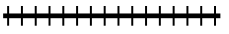
A GENERAL INFORMATION

1 HOW TO READ BODY REPAIR MANUAL

1-1 HOW TO READ SYMBOLS

The following symbols are used in the section of the body panel replacement of this body repair manual.

Symbol	Contents of operation
	Cut
	Removal of brazing or arc brazing
	Spot welding position
	Plug welding position
	Butt welding or fillet welding
	Brazing

1-2 RANGE OF EXPLANATION OF REPAIR WORK

This manual explains the body panel replacing procedure for vehicles having a white body.

In this manual, no explanation is made for the removal/installation procedure for equipment which will be necessary before the vehicle has the white body as well as assembling, check and adjustment for equipment after the body panel has been replaced.

1-3 ARTICLES TO BE PREPARED

When SST, tool, measuring instrument, a sort of fat and oil to be prepared before operation are necessary, those are described by compiling in the table as preparation tools at the beginning of each item. However, the general tools, jacks, fixtures as considered being equipped always at the service shop are usually omitted.

1-4 CONTENTS NOT DESCRIBED IN THIS MANUAL

The description of the next elemental operation may omit in this service manual, but please perform in an actual operation.

1.Jacking operation and lifting operation.
2.Cleaning and cleansing of removed parts to perform at need.
3.Visual inspection.
4.Basic check and adjustment after installation

1-5 DEFINITION OF TERMS

SPECIFIED VALUE	This refers to the allowable range at the time of checks and adjustments.
ALLOWABLE LIMIT	This refers to the maximum or minimum value that should not be exceeded at the time of checks and adjustments.
DEVIATION	This refers to the difference between the maximum gap and minimum gap.
WARNING	This section describes an operation procedure that could cause human injuries.
CAUTION	This section describes an operation procedure that could damage the vehicle and parts if adequate care is not paid.
NOTES	This section describes supplementary information that facilitates the operation. This section is separated from the text. This section may also indicate specified values in a simple measurement, in which the measurement to determine the specified value is difficult and most likely no malfunction may take place.

2 ABBREVIATION CODES

The abbreviation codes that appear in this manual stand for the following, respectively.

ABBREVIATION CODE	ORIGINAL WORD	ABBREVIATION CODE	ORIGINAL WORD
2WD	Two Wheel Drive	LHD	Left Hand Drive
4WD	Four Wheel Drive	LIN	Local Interconnect Network
ABS	Anti-lock Brake System	LSPV	Load Sensing Proportioning Valve
ABV	Air Bypass Valve	LWR	Lower
A/C	Air Conditioner	MIL	Malfunction Indicator Lamp
ACC	Accessory	MP	Multipurpose
API	American Petroleum Institute	M/T	Manual Transmission
A/T	Automatic Transmission	N/A	Natural Aspiration
ATDC	After Top Dead Center	NOx	Nitrogen Oxides
ATF	Automatic Transmission Fluid	OPT	Option
Ay	Assembly	O/S	Over Size
BDC	Bottom Dead Center	PCV	Positive Crankcase Ventilation
BTDC	Before Top Dead Center	PR	Ply Rating
BVSV	Bimetal Vacuum Switching Valve	PTO	Power Take Off
CAN	Controller Area Network	RH	Right Hand
CD	Compact Disc	RHD	Right Hand Drive
CO	Carbon Monoxide	RR	Rear
DLC	Data Link Connector	S/A	Sub-Assembly
DLI	Distributor Less Ignition	SAE	Society of Automotive Engineers
DTC	Diagnostic Trouble Code	SRS	Supplemental Restraint System
DVVT	Dynamic Variable Valve Timing	SST	Special Service Tool
EBD	Electronic Brake force Distribution	STD	Standard
ECU	Electronic Control Unit	SW	Switch
EFI	Electronic Fuel Injection	T	Torque
EGR	Exhaust Gas Recirculation System	T/C	Turbocharger
EPS	Electronic controlled Power Steering	TDC	Top Dead Center
ESA	Electronic Spark Advance	UPR	Upper
EX	Exhaust	U/S	Under Size
F/L	Fusible Link	VCV	Vacuum Control Valve
FR	Front	VSV	Vacuum Switching Valve
GND	Ground	VTV	Vacuum Transmitting Valve
HC	Hydro Carbon	W/	With
IG	Ignition	WVTA	Whole Vehicle Type Approval
IN	Intake	Ⓑ	Bolt
ISC	Idle Speed Control	Ⓢ	Screw
ISO	International Organization for Standardization	Ⓝ	Nut
LCD	Liquid Crystal Display	Ⓦ	Washer
LED	Light Emitting Diode	Ⓒ	Clip
LH	Left Hand		

3 UNIT

As for the units, the SI units (international unit system) have been posted. (The hitherto employed units, too, are posted.)

Example: 33.25±13.25N·m{340±135kgf·cm}

3-1 NEW UNIT BECAUSE OF THE INTRODUCTION OF THE SI UNIT

SI unit is the international unit system established by aiming to proceed the communication in technology smoothly by unifying the former unit system which were different internationally each other into one value by one unit. The specification value is described in accordance with SI unit system in this service manual.

Item	SI unit	Conventional units	Conversion table
Force	N	kgf	1 kgf = 9.80665N
Torque	N·m	kgf·cm	1 kgf·cm = 0.0980665N·m
Spring constant	N/mm	kgf/mm	1 kgf/mm = 9.80665N/mm
Pressure	Pa	kgf/cm^2	1 kgf/cm^2 = 98.0665kPa
		mmHg	1 mmHg = 0.133322kPa

3-2 PREFIX USED IN SI UNIT

The following are typical prefixes used in SI unit. (10 to the power of n)

M	10^6
K	10^3
h	10^2
da	10^1
d	$10^{-1}=0.1$
c	$10^{-2}=0.01$
m	$10^{-3}=0.001$
μ	$10^{-6}=0.000001$

4 TIGHTENING TORQUE

4-1 HOW TO KNOW TIGHTENING TORQUE FOR GENERAL STANDARD BOLTS AND NUTS

4-1-1 HOW TO KNOW TIGHTENING TORQUE FOR BOLTS

First, determine the strength division of the bolt from the table below. Then, find out the tightening torque for that bolt, using the tightening torque table.

4-1-2 HOW TO KNOW TIGHTENING TORQUE FOR NUTS

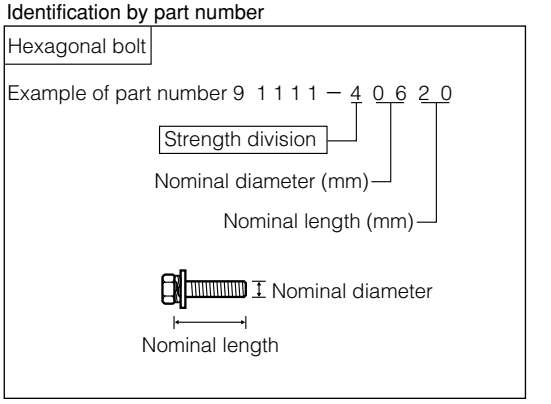
Find out the tightening torque for nuts in the same way as with the procedure given above, based on the mating bolts.

4-1-3 IDENTIFICATION

Identification of strength division by checking bolts themselves

Classification (Strength division)	Shape of head (how to know strength division)	
	Bolt without collar	Bolt with collar
4 T		
5 T		—
6 T	— —	
7 T		—

Identification by part number



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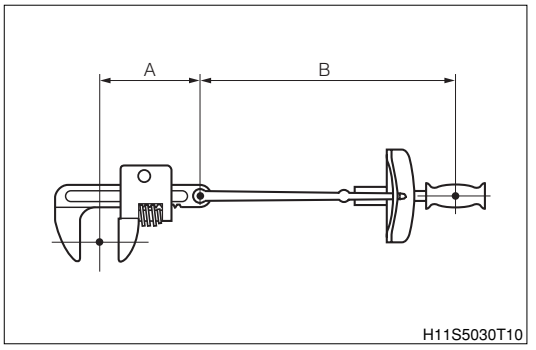
4-1-4 TIGHTENING TORQUE TABLE FOR GENERAL STANDARD BOLTS

Strength division	Nominal diameter (mm)	Pitch (mm)	Standard tightening torque (N·m{kgf·cm})	
			Bolt without collar	Bolt with collar
4 T	6	1.0	5.4 {55}	5.9 {60}
	8	1.25	13 {130}	14 {145}
	10	1.25	25 {260}	28 {290}
	12	1.25	47 {480}	53 {540}
	14	1.5	74 {760}	83 {850}
	16	1.5	113 {1150}	—
5 T	6	1.0	6.4 {65}	—
	8	1.25	16 {160}	—
	10	1.25	32 {330}	—
	12	1.25	59 {600}	—
	14	1.5	91 {930}	—
	16	1.5	137 {1400}	—
6 T	6	1.0	7.8 {80}	8.8 {90}
	8	1.25	19 {195}	20.5 {210}
	10	1.25	39 {400}	43 {440}
	12	1.25	72 {730}	79 {810}
	14	1.5	109 {1100}	123 {1250}
7 T	6	1.0	11 {110}	12 {120}
	8	1.25	25 {260}	28 {290}
	10	1.25	52 {530}	58 {590}
	12	1.25	95 {970}	103 {1050}
	14	1.5	147 {1500}	167 {1700}
	16	1.5	225 {2300}	—

4-1-5 WHEN AN EXTENSION TOOL IS USED

1. When tightening with the SST or a tool connected to the torque wrench for a drive-end extension, a higher tightening torque will result, if tightened until the reading on the torque wrench indicates the specified torque.
2. This manual contains specified torques only. When using the SST or an extension tool, the torque wrench reading must be computed using the following formula.
3. Calculation formula: $T' = T \times B / (A + B)$

Codes	Meaning	Unit
T′	Torque wrench reading	N·m{kgf·cm}
T	Specified tightening torque	N·m{kgf·cm}
A	Length of the SST or a tool	cm
B	Torque wrench length	cm



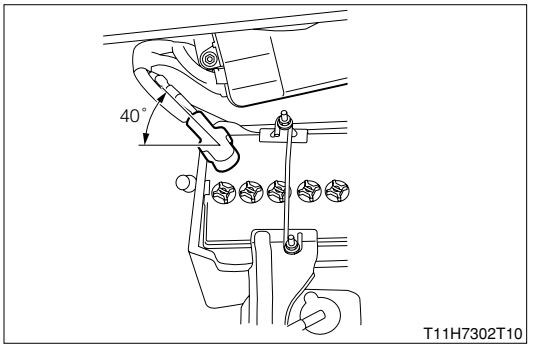
5 GENERAL SERVICE INSTRUCTION

5-1 JACK UP OR LIFT UP

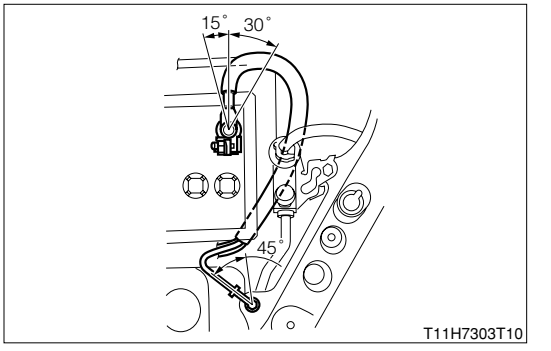
1.When only front section or rear section of a vehicle is jacked up, be sure to place chocks at the wheels so as to insure safe operations.
2.When the vehicle has been jacked up, be sure to support the vehicle at the specified section using the safety stands.
3.When the vehicle has been lifted up, be sure to set the cradle of the lift at the specified location, and lift it up. And after the jacking up, ensure to apply the protective safety device. And after the jacking up, ensure to apply the protective safety device.

5-2 INSTALLATION AND REMOVAL OF BATTERY TERMINAL

1.Disconnect the battery negative (-) terminal prior to repairing the electrical system, mounting/dismounting the engine, etc.
2.When connecting/disconnecting the battery terminal, turn the IG switch to "OFF" (LOCK position), and loosen the terminal nut completely. Do not pry the battery terminal off.
3.When the battery terminal is removed, clock, radio setup and the memory of diagnosis will be erased. Record the contents of the memory before disconnecting the battery terminal so that it can be restored as required after the work is complete.
4.When connecting the battery terminal, connect the positive (+) terminal first so that that the terminal wire will be placed in the marked area of the illustration, and tighten to the specified torque.
TIGHTENING TORQUE: 6.35±1.45N·m {65±15kgf·cm}



5.When connecting the battery negative (-) terminal, connect the terminal so that that the terminal wire will be placed in the marked area of the illustration, and tighten to the specified torque.
TIGHTENING TORQUE: 6.35±1.45N·m {65±15kgf·cm}
6.Securely install the cover, etc. on the terminal after work is complete.



5-3 CONNECTING/DISCONNECTING THE EARTH

1.When the earth was removed, check that the earth is securely in place and then turn "ON" the IG switch.

5-4 REPAIRING OF FUEL SYSTEM

1.Do not work near open flames.
2.Be certain to place a suitable container, a cloth, etc. under the connected section of the fuel line before disconnecting the fuel line.
3.Before the fuel line is disconnected, be sure to release the inner pressure of the fuel tank by detaching the fuel filler cap.
4.Be sure to prevent the fuel from splashing with a cloth or the like, when the union bolt or other connected section of the fuel line is loosened or slackened.
5.Tighten each connecting section to the specified torque.
6.Attach the specified clips to each connecting section.

5-5 USE OF THE SST

1.Utilize the SST (special tool) effectively in order to improve efficiency and accuracy of work operation.

5-6 REMOVAL, DISASSEMBLY

1.In case for the operation at the complicate place, the stamping and mating mark shall be put at the place where there is no influence to the function, so that the assembling operation becomes easy.
2.At every time when each parts are removed, check the condition when it was assembled, deformation, breakage, roughness and existence of scratch.
3.Arrange the removed parts in order, and divide them to the parts to replace and parts to reuse.
4.Each parts to be reused shall be performed enough cleaning and cleansing operation.

5-7 CHECK AND MEASUREMENT OF PARTS

1.As regards those parts to be used again, perform thorough checks and measurements, as required.

5-8 INSTALLATION, ASSEMBLING

1.Assemble the good parts with correct procedure following the specified standard (value for the adjusting, tightening torque).
2.Use the genuine parts when replace the parts.
3.Ensure to apply the seal packing and grease by a place.
4.Ensure to use new packing, gasket or the like, cotter pin etc.
5.When use the seal bolt, apply the specified liquid gasket and seal lock agent on.
6.As for bolts and nuts, use the specified ones. Unless otherwise specified, the side for which the torque is indicated should be tightened to the specified torque, using a torque wrench. If there is no means to prevent the turning at the opposite side, be sure to prevent turning with box wrenches, spanners or the like.

5-9 ADJUSTMENT, OPERATION CONFIRMATION

1.Adjust with the specified service standard value by using the gauge and the tester.

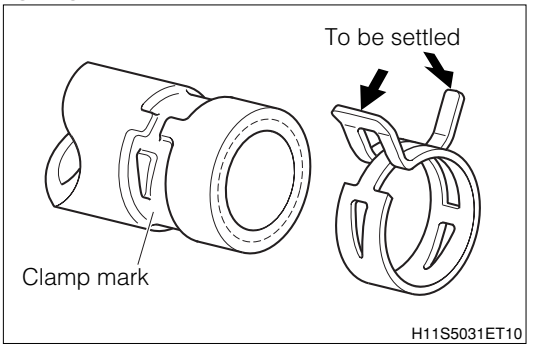
5-10 HANDLING OF HOSE OR THE LIKE

1.Check the plug depth and clamp position before removing the hose.
2.When re-using the hose, install the clamps so that they match the clamp marks remaining on the hose.

CAUTION

- Replace the clamps if they are deformed or flattened.
- Replace the hose a new one if the hose has a loose fitting with the joint.

3.Ensure that the spring type clamp is properly seated after installation.
4.Ensure to insert the fuel hose, water hose or the like without coming out or leakage.
5.Be careful that fuel shall not splash on the parts near by when remove the fuel hose. (Deep care shall be paid for engine mount rubber or the like, as there may be possibility to get material deterioration for liquid of gasoline series.)



5-11 TOUCH UP

1.When removed the bolt or the like during body fitting operation and others, the scratch of the paint finishing surface on the body and bolt shall be repaired by the body color.

6 SUPPORTING POINTS FOR JACKS AND SAFETY STANDS

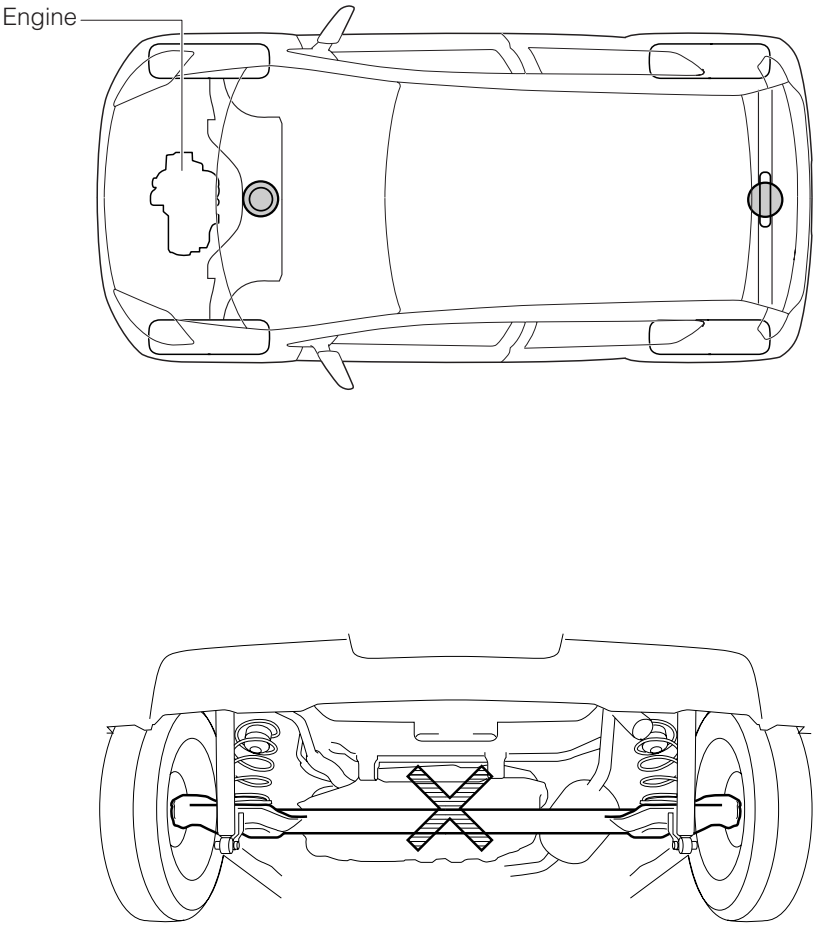
● Jack supporting point

Front side: Front suspension member center protruding section

Rear side: Rear floor cross member center section

CAUTION

- Do not jack up the rear suspension center beam portion.
  Deformation and/or damage to the beam might cause controllability problems.



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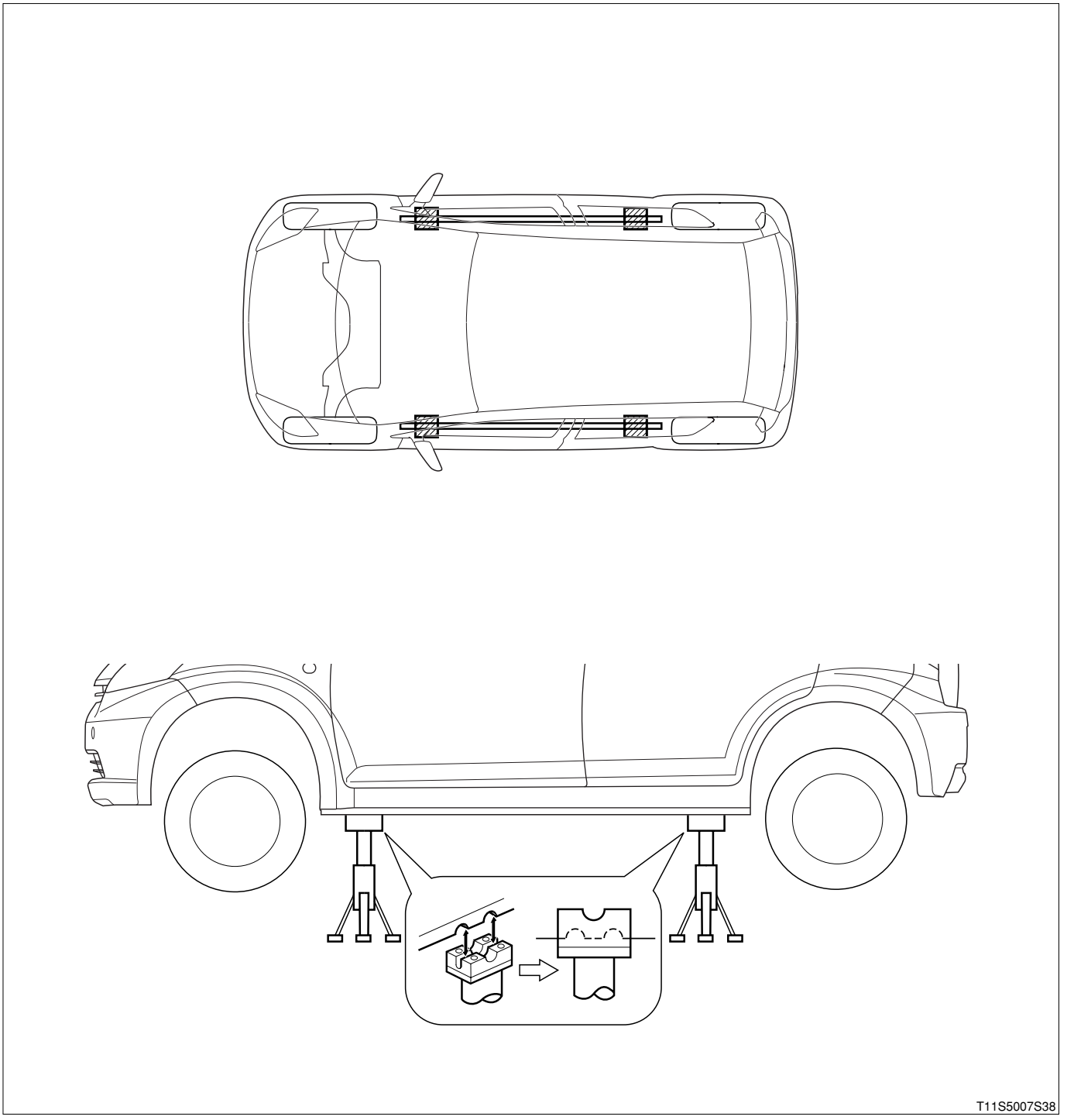
● Rigid rack supporting points

Support 4 locations, namely front, rear, right and left as shown in the illustration below.

CAUTION

- The spot welded reinforcement plate provides adequate strength to the supporting points. Therefore, do not support the vehicle at points other than these supporting points.



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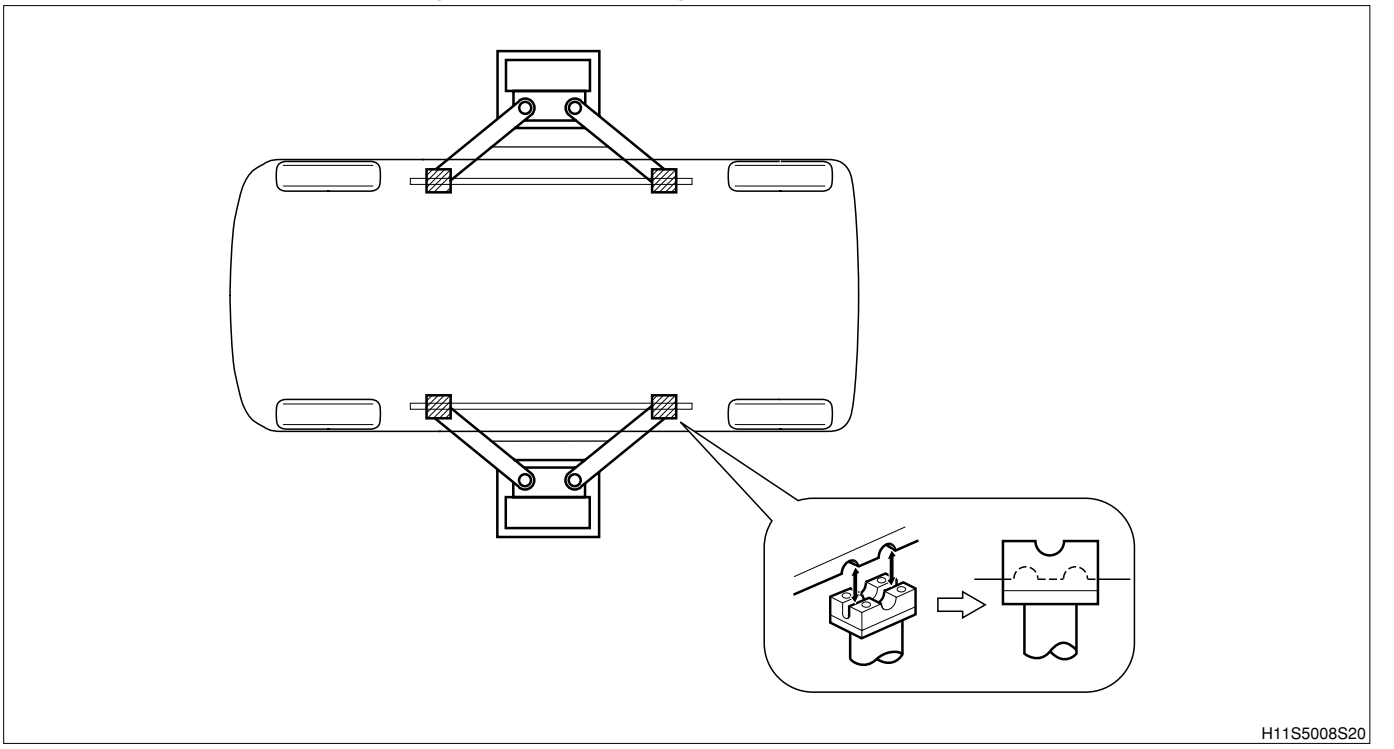
7 SUPPORTING POINTS OF LIFTS

● Swing Arm Type

Match the lift supports with the rigid rack supporting points.



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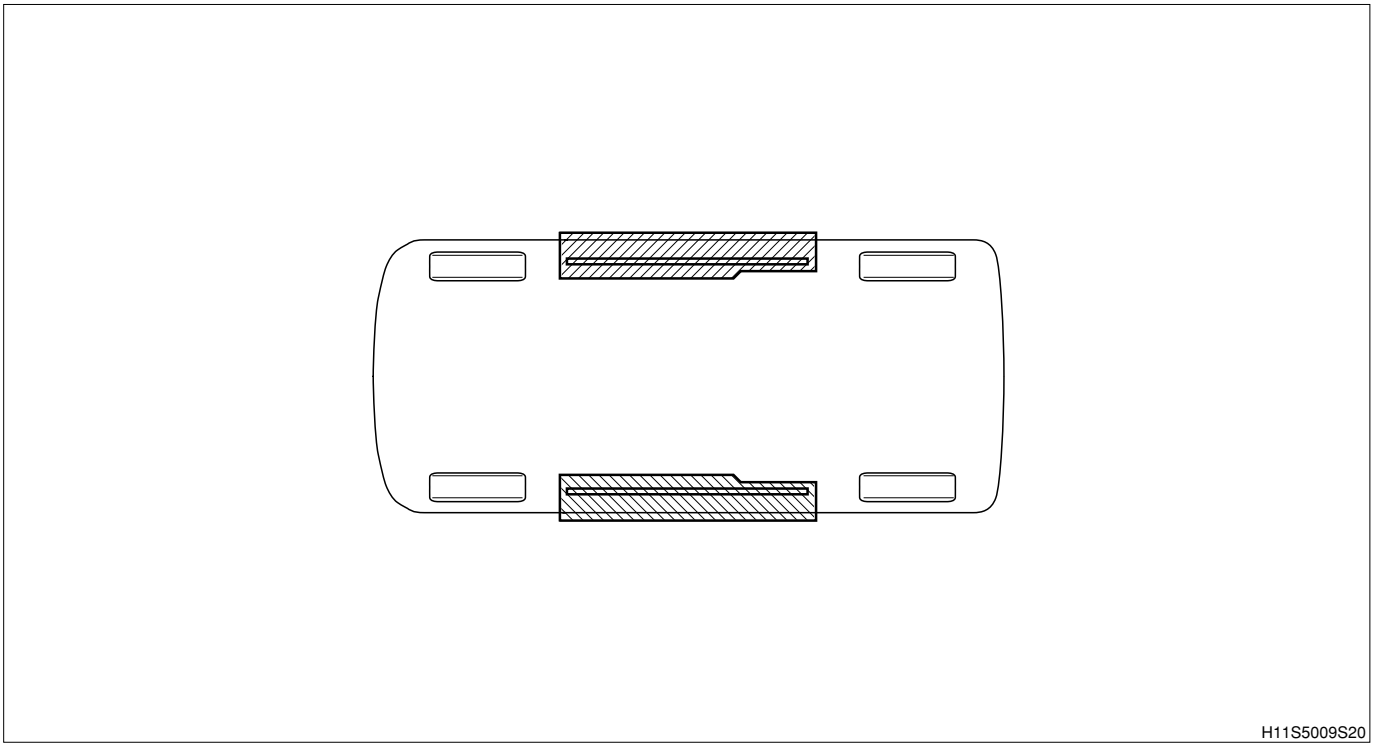
● Plate type

Drive the vehicle onto the center of the right and left supports.

Since the front part is heavier, lift up the vehicle at the front wherever possible.



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8 TOWING INSTRUCTIONS

1.Be certain to transfer the vehicle by using the flat deck truck when the running system and/or driving system seems to be abnormal.

2.Do not tow with the rope for an automatic transmission vehicle.

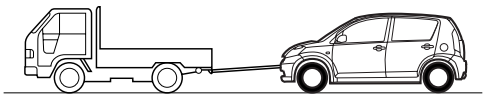
8-1 TOWING WITH ROPE(ONLY FOR EMERGENCY)

Release parking brake, and turn IG switch to "ACC" position, and then put the shift lever into neutral range.

CAUTION

- Do not tow with the rope for an automatic transmission vehicle.
- Do not tow with the rope when the running system and/or driving system seems to be abnormal.
- When drive with engine stopping, brake efficiency become less due to no functioning of the brake servo system. Depress the brake pedal more powerfully than the usual.

Towing by means of a rope



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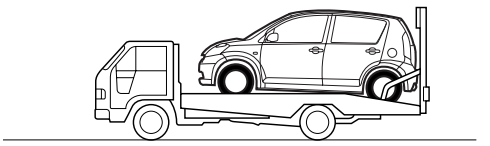
8-2 USING FLAT BED TRUCK

1.Transfer the vehicle with applying parking brake and fixing the vehicle firmly.

Transport on a track



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8-3 WHEEL LIFT TYPE

CAUTION

- Do not allow anyone to be in the vehicle being towed.

8-3-1 TO TOW WITH REAR WHEELS ON GROUND

1.Release the parking brake.

8-3-2 TO TOW WITH FRONT WHEELS ON GROUND

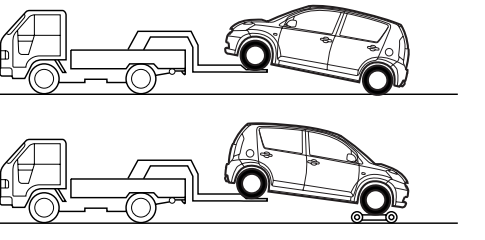
1.Use a towing dolly.

2.If a towing dolly is not available, and turn IG switch to "ACC" position, and then put the shift lever into neutral range (for manual transmission vehicle).

CAUTION

- For an automatic transmission vehicle, be sure to always use a towing dolly.

Wheel lift type



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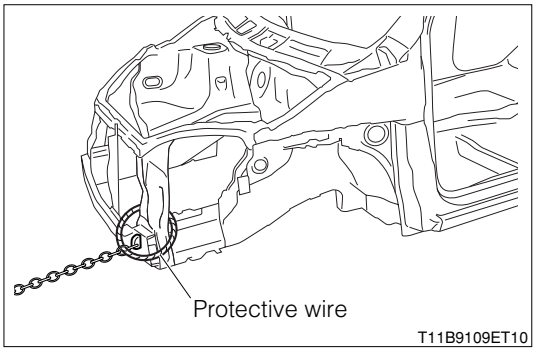
9 NOTES ON BODY REPAIRS

9-1 GENERAL INSTRUCTIONS ON OPERATION

9-1-1 SAFETY MEASURES

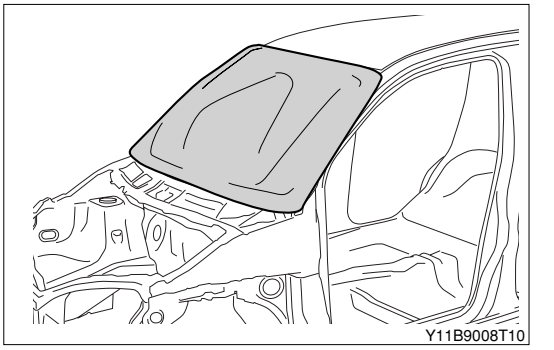
When you perform such an operation during which a body frame straighter is employed, be sure not to enter in the pulling direction. Moreover, make sure to use protective wire or chain.

Ensure that all of clamps and pullers are installed accurately.



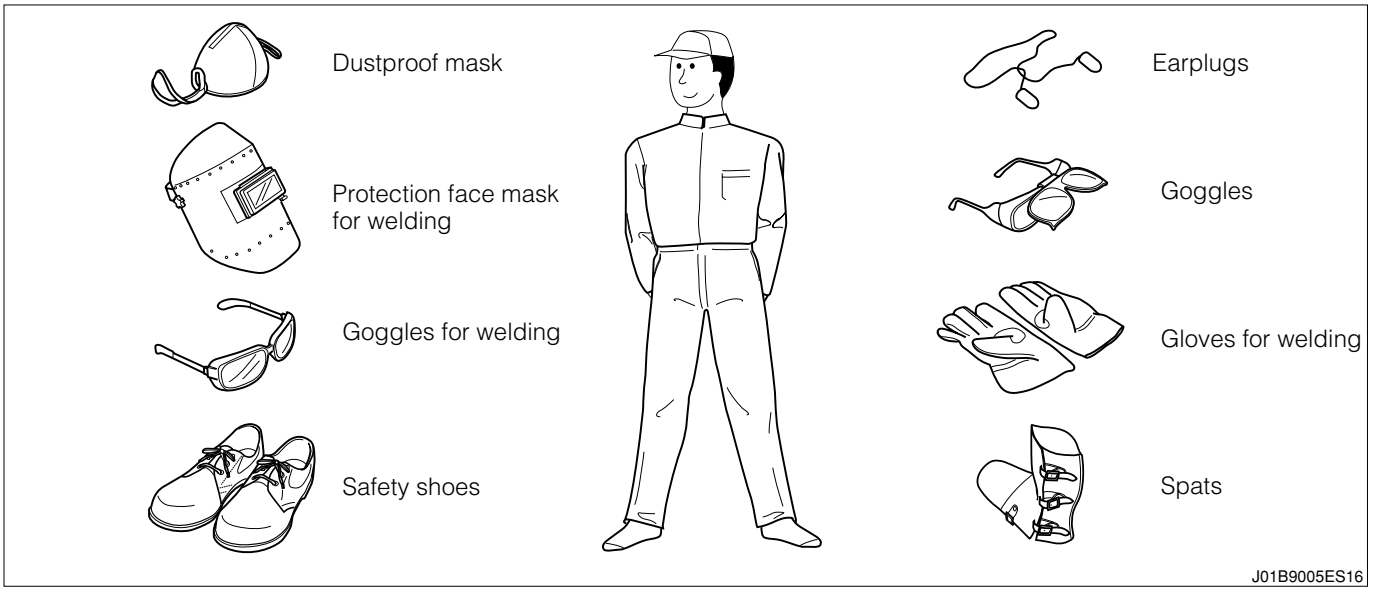
9-1-2 PROTECTION OF MOTOR VEHICLE

Be sure to use protective covers so that the motor vehicle may be protected from getting dirt. Make certain to employ heat resistant protective covers especially during welding operation so as to protect glass, seat and so forth.



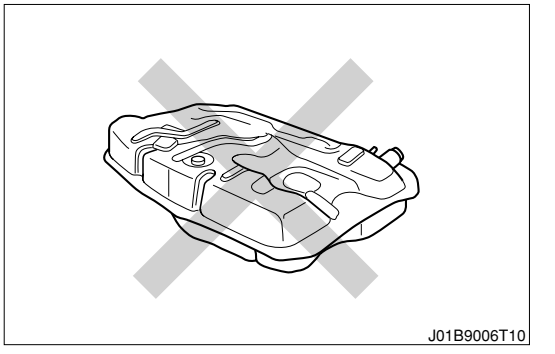
9-1-3 WEARING OF PROTECTIVE EQUIPMENT

Make sure to wear long-sleeved working dress, safety shoes and so forth. Also, correctly use protectors suitable to the operation.



9-1-4 REMOVAL OF DANGEROUS ARTICLES

When fire is used, for example, during welding in the vicinity of the fuel tank, make sure to remove the fuel tank. Moreover, be sure to plug the disconnected pipes of the removed fuel tank side so as to prevent fuel leakage. Prior to the operation, make certain to remove any residual fuel, etc. completely from the vehicle side pipe disconnected from the fuel tank.



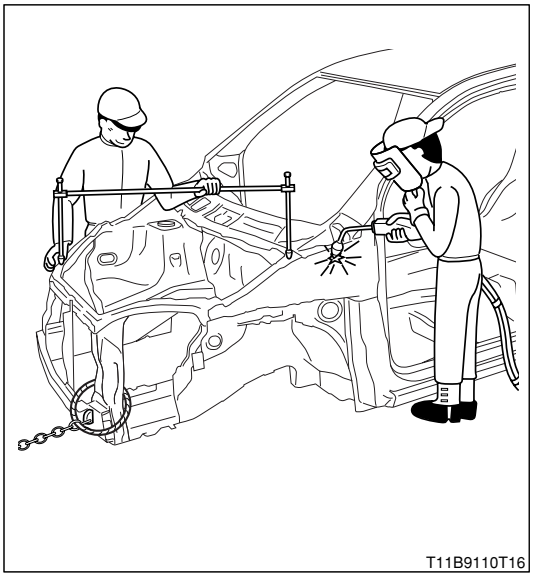
9-2 REMOVAL OPERATION

WARNING

- During the operation, make sure to wear protectors suitable to the operation. Moreover, utmost care must be exercised to ensure that your fingers or hands may not be pinched.

9-2-1 DIMENSION MEASUREMENT PRIOR TO OPERATION

Prior to operations such as removal and cutting, be sure to measure the related-sections in accordance with the body dimensional diagrams so as to evaluate the extent of damage. Then, proceed to carry out rough straightening by means of a body frame straighter.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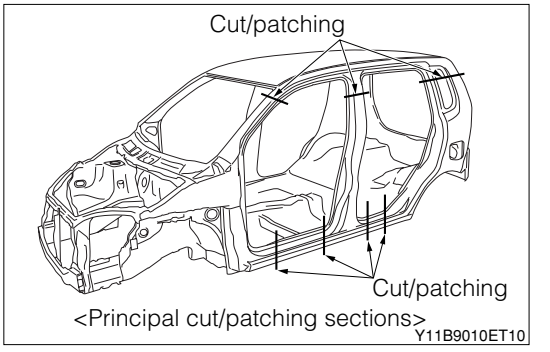
9-2-2 SELECTION OF CUT/PATCHING SECTION

As a cut/patching section of the panel, be sure to select adequate areas where strain due to welding is small, taking into consideration the strength of the body construction.

CAUTION

- Be sure to confirm the relationship with the part to be replaced. For example, ensure that the inside reinforcements, etc. have not been cut.



<Principal cut/patching sections>
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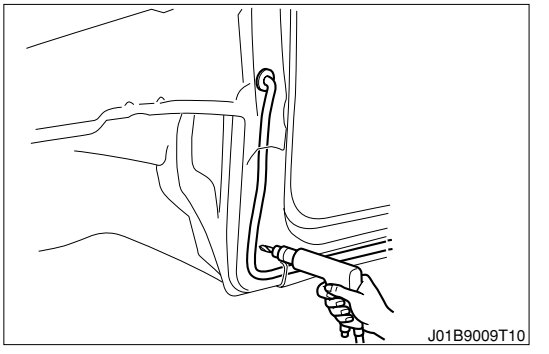
9-2-3 DRILLING AND CUTTING OPERATION OF DAMAGED PANEL

When you perform drilling or cutting operations, make sure that no wire harness or hose, etc. is located at the backside.

CAUTION

- Be very careful not to damage any panel not to be replaced.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9-2-4 REMOVAL OF RELATED-PARTS

Prior to removal of related parts such as molding, be sure to affix protective tape to the body and tools so that no damage is made to the body and parts to be removed.

CAUTION

- If paint film is damaged, be sure to perform repairing painting.

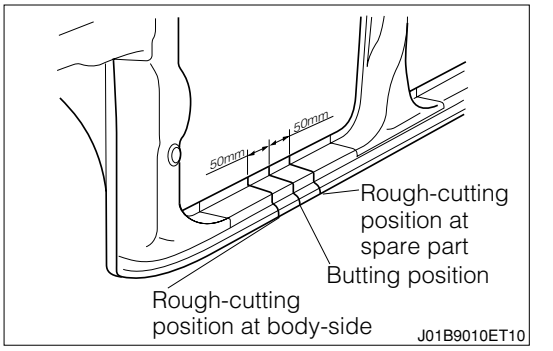
9-3 PREPARATION OF INSTALLATION

WARNING

- During the operation, make sure to wear protectors suitable to the operation. Moreover, utmost care must be exercised to ensure that your fingers or hands may not be pinched.
- Never use fires, such as welding operations, at those places where dangerous articles are stored.

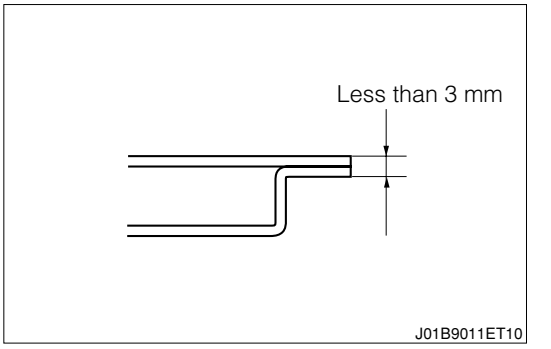
9-3-1 ROUGH CUTTING OF CUT/PATCHING SECTION

When performing rough cutting of a panel, be sure to take into consideration the overlapping width (approx 30-50 mm) for the butting welding section.



9-3-2 SPOT WELDING SECTION

If the sum of the sheet thickness at the welding section is less than 3 mm, perform spot welding. Conversely, if the sum of the sheet thickness is 3 mm or more, perform plug welding.



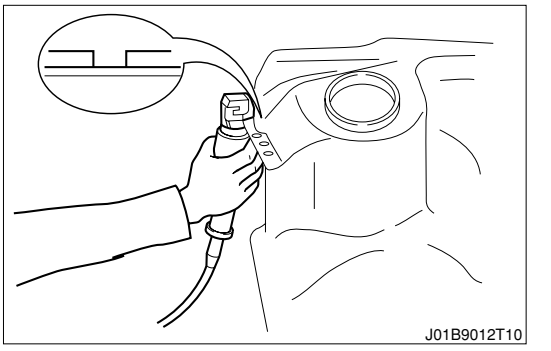
9-3-3 PLUG WELDING SECTION

At areas where spot welding can not be performed, make holes with a pin punch or a drill. Then, perform a plug welding.

NOTE

- BORE DIAMETER TABLE FOR PLUG WELDING

Sheet thickness of welded parts (mm)	Bore for plug welding (mm)
Less than 1.0	5.0 or more
1.0 or more to less than 1.5	6.5 or more
1.5 or more	8.0 or more



CAUTION

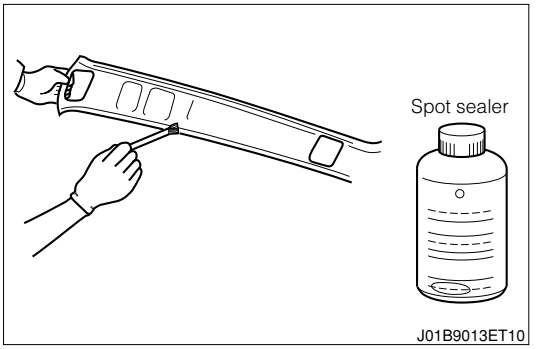
- As for the two steel sheets to be used at plug welding sections, they must be contacted closely each other. This is a rule to be observed to assure adequate welding strength.

9-3-4 SPOT SEALER APPLICATION

As for the mating surfaces of the spot welding points, be sure to completely remove the paint films so as to assure better flow of electricity. Also, apply spot sealer as a rust-preventive treatment.

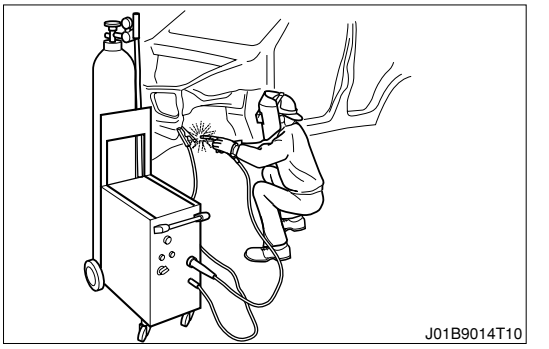
CAUTION

- Do not apply spot sealer to the surface to be painted.



9-3-5 PROTECTION OF ELECTRIC PRODUCTS

Prior to the welding operation, be sure to disconnect the cable from the battery negative (-) terminal. Then, make sure to connect the earth of the welder to a position near the body welding point.



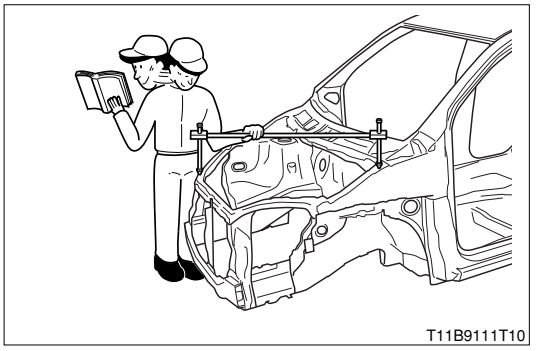
9-4 INSTALLATION OPERATION

WARNING

- During the operation, make sure to wear protectors suitable to the operation. Moreover, utmost care must be exercised to ensure that your fingers or hands may not be pinched.
- Never use fires, such as welding operations, at those places where dangerous articles are stored.

9-4-1 DIMENSION MEASUREMENT PRIOR TO OPERATION

1. When installing the main components of the underbody and engine compartment, perform the operations correctly, referring to the body dimensional diagram.
2. In the case of the door installation section (opening), etc., temporarily assemble the actual parts and confirm the gap, difference in height, etc.

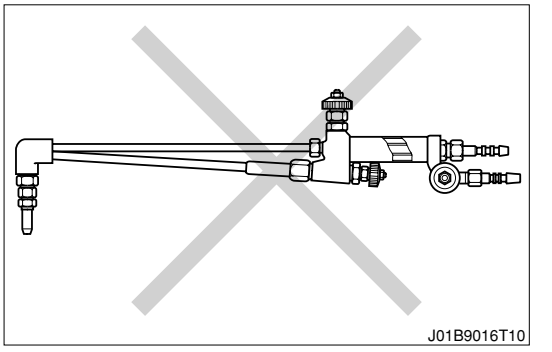


9-4-2 INSTRUCTIONS DURING WELDING

1. Perform welding at more points than performed by the manufacturer.

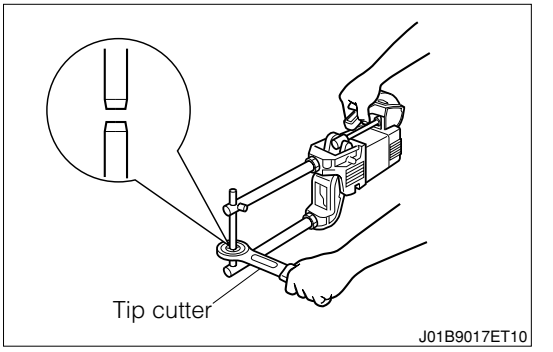
   SPECIFIED VALUE: Spot welding: At least 1.3 times as many as number performed by the manufacturer
   Plug welding: At least the same number as that performed by the manufacturer
   The distance between spot welding points should be at least 13 mm.

2. When welding the panel, gas welding or brazing is not allowed on areas except for those specified.

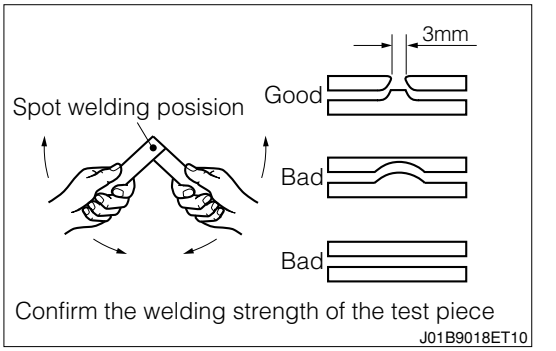


9-4-3 INSTRUCTIONS DURING SPOT WELDING

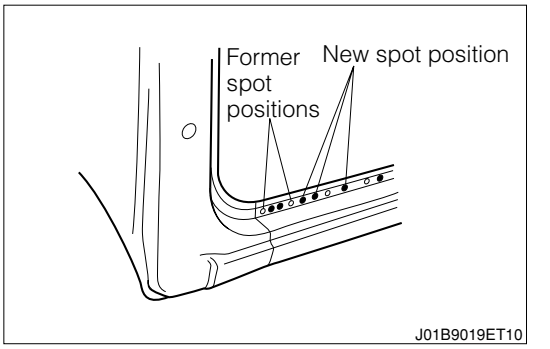
1. Be sure to keep the correct shape of the tip end of a spot welder at all times, for this will affect the welding strength. Install the arm and tip properly.



2.Prior to spot welding, perform trial run of spot welding on a test piece having the same thickness as the sheet. Confirm the strength of the test piece.



3.When selecting spot welding positions, avoid former spot positions.



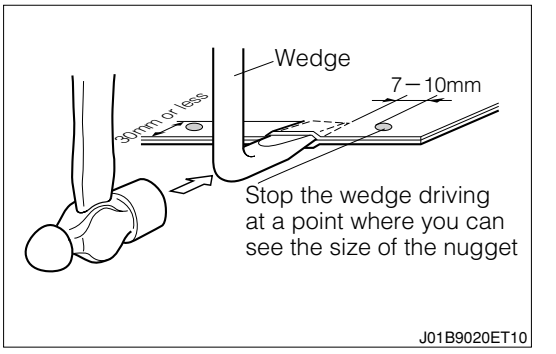
9-4-4 NONDESTRUCTIVE TEST

1.In order to inspect the welding conditions, drive a wedge as indicated in the right figure into the side of the nugget, according to the procedure indicated in the figure.

CAUTION

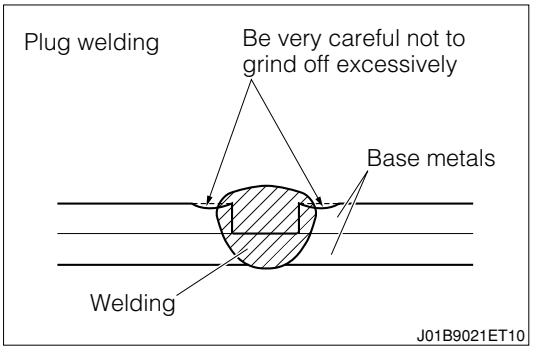
- Be sure to stop the wedge driving at a point where you can evaluate the deposit conditions. Do not drive the wedge more than 30 mm.
- After completion of the inspection, remedy the opened section properly.

2.In the case of spot welding of three-fold or four-fold sheet, carefully confirm the deposit conditions.



9-4-5 FINISH AFTER WELDING

When you use a sander to finish the welded zone after completion of the welding operation, be very careful not to grind off excessively.

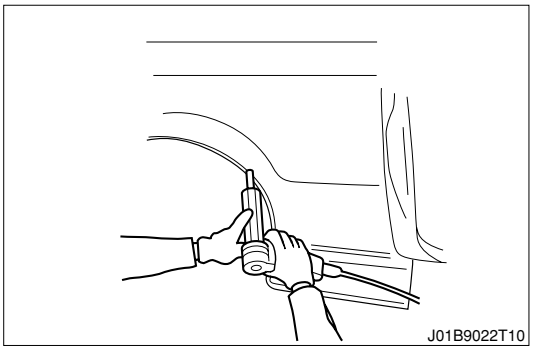


9-5 RUST PREVENTIVE TREATMENT

9-5-1 BODY SEALER APPLICATION

The body sealer prevents water or mud from entering through a panel joint section, thus preventing rust formation at the joint section. Therefore, this work should be done carefully. Also, it is necessary to apply the body sealer neatly where the finish state is important, such as an external panel.

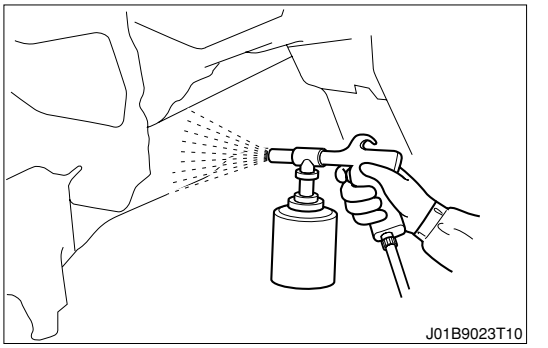
Refer to Page D-1



9-5-2 UNDERCOAT APPLICATION

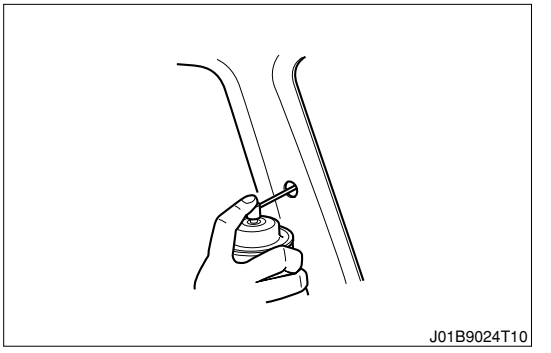
Since the inside of the wheel house and back of the floor are sections where rust formation takes place due to damage by flying stones, apply undercoats to those sections for rust prevention.

Refer to Page D-6



9-5-3 RUST PREVENTION OF ENCLOSED CONSTRUCTION

In the case where the welding section is of enclosed construction, perform the rust preventive treatment, using an aerosol type rust preventive agent through machined holes, etc.



10 INSTRUCTIONS ON HANDLING AND OPERATION OF SRS AIRBAG

10-1 INSTRUCTIONS FOR SERVICE OPERATION

Be sure to perform the service operation for the vehicle equipped with the airbag and seat belt pretensioner according to the correct procedure and method, otherwise, the airbag or pretensioner may occur the malfunction and lead serious accidents during the service operation. Be sure to perform the service operation according to the correct procedure and method described in this manual.

10-1-1 DISCONNECTING THE POWER SUPPLY

1. Check the diagnosis code, and then disconnect the battery negative (-) terminal with the IG switch in "LOCK" position. Wait for 60 seconds to start work operation.
   (1) The SRS airbag system is provided with a backup condenser (for the squib). Therefore, allow approx. 60 seconds for the backup condenser to discharge after the battery negative (-) terminal is removed. (Natural discharge)
   (2) If work is started within 60 seconds, the air bag and the pretensioner may be activated.
   (3) The memory of some systems will be erased when the battery negative (-) terminal is removed. Therefore, record memory contents of each system, as required, and input them after the work operation is complete.
2. Turn the IG switch to "LOCK" and connect the battery negative (-) terminal.

10-1-2 CAUTION TIPS BEFORE SERVICING

1. For electrical checks, ensure that a digital circuit tester is used that meets the following standard.

WARNING

- If the tester to be used exceeds the specified value, the airbag and the pretensioner may be activated or damaged.

SPECIFIED VALUE: About 50 mA (0.05A) or less

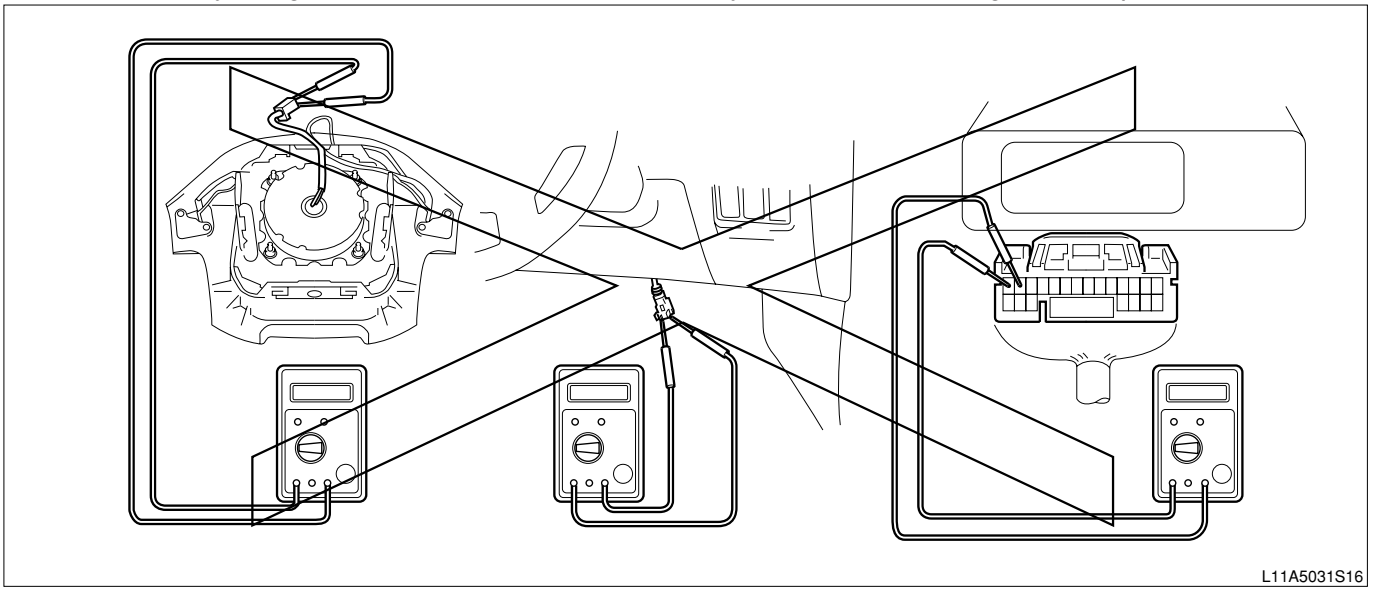
NOTE

- Always measure the current value of the tester to be used before starting work operation to ensure that the tester satisfies the specified value.
- When performing the current measurement for the tester, use the minimum range of the resistance (Ω).

2.When any of the components is removed from the air bag system (including disconnection of the connector), ensure that the connector is removed in advance so that no accident will be caused inadvertently.
3.Follow instructions given on the label. Replace a stained or damaged label with a new one.
4.Never disassemble.
5.If the part has been dropped or exhibits a crack, dent or chips, replace with a new part.
6.Never use the parts from other vehicles. Always install a new part for replacement.
7.Do not expose parts directly to high temperatures or fire.
8.Even if the airbag and/or the pretensioner have not been activated in a collision, always perform diagnostic checks.
9.Do not apply grease. Prevent detergent, oil, water, etc. from adhering. If this happens, wipe it off immediately with dry cloth.
10.Store in places which are less likely to be exposed to electrical noise, and are not exposed to high temperatures (85 ˚C or higher atmospheric temperatures), or high humidity.
11.Ensure that the airbag is activated with the SST, when the vehicle or the single part is discarded.
12.Never measure the resistance of the air bag components.

WARNING

- This is very dangerous, for the tester's current may activate the air bag and the pretensioner.



10-1-3 CAUTIONS WHEN DISCARDING THE AIR BAG AND THE PRETENSIONER

(1) Before deployment

1.Never scrap the system before activated and deployed.
2.The activation and deployment should be performed at an outdoor flat place where safety can be ensured. Avoid performing this operation in a residential area whenever possible.
3.Since the activating and deploying sound is fairly large, inform persons in the vicinity of the event before those devices are activated.
4.Use the SST and keep at least 5m away from the airbag and the pretensioner to perform a deployment operation.
5.Static electricity may activate deployment. Therefore touch steel frame, vehicle body, etc. that creates earth with bare hands to remove static electricity.
6.During deployment operation, carefully prevent the deployment side from facing down.

(2) After operation

1.The temperatures of some portions exceed a few hundred ˚C. Therefore, leave them at least 30 minutes after they are deployed.
2.Do not splash water.
3.Wear dust protective goggles and gloves during operation.
4.Place in a clear durable plastic bag and seal the bag to be scrapped.
5.After completion of the operation, be sure to wash your hands with water.

10-1-4 CAUTION TIPS FOR BODY REPAIR AND PAINT

1.When repairing components located close to the airbag system, ensure that the system will not be exposed to a strong hammering shock or high heat.
2.When using an electric welder, remove the air bag system before starting work.
3.When the system is expected to be exposed to a shock or high heat, remove the components from the airbag system before starting work.
4.When coating near the airbag system components is to be dried, ensure that temperature will not exceed 85 ˚C.
5.If the airbag system components have external damage or deformation, replace with new ones.

10-1-5 CASES WHERE THE AIRBAG AND THE PRETENSIONER NEED CHECKING

1.When the vehicle is damaged in a collision, including cases where no deployment or activation has occurred
2.When the diagnostic code is outputted:

10-1-6 CAUTIONS FOR THE AIRBAG AND THE PRETENSIONER

When temporarily placing the airbag during repair work, ensure that the deployment side faces upward. Do not put something on the airbag or lay one airbag on another.

WARNING

- If the airbag should be deployed with the metal side facing upward, a serious accident may result.

10-1-7 CAUTIONS FOR SPIRAL CABLE

When the spiral cable is installed, or the steering wheel is installed/removed, be sure to perform centering.

CAUTION

- If the steering wheel is operated without centering, the spiral cable may be cut.

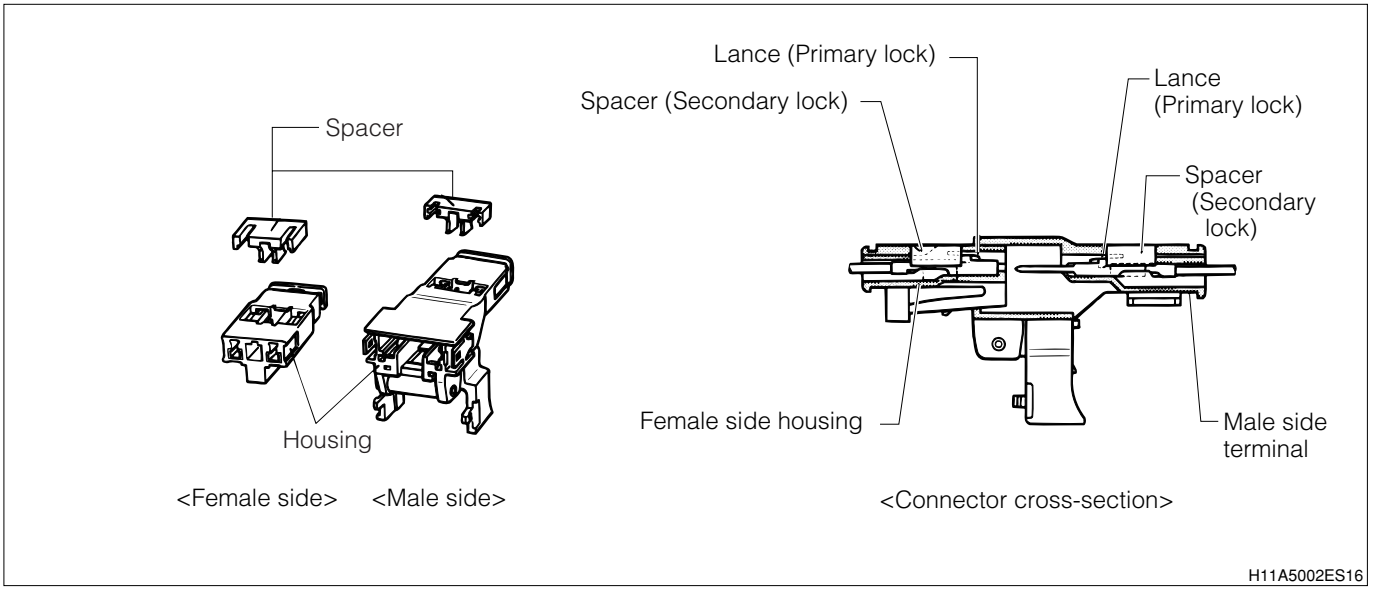
10-1-8 CAUTIONS FOR WIRE HARNESS AND CONNECTOR

All the connectors and the dedicated branch harnesses of the airbag system are colored in yellow, with the exception of exposed portions in the engine compartment. These connectors are special and require special care in handling in order to prevent any damage.

(1) Connector mechanism

① Terminal double lock mechanism

1.The mechanism provides better gripping force of the terminal so as to prevent the terminal from falling.
2.The connector has a two-piece construction consisting of a housing and a spacer, which doubly secures the terminal with the use of the lance (primary lock) and the spacer (secondary lock).

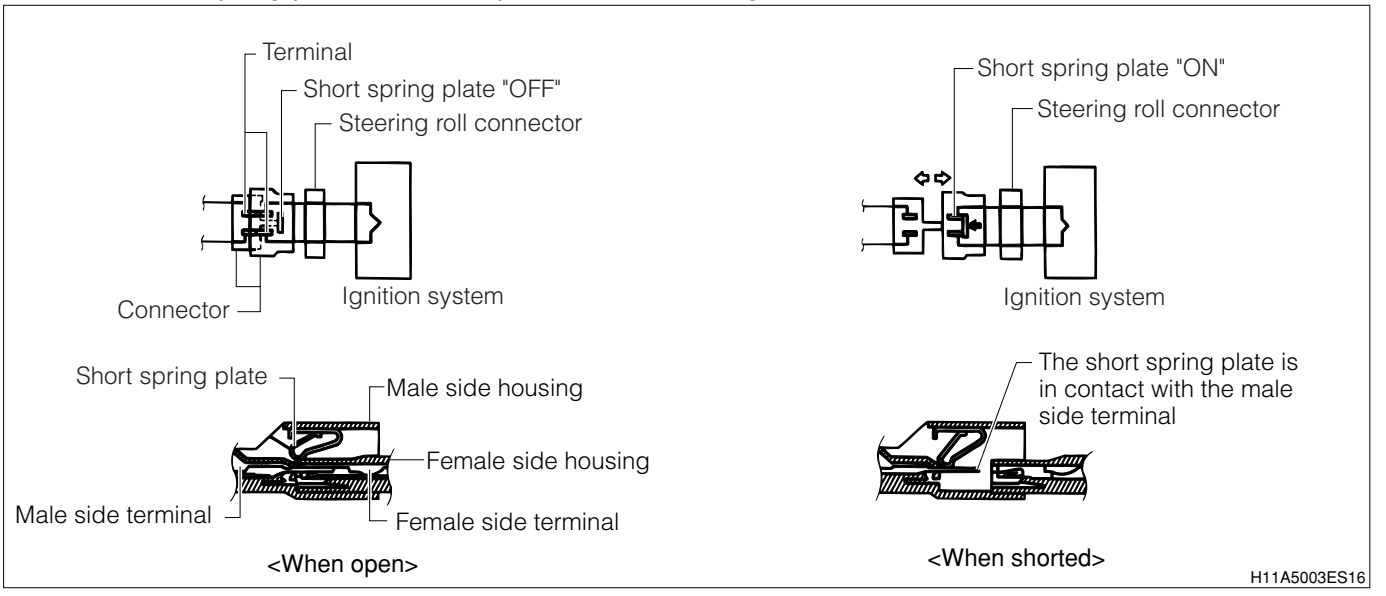


② Terminal short mechanism

1.The mechanism that automatically creates a short-circuit between the terminal on power supply side of the airbag and the terminal on the earth side, when the connector is removed.
2.The short spring plate is installed inside the connector, which creates a closed circuit on the airbag side (potential difference between the terminals is not created), thereby preventing wrong operation during servicing.

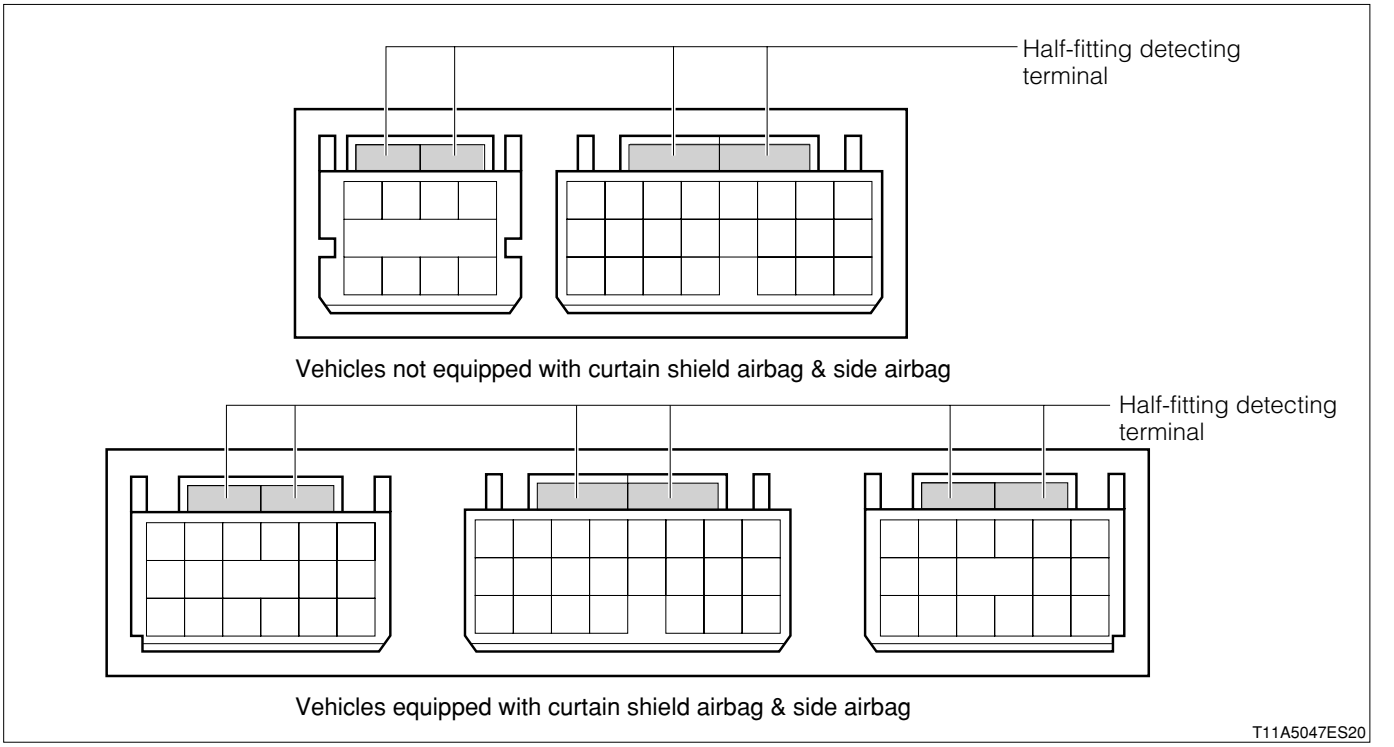
CAUTION

- When checking the harness, the terminal's short-circuit mechanism might lead to incorrect diagnosis, such as a short-circuit condition between the harnesses. When checking the harness, insert the airbag deployment SST (Part number: 09082-87710-000, 09082-00760-000) into the connector to be checked, and check the harness while the SST is connected. If this checking finds faulty condition in the harness, insert an insulator between the short spring plate and the terminal, or remove the short spring plate, and then proceed to checking.



③ Half fit detecting mechanism

1. This is a mechanism which detects whether the airbag ECU is firmly connected with the vehicle side harness connector.
2. When the IG SW is turned "ON" with the connector half-fit, the airbag warning lamp will remain illuminated.
3. When the airbag system is normal and the connector is firmly connected, the airbag warning lamp is turned off.



11 CAUTIONS ON PLASTIC COMPONENTS

Heat generated during work operations may cause deformation. Therefore check the characteristics of plastic and remove the components prior to starting work as required.

Table of the plastic characteristics

Symbol	Plastic name	* Allowable temperature limit (℃)	Resistance to solvents	Caution
AAS	Acrylonitrile-acrylic rubber styrene copolymer	80	Small amount of alcohol can be applied for a short time. (Such as wipe-off degreasing)	No organic solvents such as gasoline. No air freshener.
ABS	Acrylonitrile-butadiene styrene copolymer	80	Small amount of alcohol can be applied for a short time. (Such as wipe-off degreasing)	No organic solvents such as gasoline. No air freshener.
AES	Acrylonitrile-ethylene rubber styrene copolymer	80	Small amount of alcohol can be applied for a short time. (Such as wipe-off degreasing)	No organic solvents such as gasoline. No air freshener.
ASA	Acrylonitrile-styrene acrylate	80	Small amount of alcohol can be applied for a short time. (Such as wipe-off degreasing)	No organic solvents such as gasoline. No air freshener.
CAB	Cellulose acetate butyrate	80	Small amount of alcohol can be applied for a short time. (Such as wipe-off degreasing)	No organic solvents such as gasoline. No air freshener.
EPDM	Ethylene-propylene rubber	100	Small amount of alcohol can be applied for a short time. Gasoline possible. (Such as wipe-off degreasing)	Do not soak in organic solvents, such as gasoline and alcohol. Do not allow organic solvents to come into contact. Thoroughly rinse the remover in water.
EVA	Ethylene-viny acetate copolymer	70	Small amount of alcohol can be applied for a short time. (Such as wipe-off degreasing)	No organic solvents such as gasoline. No air freshener.
FRP	Fiber reinforced plastics	150	Alcohol or gasoline can be applied.	Most solvents may be applied.
PA	Polyamide	80	Alcohol or gasoline can be applied.	No battery fluid (sulfuric acid)
PBT	Polybutylene terephthalate	160	Alcohol or gasoline can be applied.	Most solvents may be applied.
PC	Polycarbonate	120	Small amount of alcohol can be applied for a short time.	No organic solvents such as brake fluid, wax, wax remover and gasoline can be used.
PE	Polyethylene	80	Alcohol or gasoline can be applied.	Most solvents may be applied.
PET	Polyethylene terephthalate	75	Alcohol or gasoline can be applied.	Do not soak in water.
PGM	Polypropylene glass fiber pulp	80	Alcohol or gasoline can be applied.	Most solvents may be applied.
PMMA	Polymethyl methacrylate (acryl)	80	Small amount of alcohol can be applied for a short time. (Such as wipe-off degreasing)	Do not soak in organic solvents, such as gasoline and alcohol. Do not allow organic solvents to come into contact. Thoroughly rinse the remover in water.

Symbol	Plastic name	* Allowable temperature limit (℃)	Solvent resistance	Caution
POM	Polyacetal	100	Alcohol or gasoline can be applied.	Most solvents may be applied.
PP	Polypropylene	80	Alcohol or gasoline can be applied.	Most solvents may be applied.
Degen-eration PPO	Polyphenylene oxide	100	Small amount of alcohol can be applied for a short time.	Do not soak in organic solvents, such as gasoline and alcohol. Do not allow organic solvents to come into contact.
PS	Polystyrene (styrol)	60	Small amount of alcohol can be applied for a short time.	Do not soak in organic solvents, such as gasoline and alcohol. Do not allow organic solvents to come into contact.
PUR	Thermosetting polyurethane	80	Small amount of alcohol can be applied for a very short time. (Such as wipe-off degreasing)	Do not soak in organic solvents, such as gasoline and alcohol. Do not allow organic solvents to come into contact.
PVC	Polyvinyl chloride	80	Small amount of alcohol or gasoline can be applied for a short time. (Such as wipe-off degreasing)	Do not soak in organic solvents, such as gasoline and alcohol. Do not allow organic solvents to come into contact.
SAN	Styrene-acrylonitrile copolymer	80	Alcohol can be applied to wipe-off for a short time.	Do not soak in organic solvents, such as gasoline and alcohol. Do not allow organic solvents to come into contact.
TPO	Olefin-based thermoplastic elastomer	80	Alcohol can be applied. Gasoline can be applied for a short time. (Such as wipe-off degreasing)	Do not soak in organic solvents, such as gasoline. Do not allow organic solvents to come into contact. Thoroughly rinse the remover in water.
TPU	Urethane-based thermo-plastic elastomer	80	Small amount of alcohol or gasoline can be applied for a short time. (Such as wipe-off degreasing)	Do not soak in organic solvents, such as gasoline. Do not allow organic solvents to come into contact. Thoroughly rinse the remover in water.
UP	Unsaturated polyester	110	Alcohol or gasoline can be applied.	No alkalies.
E/VAC	Ethylene-vinyl acetate vinyl copolymer	70	Small amount of alcohol can be applied for a short time. (Such as wipe-off degreasing.)	No organic solvents such as gasoline No air refresher.
PPF	Composite reinforced polypropylene	80	Alcohol or gasoline can be applied.	Most solvents may be applied.

*Allowable temperature limit here means "the temperatures that may cause deformation due to heat during work operations."

Material list for plastic components

Part name	Material
Front bumper cover	PP
Radiator grille	PP
Headlight	PP/PC
Side turn-signal lamp	PMMA/ABS
Outer rear view mirror	ABS/PBT
Door outer handle	PC/PBT
Side stone guard	PP
Rear bumper cover	PP
Rear combination lamp	PC/ASA/PMMA
LICENSE PLATE LAMP	PC/PBT