



ABOUT THIS VEHICLE
> STRUCTURAL
OUTLINE

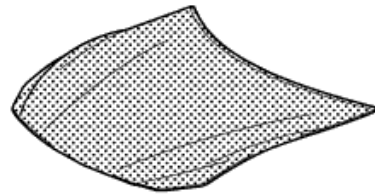
- STRUCTURAL OUTLINE

ABOUT THIS VEHICLE > STRUCTURAL OUTLINE



STRUCTURAL OUTLINE

Text in Illustration

	Aluminium		Adhesive Application Area
---	-----------	---	---------------------------



Text in Illustration

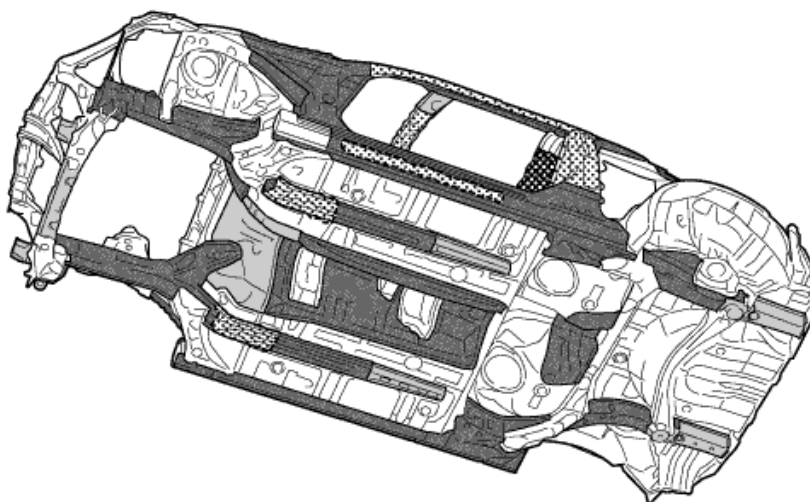
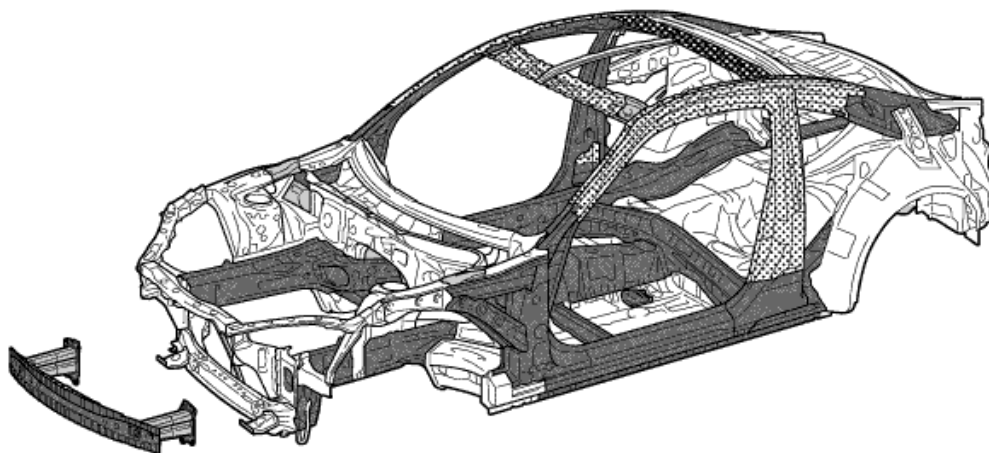
	1500 MPa Ultra High Strength Steel		980 MPa Ultra High Strength Steel
	590 MPa High Strength Steel		440 MPa High Strength Steel



for Type A:






for Type B:

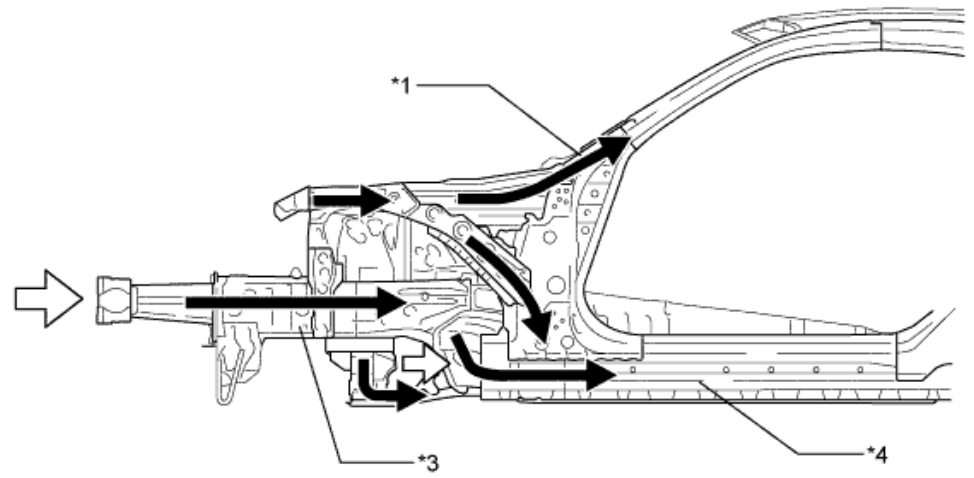
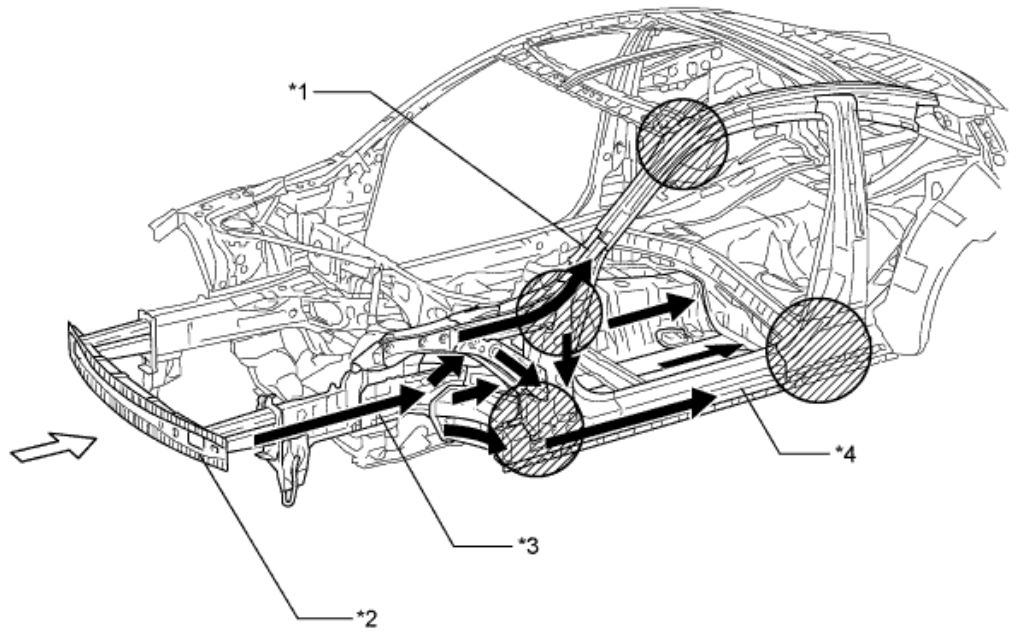


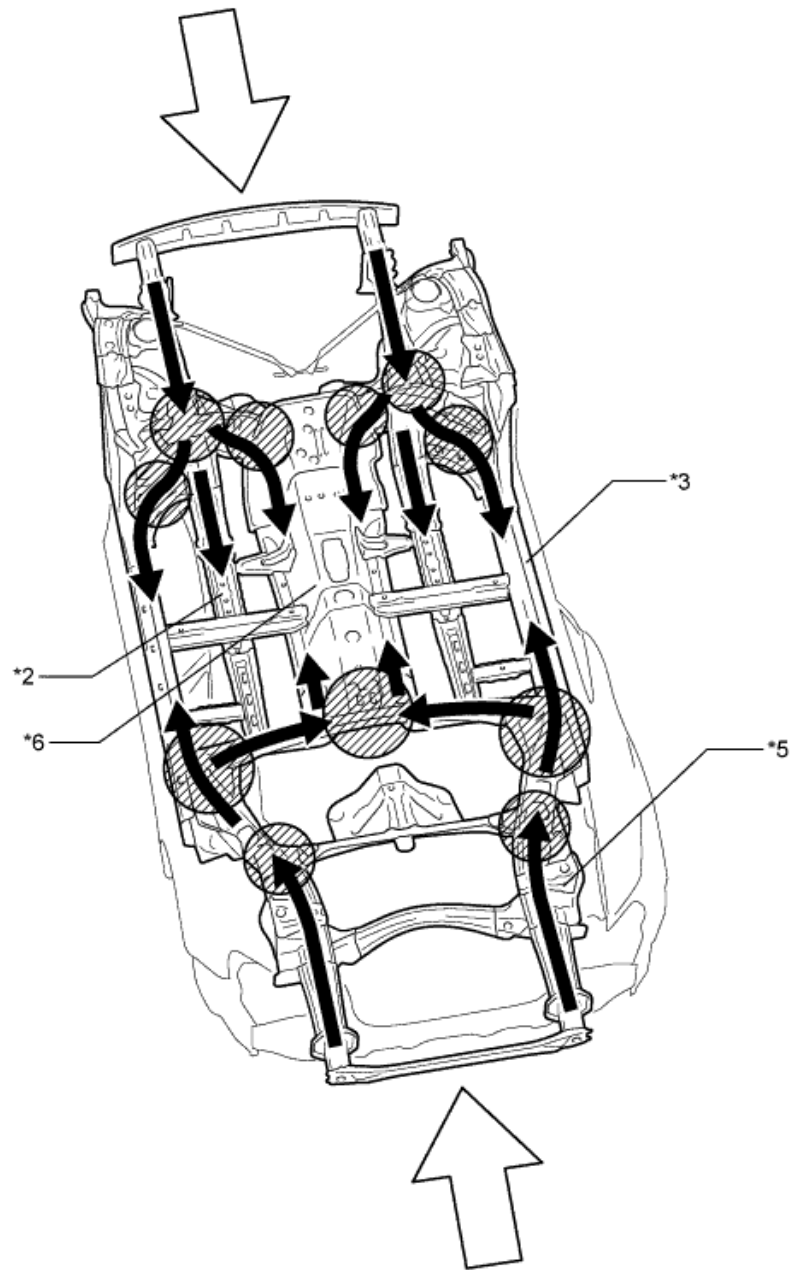
ABOUT THIS VEHICLE
> DAMAGE
DIAGNOSIS

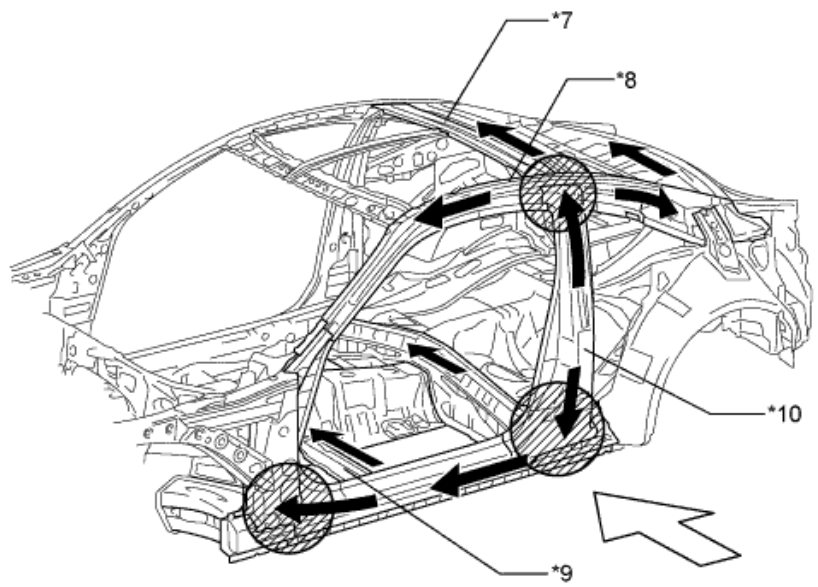
ABOUT THIS VEHICLE > DAMAGE DIAGNOSIS

Text in Illustration

*1	Front Body Pillar Reinforce	*2	Front Bumper Reinforcement
*3	Front Side Member	*4	Rocker Reinforce
*5	Rear Floor Side Member	*6	Front Floor Center Panel
*7	Roof Panel Reinforcement	*8	Roof Side Rail
*9	Front Floor Cross Member	*10	Center Body Pillar Reinforcement
	Confirmation Point		Collision Direction
	Collision Force Absorption Direction	-	-







ABOUT THIS VEHICLE > EXTERIOR RESIN PARTS AND RESIN CHARACTERISTICS

- PLASTIC PROPERTIES CHART
- THE PLASTIC BODY PARTS MATERIAL LIST

ABOUT THIS VEHICLE > EXTERIOR RESIN PARTS AND RESIN CHARACTERISTICS

PLASTIC PROPERTIES CHART

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
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.
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.
E/VAC	Ethylene/ Vinyl Acetate Copolymer Resin	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.
FRP	Fiber Reinforced Plastics	180 (356)	Alcohol and gasoline are harmless.	Avoid alkali.
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.
PE	Polyethylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PEI	Polyetherimide	160 (320)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PET	Polyethylene Terephthalate	75 (167)	Alcohol and gasoline are harmless.	Avoid dipping in water.
	Polypropylene		Alcohol and gasoline are	Most solvents are

PGM	Glass Fiber Pulp	80 (176)	harmless.	harmless.
PMMA	Polymethyl Methacrylate	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.
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.
PPC	Polyphthlate Carbonate	149 (300)	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.
PPF	Composite Reinforced 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.
TPE	Thermoplastic Elastomer	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.
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.

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

THE PLASTIC BODY PARTS MATERIAL LIST

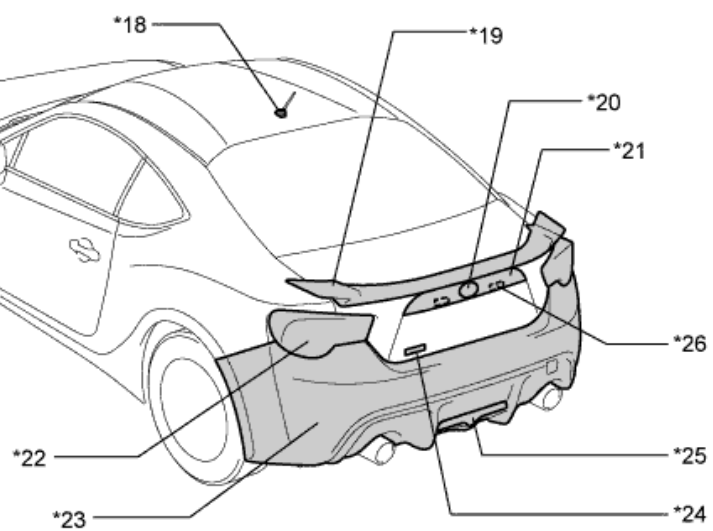
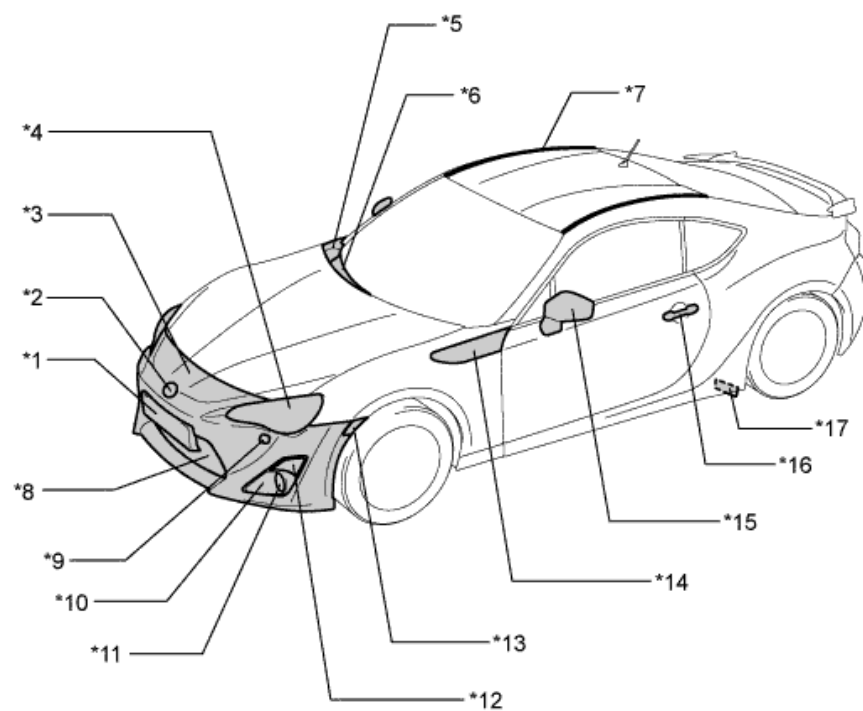
Text in Illustration

*1	Licence Plate Base (PP)	*2	Emblem (ABS)
*3	Front Bumper Cover (PP)	*4	Head Light (PC/PP)

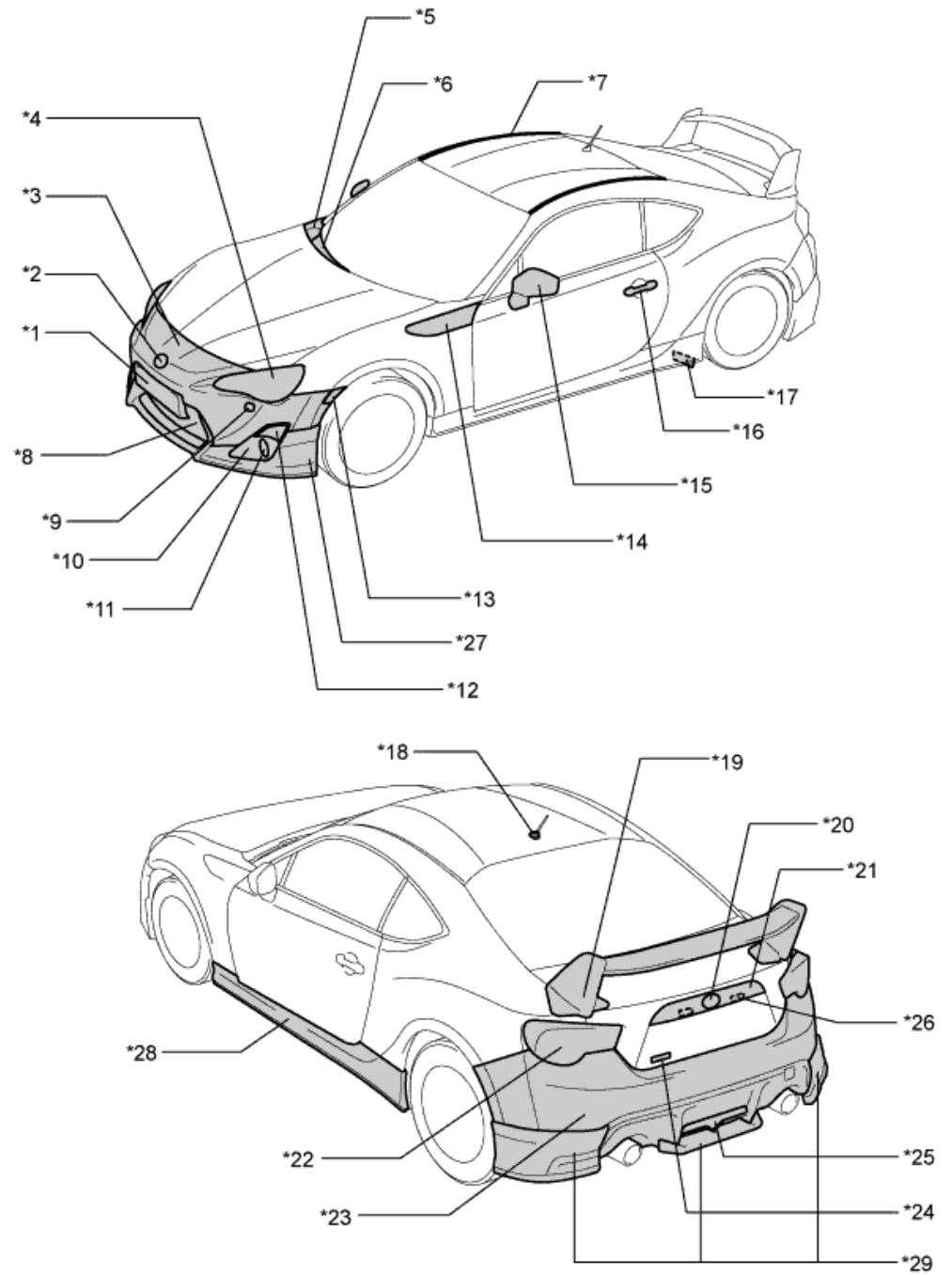
*5	Cowl Panel Side (PP/TPO)	*6	Cowl Top Ventilator Louver (PP)
*7	Roof Drip Side Finish Moulding (TPO)	*8	Radiator Lower Grille (PP)
*9	Head Light Washer Cover (ABS)	*10	Fog Light Cover (PP)
*11	Fog Light (PC)	*12	Front Turn Signal Light (PC/PP)
*13	Side Turn Signal Light (PMMA/PC)	*14	Fender Garnish (ABS/PP)
*15	Outside Rear View Mirror (ABS,AES)	*16	Door Outside Handle (PC/PBT,PA)
*17	Air Flap Plate (PP)	*18	Antenna Base (ASA/PC)
*19	Rear Spoiler Cover (ABS)	*20	Emblem (ABS)
*21	Luggage Compartment Door Outside Garnish (ABS)	*22	Rear Combination Light (PMMA/ASA)
*23	Rear Bumper Cover (PP)	*24	Name Plate (ABS)
*25	Backup Light (PC/PBT/PET)	*26	Licence Plate Light (PC)
*27	Front Under Spoiler (PP)	*28	Side Spoiler (PP)
*29	Rear Under Spoiler (PP)	-	-

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

for Standard:



for Sport Package:



HOW TO USE THIS MANUAL > GENERAL INFORMATION

- Scope of the repair work explanation
- Section categories
- REPAIR PROCEDURES
- TERM DEFINITIONS
- INTERNATIONAL SYSTEM OF UNITS

HOW TO USE THIS MANUAL > GENERAL INFORMATION

Scope of the repair work explanation

- a. 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.
- b. 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.
- c. Make sure to perform the following essential procedures, although they are omitted in this manual.
 - i. Clean and wash removed parts, if necessary.
 - ii. Visual inspection.
- d. This manual has references to the Repair Manual.
 - i. vehicle interior section
 - ii. vehicle exterior section

Section categories

- a. This manual has been divided as shown below.

Section Title	Contents	Examples
INTRODUCTION	Explanation of general body repair.	SYMBOLS PRECAUTIONS FOR WELDING
BODY WELD POINT	Instructions for replacing the weld panels from the white body condition, from which bolted parts have been removed, with individual supply parts.	CUT AND JOIN REPLACEMENT SECTION ASSEMBLY REPLACEMENT
BODY DIMENSIONS	Body aligning measurements.	THREE-DIMENSIONAL DISTANCE TWO-DIMENSIONAL DISTANCE
PAINTING / COATING	Scope and type of anti-rust treatment, etc. together with weld panel replacement.	APPLICATION AREAS INSTALLATION AREAS

REPAIR PROCEDURES

- a. Illustrations of similar vehicle models are sometimes used. In these cases, minor details may be different from the actual vehicle.
- b. About a symmetrical part, only one side is described.

TERM DEFINITIONS

CAUTION	Possibility of injury to you or other people.
NOTICE	Possibility of damage to components being repaired.
HINT	Provides additional information to help you perform repairs.

INTERNATIONAL SYSTEM OF UNITS

- a. The units used in this manual comply with the International System of Units (SI UNIT) standard. Other units from the metric system and the English systems are also provided.
Example:


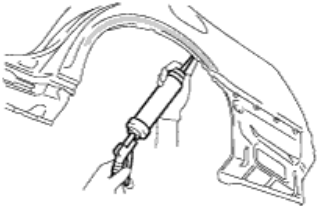




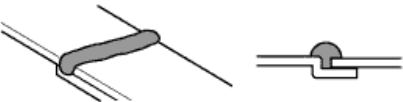
Torque:

30 N*m{ 310 kgf*cm , 22 ft.*lbf }

HOW TO USE THIS MANUAL > SYMBOLS

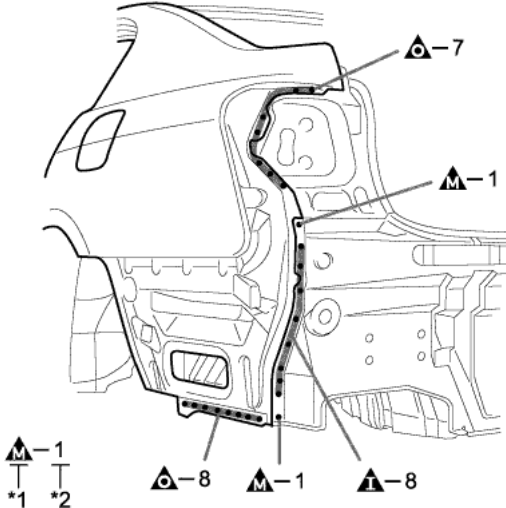
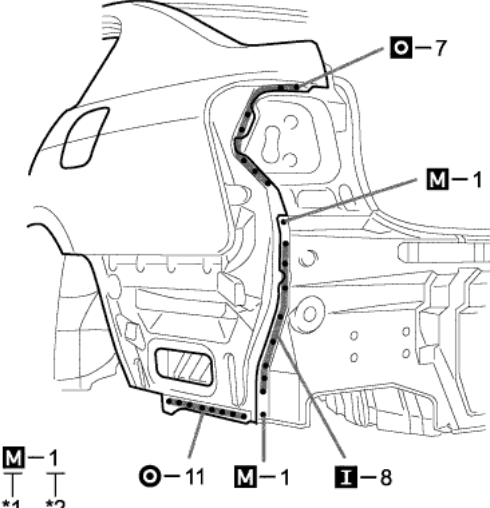

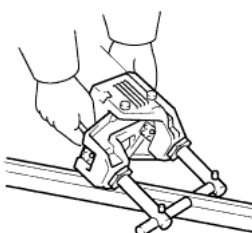
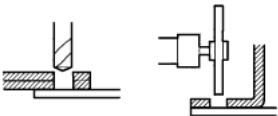
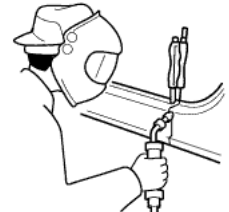
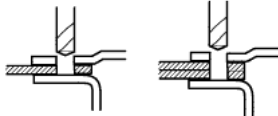
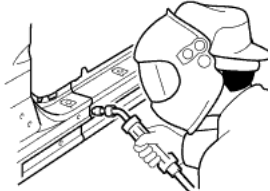
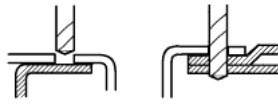
HOW TO USE THIS MANUAL > SYMBOLS

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 (See the ILLUSTRATION OF WELD POINT SYMBOLS)	
	WELDING		BUTT WELD	
			FILLET WELD	
	BODY SEALER		BODY SEALER	

				
-	ASSEMBLY MARK		STANDARD HOLE FOR INSTALLATION	-
	BODY SEALER	-	FLAT FINISHING	
			NO FLAT FINISHING	

HOW TO USE THIS MANUAL > ILLUSTRATION OF WELD POINT SYMBOLS

HOW TO USE THIS MANUAL > ILLUSTRATION OF WELD POINT SYMBOLS

REMOVAL			INSTALLATION		
					
*1	Position of panels that are removed		*1	Welding method and panel position	
*2	Weld points		*2	Weld points	
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				

WHEN REMOVING, INSTALLING, REPAIRING OR REPLACING PARTS > COMPONENTS

- FRONT BUMPER
- REAR BUMPER
- INSTRUMENT PANEL
- INTERIOR TRIM
- SEAT

WHEN REMOVING, INSTALLING, REPAIRING OR REPLACING PARTS > COMPONENTS

HINT:

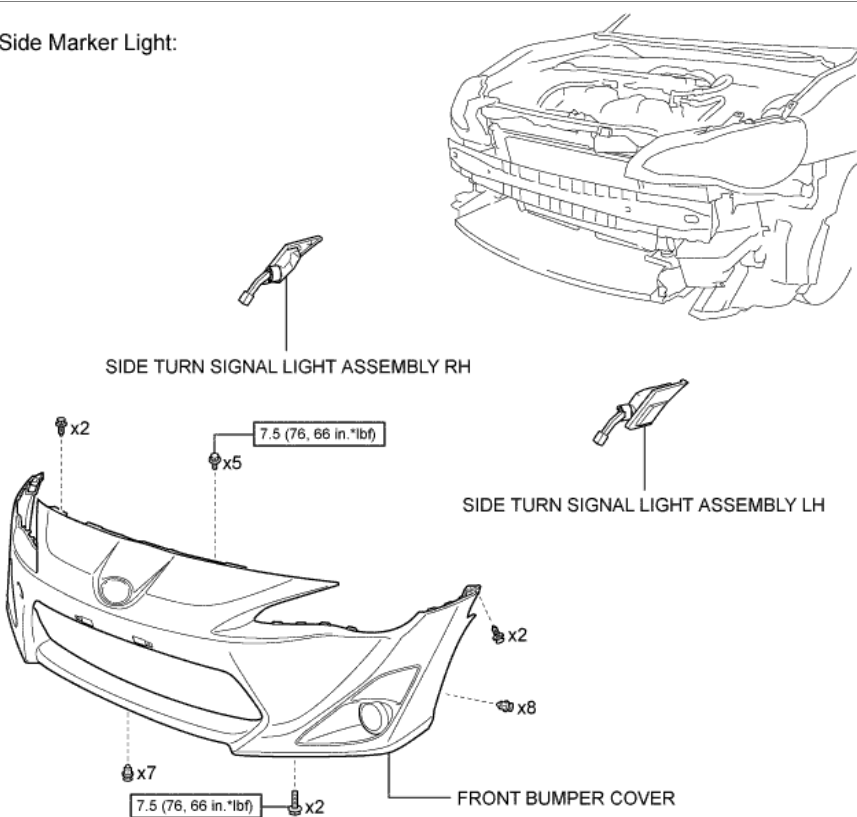
The shapes and names of parts and the general layout may differ depending on the vehicle grade and options.

FRONT BUMPER

w/ Headlight Cleaner System:

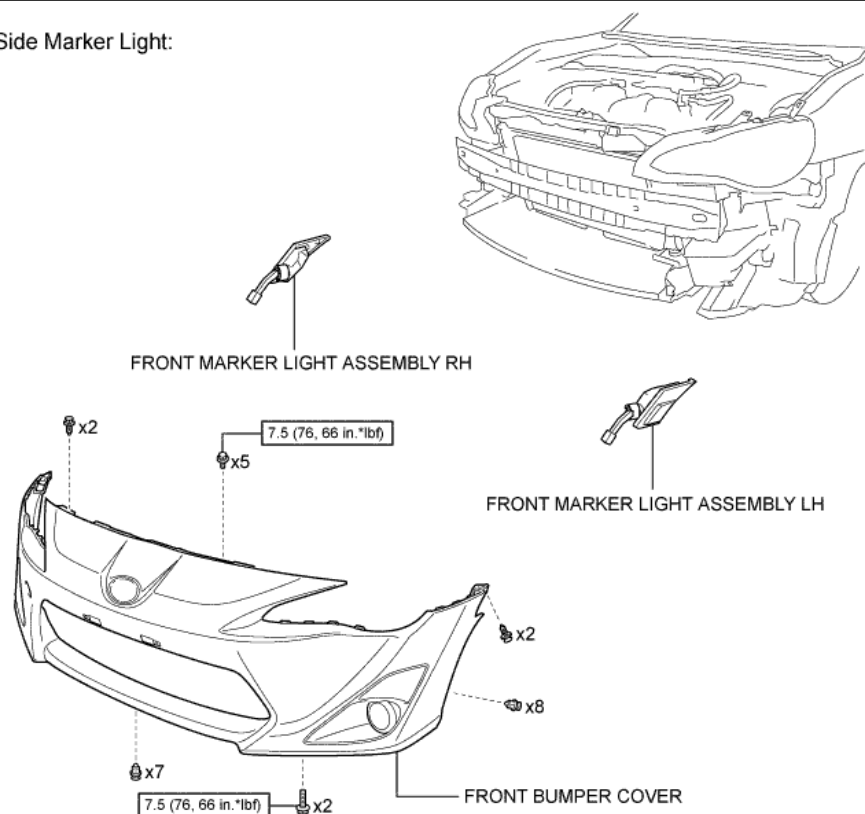


w/o Side Marker Light:

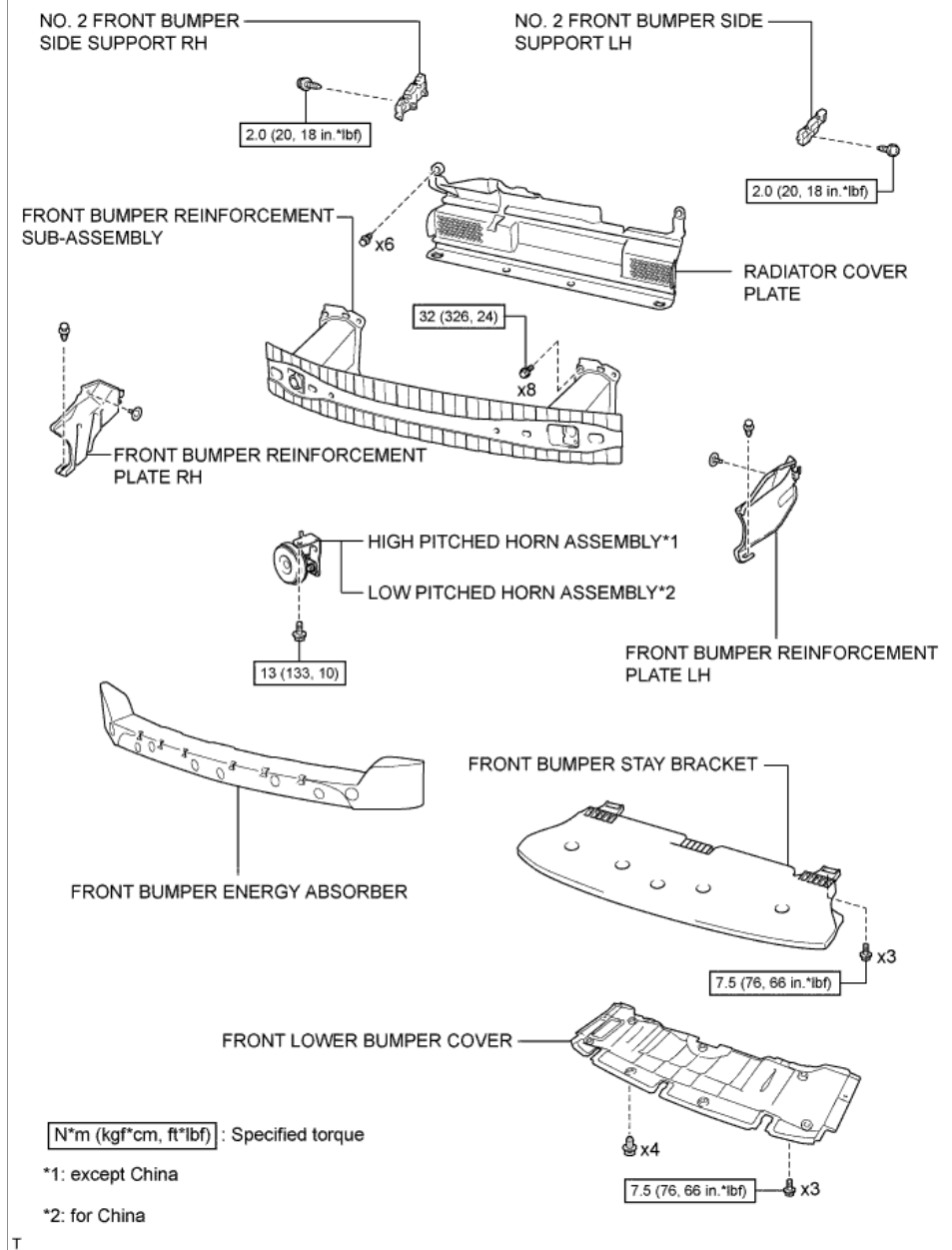


N*m (kgf*cm, ft*lbf) : Specified torque

w/ Side Marker Light:

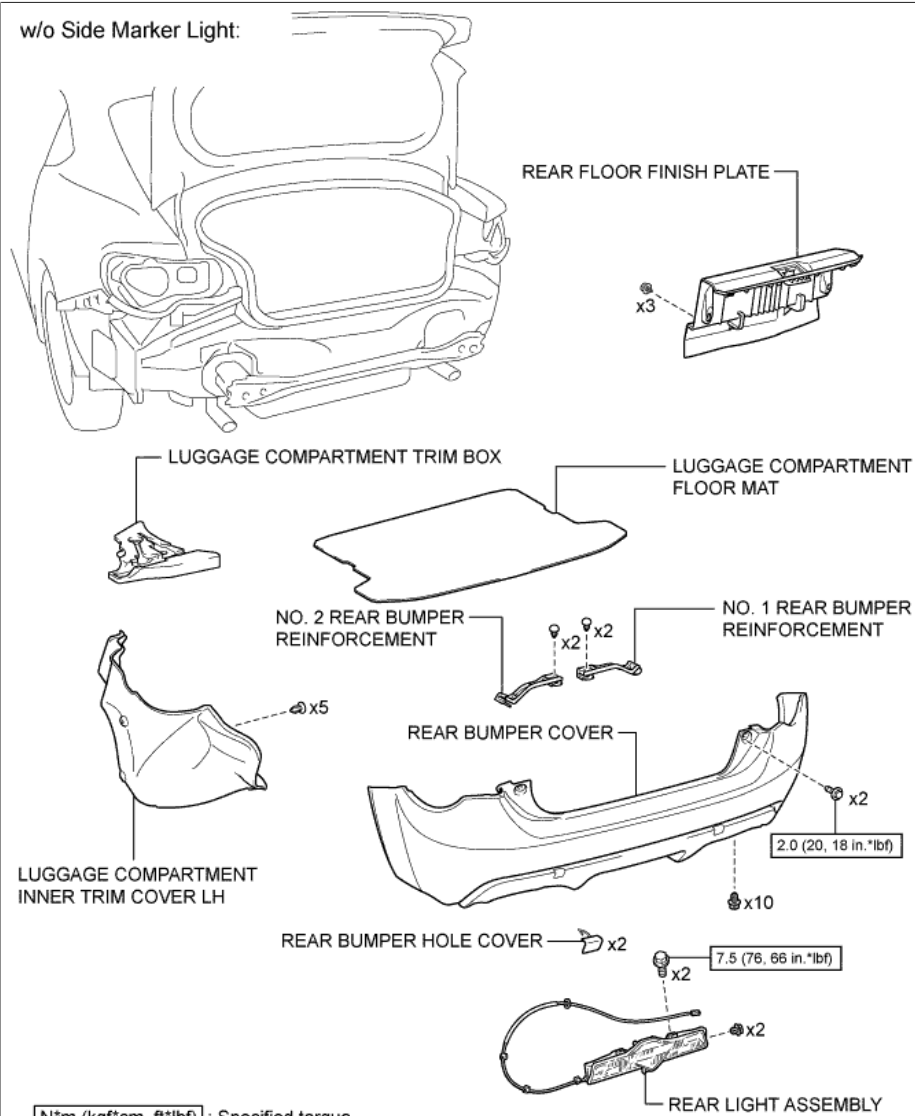


N*m (kgf*cm, ft*lbf) : Specified torque

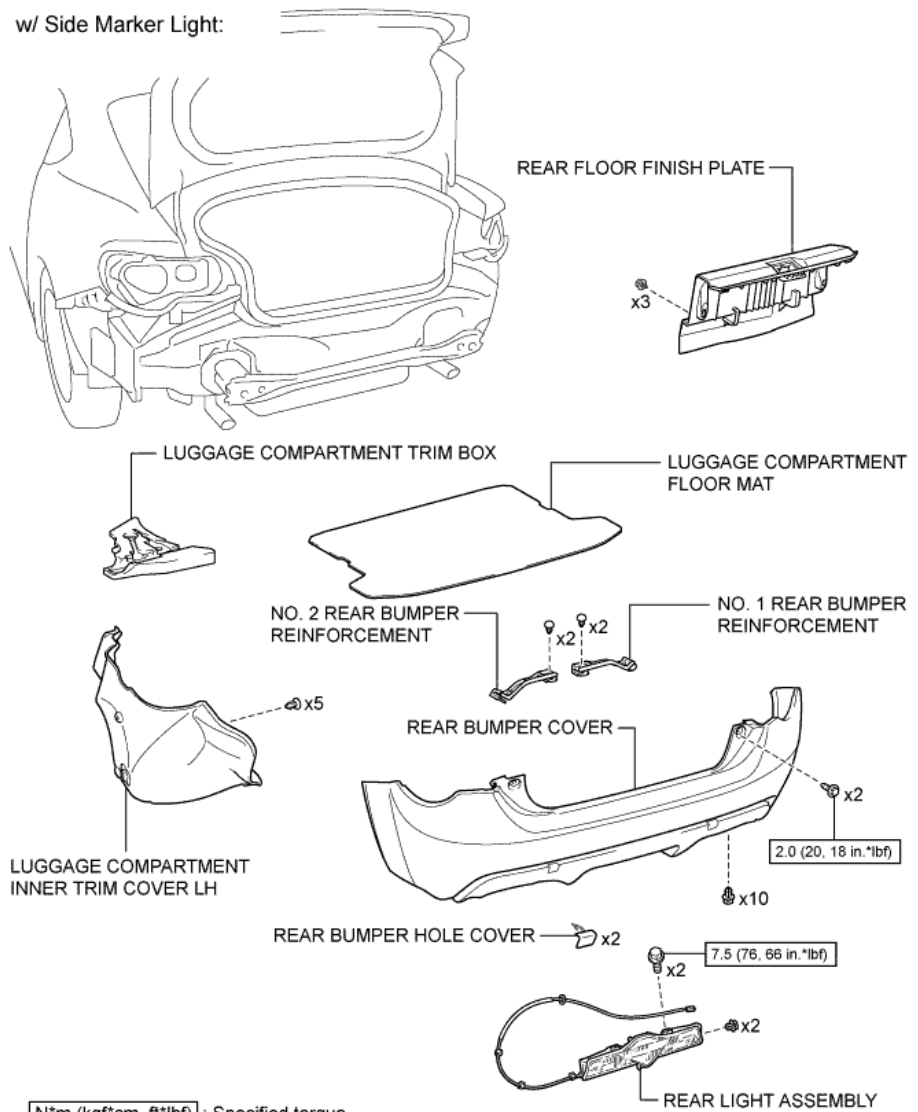


REAR BUMPER

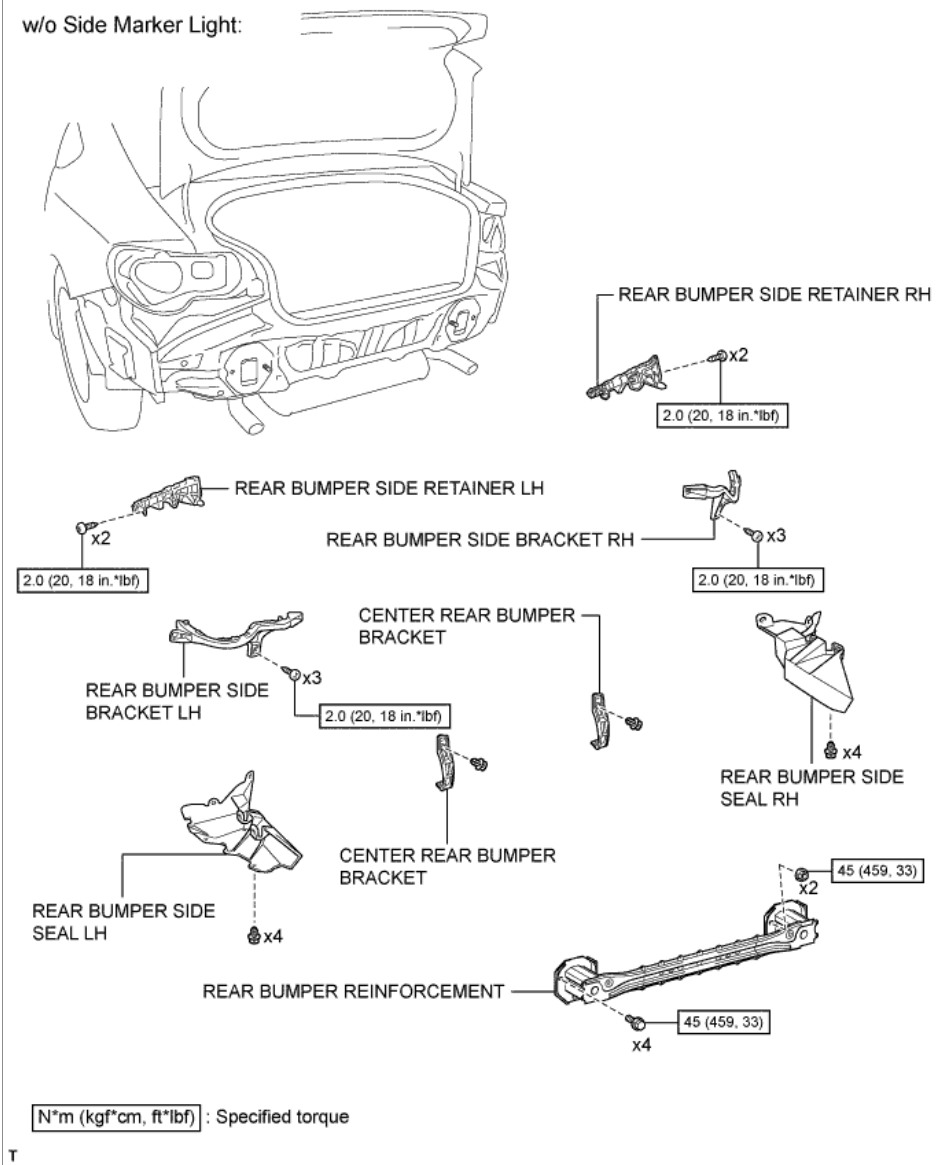
w/o Side Marker Light:



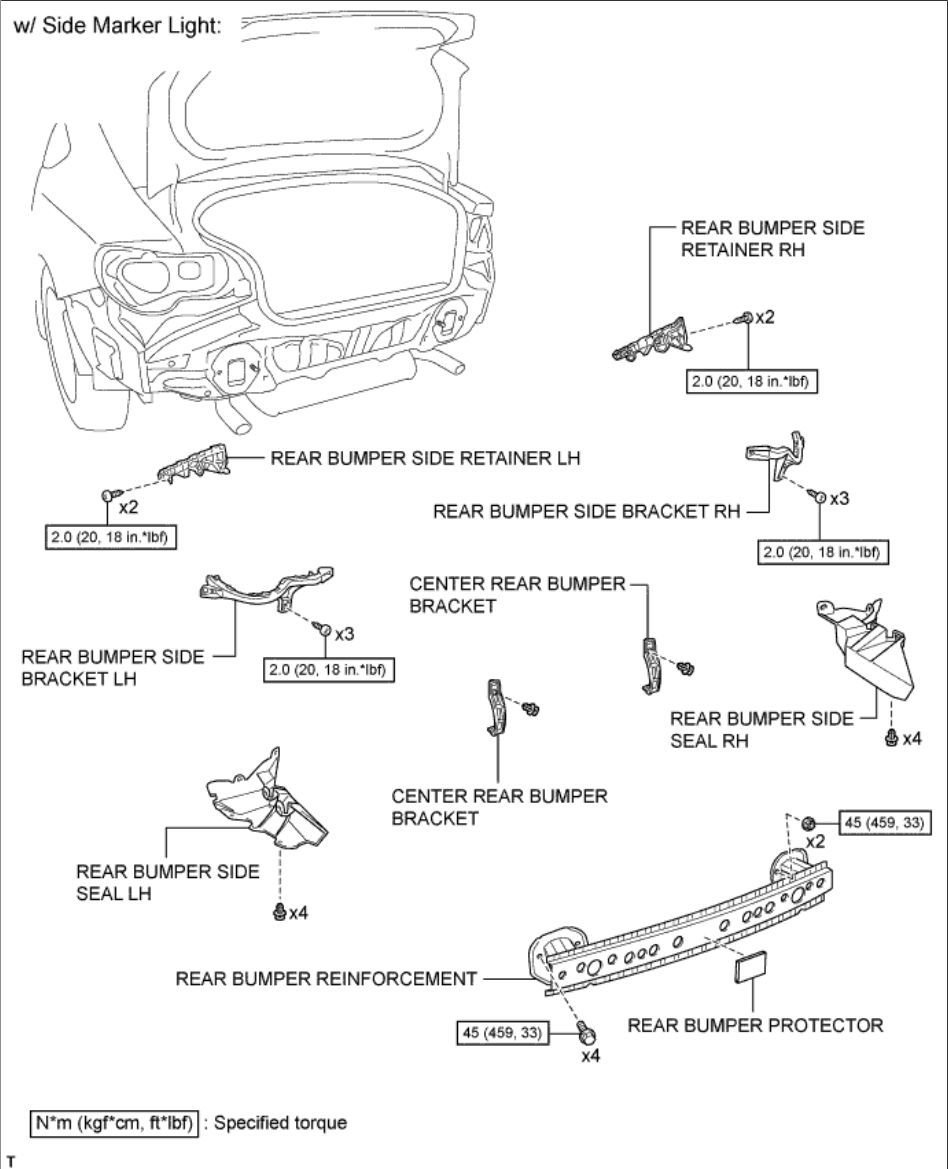
w/ Side Marker Light:



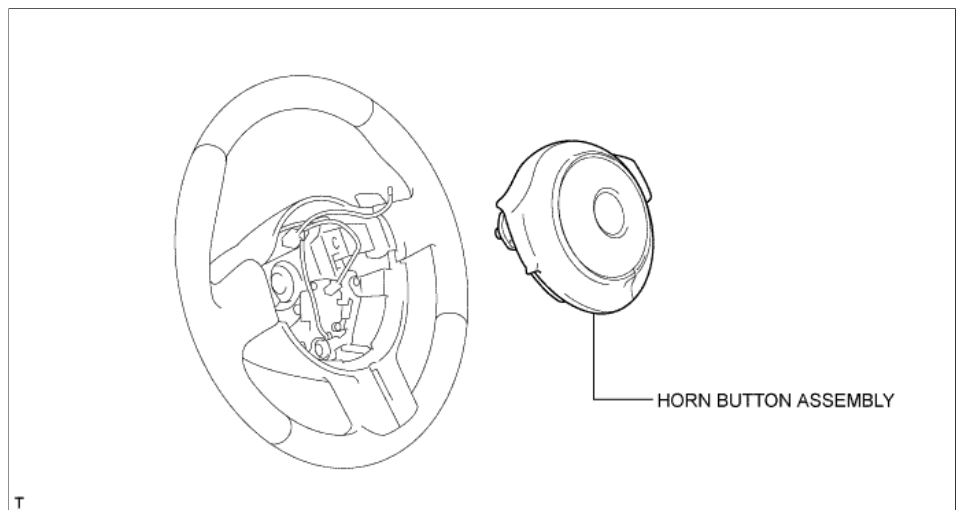
w/o Side Marker Light:



w/ Side Marker Light:



INSTRUMENT PANEL



METER HOOD SUB-ASSEMBLY

UPPER INSTRUMENT PANEL
METER ORNAMENT

CENTER INSTRUMENT CLUSTER
FINISH PANEL SUB-ASSEMBLY

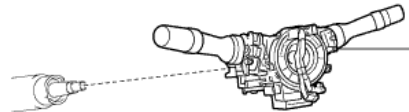
x2

UPPER STEERING
COLUMN COVER

w/ Entry and Start System:



STEERING COLUMN COVER SUPPORT



TURN SIGNAL SWITCH ASSEMBLY WITH
SPIRAL CABLE SUB-ASSEMBLY

x2



LOWER STEERING
COLUMN COVER

w/o Knee Airbag:

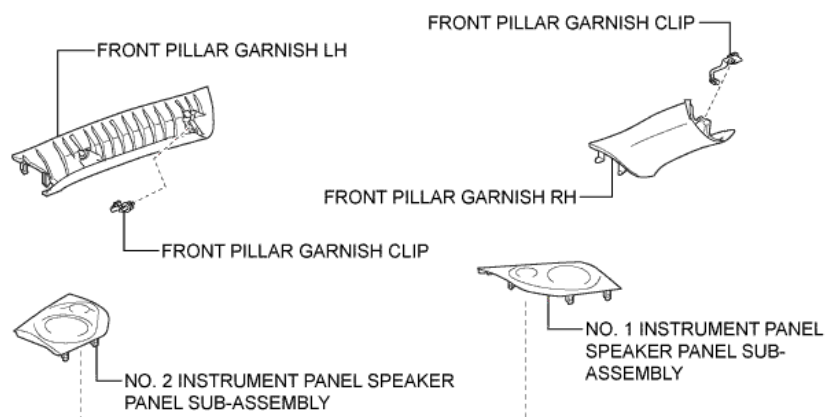


INSTRUMENT SIDE PANEL

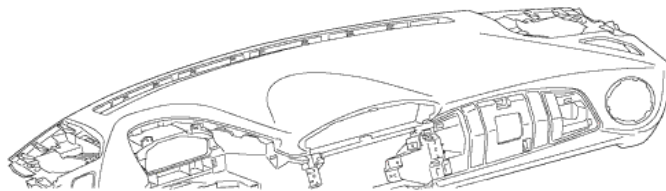


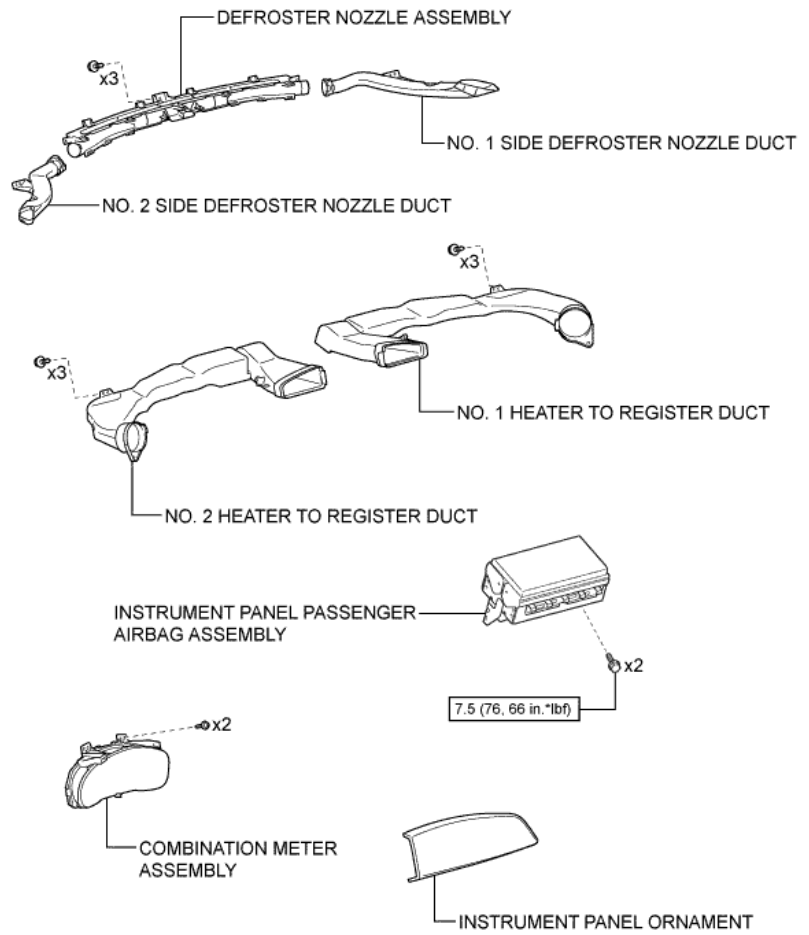
NO. 1 INSTRUMENT PANEL UNDER
COVER SUB-ASSEMBLY

x2



for 6 Speakers:

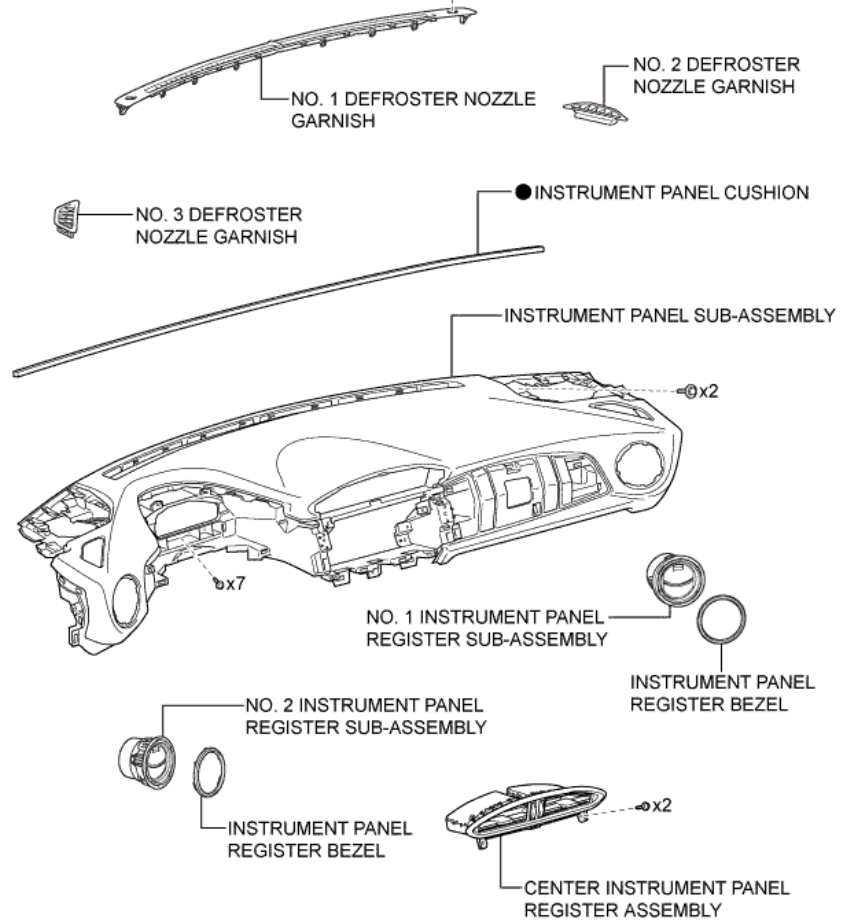




N*m (kgf*cm, ft*lbf) : Specified torque

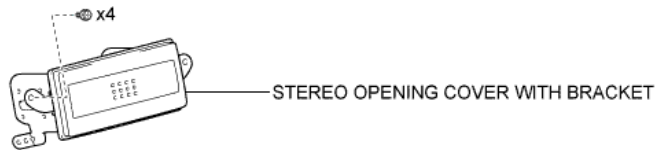
w/Automatic Light Control System:

AUTOMATIC LIGHT CONTROL SENSOR

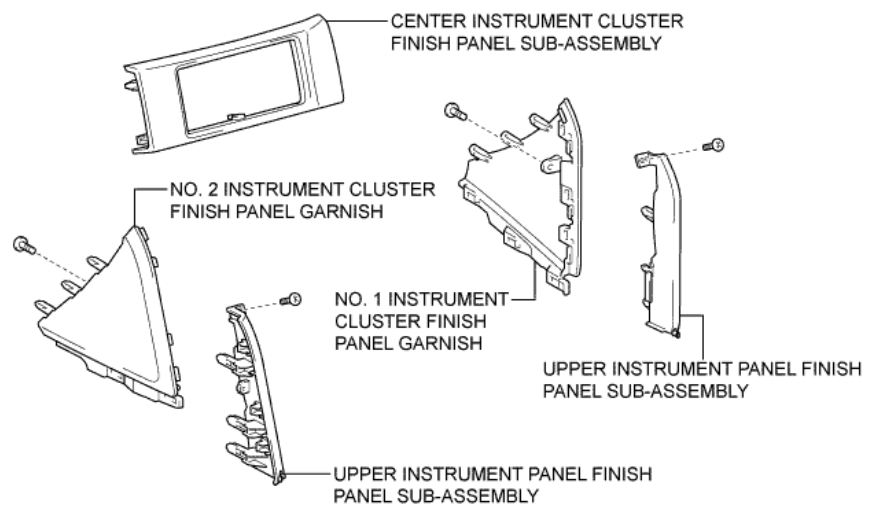


● Non-reusable part

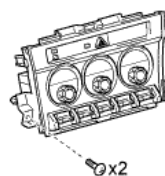
w/o Radio Receiver:



w/ Radio Receiver:



for Automatic Air Conditioning System:



AIR CONDITIONING CONTROL ASSEMBLY

for Manual Air Conditioning System:



AIR CONDITIONING CONTROL ASSEMBLY

w/o Air Conditioning System:



AIR CONDITIONING CONTROL ASSEMBLY

w/ Airbag Cut Off Switch:

INSTRUMENT SIDE PANEL RH

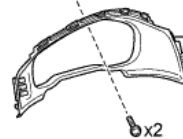


w/o Airbag Cut Off Switch:

INSTRUMENT SIDE PANEL RH



METER HOOD SUB-ASSEMBLY



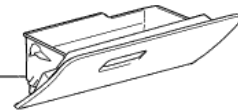
UPPER INSTRUMENT PANEL METER ORNAMENT

GLOVE COMPARTMENT DOOR DAMPER



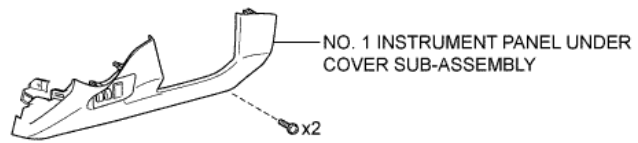
INSTRUMENT SIDE PANEL LH

GLOVE COMPARTMENT DOOR ASSEMBLY



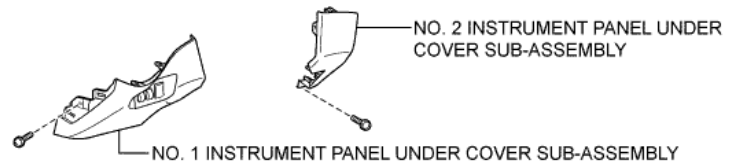
w/o Knee Airbag:

for LHD:

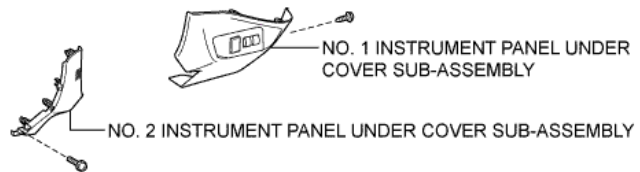


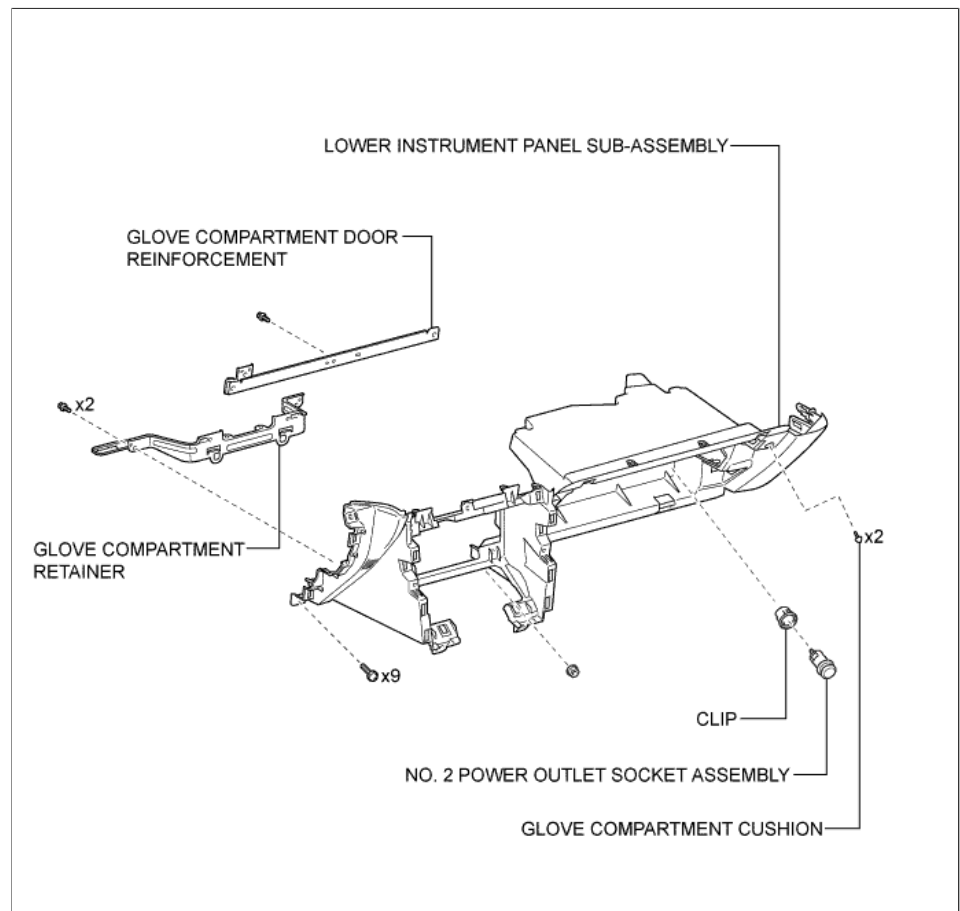
w/ Knee Airbag:

for LHD:

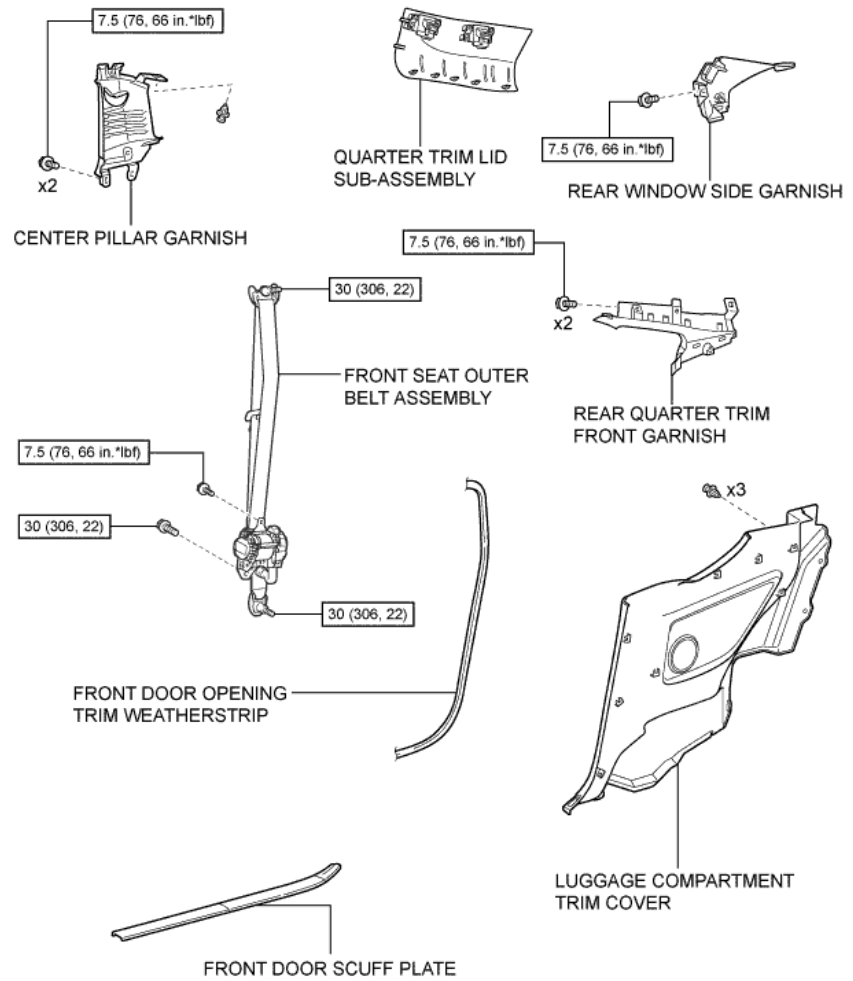


for RHD:

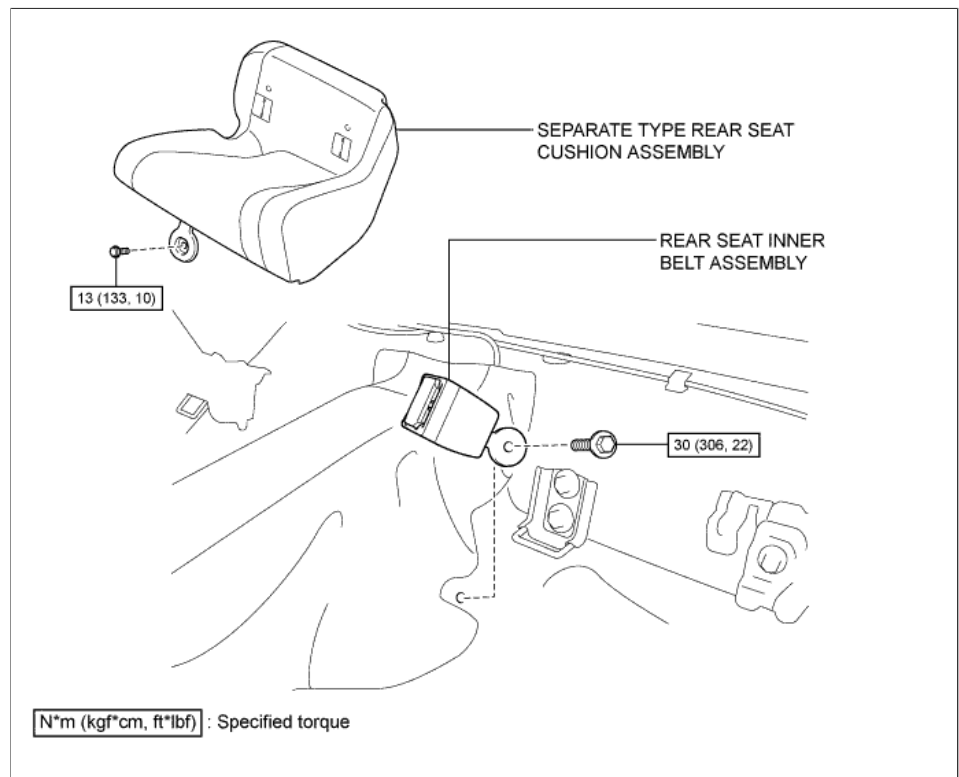


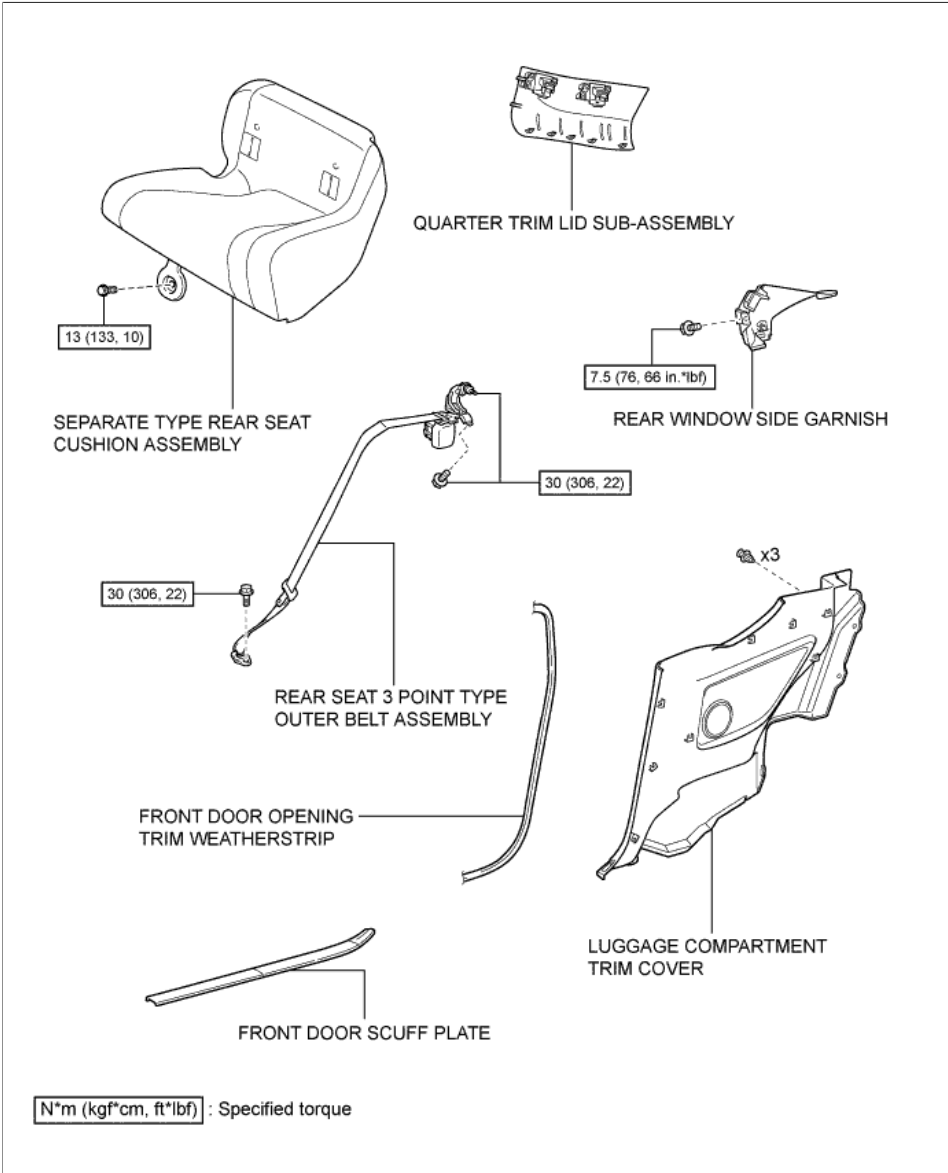


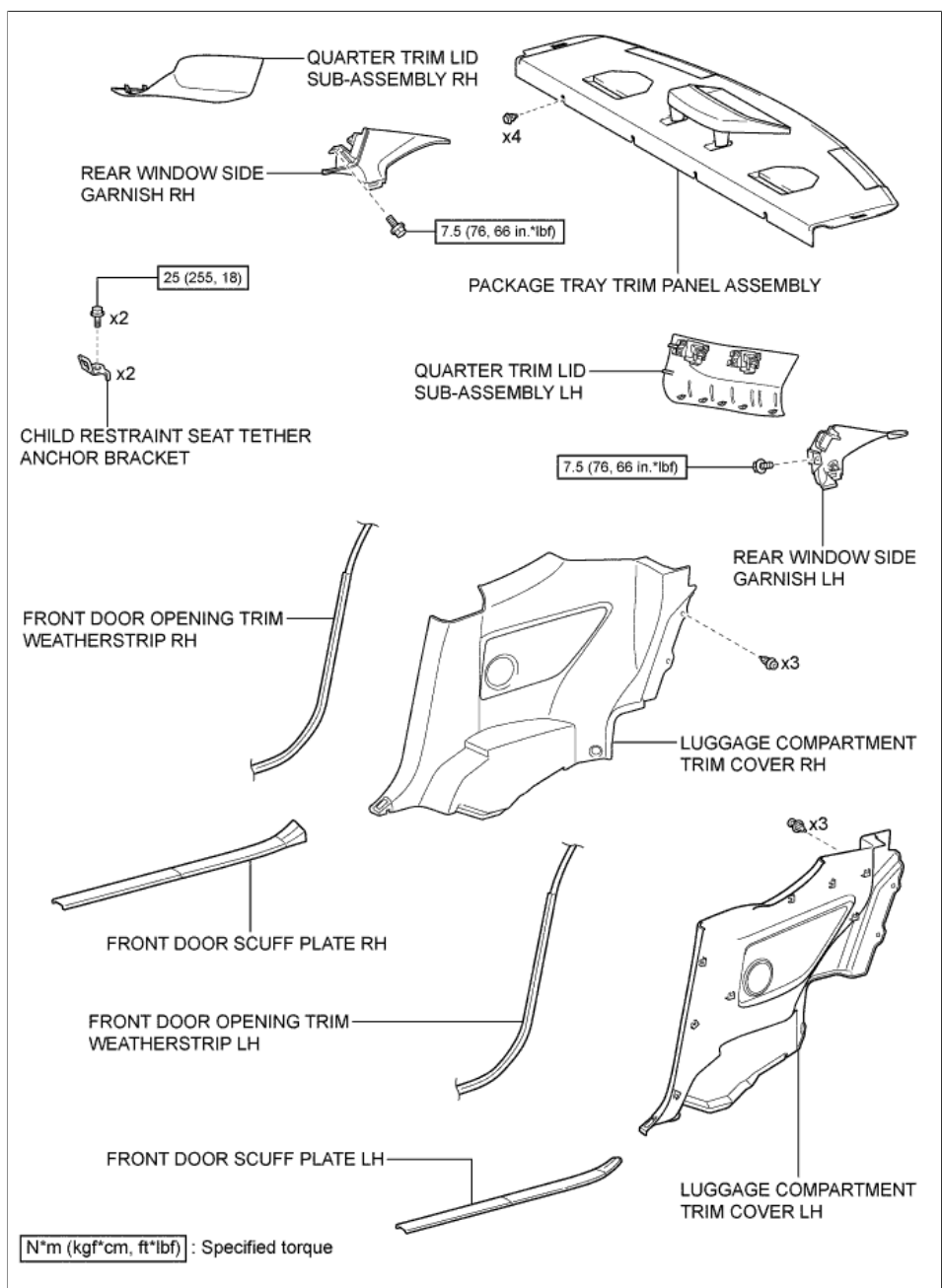
INTERIOR TRIM

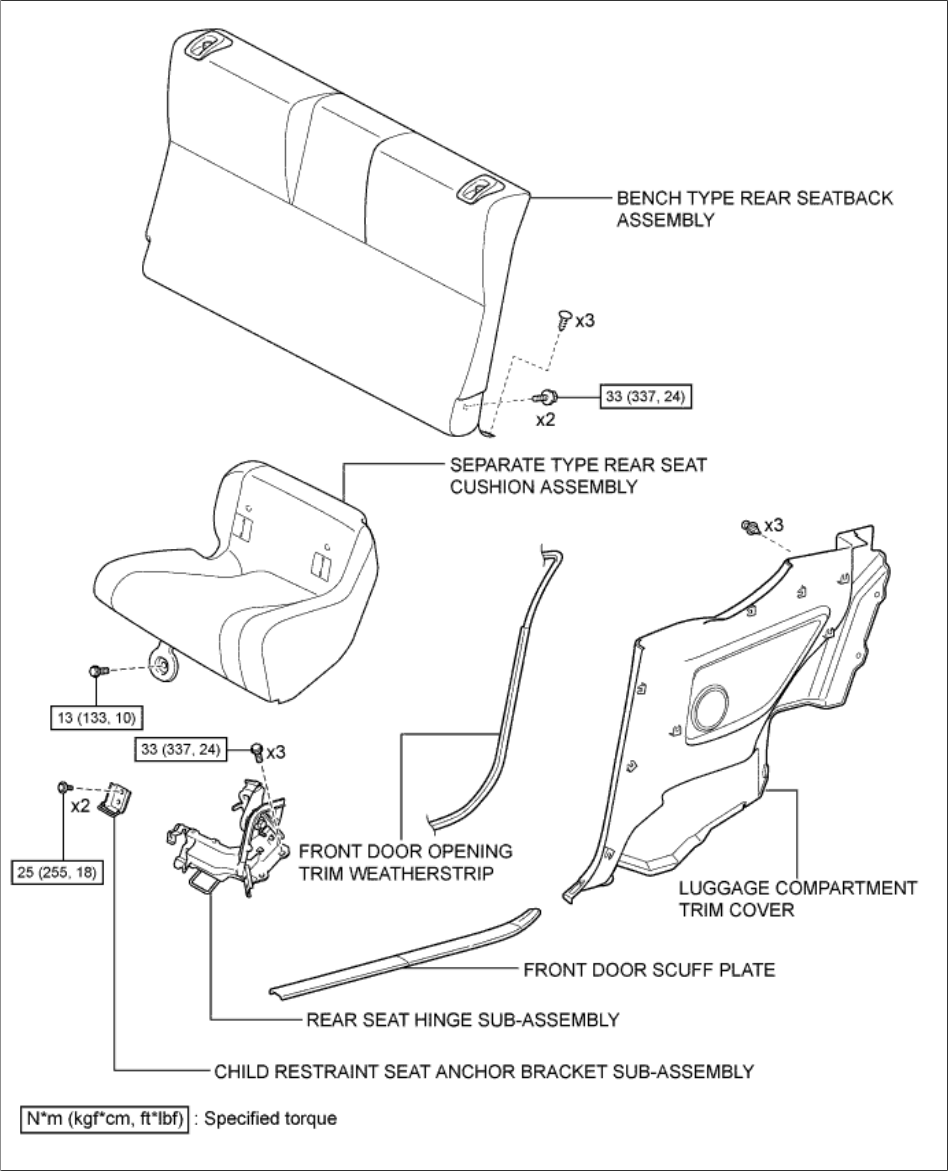


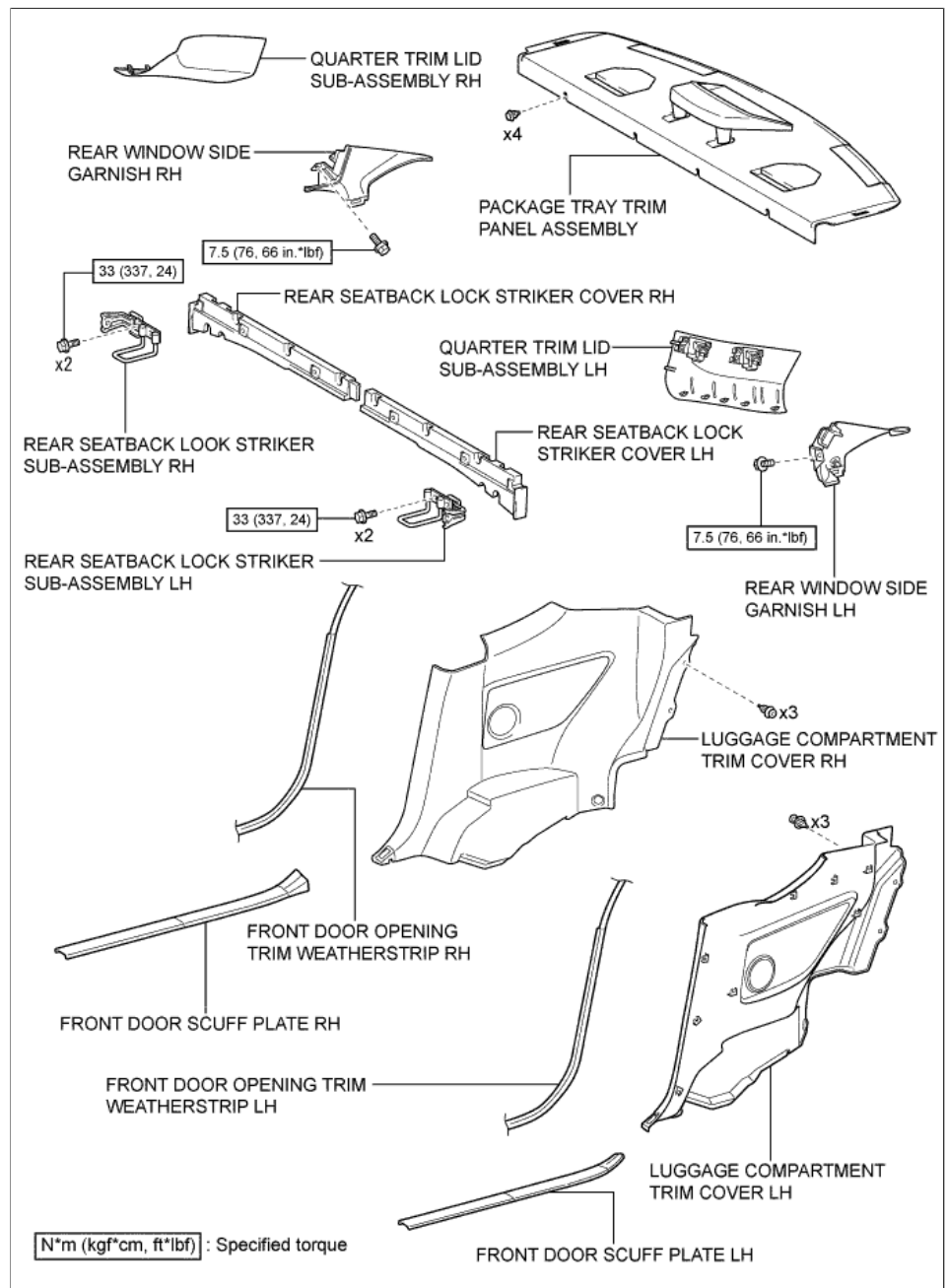
N*m (kgf*cm, ft*lbf) : Specified torque

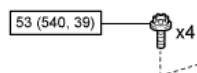
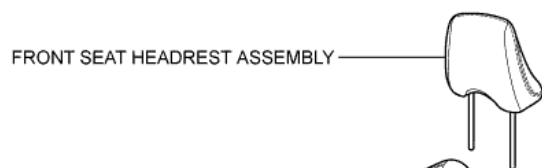








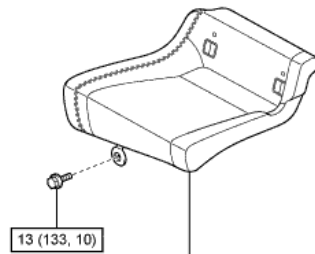
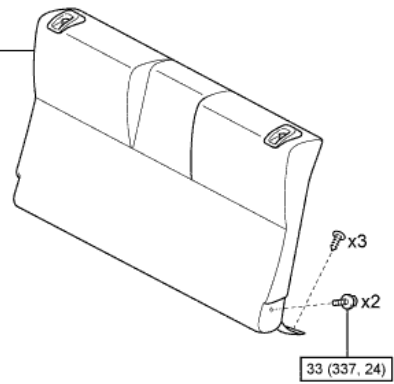




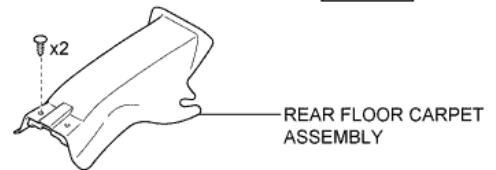
FRONT SEAT ASSEMBLY

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

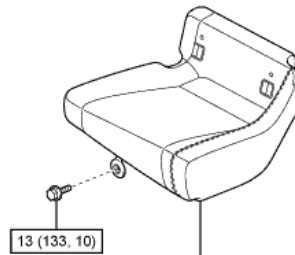
BENCH TYPE REAR SEATBACK
ASSEMBLY



SEPARATE TYPE REAR SEAT
CUSHION ASSEMBLY RH



REAR FLOOR CARPET
ASSEMBLY



SEPARATE TYPE REAR SEAT
CUSHION ASSEMBLY LH

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

WHEN REMOVING,INSTALLING, OR REPLACING PARTS > PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED

- PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED

WHEN REMOVING,INSTALLING,REPAIRING OR REPLACING PARTS > PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED

Each inspection procedure refers to the TOYOTA Repair Manual.

PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED

Replacement Part	Necessary Procedure	Effect/Inoperative Function when Necessary Procedures are not Performed
ECM	Vehicle Identification Number (VIN) registration	MIL comes on
	ECU communication ID registration (Engine immobiliser system)	Engine start
<ul style="list-style-type: none"> TCM Automatic transmission assembly Valve body assembly Transmission wire Shift solenoid valve S1, S2, S3, S4, SL1, SL2, SLT, SLU, and/or SR Engine assembly 	Reset memory	<ul style="list-style-type: none"> Large shift shock The deterioration of fuel efficiency
<ul style="list-style-type: none"> Brake actuator assembly (Skid control ECU) Steering sensor Steering column assembly Rack and pinion power steering gear assembly Adjust front wheel alignment 	VSC sensor neutral memorization	VSC system does not operate normally (warning indicator light comes on).
Power steering ECU assembly	Rotation angle sensor initialization and torque sensor zero point calibration	<ul style="list-style-type: none"> P/S warning light comes on EPS control
Steering column assembly	Rotation angle sensor initialization and torque sensor zero point calibration	Steering effort is different between turning steering wheel to left and right
w/ Entry and Start System <ul style="list-style-type: none"> Electrical key transmitter sub-assembly ID code box (immobiliser code ECU)*1 Certification ECU (smart key ECU assembly) 	Registration	<ul style="list-style-type: none"> Wireless door lock/unlock operation Entry operation Engine starting Steering lock/unlock
w/ Entry and Start System Steering lock ECU (steering lock actuator assembly)	Registration	Engine start
w/o Entry and Start System <ul style="list-style-type: none"> Key 		

Main body ECU (network gateway ECU) <ul style="list-style-type: none"> Combination meter assembly*2 Transponder key ECU assembly*3 	Code registration (Engine immobiliser system)	Engine start
w/o Entry and Start System <ul style="list-style-type: none"> Door control transmitter module set sub-assembly Door control receiver 	Code registration (Wireless door lock system)	Wireless door lock/unlock operation
<ul style="list-style-type: none"> Height control sensor subassembly RR Headlight leveling ECU assembly 	Perform headlight leveling ECU assembly initialization	Headlight leveling function
<ul style="list-style-type: none"> Power window regulator motor assembly Door window regulator sub-assembly Door glass Front door frame sub-assembly rear lower Front door sush Front door opening trim weatherstrip 	Initialize power window control system	<ul style="list-style-type: none"> Auto up/down function Jam protection function Operation function after ignition switch is turned off

*1: w/ ID Code Box

*2: w/o Transponder Key ECU Assembly

*3: w/ Transponder Key ECU Assembly

WHEN REMOVING, INSTALLING, OR REPLACING PARTS > WHEEL ALIGNMENT STANDARD

- MEASURE VEHICLE HEIGHT
- INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION
- INSPECT TOE-IN (FRONT)
- INSPECT WHEEL ANGLE
- INSPECT TOE-IN (REAR)
- INSPECT CAMBER (REAR)
- INSPECT REAR SUSPENSION

WHEN REMOVING, INSTALLING, REPAIRING OR REPLACING PARTS > WHEEL ALIGNMENT STANDARD

MEASURE VEHICLE HEIGHT

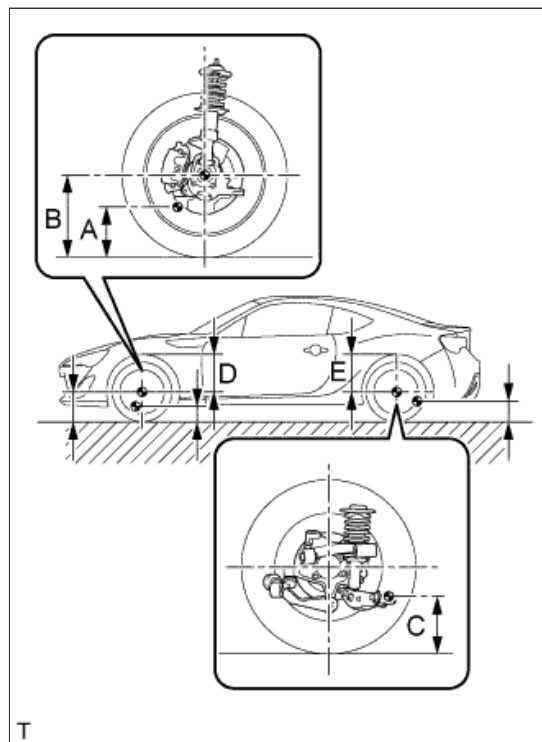
- a. Bounce the vehicle up and down at the corners to stabilize the suspension before inspecting the vehicle height.

Vehicle Height (Unloaded Vehicle)

Tire Size	Front B - A	Rear C	Front D	Rear E
205/55 R16	146 mm (5.75 in.)	225 mm (8.86 in.)	375 mm (14.76 in.)	372 mm (14.65 in.)
215/45 R17	146 mm (5.75 in.)	225 mm (8.86 in.)	375 mm (14.76 in.)	372 mm (14.65 in.)

CAUTION:

- Perform the inspection while the vehicle is empty (with a spare tire, jack and tools on board, but with the fuel tank filled with fuel).
- The standard value shown here is a value that is used for adjusting the wheel alignment and does not indicate the height of an actual vehicle.



Measurement points:

- A: Ground clearance of front lower suspension arm set front bolt center
- B: Ground clearance of front wheel center
- C: Ground clearance of lower control arm set bolt center
- D: Front wheel arch height of front wheel center
- E: Rear wheel arch height of rear wheel center

INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

NOTICE:

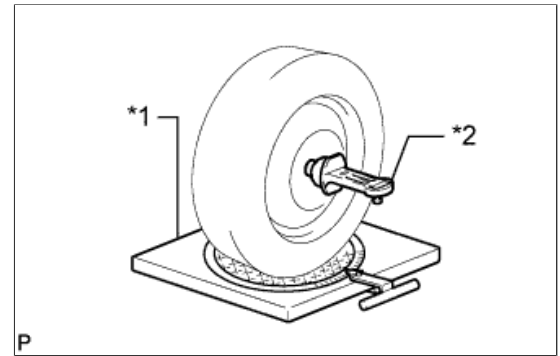
Perform the inspection while the vehicle is empty (without a spare tire, jack or tools on board, but with the fuel tank filled with fuel).

- a. Put the front wheel on the center of the alignment tester.

Text in Illustration

*1	Alignment tester
*2	Camber-Caster-Steering Axis Inclination Gauge

- b. Remove the wheel cap.
- c. Set the camber-caster-steering axis inclination gauge at the center of the axle hub or drive shaft.



- d. Inspect the camber, caster and steering axis inclination.

Standard Dimension (Unloaded Vehicle)

Camber	Caster (Reference)	Steering Axis Inclination (Reference)
0 +/- 45' (0 +/- 0.75°)	5°54' (5.90°)	15°31' (15.52°)

CAUTION:

- Perform the inspection while the vehicle is empty (with a spare tire, jack and tools on board, but with the fuel tank filled with fuel).
- The tolerance for the difference between the left and right wheels is 45' (0.75°) or less for both the camber.


- e. Remove the camber-caster-steering axis inclination gauge and attachment.
- f. Install the wheel cap.
If the caster and steering axis inclination are not within the specified values after the camber has been correctly adjusted, recheck the suspension parts for damage and wear.

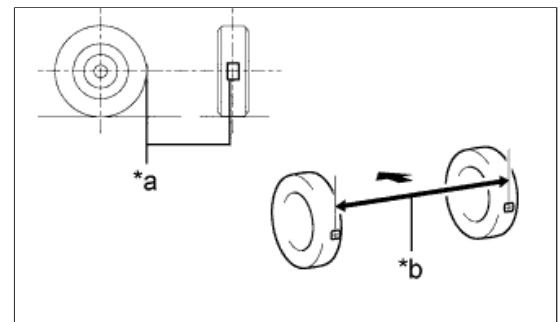
INSPECT TOE-IN (FRONT)

- a. Bounce the vehicle up and down at the corners to stabilize the suspension.
- b. Release the parking brake and move the shift lever to the neutral position (for manual transmission).
- c. Release the parking brake and move the shift lever to N (for Automatic transmission).
- d. Push the vehicle straight ahead approximately 5 m (16.4 ft.). (Step A)

- e. Put tread center marks on the rearmost points of the front wheels and measure the distance between the marks (dimension B).

Text in Illustration

*a	Tread Center Mark
*b	Dimension B
	Front of the Vehicle




- f. Slowly push the vehicle straight ahead to cause the front wheels to rotate 180°. Use the front tire valve as a reference point.

HINT:

Do not allow the wheels to rotate more than 180°. If the wheels rotate more than 180°, perform the procedure from Step A again.

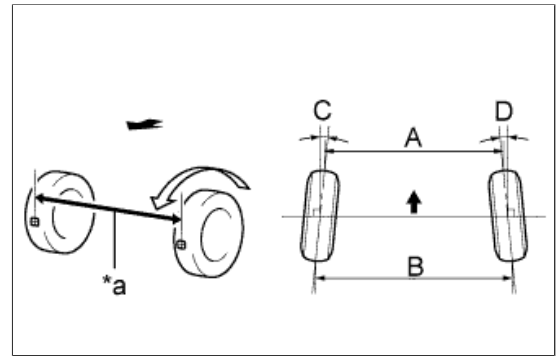
- g.** Measure the distance between the tread center marks on the front side of the wheels (dimension A).

Text in Illustration

*a	Dimension A
	Front of the Vehicle

Standard Dimension (Unloaded Vehicle)

Specified Condition
C + D: 0°00' +/- 0°11' (0.00° +/- 0.19°)
B - A: 0 +/- 3.0 mm (0 +/- 0.1181 in.)



HINT:


Measure "B - A" only when "C + D" cannot be measured.

If the toe-in is not within the specified range, adjust it at the rack ends.

INSPECT WHEEL ANGLE

- a.** Put tread center marks on the rearmost points of a turning radius gauge.

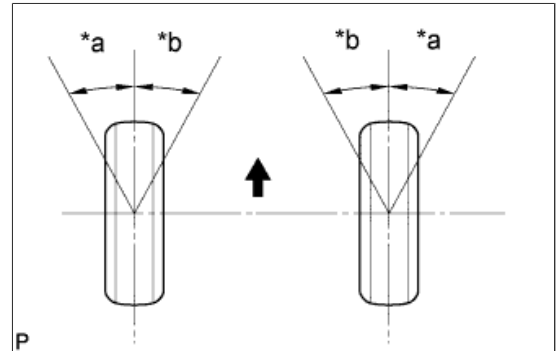
Text in Illustration

*a	Inside
*b	Outside
	Front of the Vehicle

- b.** Turn the steering wheel fully to the left and right and measure the turning angle.

HINT:

Inspect while the vehicle is unloaded.



Wheel Turning Angle (Unloaded Vehicle)

Inside Wheel (Reference)	Outside Wheel (Reference)
36°54' (43.90°)	31°12' (31.20°)


INSPECT TOE-IN (REAR)

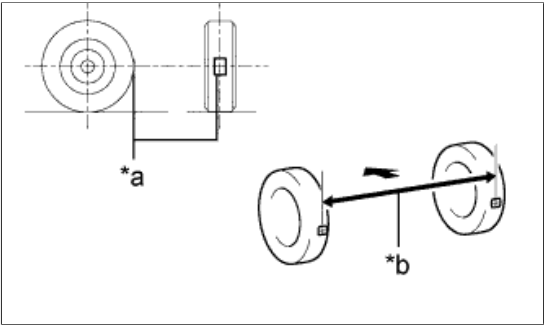
NOTICE:

Inspect while the vehicle is unloaded.

- Bounce the vehicle up and down at the corners to stabilize the suspension.
- Release the parking brake and move the shift lever to N.
- Push the vehicle straight ahead approximately 5 m (16.4 ft.). (Step B)
- Put tread center marks on the rearmost points of the rear wheels and measure the distance between the marks (dimension B).

Text in Illustration

*a	Tread Center Mark
*b	Dimension B
	Front of the Vehicle




- e. Slowly push the vehicle straight ahead to cause the rear wheels to rotate 180°. Use the rear tire valve as a reference point.

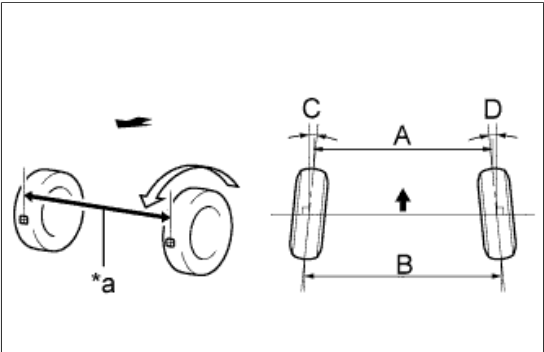
HINT:

Do not allow the wheels to rotate more than 180°. If the wheels rotate more than 180°, perform the procedure from Step B again.

- f. Measure the distance between the tread center marks on the front of the rear wheels (dimension A).

Text in Illustration

*a	Dimension A
	Front of the Vehicle



Toe-in (Unloaded Vehicle)

Specified Condition
C + D: 0°10' +/- 0°15' (0.16° +/- 0.24°)
B - A: 2.0 +/- 3.0 mm (0.0787 +/- 0.1181 in.)

HINT:

Measure "B - A" only when "C + D" cannot be measured.

If the toe-in is not within the specified range, adjust it at the toe control link sub-assembly.

INSPECT CAMBER (REAR)

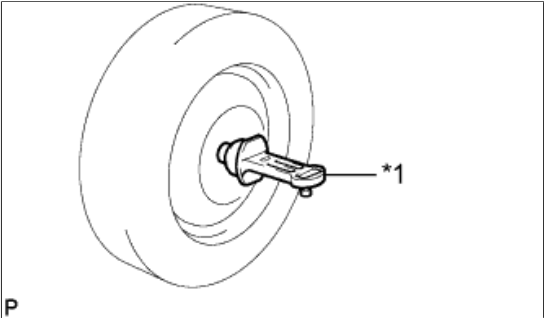
- a. Remove the center wheel ornament.

- b. Install a camber-caster-kingpin gauge at the center of the axle hub or drive shaft.

Text in Illustration

*1	Camber-caster-kingpin Gauge
----	-----------------------------

- c. Inspect the camber.



Camber (Unloaded Vehicle)

Camber Inclination	Right-left Difference
-1°12' +/- 45' (-1.20° +/- 0.75°)	45' (0.75°) or less

If the measured value is not within the specified range, inspect the suspension parts

for damage and wear. Replace parts as necessary because camber cannot be properly adjusted with any damaged or worn parts.

- d. Remove the camber-caster-kingpin gauge.
- e. Install the center wheel ornament.

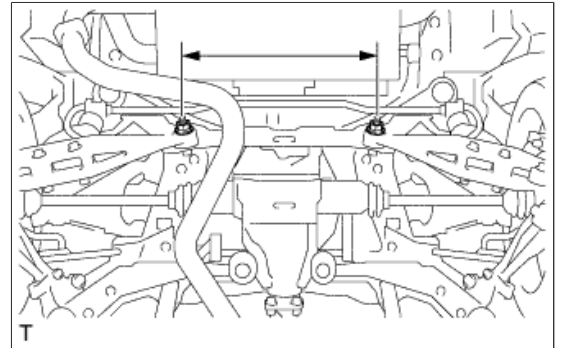
INSPECT REAR SUSPENSION

- a. Inspect the rear suspension member.

- i. Measure the distance between the centers of the 2 installation bolts of the rear No. 2 suspension arm assembly LH and RH

Standard distance:
442.8 to 448.8 mm (17.43 to 17.67 in.)

If the distance is not within the specified range, replace the rear suspension member.

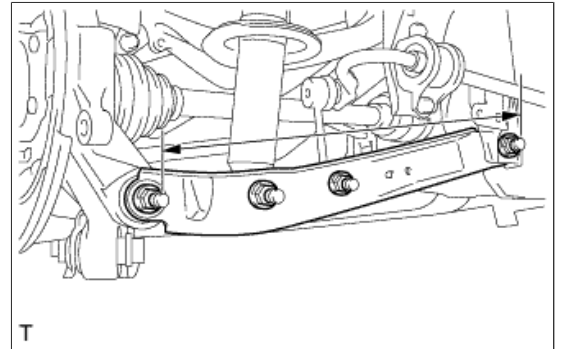


- b. Inspect the rear No. 2 suspension arm assembly.

- i. Measure the distance between the centers of the 2 installation bolts of the rear No. 2 suspension arm assembly.

Standard distance:
447.9 to 451.9 mm (17.63 to 17.79 in.)

If the distance is not within the specified range, replace the rear No. 2 suspension arm assembly.



- c. Inspect and adjust the toe-in and camber.

- i. Inspect the toe-in and camber.
Inspect the toe-in and camber. If the values are not within the specified ranges, adjust the installation bolt holding the rear suspension member to the vehicle body, or the bolt holding the upper control arm and rear suspension arm so that the values fall within the specified ranges.

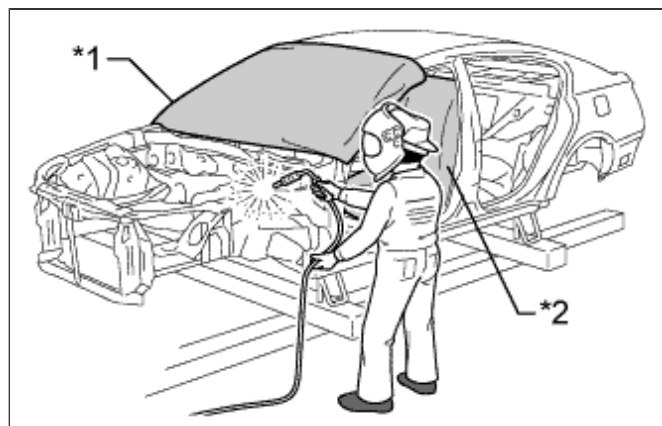
WORK NOTICES AND PRECAUTIONS > WHEN REPAIRING THE VEHICLE BODY

- VEHICLE PROTECTION
- SAFETY
- SAFETY WORK CLOTHES

WORK NOTICES AND PRECAUTIONS > WHEN REPAIRING THE VEHICLE BODY

VEHICLE PROTECTION

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

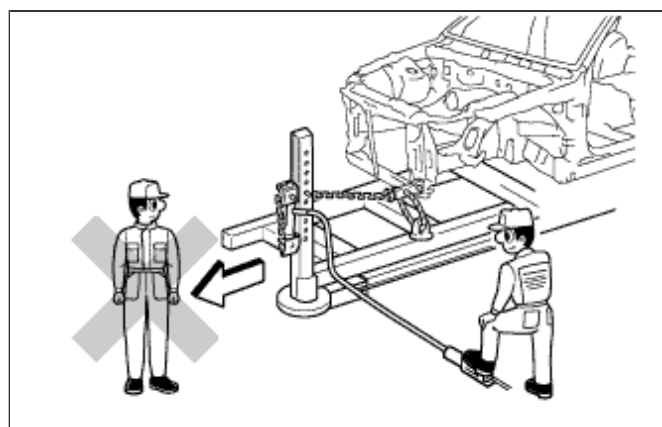


Text in Illustration

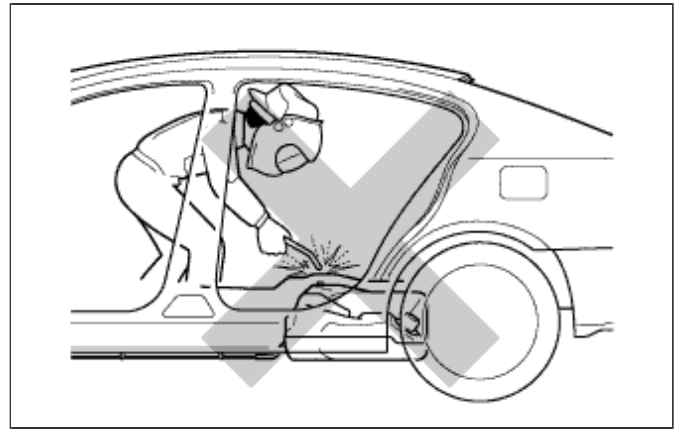
*1	Glass Cover
*2	Seat Cover

SAFETY

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

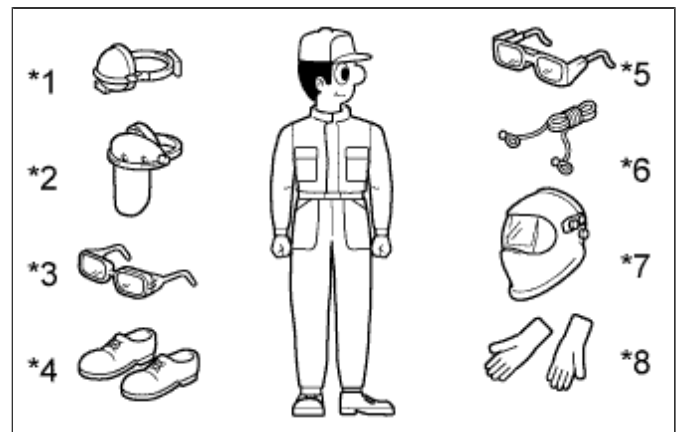


- b. If it is necessary to use a flame in the area of the fuel tank, first remove the tank and plug the fuel line.



SAFETY WORK CLOTHES

- a. 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.



Text in Illustration

*1	Dust mask
*2	Face protector
*3	Safety glasses
*4	Safety shoes
*5	Welder's glasses
*6	Ear plugs
*7	Head protector
*8	Welder's gloves

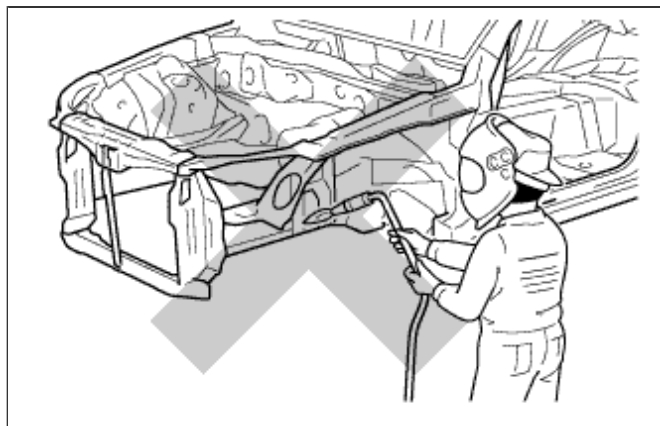
WORK NOTICES AND PRECAUTIONS > PRECAUTIONS FOR REPAIRING BODY STRUCTURE (INCLUDING CRUSH BOXES)

- PROHIBITION OF HEAT REPAIR FOR BODY FRAME PARTS
- NOTES ON ULTRA HIGH STRENGTH STEEL PANEL REPAIR
- WHEN TO REPLACE FRAME PARTS
- REPAIR OF DOOR SIDE IMPACT BEAM IS PROHIBITED
- REPAIR OF BUMPER REINFORCEMENT IS PROHIBITED

WORK NOTICES AND PRECAUTIONS > PRECAUTIONS FOR REPAIRING BODY STRUCTURE (INCLUDING CRUSH BOXES)

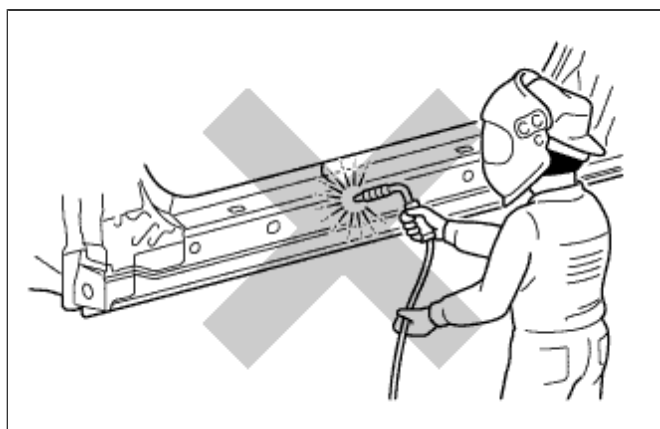
PROHIBITION OF HEAT REPAIR FOR BODY FRAME PARTS

- a. 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.

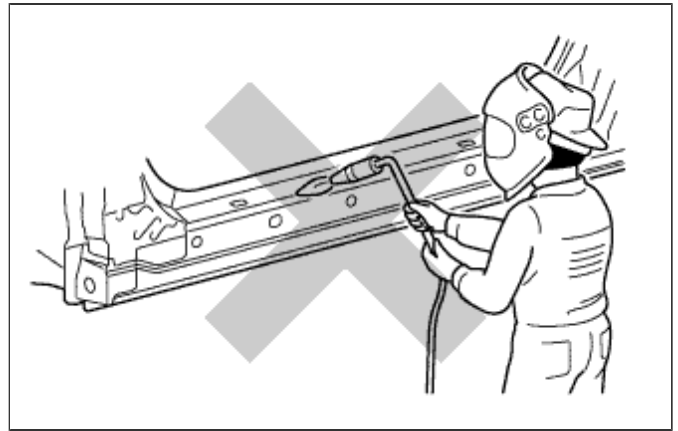


NOTES ON ULTRA HIGH STRENGTH STEEL PANEL REPAIR

- a. Make sure that the frame aligning machine does not affect undamaged areas when aligning the frame.
- b. Do not butt weld because the heat decreases the strength of the steel.
- c. Use a spot cutter suitable for high strength steel when removing spot welds. The cutter should be able to cut welding nuggets smoothly.
- d. Always follow the welding instructions when welding. (Refer to the PRECAUTIONS FOR WELDING)



- e. Do not heat the panel when repairing.



WHEN TO REPLACE FRAME PARTS

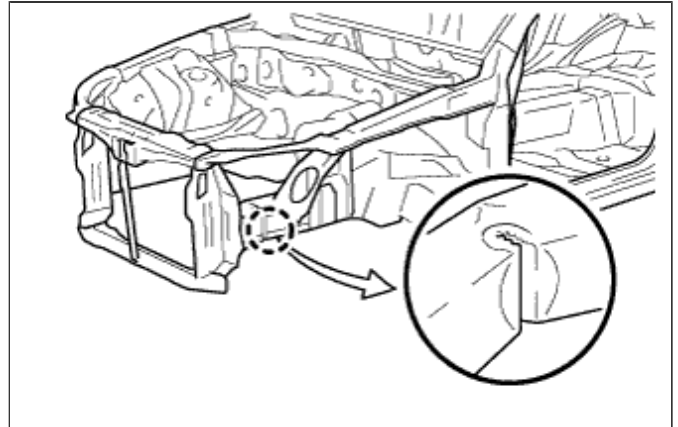
NOTICE:

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.

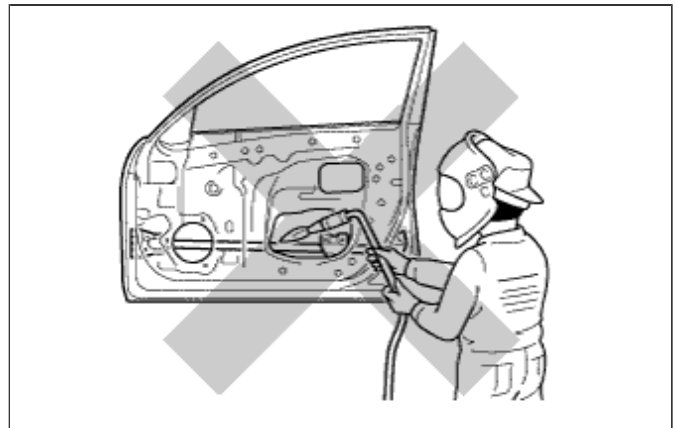


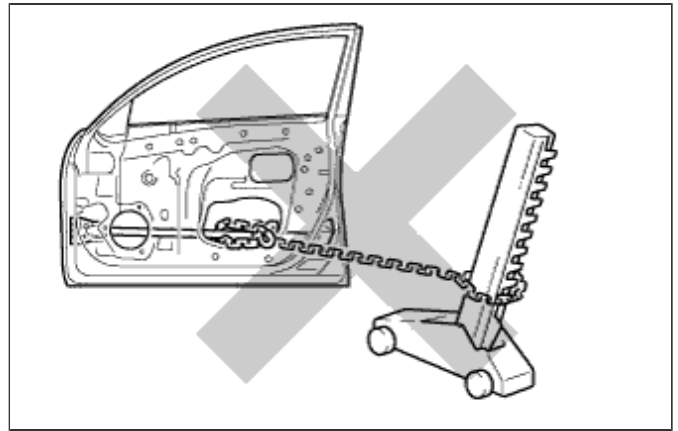
REPAIR OF DOOR SIDE IMPACT BEAM IS PROHIBITED

- a. 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



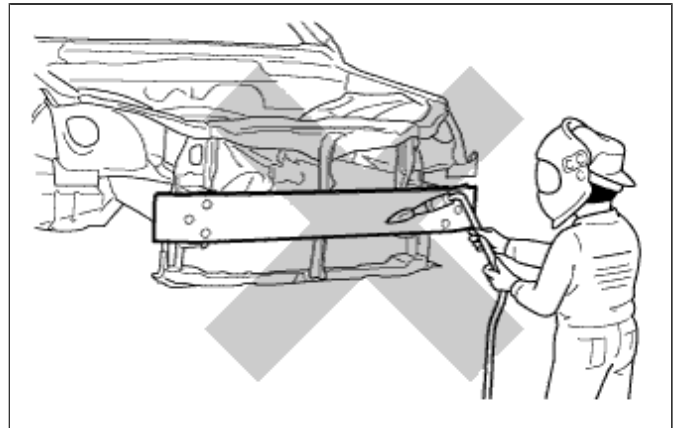


REPAIR OF BUMPER REINFORCEMENT IS PROHIBITED

- a. 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



WORK NOTICES AND PRECAUTIONS > PRECAUTIONS FOR WELDING

- REMOVAL OF ADJACENT COMPONENTS
- CUTTING WORK
- ANTI-RUST TREATMENT BEFORE WELDING
- WELDING WORK
- MAKING HOLES FOR PLUG WELDING

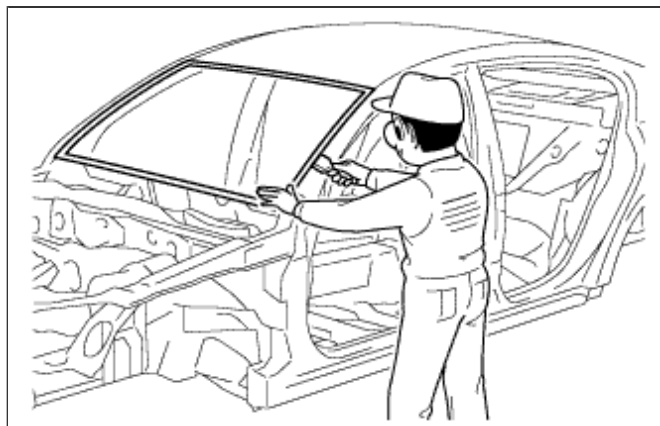
WORK NOTICES AND PRECAUTIONS > PRECAUTIONS FOR WELDING

REMOVAL OF ADJACENT COMPONENTS

- a. 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 refinish the paint.

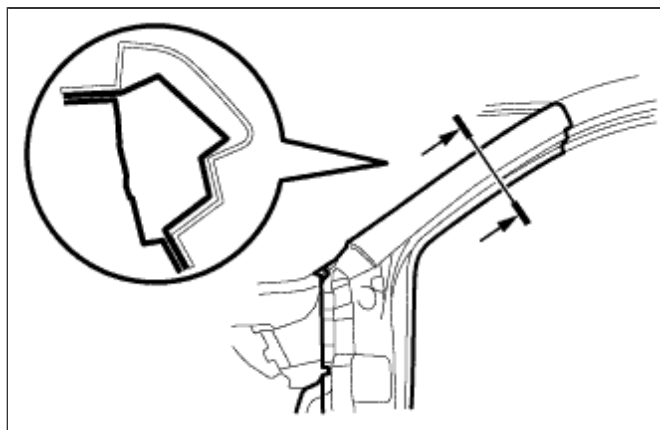


CUTTING WORK

- a. When cutting a panel, be careful not to damage the surrounding panels or any panels underneath.

NOTICE:

If any panels are damaged, be sure to repair them.



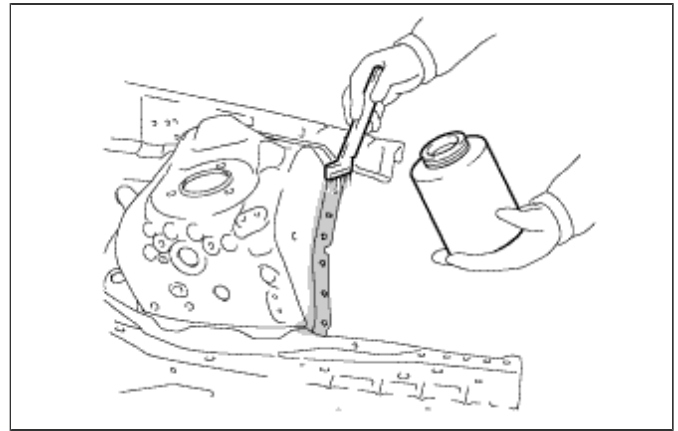
ANTI-RUST TREATMENT BEFORE WELDING

- a. Apply welding primer to the contact surfaces of the welding areas to protect them from rust.

NOTICE:

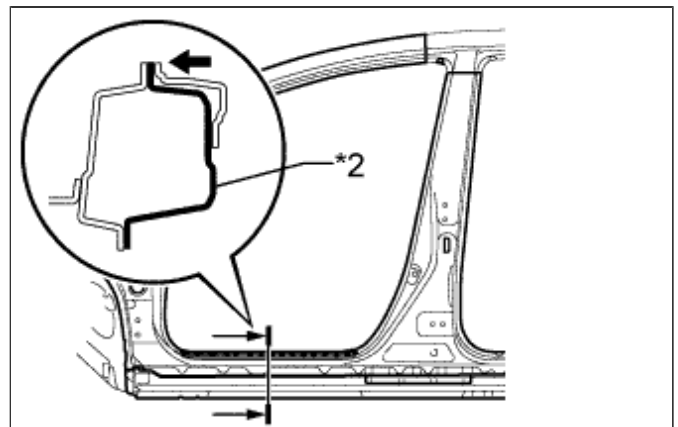
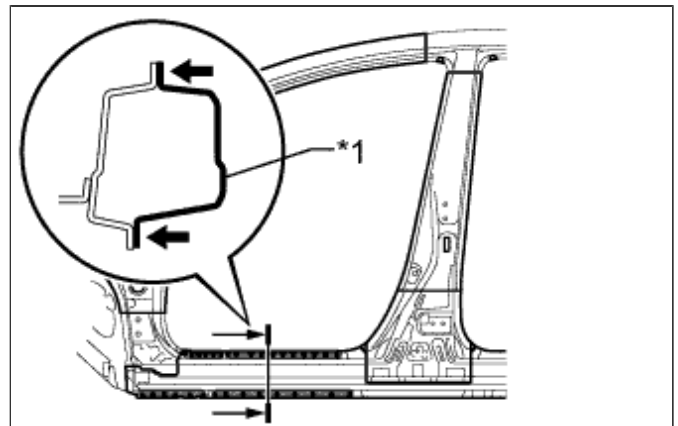
Do not apply welding primer outside of the

contact surfaces.



WELDING WORK

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



Text in Illustration

*1	980 MPa Ultra High Strength Steel
----	-----------------------------------

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	18 Cyc. (0.30

	time	Sec.)
Plug weld	Plug diameter	10 mm (0.39 in.)
	Wire type	AWS A5.18 ER70S-3
	Shield gas	Metal active gas

Text in Illustration

*2	980 MPa Ultra High Strength Steel
----	-----------------------------------

When welding more than 3 panels together including 980 MPa ultra high strength steel. (When plug welding a third panel to 2 panels which are welded under the conditions described 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

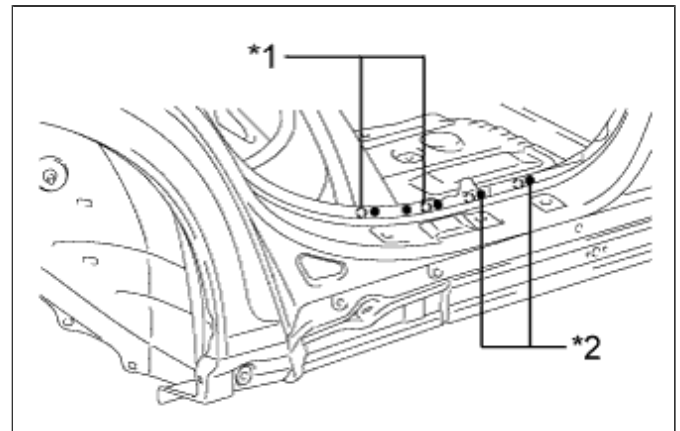
b. Standard Number of Welds

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.

c. Spot weld locations

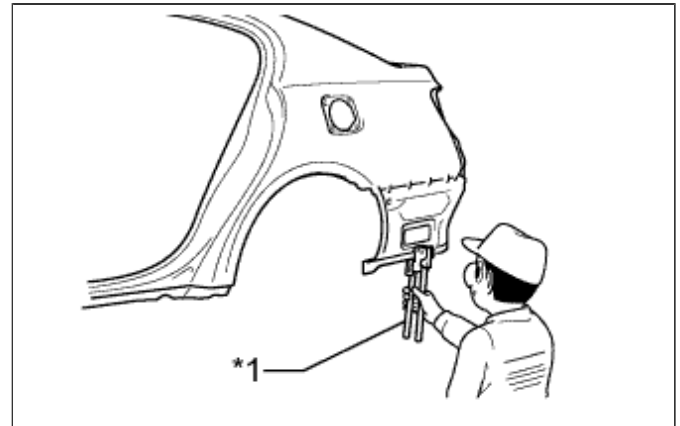


Text in Illustration

*1	Old Spot Locations
*2	New Spot Locations

Avoid welding over previously welded areas.

MAKING HOLES FOR PLUG WELDING



Text in Illustration

*1	Puncher
----	---------

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

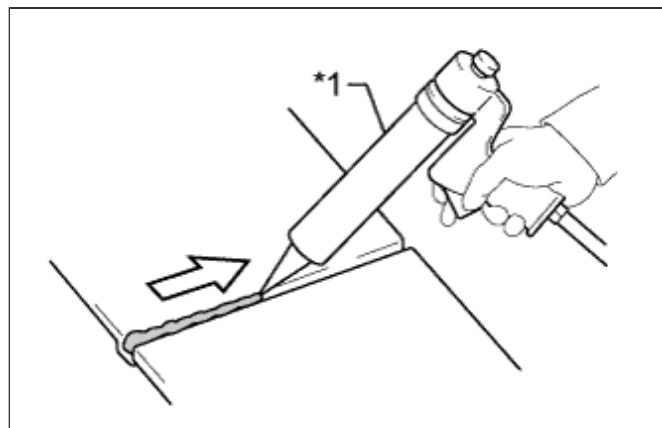
Thickness of welded portion	Diameter of plug hole
Under 1.0 mm (0.04 in.)	Over 5.0 mm (0.20 in.)
1.0 to 1.6 mm (0.04 to 0.06 in.)	Over 6.5 mm (0.26 in.)
1.7 to 2.3 mm (0.07 to 0.09 in.)	Over 8.0 mm (0.31 in.)
Over 2.4 mm (0.09 in.)	Over 10 mm (0.39 in.)

WORK NOTICES AND PRECAUTIONS > ANTI-RUST TREATMENT AFTER INSTALLATION OF BODY STRUCTURE PARTS OR OUTER PANELS

- BODY SEALER APPLICATION
- UNDERCOAT APPLICATION
- VEHICLE BODY ANTI-RUST AGENT APPLICATION

WORK NOTICES AND PRECAUTIONS > ANTI-RUST TREATMENT AFTER INSTALLATION OF BODY STRUCTURE PARTS OR OUTER PANELS

BODY SEALER APPLICATION



Text in Illustration

*1 Sealer Gun

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.

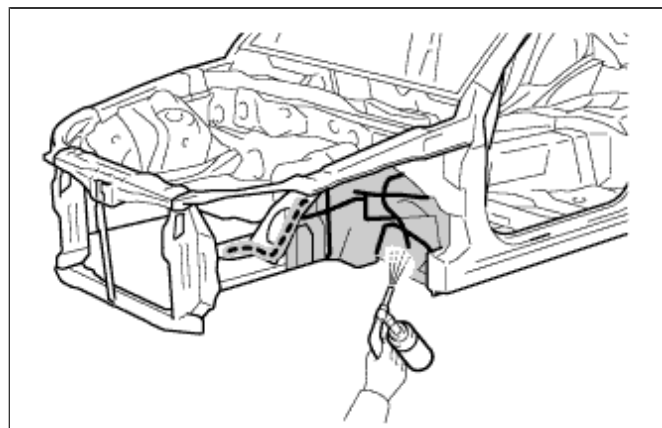
NOTICE:

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

UNDERCOAT APPLICATION

PURPOSE:

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



VEHICLE BODY ANTI-RUST AGENT APPLICATION

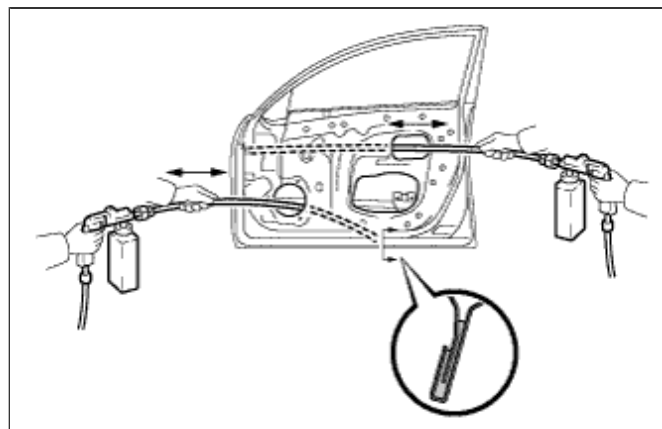
PURPOSE:

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.

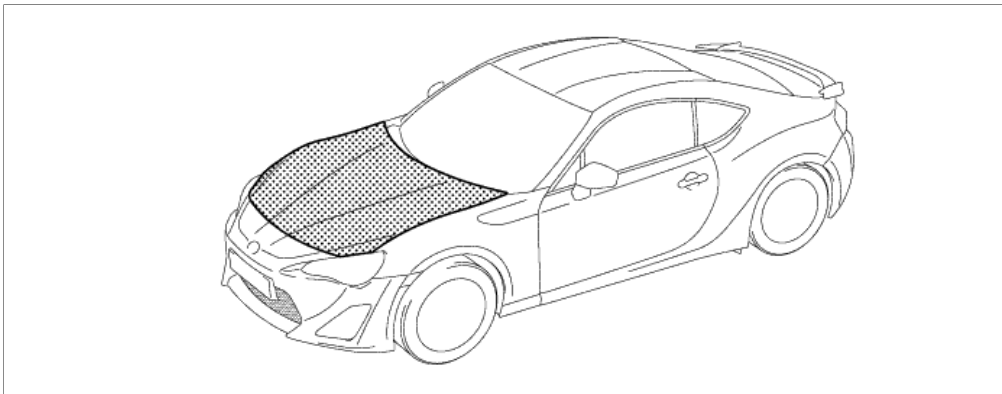


WORK NOTICES AND PRECAUTIONS > PRECAUTIONS FOR REPAIRING ALUMINUM ALLOY PANELS

- PORTIONS WHERE ALUMINIUM ALLOY PANELS ARE USED
- WORK SAFETY
- DIFFERENCE BETWEEN 5000 SERIES AND 6000 SERIES ALUMINUM ALLOY PANELS
- CHARACTERISTICS OF ALUMINUM ALLOY
- PRECAUTIONS WHEN CONDUCTING REPAIRS
- CHOOSING THE REPAIR METHOD
- THE WORK PROCEDURE OF EACH REPAIR METHOD (Repair by Pulling)
- THE WORK PROCEDURE OF EACH REPAIR METHOD (Repairing with a Hammer and Dolly by Heating)

WORK NOTICES AND PRECAUTIONS > PRECAUTIONS FOR REPAIRING ALUMINUM ALLOY PANELS

PORTIONS WHERE ALUMINIUM ALLOY PANELS ARE USED



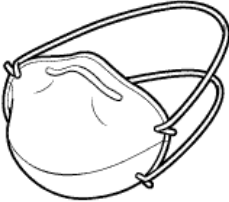
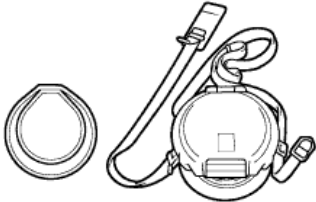

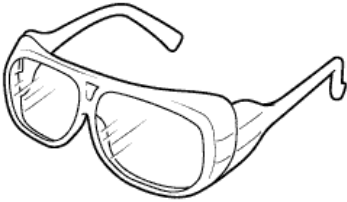
Text in Illustration






	Al-Mg-Si Alloy (6000 series)
---	------------------------------

WORK SAFETY

Although aluminum is a nontoxic material, it is very light in weight, which can easily cause metal particles to become airborne during sanding. It is important for technicians to protect their lungs and eyes from these particles. It is the personal responsibility of the technicians to be aware of the dangers involved, and to protect themselves by using proper safety equipment. It is also necessary to provide adequate lighting and ventilating facilities in the workshop. Please follow the recommended safety precautions below when repairing aluminum panels.

- Always wear protective glasses, ear plugs, dust masks, and other protective equipment to protect your eyes, ears, and respiratory system.
- Make sure to wear protective gloves when conducting heat repairs and when sanding or using organic solvents.
- As safety equipment for an emergency, have fire extinguishers, first aid kits, and an eye wash area at the workplace.

	Dust mask (Disposable type)		Dust mask (Exchange type)
	Face protector		Safety glasses
	Safety shoes		Ear plugs

			
	Ear protectors		Cotton gloves
	Solvent gloves	-	-

DIFFERENCE BETWEEN 5000 SERIES AND 6000 SERIES ALUMINUM ALLOY PANELS

Type	Heating Limit Temperature	Proper Heating Temperature for Repairs
Al-Mg Alloy (5000 series)	300°C (572°F)	250°C (482°F)
Al-Mg-Si Alloy (6000 series)	250°C (482°F)	200°C (392°F)

NOTICE:

There is a marked decrease in the panel strength if heated over the heating temperature limit.

CHARACTERISTICS OF ALUMINUM ALLOY

- If the base metal of aluminum alloy is left untreated, it will naturally develop an oxide film that will protect against corrosion. As a result, an anti-rust agent does not need to be used even when aluminum alloy is exposed to heat during shrinking.
- Aluminum alloy conducts heat very well so a wide area will become heated when heat is applied to one area.

-	Aluminum	Iron
Heat Conductance	236 W/m*K	84 W/m*K

- Aluminum alloy does not become magnetized.

PRECAUTIONS WHEN CONDUCTING REPAIRS

- If aluminum comes into contact with another type of metal (especially steel), galvanic corrosion will cause the base metal to corrode. If tools used to repair steel panels are not cleaned before they are used on aluminum alloy surfaces, the tools will leave behind steel particles and corrode the base metal. Therefore make sure to completely clean off iron particles on the surface of tools if using them to repair steel parts before use, or prepare a separate set of tools (hammers, dollies, chisels, air sander, carbon electrode, etc.) for use on aluminum alloys only.

HINT:

Galvanic corrosion is rusting that is created by a potential difference between two metals that is produced when they come in to contact together. This phenomenon occurs with any type of metal, and the aluminum causes the corrosion when the base metal surfaces of aluminum and steel are put together.

- An oxide film forms on an aluminum alloy within a matter of minutes when the base metal is exposed to the air. This oxide film has a negative effect on putty and paint adhesion, so it is important to immediately treat the base metal after sanding and degreasing.
- Aluminum is brittle and easily develops work hardening and cracks. Heating aluminum when restoring a

deformed portion improves workability and prevents work hardening and cracking so it is an effective method when repairing.

However, heating at the optimal heating temperature provides the very best results and any increase in temperature above this will result in a corresponding decrease in strength. (There is a marked decrease in strength if the optimal heating temperature is exceeded.)

CHOOSING THE REPAIR METHOD

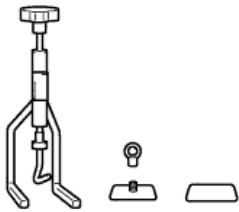
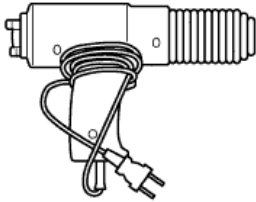
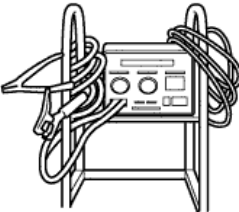

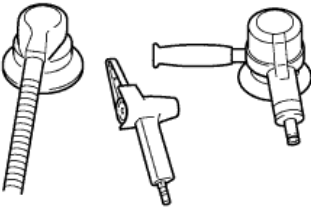
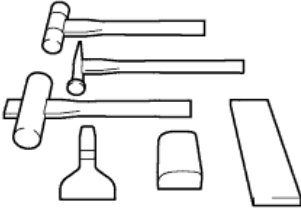
-	Damaged Condition	Judgment Criteria	Repair method
Repairable*1	A dent on the flat outer panel surface	<ul style="list-style-type: none"> There is no plastic deformation to the outer panel. There is no deformation to the ends of the outer panel. No deformation to the inner panel. No separation between outer and inner panel. 	Repair by pulling.
	Deformation to the outer or inner panels.	<ul style="list-style-type: none"> Slight plastic deformation to the outer and inner panels. (Deformation that does not crack while repairing.) No separation between outer and inner panel. 	Repair with a hammer and dolly by heating.
Not Repairable	Tears and hole openings	-	Replacement of the assembly.
	Damage with severe plastic deformation*2		

*1: The repairable size of the damage is judged by the same standard as for steel panels.

*2: Not repairable because cracking will occur while repairing.

THE WORK PROCEDURE OF EACH REPAIR METHOD (Repair by Pulling)

Recommended tools

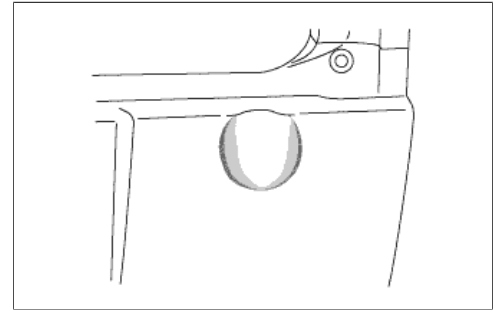
	Puller		Industrial heater gun
	Washer welder (For use on standard steel panels)		Carbon electrode
	Air tools		<ul style="list-style-type: none"> Plastic-faced hammer Fine smoothing hammer Wooden hammer Dolly Body line chisel and wood piece

NOTICE:

Make sure to completely clean off iron particles on the surface of the tools above if using them to repair steel parts before use, or prepare a separate set of tools for use on aluminum alloys only (to prevent galvanic corrosion of the aluminum).

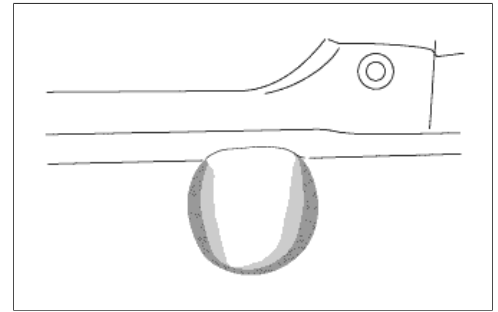
a. CHECK OF THE DAMAGE

- i. Inspect visually and brush your hand across the damaged surface to determine the condition of the damaged area and whether there is any stretching. Also, check for any cracking and paint peeling. In cases where no paint defects are found, conduct the work starting from (c).



b. PAINT REMOVAL (NOT NECESSARY IN CASES WHERE THERE ARE NO PAINT DEFECTS)

- i. Completely remove the paint at the points where bonding chips will be attached.

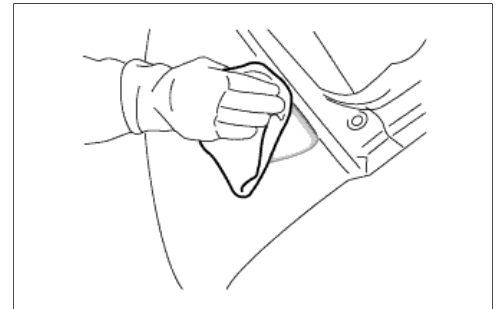


c. DEGREASING WHERE THE BONDING CHIP WILL BE ATTACHED

- i. After air blowing the surface, apply the degreaser cleaning solution that comes with the puller set to a cloth and degrease the area to be repaired.

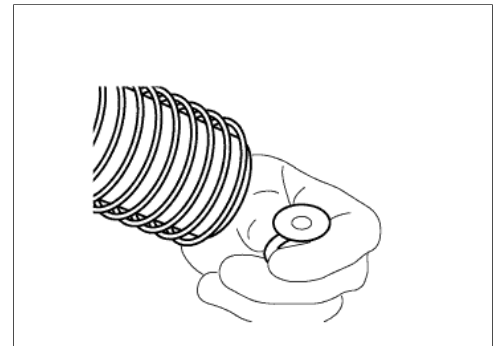
HINT:

If there are no paint defects present, scuff with the extra fine compound and then degrease.



d. PREPARING THE PLATE HOOK

- i. Heat the plate hook with an industrial heater gun and attach the bonding chip before it cools off.

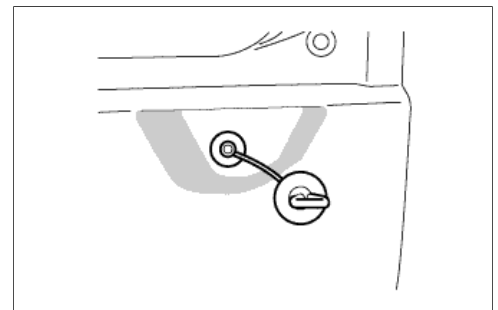


e. SETTING THE PLATE HOOK

- i. Attach two-sided tape (or masking tape folded over on itself) on the back of the magnet for positioning and set the plate hook on the panel surface to secure it in place.

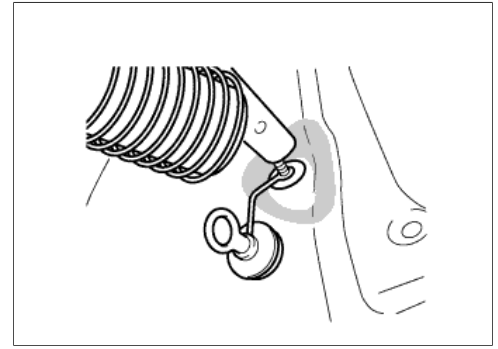
HINT:

The magnet must be attached with tape because aluminum does not magnetize.



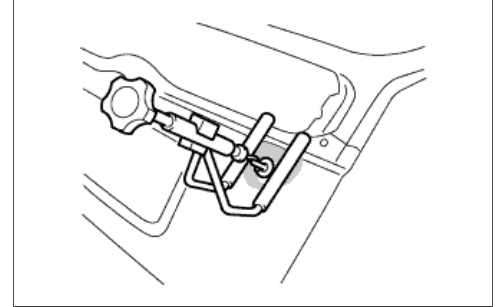
f. ATTACHING THE PLATE HOOK

- i. Heat the bonding chip with an industrial heater gun. Then use a handle of a hammer or the like to apply pressure on the plate hook and adhere it to the surface.
- ii. Next, air blow to cool down the panel surface and plate hook.



g. SETTING THE PULLER

- i. Fasten the magnet rubber plate attachment under the arm of the puller (with tape or the like) to prevent secondary damage.
- ii. Attach the eye nut to the plate hook and then attach the puller hook to the eye nut. Pull outward to about 1 to 2 mm (0.04 to 0.08 in.) past the height of the undamaged surface.

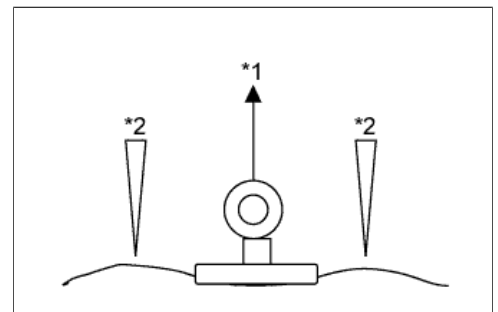
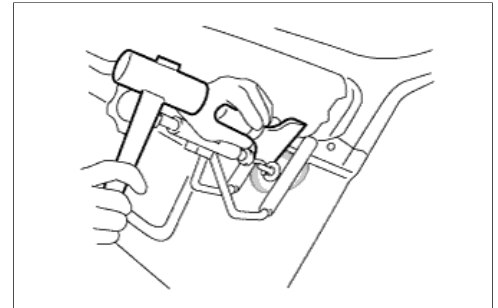


h. PULLING

- i. While keeping the puller pulled outward, lightly strike the convex surrounding area with a body line chisel or wood piece.

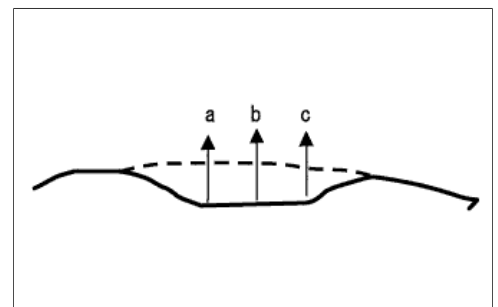
Text in Illustration

*1	Pull
*2	Strike



HINT:

Perform procedures (d) to (i) for areas a, b and c in alphabetical order. Pull so that each area is -1 to -2 mm (-0.04 to -0.08 in.) in relation to the undamaged surface.

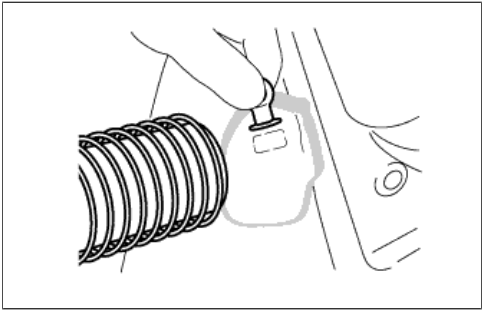


i. REMOVING THE PLATE HOOK

- i. After pulling, use an industrial heater gun to heat the bonding chip until it melts and then remove the plate hook.
- ii. Heat the leftover bonding chip and use a spatula to quickly remove it from the panel. Then apply the degreaser cleaning solution to degrease the panel surface.

NOTICE:

After the above work has been completed, conduct the following shrinking work if the tension of the repaired panel surface is inadequate.

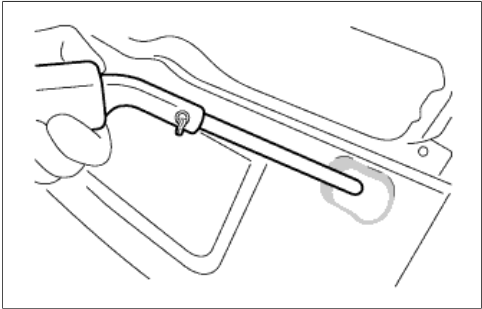


j. SHRINKING

- i. Shrink areas that are elevated due to stretching with a carbon electrode to ensure tension.
- ii. After shrinking, remove the burn mark in the same way as when repairing regular steel panels.

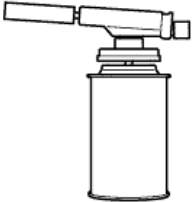
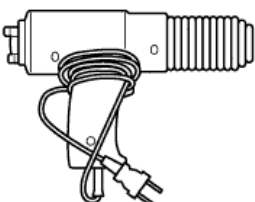

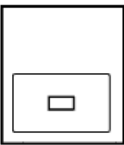
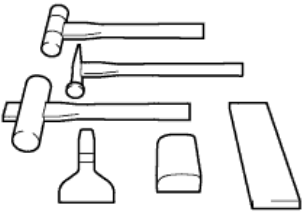
NOTICE:

- There is a negative effect on putty adhesion of the exposed panel portions due to oxidization.
- Create a featheredge on the previous coat, and apply primer and putty immediately after the shrinking work.



THE WORK PROCEDURE OF EACH REPAIR METHOD (Repairing with a Hammer and Dolly by Heating)

Recommended tools

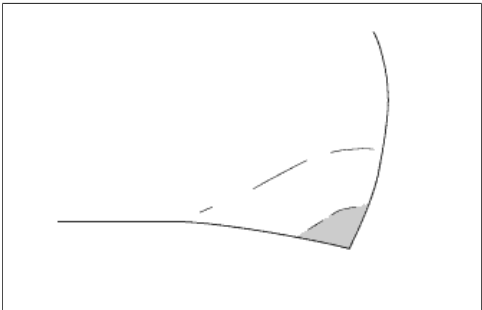
	Gas burner		Industrial heater gun
	Noncontact thermometer		Temperature indication label
	<ul style="list-style-type: none">• Plastic-faced hammer• Fine smoothening hammer• Wooden hammer• Dolly• Body line chisel and wood piece	-	-

NOTICE:

Make sure to completely clean off iron particles on the surface of the tools above if using them to repair steel parts before use, or prepare a separate set of tools for use on aluminum alloys only (to prevent galvanic corrosion of the aluminum).

a. CHECK OF THE DAMAGE

- i. Inspect visually and brush your hand across the damaged surface to determine the condition of the damaged area and whether there is any stretching.

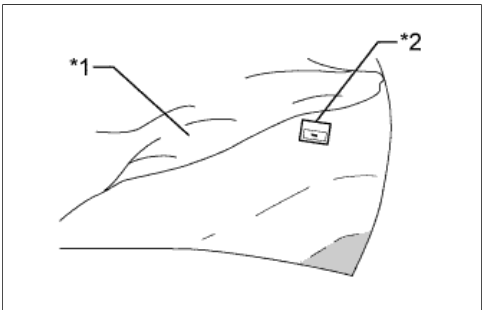


b. PREPARATION FOR HEAT REPAIRS

Text in Illustration

*1	Wet cloth
*2	Temperature indication label

- i. Cover the undamaged paint coating with a wet cloth so that it will not be burned by the flame of the burner while heating.
- ii. Put the temperature indication label at a position approximately 50 mm (1.97 in.) away from the heated area.



HINT:

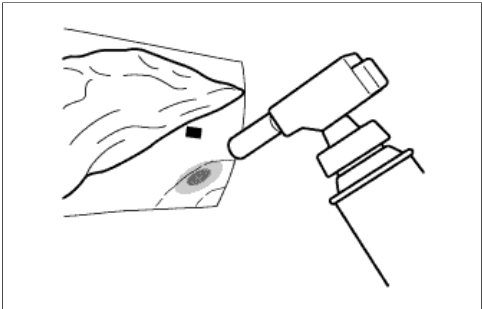
Position the temperature indication label so that it is not directly exposed to the burner flame.

c. HEAT REPAIRING

- i. Evenly heat the bent portion.

NOTICE:

- Do not directly expose the temperature indication label to the flame.
- Stop heating before the temperature indication label color changes.



NOTICE:

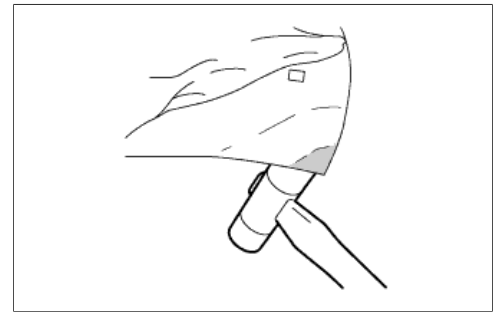
- Measure the painted surface when using a noncontact thermometer. (The aluminum base metal surface cannot be precisely measured.)
- Apply a guide coat or a lacquer coat (white or black) on the base metal surface and then measure the surface to be painted when measuring the aluminum base metal surface.
- The temperature will rise immediately after heating so make sure to frequently measure the temperature. (There is a large marked decrease in strength if the heating limit temperature is exceeded.)

-	Temperature	
Gas torch flame	1300°C (2372°F) Maximum	
Aluminum alloy panel heating limit temperature	300°C (572°F)	Al-Mg Alloy (5000 series)
	250°C (482°F)	Al-Mg-Si Alloy (6000 series)
Aluminum alloy panel optimal heating temperature	250°C (482°F)	Al-Mg Alloy (5000 series)
	200°C (392°F)	Al-Mg-Si Alloy (6000 series)
Aluminum melting point	About 650°C (1202°F)	

d. REPAIRING BY HAMMERING

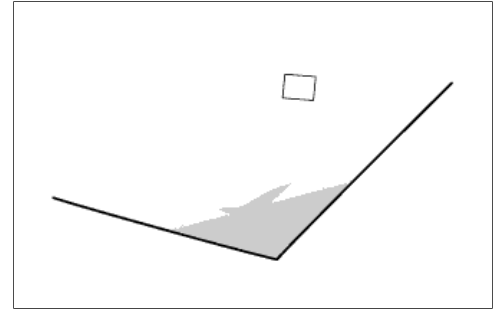
i. Rough Repairing

Aluminum quickly cools down after being heating so hammer the backside of panel with a plasticfaced or wooden hammer immediately after heating.



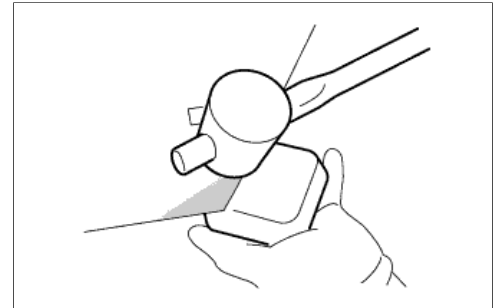
ii. Guidelines for Finishing Rough Repair

Even if there is unevenness in the surface, the repair is complete if the edge lines are restored.



iii. Repair with a Hammer and Dolly

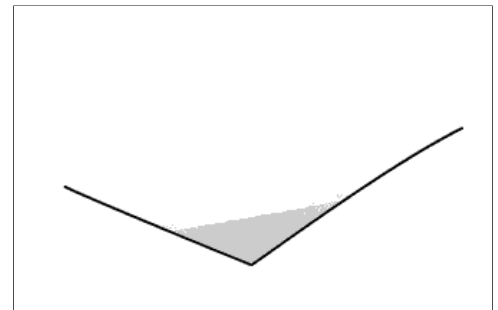
- Smooth the surface repeatedly using an on-dolly and an off-dolly on the surface.
- Restore the panel edge line with an on-dolly.



e. CHECK OF THE REPAIRED SURFACE

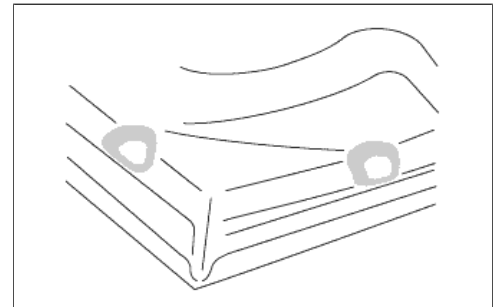
i. Check the following two conditions and repair by shrinking using a carbon electrode if either applies.

- There is an area that is higher than normal.
- There is inadequate tension.

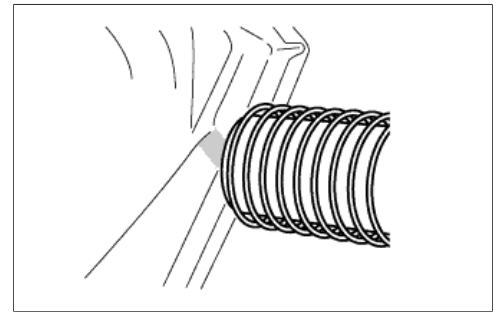


f. REPAIRING DENTS ON THE INNER PANEL PORTION

i. If there are no high points, repair by putty shaping.



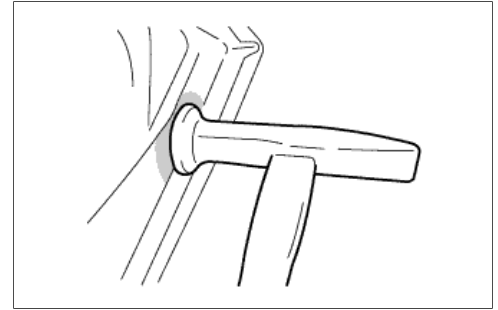
ii. If there are high points, place the nozzle of an industrial heater gun close to the high point, and heat it for 30 seconds.



- iii. Repair the shape of the surface with a fine smoothening hammer before the heated portion cools off.

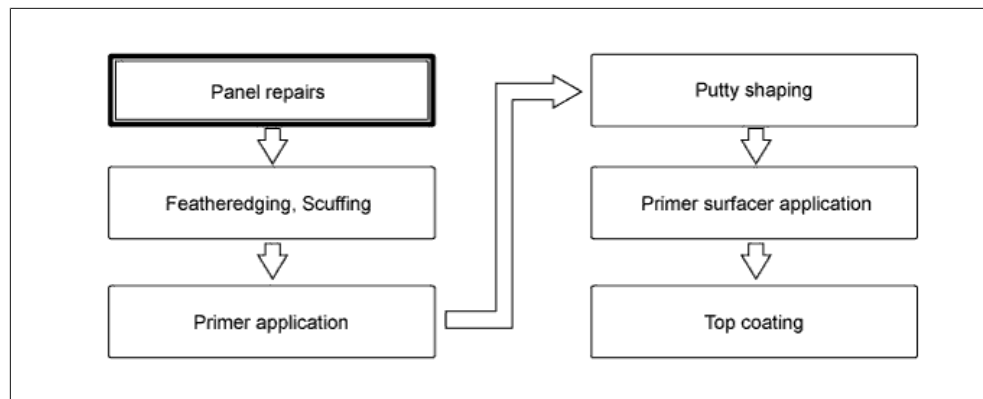
HINT:

Alternate between heating and hammering.



g. PROCEDURE AFTER PANEL REPAIR (PUTTY SHAPING, PAINTING, ETC.)

- i. Conduct the procedure based on the work process below. (The basic work process is the same as for repairs on steel panels.)



HINT:

Perform the procedure with the paint manufacture specified primer and putty. Also, when using the primer and putty, make sure to follow the paint manufacturer's instructions.

WORK NOTICES AND PRECAUTIONS > PRECAUTIONS FOR SRS AIRBAG SYSTEM

- HANDLING OF A VEHICLE THAT HAS BEEN DAMAGED IN A COLLISION
- PRECAUTIONS FOR USING ELECTRIC WELDER
- PARTS LOCATION

WORK NOTICES AND PRECAUTIONS > PRECAUTIONS FOR SRS AIRBAG SYSTEM

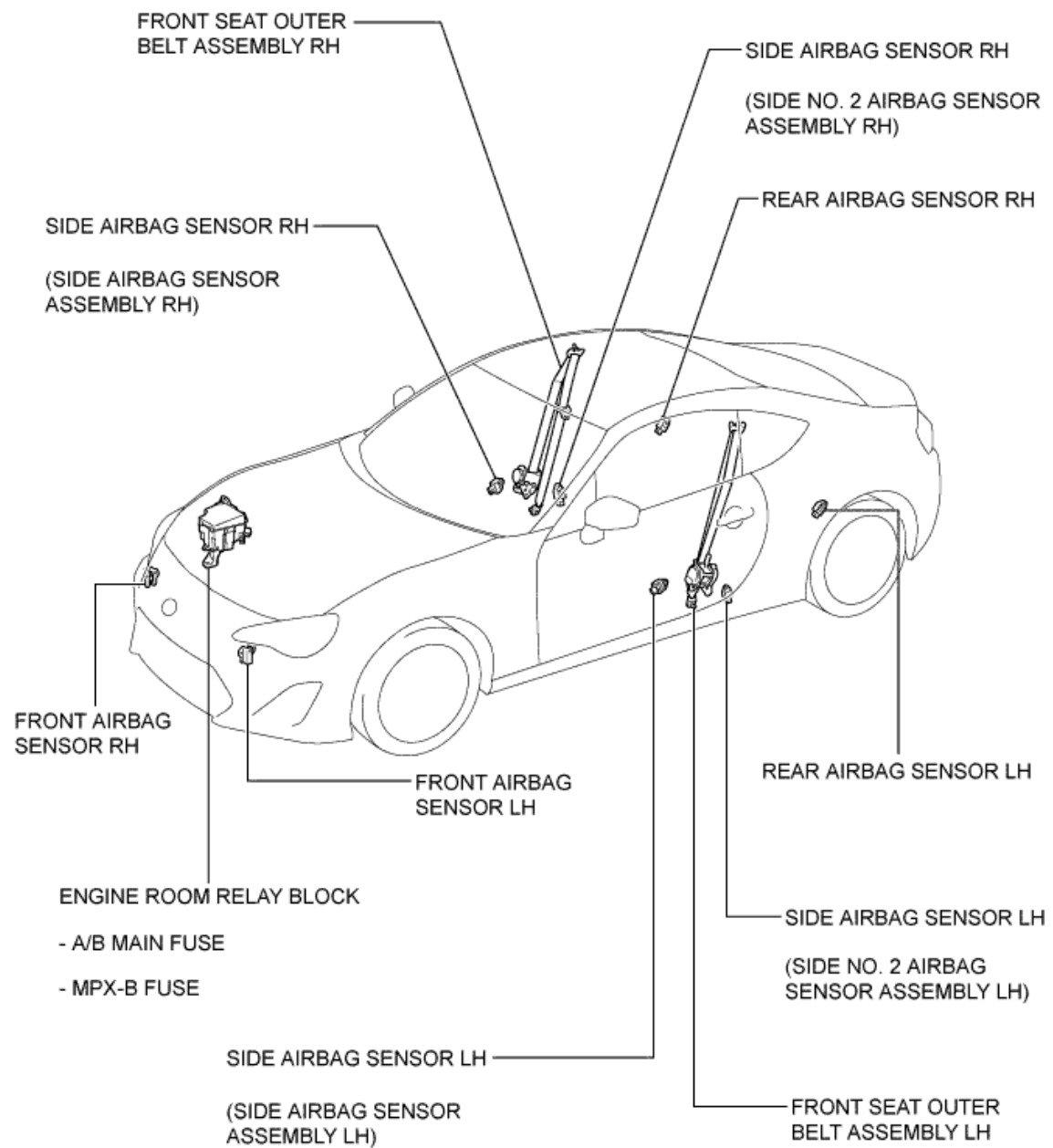
HANDLING OF A VEHICLE THAT HAS BEEN DAMAGED IN A COLLISION

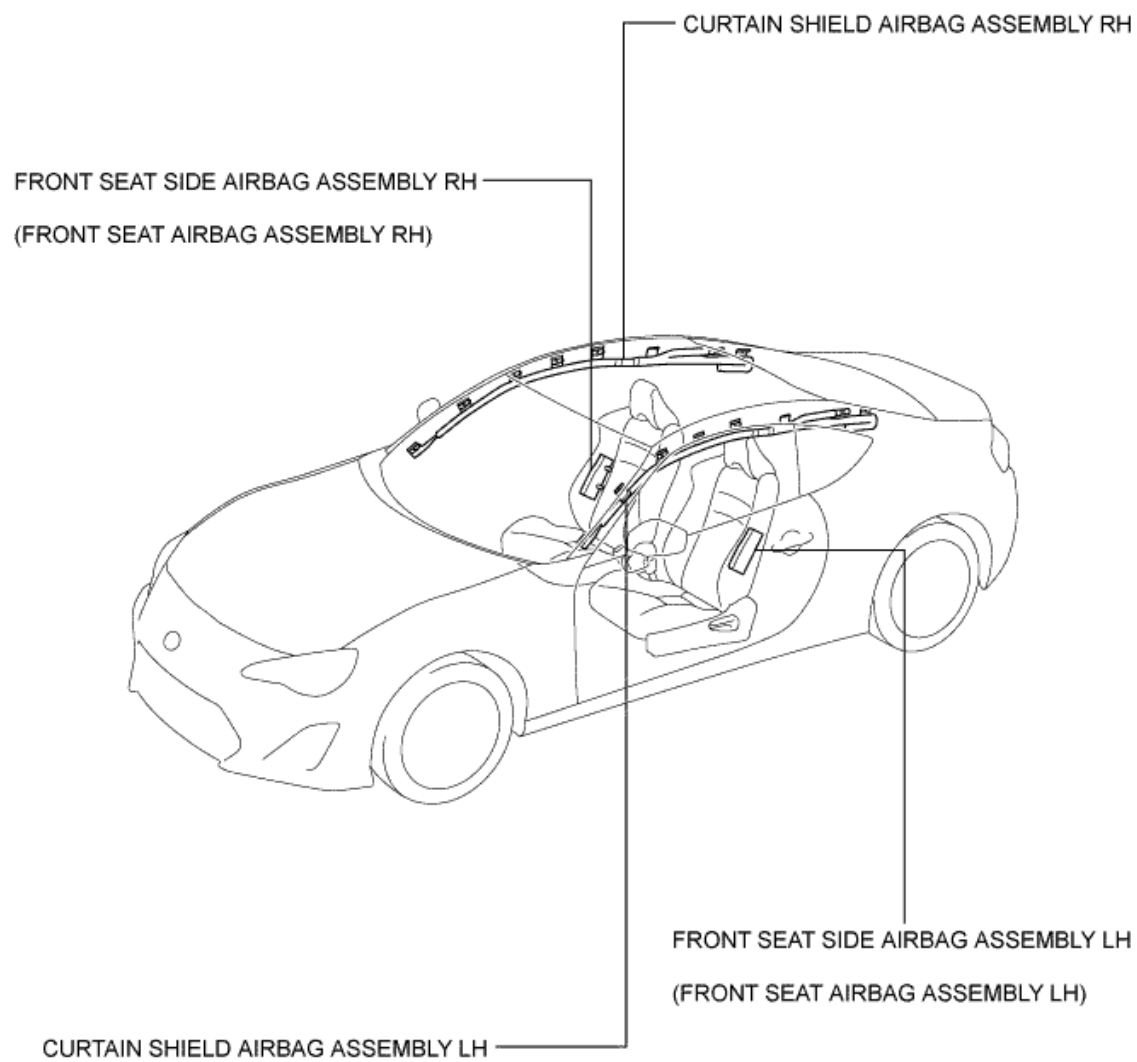
- Refer to the TOYOTA Repair Manual for the SRS airbag system inspection procedures.
- If impacts are likely to occur to the front airbag sensors, side airbag sensors, rear airbag sensors or airbag ecu assembly remove each sensor as necessary beforehand.
- Do not allow the front airbag sensors, side airbag sensors, rear airbag sensors or airbag ecu assembly to become heated to high temperatures.
- 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.

PRECAUTIONS FOR USING ELECTRIC WELDER

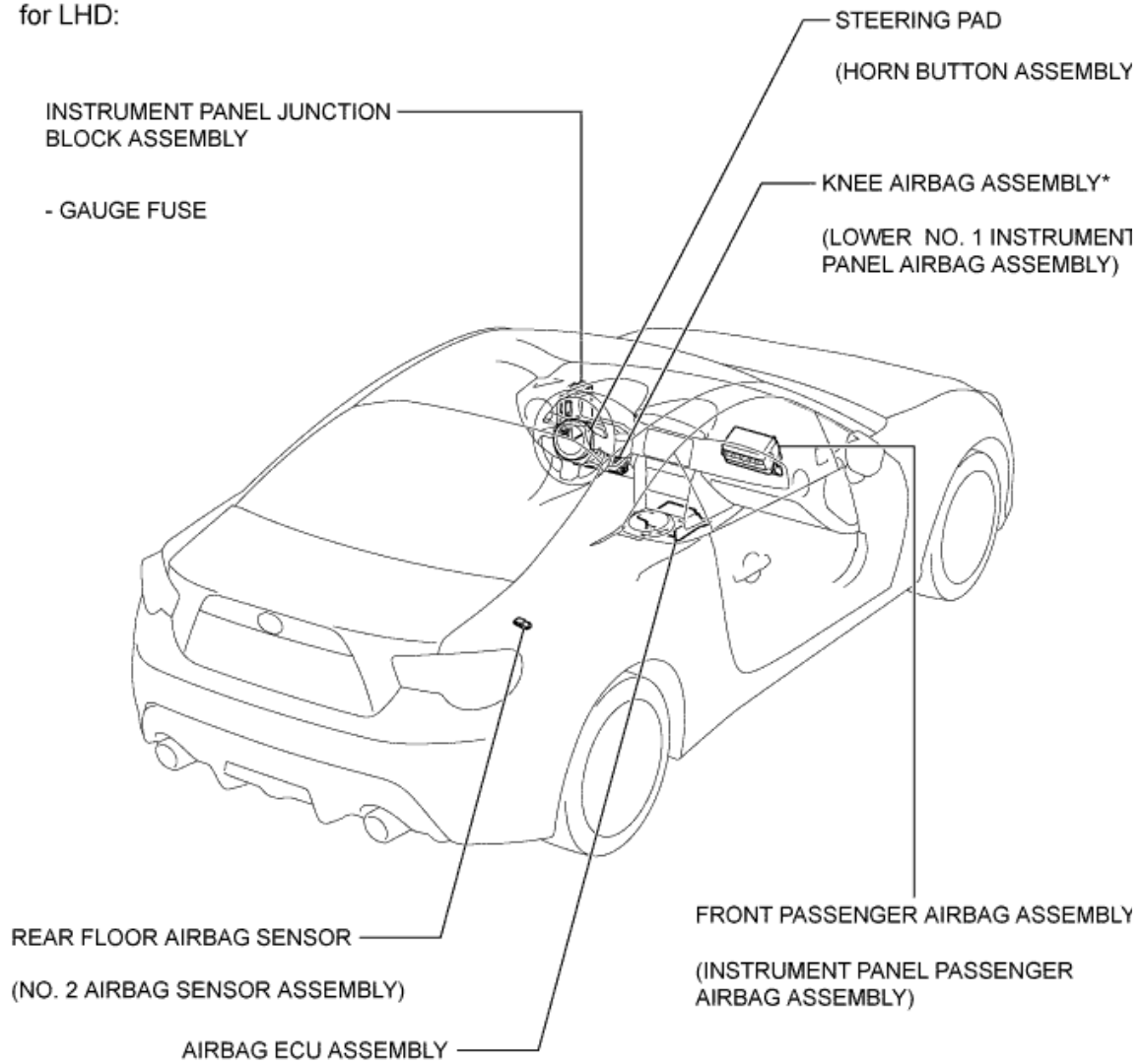
- Check the Diagnostic Trouble Codes (DTCs).
 - If one or more DTCs are displayed:
 - Disconnect the negative (-) terminal cable from the battery.
 - Disconnect all the malfunctioning circuit connectors.
 - Disconnect the center airbag sensor assembly connector.
 - If DTCs are NOT displayed:
 - Inspect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

PARTS LOCATION



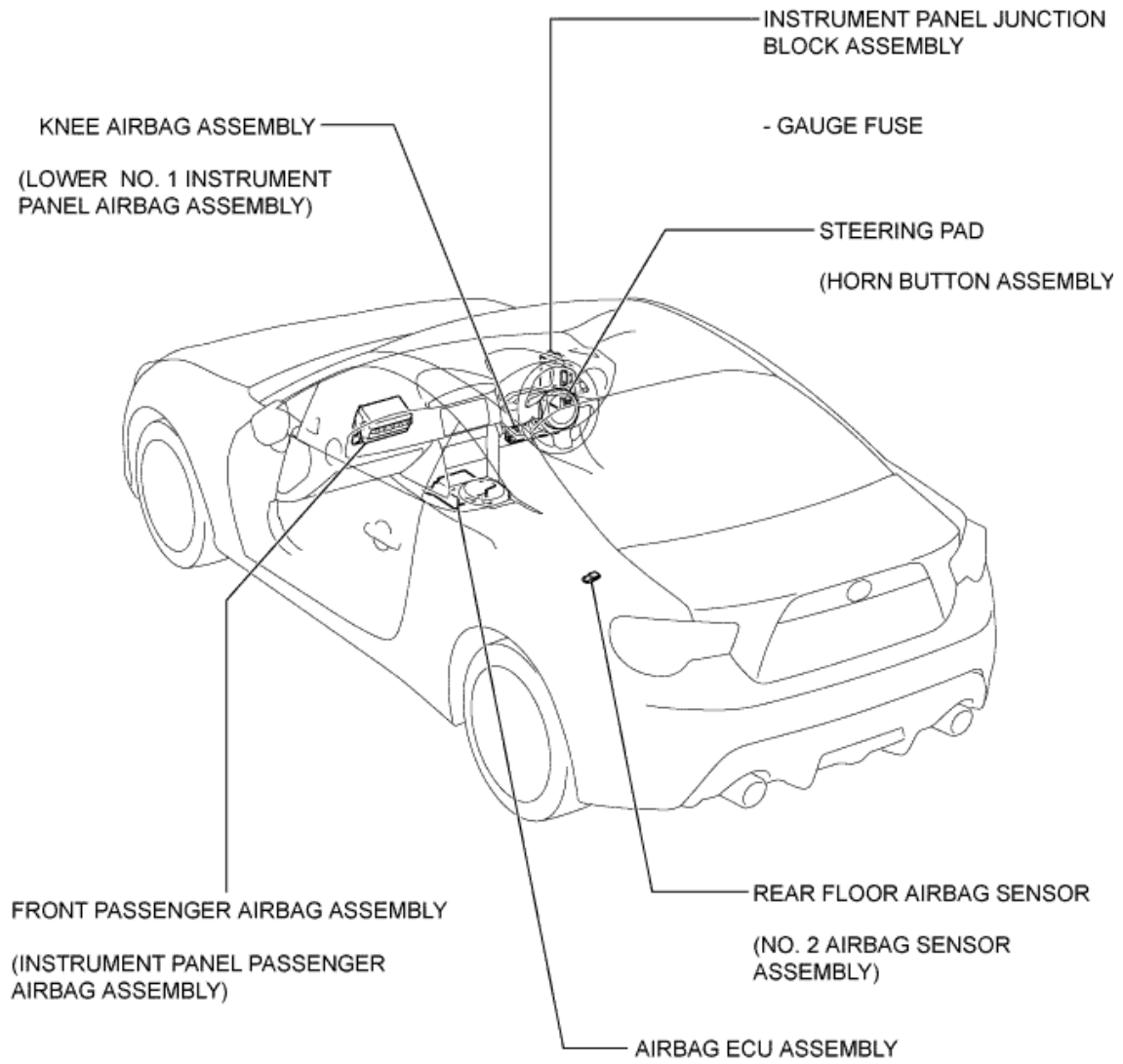


for LHD:

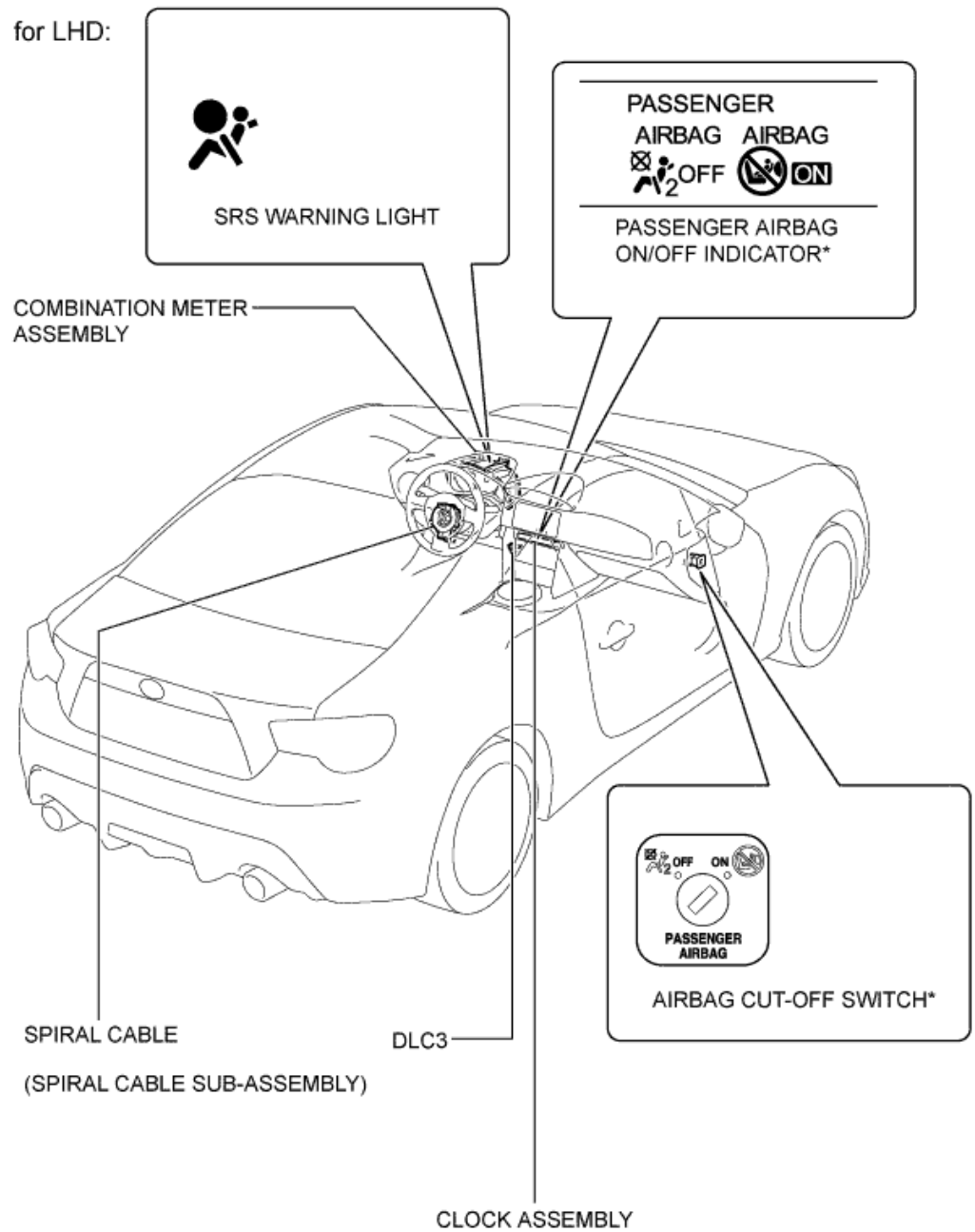


*: w/ Driver Side Knee Airbag

for RHD:

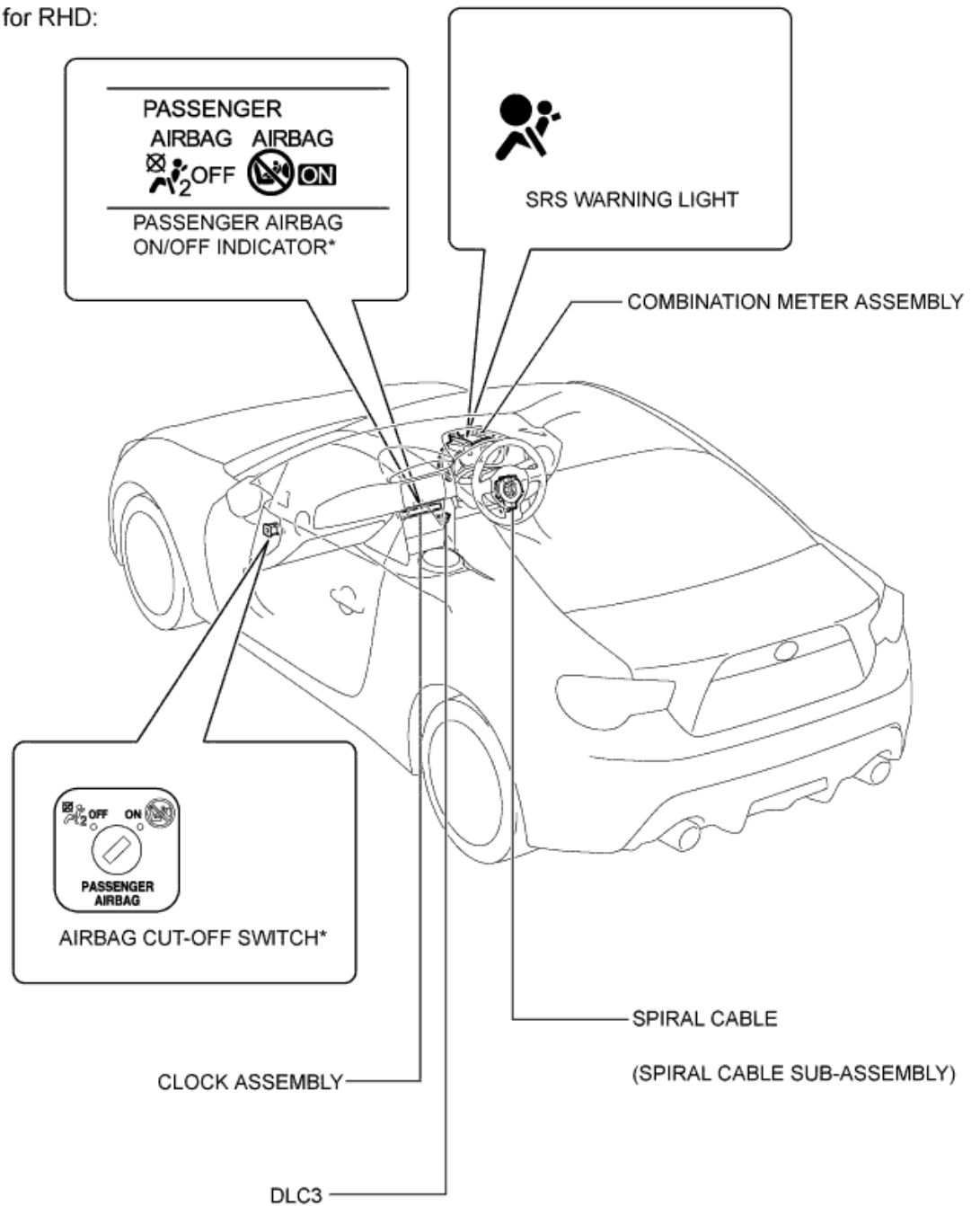


for LHD:



*: w/ Airbag Cut-off Switch

for RHD:



*: w/ Airbag Cut-off Switch

WORK NOTICES AND PRECAUTIONS > NOTICE ABOUT VEHICLE CONDITION WHEN JACKING UP VEHICLE

- NOTICE ABOUT VEHICLE CONDITION WHEN RAISING VEHICLE
- NOTICE FOR USING 4 POST LIFT
- NOTICE FOR USING JACK AND SAFETY STANDS
- NOTICE FOR USING A SWING ARM TYPE LIFT
- NOTICE FOR USING PLATE TYPE LIFT

WORK NOTICES AND PRECAUTIONS > NOTICE ABOUT VEHICLE CONDITION WHEN JACKING UP VEHICLE

NOTICE ABOUT VEHICLE CONDITION WHEN RAISING VEHICLE

- The vehicle must be unloaded before jacking up or raising the vehicle. Never jack up or raise a heavily loaded vehicle.
- When removing any heavy components like the engine or transaxle, the vehicle center of gravity will shift. To stabilize the vehicle, place a balance weight in a location that will prevent the vehicle from rolling or shifting, or place a transmission jack under the appropriate jack position at the opposite end of the vehicle.

NOTICE FOR USING 4 POST LIFT

- Follow the safety procedures outlined in the lift's instruction manual.
- Do not damage the tires or wheels while driving onto the lift.
- Use wheel chocks to secure the vehicle.

NOTICE FOR USING JACK AND SAFETY STANDS

- Work on a level surface. Use wheel chocks at all times.

- Use safety stands with rubber attachments as shown in the illustration.

Text in Illustration

*1 Rubber Attachment

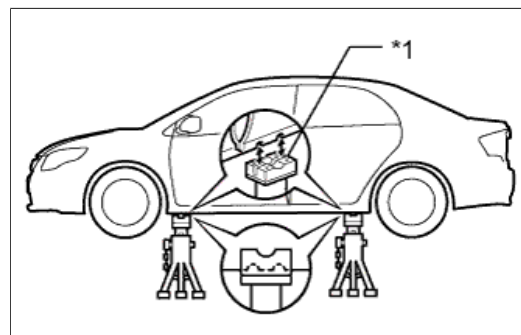
- Set the jack and safety stands exactly under the specified locations on the vehicle.
- Do not work on or leave the vehicle supported only by a jack. Be sure to support the vehicle with safety stands.
- When jacking up the vehicle, first release the parking brake and move the shift lever to N.
- When jacking up the entire vehicle:

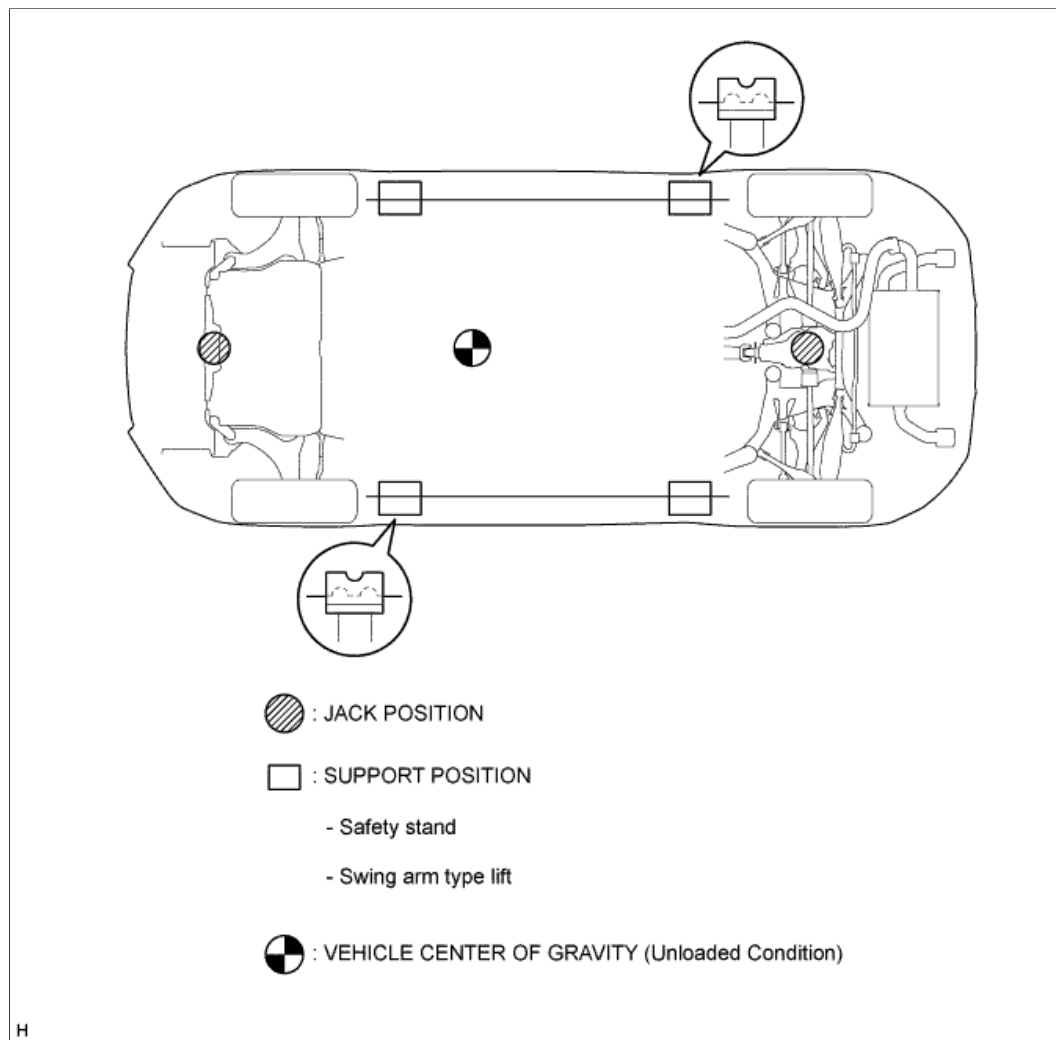
- When jacking up the front wheels first, make sure wheel chocks are behind the rear wheels.
- When jacking up the rear wheels first, make sure wheel chocks are in front of the front wheels.

- When jacking up only the front or rear wheels of the vehicle:

- Before jacking up the front wheels, place wheel chocks on both sides of the rear wheels.
- Before jacking up the rear wheels, place wheel chocks on both sides of the front wheels.

- When lowering a vehicle that only has its front or rear wheels jacked up.

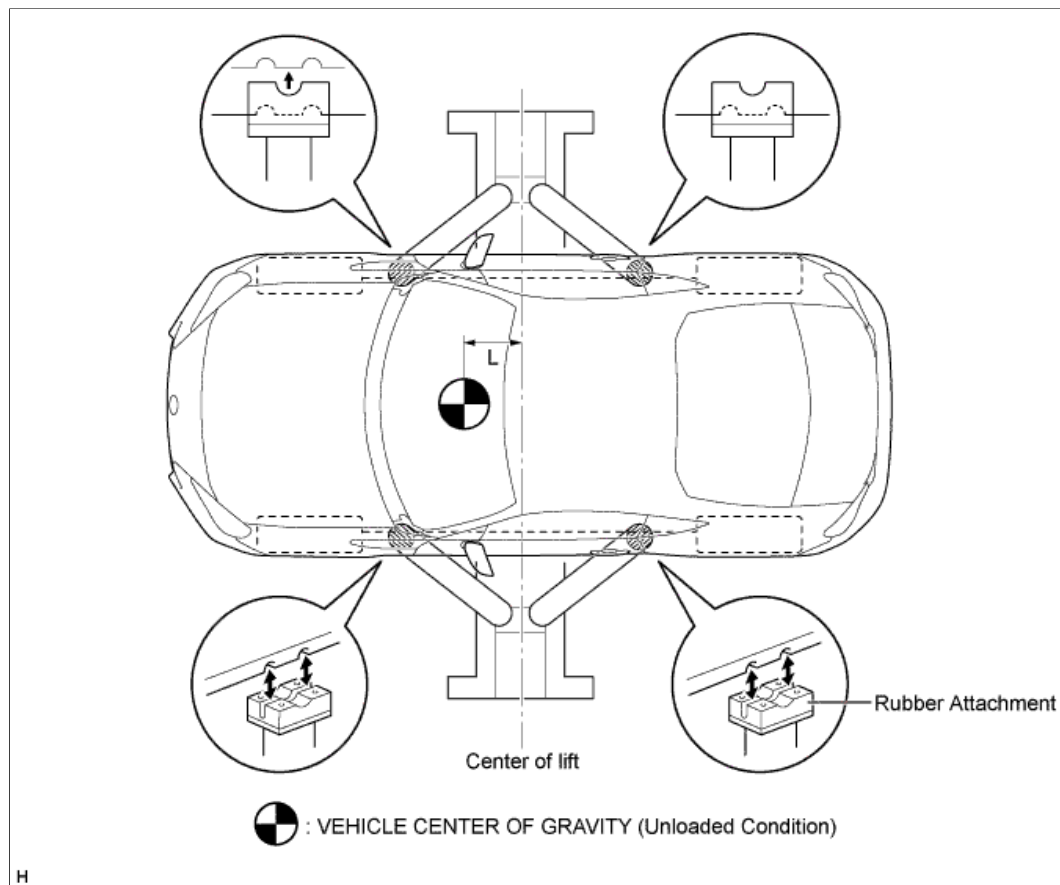




- i. Before lowering the front wheels, make sure wheel chocks are in front of the rear wheels.
- ii. Before lowering the rear wheels, make sure wheel chocks are behind the front wheels.

NOTICE FOR USING A SWING ARM TYPE LIFT

- a. Follow the safety procedures outlined in the lift's instruction manual.
- b. Use swing arms equipped with rubber attachments as shown in the illustration.
- c. Position the vehicle so that its center of gravity is centered on the lift (length of "L" in the illustration should be as short as possible).
- d. Ensure that the rubber cushions or swing arms do not contact the body cladding or lower mouldings.
- e. Be sure to lock the swing arms before raising the vehicle (if equipped with arm locks).
- f. Use the lift to raise the vehicle until the tires are off the ground, then stop the lift and shake the front and rear of the vehicle to make sure that it is stable.

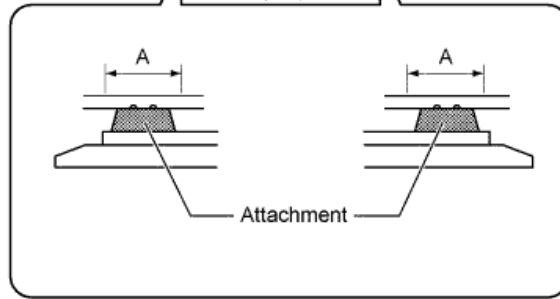
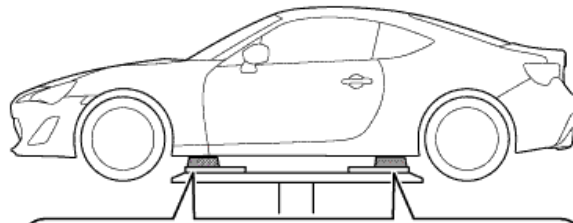


NOTICE FOR USING PLATE TYPE LIFT

- Follow the safety procedures outlined in the lift's instruction manual.
- Use plate lift attachments (rubber lifting blocks) on top of the plates.
- Be sure to set the vehicle to the specified position described in the following chart and shown in the following illustration.

Right and left set position	<ul style="list-style-type: none"> Center the vehicle on the lift.
Front and rear set position	<ul style="list-style-type: none"> Match the attachments to positions A in the illustration. Do not use a plate lift with attachments that are unable to reach positions A in the illustration.

- Ensure that the plate lift or rubber lifting blocks do not contact the body cladding or lower mouldings.
- Use the lift to raise the vehicle until the tires are off the ground, then stop the lift and shake the front and rear of the vehicle to make sure that it is stable.



Attachment Dimensions

