

## PRE-CHECK

### 1. DIAGNOSIS SYSTEM

- (a) Release the parking brake lever.

#### NOTICE:

**When releasing the parking brake, set the chocks to hold the vehicle for safety.**

#### HINT:

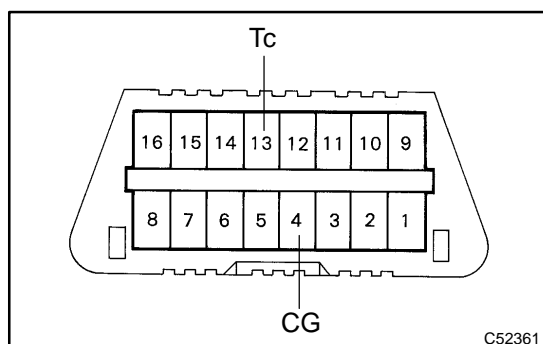
When the parking brake is applied or the level of the brake fluid is low, the BRAKE warning light comes on.

- (b) Check the warning lights.

When the ignition switch is turned ON, check that the ABS warning light and brake warning light come on for 3 sec.

#### HINT:

- When the parking brake is applied or the level of the brake fluid is low, the brake warning light comes on.
- If the indicator check result is not normal, proceed to troubleshooting for the ABS warning light circuit (See page [05-917](#) or [05-920](#)) or brake warning light circuit (See page [05-922](#)).



### 2. DTC CHECK (USING SST CHECK WIRE)

- (a) Check DTCs using a SST check wire.

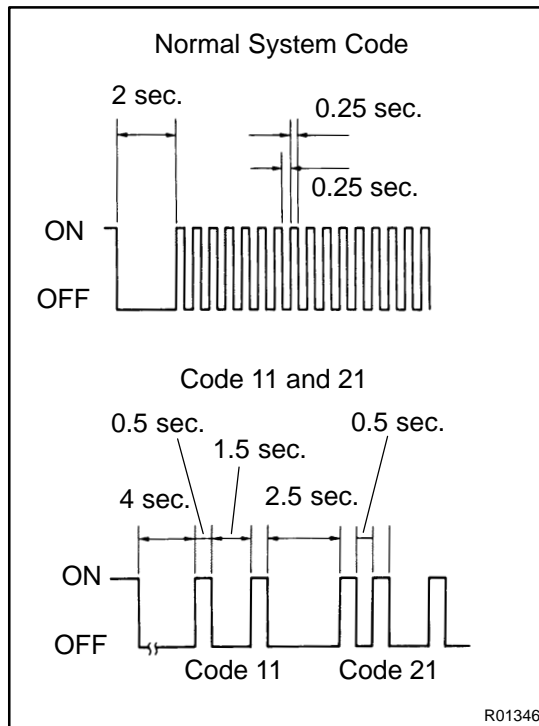
- (1) Using SST, connect terminals Tc and CG of the DLC3.

SST 09843-18040

- (2) Turn the ignition switch to the ON position.
- (3) Read the DTC from the ABS warning light on the combination meter.

#### HINT:

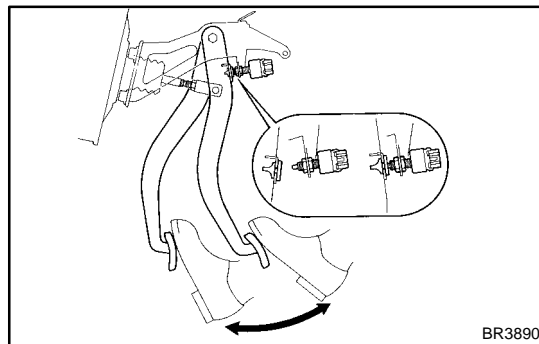
- If no code appears, inspect the diagnostic circuit or ABS warning light circuit (See page [05-917](#) or [05-920](#)).



- As an example, the blinking patterns for a normal system code and codes 11 and 21 are shown on the left.
- (4) Codes are explained in the code table on page [05-879](#).

If 2 or more DTCs are detected at the same time, the lowest numbered DTC is displayed first.

- (5) After completing the check, remove the SST from the DLC3.



- (b) Clear the DTCs using the SST check wire.  
SST 09843-18040
- (1) Using SST, connect terminals Tc and CG of the DLC3.
- (2) Turn the ignition switch to the ON position.
- (3) Clear the DTCs stored in the ECU by depressing the brake pedal 8 or more times within 5 sec.
- (4) Check that the ABS warning light shows the normal code.
- (5) Remove the SST from the DLC3.

**HINT:**

Disconnecting the battery cable during repairs will not erase the DTCs in the ECU.

### 3. DTC CHECK (USING HAND-HELD TESTER)

- (a) Check DTCs using the hand-held tester.
- (1) Read the DTC following the prompts on the tester screen.

**HINT:**

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

- (b) Clear the DTCs using the hand-held tester.
- (1) Turn the ignition switch to the ON position.
- (2) Operate the hand-held tester to erase the codes.

**HINT:**

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

#### 4. DATA LIST

##### HINT:

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

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the ignition switch ON.
- (c) From the display on the tester, read the "DATA LIST".

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
ABS MOT RELAY	ABS motor relay / ON or OFF	ON : Motor relay ON	-
SOL RELAY	Solenoid relay / ON or OFF	ON : Solenoid relay ON	-
STOP LIGHT SW	Stop light switch / ON or OFF	ON : Brake pedal depressed OFF : Brake pedal released	-
PKB SW	Parking brake switch / ON or OFF	ON : Parking brake applied OFF : Parking brake released	-
ABS OPERT FR	ABS operation (FR) / BEFORE or OPERATE	BEFORE : No ABS operation (FR) OPERATE : During ABS operation (FR)	-
ABS OPERT FL	ABS operation (FL) / BEFORE or OPERATE	BEFORE : No ABS operation (FL) OPERATE : During ABS operation (FL)	-
ABS OPERT RR	ABS operation (RR) / BEFORE or OPERATE	BEFORE : No ABS operation (RR) OPERATE : During ABS operation (RR)	-
ABS OPERT RL	ABS operation (RL) / BEFORE or OPERATE	BEFORE : No ABS operation (RL) OPERATE : During ABS operation (RL)	-
WHEEL SPD FR	Wheel speed sensor (FR) reading / min.: 0 km/h (0 MPH), max.: 326 km/h (202 MPH)	Actual wheel speed	Similar speed as indicated on speedometer
WHEEL SPD FL	Wheel speed sensor (FL) reading / min.: 0 km/h (0 MPH), max.: 326 km/h (202 MPH)	Actual wheel speed	Similar speed as indicated on speedometer
WHEEL SPD RR	Wheel speed sensor (RR) reading / min.: 0 km/h (0 MPH), max.: 326 km/h (202 MPH)	Actual wheel speed	-
WHEEL SPD RL	Wheel speed sensor (RL) reading / min.: 0 km/h (0 MPH), max.: 326 km/h (202 MPH)	Actual wheel speed	-
IG VOLTAGE	ECU power supply voltage / NORMAL or TOO LOW	NORMAL : 9.8 V or over TOO LOW : Below 9.8 V	-
SFRR	ABS solenoid (SFRR) ON / OFF	Operate: ON	-

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
SFRH	ABS solenoid (SFRH) ON / OFF	Operate: ON	–
SFLR	ABS solenoid (SFLR) ON / OFF	Operate: ON	–
SFLH	ABS solenoid (SFLH) ON / OFF	Operate: ON	–
SRRR (SRR)	ABS solenoid (SRRR (SRR)) ON / OFF	Operate: ON	–
SRRH (SRH)	ABS solenoid (SRRH (SRH)) ON / OFF	Operate: ON	–
SRLR	ABS solenoid (SRLR) ON / OFF	Operate: ON	–
SRLH	ABS solenoid (SRLH) ON / OFF	Operate: ON	–
AIR BLD SUPPORT	Air bleed support / SUPPORT or NOT SUP	Not supported	–
TEST MODE	Test mode / NORMAL or TEST	NORMAL : Normal mode TEST : During test mode	–
#CODES	Number of DTC recorded / min.: 0, max.: 255	Min.: 0, max.: 19	–

## 5. ACTIVE TEST

### HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one of the methods to shorten 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 to the ON position.
- From the display on the tester, select the "ACTIVE TEST".

Item	Vehicle Condition / Test Details	Diagnostic Note
SFRR	Turns ABS solenoid (SFRR) ON / OFF	Operation of solenoid (clicking sound) can be heard
SFRH	Turns ABS solenoid (SFRH) ON / OFF	Operation of solenoid (clicking sound) can be heard
SFLR	Turns ABS solenoid (SFLR) ON / OFF	Operation of solenoid (clicking sound) can be heard
SFLH	Turns ABS solenoid (SFLH) ON / OFF	Operation of solenoid (clicking sound) can be heard
SRRR	Turns ABS solenoid (SRRR) ON / OFF	Operation of solenoid (clicking sound) can be heard
SRRH	Turns ABS solenoid (SRRH) ON / OFF	Operation of solenoid (clicking sound) can be heard
SRLR	Turns ABS solenoid (SRLR) ON / OFF	Operation of solenoid (clicking sound) can be heard
SRLH	Turns ABS solenoid (SRLH) ON / OFF	Operation of solenoid (clicking sound) can be heard

Item	Vehicle Condition / Test Details	Diagnostic Note
SFRR & SFRH	Turns ABS solenoid SFRR & SFRH ON / OFF	Operation of solenoid (clicking sound) can be heard
SFLR & SFLH	Turns ABS solenoid SFLR & SFLH ON / OFF	Operation of solenoid (clicking sound) can be heard
SRRR & SRRH	Turns ABS solenoid SRRR & SRRH ON / OFF	Operation of solenoid (clicking sound) can be heard
SRLR & SRLH	Turns ABS solenoid SRLR & SRLH ON / OFF	Operation of solenoid (clicking sound) can be heard
SFRH & SFLH	Turns ABS solenoid SFRH & SFLH ON / OFF	Operation of solenoid (clicking sound) can be heard
ABS MOT RELAY	Turns ABS motor relay ON / OFF	Operation sound of motor can be heard
ABS WARN LIGHT	Turns ABS warning light ON / OFF	Observe combination meter
BRAKE WRN LIGHT	Turns BRAKE warning light ON / OFF	Observe combination meter

## 6. FREEZE FRAME DATA

### HINT:

- Whenever a DTC is detected or the ABS operates, the skid control ECU stores the current vehicle (sensor) state as freeze frame data.
  - The skid control ECU stores the number of times (maximum: 31) the ignition switch has been turned from off to the On position since the last time ABS was activated. However, if the vehicle was stopped or at low speed (4.3 mph (7 km/h) or less), or if a DTC is detected, the skid control ECU will not count the number since then.
  - Freeze frame data at the time the ABS operates:  
The skid control ECU stores and updates data whenever the ABS system operates.  
When the ECU stores data at the time a DTC is detected, the data stored when the ABS operated is erased.
  - Freeze frame data at the time a DTC is detected:  
When the skid control ECU stores data at the time a DTC is detected, no updates will be performed until the data is cleared.
- Connect the Intelligent tester to the DLC3.
  - Turn the ignition switch to the ON position.
  - Select "DTC INFO" on the tester display.
  - On the DTC data display screen, select the DTC data displayed with "\*\*".

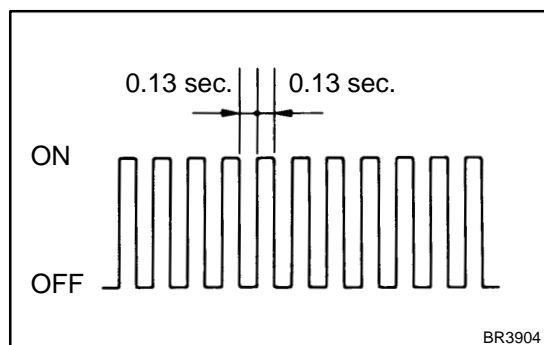
Hand-held tester display	Measurement Item	Reference Value
VEHICLE SPD	Vehicle speed	Speed indication of a meter
STOP LIGHT SW	Stop light switch signal	Stop light switch ON: ON, OFF: OFF
# IG ON	Numbers of operations of ignition switch ON after memorizing freeze frame data	0 to 31
SYSTEM	Operating system	ABS activated: ABS

## 7. SPEED SENSOR SIGNAL CHECK

- (a) Check the sensor signal.
- (1) Start the engine.
  - (2) Connect the hand-held tester to the DLC3.
  - (3) Select the TEST MODE.

HINT:

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



- (4) Check that the ABS warning light blinks.

HINT:

If the ABS warning light does not blink, inspect the ABS warning light circuit (See page [05-917](#) or [05-920](#)).

- (5) Drive the vehicle straight forward.

HINT:

- Drive the vehicle faster than 28 mph (45 km/h) for several seconds.
- There is a case that the sensor check is not completed if the vehicle has its wheels spun or its steering wheel turned during this check.

- (6) Stop the vehicle.

HINT:

If the ignition switch is turned from ON to ACC or LOCK during the test mode, the DTCs of the sensor check function will be erased.

- (b) Read the DTCs from the hand-held tester screen.

HINT:

- See the list of DTCs shown on the [05-879](#).
- If the check result is OK, the ABS warning light link goes off when the brake pedal is once depressed.