05IK6–01

# TERMINALS OF ECU

**1. CHECK BATTERY VOLTAGE**

(a) Measure the battery voltage.
**Standard: 10 to 14 V**

**2. SKID CONTROL ECU ASSY INSPECTION**

(a) Measure the voltage between each terminal or between each terminal and the body ground.

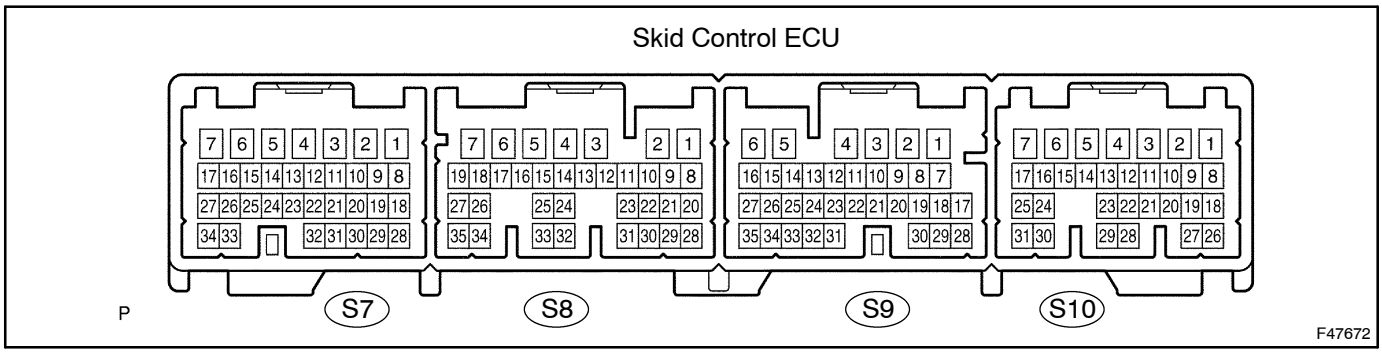
(b) Connect the intelligent tester II to the DLC3, and check the communication condition with the skid control ECU.

(c) Using an oscilloscope, check that the pulse generates between each terminal or between each terminal and the body ground.

**NOTICE:**

- **Inspection should be performed from the back of the connector with the connector connected to the skid control ECU.**
- **The voltage between terminals of the brake actuator assy may become 0 V due to the fail safe function when the ECB warning light comes on (malfunctioning).**

**SKID CONTROL ECU**




HINT: Inspect the ECU from the wire harness side while the connector is connected.

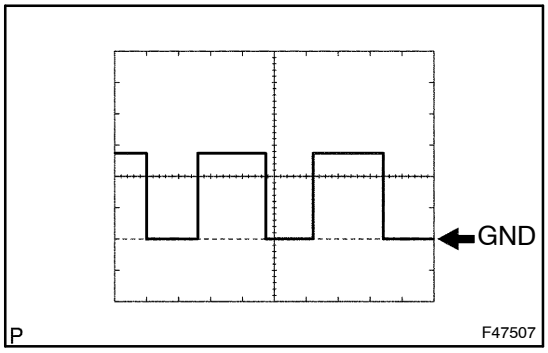
| Symbols (Terminals No.) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| R1+ (S7–2) – GND (S7–1) | P – W | Main relay power 1 | Push start switch ON (READY) | 9.1 to 13.6 V |
| BS1 (S7–3) – GND (S7–1) | B – W | Battery source 1 | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | 8.8 to 14 V |
| SMC1 (S7–4) – GND (S7–1) | Y – W | Master cut solenoid 1 output | Push start switch ON (READY)<br>Brake pedal depressed approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| +BCTY (S7–5) – GND (S7–1) | V – W | Courtesy power input | Driver door open → close | Approx. 5 sec. 8 to 16 V<br>→ Below 1 V |
| SLAFR– (S7–6) – GND (S7–1) | W – W | FR solenoid (–) output | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| SLAFR+ (S7–7) – GND (S7–1) | R – W | FR solenoid (+) output | Push start switch ON (READY)<br>Brake pedal depressed approx. 1.5 sec. after pushing start switch ON (READY) | Pulse generation (see waveform 1) |
| E (S7–8) – GND (S7–1) | L – W | Pressure sensor ground | Push start switch OFF (READY) | Below 1 Ω |
| VCM1 (S7–9) – GND (S7–1) | P – W (LHD)<br>B – W (RHD) | Pressure sensor power | Push start switch ON (READY) | 4.75 to 5.25 V |

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|---|---|---|---|---|
| MR1+ (S7–11) – GND (S7–1) | GR – W (LHD)<br>GR – W–B(RHD) | Motor relay power 1 | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | 8.8 to 14 V |
| SR1 (S7–12) – GND (S7–1) | L – W | Main relay output 1 | Push start switch ON (READY)<br>Approx. 1.5 sec. or more after pushing start switch ON (READY) | Below 1 V |
| SCSS (S7–13) – GND (S7–1) | BR – W | Stroke simulator cut solenoid output | Push start switch ON (READY)<br>Brake pedal depressed | Below 1.5 V |
| SLARL+ (S7–15) – GND (S7–1) | L – W | RL solenoid (+) output | Push start switch ON (READY)<br>Brake pedal depressed approx. 1.5 sec. after pushing start switch ON (READY) | Pulse generation (see waveform 1) |
| SLRRL+ (S7–16) – GND (S7–1) | W – W | RL solenoid (+) output | Push start switch ON (READY)<br>Brake pedal depressed approx. 1.5 sec. after pushing start switch ON (READY) | Pulse generation (see waveform 1) |
| SLRFR+ (S7–17) – GND (S7–1) | Y – W | FR solenoid (+) output | Push start switch ON (READY)<br>After approx. 1.5 sec., brake pedal depressed → released | Pulse generation (see waveform 2) |
| PRL (S7–18) – GND (S7–1) | G – W | RL pressure sensor input | Push start switch ON (READY)<br>Brake pedal released | 0.3 to 0.8 V |
| SG1 (S7–20) – GND (S7–1) | BR – W | Pressure sensor shield ground 1 | Push start switch OFF | Below 1 Ω |
| PACC (S7–21) – GND (S7–1) | W – W | Accumulator pressure sensor input | Push start switch ON (READY)<br>After pump motor operates and stops by pedal operation | 3.3 to 4.7 V |
| FR– (S7–22) – GND (S7–1) | L – W | FR sensor (–) input | Push start switch OFF (READY) | Below 1 Ω |
| PFR (S7–23) – GND (S7–1) | Y – W | FR pressure sensor input | Push start switch ON (READY)<br>Brake pedal released | 0.3 to 0.8 V |
| MR1 (S7–25) – GND (S7–1) | L – W | Motor relay output 1 | Push start switch ON (READY)<br>Pump motor is operating | Below 1.5 V |
| SLRRL– (S7–26) – GND (S7–1) | P – W | RL solenoid (–) output | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| SLARL– (S7–27) – GND (S7–1) | LG – W | RL solenoid (–) output | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| MTT (S7–29) – GND (S7–1) | R – W | Motor test input | Push start switch ON (READY)<br>Pump motor is operating | 3.5 V or higher |
| PMC1 (S7–30) – GND (S7–1) | R – W | Master pressure sensor input 1 | Push start switch ON (READY)<br>Brake pedal released | 0.3 to 0.8 V |
| PCK1 (S7–31) – GND (S7–1) | B – W | Pressure sensor check output 1 | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | 4.75 to 5.25 V |
| FR+ (S7–32) – GND (S7–1) | P – W | FR sensor (+) input | Vehicle speed input | Pulse generation (see waveform 3) |
| SLRFR– (S7–34) – GND (S7–1) | B – W | FR solenoid (–) output | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| +BI1 (S8–3) – GND (S8–1, 2) | B – W (LHD)<br>B – W–B (RHD) | Main relay power input 1 | Push start switch OFF | 10 to 14 V |

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|---|---|---|---|---|
| +BO1 (S8–5) – GND (S8–1, 2) | Y – W (LHD)<br>B – W–B (RHD) | Main relay power output 1 | Push start switch ON (READY) | 8.8 to 14 V |
| IG1 (S8–7) – GND (S8–1, 2) | B – W (LHD)<br>B – W–B (RHD) | IG1 power | Push start switch ON (READY) | 10 to 14 V |
| RSS (S8–10) – GND (S8–1, 2) | BR – W | Speed sensor shield ground | Push start switch OFF (READY) | Below 1 Ω |
| BZ (S8–12) – GND (S8–1, 2) | BR – W | Warning buzzer output | Push start switch ON (READY)<br>Buzzer is operating | Below 1 V |
| STP (S8–14) – GND (S8–1, 2) | R – W (LHD)<br>L – W (RHD) | Stop light switch signal input | Push start switch ON (READY)<br>Brake pedal depressed → released | 10 to 12 V<br>→ Below 1.5 V |
| CAN–L (S8–18) –<br>GND (S8–1, 2) | W – W | CAN communication (Send and receive–) | Check DTC using intelligent tester II | CAN communication's DTC is not output |
| CAN–H (S8–19) –<br>GND (S8–1, 2) | B – W | CAN communication (Send and receive+) | Check DTC using intelligent tester II | CAN communication's DTC is not output |
| FAIL (S8–20) – GND (S8–1, 2) | P – W | Capacitor communication (Receive) | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | Pulse generation<br>(see waveform 5) |
| SP1 (S8–22) – GND (S8–1, 2) | V – W | Speed meter output | Vehicle speed input | Pulse generation<br>(see waveform 4) |
| RL– (S8–27) – GND (S8–1, 2) | B – W | RL sensor (–) input | Push start switch OFF | Below 1 Ω |
| D/G (S8–28) – GND (S8–1, 2) | W – W | Diagnosis output | Push start switch ON (READY) | 9.1 to 13.6 V |
| ENA (S8–30) – GND (S8–1, 2) | B – W | Capacitor communication (Send) | Push start switch ON (READY)<br>Approx. 1.5 sec. after pushing start switch ON (READY) | Pulse generation<br>(see waveform 6) |
| TS (S8–32) – GND (S8–1, 2) | L – W | Sensor diagnosis check input | Push start switch ON (READY) | Below 1.5 V<br>→ 9.1 to 13.6 V |
| VBZ (S8–33) – GND (S8–1, 2) | B – W | Warning buzzer power | Push start switch ON (READY) | 9.1 to 13.6 V |
| RL+ (S8–35) – GND (S8–1, 2) | W – W | RL sensor (+) input | Vehicle speed input | Pulse generation<br>(see waveform 3) |
| +BO2 (S9–4) – GND (S9–1, 2) | W – W–B | Main relay power output 2 | Push start switch ON (READY) | 8.8 to 14 V |
| +BI2 (S9–5) – GND (S9–1, 2) | R – W–B | Main relay power input 2 | Push start switch OFF | 10 to 14 V |
| VCSK (S9–6) – GND (S9–1, 2) | B – W–B | Stroke sensor power | Push start switch ON (READY) | 3.75 to 4.95 V |
| SSK (S9–7) – GND (S9–1, 2) | Shielded – W–B | Stroke sensor shield ground | Push start switch OFF | Below 1 Ω |
| SKG (S9–8) – GND (S9–1, 2) | W – W–B | Stroke sensor ground | Push start switch OFF | Below 1 Ω |
| PKB (S9–14) – GND (S9–1, 2) | R – W–B | Parking brake signal input | Parking brake applied → released | Below 1.5 V<br>→ 9.1 to 13.6 V |
| SKS1 (S9–21) – GND (S9–1, 2) | R – W–B | Stroke sensor signal input 1 | Push start switch ON (READY)<br>Brake pedal released | 0.46 to 1.35 V |
| SKS2 (S9–22) – GND (S9–1, 2) | G – W–B | Stroke sensor signal input 2 | Push start switch ON (READY)<br>Brake pedal released | 2.56 to 4.35 V |
| RR– (S9–23) – GND (S9–1, 2) | B – W–B | RR sensor (–) input | Push start switch OFF | Below 1 Ω |
| RR+ (S9–31) – GND (S9–1, 2) | W – W–B | RR sensor (+) input | Vehicle speed input | Pulse generation<br>(see waveform 3) |
| SLAFL+ (S10–1) –<br>GND (S10–4) | P – W–B | FL solenoid (+) output | Push start switch ON (READY)<br>Brake pedal depressed approx. 1.5 sec. after pushing start switch ON (READY) | Pulse generation<br>(see waveform 1) |

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| SLAFL– (S10–2) – GND (S10–4) | O – W–B | FL solenoid (–) output | Push start switch ON (READY) Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| SMC2 (S10–3) – GND (S10–4) | LG – W–B | Master cut solenoid 2 output | Push start switch ON (READY) Brake pedal depressed approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| IG2 (S10–5) – GND (S10–4) | O – W–B | IG2 power | Push start switch ON (READY) | 10 to 14 V |
| LBL (S10–6) – GND (S10–4) | P – W–B | Brake fluid level switch input | Reservoir level switch OFF → ON | 4 to 4.65 → Below 1.5 V |
| BS2 (S10–7) – GND (S10–4) | P – W–B | Battery source 2 | Push start switch ON (READY) Approx. 1.5 sec. after pushing start switch ON (READY) | 8.8 to 14 V |
| SLRFL+ (S10–8) – GND (S10–4) | Y – W–B | FL solenoid (+) output | Push start switch ON (READY) After approx. 1.5 sec., brake pedal depressed → released | Pulse generation (see waveform 2) |
| SLARR– (S10–9) – GND (S10–4) | P – W–B | RR solenoid (– ) output | Push start switch ON (READY) Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| SG2 (S10–12) – GND (S10–4) | Shielded – W–B | Pressure sensor shield ground 2 | Push start switch OFF | Below 1 Ω |
| FSS (S10–13) – GND (S10–4) | BR – W–B | Speed sensor shield ground | Push start switch OFF | Below 1 Ω |
| VCM2 (S10–14) – GND (S10–4) | B – W–B | Pressure sensor power 2 | Push start switch ON (READY) | 4.75 to 5.25 V |
| SR2 (S10–15) – GND (S10–4) | V – W–B | Main relay output 2 | Push start switch ON (READY) Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1 V |
| R2+ (S10–17) – GND (S10–4) | Y – W–B | Main relay power 2 | Push start switch ON (READY) | 9.1 to 13.6 V |
| SLRRR– (S10–18) – GND (S10–4) | BR – W–B | RR solenoid (–) output | Push start switch ON (READY) Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |
| SLARR+ (S10–19) – GND (S10–4) | V – W–B | RR solenoid (+) output | Push start switch ON (READY) Brake pedal depressed approx. 1.5 sec. after pushing start switch ON (READY) | Pulse generation (see waveform 1) |
| SLRRR+ (S10–20) – GND (S10–4) | R – W–B | RR solenoid (+) output | Push start switch ON (READY) Brake pedal depressed approx. 1.5 sec. after pushing start switch ON (READY) | Pulse generation (see waveform 1) |
| PCK2 (S10–21) – GND (S10–4) | L – W–B | Pressure sensor check output 2 | Push start switch ON (READY) | 4.75 to 5.25 V |
| FL– (S10–22 ) – GND (S10–4) | G – W–B | FL sensor (–) input | Push start switch OFF | Below 1 Ω |
| PFL (S10–23) – GND (S10–4) | R – W–B | FL pressure sensor input | Push start switch ON (READY) Brake pedal released | 0.3 to 0.8 V |
| MR2+ (S10–25) – GND (S10–4) | R – W–B | Motor relay power 2 | Push start switch ON (READY) Approx. 1.5 sec. after pushing start switch ON (READY) | 8.8 to Below 14 V |
| SLRFL– (S10–26) – GND (S10–4) | L – W–B | FL solenoid (–) output | Push start switch ON (READY) Approx. 1.5 sec. after pushing start switch ON (READY) | Below 1.5 V |

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| PMC2 (S10–27) – GND (S10–4) | W – W–B | Master pressure sensor input 2 | Push start switch ON (READY)<br>Brake pedal released | 0.3 to 0.8 V |
| FL+ (S10–28) – GND (S10–4) | R – W–B | FL sensor (+) input | Vehicle speed input | Pulse generation (see waveform 3) |
| E2 (S10–29) – GND (S10–4) | G – W–B | Pressure sensor ground 2 | Push start switch OFF | Below 1 Ω |
| MR2 (S10–30) – GND (S10–4) | G – W–B | Motor relay output 2 | Push start switch ON (READY)<br>Pump motor is operating | Below 1.5 V |
| PRR (S10–31) – GND (S10–4) | Y – W–B | RR pressure sensor input | Push start switch ON (READY)<br>Brake pedal released | 0.3 to 0.8 V |



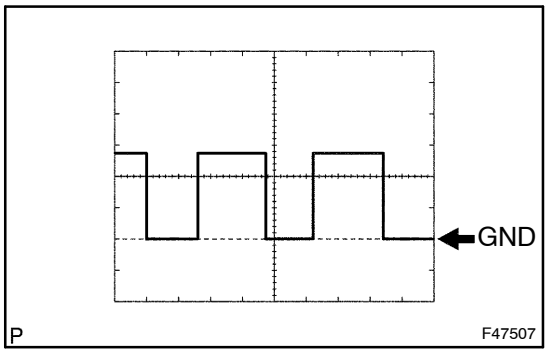

Waveform 1

**NOTICE:**

**Normal waveform is output only when BS 1 and 2 voltages are normal (10 to 14 V).**

HINT:

- While driving at approximately 20 km/h (12 mph).
- 5V/DIV, 200 ms/DIV.
- Brake pedal depressed.



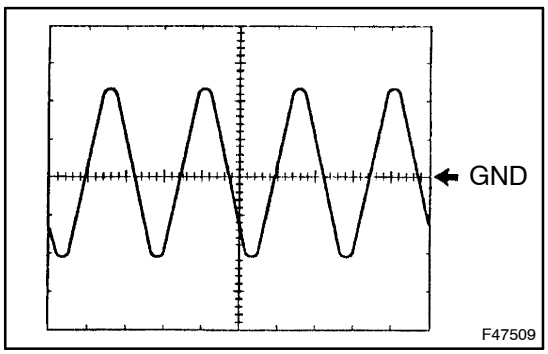

Waveform 2

**NOTICE:**

**Normal waveform is output only when BS 1 and 2 voltages are normal (10 to 14 V).**

HINT:

- While driving at approximately 20 km/h (12 mph).
- 5V/DIV, 200 ms/DIV.
- Brake pedal depress → released



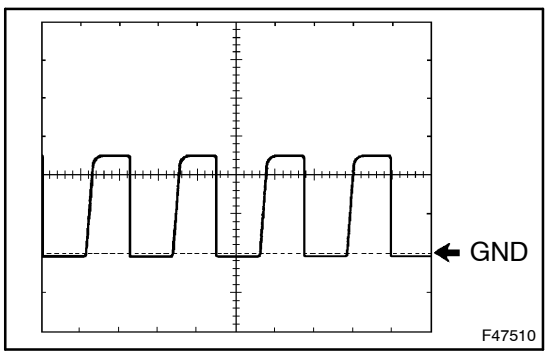

Waveform 3

**NOTICE:**

**As the vehicle speed (tire rotating speed) becomes faster the cycle becomes shorter and the output voltage larger.**

HINT:

- 1V/DIV, 2 ms/DIV.
- While driving at approximately 30 km/h (18 mph).



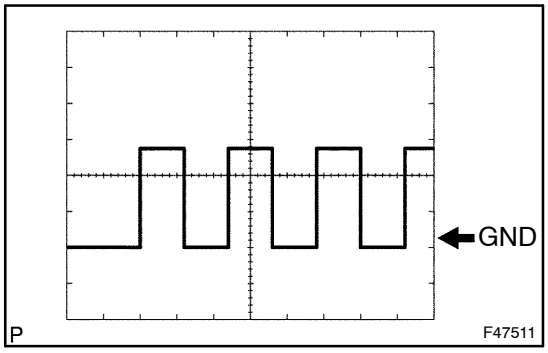

Waveform 4

**NOTICE:**

**As the vehicle speed (tire rotating speed) becomes faster the cycle becomes shorter.**

HINT:

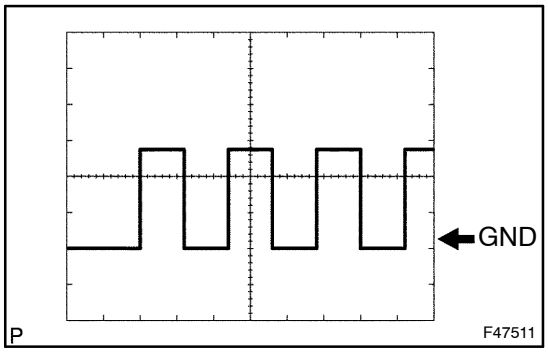
- 5V/DIV, 50 ms/DIV.
- While driving at approximately 20 km/h (12 mph).




Waveform 5

HINT:

- 5V/DIV, 200 ms/DIV.
- Power switch ON (READY)




Waveform 6

HINT:

- 5V/DIV, 100 ms/DIV.
- Power switch ON (READY)