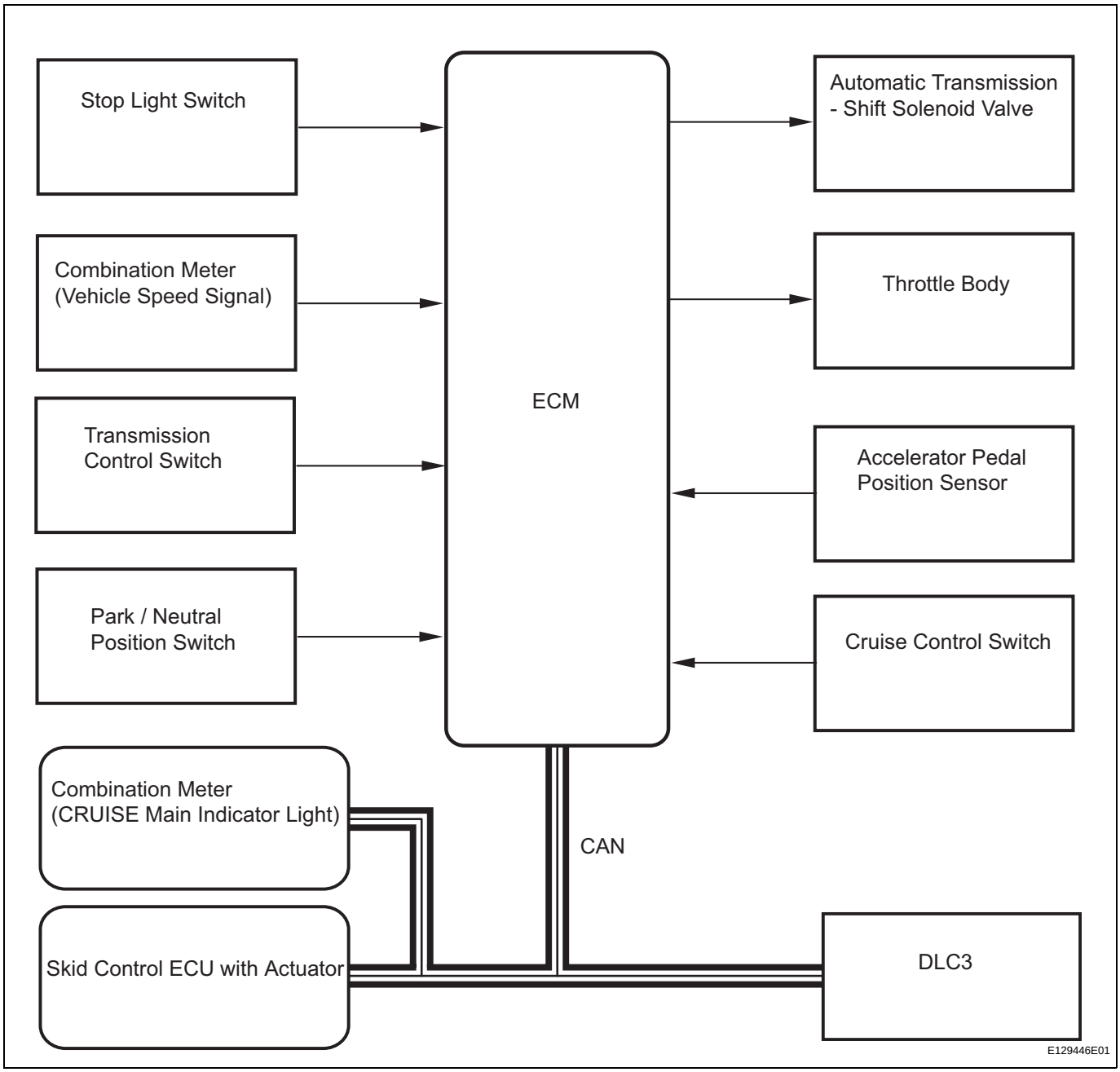
SYSTEM DIAGRAM



Communication table

Sender	Receiver	Signal	Line
ECM	Skid control ECU with actuator	• VSC operation signal • Coast brake operation signal	CAN
ECM	Combination meter	CRUISE main indicator light signal	CAN

CC

SYSTEM DESCRIPTION

1. CRUISE CONTROL SYSTEM

This system is controlled by the ECM, and is activated by the throttle position sensor and motor. The ECM controls the following functions: ON-OFF, SET / COAST, RESUME / ACCEL, CANCEL, vehicle speed operation, motor output control, and overdrive control.

- The ECM compares the driving vehicle speed from the combination meter with the stored vehicle speed set through the cruise control switch. The ECM controls the throttle valve motor of the throttle body to open the valve when the driving speed is less than the stored speed.
- The ECM receives signals such as ON-OFF, SET / COAST, RESUME / ACCEL, and CANCEL from the cruise control switch.
- The ECM illuminates the combination meter CRUISE main indicator light when it receives the cruise control switch ON signal.
- The ECM cancels the cruise control system when the brake pedal is depressed and the ECM receives the stop light switch signal.
- The ECM cancels the cruise control system when the shift lever is moved from D or 3 to a position other than D or 3, and the ECM receives the PNP switch signal.

2. LIMIT CONTROL

(a) Low speed limit

The lowest possible limit of the speed setting range is set at approximately 40 km/h (25 mph). The cruise control system cannot be set when the driving vehicle speed is below the low speed limit. Cruise control operation will be automatically canceled when the vehicle speed decreases below the low speed limit 40 km/h (25 mph) while the cruise control is in operation.

(b) High speed limit

The highest possible limit of the speed setting range is set at approximately 200 km/h (125 mph). The cruise control system cannot be set when the driving vehicle speed is over the high speed limit. Also, +/RES cannot be used to increase speed beyond the high speed limit.

3. OPERATION OF CRUISE CONTROL

The cruise control switch operates 7 functions: SET, COAST, TAP-DOWN, RESUME, ACCELERATION (ACCEL), TAP-UP, and CANCEL. The SET, TAP-DOWN and COAST functions, and the RESUME, TAP-UP and ACCEL functions are operated with the same switch. The cruise control switch is an automatic return type switch which turns on only when pressed in each arrow direction and turns off when released.

(a) SET CONTROL

Vehicle speed is stored and constant speed control is maintained when pushing the switch to -/SET while driving with the cruise control switch ON (the CRUISE main indicator light is illuminated), and the vehicle speed is within the set speed range (between the low and high speed limits).

(b) COAST CONTROL

The ECM changes the cruise control demanding throttle opening angle to 0° and decelerates the vehicle when -/SET on the cruise control switch is pressed and held while the cruise control system is operating. When the cruise control switch is released from -/SET, the vehicle speed is stored and constant speed control is maintained.

HINT:

- The throttle valve is not fully closed due to idle speed control, etc.
- w/ VSC:
  The brake is also used to decelerate the vehicle.

(c) TAP-DOWN CONTROL

When tapping down the cruise control switch to -/SET (for approximately 0.5 seconds) while the cruise control system is in operation, the stored vehicle speed decreases each time by approximately 1.6 km/h (1.0 mph). When the cruise control switch is released from -/SET and the difference between the driving and stored vehicle speed is less than 5 km/h (3 mph), the vehicle speed is stored and constant speed control is maintained.

(d) ACCEL CONTROL

The throttle valve motor of the throttle position sensor and motor is instructed by the ECM to open the throttle valve when +/RES on the cruise control switch is pressed and held while the cruise control system is operating. When the cruise control switch is released from +/RES, the vehicle speed is stored and constant speed is maintained.

(e) TAP-UP CONTROL
When tapping up the cruise control switch to +/RES (for approximately 0.5 seconds) while the cruise control system is in operation, the stored vehicle speed increases each time by approximately 1.6 km/h (1.0 mph). 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.

(f) RESUME CONTROL
If the cruise control operation was canceled with the stop light switch or the CANCEL switch, and if driving speed is within the set speed range, setting the cruise control switch to +/RES restores the vehicle speed memorized at the time of cancellation, and constant speed is maintained.

(g) MANUAL CANCEL CONTROL
Performing any of the following cancels the cruise control system (the stored vehicle speed in the ECM is maintained).
- Depressing the brake pedal
- Moving the shift lever to any position except D or 3
- Pulling the cruise control switch to CANCEL
- Pushing the cruise control switch OFF (the stored vehicle speed in the ECM is not maintained)

4. AUTO CANCEL (FAIL-SAFE)
This system has an automatic cancellation function (fail-safe) (see page CC-17).

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use these procedures to troubleshoot the cruise control system.
- *: Use the intelligent tester.

1	VEHICLE BROUGHT TO WORKSHOP

NEXT

2	INSPECT BATTERY VOLTAGE

Standard voltage:
11 to 14 V
If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3	CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

(a) Use the intelligent tester (with CAN VIM) to check if the CAN Communication System is functioning normally.
Result:

Result	Proceed to
CAN DTC is not output	A
CAN DTC is output	B

B → **Go to CAN COMMUNICATION SYSTEM**

A

4	CHECK INDICATOR LIGHT

NEXT

5	CHECK DTC*

(a) Check for a DTC and note any codes that are output.
(b) Delete the DTC.
(c) Recheck for DTCs, and try to prompt the DTC by simulating the original activity that the DTC suggests.

Result

Result	Proceed to
DTC does not reoccur	A
DTC reoccurs	B

B → Go to step 8

A

6	PROBLEM SYMPTOMS TABLE

Result

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B → Go to step 8

A

7	OVERALL ANALYSIS AND TROUBLESHOOTING*

(a) Terminals of ECM (see page CC-13)
(b) DATA LIST / ACTIVE TEST (see page CC-17)

NEXT

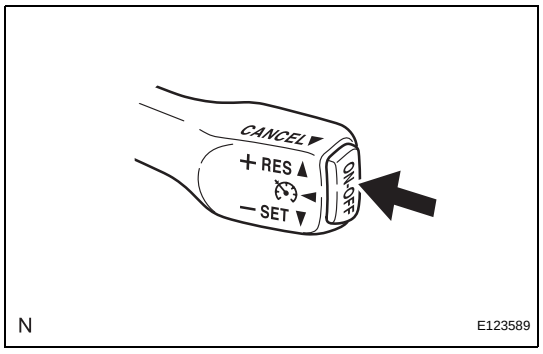
8	REPAIR OR REPLACE

NEXT

9	CONFIRMATION TEST

NEXT

END

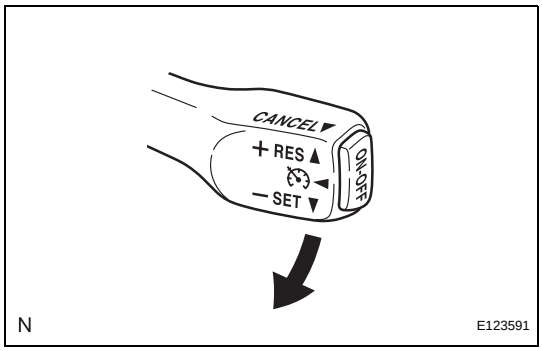


ROAD TEST

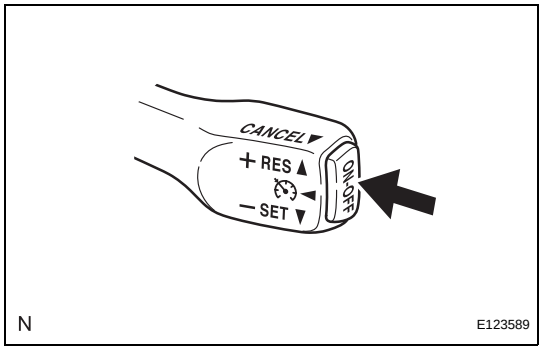
CC

1. INSPECT SET SWITCH

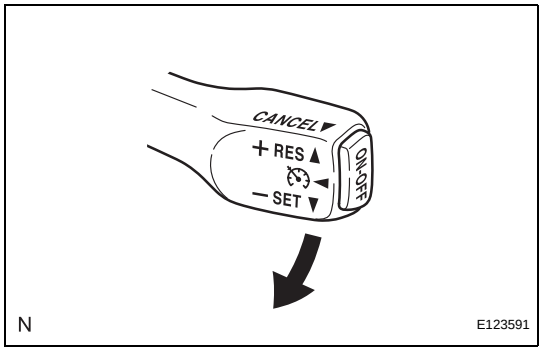
(a) Push the main switch ON.
(b) Drive at a desired speed (40 km/h (25 mph) or higher).



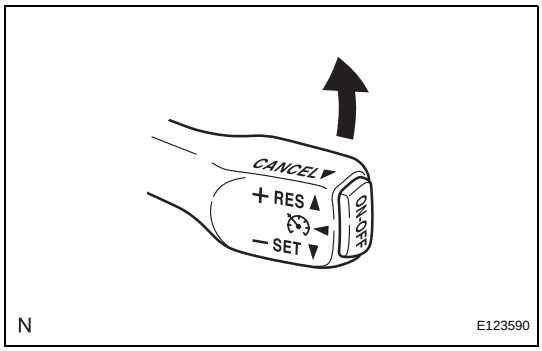
(c) Press the control switch to -/SET.
(d) After releasing the switch, check that the vehicle cruises at the desired speed.



2. INSPECT "+" SWITCH
(a) Push the main switch button ON.
(b) Drive at a desired speed (40 km/h (25 mph) or higher).

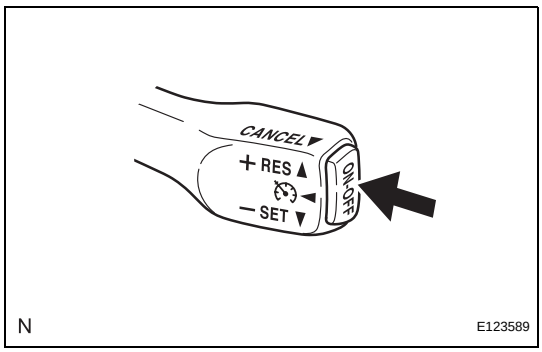


(c) Press the control switch to -/SET.
(d) Check that the vehicle speed increases while the control switch is pressed to +/RES, and that the vehicle cruises at the set speed when the switch is released.

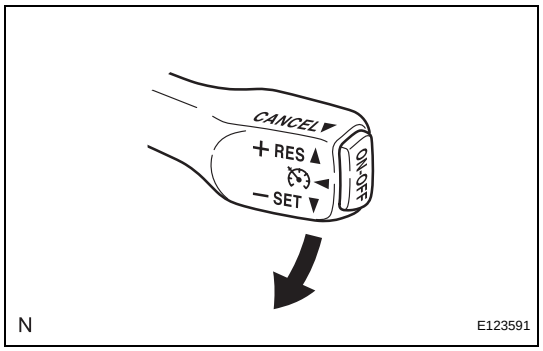


(e) Momentarily press the control switch to +/RES and then immediately release it. Check that the vehicle speed increases by about 1.6 km/h (1 mph) (Tap-up function).

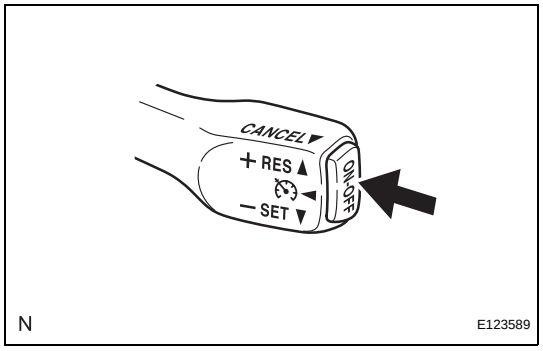
CC



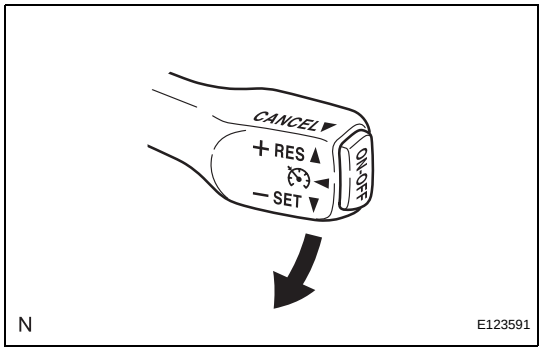
3. INSPECT "-" SWITCH
(a) Push the main switch button ON.
(b) Drive at a desired speed (40 km/h (25 mph) or higher).



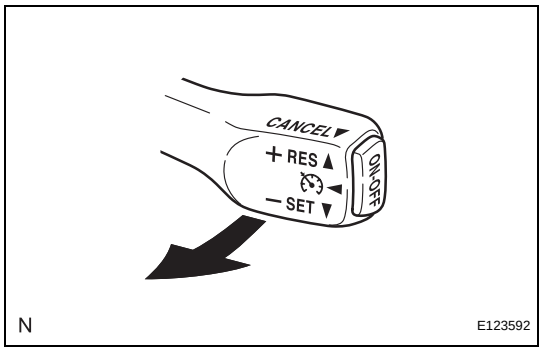
(c) Press the control switch to -/SET.
(d) Check that the vehicle speed decreases while the control switch is pressed to -/SET, and the vehicle cruises at the set speed when the switch is released.
(e) Momentarily press the control switch to -/SET, and then immediately release it. Check that the vehicle speed decreases by about 1.6 km/h (1 mph) (Tap-down function).



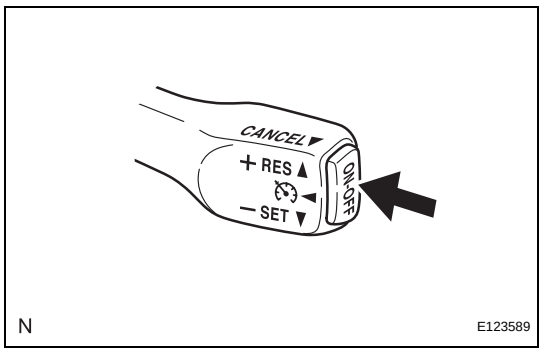
4. INSPECT CANCEL SWITCH
(a) Push the main switch button ON.
(b) Drive at a desired speed (40 km/h (25 mph) or higher).



(c) Press the control switch to -/SET.

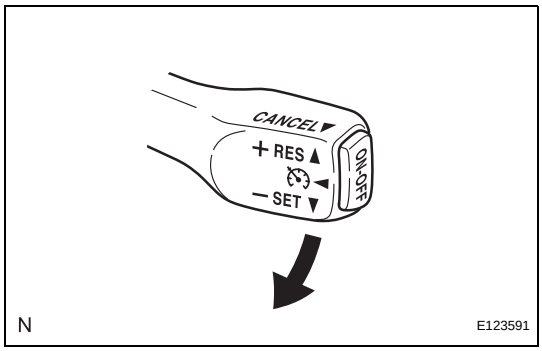


(d) When operating one of the following, check that the cruise control system is canceled.
- Depressing the brake pedal
- Pushing the cruise control main switch OFF
- Pulling the cruise control switch to CANCEL
- Moving the shift lever to any position except D or 3

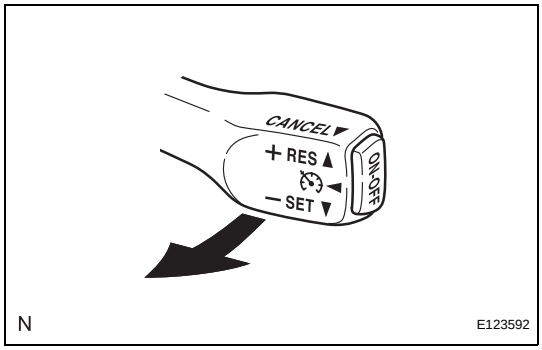


5. INSPECT RES (RESUME) SWITCH
(a) Push the main switch button ON.
(b) Drive at a desired speed (40 km/h (25 mph) or higher).

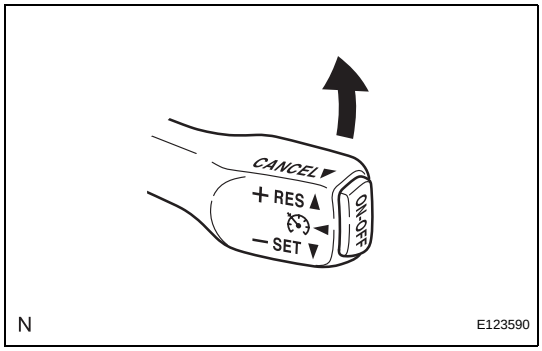
CC



(c) Press the control switch to -/SET.



(d) When operating one of the following, check that the cruise control system is canceled.
- Depressing the brake pedal
- Pulling the cruise control switch to CANCEL
- Moving the shift lever to any position except D or 3



(e) After the control switch is pressed to +/RES at a driving speed of more than 40 km/h (25 mph), check that the vehicle restores the speed before the cancellation.