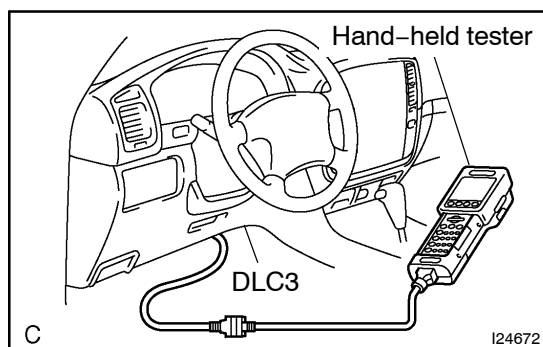




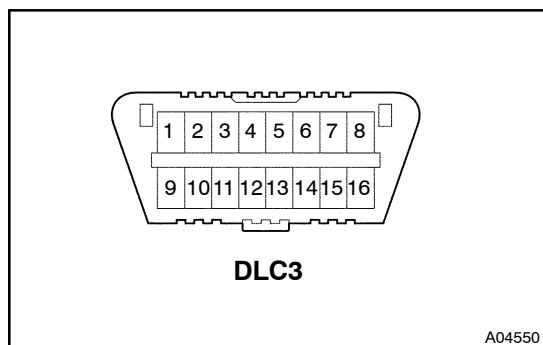
## PRE-CHECK

### 1. DIAGNOSIS SYSTEM

#### (a) Description

ECU data in this system can be read from DLC3 on the vehicle.

Therefore, when there seems to be a trouble on this system, use hand-held tester to check and troubleshoot it.



#### (b) Check DLC3.

The vehicle's ECM uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Connection/Specified Condition         | Condition |
|--------------|----------------------------------------|-----------|
| 4            | Chassis Ground ↔ Body Ground/1 or less | Always    |
| 13           | TC ↔ Body Ground/9 – 14 V              | Always    |

#### HINT:

If the display shows "UNABLE TO CONNECT TO VEHICLE" when the cable of the hand-held tester is connected to DLC3, the ignition switch is turned ON and the hand-held tester is operated, there is a problem either on the vehicle side or tool side.

- If communication is normal when the tool is connected to another vehicle, inspect DLC3 on the original vehicle.
- If communication does not function when the tool is connected to another vehicle, the problem is probably in the tool itself, so consult the Service Department listed in the tool's instruction manual.

### 2. DATA LIST

#### HINT:

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

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

| Item    | Condition (Parameter)                    | Normal Condition | Diagnostic Note |
|---------|------------------------------------------|------------------|-----------------|
| OPEN SW | Sliding roof switch free → OPEN (OFF/ON) | OFF → ON         | –               |

|                 |                                                         |                |             |
|-----------------|---------------------------------------------------------|----------------|-------------|
| CLOSE SW        | Sliding roof switch<br>free → CLOSE<br>(OFF/ON)         | OFF → ON       | –           |
| UP SW           | Sliding roof switch<br>free → UP<br>(OFF/ON)            | OFF → ON       | –           |
| DOWN SW         | Sliding roof switch<br>free → DOWN<br>(OFF/ON)          | OFF → ON       | –           |
| LIMIT SW1       | Sliding roof operation<br>(OFF/ON)                      | OFF → ON → OFF | –           |
| LIMIT SW2       | Sliding roof operation<br>(OFF/ON)                      | OFF → ON → OFF | –           |
| MOTOR PULSE     | Sliding roof motor<br>stop → moving<br>(HI/LO)          | HI ↔ LO        | –           |
| MOTOR STATUS    | Sliding roof motor<br>stop → moving<br>(LOCK/NORMAL)    | NORMAL         | –           |
| IG (DIRCT SIG)  | IG switch ON<br>(OFF/ON)                                | ON             | –           |
| IG (MPX)        | IG switch ON<br>(OFF/ON)                                | ON             | BEAN signal |
| KEY OPEN OPERT  | Door key operation<br>free → OPEN<br>(OFF/ON)           | OFF → ON       | –           |
| KEY CLOSE OPERT | Door key operation<br>free → CLOSE<br>(OFF/ON)          | OFF → ON       | –           |
| WIRLES OPN OPRT | Wireless key operation<br>free → OPEN<br>(OFF/ON)       | OFF → ON       | –           |
| WIRLES CL OPRT  | Wireless key operation<br>free → CLOSE<br>(OFF/ON)      | OFF → ON       | –           |
| CLOSE SIGNAL    | Sliding roof close signal<br>(CLOSE/OPEN)               | CLOSE          | –           |
| KEY OFF PERMS   | Key OFF permission<br>(OFF/ON)                          | –              | BEAN signal |
| OPEN /DOOR KEY  | Door key related OPEN operation<br>(NOT AVL/AVAIL)      | –              | BEAN signal |
| CLOSE /DOOR KEY | Door key related CLOSE operation<br>(NOT AVL/AVAIL)     | –              | BEAN signal |
| OPEN /WIRELESS  | Wireless key related CLOSE operation<br>(NOT AVL/AVAIL) | –              | BEAN signal |
| DOOR KEY OPER   | Door key related operation<br>(SLIDE/TILT)              | –              | –           |

## DIAGNOSTICS – SLIDING ROOF SYSTEM

|                |                                                |   |   |
|----------------|------------------------------------------------|---|---|
| WIRELESS OPER  | Wireless key related operation<br>(SLIDE/TILT) | – | – |
| D-DOOR WARN SW | Driver's door courtesy<br>(OFF/ON)             | – | – |

**3. ACTIVE TEST****HINT:**

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

DATA LIST can be displayed during the ACTIVE TEST.

- (a) Turn the ignition switch OFF.
- (b) Connect the Hand-held tester to DLC3.
- (c) Turn the ignition switch ON.
- (d) According to the display on tester, perform the "ACTIVE TEST".

| Item       | Condition              | Parameter         | Diagnostic Note                                                                                                            |
|------------|------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------|
| SLIDE ROOF | Sliding roof operation | CLOS/UP – OPN/DWN | Confirm that the vehicle is parked./<br>Caution: this test causes vehicle parts to move. Please watch your hands and feet. |