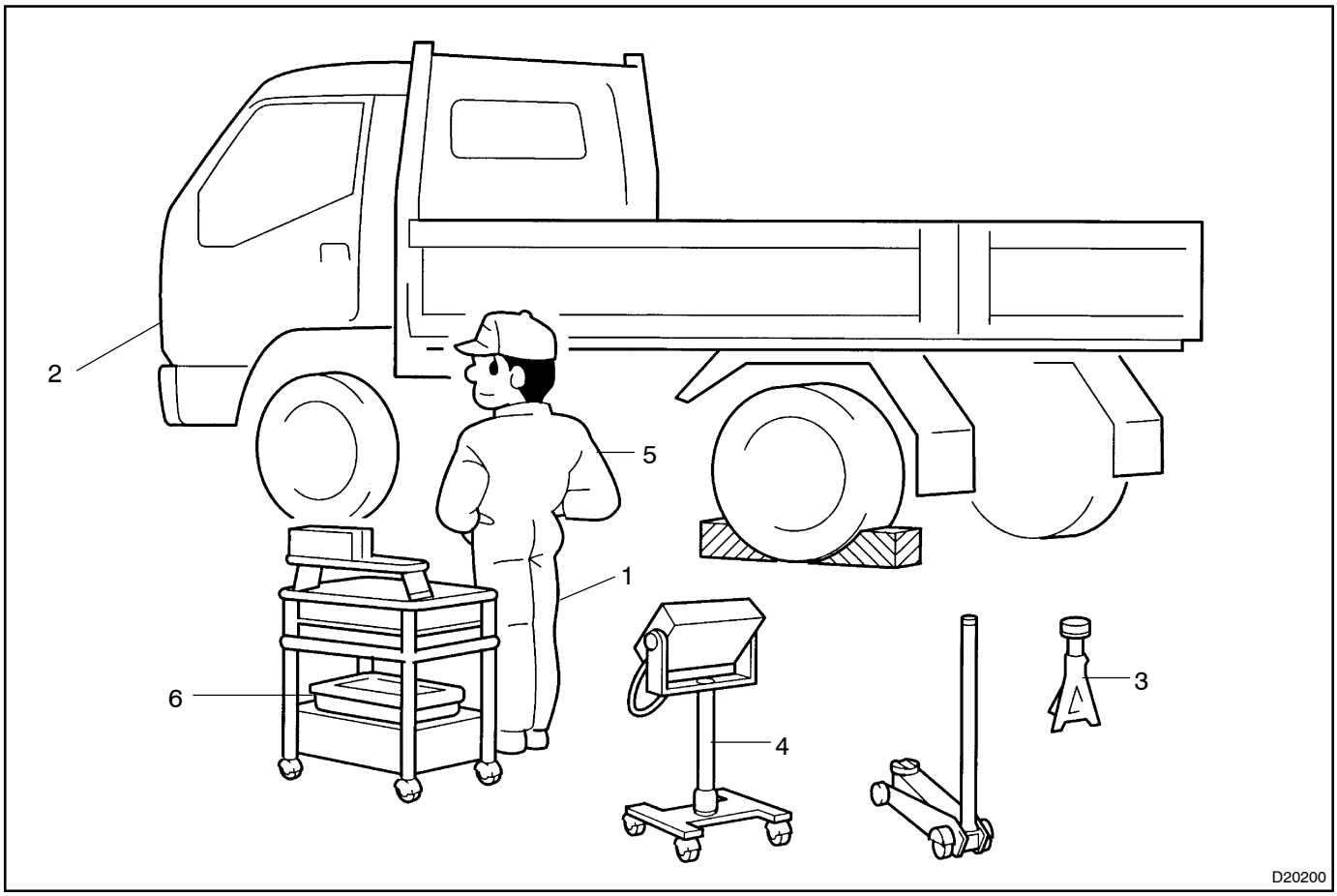
REPAIR INSTRUCTION

010KH–01

PRECAUTION

1. BASIC REPAIR HINT

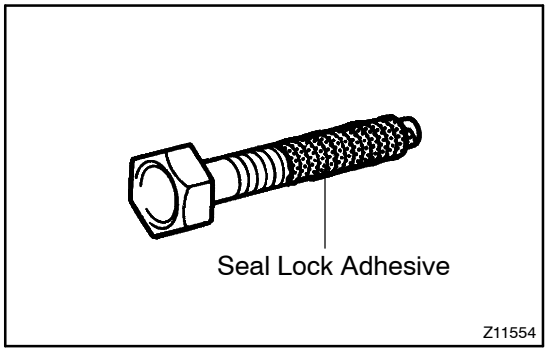
(a) HINTS ON OPERATIONS



1	Looks	• Always wear a clean uniform. • Hat and safety shoes must be worn.
2	Vehicle protection	• Set a grill cover, fender cover, seat cover and floor mat before starting operation.
3	Safe operation	• When working with 2 or more persons, be sure to check the safety of one another. • When working with the engine running, pay attention to the ventilation in the workshop. • When working on high–temperature, rotating, moving and vibrating parts, be careful not to burn or injure yourself. • When jacking up the vehicle, be sure to support the specified location with a safety stand. • When lifting up the vehicle, use safety equipment.
4	Preparation of tools and measuring gauge	• Before starting repairs, prepare the tool stand, SST, gauge, oil, shop rag and parts for replacement.
5	Removal and installation, disassembly and assembly operations	• Diagnose with a thorough understanding of the trouble condition and perform effective operation. • Before removing the parts, check the general condition of the assembly, and for deformation and damage. • When the structure is complicated, take a note or make matchmarks as not to make mistakes that affect the function of the parts. • Clean and wash the removed parts if necessary, and assemble them after a thorough check.
6	Removed parts	• Place the removed parts in the correct order to avoid mixing them up or making them dirty. • As for non–reusable parts such as gaskets, O–rings, and self–locking nuts, replace them with new ones following the instructions in this manual. • Organize the parts that were replaced in a box and show them to the customer.

(b) JACKING UP AND SUPPORTING VEHICLE

(1) Care must be taken when jacking up and supporting the vehicle. Be sure to lift and support the vehicle at the proper locations (See page 01–14).



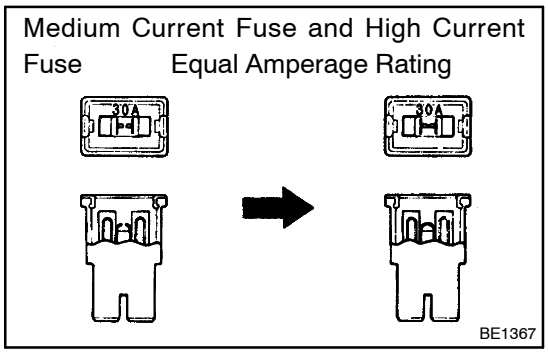
(c) PRECOATED PARTS
  (1) Precoated parts such as bolts, nuts, etc., are coated with a seal lock adhesive at the factory.
  (2) If a precoated part is retightened, loosened or caused to move in any way, it must be recoated with the specified adhesive.
  (3) When reusing precoated parts, clean off the old adhesive and dry the part with compressed air. Then apply the specified seal lock adhesive to the bolt, nut or threads.

NOTICE:
Check the torque with the lower limit value of the torque tolerance.

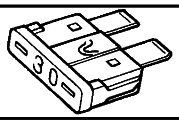
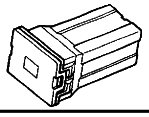
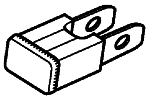
  (4) Depending on the seal lock agent to be applied, there may be cases where it is necessary to leave it for a specified time until it hardens.

(d) GASKETS
  (1) When necessary, use a sealer on gaskets to prevent leaks.

(e) BOLTS, NUTS AND SCREWS
  (1) Carefully observe all the specifications for tightening torques. Always use a torque wrench.



(f) FUSES
  (1) When replacing fuses, be sure that a new fuse has the correct amperage rating. DO NOT exceed the rating, or use one with a lower rating.

Illustration	Symbol	Part Name	Abbreviation
 BE5594	 IN0365	FUSE	FUSE
 BE5595	 IN0366	MEDIUM CURRENT FUSE	M–FUSE
 D27353	 IN0367	HIGH CURRENT FUSE	H–FUSE

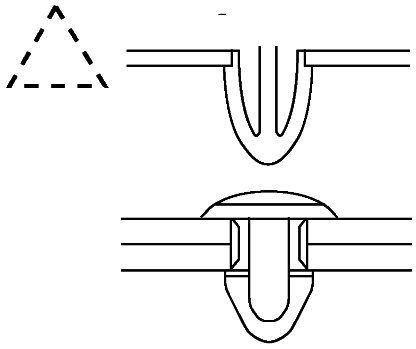
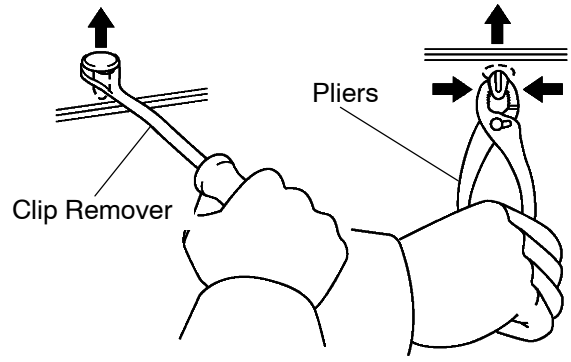
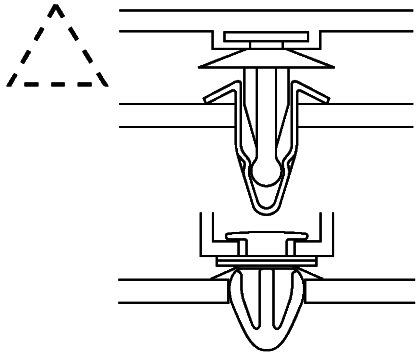
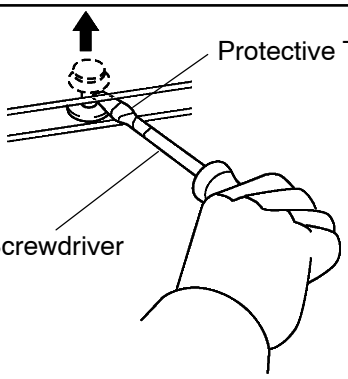
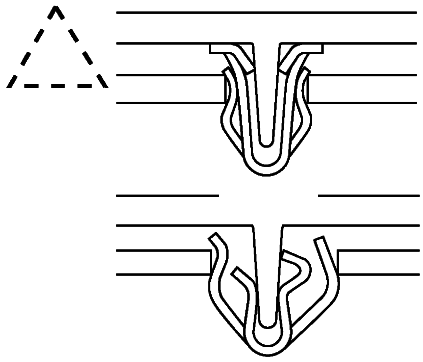
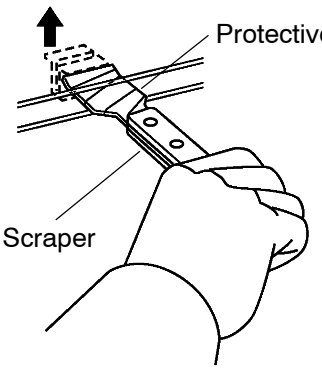
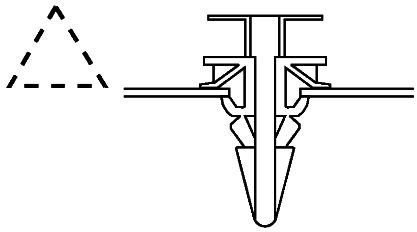
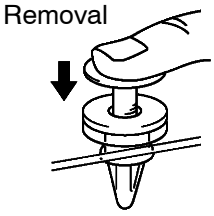
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(g) CLIPS

(1) The removal and installation methods of typical clips used in body parts are shown in the table below.

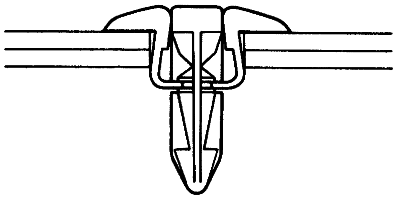
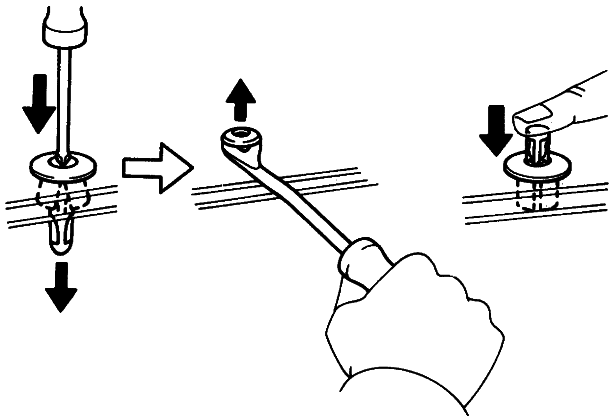
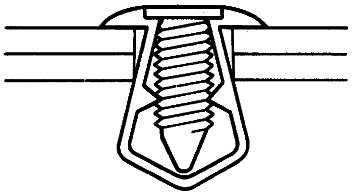
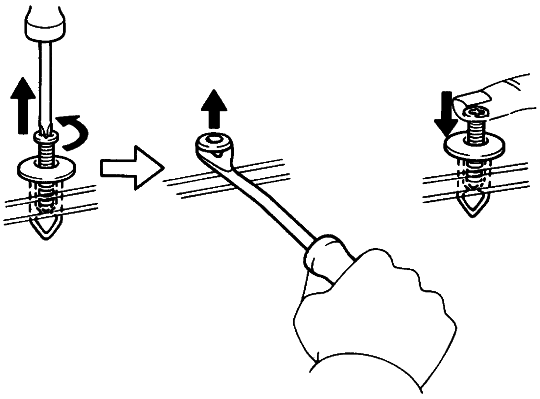
HINT:

If the clip is damaged during a procedure, always replace it with a new clip.

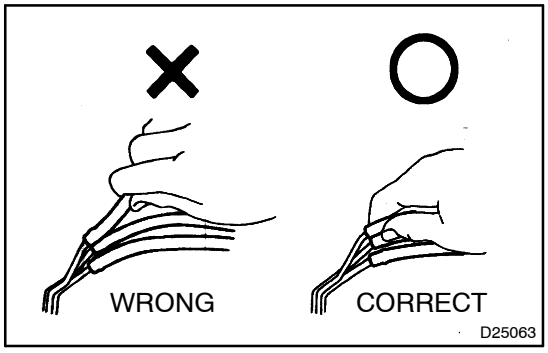
Shape (Example)	Removal/Installation
	
	
	
	

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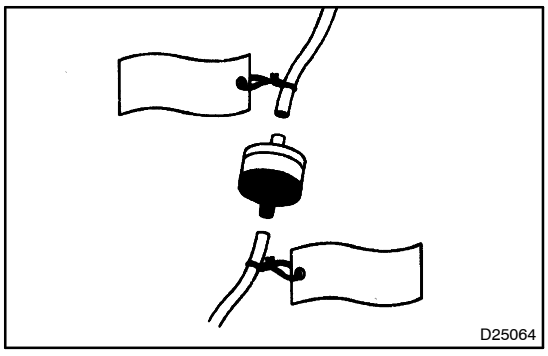
Shape (Example)	Removal/Installation
	
	

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(h) REMOVAL AND INSTALLATION OF VACUUM HOSES

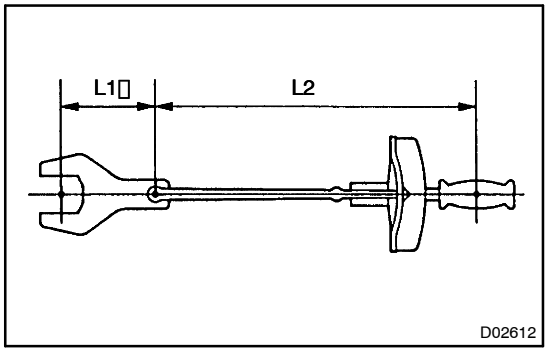
(1) To disconnect vacuum hoses, pull them by holding the end, not the middle of the hose.

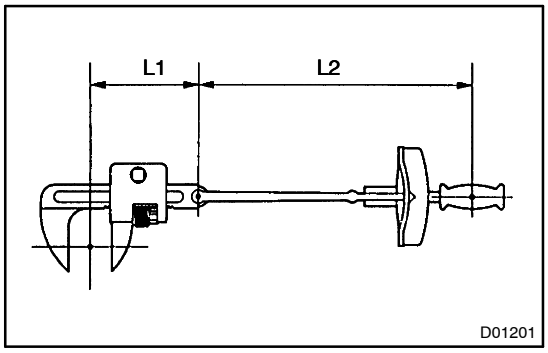


(2) When disconnecting vacuum hoses, use tags to identify where they should be reconnected.

(3) After completing the job, double check that the vacuum hoses are properly connected. The label under the hood shows the proper layout.

(4) When using a vacuum gauge, never force the hose onto a connector that is too large. Use a step–down adapter for adjustment. Once the hose has been stretched, it may leak air.





(i) TORQUE WHEN USING TORQUE WRENCH WITH EXTENSION TOOL

(1) When the torque wrench is combined with SST or an extension tool to extend the length, and you tighten until the torque wrench reads the specified torque value, the actual torque becomes excessive.

(2) In this manual, only the specified torque is described. In case of using SST or extension tool, calculate the reading of the torque wrench by the following formula.

(3) Formula T' = T x L2/(L1 + L2)

T'	Reading of torque wrench (N·m {kgf·cm, ft·lbf})
T	Torque (N·m {kgf·cm, ft·lbf})
L1	Length of SST or extension tool (cm)
L2	Length of torque wrench (cm)

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

HINT:

The TOYOTA DYNA equipped with an SRS (Supplemental Restraint System), which includes the driver airbag and seat belt pretensioner.

Failure to carry out the service operations in the correct sequence could cause the supplemental restraint system to unexpectedly deploy while servicing. This can cause a serious accident.

Furthermore, if a mistake is made when servicing the supplemental restraint system, it is possible that the SRS will fail to operate when required. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the following items carefully. Then follow the correct procedures described in this manual.

(a) GENERAL NOTICE

(1) Malfunction symptoms of the supplemental restraint system are difficult to confirm, so the diagnostic trouble codes become the most important source of information when troubleshooting. When troubleshooting the supplemental restraint system, always check the diagnostic trouble codes before disconnecting the battery (See page 05–312).

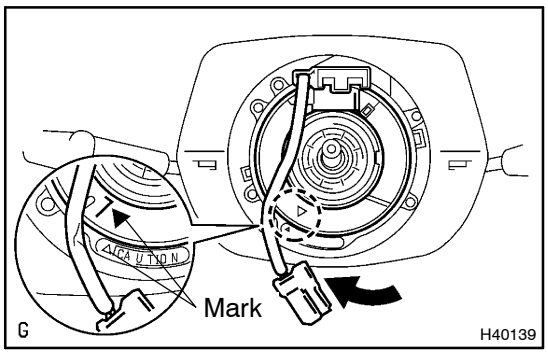
(2) Work must be started after 90 seconds from the time that the ignition switch is turned to the LOCK position and the negative (–) terminal cable is disconnected from the battery.
(The supplemental restraint system is equipped with a back–up power source. So, if work is started within 90 seconds after disconnecting the negative (–) terminal cable from the battery, the SRS may deploy).
When the negative (–) terminal cable is disconnected from the battery, memory of the clock and audio systems is cancelled. So, before starting work, make a record of the contents recorded in each memory system. Then, when work is finished, reset the clock and audio systems as before.

(3) Even in the case of a minor collision where the SRS does not deploy, the horn button assembly (See page 60–7) and seat belt pretensioner (See page 61–12) should be inspected.

(4) Never use the SRS related parts from another vehicle. When replacing the parts, replace them with new parts.

(5) Before repairs, remove the airbag sensor if it may be shocked during repairs.

(6) Never disassemble and repair the airbag ECU assembly, airbag sensor assembly, horn button assembly or seat belt pretensioner.
(7) If the airbag ECU assembly, the airbag sensor assembly, the horn button assembly have been dropped, or if there are cracks, dents or other defects in the case, bracket or connector, replace them with new ones.
(8) Do not directly expose the airbag ECU assembly, the airbag sensor assembly, the horn button assembly or the seat belt pretensioner to hot air or flames.
(9) Use a volt/ohmmeter with high impedance (10 kΩ/V minimum) for troubleshooting an electrical circuit.
(10) Information labels are attached to the SRS components. Follow the instructions on the notices.
(11) After work on the supplemental restraint system is completed, check the SRS warning light (See page 05–312).

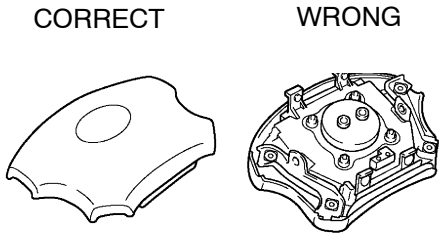


(b) SPIRAL CABLE (in Combination Switch)
(1) The steering wheel must be fitted correctly to the steering column with the spiral cable at the neutral position, otherwise cable disconnection and other troubles may occur. Refer to page 60–15 of this manual concerning the correct installation of the steering wheel.

(c) HORN BUTTON ASSEMBLY (with Airbag)
(1) When removing the horn button assembly or handling a new horn button, it should be placed with the top of the pad surface facing upward. Placing it with the pad surface facing downward may lead to a serious accident if the airbag deploys for some reasons. Also, do not place anything on top of the horn button.
(2) Never measure the resistance of the airbag squib (This may cause the airbag to inflate, which is very dangerous).
(3) Grease should not be applied to the horn button assembly, and the pad should not be cleaned with detergents of any kinds.
(4) Store the horn button assembly where the ambient temperature remains below 93°C (200°F), without high humidity and away from electrical noise.
(5) When using electric welding, disconnect the airbag connector (2 yellow pins) under the steering column near the combination switch connector before starting work.

(6) When disposing of the vehicle or the horn button assembly unit, the airbag should be deployed using SST before disposal (See page 60–7).
Activate in a safe place away from electrical noise.

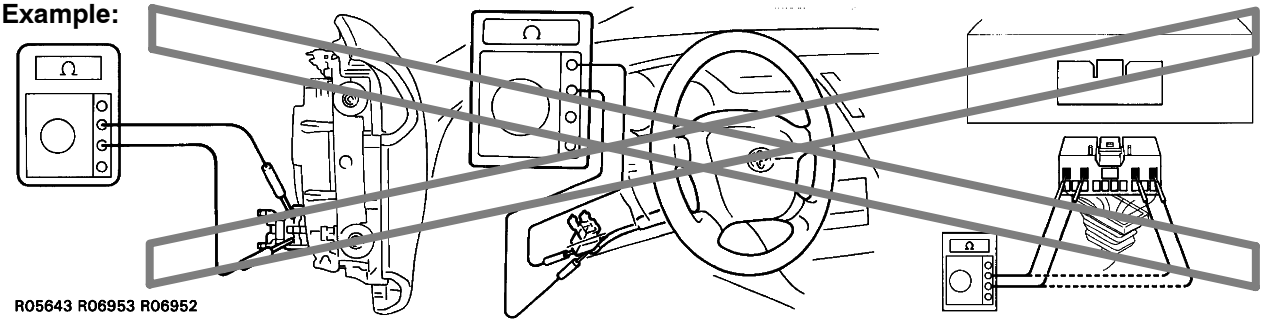
Example:



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Example:

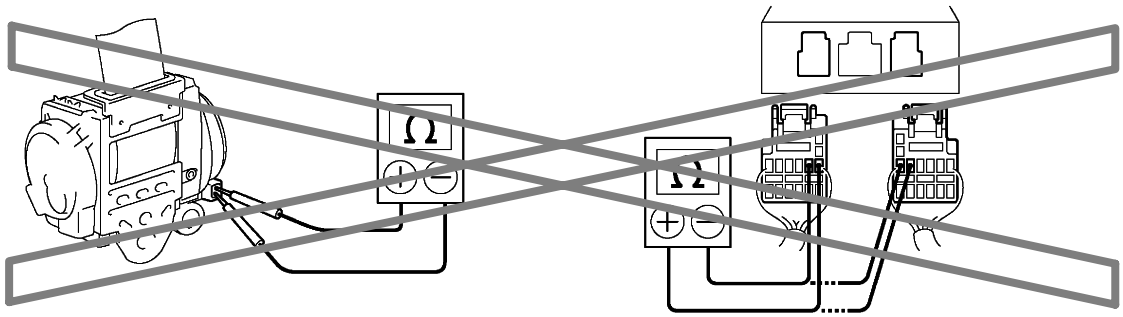


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(d) SEAT BELT PRETENSIONER

(1) Never measure the resistance of the seat belt pretensioner (This may cause the seat belt pretensioner to activate, which is very dangerous).
(2) Never disassemble the seat belt pretensioner.
(3) Never install the seat belt pretensioner on another vehicle.
(4) Store the seat belt pretensioner where the ambient temperature remains below 80°C (176°F) without high humidity and away from electrical noise.
(5) When using electric welding, disconnect the connector (2 yellow pins) before starting work.
(6) When disposing of a vehicle or the seat belt pretensioner unit, the seat belt pretensioner should be activated before disposal (See page 61–12). Perform operation in a safe place away from electrical noise.
(7) The seat belt pretensioner is hot after activated, so let it cool down sufficiently before disposal. Never apply water to cool down the seat belt pretensioner.
(8) Oil or water should not be put on the front seat outer belt, and the front seat outer belt should not be cleaned with detergents of any kind.

Example:

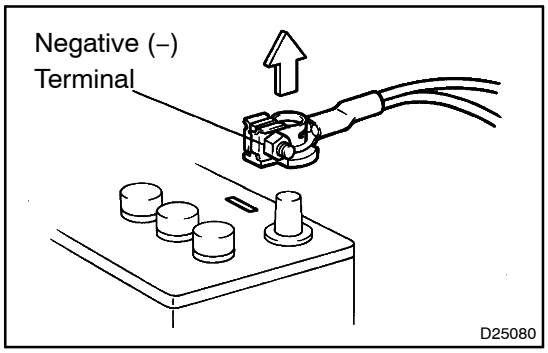


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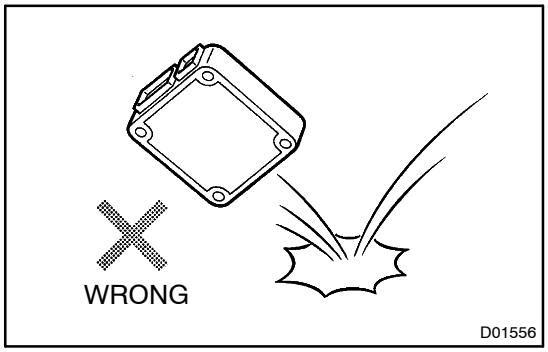
(e) AIRBAG SENSOR ASSEMBLY
  (1) Never reuse an airbag sensor assembly involved in a collision where the SRS has deployed.
  (2) The connectors to the airbag sensor assembly should be connected or disconnected with the sensor mounted on the floor. If the connectors are connected or disconnected while the airbag sensor assembly is not mounted to the floor, it could cause the supplemental restraint system to deploy potentially resulting in injury.
  (3) Work must be started after 90 seconds from the time that the ignition switch is turned to the LOCK position and the negative (–) terminal cable is disconnected from the battery, even if only loosening the set bolts of the airbag sensor assembly.

(f) WIRE HARNESS AND CONNECTOR
  (1) The SRS wire harness is integrated with the instrument panel wire harness assembly. All the connectors in the system are a standard yellow color. If the SRS wire harness becomes disconnected or the connector becomes broken due to an accident, etc., repair or replace it.



3. ELECTRONIC CONTROL

(a) REMOVAL AND INSTALLATION OF BATTERY TERMINAL
  (1) Before performing electronic work, disconnect the battery negative (–) terminal cable beforehand in order to prevent it from shorting and burning out.
  (2) When disconnecting and installing the terminal cable, turn the ignition switch and lighting switch OFF, and loosen the terminal nut completely. Perform these operations without twisting or prying the terminal.
  (3) When the battery terminal cable is removed, the memories of the clock, radio, DTCs, etc. are erased. So before removing it, check them and make a note of their settings.



(b) HANDLING OF ELECTRONIC PARTS
  (1) Do not open the cover or case of the ECU unless absolutely necessary (If the IC terminals are touched, the IC may be rendered inoperative by static electricity).
  (2) To disconnect electronic connectors, pull the connector itself, not the wires.
  (3) Be careful not to drop electronic components, such as sensors or relays. If they are dropped on a hard floor, they should be replaced and not be reused.
  (4) When cleaning the engine with steam, protect the electronic components, air filter and emission–related components from water.
  (5) Never use an impact wrench to remove or install temperature switches or temperature sensors.
  (6) When checking the continuity at the wire connector, insert the tester probe carefully to prevent terminals from bending.

4. REMOVAL AND INSTALLATION OF FUEL CONTROL PARTS

(a) PLACE FOR REMOVING AND INSTALLING OF FUEL SYSTEM PARTS

(1) Work in a place with good air ventilation and without anything that could cause combustion such as a welder, grinder, drill, electric motor or stove in the surroundings.

(2) Never work in a place such as a pit or nearby a pit, as there is a possibility that vaporized fuel will collect in those places.

(b) REMOVING AND INSTALLING OF FUEL SYSTEM PARTS

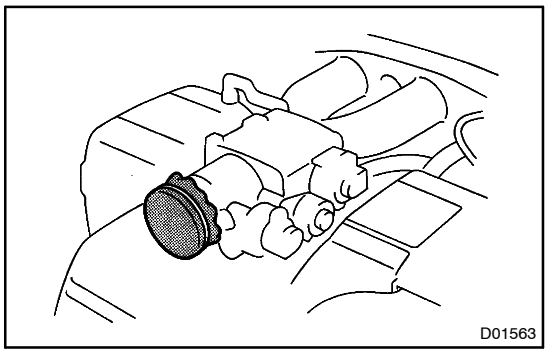
(1) Prepare a fire extinguisher before starting operations.

(2) To prevent static electricity, install a ground on the fuel changer, vehicle and fuel tank, and do not spray much water so as to prevent slipping.

(3) Never use any electric equipment like an electric motor or a working light, as they may create sparks or a high temperature.

(4) Never use an iron hammer, as it may cause sparks.

(5) Dispose separately of shop rags containing fuel deposits.

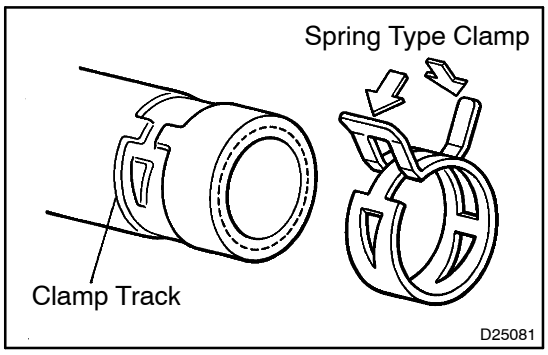

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5. REMOVAL AND INSTALLATION OF ENGINE INTAKE PARTS

(a) If any metal particle enters the inlet pass, it may have a bad effect on the engine and turbocharger.

(b) When removing and installing the inlet system parts, close the opening of the removed inlet system parts and the engine with a clean shop rag or gummed tape.

(c) When installing the inlet system parts, check that no metal particles have entered.



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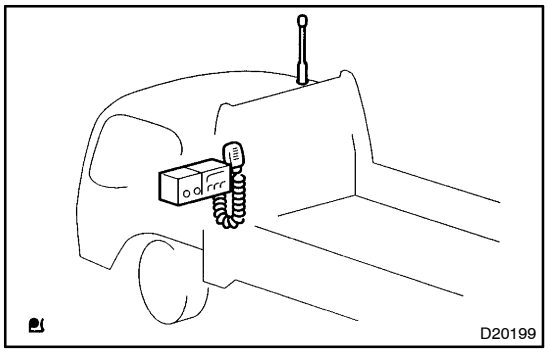
6. HANDLING OF HOSE CLAMPS

(a) Before removing the hose, check the clamp position to ensure that it can be restored securely.

(b) Replace a deformed or dented clamp with a new one.

(c) When reusing the hose, install the clamp on the hose where it has a clamp track.

(d) For a spring type clamp, make an adjustment after installation by pushing in the direction of the arrow mark.


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7. FOR VEHICLES EQUIPPED WITH MOBILE COMMUNICATION SYSTEM

(a) Install the antenna as far away from the ECU and sensors of the vehicle electronic systems as possible.

(b) Install an antenna feeder at least 20 cm (7.87 in.) away from the ECU and sensors of the vehicle electronic systems. For details of the ECU and sensors locations, refer to the section on the applicable component.

(c) Prevent the antenna feeder from getting entangled with the other wiring, and keep the antenna feeder separate from other wiring as much as possible.

(d) Check that the antenna and feeder are correctly adjusted.

(e) Do not install any high–powered mobile communication system.