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1976 MAZDA RX-2 OEM Service and Repair Workshop Manual

Go to manual page

HOW TO USE THIS MANUAL

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Range of Topics

• This manual contains procedures for performing all required service operations. The procedures are divided into the following five basic operations:

— Inspection
— Adjustment
— Replacement
— Removal/Installation
— Disassembly/Assembly

• Simple operations which can be performed easily just by looking at the vehicle (i.e., removal/installation of parts, jacking, vehicle lifting, cleaning of parts, and visual inspection) have been omitted.

Advisory Messages

• You will find several Warnings, Cautions, Notes, Specifications and Upper and Lower Limits in this manual.

Warning
— A Warning indicates a situation in which serious injury or death could result if the warning is ignored.

Caution
— A Caution indicates a situation in which damage to the vehicle or parts could result if the caution is ignored.

Note
— A Note provides added information that will help you to complete a particular procedure.

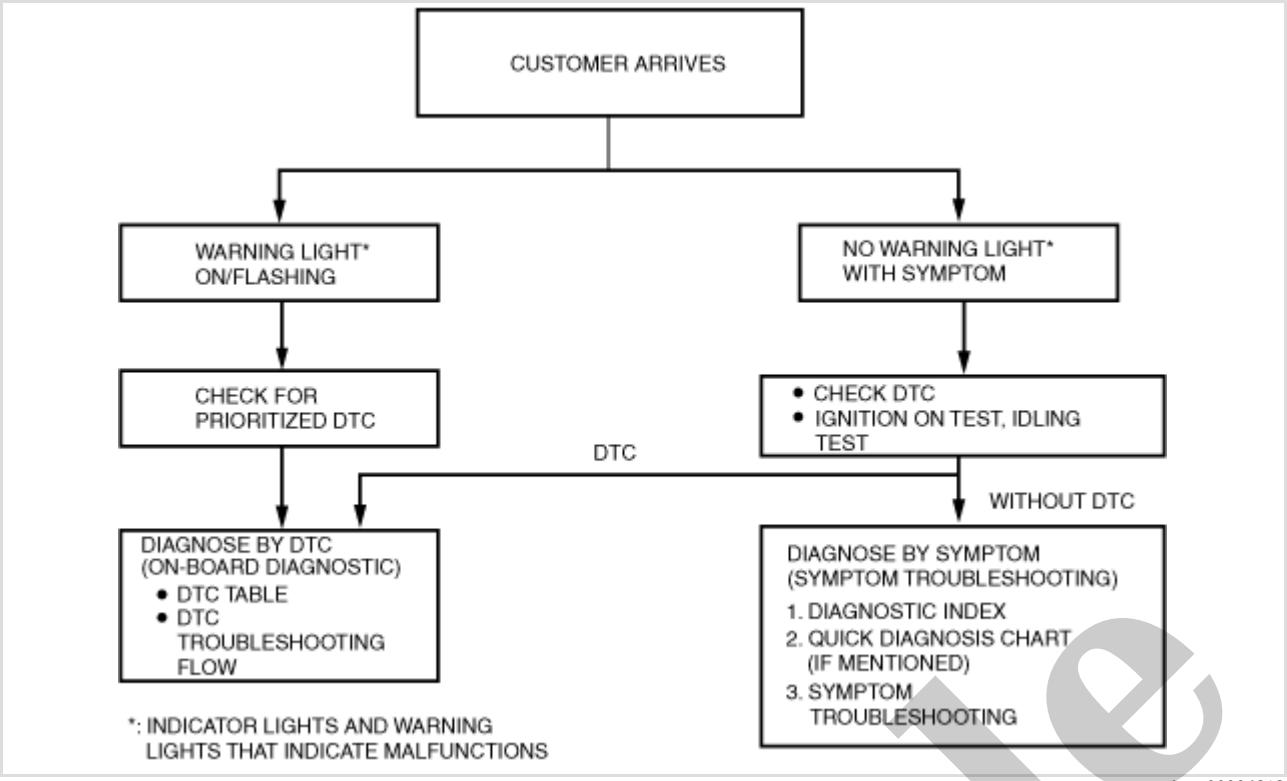
Specification
— The values indicate the allowable range when performing inspections or adjustments.

Upper and lower limits
— The values indicate the upper and lower limits that must not be exceeded when performing inspections or adjustments.

Symbols

• There are nine symbols indicating oil, grease, fluids, sealant, and the use of SST or equivalent. These symbols show application point or use of these materials during service.

Symbol	Meaning	Kind
	Apply oil	New appropriate engine oil or gear oil
	Apply brake fluid	New appropriate brake fluid
	Apply ATF	New appropriate ATF
	Apply continuously variable transaxle fluid	New appropriate continuously variable transaxle fluid
	Apply grease	Appropriate grease



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DTC troubleshooting flow (on-board diagnostic)

• Diagnostic trouble codes (DTCs) are important hints for repairing malfunctions that are difficult to simulate. Perform the specific DTC diagnostic inspection to quickly and accurately diagnose the malfunction.
• The on-board diagnostic function is used during inspection. When a DTC is shown specifying the cause of a malfunction, continue the diagnostic inspection according to the items indicated by the on-board diagnostic function.

Diagnostic index

• The diagnostic index lists the symptoms of specific malfunctions. Select the symptoms related or most closely relating to the malfunction.

Quick diagnosis chart (if mentioned)

• The quick diagnosis chart lists diagnosis and inspection procedures to be performed specifically relating to the cause of the malfunction.

Symptom troubleshooting

• Symptom troubleshooting quickly determines the location of the malfunction according to symptom type.

Procedures for Use

Using the basic inspection (transmission/transaxle)

No.	TROUBLESHOOTING ITEM		DESCRIPTION	Page
1	Melting of main or other fuses		—	(See 01-03-6 MELT NO.1 MAIN OR OTHER FUSE)
2	MIL comes on		MIL is illuminated incorrectly.	(See 01-03-7 NO.2 MIL COMES ON)
3	Will not crank		Starter does not work.	(See 01-03-8 NO. 3 WILL NOT CRANK)
4	Hard start/long crank/erratic start/erratic crank		Starter cranks engine at normal speed but engine requires excessive cranking time before starting.	(See 01-03-9 NO. 4 HARD START/ LONG CRANK/ERRATIC CRANK)
5	Engine stalls.	After start/at idle	Engine stops unexpectedly at idle and/or after start.	(See 01-03-11 NO. 5 ENGINE-STALLS AFTER START/AT IDLE)
6	Cranks normally but will not start		Starter cranks engine at normal speed but engine will not run.	(See 01-03-15 NO.6 CRANKS NORMALLY BUT WILL NOT START)
7	Slow return to idle		Engine takes more time than normal to return to idle speed.	(See 01-03-19 NO. 7 SLOW RERUN TO IDLE)
8	Engine runs rough/rolling		Engine speed fluctuates between specified idle speed and lower speed and engine shakes excessively.	(See 01-03-20 NO. 8 ENGINE RUNS ROUGH/ROLLING IDLE)
9	Fast idle/runs on		Engine speed continues at fast idle after warm-up. Engine runs after ignition key is turned to OFF.	(See 01-03-23 NO. 9 FAST IDLE/RUNS ON)

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Using the quick diagnosis chart

- The related malfunction cause can be understood.
- The relation between the malfunction symptom and cause is indicated.
- The relation between the malfunction symptom and cause can be detected quickly, and if multiple malfunction symptoms occur, the area which is the common cause among the multiple malfunctions can be specified.
- The effective inspection procedure for the malfunction cause specified from the malfunction symptoms can be selected using the inspection procedure chart.

SERVICE CAUTIONS

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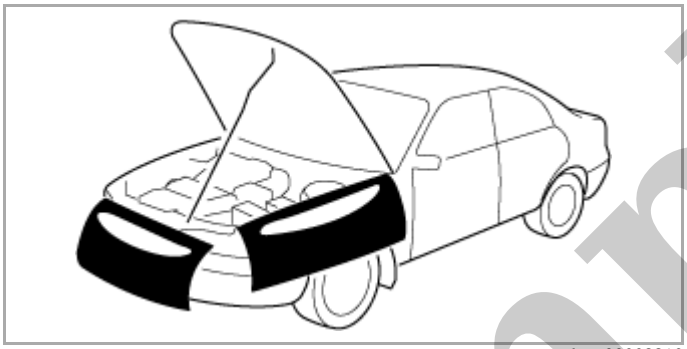
Injury/damage Prevention Precautions

• Depending on the vehicle, the cooling fan may operate suddenly even when the ignition is switched off. Therefore, keep hands and tools away from the cooling fan even if the cooling fan is not operating to prevent injury to personnel or damage to the cooling fan. Always disconnect the negative battery terminal when servicing the cooling fan or parts near the cooling fan.

Protection of the Vehicle

• Always be sure to cover fenders, seats and floor areas before starting work.



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Preparation of Tools and Measuring Equipment

• Be sure that all necessary tools and measuring equipment are available before starting any work.

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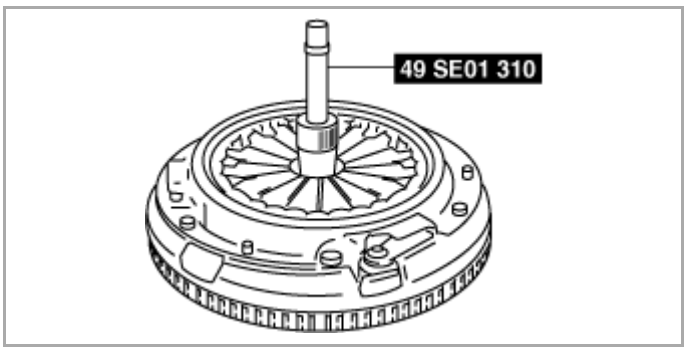
Special Service Tools

• Use special service tools or the equivalent when they are required.



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System name	Conditions after disconnecting the negative battery terminal	Required procedure		Reference
		Before disconnecting negative battery terminal	After connecting negative battery terminal	
Power liftgate (PLG) system	–	–	Fully close the liftgate manually.	(See POWER LIFTGATE (PLG) INITIALIZATION PROCEDURE.)
Power window system	Reset to initial setting and auto-function is disabled.	–	Perform the power window system initial setting.	(See POWER WINDOW SYSTEM INITIALIZATION PROCEDURE.)
Sunroof system	Reset to initial setting and function is disabled.	–	Perform the sunroof system initial setting.	(See SUNROOF SYSTEM INITIALIZATION PROCEDURE.)
Position memory system	Position memory system memory is reset.	Verify the setting content.	Set the verified content before disconnecting negative battery terminal.	–
Clock and audio	Clock display and audio system memory are reset.	Verify the setting content.	Set the verified content before disconnecting negative battery terminal.	–

Switch the Power Supply Using the Push Button Start and Start the Engine

• By pressing the push button start under the conditions shown in the table, the ignition can be switched.

Engine switch status	Engine status	Brake pedal status: Released – Selector lever position: P Position	Released – N Position	Released – Other than P, N Position	Depressed – P Position	Depressed – N Position	Depressed – Other than P, N Position
OFF*1	Off						
ACC*1	Off						
ON	Off						
START	Cranking						
ON	Running						

○ : Press push button start
↓ : Ignition switch transition

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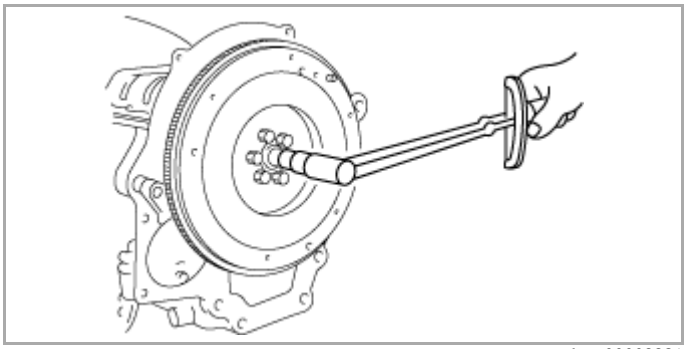
*1:To switch the ignition to ACC or off from ON (engine on), the vehicle speed must be 5 km/h {3 mph} or less.

Removal of Parts

• While correcting a problem, also try to determine its cause. Begin work only after first learning which parts and sub-components must be removed and disassembled for replacement or repair. After removing the part, plug all holes and ports to prevent foreign material from entering.

• Standard values, such as torques and certain adjustments, must be strictly observed in the reassembly of all parts.



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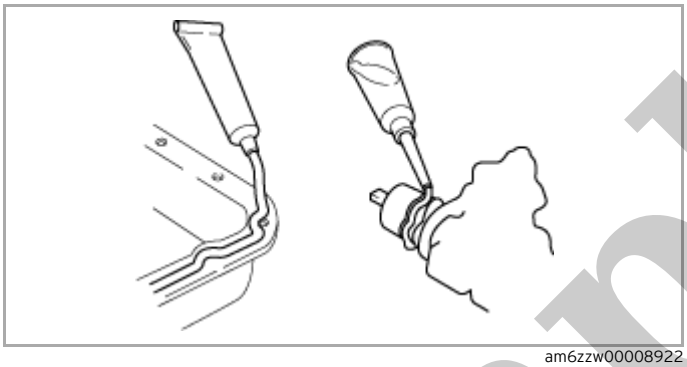
• Depending on location:

— Sealant and gaskets, or both, should be applied to specified locations. When sealant is applied, parts should be installed before sealant hardens to prevent leakage.
— Oil should be applied to the moving components of parts.
— Specified oil or grease should be applied at the prescribed locations (such as oil seals) before reassembly.



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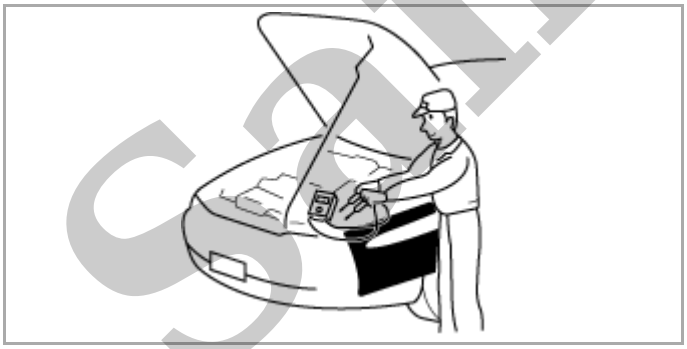
Adjustment

• Use suitable gauges and testers when making adjustments.



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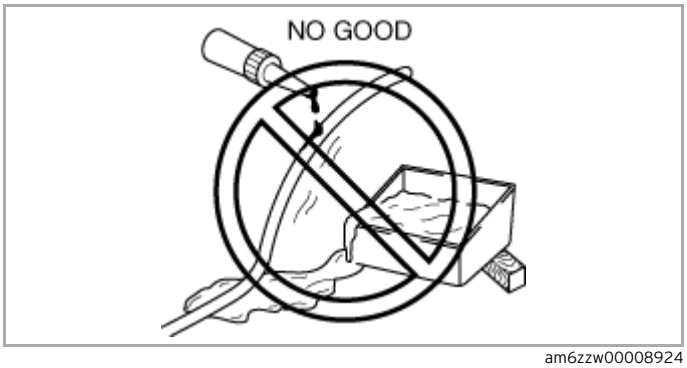
Rubber Parts and Tubing

• Prevent gasoline or oil from getting on rubber parts or tubing.



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• If the engine cannot be stopped using the push button start, perform an emergency engine stop operation. (See Cautions for vehicles with Mazda Radar Cruise Control (MRCC) system/Smart Brake Support (SBS)/Distance Recognition Support System (DRSS)/Smart City Brake Support (SCBS).)

— Place a fan, preferably a vehicle-speed proportional type, in front of the vehicle.
— Make sure the vehicle is in a facility with an exhaust gas ventilation system.
— Keep the rear bumper cool by placing a cooling fan near the exhaust pipe so that the rear bumper does not get deformed by the heat from the exhaust.
— Keep the area around the vehicle uncluttered so that heat does not build up.
— Watch the water temperature gauge and do not overheat the engine.
— Avoid added load to the engine and maintain normal driving conditions as much as possible.

AWD inspection/service

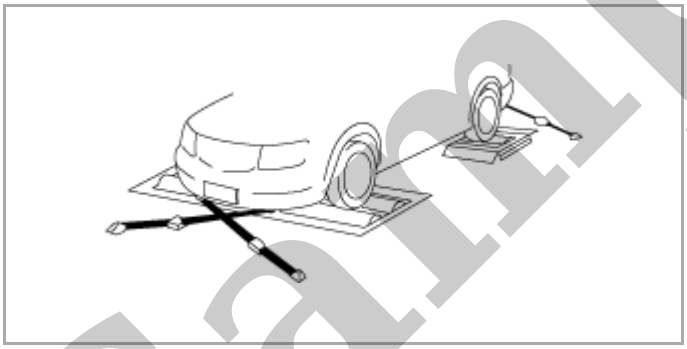
Speedometer tester measurement

Caution

• Install the tension bar (chain wire) to the tie down hook and secure the vehicle to prevent it from rolling and running off.
• Do not accelerate suddenly from a standstill or accelerate/decelerate rapidly.

Free roller type

1. Align the free rollers with the wheel base and tread, then set them on the floor properly.
2. Drive the vehicle slowly onto the tester roller and free rollers.



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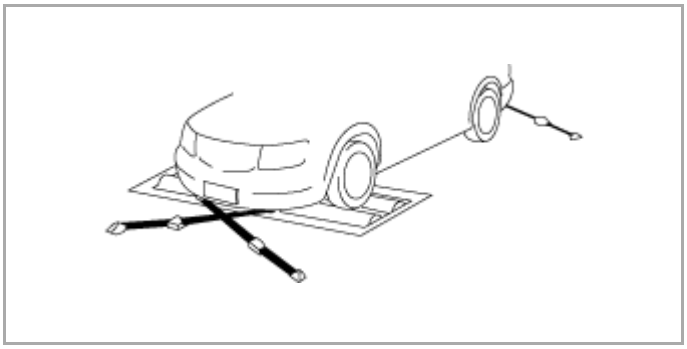
3. Start the engine and accelerate gradually to inspect the speedometer.
4. After inspection, decelerate gradually with gentle braking.

Propeller shaft removal type

1. Remove the propeller shaft. (See PROPELLER SHAFT REMOVAL/INSTALLATION.)
2. Place the front wheels on the tester roller.



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3. Accelerate gradually and inspect the speedometer.
4. After inspection, decelerate gradually with gentle braking.
5. Install the propeller shaft. (See PROPELLER SHAFT REMOVAL/INSTALLATION.)

• Shift lever is in position other than N (MTX)
• Selector lever is in position other than N (ATX)
• Brake pedal is depressed
• Front wheel speed is other than 0 km/h {0 mph}

Note

• When electric parking brake inspection mode is stopped, the electric parking brake warning light turns off.

Servicing on Vehicles with ABS/DSC

• If only the front or rear wheels are rotated using a chassis dynamometer, the ABS HU/CM (with ABS system) or DSC HU/CM (with DSC system) determines that the ABS/DSC is malfunctioning, detects a DTC, and turns on the related warning light at the same time.
• If the light is turned on, remove the vehicle from the chassis dynamometer and switch the ignition OFF (LOCK). Then switch the ignition ON (engine on) and drive the vehicle at 10 km/h {6.2 mph} or more, and verify that the warning light turns off. The DTC is stored in the memory, therefore erase it by following the ON-BOARD DIAGNOSIS SYSTEM [DSC HU/CM]. (See CLEARING DTC [DSC HU/CM].)

Note

• If the engine cannot be stopped using the push button start, perform an emergency engine stop operation. (See Emergency Engine Stop Operation.)

Cautions for vehicles with Mazda Radar Cruise Control (MRCC) system/Smart Brake Support (SBS)/Distance Recognition Support System (DRSS)/Smart City Brake Support (SCBS)

Caution

• If a vehicle with the following systems is inspected using a chassis dynamometer, always turn off each system before performing the inspection.

— Mazda Radar Cruise Control (MRCC) system
— Smart Brake Support (SBS) system
— Distance Recognition Support System (DRSS)
— Smart City Brake Support (SCBS) system

• If a chassis dynamometer is used without turning off each system, automatic braking will operate and the inspection cannot be performed correctly.
• In the event that a chassis dynamometer is used without turning off each system, take appropriate measures referring to the following as each of the system's warning lights may be illuminated/flashed and DTCs stored in the memory.

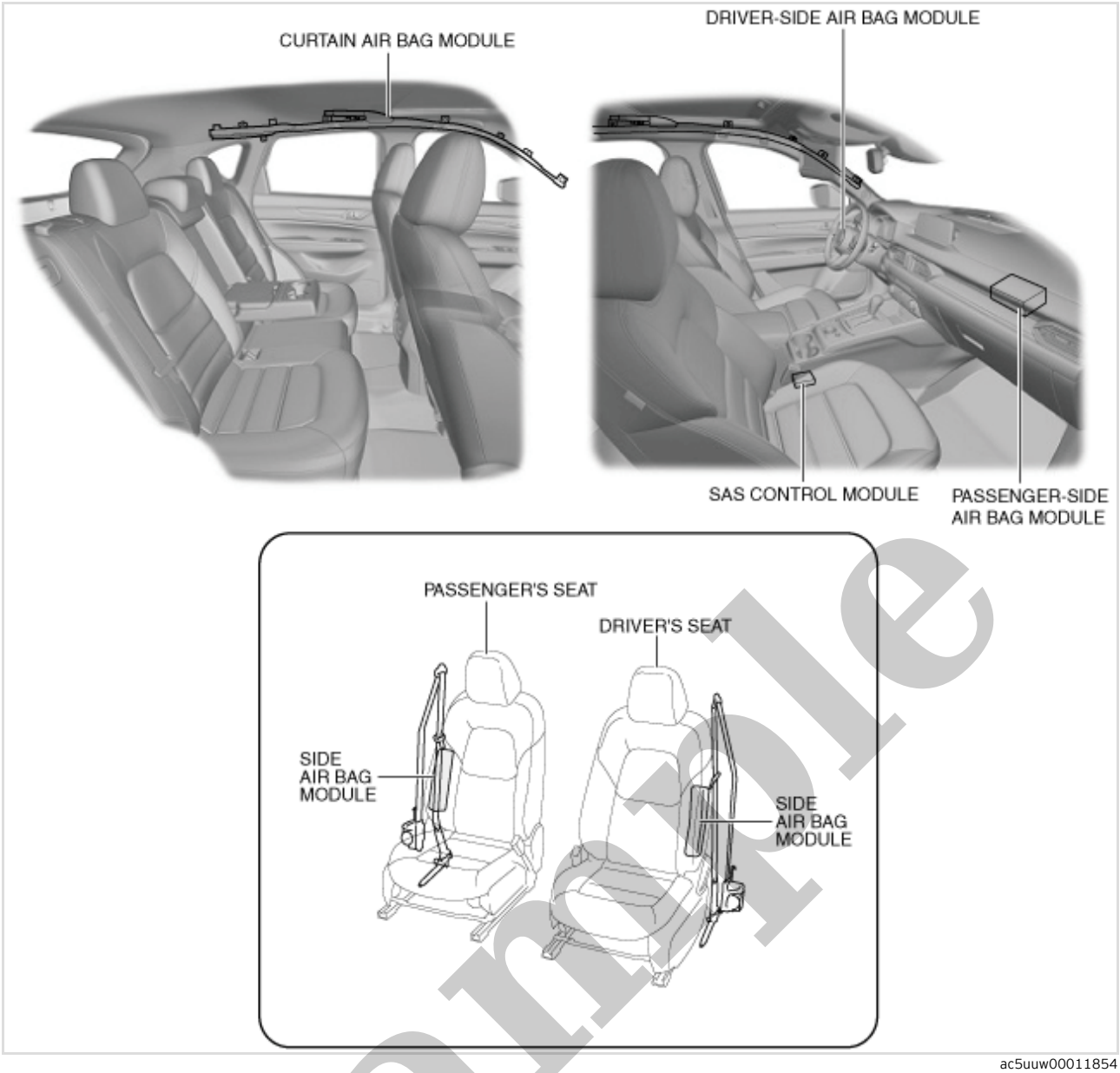
Rotating only front or rear wheels
• If only the front or rear wheels are rotated, the DSC HU/CM will determine that the DSC is malfunctioning. It will also determine that the vehicle control module is malfunctioning and the following warning lights will be illuminated or flashed.

— Mazda radar cruise control (MRCC) warning light (amber) is flashed
— Master warning light is illuminated

1. If the warning light is illuminated or flashed, remove the vehicle from the chassis dynamometer and switch the ignition off.
2. Switch the ignition back ON and drive the vehicle at 10 km/h {6.2 mph} or more to verify that the warning light turns off.
3. Because DTCs are stored, clear DTCs according to the memory clearing procedure.

Rotating all four wheels
• If all four wheels are rotated, the cruise control module determines that there is an error in the location information of the object which is detected by the radar sensor. As a result, the vehicle control module determines that a malfunction occurred, illuminates the following warning lights, and displays a message in the instrument cluster.

— Master warning light



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— After installing the radio set, perform a test transmission with the engine idling to verify that it does not affect engine control.