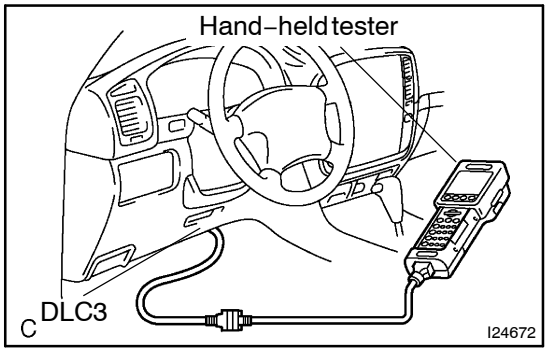
DIAZC–01



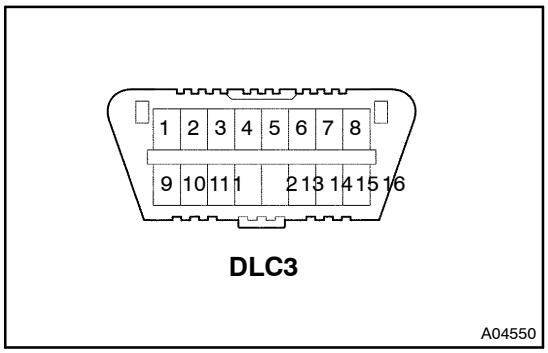
PRE–CHECK

1. DIAGNOSIS SYSTEM

(a) Description

ECM controls the function of cruise control on this vehicle. Data of the cruise control or DTC can be read from DLC3 of the vehicle. When a trouble occurs on cruise control, Check CRUISE MAIN indicator does not light up but DTC inspection is performed.

Therefore when there seems to be a trouble on cruise control, use hand –held tester or SST to check and troubleshoot it.



(b) Check the DLC3.

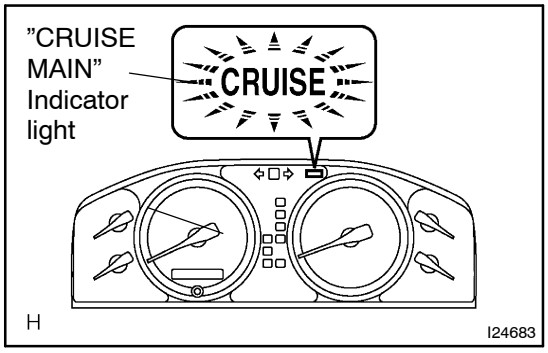
The vehicle's ECM uses ISO 9 141–2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 9 141–2 format.

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

HINT:

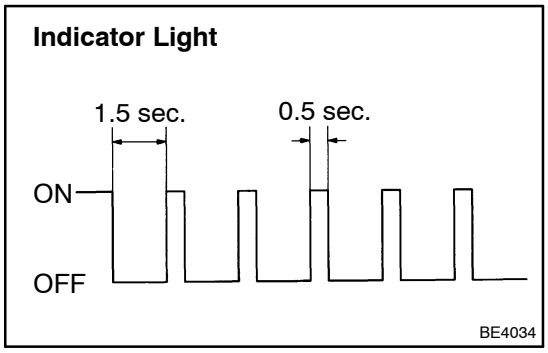
If your display shows "UNABLE TO CONNECT TO VEHICLE" when you have connected the cable of the hand –held tester to DLC3, turned the ignition switch ON and operated the hand – held tester, there is a problem on the vehicle side or tool side.

- 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.



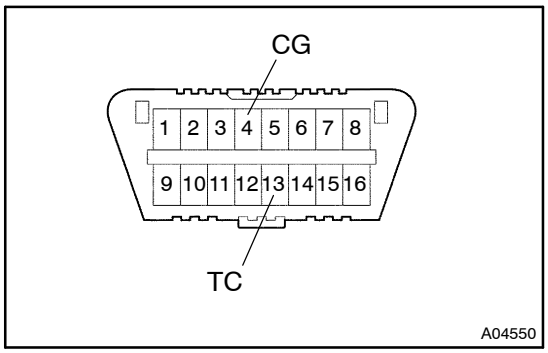
(c) Check the indicator.
(1) Turn the ignition switch to ON.
(2) Check that the CRUISE MAIN indicator light comes on when the cruise control main switch is turned ON, and that the indicator light goes off when the main switch is turned OFF.

HINT:
If the indicator check result is not normal, proceed to trouble-shooting (See page BE–1) for the combination meter section.

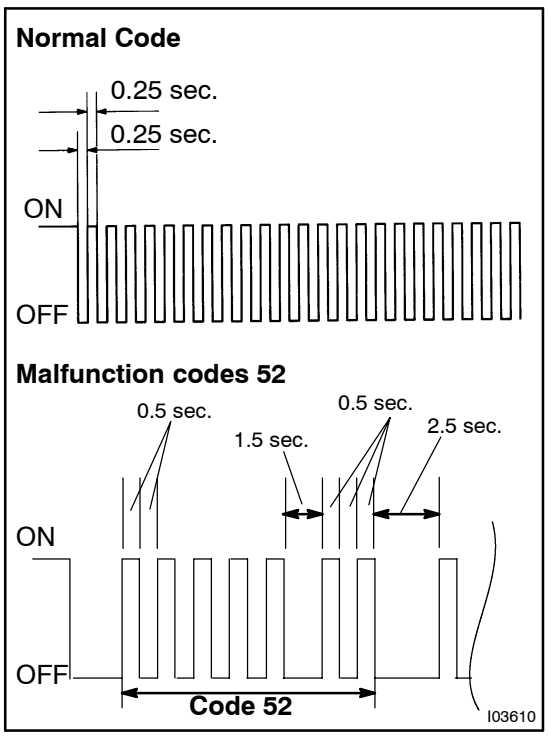


(d) Check the DTC.

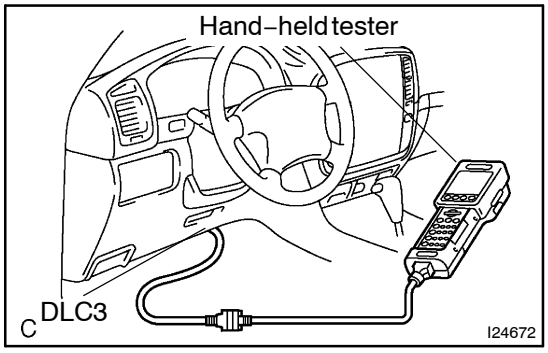
HINT:
If a malfunction occurs in the speed sensor or stop light switch, etc. during cruise control driving, the ECM actuates AUTO CANCEL of the cruise control and turns ON and OFF the CRUISE MAIN indicator light to inform the driver of a malfunction. At the same time, the malfunction is stored in memory as a diagnostic trouble code.



(e) Output DTC using diagnosis check wire.
(1) Turn the ignition switch ON.
(2) Using SST, connect terminals Tc and CG of DLC3.
SST 09843 –18040
(3) Read the DTC on the CRUISE MAIN indicator light.



HINT:
- If the DTC is not output, inspect the diagnosis circuit.
- As an example, the blinking patterns for codes; normal 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:
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. DTC CLEARANCE

(a) The following actions will erase the DTCs and freeze frame data.
  (1) Operating the hand –held tester to erase the codes (See the hand –held tester instruction book for operating instructions.).
  (2) Disconnecting the battery terminals or EFI fuse.
(b) After completing repairs, the DTC retained in memory can be cleared by removing the EFI fuse for 10 seconds or more with the ignition switch off.
(c) Check that the normal code is displayed after connecting the fuse.

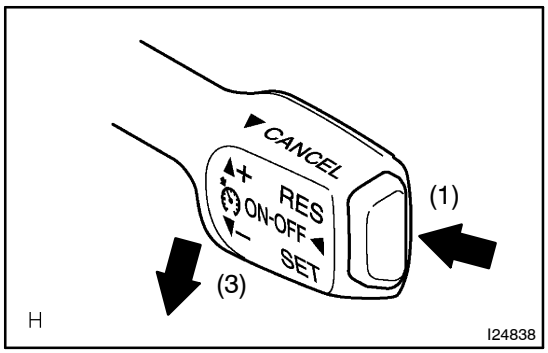
4. DATA LIST

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.

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

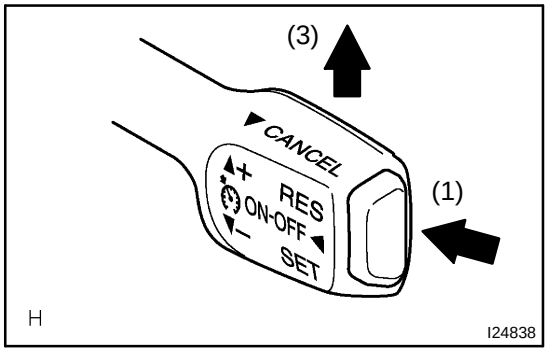
Item	Measurement Item/Display (Range)	Normal Condition	Diagnostic Note
VEHICLE SPD	Vehicle speed/ min.: 0 km/h (0 mph) max.: 255 km/h (158 mph)	Actual vehicle speed	–
MEMORY SPD	Vehicle speed/ min.: 0 km/h (0 mph) max.: 255 km/h (158 mph)	Actual vehicle speed	–
THROTTLE	Throttle operating angle/ min.: 0 km/h (0 mph) max.: 125 km/h (mph)	Actual vehicle speed	–
CRUISE CONTROL	Cruise control	ON: Cruise control is SET OFF: Cruise control is UNSET	–
MAIN SW (MAIN)	Main switch (Main CPU)	ON: Main switch (Main CPU) is SET OFF: Main switch (Main CPU) is UNSET	–

MAIN SW (SUB)	Main switch (Sub CPU)	ON: Main switch (Sub CPU) is SET OFF: Main switch (Sub CPU) is UNSET	–
CCS READY M	Switch ready (Main CPU)	ON: Switch ready (Main CPU) is SET OFF: Switch ready (Main CPU) is UNSET	–
CCS READY S	Switch ready (Sub CPU)	ON: Switch ready (Sub CPU) is SET OFF: Switch ready (Sub CPU) is UNSET	–
CCS INDICATOR M	Switch indicator (Main CPU)	ON: Switch indicator (Main CPU) is ON OFF: Switch indicator (Main CPU) is OFF	–
CCS INDICATOR S	Switch indicator (Sub CPU)	ON: Switch indicator (Sub CPU) is ON OFF: Switch indicator (Sub CPU) is OFF	–
CANCEL SW	CANCEL switch	ON: CANCEL switch is SET OFF: CANCEL switch is UNSET	–
SET/COAST SW	SET/COAST switch	ON: SET/COAST switch is SET OFF: SET/COAST switch is UNSET	–
RES/ACC SW	RES/ACC switch	ON: RES/ACC switch is SET OFF: RES/ACC switch is UNSET	–
STP LIGHT SW2 –M	Stop light SW signal (Main CPU)	ON: Brake pedal depressed OFF: Brake pedal released	–
STP LIGHT SW2 –S	Stop light SW signal (Sub CPU)	ON: Brake pedal depressed OFF: Brake pedal released	–
STP LIGHT SW 1–M	Stop light SW signal (Sub CPU)	ON: Brake pedal depressed OFF: Brake pedal released	–
SHIFT D POS	Shift D position	ON: Shift is D position OFF: Shift is except D position	–

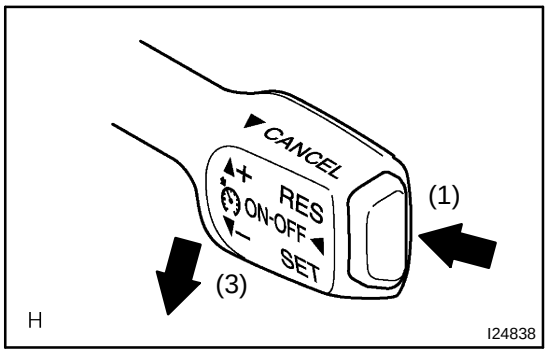


5. PROBLEM SYMPTOM CONFIRMATION (ROAD TEST)

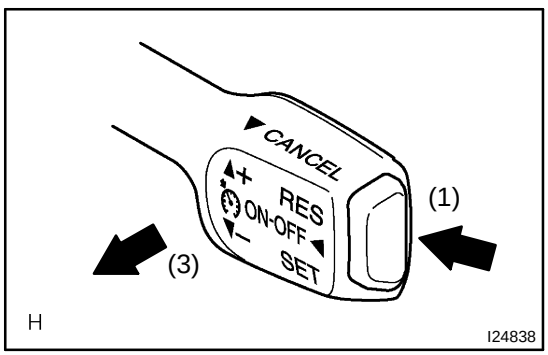
(a) Inspect the SET switch.
(1) Push the main switch ON.
(2) Drive at a desired speed [40 km/h (25 mph) or higher].
(3) Press the control switch to the –/SET.
(4) After releasing the switch, check that the vehicle cruises at the desired speed.



(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 increases 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 press the control switch upward to the +/RES and then immediately release it. Check that the vehicle speed increases by about 1.5 km/h (Tap−up function).

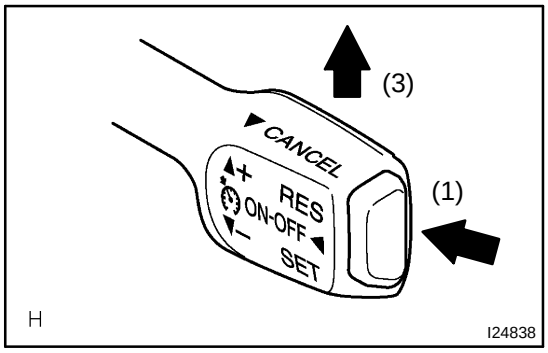


(c) Inspect the COAST switch.
(1) Push the main switch button to ON.
(2) Drive at a desired speed [40 km/h (25 mph) or higher].
(3) Check that the vehicle speed decreases while the control switch is push down to −/SET, and the vehicle cruises at the set speed when the switch is released.
(4) Momentarily press the control switch downward to −/SET, and then immediately release it. Check that the vehicle speed decreases by about 1.5 km/h (Tap−down function).

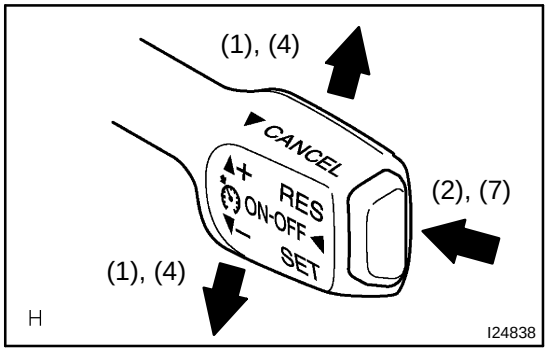


(d) Inspect the CANCEL switch.
(1) Push the main button to ON.
(2) Drive at a desired speed [40 km/h (25 mph) or higher].
(3) When operating one of the followings, check that the cruise control system is cancelled and that the normal driving mode is reset.
- Depress the brake pedal
- Shift to except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

S Pull the cruise control switch to CANCEL



(e) Inspect the RESUME 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.
S Depress the brake pedal
S Shift to except D position
S Press the main switch button to OFF
(4) After the control switch is pulled up to +/RES at the driving speed of more than 40 km/h (25 mph), check that the vehicle restores the speed before the cancellation.

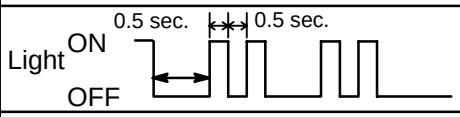
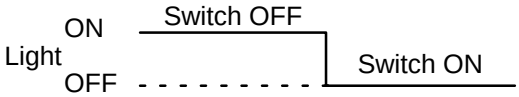
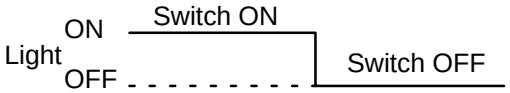


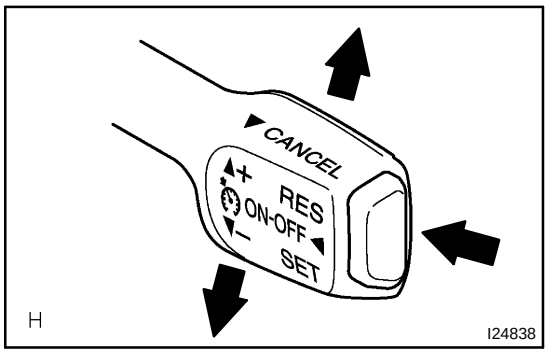
6. INPUT SIGNAL CHECK

HINT:
S For check No.1 − No. 3
Turn the ignition switch to ON.
S For check No. 4
Jack up the vehicle.
Start the engine.
Shift to D position

(a) Check the input signal
(1) Keep the main switch to −/SET or +/RES position and hold it down or hold it up.
(2) Press the switch button to ON.
(3) Check that the CRUISE mainindicator light blinks twice or 3 times repeatedly after 3 seconds.
(4) Turn the −/SET or +/RES switch to OFF.
(5) Operate each switch as listed in the table below.
(6) Read the blinking pattern of the CRUISE main indicator light.
(7) After performing the check, turn the main switch button to OFF.

HINT:
When 2 or more signals are input to the ECM, the lowest numbered code will be displayed first.

No.	Operation Method	CRUISE Main Indicator Light Blinking Pattern	Diagnosis
1	Turn −/SET switch ON		−/SET switch circuit is normal
2	Turn +/RES switch ON		+/RES switch circuit is normal
3	Turn CANCEL switch ON		CANCEL switch circuit is normal
	Depress brake pedal (Turn stop lamp switch assy ON)		Stop light switch circuit is normal
	Shift to except D position (Turn PNP switch OFF)		PNP switch circuit is normal



7. INPUT SIGNAL CHECK
(Using hand−held tester)

(a) Connect the hand−held tester to DLC3.
(b) Check the control switch (MAIN, CANCEL, SET/COAST, RES/ACC).