

Operation

Function Of Safety Power Window

When driver door power window auto-up switch is operated, safety function is activated.

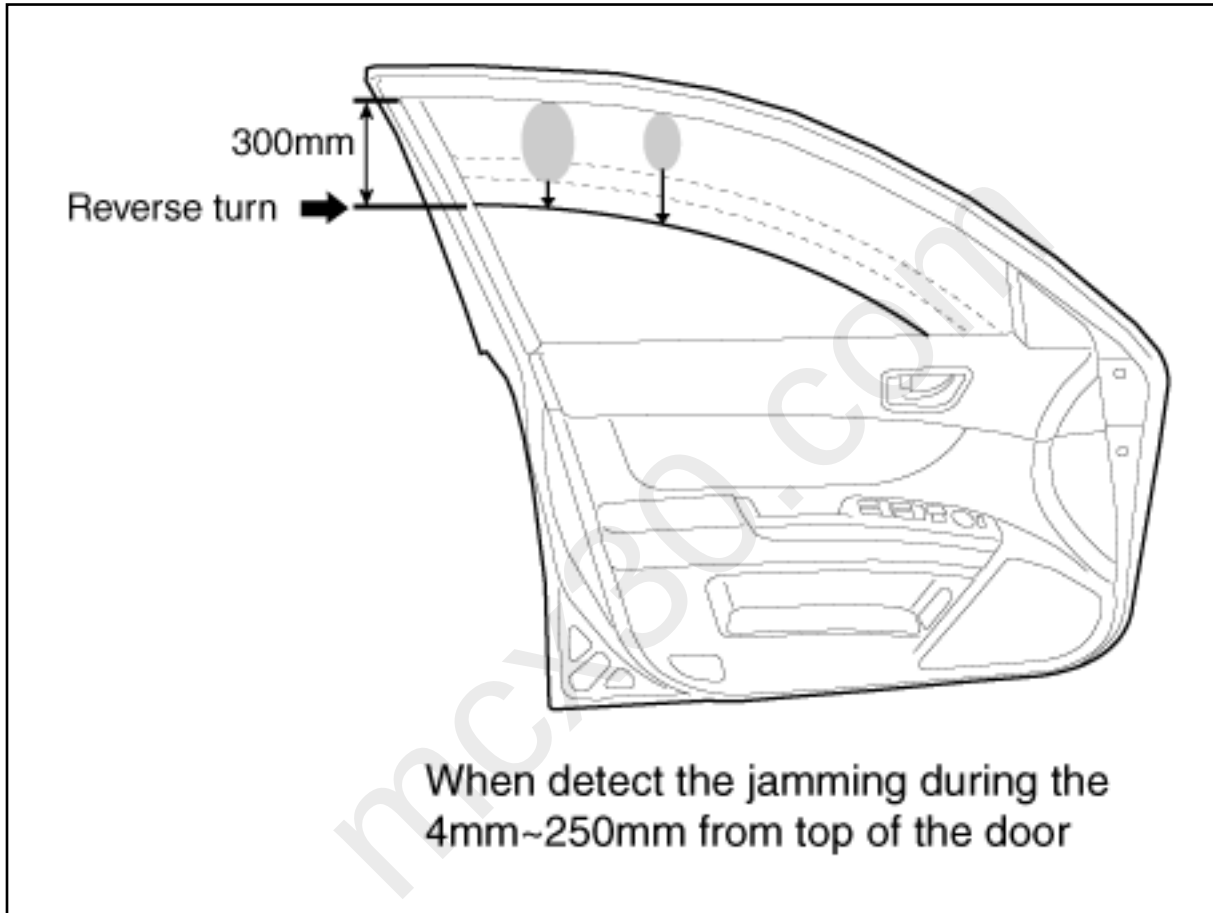
1. Safety function condition

When detect the force of 100N (using the 10N/mm spring) during the window rising, window is reversed.

2. Length of window reversing (except holding the auto-up switch)

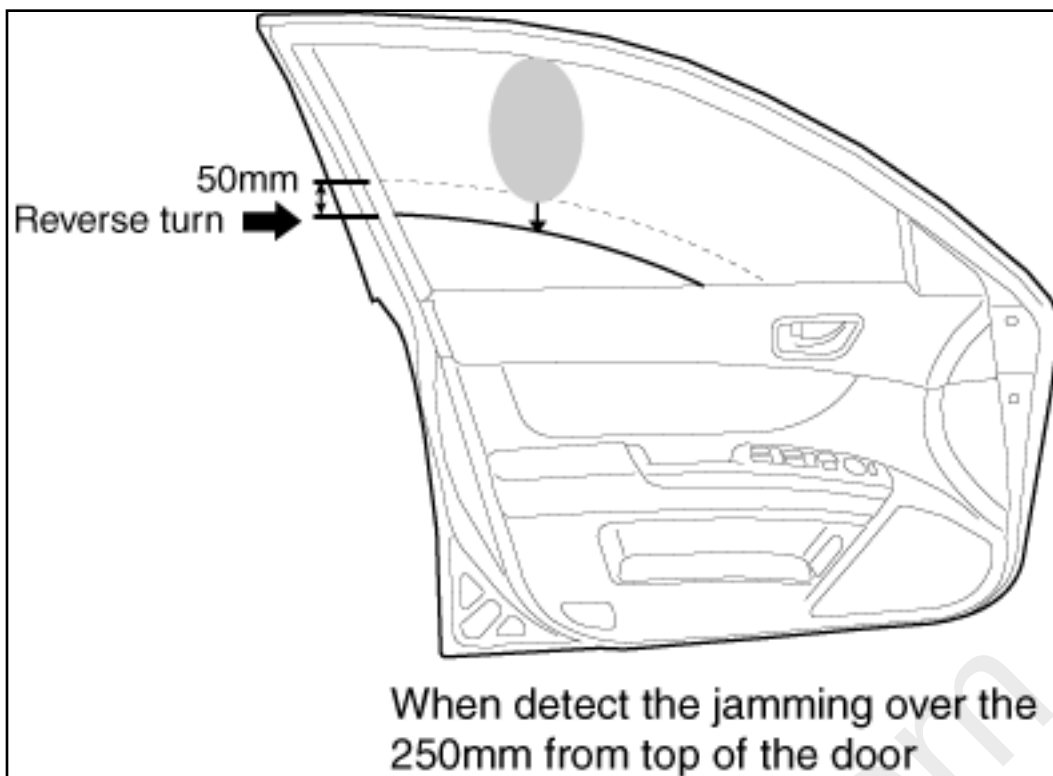
–When detect the jamming during the 4mm - 250mm from top of the door.

: Window is reversed until 300mm from top of the door.



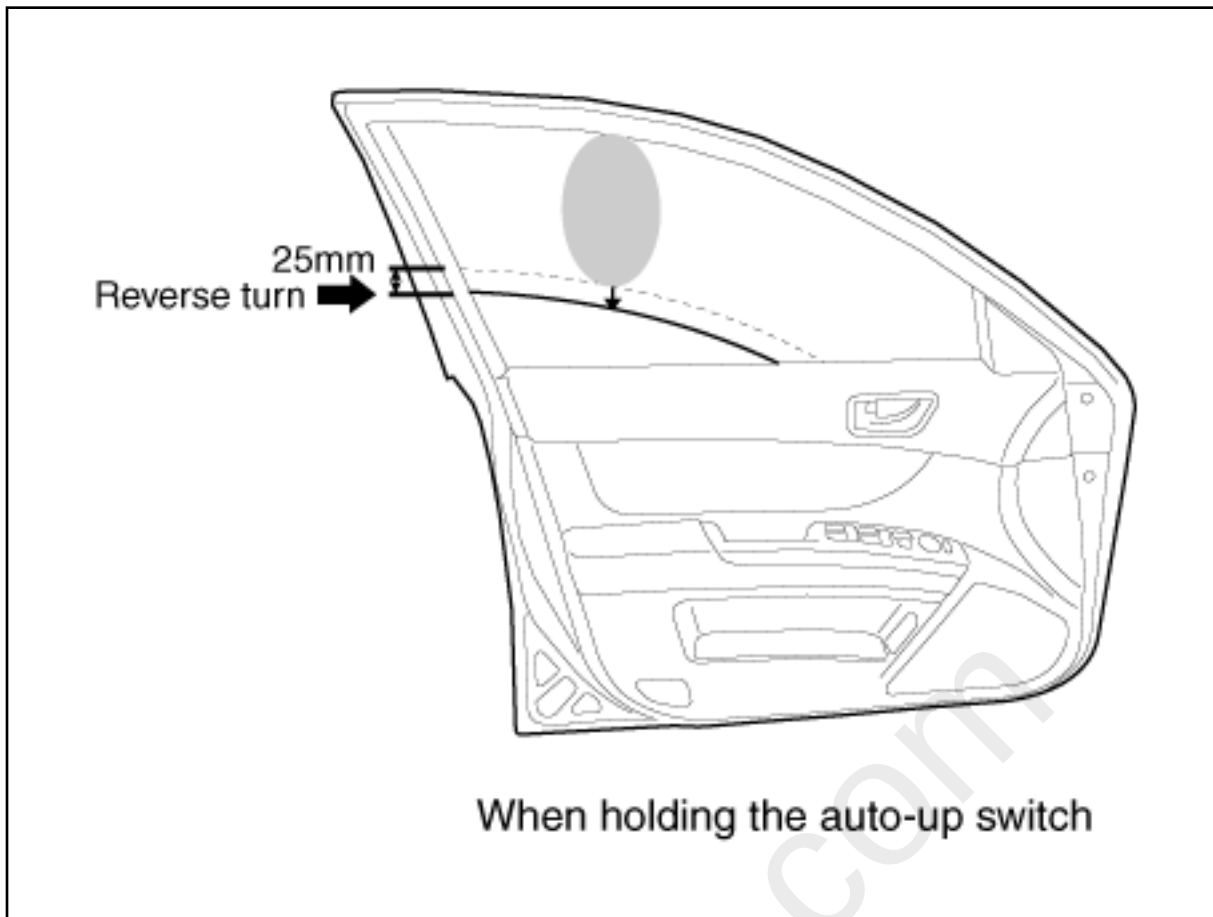
–When detect the jamming over the 250mm from top of the door.

: Window is reversed until 20mm from jamming position.



3. Length of window reversing (holding the auto-up switch)

- When detect the jamming during holding the auto-up switch.
 - : Window is reverse until 25mm from jamming position.
- Auto-up function is not available during the 5 seconds from above condition.
 - : When holding the auto-up switch, window is operated as a manual-up function. (Safety function is not activated.)



4. Safety function is not available area

Safety function is not available during the 4mm from top of the door.

Initializing Method of the Safety Power Window

1. Initializing of Battery Connection

When the battery power is removed for over 5 minutes, safety power window switch need the initializing.

(1) Power window operation before initializing

- Manual-Up/Down function is available
- Auto-Up function is not available

(When holding the auto-up/down switch, window is operated as a manual-up/down.)

(2) Initializing method

Close the window in window open position, and holding the switch in window full close position over the 0.2 second.

(If start the closing the window in window full close position, initializing could be failed.)

(3) If initialize the safety power window in jamming status, could occur below conditions.

- Safety function is not available

2. Initializing of fail safe mode

(1) If the window moved by compulsion and motor have a problem, power window switch could be entering the fail safe mode for user's safety.

(2) Power window operation in fail mode

- Auto/Manual-Down function is available
- Auto/Manual-Up function is not available

(When auto/manual-up is operated, window is rising 20mm and is stopped the moving.)

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Component
Location



1. DAU (Door Area Unit)

2. Assist window switch

3. Front window motor
4. Rear window motor

5. Rear window switch

Components



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Inspection

Front Power Window Motor

1. Disconnect the negative (-) battery terminal.
2. Remove the front door trim.
(Refer to Body - "Front Door Trim")
3. Disconnect the motor connector from the motor.



4. Connect the motor terminals directly to battery voltage (12V) and check that the motor operates smoothly. Next, reverse the polarity and check that the motor operates smoothly in the reverse direction. If the operation is abnormal, replace the motor.

[Safety Window Motor]



5. Connect the motor terminals directly to battery voltage (12V) and check that the motor operates smoothly. Next, reverse the polarity and check that the motor operates smoothly in the reverse direction. If the operation is abnormal, replace the motor.

[Standard Window Motor]



Rear Power Window Motor

1. Disconnect the negative (-) battery terminal.
2. Remove the rear door trim.
(Refer to Body - "Rear Door Trim")
3. Disconnect the motor connector from the motor.



4. Connect the motor terminals directly to battery voltage (12V) and check that the motor operates smoothly. Next, reverse the polarity and check that the motor operates smoothly in the reverse direction. If the operation is abnormal, replace the motor.

[Safety Window Motor]



5. Connect the motor terminals directly to battery voltage (12V) and check that the motor operates smoothly. Next, reverse the polarity and check that the motor operates smoothly in the reverse direction. If the operation is abnormal, replace the motor.

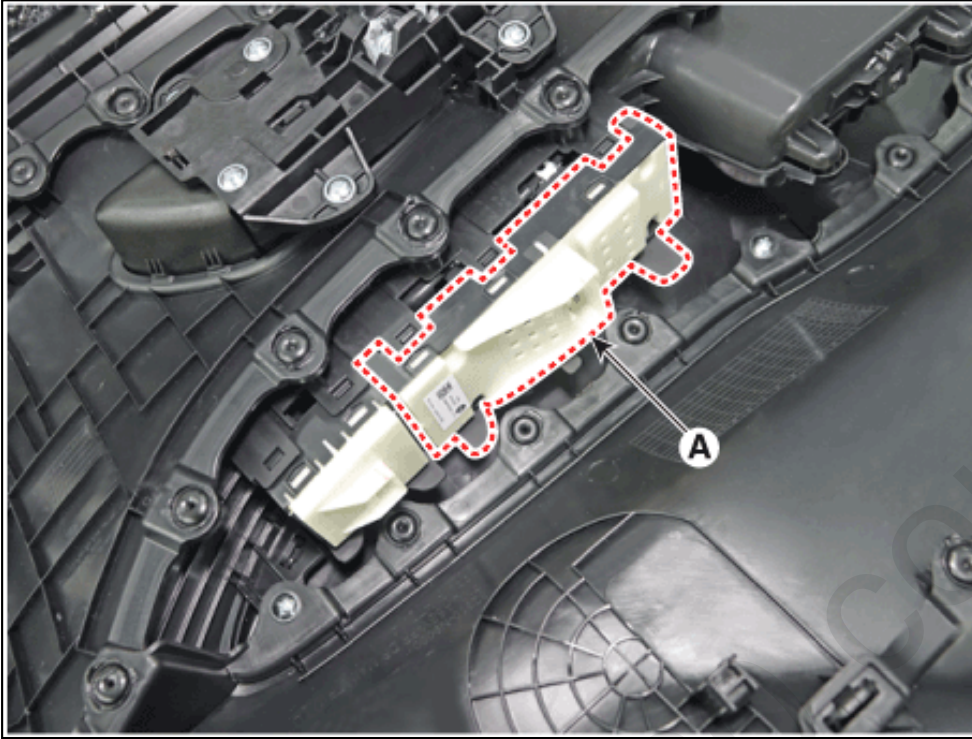
[Standard Window motor]

Terminal			1	4(GND)	6
Position					
Left	Up	Clockwise			
	Down	Counter-clockwise			
Right	Up	Counter-clockwise			
	Down	Clockwise			

Removal

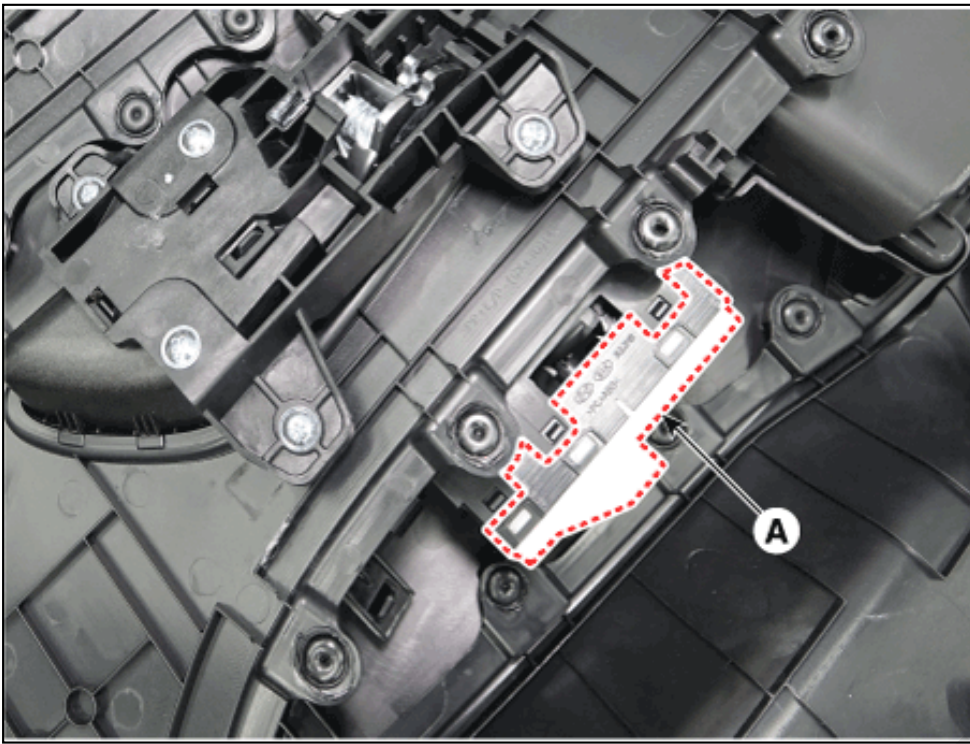
Driver Power Window Main Switch

1. Disconnect the negative (-) battery terminal.
2. Remove the front door trim.
(Refer to Body - "Front Door Trim")
3. Remove the power window main switch assembly (A).



Assist/Rear Power Window Switch

1. Disconnect the negative (-) battery terminal.
2. Remove the door trim.
(Refer to Body - "Front Door Trim")
(Refer to Body - "Rear Door Trim")
3. Remove the assist/rear power window switch assembly (A).



Installation

Power Window Switch

1. Install the power window switch assembly.
2. Install the front/rear door trim after connecting the connector.
3. Connect the negative (-) battery terminal.

Inspection

Diagnosis with diagnostic tool

1. In the body electrical system, failure can be quickly diagnosed by using the vehicle diagnostic system (diagnostic tool).
The diagnostic system (diagnostic tool) provides the following information.
 - (1) Fault Code Searching : Checking failure and code number (DTC)
 - (2) Data Analysis : Checking the system input/output data state
 - (3) Actuation test : Checking the system operation condition
 - (4) S/W Management : Controlling other features including system option setting and zero point adjustment
2. If diagnose the vehicle by diagnostic tool, select "DTC Analysis" and "Vehicle".

GDS Update

TSB

MORE ►



Fault Code Searching



ECU Upgrade



DTC Analysis



Data Analysis



**Actuation
Test**



**Flight
Record**



S/W Management



Multi Data Analysis



**Recorded
Data**



**Digital Before
Service**



Measurement

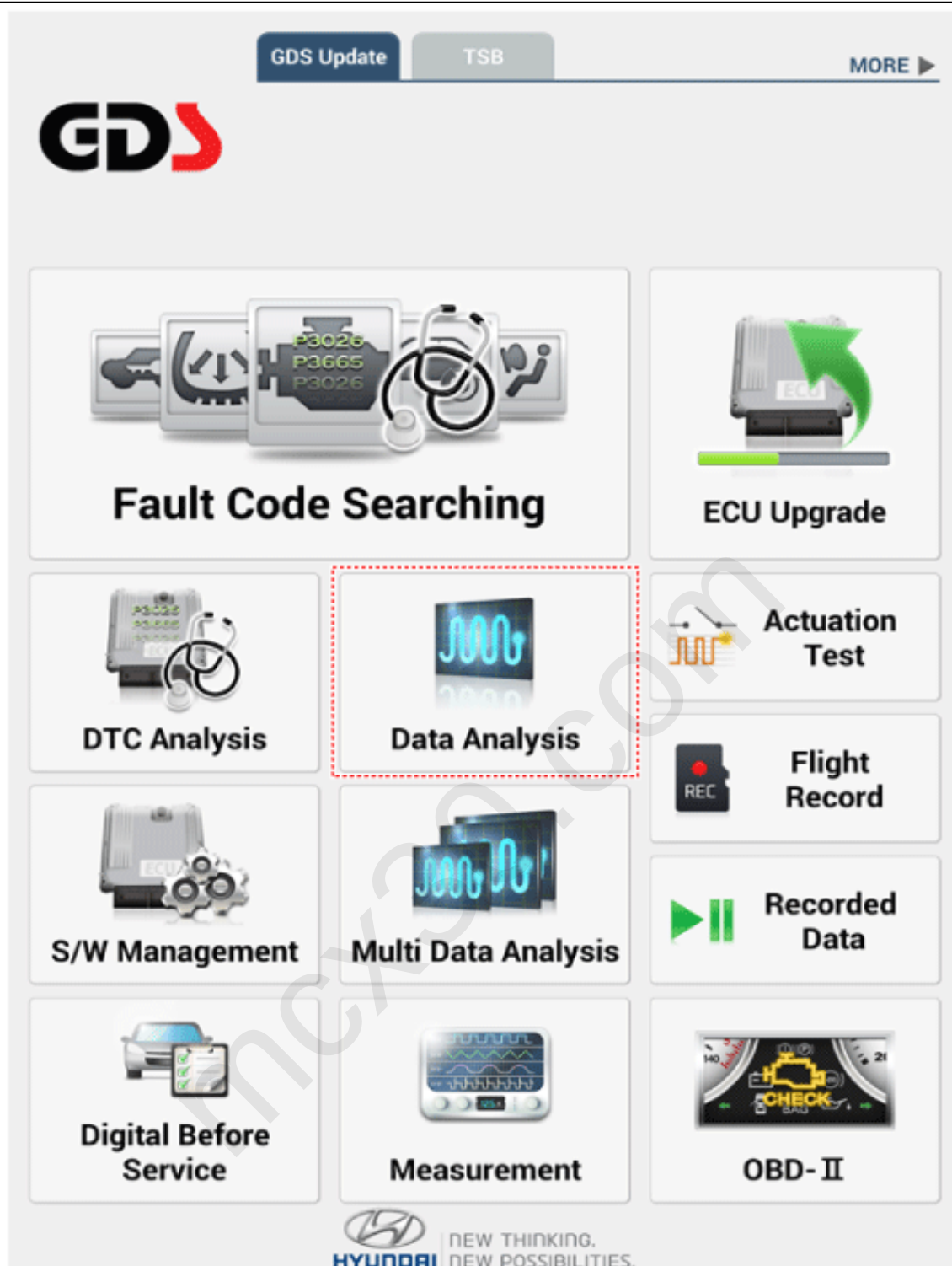


OBD- II



NEW THINKING.
NEW POSSIBILITIES.

3. Select the 'Data Analysis' and 'Car model'.



4. Select the 'DDM' to search the current state of the input/output data.

Vehicle Selection

 × 

AUTO
VIN



SANTAFE(SM)		
SANTAMO(M2)		D 2.2 TCI-B

System Selection

 ENGINE	 A / T	 ABS/ESP	 FCA	 AIRBAG	 AIRCON
 4WD	 EPS	 RVM	 SVMS	 PA	 BCW
 FR_CMV	 AFLS	 AHLS	 AVN	 CLU	 DDM
 HUD	 IBU-BCM	 IBU-IMMO	 IBU-SMK	 IBU-TPMS	 PSM

• System

Driver Door Module

OK

Data Analysis			
< Stop Graph Selective Display Actuation Test >			
Sensor Name(27)	Value	Unit	Link Up
Driver Outside Mirror Horizontal Position Sensor Voltage	2760	mV	
Driver Outside Mirror Vertical Position Sensor Voltage	2440	mV	
Battery Voltage on DDM	11.3	V	
Assist Outside Mirror Horizontal Position Sensor Voltage	2620	mV	
Assist Outside Mirror Vertical Position Sensor Voltage	2460	mV	
Driver Outside Mirror Up Switch	OFF	-	
Driver Outside Mirror Down Switch	OFF	-	
Driver Outside Mirror Left Switch	OFF	-	
Driver Outside Mirror Right Switch	OFF	-	
Assist Outside Mirror Up Switch	OFF	-	
Assist Outside Mirror Down Switch	OFF	-	
Assist Outside Mirror Left Switch	OFF	-	
Assist Outside Mirror Right Switch	OFF	-	
Rear Assist Power Window Down Switch	OFF	-	
Rear Assist Power Window Up Switch	OFF	-	
Assist Power Window Down Switch	OFF	-	
Assist Power Window Up Switch	OFF	-	
Rear Driver Power Window Down Switch	OFF	-	
Rear Driver Power Window Up Switch	OFF	-	
IGN1 Switch	ON	-	

5. To forcibly actuate the input value of the module to be checked, select option 'Actuation Test'.

Actuation Test			
● Test Item(17)			
AIM Solenoid			
Assist Seat Belt Indicator (Option)			
Rear Seat Belt Left Indicator (Option)			
Rear Seat Belt Right Indicator (Option)			
External Buzzer Output			
Sunroof Power Relay control(Optional)			
Heated Handle Output(Optional)			
Heated Handle Indicator(Optional)			
Mirror Folding Operation			
Mirror Unfolding Operation			
Data Analysis			
< Stop Graph Selective Display Data Capture >			
Sensor Name(90)	Value	Unit	
Head Lamp Escort	ON	-	
Auto Door Lock State	Shift Lever	-	
Auto Door Unlock Status	Shift-lever	-	
2-Turn Unlock	ON	-	
Rear Wiper Option Setting	ON	-	
RK RX Status	NO RX	-	
Number of RK(+RK)	0	-	
Battery Voltage Monitoring Input	7.0	V	