

PRE-CHECK

1. POWER SEAT CONTROL SYSTEM FOR DRIVER'S SEAT

(a) Description

This system sends a signal from the driver's seat control switch to the power seat control ECU when manual operation for seat position.

HINT:

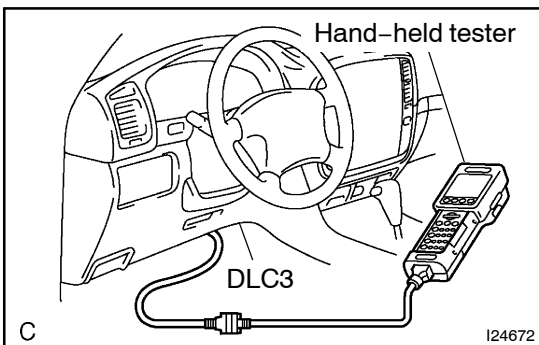
Indicator, etc. that indicates such as operating conditions does not exist at the infrared signal transmission and reception part.

(b) Fail-safe function

When infrared data communication is blocked by an object placed under the seat, etc. or the driver's seat control switch has an abnormality, the system enters fail-safe functions and only slide operation (back and forward) can be operated.

(c) Clean the infrared light reception and emission part

Extreme dirt on the power seat control ECU and on the reception and emission part of the infrared signal of the driver's seat control switch does not allow to send and to receive the signal. In this case, wipe the lens with a soft cloth.



2. DIAGNOSIS SYSTEM

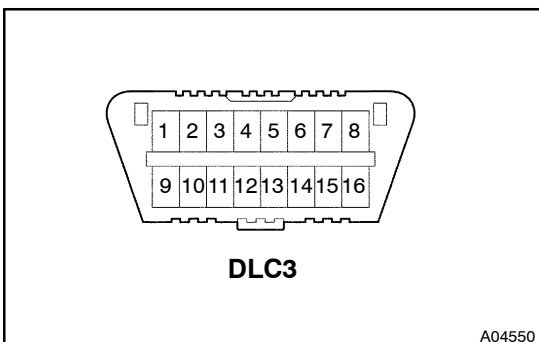
(a) Description

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

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

(b) Check the 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 your display shows "UNABLE TO CONNECT TO VEHICLE" when you have connected the cable of the hand-held tester to DLC3, turned the ignition switch ON and operated the hand-held tester, there is a problem 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 is still not possible 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.

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.

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

POWER SEAT CONTROL ECU:

| Item | Condition | Normal Condition | Diagnostic Note |
|-------------------|-----------------------------------|--------------------------|-----------------|
| RECLIN SW REAR | Reclining rear switch free → ON | OFF → ON | – |
| RECLIN SW FRONT | Reclining front switch free → ON | OFF → ON | – |
| F VTCL SW DOWN | Front vertical switch free → DOWN | OFF → ON | – |
| F VTCL SW UP | Front vertical switch free → UP | OFF → ON | – |
| R VTCL SW DOWN | Rear vertical switch free → DOWN | OFF → ON | – |
| R VTCL SW UP | Rear vertical switch free → UP | OFF → ON | – |
| SLIDE SW REAR | Slide switch free → REAR | OFF → ON | – |
| SLIDE SW FRONT | Slide switch free → FRONT | OFF → ON | – |
| SLIDE SW RR (W/H) | Slide switch free → REAR | OFF → ON | – |
| SLIDE SW FR (W/H) | Slide switch free → FRONT | OFF → ON | – |
| POWER VOLTAGE | Ignition switch ON | Battery positive voltage | – |
| MOTOR STATUS | – | STANDBY/MOVING/LOCK | – |
| IG SW | Ignition switch ON | OFF → ON | – |
| KEY UNLOCK SW | Ignition switch ON | OFF → ON | – |

DIAGNOSTICS – POWER SEAT CONTROL SYSTEM

| | | | |
|-----------------|---|---------------|---|
| D-DOOR WARN SW | Door (door courtesy switch) CLOSE → OPEN | OFF → ON | – |
| PNP SW | PNP switch except P → P | OFF → ON | – |
| PKBS SW | Perking brake switch OFF → ON | OFF → ON | – |
| M2 SW | Memory switch (M2) free → ON | OFF → ON | – |
| M1 SW | Memory switch (M1) free → ON | OFF → ON | – |
| SET SW | Memory switch (SET) free → ON | OFF → ON | – |
| SLIDE POS | – | –4096 – 4096 | – |
| RECLIN POS | – | –4096 – 4096 | – |
| F VTCL POS | – | –4096 – 4096 | – |
| R VTCL POS | – | –4096 – 4096 | – |
| MEM M1 SW | Memorize (M1) None → Exist | NOT MEM → MEM | – |
| MEM M2 SW | Memorize (M2) None → Exist | NOT MEM → MEM | – |
| SEAT MEM M1 | Memorize seat position (M1) None → Exist | NOT MEM → MEM | – |
| SEAT MEM M2 | Memorize seat position (M2) None → Exist | NOT MEM → MEM | – |
| D-MIRR MEM M1 | Memorize driver side mirror position (M1) None → Exist | NOT MEM → MEM | – |
| D-MIRR MEM M2 | Memorize driver side mirror position (M2) None → Exist | NOT MEM → MEM | – |
| P-MIRR MEM M1 | Memorize front passenger side mirror position (M1) None → Exist | NOT MEM → MEM | – |
| P-MIRR MEM M2 | Memorize front passenger side mirror position (M2) None → Exist | NOT MEM → MEM | – |
| SLIDE MEM POS 1 | Memorized slide position (M1) | –4096 – 4096 | – |
| RECLN MEM POS 1 | Memorized reclining position (M1) | –4096 – 4096 | – |
| F VTCL MEM POS1 | Memorized front vertical position (M1) | –4096 – 4096 | – |
| R VTCL MEM POS1 | Memorized rear vertical position (M1) | –4096 – 4096 | – |
| SLIDE MEM POS 2 | Memorized slide position (M2) | –4096 – 4096 | – |
| RECLN MEM POS 2 | Memorized reclining position (M2) | –4096 – 4096 | – |
| F VTCL MEM POS2 | Memorized front vertical position (M2) | –4096 – 4096 | – |
| R VTCL MEM POS2 | Memorized rear vertical position (M2) | –4096 – 4096 | – |
| D-MIR MEM POS 1 | Memorized driver side outer mirror position (M1) | 0 – 65535 | – |
| P-MIR MEM POS 1 | Memorized front passenger side outer mirror position (M1) | 0 – 65535 | – |

| | | | |
|-----------------|---|-----------|---|
| D-MIR MEM POS 2 | Memorized driver side outer mirror position (M2) | 0 – 65535 | – |
| P-MIR MEM POS 2 | Memorized front passenger side outer mirror position (M2) | 0 – 65535 | – |

MIRROR CONTROL ECU:

| Item | Condition | Normal Condition | Diagnostic Note |
|-----------------|--|------------------|-----------------|
| MIRR POS SW R | Mirror switch position RIGHT OFF → ON | OFF → ON | – |
| MIRR POS SW L | Mirror switch position LEFT OFF → ON | OFF → ON | – |
| MIRR POS SW DWN | Mirror switch DOWN OFF → ON | OFF → ON | – |
| MIRR POS SW UP | Mirror switch UP OFF → ON | OFF → ON | – |
| MIRR SEL SW | Mirror switch select direction | MID (P)/D (P) | – |
| REV POS SW | Shift lever position except R → R | OFF → ON | – |
| ACC | Ignition switch ON (ACC) | ON | – |
| IG (MPX) | Ignition switch ON | ON | BEAN signal |
| D MIR POS SEN V | Driver side outer mirror VERTICAL position (LSB 0.01953 V) | 0 – 5 | – |
| D MIR POS SEN H | Driver side outer mirror HORIZON position (LSB 0.01953 V) | 0 – 5 | – |
| P MIR POS SEN V | Passenger side outer mirror VER- TICAL position (LSB 0.01953 V) | 0 – 5 | – |
| P MIR POS SEN H | Passenger side outer mirror HO- RIZON position (LSB 0.01953 V) | 0 – 5 | – |

4. ACTIVE TEST**HINT:**

Performing the ACTIVE TEST using the Hand-held tester allows the relay, 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.

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

POWER SEAT CONTROL ECU:

| Tester Display | Item (Condition) | Parameter | Parameter (Min. – Max.) | Step (Unit) | Diagnostic Note |
|----------------|--------------------------|------------|----------------------------|-------------|--|
| RECLINING | Seat reclining operation | FRONT/REAR | – | – | Confirm that the vehicle is stopped./Caution: This test cases vehicle parts to move. Please watch your hands and feet. |

DIAGNOSTICS – POWER SEAT CONTROL SYSTEM

| | | | | | |
|------------|--------------------------|------------|---|---|--|
| F VERTICAL | Front vertical operation | UP/DOWN | – | – | Confirm that the vehicle is stopped./Caution: This test cases vehicle parts to move. Please watch your hands and feet. |
| R VERTICAL | Rear vertical operation | UP/DOWN | – | – | Confirm that the vehicle is stopped./Caution: This test cases vehicle parts to move. Please watch your hands and feet. |
| SLIDE | Seat slide operation | FRONT/REAR | – | – | Confirm that the vehicle is stopped./Caution: This test cases vehicle parts to move. Please watch your hands and feet. |

MIRROR CONTROL ECU:

| Tester Display | Item (Condition) | Parameter | Parameter (Min. – Max.) | Step (Unit) | Diagnostic Note |
|----------------|--|------------|-------------------------|-------------|-----------------|
| D MIRR UP/DN | Driver side outer mirror UP or DOWN operation | UP/DOWN | – | – | – |
| D MIRR R/L | Driver side outer mirror RIGHT or LEFT operation | LEFT/RIGHT | – | – | – |
| P MIRR UP/DN | Passenger side outer mirror UP or DOWN operation | UP/DOWN | – | – | – |
| P MIRR R/L | Driver side outer mirror RIGHT or LEFT operation | LEFT/RIGHT | – | – | – |