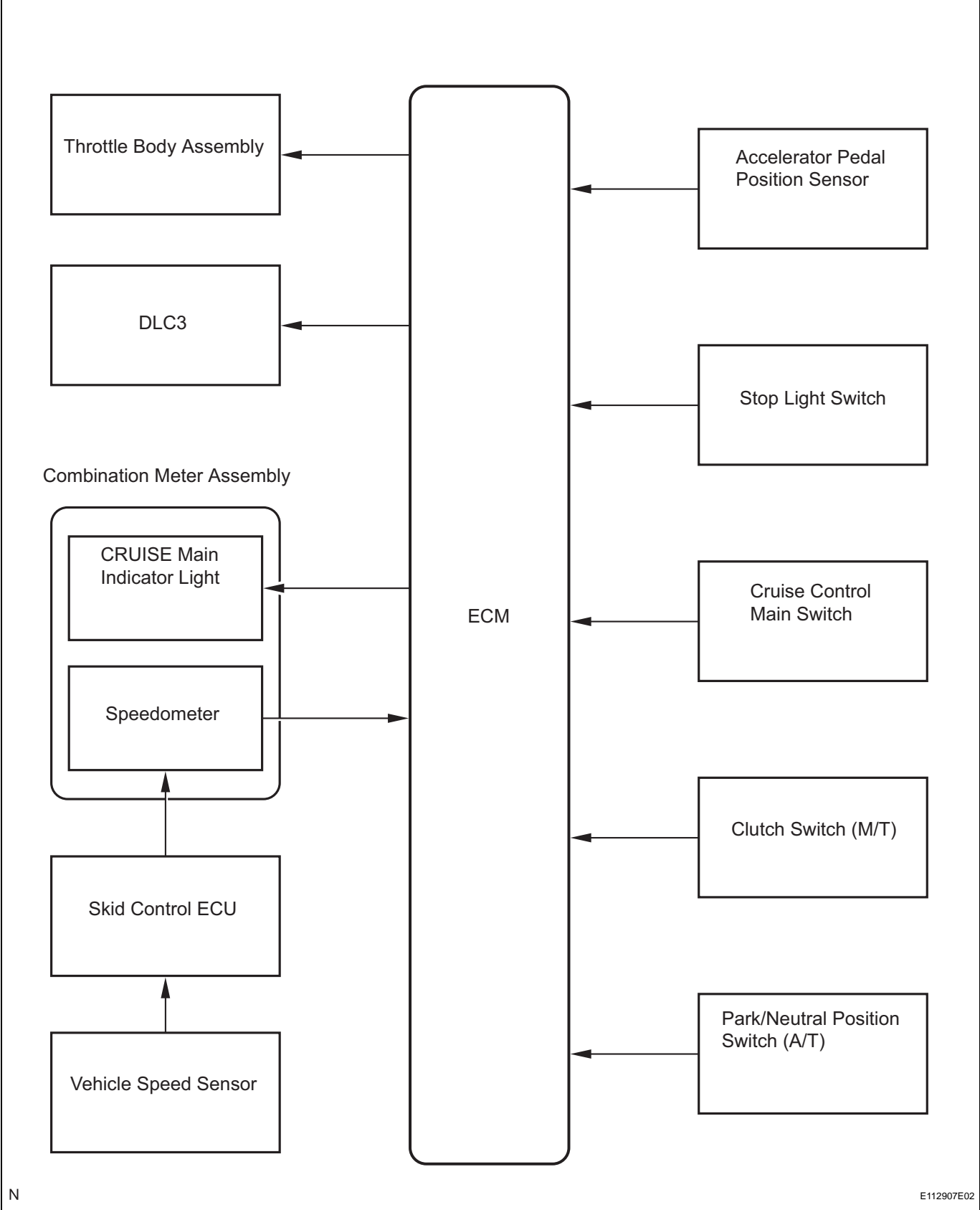


SYSTEM DIAGRAM



SYSTEM DESCRIPTION

1. CRUISE CONTROL SYSTEM

- (a) Cruise control system makes it possible to drive at a desired speed without using the accelerator pedal. ECM controls the throttle opening angle based on signals from switches and sensors.

The microcomputer which control the cruise control system is built into the ECM, and the actuator is the throttle position sensor and motor.

Constant speed control gets ready when the cruise control main switch ON-OFF button is pushed (the CRUISE main indicator light comes on).

Operating the cruise control main switch, the driver can control the following functions.

HINT:

- The cruise control main switch is an automatic return type switch which turns on only while operating it in each arrow direction and turns off after releasing it.
- 'SET' and '-', 'RES' and '+', 'ON' and 'OFF' operations are share the same switch.

(1) 'SET' function

When pushing down the cruise control main switch to "-/SET", the ECM stores the set speed and compares it to actual vehicle speed. If the actual driving speed is greater than the set speed, the ECM sends a signal to the throttle position sensor and motor to close the throttle valve. If lower, it opens the throttle valve. The cruise control operative speed range is between the low and high speed limits.

(2) '+' function

A cruise set speed increases while pushing up on the cruise control main switch lever to "+/RES". The vehicle cruises at the newly set speed when releasing the cruise control main switch lever.

(3) Tap-up function

When tapping up on the cruise control main switch lever to "+/RES" (approximately 0.6 second), the ECM increases the stored set speed by 1.6 km/h (1 mph) at a time. However, when the difference between the driving and the stored vehicle speed is more than 5 km/h (approximately 3.1 mph), the stored vehicle speed will not be changed.

(4) '-' function

A cruise set speed decreases while pushing down on the cruise control main switch lever to "-/SET". The vehicle cruises at the newly set speed when releasing the cruise control main switch lever.

- (5) Tap-down function
When tapping down on the cruise control main switch lever to "-/SET" (approximately 0.6 second), the ECM decreases the stored set speed by 1.6 km/h (1 mph) at a time. However, when the difference between the driving and the stored vehicle speed is more than 5 km/h (approximately 3.1 mph), vehicle speed, when the cruise control main switch lever is released from "-/SET", will be stored and constant speed control is maintained.
- (6) Low speed limit
The lowest possible limit of the speed setting range is approximately 40 km/h (25 mph). The cruise control system cannot be set when the vehicle speed is below the speed limit. Cruise control operation will be automatically canceled and stored vehicle speed will be erased when the vehicle speed goes below the low speed limit while the cruise control is in operation.
- (7) High speed limit
The highest possible limit of the speed setting range is approximately 200 km/h (125 mph). The cruise control system cannot be set when the vehicle speed is over the high speed limit. Speed up using "+/RES" with the cruise control main switch assembly also cannot be set beyond the high speed limits.
- (8) 'RES' function
If cruise control operation was canceled under the manual cancel condition (other than turning cruise control main switch ON-OFF button off), and if driving speed is within the limit range, pushing the cruise control main switch to "+/RES" restores vehicle speed memorized at the time of cancellation, and maintains constant speed control.
- (9) MANUAL CANCEL function
The ECM cancels the cruise control under the following conditions while driving:
- The cruise control main switch is pulled to "CANCEL".
 - The brake pedal is depressed.
 - The clutch pedal is depressed (M/T only).
 - The cruise control main switch ON-OFF button is pushed off.
- (10) AUTO CANCEL function
If any of the following malfunctions occur in the system, the ECM stops the cruising control until the cruise control main switch ON-OFF button is pushed off.
- Stop light switch assembly malfunction
 - Vehicle speed signal circuit malfunction
 - Throttle body assembly malfunction

If any of the following malfunctions occur to the system, the ECM stops the cruising control until the ignition switch is turned off.

- Stop light switch input circuit malfunction
- CANCEL function circuit malfunction

Under these conditions, the cruise main indicator light blinks until the cruise control main switch ON-OFF button is pushed off.

AUTO CANCEL also works when actual vehicle speed either drops below 40 km/h (25 mph) or is 16 km/h lower than the set speed.

HOW TO PROCEED WITH TROUBLESHOOTING

1 VEHICLE BROUGHT TO WORK SHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS

NEXT

3 PROBLEM SYMPTOM CONFIRMATION



SYMPTOM DOES NOT OCCUR: GO TO STEP 4



SYMPTOM OCCURS: GO TO STEP 5

4 SYMPTOM SIMULATION

NEXT

5 BASIC INSPECTION

- (a) Check the battery voltage.
Standard voltage:
11 to 14 V

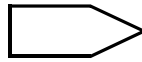
NEXT

6 DTC CHECK

- (a) Check for cruise control system DTC output.



TROUBLE CODE: GO TO STEP 7



NORMAL CODE: GO TO STEP 8

7 DTC CHART

NEXT

8 PROBLEM SYMPTOMS TABLE

NEXT

9 CIRCUIT INSPECTION

NEXT

10 TERMINAL OF ECM

NEXT

11 IDENTIFICATION OF PROBLEM

NEXT

12 REPAIR OR REPLACE

NEXT

13 CONFIRMATION TEST

NEXT

CC

END

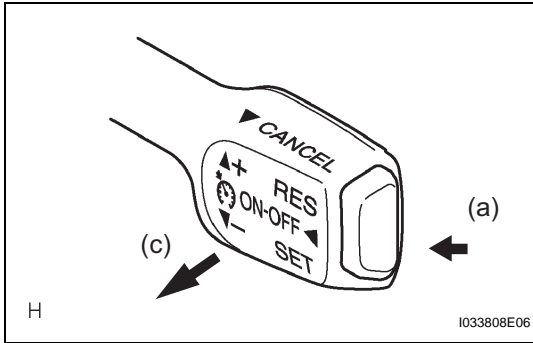
HINT:

The intelligent tester can be used at the following diagnostic steps; 6, 9, and 13.

ROAD TEST

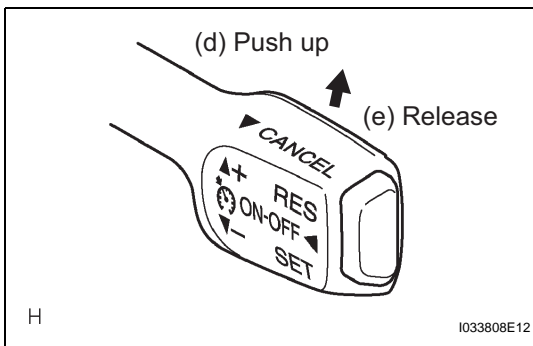
HINT:

'SET' and '-', 'RES' and '+', 'ON-OFF' functions share the same switch. Operate the cruise control main switch according to the directions (▼, ▲, etc.) indicated on the switch.



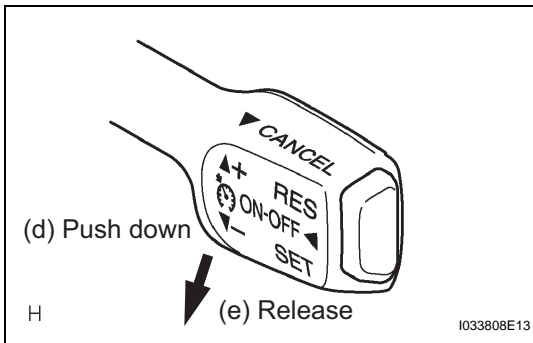
1. INSPECT 'SET' FUNCTION

- Push the ON-OFF button on.
- Drive at a desired speed of 40 km/h (25 mph) or higher.
- Push down the control switch lever to "-/SET".
- After releasing the lever, check that the vehicle cruises at the set speed.



2. INSPECT '+' FUNCTION

- Push the ON-OFF button on.
- Drive at a desired speed of 40 km/h (25 mph) or higher.
- Push down the control switch lever to "-/SET".
- Check that vehicle speed increases while the control switch lever is pushed up to "+/RES".
- Check that the vehicle cruises at the newly set speed when the switch is released.
- Momentarily (approximately 0.6 second) push up the control switch lever to the "+/RES", and then release it. Check that vehicle speed increases approximately 1.6 km/h (1 mph) with each lever operation (Tap-up function).

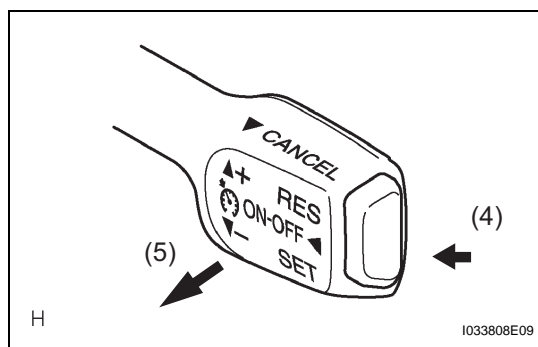


3. INSPECT '-' FUNCTION

- Push the ON-OFF button on.
- Drive at a desired speed of 40 km/h (25 mph) or higher.
- Push down the control switch lever to "-/SET".
- Check that vehicle speed decreases while the control switch lever is pushed down to "-/SET".
- Check that the vehicle cruises at the newly set speed when the switch is released.
- Momentarily (approximately 0.6 second) push down the control switch to "-/SET", and then release it. Check that vehicle speed decreases approximately 1.6 km/h (1 mph) with each lever operation (Tap-down function).

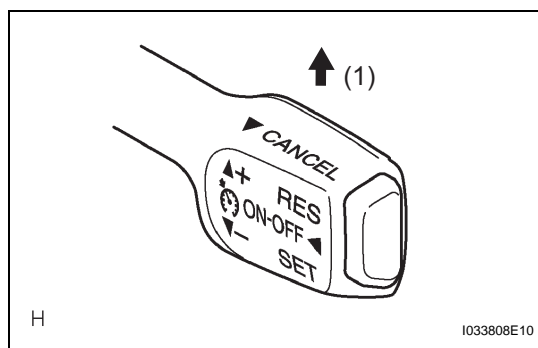
HINT:

Cruise control system automatically cancels when the vehicle speed goes below 40 km/h (25 mph).



4. INSPECT 'CANCEL' FUNCTION

- (a) Push the ON-OFF button on.
- (b) Drive at a desired speed of 40 km/h (25 mph) or higher.
- (c) Push down the control switch lever to "-/SET".
- (d) Check that the system cancels cruise control when operating one of the following:
 - (1) Depressing the brake pedal
 - (2) Depressing the clutch pedal (M/T)
 - (3) Shifting into any position except D and 3 while driving (A/T: 2AZ-FE)
 - (4) Shifting into any position except D and S while driving (A/T: 3MZ-FE)
 - (5) Pushing the cruise control main switch ON-OFF button off
 - (6) Pulling the cruise control switch lever to "CANCEL"



5. INSPECT 'RES' FUNCTION

- (a) Push the ON-OFF button on.
 - (b) Drive at a desired speed of 40 km/h (25 mph) or higher.
 - (c) Push down the control switch lever to "-/SET".
 - (1) After cancelling the cruise control according to any of the above operations except (5), push up the switch lever to "+/RES" at a speed of 40 km/h (25 mph) or higher.
 - (2) Check that the vehicle resumes the previously set speed.
- HINT:
'RES' function does not resume the set speed when vehicle speed goes below 40 km/h (25 mph).

CRUISE CONTROL SYSTEM

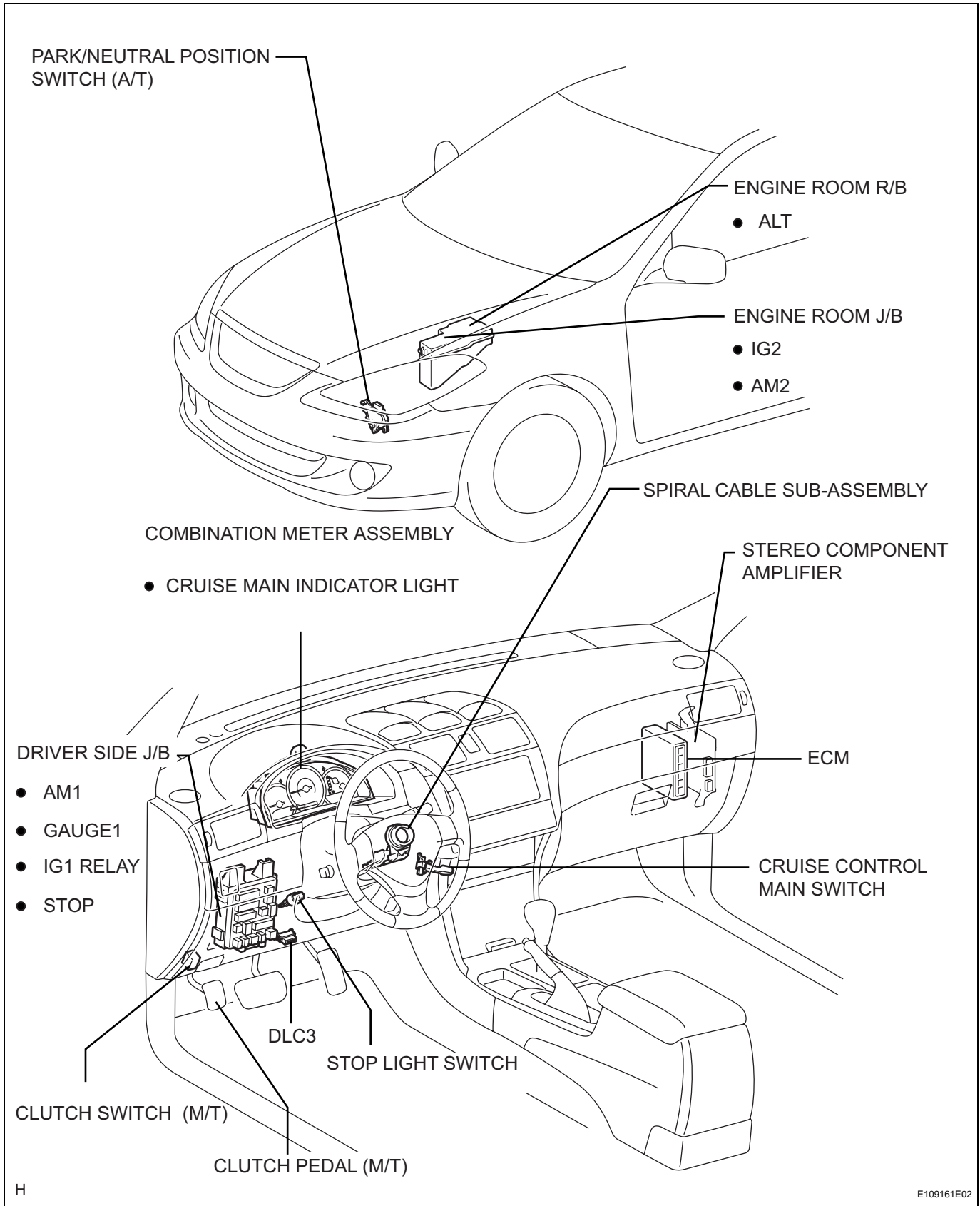
PRECAUTION

NOTICE:

When the negative (-) battery terminal is disconnected, initialize the following systems after the terminal is reconnected.

System	See procedure
Power window control system	IN-24
Sliding roof system	IN-24

PARTS LOCATION



PROBLEM SYMPTOMS TABLE

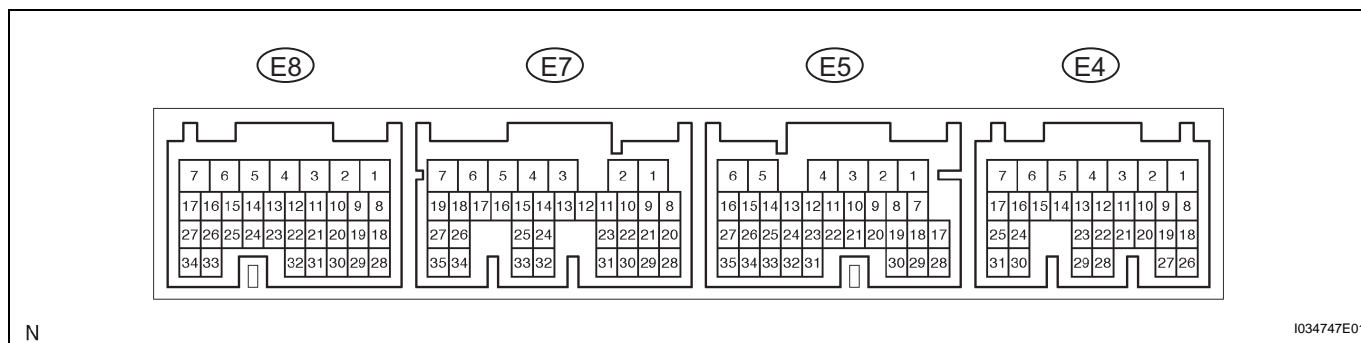
If a normal code is displayed while checking DTCs but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

CRUISE CONTROL SYSTEM:

Symptom	Suspected area	See page
Main switch cannot be turned ON. (Indicator light on the combination meter does not come on.)	1. Cruise control switch circuit	CC-25
	2. CRUISE main indicator light circuit	CC-30
	3. ECM (2AZ-FE)	ES-333
	4. ECM (3MZ-FE)	ES-366
Speed setting cannot be done. (Indicator light on the combination meter comes on when the main switch is turned ON, but goes off when operating SET function.)	1. Cruise control switch circuit	CC-25
	2. ECM (2AZ-FE)	ES-333
	3. ECM (3MZ-FE)	ES-366
Speed setting cannot be done. (Indicator light on the combination meter comes on when the main switch is turned ON and it remains ON, while operating SET function.)	1. Cruise control switch circuit	CC-25
	2. Stop light switch circuit	CC-18
	3. Clutch switch circuit (M/T)	CC-22
	4. Park/Neutral position switch circuit (A/T: 2AZ-FE)	AX-39
	5. Park/Neutral position switch circuit (A/T: 3MZ-FE)	AX-39
	6. Combination meter system	ME-11
	7. ECM (2AZ-FE)	ES-333
	8. ECM (3MZ-FE)	ES-366
While cruise control driving, the set speed is canceled. (Indicator light remains ON.)	1. Cruise control switch circuit	CC-25
	2. Vehicle speed sensor circuit	CC-17
	3. Stop light switch circuit	CC-18
	4. CRUISE main indicator light circuit	CC-30
	5. Clutch switch circuit (M/T)	CC-22
	6. Park/Neutral position switch circuit (A/T: 2AZ-FE)	AX-39
	7. Park/Neutral position switch circuit (A/T: 3MZ-FE)	AX-39
	8. ECM (2AZ-FE)	ES-333
	9. ECM (3MZ-FE)	ES-366
Hunting occurs (Speed is not constant.)	1. Vehicle speed sensor circuit	CC-17
	2. ECM (2AZ-FE)	ES-333
	3. ECM (3MZ-FE)	ES-366
Speed setting cannot be canceled. (CANCEL function failure only)	1. Cruise control switch circuit	CC-25
	2. ECM (2AZ-FE)	ES-333
	3. ECM (3MZ-FE)	ES-366
DTC is not output, or is output when should not be.	1. TC and CG terminal circuit	CC-34
	2. ECM (2AZ-FE)	ES-333
	3. ECM (3MZ-FE)	ES-366
CRUISE main indicator light does not come on.	1. Cruise control switch circuit	CC-25
	2. CRUISE main indicator light circuit	CC-30
	3. ECM (2AZ-FE)	ES-333
	4. ECM (3MZ-FE)	ES-366
	5. Combination meter assembly	ME-59

TERMINALS OF ECM

1. 2AZ-FE

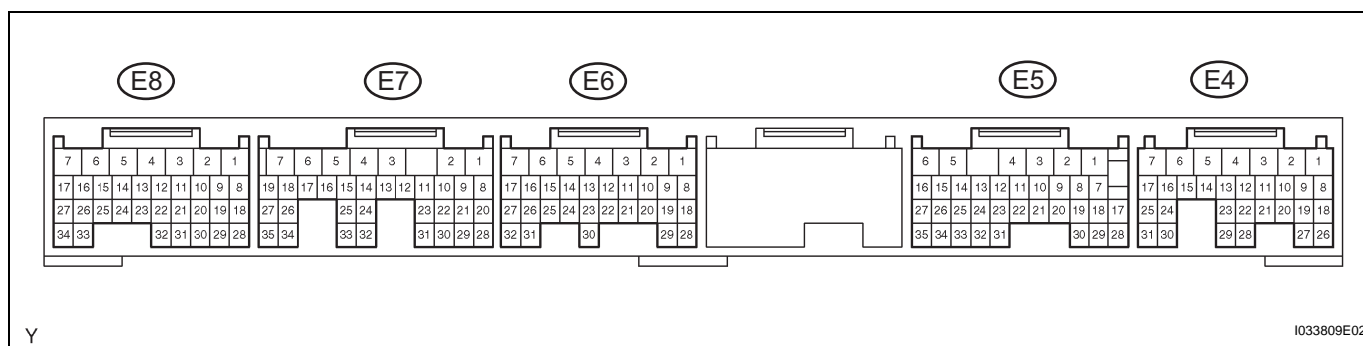


N

I034747E01

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specification
TC (E5-17) - E1 (E8-3)	P-B - BR	DTC output signal	Ignition switch ON	10 to 14 V
TC (E5-17) - E1 (E8-3)	P-B - BR	DTC output signal	Ignition switch ON Connect terminals TC and CG of DLC3	Below 2 V
ST1- (E4-16) - E1 (E8-3)	R-B - BR	Cruise cancel input signal	Ignition switch ON Depress brake pedal	Below 1 V
ST1- (E4-16) - E1 (E8-3)	R-B - BR	Cruise cancel input signal	Ignition switch ON Release brake pedal	10 to 14 V
STP (E5-4) - E1 (E8-3)	G-W - BR	Stop light switch input signal	Depress brake pedal	10 to 14 V
STP (E5-4) - E1 (E8-3)	G-W - BR	Stop light switch input signal	Release brake pedal	Below 1 V
CCS (E5-31) - E1 (E8-3)	W - BR	Cruise control main switch output signal	Ignition switch ON	10 to 14 V
CCS (E5-31) - E1 (E8-3)	W - BR	Cruise control main switch output signal	Ignition switch ON CANCEL switch hold ON	6.6 to 10.1 V
CCS (E5-31) - E1 (E8-3)	W - BR	Cruise control main switch output signal	Ignition switch ON -/SET switch hold ON	4.5 to 7.1 V
CCS (E5-31) - E1 (E8-3)	W - BR	Cruise control main switch output signal	Ignition switch ON +/RES switch hold ON	2.3 to 4 V
CCS (E5-31) - E1 (E8-3)	W - BR	Cruise control main switch output signal	Ignition switch ON MAIN switch hold ON	Below 1 V
E1 (E8-3) - Body ground	BR - Body ground	Ground	Always	Below 1 V
PI (E5-18) - E1 (E8-3)	P-L - BR	Cruise cancel indicator light input signal	Ignition switch ON Cruise control main switch ON	0 to 3 V
PI (E5-18) - E1 (E8-3)	P-L - BR	Cruise cancel indicator light input signal	Ignition switch ON Cruise control main switch ON	10 to 14 V
D (E5-21) - E1 (E8-3)	W-L - BR	Clutch switch input signal	Ignition switch ON Depress clutch pedal	Below 1 V
D (E5-21) - E1 (E8-3)	W-L - BR	Clutch switch input signal	Ignition switch ON Release clutch pedal	10 to 14 V

2. 3MZ-FE



Y

1033809E02

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specification
TC (E4-20) - E1 (E6-1)	P-B - BR	DTC output signal	Ignition switch ON	10 to 14 V
TC (E4-20) - E1 (E6-1)	P-B - BR	DTC output signal	Ignition switch ON Connect terminals TC and CG of DLC3	Below 2 V
ST1- (E5-12) - E1 (E6-1)	R-B - BR	Cruise cancel input signal	Ignition switch ON Depress brake pedal	Below 1 V
ST1- (E5-12) - E1 (E6-1)	R-B - BR	Cruise cancel input signal	Ignition switch ON Release brake pedal	10 to 14 V
STP (E5-19) - E1 (E6-1)	G-W - BR	Stop light switch input signal	Depress brake pedal	10 to 14 V
STP (E5-19) - E1 (E6-1)	G-W - BR	Stop light switch input signal	Release brake pedal	Below 1 V
CCS (E5-24) - E1 (E6-1)	W - BR	Cruise control main switch output signal	Ignition switch ON	10 to 14 V
CCS (E5-24) - E1 (E6-1)	W - BR	Cruise control main switch output signal	Ignition switch ON CANCEL switch hold ON	6.6 to 10.1 V
CCS (E5-24) - E1 (E6-1)	W - BR	Cruise control main switch output signal	Ignition switch ON -/SET switch hold ON	4.5 to 7.1 V
CCS (E5-24) - E1 (E6-1)	W - BR	Cruise control main switch output signal	Ignition switch ON +/RES switch hold ON	2.3 to 4 V
CCS (E5-24) - E1 (E6-1)	W - BR	Cruise control main switch output signal	Ignition switch ON MAIN switch hold ON	Below 1 V
E1 (E6-1) - Body ground	BR - Body ground	Ground	Always	Below 1 V
PI (E5-13) - E1 (E6-1)	P-L - BR	Cruise cancel indicator light input signal	Ignition switch ON Cruise control main switch ON	0 to 3 V
PI (E5-13) - E1 (E6-1)	P-L - BR	Cruise cancel indicator light input signal	Ignition switch ON Cruise control main switch ON	10 to 14 V
D (E5-10) - E1 (E6-1)	W-L - BR	Clutch switch input signal	Ignition switch ON Depress clutch pedal	Below 1 V
D (E5-10) - E1 (E6-1)	W-L - BR	Clutch switch input signal	Ignition switch ON Release clutch pedal	10 to 14 V

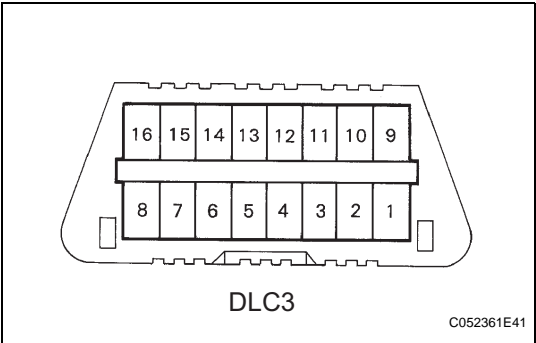
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DIAGNOSIS SYSTEM

1. DIAGNOSIS SYSTEM

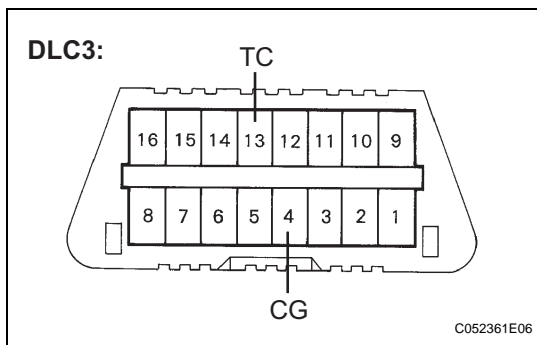
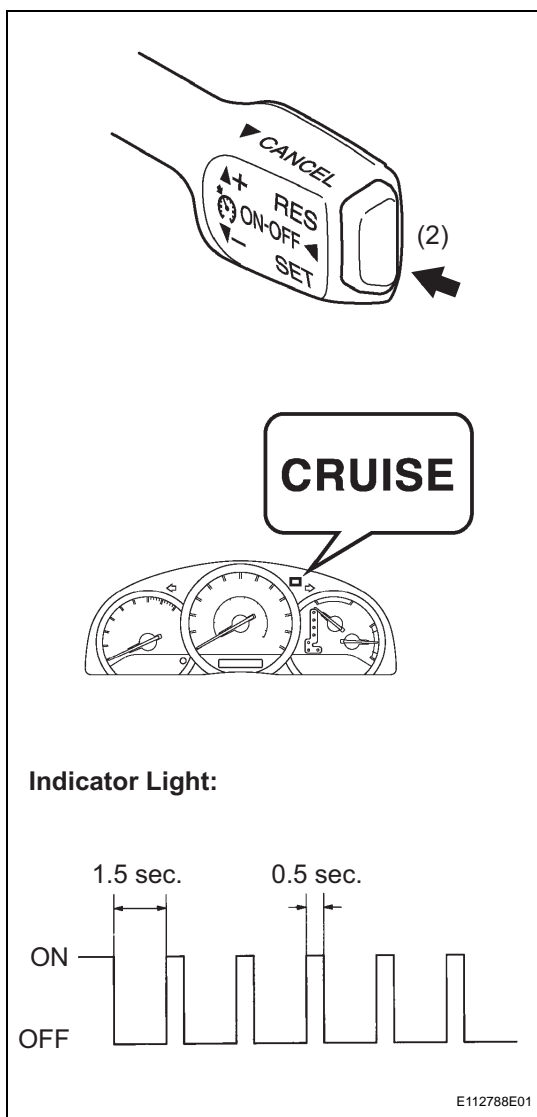
- (a) Description
- The ECM stores trouble codes when trouble occurs on the vehicle.
- The diagnosis system allows for reading of the trouble codes from the DLC3. If the CRUISE main indicator light does not come on after DTC check, it means a malfunction has occurred in the cruise control system.
- Use the intelligent tester or SST to check and solve the problem.

- (b) Check the DLC3
- The ECM uses ISO 9141-2 for data communication. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.



Terminal No.	Tester connection / Specification	Condition
4	Chassis Ground - Body Ground / 1 Ω or less	Always
16	Battery Positive - Body Ground / 9 to 14 V	Always

- HINT:
- If the display shows a communication error message after connecting the intelligent tester to the DLC3 and turning the ignition to the ON position, there is a problem either with the vehicle or the tool (intelligent tester only).
- If communication is normal when connecting the tool to another vehicle, inspect the DLC3 on the original vehicle.
 - If communication is still not possible when connecting the tool to another vehicle, it suggests the problem is the tool's own. In this case, consult the Service Department listed in the tool's instruction manual.



(c) Check the indicator.

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

HINT:

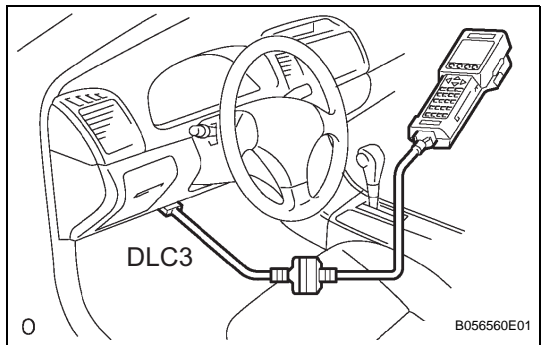
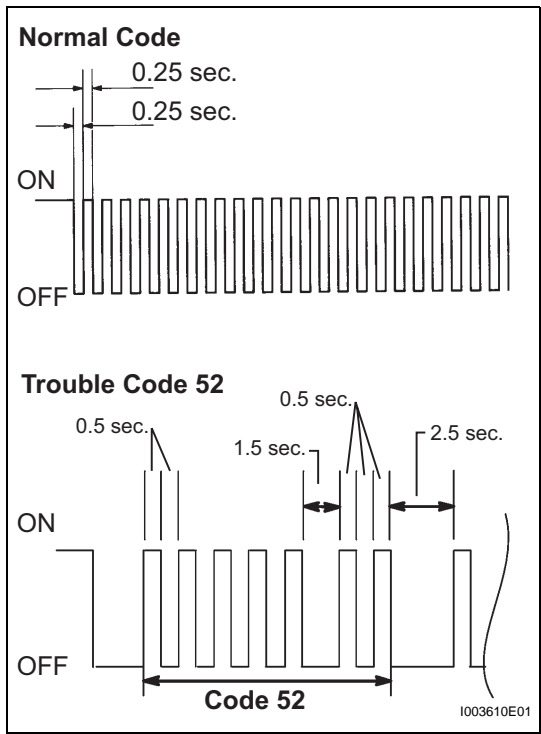
- If there is a problem with the indicator light, inspect the cruise main indicator light circuit (See page [CC-30](#)).
- If a malfunction occurs in the vehicle speed sensors, stop light switch assembly or other related parts while cruise control driving, the ECM actuates AUTO CANCEL of the cruise control. Then the CRUISE main indicator light starts to blink, informing the driver of the malfunction. At the same time, data of the malfunction is stored as a diagnostic trouble code (DTC).

DTC CHECK / CLEAR**1. DTC CHECK/CLEAR (USING SST CHECK WIRE:)**

- (a) Check DTCs using SST check wire.
 - (1) Turn the ignition switch off.
 - (2) Using SST, short-circuit between terminals TC and CG of the DLC3.

SST 09843-18040

- (3) Turn the ignition switch to the ON position.



- (4) Read and record DTCs from the CRUISE main indicator light on the combination meter. As examples, refer to the chart on the left for the blinking patterns of the normal code and trouble code 52.
- HINT:
If the CRUISE main indicator light does not blink because of any DTC or in the normal code blinking pattern, inspect the following circuits.

Relevant circuit	See procedure
TC and CG terminal circuit	CC-34
CRUISE main indicator light circuit	CC-30

- (b) Clear the DTCs.
- (1) Turn the ignition switch off.
 - (2) If DTCs are indicated, repair the relevant circuits referring to the Diagnostic Trouble Code Chart (See page [CC-16](#)).
 - (3) Clear the DTCs according to either one of the following procedures.
 - Disconnect the negative (-) battery cable for at least 10 seconds, then reconnect it.
 - Remove the EFI fuse for at least 10 seconds, then reinstall it.
- (c) Recheck DTCs.
- 2. DTC CHECK/CLEAR (USING INTELLIGENT TESTER:)**
- (a) Check DTCs using the intelligent tester.
- (1) Turn the ignition switch off.
 - (2) Connect the intelligent tester to the DLC3.
 - (3) Turn the ignition switch to the ON position.
 - (4) Read DTCs on the tester screen.
- (b) Clear the DTCs using the intelligent tester.
- (1) Turn the ignition switch off.
 - (2) Turn the ignition switch to the ON position.
 - (3) Clear the DTCs following the prompts on the tester screen.
- HINT:
Intelligent tester has a Snapshot function which records the monitored data.
Refer to the intelligent tester operator's manual for further details.

DATA LIST / ACTIVE TEST

1. DATA LIST

- (a) While the intelligent tester is connected to the DLC3 with the ignition switch in the ON position, the CRUISE CONTROL data list can be displayed. Follow the prompts on the tester screen to access the data list.

CC (ECM):

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
VEHICLE SPD	Vehicle speed / min.: 0 km/h (0mph), max.: 255 km/h (158 mph)	Actual vehicle speed	-
MEMORY SPD	Memory vehicle speed / min.: 36 km/h (22.5 mph), max.: 200 km/h (125 mph)	Actual stored vehicle speed	-
THROTTLE	Throttle opening angle / min.: 0°, max.: 125°	Actual required throttle opening	-
CRUISE CONTROL	Cruise control system active condition / ON or OFF	ON : Cruise control activated OFF : Cruise control inactivated	-
MAIN SW (MAIN)	Main SW signal (Main CPU) / ON or OFF	ON : Main SW ON (Pushed on) OFF : Main SW OFF (Pushed off)	"3"
MAIN SW (SUB)	Main SW signal (Sub CPU) / ON or OFF	ON : Main SW ON (Pushed on) OFF : Main SW OFF (Pushed off)	"3"
CCS READY M	Cruise control system standby condition (Main CPU) / ON or OFF	ON/OFF : Change ON/OFF each time main switch is pushed in.	"1"
CCS READY S	Cruise control system standby condition (Sub CPU) / ON or OFF	ON/OFF : Change ON/OFF each time main switch is pushed in.	"1"
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"
CANCEL SW	CANCEL SW signal / ON or OFF	ON : CANCEL SW ON OFF : CANCEL SW OFF	-
-/SET SW	-/SET SW signal / ON or OFF	ON : -/SET SW ON OFF : -/SET SW OFF	-
+ /RES SW	+ /RES SW signal / ON or OFF	ON : + /RES SW ON OFF : + /RES SW OFF	-
STP LIGHT SW2 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	-

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 the cruise indicator does not come on → CRUISE main indicator, wire harness or ECM failure

CC

DIAGNOSTIC TROUBLE CODE CHART

If a trouble code is indicated while checking DTCs, inspect the circuit listed for that code in the table below, and proceed to the applicable page.

DTC No.	Detection Item	Trouble Area	See page
P0500/21	Vehicle Speed Sensor "A"	1. Vehicle speed sensor 2. Vehicle speed sensor signal circuit 3. ECM	CC-17
P0503/23	Vehicle Speed Sensor "A" Intermittent / Erratic / High	1. Vehicle speed sensor 2. Vehicle speed sensor signal circuit 3. ECM	CC-17
P0571/52	Stop Light Switch Circuit	1. Stop light switch 2. Stop light switch circuit 3. ECM	CC-18
P0607/54	Control Module Performance	ECM	CC-21

DTC	P0500/21	Vehicle Speed Sensor "A"
DTC	P0503/23	Vehicle Speed Sensor "A" Intermittent / Erratic / High

DESCRIPTION

See page [ES-198](#) for 2AZ-FE, or [ES-208](#) for 3MZ-FE.

DTC No.	DTC Detected Condition	Trouble Area
P0500/21	This trouble code is output when the vehicle speed signal from the vehicle speed sensor is cut for 0.14 sec. or more while the cruise control is in operation.	<ul style="list-style-type: none">• Vehicle speed sensor• Vehicle speed sensor signal circuit• ECM
P0503/23	Momentary interruption and noise are detected when a rapid change of vehicle speed occurs while the cruise control is in operation.	<ul style="list-style-type: none">• Vehicle speed sensor• Vehicle speed sensor signal circuit• ECM

WIRING DIAGRAM

See page [ES-199](#) for 2AZ-FE, or [ES-209](#) for 3MZ-FE.

See page [ES-200](#) for 2AZ-FE, or [ES-210](#) for 3MZ-FE.

DTC	P0571/52	Stop Light Switch Circuit
-----	----------	---------------------------

DESCRIPTION

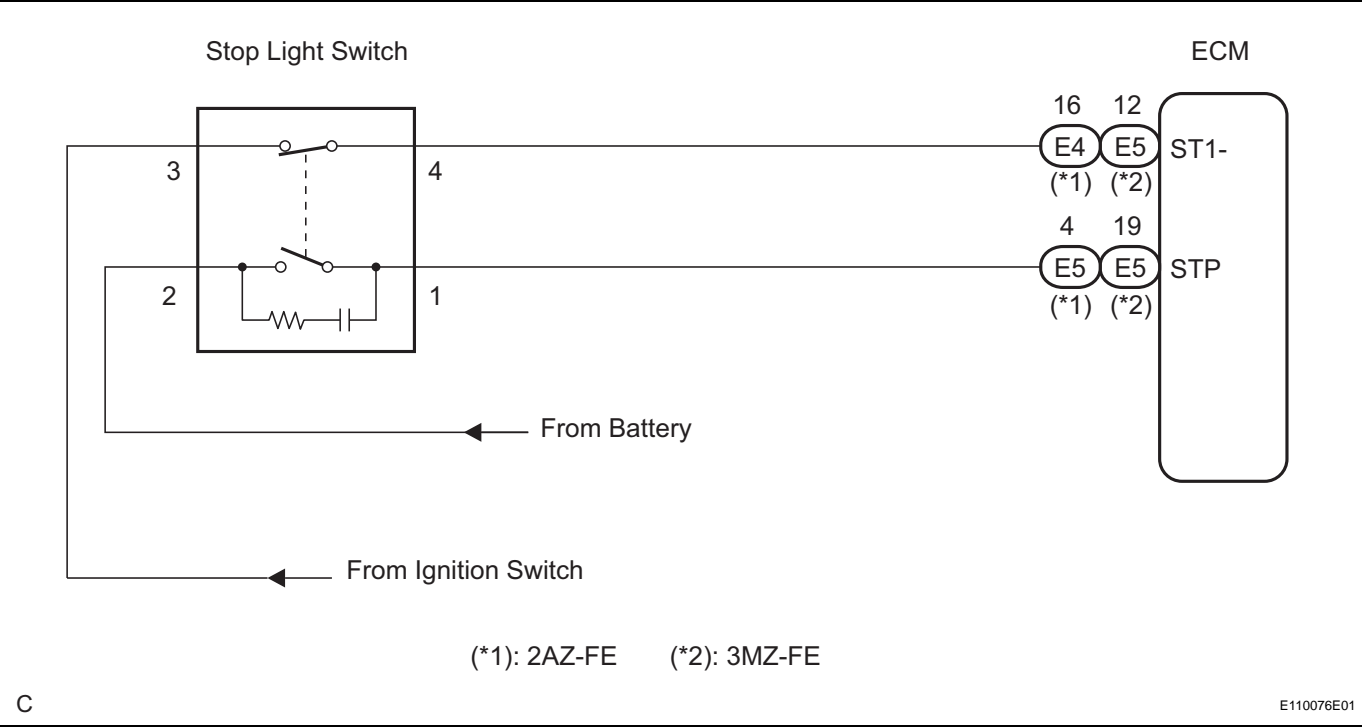
The cruise control system cancels cruising when the ECM detects that the brake pedal is depressed while cruise control driving. The stop light switch assembly sends signals to the ECM according to the brake pedal conditions. When the brake pedal is free, terminal ST1- is the positive (+) battery voltage, and terminal STP voltage is below 1 V. While depressing the brake pedal, terminal ST1- is below 1 V, and STP is positive (+) battery voltage. Under braking, the ECM cancels cruise control drive as one of the manual cancel functions.

The ECM outputs this trouble code when voltage of terminals ST1- and STP are both below 1 V for 0.5 second or more at the same moment.

Fail-safe function operates to enable normal driving even if there is a malfunction in the stop light signal circuit.

DTC No.	DTC Detected Condition	Trouble Area
P0571/52	ECM detects a malfunction of the stop light switch circuit under both of the following conditions. <ul style="list-style-type: none">Voltage of terminal STP is below 1 V for 0.5 sec. or more.Voltage of terminal ST1- is below 1 V for 0.5 sec. or more.	<ul style="list-style-type: none">Stop light switchStop light switch circuitECM

WIRING DIAGRAM



1	INSPECT STOP LIGHT SWITCH OPERATION (FOR STOP LIGHT)
---	--

- (a) Check that the stop light comes on while depressing the brake pedal, and goes off when releasing the brake pedal.
- OK

Brake pedal condition	Stop light condition
Depressed	ON

Brake pedal condition	Stop light condition
Released	OFF

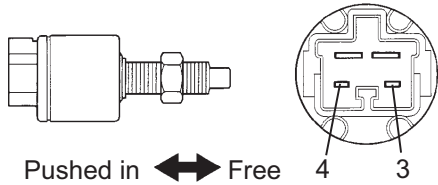
NG

INSPECT STOP LIGHT SWITCH CIRCUIT

OK

2 INSPECT STOP LIGHT SWITCH OPERATION (FOR BACK-UP SIGNAL)

Stop Light Switch:



I038520E02

- Turn the ignition switch off.
- Disconnect the stop light switch connector.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Switch condition	Specification
3 - 4	Switch pin free (Brake pedal depressed)	10 Ω or higher
3 - 4	Switch pin pushed in (Brake pedal released)	Below 1 Ω

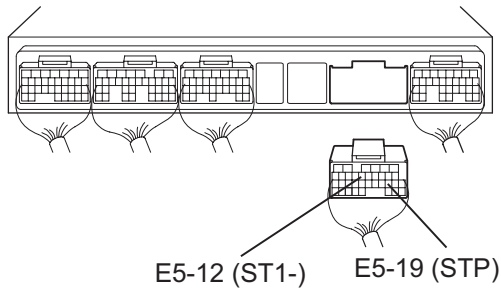
NG

REPLACE STOP LIGHT SWITCH

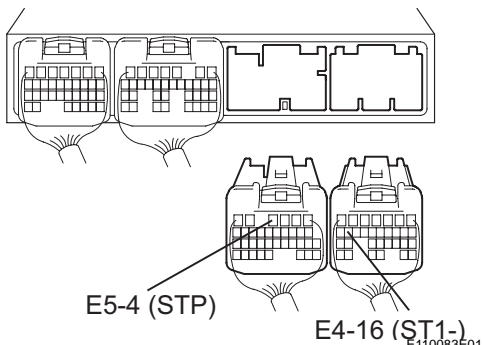
OK

3 INSPECT ECM

3MZ-FE:



2AZ-FE:



P

E110083E01

- Reconnect the stop light switch connector.
- Disconnect the ECM connector.
- Turn the ignition switch to the ON position.
- Measure the voltage according to the value(s) in the table below.

Standard voltage:

3MZ-FE

Tester connection	Brake pedal condition	Specification
STP (E5-19) - Body ground	Depressed	10 to 14 V
STP (E5-19) - Body ground	Released	Below 1 V

2AZ-FE

Tester connection	Brake pedal condition	Specification
STP (E5-4) - Body ground	Depressed	10 to 14 V
STP (E5-4) - Body ground	Released	Below 1 V

- Measure the voltage according to the value(s) in the table below.

Standard voltage:

3MZ-FE

Tester connection	Brake pedal condition	Specification
ST1- (E5-12) - Body ground	Depressed	Below 1 V

CC

Tester connection	Brake pedal condition	Specification
ST1- (E5-12) - Body ground	Released	10 to 14 V

2AZ-FE

Tester connection	Brake pedal condition	Specification
ST1- (E4-16) - Body ground	Depressed	Below 1 V
ST1- (E4-16) - Body ground	Released	10 to 14 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR (STOP LIGHT SWITCH - ECM)

OK

REPLACE ECM

DTC**P0607/54****Control Module Performance****DESCRIPTION**

This DTC indicates the internal abnormalities of the ECM.

DTC No.	DTC Detection condition	Trouble Area
P0607/54	The ECM has a supervisory CPU and a control ECU inside. When each input STP signal is different for 0.15 sec. or more, this trouble code is output. This trouble code is output after 0.4 sec. has passed from the time the cruise cancel input signal (STP input) is input into the ECM.	ECM

HINT:

When a trouble code is detected, fail safe must be kept on until the ignition switch is turned off.

1**REPLACE ECM****NEXT****END**

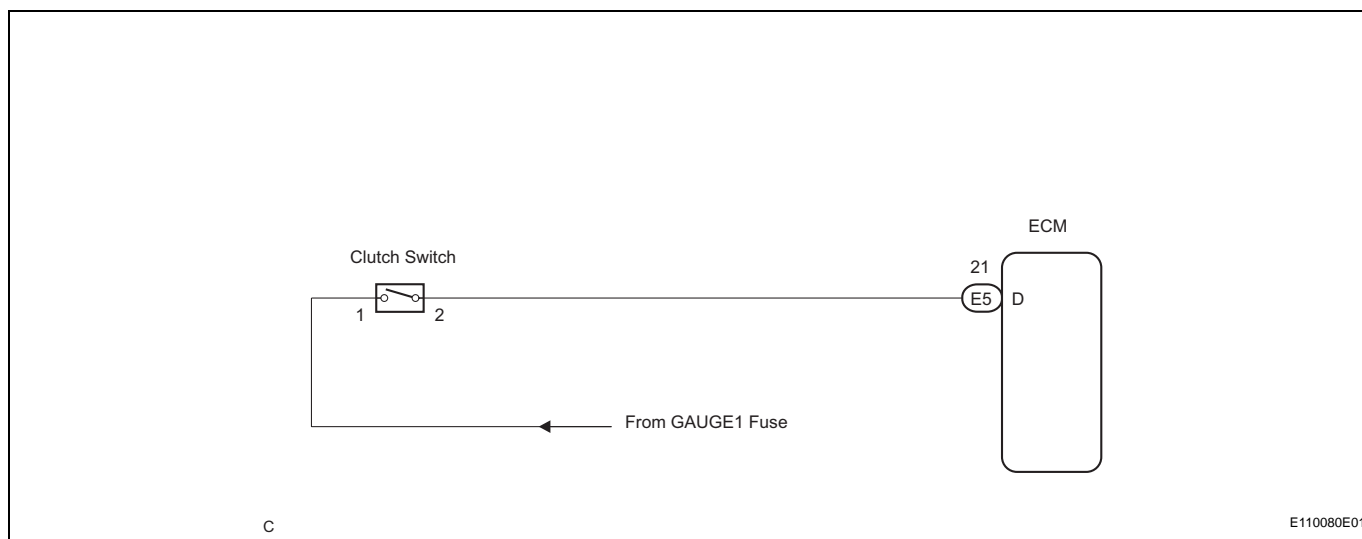
Clutch Switch Circuit

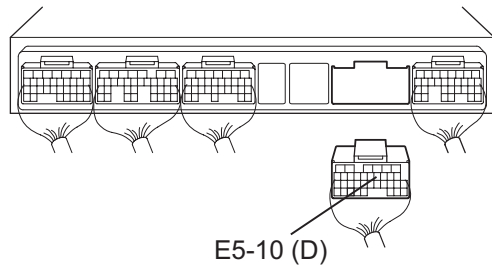
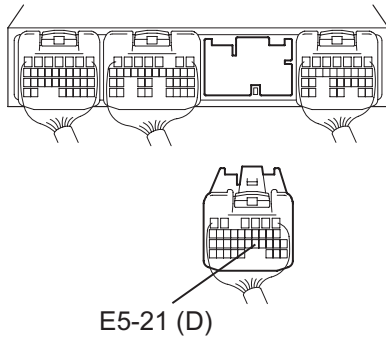
DESCRIPTION

Clutch switch circuit inspection is necessary for M/T vehicle.

When the clutch pedal is released, the ECM receive positive (+) battery voltage through the IG1 relay and GAUGE1 fuse. While depressing the clutch pedal, the clutch switch sends a signal to terminal D of the ECM. The ECM cancels cruise control drive when terminal D receives the signal (voltage of below 1 V).

WIRING DIAGRAM



1**CHECK HARNESS AND CONNECTOR (ECM - BATTERY)****3MZ-FE:****2AZ-FE:**

P

E110085E01

OK

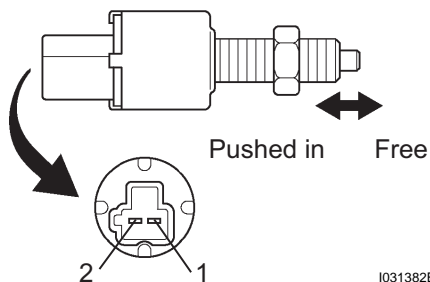
- Turn the ignition switch off.
- Disconnect the ECM connector.
- Turn the ignition switch to the ON position.
- Measure the voltage according to the value(s) in the table below.

Standard voltage:**3MZ-FE**

Tester connection	Clutch Pedal condition	Specification
D (E5-10) - Body ground	Depressed	Below 1 V
D (E5-10) - Body ground	Released	10 to 14 V

2AZ-FE

Tester connection	Clutch Pedal condition	Specification
D (E5-21) - Body ground	Depressed	Below 1 V
D (E5-21) - Body ground	Released	10 to 14 V

NG**Go to step 2****PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE****CC****2****INSPECT CLUTCH SWITCH****Clutch Switch:**

N

I031382E02

- Turn the ignition switch off.
- Disconnect the clutch switch connector.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specification
1 - 2	Switch pin free (Clutch pedal depressed)	10 k Ω or higher
1 - 2	Switch pin pushed in (Clutch pedal released)	Below 1 Ω

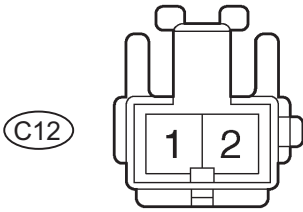
NG**REPLACE CLUTCH SWITCH**

OK

3

CHECK HARNESS AND CONNECTOR (CLUTCH SWITCH - ECM)

Clutch Switch Connector of Wire
Harness front view:

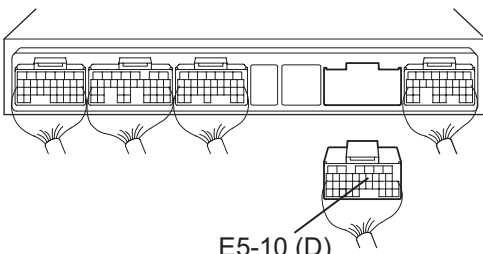


C12

C

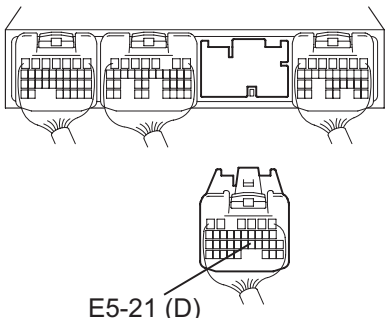
I38524

3MZ-FE:



E5-10 (D)

2AZ-FE:



E5-21 (D)

P

E112908E01

(a) Measure the resistance according to the value(s) in the table below.

Standard resistance:
3MZ-FE

Tester connection	Condition	Specification
C12-2 - D (E5-10)	Always	Below 1 Ω
C12-2 - Body ground	Always	10 kΩ or higher

2AZ-FE

Tester connection	Condition	Specification
C12-2 - D (E5-21)	Always	Below 1 Ω
C12-2 - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR
CONNECTOR (CLUTCH SWITCH - ECM)

OK

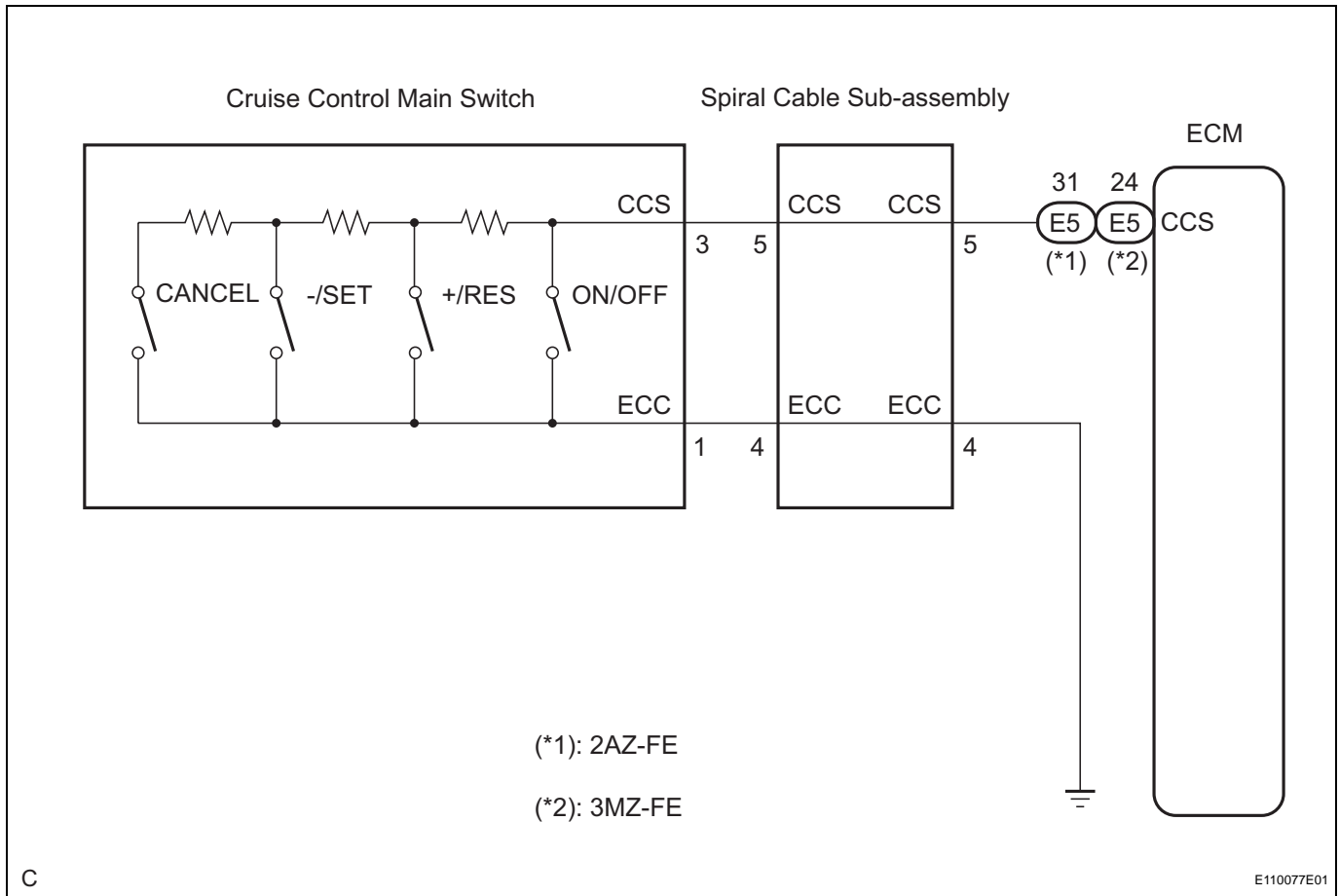
CHECK AND REPAIR HARNESS OR CONNECTOR (CLUTCH SWITCH - BATTERY)

Cruise Control Switch Circuit

DESCRIPTION

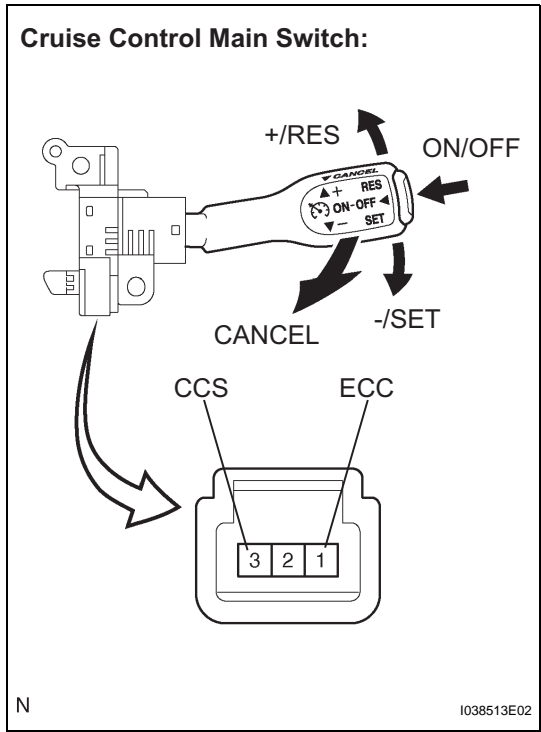
This circuit sends signals to the ECM depending on the cruise control main switch condition. Battery supplies positive (+) battery voltage to the cruise control main switch. Then terminal CCS of the ECM receives voltage as the signal according to the switch condition.

WIRING DIAGRAM



1

INSPECT CRUISE CONTROL MAIN SWITCH



- (a) Turn the ignition switch off.
(b) Disconnect the cruise control main switch connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Switch condition	Specification
1 - 3	+ / RES	235 to 245 Ω
1 - 3	- / SET	617 to 643 Ω
1 - 3	CANCEL	1,509 to 1,571 Ω
1 - 3	Main Switch OFF	10 kΩ or higher
1 - 3	Main Switch ON	Below 1 Ω

NG

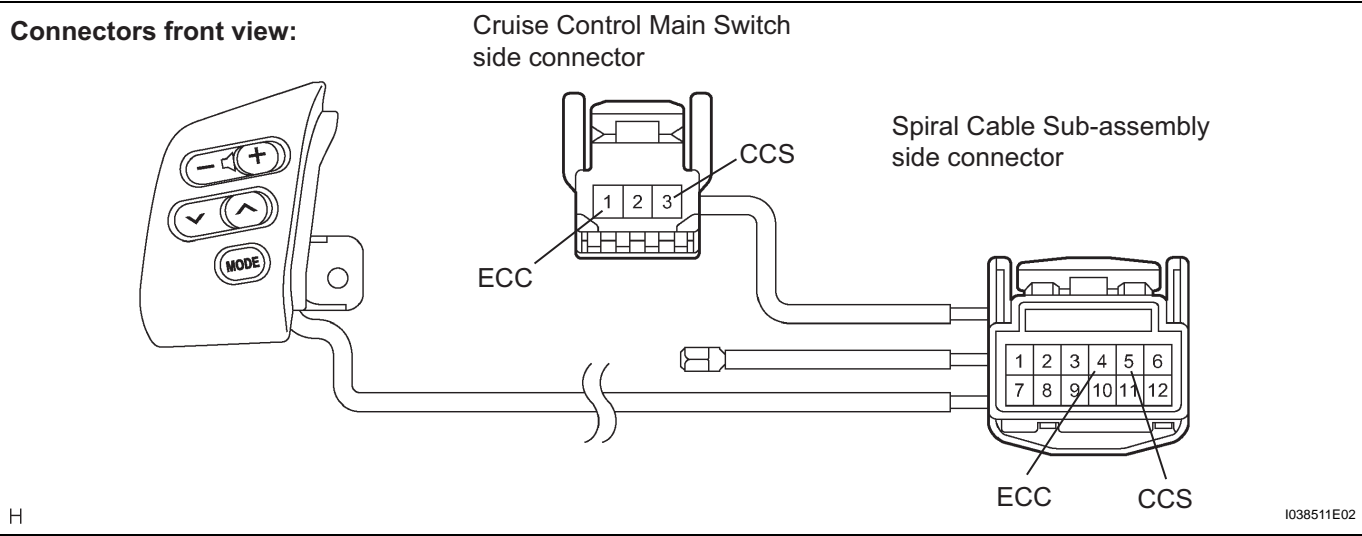
REPLACE CRUISE CONTROL MAIN SWITCH

OK

2

CHECK HARNESS AND CONNECTOR (STEERING PAD SWITCH ASSEMBLY)

- (a) Disconnect the spiral cable side connector.



- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specification
Terminal 1 (ECC) main switch side - Terminal 4 (ECC) spiral cable side	Always	Below 1 Ω

Tester connection	Condition	Specification
Terminal 3 (CCS) main switch side - Terminal 5 (CCS) spiral cable side	Always	Below 1 Ω

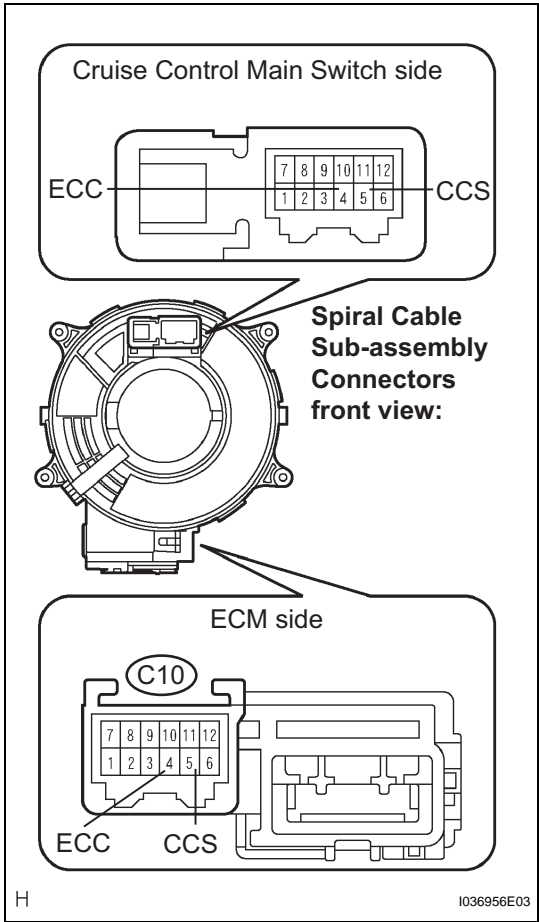
NG

REPAIR OR REPLACE STEERING PAD
SWITCH ASSEMBLY

OK

3

INSPECT SPIRAL CABLE SUB-ASSEMBLY



- (a) Disconnect the spiral cable connector ECM side.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specification
Terminal 5 (CCS) main switch side - CCS (C10-5)	Always	Below 1 Ω
Terminal 4 (ECC) main switch side - ECC (C10-4)	Always	Below 1 Ω

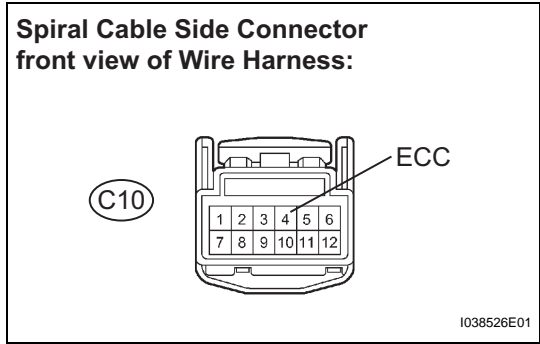
NG

REPLACE SPIRAL CABLE SUB-ASSEMBLY

OK

4

CHECK HARNESS AND CONNECTOR (SPIRAL CABLE SUB-ASSEMBLY - BODY GROUND)



OK

(a) Measure the resistance according to the value(s) in the table below.

Standard resistance

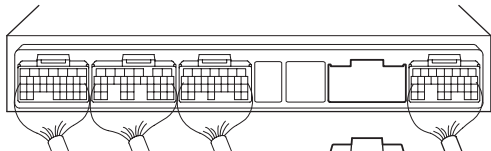
Tester connection	Condition	Specification
ECC (C10-4) - Body ground	Always	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS OR
CONNECTOR (SPIRAL CABLE SUB-
ASSEMBLY - BODY GROUND)

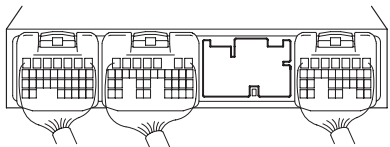
5 CHECK HARNESS AND CONNECTOR (SPIRAL CABLE SUB-ASSEMBLY - ECM)

3MZ-FE:



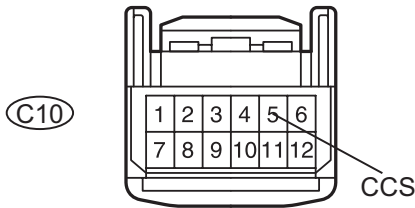
E5-24 (CCS)

2AZ-FE:



E5-31 (CCS)

Spiral Cable Side Connector
front view of Wire Harness:



P

E110084E01

- (a) Disconnect the ECM connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance:

3MZ-FE

Tester connection	Condition	Specification
CCS (E5-24) - CCS (C10-5)	Always	Below 1 Ω
CCS (E5-24) - Body ground	Always	10 k Ω or higher

2AZ-FE

Tester connection	Condition	Specification
CCS (E5-31) - CCS (C10-5)	Always	Below 1 Ω
CCS (E5-31) - Body ground	Always	10 k Ω or higher

NG

**REPAIR OR REPLACE HARNESS OR
CONNECTOR (SPIRAL CABLE SUB-
ASSEMBLY - ECM)**

OK

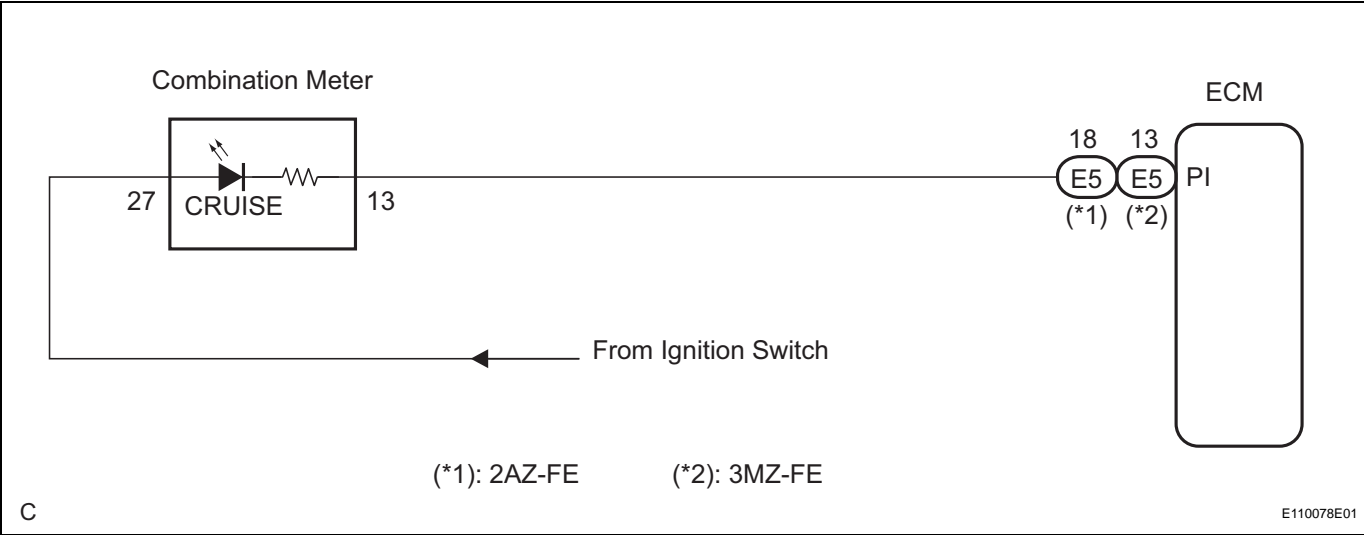
PROCEED TO CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Cruise Main Indicator Light Circuit

DESCRIPTION

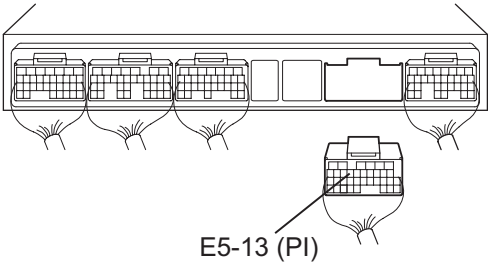
When the cruise control main switch is turned off, the cruise control does not operate.

WIRING DIAGRAM

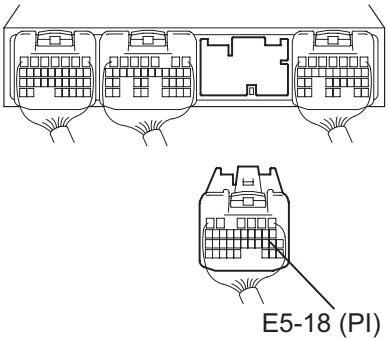


1 CHECK HARNESS AND CONNECTOR (ECM - BATTERY)

3MZ-FE:



2AZ-FE:



P

E110085E03

- (a) Turn the ignition switch off.
- (b) Disconnect the ECM connector.
- (c) Measure the voltage according to the value(s) in the table below.

Standard voltage:
3MZ-FE

Tester connection	Condition	Specification
PI (E5-13) - Body ground	Ignition ON	10 to 14 V

2AZ-FE

Tester connection	Condition	Specification
PI (E5-18) - Body ground	Ignition ON	10 to 14 V

NG

Go to step 2

OK

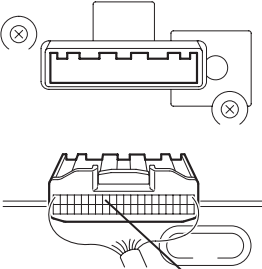
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

CC

2

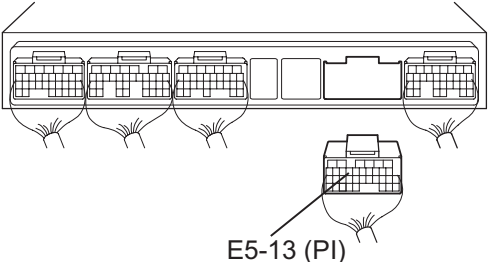
CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - ECM)

Combination Meter Connector
rear view:



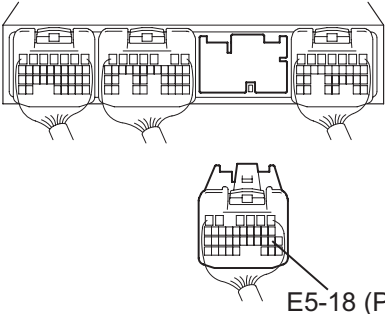
C7-13

3MZ-FE:



E5-13 (PI)

2AZ-FE:



E5-18 (PI)

P

E110086E01

- (a) Turn the ignition switch off.
- (b) Disconnect the combination meter connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard resistance:
3MZ-FE

Tester connection	Condition	Specification
C7-13 - PI (E5-13)	Always	Below 1 Ω
C7-13 - Body ground	Always	10 kΩ or higher

2AZ-FE

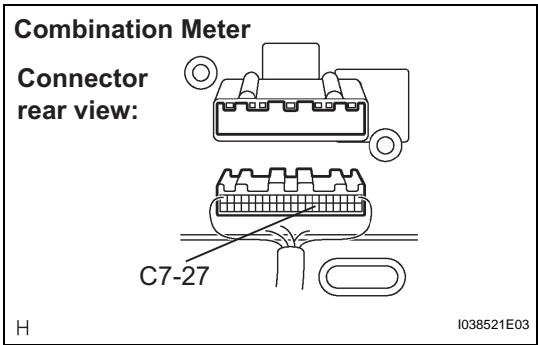
Tester connection	Condition	Specification
C7-13 - PI (E5-18)	Always	Below 1 Ω
C7-13 - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR
CONNECTOR (COMBINATION METER
ASSEMBLY - ECM)

OK

3 CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - BATTERY)



(a) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specification
C7-27 - Body ground	Ignition ON	10 to 14 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR (COMBINATION METER - BATTERY)

OK

REPLACE COMBINATION METER ASSEMBLY

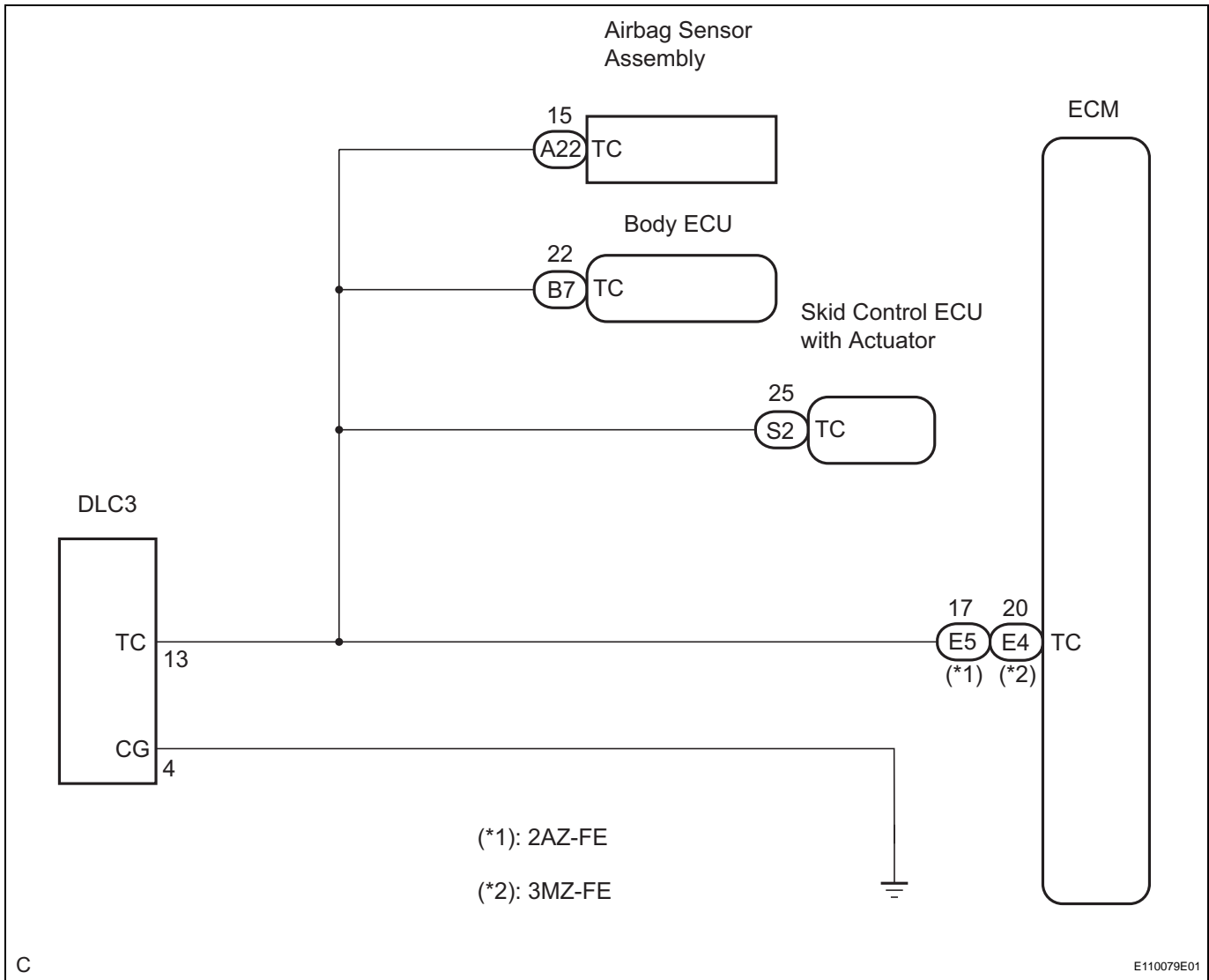
TC and CG Terminal Circuit

DESCRIPTION

The DLC3 circuit enables reading of the Diagnostic Trouble Code (DTC) when making short circuit between terminals TC and CG of the DLC3 connector.

The DTCs are displayed when the CRUISE main indicator light on the combination meter blinks.

WIRING DIAGRAM

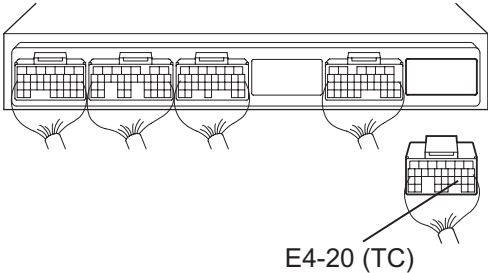


HINT:

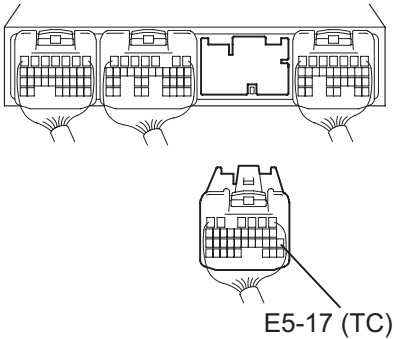
When a particular warning light blinks continuously, a ground short in the wiring of terminal TC of the DLC3 or an internal ground short in the relevant ECU is suspected.

1 CHECK HARNESS AND CONNECTOR (TC of DLC3 - ECM)

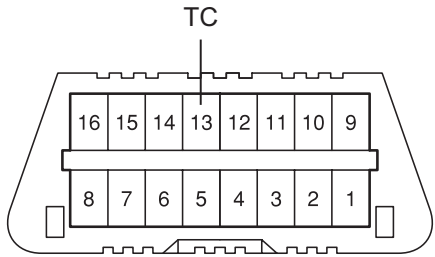
3MZ-FE:



2AZ-FE:



DLC3:



- (a) Turn the ignition switch off.
- (b) Disconnect the ECM connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard resistance:
3MZ-FE

Tester connection	Condition	Specification
TC (DLC3-13) - TC (E4-20)	Always	Below 1 Ω

2AZ-FE

Tester connection	Condition	Specification
TC (DLC3-13) - TC (E5-17)	Always	Below 1 Ω

NG

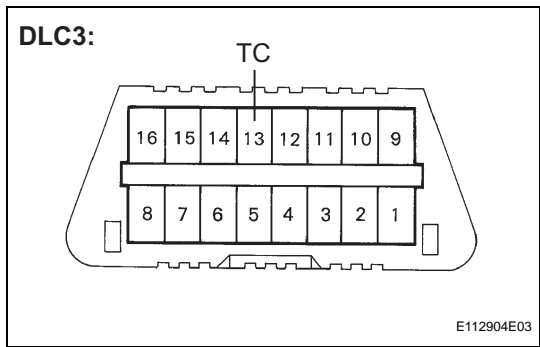
REPAIR OR REPLACE HARNESS OR
CONNECTOR (TC of DLC3 - ECM)

CC

OK

2

CHECK AND REPLACE HARNESS AND CONNECTOR (TC of DLC3 - BODY GROUND)



(a) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specification
TC (DLC3-13) - Body ground	Always	10 kΩ or higher

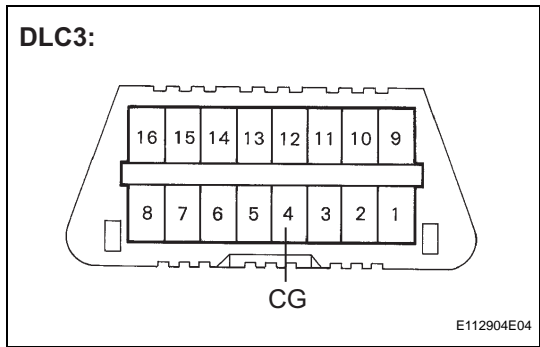
NG

REPAIR OR REPLACE WIRE HARNESS AND EACH ECU (TC CIRCUIT)

OK

3

CHECK HARNESS AND CONNECTOR (CG of DLC3 - BODY GROUND)



(a) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specification
CG (DLC3-4) - Body ground	Always	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR (CG of DLC3 - BODY GROUND)

OK

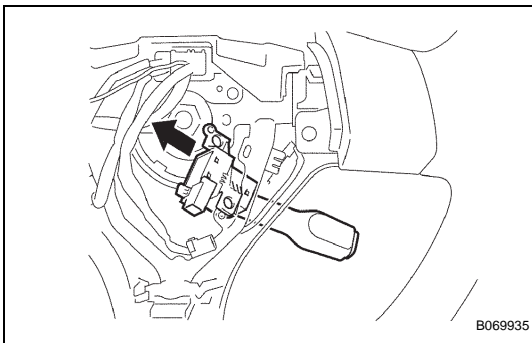
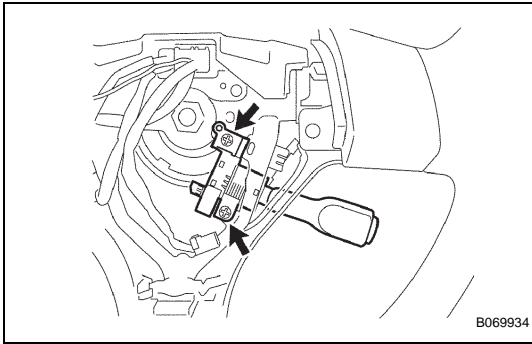
CRUISE CONTROL MAIN SWITCH

REMOVAL

HINT:

Installation is in the reverse order of removal.

1. **DISCONNECT BATTERY NEGATIVE TERMINAL**
 - (a) Wait for 90 seconds after disconnecting the cable to prevent the airbag working (See page [RS-1](#)).
2. **REMOVE STEERING WHEEL COVER LOWER NO.2**
(See page [RS-262](#))
3. **REMOVE STEERING WHEEL COVER LOWER NO.3**
(See page [RS-262](#))
4. **REMOVE HORN BUTTON ASSEMBLY** (See page [RS-262](#))
5. **REMOVE CRUISE CONTROL MAIN SWITCH**
 - (a) Disconnect the connector.



- (b) Remove the 2 screws and cruise control main switch.

INSTALLATION

1. INSTALL CRUISE CONTROL MAIN SWITCH
2. INSTALL HORN BUTTON ASSEMBLY (See page [RS-263](#))
3. INSTALL STEERING WHEEL COVER LOWER NO.3
4. INSTALL STEERING WHEEL COVER LOWER NO.2
5. CONNECT BATTERY NEGATIVE TERMINAL
6. PERFORM INITIALIZATION
NOTICE:
Some systems need initialization when disconnecting the cable from the negative battery terminal (See page [IN-24](#)).
7. INSPECT HORN BUTTON ASSEMBLY (See page [RS-263](#))
8. INSPECT SRS WARNING LIGHT (See page [RS-263](#))

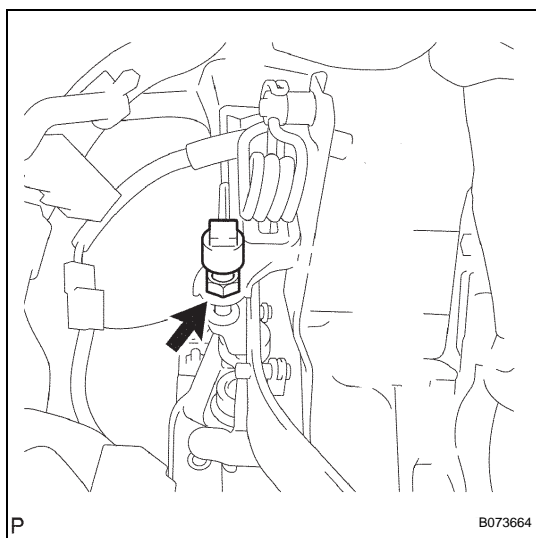
CLUTCH SWITCH

REMOVAL

HINT:

Installation is in the reverse order of removal.

1. **REMOVE FRONT DOOR SCUFF PLATE LH**
See page [IR-4](#) for Coupe, or [IR-9](#) for Convertible.
2. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH**
See page [IR-4](#) for Coupe, or [IR-9](#) for Convertible.
3. **REMOVE INSTRUMENT PANEL FINISH LOWER PANEL LH (See page [IP-8](#))**
4. **REMOVE CLUTCH SWITCH ASSEMBLY**
 - (a) Disconnect the connector.
 - (b) Loosen the nut and remove the clutch switch assembly.



INSTALLATION

1. **INSTALL CLUTCH SWITCH ASSEMBLY**
 - (a) Insert the clutch switch assembly by turning it until the bolt touches the cushion of the clutch pedal.
 - (b) Adjust the clutch switch assembly to the specified value between the cushion and the bracket as shown in the illustration.
 - (c) Tighten the lock nut to fix the clutch switch assembly.
2. **INSTALL INSTRUMENT PANEL FINISH LOWER PANEL LH**
3. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH**
4. **INSTALL FRONT DOOR SCUFF PLATE LH**

