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Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000315Z015X
Title: INTRODUCTION: REPAIR INSTRUCTION: INITIALIZATION (2010 Corolla)		

INITIALIZATION

1. PROCEDURES NECESSARY WHEN BATTERY TERMINAL IS DISCONNECTED/RECONNECTED

NOTICE:

It may not be possible to release the steering lock or start the engine when the battery voltage is low. If this occurs, initialization of the steering lock system is required.

2. PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED

REPLACEMENT PART	NECESSARY PROCEDURE	EFFECT / INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURES ARE NOT PERFORMED	NOTE
ECM	Vehicle Identification Number (VIN) registration	MIL comes on	Using the Techstream.
	ECU communication ID registration	Engine start	-
• Automatic transmission assembly*1 • Engine assembly*1 • ECM*1	Reset memory	• Large shift shock • The deterioration of fuel efficiency	Use the Techstream.
Tire pressure warning ECU	1. Register transmitter IDs 2. Initialize tire pressure warning system	• When DTC detection conditions of "transmitter ID not received" DTC are met, TPWS indicator blinks for 1 minute, and then illuminates. • Tire pressure monitoring function	-
Tire pressure warning valve and transmitter	1. Register transmitter IDs 2. Initialize tire pressure warning system	1. When DTC detection conditions of "transmitter ID not received" DTC are met,	Even if only one wheel is replaced, IDs for all 4 wheels must be registered.

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REPLACEMENT PART	NECESSARY PROCEDURE	EFFECT / INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURES ARE NOT PERFORMED	NOTE
		TPWS indicator blinks for 1 minute, and then illuminates. 2. Tire pressure monitoring function of replaced wheel	
Brake actuator assembly (Skid control ECU)	Perform yaw rate and acceleration sensor zero point calibration	• VSC OFF indicator light blinks • VSC disabled or malfunctioning	Perform yaw rate and acceleration sensor zero point calibration with the ignition switch ON (engine stopped).
• Yaw rate and acceleration sensor • Front wheel alignment adjustment	1. Clear zero point calibration data 2. Perform yaw rate and acceleration sensor zero point calibration	• VSC OFF indicator light blinks • VSC disabled or malfunctioning	Perform yaw rate and acceleration sensor zero point calibration with the ignition switch ON (engine stopped).
• Power steering ECU*2 • Steering column*2	Perform rotation angle sensor initialization and torque sensor zero point calibration	• P/S warning light comes on • EPS control	DTC (C1515/C1525) will be stored when the power steering ECU is replaced.
Power steering ECU*3	1. Assist map writing 2. Torque sensor zero point calibration	• P/S warning light comes on • EPS control	DTC (C1515) will be stored when the power steering ECU is replaced.
Steering column*3	Torque sensor zero point calibration	Steering effort is different between turning steering wheel to left and right	-
• Door control transmitter*5 • Door control receiver*5	1. Perform identification code registration (key code) 2. Refer to wireless door lock control system "REGISTRATION" procedures	Wireless door lock control system	-

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REPLACEMENT PART	NECESSARY PROCEDURE	EFFECT / INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURES ARE NOT PERFORMED	NOTE
Transponder key ECU*5	1. Key code registration 2. ECU communication ID registration	Engine start	-
key*5	Key code registration	Engine start	-
Steering lock actuator (Steering lock ECU)*4	ECU code registration	Engine start	-
• Certification ECU*4 • Electrical key transmitter*4	Key ID registration	• Wireless door lock control system • Smart key system • Engine start	-
ID code box*4	1. ECU code registration 2. ECU communication ID registration	Engine start	-
Occupant classification ECU	• Perform zero point calibration • Perform sensitivity check • Registration ECU data	• Occupant classification system • Passenger airbag ON/OFF indicator • Airbag system (Front passenger side) • Seat belt warning system (Front passenger side)	-
• Sliding roof drive gear (Sliding roof ECU) • Sliding roof housing • Sliding roof drive cable	Perform sliding roof drive gear reset	• Automatic open/close function of roof glass • Jam protection function • Operation function after ignition switch off	Necessary when removed and installed (Not necessary when the sliding roof drive gear (sliding roof ECU) is removed and installed together with the sliding roof housing.)

*1: for U341E,U250E Automatic Transaxle
*2: for 2AZ-FE
*3: for 2ZR-FE
*4: w/ Smart Key System

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*5: w/o Smart Key System

3. VEHICLE IDENTIFICATION NUMBER (VIN) REGISTRATION

NOTICE:

The Vehicle Identification Number (VIN) must be input into a replacement ECM.

HINT:

The VIN is a 17-digit alphanumeric vehicle identification number. The Techstream is required to register the VIN.

(a) Description

HINT:

This registration section consists of two parts: Read VIN and Write VIN.

(1) Read VIN: This process allows the VIN stored in the ECM to be read in order to confirm that the two VINs, provided with the vehicle and stored in the vehicle's ECM, are the same.

(2) Write VIN: This process allows the VIN to be input into the ECM. If the ECM is changed, or the ECM VIN and vehicle VIN do not match, the VIN can be registered, or overwritten in the ECM by following procedure.

(b) Read VIN

(1) Confirm the vehicle VIN.

(2) Connect the Techstream to the DLC3.

(3) Turn the ignition switch to ON.

(4) Turn the Techstream on.

(5) Enter the following menus: Powertrain / Engine and ECT / Utility / VIN / VIN Read.

(c) Write VIN

(1) Confirm the vehicle VIN.

(2) Connect the Techstream to the DLC3.

(3) Turn the ignition switch to ON.

(4) Turn the Techstream on.

(5) Enter the following menus: Powertrain / Engine and ECT / Utility / VIN / VIN Write.

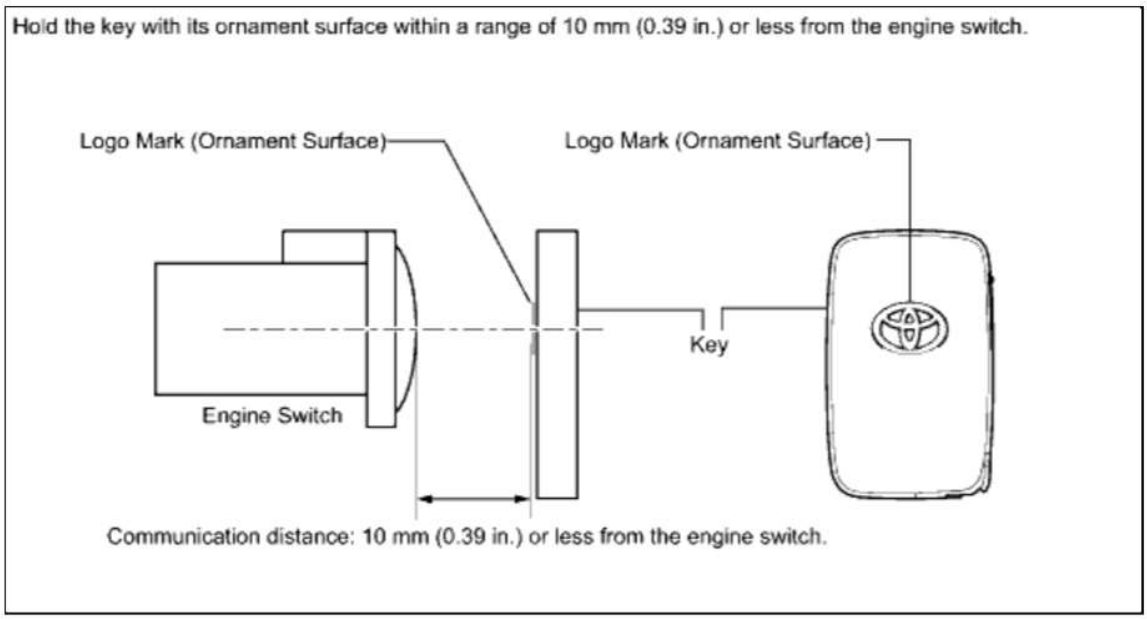
4. DESCRIPTION OF CODE REGISTRATION (Engine Immobiliser System (w/ Smart Key System))

HINT:

- The ID codes are the same as recognition codes for the wireless transmitter and the engine immobiliser function. Registering an ID code enables the smart key system, the wireless door lock control function and the engine immobiliser function to be operated.
- Code registration is necessary when the certification ECU (smart key ECU assembly), ID code box (immobiliser code ECU), steering lock ECU, or key is replaced with a new one.

(a) Vehicles with the smart key system do not have a key slot. Therefore, hold the key close to the engine switch to register the key, as shown in the illustration.

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5. PART REPLACEMENT AND KEY REGISTRATION (Engine Immobiliser System (w/ Smart Key System))

(a) The following table shows ECU replacement and key registration procedures for cases in which a malfunctioning ECU has been identified through the troubleshooting of the smart key system.

HINT:

- The following procedures can be performed:
  - New key ID registration
  - Additional key ID registration
  - Key ID erasure
  - All key ID erasure
  - ECU code registration
- If the customer has not brought all the registered keys, replacement of the ID code box (immobiliser code ECU) is also required.
- A maximum of 4 keys can be registered.

PART TO BE REPLACED	CONDITION		PROCEDURE	REFERENCE
Certification ECU (Smart key ECU assembly)	Customer has brought all keys		1. Replace certification ECU (smart key ECU assembly)	-
			2. Reregister all keys (New key ID registration)	PROCEDURE "B"
	Some keys are lost	Key ID codes can be registered and erased	1. Erase key codes (Key ID erasure)	PROCEDURE "D"
			2. Perform additional key registration procedure (Additional key ID registration)	PROCEDURE "C"
			3. Replace certification ECU (smart key ECU assembly)	-

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PART TO BE REPLACED	CONDITION	PROCEDURE	REFERENCE
		4. Reregister all keys (New key ID registration) **HINT:** **If some keys are not registered during the above steps, they will be disabled because they cannot be registered later.**	PROCEDURE "B"
	Key ID codes cannot be either registered or erased	1. Replace certification ECU (smart key ECU assembly)	-
		2. Replace ID code box (immobiliser code ECU)	-
		3. Reregister all keys (New key ID registration) **HINT:** **If key codes cannot be erased or additional keys cannot be registered due to a malfunction in the certification ECU (smart key ECU assembly), replace the ID code box (immobiliser code ECU) and certification ECU (smart key ECU assembly). If some keys are not registered during the above steps, they will be disabled because they cannot be registered later.**	PROCEDURE "A"
		4. Register ECU communication ID	PROCEDURE "G"
Certification ECU (Smart key ECU assembly)	All keys are lost	1. Replace certification ECU (smart key ECU assembly)	-
		2. Replace ID code box (immobiliser code ECU)	-
		3. Reregister all keys (New key ID registration) **HINT:** **If key codes cannot be erased or additional keys cannot be registered due to a malfunction in the certification ECU (smart key ECU assembly), replace the ID code box (immobiliser code ECU) and certification ECU (smart key ECU assembly). If some keys are not registered during the above steps, they will be disabled because they cannot be registered later.**	PROCEDURE "A"
		4. Register ECU communication ID	PROCEDURE "G"
ID code box (Immobiliser code ECU)	Customer has brought at least 1 key	1. Replace ID code box (immobiliser code ECU)	-
		2. Register recognition codes in ECUs (ECU code registration)	PROCEDURE "F"

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PART TO BE REPLACED	CONDITION	PROCEDURE	REFERENCE
		3. ECU communication ID registration	PROCEDURE "G"
	All keys are lost	1. Replace ID code box (immobiliser code ECU)	-
		2. Replace certification ECU (smart key ECU assembly)	-
		3. Reregister all keys (New key ID registration) **HINT:** **If some keys are not registered during the above steps, they will be disabled because they cannot be registered later.**	PROCEDURE "A"
		4. Register ECU communication ID	PROCEDURE "G"
Steering lock ECU	Customer has brought at least 1 key	1. Replace steering lock ECU	-
		2. Register recognition codes in ECUs (ECU code registration)	PROCEDURE "F"
	All keys are lost	1. Replace steering lock ECU	-
		2. Replace certification ECU (smart key ECU assembly)	-
		3. Replace ID code box (immobiliser code ECU)	-
		4. Reregister all keys (New key ID registration) **HINT:** **If some keys are not registered during the above steps, they will be disabled because they cannot be registered later.**	PROCEDURE "A"
		5. Register ECU communication ID	PROCEDURE "G"
Main body ECU (Instrument panel junction block)	No condition required	Replace main body ECU (instrument panel junction block)	-
ECM	No condition required	1. Replace ECM	-
		2. Register ECU communication ID	PROCEDURE "H"
Key (for replacement)	Customer has brought at least 1 key	1. Using remaining key, erase lost key code (Key ID erasure)	PROCEDURE "D"
		2. Register additional keys as necessary (Additional key ID registration)	PROCEDURE "C"

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PART TO BE REPLACED	CONDITION	PROCEDURE	REFERENCE
	All keys are lost	1. Erase all key codes (All key ID erasure)	PROCEDURE "E"
		2. Register all keys (New key ID registration) **HINT:** **If the customer brings lost keys at a later date, they can be registered using the additional key ID registration function.**	PROCEDURE "A"
Key (for addition)	Customer has brought at least 1 key **HINT:** **When adding keys (Additional registration)**	1. Register additional keys as necessary (Additional key ID registration)	PROCEDURE "C"

6. KEY REGISTRATION (Engine Immobiliser System (w/ Smart Key System))

(a) PROCEDURE "A"

New key ID registration (when replacing the certification ECU (smart key ECU assembly) and ID code box (immobiliser code ECU), or when replacing the certification ECU (smart key ECU assembly), ID code box (immobiliser code ECU) and steering lock ECU)

PROCESS	PROCEDURE
1. Start of registration	1. Connect the Techstream to DLC3 2. Turn the engine switch on (IG) 3. Enter the following menus: Body Electrical / Smart Key / Utility / Smart Code Registration **HINT:** **The engine switch cannot be turned on (IG) more than 10 times. After connecting the Techstream, turn the Techstream on while turning the driver's side door courtesy light switch on and off repeatedly at 1.5-second intervals or less to continue key registration procedure.**
2. Confirmation of ECU code	• Perform operation according to prompts on the Techstream screen **HINT:** **Mode is automatically selected by the Techstream (new registration mode or add mode).**
3. Verification of unregistered key*1	1. Hold the unregistered key close to the engine switch (For details, refer to "Description of Code Registration") 2. Confirm that the wireless door lock buzzer sounds once (short beep) 3. Place the unregistered key on the driver's seat 4. Confirm that the wireless door lock buzzer sounds once (short beep)

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PROCESS	PROCEDURE
4. Registration of ID code •	Perform operation according to prompts on the Techstream screen
5. End of registration •	Finish new key ID code registration

- *1: Repeat this process for each key which is to be registered for the vehicle. Finish the procedure for each key within 30 seconds. If the procedure for any of the keys has not been finished within the specified time, perform the registration procedures again from process 1. Make sure that only 1 key is in the cabin during the registration procedures. If 2 or more keys are in the cabin simultaneously, electric waves will interfere with each other, preventing normal registration.

(b) PROCEDURE "B"

New key ID registration (when replacing the certification ECU (smart key ECU assembly))

PROCESS	PROCEDURE
1. Start of registration	1. Connect the Techstream to DLC3 2. Turn the engine switch on (IG) 3. Enter the following menus: Body Electrical / Smart Key / Utility / Smart Code Registration **HINT:** **The engine switch cannot be turned on (IG) more than 10 times. After connecting the Techstream, turn the Techstream on while turning the driver's side door courtesy light switch on and off repeatedly at 1.5-second intervals or less to continue key registration procedure.**
2. Confirmation of ECU code •	Perform operation according to prompts on the Techstream screen **HINT:** **Mode is automatically selected by the Techstream (new registration mode or add mode).**
3. Confirmation of all registered keys *1	1. Hold the registered key close to the engine switch (For details, refer to "Description of Code Registration") 2. Confirm that wireless door lock buzzer sounds once (short beep)
4. Confirmation of ECU code •	Perform operation according to prompts on the Techstream screen
5. Verification of unregistered key *2	1. Hold the unregistered key close to the engine switch (For details, refer to "Description of Code Registration") 2. Confirm that wireless door lock buzzer sounds once (short beep) 3. Place the unregistered key on the driver's seat 4. Confirm that the wireless door lock buzzer sounds once (short beep)
5. Registration of ID code •	Perform operation according to prompts on the Techstream screen

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PROCESS	PROCEDURE
6. End of registration •	Finish new key ID code registration

- *1: Repeat this process for each key registered for the vehicle. Finish the procedure for each key within 30 seconds. If the procedure for any of the keys has not been finished within the specified time, perform the registration procedures again from process 1. If the key confirmation procedure for a key is performed, the security indicator light comes on and remains on until all the keys are confirmed.
- *2: Repeat this process for each key which is to be registered for the vehicle. Finish the procedure for each key within 30 seconds. If the procedure for any of the keys is not finished within the specified time, perform the registration procedures again from 1. Make sure that only 1 key is in the cabin during the registration procedures. If 2 or more keys are in the cabin simultaneously, electric waves will interfere with each other, preventing normal registration.

(c) PROCEDURE "C"

Additional key ID registration

PROCESS	PROCEDURE
1. Start of registration	1. Connect the Techstream to DLC3 2. Turn the engine switch on (IG) 3. Enter the following menus: Body Electrical / Smart Key / Utility / Smart Code Registration
2. Confirmation of registered key*1	1. Perform operation according to prompts on the Techstream screen **HINT:** **Mode is automatically selected by the Techstream (new registration mode or add mode)** 2. Hold the registered key close to the engine switch (For details, refer to "Description of Code Registration") 3. Confirm that the wireless door lock buzzer sounds once (short beep)
3. Confirmation of ECU code •	Perform operation according to prompts on the Techstream screen
4. Verification of unregistered key*2	1. Hold the unregistered key close to the engine switch (For details, refer to "Description of Code Registration") 2. Confirm that the wireless door lock buzzer sounds once (short beep) 3. Place the unregistered key on driver's seat 4. Confirm that the wireless door lock buzzer sounds once (short beep)
5. Registration of ID code •	Perform operation according to prompts on the Techstream screen
6. End of registration •	Finish additional key ID code registration

- *1: Perform this process for one of the keys registered for the vehicle. Finish the procedure within 30 seconds. If the procedure has not been finished within the specified time, perform the registration procedures again from process 1.
- *2: Repeat this process for each key which is to be registered for the vehicle. Finish the procedure for

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each key within 30 seconds. If the procedure for any of the keys is not finished within the specified time, perform the registration procedures again from 1. Make sure that only 1 key is in the cabin during the registration procedures. If 2 or more keys are in the cabin simultaneously, electric waves will interfere with each other, preventing normal registration.

(d) PROCEDURE "D"

Key ID erasure

HINT:

Erase all registered key codes except one.

PROCESS	PROCEDURE
1. Start of erasure	1. Connect the Techstream to DLC3 2. Turn the engine switch on (IG) 3. Enter the following menus: Body Electrical / Smart Key / Utility / Smart Code Erasure
2. Confirmation of registered key*1 **HINT:** **Select the key that will not be erased.**	1. Perform operation according to prompts on the Techstream screen 2. Hold the registered key close to engine switch (For details, refer to "Description of Code Registration") 3. Confirm that the wireless door lock buzzer sounds once (short beep)
3. Confirmation of ECU code •	Perform operation according to prompts on the Techstream screen
4. Erasure of ID code •	Perform operation according to prompts on the Techstream screen
5. End of erasure •	Finish key ID code erasure

- *1: Perform this process for one of the keys registered for the vehicle. Finish the procedure within 30 seconds. If the procedure has not been finished within the specified time, perform the erasure procedures again from process 1.

(e) PROCEDURE "E"

All key ID erasure

HINT:

All the key codes registered in the vehicle are erased.

PROCESS	PROCEDURE
1. Start of erasure	1. Connect the Techstream to DLC3 2. Turn the engine switch on (IG) 3. Turn the Techstream on while turning driver side door courtesy light switch on and off repeatedly at 1.5-second intervals or less 4. Enter the following menus: Body Electrical / Smart Key / Utility / Smart Code Erasure

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PROCESS	PROCEDURE
2. Confirmation of ECU code •	Perform operation according to prompts on the Techstream screen
3. Erasure of ID code •	Perform operation according to prompts on the Techstream screen
4. End of erasure •	Finish key ID code erasure

(f) PROCEDURE "F"

ECU code registration

PROCESS	PROCEDURE
1. Start of registration	1. Connect the Techstream to DLC3 2. Turn the engine switch on (IG) 3. Enter the following menus: Body Electrical / Smart Key / Utility / ECU Communication ID Registration
2. Confirmation of registered key*1	1. Hold the registered key close to engine switch (For details, refer to "Description of Code Registration") 2. Confirm that the wireless door lock buzzer sounds once (short beep)
3. Registration of ECU code •	Perform operation according to prompts on the Techstream screen
4. End of registration •	Finish ECU code registration

- *1: Perform this process for one of the keys registered for the vehicle. Finish the procedure within 30 seconds. If the procedure has not been finished within the specified time, perform the erasure procedures again from process 1.

(g) PROCEDURE "G"

ECU communication ID registration

NOTICE:

- The ECU communication ID should be registered when the ID code box (immobiliser code ECU) is replaced in order to match these ECU communication IDs.
- The engine cannot be started unless the ECU communication IDs match.
- After the registration, pressing the engine switch may not start the engine on the first try. If so, press the engine switch again.
- Erase DTC B2799 (code for ECM's immobiliser communication error) by either of the following:

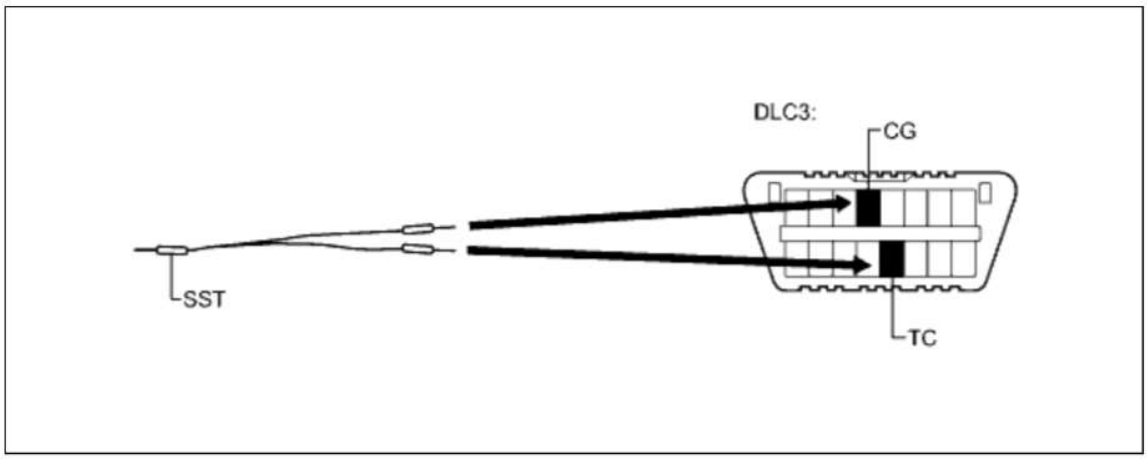
  - Use the Techstream.

  - Disconnect the battery for 30 seconds.

(1) Using SST, connect terminals TC and CG of the DLC3.

SST: 09843-18040

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(2) Turn the engine switch on (IG) and leave it as is for 30 minutes.

HINT:

Do not start the engine.

(3) Turn the engine switch off and disconnect terminals TC and CG.

(4) Check that the engine starts and stays running for more than 3 seconds.

(h) PROCEDURE "H"

ECU communication ID registration

NOTICE:

The ECU communication ID should be registered when the ECM is replaced in order to match the ECU communication IDs.

PROCEDURE	SECURITY INDICATOR LIGHT CONDITION
1. Start	OFF
2. Hold an already registered key close to the engine switch and turn the engine switch on (IG) with the brake pedal depressed	
3. Check that the engine starts and stays running for more than 3 seconds	
4. Next	
5. End	

7. DESCRIPTION OF CODE REGISTRATION (Engine Immobiliser System (w/o Smart Key System))

HINT:

The key has 2 codes: the key code (immobiliser code) and the wireless code. Both of these codes need to be registered. For the wireless code registration procedures, refer to Wireless Door Lock Control System.

(a) When adding master keys or sub keys (Additional registration):

(1) Register the key code (immobiliser code) in the transponder key ECU assembly.

TARGET ECU	REFER TO

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TARGET ECU	REFER TO
Transponder key ECU assembly	Procedure "B"

(b) When replacing the transponder key ECU assembly (New registration):

(1) Register the key code (immobiliser code) in the transponder key ECU assembly.

TARGET ECU	REFER TO
Transponder key ECU assembly	Procedure "A"

(2) Register the ECU communication ID between the new transponder key ECU assembly and the ECM.

TARGET ECU	REFER TO
ECM	Procedure "D"

(c) When replacing the ECM:

(1) Register the ECU communication ID between the transponder key ECU assembly and the new ECM.

TARGET ECU	REFER TO
Transponder key ECU assembly	Procedure "E"

(d) When replacing the transponder key ECU assembly and the ECM:

(1) Register the key codes (immobiliser codes) in the new transponder key ECU assembly.

TARGET ECU	REFER TO
Transponder key ECU assembly	Procedure "A"

(2) Register the ECU communication ID between the new transponder key ECU assembly and the new ECM.

TARGET ECU	REFER TO
Transponder key ECU assembly	Procedure "E"

(e) When clearing the key code(s):

(1) Clear the key code(s) of lost key(s).

TARGET ECU	REFER TO
Transponder key ECU assembly	Procedure "C"

8. KEY REGISTRATION (Engine Immobiliser System (w/o Smart Key System))

(a) New key code registration (Procedure "A"):

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NOTICE:

Make sure that no key codes are registered in the transponder key ECU assembly.

HINT:

- In this mode, a maximum of 3 key codes for 2 master keys and 1 sub-key can be registered. The master keys and sub-key can be registered in any order because the transponder key ECU assembly can distinguish between different types of keys.
- New key codes must be registered with the battery connected. The ignition switch can be either on or off.
- When a new transponder key ECU assembly is installed, key codes must be registered in the transponder key ECU assembly.

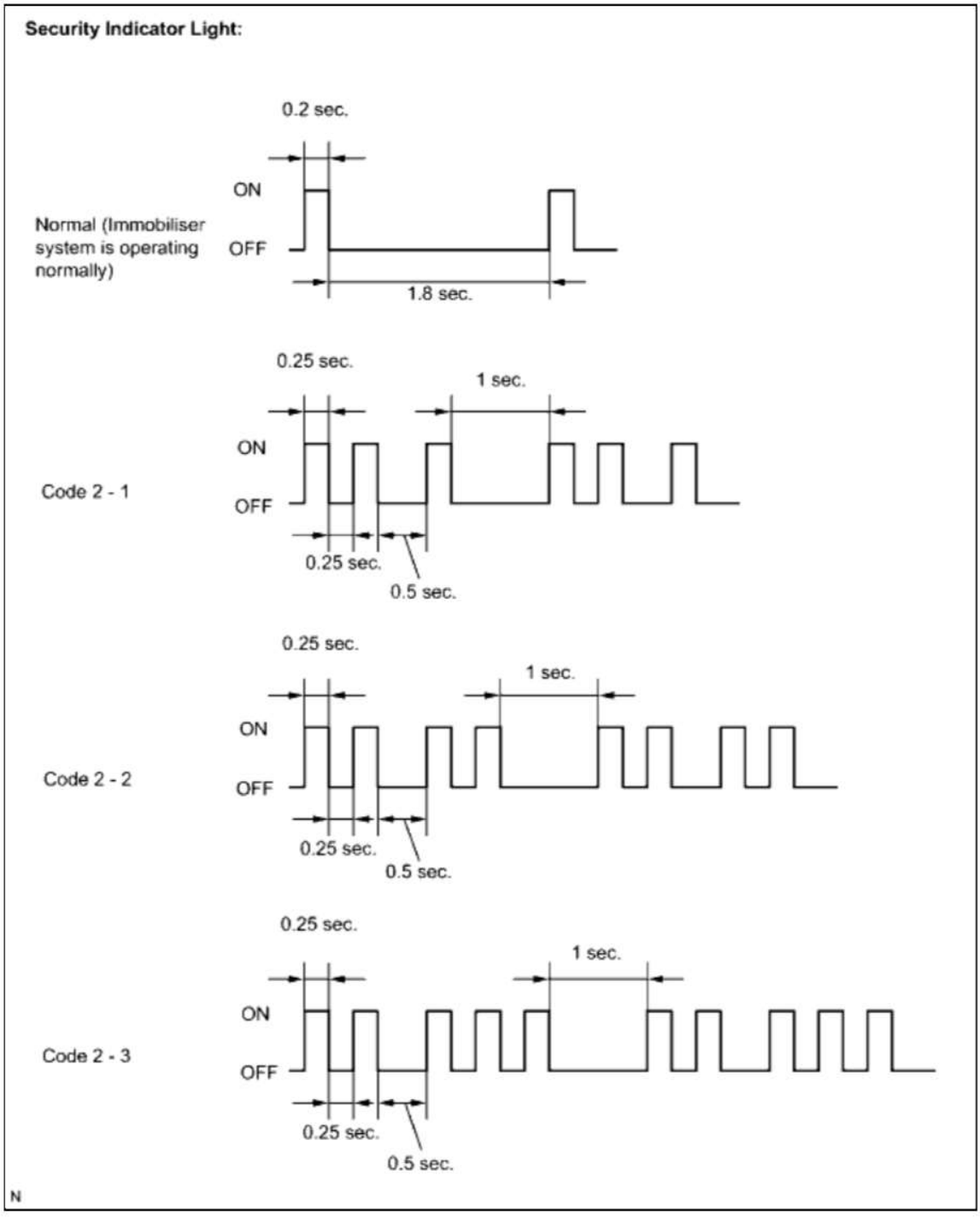
Automatic Key Code Registration (New Registration)

PROCEDURE	SECURITY INDICATOR LIGHT CONDITION
1. Start	Blinking **HINT:** **Until first key is inserted**
2. Insert the master key into the ignition key cylinder.	ON
3. Techstream operation 1. Select Body Electrical 2. Select Immobiliser 3. Select Utility 4. Select Key Registration **HINT:** **After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.**	OFF for 1 second and then ON
4. Remove the key and then select Next on the Techstream.	ON
5. Insert the master key to be registered and then select Next on the Techstream.	OFF for 1 second and then ON
6. Remove the key and then select Next on the Techstream.	ON
7. Insert the sub-key to be registered and then select Next on the Techstream.	OFF for 1 second and then ON for 0.5 seconds and then OFF
8. Remove the key.	Blinking
9. End (Procedure "E")	

HINT:

- When the engine immobiliser system is operating normally and the key is pulled out, the security indicator light blinks continuously.
- If the new key code registration fails, code 2-1 will be output through the security indicator light. Trying to re-register an already registered key will cause code 2-2 to be output when the key is inserted. If the number of registered key codes exceeds the maximum limit, code 2-3 will be output through the security indicator light. The output details are shown below.

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(b) Finish the automatic key code registration mode. The automatic key code registration mode can be forced to end when at least 1 key code (immobiliser code) for the master key has been registered.

HINT:

Follow the instruction on the Techstream screen to end new key code registration mode.

9. REGISTRATION OF ADDITIONAL KEY (Engine Immobiliser System (w/o Smart Key System))

(a) Additional registration (Procedure "B"):

HINT:

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- A maximum of 5 key codes and 3 sub-key codes can be registered.
- Registration mode will end if any step is not completed within the specified time.
- When the ignition cylinder or the key cylinder set is replaced, remove the transmitter module from the original master key. Then install this transmitter module to a new key and use the new key as the master key. If necessary, use this master key to register other keys.

NOTICE:

When the ignition key cylinder has been replaced, locking and unlocking doors are possible with the new master key's transmitter module (removed from the original master key). However, the new master key will not be able to lock and unlock doors through the door key cylinder. Keep the original master key. If the battery in the new master key's transmitter module fails, the original master key can be used to lock and unlock doors through the door key cylinder.

Additional Registration

PROCEDURE	TIME TO COMPLETE OPERATION	SECURITY INDICATOR LIGHT CONDITION
1. Start	-	Blinking **HINT:** **Until first key is inserted**
2. Insert the already registered master key into the ignition key cylinder and turn the ignition switch to ON.	-	OFF
3. Techstream operation 1. Select Body Electrical 2. Select Immobiliser 3. Select Utility 4. Select Key Registration **HINT:** **After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.**	Within 120 sec.	ON
4. Remove the master key.	Within 20 sec. **HINT:** **After the Techstream instruction**	ON
5. Insert the key to be registered in the ignition key cylinder.	Within 10 sec.	Blinking
6. Wait for 60 sec. after the key is registered. **HINT:** **The security indicator light goes off.**	-	OFF
7. Remove the key.	-	Blinking
8. End		

HINT:

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- A brief outline of key code registration procedures is shown above. For detailed information, refer to the Techstream screen.
- When the engine immobiliser system is operating normally and the key is pulled out, the security indicator light blinks continuously.
- If the key code registration has failed in automatic key code registration mode, code 2-1 will be output through the security indicator light. Trying to re-register an already registered key will cause code 2-2 to be output when the key is inserted. If the number of registered key codes exceeds the maximum limit, code 2-3 will be output through the security indicator light. The details are shown in procedure "A".

10. ERASURE OF KEY CODE (Engine Immobiliser System (w/o Smart Key System))

(a) Key code erasure (Procedure "C").

HINT:

- Performing this procedure will erase all key codes except for the master key, which is used for erasing the key codes. In order to use a key whose code has been erased, a new key code must be registered
- This procedure will be canceled if each step is not completed within the specified time.

Key Code Erasure

PROCEDURE	TIME TO COMPLETE OPERATION	SECURITY INDICATOR LIGHT CONDITION
1. Start	-	Blinking **HINT:** **Until first key is inserted**
2. Insert the already registered master key in the ignition key cylinder and turn the ignition switch to ON.	-	OFF
3. Techstream operation 1. Select Body Electrical 2. Select Immobiliser 3. Select Utility 4. Select Transponder Code Erasure **HINT:** **After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.**	Within 120 sec.	ON for 1 sec. then OFF
4. Remove the master key.	Within 10 sec. **HINT:** **After the Techstream instruction**	ON
5. End		

HINT:

- A brief outline of key code registration procedures is shown above. For detailed information, refer to the Techstream screen.

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- When the engine immobiliser system is operating normally and the key is pulled out, the security indicator light blinks continuously.

11. ECU COMMUNICATION ID REGISTRATION (Engine Immobiliser System (w/o Smart Key System))

(a) ECU communication ID registration (Procedure "D"):

NOTICE:

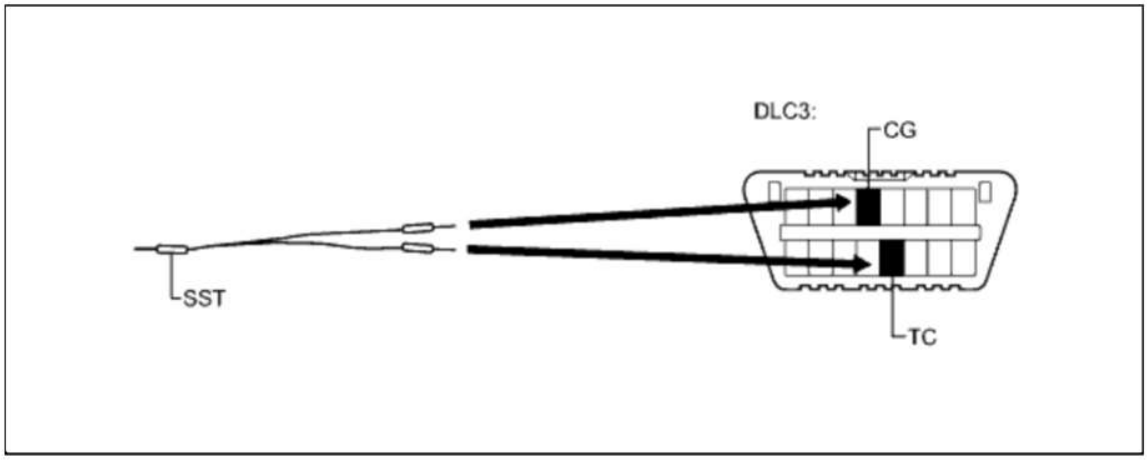
- When the transponder key ECU assembly is replaced, the ECU communication ID of the ECM must be registered into the transponder key ECU assembly to match their ECU communication IDs.
- The engine cannot be started unless the ECU communication IDs match.
- Do not turn the ignition switch from on to off 20 times or more before registering the ECU communication ID. Turning the ignition switch from on to off 20 times or more will result in the engine not starting unless the transponder key ECU assembly is replaced with a new one.
- After the registration, turning the ignition switch to the START position may not start the engine on the first try. If so, turn the ignition switch to the START position again.
- After the engine is started, erase DTC B2799 (code for ECM's immobiliser communication error) by either of the following:

  - Using the Techstream.

  - Disconnecting the battery for 30 seconds.

(1) Using SST, connect terminals TC and CG of the DLC3.

SST: 09843-18040



(2) Turn the ignition switch to ON and leave the vehicle as is for 30 minutes.

HINT:

Do not start the engine.

(3) Check that the engine starts.

(b) ECU communication ID registration (Procedure "E"):

NOTICE:

The ECU communication ID should be registered when the ECM and transponder key ECU assembly are replaced or when the ECM only is replaced in order to match the ECU communication ID.

PROCEDURE	SECURITY INDICATOR LIGHT CONDITION

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PROCEDURE	SECURITY INDICATOR LIGHT CONDITION
1. Start	OFF
2. Insert an already registered key into the ignition key cylinder.	
3. Start the engine.	
4. Check that the engine starts and stays on for more than 3 seconds.	
6. End	

12. RESET MEMORY (INITIALIZATION for U341E)

NOTICE:

- Perform the RESET MEMORY (AT initialization) when replacing the automatic transaxle assembly, engine assembly or ECM.
- The RESET MEMORY can be performed only with the Techstream.

HINT:

The ECM memorizes the condition that the ECT controls the automatic transaxle assembly and engine assembly according to those characteristics. Therefore, when the automatic transaxle assembly, engine assembly, or ECM has been replaced, it is necessary to reset the memory so that the ECM can memorize the new information.

Reset procedure is as follows.

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON and the Techstream main switch on.

(d) Enter the following menus: Powertrain / Engine and ECT / Utility / Reset Memory. Then, press "Next".

CAUTION:

After performing the RESET MEMORY, be sure to perform the ROAD TEST INFO described earlier.

HINT:

The ECM is learned by performing the ROAD TEST.

13. RESET MEMORY (INITIALIZATION for U250E)

NOTICE:

- Perform the RESET MEMORY (AT initialization) when replacing the automatic transaxle assembly, engine assembly or ECM.
- The RESET MEMORY can be performed only with the Techstream.

HINT:

The ECM memorizes the condition that the ECT controls the automatic transaxle assembly and engine assembly according to those characteristics. Therefore, when the automatic transaxle assembly, engine assembly, or ECM has been replaced, it is necessary to reset the memory so that the ECM can memorize the new information.

Reset procedure is as follows.

(a) Turn the ignition switch off.

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(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON and the Techstream main switch on.

(d) Enter the following menus: Powertrain / Engine and ECT / Utility / Reset Memory. Then, press "Next".

CAUTION:

After performing the RESET MEMORY, be sure to perform the ROAD TEST INFO described earlier.

HINT:

The ECM is learned by performing the ROAD TEST.

14. DESCRIPTION OF CODE REGISTRATION (Tire Pressure Warning System)

It is necessary to register the transmitter ID in the tire pressure warning ECU when replacing the tire pressure warning valve and transmitter and/or tire pressure warning ECU.

Prepare all transmitter ID data before starting registration.

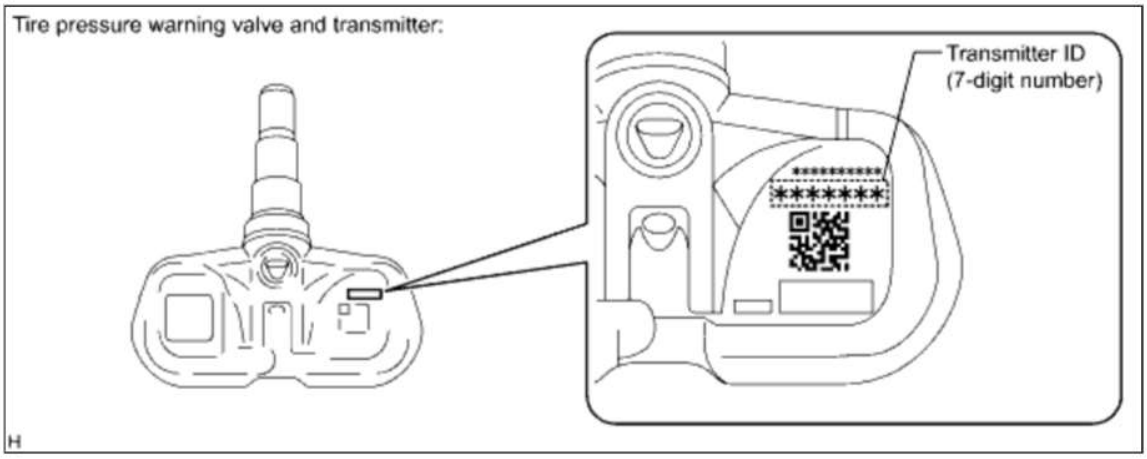
(a) Before registration

(1) When replacing the tire pressure warning ECU:

- Read the registered transmitter IDs that are stored in the old ECU using the Techstream and note them down.
- If reading stored transmitter IDs is impossible due to malfunctions of components such as the tire pressure warning antenna and receiver, remove the tires from the wheels and check the IDs located on the tire pressure warning valve and transmitters INFO .

(2) When replacing a tire pressure warning valve and transmitter:

- Take note of the 7-digit number (transmitter ID) written on the tire pressure warning valve and transmitter.



NOTICE:

- The transmitter ID is written on the tire pressure warning valve and transmitter. It will be unable to be read after installing the tire pressure warning valve and transmitter on the tire and wheel. Therefore, take a note of the transmitter ID before installing the tire pressure warning valve and transmitter.
- The ID registration must be performed for all tire pressure warning valve and transmitters. Check the Data List, replace the exchanged ID with a new ID, and make a new DATA LIST of all 4 tires for the vehicle.

15. REGISTER TRANSMITTER ID (USING TECHSTREAM) (Tire Pressure Warning System)

(a) Set the all tire pressure to the specified value INFO .

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(b) Turn the ignition switch off.

(c) Connect the Techstream to the DLC3.

(d) Turn the ignition switch to ON.

(e) Turn the Techstream on.

(f) Enter the following menus: Chassis / Tire Pressure Monitor / Utility / ID Registration.

(g) Perform the following procedure displayed on the screen.

(h) Confirmation of transmitter ID registration.

(1) Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

(2) Read the "ID Tire Inflation Pressure" values.

(3) Confirm that the data of tire pressure of all tires are displayed on the Techstream.

NOTICE:

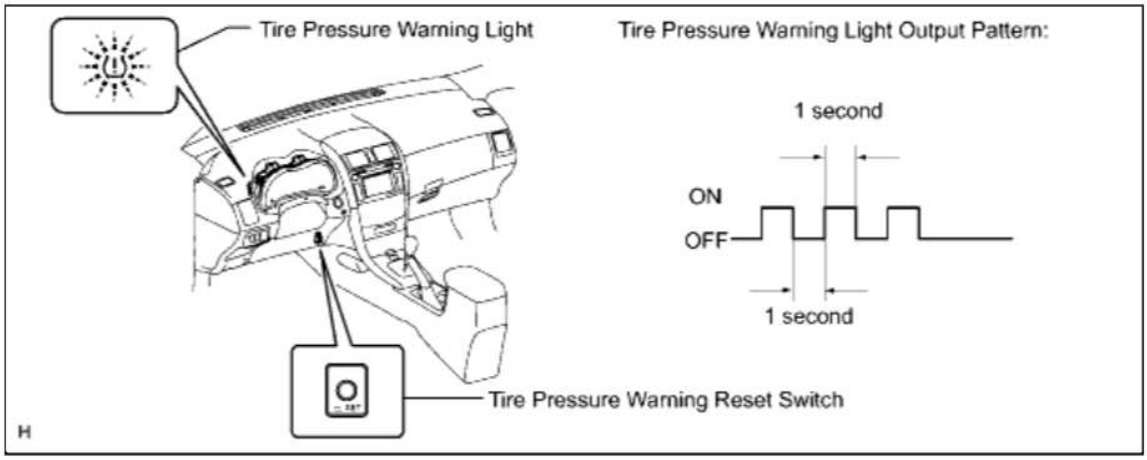
- It takes about 2 or 3 minutes to display the updated tire pressure data. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 INFO .
- If the IDs have not been registered, DTC C2171/71 is set in the tire pressure warning ECU after 3 minutes or more.
- If normal pressure values are displayed, the IDs have been registration correctly.
- If the tire pressure values are not displayed after a few minutes, the IDs may be incorrect or the system may have a malfunction.
- After all IDs are registered, DTC C2126/26 (Transmitter ID not Received) is set in the tire pressure warning ECU and the tire pressure warning light blinks for 1 minute and then comes on. When the tire pressure warning ECU successfully receives radio waves from all the transmitters whose IDs are stored in the ECU, DTC C2126/26 is deleted and the tire pressure warning light goes off.

16. INITIALIZATION PROCEDURE (Tire Pressure Warning System)

(a) Adjust all tire (except spare tire) to the standard tire inflation pressure, as indicated on the tire and loading information label on the vehicle.

(b) Turn the ignition switch to ON.

(c) Push and hold the tire pressure warning reset switch for 3 seconds or more so that the tire pressure warning light blinks 3 times.



(d) Turn the ignition switch off.

(e) Connect the Techstream to the DLC3.

(f) Turn the ignition switch to ON.

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(g) Turn the Techstream on.

(h) Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

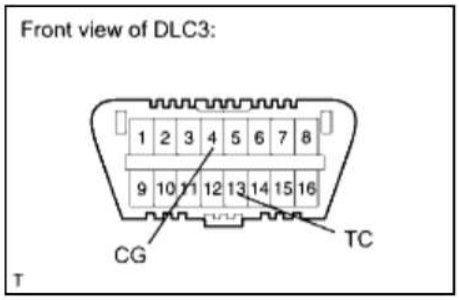
(i) Check that the initialization has been completed.

(j) Confirm that the tire pressure data of all wheels are displayed on the Techstream.

NOTICE:

- The initialization is normally completed within 2 or 3 minutes.
- If the initialization has not been completed successfully, DTC C2177/77 is set after a vehicle speed 8 km/h (5 mph) or more continues for 20 minutes or more.
- The initialization can be terminated by connecting terminals TC and CG of the DLC3.

Tire Pressure Monitor



TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ID1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure / 0 kPa (0 kgf/cm^2, 0 psi), Relative pressure / -100 kPa (-1.0 kgf/cm^2, -14 psi) max.: Absolute pressure / 638 kPa (6.4 kgf/cm^2, 93 psi), Relative pressure / 538 kPa (5.4 kgf/cm^2, 78 psi)	Actual tire inflation pressure	If 0 kPa (0 kgf/cm^2, 0 psi) is displayed for absolute pressure or -100 kPa (-1.0 kgf/cm^2, -14 psi) is displayed for relative pressure, data has not been received.*
ID2 Tire Inflation Pressure	ID2 tire inflation pressure / min.: Absolute pressure / 0 kPa (0 kgf/cm^2, 0 psi), Relative pressure / -100 kPa (-1.0 kgf/cm^2, -14 psi) max.: Absolute pressure / 638 kPa (6.4 kgf/cm^2, 93 psi), Relative pressure / 538 kPa (5.4 kgf/cm^2, 78 psi)	Actual tire inflation pressure	If 0 kPa (0 kgf/cm^2, 0 psi) is displayed for absolute pressure or -100 kPa (-1.0 kgf/cm^2, -14 psi) is displayed for relative pressure, data has not been received.*

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ID3 Tire Inflation Pressure	ID3 tire inflation pressure / min.: Absolute pressure / 0 kPa (0 kgf/cm^2, 0 psi), Relative pressure / -100 kPa (-1.0 kgf/cm^2, -14 psi) max.: Absolute pressure / 638 kPa (6.4 kgf/cm^2, 93 psi), Relative pressure / 538 kPa (5.4 kgf/cm^2, 78 psi)	Actual tire inflation pressure	If 0 kPa (0 kgf/cm^2, 0 psi) is displayed for absolute pressure or -100 kPa (-1.0 kgf/cm^2, -14 psi) is displayed for relative pressure, data has not been received.*
ID4 Tire Inflation Pressure	ID4 tire inflation pressure / min.: Absolute pressure / 0 kPa (0 kgf/cm^2, 0 psi), Relative pressure / -100 kPa (-1.0 kgf/cm^2, -14 psi) max.: Absolute pressure / 638 kPa (6.4 kgf/cm^2, 93 psi), Relative pressure / 538 kPa (5.4 kgf/cm^2, 78 psi)	Actual tire inflation pressure	If 0 kPa (0 kgf/cm^2, 0 psi) is displayed for absolute pressure or -100 kPa (-1.0 kgf/cm^2, -14 psi) is displayed for relative pressure, data has not been received.*

HINT:

- The initialization is completed when the "ID Tire Information Pressure" display shows the correct pressures.
- *: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 INFO .

17. OBTAIN ZERO POINT OF YAW RATE AND ACCELERATION SENSOR (When Using the Techstream) (Vehicle Stability Control System)

NOTICE:

- While obtaining the zero point, keep the vehicle stationary and do not vibrate, tilt, move, or shake it. (Do not start the engine.)
- Be sure to perform this procedure on a level surface (with an inclination of less than 1 degree).

(a) Clear the zero point calibration data.

(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

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(3) Check that the shift lever is in P (for automatic transaxle model) or the parking brake is applied (for manual transaxle model).

(4) Connect the Techstream to the DLC3.

(5) Turn the ignition switch to ON.

(6) Turn the Techstream on.

(7) Select the skid control ECU to clear the zero point calibration data using the Techstream. Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Reset Memory.

(8) Turn the ignition switch off.

NOTICE:

If the ignition switch is turned to ON for more than 15 seconds with the shift lever in P (for automatic transaxle model) or the parking brake applied (for manual transaxle model) after zero point of the yaw rate and acceleration sensor has been cleared, only the zero point of the yaw rate sensor will be stored. If the vehicle is driven under these conditions, the skid control ECU will store the zero point calibration for the acceleration sensor as not being completed. The skid control ECU will then also indicate this as a malfunction of the VSC system using the indicator lights.

(b) Perform zero point calibration of the yaw rate and acceleration sensor.

(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

(3) Check that the shift lever is in P (for automatic transaxle model) or the parking brake is applied (for manual transaxle model).

NOTICE:

DTCs C1210/36 and C1336/39 will be recorded if the shift lever is not in P (for automatic transaxle model) or the parking brake is not applied (for manual transaxle model).

(4) Connect the Techstream to the DLC3.

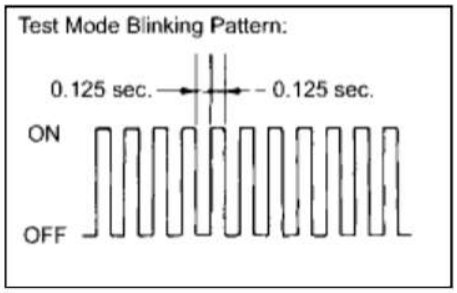
(5) Turn the ignition switch to ON.

(6) Turn the Techstream on.

(7) Switch the skid control ECU to Test Mode using the Techstream. Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Test Mode.

(8) After the system enters Test Mode, keep the vehicle stationary on a level surface for 2 seconds or more.

(9) Check that the VSC OFF indicator light comes on for several seconds and then blinks in Test Mode.



HINT:

- The slip indicator light remains on during Test Mode because traction control operation is prohibited (The slip indicator light goes off when the VSC OFF switch is on).
- If the VSC OFF indicator light does not blink, perform zero point calibration again.
- The zero point calibration is performed only once after the system enters Test Mode.
- Calibration cannot be performed again until the stored data is cleared.

(10) Turn the ignition switch off and disconnect the Techstream.

18. OBTAIN ZERO POINT OF YAW RATE AND ACCELERATION SENSOR (When not Using the Techstream) (Vehicle Stability Control System)

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NOTICE:

- While obtaining the zero point, keep the vehicle stationary and do not vibrate, tilt, move, or shake it. (Do not start the engine.)
- Be sure to perform this procedure on a level surface (with an inclination of less than 1 degree).

(a) Clear the zero point calibration data.

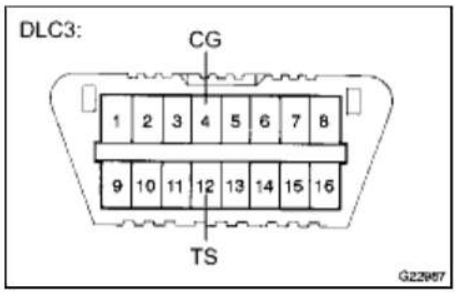
(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

(3) Check that the shift lever is in P (for automatic transaxle model) or the parking brake is applied (for manual transaxle model).

(4) Turn the ignition switch to ON.

(5) The warning and indicator light come on for 3 seconds to indicate that the initial check is completed.



(6) Using SST, connect and disconnect terminals TS and CG of the DLC3 4 times or more within 8 seconds.

SST: 09843-18040

(7) Check that the VSC OFF indicator light comes on.

NOTICE:

If the ignition switch is turned to ON for more than 15 seconds with the shift lever in P (for automatic transaxle model) or the parking brake applied (for manual transaxle model) after zero point of the yaw rate and acceleration sensor has been cleared, only the zero point of the yaw rate sensor will be stored. If the vehicle is driven under these conditions, the skid control ECU will store the zero point calibration for the acceleration sensor as not being completed. The skid control ECU will then also indicate this as a malfunction of the VSC system using the indicator lights.

(b) Perform zero point calibration of the yaw rate and acceleration sensor.

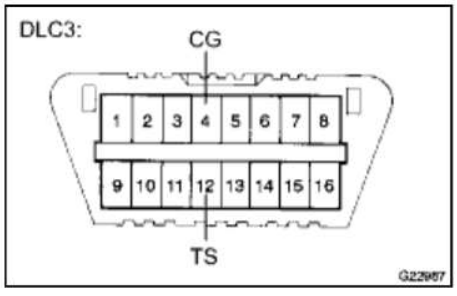
(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

(3) Check that the shift lever is in P (for automatic transaxle model) or the parking brake is applied (for manual transaxle model).

NOTICE:

DTCs C1210/36 and C1336/39 will be recorded if the shift lever is not in P (for automatic transaxle model) or the parking brake is not applied (for manual transaxle model).



(4) Using SST, connect terminals TS and CG of the DLC3.

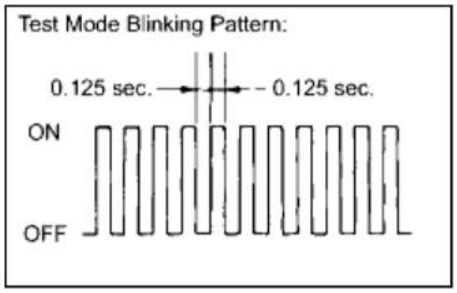
SST: 09843-18040

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(5) Turn the ignition switch to ON.

(6) Keep the vehicle stationary on a level surface for 2 seconds or more.

(7) Check that the VSC OFF indicator light comes on for several seconds and then blinks in Test Mode.



HINT:

- The slip indicator light remains on during Test Mode because traction control operation is prohibited (The slip indicator light goes off when the VSC OFF switch is on).
- If the VSC OFF indicator light does not blink, perform zero point calibration again.
- The zero point calibration is performed only once after the system enters Test Mode.
- Calibration cannot be performed again until the stored data is cleared.

(8) Turn the ignition switch off and disconnect SST from the DLC3.

19. ROTATION ANGLE SENSOR INITIALIZATION AND TORQUE SENSOR ZERO POINT CALIBRATION (Power Steering System (for 2AZ-FE))

NOTICE:

Clear the rotation angle sensor calibration value, initialize the rotation angle sensor, and calibrate the torque sensor zero point if any of the following has occurred:

- The power steering ECU has been replaced.
- The steering column assembly has been replaced.
- Steering effort differs between left and right.

(a) Inspection before calibration.

(1) Turn the ignition switch off.

(2) Connect the Techstream to the DLC3.

(3) Turn the ignition switch to ON.

(4) Turn the Techstream on.

(5) Calibrate the power steering ECU. Enter the following menus: Chassis / EMPS / Data List.

(6) Check the values by referring to the table below.

Power Steering ECU

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
IG Power Supply	ECU power source voltage / Min.: 0 V, Max.: 20.1531 V	11 to 14 V	Ignition switch to ON

Standard voltage:

11 to 14 V

NOTICE:

If the IG power supply voltage is 9 V or less, calibration cannot be performed. In this case, charge or replace the battery, and then perform calibration.

(b) Rotation angle sensor calibration value clear, rotation angle sensor initialization, and torque sensor zero point calibration.

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NOTICE:

- If DTC C1516 (Torque Sensor Zero Point Adjustment Incomplete) is stored, the torque sensor zero point cannot be calibrated. Clear the DTC before starting calibration.
- If DTC C1526 (Rotation Angle Sensor Initialization Incomplete) is stored, the rotation angle sensor cannot be initialized. Clear the DTC before starting initialization.

(1) Turn the ignition switch off.

(2) Connect the Techstream to the DLC3.

(3) Turn the ignition switch to ON.

(4) Turn the Techstream on.

(5) Enter the following menus: Chassis / EMPS / Utility / Torque Sensor Adjustment.

NOTICE:

- Set the steering wheel to the center point and align the front tires straight ahead.
- Do not turn the steering wheel sharply.
- Do not touch the steering wheel during the torque sensor zero point calibration (for 3 seconds).

20. ASSIST MAP WRITING (USING TECHSTREAM) (Power Steering System (for 2ZR-FE))

HINT:

Perform the assist map writing when the power steering ECU is replaced.

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the ignition switch to ON.

(d) Turn the Techstream on.

(e) Enter the following menus: Chassis / EMPS / Assist Map.

(f) Wait for 7 seconds or more.

(g) Check for DTCs.

HINT:

If DTC C1581 is output, perform the troubleshooting for DTC C1581 INFO .

21. TORQUE SENSOR ZERO POINT CALIBRATION (USING TECHSTREAM) (Power Steering System (for 2ZR-FE))

NOTICE:

Perform the torque sensor zero point calibration if any of the following conditions occur:

- The steering column assembly (containing the torque sensor) has been replaced.
- The power steering ECU has been replaced.
- There is a difference in steering effort between turning right and left.

(a) Perform the torque sensor zero point calibration.

NOTICE:

If DTC C1516 (Torque Sensor Zero Point Adjustment Incomplete) is stored, the torque sensor zero point cannot be calibrated. Clear the DTC before starting calibration.

(1) Set the steering wheel to the center point and align the front wheels straight ahead.

(2) Turn the ignition switch off.

(3) Connect the Techstream to the DLC3.

(4) Turn the ignition switch to ON.

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(5) Turn the Techstream on.

(6) Calibrate the power steering ECU. Enter the following menus: Chassis / EMPS / Utility / Torque Sensor Adjustment.

NOTICE:

- Do not touch the steering wheel during the torque sensor zero point calibration.
- Do not start the engine.
- Perform the calibration only when the vehicle is stopped.

(7) Check for DTCs INFO .

NOTICE:

- After zero point calibration is completed normally, confirm that DTC is not output.
- If DTC C1515, C1516 or C1534 is output, perform troubleshooting for the corresponding DTC.

Result:

RESULT	SEE PROCEDURE
DTC C1515 is output.	INFO
DTC C1516 is output.	INFO
DTC C1534 is output.	INFO

22. REGISTRATION OF RECOGNITION CODE (MANUAL OPERATION) (Wireless door lock control system (w/o Smart Key System))

HINT:

- Register a new recognition code when replacing the door control transmitter or the door control receiver.
- Add mode is used to retain the already registered codes while registering a new recognition code. This mode is used when adding a transmitter. If the number of registered codes exceeds 6, the previously registered code will be correspondingly erased in order, starting from the code registered first.
- Rewrite mode is used to erase all the previously registered codes and register only new recognition codes. This mode is used when exchanging the transmitter or the door control receiver for new one.
- Confirmation mode is used to confirm how many recognition codes have already been registered before an additional registration of a recognition code.
- Prohibition mode is used to erase all the registered codes and cancel the wireless door lock function. Use this mode when the transmitter is lost.
- All of the steps in the following registration procedure must be performed in sequential order continuously.

(a) The following conditions should be met.

(1) No key is inserted in the ignition key cylinder.

(2) Only driver side door is opened.

(b) Perform the following operations to select the desired mode.

(1) Insert and remove the key from the ignition switch twice within 5 seconds. (End in removed)

(2) After the above operation, close and open the driver's door twice. (End in open)

Then insert the key into the ignition key cylinder and remove it.

HINT:

Complete this procedure within 40 seconds.

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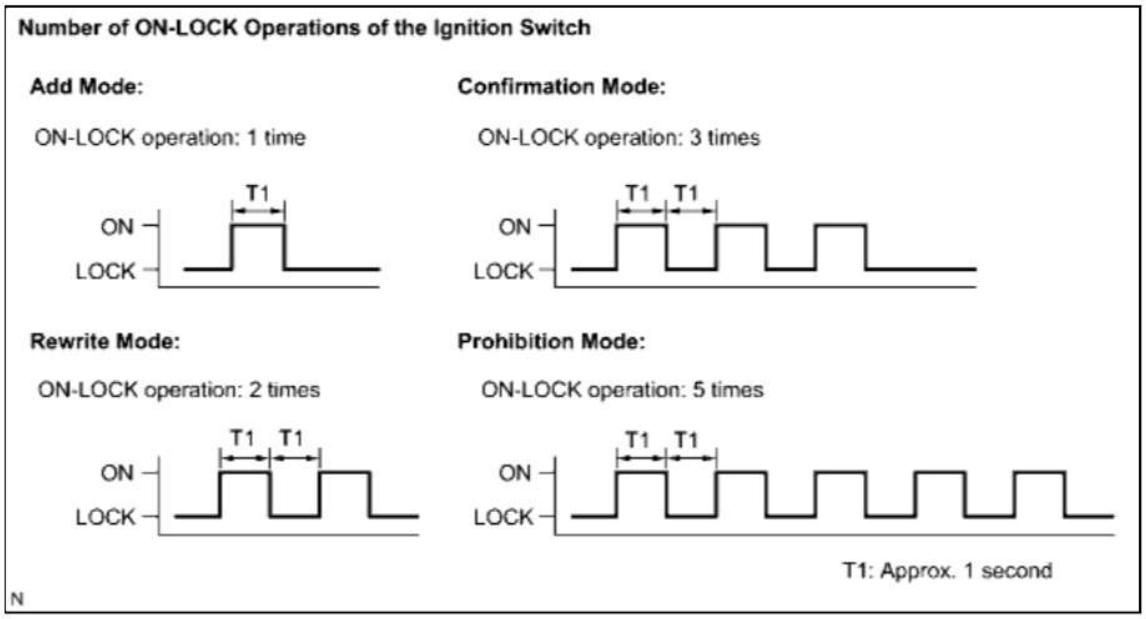
(3) After the above operations, close and open the driver side door twice. (End in open)

Then insert the key into the ignition key cylinder and close the door.

HINT:

Complete this procedure within 40 seconds.

(4) Turn the ignition switch from LOCK to ON and back to LOCK at approximately 1 second intervals 1 to 5 times to select a mode (see the illustration). Then remove the key from the ignition key cylinder.



HINT:

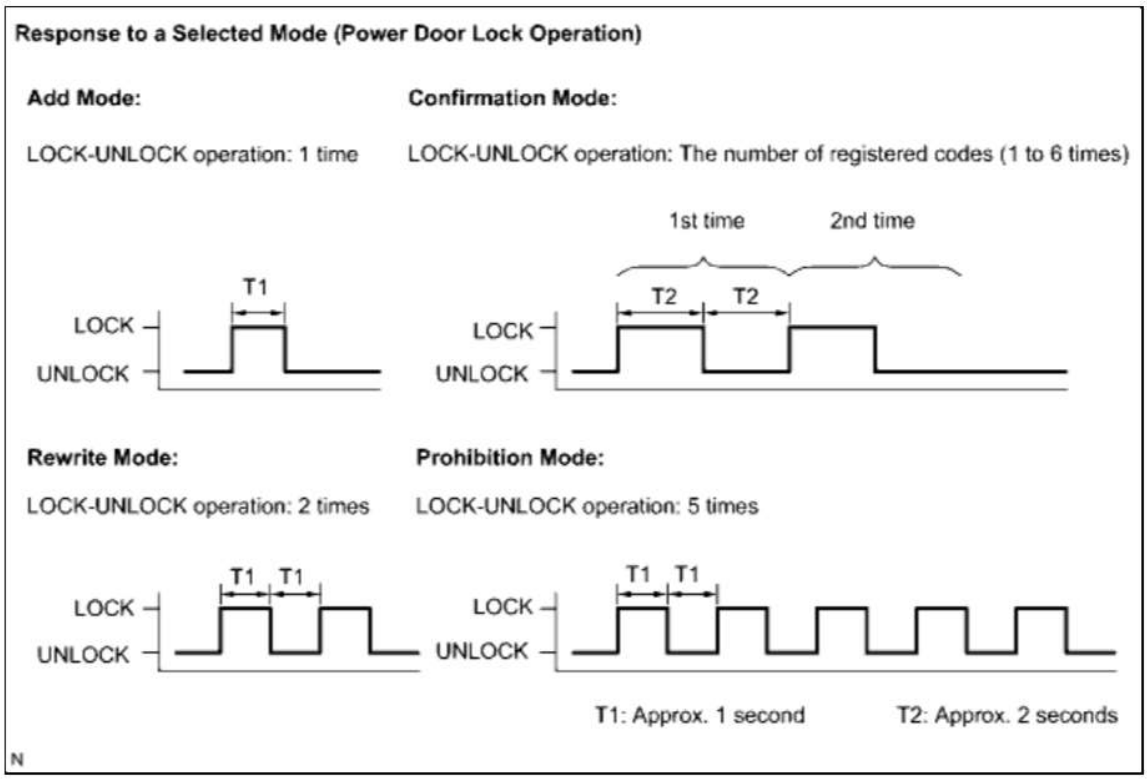
Complete this procedure within 40 seconds.

NOTICE:

If the number of the ON-LOCK operations of the ignition switch is 0, 4, 6 or more, there will be no response to inform which mode has been selected.

(5) After selecting a mode, the main body ECU automatically performs the power door LOCK- UNLOCK operation within 5 seconds to inform the selected mode (see the illustration).

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HINT:

- In confirmation mode, the LOCK- UNLOCK operation will occur once for each recognition code that has been registered. For example, if 2 recognition codes have been registered, the LOCK-UNLOCK operation will occur 2 times.
- In confirmation mode and prohibition mode, once a LOCK-UNLOCK operation response has occurred, the registration procedure will end.

(c) Register new recognition codes (Add mode or Rewrite mode):

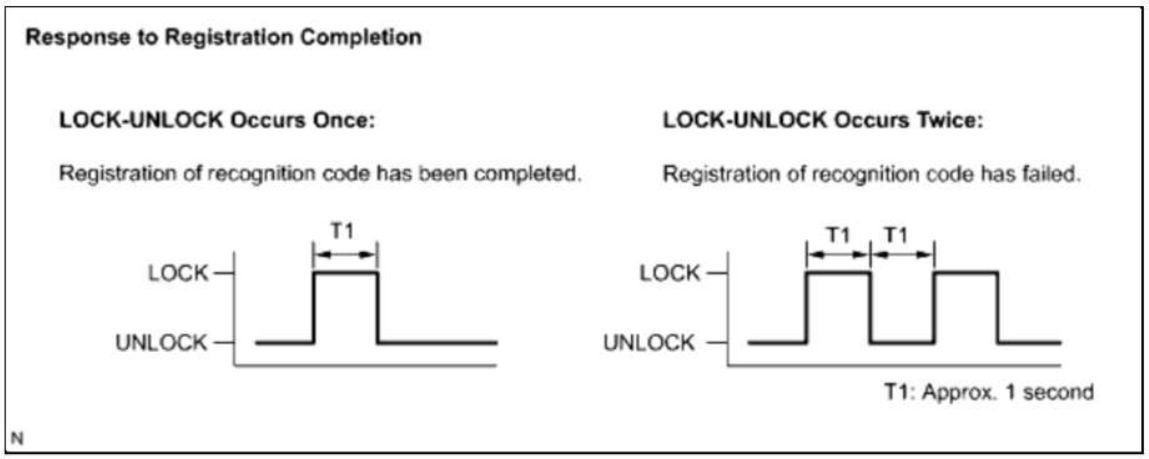
(1) Within 45 seconds after add mode or rewrite mode has been selected, press the LOCK and UNLOCK switches on the transmitter switch simultaneously for 1.0 to 1.5 seconds.

Then, press either one of the switches for more than 1.0 second (Procedure "A").

(2) Within 5 seconds after the transmitter switch has been released, the LOCK-UNLOCK operation will be automatically performed once if the registration of the recognition code of the transmitter is completed correctly.

If the LOCK-UNLOCK operation is performed twice, registration of the recognition code has failed. Perform the registration procedure from the beginning (Procedure "B").

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(3) If multiple transmitters need to be registered, repeat procedures "A" and "B" within 45 seconds each.

HINT:

- Up to 6 recognition codes can be registered at once.
- If even one of the following conditions is satisfied, registration mode will end.
  - 40 seconds have elapsed after a recognition code has been registered.
  - Any of the doors are opened.
  - The key is inserted into the ignition key cylinder.
  - 6 recognition codes are registered.

23. REGISTRATION OF RECOGNITION CODE (USING TECHSTREAM) (Wireless door lock control system (w/o Smart Key System))

HINT:

- Register a new recognition code when replacing the door control transmitter or the door control receiver.
- Add mode is used to retain the already registered codes while registering a new recognition code. This mode is used when adding a transmitter. If the number of registered codes exceeds 6, the previously registered code will be correspondingly erased in order, starting from the code registered first.
- Rewrite mode is used to erase all the previously registered codes and register only new recognition codes. This mode is used when exchanging the transmitter or the door control receiver for new one.
- Confirmation mode is used to confirm how many recognition codes have already been registered before an additional registration of a recognition code.
- Prohibition mode is used to erase all the registered codes and cancel the wireless door lock function. Use this mode when the transmitter is lost.
- All of the steps in the following registration procedure must be performed in sequential order continuously.

(a) Turn the ignition switch to ON.

(b) Select either add or rewrite mode according to the Techstream display.

(c) The number of registered codes is indicated.

(d) Registration of the door control transmitter.

(1) If either add mode or rewrite mode has been selected, press the LOCK and UNLOCK switches on the transmitter simultaneously.

(2) Within 3 seconds of releasing the LOCK and UNLOCK switches, press either of the switches on the door control transmitter.

NOTICE:

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- Do not press the LOCK and UNLOCK switches simultaneously for more than 1.5 seconds.
- Perform this operation within 1 meter of the driver's seat to register the transmitter.
- Do not push other transmitter switches during the transmitter registration process.

(3) The main body ECU automatically performs the power door LOCK-UNLOCK operation once in order to indicate whether registration has been completed correctly or not.

(4) If continuing registration, the next recognition code must be registered in the door control transmitter within 30 seconds.

HINT:

Up to 6 recognition codes can be registered.

(e) Completing registration mode.

(1) Registration mode will end when any of the following occurs:

- 30 seconds or more have elapsed after a code is registered.
- The Techstream is used to finish registration.
- The Techstream is disconnected.
- The ignition switch is turned off.

(f) Perform the following after registration is completed.

(1) Perform the wireless door lock control operation check INFO .

HINT:

If the wireless door lock control does not operate, perform the registration procedure again.

24. ZERO POINT CALIBRATION (Occupant Classification System)

(a) Zero point calibration procedures

(1) Check that all of the following conditions are met:

- The vehicle is parked on a flat surface.
- No objects are placed on the front passenger seat.
- The front passenger seat belt buckle switch is OFF.

(2) Adjust the seat position according to the table below.

ADJUSTMENT ITEM	POSITION
Slide Direction	Rearmost position
Reclining Angle	Upright position
Headrest Height	Lowest position
Lifter Height	Lowest position

(3) Connect the Techstream to the DLC3.

(4) Turn the ignition switch to ON.

(5) Enter the following menus: Body Electrical / Occupant Detection / Utility / Zero Point Calibration.

(6) Perform the zero point calibration by following the prompts on the Techstream screen.

HINT:

- Refer to the Techstream operator's manual for further details.
- If the zero point calibration is performed when the calibration conditions are not satisfied, DTC B1797 is

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output.

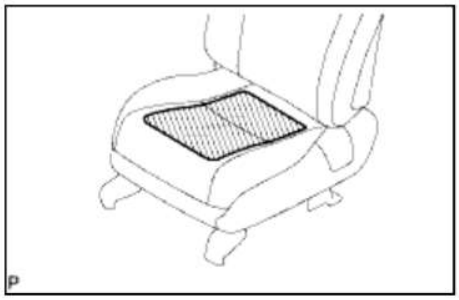
- If the zero point calibration has failed, DTC B1797 is output.
- If After Exchange is selected before the previous ECU data are stored in the Techstream, the display screen returns to CONDITION SELECT ECU: Occupant Detect.

ITEM	PROCEDURE
DTC	Perform DTC check and repair
Write error	Replace front seat cushion assembly (with occupant classification ECU and occupant classification sensor)
Temperature	Check value of THERMISTOR TEMP in ECU DATA LIST
Pressure	Check value of FILTERED PRESS in ECU DATA LIST
Crash counter	-

25. SENSITIVITY CHECK (Occupant Classification System)

(a) Sensitivity check procedures

(1) Turn the ignition switch off.



(2) Place a 20 kg (44.0 lb) weight on the front passenger seat.

NOTICE:

- Do not allow the weight to come into contact with the seatback when placing it on the seat cushion.
- Place the weight in the area shown in the illustration.

(3) Turn the ignition switch to ON, and wait for at least 6 seconds.

(4) Check that the passenger airbag ON/OFF indicator indicates OFF.

OK:

The passenger airbag ON/OFF indicator indicates OFF.

(5) Add a 30 kg (66.1 lb) weight to the front passenger seat (total 50 kg (110.2 lb)).

NOTICE:

- Do not allow the weight to come into contact with the seatback when placing it on the seat cushion.
- Place the weight in the area shown in the illustration.

(6) Check that the passenger airbag ON/OFF indicator indicates ON.

OK:

The passenger airbag ON/OFF indicator indicates ON.

26. REGISTRATION ECU DATA (Occupant Classification System)

NOTICE:

- If any DTCs related to the occupant classification ECU are output, troubleshoot those DTCs by referring to Diagnostic Trouble Code Chart.
- When ECU data saving or loading operations cannot be performed, replace the front seat cushion assembly (with occupant classification ECU and occupant classification sensor).

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HINT:

- When the occupant classification ECU is replaced, the previous ECU data must be saved in the Techstream and loaded into the new ECU by following the procedure below.
- Until the data from the previous ECU are loaded into the new occupant classification ECU, these data are not cleared even when the Techstream is turned off.
- ECU EXCHANGE PROCEDURE (Before Exchange) describes the procedure to save the data in the Techstream from the occupant classification ECU installed on the vehicle. ECU EXCHANGE PROCEDURE (After Exchange) describes the procedure to load the data from the previous ECU, stored in the Techstream, into the new ECU.

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Store the occupant classification ECU data in the Techstream by following the prompts on the Techstream screen.

HINT:

If the ECU data cannot be stored in the Techstream, replace the front seat cushion assembly (with occupant classification ECU and occupant classification sensor).

(d) Turn the ignition switch to ON.

(e) Disconnect the cable from the negative (-) battery terminal, and wait for at least 90 seconds.

(f) Replace the occupant classification ECU INFO.

(g) Connect the cable to the negative (-) battery terminal.

(h) Turn the ignition switch to ON.

(i) Load the data from the previous ECU stored in the Techstream into the newly installed ECU by following the prompts on the Techstream screen.

(j) Turn the ignition switch off.

(k) Turn the ignition switch to ON.

(l) Clear the DTCs stored in the memory INFO.

HINT:

If the DTCs are not cleared at this time, past DTCs will remain.

27. INITIALIZE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (Sliding Roof System)

NOTICE:

When removing the sliding roof drive gear sub-assembly, the sliding roof drive gear sub-assembly (sliding roof control ECU) requires initialization. If a reset is not executed, the following functions do not operate: auto operation, key off operation and jam protection function.

(a) Turn the ignition switch to ON.

(b) Make sure that the sliding roof is fully closed.

(c) Press the TILT UP switch until the sliding roof stops at the fully tilt up position. Then release the switch.

(d) Press and hold the TILT UP switch until the following movement finishes and then release the switch: approximately 10 seconds → tilt up (approximately 5 mm) → tilt down (approximately 5 mm).

(e) Within 5 seconds after finishing the previous step, press and hold the TILT UP switch until the following movement finishes and then release the switch: approximately 5 seconds → tilt down → fully closed → slide open → fully open → slide close → fully closed.

(f) Finish the initialization.

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(g) Check that the AUTO operation works normally.

NOTICE:

If the following conditions occur during initialization procedure, initialization will fail:

- One of the following electric loads is given to the vehicle during the initialization: Cranking the engine, Power window operation, Rear defogger operation, Blower operation, Power seat operation, Power door lock operation or Headlight illumination.
- The ignition switch is turned off.
- Another switch is turned on during initialization.
- The vehicle experiences a strong vibration during initialization, such as slamming of a door.

HINT:

- If the sliding roof cannot be fully closed or its position has become misaligned, perform initialization again.
- If the roof glass stops moving or starts moving in the opposite direction while the CLOSE/UP switch is held down, continue to hold the switch for another 10 seconds or more to return the sliding roof control ECU to an uninitialized condition. Then perform the initialization procedure again.
- If the AUTO operation function and jam protection function do not operate after the drive gear has been reset, replace the sliding roof drive gear sub-assembly (sliding roof control ECU).

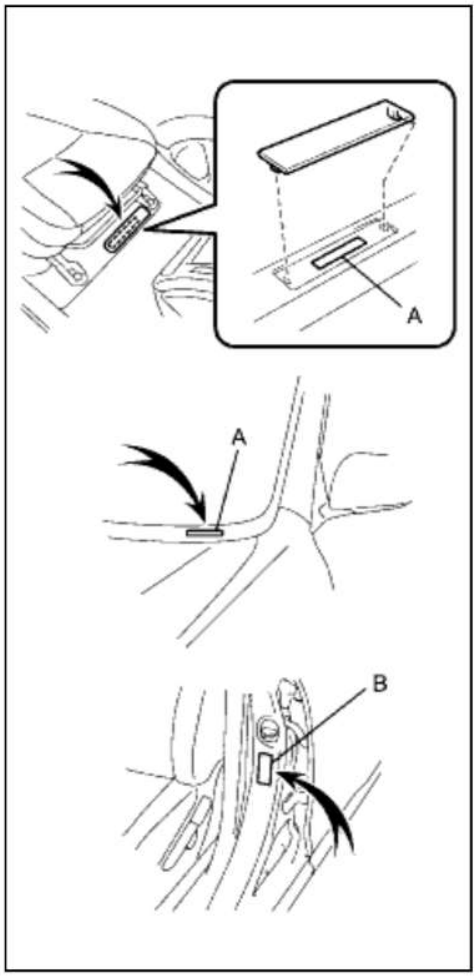


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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UYW07QX
Title: INTRODUCTION: IDENTIFICATION INFORMATION: VEHICLE IDENTIFICATION AND SERIAL NUMBERS (2010 Corolla)		

VEHICLE IDENTIFICATION AND SERIAL NUMBERS

1. VEHICLE IDENTIFICATION NUMBER



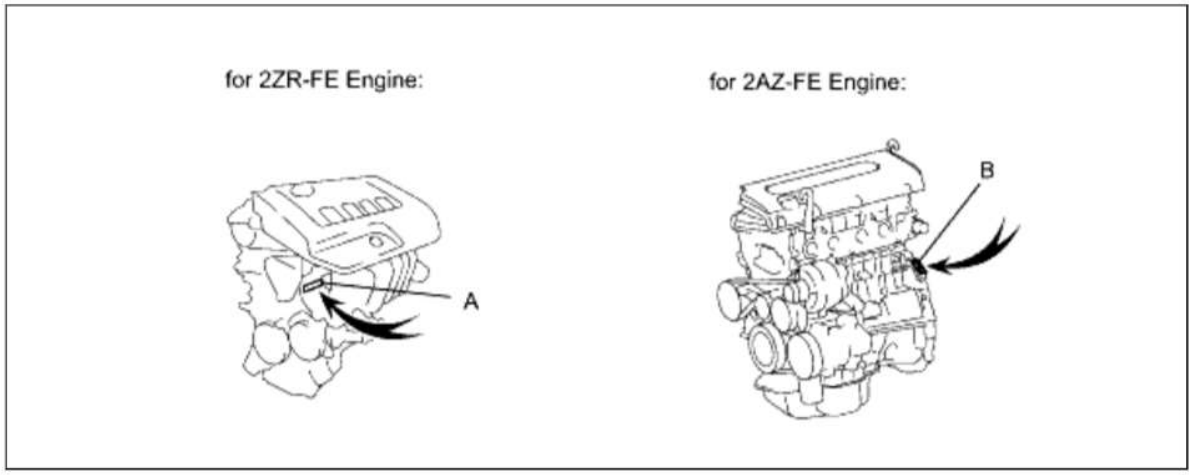
(a) The vehicle identification number is stamped on the vehicle body and on the certification label, as shown in the illustration.

A:
Vehicle Identification Number
B:
Certification Label

2. ENGINE SERIAL NUMBER AND TRANSAXLE SERIAL NUMBER

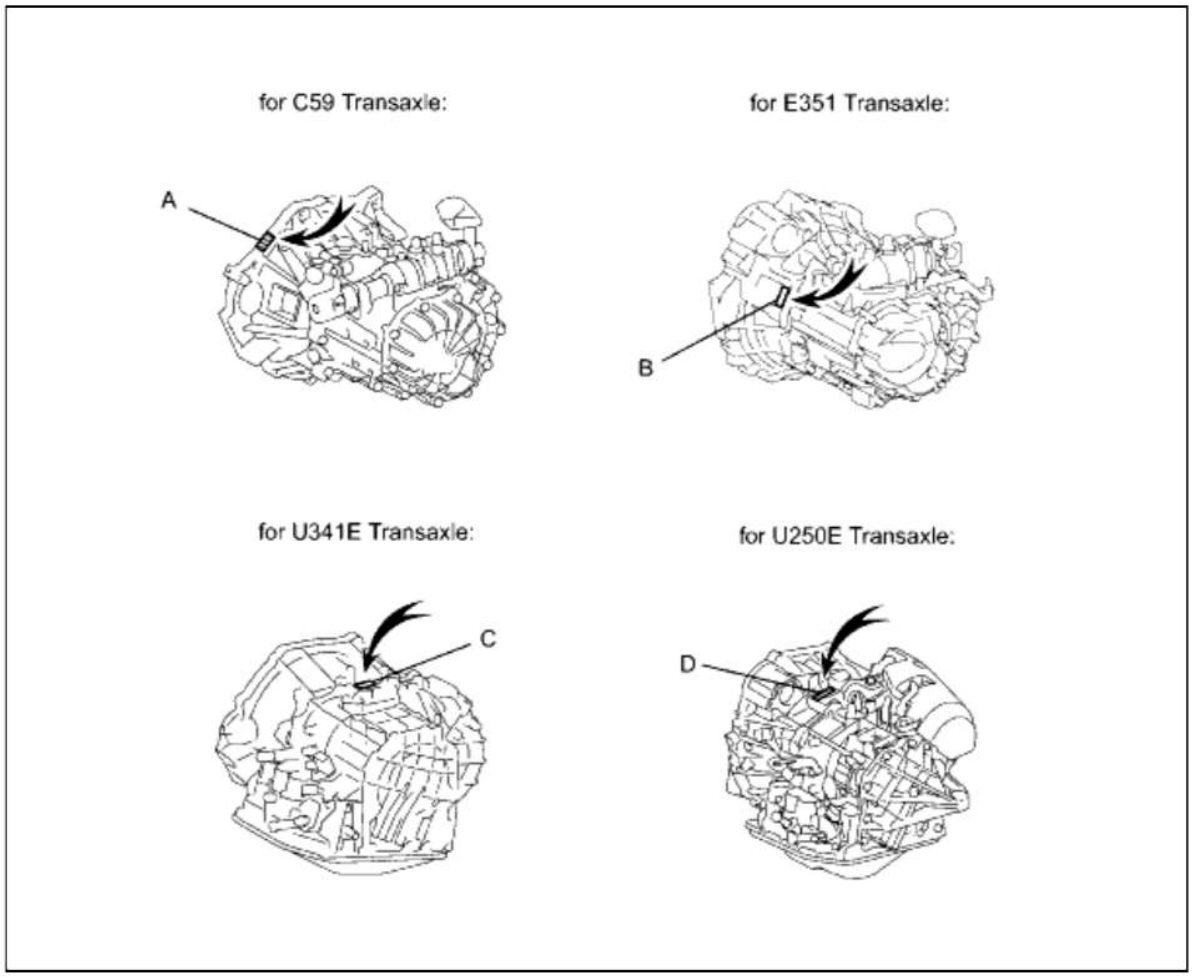
(a) The engine serial number is stamped on the cylinder block of the engine as shown in the illustration.

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A:
2ZR-FE Engine Serial Number
B:
2AZ-FE Engine Serial Number

(b) The transaxle serial number is stamped on the case as shown in the illustration.



A:
C59 Transaxle Serial Number
B:

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E351 Transaxle Serial Number

C:

U341E Transaxle Serial Number

D:

U250E Transaxle Serial Number



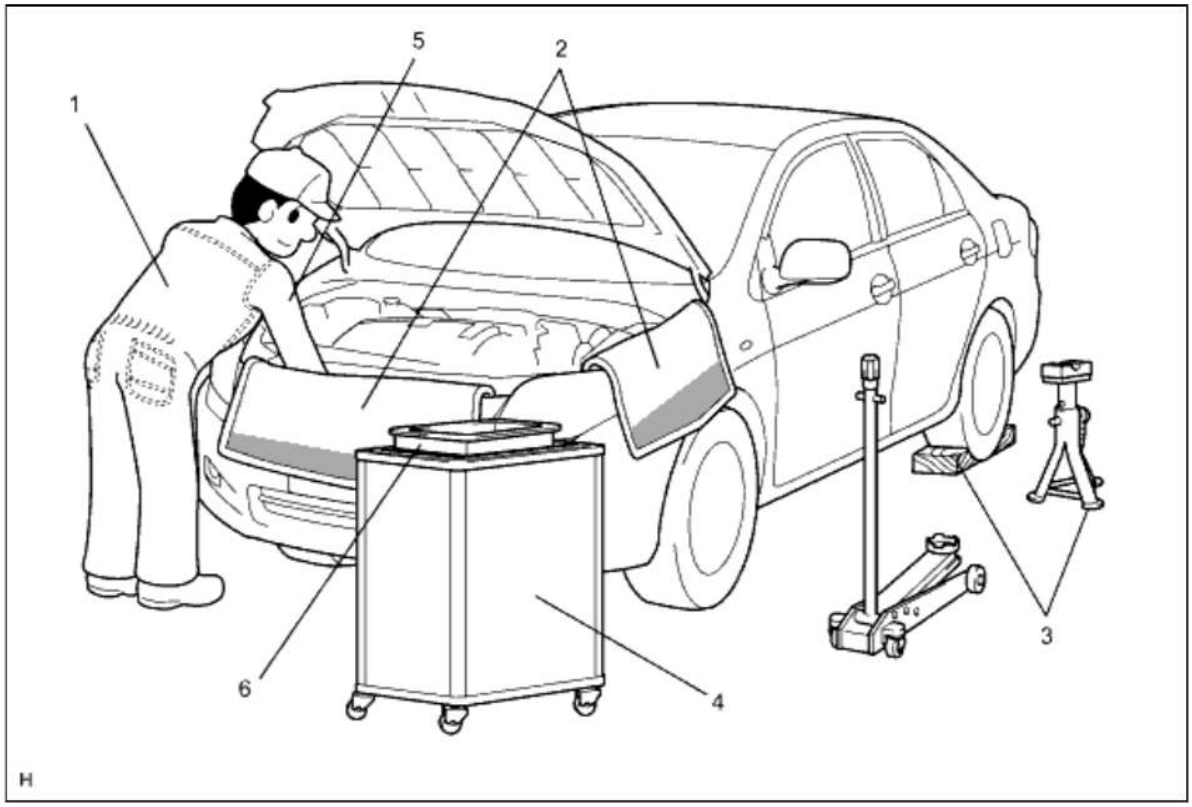
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Last Modified: 3-10-2010	6.4 L	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UYX07JX
Title: INTRODUCTION: REPAIR INSTRUCTION: PRECAUTION (2010 Corolla)		

PRECAUTION

1. BASIC REPAIR HINT

(a) HINTS ON OPERATIONS



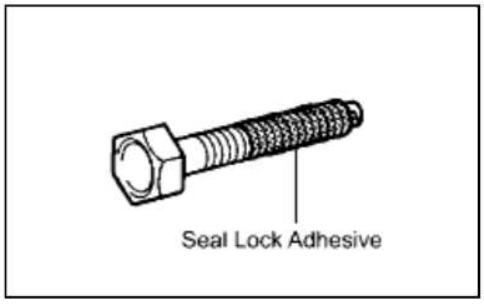
1	Attire	• Always wear a clean uniform. • Hat and safety shoes must be worn.
2	Vehicle protection	Prepare a grille cover, fender cover, seat cover and floor mat before starting an operation.
3	Safety procedure	• When working with 2 or more persons, be sure to check the safety of one another. • When working with the engine running, make sure to provide ventilation for exhaust fumes in the workshop. • If working on high temperature, high pressure, rotating, moving, or vibrating parts, wear appropriate safety equipment and take extra care not to injure yourself or others.

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		• When jacking up the vehicle, be sure to support the specified location with a safety stand. • When lifting up the vehicle, use appropriate safety equipment.
4	Preparation of tools and measuring equipment	Before starting an operation, prepare a tool stand, SST, measuring equipment, oil, and any replacement parts required.
5	Removal and installation, disassembly and assembly operations	• Diagnose with a thorough understanding of proper procedures and of the reported problem. • Before removing any parts, check the general condition of the assembly and for deformation and damage. • If the procedure is complicated, take notes. For example, note the total number of electrical connections, bolts, or hoses removed. Add matchmarks to ensure reassembly of components in the original positions. Temporarily mark hoses and their fittings if needed. • Clean and wash the removed parts if necessary and assemble them after a thorough check.
6	Removed parts	• Place the removed parts in a separate box to avoid mixing them up with the new parts or contaminating the new parts. • For non-reusable parts such as gaskets, O-rings, and self-locking nuts, replace them with new ones as instructed in this manual. • Retain the removed parts for customer inspection, if requested.

(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.



(c) PRECOATED PARTS

(1) Precoated parts are bolts and nuts that are coated with a seal lock adhesive at the factory.

(2) If a precoated part is retightened, loosened or moved in any way, it must be recoated with the specified adhesive.

(3) When reusing a precoated part, clean off the old adhesive and dry the part with compressed air. Then apply new seal lock adhesive appropriately to that part.

(4) Some seal lock agents harden slowly. You may have to wait for the seal lock adhesive to harden.

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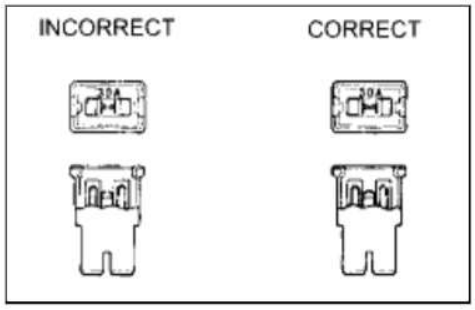
(d) GASKETS

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

(e) BOLTS, NUTS AND SCREWS

(1) Carefully follow all the specifications for tightening torques. Always use a torque wrench.

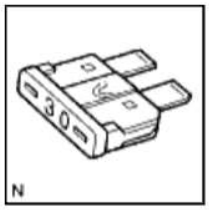
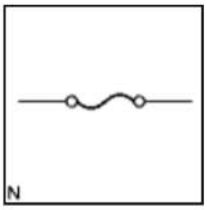
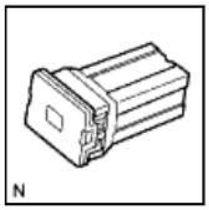
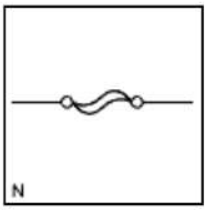
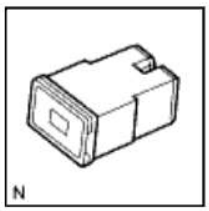
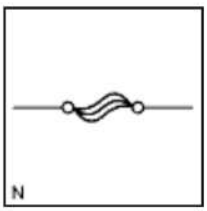
(f) FUSES



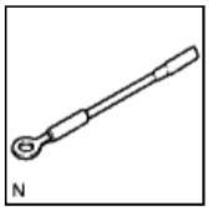
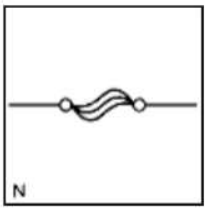
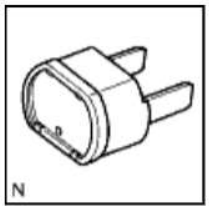
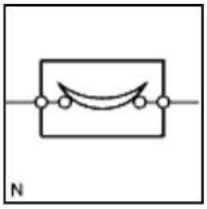
(1) When inspecting a fuse, check that the wire of the fuse is not broken.

(2) If the wire of a fuse is broken, confirm that there are no shorts in its circuit.

(3) When a fuse is replaced, a fuse with the same amperage rating must be used.

ILLUSTRATION	SYMBOL	PART NAME	ABBREVIATION
		FUSE	FUSE
		MEDIUM CURRENT FUSE	M-FUSE
		HIGH CURRENT FUSE	H-FUSE
		FUSIBLE LINK	FL

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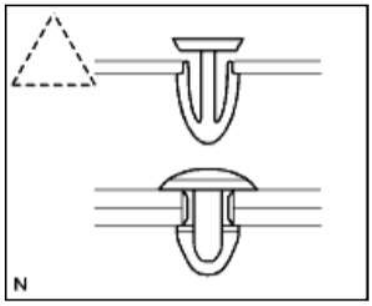
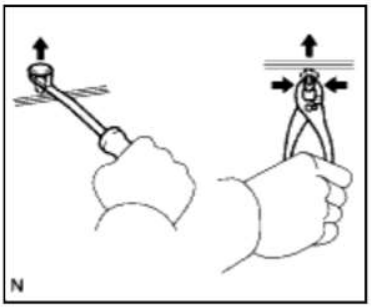
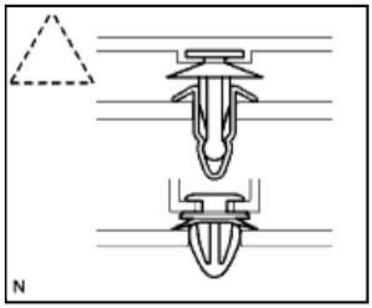
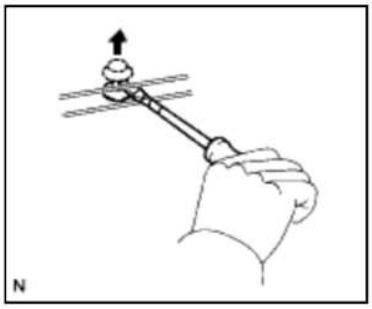
ILLUSTRATION	SYMBOL	PART NAME	ABBREVIATION
			
		CIRCUIT BREAKER	CB

(g) CLIPS

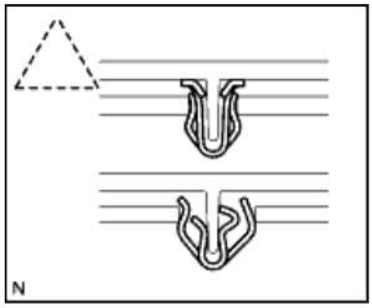
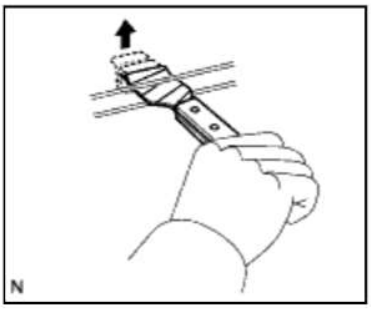
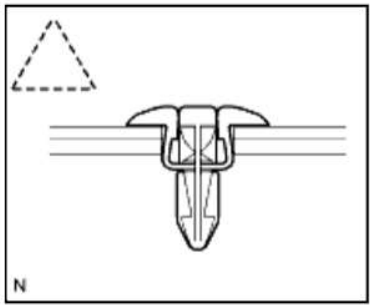
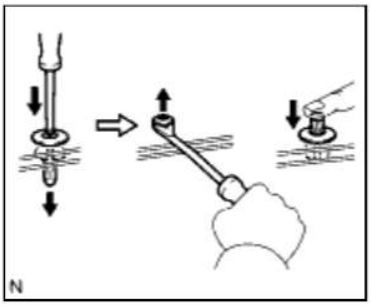
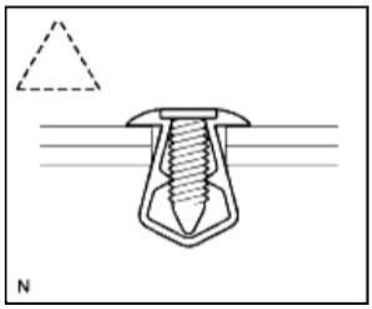
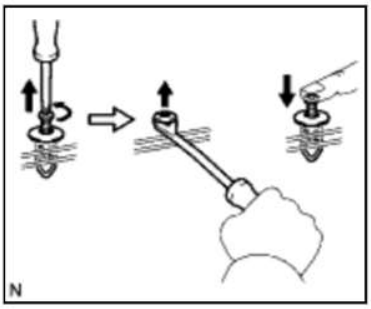
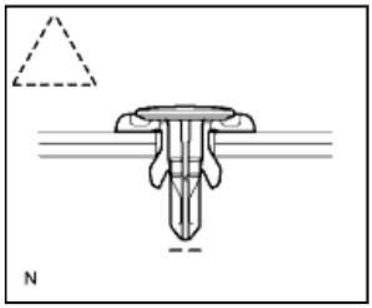
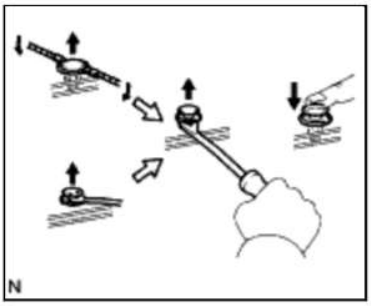
(1) The removal and installation methods of typical clips used for vehicle body parts are shown in the table below.

HINT:

If clips are damaged during a procedure, always replace the damaged clips with new ones.

SHAPE (EXAMPLE)	REMOVAL/INSTALLATION
	 Remove the clips with a clip remover or pliers.
	 Remove the clips with a clip remover or screwdriver.

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SHAPE (EXAMPLE)	REMOVAL/INSTALLATION
	 Remove the clips with a wide scraper to prevent panel damage.
	 Remove the clips by pushing the center pin through and prying out the shell.
	 Remove the clips by unscrewing the center pin and prying out the shell.
	 Remove the clips by prying out the pin and then prying out the shell.

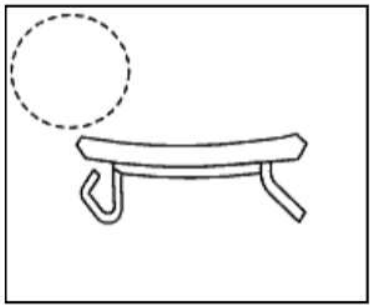
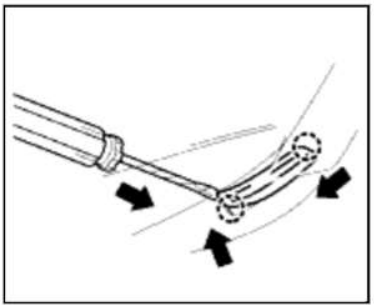
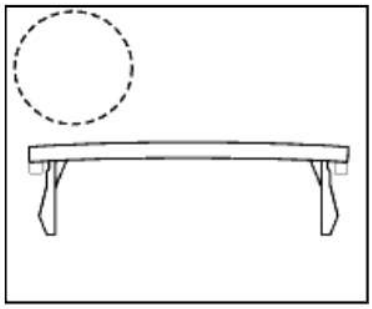
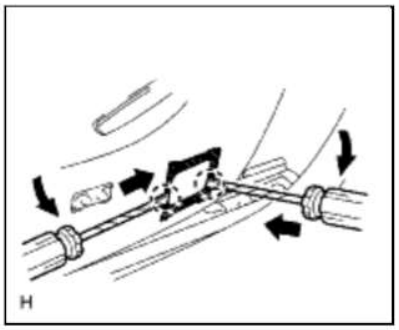
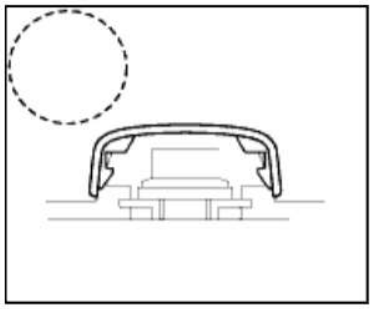
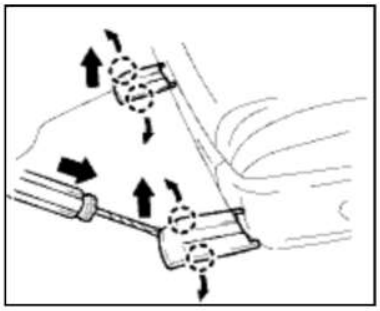
(h) CLAWS

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

HINT:

If claws are damaged during a procedure, always replace the cap or cover that has damaged claws with a new one.

SHAPE (EXAMPLE)	ILLUSTRATION	PROCEDURE
		Using a screwdriver, disengage the claws and remove the cap or cover.
		Using a screwdriver, disengage the claws and remove the cap or cover.
		Using a screwdriver, detach the claws and remove the cap or cover.

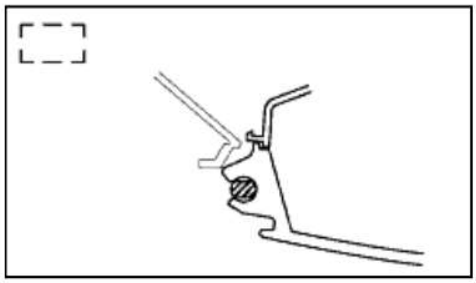
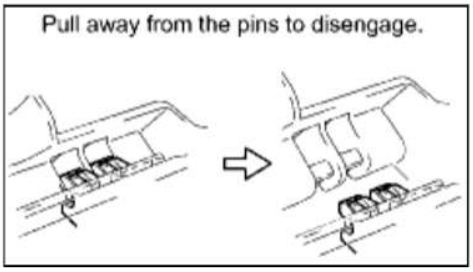
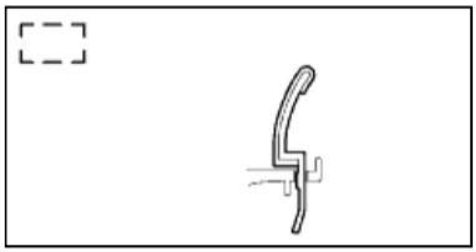
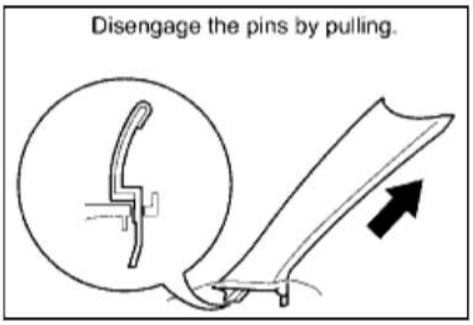
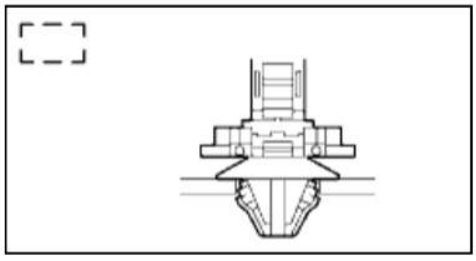
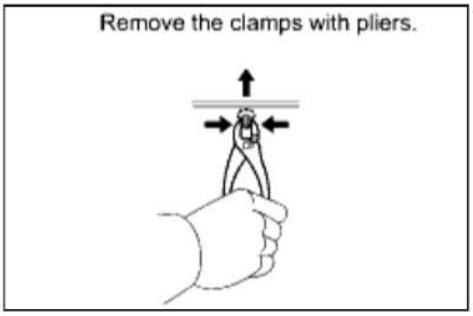
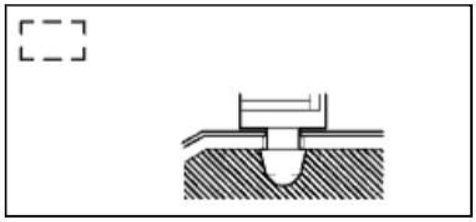
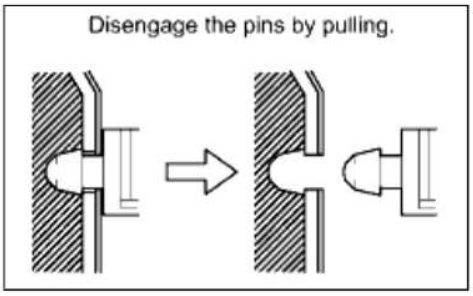
(i) HINGES, GUIDES, CLAMPS, PINS, ETC.

(1) The removal and installation methods of typical hinges, guides, clamps and pins used for vehicle body parts are shown in the table below.

HINT:

If clamps are damaged during a procedure, always replace the cap or cover that has damaged clamps with a new one.

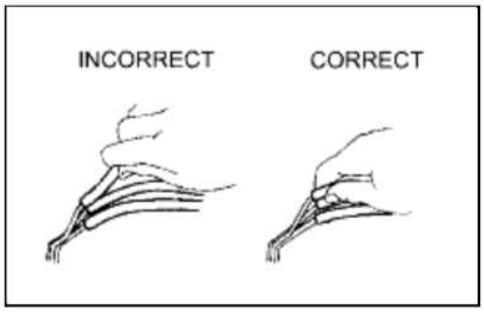
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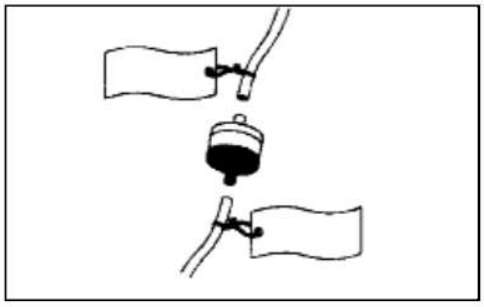
SHAPE (EXAMPLE)	REMOVAL/INSTALLATION
	
	
	
	

(j) REMOVAL AND INSTALLATION OF VACUUM HOSES

(1) To disconnect a vacuum hose, pull and twist from the end of the hose. Do not pull from the middle of the hose as this may damage the hose.

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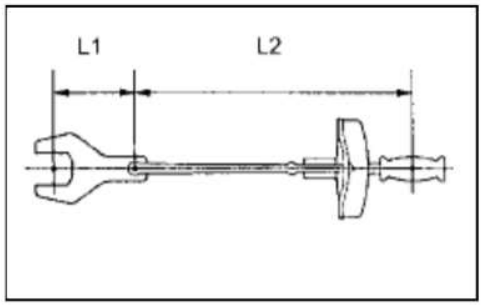


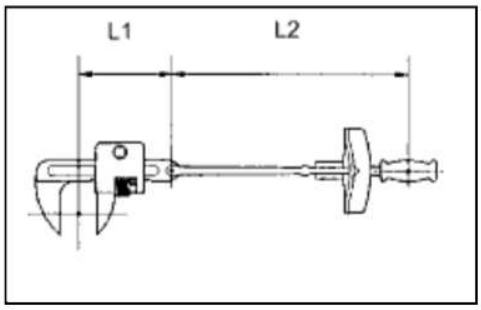
(2) When disconnecting vacuum hoses, use tags to identify where they should be reconnected.

(3) After completing any hose related repairs, 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. If a hose has been stretched, air may leak. Use a step-down adapter if necessary.

(k) TORQUE WHEN USING TORQUE WRENCH WITH EXTENSION TOOL





(1) Use the formula below to calculate special torque values for situations where SST or an extension tool is combined with the torque wrench.

Formula

$$T' = (L2/(L1 + L2))^{2*}T$$

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 (in.)}

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L2	Length of torque wrench {cm (in.)}

NOTICE:

If an extension tool or SST is combined with a torque wrench and used to tighten to a torque specification in this manual, the actual torque will be excessive and parts will be damaged.

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

This vehicle is equipped with a Supplemental Restraint System (SRS).

CAUTION:

- Before performing pre-disposal deployment of any SRS component, review and closely follow all applicable environmental and hazardous material regulations. Pre-disposal deployment may be considered hazardous material treatment.
- Failure to carry out the service operations in the correct sequence could cause the SRS to unexpectedly deploy during servicing and lead to serious injury. Furthermore, if a mistake is made when servicing the SRS, it is possible that the SRS may fail to operate properly. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the following section carefully.

(a) GENERAL NOTICE

(1) As malfunctions of the SRS are difficult to confirm, the Diagnostic Trouble Codes (DTCs) become the most important source of information when troubleshooting. When troubleshooting the SRS, always check for DTCs before disconnecting the battery.

(2) Work must be started at least 90 seconds after the ignition switch is turned off and after the cable is disconnected from the negative (-) battery terminal.

The SRS is equipped with a back-up power source. If work is started within 90 seconds after turning the ignition switch off and disconnecting the cable from the negative (-) battery terminal, the SRS may deploy.

When the cable is disconnected from the negative (-) battery terminal, the clock and audio system memory is erased. Before starting work, make a note of the settings of each memory system. When work is finished, reset the clock and audio system as before.

CAUTION:

Never use a back-up power source (battery or other) to avoid erasing the system memory. The back-up power source may inadvertently power the SRS and cause it to deploy.

(3) If the vehicle has been involved in a minor collision where the SRS does not deploy, the steering pad, front passenger airbag assembly, front seat side airbag assembly, curtain shield airbag assembly and front seat outer belt assembly should be inspected before further use of the vehicle.

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

(5) Before repairs, remove the airbag sensor assemblies if impacts are likely to be applied to the sensor during repairs.

(6) Never disassemble and attempt to repair any airbag sensor assemblies or airbag assemblies.

1. Steering pad
2. Front passenger airbag assembly
3. Front seat side airbag assembly
4. Curtain shield airbag assembly

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5. Front seat outer belt assembly

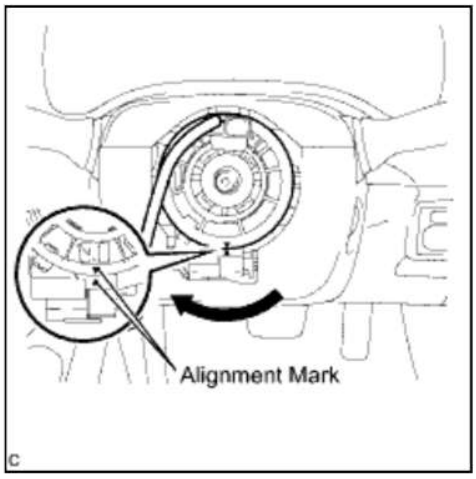
(7) Replace the airbag sensor assemblies and the airbag assemblies if: 1) damage has occurred from being dropped, or 2) cracks, dents or other defects in the case, bracket or connector are present.

(8) Do not directly expose the airbag sensor assemblies or airbag assemblies to hot air or flames.

(9) Use a voltmeter/ohmmeter with high impedance (minimum = 10 kΩ) for troubleshooting electrical circuits.

(10) Information labels are attached to the SRS components. Follow the instructions on the labels.

(11) After work on the SRS is completed, check the SRS warning light.

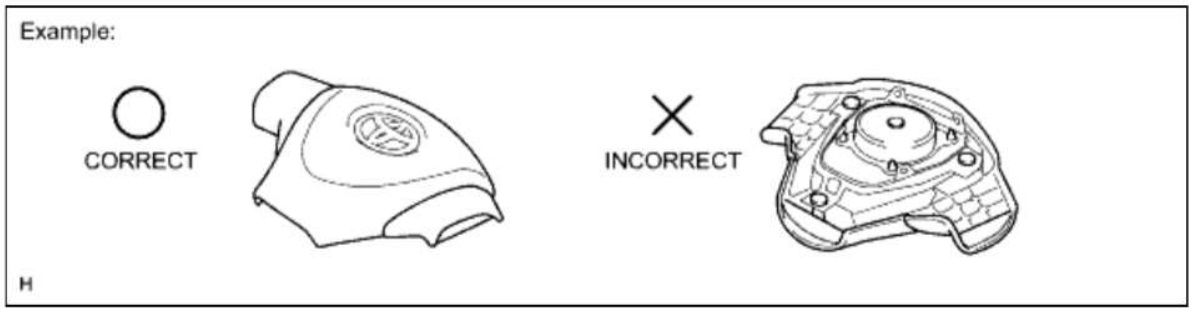


(b) SPIRAL CABLE

(1) The steering wheel must be fitted correctly to the steering column with the spiral cable at the neutral position, as otherwise cable disconnection and other problems may occur. Refer to the information about correct installation of the steering wheel INFO .

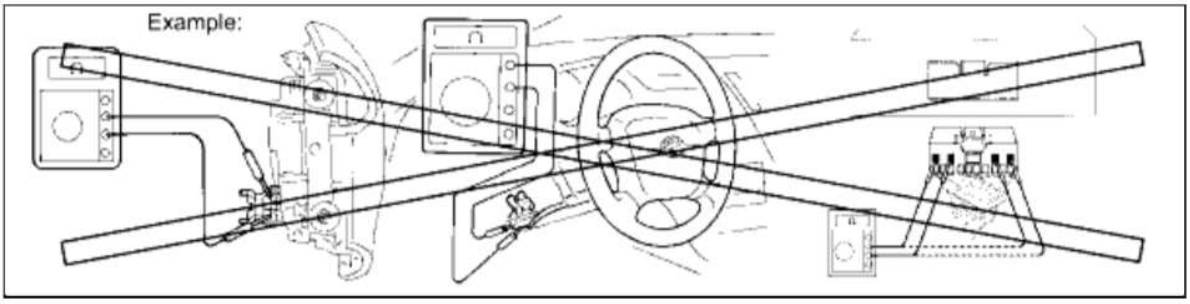
(c) STEERING PAD

(1) Always place a removed or new steering pad surface upward as shown in the illustration. Placing the steering pad with the pad surface facing down could cause a serious accident if the airbag deploys. Also, do not place anything on top of the steering pad.



(2) Never measure the resistance of the airbag squib. This may cause the airbag to deploy, which could cause serious injury.

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(3) Grease or detergents of any kind should not be applied to the steering pad.

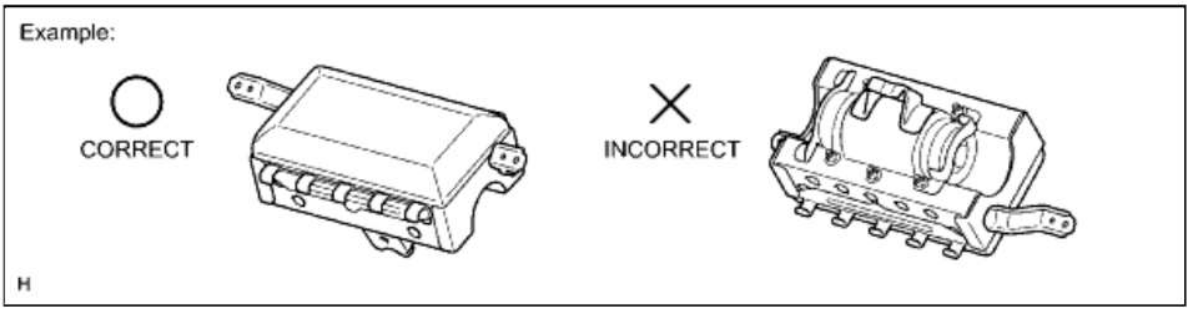
(4) Store the steering pad in an area where the ambient temperature is below 93°C (200°F), the humidity is not high and there is no electrical noise.

(5) Before using an electric welder anywhere on the vehicle, disconnect the center airbag sensor assembly connectors. These connectors contain shorting springs. This feature reduces the possibility of the airbag deploying due to current entering the squib wiring.

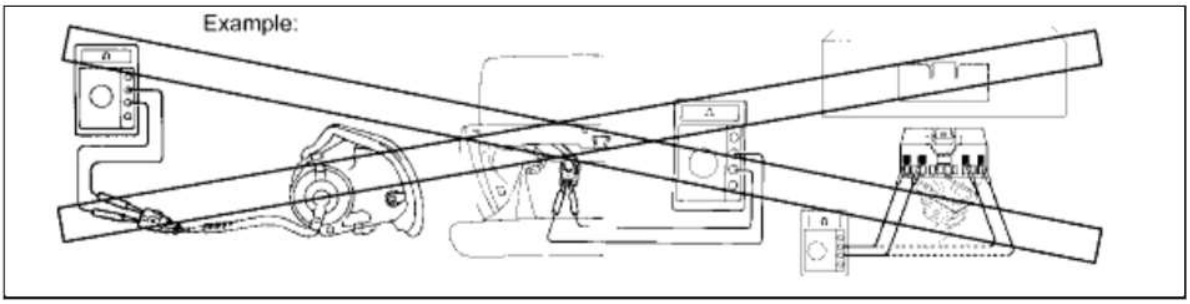
(6) When disposing of the vehicle or the steering pad by itself, the airbag should be deployed using SST before disposal INFO . Deploy the airbag in a safe place away from electrical noise.

(d) FRONT PASSENGER AIRBAG ASSEMBLY

(1) Always place a removed or new front passenger airbag assembly with the pad surface facing upward as shown in the illustration. Placing the airbag assembly with the airbag deployment direction facing downword could cause a serious accident if the airbag deploys.



(2) Never measure the resistance of the airbag squib. This may cause the airbag to deploy, which could cause serious injury.



(3) Grease or detergents of any kind should not be applied to the front passenger airbag assembly.

(4) Store the airbag assembly in an area where the ambient temperature is below 93°C (200°F), the humidity is not high and there is no electrical noise.

(5) Before using an electric welder anywhere on the vehicle, disconnect the center airbag sensor

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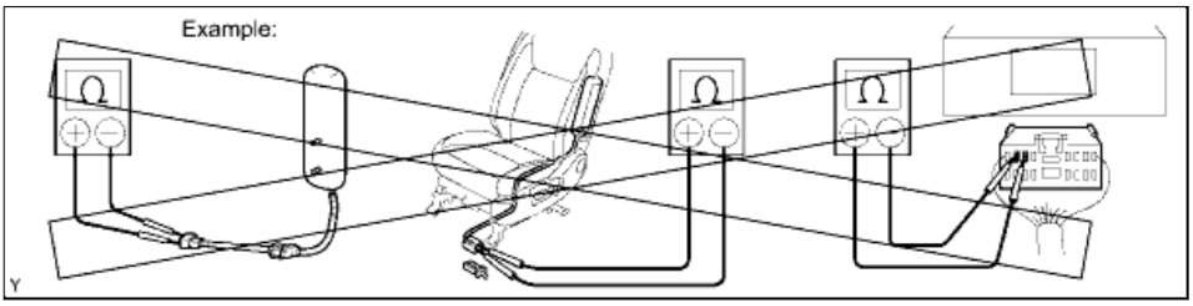
assembly connectors. These connectors contain shorting springs. This feature reduces the possibility of the airbag deploying due to current entering the squib wiring.

(6) When disposing of the vehicle or the airbag assembly unit by itself, the airbag should be deployed using SST before disposal INFO. Deploy the airbag in a safe place away from electrical noise.

(e) FRONT SEAT SIDE AIRBAG ASSEMBLY

(1) Always place a removed or new front seat side airbag assembly with the airbag deployment direction facing upword.

(2) Never measure the resistance of the airbag squib. This may cause the airbag to deploy, which could cause serious injury.



(3) Grease or detergents of any kind should not be applied to the front seat side airbag assembly.

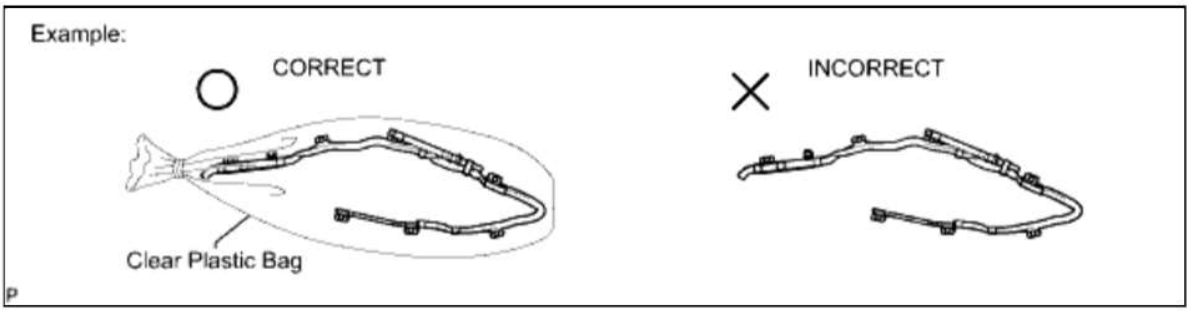
(4) Store the airbag assembly in an area where the ambient temperature is below 93°C (200°F), the humidity is not high and there is no electrical noise.

(5) Before using an electric welder anywhere on the vehicle, disconnect the center airbag sensor assembly connectors. These connectors contain shorting springs. This feature reduces the possibility of the airbag deploying due to current entering the squib wiring.

(6) When disposing of a vehicle or the airbag assembly unit by itself, the airbag should be deployed using SST before disposal INFO. Deploy the airbag in a safe place away from electrical noise.

(f) CURTAIN SHIELD AIRBAG ASSEMBLY

(1) Always place a removed or new curtain shield airbag assembly in a clear plastic bag, and keep it in a safe place.



CAUTION:

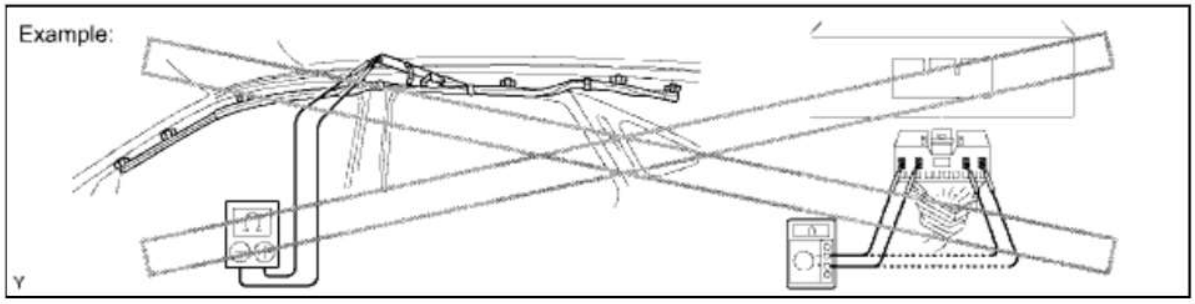
The plastic bag should be disposed of after use.

NOTICE:

Never disassemble the curtain shield airbag assembly.

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(2) Never measure the resistance of the airbag squib. This may cause the airbag to deploy, which could cause serious injury.



(3) Grease or detergents of any kind should not be applied to the curtain shield airbag assembly.

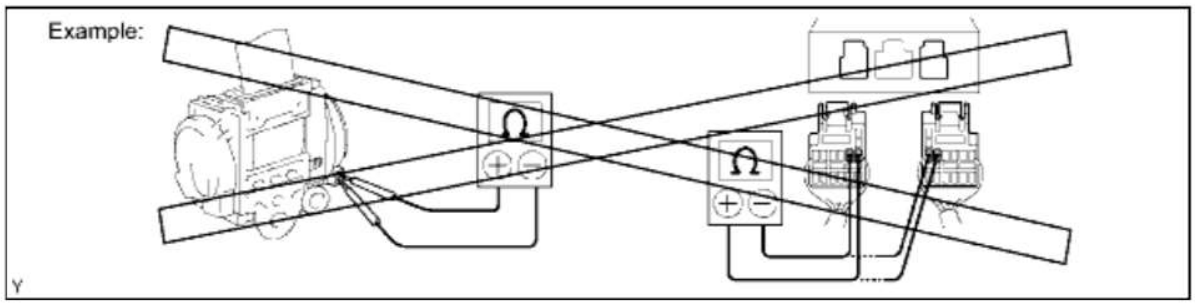
(4) Store the airbag assembly in an area where the ambient temperature is below 93°C (200°F), the humidity is not high and there is no electrical noise.

(5) Before using an electric welder anywhere on the vehicle, disconnect the center airbag sensor assembly connectors. These connectors contain shorting springs. This feature reduces the possibility of the airbag deploying due to current entering the squib wiring.

(6) When disposing of a vehicle or the airbag assembly unit by itself, the airbag should be deployed using SST before disposal INFO . Deploy the airbag in a safe place away from electrical noise.

(g) FRONT SEAT OUTER BELT ASSEMBLY (SEAT BELT PRETENSIONER)

(1) Never measure the resistance of the front seat outer belt assembly. This may cause the pretensioner of the front seat outer belt assembly to activate, which could cause serious injury.



(2) Never disassemble the front seat outer belt assembly.

(3) Never install the front seat outer belt assembly on another vehicle.

(4) Store the front seat outer belt assembly in an area where the ambient temperature is below 80°C (176°F), the humidity is not high and there is no electrical noise.

(5) Before using an electric welder anywhere on the vehicle, disconnect the center airbag sensor assembly connectors. These connectors contain shorting springs. This feature reduces the possibility of the airbag deploying due to current entering the squib wiring.

(6) When disposing of a vehicle or the front seat outer belt assembly unit by itself, the front seat outer belt assembly should be activated before disposal INFO . Activate the front seat outer belt assembly in a safe place away from electrical noise.

(7) As the front seat outer belt assembly is hot after being activated, allow some time for it to cool down sufficiently before disposal. Never apply water to cool down the front seat outer belt

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assembly.

(8) Grease, detergents, oil or water should not be applied to the front seat outer belt assembly.

(h) CENTER AIRBAG SENSOR ASSEMBLY

(1) Never reuse a center airbag sensor assembly that has been involved in a collision where the SRS has deployed.

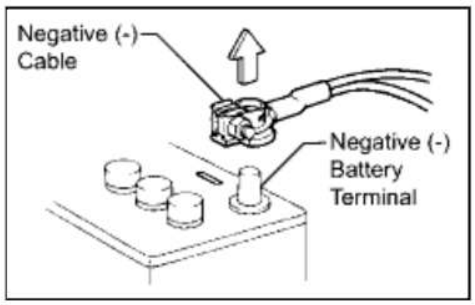
(2) The connectors to the center airbag sensor assembly should be connected or disconnected with the sensor installed to the vehicle. If the connectors are connected or disconnected while the center airbag sensor assembly is not installed, the SRS may activate.

(3) Work must be started at least 90 seconds after the ignition switch is turned off and the cable is disconnected from the negative (-) battery terminal, even if only loosening the bolts of the center airbag sensor assembly.

(i) WIRE HARNESS AND CONNECTOR

(1) All the connectors in the system are a standard yellow color. If an SRS wire harness has an open circuit or a connector is broken, replace it.

3. ELECTRONIC CONTROL

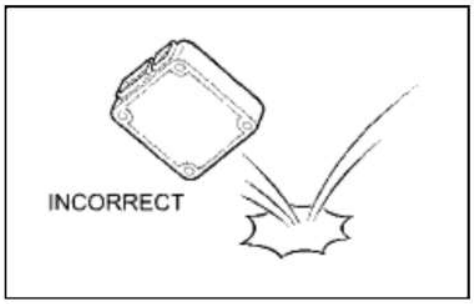


(a) REMOVAL AND INSTALLATION OF BATTERY TERMINAL

(1) Before performing electrical work, disconnect the cable from the negative (-) battery terminal to prevent component and wire damage caused by accidental short circuits.

(2) When disconnecting the cable, turn the ignition switch and headlight switch off and loosen the cable nut completely. Perform these operations without twisting or prying the cable. Then disconnect the cable.

(3) Clock settings, radio settings, audio system memory, DTCs and other data are erased when the cable is disconnected from the negative (-) battery terminal. Write down any necessary data before disconnecting the cable.



(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) Do not pull the wires when disconnecting electronic connectors. Pull the connector itself.

(3) Do not drop electronic components, such as sensors or relays. If they are dropped on a hard surface, they should be replaced.

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(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 measuring the resistance between terminals of a 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 FUEL SYSTEM PARTS

(1) Work in a location with good air ventilation that does not have welders, grinders, drills, electric motors, stoves, or any other ignition sources.

(2) Never work in a pit or near a pit as vaporized fuel will collect in those places.

(b) REMOVING AND INSTALLING FUEL SYSTEM PARTS

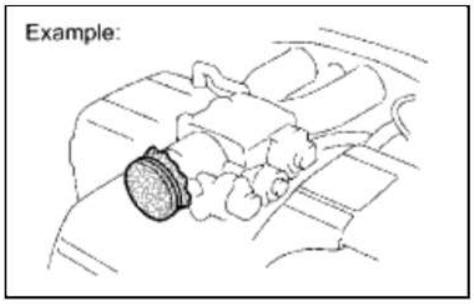
(1) Prepare a fire extinguisher before starting the operation.

(2) To prevent static electricity, install a ground wire to the fuel changer, vehicle and fuel tank, and do not spray the surrounding area with water. Be careful when performing work in this area, as the work surface will become slippery. Do not clean up gasoline spills with water, as this may cause the gasoline to spread, and possibly create a fire hazard.

(3) Avoid using electric motors, work lights and other electric equipment that can cause sparks or high temperatures.

(4) Avoid using iron hammers as they may create sparks.

(5) Dispose of fuel-contaminated cloth separately using a fire resistant container.



5. REMOVAL AND INSTALLATION OF ENGINE INTAKE PARTS

(a) If any metal particles enter intake system parts, this may damage the engine.

(b) When removing and installing intake system parts, cover the openings of the removed parts and engine openings. Use adhesive tape or other suitable materials.

(c) When installing intake system parts, check that no metal particles have entered the engine or installed parts.

6. HANDLING OF HOSE CLAMPS

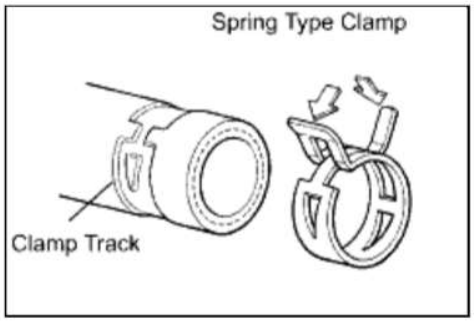
(a) Before removing a hose, check the clamp position so that it can be reinstalled in the same position.

(b) Replace any deformed or dented clamps with new ones.

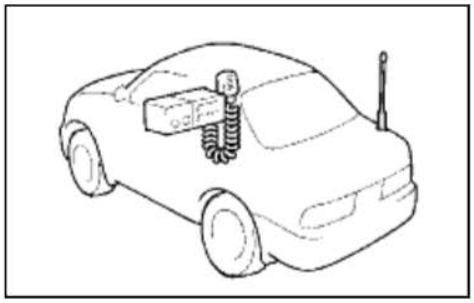
(c) When reusing a hose, attach the clamp on the clamp track portion of the hose.

(d) For a spring type clamp, you may want to spread the tabs slightly after installation by pushing in the direction of the

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arrows as shown in the illustration.



7. FOR VEHICLES EQUIPPED WITH MOBILE COMMUNICATION SYSTEMS

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

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

(c) Keep the antenna and feeder separate from other wirings as much as possible. This will prevent signals sent from the communication equipment from affecting vehicle equipment and vice-versa.

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

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

8. FOR VEHICLES EQUIPPED WITH TRACTION CONTROL (TRAC) AND VEHICLE STABILITY CONTROL (VSC) SYSTEMS

When testing with a 2-wheel drum tester such as a speedometer tester, a combination speedometer and brake tester, or a chassis dynamometer, or when jacking up the front wheels and turning the wheels, perform the following procedure to enter inspection mode and disable the TRAC and VSC systems.

HINT:

- The vehicle may slip unexpectedly out of the dynamometer because of TRAC and VSC operations.
- Pressing the VSC OFF switch (for vehicles with the VSC OFF switch) does not disable TRAC and VSC operation completely.

NOTICE:

- Make sure that the VSC warning light is blinking.
- Secure the vehicle with chains for safety.

(a) Activating inspection mode (Not using the Techstream)

HINT:

- Perform steps "D" to "H" within 30 seconds.
- Perform steps "F" and "G" within 15 seconds each.

(1) Ensure that the ignition switch is off and the engine is stopped. (Step "A")

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(2) Make sure that the shift lever is in P. (Step "B")

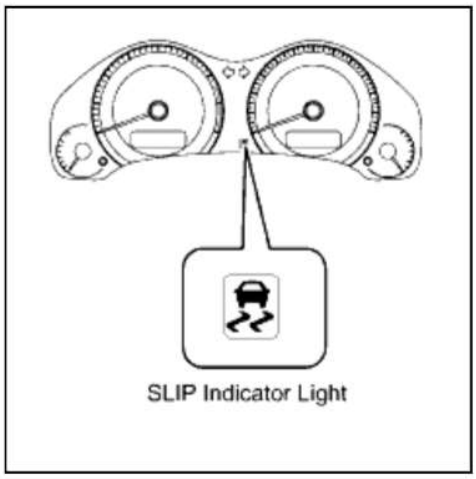
(3) Start the engine. (Step "C")

(4) Apply the parking brake by pulling the parking brake lever. (Step "D")

(5) Depress and release the brake pedal twice. (Step "E")

(6) While holding the brake pedal down, release and apply the parking brake twice. (Step "F")

(7) With the parking brake applied, depress and release the brake pedal twice. (Step "G")



(8) Check if the SLIP indicator light comes on. (Step "H")

HINT:

- If the SLIP indicator light does not come on in step "H", repeat the steps from "A" to "H".
- Turning the ignition switch off ends inspection mode.

(b) Activating inspection mode (Using the Techstream)

(1) Ensure that the ignition switch is off and the engine is stopped. (Step "A")

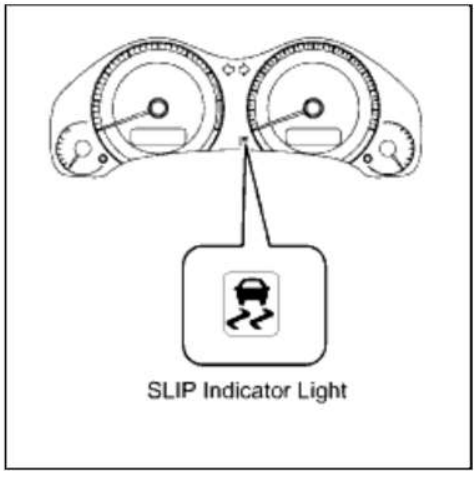
(2) Make sure that the shift lever is in P. (Step "B")

(3) Connect the Techstream to the DLC3. (Step "C")

(4) Start the engine. (Step "D")

(5) Turn the Techstream main switch on. (Step "E")

(6) Enter the following menus: Chassis / ABS/VSC/TRAC / Utility / Inspection Mode. (Step "F")



(7) Check that the SLIP indicator light comes on. (Step "G")

HINT:

- If the SLIP indicator light does not come on in step "G", repeat the steps from "A" to "G".
- Turning the ignition switch off ends inspection mode.

9. FOR VEHICLES EQUIPPED WITH CATALYTIC CONVERTER

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CAUTION:

If a large amount of unburned gasoline or gasoline vapors flow into the converter, it may cause converter overheating and create a fire hazard. To prevent this, observe the following precautions.

(a) Use only unleaded gasoline.

(b) Avoid idling the engine for more than 20 minutes.

(c) Avoid performing unnecessary spark tests.

(1) Perform a spark test only when absolutely necessary. Perform this test as rapidly as possible.

(2) While testing, never race the engine unless instructed.

(d) Avoid a prolonged engine compression measurement. Engine compression measurements must be performed as rapidly as possible.

(e) Do not run the engine when the fuel tank is nearly empty. This may cause the engine to misfire and create an extra load on the converter.

10. EXPRESSIONS OF IGNITION SWITCH

(a) The type of ignition switch used on this model differs according to the specifications of the vehicle.

The expressions listed in the table below are used in this section.

SWITCH TYPE		IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Expression	Ignition Switch off	LOCK	Off
	Ignition Switch ON	ON	On (IG)
	Ignition Switch ACC	ACC	On (ACC)
	Engine Start	START	Start

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UZ1045X
Title: INTRODUCTION: HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS: HOW TO PROCEED WITH TROUBLESHOOTING (2010 Corolla)		

HOW TO PROCEED WITH TROUBLESHOOTING

1. OPERATION FLOW

HINT:

Perform troubleshooting in accordance with the procedure below. The following is an outline of basic troubleshooting procedure. Confirm the troubleshooting procedure for the circuit you are working on before beginning troubleshooting.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**CUSTOMER PROBLEM ANALYSIS**

(a) Ask the customer about the conditions and environment when the problem occurred.

NEXT

3.	**INSPECT BATTERY VOLTAGE**

Standard voltage:
11 to 14 V
If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

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4.	SYMPTOM CONFIRMATION AND DTC (AND FREEZE FRAME DATA) CHECK

(a) Visually check the wire harnesses, connectors and fuses for open and short circuits.

(b) Warm up the engine to the normal operating temperature.

(c) Confirm the problem symptoms and conditions, and check for DTCs.

Result:

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ▶ **Go to step 6**

A ▼

5.	DTC CHART

(a) Check the results obtained in step 4. Then find the output DTC in the DTC chart. Look at the "Trouble Area" column for a list of potentially malfunctioning circuits and/or parts.

NEXT ▶ **Go to step 7**

6.	PROBLEM SYMPTOMS CHART

(a) Check the results obtained in step 4. Then find the problem symptoms in the problem symptoms table. Look at the "Suspected Area" column for a list of potentially malfunctioning circuits and/or parts.

NEXT ▼

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7.	CIRCUIT INSPECTION OR PARTS INSPECTION

(a) Identify the malfunctioning circuit or part.

NEXT

8.	ADJUST, REPAIR OR REPLACE

(a) Adjust, repair or replace the malfunctioning circuit or parts.

NEXT

9.	CONFIRMATION TEST

(a) After the adjustment, repairs or replacement of components, confirm that the malfunction no longer exists. If the malfunction does not reoccur, perform a confirmation test under the same conditions and in the same environment as when the malfunction first occurred.

NEXT **END**

2. CUSTOMER PROBLEM ANALYSIS

HINT:

- When troubleshooting, confirm that the problem symptoms have been accurately identified. Preconceptions should be discarded in order to make an accurate judgment. To clearly understand what the problem symptoms are, it is extremely important to ask the customer about the problem and the conditions at the time the malfunction occurred.
- Gather as much information as possible for reference. Past problems that seem unrelated may also help in some cases.
  - The following 5 items are important points in the problem analysis:

What	Vehicle model, system name

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When	Date, time, occurrence frequency
Where	Road conditions
Under what conditions?	Driving conditions, weather conditions
How did it happen?	Problem symptoms

3. SYMPTOM CONFIRMATION AND DIAGNOSTIC TROUBLE CODE

HINT:

The diagnostic system in this vehicle has various functions.

- The first function is the Diagnostic Trouble Code (DTC) check. A DTC is a code stored in the ECU memory whenever a malfunction in the signal circuits to the ECU occurs. In a DTC check, a previous malfunction's DTC can be checked by a technician during troubleshooting.
- Another function is the Input Signal Check, which checks if the signals from various switches are sent to the ECU correctly.

By using these functions, the problem areas can be narrowed down and troubleshooting can be more effective. Diagnostic functions are incorporated in the following system in this vehicle.

SYSTEM	SYMPTOM CONFIRMATION AND DIAGNOSTIC TROUBLE CODE				
	DTC CHECK (NORMAL MODE)	DTC CHECK (CHECK MODE)	SENSOR CHECK/TEST MODE (INPUT SIGNAL CHECK)	DATA LIST	ACTIVE TEST
2ZR-FE SFI System	○	○	-	○	○
2AZ-FE SFI System	○	○	-	○	○
Cruise Control System	○	-	-	○	-
U250E Automatic Transaxle System	○	○	-	○	○
U341E Automatic Transaxle System	○	○	-	○	○
Tire Pressure Warning System	○	-	○	○	-
Anti-lock Brake System	○	-	○	○	○
Vehicle Stability Control System	○	-	○	○	○
Power Steering System	○	-	-	○	-
Steering Lock System	○	-	-	○	○
Audio and Visual System	○	-	-	-	-
Navigation System	-	-	-	-	-

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SYSTEM	SYMPTOM CONFIRMATION AND DIAGNOSTIC TROUBLE CODE				
	DTC CHECK (NORMAL MODE)	DTC CHECK (CHECK MODE)	SENSOR CHECK/TEST MODE (INPUT SIGNAL CHECK)	DATA LIST	ACTIVE TEST
LIN Communication System	○	-	-	-	-
CAN Communication System	○	-	-	-	-
Power Door Lock Control System	-	-	-	○	○
Wireless Door Lock Control System (w/ Smart Key System)	○	-	-	○	○
Wireless Door Lock Control System (w/o Smart Key System)	○	-	-	○	○
Key Reminder Warning System	-	-	-	○	-
Smart Key System (for Entry Function)	-	-	-	○	○
Smart Key System (for Start Function)	○	-	-	○	○
Engine Immobilizer System (w/ Smart Key System)	○	-	-	○	○
Engine Immobilizer System (w/o Smart Key System)	○	-	-	○	○
Theft Deterrent System	○	-	-	○	○
Lighting System (INT)	-	-	-	○	○
Meter/Gauge System	○	-	-	○	○
Airbag System	○	○	-	○	-
Occupant Classification System	○	-	-	○	-
Front Power Seat Control System	-	-	-	-	-
Seat Belt Warning System	-	-	-	-	○
Air Conditioning System (for Automatic Air	○	-	-	○	○

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SYSTEM	SYMPTOM CONFIRMATION AND DIAGNOSTIC TROUBLE CODE				
	DTC CHECK (NORMAL MODE)	DTC CHECK (CHECK MODE)	SENSOR CHECK/TEST MODE (INPUT SIGNAL CHECK)	DATA LIST	ACTIVE TEST
Conditioning System)					
Air Conditioning System (for Manual Air Conditioning System)	○	-	-	○	○
Power Window Control System	-	-	-	○	○
Window Defogger System (for Automatic Air Conditioning System)	-	-	-	-	○
Window Defogger System (for Manual Air Conditioning System)	-	-	-	-	-
Sliding Roof System	-	-	-	-	-
Power Mirror Control System	-	-	-	-	-
Wiper and Washer System	-	-	-	-	-
Lighting System (EXT)	-	-	-	-	-

- In the DTC check, it is very important to determine whether the problem indicated by the DTC either: 1) still occurs, or 2) occurred in the past but has returned to normal. In addition, the DTC should be compared to the problem symptom to see if they are related. For this reason, DTCs should be checked before and after confirmation of symptoms (i.e., whether or not problem symptoms exist) to determine current system conditions, as shown in the flowchart below.
- Never skip the DTC check. Failing to check DTCs may, depending on the case, result in unnecessary troubleshooting for systems operating normally or lead to repairs not related to the problem. Follow the procedure listed in the flowchart in the correct order.
- The following flowchart shows how to proceed with troubleshooting using the DTC check. Directions from the flowchart will indicate how to proceed either to DTC troubleshooting or to the troubleshooting of each problem symptom.

1.	**DTC CHECK**

NEXT

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2.	MAKE A NOTE OF DTC DISPLAYED AND THEN CLEAR MEMORY

NEXT

3.	SYMPTOM CONFIRMATION

Result:

RESULT	PROCEED TO
No symptoms exist	A
Symptoms exist	B

B ▶ Go to step 5

A

4.	SIMULATION TEST USING SYMPTOM SIMULATION METHODS

NEXT

5.	DTC CHECK

Result:

RESULT	PROCEED TO
DTC is not output	A

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RESULT	PROCEED TO
DTC is output	B

B ▶ **TROUBLESHOOTING OF PROBLEM INDICATED BY DTC**

A ▼

6.	SYMPTOM CONFIRMATION

Result:

RESULT	PROCEED TO
No symptoms exist	A
Symptoms exist	B

If a DTC was displayed in the initial DTC check, the problem may have occurred in a wire harness or connector in that circuit in the past. Check the wire harness and connectors.

B ▶ **END**

A ▶ **TROUBLESHOOTING OF EACH PROBLEM SYMPTOM**

The problem still occurs in a place other than the diagnostic circuit (the DTC displayed first is either for a past problem or a secondary problem).

4. SYMPTOM SIMULATION

HINT:

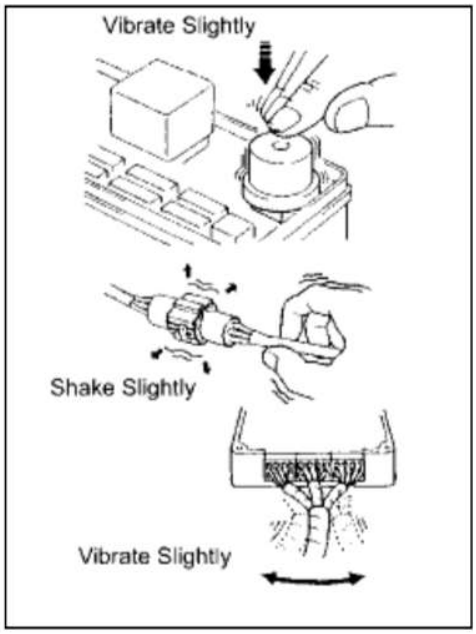
The most difficult case in troubleshooting is when no problem symptoms occur. In such a case, a thorough problem analysis must be carried out. A simulation of the same or similar conditions and environment in which the problem occurred in the customer's vehicle should be carried out. No matter how much skill or experience a technician has, troubleshooting without confirming the problem symptoms will lead to important repairs being overlooked and mistakes or delays.

For example:
With a problem that only occurs when the engine is cold or as a result of vibration caused by the road during driving, the problem can never be determined if the symptoms are being checked on a stationary vehicle or a vehicle with a warmed-up engine. Vibration, heat or water penetration (moisture) is difficult to reproduce. The symptom simulation tests below are effective substitutes for the conditions and can be applied to a stationary vehicle. Important points in the symptom simulation test:

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In the symptom simulation test, the problem symptoms as well as the problem area or parts must be confirmed. First, narrow down the possible problem circuits according to the symptoms. Then, connect the tester and carry out the symptom simulation test, judging whether the circuit being tested is defective or normal. Also, confirm the problem symptoms at the same time. Refer to the problem symptoms table for each system to narrow down the possible causes.

To reproduce DTCs, it is necessary to satisfy the respective DTC detection conditions.



(a) VIBRATION METHOD: When a malfunction seems to occur as a result of vibration.

(1) PART AND SENSOR

Apply slight vibration with a finger to the part of the sensor suspected to be the cause of the problem, and check whether the malfunction occurs.

NOTICE:

Applying strong vibration to relays may open the relays.

(2) CONNECTORS

Slightly shake the connector vertically and horizontally.

(3) WIRE HARNESS

Slightly shake the wire harness vertically and horizontally.

HINT:

The connector joint and fulcrum of the vibration are the major areas that should be checked thoroughly.

(b) HEAT METHOD: When a malfunction seems to occur when the area in question is heated.

(1) Heat the component that is the possible cause of the malfunction with a hair dryer or similar device. Check if the malfunction occurs.

NOTICE:

- Do not heat to more than 60°C (140°F). Exceeding this temperature may damage the components.
- Do not apply heat directly to the parts in the ECU.



(c) WATER SPRINKLING METHOD: When a malfunction seems to occur on a rainy day or in high-humidity.

(1) Sprinkle water onto the vehicle and check if the malfunction occurs.

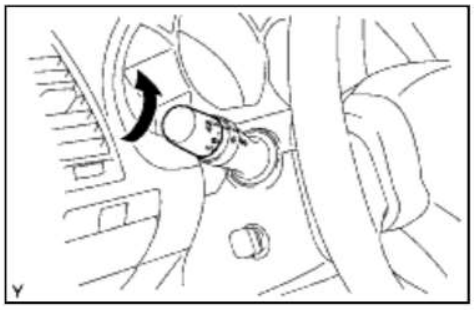
NOTICE:

- Never sprinkle water directly into the engine compartment. Indirectly change the temperature and humidity by spraying water onto the front of the radiator.
- Never apply water directly onto the electronic components.

HINT:

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If the vehicle has or had a water leakage problem, the leakage may have damaged the ECU or connections. Look for evidence of corrosion or short circuits. Proceed with caution during water tests.



(d) HIGH ELECTRICAL LOAD METHOD: When a malfunction seems to occur when an electrical load is excessive.

(1) Turn on the heater blower, headlights, rear window defogger and all other electrical loads. Check if the malfunction recurs.

5. DIAGNOSTIC TROUBLE CODE CHART

Look for output Diagnostic Trouble Codes (DTCs) (from the DTC checks) in the appropriate section's Diagnostic Trouble Code Chart. Use the chart to determine the trouble area and the proper inspection procedure. A description of each of the chart's columns is shown in the table below.

ITEM	DESCRIPTION
DTC No.	Indicates the diagnostic trouble code
Detection Item	Indicates the system or details of the problem
Trouble Area	Indicates the suspected areas of the problem
See page	Indicates the page where the inspection procedure for each circuit is to be found, or gives instruction for checking and repairs.

6. PROBLEM SYMPTOMS TABLE

When no DTC is output but the problem still occurs, use the Problem Symptoms Table. The suspected areas (circuits or parts) for each problem symptom are shown in the table. The suspected areas are listed in order of probability. A description of each of the table columns is shown in the following table.

HINT:

In some cases, the problem is not detected by the diagnostic system even though a problem symptom occurs. It is possible that the problem occurs outside the detection range of the diagnostic system, or that the problem occurs in a completely different system.

ITEM	DESCRIPTION
Symptom	-
Suspected Area	Indicates the circuit or part which needs to be checked.
See page	Indicates the page where the inspection procedure is located.

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7. INSPECTION

A description of the main points for inspection of suspected areas is shown in the following table.

ITEM	DESCRIPTION
Description	The major role and operation of the circuit or system and its component parts are explained.
DTC No., DTC Detection Condition and Trouble Area	Indicates the diagnostic trouble codes, DTC detection conditions and suspected areas for a problem.
Wiring Diagram	This is a wiring diagram for the circuit or system. This diagram can be used together with the Electrical Wiring Diagram to thoroughly understand the circuit. Wire colors are indicated by alphabetical codes. B = Black, L = Blue, R = Red, BR = Brown, LG = Light Green, V = Violet, G = Green, O = Orange, W = White, GR = Gray, P = Pink, Y = Yellow, SB = Sky Blue The first letter indicates the basic wire color and the second letter indicates the color of the stripe.
Inspection Procedure	This shows the procedure not only to determine whether the circuit is normal or abnormal, but also to determine whether the problem is located in the sensors, actuators, wire harness or ECU.
Illustration of the ECU connector during the check	The illustration shows whether the connector being checked is connected or disconnected. The connections for an electrical tester are indicated by (+) or (-) after the terminal name. For inspections between a connector and body ground, information about the ground is not shown in the illustration.



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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UZ306ZX
Title: INTRODUCTION: HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS: ELECTRONIC CIRCUIT INSPECTION PROCEDURE (2010 Corolla)		

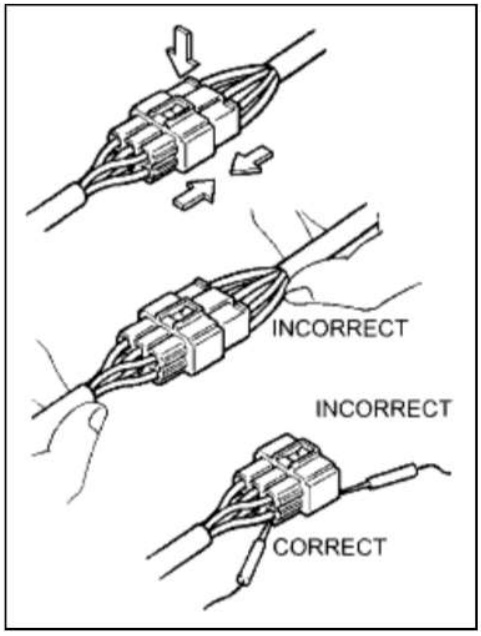
ELECTRONIC CIRCUIT INSPECTION PROCEDURE

1. BASIC INSPECTION

(a) WHEN MEASURING RESISTANCE OF ELECTRONIC PARTS

(1) Unless otherwise stated, all resistance measurements are standard values measured at an ambient temperature of 20°C (68°F). Resistance measurements may be inaccurate if measured at high temperatures, i.e. immediately after the vehicle has been running. Measurements should be made after the engine has cooled down.

(b) HANDLING CONNECTORS



(1) When disconnecting a connector, first squeeze the mating connector housing halves tightly together to release the lock, and then press the lock claw and separate the connector.

(2) When disconnecting a connector, do not pull on the harnesses. Grasp the connector directly and separate it.

(3) Before connecting a connector, check that there are no deformations, damage, looseness or missing terminals.

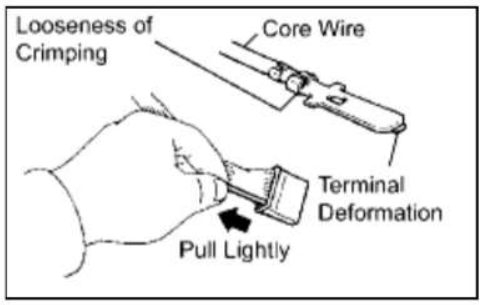
(4) When connecting a connector, press firmly until it locks with a "click" sound.

(5) If checking a connector with a TOYOTA electrical tester, check the connector from the backside (harness side) using a mini test lead.

NOTICE:

- As a waterproof connector cannot be checked from the backside, check it by connecting a sub-harness.
- Do not damage the terminals by moving the inserted tester needle.

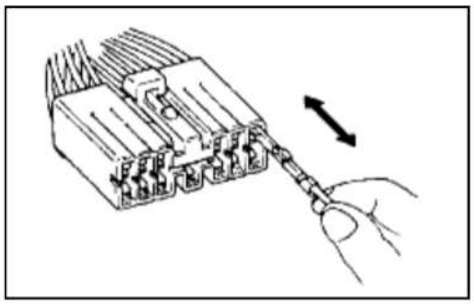
(c) CHECKING CONNECTORS



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(1) Checking when a connector is connected: Squeeze the connectors together to confirm that they are fully connected and locked.

(2) Checking when a connector is disconnected: Check by pulling the wire harness lightly from the backside of the connector. Look for unlatched terminals, missing terminals, loose crimps or broken conductor wires. Check visually for corrosion, metallic or foreign matter and water, and bent, rusted, overheated, contaminated, or deformed terminals.

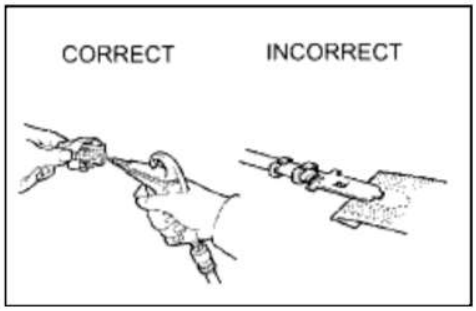


(3) Checking the contact pressure of the terminal: Prepare a spare male terminal. Insert it into a female terminal, and check for ample tension when inserting and after full engagement.

NOTICE:

When testing a gold-plated female terminal, always use a gold-plated male terminal.

(d) REPAIR METHOD OF CONNECTOR TERMINAL

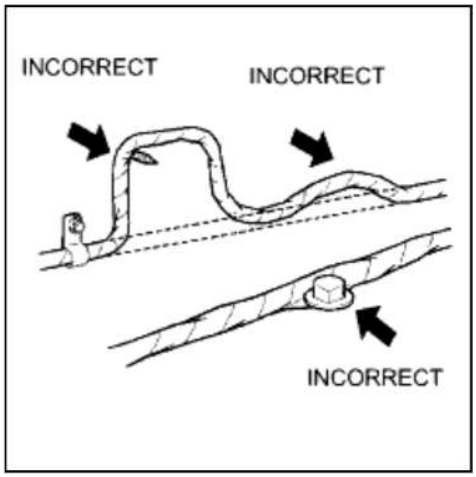


(1) If there is any foreign matter on the terminal, clean the contact point with compressed air or a cloth. Never rub the contact point using sandpaper as the plating may come off.

(2) If there is abnormal contact pressure, replace the female terminal. If the male terminal is gold-plated (gold color), use a gold-plated female terminal; if it is silver-plated (silver color), use a silver-plated female terminal.

(3) Damaged, deformed, or corroded terminals should be replaced. If the terminal does not lock into the housing, the housing may have to be replaced.

(e) HANDLING OF WIRE HARNESS



(1) If removing a wire harness, check the wiring and clamps before proceeding so that it can be restored in the same way.

(2) Never twist, pull or slacken the wire harness more than necessary.

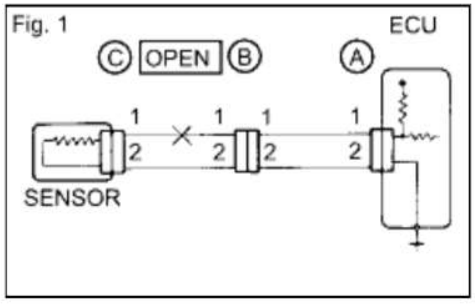
(3) The wire harness should never come into contact with any high temperature part, rotating, moving, vibrating, or sharp-edged parts. Avoid contact with panel edges, screw tips and other sharp items.

(4) When installing parts, never pinch the wire harness.

(5) Never cut or break the cover of the wire harness. If it is cut or broken, replace it or repair it with insulating tape.

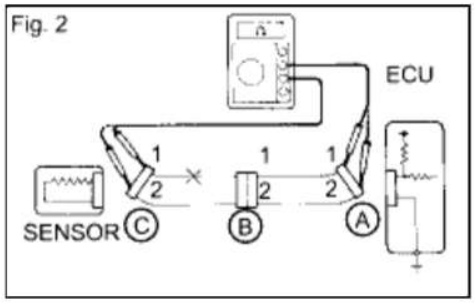
2. CHECK FOR OPEN CIRCUIT

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(a) For an open circuit in the wire harness in Fig. 1, measure the resistance and voltage as follows:

(b) Check the resistance.



(1) Disconnect connectors A and C and measure the resistance between the terminals of the connectors.

Standard Resistance (Fig. 2):

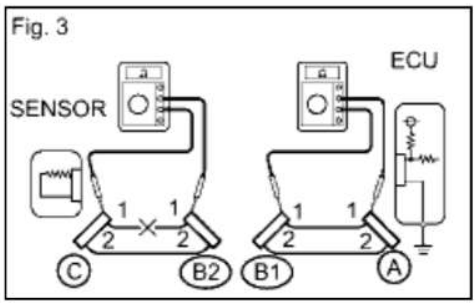
TESTER CONNECTION	SPECIFIED CONDITION
Connector A terminal 1 - Connector C terminal 1	10 kΩ or higher
Connector A terminal 2 - Connector C terminal 2	Below 1 Ω

HINT:

Measure the resistance while lightly shaking the wire harness vertically and horizontally. If the results match the preceding values, an open circuit exists between terminal 1 of connector A and terminal 1 of connector C.

(2) Disconnect connector B and measure the resistance between the terminals of the connectors.

Standard Resistance (Fig. 3):



TESTER CONNECTION	SPECIFIED CONDITION
Connector A terminal 1 - Connector B1 terminal 1	Below 1 Ω
Connector B2 terminal 2 - Connector C terminal 2	10 kΩ or higher

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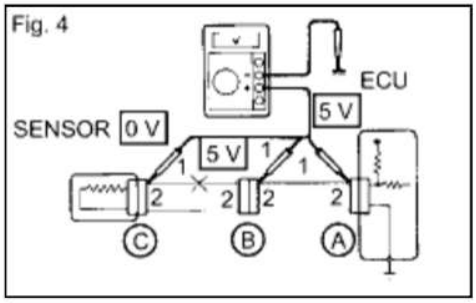
If the results match the values specified above, an open circuit exists between terminal 1 of connector B2 and terminal 1 of connector C.

(c) Check the voltage.

(1) In a circuit in which voltage is applied to the ECU connector terminal, an open circuit can be checked by conducting a voltage check.

With each connector still connected, measure the voltage between body ground and the following terminals (in this order): 1) terminal 1 of connector A, 2) terminal 1 of connector B, and 3) terminal 1 of connector C.

Fig. 4



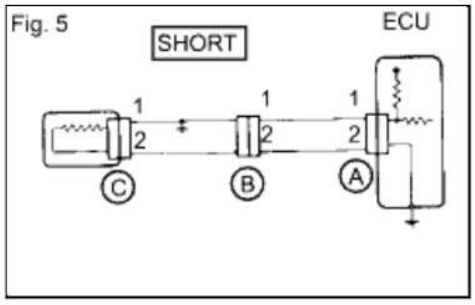
Standard Voltage (Fig. 4):

TESTER CONNECTION	SPECIFIED CONDITION
Connector A terminal 1 - Body ground	5 V
Connector B terminal 1 - Body ground	5 V
Connector C terminal 1 - Body ground	Below 1 V

If the results match the values specified above, an open circuit exists in the wire harness between terminal 1 of connector B and terminal 1 of connector C.

3. CHECK FOR SHORT CIRCUIT

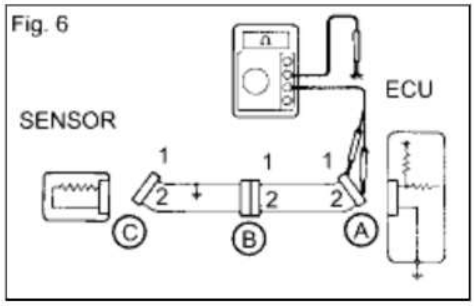
Fig. 5



(a) If the wire harness is shorted to ground (Fig. 5), locate the shorted section by conducting following resistance check to body ground.

(b) Check the resistance to body ground.

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(1) Disconnect connectors A and C and measure the resistance.

Standard Resistance (Fig. 6):

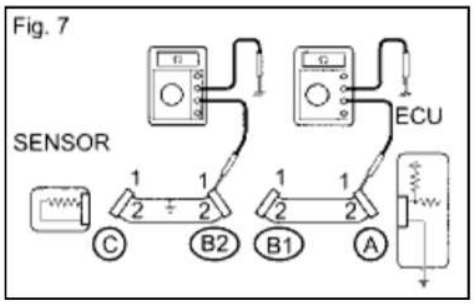
TESTER CONNECTION	SPECIFIED CONDITION
Connector A terminal 1 - Body ground	Below 1 Ω
Connector A terminal 2 - Body ground	10 kΩ or higher

HINT:

Measure the resistance while lightly shaking the wire harness vertically and horizontally. If the results match the values specified above, a short circuit exists between terminal 1 of connector A and terminal 1 of connector C.

(2) Disconnect connector B and measure the resistance.

Standard Resistance (Fig. 7):



TESTER CONNECTION	SPECIFIED CONDITION
Connector A terminal 1 - Body ground	10 kΩ or higher
Connector B2 terminal 2 - Body ground	Below 1 Ω

If the results match the values specified above, a short circuit exists between terminal 1 of connector B2 and terminal 1 of connector C.

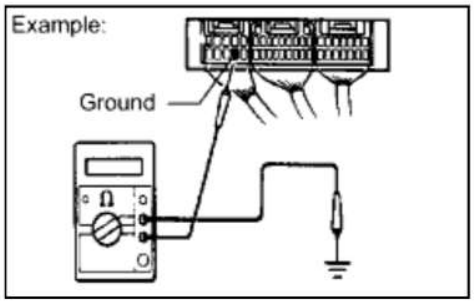
4. CHECK AND REPLACE ECU

NOTICE:

- The connector should not be disconnected from the ECU. Perform the inspection from the backside of the connector on the wire harness side.
- When no measuring condition is specified, perform the inspection with the engine stopped and the ignition switch ON.
- Check that the connectors are fully seated. Check for loose, corroded or broken wires.

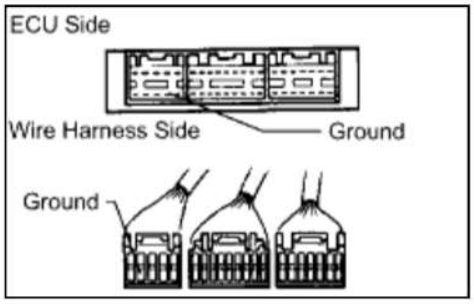
(a) First, check the ECU ground circuit. If it is faulty, repair it. If it is normal, the ECU could be faulty. Temporarily replace the ECU with a normally functioning one and check if the symptoms occur. If the trouble symptoms disappear, replace the original ECU.

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(1) Measure the resistance between the ECU ground terminal and body ground.

Standard resistance:
Below 1 Ω



(2) Disconnect the ECU connector. Check the ground terminal on the ECU side and wire harness side for bent terminals, corrosion or foreign matter. Lastly, check the contact pressure of the female terminals.

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UZ2070X
Title: INTRODUCTION: HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS: GENERAL INFORMATION (2010 Corolla)		

GENERAL INFORMATION

A large number of ECU controlled systems are used in this vehicle. In general, ECU controlled systems are considered to be very intricate, requiring a high level of technical knowledge to troubleshoot. However, most problem checking procedures only involve inspecting the ECU controlled system circuits one by one. An adequate understanding of the system and a basic knowledge of electricity is enough to perform effective troubleshooting, accurate diagnosis and necessary repairs.

(For using the Techstream*)

HINT:

***: The Techstream is the name for the diagnostic tester in North America.**

- Before using the Techstream, read the operator's manual thoroughly.
- If the Techstream cannot communicate with the ECU controlled systems when connected to the DLC3 with the ignition switch ON and the Techstream turned on, there is a problem on the vehicle side or the Techstream side.
    i. If communication is possible when the Techstream is connected to another vehicle, inspect the diagnosis data link line (bus (+) line), CANH and CANL lines, and the power circuits for the vehicle ECUs.
    ii. If communication is still not possible when the Techstream is connected to another vehicle, the problem is probably in the Techstream itself. Perform the Self Test procedure outlined in Techstream's instruction manual.

1. TROUBLESHOOTING PROCEDURES

- The troubleshooting procedures consist of diagnosis procedures for when a DTC is stored and diagnosis procedures for when no DTC is stored. The basic idea is explained in the following table.

PROCEDURE TYPE	DETAILS	TROUBLESHOOTING METHOD
DTC Based Diagnosis	The diagnosis procedure is based on the DTC that is stored.	The malfunctioning part is identified based on the DTC detection conditions using a process of elimination. The possible trouble areas are eliminated one-by-one by use of the Techstream and inspection of related parts.
Symptom Based Diagnosis (No DTCs stored)	The diagnosis procedure is based on problem symptoms.	The malfunctioning part is identified based on the problem symptoms using a process of elimination. The possible trouble areas are eliminated one-by-one by use of the Techstream and inspection of related parts.

- Vehicle systems are complex and use many ECUs that are difficult to inspect independently. Therefore, a process of elimination is used, where components that can be inspected individually are inspected, and if no problems are found in these components, the related ECU is identified as the problem and replaced.
- It is extremely important to ask the customer about the environment and the conditions present when the problem occurred (Customer Problem Analysis). This makes it possible to simulate the conditions

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and confirm the symptom. If the symptom cannot be confirmed or the DTC does not recur, the malfunctioning part may not be identified using the troubleshooting procedure, and the ECU for the related system may be replaced even though it is not defective. If this happens, the original problem will not be solved.

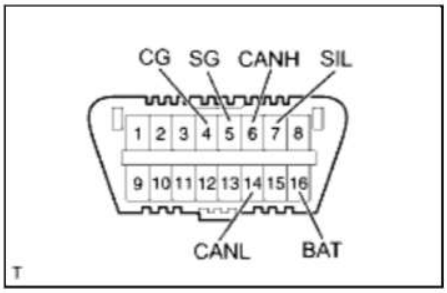
- In order to prevent endless expansion of troubleshooting procedures, the troubleshooting procedures are written with the assumption that multiple malfunctions do not occur simultaneously for a single problem symptom.
- To identify the malfunctioning part, troubleshooting procedures narrow down the target by separating components, ECUs and wire harnesses during the inspection. If the wire harness is identified as the cause of the problem, it is necessary to inspect not only the connections to components and ECUs but also all of the wire harness connectors between the component and the ECU.

2. DESCRIPTION

(a) Each system data and the Diagnostic Trouble Codes (DTCs) can be read from the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform repairs.

3. CHECK DLC3

(a) The vehicle ECUs use ISO 15765-4 communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.



SYMBOL	TERMINAL NO.	NAME	REFERENCE TERMINAL	RESULT	CONDITION
SIL	7	Bus "+" line	5 - Signal ground	Pulse generation	During transmission
CG	4	Chassis ground	Body ground	1 Ω or less	Always
SG	5	Signal ground	Body ground	1 Ω or less	Always
BAT	16	Battery positive	Body ground	11 to 14V	Always
CANH	6	CAN "High" line	14 - CANL	54 to 69 Ω	Ignition switch off*
			Battery positive	6 kΩ or higher	Ignition switch off*
			4 - CG	200 Ω or higher	Ignition switch off*
CANL	14	CAN "Low" line	Battery positive	6 kΩ or higher	Ignition switch off*
			4 - CG	200 Ω or higher	Ignition switch off*

NOTICE:

***: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, any other switches, or the doors.**

If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

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Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UYV06RX
Title: INTRODUCTION: HOW TO USE THIS MANUAL: GENERAL INFORMATION (2010 Corolla)		

GENERAL INFORMATION

1. GENERAL DESCRIPTION

(a) This manual is written in accordance with SAE J2008.

(b) Repair operations can be separated mainly into the following 3 processes:

(1) Diagnosis

(2) Removing / Installing, Replacing, Disassembling / Reassembling, Checking and Adjusting

(3) Final Inspection

(c) The following procedure is omitted from this manual. However, this procedure must be performed.

(1) Use a jack or lift to perform operations.

(2) Clean all removed parts.

(3) Perform a visual check before and after performing any work.

2. INDEX

(a) An alphabetical INDEX section is provided at the end of the manual as a reference to help find the item to be repaired.

3. PREPARATION

(a) Use of Special Service Tools (SST) and Special Service Materials (SSM) may be required, depending on the repair procedure. Be sure to use SST and SSM when they are required and follow the work procedure properly. A list of SST and SSM is in the "Preparation" section of this manual.

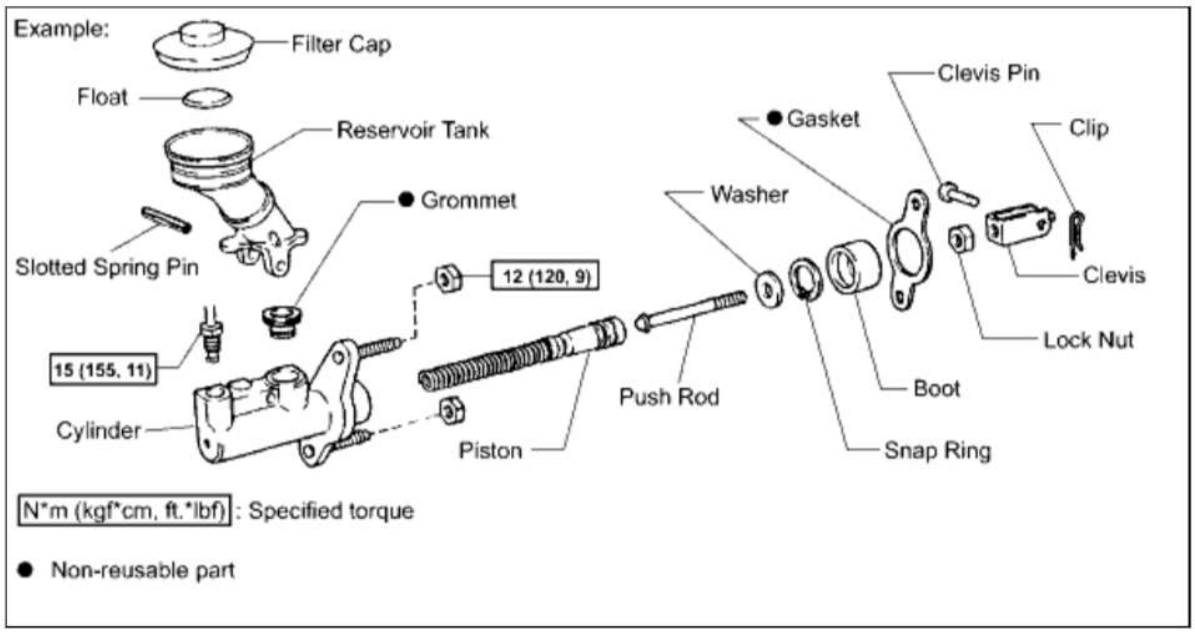
4. REPAIR PROCEDURES

(a) A component illustration is placed under the title where necessary.

(b) Non-reusable parts, grease application areas, precoated parts and torque specifications are noted in the component illustrations.

- The following illustration is an example.

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(c) Torque specifications, grease application areas and non-reusable parts are emphasized in the procedure.

HINT:

There are cases where such information can only be explained by using an illustration. In these cases, torque, oil and other information are described in the illustration.

(d) Only items with key points are described in the text. What to do and other details are explained using illustrations next to the text. Both the text and illustrations are accompanied by standard values and notices.

Illustration	What to do and where to do it
Task heading	What work will be performed
Explanation text	How to perform the task Also has information such as specifications and warnings, which are written in boldface text

(e) Illustrations of similar vehicle models are sometimes used. In these cases, minor details may be different from the actual vehicle.

(f) Procedure is presented in a step-by-step format.

5. SERVICE SPECIFICATIONS

(a) SPECIFICATIONS are presented in boldface text throughout the manual. The specifications are also found in the "Service Specifications" section for reference.

6. TERM DEFINITIONS

CAUTION	Possibility of injury to you or other people.
NOTICE	Possibility of damage to components being repaired.

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HINT	Provides additional information to help you perform repairs.

7. 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, 22ft·lbf)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UYY066X
Title: INTRODUCTION: REPAIR INSTRUCTION: VEHICLE LIFT AND SUPPORT LOCATIONS (2010 Corolla)		

VEHICLE LIFT AND SUPPORT LOCATIONS

1. NOTICE ABOUT VEHICLE CONDITION WHEN JACKING UP

(a) As a rule, the vehicle must be unloaded when jacking up. Never jack up or lift up a vehicle loaded with heavy items.

(b) When removing any heavy components like the engine or transaxle, the center of gravity of the vehicle will move. Place a balance weight so as to keep the vehicle from rolling, or support a vehicle jacking position using a transmission jack.

2. NOTICE FOR USING 4 POST LIFT

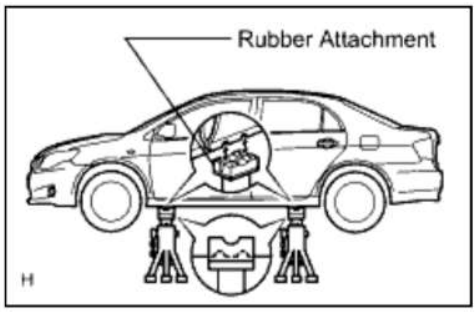
(a) Follow the instruction manual for safe operation.

(b) Do not damage tires or wheels while driving onto the lift.

(c) Using wheel stoppers, secure the vehicle.

3. NOTICE FOR USING JACK AND SAFETY STAND

(a) Work in a flat place using wheel stoppers at all times.



(b) Use safety stands with rubber attachments as shown in the illustration.

(c) Securely support the specified locations with a jack and safety stands.

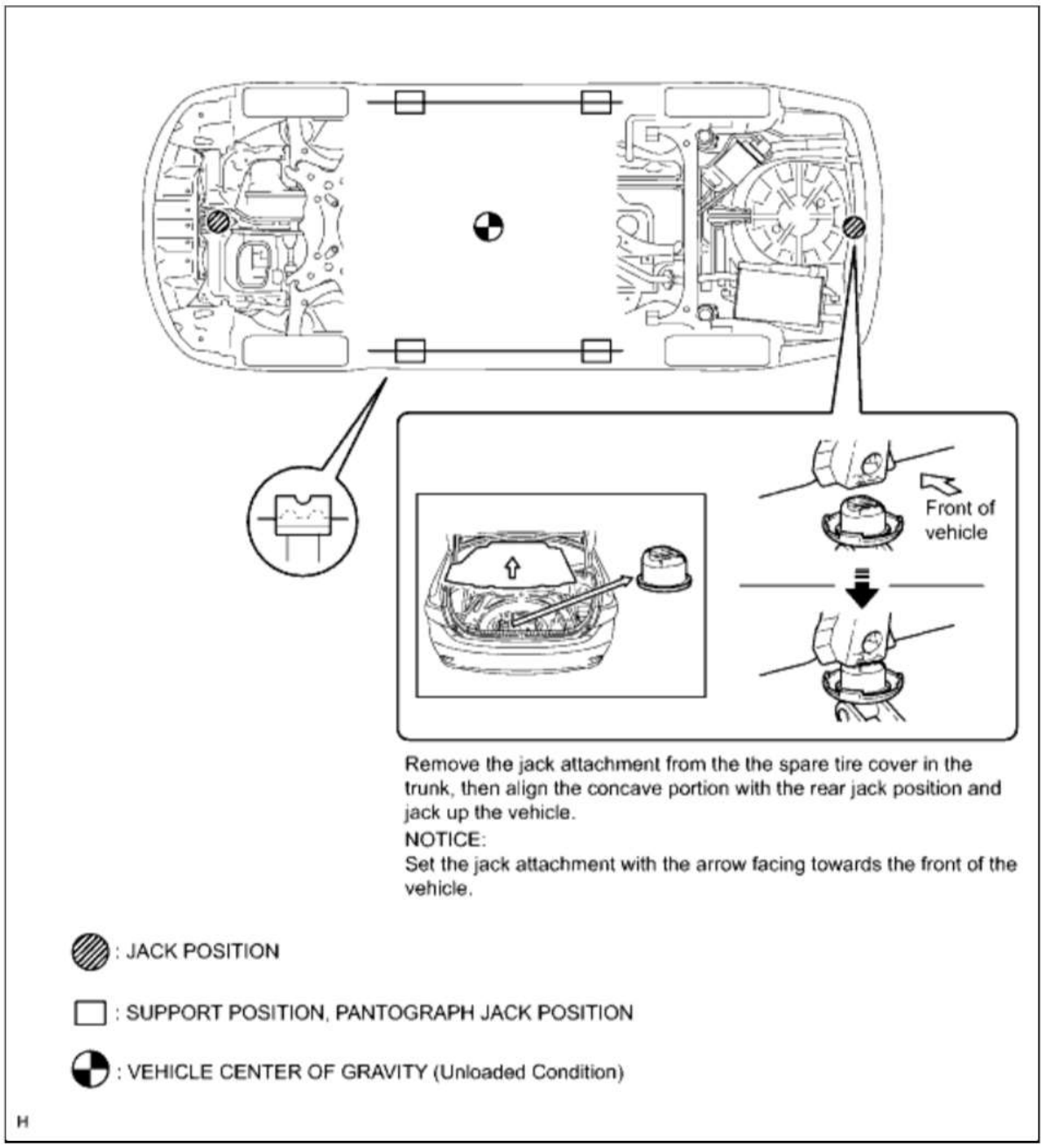
(d) When jacking up the front wheels, release the parking brake and place wheel stoppers only behind the rear wheels. When jacking up the rear wheels, place wheel stoppers only in front of the front wheels.

(e) Do not work or leave the vehicle supported only by a jack. Be sure to support the vehicle with safety stands.

(f) When jacking up only the front wheels or only the rear wheels, place wheel stoppers on both sides of the wheels that contact ground.

(g) When lowering the vehicle with its front wheels jacked up, release the parking brake and place wheel stoppers only in front of the rear wheels. When lowering the vehicle with its rear wheels jacked up, place wheel stoppers only behind the front wheels.

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4. NOTICE FOR USING SWING ARM TYPE LIFT

(a) Follow the lift instruction manual for safe operation.

(b) Use a cradle with a rubber attachment as shown in the illustration.

(c) Set the vehicle so as to make its center of gravity as close as possible to the center of the lift.

(d) Place the vehicle horizontally by adjusting the height of the cradle, and match the groove of the cradle and the safety stand support location accurately.

(e) Be sure to lock the swing arm during the operation.

(f) Lift the vehicle up until the tires are off the ground, and shake the vehicle to ensure that it is stable.

5. NOTICE FOR USING PLATE TYPE LIFT

(a) Follow the lift instruction manual for safe operation.

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(b) Use a plate lift attachment.

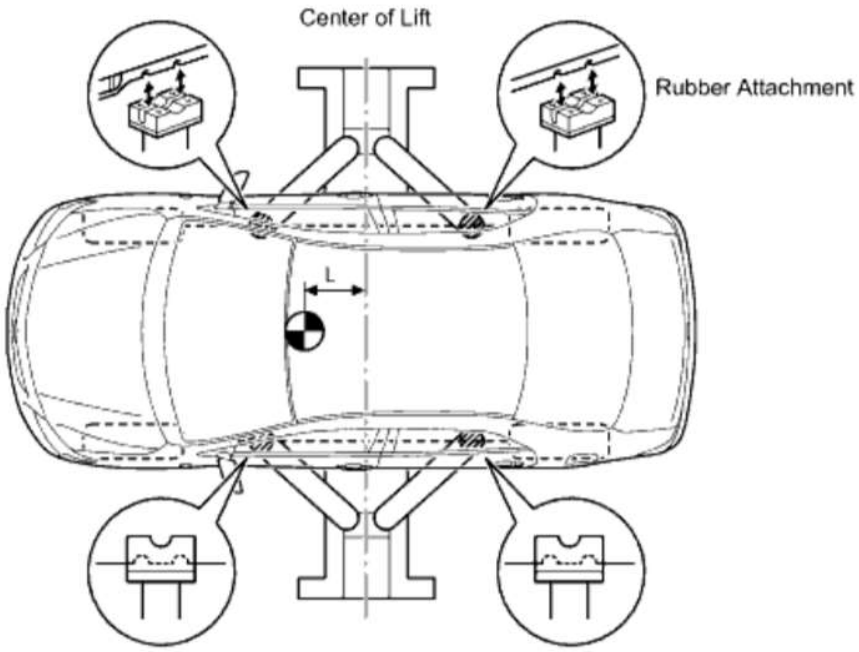
(c) Be sure to set the vehicle to the specified position.

Right and left set position	• Place the vehicle over the center of the lift.
Front and rear set position	• Align the cushion ends of the plate with the attachment lower ends (A and C). • Align the attachment upper end (B) with the rocker flange front side notch.

(d) Lift the vehicle up until the tires are slightly off the ground a bit, and shake the vehicle to make sure that the vehicle is stable.

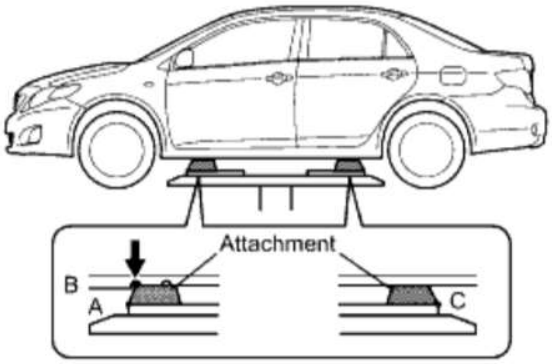
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Swing Arm Type Lift:

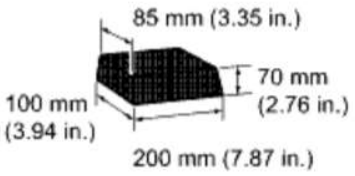


: VEHICLE CENTER OF GRAVITY (Unloaded Condition)

Plate Type Lift:



Attachment Dimensions



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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UZ004SX
Title: INTRODUCTION: REPAIR INSTRUCTION: CUSTOMIZE PARAMETERS (2010 Corolla)		

CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

NOTICE:

- When the customer requests a change in a function, first make sure that the function can be customized.
- Be sure to make a note of the current settings before customizing.
- When troubleshooting a function, first make sure that the function is set to the default setting.

1. POWER DOOR LOCK CONTROL SYSTEM

Main Body

TESTER DISPLAY	DEFAULT	CONTENT	SETTING
Unlock Key Twice	ON	Function that unlocks only driver side door when driver side door key cylinder is turned to UNLOCK once, and unlock all doors when it is turned to UNLOCK twice. For OFF setting, turning it once unlocks all doors.	ON / OFF
Auto Lock/Shift*	ON	Function that locks all doors when shift lever is shifted from P to any other position with engine running and all doors closed	ON / OFF
Auto Unlock/Shift*	ON	Function that unlocks all doors when shift lever is shifted to P from any other position while the ignition switch is ON	ON / OFF
All Unlock/Open-Close	OFF	Function that unlocks all doors when opening driver door within 10 seconds after turning the ignition switch is OFF	ON / OFF
Auto Lock	OFF	Function that locks all doors when vehicle speed reaches a certain level	ON / OFF

*: for A/T

2. WIRELESS DOOR LOCK CONTROL SYSTEM (w/ Smart Key System)

Wireless Door Lock Control System

DISPLAY (ITEM)	DEFAULT	FUNCTION	SETTING
Wireless Control	ON	Function that turns wireless door lock function ON/OFF	ON/OFF

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DISPLAY (ITEM)	DEFAULT	FUNCTION	SETTING
Hazard Answer Back	ON	• When the doors are locked by wireless operation, the hazard warning lights flash once. • When the doors are unlocked by wireless operation, the hazard warning lights flash twice.	ON/OFF
Wireless Auto Lock	ON	This function turns the wireless auto lock function on or off.	ON / OFF
Open Door Warning	ON	The buzzer sounds when LOCK is pressed when any of the doors are ajar.	ON/OFF
Unlock 2 Operation	ON	Function that unlocks driver side door when unlock switch on transmitter is pressed once, and unlocks all doors when pressed twice. If setting is OFF, pressing unlock switch once makes all doors unlock.	ON/OFF
Panic Function	ON	Function to operate theft deterrent system by continuously pressing panic switch on transmitter for 0.8 seconds	ON/OFF
Auto Lock Time	60 s	This function regulates the interval between unlocking and automatic relocking of doors.	30 s/60 s/120 s
Wireless Buzzer Resp	ON	Wireless door lock buzzer response / ON or OFF	ON/OFF
Trunk Lid Operation	0.8PR	This function changes operation method of transmitter to open luggage compartment door. • 1TIME: Push once • 2 TIMES: Push twice • 0.8PR: Push and hold for 0.8 seconds • OFF: Does not operate	1TIME/2 TIMES/0.8PR/OFF

3. WIRELESS DOOR LOCK CONTROL SYSTEM (w/o Smart Key System)

Wireless Door Lock Control System

DISPLAY (ITEM)	DEFAULT	FUNCTION	SETTING
Wireless Control	ON	Function that turns wireless door lock function ON/OFF	ON/OFF
Hazard Answer Back	ON	• When the doors are locked by wireless operation, the hazard warning lights flash once. • When the doors are unlocked by wireless operation, the hazard warning lights flash twice.	ON/OFF

4. SMART KEY SYSTEM (for Entry Function)

Smart Key/Access (Certification ECU (Smart Key ECU assembly))

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DISPLAY (ITEM)	DEFAULT	CONTENT	SETTING
Park Wait Time	2.5s	Function to set waiting time to permit opening door after door is locked with entry lock function.	0.5s / 1.5s / 2.5s / 5.0s
Ignition Available Area	ALL	Function to choose the available area for key to start the engine and cancel the steering lock.	FRONT / ALL
Trunk Open Mode	ON	Function to open the luggage compartment door when the driver has the key and presses the luggage open button.	ON / OFF
Key Low Battery Warning	ON	Function to set a warning function for a low battery.	ON / OFF

5. ENTRY UNLOCK MODE SWITCHING FUNCTION

(a) To change the vehicle to entry unlock mode switching function, make sure that the engine switch is off and simultaneously press and hold the electrical key's LOCK switch and another electrical key switch for 5 seconds.

- Driver door unlock default setting:

  When the switches are pressed and held for 5 seconds, the entry door unlock mode changes in the following order: driver door mode, all door mode.

NOTICE:

After pressing and holding the switches for 5 seconds, wait 5 seconds before performing the same procedure again.

- Driver door unlock mode:

  When the driver door's touch sensor is touched, only the driver door unlocks. When another touch sensor is touched, all doors unlock.
- All door unlock mode:

  When the touch sensor is touched, all doors unlock.

(b) The certification ECU (smart key ECU assembly) receives this signal from the entry door control receiver and changes the smart key system to the entry unlock mode.

(c) The certification ECU (smart key ECU assembly) sounds the wireless door lock buzzer and combination meter buzzer to inform the user that the mode has been switched.

MODE	WIRELESS DOOR LOCK BUZZER	COMBINATION METER BUZZER
Driver Door (Default)	Sounds 3 times	Sounds once
All Doors (Customized)	Sounds 2 times	Sounds once

HINT:

The function only changes the entry unlock mode of the smart key system. It does not switch the unlocking of

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the wireless door lock control.

6. ELECTRICAL KEY CANCEL

The electrical key cancel operation disables the following functions:

- Entry Unlock / Lock
- Entry Luggage Compartment Open
- Key Lock-in Prevention
- Warning

(a) The operation procedures are as follows:

Precondition:

Engine switch off, driver side door closed and unlocked.

(1) Unlock the driver side door once with the UNLOCK switch of the key.

(2) Open the driver door within 5 seconds.

(3) Unlock the driver side door twice with the UNLOCK switch of the key within 5 seconds.

(4) Close and open the driver door twice within 30 seconds.

(Driver door: Close → Open → Close → Open)

(5) Unlock the driver side door twice with the UNLOCK switch of the key within 5 seconds.

(6) Close and open the driver door within 30 seconds.

(Driver door: Close → Open)

(7) Close the driver door within 5 seconds.

When electrical key cancel is activated, the wireless door lock buzzer sounds twice.

To return to the original condition, perform the procedures again. When the original condition is returned, the wireless door lock buzzer sounds once.

7. SMART KEY SYSTEM (for Start Function)

Smart Key / Access

DISPLAY (ITEM)	DEFAULT	CONTENT	SETTING
Ignition Available Area (Entry ignition available area)	All	Function to choose the available area for electrical key to start E/G and cancel the steering lock.	Front / All

8. THEFT DETERRENT SYSTEM

Security

DISPLAY (ITEM)	DEFAULT	CONTENTS	SETTING
Passive Mode	OFF	• Passive Mode is a function that switches the theft deterrent system from the arming preparation state to the armed state 30 seconds after the key is removed from the key cylinder and all doors and luggage compartment door are closed, even if the doors are not locked by wireless or door key lock operation.	ON/OFF

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DISPLAY (ITEM)	DEFAULT	CONTENTS	SETTING
		• In Passive Mode, if the following operations are not performed within 14 seconds after a door is opened during the armed state, the theft deterrent system will judge that condition as a theft and switch to the alarm sounding state. • Unlock any door by key or wireless operation • Turn the ignition switch to ON • Open the luggage compartment door by key or wireless operation	
Warning by Glass Sen	ON	Function that turns the glass breakage sensor on/off this function is only effective for vehicles with glass breakage sensor.	ON/OFF
Entry Delay Time	14 s	Function that changes entry delay time (time before warning starts) for Passive Mode	0 s/14 s/30 s

9. LIGHTING SYSTEM

Illuminated Entry

DISPLAY	DEFAULT	CONTENT	SETTING
Lighting Time	15 s	Changes the lighting time of the personal light*1, room light and engine switch illumination*2 after closing all of the doors. (It will quickly fade out in case of turning the ignition switch to ON)	7.5 s / 15 s / 30 s
I/L when ACC OFF	ON	Lights up the personal light*1, room light and engine switch illumination*2 when the ignition switch is turned from ACC or ON to off.	ON / OFF
I/L ON W/Door Key Unlock*3	ON	Lights up the personal light*1, room light and engine switch illumination when the doors are unlocked using mechanical key or door control transmitter.	ON / OFF

*1: w/ Sliding Roof
*2: w/ Smart Key System
*2: w/ Power Door Lock Control System

10. METER/GAUGE SYSTEM

Combination Meter

TESTER DISPLAY	DEFAULT	CONTENT	SETTING
Driver Side Seatbelt Warning Buzzer*	On	Function to change the setting of the seat belt warning buzzer.	On, Off
Front Passenger Side Seatbelt Warning Buzzer*	On	Function to change the setting of the seat belt warning buzzer.	On, Off

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*: This setting is only valid for the buzzer which sounds at 20 km/h (12 mph) or more.

11. AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System)

Air Conditioner

TESTER DISPLAY	DEFAULT	CONTENT	SETTING
Set Temperature Shift	NORMAL	Function to shift the temperature against the displayed temperature	+2 C / +1 C / NORMAL / -1 C / -2 C
Air Inlet Mode	AUTO	When turning the A/C ON to make the cabin cool down quickly, this is the function to change the mode automatically to RECIRCULATION mode	MANUAL / AUTO
Compressor Mode	AUTO	Function to turn the A/C ON automatically by pressing the AUTO button when the blower is ON and the A/C is OFF	MANUAL / AUTO
Compressor/Air Inlet DEF operation	LINK	Function to turn the A/C ON automatically linked with the FRONT DEF button when the A/C is OFF	NORMAL / LINK
Evaporator Control	AUTO	Function to set the evaporator control to the coldest position	MANUAL / AUTO
Foot/DEF Auto Mode	ON	Function to turn the airflow from FOOT / DEF ON automatically when AUTO MODE is ON	OFF / ON
Foot/DEF Automatic Blow Up Function	ON	Function to change the blower level automatically when the defroster is ON	OFF / ON

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000UZB05PX
Title: INTRODUCTION: TERMS: ABBREVIATIONS USED IN MANUAL (2010 Corolla)		

ABBREVIATIONS USED IN MANUAL

ABBREVIATION	MEANING
ABS	Anti-Lock Brake System
A/C	Air Conditioner
AC	Alternating Current
ACC	Accessory
ACIS	Acoustic Control Induction System
ACM	Active Control Engine Mount
ACSD	Automatic Cold Start Device
A.D.D	Automatic Disconnecting Differential
A/F	Air-Fuel Ratio
AHC	Active Height Control Suspension
ALR	Automatic Locking Retractor
ALT	Alternator
AMP	Amplifier
ANT	Antenna
APPROX.	Approximately
ASSY	Assembly
A/T, ATM	Automatic Transmission (Transaxle)
ATF	Automatic Transmission Fluid
AUTO	Automatic
AUX	Auxiliary
AVG	Average
AVS	Adaptive Variable Suspension
AWD	All Wheel Drive Vehicle
B+	Battery Voltage
BA	Brake Assist
BACS	Boost Altitude Compensation System
BAT	Battery

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ABBREVIATION	MEANING
BDC	Bottom Dead Center
B/L	Bi-Level
B/S	Bore-Stroke Ratio
BTDC	Before Top Dead Center
BVSV	Bimetallic Vacuum Switching Valve
CAN	Controller Area Network
CB	Circuit Breaker
CCo	Catalytic Converter for Oxidation
CCV	Canister Closed Valve
CD	Compact Disc
CF	Cornering Force
CG	Center of Gravity
CH	Channel
CKD	Complete Knock Down
COMB.	Combination
CPE	Coupe
CPS	Combustion Pressure Sensor
CPU	Central Processing Unit
CRS	Child Restraint System
CTR	Center
C/V	Check Valve
CV	Control Valve
CW	Curb Weight
DC	Direct Current
DEF	Defogger
DFL	Deflector
DIFF.	Differential
DIFF. LOCK	Differential Lock
D/INJ	Direct Injection
DLC	Data Link Connector
DLI	Distributorless Ignition
DOHC	Double Overhead Camshaft

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ABBREVIATION	MEANING
DP	Dash Pot
DS	Dead Soak
DSP	Digital Signal Processor
DTC	Diagnostic Trouble Code
DVD	Digital Versatile Disc
EBD	Electric Brake Force Distribution
EC	Electrochromic
ECAM	Engine Control And Measurement System
ECD	Electronically Controlled Diesel
ECDY	Eddy Current Dynamometer
ECT	Electronic Controlled Automatic Transmission
ECU	Electronic Control Unit
ED	Electro-Deposited Coating
EDU	Electronic Driving Unit
EDIC	Electric Diesel Injection Control
EFI	Electronic Fuel Injection
E/G	Engine
EGR	Exhaust Gas Recirculation
EGR-VM	EGR-Vacuum Modulator
ELR	Emergency Locking Retractor
EPS	Electric Power Steering
ENG	Engine
ES	Easy & Smooth
ESA	Electronic Spark Advance
ETCS-i	Electronic Throttle Control System-intelligent
EVAP	Evaporative Emission Control
EVP	Evaporator
E-VRV	Electric Vacuum Regulating Valve
EX	Exhaust
FE	Fuel Economy
FF	Front-Engine-Front-Wheel-Drive
F/G	Fuel Gauge

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ABBREVIATION	MEANING
FIPG	Formed In Place Gasket
FL	Fusible Link
F/P	Fuel Pump
FPU	Fuel Pressure Up
FR	Front
F/W	Flywheel
FW/D	Flywheel Damper
FWD	Front-Wheel-Drive
GAS	Gasoline
GND	Ground
GPS	Global Positioning System
GSA	Gear Shift Actuator
H/B	Hatchback
H-FUSE	High Current Fuse
HI	High
HID	High Intensity Discharge (Headlight)
HPU	Hydraulic Power Unit
HSG	Housing
HT	Hard Top
HV	Hybrid Vehicle
HWS	Heated Windshield System
IC	Integrated Circuit
IDI	Indirect Diesel Injection
IFS	Independent Front Suspension
IG	Ignition
IIA	Integrated Ignition Assembly
IN	Intake (Manifold, Valve)
INT	Intermittent
I/P	Instrument Panel
IRS	Independent Rear Suspension
ISC	Idle Speed Control
J/B	Junction Block

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ABBREVIATION	MEANING
J/C	Junction Connector
KD	Kick-Down
KDSS	Kinetic Dynamic Suspension System
LAN	Local Area Network
LB	Liftback
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LH	Left-Hand
LHD	Left-Hand Drive
LIN	Local Interconnect Network
L/H/W	Length, Height, Width
LLC	Long-Life Coolant
LNG	Liquefied Natural Gas
LO	Low
LPG	Liquefied Petroleum Gas
LSD	Limited Slip Differential
LSP & BV	Load Sensing Proportioning and Bypass Valve
LSPV	Load Sensing Proportioning Valve
MAP	Manifold Absolute Pressure
MAX.	Maximum
MIC	Microphone
MIL	Malfunction Indicator Lamp
MIN.	Minimum
MG1	Motor Generator No. 1
MG2	Motor Generator No. 2
MMT	Multi-mode Manual Transmission
MP	Multipurpose
MPI	Multipoint Electronic Injection
MPX	Multiplex Communication System
M/T, MTM	Manual Transmission (Transaxle)
MT	Mount
MTG	Mounting

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ABBREVIATION	MEANING
N	Neutral
NA	Natural Aspiration
NO.	Number
O2S	Oxygen Sensor
OC	Oxidation Catalyst
OCV	Oil Control Valve
O/D	Overdrive
OEM	Original Equipment Manufacturing
OHC	Overhead Camshaft
OHV	Overhead Valve
OPT	Option
ORVR	On-board Refilling Vapor Recovery
O/S	Oversize
P & BV	Proportioning and Bypass Valve
PBD	Power Back Door
PCS	Power Control System
PCV	Positive Crankcase Ventilation
PKB	Parking Brake
PPS	Progressive Power Steering
PROM	Programmable Read Only Memory
PS	Power Steering
PSD	Power Slide Door
PTC	Positive Temperature Coefficient
PTO	Power Take-Off
PZEV	Partial Zero Emission Vehicle
P/W	Power Window
R & P	Rack and Pinion
RAM	Random Access Memory
R/B	Relay Block
RBS	Recirculating Ball Type Steering
R/F	Reinforcement
REAS	Relative Absorber System

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ABBREVIATION	MEANING
RFS	Rigid Front Suspension
RH	Right-Hand
RHD	Right-Hand Drive
RLY	Relay
ROM	Read Only Memory
RR	Rear
RRS	Rigid Rear Suspension
RSE	Rear Seat Entertainment
RWD	Rear-Wheel Drive
SC	Supercharger
SCV	Swirl Control Valve (for gasoline engine)
	Suction Control Valve (for diesel engine)
SDN	Sedan
SEN	Sensor
SICS	Starting Injection Control System
SOC	State Of Charge
SOHC	Single Overhead Camshaft
SPEC	Specification
SPI	Single Point Injection
SPV	Spill Control Valve
SRS	Supplemental Restraint System
SSM	Special Service Materials
SST	Special Service Tools
STD	Standard
STJ	Cold-Start Fuel Injection
SW	Switch
SYS	System
T/A	Transaxle
TACH	Tachometer
TBI	Throttle Body Electronic Fuel Injection
TC	Turbocharger
TCCS	TOYOTA Computer-Controlled System

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ABBREVIATION	MEANING
TCM	Transmission Control Module
TCV	Timing Control Valve (for diesel engine)
	Tumble Control Valve (for gasoline engine)
TDC	Top Dead Center
TEMP.	Temperature
TFT	TOYOTA Free-Tronic
TIS	Total Information System for Vehicle Development
T/M	Transmission
TMC	TOYOTA Motor Corporation
TMMIN	PT. TOYOTA Motor Manufacturing Indonesia
TMMK	TOYOTA Motor Manufacturing Kentucky, Inc.
TMT	TOYOTA Motor Thailand Co. Ltd.
TRAC/TRC	Traction Control System
TURBO	Turbocharge
TVIP	TOYOTA Vehicle Intrusion Protection
TWC	Three-Way Catalyst
U/D	Underdrive
U/S	Undersize
VCV	Vacuum Control Valve
VDIM	Vehicle Dynamics Integrated Management
VENT	Ventilator
VIM	Vehicle Interface Module
VGRS	Variable Gear Ratio Steering
VIN	Vehicle Identification Number
VPS	Variable Power Steering
VSC	Vehicle Stability Control
VSV	Vacuum Switching Valve
VTV	Vacuum Transmitting Valve
VVT-i	Variable Valve Timing-intelligent
W/	With
WGN	Wagon
W/H	Wire Harness

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ABBREVIATION	MEANING
W/O	Without
1ST	First
2ND	Second
2WD	Two Wheel Drive Vehicle (4 x 2)
3RD	Third
4TH	Fourth
4WD	Four Wheel Drive Vehicle (4 x 4)
4WS	Four Wheel Steering System
5TH	Fifth



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Title: INTRODUCTION: TERMS: GLOSSARY OF SAE AND TOYOTA TERMS (2010 Corolla)		

GLOSSARY OF SAE AND TOYOTA TERMS

This glossary lists all SAE-J1930 terms and abbreviations used in this manual in compliance with SAE recommendations, as well as their TOYOTA equivalents.

SAE ABBREVIATION	SAE TERM	TOYOTA TERM ( )-ABBREVIATION
A/C	Air Conditioning	Air Conditioner
ACL	Air Cleaner	Air Cleaner, A/CL
AIR	Secondary Air Injection	Air Injection (AI)
AP	Accelerator Pedal	-
B+	Battery Positive Voltage	+B, Battery Voltage
BARO	Barometric Pressure	HAC
CAC	Charge Air Cooler	Intercooler
CARB	Carburetor	Carburetor
CFI	Continuous Fuel Injection	-
CKP	Crankshaft Position	Crank Angle
CL	Closed Loop	Closed Loop
CMP	Camshaft Position	Cam Angle
CPP	Clutch Pedal Position	-
CTOX	Continuous Trap Oxidizer	-
CTP	Closed Throttle Position	LL ON, Idle ON
DFI	Direct Fuel Injection	Direct Injection (DI./INJ)
DI	Distributor Ignition	-
DLC3	Data Link Connector 3	OBD II Diagnostic Connector
DTC	Diagnostic Trouble Code	Diagnostic Trouble Code
DTM	Diagnostic Test Mode	-
ECL	Engine Coolant Level	-
ECM	Engine Control Module	Engine Electronic Control Unit (ECU)
ECT	Engine Coolant Temperature	Coolant Temperature, Water Temperature (THW)
EEPROM	Electrically Erasable Programmable Read Only Memory	Electrically Erasable Programmable Read Only Memory (EEPROM)

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SAE ABBREVIATION	SAE TERM	TOYOTA TERM ( )-ABBREVIATION
EFE	Early Fuel Evaporation	Cold Mixture Heater (CMH), Heat Control Valve (HCV)
EGR	Exhaust Gas Recirculation	Exhaust Gas Recirculation (EGR)
EI	Electronic Ignition	Distributorless Ignition (DLI)
EM	Engine Modification	Engine Modification (EM)
EPROM	Erasable Programmable Read Only Memory	Programmable Read Only Memory (PROM)
EVAP	Evaporative Emission	Evaporative Emission Control (EVAP)
FC	Fan Control	-
FEEPROM	Flash Electrically Erasable Programmable Read Only Memory	-
FEPROM	Flash Erasable Programmable Read Only Memory	-
FF	Flexible Fuel	-
FP	Fuel Pump	Fuel Pump
GEN	Generator	Alternator
GND	Ground	Ground (GND)
HO2S	Heated Oxygen Sensor	Heated Oxygen Sensor (HO_2S)
IAC	Idle Air Control	Idle Speed Control (ISC)
IAT	Intake Air Temperature	Intake or Inlet Air Temperature
ICM	Ignition Control Module	-
IFI	Indirect Fuel Injection	Indirect Injection (IDL)
IFS	Inertia Fuel-Shutoff	-
ISC	Idle Speed Control	-
KS	Knock Sensor	Knock Sensor
MAF	Mass Airflow	Air Flow Meter
MAP	Manifold Absolute Pressure	Manifold Pressure Intake Vacuum
MC	Mixture Control	Electric Bleed Air Control Valve (EBCV) Mixture Control Valve (MCV) Electric Air Control Valve (EACV)
MDP	Manifold Differential Pressure	-
MFI	Multiport Fuel Injection	Electronic Fuel Injection (EFI)
MIL	Malfunction Indicator Lamp	Check Engine Light
MST	Manifold Surface Temperature	-

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SAE ABBREVIATION	SAE TERM	TOYOTA TERM ( )-ABBREVIATION
MVZ	Manifold Vacuum Zone	-
NVRAM	Non-Volatile Random Access Memory	-
O2S	Oxygen Sensor	Oxygen Sensor, O_2 Sensor (O_2S)
OBD	On-Board Diagnostic	On-Board Diagnostic System (OBD)
OC	Oxidation Catalytic Converter	Oxidation Catalytic Convert (OC), CCo
OL	Open Loop	Open Loop
PAIR	Pulsed Secondary Air Injection	Air Suction (AS)
PCM	Powertrain Control Module	-
PNP	Park/Neutral Position	-
PROM	Programmable Read Only Memory	-
PSP	Power Steering Pressure	-
PTOX	Periodic Trap Oxidizer	Diesel Particulate Filter (DPF) Diesel Particulate Trap (DPT)
RAM	Random Access Memory	Random Access Memory (RAM)
RM	Relay Module	-
ROM	Read Only Memory	Read Only Memory (ROM)
RPM	Engine Speed	Engine Speed
SC	Supercharger	Supercharger
SCB	Supercharger Bypass	E-ABV
SFI	Sequential Multiport Fuel Injection	Electronic Fuel Injection (EFI), Sequential Injection
SPL	Smoke Puff Limiter	-
SRI	Service Reminder Indicator	-
SRT	System Readiness Test	-
ST	Scan Tool	-
TB	Throttle Body	Throttle Body
TBI	Throttle Body Fuel Injection	Single Point Injection Central Fuel Injection (Ci)
TC	Turbocharger	Turbocharger
TCC	Torque Converter Clutch	Torque Converter
TCM	Transmission Control Module	Transmission ECU, ECT ECU
TP	Throttle Position	Throttle Position
TR	Transmission Range	-

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SAE ABBREVIATION	SAE TERM	TOYOTA TERM ( )-ABBREVIATION
TVV	Thermal Vacuum Valve	Bimetallic Vacuum Switching Valve (BVSV) Thermostatic Vacuum Switching Valve (TVSV)
TWC	Three-Way Catalytic Converter	Three-Way Catalytic (TWC) Manifold Converter CC_{RO}
TWC+OC	Three-Way + Oxidation Catalytic Converter	$CC_R + CCo$
VAF	Volume Airflow	Air Flow Meter
VR	Voltage Regulator	Voltage Regulator
VSS	Vehicle Speed Sensor	Vehicle Speed Sensor
WOT	Wide Open Throttle	Full Throttle
WU-OC	Warm Up Oxidation Catalytic Converter	-
WU-TWC	Warm Up Three-Way Catalytic Converter	-
3GR	Third Gear	-
4GR	Fourth Gear	-

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Title: TOC2: TOC2: FOREWORD (2010 Corolla)		

FOREWORD

This is Volume 2 of the 2010 COROLLA manual. There are four volumes to this manual. The sections included in each volume are indicated by black type in the Section Index. Use the Section Index of each volume to find the volume with the section you need.
This manual applies to the models listed below. It covers all information in the previously issued Pub. No. RM12R0U, and includes all production changes effective July, 2009 or later.

Applicable models	ZRE142 series
	AZE141 series

Please note that the publications below have also been prepared as relevant service manuals for the components and system in these vehicles.

MANUAL NAME	PUB. NO.
2010 COROLLA Electrical Wiring Diagram	EM12R1U

All information in this manual is based on the latest product information at the time of publication. However, specifications and procedures are subject to change without notice. For the most current information available, refer to the Toyota Technical Information System (TIS) online at dealership locations or on the Internet at http://techinfo.toyota.com.
If you find any failures in this manual, you are kindly requested to inform us by using the report form on the next page.

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Repair Manual Quality Report

Att.) Service Manager, Your Distributor

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Pub. No.	Issue Date
Name of Dealer	Name of Reporter
Subject	
Problem Description	
Correction Proposal	

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Title: TOC2: TOC2: CAUTION (2010 Corolla)		

CAUTION

This contents does not include all the necessary items about repair and service. This manual is made for the use of persons who have special techniques and certifications. If non-specialized or uncertified technicians perform repairs or service only using this manual or without proper equipment or tools, this may cause severe injury to you or other persons nearby and also cause damage to your customer's vehicle.
In order to prevent dangerous operation and damage to your customer's vehicle, be sure to follow the instructions shown below.

- This contents must be read thoroughly. It is especially important to have a good understanding of all the contents written in the PRECAUTION of "INTRODUCTION" section.
- The service method written in this manual is very effective to perform repair and service. When performing the operations following the procedures using this manual, be sure to use tools specified and recommended. If using non-specified or tools other than recommended tools and service methods, be sure to confirm the safety of the technicians and that there is no possibility of causing personal injury or damage to the customer's vehicle before starting the operation.
- If part replacement is necessary, the part must be replaced with the same part number or equivalent part. Do not replace it with an inferior quality part.
- It is important to note that this manual contains various "Cautions" and "Notices" that must be carefully observed in order to reduce the risk of personal injury during service or repair, or reduce the possibility that improper service or repair may damage the vehicle or render it unsafe. It is also important to understand that these "Cautions" and "Notices" are not exaggerations and are possible hazardous consequences that might result from failure to follow these instructions.

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Title: TOC3: TOC3: FOREWORD (2010 Corolla)		

FOREWORD

This is Volume 3 of the 2010 COROLLA manual. There are four volumes to this manual. The sections included in each volume are indicated by black type in the Section Index. Use the Section Index of each volume to find the volume with the section you need.
This manual applies to the models listed below. It covers all information in the previously issued Pub. No. RM12R0U, and includes all production changes effective July, 2009 or later.

Applicable models	ZRE142 series
	AZE141 series

Please note that the publications below have also been prepared as relevant service manuals for the components and system in these vehicles.

MANUAL NAME	PUB. NO.
2010 COROLLA Electrical Wiring Diagram	EM12R1U

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If you find any failures in this manual, you are kindly requested to inform us by using the report form on the next page.

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Repair Manual Quality Report

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Title: TOC4: TOC4: FOREWORD (2010 Corolla)		

FOREWORD

This is Volume 4 of the 2010 COROLLA manual. There are four volumes to this manual. The sections included in each volume are indicated by black type in the Section Index. Use the Section Index of each volume to find the volume with the section you need.
This manual applies to the models listed below. It covers all information in the previously issued Pub. No. RM12R0U, and includes all production changes effective July, 2009 or later.

Applicable models	ZRE142 series
	AZE141 series

Please note that the publications below have also been prepared as relevant service manuals for the components and system in these vehicles.

MANUAL NAME	PUB. NO.
2010 COROLLA Electrical Wiring Diagram	EM12R1U

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CAUTION

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