

PRE-CHECK

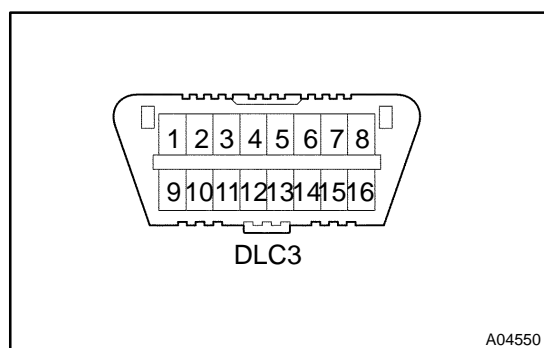
1. DIAGNOSIS SYSTEM

(a) Description

ECM controls the function of the cruise control on a vehicle.

Data on the cruise control and DTC can be read from DLC3 on the vehicle. If the CRUISE MAIN indicator does not come on after the DTC check, there is a malfunction on the cruise control.

Use the hand-held tester or SST to check and solve the problem.



(b) Check the DLC3.

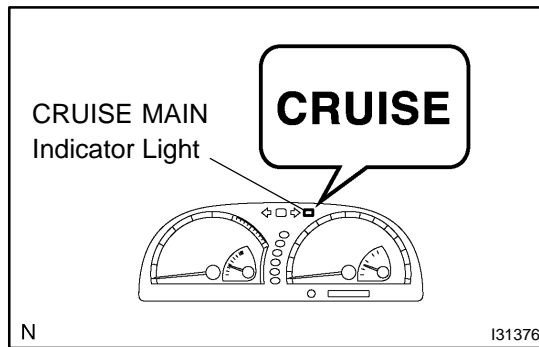
The vehicle's ECM uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Connection/Specified Condition | Condition |
|--------------|--|----------------------|
| 4 | Chassis Ground ↔ Body Ground/1 Ω or less | Always |
| 7 | Bus ⊕ Line/Pulse Generation | During Communication |
| 16 | Battery Positive ↔ Body Ground/9 ~ 14 V | Always |

HINT:

If the display shows "UNABLE TO CONNECT TO VEHICLE" as connecting the hand-held tester to the DLC3 and turn the ignition switch ON, there is a problem either on the vehicle or on the tool.

- 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.



(c) Check the indicator.

- (1) Turn the ignition switch ON.
- (2) Check that the CRUISE MAIN indicator light comes on when the cruise control main switch is turned on, and that the indicator light goes off when the main switch is turned OFF.

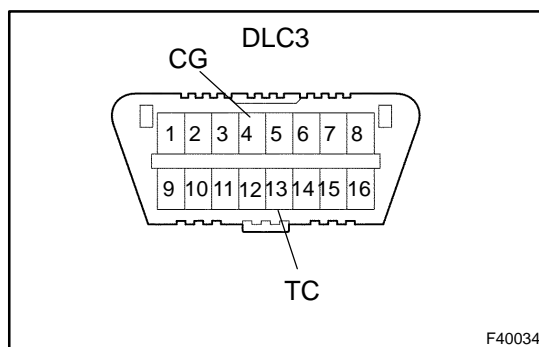
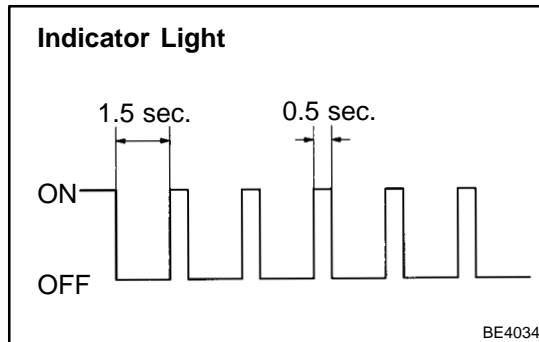
HINT:

If the indicator check result is not normal, proceed to troubleshooting (See page 05-1999) for the combination meter section.

(d) Check the DTC.

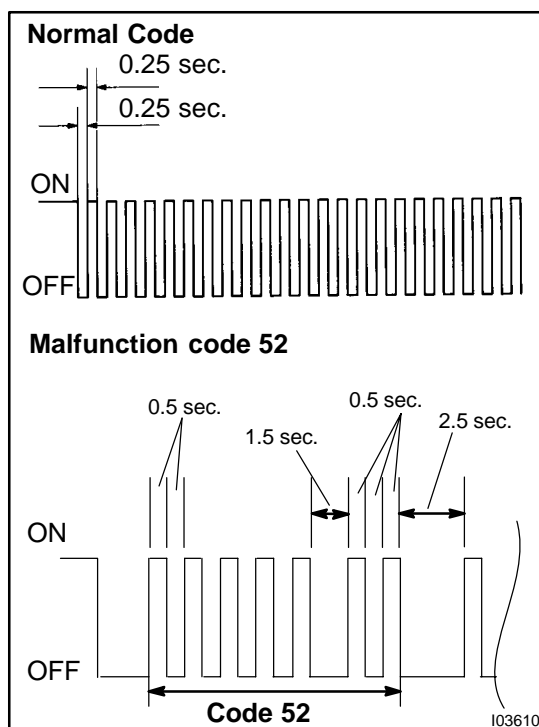
HINT:

If a malfunction occurs in the vehicle speed sensors or the stop lamp switch, etc. during cruise control driving, ECU actuates AUTO CANCEL of the cruise control and turns on and off the CRUISE MAIN indicator light to inform the driver of a malfunction. At the same time, the malfunction is stored in the memory as a diagnostic trouble code.



(e) Check the output of DTC using diagnosis check wire.

- (1) Turn the ignition switch ON.
- (2) Using SST, connect terminal Tc and CG of DLC3.
SST 09843-18040
- (3) Read the DTC on the CRUISE MAIN indicator light.



HINT:

If DTC is not indicated, inspect the cruise main indicator light circuit or the diagnosis circuit (See page 05-2219 and 05-2226). As an example, the blinking pattern of normal code and code 52 are shown in the illustration.

2. USING HAND-HELD TESTER

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

HINT:

The 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.

3. DATA LIST

HINT:

Following 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.

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

| Item | Measurement Item / Display (Range) | Normal Condition | Diagnostic Note |
|-----------------|---|---|-----------------|
| VEHICLE SPD | Vehicle speed / min.: 0km/h (0mph), max.: 255km/h (158mph) | Actual vehicle speed | – |
| MEMORY SPD | Cruise control memorized speed / min.: 0km/h (0mph), max.: 255km/h (158mph) | Memorized speed : Cruise control activated | – |
| THROTTLE | Required throttle opening angle / min.: 0°, max.: 125° | Required throttle opening angle (0° – 84°) : Cruise control activated | – |
| CCS READY S | Cruise control system stand by condition (Sub CPU) / ON or OFF | ON ⇔ OFF : Change ON/OFF each time Main SW is pressed in. | "1" |
| CCS READY M | Cruise control system stand by condition (Main CPU) / ON or OFF | ON ⇔ OFF : Change ON/OFF each time Main SW is pressed in. | "1" |
| CANCEL SW | CANCEL SW signal / ON or OFF | ON : CANCEL SW ON OFF : CANCEL SW OFF | – |
| SET/COAST SW | SET/COAST SW signal / ON or OFF | ON : SET/– SW ON OFF : SET/– SW OFF | – |
| RES/ACC SW | RES/ACC SW signal / ON or OFF | ON : RES/+ SW ON OFF : RES/+ SW OFF | – |
| STP LIGHT SW1 M | Stop light SW signal (Main CPU) / ON or OFF | ON : Brake pedal depressed OFF : Brake pedal released | – |
| STP LIGHT SW2 S | Stop light SW signal (Sub CPU) / ON or OFF | ON : Brake pedal depressed OFF : Brake pedal released | – |
| STP LIGHT SW1 S | Stop light SW signal (Sub CPU) / ON or OFF | ON : Brake pedal depressed OFF : Brake pedal released | – |
| SHIFT D POS | PNP SW signal (D position) / ON or OFF | ON : Shift D position OFF : Except shift D position | – |
| CRUISE CTRL | Cruise control system active condition / ON or OFF | ON : Cruise control activated OFF : Cruise control inactivated | – |
| CCS INDICATOR M | Cruise indicator signal (Main CPU) / ON or OFF | ON : "CCS READY" ON OFF : "CCS READY" OFF | "2" |
| CCS INDICATOR S | Cruise indicator signal (Sub CPU) / ON or OFF | ON : "CCS READY" ON OFF : "CCS READY" OFF | "2" |
| MAIN SW (SUB) | Main SW signal (Sub CPU) / ON or OFF | ON : Main SW ON (Pressed in) OFF Main SW OFF (Pressed out) | "3" |
| MAIN SW (MAIN) | Main SW signal (Main CPU) / ON or OFF | ON : Main SW ON (Pressed in) OFF Main SW OFF (Pressed out) | "3" |

HINT:

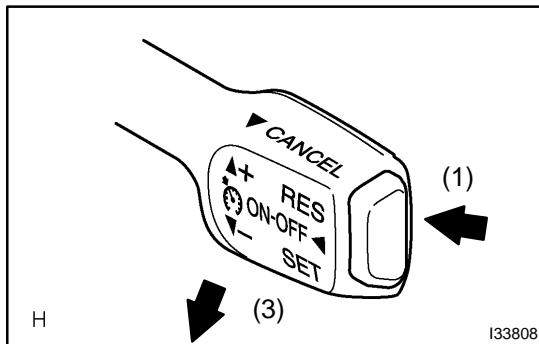
"3" is OK but "1" is NG → ECM failure

"1" is OK but "2" is NG → DTC output or ECM failure

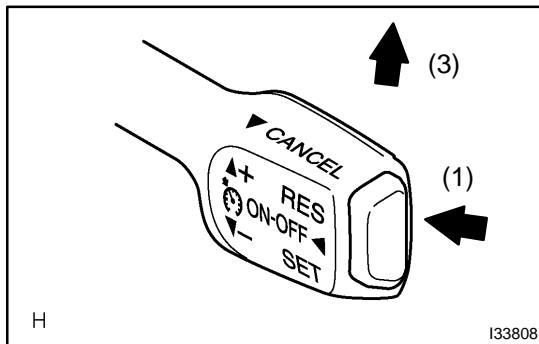
"3" is OK but cruise indicator does not turn on → Indicator or W/H or ECM failure

4. DTC CLEAR

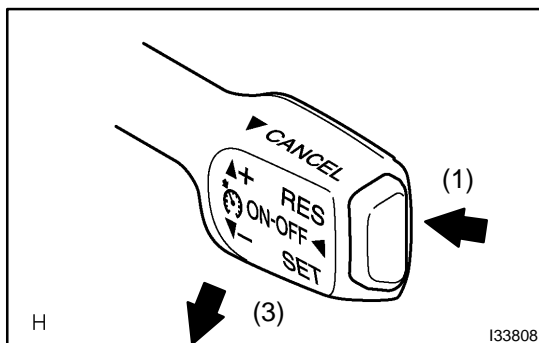
- (a) Following actions will erase DTC and the freeze frame data.
 - (1) Hand-Held Tester:
Operating the hand-held tester to erase the codes.
 - (2) Except Hand-Held Tester:
Disconnecting the battery terminals or EFI fuse.
- (b) After completing repairs, DTC retained in the memory can be cleared by removing the EFI fuse for 1 minutes or more with the ignition switch off.
- (c) Check that the normal code is displayed after connecting the fuse.

**5. PROBLEM SYMPTOM CONFIRMATION (ROAD TEST)**

- (a) Inspect the SET switch.
 - (1) Push the main switch button to ON.
 - (2) Drive at a desired speed (40 km/h (25 mph) or higher).
 - (3) Push down the control switch to the "SET/-".
 - (4) After releasing the switch, check that the vehicle cruises at the desired speed.

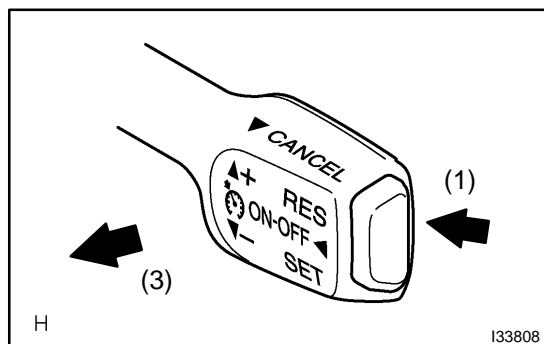


- (b) Inspect the ACCEL switch.
 - (1) Push the main switch button to ON.
 - (2) Drive at a desired speed (40 km/h (25 mph) or higher).
 - (3) Check that the vehicle speed increase while the control switch is pulled up to "RES/+", and that the vehicle cruises at the set speed when the switch is released.
 - (4) Momentarily push the control switch upward in the "RES/+" and then immediately release it. Check that the vehicle speed increases by about 1.5 km/h (Tap-up function).

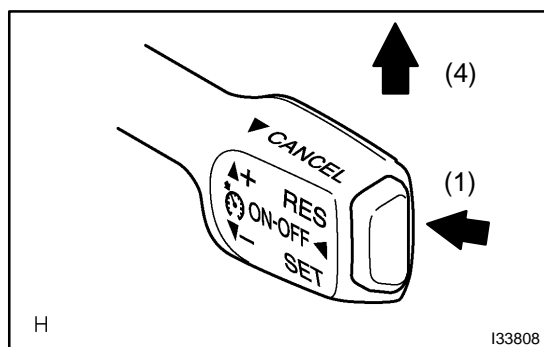


- (c) Inspect the COAST switch.
 - (1) Push the main switch button to ON.
 - (2) Drive at a desired speed (40 km/h (25 mph) or higher).
 - (3) Check that the vehicle speed decrease while the control switch is pushed down to "SET/-", and the vehicle cruises at the set speed when the switch is released.

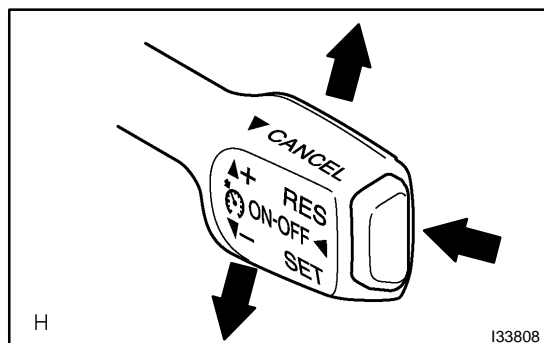
- (4) Momentarily push the control switch downward to "SET/–", and then immediately release it. Check that the vehicle speed decrease by about 1.5 km/h (Tap-down function).



- (d) Inspect the CANCEL switch.
- (1) Push the main switch button to ON.
 - (2) Drive at a desired speed (40 km/h (25 mph) or higher).
 - (3) When operating one of the followings, check that the cruise control system is cancelled and that the normal driving mode is reset.
 - Depress the brake pedal
 - Depress the clutch pedal (M/T)
 - Shift to except D position (A/T)
 - Push the main switch button to OFF
 - Pull the cruise control switch to CANCEL



- (e) Inspect the RESUME switch.
- (1) Push the main switch button to ON.
 - (2) Drive at desired speed (40 km/h (25 mph) or higher).
 - (3) When operating one of the followings, check that the cruise control system is cancelled and that the normal driving mode is reset.
 - Depress the brake pedal
 - Depress the clutch pedal (M/T)
 - Shift to except D position (A/T)
 - Push the main switch button to OFF
 - (4) After pulling up the control switch to RES/ACC at the driving speed of more than 40 km/h (25 mph), check that the vehicle restores the speed prior to the cancellation.



6. INPUT SIGNAL CHECK (Using hand-held tester)

- (a) Connect the hand-held tester to DLC3
- (b) Check the control switch (MAIN, CANCEL, SET/–, RES/+).