

IMMOBILIZER SYSTEM

7010-06

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IMMOBILIZER SYSTEM

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اولین سامانه دیجیتال خودرو (مسئولیت محدود) ایران REMOVAL AND INSTALLATION

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



IMMOBILIZER SYSTEM

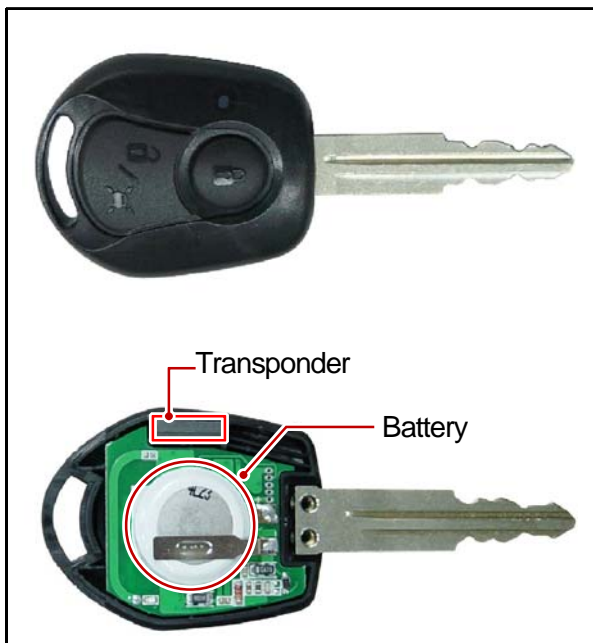
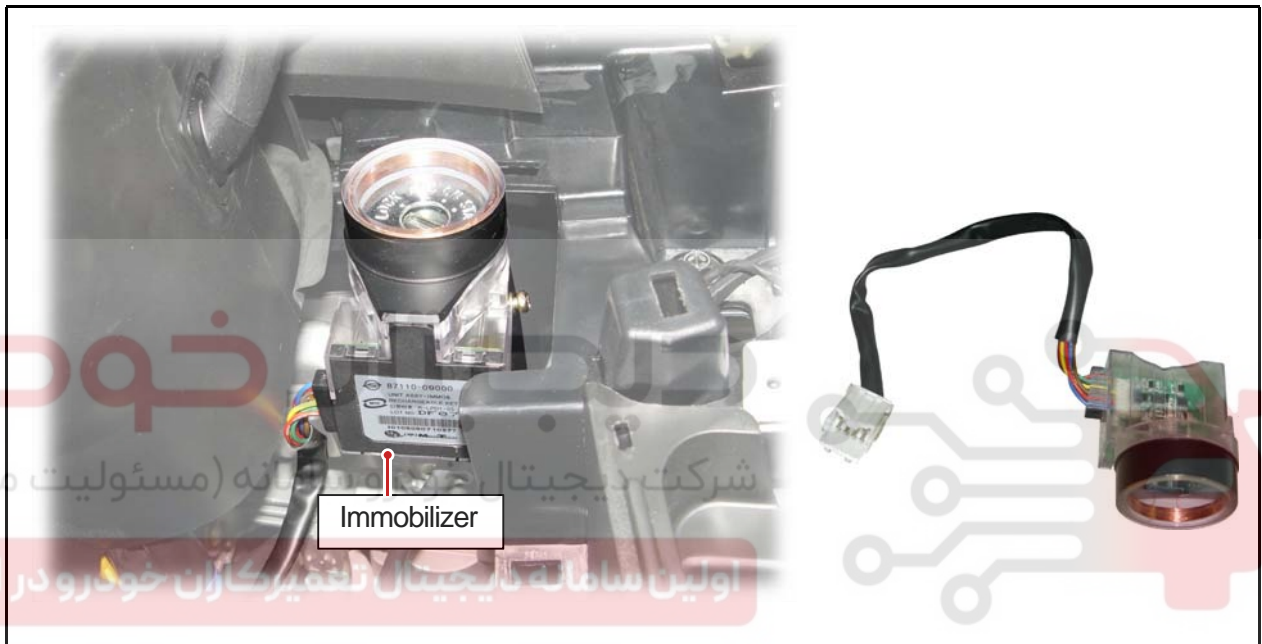
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OVERVIEW AND OPERATION PROCESS

1. OVERVIEW

1) What is the Immobilizer System?

The immobilizer system prevents the vehicle theft by allowing only the authorized key to start the engine. The transponder inside the key communicates with the immobilizer installed in the key box, and the system permits the engine to start after confirming the encrypted coding from the engine ECU. Refer to the information that follows for specific functions and their descriptions.

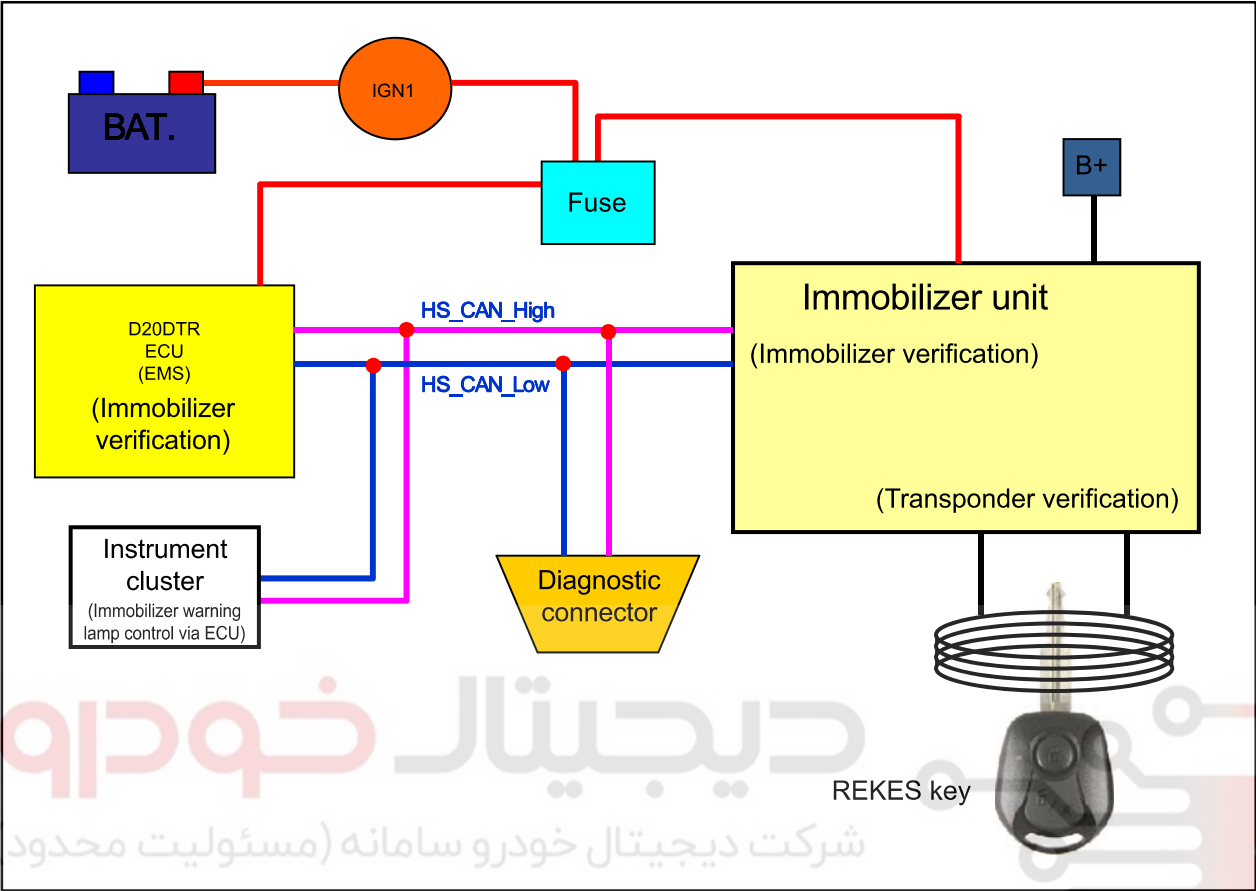


Modification basis	
Application basis	
Affected VIN	

IMMOBILIZER SYSTEM

undefined

2) System Diagram



The certification for the immobilizer is performed when turning the ignition switch to the "ON" position after the CAN communication between the ECU and immobilizer is established.

Modification basis	
Application basis	
Affected VIN	

2. BASIC FUNCTIONS OF IMMOBILIZER KEY (REKES FUNCTION)

► Door Unlock and Panic Function

Briefly press (below 0.5 sec): Door unlock and theft deterrent mode is deactivated

Press and hold (over 2 sec): Panic function

1. Door unlock (Briefly press)

- If the unlock button on the remote control is pressed, the door will be opened and the theft deterrent mode will be activated. If the door coupled switch of front room lamp is pressed, the lamp will come on for 30 seconds. It will turn off immediately after the lock button of the remote control is pressed.

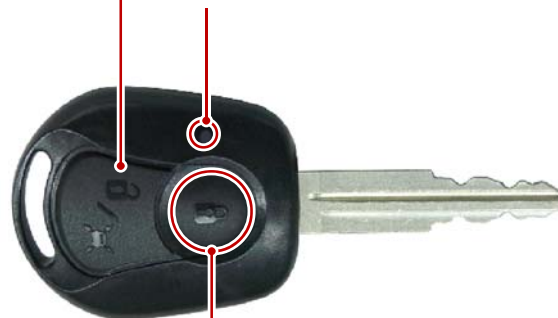
2. Panic function: activated in the theft deterrent mode

- If you press and hold the door unlock and panic buttons, the buzzer will sound for 27 seconds.
- The function is inactivated if any button of remote control is pressed.

LED flasher

Briefly press: blink once

Press and hold: blink twice



► Door Lock Function

Briefly press (below 0.5 sec): Door lock and theft deterrent mode is activated

Door lock (Briefly press)

- If you press this button locks all doors and activates the theft deterrent mode.

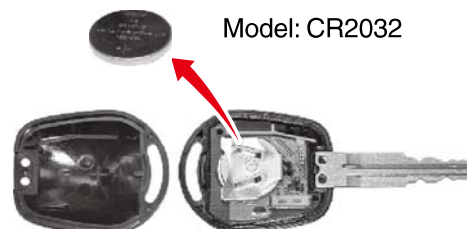
► Battery Replacement

With REKES



Model	CR 2032 (Rekes key type)
	V 625U (without Rekes)
Amount	One

Model: CR2032



Modification basis	
Application basis	
Affected VIN	

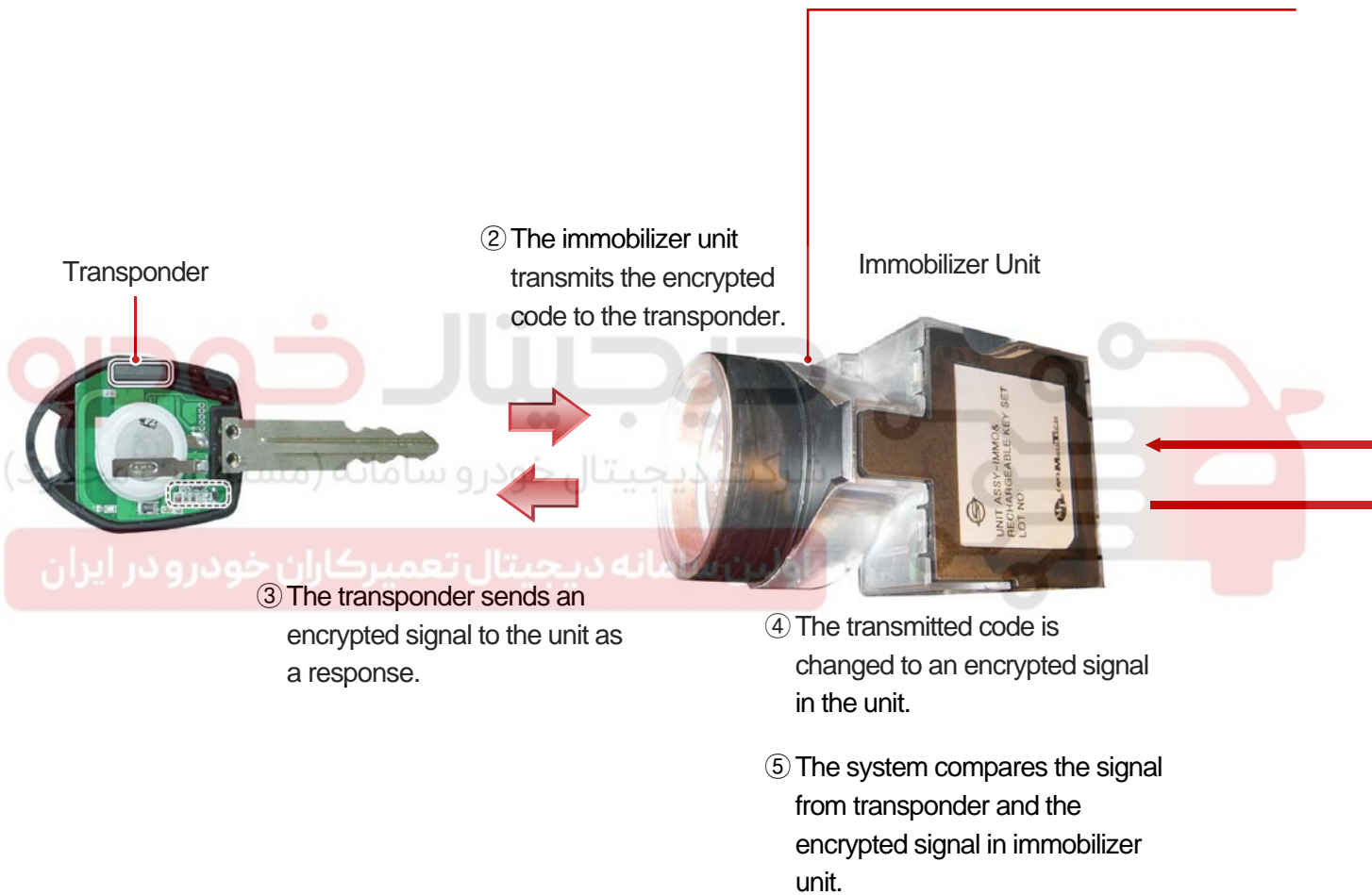
IMMOBILIZER SYSTEM

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3. OTHER FUNCTIONS IN SYSTEM

1) Immobilizer Function

The immobilizer system prevents the vehicle theft by allowing only the authorized key to start the engine. The transponder inside the key communicates with the immobilizer installed in the key box, and the system permits the engine to start after confirming the encrypted coding from the engine ECU.



⚠ CAUTION

- In the following cases, a driver may be unable to start the vehicle with the immobilizer.
- When two or more immobilizer keys come into contact with (each) other(s).
 - When the key is close to any device sending or receiving electromagnetic fields or waves.
 - When the key is close to any electronic or electric devices such as lightening equipment, security keys or security cards.
 - When the key is close to a magnetic or metal object or a battery.
 -

Modification basis	
Application basis	
Affected VIN	

► Immobilizer and Warning Lamp



- ① When turning the ignition key to ON position, the ECU transmits the challenge message to the immobilizer unit.
(to verify whether the key is valid)

This indicator comes on when the ignition key is communicating with the engine control unit (during engine starting) and goes out after starting the engine.

Lamp ON: in communication
Blinking twice for one second: immobilizer system failure
Blinking once for two seconds: immobilizer unit is not coded

⚠ CAUTION

The immobilizer indicator does not come on if the communication time between immobilizer key and ECU is too short.

- ⑦ The ECU enable the engine to be started.

Engine Control Unit (ECU)

- ⑥ Only when the two signals are identical, it recognizes the key as the authorized one and transmits the positive message to the ECU.

⚠ CAUTION

- Do not drop or shock to the transponder in the key as it may be damaged.
- With a damaged transponder, the engine cannot be started.
- When you erase the code or register an extra key, let the owner attend on the site.

⚠ CAUTION

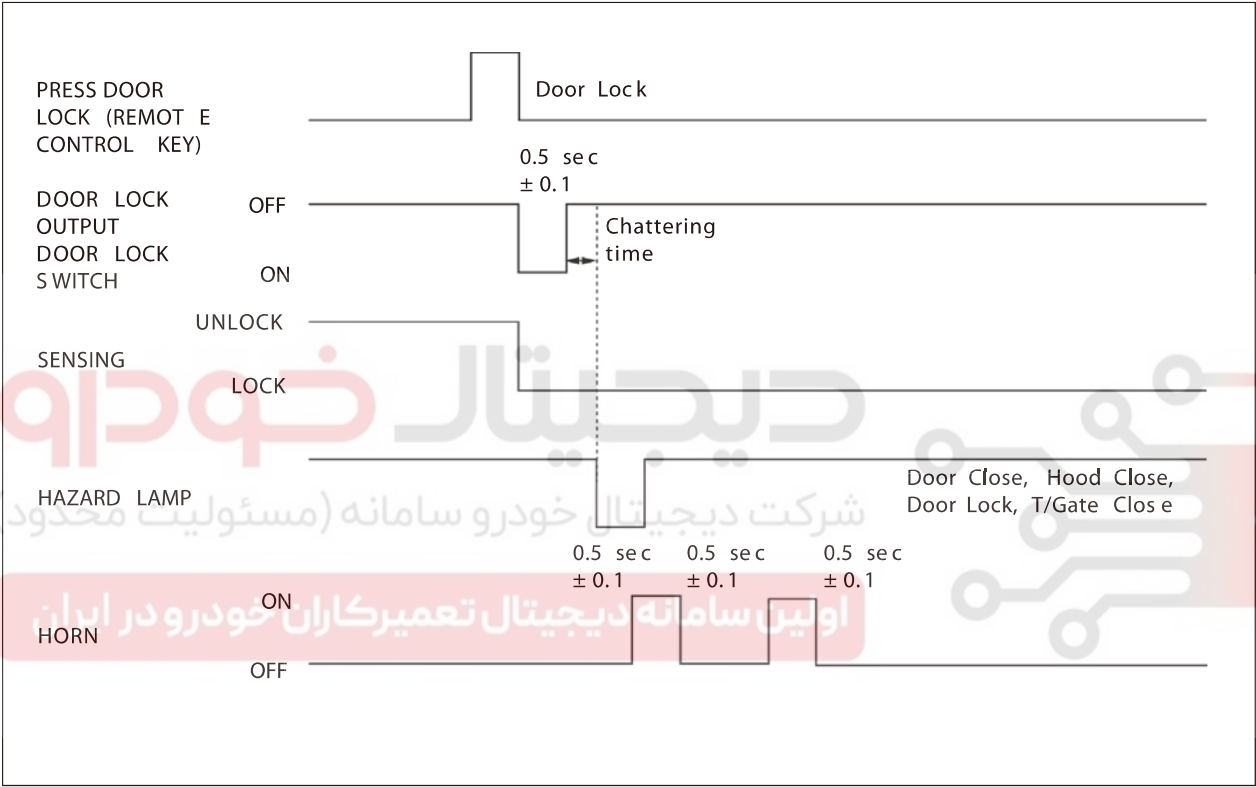
- In any case, the immobilizer system can not be removed from the vehicle. If you attempt to remove it and damage the system, starting will be impossible, so never attempt to remove, damage or modify it.
- The remote engine starter cannot be installed on the vehicle equipped with the immobilizer system.

Modification basis	
Application basis	
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4. REKES OPERATION LOGIC

1) Remote Door Lock

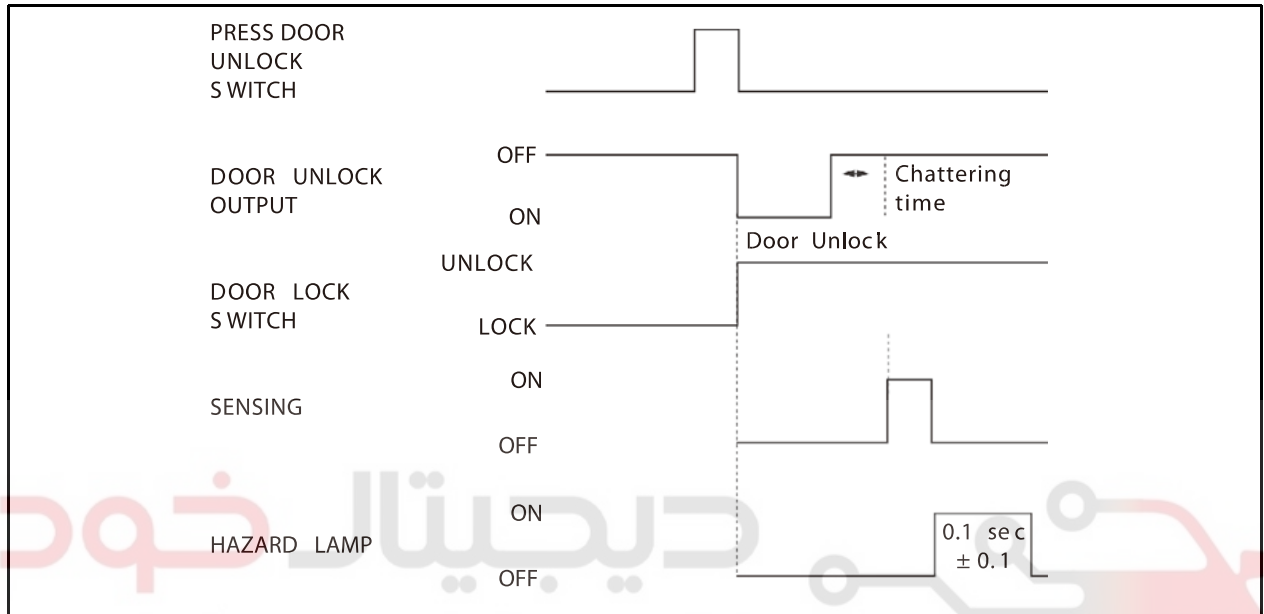
1. When briefly pressing the door lock switch on the remote control key for less than 0.5 seconds, all doors are locked.
2. The system outputs the "LOCK" signal immediately after receiving the door lock message from the remote control key. If the vehicle is locked while all doors including tailgate and engine hood are closed, the theft deterrent mode is activated (hazard warning lamps are blinking twice).



Modification basis	
Application basis	
Affected VIN	

2) Door Unlock

1. When pressing and holding the door unlock switch on the remote control key for more than 0.5 seconds, all doors are unlocked.
2. When receiving the DOOR UNLOCK message from the remote control key, the door unlock relay is turned on for 0.5 seconds.
3. The hazard warning lamps blink once only when the doors are successfully unlocked.



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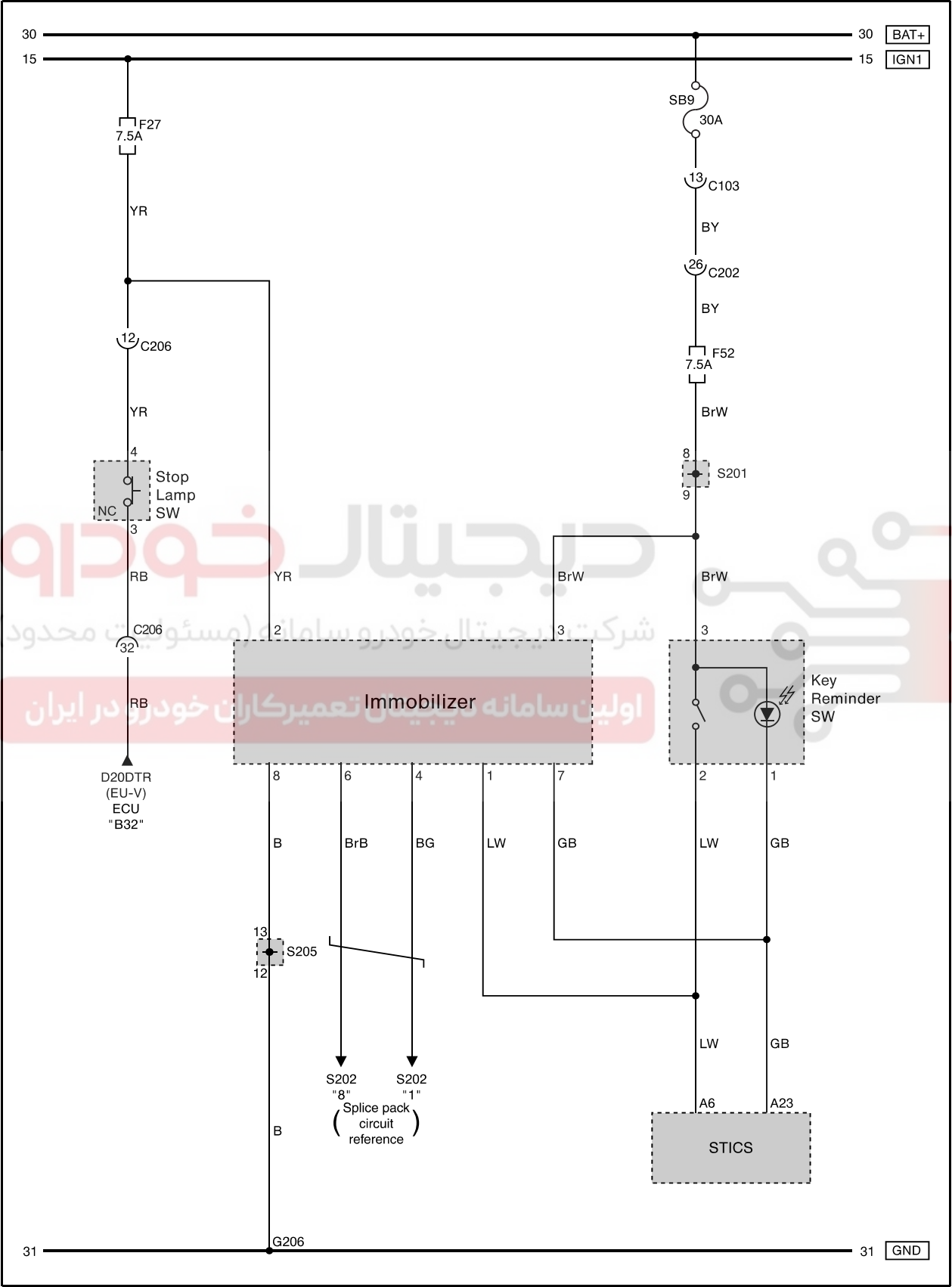
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Modification basis	
Application basis	
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IMMOBILIZER SYSTEM

undefined

5. CIRCUIT DIAGRAM



IMMOBILIZER SYSTEM

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Modification basis	
Application basis	
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REMOVAL AND INSTALLATION

S.G.N.

7010-06 REPLACING ELECTRIC HEAD OF KEY

As mentioned above, the key with the immobilizer function is sealed to prevent ingress of water or dirt. The following is about the life and replacement of the immobilizer key.

► **Expected battery life key**

- Approx. 5 years when it is used 10 times per day

► **The electronic head unit of immobilizer key should be replaced when**

- the transponder (immobilizer) is damaged.
- there is other fault or the key is inoperative.

► **How to replace the electronic head unit of immobilizer key**

The key consists of 2 parts: electronic head unit assembly and key plate as illustrated below. Only the electronic head unit assembly needs to be replaced.



Key type	REKES key
Specification	CR2032
Amount	1

Modification basis	
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► How To Replace Electric Head Part



1. Remove the mounting screw cap of the key plate.



2. Unscrew the two mounting screws (A) on the key plate.



3. Grasp the key plate and the head part, prize off the head part to remove it.



4. After replacing the head part, assemble in the reverse order of removal.

**NOTE**

This procedures applies to all the key type.

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Modification basis	
Application basis	
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S.G.N.

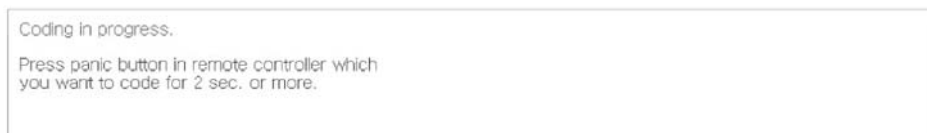
7010-06 REKES KEY CODING**1) How to Code REKES Key**

If you replace the REKES key or immobilizer & rechargeable key to new one, you should code the REKES key using the diagnostic device. (maximum 5)

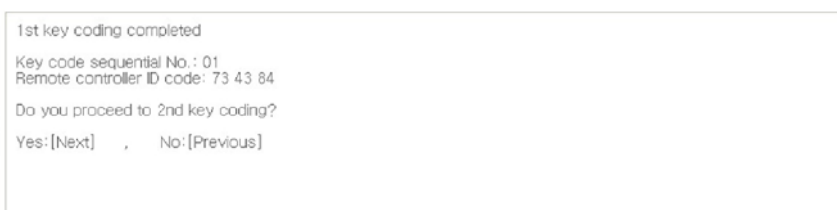
1. Connect the diagnostic device to the vehicle and select the vehicle type and system (RK-STICS). When the following screen is displayed, select 'REMOCON CODING'.



2. Remove the remote control key from the ignition key box and press 'Next'. Press the door UNLOCK (PANIC) button on the remote control key once (for approx. 2 seconds or longer).



3. The first key coding completion screen is displayed with beep sound as follows: Press 'Next' and perform the second remote control key coding in the same way.



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4. When the second key coding is completed, the following screen is displayed. Finish the remote control key coding by pressing 'Previous'.

2nd key coding completed
 Key code sequential No.: 01
 Remote controller ID code: 73 43 84
 Do you proceed to 2nd key coding?
 Yes: [Next] , No: [Previous]

5. Exit the diagnostic screen, remove the device from the diagnostic connector and perform the function test for the remote control key. If it does not work well, perform the above procedures again.

CAUTION

When you code newly purchased remote control key:

- When you lost the remote control key and purchase a new one, if you code only the newly purchased one, the existing remote control key becomes unavailable. You must code the newly purchased remote control key together with the existing one.

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2) How to Register Transponder

1. Insert the ignition key into the key cylinder and turn it to the "ON" position.
2. Select the vehicle type and system (immobilizer) on the diagnosis program.
3. Select the Transponder registration menu and enter the password. (initial value is "0000") Select "Next".

Diagnostic Menu

system Action>>Immobilizer Finish

1. Identification
2. Transponder Registration
3. EMS Registration

Enter 4-digit password.
Password:
Click or enter "Apply input value" after inputting password, and then Click "Next" button.

Input: 0000 Apply input value

Next

4. Press "Next" with the first key in key box.

Diagnostic Menu

system Action>>Immobilizer Finish

1. Identification
2. Transponder Registration
3. EMS Registration

Proceed according to registration procedure for transponder
Please Insert 1st key.
Press "Next" button

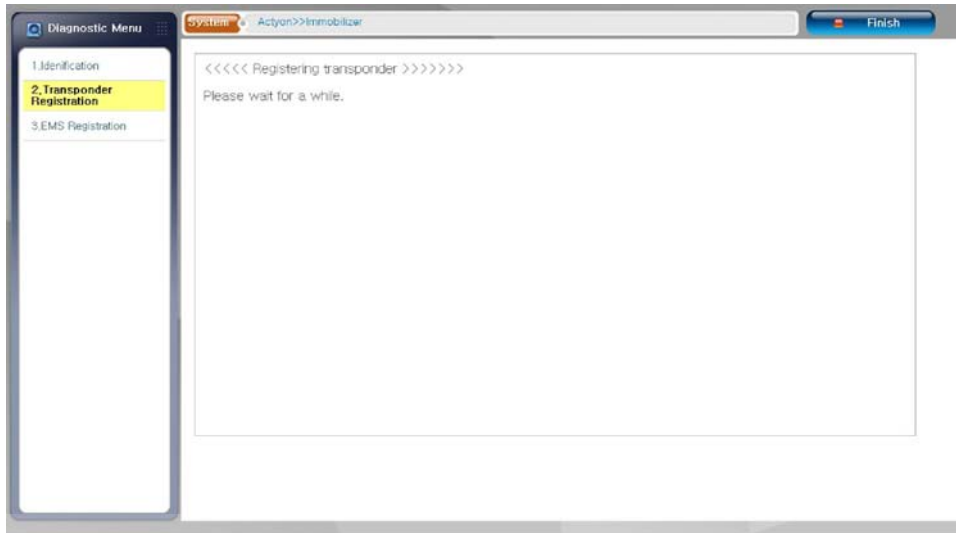
Next

Modification basis	
Application basis	
Affected VIN	

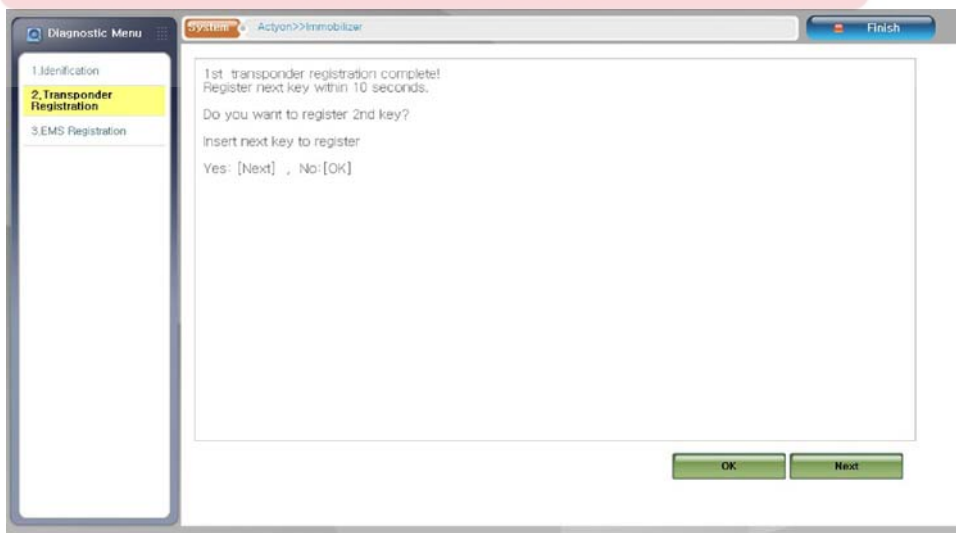
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5. Check the progress.



6. If another key should be registered additionally, insert the second key into the key cylinder and press "Next" within 10 seconds since the first transponder coding is complete.



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7. Press "OK" button when the registration is complete.



NOTE

If the registration fails, press "Previous" button and perform the registration procedures again.



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ELECTRI
CFUSE
AND

STICS

IMMOBILI
ZER

CLUSTER

LAMP

SWITCH

WIPER &
WASHERRAIN
SENSOR

PAS

AUDIO
SYSTEM

Modification basis	
Application basis	
Affected VIN	

IMMOBILIZER SYSTEM

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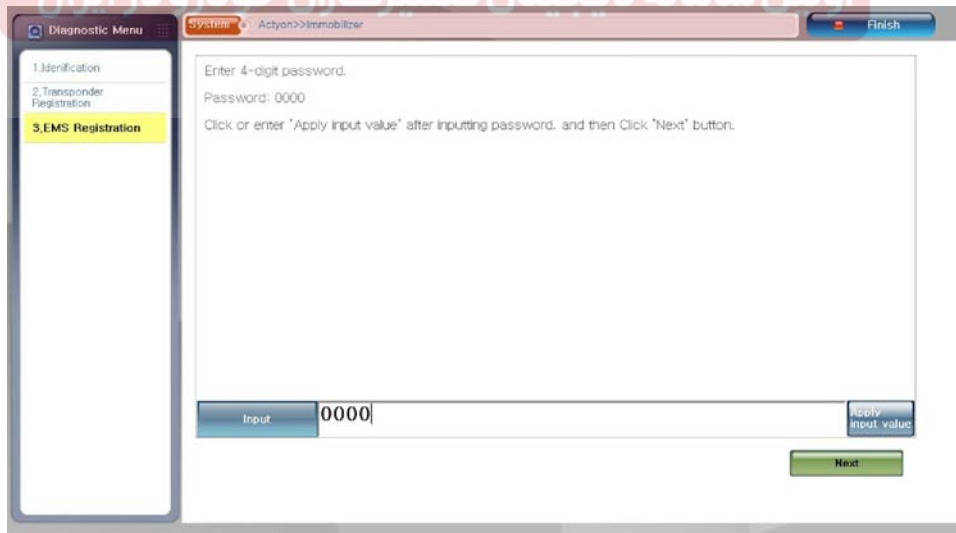
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2) EMS Registration

1. Return to the main screen and enter into the item "Immobilizer" under "System".



2. Go into "EMS Registration" on the right of the diagnosis menu, enter the password - default value "0000" - and press the "Next" button.

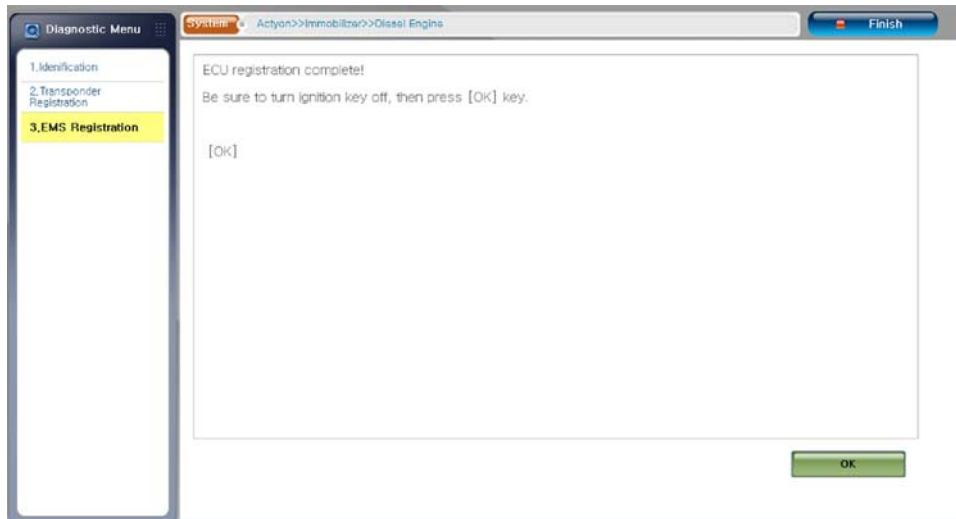


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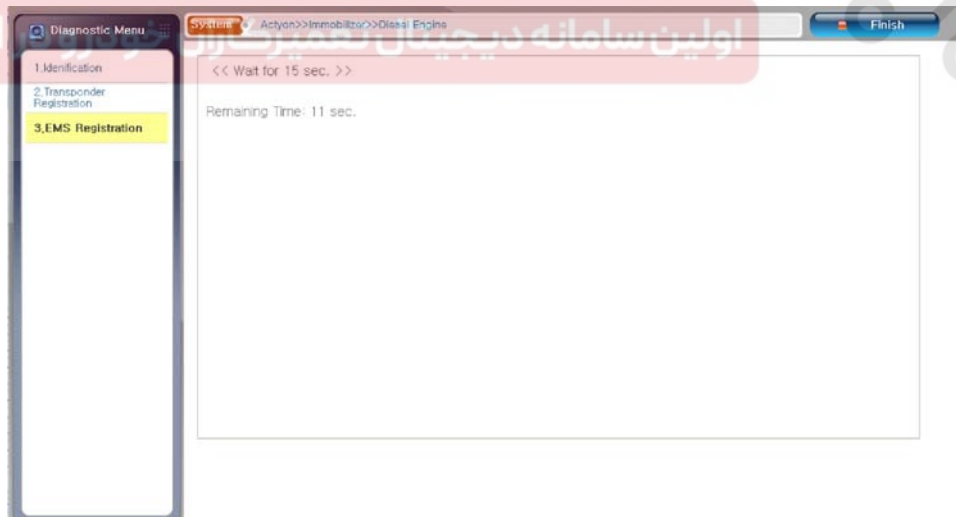
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Modification basis	
Application basis	
Affected VIN	

3. Turn the ignition switch to the "OFF" position as instructed on the screen.



4. Wait for 15 seconds as instructed on the screen.



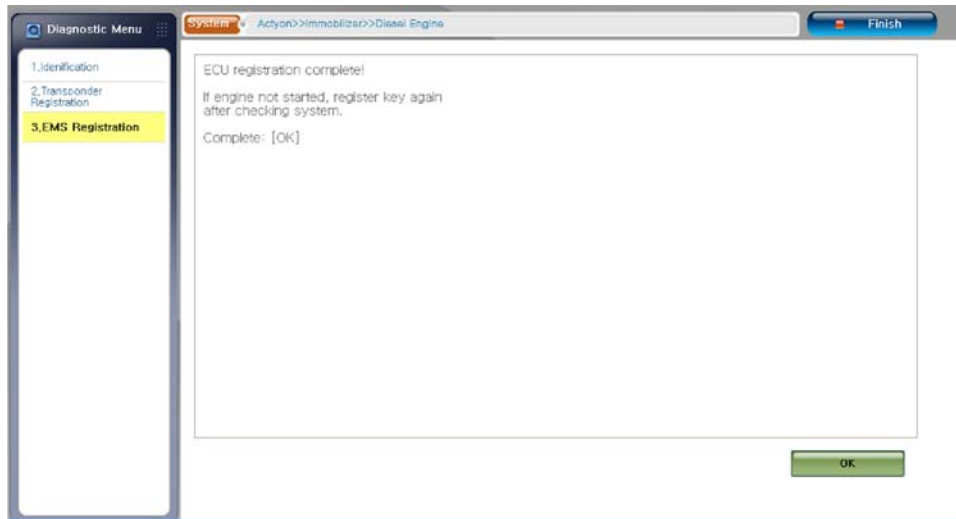
Modification basis	
Application basis	
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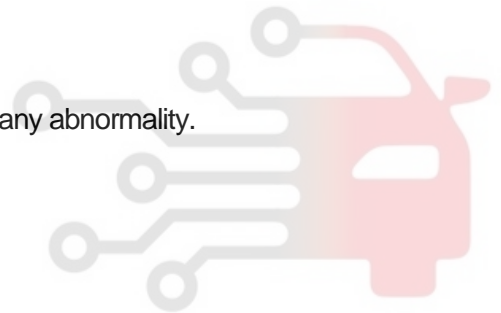
5. Once the EMS registration is completed, press the "OK" button to exit the program.



6. Clear the DTC(s) for relevant units including engine ECU and check for any abnormality.

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undefined

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7010-06 IMMOBILIZER UNIT

1) When Replacing the ECU

After replacing the ECU with new one, perform the variant coding. Then, insert the ignition key and perform the immobilizer coding.

2) When Replacing the Immobilizer Unit or Key Head Part

CAUTION

- When inserting an ignition key after replacing the immobilizer unit, the ECU transmits the challenge message and waits for the response message. The immobilizer unit indicator blinks with 0.5 Hz of interval to inform that the immobilizer unit is not programmed (i.e. newly replaced). In this case, the immobilizer coding should be performed.

3) Removal and Installation of Immobilizer Unit

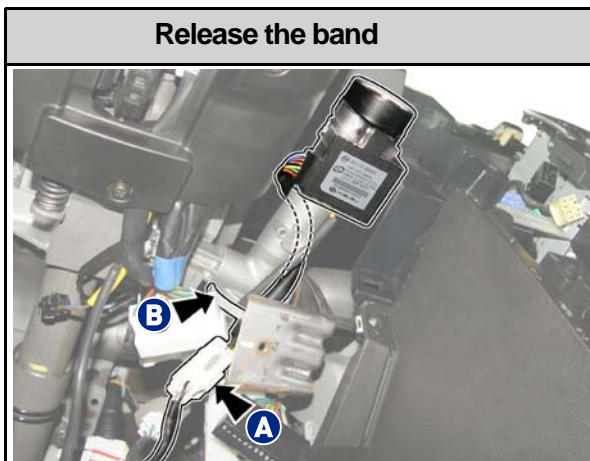
Preceding work

1. Remove the battery negative cable.
2. Remove the lower instrument panel (driver side) and center fascia panel.

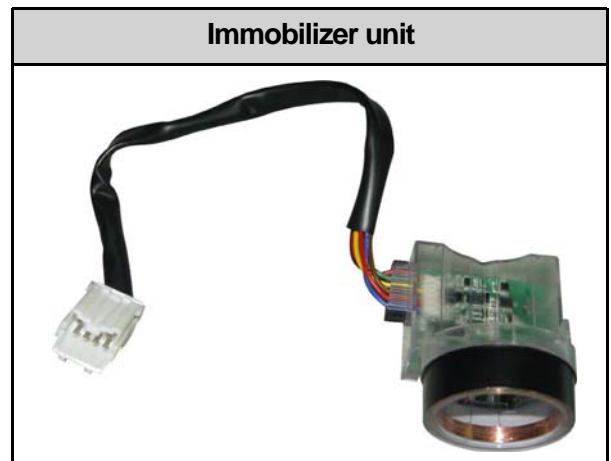


1. Unscrew one mounting screw from the immobilizer unit.

2. Release the band (B) and remove the unit connector (A).



Release the band



Immobilizer unit

Modification basis	
Application basis	
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undefined

Memo

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