

# Component Procedures: Body Control Module

## Table of Contents

1. Parts and Labor (itype\_189)
2. Body Control Module (BCM) - Description and Operation (Article 44811)
3. Body Control Module (BCM) - Schematic Diagrams (Article 44808)
4. Body Control Module (BCM) System - Schematic Diagrams (Article 42605)
5. Body Computer - Body Control Module Circuit (AD) (Article 11573)
6. Body Computer - Body Control Module Circuit (ADA) (Article 11612)
7. Body Computer - IPS Control Module Circuit (AD) (Article 11565)
8. Body Computer - IPS Control Module Circuit (ADA) (Article 11559)
9. Body Control Module (BCM) - Components and Components Location (Article 44806)
10. Body Control Module (BCM) - Repair Procedures (Article 44814)
11. Body Control Module (BCM) - Specifications (Article 44803)
12. All New Technical Service Bulletins (itype\_432)
13. All Technical Service Bulletins (itype\_100)
14. OEM Policies and Procedures (itype\_120)
15. Service Campaigns (itype\_108)

# Component Procedures: Body Control Module

## Parts and Labor (itype\_189)

### Parts

Qualifier	Part #	Name	Price	Note
Controls > Body Control Modu?	954A0F2AM0	With Smart Key	294.79	Includes Receiver.
Controls > Body Control Modu?	954A0F2AL0	With Auto Lamp Control	294.79	Includes Receiver.

### Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Controls > Body Control Module, R&R	B	0.8	0.0

## Body Control Module (BCM) - Description and Operation (Article 44811)

### - Description

Body Control Module ( BCM ) function

### No Item Description

1 Washer Linked Wiper If the washer switch is pressed ON for 0.06-0.2 second with the vehicle mode in IGN2, the wiper relay is turned ON 0.3±0.1 second after washer switch ON, and then the wiper relay is turned OFF 0.7±0.1 second later. If the washer switch is pressed ON for over 0.2 second with the vehicle mode in IGN2, the wiper relay is turned ON 0.3±0.1 second after washer switch ON, and then the wiper relay is turned OFF 2.5-3.8 seconds (wiper activates 2-3 times) after washer switch OFF.

- If the washer switch is pressed ON for 0.06-0.2 second with the vehicle mode in IGN2, the wiper relay is turned ON 0.3±0.1 second after washer switch ON, and then the wiper relay is turned OFF 0.7±0.1 second later.

- If the washer switch is pressed ON for over 0.2 second with the vehicle mode in IGN2, the wiper relay is turned ON 0.3±0.1 second after washer switch ON, and then the wiper relay is turned OFF 2.5-3.8 seconds (wiper activates 2-3 times) after washer switch OFF.

2 MIST Linked Wiper If the wiper mist switch is pressed ON for 0.7 second with the vehicle mode in IGN2, the wiper relay is turned ON, and then OFF 0.7 second later. If the wiper mist switch is pressed ON for over 0.7 second with the vehicle mode in IGN2, the wiper relay is turned ON, and then turned OFF 0.7 second after wiper mist switch OFF.

- If the wiper mist switch is pressed ON for 0.7 second with the vehicle mode in IGN2, the wiper relay is turned ON, and then OFF 0.7 second later.

- If the wiper mist switch is pressed ON for over 0.7 second with the vehicle mode in IGN2, the wiper relay is turned ON, and then turned OFF 0.7 second after wiper mist switch OFF.

3 Variable INT Wiper If the INT wiper switch is turned ON with the vehicle mode in IGN2, INT wiper operates intermittently (10 -2.2 sec.) based on the INT volume setting.

- If the INT wiper switch is turned ON with the vehicle mode in IGN2, INT wiper operates intermittently (10 -2.2 sec.) based on the INT volume setting.

4 Rear Defogger Deicer Timer If the defogger switch is turned ON with the vehicle mode in alternator ON, defogger relay is turned ON for 20 minutes. If the defogger switch is pressed one more time or if alternator mode is turned OFF while the defogger is ON, then the defogger relay is turned OFF.

- If the defogger switch is turned ON with the vehicle mode in alternator ON, defogger relay is turned ON for 20 minutes.

- If the defogger switch is pressed one more time or if alternator mode is turned OFF while the defogger is ON, then the defogger relay is turned OFF.

5 KEY Inter Lock If the KEY INTER LOCK switch is turned OFF with the vehicle mode in IGN1 ON or ACC ON, the key solenoid output is turned ON and prevents the key from being removed.

- If the KEY INTER LOCK switch is turned OFF with the vehicle mode in IGN1 ON or ACC ON, the key solenoid output is turned ON and prevents the key from being removed.

6 ATM Shift Lock If brake switch is turned ON with the vehicle mode in IGN1 ON and the shift lever in P position, ATM solenoid is turned ON to unlock the shift lever.

- If brake switch is turned ON with the vehicle mode in IGN1 ON and the shift lever in P position, ATM solenoid is turned ON to unlock the shift lever.

7 Trunk Release Trunk release relay is turned ON for 0.2±0.02 second if TX trunk signal is received. If trunk release switch is turned ON with all doors unlocked, trunk releaserelay is turned ON for 0.2±0.02 second. (However, Trunk release switch is ignored when in ARMWAIT, ARM, REARM, or ALARM mode.) If Interior trunk release switch is turned ON, trunk release relay is turned ON for 0.2±0.02 second. (However, Trunk release

relay is NOT turned ON of the vehicle speed is over 5km/h(3.1mi/h), or if the vehicle is in ARMWAIT, ARM, REARM, or ALARM mode.)

- Trunk release relay is turned ON for 0.2±0.02 second if TX trunk signal is received.
- If trunk release switch is turned ON with all doors unlocked, trunk releaserelay is turned ON for 0.2±0.02 second. (However, Trunk release switch is ignored when in ARMWAIT, ARM, REARM, or ALARM mode.)
- If Interior trunk release switch is turned ON, trunk release relay is turned ON for 0.2±0.02 second. (However, Trunk release relay is NOT turned ON of the vehicle speed is over 5km/h(3.1mi/h), or if the vehicle is in ARMWAIT, ARM, REARM, or ALARM mode.)

8 Power Window Timer Power wIndicatorow relay is turned ON when the vehicle mode is switched to IGN ON. When the vehicle mode is switched IGN ON → OFF, power window relay is turned ON for 30 seconds. If a door is opened during the 30 second power window relay ON period, the power window relay is immediately turned OFF. If a door is opened and the vehicle mode is switched IGN ON → OFF, power window relay is immediately turned OFF.

- Power wIndicatorow relay is turned ON when the vehicle mode is switched to IGN ON.
- When the vehicle mode is switched IGN ON → OFF, power window relay is turned ON for 30 seconds.
- If a door is opened during the 30 second power window relay ON period, the power window relay is immediately turned OFF.
- If a door is opened and the vehicle mode is switched IGN ON → OFF, power window relay is immediately turned OFF.

9 Seat Belt Reminder (Driver Side) If Seat belt is not fastened, Indicator is turned ON at the first IGN ON, then turned OFF when the seat belt is fastened. If the vehicle speed is over 20Km/h with Seat belt unfastened, Indicator blinks and chime buzzer is activated for 100 seconds. While the vehicle speed is over 20Km/h with the seat belt fastened, then the seat belt is unfastened, Indicator blinks and chime buzzer is activated for 100 seconds. (Reminder) If the Seat belt is fastened or the vehicle mode is switched to IGN OFF while 100 sec. buzzer is activating, the Indicator blinking and the buzzer is turned OFF. If the vehicle mode is switched to IGN ON with Seat belt unfastened, and vehicle speed exceeds 20Km/h with Indicator ON, Indicator blinks and chime buzzer is activated for 100 seconds.

- If Seat belt is not fastened, Indicator is turned ON at the first IGN ON, then turned OFF when the seat belt is fastened.
- If the vehicle speed is over 20Km/h with Seat belt unfastened, Indicator blinks and chime buzzer is activated for 100 seconds.
- While the vehicle speed is over 20Km/h with the seat belt fastened, then the seat belt is unfastened, Indicator blinks and chime buzzer is activated for 100 seconds. (Reminder)
- If the Seat belt is fastened or the vehicle mode is switched to IGN OFF while 100 sec. buzzer is activating, the Indicator blinking and the buzzer is turned OFF.
- If the vehicle mode is switched to IGN ON with Seat belt unfastened, and vehicle speed exceeds 20Km/h with Indicator ON, Indicator blinks and chime buzzer is activated for 100 seconds.

10 Seat Belt Reminder (Passenger Side) If there is no one in the passenger seat, then the system operates as if seat belt is fastened. If Seat belt is not fastened, Indicator is turned ON at the first IGN ON, then turned OFF when the seat belt is fastened. If the vehicle speed is over 20Km/h with seat belt unfastened, Indicator blinks and chime buzzer is activated for 100 seconds. While the vehicle speed is over 20Km/h with the Seat belt fastened, then the seat belt is unfastened, Indicator blinks and chime buzzer is activated for 100 seconds. (Reminder) If the seat belt is fastened or the vehicle mode is switched to IGN OFF while 100 sec. buzzer is activating, the Indicator blinking and the buzzer is turned OFF. If the vehicle mode is switched to IGN ON with Seat belt unfastened, and vehicle speed exceeds 20Km/h with Indicator ON, Indicator blinks and chime buzzer is activated for 100 seconds.

- If there is no one in the passenger seat, then the system operates as if seat belt is fastened.
- If the vehicle speed is over 20Km/h with seat belt unfastened, Indicator blinks and chime buzzer is activated for 100 seconds.
- While the vehicle speed is over 20Km/h with the Seat belt fastened, then the seat belt is unfastened, Indicator blinks and chime buzzer is activated for 100 seconds. (Reminder)
- If the seat belt is fastened or the vehicle mode is switched to IGN OFF while 100 sec. buzzer is activating, the Indicator blinking and the buzzer is turned OFF.

11 Seat Belt Reminder (Rear) If Seat belt is not fastened, Indicator is turned ON for 35 seconds at the first IGN ON, then turned OFF when the seat belt is fastened. If the vehicle speed is over 20Km/h with seat belt unfastened, Indicator blinks and chime buzzer is activated for 35 seconds. If the vehicle speed is over 20Km/h with the seat belt fastened, then the seat belt is unfastened, Indicator blinks and chime buzzer is activated for 35 seconds. (Reminder) If the seat belt is fastened or the vehicle mode is switched to IGN OFF while 35 sec. buzzer is activating, the Indicator blinking and the buzzer is turned OFF. If the vehicle mode is switched to IGN ON with seat belt unfastened, and vehicle speed exceeds 20Km/h with Indicator ON, Indicator blinks and chime buzzer is activated for 35 seconds.

- If Seat belt is not fastened, Indicator is turned ON for 35 seconds at the first IGN ON, then turned OFF when the seat belt is fastened.
  - If the vehicle speed is over 20Km/h with seat belt unfastened, Indicator blinks and chime buzzer is activated for 35 seconds.
  - If the vehicle speed is over 20Km/h with the seat belt fastened, then the seat belt is unfastened, Indicator blinks and chime buzzer is activated for 35 seconds. (Reminder)
  - If the seat belt is fastened or the vehicle mode is switched to IGN OFF while 35 sec. buzzer is activating, the Indicator blinking and the buzzer is turned OFF.
  - If the vehicle mode is switched to IGN ON with seat belt unfastened, and vehicle speed exceeds 20Km/h with Indicator ON, Indicator blinks and chime buzzer is activated for 35 seconds.
- 12 KEY Operated Warning If the driver door is opened with the KEY IN, buzzer is continuously activated at 1 second interval. The buzzer is turned OFF if KEY OUT or the door is closed while the chime buzzer is activated.
- If the driver door is opened with the KEY IN, buzzer is continuously activated at 1 second interval.
  - The buzzer is turned OFF if KEY OUT or the door is closed while the chime buzzer is activated.
- 13 Parking Brake Warning If the vehicle speed exceeds 5Km/h(3.1mi/h) while the vehicle mode is in IGN1 and the parking brake is engaged, buzzer is sounded until the parking brake is released. (Buzzer activates at 0.6 second ON and 0.4 second OFF at 1 second interval until the parking brake is released.)
- If the vehicle speed exceeds 5Km/h(3.1mi/h) while the vehicle mode is in IGN1 and the parking brake is engaged, buzzer is sounded until the parking brake is released. (Buzzer activates at 0.6 second ON and 0.4 second OFF at 1 second interval until the parking brake is released.)
- 14 Decayed Room Lamp If a door is opened with the vehicle mode in IGN OFF, the room lamp is turned ON. If the door is closed, the room lamp is remained ON for 30 seconds then turned OFF. (dimmer 2±0.2 sec.) If the door is remained opened, the room lamp is remained ON for 20 minutes, then turned OFF. (dimmer 2±0.2 sec.)
- If a door is opened with the vehicle mode in IGN OFF, the room lamp is turned ON. If the door is closed, the room lamp is remained ON for 30 seconds then turned OFF. (dimmer 2±0.2 sec.)
  - If the door is remained opened, the room lamp is remained ON for 20 minutes, then turned OFF. (dimmer 2±0.2 sec.)
- 15 KEY Hole Illumination Key illumination Lamp is turned ON if a door is opened while the vehicle mode in IGN1 switch OFF, and the Key illumination Lamp is turned OFF 30 seconds after the door is closed. If the vehicle mode is switched to IGN1 ON while Key illumination lamp is ON, then the lamp is immediately turned OFF. If the vehicle mode is switched to ARMWAIT while Key illumination lamp is ON, then the lamp is immediately turned OFF.
- Key illumination Lamp is turned ON if a door is opened while the vehicle mode in IGN1 switch OFF, and the Key illumination Lamp is turned OFF 30 seconds after the door is closed.
  - If the vehicle mode is switched to IGN1 ON while Key illumination lamp is ON, then the lamp is immediately turned OFF.
  - If the vehicle mode is switched to ARMWAIT while Key illumination lamp is ON, then the lamp is immediately turned OFF.
- 16 Tail Lamp Auto Cut If Tail switch is switched OFF⇒ ON, the tail relay is turned ON. If Tail switch is turned OFF, then the tail relay is turned OFF. If KEY IN switch OFF & Tail switch ON & Driver Door OPEN while in KEY IN switch ON & Tail switch ON, the tail relay is turned OFF. (Auto OFF) If KEY IN switch is turned ON after Auto OFF, then the tail relay is turned ON. Tail relay does not turn back ON even if the driver side door is opened ⇒ closed.
- If Tail switch is switched OFF⇒ ON, the tail relay is turned ON.
  - If Tail switch is turned OFF, then the tail relay is turned OFF.
  - If KEY IN switch OFF & Tail switch ON & Driver Door OPEN while in KEY IN switch ON & Tail switch ON, the tail relay is turned OFF. (Auto OFF)
  - If KEY IN switch is turned ON after Auto OFF, then the tail relay is turned ON. Tail relay does not turn back ON even if the driver side door is opened ⇒ closed.
- 17 Head Lamp Escort If the vehicle mode is switched from IGN1 to IGN1 OFF, and the haed lamp is turned ON by haed lamp switch or autolight, then the haed lamp is remained ON. Haed lamp is turned OFF in case of any of the following conditions. ① 15 seconds after driver side door is opened ⇒ closed. ② Haed lamp or Autolight is not turned ON. ③ If driver side door is remained opened for over 5 minutes. ④ 20 minutes after the vehicle mode switching from IGN1 ON to IGN OFF. ⑤ If TX lock signal is received 2 times while H/Lamp is ON.
- If the vehicle mode is switched from IGN1 to IGN1 OFF, and the haed lamp is turned ON by haed lamp switch or autolight, then the haed lamp is remained ON.
  - Haed lamp is turned OFF in case of any of the following conditions. ① 15 seconds after driver side door is opened ⇒ closed. ② Haed lamp or Autolight is not turned ON. ③ If driver side door is remained opened for over 5 minutes. ④ 20 minutes after the vehicle mode switching from IGN1 ON to IGN OFF. ⑤ If TX lock signal is

received 2 times while H/Lamp is ON.

18 Head Lamp LOW / HIGH If Head lamp low is turned ON with head lamp low switch ON or autolight function, and head lamp high switch is ON (Self return), then the head lamp high is turned ON. Head lamp high can only be turned OFF with the passing switch.

- If Head lamp low is turned ON with head lamp low switch ON or autolight function, and head lamp high switch is ON (Self return), then the head lamp high is turned ON.

- Head lamp high can only be turned OFF with the passing switch.

19 Head Lamp PASSING Head lamp high activates only when the passing switch is turned ON and the vehicle mode is in IGN2 ON. The switch is used to turn OFF when the head lamp high is ON.

- Head lamp high activates only when the passing switch is turned ON and the vehicle mode is in IGN2 ON.

- The switch is used to turn OFF when the head lamp high is ON.

20 Front Fog Lamp If the front fog is turned ON while tail lamp is ON, then the front fog lamp is turned ON.

If the front fog is turned OFF while the front fog lamp is ON, then the lamp is turned OFF. If the head lamp low is turned ON while front fog is ON, then the front fog lamp is turned ON. If the front fog is turned OFF while the front fog lamp is ON, then the lamp is turned OFF.

- If the front fog is turned ON while tail lamp is ON, then the front fog lamp is turned ON.

- If the front fog is turned OFF while the front fog lamp is ON, then the lamp is turned OFF.

- If the head lamp low is turned ON while front fog is ON, then the front fog lamp is turned ON.

21 Auto Light Control If Auto light sensor is detects light ON condition, then the light is turned ON 2.5

seconds later. If the sensor detects light OFF condition, then the light is turned OFF 2.5 seconds later. If

the sensor detects tail light ON condition, then only the tail lamp is turned ON. If the sensor detects head lamp ON condition, then both the tail lamp and the head lamp are turned ON. In case of head lamp ON condition, both the tail lamp and head lamp are turned ON regardless of tail switch ON/OFF status.

- If Auto light sensor is detects light ON condition, then the light is turned ON 2.5 seconds later.

- If the sensor detects light OFF condition, then the light is turned OFF 2.5 seconds later.

- If the sensor detects tail light ON condition, then only the tail lamp is turned ON. If the sensor detects head lamp ON condition, then both the tail lamp and the head lamp are turned ON.

- In case of head lamp ON condition, both the tail lamp and head lamp are turned ON regardless of tail switch ON/OFF status.

22 Daytime Running Light (DRL) DRL Lamp is turned ON when the engine is started. DRL Lamp is turned OFF if head lamp low or front fog lamp is turned ON.

- DRL Lamp is turned ON when the engine is started.

- DRL Lamp is turned OFF if head lamp low or front fog lamp is turned ON.

23 Head Lamp Welcome If the vehicle mode is switched to KEY OFF, all doors are closed and locked while the Head lamp is turned ON (Head lamp switch or AUTO switch + night time), then RKE unlock is activated, the Head lamp is turned ON for 15 seconds.

- If the vehicle mode is switched to KEY OFF, all doors are closed and locked while the Head lamp is turned ON (Head lamp switch or AUTO switch + night time), then RKE unlock is activated, the Head lamp is turned ON for 15 seconds.

24 AV Tail Linked When the vehicle mode is switched to ACC ON, the auto light sensor ambience is reflected. If Auto light ambience level is tail lamp ON condition for over 2.5 seconds, then ON signal is sent. If Auto

light ambience level is tail lamp OFF condition for over 2.5 seconds, then OFF signal is sent.

- When the vehicle mode is switched to ACC ON, the auto light sensor ambience is reflected.

- If Auto light ambience level is tail lamp ON condition for over 2.5 seconds, then ON signal is sent.

- If Auto light ambience level is tail lamp OFF condition for over 2.5 seconds, then OFF signal is sent.

25 RPAS If the shift lever is switched to R position while the vehicle mode is in IGN1 ON, then buzzer is

activated 0.5 second later. Warning level is displayed in the cluster and buzzer is activated corresponding to the warning condition.

- If the shift lever is switched to R position while the vehicle mode is in IGN1 ON, then buzzer is activated 0.5 second later.

- Warning level is displayed in the cluster and buzzer is activated corresponding to the warning condition.

26 Normal/ARMWAIT/Relock Mode If TX lock signal is received with KEY IN switch removed from the cylinder indicator and all doors are closed, then all doors lock signal is outputted, and when all door lock switch is locked,

then hazard lamp is turned ON 1 time, and the vehicle enters ARM mode after expiration of ARMWAIT time (30

sec.). If TX lock signal is received while any one of the doors, hood, or trunk is opened, then only the lock

signal is outputted. Hazard lamp is not turned ON and the vehicle does not enter the ARM mode. If any of the

doors is not opened or KEY IN is not detected within 30 seconds after receiving TX unlock signal, then the vehicle returns to ARM mode.

- If TX lock signal is received with KEY IN switch removed from the cylinder indicator and all doors are closed, then all doors lock signal is outputted, and when all door lock switch is locked, then hazard lamp is turned

ON 1 time, and the vehicle enters ARM mode after expiration of ARMWAIT time (30 sec.).

- If TX lock signal is received while any one of the doors, hood, or trunk is opened, then only the lock signal is outputted. Hazard lamp is not turned ON and the vehicle does not enter the ARM mode.
- If any of the doors is not opened or KEY IN is not detected within 30 seconds after receiving TX unlock signal, then the vehicle returns to ARM mode.

27 Security Indicator Control If the vehicle is in ARMWAIT mode while KEY OUT, then Indicator is remained ON. Indicator blinks in interval if the vehicle is in any mode other than ARMWAIT. (Blink Interval: 2 sec. OFF, 0.3 sec. ON)

- If the vehicle is in ARMWAIT mode while KEY OUT, then Indicator is remained ON. Indicator blinks in interval if the vehicle is in any mode other than ARMWAIT. (Blink Interval: 2 sec. OFF, 0.3 sec. ON)

28 Alarm Condition If Alarm activation condition is detected, then start inhibit is turned ON to prevent engine start and the alarm is activated.

- If Alarm activation condition is detected, then start inhibit is turned ON to prevent engine start and the alarm is activated.

29 DISARM/Alarm Deactivation Condition If TX UNLOCK/LOCK switch signal is received, unlock/lock signal is outputted for 0.5 second, and START INHIBIT is turned OFF. If KEY IN switch ON & IGN1 switch ON & IGN2 switch ON & alternator ON is maintained for 30 seconds, then start inhibit is turned OFF and the vehicle mode is switched to DISARM.

- If TX UNLOCK/LOCK switch signal is received, unlock/lock signal is outputted for 0.5 second, and START INHIBIT is turned OFF.
- If KEY IN switch ON & IGN1 switch ON & IGN2 switch ON & alternator ON is maintained for 30 seconds, then start inhibit is turned OFF and the vehicle mode is switched to DISARM.

30 RESET If the battery is disconnected while the alarm is activating, and then reconnected, then the alarm also reactivates. If the battery is disconnected while the vehicle is in ARM mode, and then reconnected, the vehicle maintains ARM mode.

- If the battery is disconnected while the alarm is activating, and then reconnected, then the alarm also reactivates.
- If the battery is disconnected while the vehicle is in ARM mode, and then reconnected, the vehicle maintains ARM mode.

31 Central Door Lock/Unlock If Driver/Passenger side door KEY lock/ unlock switch is turned ON within 3 seconds, then all door lock/unlock signal is outputted for 0.5 second. If TX lock/unlock signal is received, then all door lock/unlock signal is outputted for 0.5 second. If Driver door lock switch (Power window) is Lock/Unlock, then all door lock/unlock signal is outputted for 0.5 second.

- If Driver/Passenger side door KEY lock/ unlock switch is turned ON within 3 seconds, then all door lock/unlock signal is outputted for 0.5 second.
- If TX lock/unlock signal is received, then all door lock/unlock signal is outputted for 0.5 second.
- If Driver door lock switch (Power window) is Lock/Unlock, then all door lock/unlock signal is outputted for 0.5 second.

32 Auto Door Lock If the vehicle mode is in IGN1 ON & alternator ON, and the vehicle speed is over 15km/h (9.3mi/h), all doors are locked within 1.5 seconds. (However, if all doors are already locked or in case all door fail condition, then all door lock function is not executed.) If any one of the doors is unlocked after locking via above condition, then lock command is executed 3 times. (at 1 sec. interval). Unlocked door that is locked during the 3 attempts is ignored. Auto door lock function is not engaged in case of crash unlock condition.

- If the vehicle mode is in IGN1 ON & alternator ON, and the vehicle speed is over 15km/h (9.3mi/h), all doors are locked within 1.5 seconds. (However, if all doors are already locked or in case all door fail condition, then all door lock function is not executed.)
- If any one of the doors is unlocked after locking via above condition, then lock command is executed 3 times. (at 1 sec. interval). Unlocked door that is locked during the 3 attempts is ignored.
- Auto door lock function is not engaged in case of crash unlock condition.

33 Auto Door Unlock If KEY OFF after KEY IN, then all door unlock is executed. (However, if all doors are already unlocked, then the unlock command is not executed.)

- If KEY OFF after KEY IN, then all door unlock is executed. (However, if all doors are already unlocked, then the unlock command is not executed.)

34 Driver Door Unlock Switch Synchronized Auto Door Unlock If All doors are closed, and driver door unlock switch is switched from locked to unlocked, then all door unlock signal is outputted 1 time for 0.25 second.

- If All doors are closed, and driver door unlock switch is switched from locked to unlocked, then all door unlock signal is outputted 1 time for 0.25 second.

35 IGN KEY Reminder This function does not activate if the vehicle speed is over 3Km/h (1.86mi/h). If IGN KEY ON, Driver door switch open & Driver door unlock state becomes locked, all door unlock is executed for 1

second after 0.5 second delay. IGN KEY ON, Assist door switch open & Assist door unlock state becomes locked, all door unlock is executed for 1 second after 0.5 second delay. If Driver door switch is closed within 0.5 second from driver door unlock state switchitching UNLOCK → LOCK when the vehicle is in IGN KEY ON mode, all door unlock is executed only 1 time for 1 second. If unlock condition is satisfied, then unlock is executed even if the condition is not maintained for 0.5 second.

- If IGN KEY ON, Driver door switch open & Driver door unlock state becomes locked, all door unlock is executed for 1 second after 0.5 second delay.

- IGN KEY ON, Assist door switch open & Assist door unlock state becomes locked, all door unlock is executed for 1 second after 0.5 second delay.

- If Driver door switch is closed within 0.5 second from driver door unlock state switchitching UNLOCK → LOCK when the vehicle is in IGN KEY ON mode, all door unlock is executed only 1 time for 1 second.

- If unlock condition is satisfied, then unlock is executed even if the condition is not maintained for 0.5 second.

36 Passive KEY Reminder This function does not activate if the vehicle speed is over 3Km/h(1.86mi/h). If KEY Reminder signal is received from SMK, then all door unlock command is outputted for 1 second. If the door remains locked even if unlock command is outputted for 1 second as stated above, then unlock is attempted for up to 3 times (excluding the 1st output) (1 sec. interval: 0.5 sec. ON/OFF)

- This function does not activate if the vehicle speed is over 3Km/h(1.86mi/h).

- If KEY Reminder signal is received from SMK, then all door unlock command is outputted for 1 second.

- If the door remains locked even if unlock command is outputted for 1 second as stated above, then unlock is attempted for up to 3 times (excluding the 1st output) (1 sec. interval: 0.5 sec. ON/OFF)

37 Crash Door Unlock Unlock is executed every time ACU signal is inputted when IGN switch is turned ON. Unlock output continues for the set duration even if the vehicle mode is switched from IGN KEY ON to OFF. If the Driver/Assist/Rear door lock switch is switched from unlock to lock after executing unlock, then unlock command is executed again for 5 seconds. Auto Door Lock function is not engaged in case of crash unlock condition.

- Unlock is executed every time ACU signal is inputted when IGN switch is turned ON. Unlock output continues for the set duration even if the vehicle mode is switched from IGN KEY ON to OFF.

- If the Driver/Assist/Rear door lock switch is switched from unlock to lock after executing unlock, then unlock command is executed again for 5 seconds.

- Auto Door Lock function is not engaged in case of crash unlock condition.

38 HBA (High Beam Assist) If Head lamp high switch is turned ON with AUTO switch night condition, HBA mode is activated. If oncoming vehicle or vehicle in front is detected (signal input from LDWS) while in HBA mode, then head lamp high is turned OFF. If oncoming vehicle or vehicle in front is not detected, then head lamp high is turned ON automatically.

- If Head lamp high switch is turned ON with AUTO switch night condition, HBA mode is activated.

- If oncoming vehicle or vehicle in front is detected (signal input from LDWS) while in HBA mode, then head lamp high is turned OFF.

- If oncoming vehicle or vehicle in front is not detected, then head lamp high is turned ON automatically.

39 FOLD / UNFOLD Fold/Unfold is engaged when Fold/Unfold switch is activated. If Auto switch is activated, then Fold/Unfold is engaged automatically in case of any of below conditions. If RKE Lock/Unlock. If Passive Lock/Unlock. If Smart Key approach/away signal is detected.

- Fold/Unfold is engaged when Fold/Unfold switch is activated.

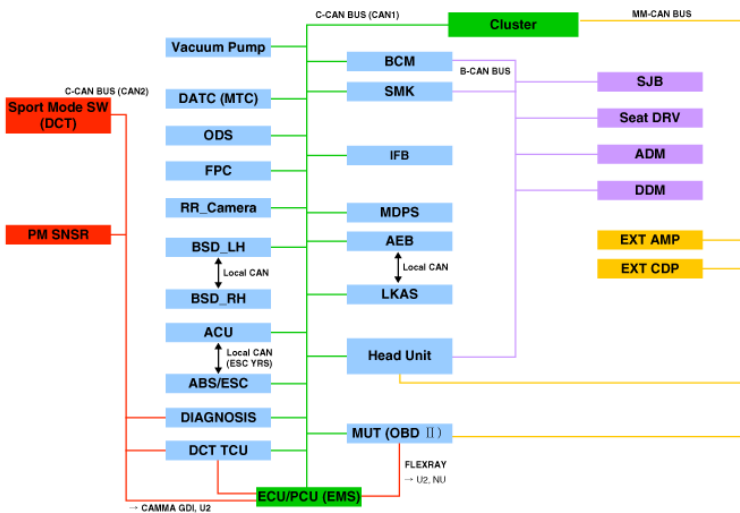
- If Auto switch is activated, then Fold/Unfold is engaged automatically in case of any of below conditions.

- If RKE Lock/Unlock.

- If Passive Lock/Unlock.

- If Smart Key approach/away signal is detected.

Communication Network Diagram



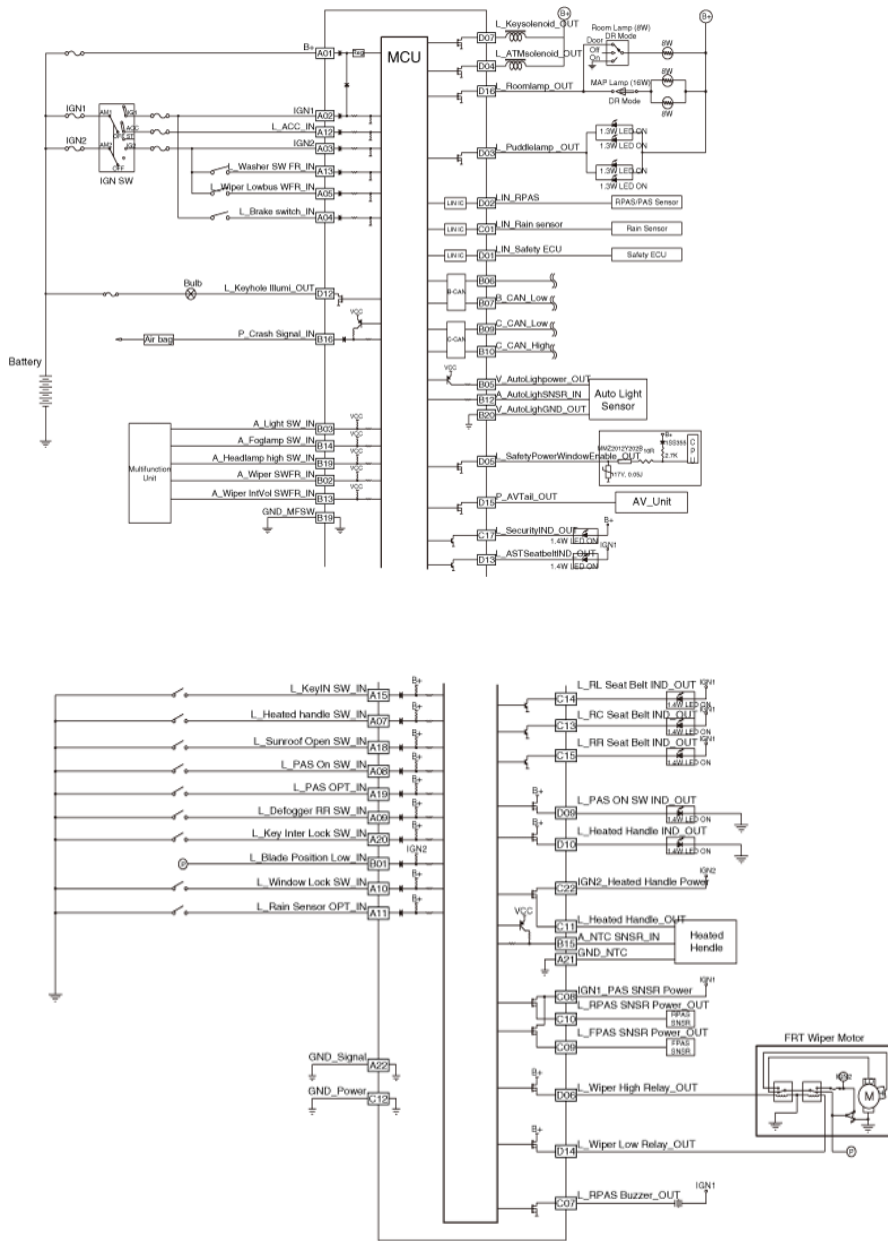
※ CAN : Controller Area Network

#### Abbreviation Expalnation

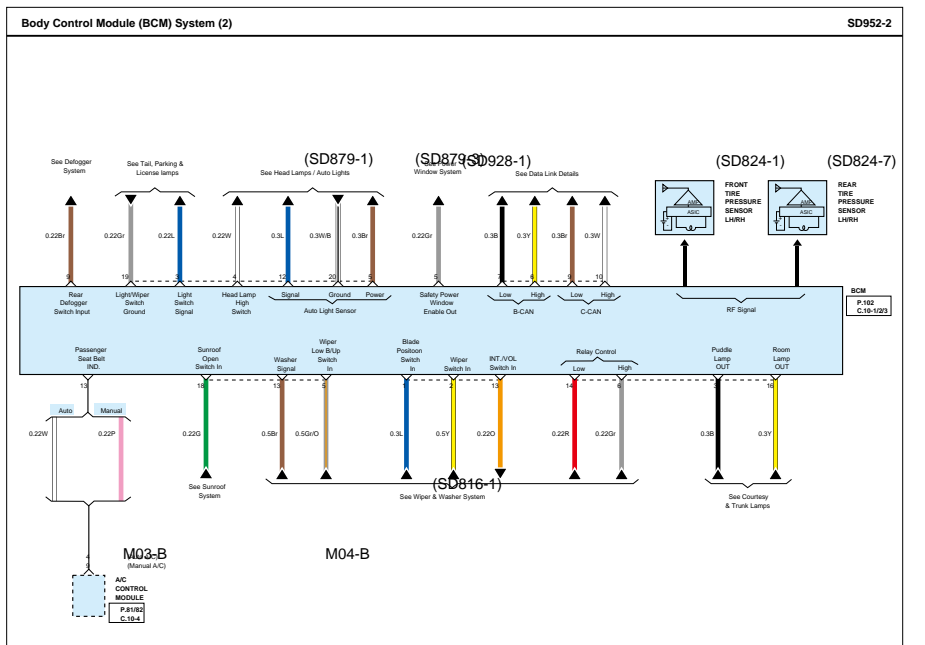
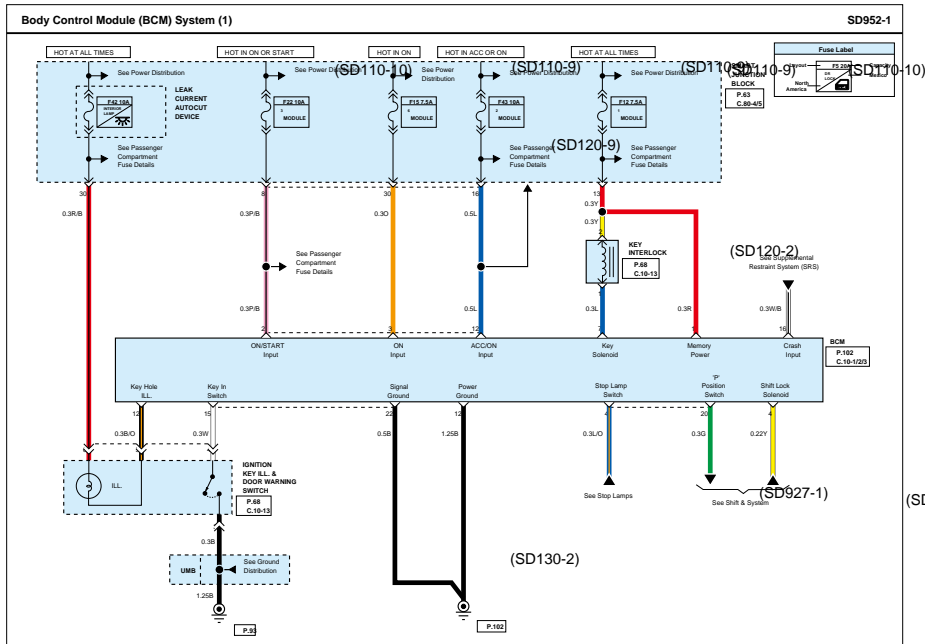
- ACU Airbag Control Unit
- ADM Assist Door Module
- B\_CAN Body Controller Area Network
- BCM Body Control Module
- BSD Blind Spot Detection
- C\_CAN Chassis Controller Area Network
- CLU Cluster Module
- DATC Dual Automatic Temp Control
- DDM Driver Door Module
- ESC Electronic Stability Program
- 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

### Body Control Module (BCM) - Schematic Diagrams (Article 44808)

- Circuit Diagram

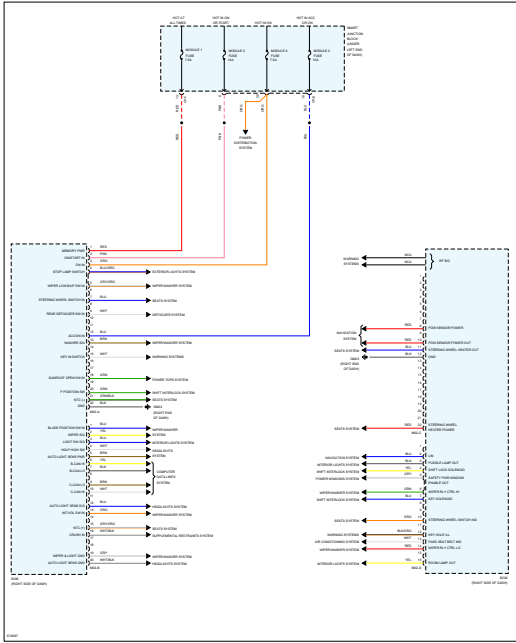


Body Control Module (BCM) System - Schematic Diagrams (Article 42605)



## Body Computer - Body Control Module Circuit (AD) (Article 11573)

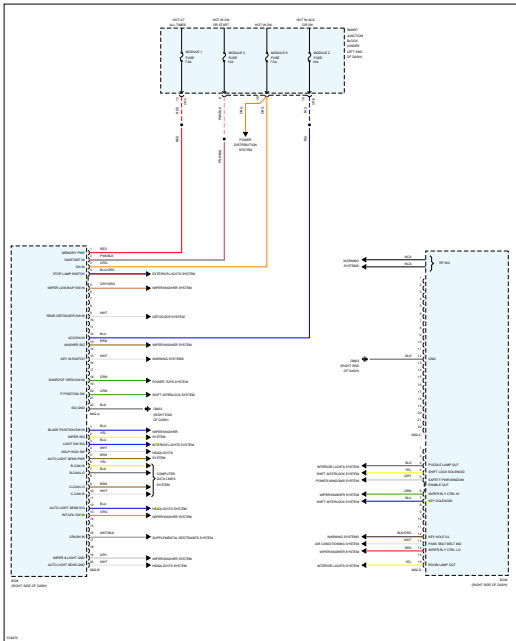
Body Computer - Body Control Module Circuit (AD)



## Body Computer - Body Control Module Circuit (ADA) (Article 11612)

Body Computer - Body Control Module Circuit (ADA)

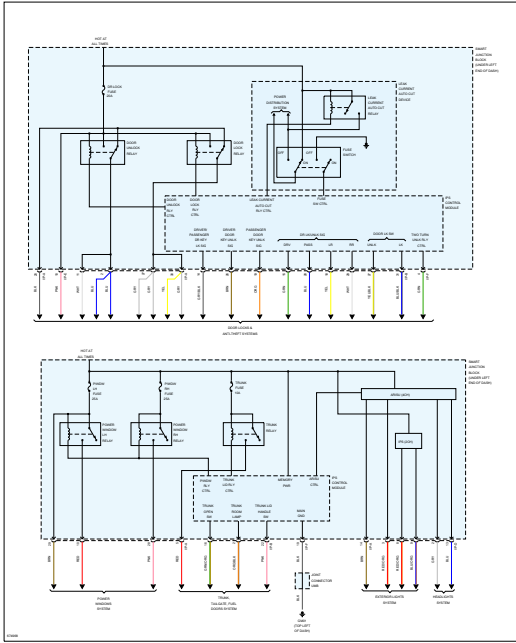
Page 1 of 1



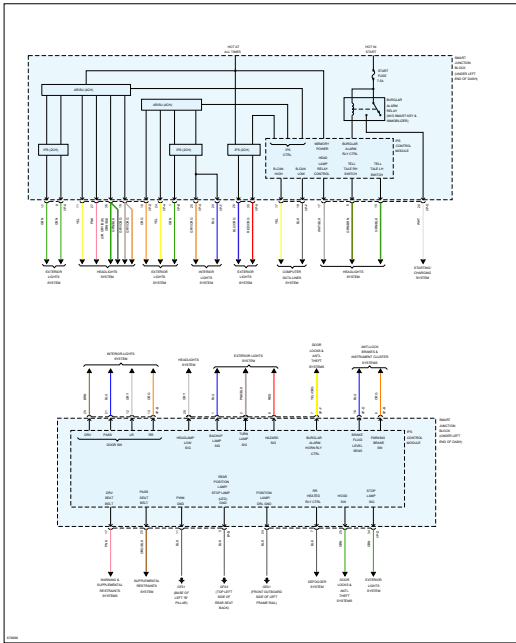
## Body Computer - IPS Control Module Circuit (AD) (Article 11565)

Body Computer - IPS Control Module Circuit (AD)

Page 1 of 2



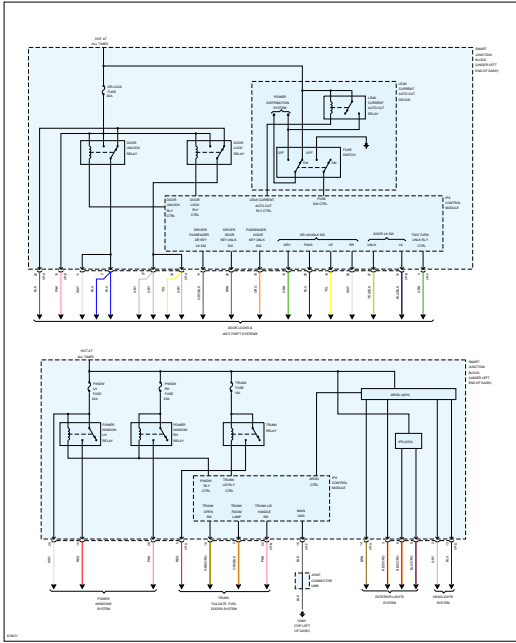
Page 2 of 2



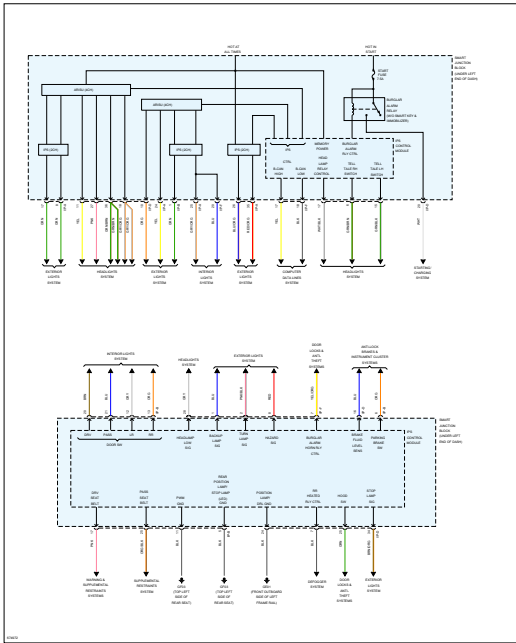
**Body Computer - IPS Control Module Circuit (ADA) (Article 11559)**

Body Computer - IPS Control Module Circuit (ADA)

Page 1 of 2

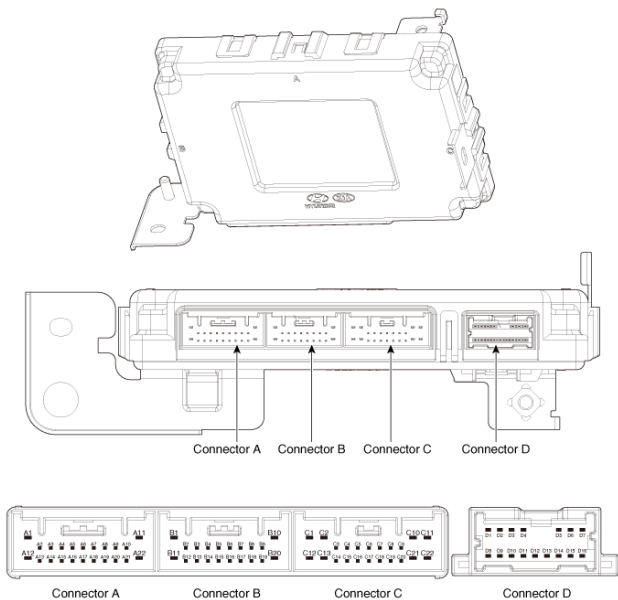


Page 2 of 2



## Body Control Module (BCM) - Components and Components Location (Article 44806)

- Components

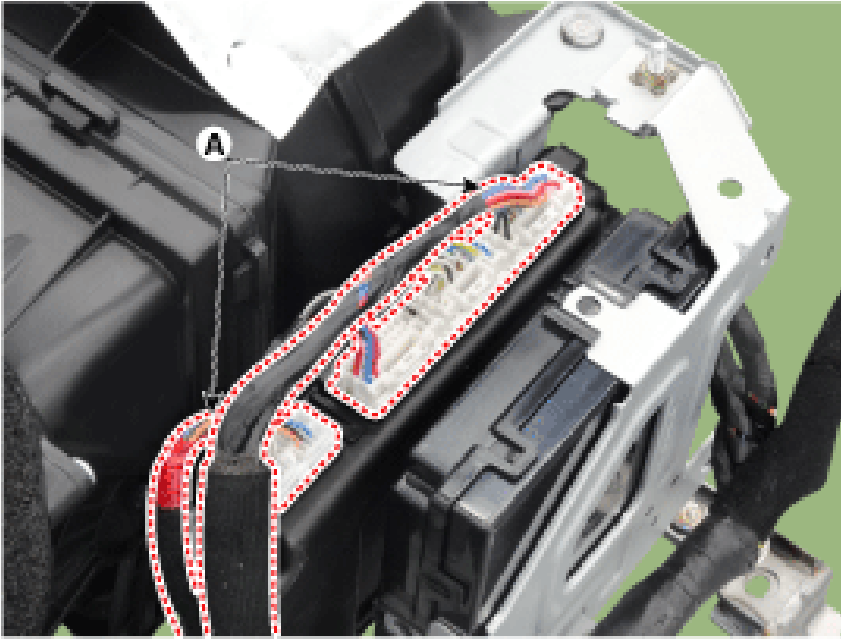


No Connector A Connector B Connector C Connector D

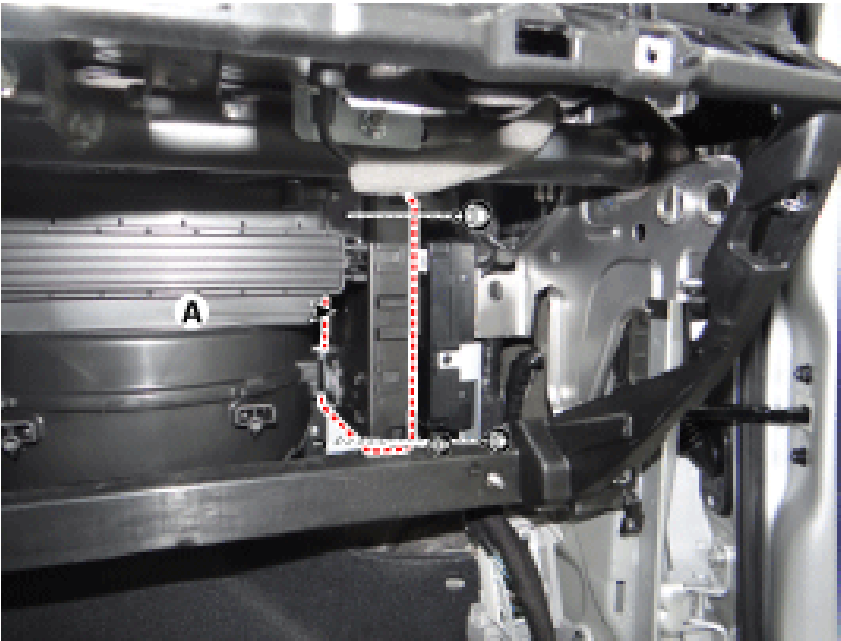
- 1 Batt (+) Blade position (Low) Rain sensor (LIN) Airbag unit (LIN)
- 2 IGN 1 Front wiper switch (High) - RPAS (LIN)
- 3 IGN 2 Light switch - Puddle lamp
- 4 Brake switch Head lamp switch (High) - ATM solenoid
- 5 Front wiper switch (Low) Auto light power - Power window (Enable)
- 6 - Body CAN (High) - Wiper relay (High)
- 7 Heated steering switch Body CAN (Low) RPAS Buzzer Key solenoid
- 8 PAS Switch - IGN 1 -
- 9 Rear defogger switch Chassis CAN (Low) PAS Front sensor power PAS Switch indicator
- 10 Window lock switch Chassis CAN (High) RPAS Front sensor power Heated steering indicator
- 11 Rain sensor input - Heated steering output -
- 12 ACC Auto light sensor GND Key hole illumination
- 13 Front washer switch Front wiper int vol switch Rear center seat belt indicator Passenger seat belt indicator
- 14 - Fog lamp switch Rear left seat belt indicator Wiper relay (Low)
- 15 Key in switch NTC Sensor signal input Rear right seat belt indicator Tail lamp
- 16 - Airbag signal - Room lamp
- 17 - - Security indicator
- 18 Sunroof open switch - -
- 19 PAS Input Multifunction switch ground -
- 20 Ket inter lock switch Auto light ground -
- 21 NTC Ground -
- 22 Ground IGN 2 Heated steering power

## Body Control Module (BCM) - Repair Procedures (Article 44814)

- Removal
- Disconnect the negative (-) battery terminal.
- Remove the glove box . (Refer to Body - "Glove Box Upper Cover Assembly")
- Remove the smart key unit. (Refer to Body - "Smart Key Unit")
- Disconnect the body control module connectors (A).



- Remove the body control module (A) after loosening the mounting nuts.

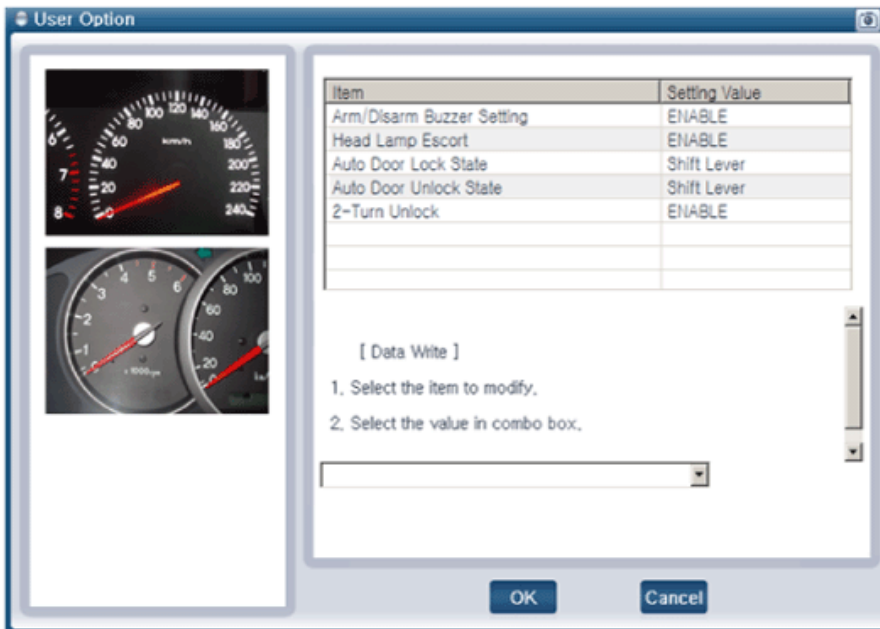
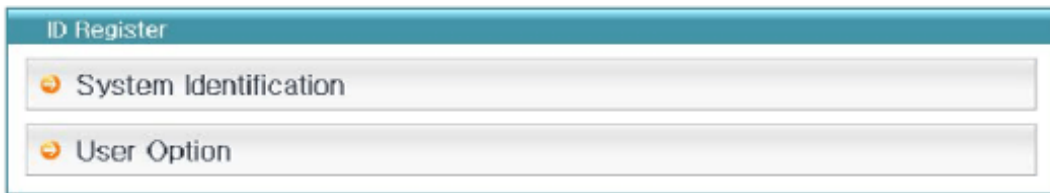


- Installation
- Install the body control module.
- Connect the body control module.
- Install the glove box upper cover assembly.
- BCM Diagnosis with GDS
- The body electrocal system can be quickly diagnosed failed parts with vehicle diagnostic system (GDS). The diagnostic system (GDS) provides the following information. Self examination : Checking the failure code (DTC) and display. Current data : Checking the system input/output data state. Actuator test : Checking the system operation condition. Additional function : Other controlling such as he system option and zero point adjustment.
- Self examination : Checking the failure code (DTC) and display.
- Current data : Checking the system input/output data state.
- Actuator test : Checking the system operation condition.
- 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 "Body Control Module (BCM)" to check body control module.
- 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 "Body Control Module (BCM)" can be checked.

Sensor Name	Value	Unit
<input type="checkbox"/> Arm/Disarm Buzzer Setting	ON	-
<input type="checkbox"/> Head Lamp Escort	ON	-
<input type="checkbox"/> Auto Door Lock State	15km/h	-
<input type="checkbox"/> Auto Door Unlock Status	Shift-lever	-
<input type="checkbox"/> 2-Turn Unlock	OFF	-
<input type="checkbox"/> RK Trunk Button Function Lock	OFF	-
<input type="checkbox"/> SMK Welcome Option	ON	-
<input type="checkbox"/> Battery Voltage Monitoring Input	11.4	V
<input type="checkbox"/> Auto Light Sensor (Option)	0.4	V
<input type="checkbox"/> Light Switch Voltage(Voltage Divided)	5.0	V
<input type="checkbox"/> Head Lamp High Switch Voltage(Voltage Divided)	5.0	V
<input type="checkbox"/> Fog Lamp Switch Voltage(Voltage Divided)	5.0	V
<input type="checkbox"/> Front Wiper Switch Voltage(Voltage Divided)	5.0	V
<input type="checkbox"/> Wiper INT Volume Voltage(Voltage Divided)	3.6	V
<input type="checkbox"/> ACC	ON	-
<input type="checkbox"/> IGN1	ON	-
<input type="checkbox"/> IGN2	ON	-
<input type="checkbox"/> Defogger / Deicer Switch	OFF	-
<input type="checkbox"/> Washer Switch	OFF	-
<input type="checkbox"/> INT Switch	OFF	-
<input type="checkbox"/> Mist Switch	OFF	-
<input type="checkbox"/> Wiper Stop Position Switch	ON	-
<input type="checkbox"/> Wiper Low Relay	OFF	-

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



## Body Control Module (BCM) - Specifications (Article 44803)

- Specifications
- Items Specifications
- Rated voltage DC 12V
- Operating voltage DC 9 - 16V

Operating temperature -22°F to 167°F (-30°C to 75°C)

Dark current SMK : 3mA / Keyless : 4mA

### **All New Technical Service Bulletins (itype\_432)**

Tsbs

- IBU/BCM ANTI-THEFT SOFTWARE UPGRADE AND DECAL APPLICATION (SERVICE CAMPAIGN 993) (24-01-009H-1, 2024/05/09)

### **All Technical Service Bulletins (itype\_100)**

Tsbs

- IAU/IBU/BLE LEARNING AFTER PARTS REPLACEMENT (22-BE-004H, 2022/07/08)

- IBU/BCM ANTI-THEFT SOFTWARE UPGRADE AND DECAL APPLICATION (SERVICE CAMPAIGN 993) (24-01-009H-1, 2024/05/09)

### **OEM Policies and Procedures (itype\_120)**

Tsbs

- IAU/IBU/BLE LEARNING AFTER PARTS REPLACEMENT (22-BE-004H, 2022/07/08)

### **Service Campaigns (itype\_108)**

Tsbs

- IBU/BCM ANTI-THEFT SOFTWARE UPGRADE AND DECAL APPLICATION (SERVICE CAMPAIGN 993) (24-01-009H-1, 2024/05/09)