Component Procedures: Keyless Start / Stop Switch

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Component Procedures: Keyless Start / Stop Switch

Parts and Labor (itype_189)

Parts

Qualifier	Part #	Name	Price	Note
Ignition Lock > Power Switch	95430F2510KEX	With Sport	105.27	
Ignition Lock > Power Switch	93502F2500SSH	Without Sport	129.90	

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Ignition Lock > Power Switch, R&R	B	0.8	0.0

Button Engine Start System - Description and Operation (Article 44689)

- Description

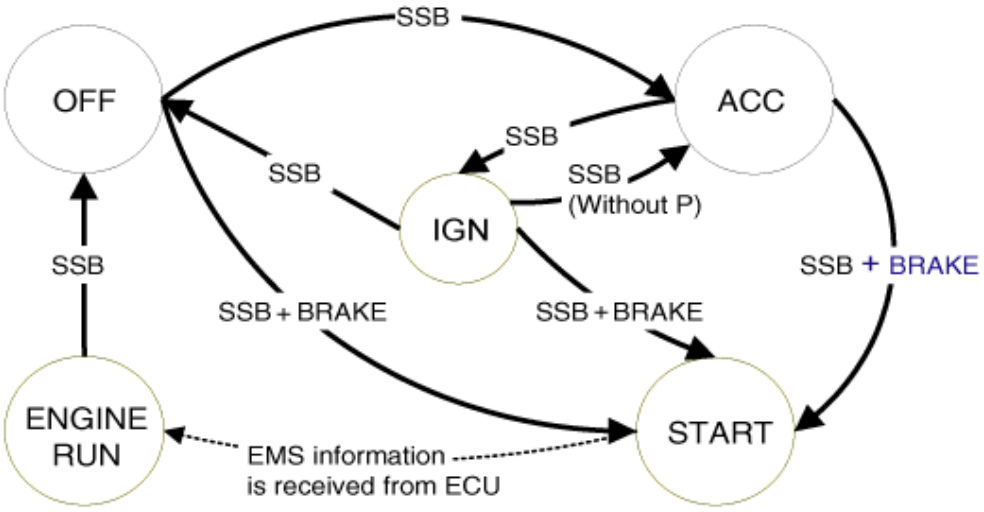
System Overview

- Human / machine interface through a 1-stage button, for terminal switching and engine start.
- Control of external relays for ACC / IGN1 / IGN2 terminal switching and STARTER , without use of mechanical ignition switch .
- Indication of vehicle status through LED or explicit messages on display.
- Immobilizer function by LF transponder communication between fob and fob holder.
- Redundant architecture for high system dependability .
- Interface with Low Speed CAN vehicle communication network.
- Interface with LIN vehicle communication network depending on platform .

System Main Function

- Switching of ACC / IGN1 / IGN2 terminals.
- Control of the STARTER relay BAT line (high side) based on communication with EMS ECU.
- Management of the Immobilizer function.
- Management of BES warning function.

Button Engine Start System



- Control Ignition and engine ON/OFF by Sending signal to IPM .
- Display status by LED Lamp ON/OFF. (Amber or Green)

Indicator ON/OFF Condition At Ignition Key Off Condition

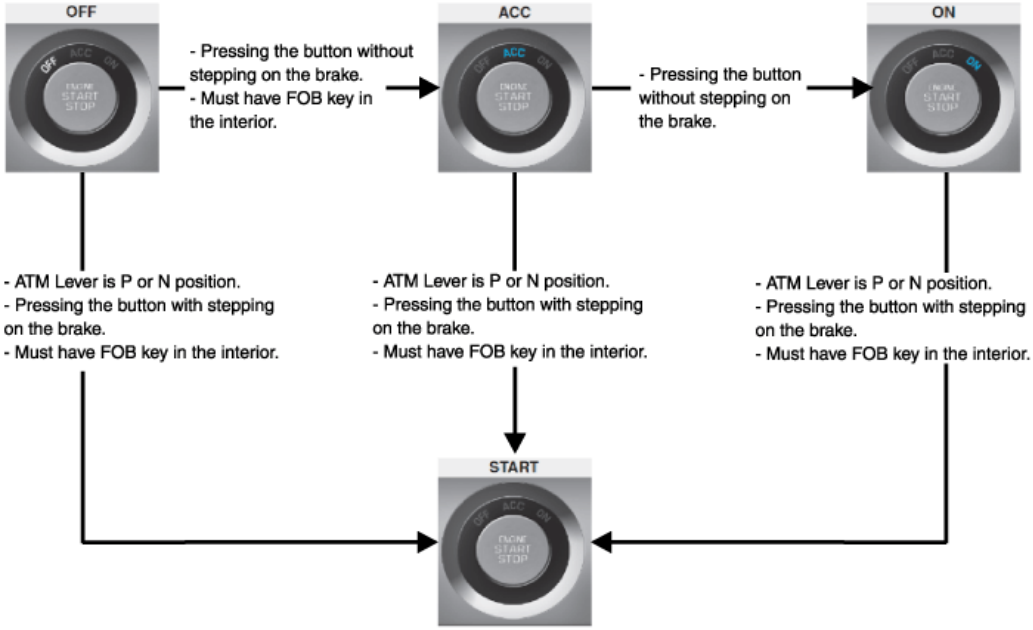
No Character lamp Conditions

1 Indicator Lamp ON Door open, Tail lamp ON, ACC, IG ON

2 Indicator Lamp 30sec ON → Lamp OFF Door close, Tail lamp OFF, IG OFF

3 Indicator Lamp OFF Remote LOCK, Passive LOCK

4 Rheostat at tail lamp ON (Illumination lamp)
Indicator ON/OFF Condition According To Ignition Key's Position
No Ignition conditions Start Button LED status
1 IG OFF White color LED ON
2 IG ACC Amber color LED ON
3 IG ON (Engine OFF) Green color LED ON
4 Cranking Maintain LED status before cranking
5 Engine running LED OFF
Operation for Each Function of Button Starting
- Electric power ON / Ignition ON The electric power is changed through OFF → ACC→IGN→OFF by pressing the button without stepping on the brake (Or with stepping on the brake) inside the car with FOB key (However, repeat ACC↔IGN when it is not in P. Converting to OFF is impossible.) The starting is ignited when the button is pressed with stepping on the brake at P/N position with FOB key.
- The electric power is changed through OFF → ACC→IGN→OFF by pressing the button without stepping on the brake (Or with stepping on the brake) inside the car with FOB key (However, repeat ACC↔IGN when it is not in P. Converting to OFF is impossible.)
- The starting is ignited when the button is pressed with stepping on the brake at P/N position with FOB key.



- Electric power OFF/ Ignition OFF The ignition OFF is possible in the state of vehicle stop. (Ignition OFF is possible in any position of ATM lever.) The lever shall be shifted for parking in gear N by pressing the ATM lever release button after electric power off in P.
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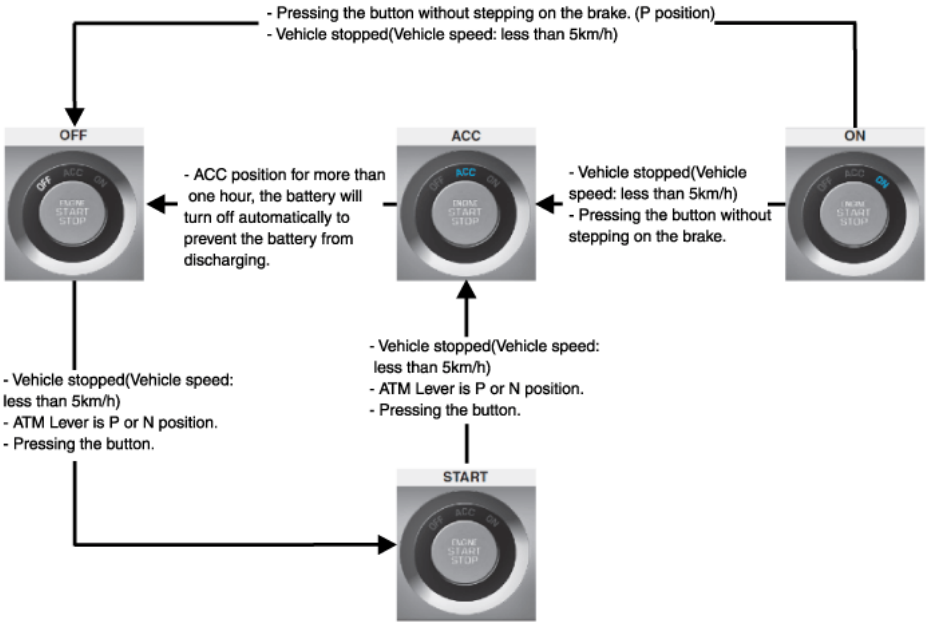

- How to off the ignition forcibly and to restart during driving It is a method of engine stop forcibly in vehicle topping down, fuel leaking and emergency (Ex: Accelerator pedal return failure) The engine is off and returned to the ACC state when the button is pressed for 2 seconds and more than 3 times successively within 3 seconds during driving. The restarting is available for next 30 seconds regardless of FOB key and the electric power is changed through OFF → ACC→IGN→OFF by pressing the button without stepping on the brake (or with stepping on the brake) inside the car with FOB key. (However, when it is not in P position, ACC↔IGN is repeated. The conversion to OFF is impossible.)
- It is a method of engine stop forcibly in vehicle topping down, fuel leaking and emergency (Ex: Accelerator pedal return failure)
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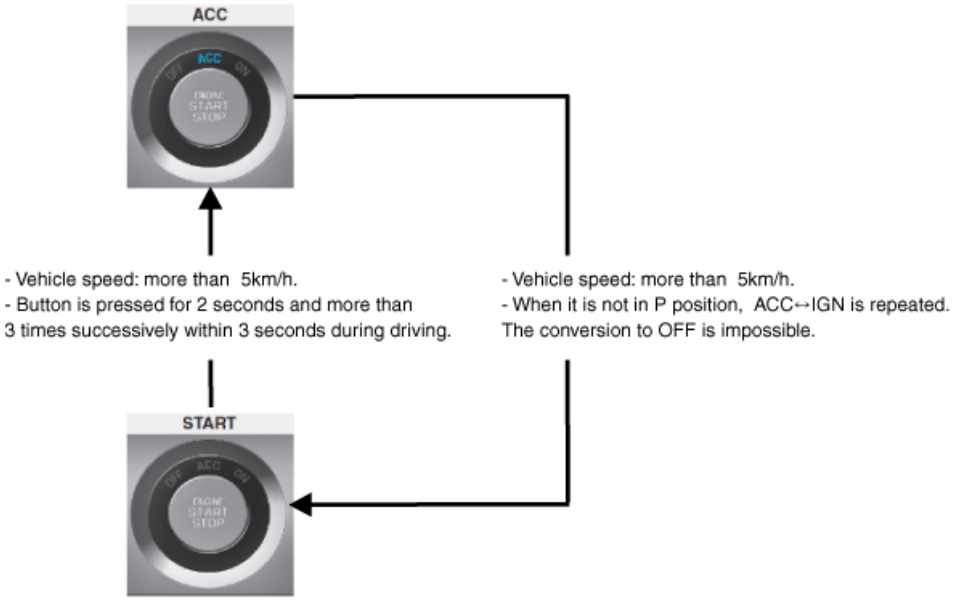
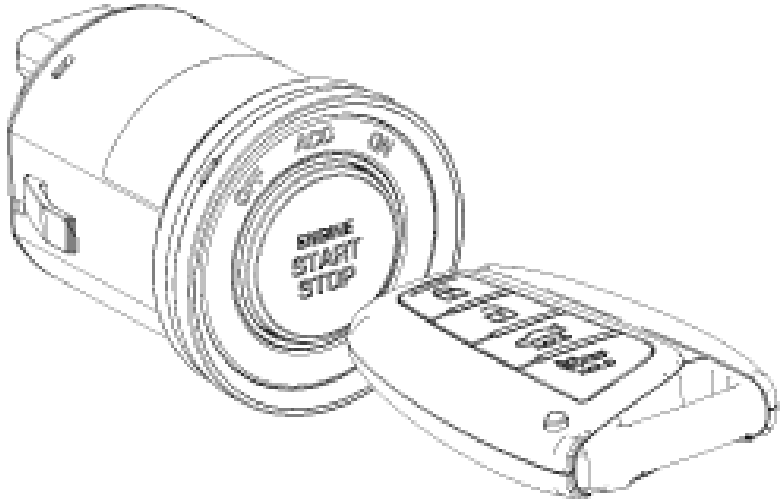


- Function of 0.5 second delay for brake switch input. The starting is available when the brake pedal is stepped on within 0.5 second after pressing the start button in engine OFF state.
- State of start button indicator (LED) ON depending on the electric power state. Electric power OFF : LED OFF Electric power ACC state : Yellow LED ON Electric power ON : Blue LED ON During cranking : Maintaining the

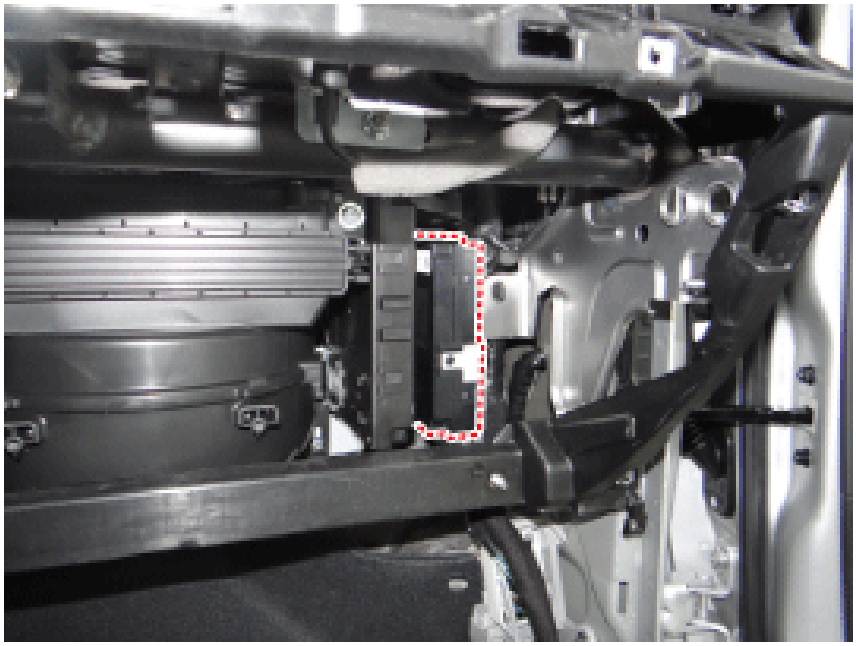
previous LED ON state before cranking Starting ON state : LED OFF
- Electric power OFF : LED OFF
- Electric power ACC state : Yellow LED ON
- Electric power ON : Blue LED ON
- During cranking : Maintaining the previous LED ON state before cranking
- Starting ON state : LED OFF

Limp Home Mode



- When the input for the brake is not made (AT specification) Moving to the "START" when SSB is pressed longer than 10 seconds in ACC state.
- In case of problem in communication between EMS and CAN (Namely, not available for deciding the EMS state) Moving to the state of "ENGINE RUN" from 'START" based on the RPM input
- In case of short out of two SSB input line The electric power cycling is available when SSB is pressed twice within 10 seconds (SSB LIMP HOME PRESS) The buzzer rings when the button is pressed in the first time. The electric power cycling is available and buzzer stops when the button is pressed twice within 10 seconds.

Smart Key Unit



- "Start Stop Button (SSB) monitoring",
- "Immobilizer communication" (with Engine Management System unit for immobilizer release),
- "Authentication server" (Validity of Transponder and in case of Smart Key option Passive Fob authentication

),
- "System consistency monitoring",
- "System diagnosis",
- Control of display message / warning buzzer .
- Control of Terminal relays
- Monitoring of the Vehicle speed received from sensor or ABS/ESP ECU.
- Control of SSB LEDs (illumination, clamp state).
- Control of the base station located in SSB through direct serial interface.
- System consistency monitoring to diagnose SMK failure and to switch to relevant limp home mode.
- Providing vehicle speed information
- Start Stop Button (SSB) monitoring
- Starter power control

Start/Stop Button (SSB)

- To activate the power modes 'Off', 'Accessory', 'Ignition' and 'Start' by switching the corresponding terminals
- To start the engine
- To stop the engine

BES (Button Engine Start) System State Chart

System States in Learnt Mode

System State Terminal Status Engine status

1. OFF - Locked OFF Stopped
2. OFF - Unlocked OFF Stopped
3. ACC ACC Stopped
4. IGN IGN1, IGN2, ACC Stopped
5. Start IGN1, Start Cranking
6. IGN - Engine IGN1, IGN2, ACC Running (means "self-running")

System States In Virgin Mode

1. OFF - UNLOCKED OFF Stopped
2. ACC ACC Stopped
3. IGN IGN1, IGN2, ACC Stopped
4. Start IGN1, START with special pattern of activation Cranking
5. IGN - Engine IGN1, IGN2, ACC Running (means "self-running")

Smart Key Module System - Service Tips (Article 42560)

Circuit Description

The SMART KEY system allows the driver to access and operate a vehicle in a very convenient way. To access the vehicle, no traditional key or remote control unit is needed.

The driver carries a SMART KEY FOB which does not require any conscious actions by the driver (e.g. operate a RKE button). The SMART KEY system is triggered by pressing a push button in the door handle.

■ **Role of Main Components**

1. Smart Key Control Module :
   1) Controls Power Supply Relay (ACC, IG1, IG2, Start).
   2) Transmits Passive Lock/Unlock signal to BCM via B-CAN.
   3) Transmits Authorization information through serial communication with ECM/PCM (Engine Start Permission).
   4) Antenna operation & Smart Key Authorization.
   5) Diagnosis Function (Communicate with Diagnosis Tool through K-Line).
   6) Sets Engine status & Transmission specification automatically using C-CAN information.
   7) Verifies Immobilizer communication data and Authorize.
2. Smart Key Outside Handle :
   1) Detects Smart Key on the outside of door area (LF Antenna Built-in).
   2) Passive Lock / Unlock (Button Type).
3. Smart Key Bumper Antenna : Detects Smart Key on the outside of trunk area (LF Antenna Built-in).
4. Instrument Cluster : Immobilizer Indicator, Warning Buzzer Output, Warning Message.
5. Smart Key Antenna (Interior) : Detects Smart Key in interior area.
6. Smart Key Trunk Antenna : Detects Smart Key in trunk area.
7. Start Stop Button (SSB) : is used for the Engine Start Stop and Power transfer.
8. Power Distribution Relay : SMK's power distribution control relay (ACC, IG1, IG2, Start).
9. Smart Key : It transmits Unique ID and Remote Control Signal in wireless.
10. External Buzzer : It generates various warning alerts or confirmation alerts when passive lock / unlock operate.
11. ECM/PCM :
    1) It transmits Information (Engine OFF/ Cranking/ Engine Start/ ETC..) of Engine Status via C-CAN.
    2) It communicates Engine Start Authorization related information with Smart Key Control Module.
12. Trunk Lid Handle Switch : It inputs Switch Signal for Passive Trunk Open Control.

Smart Key System - Description and Operation (Article 44776)

- Description
- Passive unlock via 4 doors
- Passive locking via4 doors
- Passive start
- Passive access trunk via the trunk lid switch at the trunk
- Max. 2 fobs can be handled by the system
- Immobilizer backup antenna driver integrated into SSB for TP authentication (i.e. limp home mode)
- Communication with engine management system
- Communication with SRX
- LF-RF communication
- Passive unlock The system allows the user to access (unlock) the vehicle without performing any actions with the SMART KEY FOB.
- Passive locking The system allows the user to lock the vehicle by pushing a button on door handle with the SMART KEY FOB.
- Button start The system allows the user to switch the power modes (Off, Accessory, Ignition), as well as to start and stop the vehicle’s engine without performing any actions with the SMART KEY FOB. See Button Engine Start system specification.
- LIMP HOME Mode Additionally, the system offers so called “limp home mode”, which is the user can operate all vehicle functions by pushing the key into the SSB.

Smart Key ECU (SMK ECU)

- Power supply
- Microcontroller with FLASH Memory
- Single Line Interface to SRX
- Single Line Interface to EMS
- Input stage
- LF antenna amplifier/driver
- CAN communication with BCM

Smart Key FOB

- Passive functionality: receives LF-challenge and sends automatically RF response.
- Classic RKE function by action up to 4 push buttons.
- Transponder-functionality in case of a flat battery or a disturbed communication.

Antennas

- Emitting LF Antennas : Inductive antennas in and at the vehicle are used to transform the current, driven by the SMK ECU antenna driver, into a 125 (or 134.2) kHz magnetic field, which is the carrier for the SMART KEY challenge. Three antennas cover the vehicle’s exterior: two antennas in the Door Handles (DS and PS) cover the area around the doors; one antenna in the rear bumper covers the area around the trunk or tailgate. Up to three antennas cover the vehicle’s interior and the trunk or tailgate interior: two in the passenger

compartment and one in the tailgate room or trunk.
- Bidirectional Immobilizer Antenna (for Limp Home) : The Immobilizer Backup Antenna is used for sending and receiving data: it emits a magnetic field (125 - 135 kHz challenge) and receives changes in the field strength (response of Transponder).
- Receiver The SMART KEY FOB's response is received via the RF receiver.

Door Handle

Push Button

- Operation

Passive Functions

Operating Range

Passive Access (Passive Entry)

Passive Locking (Exit)

- At least one door is unlocked and two_steps timer is not running or
- Two_steps timer is running and one of the push button except Front Left side is triggered

Passive Trunk Warning (Sedan Only)

A blind spot in the trunk similar to any RF disturbance may lead to no trunk warning. Due to the penetration of the bumper antenna into the trunk area the lid may open without an Identification Device outside. A blind spot in the trunk similar to any RF disturbance may lead to no trunk warning

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Smart Trunk

Function is set through the User Setting Mode (USM) in the Cluster.
- Rear bumper antenna detects valid Smart Key in the vicinity.
- When a valid Smart Key enters the rear bumper antenna range, alert buzzer and hazard lamp is activated 1 time to acknowledge detection. Smart Key Unit can detect a Smart Key within 0.7-1 m of the rear bumper. If the Smart Key stays inside the detection range, alert buzzer and hazard lamp is activated 1 time every second throughout the duration of the Smart Key remaining in the detection range.

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- If the Smart Key stays inside the detection range, alert buzzer and hazard lamp is activated 1 time every second throughout the duration of the Smart Key remaining in the detection range.
- If the Smart Key remains in the rear bumper detection range (antenna range) for over 3 seconds, alert buzzer and hazard lamp is activated 2 times and the trunk is opened.

Smart Key Reminder 1

- Preconditions : All terminals OFF & at least one door open & locking status is not locked checked by SMK periodically every 100ms, as long as CAN/LIN active.
- Event: At least 1 door knob status changed from unlock to lock.
- SMK actions : IF NO FOB-IN ACTIVE SMK performs a search for the fobs in the interior of the vehicle. The same LF-strategy has to be used as it is defined for the ID out warning (registering only, no authentication IF FOB-IN ACTIVE SMK search valid TP If no fob or no TP has been found, no action is required. If any valid fob or valid TP has been found, SMK unlocks the vehicle by sending a CAN Key Reminder unlock message with the fob number. If any valid fob has been found, SMK unlocks the vehicle by sending a CAN/LIN Key Reminder unlock message with the fob number.
- IF NO FOB-IN ACTIVE SMK performs a search for the fobs in the interior of the vehicle. The same LF-strategy has to be used as it is defined for the ID out warning (registering only, no authentication
- IF FOB-IN ACTIVE SMK search valid TP

Smart Key Reminder 2

- Preconditions : All terminals OFF & any door (including trunk) open & no FOB-IN & no locking status (checked by SMK periodically every 100ms, as long as CAN/LIN active)
- Vehicle action : Closing last door or trunk with knobs locked state, or with a locking in progress
- SMK actions : Before elapsing 500ms after the closing if all doors are locked then: IF NO FOB-IN ACTIVE SMK performs a search for the fobs in the interior of the vehicle. The same LF-strategy has to be used as it is defined for the ID out warning (registering only, no authentication) IF FOB-IN ACTIVE SMK search valid TP If no fob has been found, no action is required. If any valid fob or valid TP has been found, SMK sends unlock command via CAN and activates ext. buzzer warning. If any valid fob has been found, SMK sends unlock command via CAN/LIN and activates ext. buzzer warning.
- IF NO FOB-IN ACTIVE SMK performs a search for the fobs in the interior of the vehicle. The same LF-strategy has to be used as it is defined for the ID out warning (registering only, no authentication)

Smart Key Door Lock Warning

Door Lock Warning 1

- If terminal state is ACC or IGN and all doors are closed and that user triggers a SMK lock, a search is started at the exterior of the vehicle from the side of the trigger.
- If no valid Fob is found no action is required, but if a valid Fob is found then a Buzzer warning shall be started.
- If "b_Trunk Option == On" and "b_Trunk LockUnlockOption == On" are fullfilled, Lock warning is including tailgate as a door and tailgate lockunlock knob as a door unlock switch .

Door Lock Warning 2

- If terminal state is OFF and not all doors are closed and that user triggers a SMK lock, a search is started at the exterior of the vehicle from the side of the trigger.

Door Lock Warning 3

- If terminal state is OFF and ATWS is considered as Disarmed and all doors are closed and that user triggers a SMK lock, a search is started at the Interior of the vehicle;
- if no valid Fob is found the search for SMK locking will be started, but if a valid Fob is found then a Buzzer warning shall be started.
- If "b_Trunk Option == On" and "b_Trunk LockUnlockOption == On" are fullfilled, Lock warning is including tailgate as a door and tailgate lockunlock knob as a door unlock switch.

Smartkey Lamp Warning

- If terminal state is ACC or IGN and vehicle speed is less than 3km/h, a periodic search (every 3s) is done at the interior of the vehicle to check that the valid fob is still in the in the vehicle.
- If no valid Fob is found a Warning is started, but if a valid Fob is found then no action is started.

Failsafe Functions (Backup For Limp Home)

- Unlocking / locking of doors or trunk (or tailgate depending of the vehicle configuration): use of mechanical key

User Information Functions

ID OUT Warning

- Preconditions : (ACC or IGN1) & (any door open or trunk open)
- (ACC or IGN1) & (any door open or trunk open)
- Event: The last opened door is closed
- SMK action: SMK searches for a SMART KEY FOB in the interior. If no valid SMART KEY FOB is found, the SMK activates external buzzer and also sends ID OUT warning via CAN (exterior buzzer warning and internal buzzer warning). If a door is opened and closed again during terminals on and inside valid fob, SMK re-enables the authentication and stops the warning. If the terminal is in ACC, SMK shall turn on immobilizer lamp.
- If no valid SMART KEY FOB is found, the SMK activates external buzzer and also sends ID OUT warning via CAN (exterior buzzer warning and internal buzzer warning).
- If a door is opened and closed again during terminals on and inside valid fob, SMK re-enables the authentication and stops the warning. If the terminal is in ACC, SMK shall turn on immobilizer lamp.

If there is a LF error (LF overheating or LF antenna failure), the system will have the same behavior as it is with no fob found.

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Fob Battery Low Voltage Detection

Learning Description

Learning MODE

Teaching MODE

Teaching MODE Procedure Description (Step By Step)

- SMK replacement: SMK is not learnt and SMART FOB are already learnt with same PIN code

- Additional or new keys teaching: SMK are already learnt with same PIN code

Smart key teaching

Push the smart key #1 to SSB
↓
SMK start to learn
↓
Input the PIN code
↓
Smart key #1 learnt
↓
SMK learnt
↓
Pull out smart key #1
↓
Push the smart key #2 to SSB
↓
Smart key #2 learnt

- Smart key and transponder are programmed simultaneously.

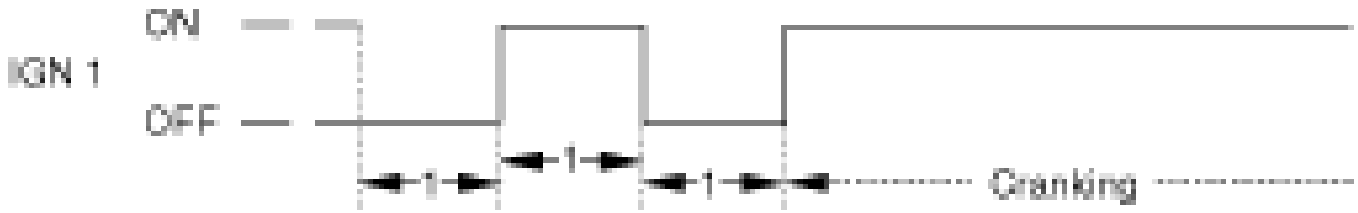
<Smart key neutralization mode>

- Neutralization mode is for replacing Smart key unit, ECM easily.
- It is possible that smart key is learnt again, after neutralizing Smart key system.
- Virgin start (twice ignition) is impossible in neutralized condition

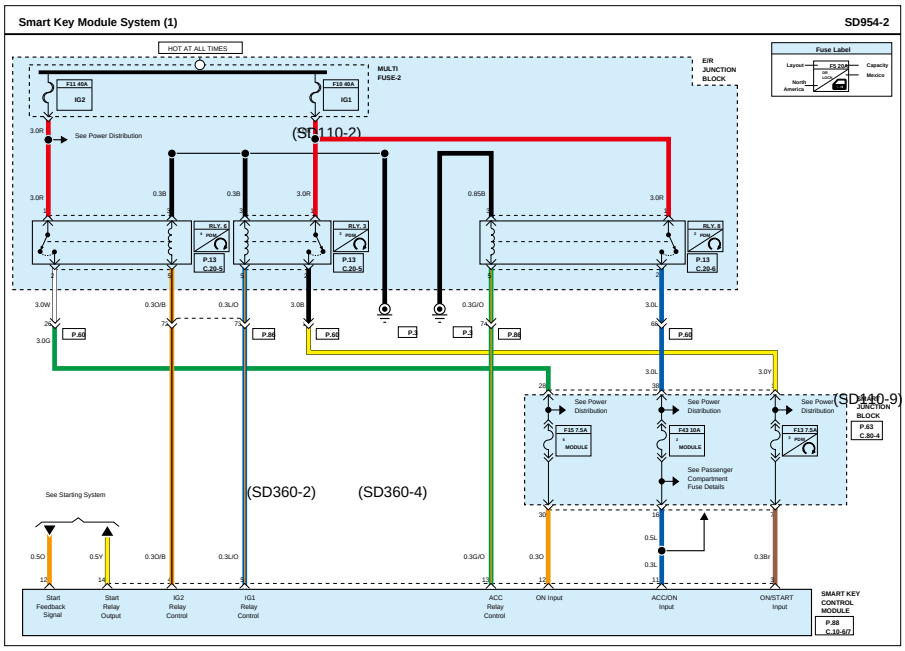
<Lock by timer>

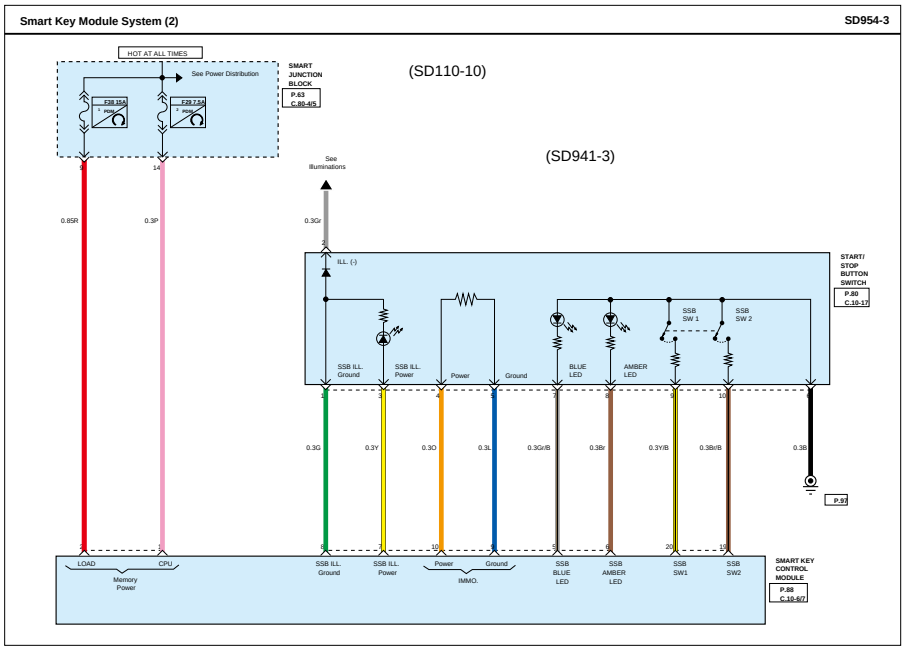
- If PIN code is inputted over 3 times, it is impossible to learnt and neutralization during 1 hour.

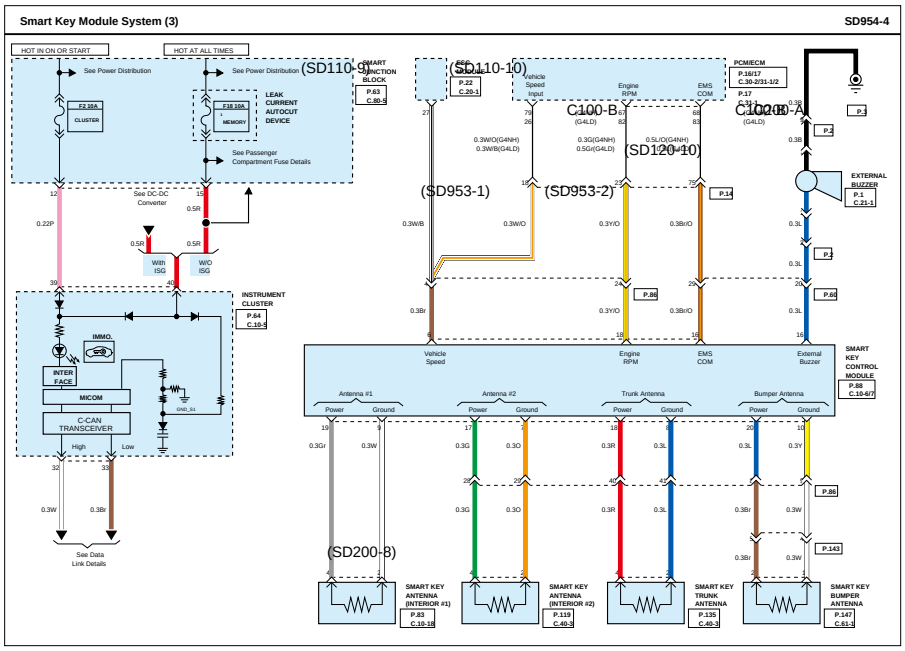
Starting After Replacing (Virgin Start)
- It is for starting at virgin condition
- All related parts are virgin condition (Smart key, ECM)
- Press brake pedal in P or N range
- Push the start button once with virgin smart key.

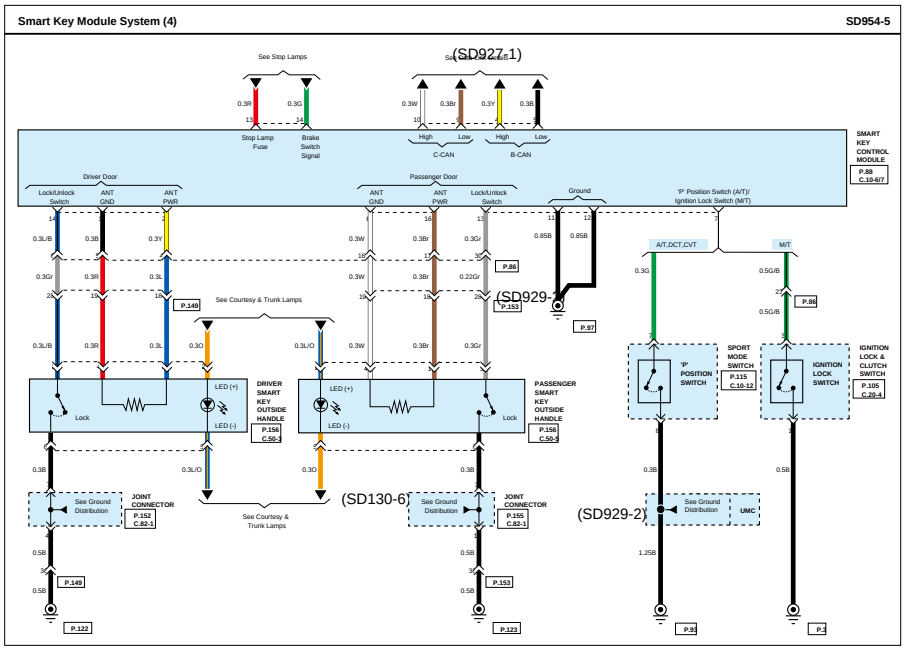


Smart Key Module System - Schematic Diagrams (Article 42553)


Smart Key Module System (1)
SD954-2
HOT AT ALL TIMES
MULTI FUSE-2
F11 40A
IG2
F10 40A
IG1
E/R JUNCTION BLOCK
Fuse Label
See Power Distribution
(SD110-2)
RLY 6
RLY 5
P.13 C.20-5
P.13 C.20-6
P.60
P.86
P.3
(SD110-9)
(SD110-9)
(SD110-9)
F15 7.5A
MODULE
F43 10A
F13 7.5A
P.63 C.80-4
See Passenger Compartment Fuse Details
(SD120-1)
See Starting System
(SD360-2)
(SD360-4)
Start Feedback Signal
Start Relay Output
IG2 Relay Control
IG1 Relay Control
ACC Relay Control
ON Input
ACC/ON Input
ON/START Input
SMART KEY CONTROL MODULE
P.88 C.10-6/7

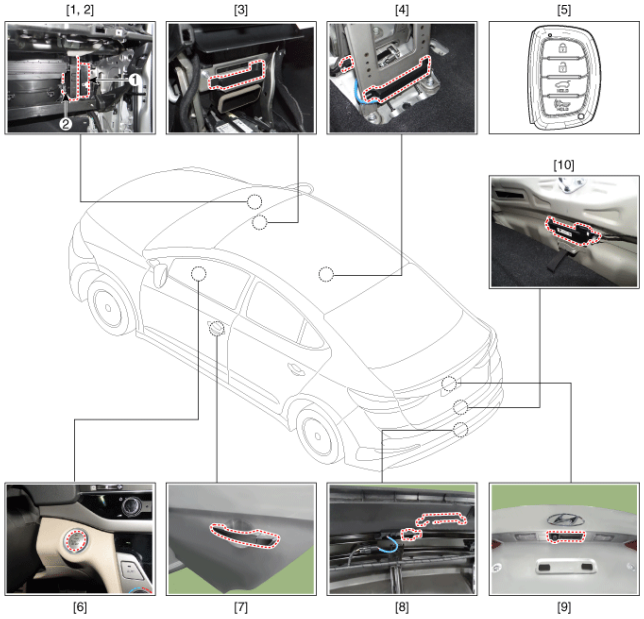

Smart Key Module System (2)
SD954-3
HOT AT ALL TIMES
See Power Distribution
SMART JUNCTION BLOCK
P.63 C.80-4/5
(SD110-10)
(SD941-3)
See Illuminations
ILL. (-)
START/ STOP BUTTON SWITCH
P.80 C.10-17
SSB SW 1
SSB SW 2
SSB ILL. Ground
SSB ILL. Power
Power
Ground
BLUE LED
AMBER LED
P.97
LOAD
CPU
Memory Power
IMMO.
SMART KEY CONTROL MODULE
P.88 C.10-6/7





Button Engine Start System - Components and Components Location (Article 44685)

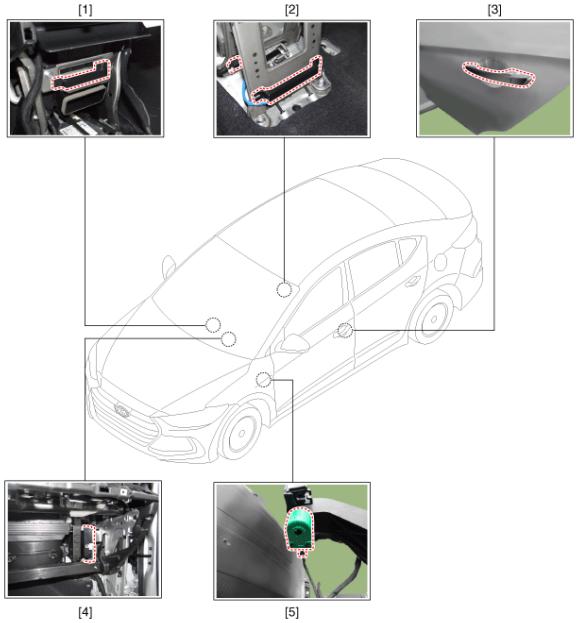
- Component Location



1. Smart key unit 2. Body control module (BCM) 3. Interior antenna 1 4. Interior antenna 2 5. FOB Key 6. Start Stop Button (SSB) 7.Door handle & Door antenna 8. Bumper antenna 9. Trunk antenna 10. Trunk lid switch

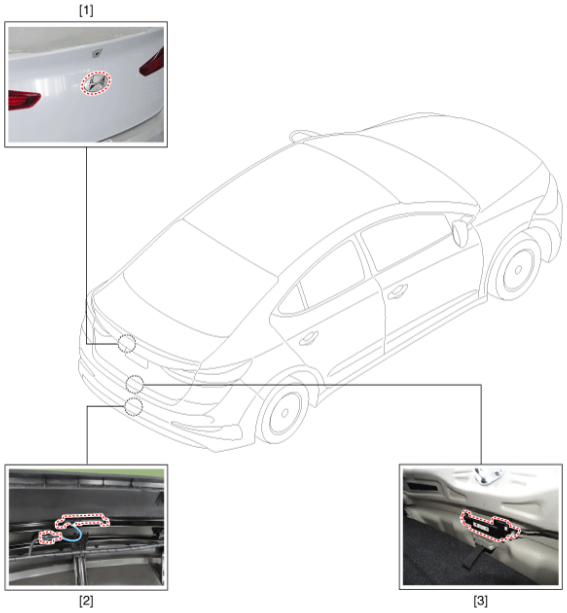
Smart Key System - Components and Components Location (Article 44773)

- Component Location (1)



1. Interior antenna 1 2. Interior antenna 2 3. Door outside handle 4. Smart key unit (SMK) 5. Buzzer

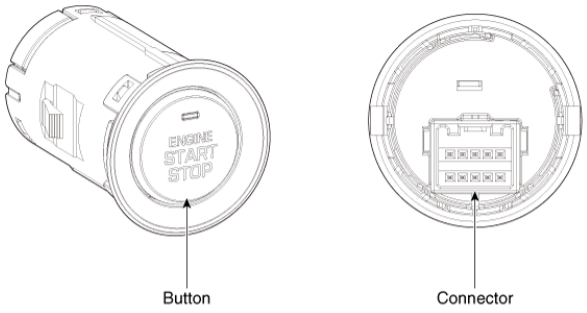
- Component Location (2)



1. Trunk open switch 2. Bumper antenna 3. Trunk atenna

Start/Stop Button - Components and Components Location (Article 44690)

- Component



No	Description	No	Description
1	SSB III input (-)	6	GND
2	Rheostat input	7	SSB III input 1
3	SSB III input (+)	8	SSB III input 2
4	Immobilizer (+)	9	SSB Output 1
5	Immobilizer (-)	10	SSB Output 2

Smart Key Diagnostic - Repair Procedures (Article 44794)

- Inspection

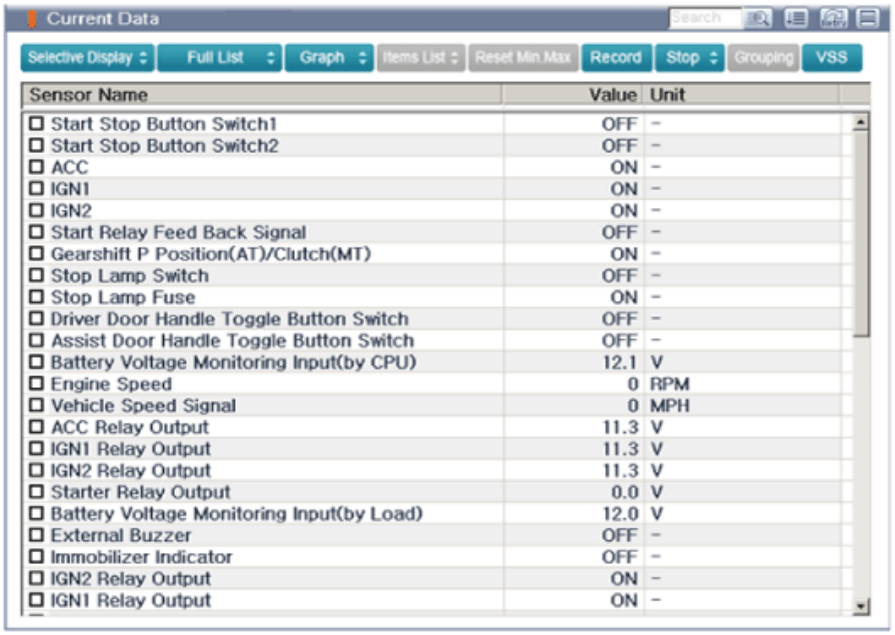
Self Diagnosis with Scan Tool

- Problem in SMART KEY unit input.
- Problem in SMART KEY unit.
- Problem in SMART KEY unit output.
- SMART KEY unit Input problem : switch diagnosis
- SMART KEY unit problem : communication diagnosis
- SMART KEY unit Output problem : antenna and switch output diagnosis

Switch Diagnosis

- Connect the cable of GDS to the data link connector in driver side crash pad lower panel, turn the power on GDS.
- Select the vehicle model and then SMART KEY system.

- Select the "SMART KEY Unit".
- After IG ON, select the "Current Data".



- You can see the situation of each switch on scanner after connecting the "current data" process. Display Description FL Toggle SW ON : Push button is ON in the driver door handle. FR Toggle SW ON : Push button is ON in the assist door handle. Tailgate open SW ON : Tailgate button is ON. Gear P Position ON : Shift lever is P position. IGN 1 ON : IGN switch is IG position. ACC ON : IGN switch is ACC position. Brake SW ON : Brake switch is ON.

Display Description

FL Toggle SW ON : Push button is ON in the driver door handle.

FR Toggle SW ON : Push button is ON in the assist door handle.

Tailgate open SW ON : Tailgate button is ON.

Gear P Position ON : Shift lever is P position.

IGN 1 ON : IGN switch is IG position.

ACC ON : IGN switch is ACC position.

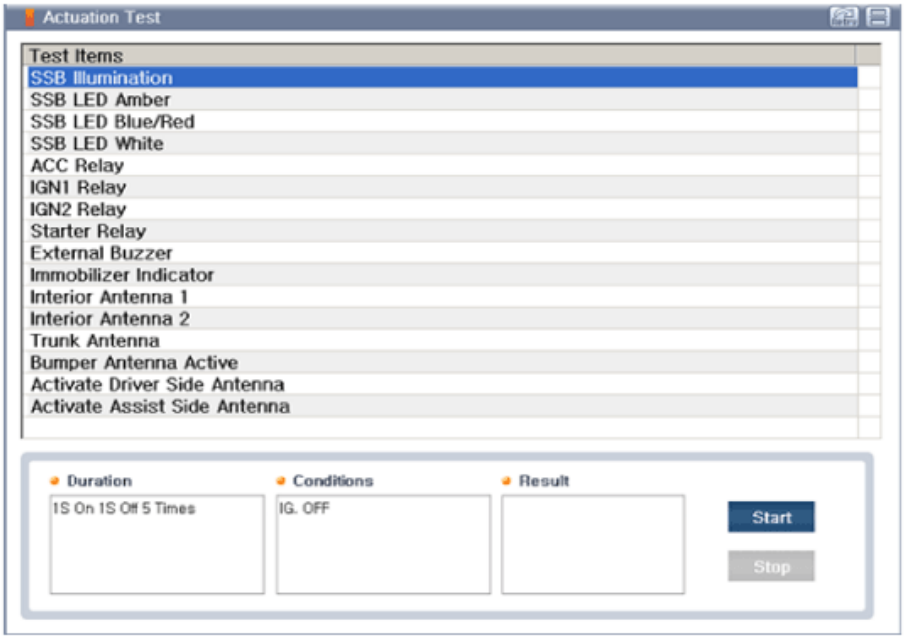
Brake SW ON : Brake switch is ON.

Communication Diagnosis with GDS (Self Diagnosis)

- Communication diagnosis checks that the each linked components operates normal.
- Connect the cable of GDS to the data link connector in driver side crash pad lower panel.
- After IG ON, select the "DTC".

Antenna Actuation Diagnosis

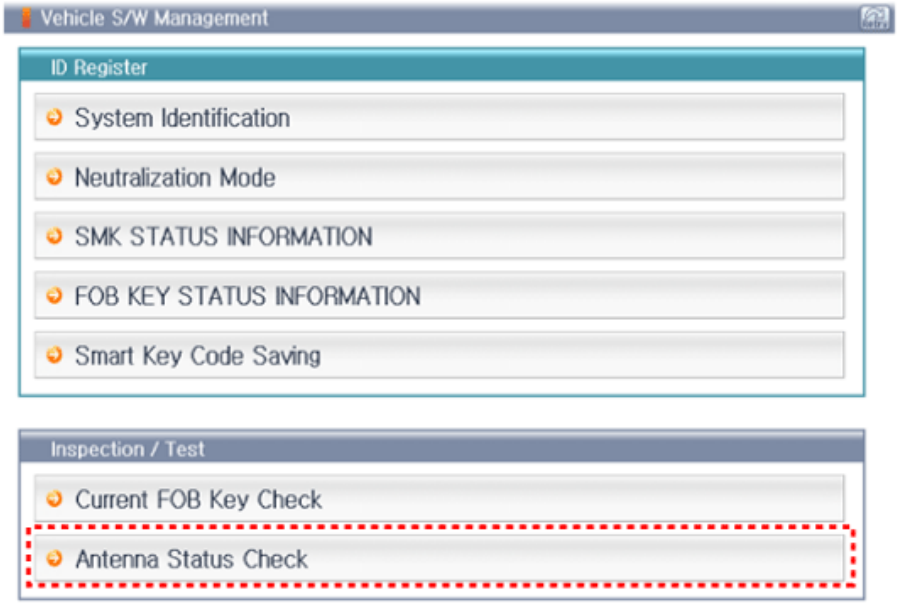
- After IG ON, select the "Actation Test".



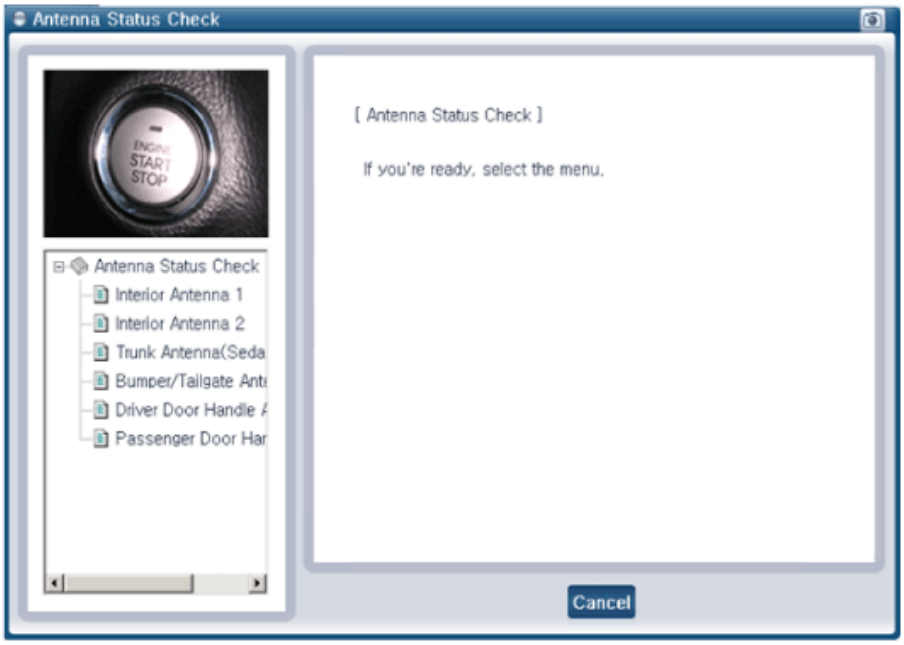
- Set the smart key near the related antenna and operate it with a GDS.
- If the LED of smart key is blinking, the smart key is normal.
- If the LED of smart key is not blinking, check the voltage of smart key battery .
- Antenna actuation INTERIOR Antenna 1 INTERIOR Antenna 2 Trunk antenna BUMPER/ Trunk Antenna DRV_DR Antenna AST_DR Antenna
- INTERIOR Antenna 1
- INTERIOR Antenna 2
- Trunk antenna
- BUMPER/ Trunk Antenna
- DRV_DR Antenna
- AST_DR Antenna

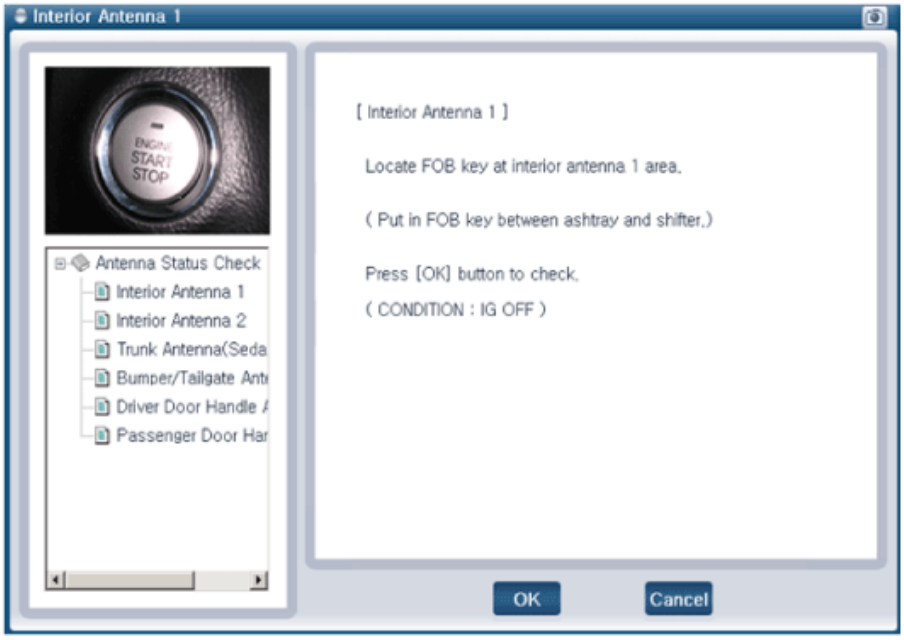
Antenna Status Check

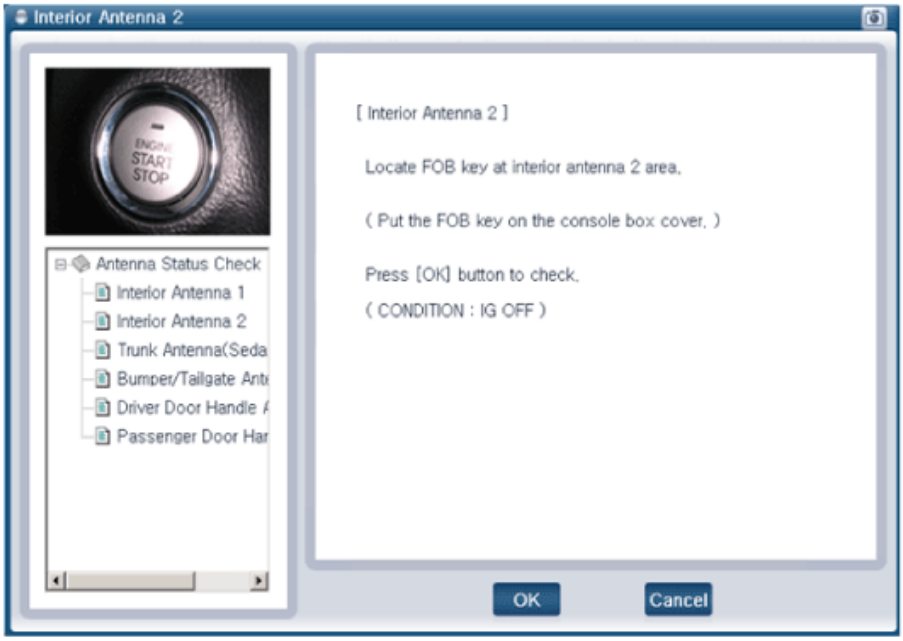
- Select the "Antenna Status Check".



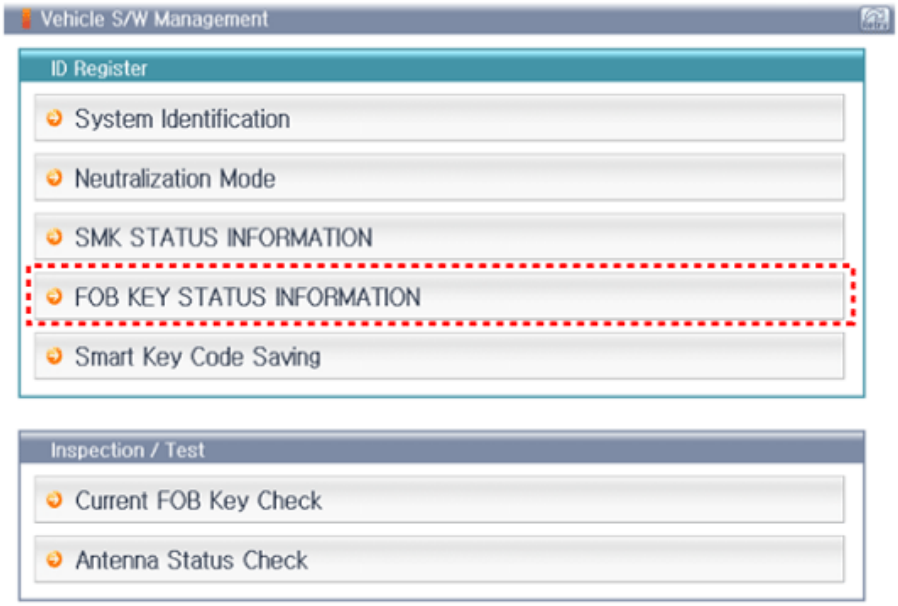
- After IG ON, select the "Antenna Status Check".

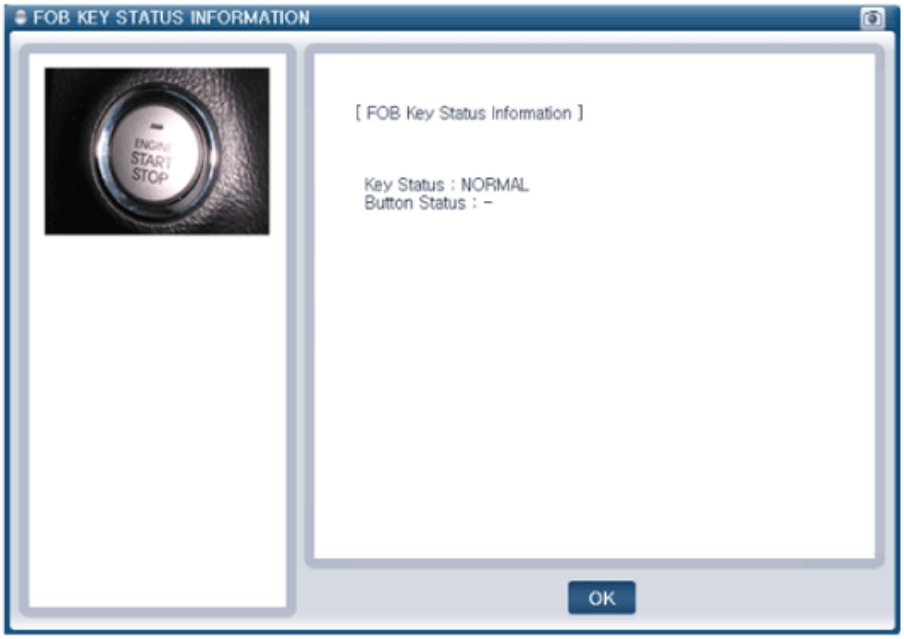

Antenna Status Check
ENGINE START STOP
Antenna Status Check
Interior Antenna 1
Interior Antenna 2
Trunk Antenna(Seda
Bumper/Tailgate Anti
Driver Door Handle A
Passenger Door Har
[Antenna Status Check]
If you're ready, select the menu.
Cancel


Interior Antenna 1
ENGINE START STOP
Antenna Status Check
Interior Antenna 1
Interior Antenna 2
Trunk Antenna(Seda
Bumper/Tailgate Anti
Driver Door Handle A
Passenger Door Har
[Interior Antenna 1]
Locate FOB key at interior antenna 1 area.
(Put in FOB key between ashtray and shifter.)
Press [OK] button to check.
(CONDITION : IG OFF)
OK
Cancel



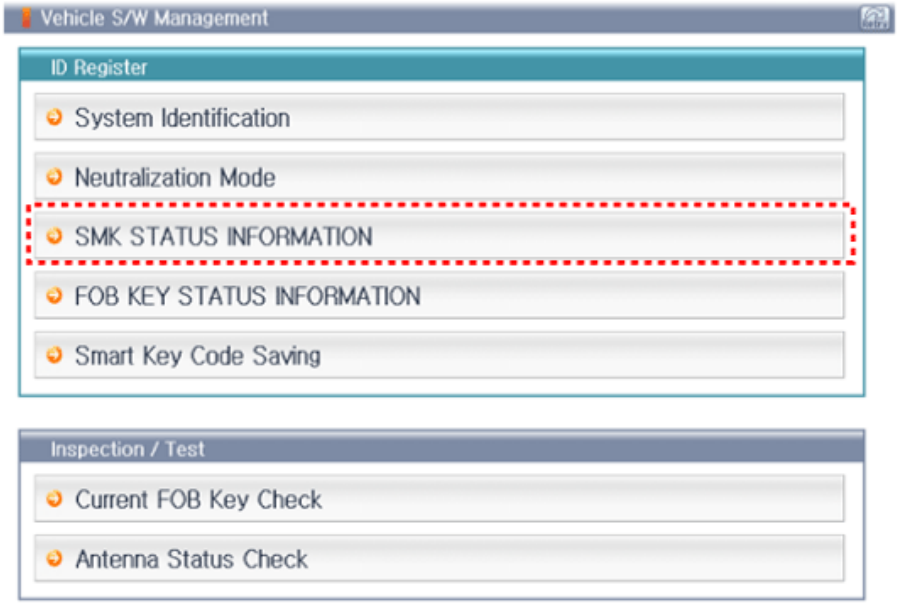
- If the smart key runs normal , the related antenna, smart key(transmission, reception) and exterior receiver are normal.
- Antenna status INTERIOR Antenna 1 INTERIOR Antenna 2 BUMPER/ Trunk Antenna DRV_DR Antenna AST_DR Antenna FOB Status Check
- After IG ON, select the "FOB KEY STATUS INFO".

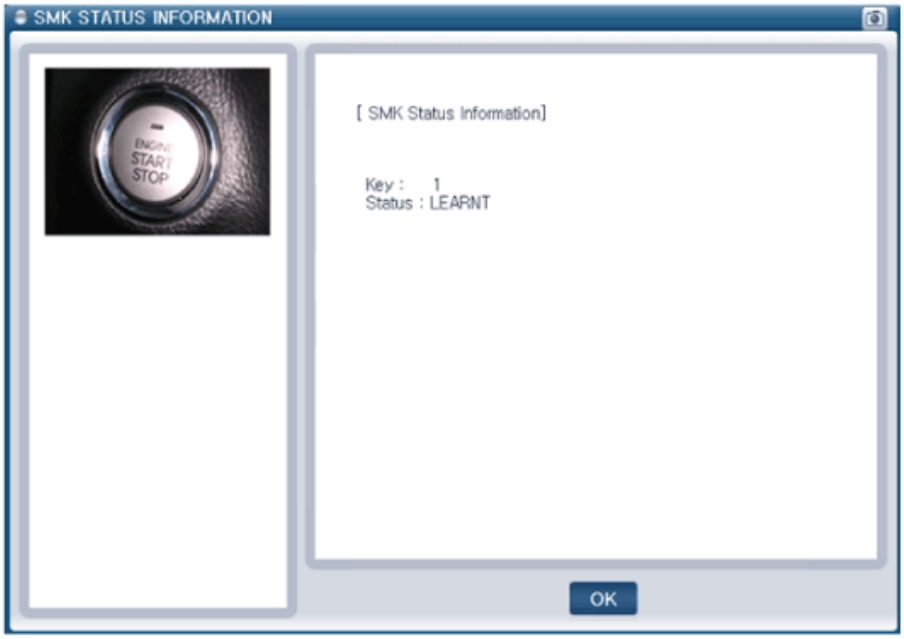




Smart Key Status Check

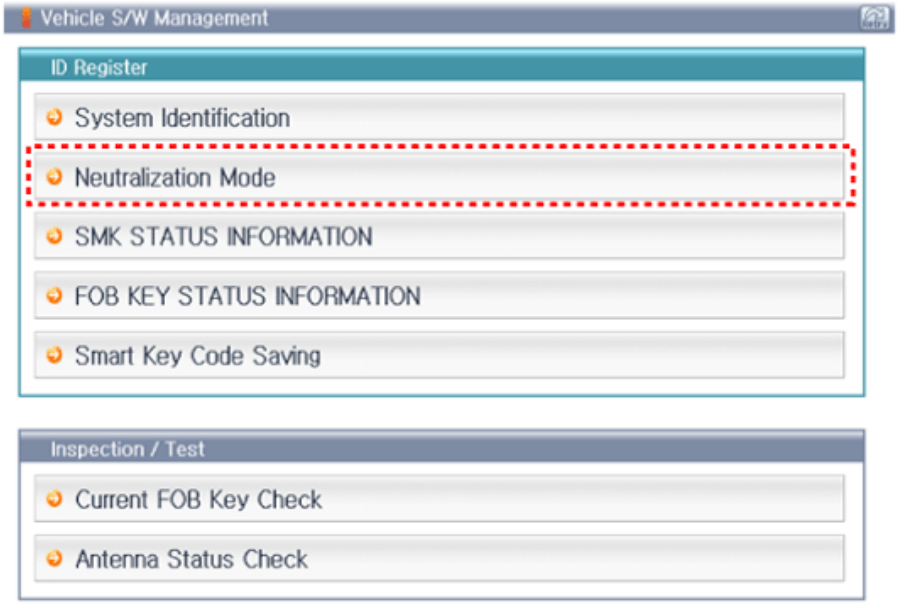
- After IG ON, select the "SMK STATUS INFO".

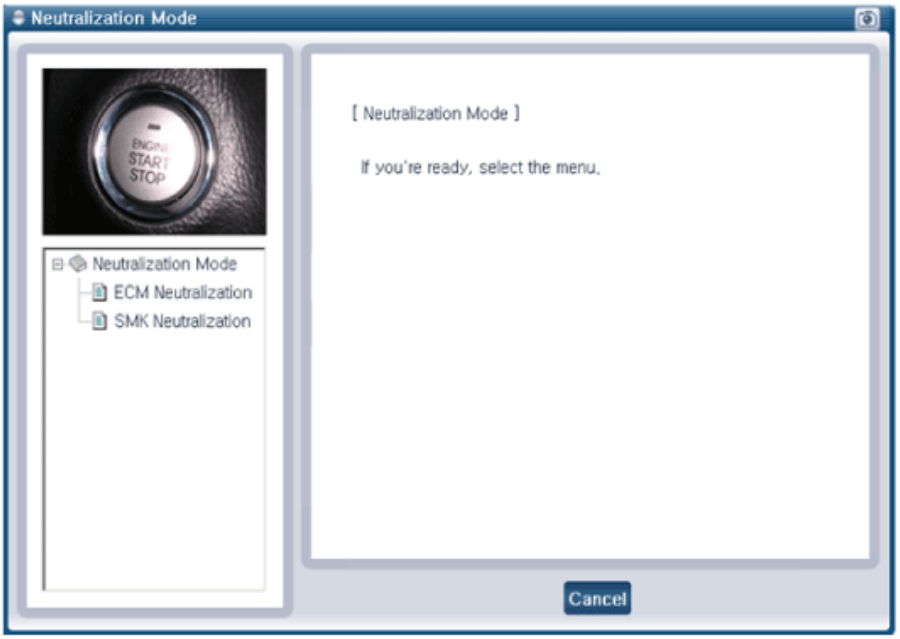


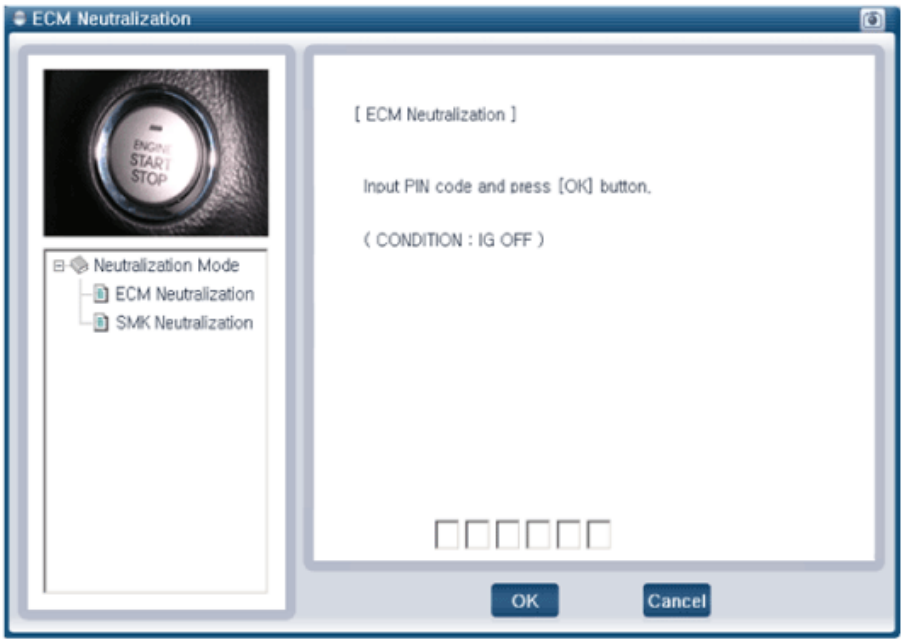


Neutralization Status Check

- After IG ON, select the "Neutralization mode".




Neutralization Mode
ENGINE START STOP
Neutralization Mode
ECM Neutralization
SMK Neutralization
[Neutralization Mode]
If you're ready, select the menu.
Cancel


ECM Neutralization
ENGINE START STOP
Neutralization Mode
ECM Neutralization
SMK Neutralization
[ECM Neutralization]
Input PIN code and press [OK] button.
(CONDITION : IG OFF)
OK
Cancel

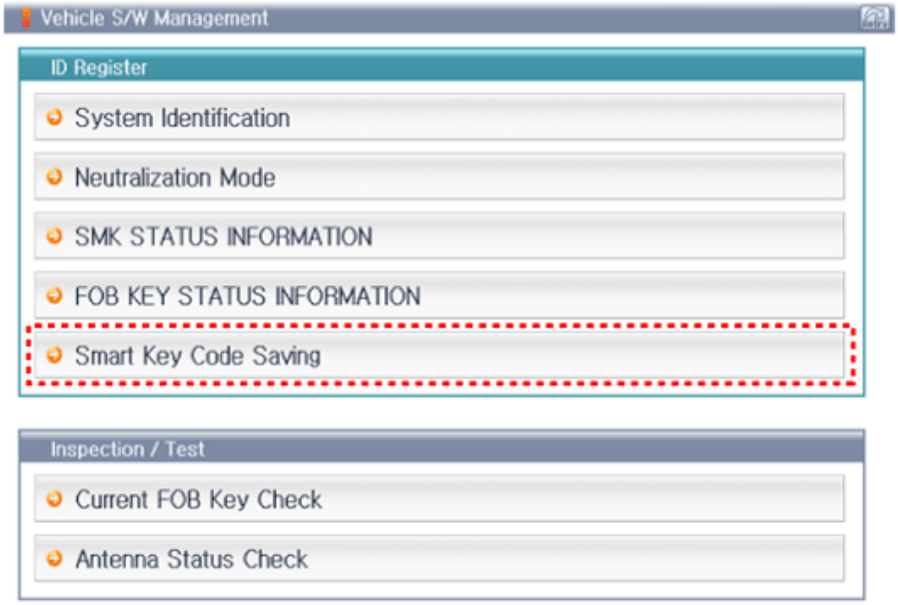
Smart Key System - Repair Procedures (Article 44779)

- Smart Key

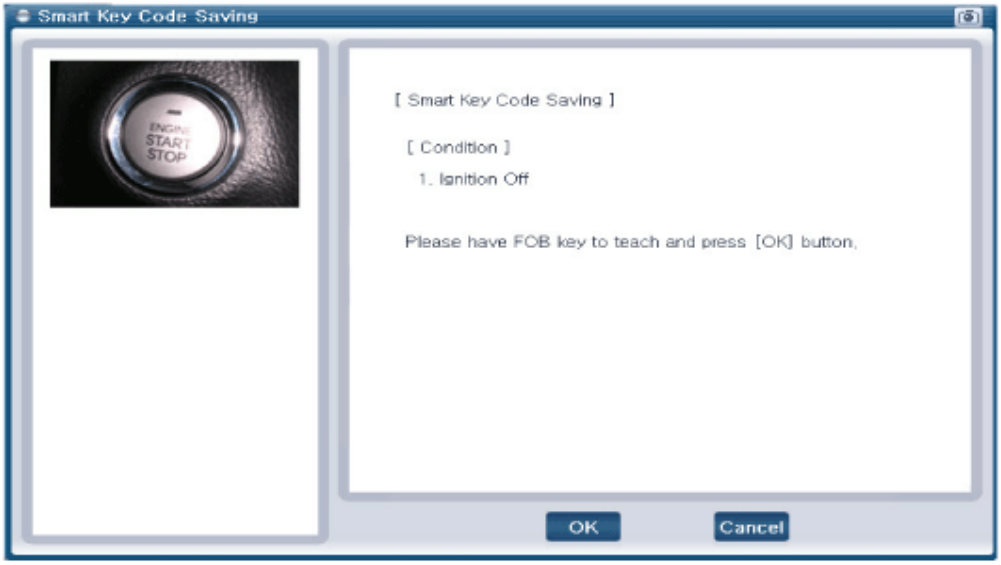
Smart Key Code Saving

- Connect the DLC cable of GDS to the data link connector (16 pins) in driver side crash pad lower panel, turn the power on GDS.

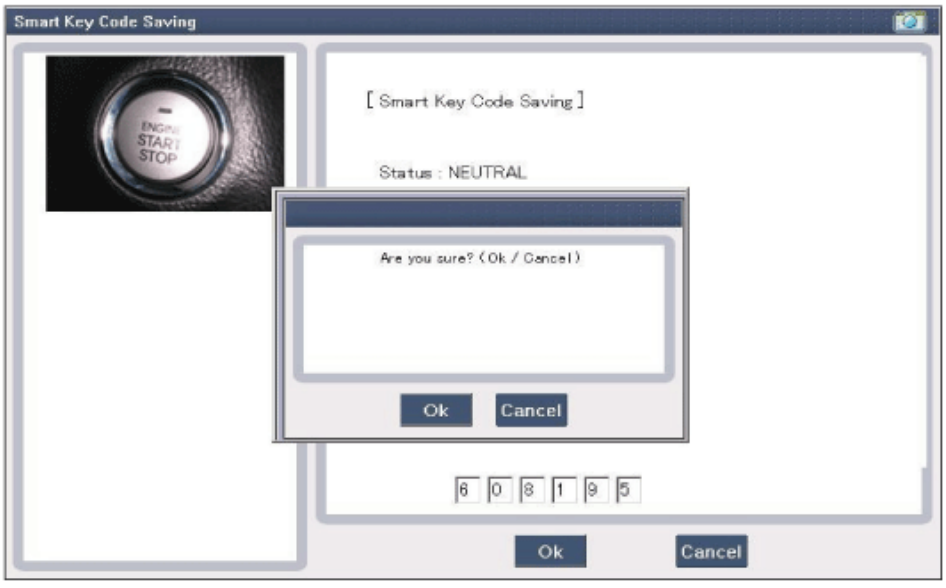
- Select the vehicle model and then do "Smart Key Code Saving".



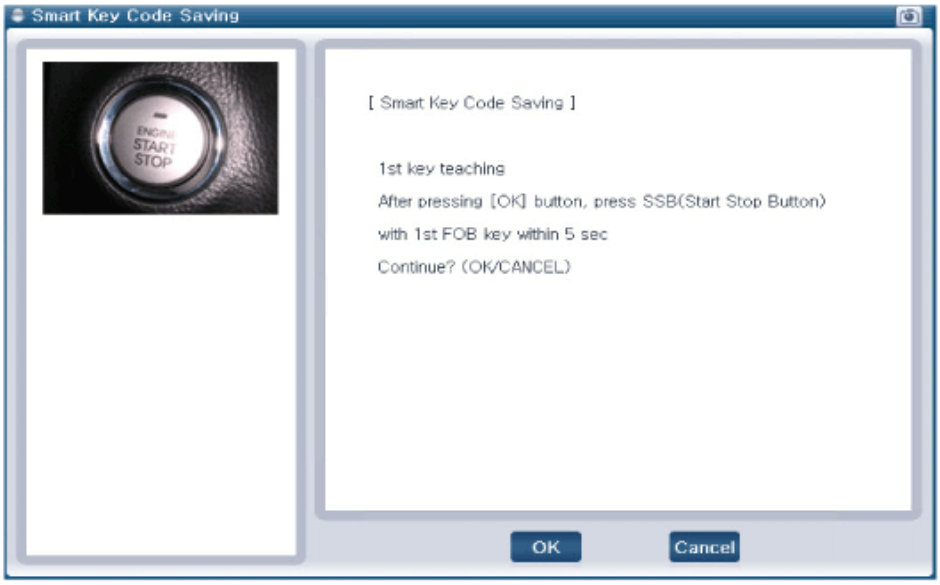
- After selecting "Smart Key Teaching" menu, push "Enter" key, then the screen will be shown as below.



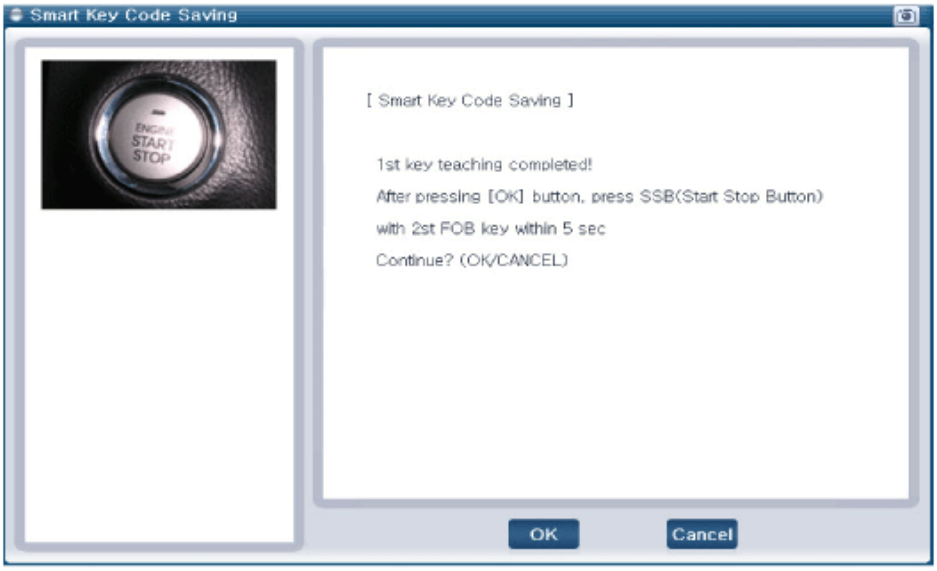
- After having the teaching smart key, push "Enter" key.
- Input the "Pin Code" for first key teaching.



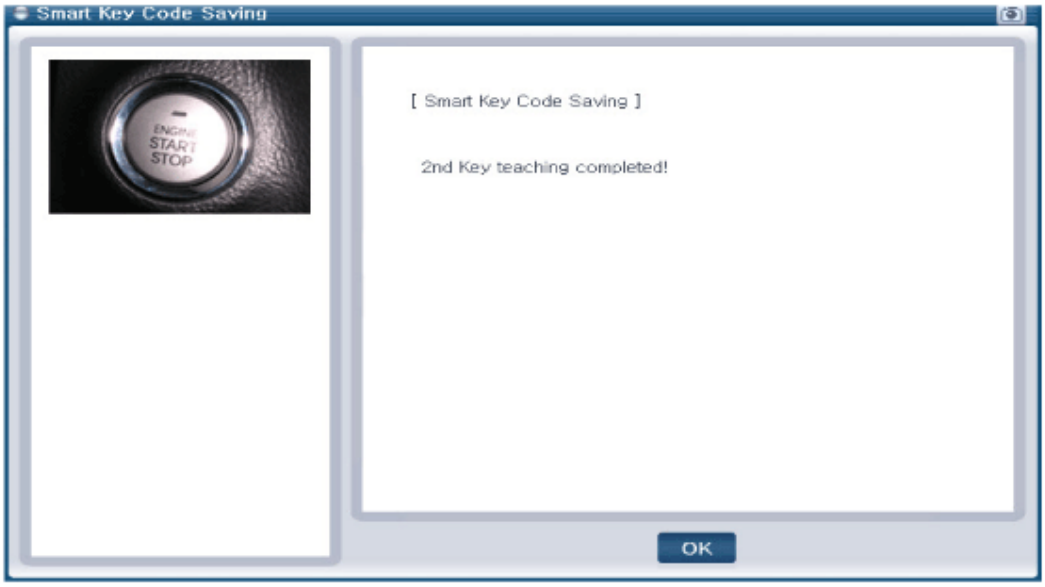
- Press the SSB with smart key within 5 sec after pressing "OK".



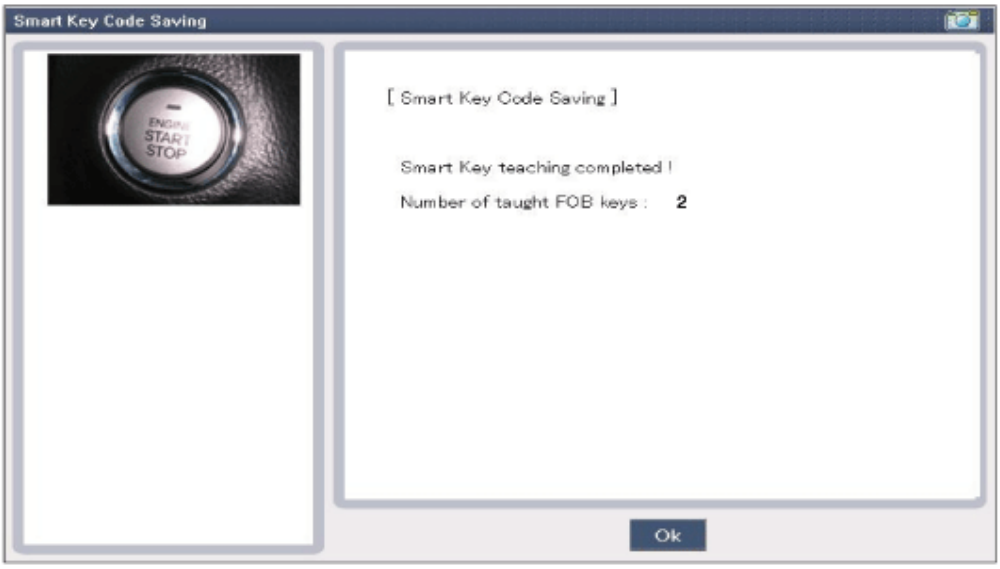
- Confirm the message "First key teaching completed".



- Confirm the message "Second key teaching completed".

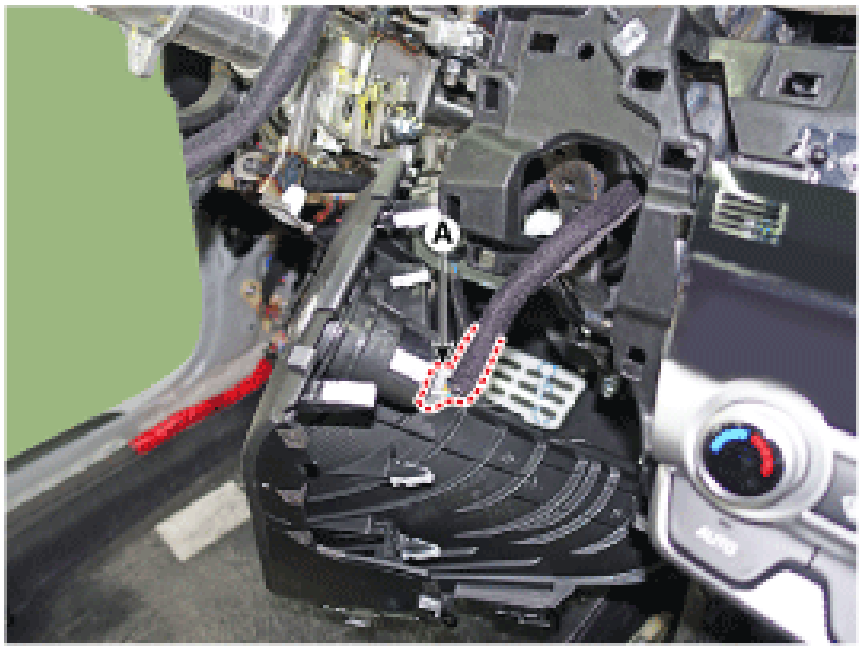


- Then the screen will be shown as below when key teaching process is completed.

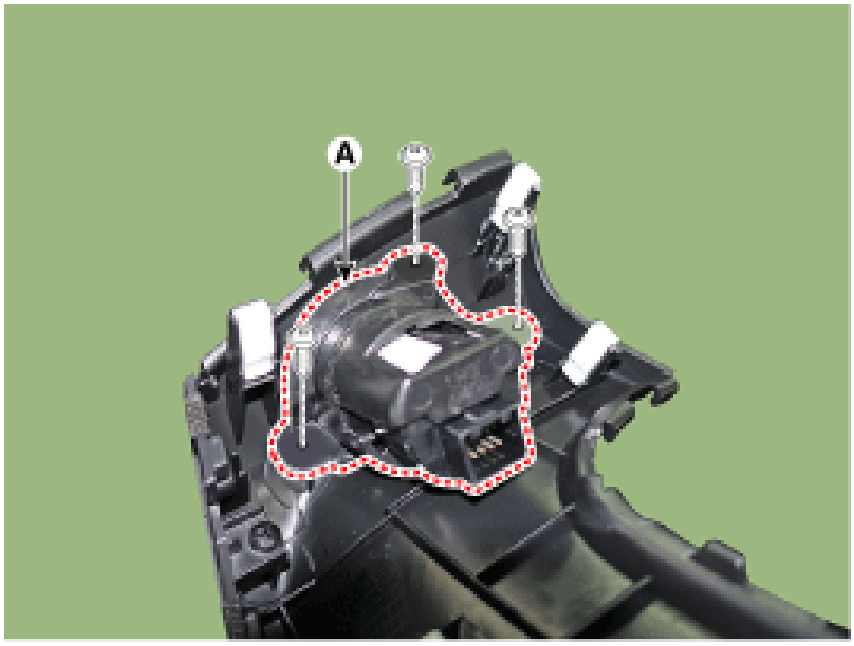


Start/Stop Button - Repair Procedures (Article 44691)

- Removal
- Disconnect the negative (-) battery terminal.
- Remove the crash ped lower panel. (Refer to Body - "Crash Ped Lower Panel")
- Remove the crash pad senter panel LH. (Refer to Body - "Crash Pad Center Panel")
- Disconnect the SSB connector (A).



- Remove the start/stop button (A) after removing the screws.



- Installation
- Install the start/stop button.
- Install the crash pad lower panel.
- Install the crash pad center panel LH.
- Connect the negative (-) battery terminal.

Smart Key System - Specifications (Article 44770)

- Specifications

Smart Key Unit

Items	Specification
Rated voltage	DC 12V
Operating voltage	DC 9 - 16V
Operating temperature	-22°F - 167°F (-30°C - 75°C)
Load	Max. 4mA (When welcome light function off)

RF Receiver

Frequency	433.92 Mhz
Antenna type	FSK (Frequency Shift Keying)

Smart Key Fob
Battery Lithium battery 3V 1EA
Distance 30m from vehicle, RF : 30m, Passive (LF) : 0.7m
Battery life More than 2 years (10 times / a day) An inappropriately disposed battery can be harmful to the environment and human health. Dispose the battery according to your local law(s) or regulation.
An inappropriately disposed battery can be harmful to the environment and human health. Dispose the battery according to your local law(s) or regulation.

- An inappropriately disposed battery can be harmful to the environment and human health.
- Dispose the battery according to your local law(s) or regulation.

Push buttons 4 (Door lock / unlock, Liftgate, Panic)
Frequency(Rx) 125 kHz
Frequency(Tx) 433.92 MHz
Numbers 2EA
Antenna
Frequency 125kHz
Numbers Interior (2EA), Door (2EA), Bumper (1EA), Trunk (1EA)