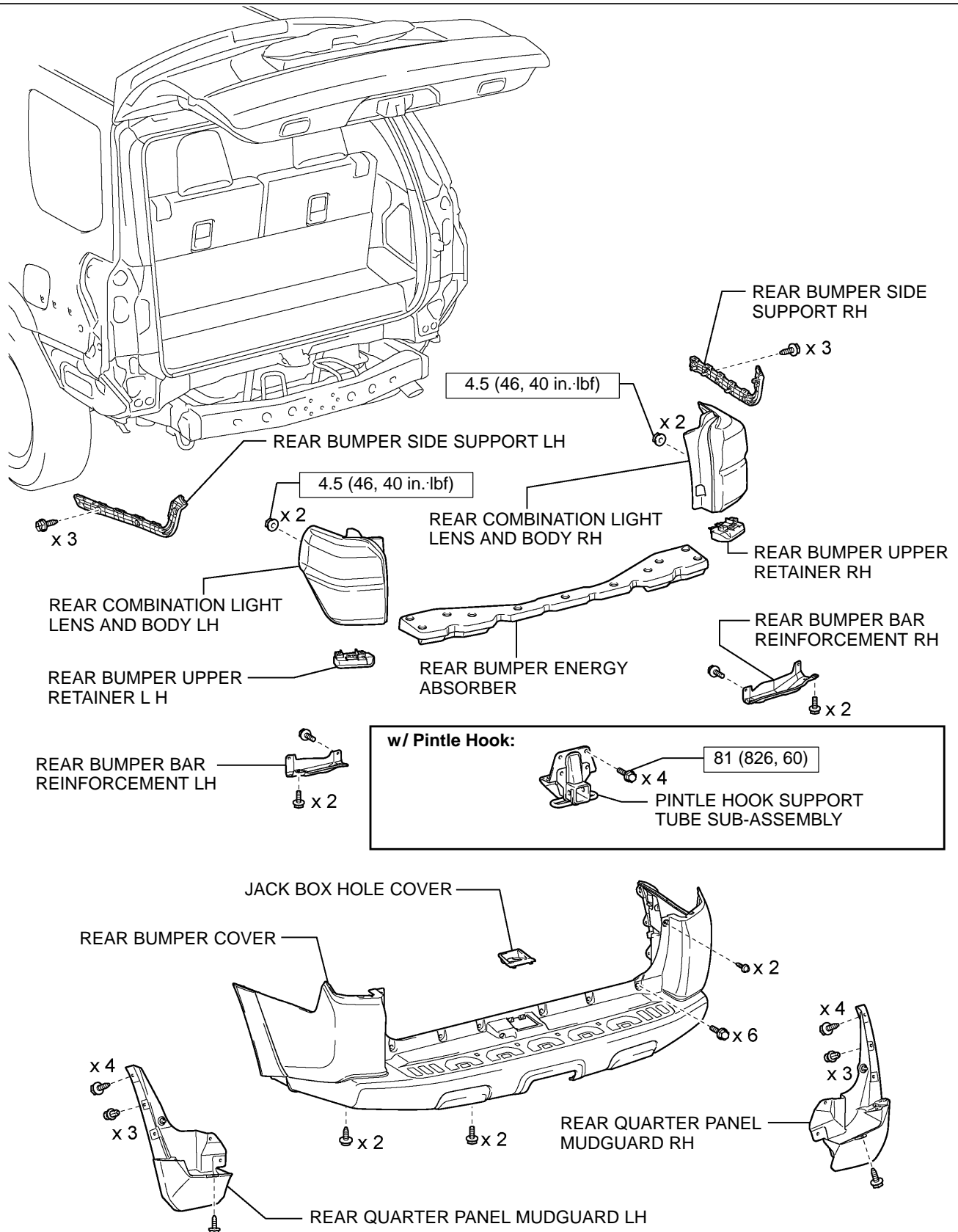
Swing arm type lift, Safety stand



### 3. COMPONENTS

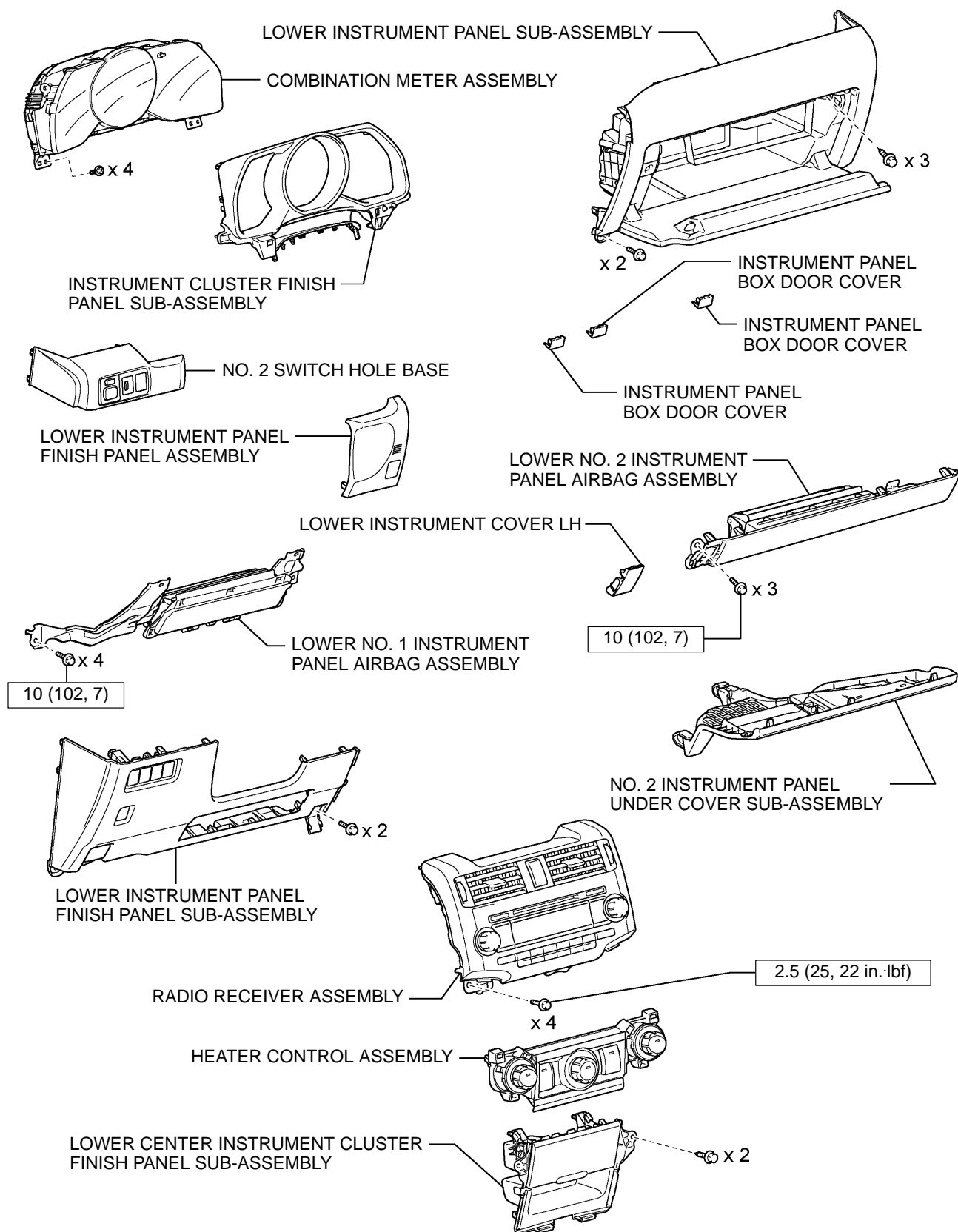
#### (a) FRONT BUMPER



**(b) REAR BUMPER****CAUTION:**

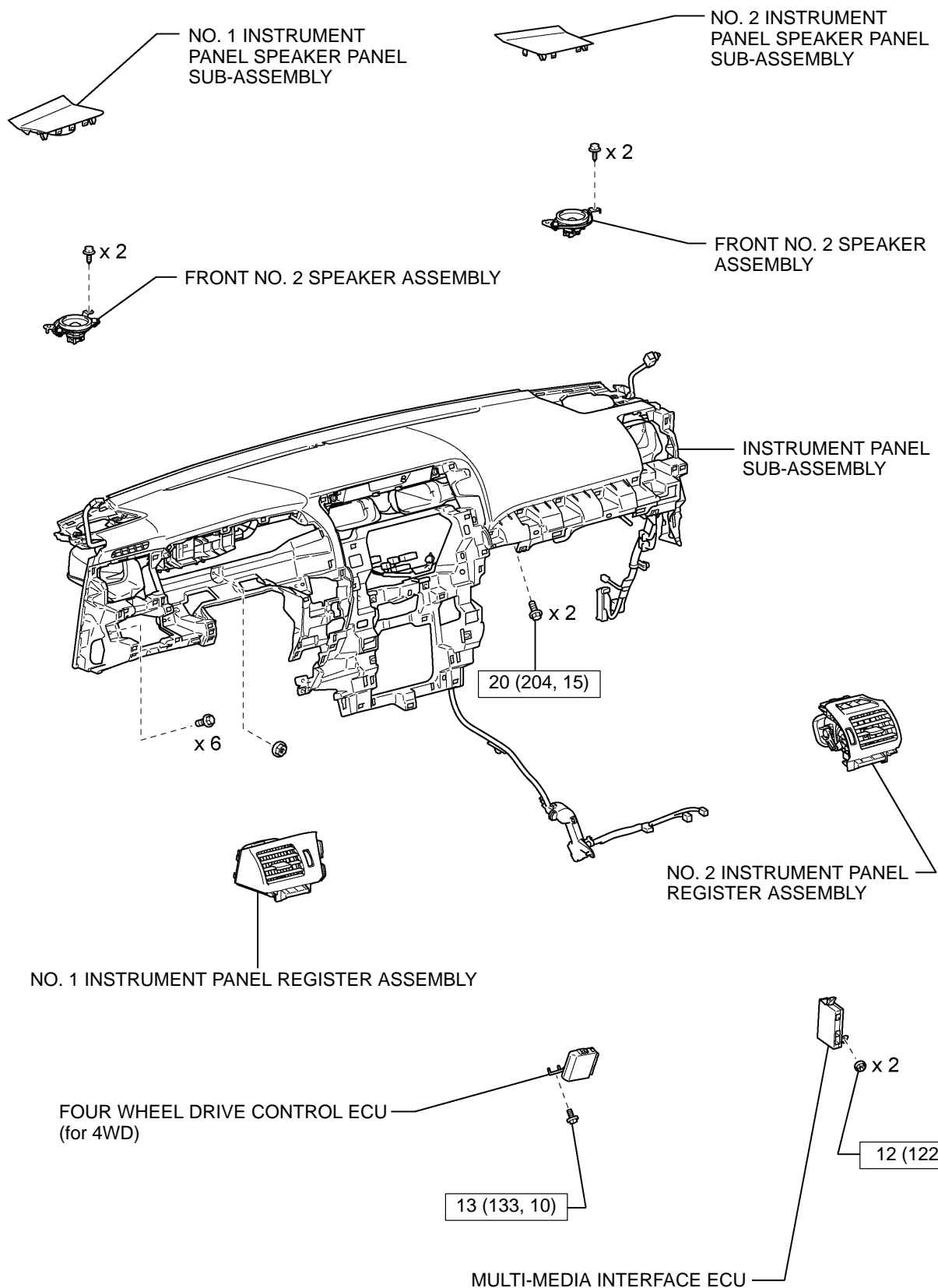
The bolts and nuts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft.·lbf) : Specified torque

**(c) INSTRUMENT PANEL****CAUTION:**

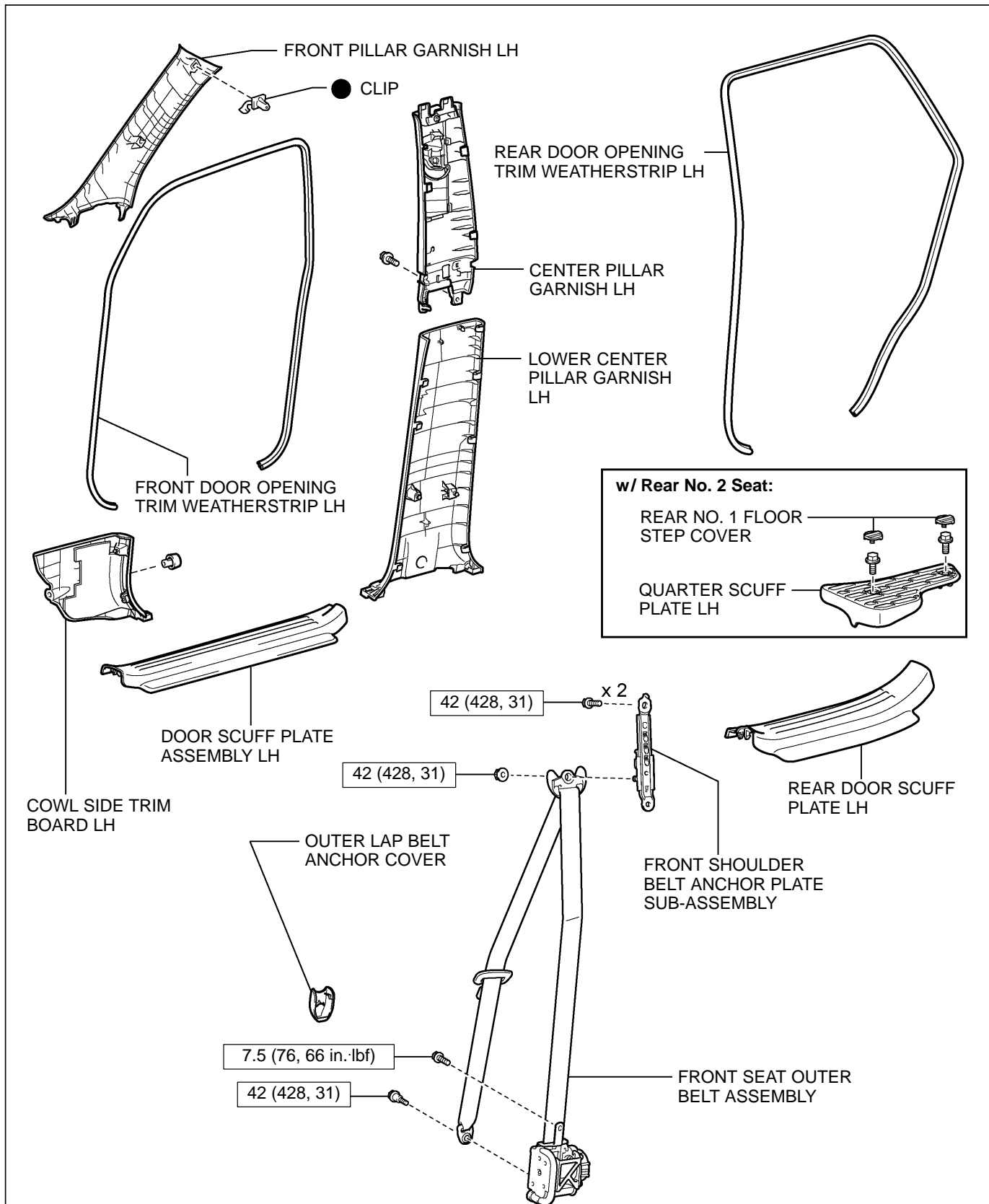
The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft. lbf) : Specified torque

**CAUTION:**

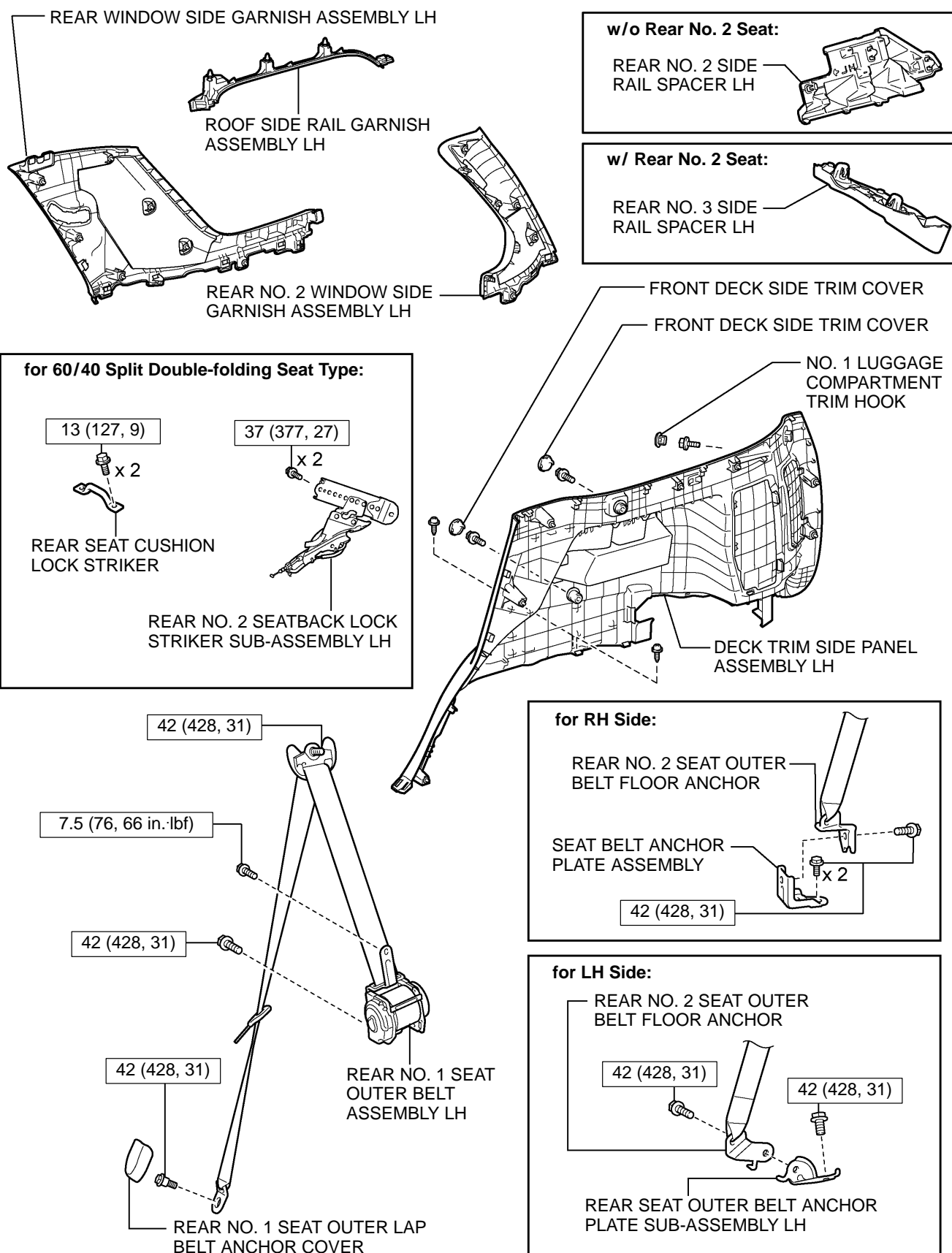
The bolts and nuts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft·lbf) : Specified torque

**(d) INTERIOR TRIM****CAUTION:**

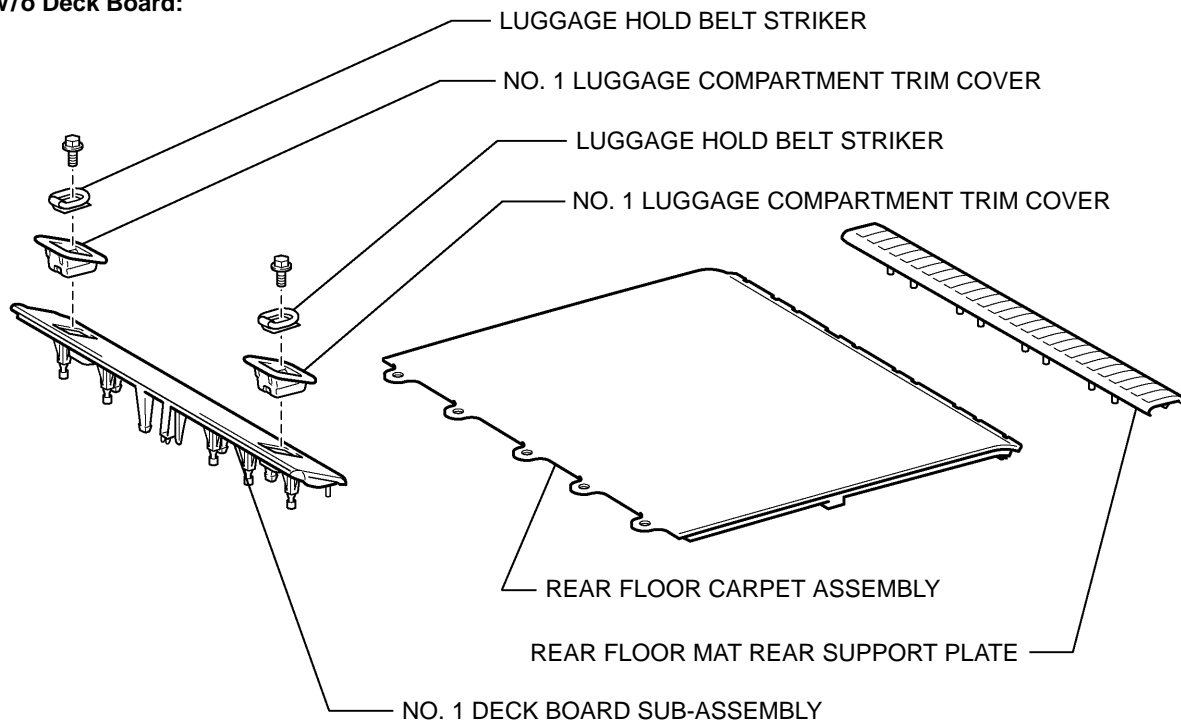
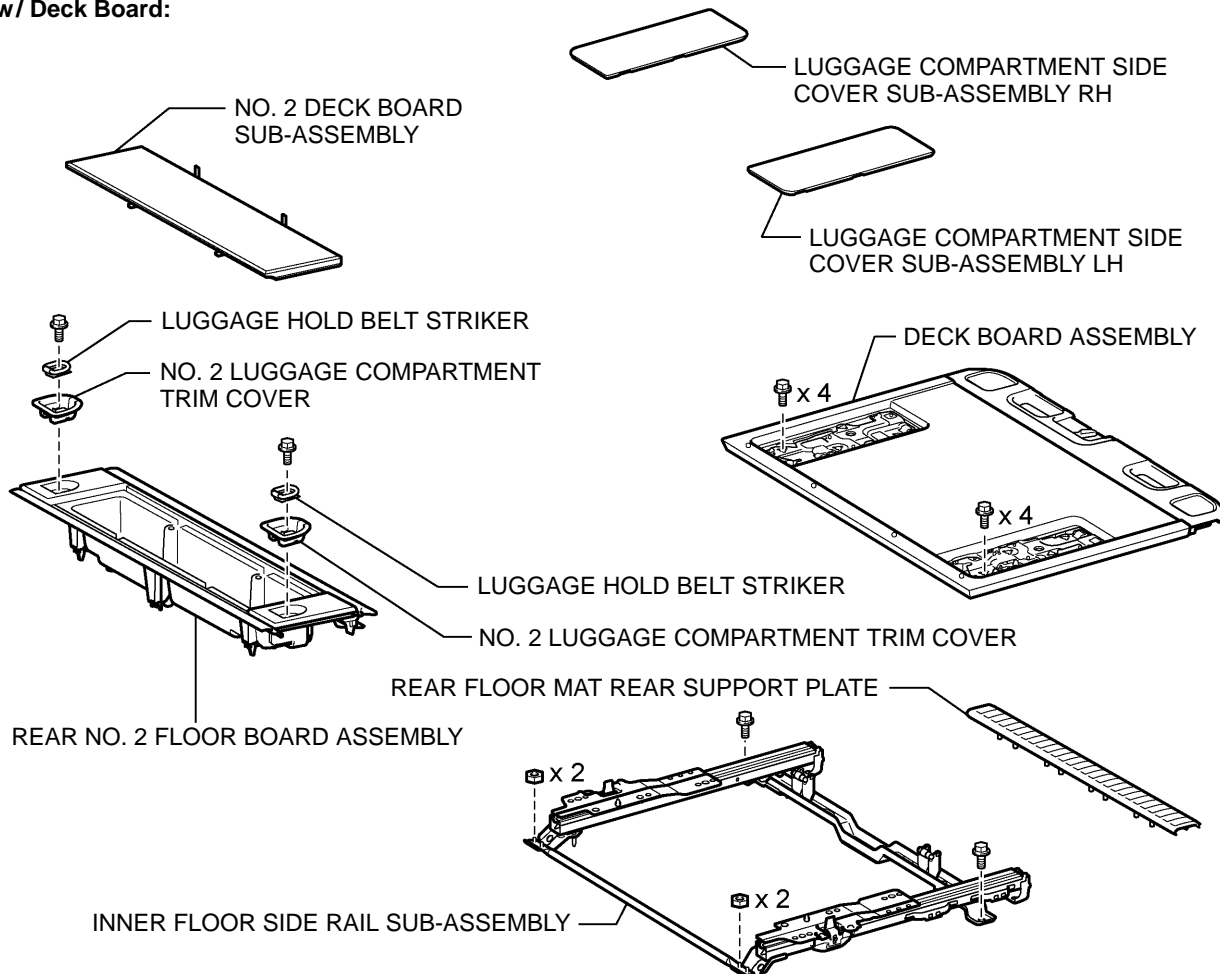
The bolts and nuts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

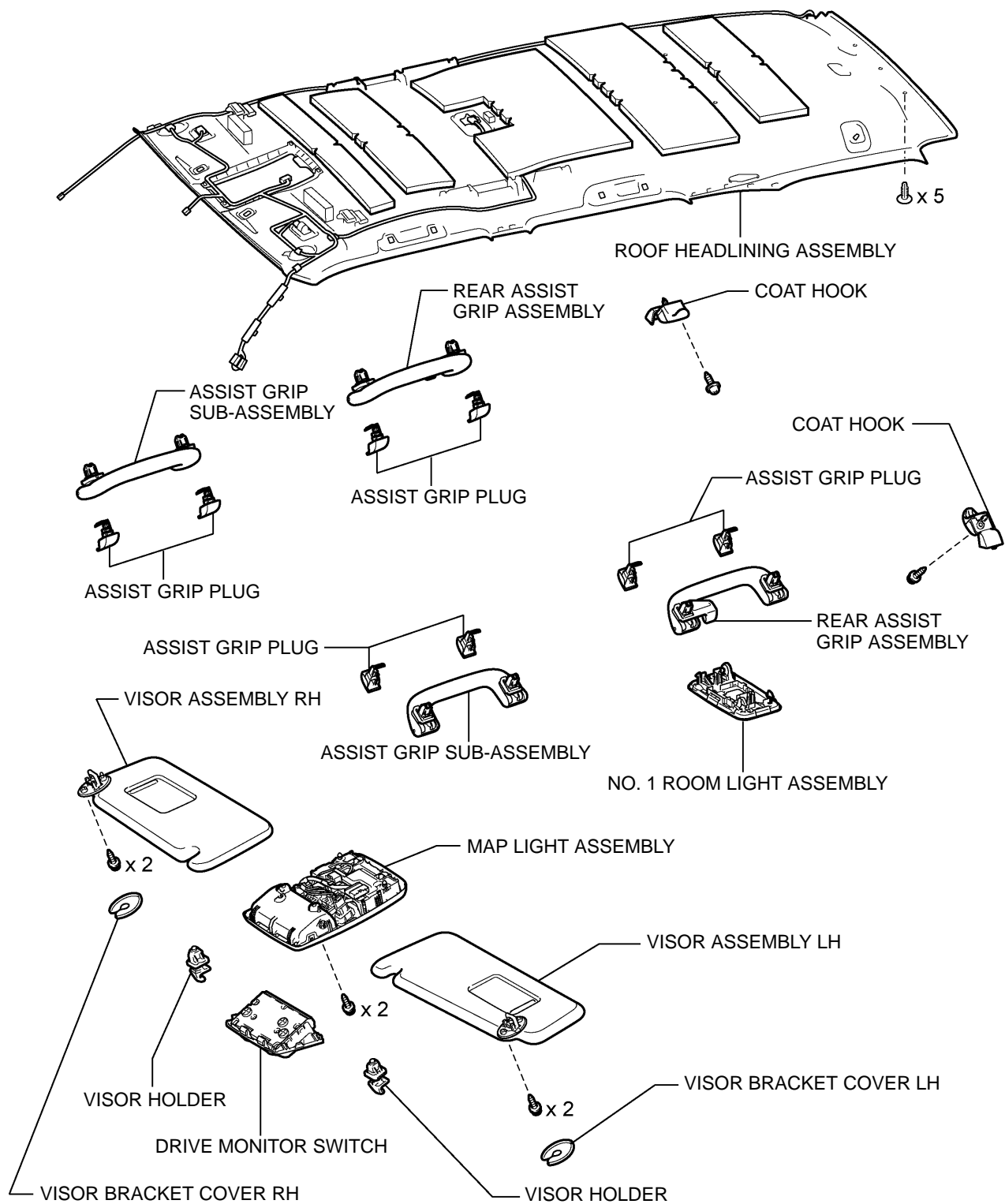
N·m (kgf·cm, ft. lbf) : Specified torque ● Non-reusable part

**CAUTION:**

The bolts and nuts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

**N·m (kgf·cm, ft. lbf) : Specified torque**

**w/o Deck Board:****w/ Deck Board:**



**w/ EC Mirror:**

**w/ Rear Monitor:**



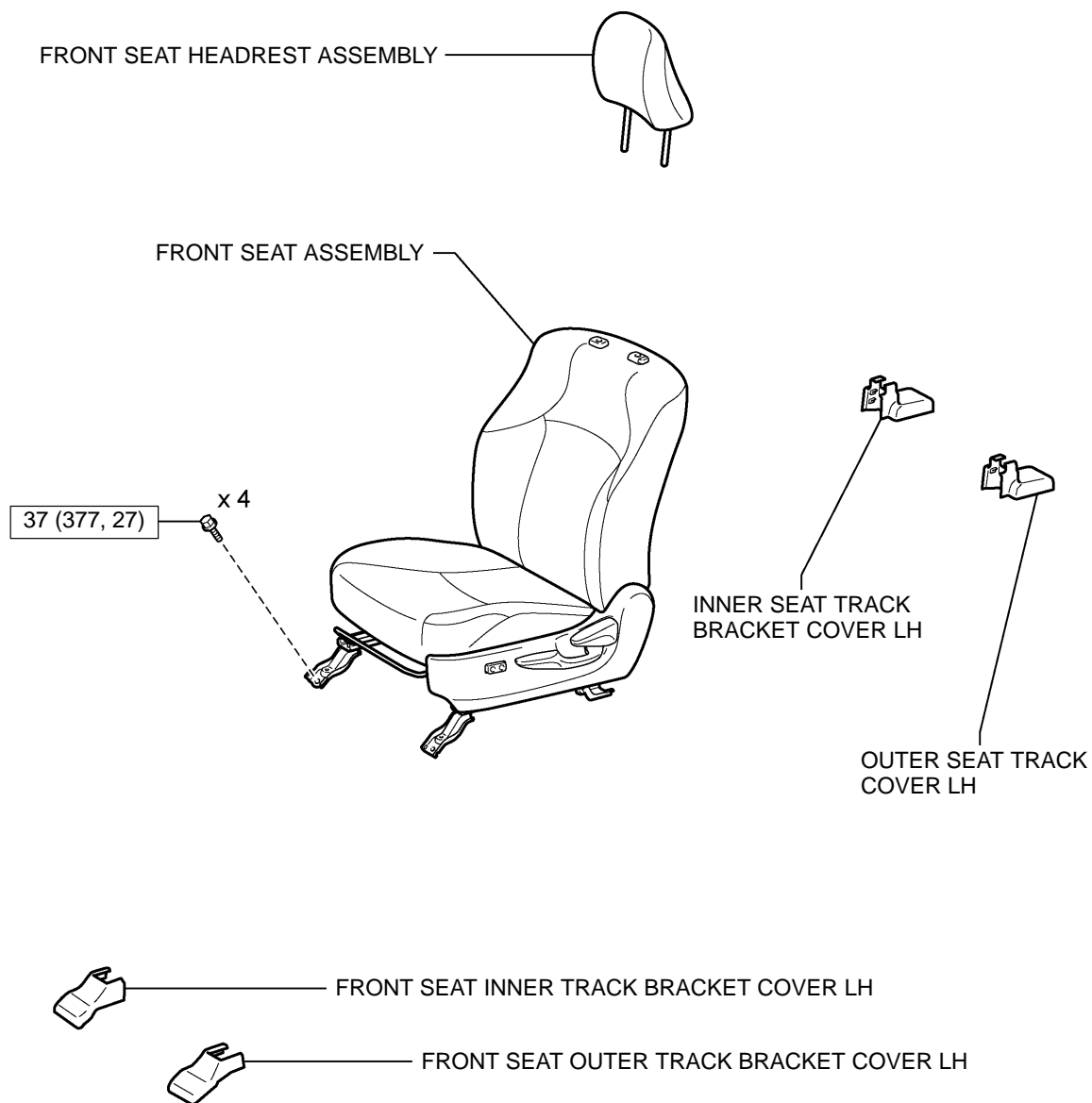
INNER REAR VIEW MIRROR  
STAY HOLDER COVER

**w/o Rear Monitor:**



INNER REAR VIEW MIRROR  
STAY HOLDER COVER



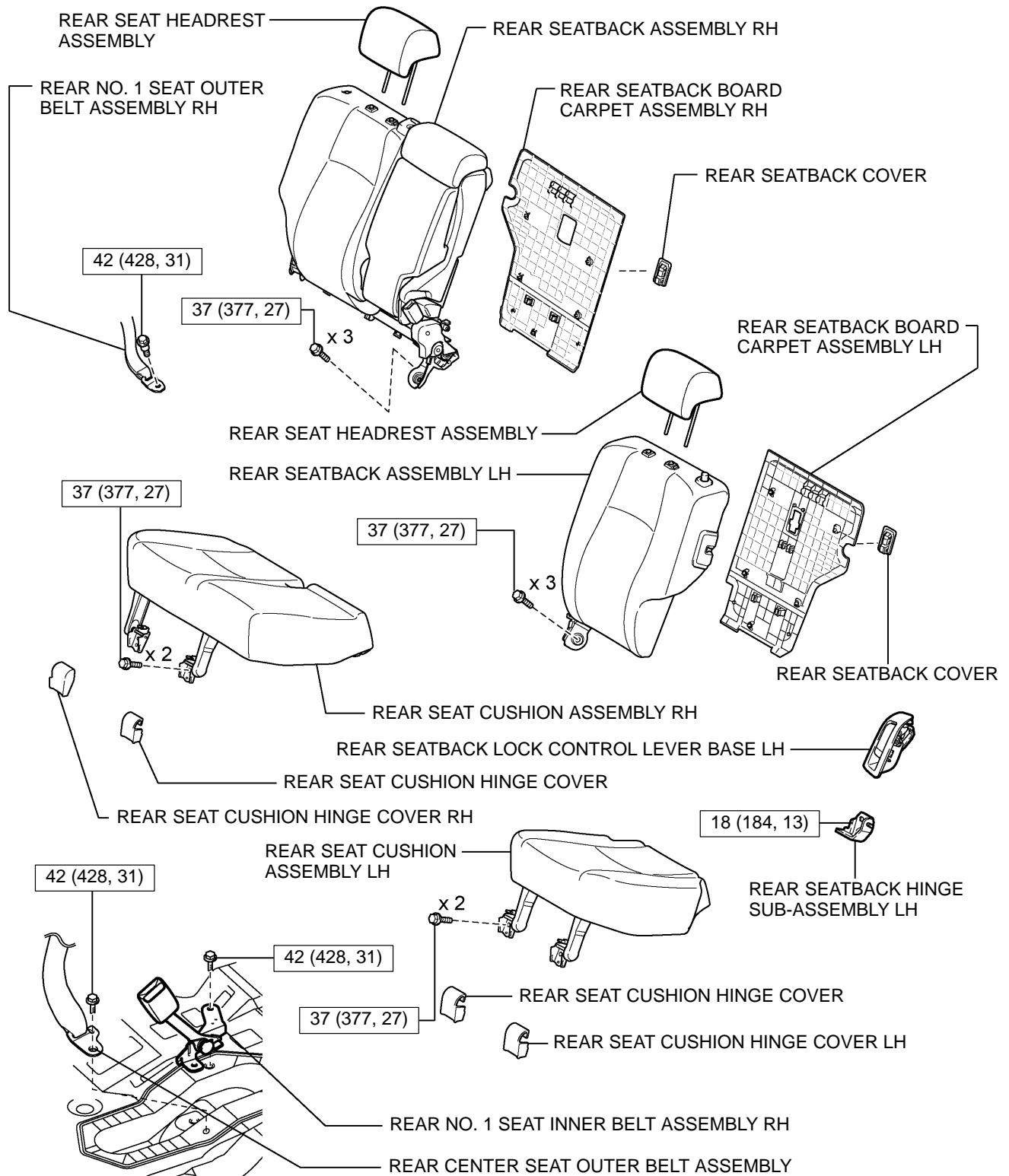
**(e) FRONT SEAT****CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

**N·m (kgf·cm, ft·lbf)** : Specified torque

**(f) REAR SEAT**

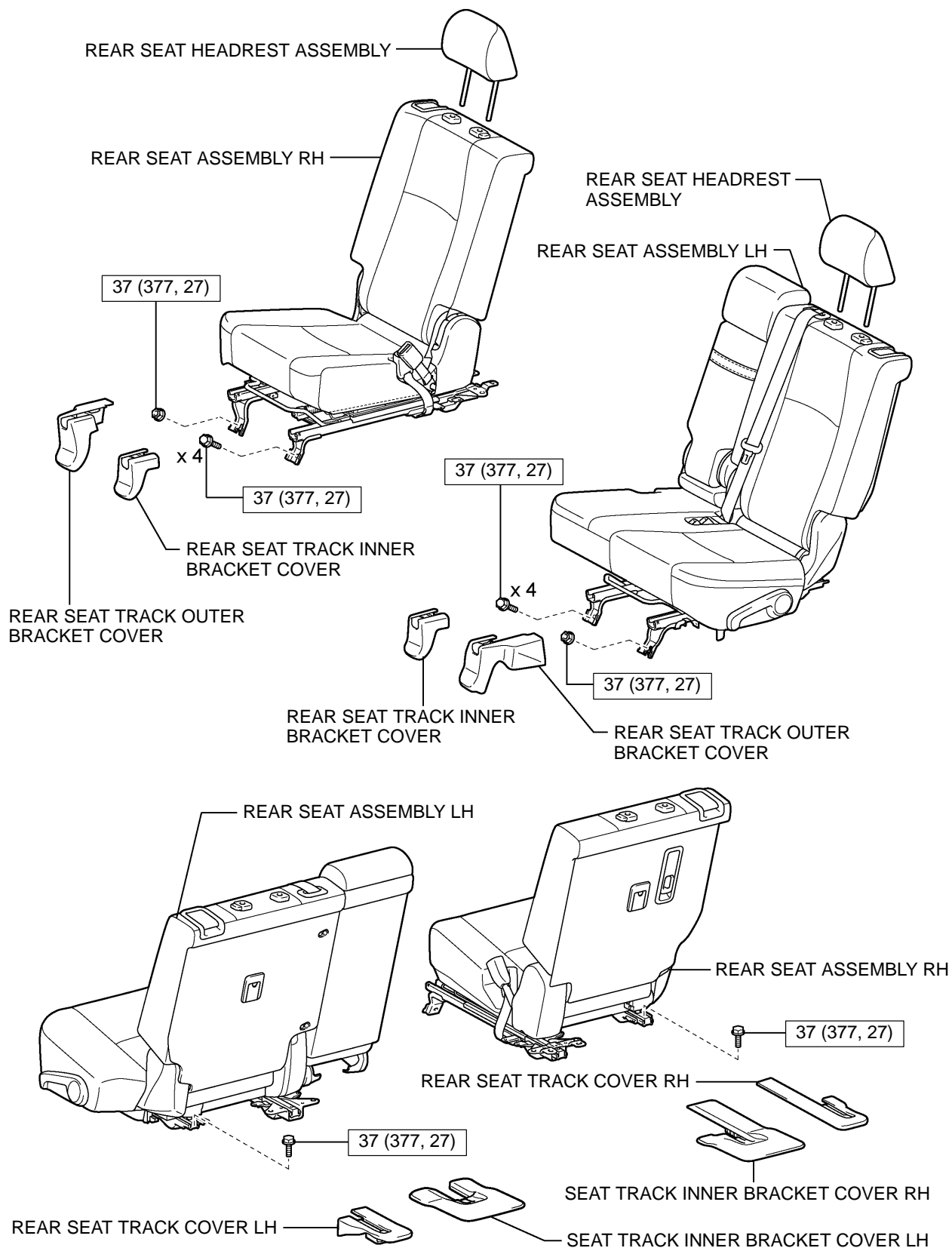
for 60/40 Split Double-folding Seat Type:

**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft·lbf) : Specified torque

for 60/40 Split Slide Walk-in Seat Type:

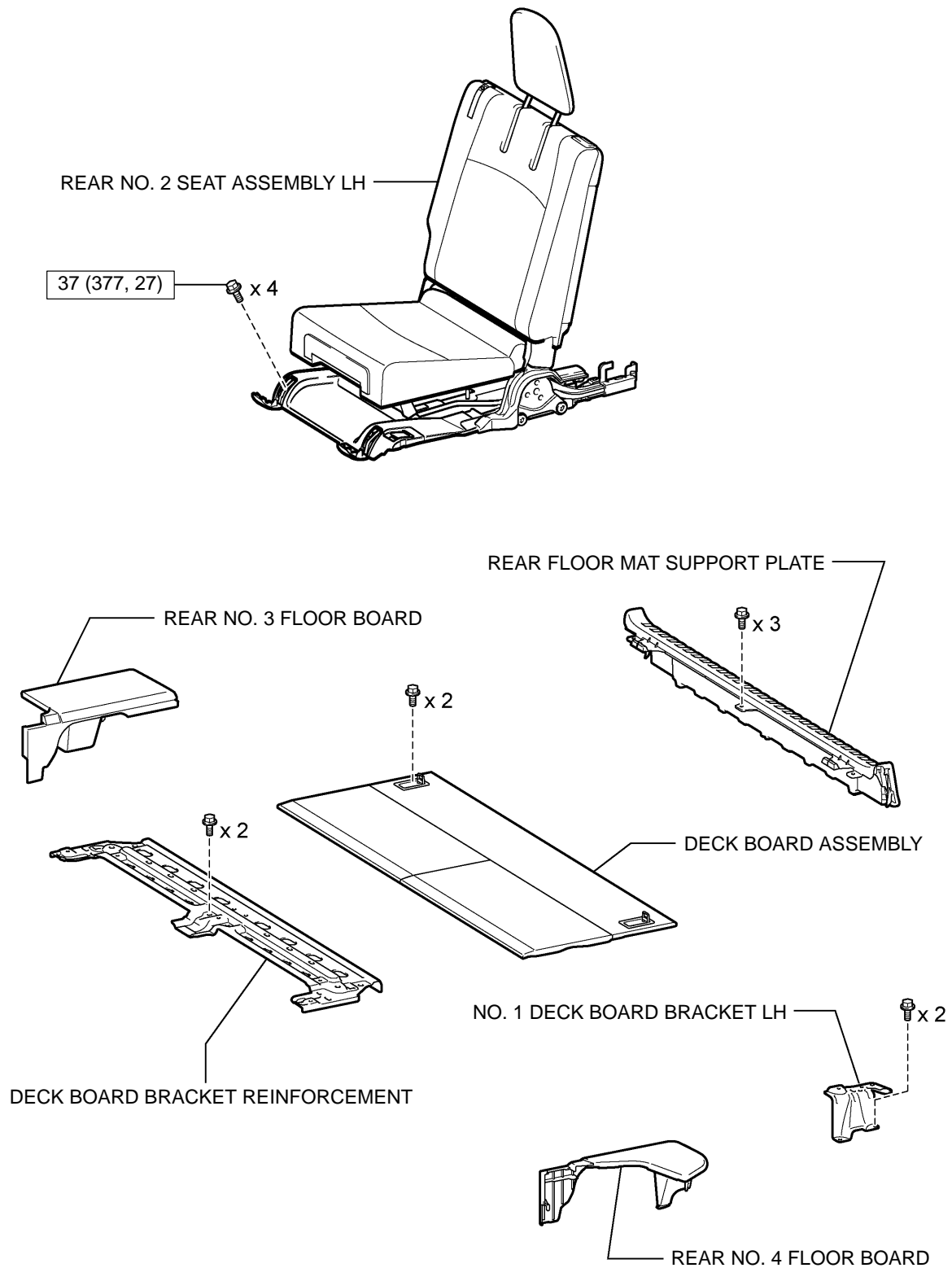


**CAUTION:**

The bolts and nuts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft·lbf) : Specified torque

for Rear No. 2 Seat:



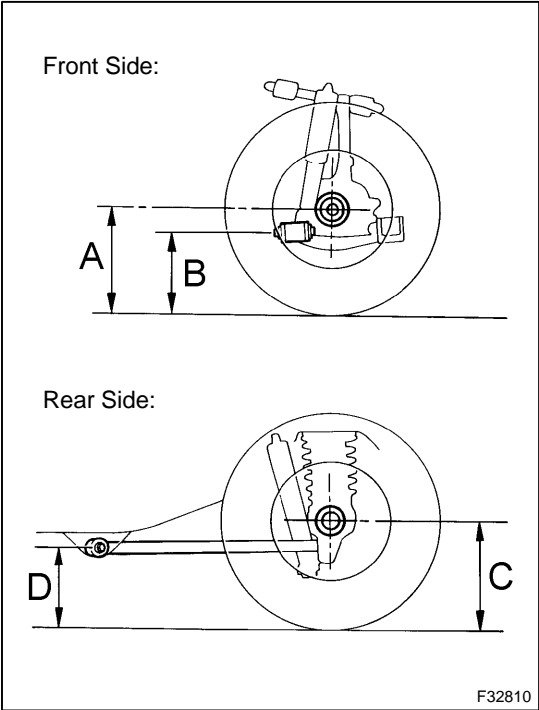
**CAUTION:**

The bolts must be tightened to the torque specification, as they are related to vehicle safety during a collision.

N·m (kgf·cm, ft·lbf) : Specified torque

4. WHEEL ALIGNMENT STANDARD

(a) FRONT WHEEL ALIGNMENT: USA, Canada



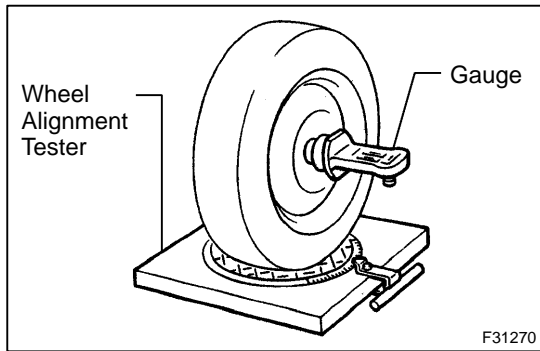
(1) Standard Vehicle Height (Unloaded Vehicle):

**NOTICE:**  
Before inspecting the wheel alignment, adjust the vehicle height to the specification.

Measuring points:

- A: Ground clearance of the front wheel center
- B: Ground clearance of the front adjusting cam bolt center
- C: Ground clearance of the rear wheel center
- D: Ground clearance of the rear lower control arm front side center

Vehicle Model	Grade	Front A – B	Rear C – D
GRN280L-GKAGKA	SR5	115.6 mm (4.55 in.)	79.8 mm (3.14 in.)
	S-Runner	116.4 mm (4.58 in.)	80.5 mm (3.17 in.)
	X-Runner	116.7 mm (4.59 in.)	85.2 mm (3.35 in.)
GRN285L-GKAGKA	SR5	93.9 mm (3.70 in.)	68.1 mm (2.68 in.)
	S-Runner	94.6 mm (3.72 in.)	68.8 mm (2.71 in.)
	Trail Edition	95.7 mm (3.77 in.)	69.8 mm (2.75 in.)
	Trail Edition (w/ KDSS)	98.3 mm (3.87 in.)	72.1 mm (2.84 in.)
	X-Runner	97.5 mm (3.84 in.)	72.4 mm (2.85 in.)
TRN280L-GKPGKA	SR5	115.6 mm (4.55 in.)	79.2 mm (3.12 in.)
	DeContent	115.6 mm (4.55 in.)	79.2 mm (3.12 in.)
	S-Runner	116.4 mm (4.58 in.)	79.9 mm (3.15 in.)
TRN285L-GKPGKA	SR5	96.0 mm (3.78 in.)	67.9 mm (2.67 in.)
	DeContent	96.0 mm (3.78 in.)	67.9 mm (2.67 in.)
	S-Runner	96.7 mm (3.81 in.)	68.6 mm (2.70 in.)



(2) Standard Camber Inclination (Unloaded Vehicle):

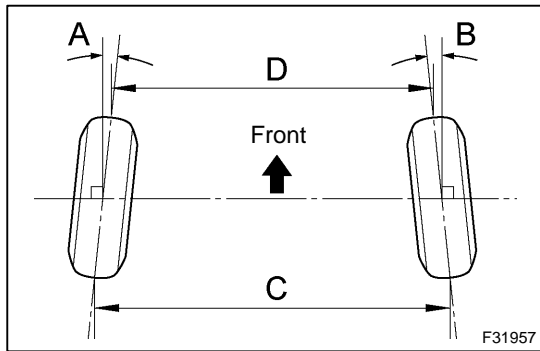
Vehicle Model	Grade	Camber Inclination	Right-left Difference
GRN280L-GKAGKA	SR5	$-0^{\circ}35' \pm 45'$ ( $-0.58^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	S-Runner	$-0^{\circ}37' \pm 45'$ ( $-0.62^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	X-Runner	$-0^{\circ}38' \pm 45'$ ( $-0.63^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
GRN285L-GKAGKA	SR5	$0^{\circ}0' \pm 45'$ ( $0.00^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	S-Runner	$-0^{\circ}1' \pm 45'$ ( $-0.02^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	Trail Edition	$-0^{\circ}3' \pm 45'$ ( $-0.05^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	Trail Edition (w/ KDSS)	$-0^{\circ}7' \pm 45'$ ( $-0.12^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	X-Runner	$-0^{\circ}6' \pm 45'$ ( $-0.10^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
TRN280L-GKPGKA	SR5	$-0^{\circ}34' \pm 45'$ ( $0.57^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	DeContent	$-0^{\circ}34' \pm 45'$ ( $0.57^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	S-Runner	$-0^{\circ}36' \pm 45'$ ( $0.60^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
TRN285L-GKPGKA	SR5	$-0^{\circ}3' \pm 45'$ ( $0.50^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	DeContent	$-0^{\circ}3' \pm 45'$ ( $0.50^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less
	S-Runner	$-0^{\circ}4' \pm 45'$ ( $0.67^{\circ} \pm 0.75^{\circ}$ )	45' (0.75°) or less

## (3) Standard Caster Inclination (Unloaded Vehicle):

Vehicle Model	Grade	Caster Inclination	Right-left Difference
GRN280L-GKAGKA	SR5	3°34' +/-45' (3.57° +/-0.75°)	45' (0.75°) or less
	S-Runner	3°36' +/-45' (3.60° +/-0.75°)	45' (0.75°) or less
	X-Runner	3°44' +/-45' (3.73° +/-0.75°)	45' (0.75°) or less
GRN285L-GKAGKA	SR5	3°11' +/-45' (3.18° +/-0.75°)	45' (0.75°) or less
	S-Runner	3°12' +/-45' (3.20° +/-0.75°)	45' (0.75°) or less
	Trail Edition	3°14' +/-45' (3.23° +/-0.75°)	45' (0.75°) or less
	Trail Edition (w/ KDSS)	3°18' +/-45' (3.30° +/-0.75°)	45' (0.75°) or less
	X-Runner	3°20' +/-45' (3.33° +/-0.75°)	45' (0.75°) or less
TRN280L-GKPGKA	SR5	3°39' +/-45' (5.65° +/-0.75°)	45' (0.75°) or less
	DeContent	3°39' +/-45' (5.65° +/-0.75°)	45' (0.75°) or less
	S-Runner	3°40' +/-45' (5.67° +/-0.75°)	45' (0.75°) or less
TRN285L-GKPGKA	SR5	3°14' +/-45' (5.23° +/-0.75°)	45' (0.75°) or less
	DeContent	3°14' +/-45' (5.23° +/-0.75°)	45' (0.75°) or less
	S-Runner	3°15' +/-45' (5.25° +/-0.75°)	45' (0.75°) or less

## (4) Standard Steering Axis Inclination (Unloaded Vehicle):

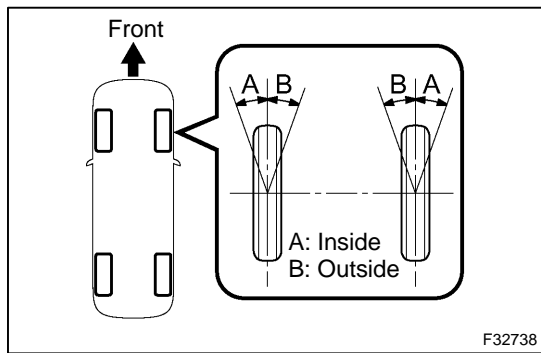
Vehicle Model	Grade	Steering Axis Inclination
GRN280L-GKAGKA	SR5	12°50' +/-45' (12.83° +/-0.75°)
	S-Runner	12°51' +/-45' (12.85° +/-0.75°)
	X-Runner	12°52' +/-45' (12.87° +/-0.75°)
GRN285L-GKAGKA	SR5	12°13' +/-45' (12.22° +/-0.75°)
	S-Runner	12°14' +/-45' (12.23° +/-0.75°)
	Trail Edition	12°15' +/-45' (12.25° +/-0.75°)
	Trail Edition (w/ KDSS)	12°19' +/-45' (12.32° +/-0.75°)
	X-Runner	12°18' +/-45' (12.30° +/-0.75°)
TRN280L-GKPGKA	SR5	12°41' +/-45' (20.68 +/-0.75°)
	DeContent	12°41' +/-45' (20.68 +/-0.75°)
	S-Runner	12°42' +/-45' (20.70 +/-0.75°)
TRN285L-GKPGKA	SR5	12°12' +/-45' (20.20 +/-0.75°)
	DeContent	12°12' +/-45' (20.20 +/-0.75°)
	S-Runner	12°13' +/-45' (20.22 +/-0.75°)



## (5) Standard Toe-in (Unloaded Vehicle):

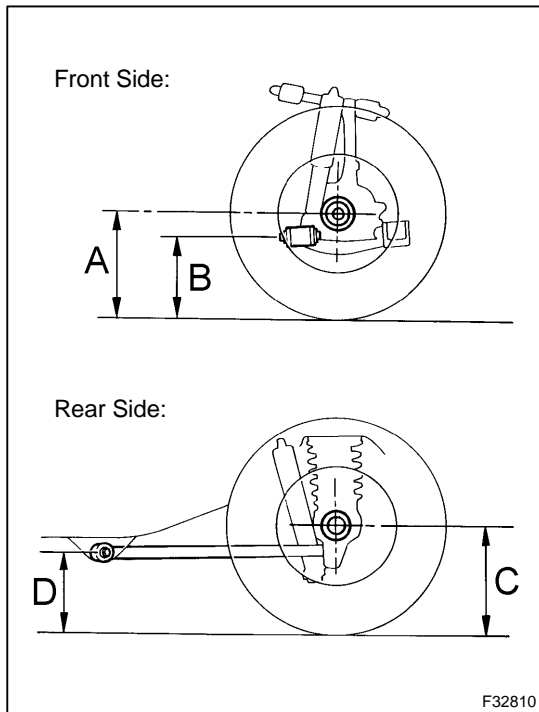
Vehicle Model	Grade	Toe-in
GRN280L-GKAGKA	SR5	A + B: 0°6' +/- 0°10' (0.10° +/- 0.16°) C - D: 2.52 +/- 2 mm (0.10 +/- 0.08 in.)
	S-Runner	A + B: 0°5' +/- 0°10' (0.08° +/- 0.16°) C - D: 2.35 +/- 2 mm (0.09 +/- 0.08 in.)
	X-Runner	A + B: 0°5' +/- 0°10' (0.08° +/- 0.16°) C - D: 2.16 +/- 2 mm (0.09 +/- 0.08 in.)
GRN285L-GKAGKA	SR5	A + B: 0°6' +/- 0°10' (0.10° +/- 0.16°) C - D: 2.47 +/- 2 mm (0.10 +/- 0.08 in.)
	S-Runner	A + B: 0°5' +/- 0°10' (0.08° +/- 0.16°) C - D: 2.29 +/- 2 mm (0.09 +/- 0.08 in.)
	Trail Edition	A + B: 0°5' +/- 0°10' (0.08° +/- 0.16°) C - D: 2.11 +/- 2 mm (0.08 +/- 0.08 in.)
	Trail Edition (w/ KDSS)	A + B: 0°3' +/- 0°10' (0.05° +/- 0.16°) C - D: 1.49 +/- 2 mm (0.06 +/- 0.08 in.)
	X-Runner	A + B: 0°4' +/- 0°10' (0.07° +/- 0.16°) C - D: 1.60 +/- 2 mm (0.06 +/- 0.08 in.)
TRN280L-GKPGKA	SR5	A + B: 0°6' +/- 0°10' (0.10° +/- 0.16°) C - D: 2.59 +/- 2 mm (0.10 +/- 0.08 in.)
	DeContent	A + B: 0°6' +/- 0°10' (0.10° +/- 0.16°) C - D: 2.59 +/- 2 mm (0.10 +/- 0.08 in.)
	S-Runner	A + B: 0°5' +/- 0°10' (0.08° +/- 0.16°) C - D: 2.41 +/- 2 mm (0.09 +/- 0.08 in.)
TRN285L-GKPGKA	SR5	A + B: 0°5' +/- 0°10' (0.08° +/- 0.16°) C - D: 2.07 +/- 2 mm (0.08 +/- 0.08 in.)
	S-Runner	A + B: 0°5' +/- 0°10' (0.08° +/- 0.16°) C - D: 2.07 +/- 2 mm (0.08 +/- 0.08 in.)
	DeContent	A + B: 0°4' +/- 0°10' (0.07° +/- 0.16°) C - D: 1.89 +/- 2 mm (0.07 +/- 0.08 in.)





(6) Standard Wheel Turning Angle (Unloaded Vehicle):

Vehicle Model	Grade	Inside Wheel Angle	Outside Wheel Angle: Reference
GRN280L-GKAGKA	SR5	29°49' to 32°49' (29.82° to 32.82°)	29°35' (29.58°)
	S-Runner	29°49' to 32°49' (29.82° to 32.82°)	29°33' (29.55°)
	X-Runner	29°48' to 32°48' (29.80° to 32.80°)	29°2' (29.03°)
GRN285L-GKAGKA	SR5	30°21' to 33°21' (30.35° to 33.35°)	29°30' (29.50°)
	S-Runner	30°20' to 33°20' (30.33° to 33.33°)	29°28' (29.47°)
	Trail Edition	30°20' to 33°20' (30.33° to 33.33°)	29°27' (29.45°)
	Trail Edition (w/ KDSS)	30°17' to 33°17' (30.28° to 33.28°)	29°23' (29.38°)
	X-Runner	30°18' to 33°18' (30.30° to 33.30°)	29°24' (29.40°)
TRN280L-GKPGKA	SR5	29°49' to 32°49' (29.82° to 32.82°)	29°34' (29.57°)
	DeContent	29°49' to 32°49' (29.82° to 32.82°)	29°34' (29.57°)
	S-Runner	29°48' to 32°48' (29.80° to 32.80°)	29°33' (29.55°)
TRN285L-GKPGKA	SR5	30°19' to 33°19' (30.32° to 33.32°)	29°27' (29.45°)
	S-Runner	30°19' to 33°19' (30.32° to 33.32°)	29°27' (29.45°)
	DeContent	30°18' to 33°18' (30.30° to 33.30°)	29°26' (29.37°)

**(b) FRONT WHEEL ALIGNMENT: Except USA, Canada**

- (1) Standard Vehicle Height (Unloaded Vehicle):

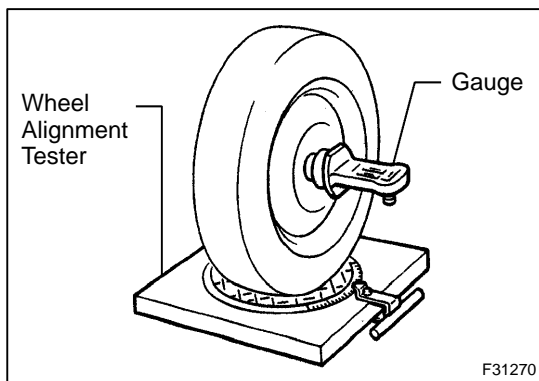
**NOTICE:**

**Before inspecting the wheel alignment, adjust the vehicle height to the specification.**

**Measuring points:**

- A:** Ground clearance of the front wheel center
- B:** Ground clearance of the front adjusting cam bolt center
- C:** Ground clearance of the rear wheel center
- D:** Ground clearance of the rear lower control arm front side center

Vehicle Model	Grade	Front A – B	Rear C – D
GRN280L-GKAGK	SR5	96.5 mm (3.80 in.)	67.9 mm (2.67 in.)
	Limited	97.3 mm (3.83 in.)	68.7 mm (2.70 in.)
GRN285L-GKAGK	SR5	93.9 mm (3.70 in.)	68.1 mm (2.68 in.)
	Limited	94.6 mm (3.72 in.)	68.8 mm (2.71 in.)



- (2) Standard Camber Inclination (Unloaded Vehicle):

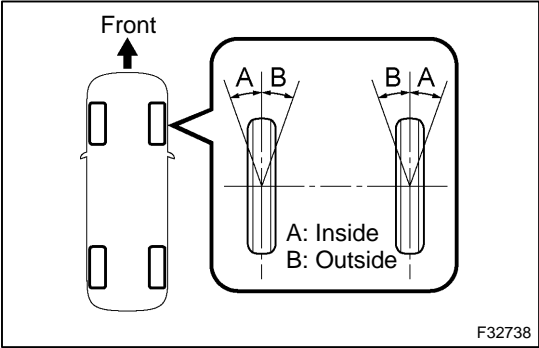
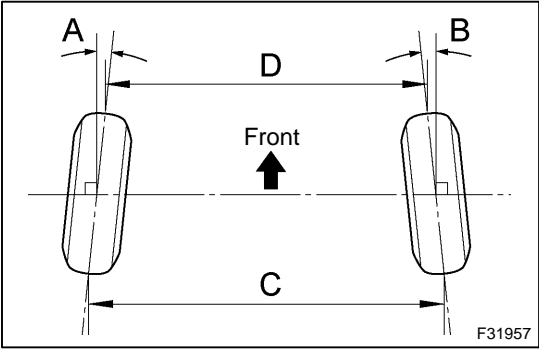
Vehicle Model	Grade	Camber Inclination	Right-left Difference
GRN280L-GKAGK	SR5	-0°4' +/-45' (0.67° +/-0.75°)	45' (0.75°) or less
	Limited	-0°5' +/-45' (0.83° +/-0.75°)	45' (0.75°) or less
GRN285L-GKAGK	SR5	-0°1' +/-45' (0.17° +/-0.75°)	45' (0.75°) or less
	Limited	-0°1' +/-45' (0.17° +/-0.75°)	45' (0.75°) or less

- (3) Standard Caster Inclination (Unloaded Vehicle):

Vehicle Model	Grade	Caster Inclination	Right-left Difference
GRN280L-GKAGK	SR5	12°13' +/-45' (20.22° +/-0.75°)	45' (0.75°) or less
	Limited	12°14' +/-45' (20.23° +/-0.75°)	45' (0.75°) or less
GRN285L-GKAGK	SR5	12°9' +/-45' (21.50° +/-0.75°)	45' (0.75°) or less
	Limited	12°14' +/-45' (20.23° +/-0.75°)	45' (0.75°) or less

- (4) Standard Steering Axis Inclination (Unloaded Vehicle):

Vehicle Model	Grade	Steering Axis Inclination
GRN280L-GKAGK	SR5	12°13' +/-45' (20.22 +/-0.75°)
	Limited	12°14' +/-45' (20.23 +/-0.75°)
GRN285L-GKAGK	SR5	12°9' +/-45' (21.50 +/-0.75°)
	Limited	12°14' +/-45' (20.23 +/-0.75°)



(5) Standard Toe-in (Unloaded Vehicle):

Vehicle Model	Grade	Toe-in
GRN280L-GKAGK	SR5	A + B: 0°4' +/-0°10' (0.07° +/-0.16°) C - D: 1.86 +/-2 mm (0.073 +/-0.08 in.)
	Limited	A + B: 0°4' +/-0°10' (0.07° +/-0.16°) C - D: 1.68 +/-2 mm (0.066 +/-0.08 in.)
GRN285L-GKAGK	SR5	A + B: 0°6' +/-0°10' (0.10° +/-0.16°) C - D: 2.46 +/-2 mm (0.097 +/-0.08 in.)
	Limited	A + B: 0°6' +/-0°10' (0.10° +/-0.16°) C - D: 2.30 +/-2 mm (0.091 +/-0.08 in.)

(6) Standard Wheel Turning Angle (Unloaded Vehicle):

Vehicle Model	Grade	Inside Wheel Angle	Outside Wheel Angle: Reference
GRN280L-GKAGK	SR5	33°54' to 36°54' (33.90° to 36.90°)	32°24' (32.40°)
	Limited	33°54' to 36°54' (33.90° to 36.90°)	32°23' (32.38°)
GRN285L-GKAGK	SR5	33°57' to 36°57' (33.95° to 36.95°)	32°28' (32.47°)
	Limited	33°56' to 36°56' (33.93° to 36.93°)	32°27' (32.45°)

# HOW TO USE THIS MANUAL

## 1. BODY PANEL REPLACEMENT IN THIS MANUAL

BODY PANEL REPLACEMENT		BP-34
<p><b>(A) — QUARTER PANEL (CUT)</b></p>	<p>With the body lower back panel removed.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p><b>Symbol meaning</b></p> <p>⚠ ⚠ ⚠ : Remove Weld Points    ✂ : Cut and Join Location</p> <p>⚡ : Cut Location for Supply Parts</p> </div> <p><b>REMOVAL</b></p> <div style="text-align: center;"> </div> <p><b>REMOVAL POINT</b></p> <p>1 Remove the fuel filler opening Lid at the same time.</p>	
<p><b>(B) PART LOCATION</b></p>	<p><b>(C) REMOVAL AND INSTALLATION CONDITIONS</b></p>	
<p><b>(D) SYMBOL MEANING</b></p>	<p><b>(E) REMOVAL DIAGRAM</b></p>	
<p><b>(F) REMOVAL GUIDE</b></p>	<p><b>(G) WELDING EXPLANATION</b> (See page IN-45)</p> <p><b>(H) SYMBOLS</b> (See page IN-43)</p>	

**(A) REPLACEMENT PARTS**


**QUARTER PANEL (CUT)**




- Replacement method
- (ASSY)...Assembly replacement
- (CUT)...Major cutting (less than 1/2 of part used)
- (CUT-H)...Half cutting (about 1/2 of part used)
- (CUT-P)...Partial cutting (most of part used)
- Replacement part


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BODY PANEL REPLACEMENT

Symbol meaning

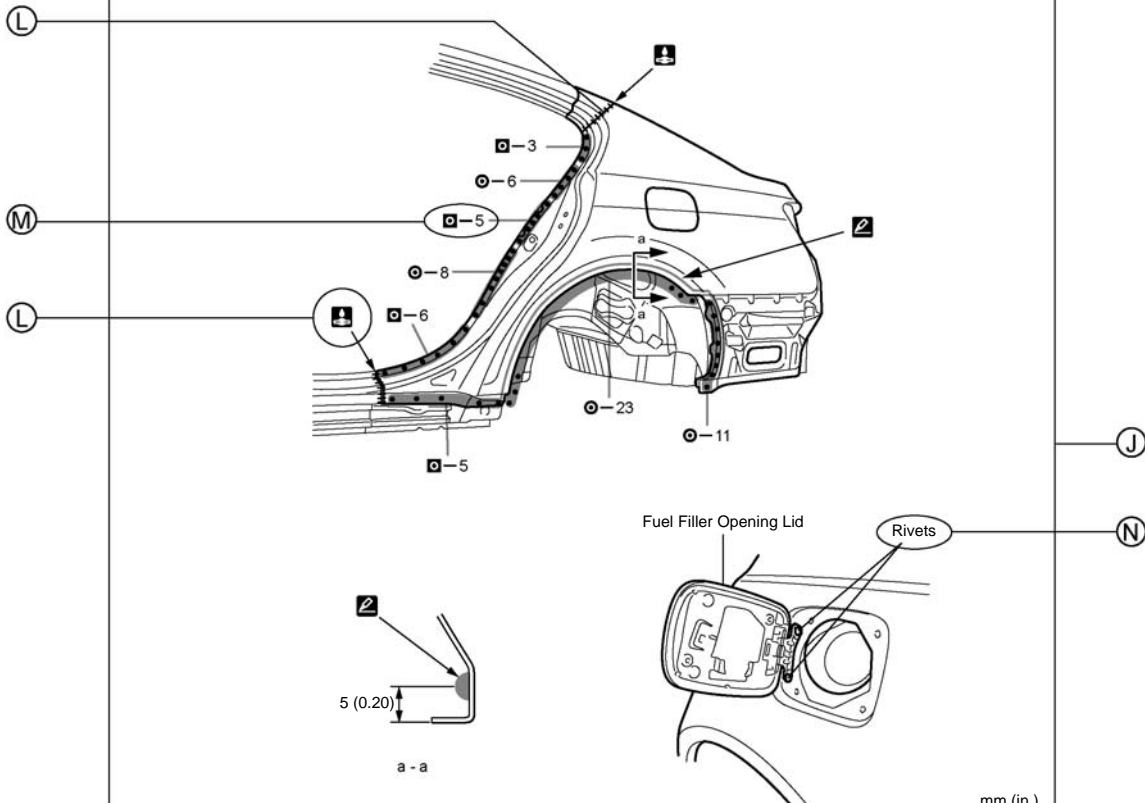
 : Spot Weld

   : Plug Weld

 : Butt Weld

 : Body Sealer

INSTALLATION



5 (0.20)

a - a

Fuel Filler Opening Lid

Rivets

mm (in.)

INSTALLATION POINT

1

Inspect the fitting of the related parts around the new parts before welding.  
This affects the appearance of the finish.

2

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

3

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

HINT:

• Apply body sealer evenly about 5 mm (0.20 in.) from the flange, avoiding any oozing.

• Apply body sealer evenly, about 3 – 4 mm (0.12 – 0.16 in.) in diameter.

① SYMBOL MEANING

② INSTALLATION DIAGRAM



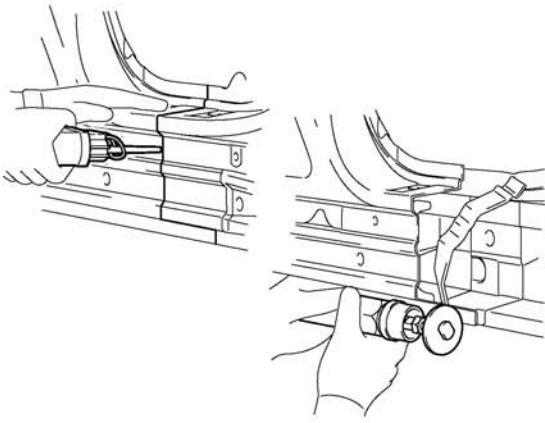





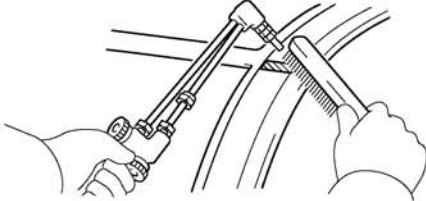


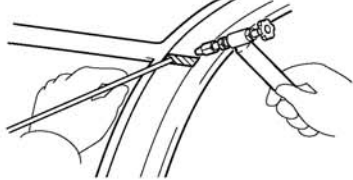
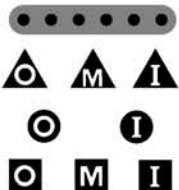
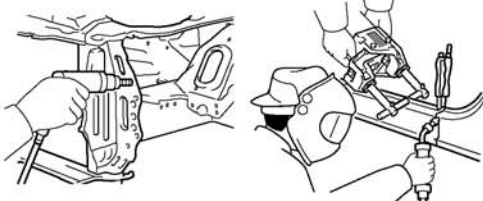
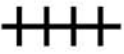

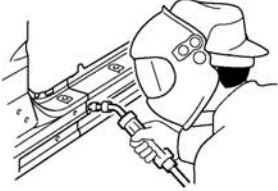



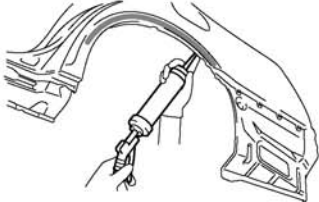
③ INSTALLATION GUIDE

④ SYMBOLS (See page IN-43)



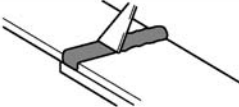

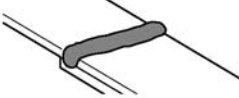
⑤ WELDING EXPLANATION (See page IN-45)

⑥ PART NAME

## 2. SYMBOLS

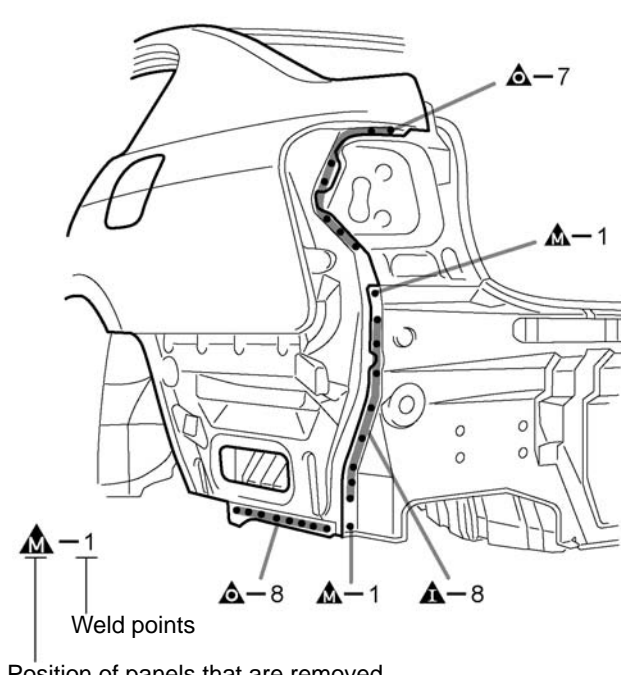
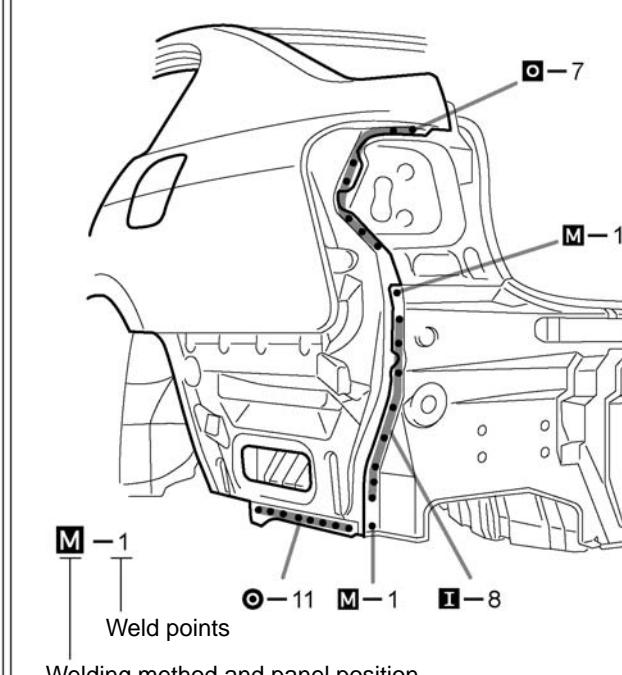
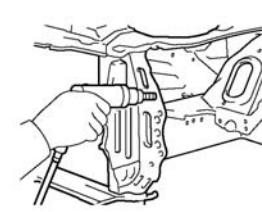
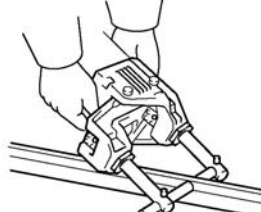
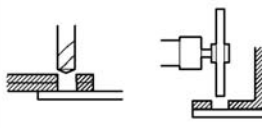
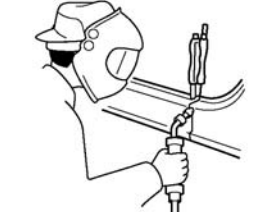
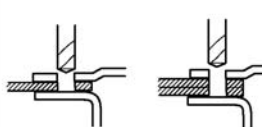
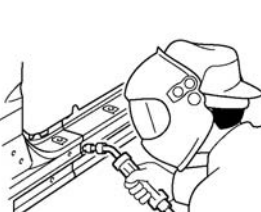
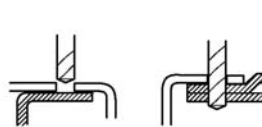
REPAIR AREA INDICATOR SYMBOLS		REPAIR METHOD INDICATOR SYMBOLS		ILLUSTRATION
	CUT		CUT AND JOIN LOCATION (SAW CUT)	
			CUT AND JOIN LOCATION (Cut Location for Supply Parts)	
			CUT LOCATION	
			CUT WITH DISC SANDER, ETC.	
	BRAZE		BRAZING OR ARC BRAZING FOR REMOVAL	
	BRAZE		BRAZE	
	WELD POINTS	—	SPOT WELD OR PLUG WELD (refer to "ILLUSTRATION OF WELD POINT SYMBOLS")	
	WELDING		BUTT WELD	
			FILLET WELD	
	BODY SEALER		BODY SEALER	

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REPAIR AREA INDICATOR SYMBOLS		REPAIR METHOD INDICATOR SYMBOLS		ILLUSTRATION
—	ASSEMBLY MARK		STANDARD HOLE FOR INSTALLATION	—
	BODY SEALER	—	FLAT FINISHING	
			NO FLAT FINISHING	

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### 3. ILLUSTRATION OF WELD POINT SYMBOLS

REMOVAL			INSTALLATION		
 <p>Weld points</p> <p>Position of panels that are removed</p>			 <p>Weld points</p> <p>Welding method and panel position</p>		
SYMBOLS	MEANING	ILLUSTRATION	SYMBOLS	MEANING	ILLUSTRATION
▲	Remove Weld Points		●	Spot Welding	
○	Position of Panel Being Replaced is on Outside		■	Plug Welding	
M	Position of Panel Being Replaced is in Center		+	Spot MIG Welding	
I	Position of Panel Being Replaced is on Inside				

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