

## PRE-CHECK

### 1. USING HAND-HELD TESTER

- Hook up the hand-held tester to the DLC3.
- Monitor the ECU data by following the prompts on the tester screen.

HINT:

Hand-held tester has a "Snapshot" function which records the monitored data.

Please refer to the hand-held tester operator's manual for further details.

### 2. DTC CLEAR

The DTCs and freeze frame data will be erased by either action.

Operate the hand-held tester to erase the codes.

### 3. DATA LIST

HINT:

According to the DATA LIST displayed by the hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as a first step of troubleshooting is one of the method to shorten the labor time.

- Connect the hand-held tester to the DLC3.
- Turn the ignition switch ON.
- According to the display on tester, read the "DATA LIST".

#### Power source & ignition switch:

| Item   | Measurement Item/<br>Display (Range) | Normal Condition                                                               | Diagnostic Note |
|--------|--------------------------------------|--------------------------------------------------------------------------------|-----------------|
| ACC SW | ACC SW signal                        | ON: IG key is in ACC, ON or START position<br>OFF: IG key is in OFF position   | –               |
| IG SW  | IG SW signal                         | ON: IG key is in ON or START position<br>OFF: IG key is in OFF or ACC position | –               |

#### Key unlock warning switch:

| Item              | Measurement Item/<br>Display (Range) | Normal Condition                                                 | Diagnostic Note |
|-------------------|--------------------------------------|------------------------------------------------------------------|-----------------|
| KEY UNLOCK WRN SW | Key unlock warning<br>SW signal      | ON: Key is IG key cylinder<br>OFF: Key is not in IG key cylinder | –               |

#### Door courtesy switch:

| Item            | Measurement Item/<br>Display (Range)                | Normal Condition                                                                             | Diagnostic Note |
|-----------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------|
| LUGG COURTSY SW | Luggage compartment<br>door's courtesy SW<br>signal | ON: Luggage door is open<br>OFF: Luggage door is close                                       | –               |
| D DOR CTY SW    | Driver's door courtesy<br>SW signal                 | ON: Driver's door is open<br>OFF: Driver's door is close                                     | –               |
| P DOR CYT SW    | Passenger's door<br>courtesy SW signal              | ON: Passenger's door is open<br>OFF: Passenger's door is close                               | –               |
| Rr DOR CTY SW   | Rear door courtesy<br>SW signal                     | ON: Either right or left rear door is open<br>OFF: Both the right and left doors and closed. | –               |

#### Headlight dimmer switch:

| Item            | Measurement Item/<br>Display (Range) | Normal Condition                                                                                                        | Diagnostic Note |
|-----------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|
| DIMMER SW       | Dimmer SW signal                     | ON: Dimmer SW is on (High Beam) or High flasher SW is on<br>OFF: Dimmer SW is OFF (Low Beam) and High flasher SW is off | –               |
| HIGH FLASHER SW | High flasher SW signal               | ON: High flasher SW is on<br>OFF: High flasher SW is off                                                                | –               |

**Light control switch:**

| Item           | Measurement Item/<br>Display (Range) | Normal Condition                                                                                     | Diagnostic Note |
|----------------|--------------------------------------|------------------------------------------------------------------------------------------------------|-----------------|
| AUTO LIGHT SW  | Auto light SW signal                 | ON: Light control SW is in Auto position<br>OFF: Light control SW is in except Auto position         | –               |
| HEAD LIGHT SW  | Head light SW signal                 | ON: Light control SW is in HEAD position<br>OFF: Light control SW is in except HEAD position         | –               |
| TAIL LIGHT SW  | Taillight SW signal/ON               | ON: Light control SW is in TAIL or HEAD position<br>OFF: Light control SW is in OFF or AUTO position | –               |
| LIGHTING TIME  | Taillight SW signal/ON               | 7.5 s/15 s/30 s                                                                                      | –               |
| TAIL CANCEL SW | Tail cancel switch                   | ON: Tail cancel switch is ON position<br>OFF: Tail cancel switch is OFF position                     | –               |

**Door key lock and unlock switch:**

| Item            | Measurement Item/<br>Display (Range) | Normal Condition                                                                              | Diagnostic Note |
|-----------------|--------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|
| DOR KEY SW-LOCK | Door key switch lock side            | ON: Door key switch is lock position<br>OFF: Door key switch is unlock position               | –               |
| D DOR KEY SW-UL | Driver door key switch unlock side   | ON: Driver door key switch is unlock position<br>OFF: Driver door key switch is lock position | –               |

**Door key lock and unlock switch:**

| Item          | Measurement Item/<br>Display (Range) | Normal Condition                                                                                              | Diagnostic Note |
|---------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------|
| P LOCK POS SW | Passenger lock position switch       | ON: Passenger lock position switch is lock position<br>OFF: Passenger lock position switch is unlock position | –               |
| D/L SW-LOCK   | Door lock switch lock side           | ON: Door lock switch is lock position<br>OFF: Door lock switch is unlock position                             | –               |
| D/L SW-UNLOCK | Door lock switch unlock side         | ON: Door lock switch is unlock position<br>OFF: Door lock switch is lock position                             | –               |

**Parking brake switch:**

| Item             | Measurement Item/<br>Display (Range) | Normal Condition                                                                     | Diagnostic Note |
|------------------|--------------------------------------|--------------------------------------------------------------------------------------|-----------------|
| PARKING BRAKE SW | Parking brake switch                 | ON: Parking brake switch is ON position<br>OFF: Parking brake switch is OFF position | –               |

**Driver seat buckle switch :**

| Item            | Measurement Item/<br>Display (Range) | Normal Condition                                                                               | Diagnostic Note |
|-----------------|--------------------------------------|------------------------------------------------------------------------------------------------|-----------------|
| D SEAT BUCKL SW | Driver seat buckle switch            | ON: Driver seat buckle switch is ON position<br>OFF: Driver seat buckle switch is OFF position | –               |

**Seat memory switch:**

| Item        | Measurement Item/<br>Display (Range) | Normal Condition                                                                     | Diagnostic Note |
|-------------|--------------------------------------|--------------------------------------------------------------------------------------|-----------------|
| SEAT M1 SW  | Seat memory switch 1                 | ON: Seat memory switch 1 is ON position<br>OFF: Seat memory switch 1 is OFF position | –               |
| SEAT M2 SW  | Seat memory switch 2                 | ON: Seat memory switch 2 is ON position<br>OFF: Seat memory switch 2 is OFF position | –               |
| SEAT SET SW | Seat set switch                      | ON: Seat set switch is ON position<br>OFF: Seat set switch is OFF position           | –               |

**Wireless door lock control:**

| Item            | Measurement Item/<br>Display (Range) | Normal Condition                                                                                                 | Diagnostic Note |
|-----------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------|
| WIRELESS OPER   | Wireless door lock control function  | ON: Wireless door lock control function<br>OFF: Wireless door lock control does not function                     | –               |
| HAZARD ANS BACK | Hazard answer back of the wireless   | ON: Hazard answer back of the wireless is ON position<br>OFF: Hazard answer back of the wireless is OFF position | –               |

**Wireless door lock buzzer:**

| Item              | Measurement Item/<br>Display (Range) | Normal Condition                                                                                               | Diagnostic Note |
|-------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------|
| WIRELESS BUZZ VOL | Wireless door lock buzzer volume     | OFF/MIN/MID3/MID2/MID1/MAX                                                                                     | –               |
| DOWN/WIRELESS     | P/W DOWN W/ transmitter              | ON: P/W DOWN W/ transmitter ON position<br>OFF: P/W DOWN W/ transmitter OFF position                           | –               |
| AUTO LOCK DELAY   | Auto lock time                       | 30 s / 60 sec                                                                                                  | –               |
| UNLOCK/2 OPER     | 2 times operation wireless unlock    | ON: 2 times operation wireless unlock is ON position<br>OFF: 2 times operation wireless unlock is OFF position | –               |
| ALARM FUNCTION    | Panic function                       | ON: Panic function is ON position<br>OFF: Panic function is OFF position                                       | –               |
| AUTO LOCK         | Auto lock                            | ON: Auto lock is ON position<br>OFF: Auto lock is OFF position                                                 | –               |
| UNLK/KEY TWICE    | Unlock w/ 2 times D key operation    | ON: Unlock w/ 2 times D key operation is ON position<br>OFF: Unlock w/ 2 times D key operation is OFF position | –               |
| ALL UNLK/OPN-CL   | All Unlock w/ D door open-close      | ON: All Unlock w/ D door open-close is ON position<br>OFF: All Unlock w/ D door open-close is OFF position     | –               |
| UNLOCK/PARK       | Unlock w/ IG ON, shift P, speed 0    | ON: Unlock w/ IG ON, shift P, speed is ON position<br>OFF: Unlock w/ IG ON, shift P, speed is OFF position     | –               |
| AUTO LOCK/SHIFT   | Auto Lock/shift not P                | ON: Auto Lock/shift not P is ON position<br>OFF: Auto Lock/shift not P is OFF position                         | –               |

**Light control sensor:**

| Item          | Measurement Item/<br>Display (Range) | Normal Condition | Diagnostic Note |
|---------------|--------------------------------------|------------------|-----------------|
| LIGHTING TIME | Lighting time                        | 7.5 s/15 s/30 s  | –               |

**Open door warning light:**

| Item           | Measurement Item/<br>Display (Range) | Normal Condition                                             | Diagnostic Note |
|----------------|--------------------------------------|--------------------------------------------------------------|-----------------|
| OPEN DOOR WARN | Open door warning                    | ON: Open door warning is ON<br>OFF: Open door warning is OFF | –               |

**Illumination:**

| Item              | Measurement Item/<br>Display (Range) | Normal Condition                                                                                 | Diagnostic Note |
|-------------------|--------------------------------------|--------------------------------------------------------------------------------------------------|-----------------|
| ILLUMI SYSTEM     | Operation of illumination            | ON: Illumination is ON position<br>OFF: Illumination is OFF position                             | –               |
| ILLUMINATION RATE | Illumination rate information        | –                                                                                                | –               |
| I/L ON/ACC OFF    | Light the I/L when ACC OFF           | ON: Light the I/L when ACC OFF is ON position<br>OFF: Light the I/L when ACC OFF is OFF position | –               |
| I/L ON/UNLOCK     | Interior light ON w/unlock           | ON: Interior light ON w/unlock is ON position<br>OFF: Interior light ON w/unlock is OFF position | –               |
| RESPONSE TIME     | Response time                        | 0.1 s/1.0 s                                                                                      | –               |

**Park / Neutral position switch:**

| Item       | Measurement Item/<br>Display (Range) | Normal Condition                                           | Diagnostic Note |
|------------|--------------------------------------|------------------------------------------------------------|-----------------|
| P/N POS SW | P/N position switch                  | ON: Shift is P position<br>OFF: Shift is except P position | –               |

**Alternator signal:**

| Item      | Measurement Item/<br>Display (Range) | Normal Condition                                     | Diagnostic Note |
|-----------|--------------------------------------|------------------------------------------------------|-----------------|
| ALT L SIG | Alternator L terminal                | ON: Input voltage is 2.0 or 6.0 V<br>OFF: No voltage | –               |

**Others:**

| Item            | Measurement Item/<br>Display (Range)          | Normal Condition                 | Diagnostic Note |
|-----------------|-----------------------------------------------|----------------------------------|-----------------|
| SENSITIVITY     | Turn on luminous intensity                    | DARK2/DARK1/NORMAL/LIGHT1/LIGHT2 | –               |
| LIGHT OFF DELAY | Light auto OFF delay                          | OFF/30 s/60 s/90 s               | –               |
| DISP EX ON SEN  | Display extinction luminous intensity         | DARK2/DARK1/NORMAL/LIGHT1/LIGHT2 | –               |
| DISP EX OFF SEN | Display extinction release luminous intensity | DARK2/DARK1/NORMAL/LIGHT1/LIGHT2 | –               |

**4. ACTIVE TEST****HINT:**

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as a first step of troubleshooting is one of the method to shorten the labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

- Connect the hand-held tester to the DLC3.
- Turn the ignition switch ON.
- According to the display on tester, perform the "ACTIVE TEST".

| Item            | Test Details                                                                                                                               | Diagnostic Note |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| HAZARD          | Turns Hazard light flasher relay ON/OFF                                                                                                    | –               |
| BUZZ CONT SOUND | Wireless buzzer ON/OFF                                                                                                                     | –               |
| BUZZ RESP SOUND | Wireless buzzer ON/OFF                                                                                                                     | –               |
| HEAD LIGHT      | Turns Head light relay ON/OFF                                                                                                              | –               |
| HEAD LIGHT (HI) | Turns Head light relay ON/OFF                                                                                                              | –               |
| TAIL LIGHT      | Turns Tail light relay ON/OFF                                                                                                              | –               |
| DRL RLY         | (Test Details)<br>Turns DRL relay ON/OFF<br>(Vehicle Condition)<br>IG SW is ON, Engine is stopped and Light control SW is in OFF position. | –               |
| DIMMER SIG      | Turns Head light dimmer relay ON/OFF                                                                                                       | –               |
| ILLUMI OUTPUT   | (Test Details)<br>Turns Interior light and Key illumination ON/OFF<br>(Vehicle Condition)<br>Interior light SW is in Door position         | –               |
| OPN DOR WRN LGT | Open door warning light ON/OFF                                                                                                             | –               |
| P P/W UP/DOWN   | Passenger power window UP/DOWN                                                                                                             | –               |
| RL P/W UP/DOWN  | RL power window UP/DOWN                                                                                                                    | –               |
| RR P/W UP/DOWN  | RR power window UP/DOWN                                                                                                                    | –               |
| R ROOM LIGHT    | Rear room light ON/OFF                                                                                                                     | –               |

|              |                                                     |   |
|--------------|-----------------------------------------------------|---|
| DOOR RLY CUT | Doom light ON/OFF                                   | – |
| DOOR LOCK    | Drive the Door lock motor at all doors LOCK/UN-LOCK | – |