

# **Component Procedures: Relay Box**

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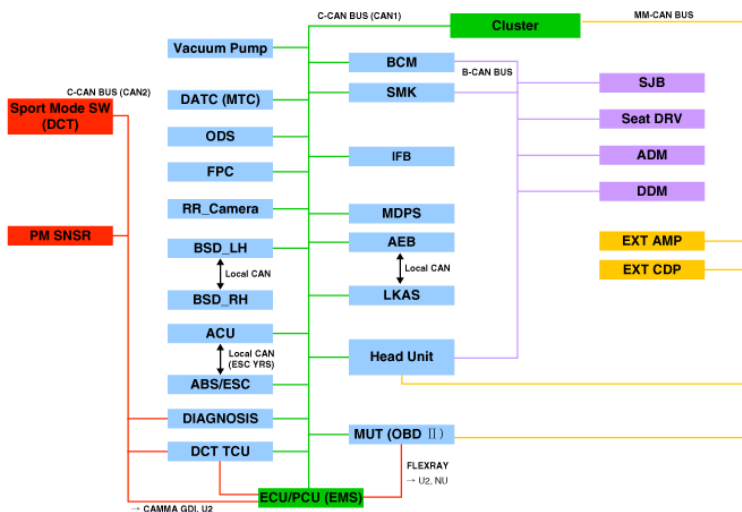
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# Component Procedures: Relay Box

## Relay Box (Passenger Compartment) - Description and Operation (Article 44582)

- Description

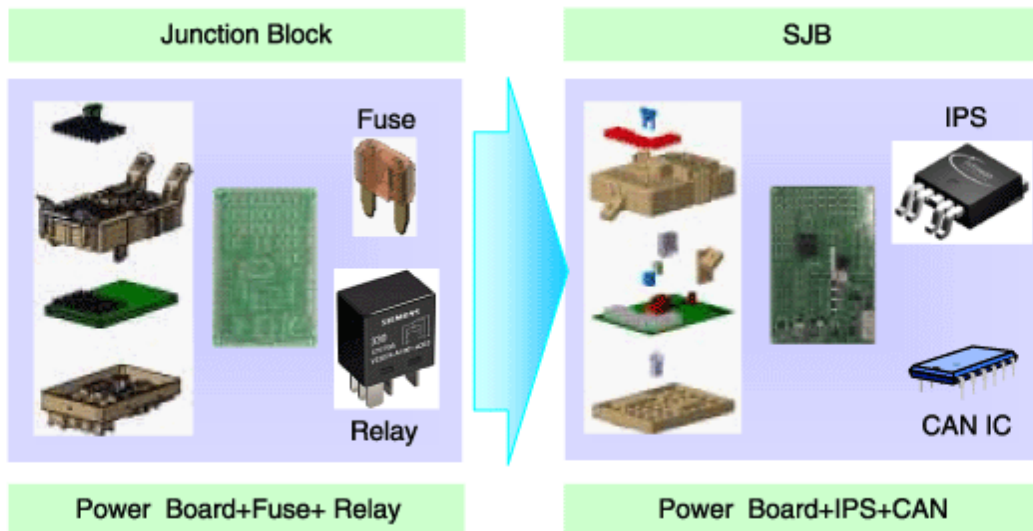
Auto Cut System of Dark Current



※ CAN : Controller Area Network

### Abbreviation Expalnation

- ACU Airbag Control Unit
- ADM Assist Door Module
- B\_CAN Body Controller Area Network
- BCM Body Control Module
- BSD Blind Spot Detection
- C\_CAN Chassis Controller Area Network
- CLU Cluster Module
- DATC Dual Automatic Temp Control
- DDM Driver Door Module
- ESC Electronic Stability Program
- EMS Engine Management System
- LKAS Lane Keeping Assist System
- M\_CAN Multi media Controller Area Network
- MDPS Motor Driven Power Steering
- P\_CAN Powertrain Controller Area Network
- PSM Power Seat Module
- SAS Steering Angle Sensor
- SJB Smart Junction Block
- SMK Smart Key Unit
- PAS Parking Assist System
- TCU Transmission Control Unit
- TPMS Tire Pressure Monitor ing System
- VDC Vehicle Dynamic Control
- TMU Telematics System
- ABS Anti-lock Brake System
- SCC Smart Cruise Control
- Smart Junction Block (SJB)



The advantages of IPS are as follows: Reduce relay and consequently decrease weight and volume Remove the relay operation noise Not necessary to replace fuse, increasing the product life Diagnosis capability

# NOTICE

- Reduce relay and consequently decrease weight and volume
- Remove the relay operation noise
- Not necessary to replace fuse, increasing the product life
- Diagnosis capability

SJB control entry

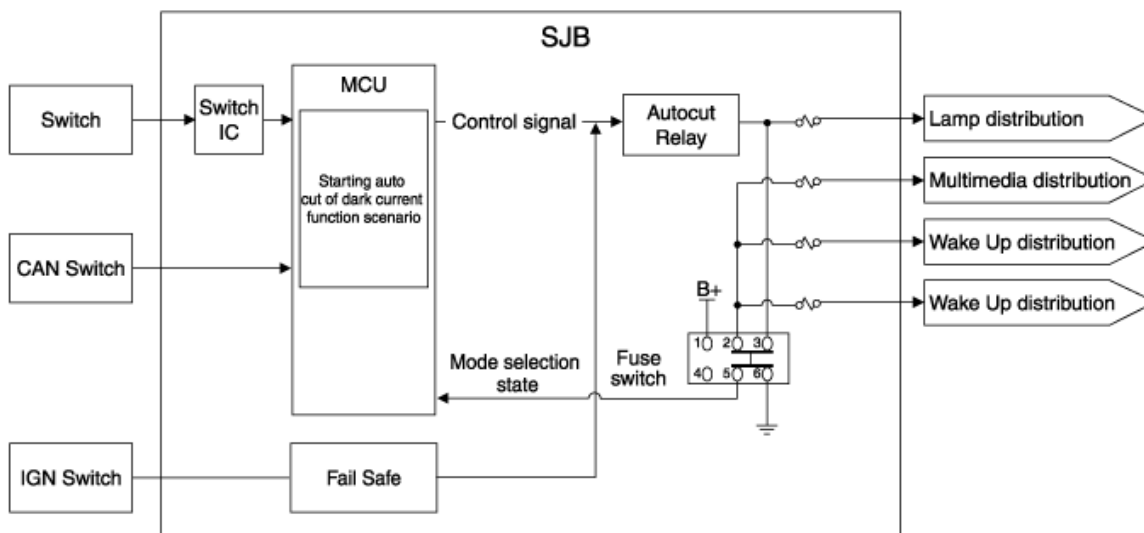
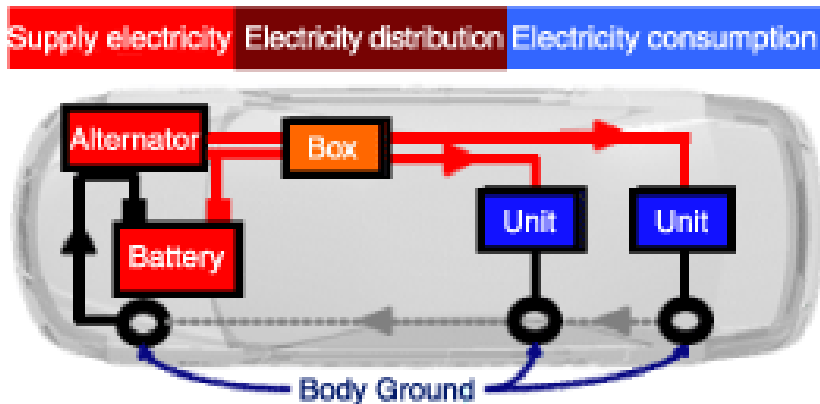
- Switch signal input Assist seat belt switch Assist the door switch Driver's seat belt switch Rear left door switch Rear right door switch IGN1 switch IGN2 switch Brake fluid sensor Trunk lid handle switch HID head lamp option Hazard lamp switch Head lamp low beams switch Hood switch Left front / rear turn signal switch Right front / rear turn signal switch Parking brake switch Driver the door lock/unlock control status Assist the

door lock/unlock control status Rear left the door lock/unlock status Rear right the door lock/unlock status Driver the door switch Driver the door key lock switch Driver the door key unlock switch Driver the door power window lock switch Driver the door power window unlock switch IPS&ARISU Left Head lamp low beams Right Head lamp low beams Left Head lamp high beams Right Head lamp high beams Room lamp Exterior left tail lamp Exterior right tail lamp Left front / rear turn signals Right front / rear turn signals DRL left lamp DRL right lamp Body resistance cut control Front left turn signal output Front right turn signal output Relay Control Rear glass heater relay Trunk lid relay Front glass heater relay Head lamp high beams relay Memory fuse switch relay Door lock/unlock relay Power window wake-up relay 2 Turn door lock relay

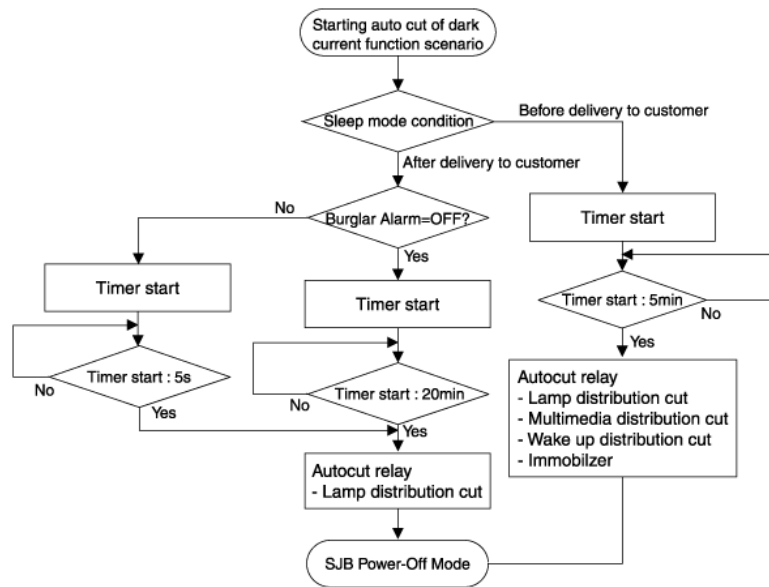
- Assist seat belt switch Assist the door switch Driver's seat belt switch Rear left door switch Rear right door switch IGN1 switch IGN2 switch Brake fluid sensor Trunk lid handle switch HID head lamp option Hazard lamp switch Head lamp low beams switch Hood switch Left front / rear turn signal switch Right front / rear turn signal switch Parking brake switch Driver the door lock/unlock control status Assist the door lock/unlock control status Rear left the door lock/unlock status Rear right the door lock/unlock status Driver the door switch Driver the door key lock switch Driver the door key unlock switch Driver the door power window lock switch Driver the door power window unlock switch
- IPS&ARISU Left Head lamp low beams Right Head lamp low beams Left Head lamp high beams Right Head lamp high beams Room lamp Exterior left tail lamp Exterior right tail lamp Left front / rear turn signals Right front / rear turn signals DRL left lamp DRL right lamp Body resistance cut control Front left turn signal output Front right turn signal output
- Relay Control Rear glass heater relay Trunk lid relay Front glass heater relay Head lamp high beams relay Memory fuse switch relay Door lock/unlock relay Power window wake-up relay 2 Turn door lock relay
- SJB protection PCL (Programmable Current Limit) functions Replace the current junction box fuse function to protect the wire. How to operate : If the lamp current exceeds the standard level, cut off the lamp current to protect lamp. Lamp cut off time : 300ms or less. Applied load : Applied to all lamp loads controlled by SJB. Output the error code according to the error detection conditions. OCL (Open Current Limit) Detect the lamp open state and inform the user of it. How to operate: Detect the current of the lamp and if it is below the standard level, change the lamp operation. Applied load: Applied to the turn signal lamp 4 channel Output the error code according to the error detection conditions.
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- Applied load: Applied to the turn signal lamp 4 channel
- SJB fail safe function When SJB has a failed MCU (not operating due to a physical or electrical shock from the outside), the head lamp low and exterior and interior tail lamp are turned on to secure the driver if IGN2 is on and the head lamp low switch is on. When the data transmission/reception fails due to a failed CAN communication line connected with SJB module (disconnection of both high and low line, high/low BAT short, high/low GND short), the head lamp low and interior/exterior tail lamps are turned on if IGN2 is on and the head lamp low switch is on.
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- Auto Cut System of Dark Current Description : It cuts automatically power to be provided with load for reducing useless dark current according to vehicle state. SJB had 3 modes, "Normal Mode", "Sleep Mode", "Power Off Mode". Auto cut of dark current practice in "Sleep Mode". "Sleep" condition : IG OFF, constant input switch, CAN network doesn't activate. "Sleep" resolute condition : Any switch inputs, CAN network activates,

KEY ON, IGN ON "Power OFF" condition : The setting time of timer which is used by cutting a load power expires. "Normal Mode" : SJB function normally activates. "Sleep Mode" : It is low power mode and activates for reducing electricity consumption of SJB or IPM . Auto cut of dark current function activates. "Power OFF Mode" : Power of MCU and circumferential circuit is cut for minimizing electricity consumption. Operation stops. The explanation - The auto cut of dark current Before delivering to customer Fuse switch OFF All door close & RKE door lock or Constant switch state (Auto cut of dark current scenario starts.) After "Sleep" state is for 5 min. SJB power down(SJB dark current : 200  $\mu$ A) and cutting power of Lamp /Multimedia Load/Wake up/Immobilizer After delivering to customer Fuse switch ON All door close & Constant switch state : C\_BASState=OFF (Auto cut of dark current scenario starts.) After "Sleep" state is for 20 min. In case RKE door lock : C\_BASState=ON & Trunk SW=CLOSE (Auto cut of dark current scenario starts.) After "Sleep" state 35s-65s (Waiting time of other unit : 30-60s + SJB sleep counts 5s) Problem when fuse switch setting is wrong : If a fuse switch is set to OFF(Before delivering to customer) by a customer or technician and auto cut function of dark current activates, below problems may happen. Symptom Related part Door lock/unlock, trunk open don't activate by RKE. (Wakeup of each module don't activate.) BCM Digital clock is reset.(Memory is reset.) Digital clock Setting value of audio(Volume, Frequency setting) is reset. (Memory is reset.) Audio \* If fuse switch OFF (before delivering to customer) is set, power of BCM, Digital clock and audio is shut off.

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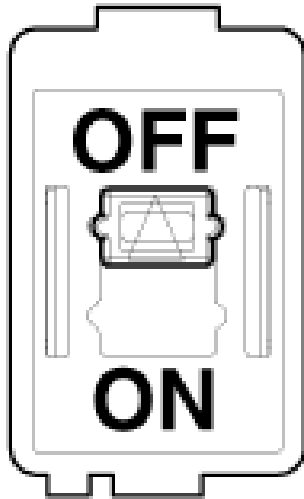
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Before delivering to customer Fuse switch OFF

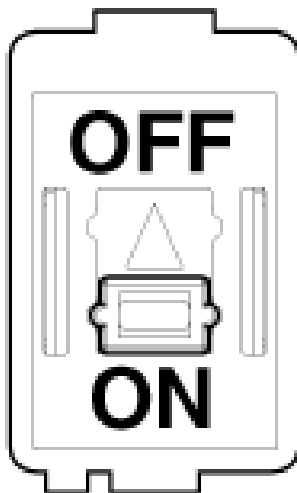
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Symptom Related part

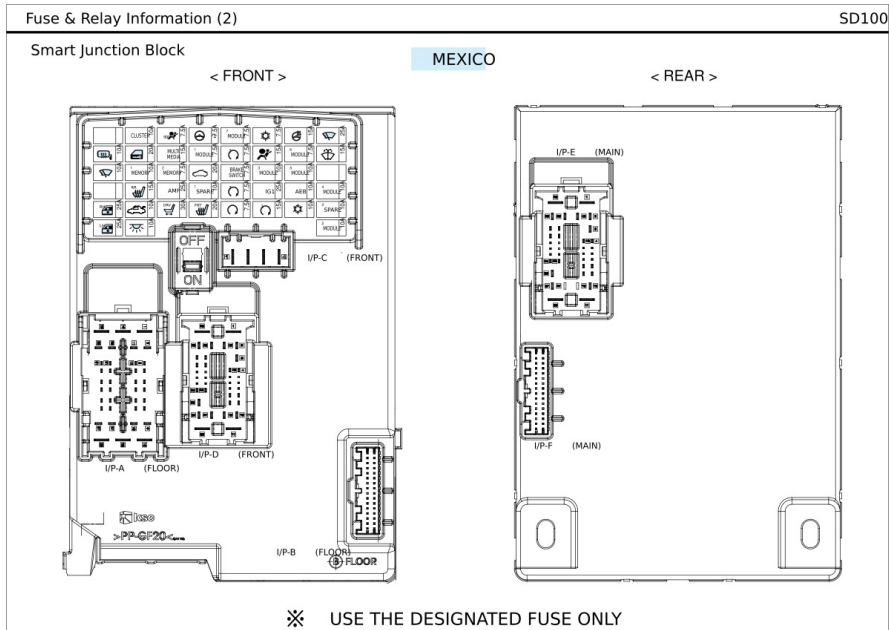
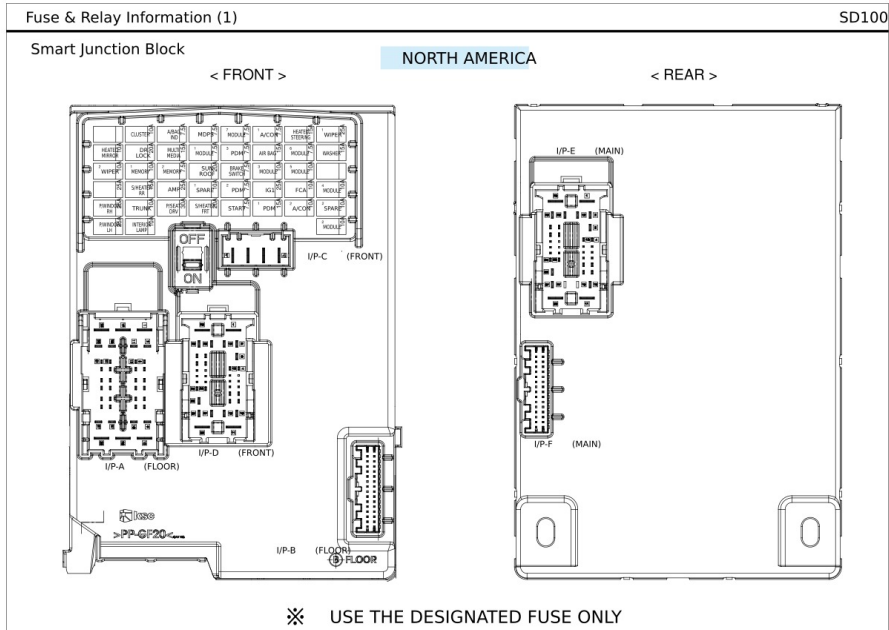
Door lock/unlock, trunk open don't activate by RKE. (Wakeup of each module don't activate.) BCM

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## Fuse & Relay Information (Article 42643)



NO.	(A)	Fuse Name		Circuit Protected	NO.	(A)	Fuse Name		Circuit Protected
		NORTH AMERICA	MEXICO (Symbol)				NORTH AMERICA	MEXICO (Symbol)	
F2	10A	CLUSTER	CLUSTER	Instrument Cluster	F23	10A	1 MODULE	1 MODULE	Crash Post Switch, Electric Chimes, Mirror, Driver MEM Module, AT Shift Lever Indicator, AV & Navigation Head Unit, Audio, A/C Control Module, Console Switch LH/RH, Forward Collision Avoidance Assist Unit, ISG DC-DC Converter (Audio, AMP), Front/Rear Seat Warmer Control Module
F3	7.5A	ABAG IND	ABAG IND	Instrument Cluster, A/C Control Module	F26	15A	SHEATER RR	RR	Rear Seat Warmer Control Module
F4	7.5A	MDPS	MDPS	MDPS Unit	F27	25A	AMP	AMP	AMP, ISG DC-DC Converter (AMP)
F5	10A	MODULE	MODULE	Sunroof Motor, Front Seat Warmer Control Module, Rear Seat Warmer Control Module	F29	7.5A	PCD	PCD	Smart Key Control Module, Immobilizer Module
F6	7.5A	A/CON	A/CON	Igniter, A/C Control Module, E/R Junction Block (RLY. 11/12)	F30	25A	IG1	IG1	PCB Block (Fuse - F10 / F12 / F14 / F16)
F7	15A	HEATED STEERING	HEATED STEERING	Not Used	F31	10A	FCA	FCA	Forward Collision Avoidance Assist Unit
F8	25A	WIPER	WIPER	Wiper Motor, PCB Block (Front Wiper (Low Relay))	F32	10A	MODULE	MODULE	Lane Keeping Assist Unit (LKA)
F9	10A	HEATED MIRROR	HEATED MIRROR	ECM, Driver/Passenger Power Outside Mirror, AMP, A/C Control Module	F33	25A	PWINDOW RH	RH	Power Window RH Relay
F10	20A	DR LOCK	DR LOCK	E/R Junction Block (RLY. 1), Door Lock/Unlock Relay	F34	10A	TRUNK	TRUNK	Trunk Relay
F11	15A	MULTI MEDIA	MULTI MEDIA	ISG DC-DC Converter (Audio/AMP), Audio, AV & Navigation Head Unit	F35	30A	PSEAT DRV	DRV	Driver Seat Manual Switch, Driver IMS Module
F12	7.5A	MODULE	MODULE	Key Interlock, Driver/Passenger Smart Key Outside Handle, Driver/Passenger Door Module, BCM	F36	20A	SHEATER FRT	FRT	Front Seat Warmer Control Module, Data Link Connector
F13	7.5A	PCD	PCD	Smart Key Control Module, Immobilizer Module	F37	7.5A	START	START	W/O Smart Key - Ignition Switch, Transaxle Range Switch, Ignition Lock Switch, W/O Smart Key - Transaxle Range Switch, Ignition Switch, Smart Key Control Module, PCM, E/R Junction Block (RLY. 4)
F14	15A	ABAG	ABAG	IRS Control Module, Passenger Occupant Detection Sensor	F38	15A	PCD	PCD	Smart Key Control Module
F15	7.5A	MODULE	MODULE	BCM, Smart Key Control Module	F39	10A	A/CON	A/CON	E/R Junction Block (RLY. 12), Blower Motor, Blower Resistor, PCM, A/C Control Module
F16	15A	WASHER	WASHER	Multifunction Switch	F41	25A	PWINDOW LH	LH	Power Window LH Relay, Driver Safety Power Window Module
F17	10A	WIPER	WIPER	ECM/PCM, BCM	F42	10A	INTERIOR LAMP	INTERIOR LAMP	Room Lamp, Front Vanity Lamp LH/RH, Trunk Room Lamp, Ignition Key L.L. & Door Warning Switch, Wireless Charger, Overhead Console Lamp
F18	10A	MEMORY	MEMORY	Driver/Passenger Door Module, Driver IMS Module, A/C Control Module, Instrument Cluster, Electric Chimes Mirror, Blind Spot Collision Warning Unit LH/RH	F43	10A	MODULE	MODULE	PCB Block (Power Outlet Relay), USB Charging Connector, Smart Key Control Module, BCM, Power Outside Mirror Switch, Audio, AV & Navigation Head Unit, AMP
F19	7.5A	MEMORY	MEMORY	Not Used					
F20	20A	SUNROOF	SUNROOF	Sunroof Motor					
F21	7.5A	BRAKE SWITCH	BRAKE SWITCH	Stop Lamp Switch, Smart Key Control Module					
F22	10A	MODULE	MODULE	Stop Lamp Switch, BCM, Sport Mode Switch, Driver/Passenger Door Module					

✘ USE THE DESIGNATED FUSE ONLY

**E/R Junction Block**

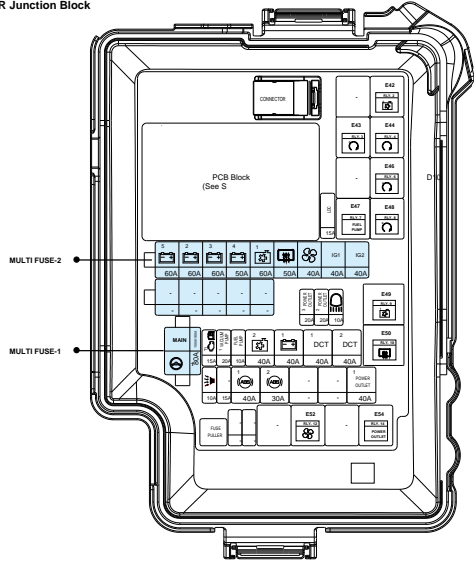
**NORTH AMERICA**

Relay NO.	Relay Name	Type
E41	TWO TURN UNLOCK RELAY	MICRO
E42	COOLING FAN 2 RELAY	MICRO
E43	PCM #3 (IG3) RELAY	MICRO
E44	START RELAY	MICRO
E45	REAR HEATED RELAY	MICRO
E46	PCM #4 (IG2) RELAY	MICRO
E47	FUEL PUMP RELAY	MICRO
E48	PCM #2 (ACC) RELAY	MICRO
E49	COOLING FAN 1 RELAY	MNI
E50	REAR HEATED RELAY	MNI
E51	PTC HEATER RELAY	MICRO
E52	BLOWER RELAY	MICRO
E53	-	MICRO
E54	POWER OUTLET RELAY	MICRO

✘ USE THE DESIGNATED FUSE AND RELAY ONLY

E/R Junction Block

MEXICO



0-8)

Relay NO.	Symbol	Relay Name	Type
E41 (RLY. 1)	-	-	MICRO
E42 (RLY. 3)		COOLING FAN 2 RELAY	MICRO
E43 (RLY. 2)		PDM #3 (IG3) RELAY	MICRO
E44 (RLY. 4)		START RELAY	MICRO
E45 (RLY. 5)	-	-	MICRO
E46 (RLY. 6)		PDM #4 (IG2) RELAY	MICRO
E47 (RLY. 7)		FUEL PUMP RELAY	MICRO
E48 (RLY. 8)		PDM #2 (ACC) RELAY	MICRO
E49 (RLY. 9)		COOLING FAN 1 RELAY	MNI
E50 (RLY. 10)		REAR HEATED RELAY	MNI
E51 (RLY. 11)	-	-	MICRO
E52 (RLY. 12)		BLOWER RELAY	MICRO
E53 (RLY. 13)	-	-	MICRO
E54 (RLY. 14)		POWER OUTLET RELAY	MICRO

✳ USE THE DESIGNATED FUSE AND RELAY ONLY

Circuit (E/R Junction Block)

✳ USE THE DESIGNATED FUSE AND RELAY ONLY

Fuse NO.	(A)	Fuse Name		Circuit Protected
		NORTH AMERICA	MEXICO (Symbol)	
MULTI FUSE-1	F1	180A/GRN/180A/GRN	MAIN	MAIN Fuse - F30, F31, F34
	F2	30A	MDPS	MDPS Unit
	F3	60A	B+	PCB Block (Fuse - F1, F2, F3, F4, Engine Control Relay)
	F4	60A	B+	Smart Junction Block (Fuse : F36, ARISU)
MULTI FUSE-2	F5	60A	B+	Smart Junction Block (Fuse : ARISU, IPS)
	F6	50A	B+	Smart Junction Block (Fuse : F20, F26, F27, F33, F34, F35, F41 )
	F7	60A	COOLING FAN	[G4LD] RLY.9 (Cooling Fan 1 Relay)
	F8	50A	REAR HEATED	RLY.10 (Rear Heated Relay)
	F9	40A	BLOWER	RLY.12 (Blower Relay)
	F11	40A	IG1	[W/O Smart Key] Ignition Switch [With Smart Key] RLY.3/8
	F12	40A	IG2	[W/O Smart Key] Ignition Switch, RLY.4 [With Smart Key] RLY.3/4/8
	F14	50A	PTC HEATER	PTC HEATER RELAY
MULTI FUSE-3	F17	15A	LDC	ISG DC-DC Converter (AMP), Audio, AV & Navigation Head Unit, Instrument Cluster, A/C Control Module
	F18	20A	POWER OUTLET	Power Outlet #2
	F19	20A	POWER OUTLET	Power Outlet #1
	F20	10A	HLAMP	RLY.14 (Head Lamp High Relay)
	F21	15A	TCU	[G4LD] TCM
	F22	20A	VACUUM PUMP	[G4LD] Vacuum Pump
	F23	10A	FUEL PUMP	RLY.7 (Fuel Pump Relay)
	F24	40A	COOLING FAN	[G4NH] RLY.2/9 (Cooling Fan 1/2 Relay)
	F25	40A	B+	F20, Smart Junction Block (Leak Current Autocut Device, Fuse : F10, F12, F21, F29, F36 )
	F26	40A	DC1	[G4LD] TCM
	F27	40A	DC2	[G4LD] TCM
	F30	40A	ABS	ESC Module
	F31	30A	ABS	ESC Module
	F34	40A	POWER OUTLET	PCB Block (Power Outlet Relay)



Circuit (PCB Block)

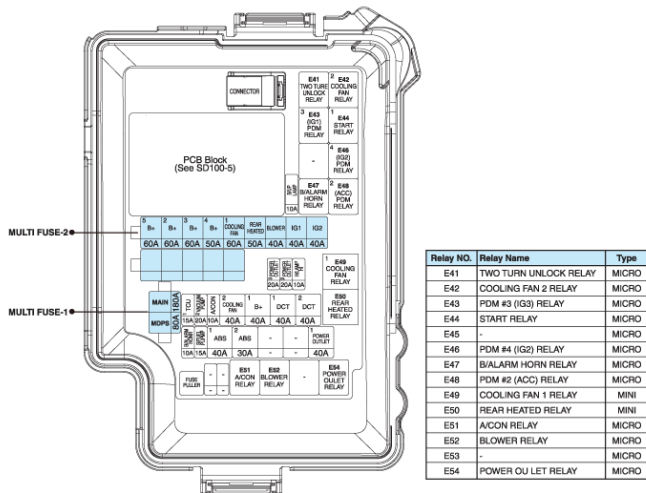
NO.	(A)	Fuse Name		Circuit Protected
		NORTH AMERICA	MEXICO (Symbol)	
F1	10A	2 SENSOR		[D4NH] Purge Control Solenoid Valve, Canister Close Valve, Variable Intake Solenoid Valve, E/R Junction Block (RLY. 29 - Cooling Fan 1/2 Relay), Electronic Throttle Sensor, O2 Control Valve #12, Mass Air Flow Sensor [S4LD] Purge Control Solenoid Valve, Canister Close Valve, RCV Control Solenoid Valve, E/R Junction Block (RLY. 9 - Cooling Fan 1 Relay), O2 Control Valve #1/2
F2	10A	2 ECU		[S4LD] ECM
F3	20A	1 ECU		[D4NH] PCM [S4LD] ECM
F4	15A	1 SENSOR		Oxygen Sensor (Up/Down)
F5	20A	IGN COIL		Ignition Coil #1/2/3/3/4
F6	10A	BUP LAMP		TCM, Transaxle Range Switch, Back-Up Lamp Switch, Electro Chromic Mirror, Back-Up Lamp L4/R4, F11
F7	10A	3 ECU		[D4NH] PCM [S4LD] ECM
F8	10A	A/CON		A/C COMP Relay
F9	10A	5 ECU		[D4NH] PCM [S4LD] ECM
F10	15A	2 VACUUM PUMP		[S4LD] Vacuum Pump
F11	15A	2 TCU		[D4NH] Transaxle Range Switch, F6 [S4LD] TCM, Transaxle Range Switch, F6
F12	10A	3 ABS		ESC Modem, Data Link Connector
F13	15A	INJECTOR		[D4NH] INJECTOR #1/2/3/3/4
F14	15A	2 SENSOR		E/R Junction Block (RLY. 7 - Fuel Pump Relay)
F15	15A	4 ECU		[D4NH] PCM [S4LD] ECM
F16	20A	HORN		Horn Relay

※ USE THE DESIGNATED FUSE AND RELAY ONLY

## Relay Box (Engine Compartment) - Components and Components Location (Article 44577)

- Component Location  
Engine Room Junction Block

E/R Junction Block



※ USE THE DESIGNATED FUSE AND RELAY ONLY

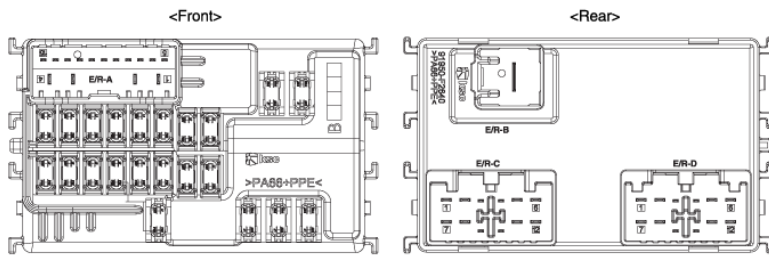
**Circuit (E/R Junction Block)**

Fuse Name	(A)	Circuit Protected
MULTI FUSE-1	180A	Fuse : ABS1, ABS2, B/ALARM HORN, POWER OUTLET
	80A	MDPS Unit
	60A	PCB Block (Fuse : ECU3, ECU4, HORN, FUEL PUMP, ENGINE CONTROL RELAY)
	60A	Smart Junction Block (Fuse : S/HEATER FRNT, ARISU)
	60A	Smart Junction Block (Fuse : ARISU, IPS)
	50A	Smart Junction Block (Fuse : S/HEATER FRNT, P/WINDOW LH, P/WINDOW RH, TRUNK, SUNROOF, AMP, P/SEAT DRV)
MULTI FUSE-2	60A	Not Used
	50A	Rear Heated Relay
	40A	Blower Relay
	40A	Ignition Switch, E/R Junction Block (PDM #2, #3 (ACC/IG1) Relay)
	40A	Ignition Switch, E/R Junction Block (PDM #4 (IG2) Relay, START Relay)
	10A	Electro Chromic Mirror, Rear Combination Lamp (IN) LH/RH, Smart Junction Block (IPS Control Module)
	20A	Cigarette Lighter
	20A	Front Power Outlet
	10A	Not Used
	15A	Not Used
	20A	Not Used
	10A	A/Con Relay
	40A	Cooling Fan 1/2 Relay
	40A	Smart Junction Block (Leak Current Autocut Device, Fuse : BRAKE SWITCH, MODULE 1, DR LOCK, PDM 1, PDM 2)
	40A	Not Used
	40A	Not Used
	10A	B/Alarm Horn Relay
	15A	Not Used
	40A	ESC Module, Multipurpose Check Connector
	30A	ESC Module, Multipurpose Check Connector
	40A	Power Outlet Relay

**※ USE THE DESIGNATED FUSE AND RELAY ONLY**

**Metal Core Block (PCB)**

**PCB Block**



CONNECTOR	
1	SENSOR
2	ECU
3	ECU
4	INJECTOR
5	SENSOR
6	SENSOR
7	IGN COIL
8	HORN
9	SPARE
10	SPARE
11	SPARE
12	SPARE
13	SPARE
14	SPARE
15	SPARE
16	SPARE
17	SPARE
18	SPARE
19	SPARE
20	SPARE
21	SPARE
22	SPARE
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE

**※ USE THE DESIGNATED FUSE AND RELAY ONLY**

**Circuit (PCB Block)**

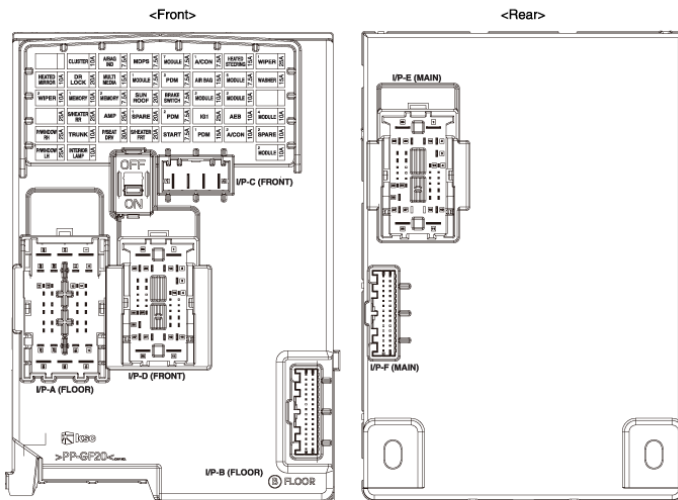
Fuse Name	(A)	Circuit Protected
ECU 5	10A	PCM
VACUUM PUMP	15A	Not Used
SPARE	20A	-
ABS 3	10A	ESC Module, Multipurpose Check Connector
TCU 2	15A	Transaxle Range Switch, E/R Junction Block (Fuse : B/UP LAMP)
ECU 4	15A	PCM
ECU 3	15A	PCM
FUEL PUMP	20A	Fuel Pump Relay
SENAOR 2	10A	Canister Close Valve, Purge Control Solenoid Valve, Variable Intake Solenoid Valve, E/R Junction Block (Cooling Fan 1/2 Relay)
ECU 2	10A	Not Used
ECU 1	20A	PCM
INJECTOR	15A	Injector #1/#2/#3/#4
SENSOR 1	15A	Oxygen Sensor (UP/DOWN)
IGN COIL	20A	Ignition Coil #1/#2/#3/#4
SENSOR 3	10A	Oil Control Valve #1/#2/#3, Electronic Thermo Sensor, Fuel Pump Relay
HORN	20A	Horn Relay

**※ USE THE DESIGNATED FUSE AND RELAY ONLY**

**Relay Box (Passenger Compartment) - Components and Components Location (Article 44581)**

- Component Location  
Interior Junction Block

**Smart Junction Block**



**※ USE THE DESIGNATED FUSE ONLY**

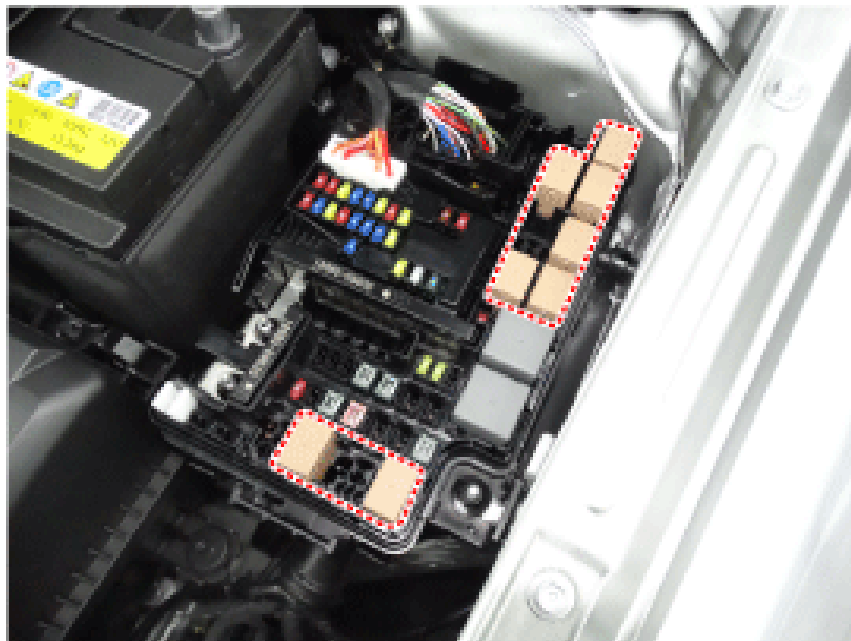
**Circuit (Smart Junction Block)**

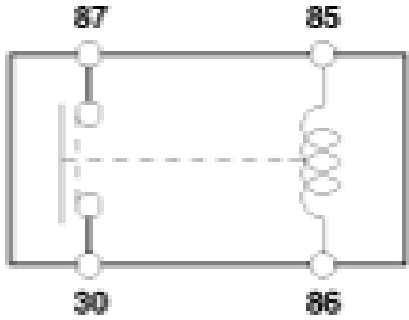
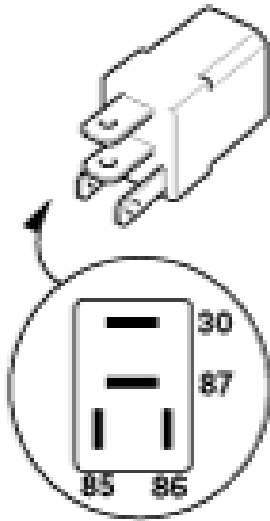
Fuse Name	(A)	Circuit Protected
HEATED MIRROR	10A	Driver/Passenger Power Outside Mirror, A/C Control Module
WIPER 2	10A	PCM, BCM
P/WINDOW RH	25A	Power Window RH Relay
P/WINDOW LH	25A	Power Window LH Relay, Driver Safety Power Window Module
CLUSTER	10A	CLUSTER
DL LOCK	20A	Door Lock/Unlock Relay, E/R Junction Block (Two Turn Lock Relay)
MEMORY 1	10A	Driver/Passenger Door Module, Driver IMS Moduls, A/C Control Module, Instrument Cluster, Electro Chromic Mirror, BCM, Data Link Connector
SEATER RR	15A	Rear Seat Warmer Control Module
TRUNK	10A	Trunk Relay
INTERIOR LAMP	10A	Room Lamp, Front Vanity Lamp L/R/H, Overhead Console Lamp, Ignition Key I.L. & Door Warning Switch, Trunk Room Lamp
ANSAI IND	7.5A	Instrument Cluster, A/C Control Module
MULTI MEDIA	15A	CD Player, Audio, AV & Navigation Head Unit
MEMORY 2	7.5A	Not Used
AMP	25A	AMP
P/SEAT DRV	30A	Driver Seat Manual Switch, Driver IMS Module
MDPS	7.5A	MDPS Unit
MODULE 1	7.5A	Key Interlock, Driver/Passenger Smart Key Outside Handle, Driver/Passenger Door Module
SUNROOF	20A	Sunroof Motor
SPARE 1	10A	-
SEATER FRIT	20A	Front Seat Warmer Control Module
MODULE 7	7.5A	Front Seat Warmer Control Module, Rear Seat Warmer Control Module, Sunroof Motor
PDM 3	7.5A	Smart Key Control Module, Immobilizer Module
BRAKE SWITCH	7.5A	Stop Lamp Switch, Smart Key Control Module
PDM 2	7.5A	Smart Key Control Module, Immobilizer Module
START	7.5A	W/O Smart Key - Ignition Switch, Transaxle Range Switch, Ignition Lock Switch / With Smart Key - Transaxle Range Switch, Smart Key Control Module, PCM
A/C ON 1	7.5A	Ionizer, A/C Control Module, E/R Junction Block (A/C on Relay, Blower Relay)
AIR BAG	15A	SRS Control Module, Passenger Occupant Detection Sensor
MODULE 3	10A	Stop Lamp Switch, BCM, Sport Mode Switch, Driver/Passenger Door Module
IG1	25A	PCB Block (Fuse - ABS3, ECU5, TCU2)
PDM 1	15A	Smart Key Control Module
HEATED STEERING	15A	BCM
MODULE 6	7.5A	BCM, Smart Key Control Module
MODULE 5	10A	Crash Pad Switch, Electro Chromic Mirror, AT Shift Lever Indicator, A/V & Navigation Head Unit, Audio, A/C Control Module, Console Switch L/R/H, Head Lamp L/R/H, Front Seat Warmer Control Module, Rear Seat Warmer Control Module, Driver IMS Module
AEB	10A	AEB Module
A/C ON 2	10A	E/R Junction Block (Blower Relay), Blower Motor, Blower Resistor, A/C Control Module
WIPER 1	25A	Wiper Motor, PCB Block (Front Wiper (Low) Relay)
WASHER	15A	Multifunction Switch
MODULE 4	10A	DBL Unit, Lane Departure Warning System, Parking Assist Buzzer, BCM, Blind Spot Detection Radar L/R/H
SPARE 2	10A	-
MODULE 2	10A	E/R Junction Block (Power Outlet Relay), USB Charging Connector, Smart Key Control Module, BCM, Audio, AV & Navigation Head Unit, CD Player, Power Outside Mirror Switch, AMP

※ USE THE DESIGNATED FUSE ONLY

**Relay Box (Engine Compartment) - Repair Procedures (Article 44578)**

- Inspection
- Disconnect the negative (-) battery terminal.
- Pull out the relay from the engine compartment relay block .
- Power Relay (Type A)
- After supplying power to between No. 85 and 86 power relay terminals, check that there is continuity between No. 30 and 87 terminals.
- After disconnecting power between No. 85 and 86 power relay terminals, check that there is no continuity between No. 30 and 87 terminals. Engine Room Relay Block
- Engine Room Relay Block

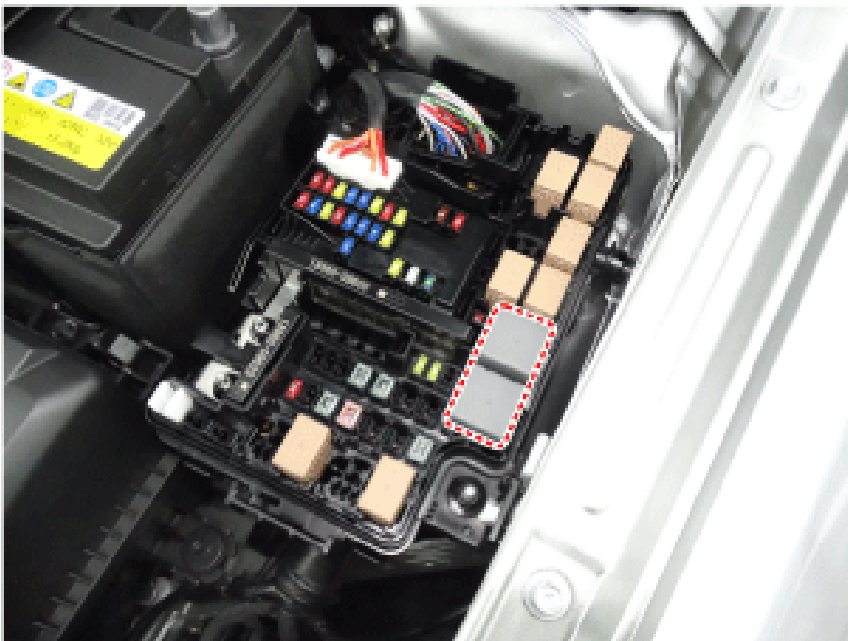


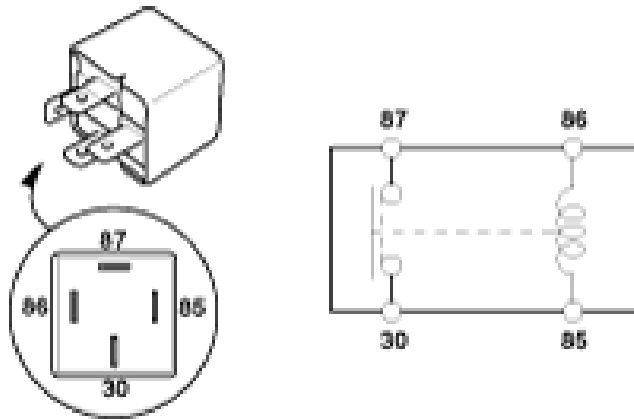


Terminal	30	87	85	86
Power				
Disconnected			○ — ○	
Connected	○ — ○		⊖ — ⊕	

**Power Relay (Type B)**

- After disconnecting power between No. 85 and 86 power relay terminals, check that there is no continuity between No. 30 and 87 terminals.

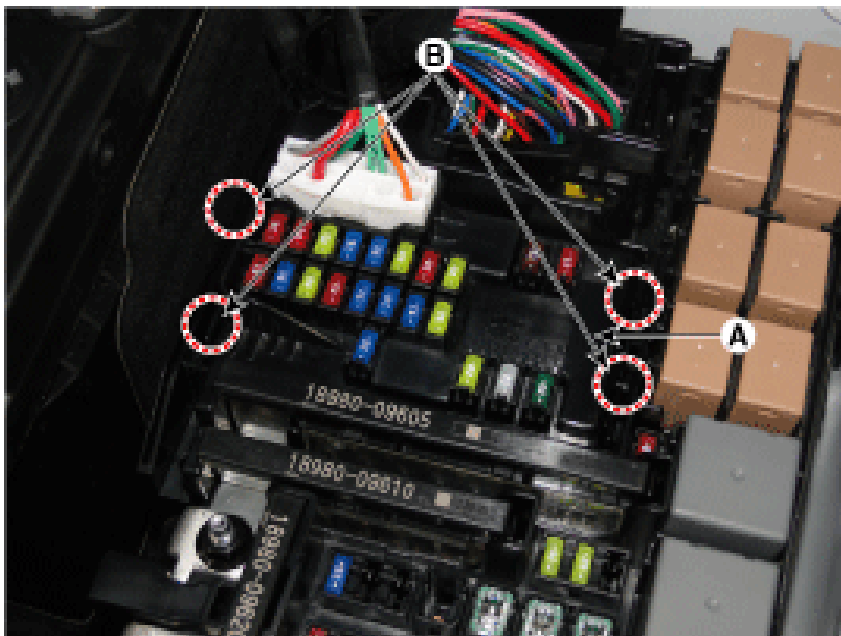




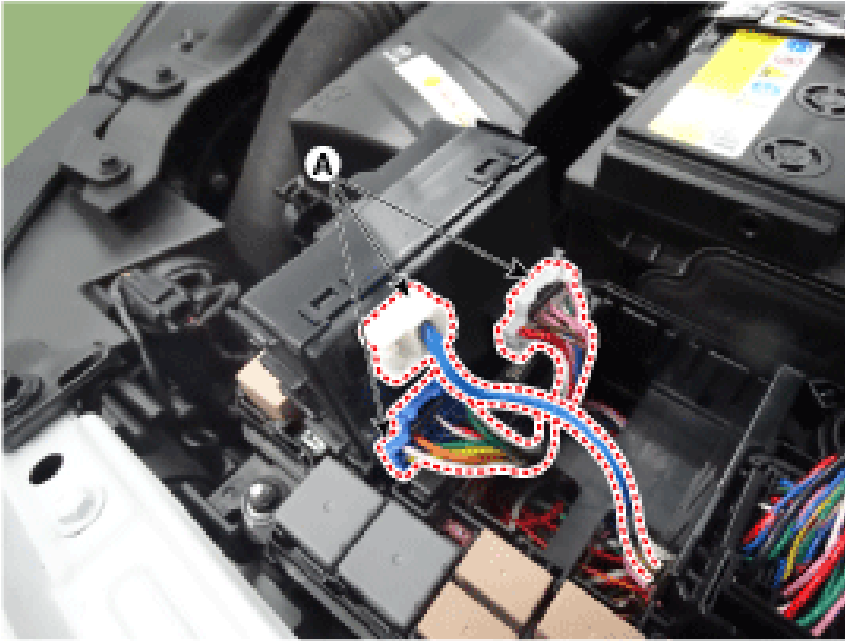
Terminal \ Position	86	85	87	30
Disconnected				
Connected				

PCB block

- Push the four hooks (B) in the direction of the arrow and lift up the PCB block (A).



- Remove the PCB block by disconnect the connector.



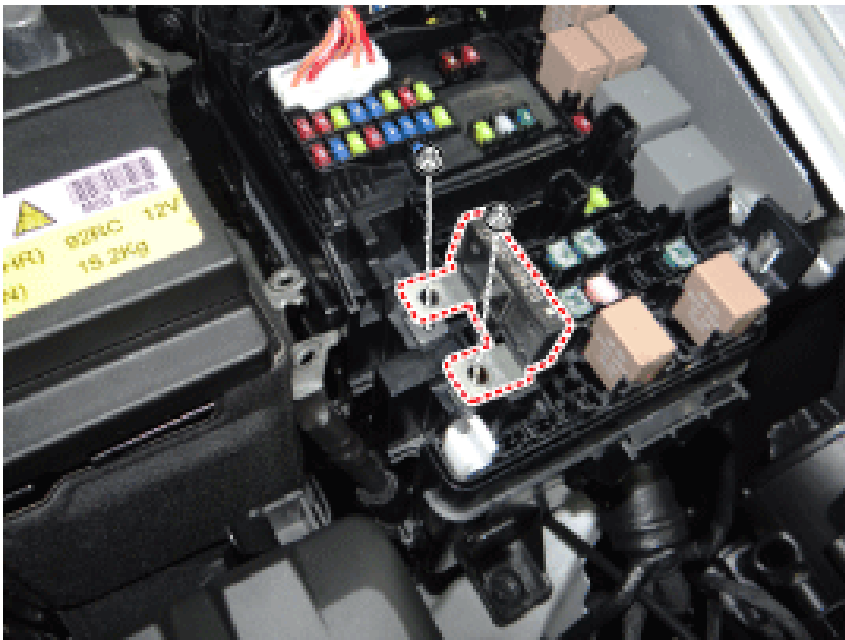
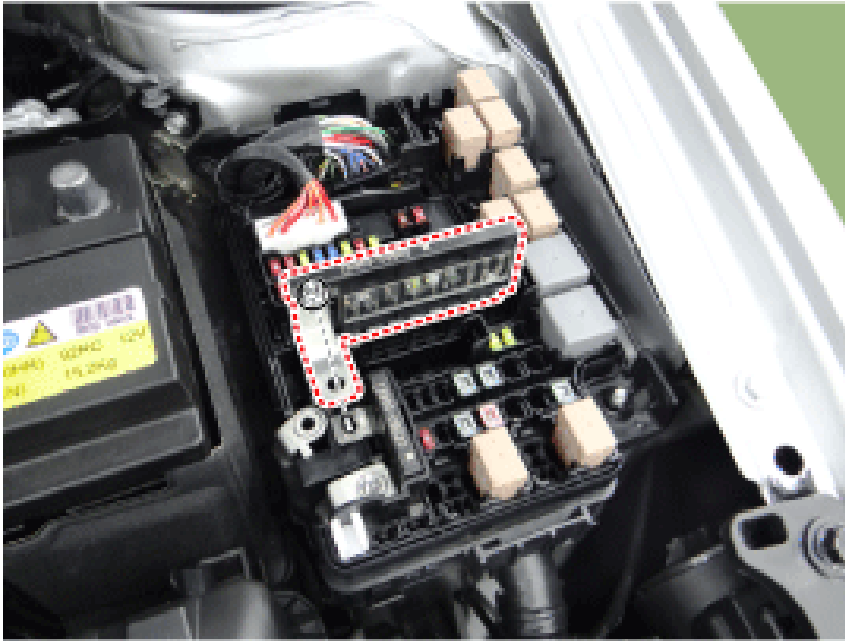
#### Fuse

- Check that the fuse holders are loosely held and that the fuses are securely fixed by the holders.
  - Check that each fuse circuit has the exact fuse capacity.
  - Check the fuses for any damage. If a fuse is to be replaced, be sure to use a new fuse of the same capacity.
- Always identify the cause of the blown fuse and completely eliminate the problem before installing a new fuse. If a fuse is to be replaced, be sure to use a new fuse of the same capacity. Always identify the cause of the blown fuse and completely eliminate the problem before installing a new fuse.

# NOTICE

- If a fuse is to be replaced, be sure to use a new fuse of the same capacity. Always identify the cause of the blown fuse and completely eliminate the problem before installing a new fuse.

#### Multi Fuse



The entire multi fuse (A) has to be replaced even if only one fuse is damaged. When replacing it, refer to "the Engine compartment- component location" diagram to check fuse capacities and circuit arrangement. Use the multi fuse of the exact fuse capacity for each circuit.



# Information

- The entire multi fuse (A) has to be replaced even if only one fuse is damaged.
- When replacing it, refer to "the Engine compartment- component location" diagram to check fuse capacities and circuit arrangement.
- Use the multi fuse of the exact fuse capacity for each circuit.

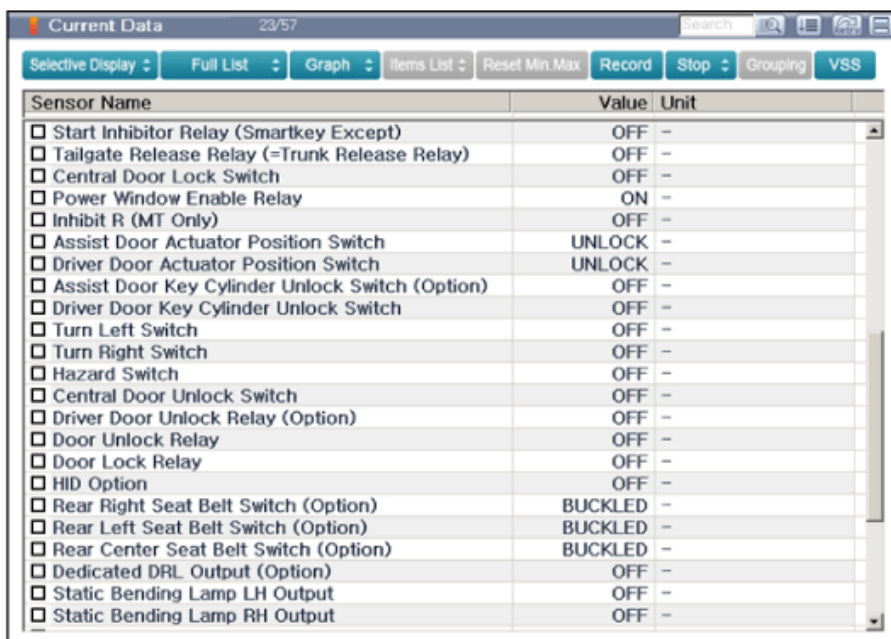
## Relay Box (Passenger Compartment) - Repair Procedures (Article 44583)

- Fuse Inspection
  - Be sure there is no play in the fuse holders, and that the fuses are held securely.
  - Are the fuse capacities for each circuit correct?
  - Are there any blown fuses? If a fuse is to be replaced, be sure to use a new fuse of the same capacity.
- Always determine why the fuse blew first and completely eliminate the problem before installing a new fuse. If a fuse is to be replaced, be sure to use a new fuse of the same capacity. Always determine why the fuse blew first and completely eliminate the problem before installing a new fuse.

# NOTICE

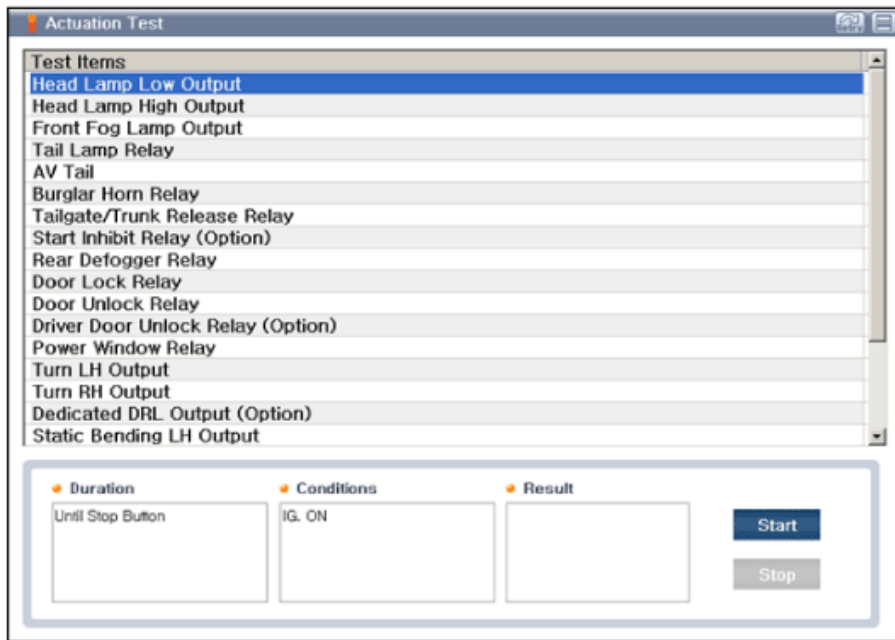
- If a fuse is to be replaced, be sure to use a new fuse of the same capacity. Always determine why the fuse blew first and completely eliminate the problem before installing a new fuse.

- Diagnosis with GDS
  - The body electrical system can be quickly diagnosed failed parts with vehicle diagnostic system (GDS). The diagnostic system (GDS) provides the following information. 1) Self diagnosis : Checking the failure code (DTC) and display 2) Current data : Checking the system input/output data state 3) Actuator test : Checking the system operation condition 4) Additional function : Other controlling such as he system option and zero point adjustment
- 1) Self diagnosis : Checking the failure code (DTC) and display
  - 2) Current data : Checking the system input/output data state
  - 3) Actuator test : Checking the system operation condition
  - 4) Additional function : Other controlling such as he system option and zero point adjustment
- Select the "Car Model" and the system to be checked in order to check the vehicle with the tester.
  - Select the "Smart Junction Block (SJB)".
  - Select the "Current Data" menu to search the current state of the input/output data. The input/output data for the sensors corresponding to the Smart Junction Block (SJB) can be checked.

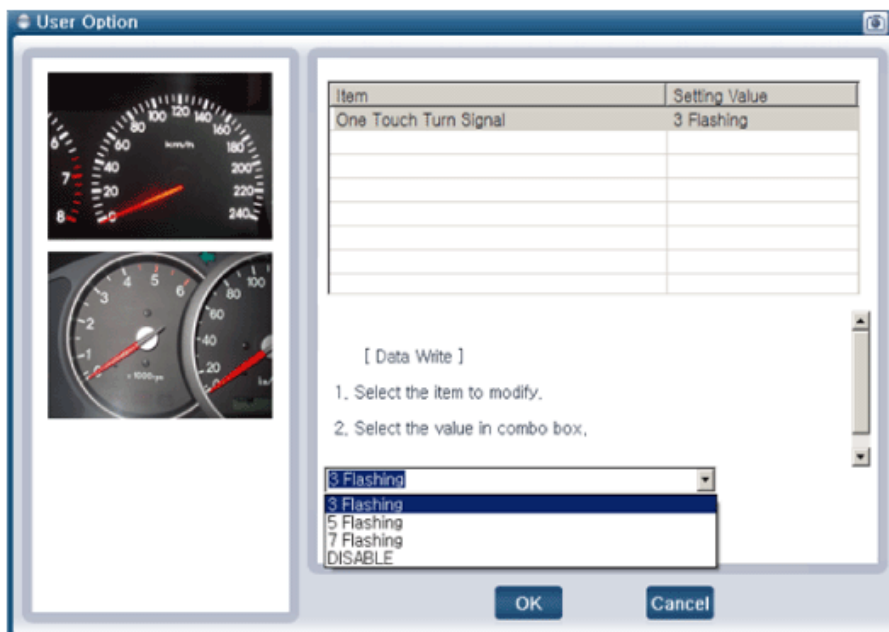


Sensor Name	Value	Unit
<input type="checkbox"/> Start Inhibitor Relay (Smartkey Except)	OFF	-
<input type="checkbox"/> Tailgate Release Relay (=Trunk Release Relay)	OFF	-
<input type="checkbox"/> Central Door Lock Switch	OFF	-
<input type="checkbox"/> Power Window Enable Relay	ON	-
<input type="checkbox"/> Inhibit R (MT Only)	OFF	-
<input type="checkbox"/> Assist Door Actuator Position Switch	UNLOCK	-
<input type="checkbox"/> Driver Door Actuator Position Switch	UNLOCK	-
<input type="checkbox"/> Assist Door Key Cylinder Unlock Switch (Option)	OFF	-
<input type="checkbox"/> Driver Door Key Cylinder Unlock Switch	OFF	-
<input type="checkbox"/> Turn Left Switch	OFF	-
<input type="checkbox"/> Turn Right Switch	OFF	-
<input type="checkbox"/> Hazard Switch	OFF	-
<input type="checkbox"/> Central Door Unlock Switch	OFF	-
<input type="checkbox"/> Driver Door Unlock Relay (Option)	OFF	-
<input type="checkbox"/> Door Unlock Relay	OFF	-
<input type="checkbox"/> Door Lock Relay	OFF	-
<input type="checkbox"/> HID Option	OFF	-
<input type="checkbox"/> Rear Right Seat Belt Switch (Option)	BUCKLED	-
<input type="checkbox"/> Rear Left Seat Belt Switch (Option)	BUCKLED	-
<input type="checkbox"/> Rear Center Seat Belt Switch (Option)	BUCKLED	-
<input type="checkbox"/> Dedicated DRL Output (Option)	OFF	-
<input type="checkbox"/> Static Bending Lamp LH Output	OFF	-
<input type="checkbox"/> Static Bending Lamp RH Output	OFF	-

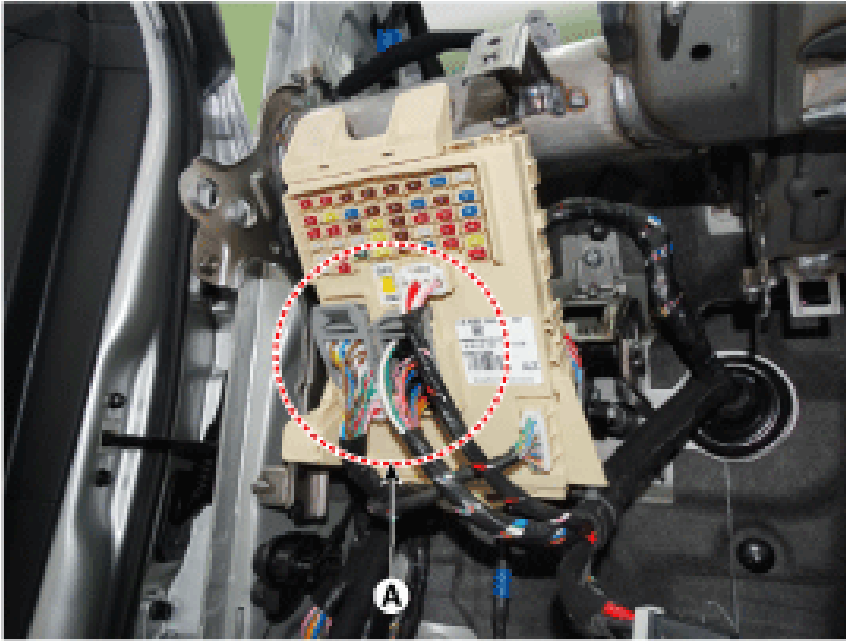
- If you will check the power door lock operation forcefully, select "Actuation Test".



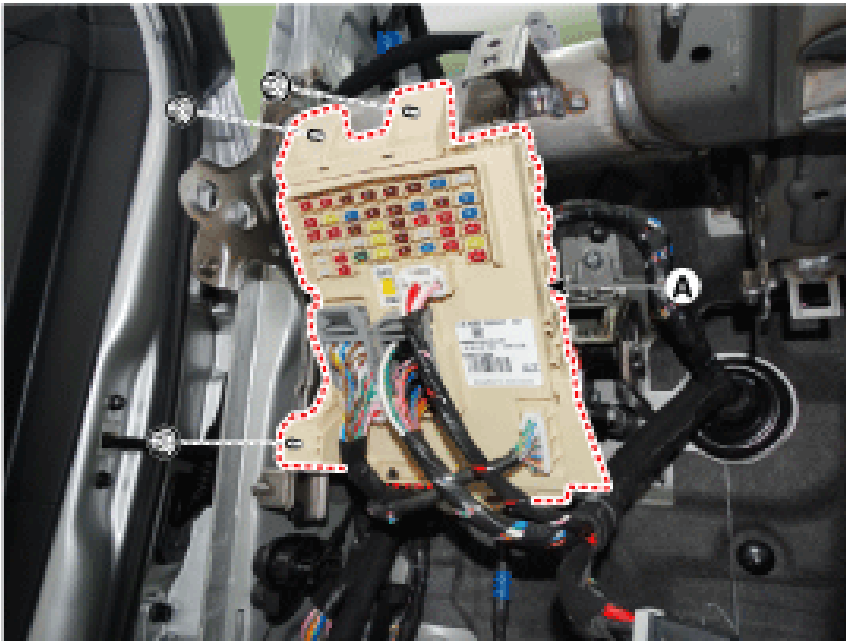
- If you want to change user option, select "User Option".



- Removal
- Disconnect the negative (-) battery terminal.
- Remove the crash pad lower panel. (Refer to Body - "Crash Pad Lower Panel")
- Disconnect the connectors (A) from the fuse side of the SJB.



- Remove the SJB (A) after loosening the mounting nuts.



- Disconnect the connectors from the back side of the SJB.



- Installation
- Install the smart junction box .
- Install the crash pad lower panel.
- Connect the negative (-) battery terminal.
- Check that all system operates normally.