

CCS

SECTION

CRUISE CONTROL SYSTEM

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DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

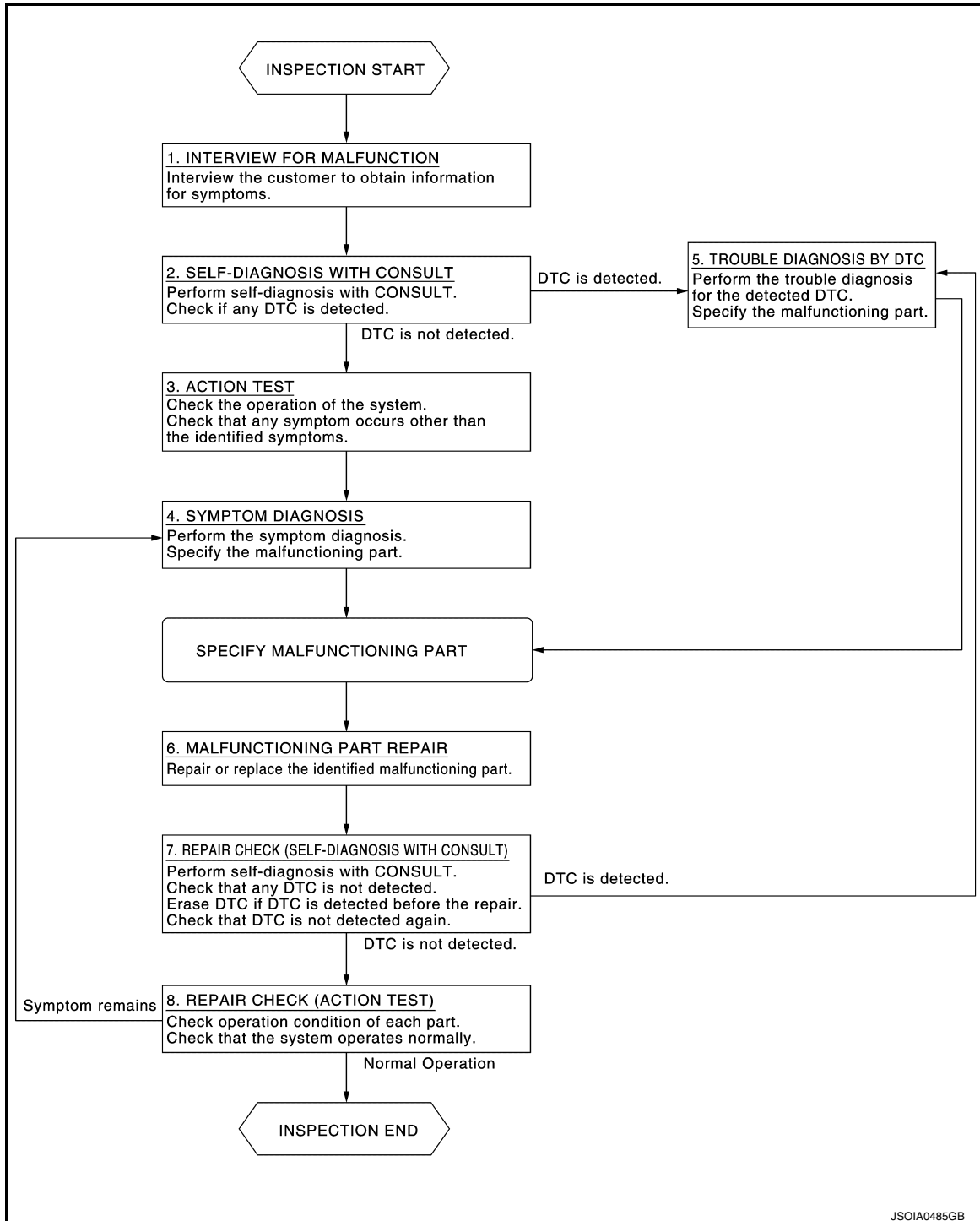
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010579607

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW FOR MALFUNCTION

It is also important to clarify the customer concerns before starting the inspection. Interview the customer about the concerns carefully and understand the symptoms fully.

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

NOTE:

The customers are not professionals. Never assume that “maybe the customer means…” or “maybe the customer mentioned this symptom”.

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if any DTC is detected in self-diagnosis results of “ICC/ADAS”.

Is any DTC detected?

YES >> GO TO 5.

NO >> GO TO 3.

3.ACTION TEST

Perform the ICC system action test to check the operation status. Refer to [CCS-12, "ACTION TEST : Description"](#).

Check if any other malfunctions occur.

>> GO TO 4.

4.SYMPTOM DIAGNOSIS

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to [CCS-158, "Symptom Table"](#).

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC. Refer to [CCS-153, "DTC Index"](#).

NOTE:

If “DTC: U1000” is detected, first diagnose the CAN communication system or ITS communication system.

>> GO TO 6.

6.MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 7.

7.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

1. Erases self-diagnosis results.
2. Perform “All DTC Reading” again after repairing or replacing the malfunctioning parts.
3. Check if any DTC is detected in self-diagnosis results of “ICC/ADAS”.

Is any DTC detected?

YES >> GO TO 5.

NO >> GO TO 8.

8.REPAIR CHECK (ACTION TEST)

Perform the ICC system action test. Check if the malfunction symptom is solved or no other symptoms occur.

Is there any malfunction symptom?

YES >> GO TO 4.

NO >> INSPECTION END

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (ICC SENSOR INTEGRATED UNIT)

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (ICC SENSOR INTEGRATED UNIT) : Description

INFOID:0000000010579608

- Always perform the laser beam aiming adjustment after removing and installing or replacing the ICC sensor integrated unit. Refer to [CCS-7, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT \(ICC SENSOR INTEGRATED UNIT\) : Special Repair Requirement"](#).

CAUTION:

The system does not operate normally unless the laser beam aiming adjustment is performed. Always perform it.

- Perform the ICC system action test to check that the ICC system operates normally.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (ICC SENSOR INTEGRATED UNIT) : Special Repair Requirement

INFOID:0000000010579609

1. LASER BEAM AIMING ADJUSTMENT

Adjust the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. ICC SYSTEM ACTION TEST

1. Perform the ICC system action test. Refer to [CCS-12, "ACTION TEST : Description"](#).
2. Check that the ICC system operates normally.

>> INSPECTION END

LASER BEAM AIMING ADJUSTMENT

LASER BEAM AIMING ADJUSTMENT : Description

INFOID:0000000010579610

OUTLINE OF LASER BEAM AIMING ADJUSTMENT

Always adjust the laser beam aiming after removing and installing or replacing the ICC sensor integrated unit. Refer to [CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement \(Preparation\)"](#).

CAUTION:

The system does not operate normally unless the laser beam aiming adjustment is performed. Always perform it.

1. Set the ICC target board [SST: KV99110100 (J-45718)] to the correct position in front of the vehicle.
2. Set the laser beam aiming mode ("LASER BEAM ADJUST" on "Work support") with CONSULT, and then perform the adjustment according to the display. (Manually turn the up-down direction adjusting screw for vertical adjustment. ICC sensor integrated unit adjusts the automatic aiming for the horizontal direction.)

CAUTIONARY POINT FOR LASER BEAM AIMING ADJUSTMENT

CAUTION:

- For laser beam aiming adjustment, choose a level location where a view can be obtained without any obstruction as far as 12 m (39 ft) or more in the forward direction.
- Adjust laser beam aiming for 5 seconds or more after starting engine.
- Adjust the laser beam aiming with CONSULT. (The laser beam aiming cannot be adjusted without CONSULT.)
- Never enter the vehicle during laser beam aiming adjustment.
- Never look directly into the laser beam source (ICC sensor integrated unit body window) during laser beam aiming adjustment.
- Laser beam aiming adjustment is performed at idle. At this time, turn the headlamps OFF.

CCS

P

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)

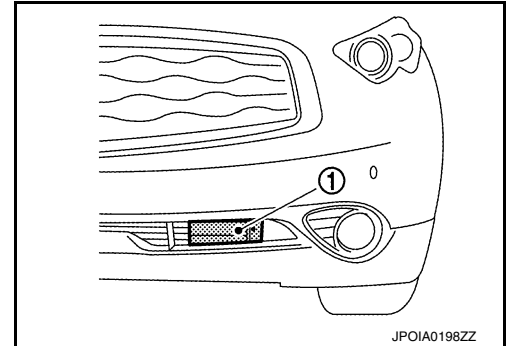
INFOID:0000000010579611

1. ADVANCE PREPARATION FOR LASER BEAM AIMING ADJUSTMENT

1. Adjust all tire pressure to the specified value.
2. Empty the vehicle. (Remove any luggage from the passenger compartment, luggage room, etc.)
3. Shift the selector lever to "P" position, and release the parking brake.
4. Fully fill the fuel tank, and then check that the coolant and oils are filled up to correct level.
5. Clean off the ICC sensor integrated unit body window with a soft cloth.

1 : ICC sensor integrated unit

>> Go to [CCS-8. "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement \(Setting The ICC Target Board\)"](#).



LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Setting The ICC Target Board)

INFOID:0000000010579612

DESCRIPTION

Accurate adjustment of the laser beam requires that the ICC target board be accurately positioned.

CAUTION:

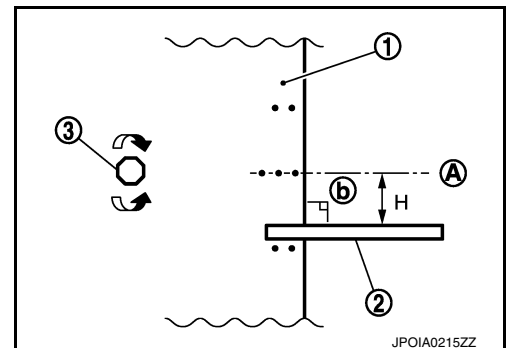
If the laser beam is adjusted with the ICC target board in the incorrect position, the ICC system does not function normally.

1. ICC TARGET BOARD HEIGHT ADJUSTMENT

1. Attach the ruler (2) at 14 mm (0.55 in) (H) below the center (A) of the ICC target board (1).

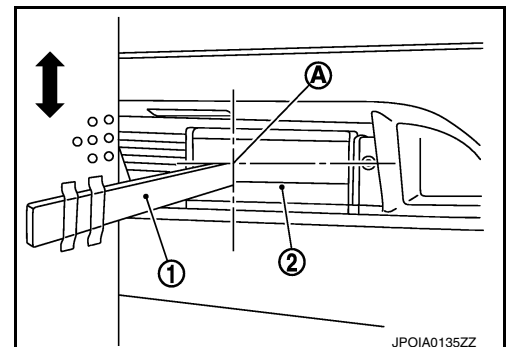
3 : Adjust nut

b : 90°



2. Adjust the ICC target board height to the position aligning the ruler (1) upper side tip with the center of laser beam axis (A).

2 : ICC sensor integrated unit



NOTE:

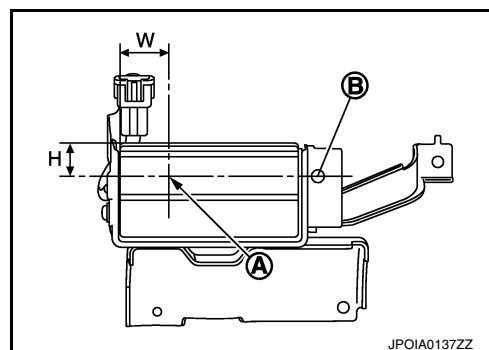
INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

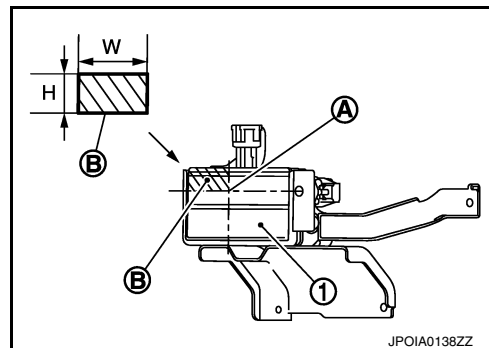
- The center of laser beam axis (A) is located at 38 mm (1.5 in) (W) from the left end of ICC sensor integrated unit and 22 mm (H) (0.87 in) from above when viewed from the front of the vehicle.

B : Up-down direction adjusting screw



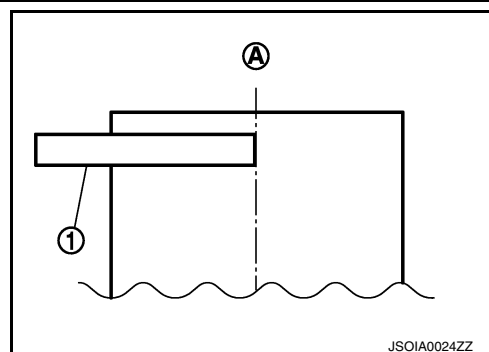
- To identify the laser beam axis center (A) easily, prepare a piece of paper (B) cut to the size of 38 mm (1.5 in) (W) × 22 mm (H) (0.87 in) and attach it on the upper left point of the ICC sensor integrated unit (1).

>> GO TO 2.



2. ADJUSTING SIDE POSITION OF ICC TARGET BOARD

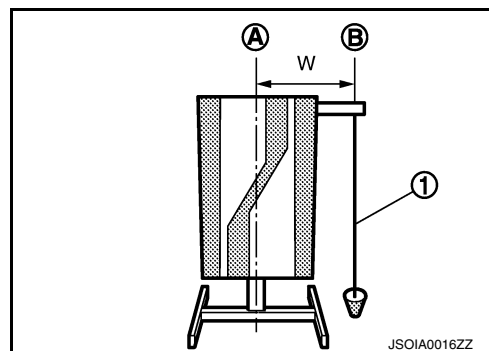
- On the back of the ICC target board, attach the ruler (1) [350 mm (13.78 in) or more] or a similar tool squarely from the ICC target board center (A) in the left direction.



- Suspend a weight from a string (1) attached to its end at the point (B) rightward from the ICC target board center (A).

W [mm (in)] : 315 (12.4)

>> GO TO 3.



3. SETTING ICC TARGET BOARD

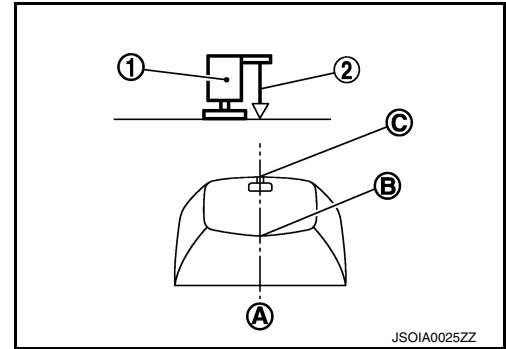
- Suspend a thread with weight on tip from the center of the front and rear bumpers. Then, mark the center points on the ground as each weight point.
- Link the front and rear bumpers center points marked on the ground and extend a straight line ahead. Then mark a point 3.9 m (12.8 ft) position ahead of the front bumper. Then, adjust the position of the ICC target board so that the weight comes on the top of the marked point [3.9 m (12.8 ft) position ahead of the front bumper] and face to the vehicle.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

3. Adjust the position of the ICC target board (1) so that the extended line (A) that links the center of the rear window glass (the center of the rear window defogger pattern) (B) and the center of the windshield (the setting part of the room mirror) (C) align with the weight suspended (2) from the ICC target board.

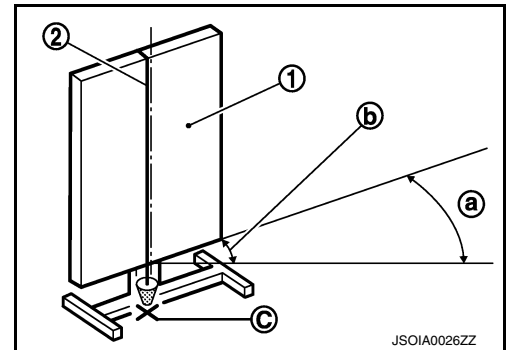


4. Remove the thread suspended to the right side of ICC target board and suspend a thread with weight on tip on the center of the ICC target board. Then mark the point of weight on the ground.
5. Pivot the edge of the ICC target board 25° (a) to either side.

- 1 : ICC target board
- 2 : String with a weight
- C : ICC target board center marking point

NOTE:

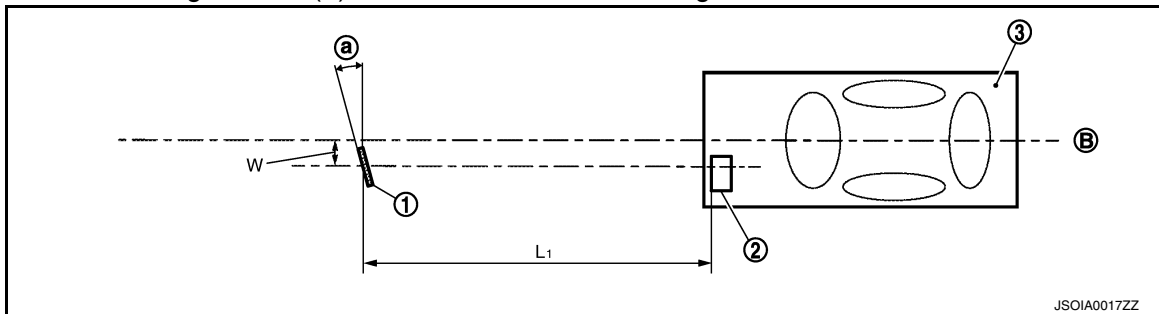
Approx. 90 mm (3.54 in) (b) shift rates the 25° (a) movement.



>> GO TO 4.

4.CHECK THE ICC TARGET BOARD INSTALLATION POSITION

Check that the ICC target board (1) is located as shown in the figure.



- 1. ICC target board
- 2. ICC sensor integrated unit
- 3. Vehicle
- B. Vehicle center
- L1. 4.0 m (13.0 ft)
- W. 315 mm (12.4 in)
- a. 25°

NOTE:

The distance between laser beam axis and ICC target board is 4.0 m (13.0 ft).

>> GO TO 5.

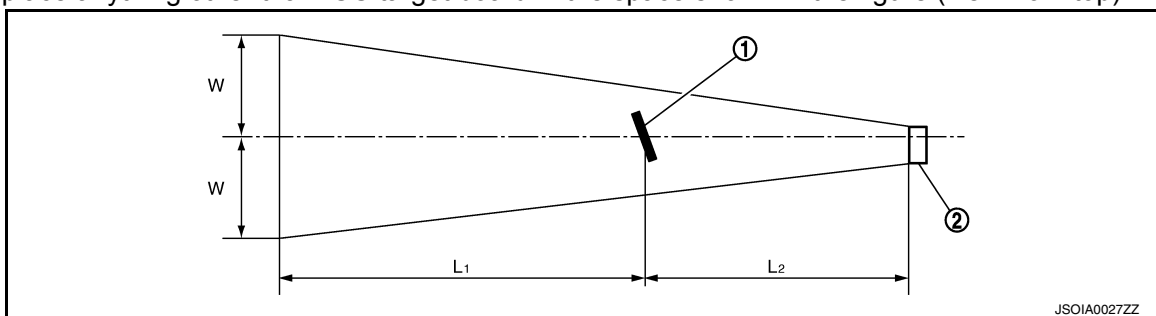
5.CHECK THE ICC TARGET BOARD INSTALLATION AREA

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

Do not place anything other than ICC target board in the space shown in the figure (view from top).



1. ICC target board

2. ICC sensor integrated unit

L1. 6.5 m (21.3 ft)

L2. 4.0 m (13.0 ft)

W. 3.5 m (11.5 ft)

NOTE:

In case the space shown in the figure is not available, cover the side of the ICC target board with a 1400 mm(4.6 ft)-size frosted black board or black cloth.

>> Go to [CCS-11, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement \(Laser Beam Aiming Adjustment\)"](#).

LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Laser Beam Aiming Adjustment)

INFOID:0000000010579613

DESCRIPTION

- Adjust the laser beam aiming in a vertical direction with CONSULT as per the following.
- The laser beam aiming adjustment in a horizontal direction is performed automatically with CONSULT.

CAUTION:

- **Never look directly into the laser beam source (ICC sensor integrated unit body window) during laser beam aiming adjustment.**
- **Perform all necessary work for laser beam aiming adjustment until the adjustment completes as shown in the procedure. If the procedure does not complete, the ICC system is inoperable.**

1.SET CONSULT TO THE LASER BEAM AIMING ADJUSTMENT MODE

1. Start the engine.
2. Connect CONSULT and select "Work support" of "ICC/ADAS".
3. Select "LASER BEAM ADJUST" after the "Work support" screen is displayed.
4. Select "START" after the "LASER BEAM ADJUST" screen is displayed.

NOTE:

If the adjustment screen does not appear within approximately 10 seconds after "LASER BEAM ADJUST" is selected, the following causes are possible.

- The ICC target board is not installed in the correct position.
- Adequate space is not secured around the ICC target board.
- The laser beam aiming adjustment exceeds its proper installation range.
- Deformation of vehicle body.
- Deformation of unit.
- Deformation of bracket.
- The area is not suitable for the adjustment work.
- ICC sensor integrated unit body window is not clean.
- The ICC system warning lamp illuminates.

>> GO TO 2.

2.LASER BEAM AIMING ADJUSTMENT

After "ADJUST THE VERTICAL OF LASER BEAM AIMING" is displayed on CONSULT screen, adjust by turning the up-down direction adjusting screw until "U/D CORRECT" becomes ± 4 or less.

NOTE:

INSPECTION AND ADJUSTMENT

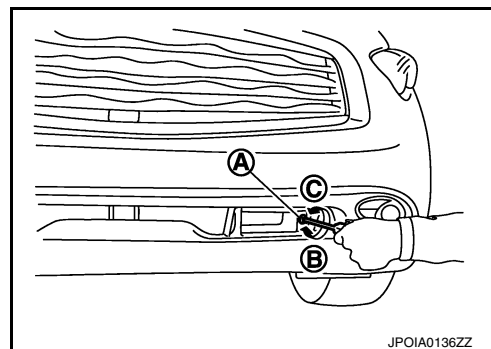
< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

- Turn the up-down direction adjusting screw slowly. The value change on display is slower than actual movement of the ICC sensor integrated unit. Wait for 2 seconds every time the up-down direction adjusting screw is turned half a rotation.
- Turning the up-down direction adjusting screw (A) clockwise directs the laser beam downward (B). The laser beam directs upward (C) when turning up-down direction adjusting screw counterclockwise.

CAUTION:

Be careful not to cover the ICC sensor integrated unit body window with a hand or the other part of body of worker during adjustment.



>> GO TO 3.

3. LASER BEAM AIMING CONFIRMATION

1. When the "U/D CORRECT" value becomes ± 4 or less, check that no value greater than ± 4 appears when the vehicle is left with no load on the ICC sensor integrated unit (hand removed) for at least 2 seconds.
2. When "COMPLETED THE VERTICAL AIMING OF LASER BEAM" display appears, touch "END".

CAUTION:

Always check that the value of "U/D CORRECT" remains ± 4 or less when the ICC sensor integrated unit is left alone for at least 2 seconds.

3. Check that "ADJUSTING AUTOMATIC HORIZONTAL LASER BEAM AIMING" is displayed and wait for a short period of time. (The maximum: Approx 10 seconds).
4. Check that "Normally Completed" is displayed, and select "End" to end "LASER BEAM ADJUST".

CAUTION:

Once "LASER BEAM ADJUST" is started with CONSULT, always continue the work until the horizontal laser beam aiming adjustment is completed successfully. If the job is stopped midway, the laser beam aiming is not adjusted and the ICC system cannot operate.

>> LASER BEAM AIMING ADJUSTMENT END

ACTION TEST

ACTION TEST : Description

INFOID:0000000010579614

Always perform the ICC system action test to check that the ICC system operates normally after replacing the ICC sensor integrated unit or repairing any ICC system malfunction. Refer to [CCS-12, "ACTION TEST : Special Repair Requirement \(Vehicle-To-Vehicle Distance Control Mode\)"](#) (Vehicle-To-Vehicle Distance Control Mode) and [CCS-15, "ACTION TEST : Special Repair Requirement \[Conventional \(Fixed Speed\) Cruise Control Mode\]"](#) [Conventional (Fixed Speed) Cruise Control Mode].

CAUTION:

- Always drive safely when performing the action test.
- Turn the DCA system to OFF when performing the action test.

ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)

INFOID:0000000010579615

NOTE:

- When there is no vehicle ahead, drive at the set speed steadily.
- When there is a vehicle ahead, control to maintain distance from the vehicle ahead, watching its speed.
- The running speed can be set between 32 km/h (20 MPH) and 144 km/h (90 MPH).

CAUTION:

Never set the cruise speed exceeding the posted speed limit.

1. CHECK FOR MAIN SWITCH

1. Start the engine.

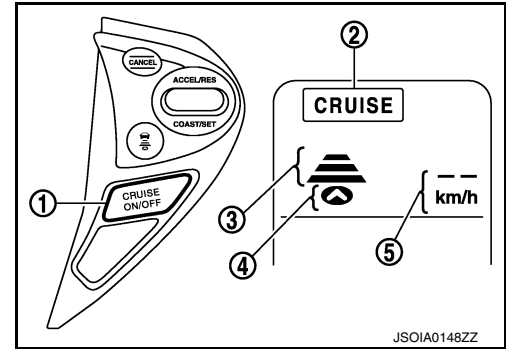
INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

- Press the MAIN switch (1) (less than 1.5 seconds).

Information display status	
MAIN switch indicator (2)	: ON
Set distance indicator (3)	: Long mode
Own vehicle indicator (4)	: ON
Set vehicle speed indicator (5)	: "km/h" ("MPH")



- Check the ICC system display on the information display to check that the vehicle-to-vehicle distance control mode is ready for activation.
- Press the MAIN switch, and check that the ICC system display on the information display turns OFF when the ICC system is deactivated.
- Check that the ICC system display on the information display turns OFF after starting the engine again.

>> GO TO 2.

2.CHECK FOR DISTANCE SWITCH

- Start the engine.
- Press the MAIN switch (less than 1.5 seconds).
- Press the DISTANCE switch.
- Check that the set distance indicator changes display in order of: (Long)→(Middle)→(Short).

Distance	Display	Approximate distance at 100 km/h (60 MPH) [m (ft)]
Long	100 km/h	60 (200)
Middle	100 km/h	45 (150)
Short	100 km/h	30 (100)

NOTE:

When the MAIN switch is turned ON, initial setting set to (Long).

>> GO TO 3.

3.CHECK FOR RESUME/ACCELERATE, SET/COAST, AND CANCEL SWITCHES

- Check that RESUME/ACCELERATE, SET/COAST, CANCEL switches are operated smoothly.
- Check that switches come up as hand is released from the switches.

>> GO TO 4.

4.SET CHECKING (1)

- Start the engine.
- Press the MAIN switch (less than 1.5 seconds) and turn the vehicle-to-vehicle distance control mode ON.
- Drive the vehicle at 32 km/h (20 MPH) or more.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

4. Push down the SET/COAST switch.
5. Check that the desired speed is set and vehicle-to-vehicle distance control mode control starts when releasing SET/COAST switch.

NOTE:

The set vehicle speed is indicated on the set vehicle speed indicator in the ICC system display on the information display.

>> GO TO 5.

5.CHECK FOR INCREASE OF CRUISING SPEED (1)

1. Set the vehicle-to-vehicle distance control mode at desired speed.
2. Check that the set speed increases by 1 km/h (1 MPH) as RESUME/ACCELERATE switch is pushed up.

NOTE:

The maximum set speed of the vehicle-to-vehicle distance control mode is 144 km/h (90 MPH).

CAUTION:

Never set the cruise speed exceeding the posted speed limit.

>> GO TO 6.

6.CHECK FOR DECREASE OF CRUISING SPEED (1)

1. Set the vehicle-to-vehicle distance control mode at desired speed.
2. Check that the set speed decreases by 1 km/h (1 MPH) as SET/COAST switch is pushed down.

NOTE:

- The minimum set speed is approximately 32 km/h (20 MPH).
- Cancel the control automatically when the vehicle speed is less than approximately 24 km/h (15 MPH) and when the system does not detect any vehicle ahead.

>> GO TO 7.

7.SET CHECKING (2)

1. Stop the vehicle.
2. Drive the vehicle at less than approximately 32 km/h (20 MPH).
3. Push down the SET/COAST switch when the system detects a vehicle ahead.
4. Check that the vehicle-to-vehicle distance control mode is performed so that the vehicle maintains a proper distance according to the vehicle speed [maximum: approximately 32 km/h (20 MPH)] when releasing SET/COAST switch.

NOTE:

- The vehicle-to-vehicle distance control mode cannot be set when the vehicle speed is less than 32 km/h (20 MPH) and when a vehicle ahead is not detected.
- Cancel the control automatically when the vehicle speed is 24 km/h (15 MPH) or less during the control and when the system does not detect any vehicle ahead.
- The set vehicle speed indicator in the ICC system display on the information display is set to 32 km/h (20 MPH).

>> GO TO 8.

8.CHECK FOR INCREASE OF CRUISING SPEED (2)

1. Set the vehicle-to-vehicle distance control mode when the vehicle speed is less than approximately 32 km/h (20 MPH) and when a vehicle ahead is detected.
2. Check that the set speed increases by 1 km/h (1 MPH) as RESUME/ACCELERATE switch is pushed up.

NOTE:

The maximum set speed of the vehicle-to-vehicle distance control mode is 144 km/h (90 MPH).

CAUTION:

Never set the cruise speed exceeding the posted speed limit.

>> GO TO 9.

9.CHECK FOR DECREASE OF CRUISING SPEED INSPECTION (2)

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

1. Set the vehicle-to-vehicle distance control mode when the vehicle speed is less than approximately 32 km/h (20 MPH) and when a vehicle ahead is detected.
2. Set the set vehicle speed to the desired vehicle speed according to "check for increase of cruising speed".
3. Check that the set speed decreases by 1 km/h (1 MPH) as SET/COAST switch is pushed down.

NOTE:

- The minimum the set speed is approximately 32 km/h (20 MPH).
- If the vehicle ahead comes to a stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges a standstill with a warning chime.

CAUTION:

The creep occurs because the stop status is not maintained.

>> GO TO 10.

10.CHECK FOR CANCELLATION OF VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE

Check that the vehicle-to-vehicle distance control mode is canceled when performing the following operations.

- When the brake pedal is depressed after vehicle-to-vehicle distance control mode is set and the vehicle is driven.
- When the selector lever is in the "N" position after vehicle-to-vehicle distance control mode is set and the vehicle is driven.
- When the MAIN switch is turned OFF after vehicle-to-vehicle distance control mode is set and the vehicle is driven.
- When the CANCEL switch is pressed after vehicle-to-vehicle distance control mode is set and the vehicle is driven.

>> GO TO 11.

11.CHECK FOR RESTORING SPEED THAT IS SET BY VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE BEFORE CANCELLATION

Check that the vehicle restores the previous speed kept before the system deactivation when performing the following operations.

- Drive the vehicle when the vehicle-to-vehicle distance control mode is set and depress the brake pedal to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when pushing up the RESUME/ACCELERATE switch.
- Drive the vehicle when the vehicle-to-vehicle distance control mode is set and shift the selector lever to the "N" position to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when shifting the selector lever to the "D" position and pushing up the RESUME/ACCELERATE switch.
- Drive the vehicle when the vehicle-to-vehicle distance control mode is set and press the CANCEL switch to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when pushing up the RESUME/ACCELERATE switch.

>> INSPECTION END

ACTION TEST : Special Repair Requirement [Conventional (Fixed Speed) Cruise Control Mode]

INFOID:0000000010579616

NOTE:

The running speed can be set between 40 km/h (25 MPH) and 144 km/h (90 MPH).

CAUTION:

Never set the cruise speed exceeding the posted speed limit.

1.CHECK FOR MAIN SWITCH

1. Start the engine.

INSPECTION AND ADJUSTMENT

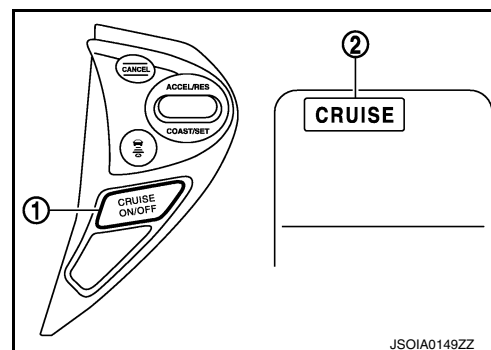
< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

2. Press the MAIN switch (1) (1.5 seconds or more).

Information display status

MAIN switch indicator (2) : ON



3. Check that the ICC system display on the information display turns on and the display is ready for activation.
4. Press the MAIN switch, and check that the ICC system display on the information display turns OFF when the ICC system is deactivated.
5. Check that the ICC system display on the information display turns OFF after starting the engine again.

>> GO TO 2.

2. CHECK FOR RESUME/ACCELERATE, SET/COAST, AND CANCEL SWITCHES

1. Check that RESUME/ACCELERATE, SET/COAST, CANCEL switches are operated smoothly.
2. Check that switches come up as hand is released from the switches.

>> GO TO 3.

3. SET CHECKING

1. Start the engine.
2. Press the MAIN switch (1.5 seconds or more) and turn the conventional (fixed speed) cruise control mode to ON.
3. Drive the vehicle at 40 km/h (25 MPH) or more.
4. Push down the SET/COAST switch.
5. Check that the desired speed is set and conventional (fixed speed) cruise control mode control starts when releasing SET/COAST switch.

NOTE:

- The set vehicle speed is not displayed in the ICC system display on the information display.
- Display the set status in the ICC system display on the information display.

>> GO TO 4.

4. CHECK FOR INCREASE OF CRUISING SPEED

1. Set the vehicle speed to any desired speed, and drive the vehicle.
2. Check that the set speed increases by 1.6 km/h (1 MPH) as RESUME/ACCELERATE switch is pushed up.

NOTE:

- The maximum set speed is 144 km/h (90 MPH).
- The set vehicle speed increases while pushing up the RESUME/ACCELERATE switch.

CAUTION:

Never set the cruise speed exceeding the posted speed limit.

>> GO TO 5.

5. CHECK FOR DECREASE OF CRUISING SPEED

1. Set the vehicle speed to any desired speed, and drive the vehicle.
2. Check that the set speed decreases by 1.6 km/h (1 MPH) as SET/COAST switch is pushed down.

NOTE:

- The minimum set speed is 40 km/h (25 MPH).
- The set vehicle speed decreases while pressing down the SET/COAST switch.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[ICC (FULL SPEED RANGE)]

- Cancel the control automatically when the vehicle speed lowers to less than approximately 32 km/h (20 MPH).

>> GO TO 6.

6. CHECK FOR CANCELLATION OF CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE

Check that the conventional (fixed speed) cruise control mode is canceled when performing the following operations.

- When the brake pedal is depressed after the conventional (fixed speed) cruise control mode is set and the vehicle is driven.
- When the selector lever is in the "N" position after the conventional (fixed speed) cruise control mode is set and the vehicle is driven.
- When the MAIN switch is turned OFF after the conventional (fixed speed) cruise control mode is set and the vehicle is driven.
- When the CANCEL switch is pressed after the conventional (fixed speed) cruise control mode is set and the vehicle is driven.

>> GO TO 7.

7. CHECK FOR RESTORING SPEED THAT IS SET BY CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE BEFORE CANCELLATION

Check that the vehicle restores the previous speed kept before the system deactivation when performing the following operations.

- Drive the vehicle when the conventional (fixed speed) cruise control mode is set and depress the brake pedal to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when pushing up the RESUME/ACCELERATE switch at the vehicle speed approximately 40 km/h (25 MPH) or more.
- Drive the vehicle when the conventional (fixed speed) cruise control mode is set and shift the selector lever is in the "N" position to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when shifting the selector lever is in the "D" position and pushing up the RESUME/ACCELERATE switch at the vehicle speed of approximately 40 km/h (25 MPH) or more.
- Drive the vehicle when the conventional (fixed speed) cruise control mode is set and press the CANCEL switch to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when pushing up the RESUME/ACCELERATE switch at the vehicle speed of approximately 40 km/h (25 MPH) or more.

>> INSPECTION END

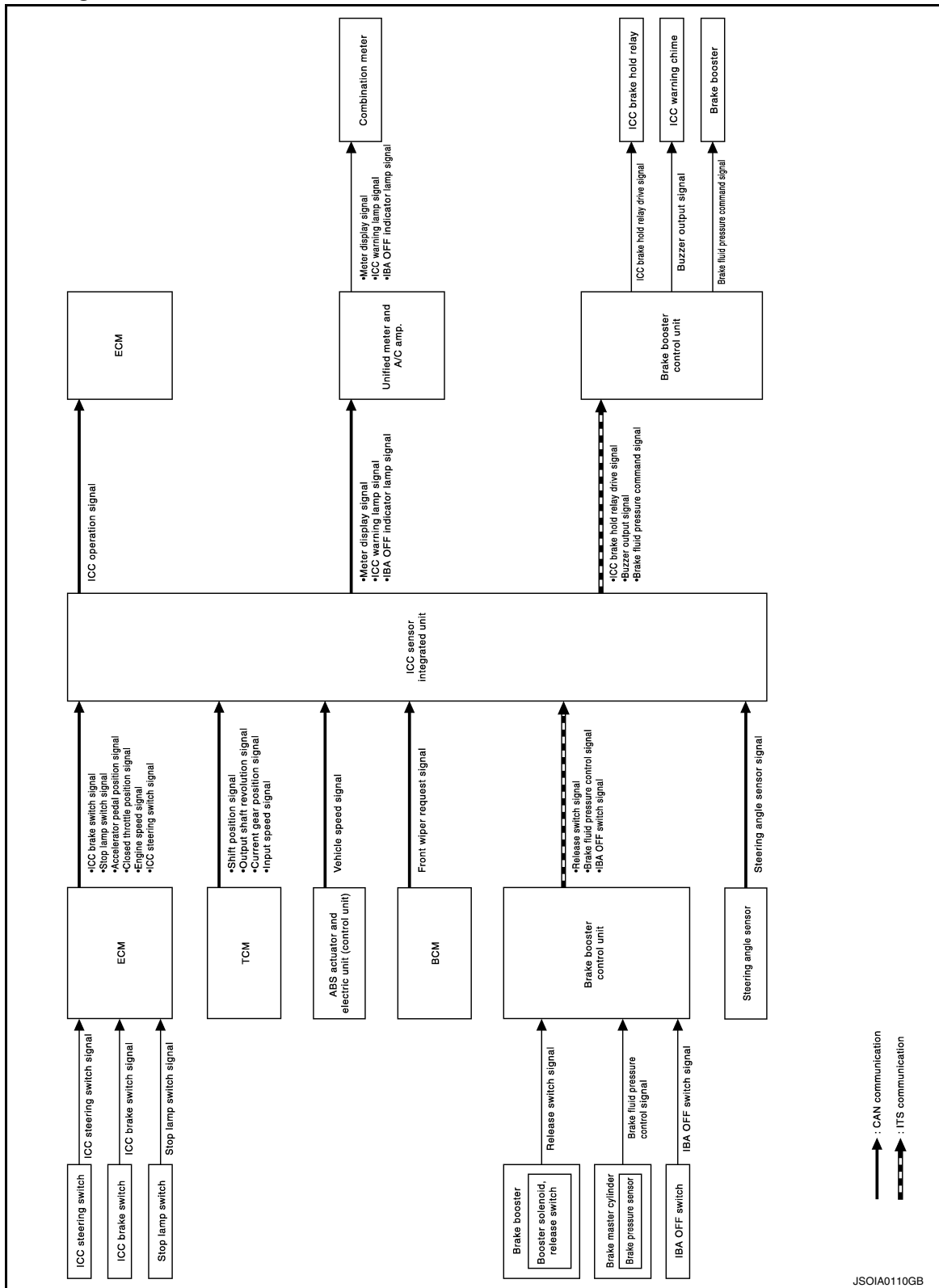
CCS

SYSTEM DESCRIPTION

ICC (FULL SPEED RANGE)

System Diagram

INFOID:0000000010579617



JSOIA0110GB

System Description

INFOID:0000000010579618

DESCRIPTION

ICC (FULL SPEED RANGE)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

The Intelligent Cruise Control (Full Speed Range) system maintains a selected distance from the vehicle in front of own vehicle within the speed range of 0 to 144 km/h (0 to 90 MPH) up to the set speed. The set speed can be selected by the driver between 32 to 144 km/h (20 to 90 MPH). The vehicle travels at a set speed when the road ahead is clear.

The ICC system can be set to one of two cruise control modes:

CAUTION:

Never set the cruise speed exceeding the posted speed limit.

Vehicle-to-vehicle Distance Control Mode

For maintaining a selected distance between own vehicle and the vehicle in front of own vehicle up to the pre-set speed. Refer to [CCS-23, "System Description"](#).

Conventional (Fixed Speed) Cruise Control Mode

For cruising at a preset speed. Refer to [CCS-32, "System Description"](#).

NOTE:

In the Conventional (Fixed Speed) Cruise Control Mode, a warning chime will not sound to warn driver if own vehicle are too close to the vehicle ahead.

WARNING:

Always drive carefully and attentively when using either cruise control mode. To avoid serious injury or death, do not rely on the system to prevent accidents or to control the vehicle's speed in emergency situations. Do not use cruise control except in appropriate road and traffic conditions.

Forward Collision Warning (FCW)

FCW share the systems and components with ICC system. Refer to [DAS-201, "System Description"](#).

Brake Assist (With Preview Function)

Brake Assist (With Preview Function) share the systems and components with ICC system. Refer to [BRC-141, "System Description"](#).

Intelligent Brake Assist (IBA) System

IBA system share the systems and components with ICC system. Refer to [BRC-147, "System Description"](#).

ICC SENSOR INTEGRATED UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

Transmit unit	Signal name		Description
ECM	Accelerator pedal position signal		Receives the accelerator pedal position signal from ECM via CAN communication.
	ICC steering switch signal	MAIN switch signal	Receives the ICC steering switch signal from ECM via CAN communication.
		SET/COAST switch signal	
		CANCEL switch signal	
		RESUME/ACCELERATE switch signal	
		DISTANCE switch signal	
	ICC brake switch signal		Receives the ICC brake switch signal from ECM via CAN communication.
	Stop lamp switch signal		Receives the stop lamp switch signal from ECM via CAN communication.
	Closed throttle position signal		Receives the closed throttle position signal from ECM via CAN communication.
	Engine speed signal		Receives the engine speed signal from ECM via CAN communication.

ICC (FULL SPEED RANGE)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Transmit unit	Signal name	Description
TCM	Shift position signal	Receives the shift position signal from TCM via CAN communication.
	Output shaft revolution signal	Receives the output shaft revolution signal from TCM via CAN communication.
	Current gear position signal	Receives the current gear position signal from TCM via CAN communication.
	Input speed signal	Receives the input speed signal from TCM via CAN communication.
Brake booster control unit	Brake fluid pressure control signal	Receives the brake fluid pressure control signal from the brake booster control unit via ITS communication.
	Release switch signal	Receives the release switch signal from the brake booster control unit via ITS communication.
	IBA OFF switch signal	Receives the IBA OFF switch signal from the brake booster control unit via ITS communication.
ABS actuator and electric unit (control unit)	Vehicle speed signal	Receives the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) via CAN communication.
BCM	Front wiper request signal	Receives the front wiper request signal from BCM via CAN communication.
Steering angle sensor	Steering angle sensor signal	Receives the steering angle sensor signal from the steering angle sensor via CAN communication.

Output Signal Item

Reception unit	Signal name	Description
ECM	ICC operation signal	Transmits the ICC operation signal to ECM via CAN communication.
Combination meter (through unified meter and A/C amp.)	Own vehicle indicator signal	Transmits the meter display signal to the combination meter (through unified meter and A/C amp.) via CAN communication.
	Vehicle ahead detection indicator signal	
	Set vehicle speed indicator signal	
	Set distance indicator signal	
	MAIN switch indicator signal	
	SET switch indicator signal	
	ICC warning lamp signal	Transmits the ICC warning lamp signal to the combination meter (through unified meter and A/C amp.) via CAN communication.
	IBA OFF indicator lamp signal	Transmits the IBA OFF indicator lamp signal to the combination meter (through unified meter and A/C amp.) via CAN communication.
ICC warning chime	Buzzer output signal	- Transmits the buzzer output signal to the brake booster control unit via ITS communication. - The brake booster control unit outputs the buzzer output signal and operates the ICC warning chime.
ICC brake hold relay	ICC brake hold relay drive signal	- Transmits the ICC brake hold relay drive signal to the brake booster control unit via ITS communication. - The brake booster control unit outputs the ICC brake hold relay drive signal and operates the ICC brake hold relay.
Brake booster control unit	Brake fluid pressure command signal	Transmits the brake fluid pressure command signal to the brake booster control unit via ITS communication.

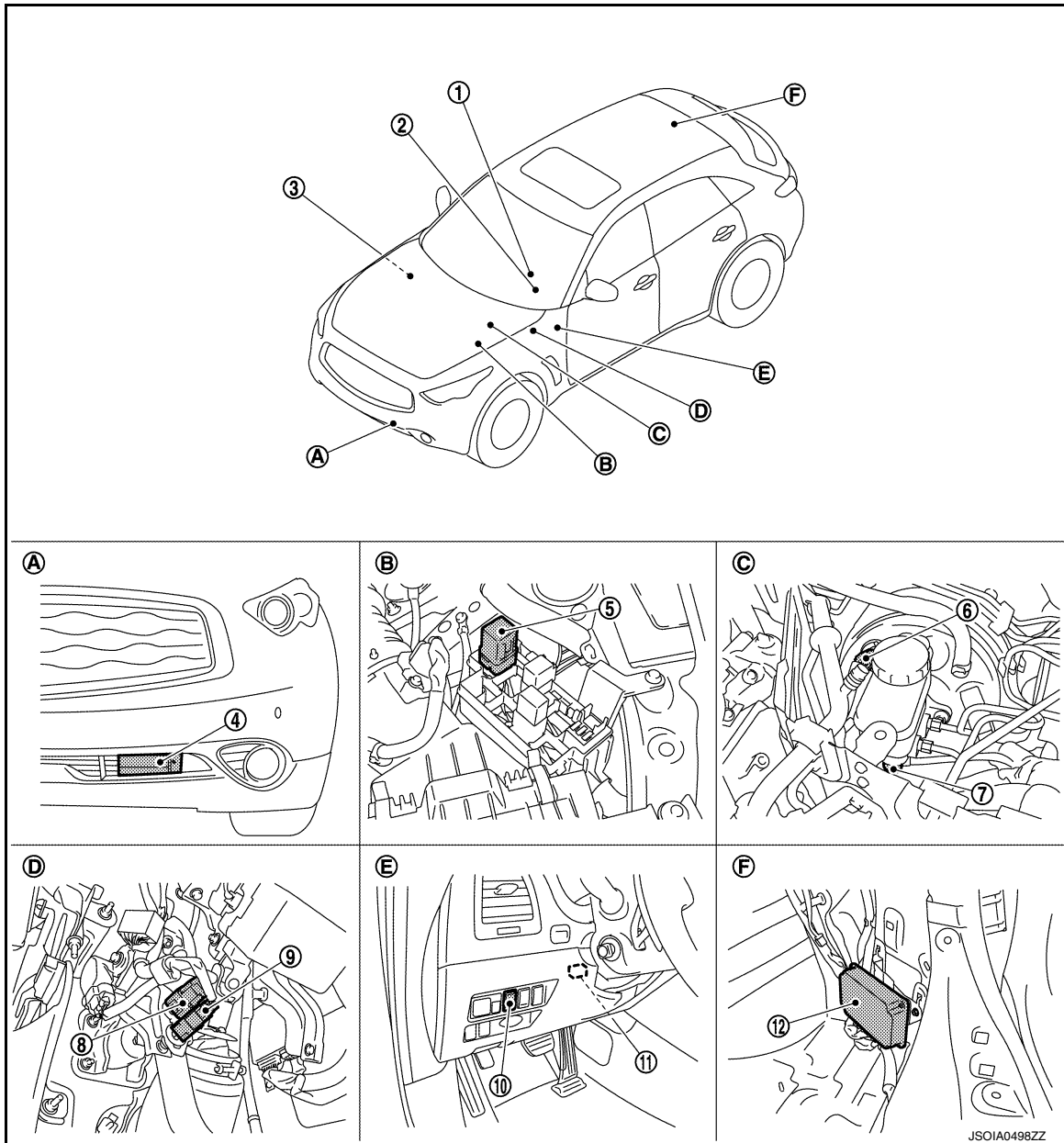
ICC (FULL SPEED RANGE)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Component Parts Location

INFOID:000000010579619



- | | | |
|-------------------------------|---|--|
| 1. ICC steering switch | 2. Information display, ICC system warning lamp, IBA OFF indicator lamp | 3. ECM
Refer to EC-51. "Component Parts Location" . |
| 4. ICC sensor integrated unit | 5. ICC brake hold relay | 6. Booster solenoid/Release switch |
| 7. Brake pressure sensor | 8. Stop lamp switch | 9. ICC brake switch |
| 10. IBA OFF switch | 11. ICC warning chime | 12. Brake booster control unit |
| A. Front bumper (LH) | B. Engine room (LH) | C. Inside brake master cylinder cover |
| D. Upper side of brake pedal | E. Instrument driver lower panel (LH) | F. Luggage room (RH) |

ICC (FULL SPEED RANGE)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Component Description

INFOID:000000010579620

×: Applicable

Component	Function Description			Description
	*1	*2	*3	
ICC sensor integrated unit	×	×	×	Refer to CCS-47, "Description" .
ECM	×	×	×	Refer to CCS-82, "Description" .
ABS actuator and electric unit (control unit)	×	×	×	Refer to CCS-53, "Description" .
BCM	×			Transmits the front wiper request signal to ICC sensor integrated unit via CAN communication.
TCM	×	×		Refer to CCS-123, "Description" .
Unified meter and A/C amp.	×	×	×	Receives the meter display signal, ICC warning lamp signal, and IBA OFF indicator lamp signal from ICC sensor integrated unit via CAN communication and transmits them to the combination meter via the communication line.
Combination meter	×	×	×	Performs the following operations using the signals received from the unified meter and A/C amp. via the communication line. - Displays the ICC system operation status using the meter display signal. - Illuminates the ICC system warning lamp using the ICC warning lamp signal. - Illuminates the IBA OFF indicator lamp using the IBA OFF indicator lamp signal.
ICC brake switch	×	×	×	Refer to CCS-55, "Description" .
Stop lamp switch	×	×	×	
ICC brake hold relay	×		×	Refer to CCS-75, "Description" .
Brake booster control unit	×	×	×	Refer to CCS-93, "Description" .
Brake booster	×		×	Refer to CCS-93, "Description" .
Brake pressure sensor	×		×	Refer to CCS-63, "Description" .
Booster solenoid/Release switch	×		×	- Refer to CCS-65, "Description" for booster solenoid. - Refer to CCS-68, "Description" for release switch.
ICC warning chime	×	×	×	Refer to CCS-136, "Description" .
Steering angle sensor	×			Refer to CCS-117, "Description" .
IBA OFF switch			× ^{NOTE}	Refer to CCS-112, "Description" .

*1: Vehicle-to-vehicle distance control mode

*2: Conventional (fixed speed) cruise control mode

*3: IBA system and Brake Assist (With Preview Function)

NOTE:

Only IBA system uses

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

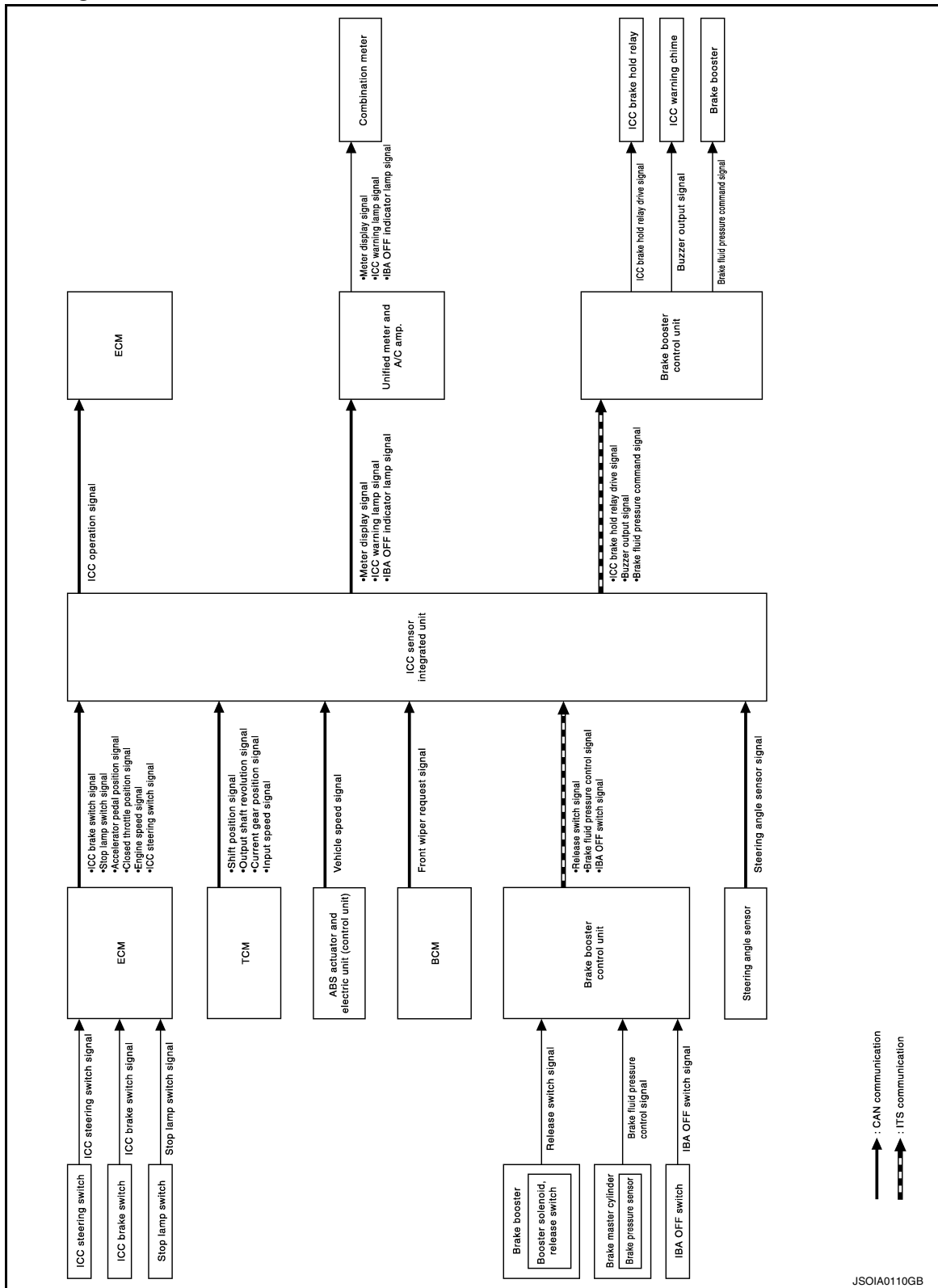
< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

System Diagram

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System Description

INFOID:0000000010579622

FUNCTION DESCRIPTION

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

In the vehicle-to-vehicle distance control mode, the Intelligent Cruise Control (ICC) system automatically maintains a selected distance from the vehicle traveling in front of own vehicle according to that vehicle's speed (up to the set speed), or at the set speed when the road ahead is clear.

With ICC system, the driver can maintain the same speed as other vehicles without the constant need to adjust the set speed as driver would with a normal cruise control system.

The following items are controlled in the vehicle-to-vehicle distance control mode.

- When there are no vehicles traveling ahead, the vehicle-to-vehicle distance control mode maintains the speed set by the driver. The set speed range is between approximately 32 and 144 km/h (20 and 90 MPH).
- When there is a vehicle traveling ahead, the vehicle-to-vehicle distance control mode adjusts the speed to maintain the distance, selected by driver, from a vehicle ahead. The adjusting speed range is up to the set speed.

If the vehicle ahead come to a stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges a standstill with a warning chime.

- When the vehicle traveling ahead has moved out from its lane of travel, the vehicle-to-vehicle distance control mode accelerates and maintains vehicle speed up to the set speed.

CAUTION:

If the vehicle ahead comes to stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges that the vehicle has come to a standstill and sound a warning chime.

To prevent the vehicle from moving, the driver must depress the brake pedal.

NOTE:

- When the accelerator pedal is depressed, the brake operation and the warning are not performed by the ICC system.
- When the DCA system is ON and when the accelerator pedal is depressed, the DCA system is operated. Refer to [DAS-12. "System Description"](#).

OPERATION DESCRIPTION

Quickly push (less than 1.5 seconds) and release the MAIN switch ON.

The MAIN switch indicator, set distance indicator, own vehicle indicator, and set vehicle speed indicator come on and ICC system is set to a standby state.

ICC sensor integrated unit performs the control as per the following:

Constant speed	Comparing the set vehicle speed with the current vehicle speed, transmit the command to ECM via CAN communication to reach the set vehicle speed, and controls the electric throttle control actuator.
Deceleration	When a vehicle ahead (slower than driver set vehicle speed) appears or when a vehicle ahead slows down, the system controls the electric throttle control actuator into the close direction and decelerates the vehicle. If greater deceleration is necessary, the system transmits the brake fluid pressure command signal to the brake booster control unit via ITS communication and operates the brake.
Following	The system controls the electric throttle control actuator and the brake fluid pressure to keep the proper distance between the vehicles according to the vehicle speed change of the vehicle ahead.
Acceleration	When a vehicle ahead is not detected because of it changes lanes or own vehicle changes lanes during the following driving, the system controls the electric throttle control actuator in the open direction and accelerates the vehicle to the set vehicle speed slowly.

Set Condition

Under a standby state, pushing down the SET/COAST switch will start system control.

- When vehicle speed is between approximately 32 km/h and 144 km/h (20 MPH and 90 MPH).
- When vehicle speed is below approximately 32 km/h (20 MPH) if the vehicle ahead is detected. The set vehicle speed becomes 32 km/h (20 MPH).

If the system is canceled by conditions 1-6 below, the system will resume control at the last set cruising speed by pushing up the RESUME/ACCELERATE switch.

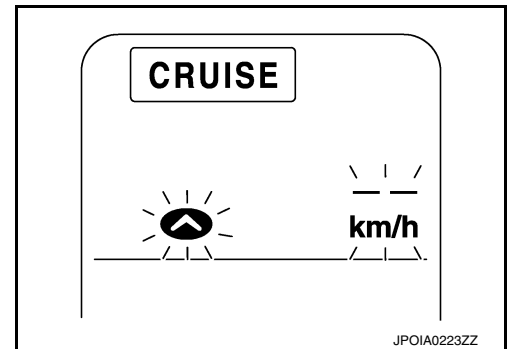
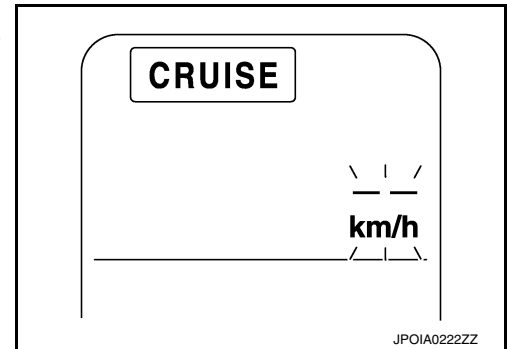
NOTE:

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

- When the SET/COAST switch is pushed under the following conditions, the system cannot be set and the set vehicle speed indicator will blink for approximately 2 seconds.
- When traveling below 32 km/h (20 MPH) and the vehicle ahead is not detected.
- When the selector lever is not in the “D”, “DS” position or manual mode.
- When the front wipers are operating at LO or HI.
(If the vehicle is equipped with a rain sensing auto-wiper, the system may cancel when the wipers are set to INT)
- When the parking brakes are applied.
- When the brakes are operated by the driver.
- When the SET/COAST switch is pushed under the following conditions, the system cannot be set. A warning chime will sound and the set speed indicator and own vehicle indicator will blink.
- When the snow mode switch is ON. (To use the ICC system, turn OFF the snow mode switch, push the MAIN switch to turn OFF the ICC system and reset the ICC system by pushing the MAIN switch again.)
- When the VDC is OFF. (To use the ICC system, turn ON the VDC system, push the MAIN switch to turn OFF the ICC system and reset the ICC system by pushing the MAIN switch again.)
- When ABS or VDC (including the TCS) operates.
- When driving into a strong light (i.e., sunlight).
- When the wheel is slipping. (To use the ICC system, make sure the wheels are no longer spinning, push the MAIN switch to turn OFF the ICC system and reset the ICC system by pushing the MAIN switch again.)



Cancel Conditions

1. When CANCEL switch is pressed.
2. When brake pedal is depressed.
3. When the vehicle ahead is not detected below the speed of 24 km/h (15 MPH).
4. When the selector lever is not in the “D”, “DS” position or manual mode.
5. When the parking brakes are applied.
6. When the system judges the vehicle is at standstill.
7. When the front wipers are operating at LO or HI.
(If the vehicle is equipped with a rain sensing auto-wiper, the system may cancel when the wipers are set to INT)
8. When the snow mode switch is turned ON.
9. When ABS or VDC (including the TCS) operates.
10. When the MAIN switch is turned OFF.
11. When a wheel slips.
12. When driving into a strong light (i.e., sunlight).
13. When the VDC is turned OFF.
14. When the system malfunction occurs.

OPERATION AND DISPLAY

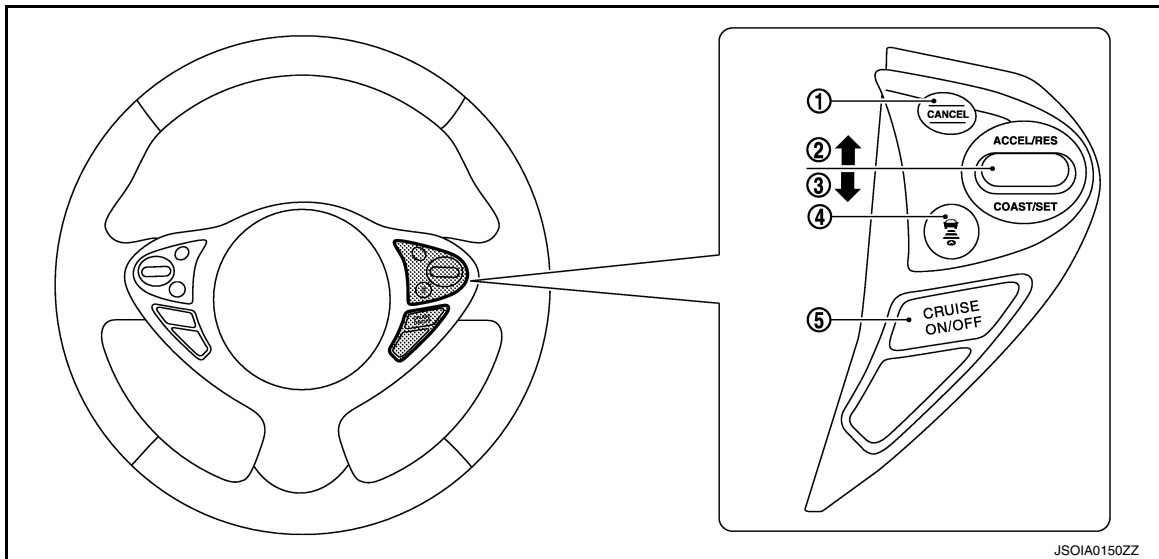
ICC Steering Switch

A
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VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

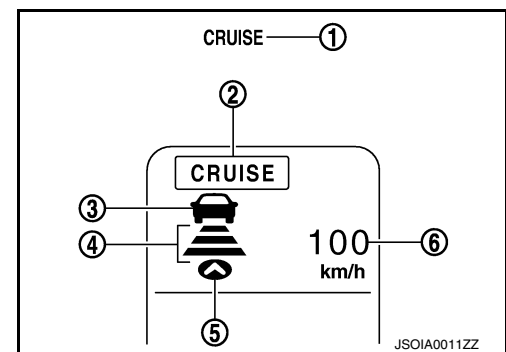
[ICC (FULL SPEED RANGE)]



- | | | |
|--------------------|-----------------------------|---------------------|
| 1. CANCEL switch | 2. RESUME/ACCELERATE switch | 3. SET/COAST switch |
| 4. DISTANCE switch | 5. MAIN switch | |

No.	Switch name	Description
1	CANCEL switch	Deactivates the system without erasing the set speed.
2	RESUME/ACCELERATE switch	Resumes set speed or increases speed incrementally. - Push and hold the switch to increase the set speed by 5 km/h (5 MPH). - Push then quickly release the switch to increase the set speed by 1 km/h (1 MPH).
3	SET/COAST switch	Sets desired cruise speed or reduces speed incrementally. - Push and hold the switch to decrease the set speed by 5 km/h (5 MPH). - Push then quickly release the switch to decrease the set speed by 1 km/h (1 MPH). NOTE: The minimum set speed is 32 km/h (20 MPH).
4	DISTANCE switch	Changes the following distance from: Long, Middle, Short.
5	MAIN switch	Master switch to activate the system (Press for less than 1.5 seconds).

ICC System Display (On The Information Display)



No.	Display item	Description
1	ICC system warning lamp	Indicates that a malfunction occurs in the ICC system.
2	MAIN switch indicator	Indicates that the MAIN switch is ON (ICC system ON).
3	Vehicle ahead detection indicator	Indicates whether it detects a vehicle ahead.
4	Set distance indicator	Indicates the selected distance between vehicles set with the DISTANCE switch.
5	Own vehicle indicator	Indicates the own vehicle.
6	Set vehicle speed indicator	- Indicates the set vehicle speed. - Indicates 32 km/h (20 MPH) when setting less than 32 km/h (20 MPH).

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

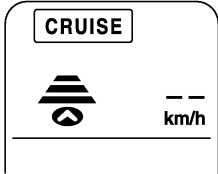
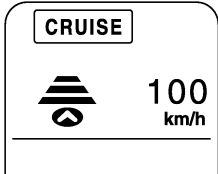
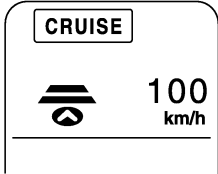
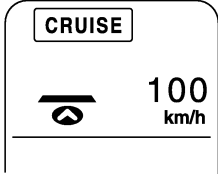
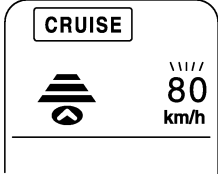
< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

System Control Condition Display

Quickly push (less than 1.5 seconds) and release the MAIN switch ON.

The MAIN switch indicator (cruise indicator), set distance indicator, own vehicle indicator, and set vehicle speed indicator come on and ICC system is set to a standby state.

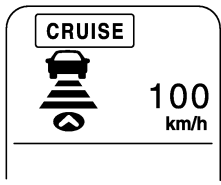
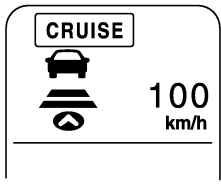
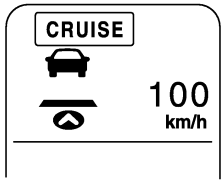
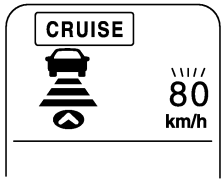
Condition			Display on ICC system display
Standby mode			 JPOIA0141ZZ
Control mode	Without a vehicle ahead	Set vehicle distance (Long)	 JPOIA0142ZZ
		Set vehicle distance (Middle)	 JPOIA0143ZZ
		Set vehicle distance (Short)	 JPOIA0144ZZ
		When the vehicle speed exceeds the set speed	 JPOIA0145ZZ

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VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Condition			Display on ICC system display
Control mode	With a vehicle ahead	Set vehicle distance (Long)	 JPOIA0146ZZ
		Set vehicle distance (Middle)	 JPOIA0147ZZ
		Set vehicle distance (Short)	 JPOIA0148ZZ
		When the vehicle speed exceeds the set speed	 JPOIA0149ZZ

NOTE:

The display of the DCA system is given priority when the DCA system is ON in a standby mode. (The set vehicle speed indicator, set distance indicator, and own vehicle indicator are not displayed). Refer to [DAS-12, "System Description"](#).

Approach Warning Display

If own vehicle comes closer to a vehicle ahead due to rapid deceleration of that vehicle or if another vehicle cuts in, the system warns the driver with the chime and ICC system display. Decelerate by depressing the brake pedal to maintain a safe vehicle distance if:

- The chime sounds.
- The vehicle ahead detection indicator and set distance indicator blink.

The warning chime may not sound in some cases when there is a short distance between vehicles. Some examples are:

- When the vehicles are traveling at the same speed and the distance between vehicles is not changing.
- When the vehicle ahead is traveling faster and the distance between vehicles is increasing.
- When a vehicle cuts in at near own vehicle.

The warning chime will not sound when own vehicle approaches vehicles that are parked or moving slowly.

The warning chime will not sound when the accelerator pedal is depressed, overriding the system.

The approach warning chime may sound and the system display may blink when the ICC sensor detects some reflectors which are fitted on vehicles in other lanes or on the side of the road.

This may cause the ICC system to decelerate or accelerate the vehicle.

The ICC sensor may detect these reflectors when the vehicle is driven on winding roads, hilly roads or when entering or exiting a curve.

The ICC sensor may also detect reflectors on narrow roads or in road construction zones.

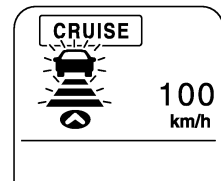
In these cases driver will have to manually control the proper distance ahead of own vehicle.

Also, the sensor sensitivity can be affected by vehicle operation (steering maneuver or driving position in the lane) or traffic or vehicle condition (for example, if a vehicle is being driven with some damage).

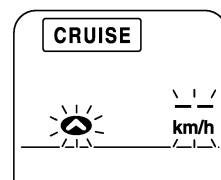
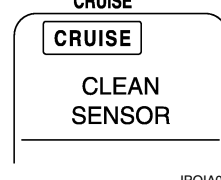
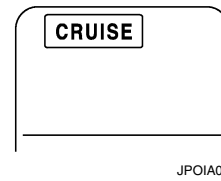
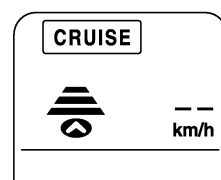
VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Condition	Display on ICC system display
When own vehicle comes closer to the vehicle ahead and it is judged that the distance between the vehicles is not sufficient	 JPOIA0150ZZ

Warning Lamp and Automatic Cancellation Display

Condition	Description	Display on ICC system display
- When the VDC is turned OFF - When the VDC or ABS (including the TCS) operates - When a wheel slips - When the snow mode switch is turned ON - When driving into a strong light (i.e., sunlight)	A chime sounds and the control is automatically canceled. NOTE: When the conditions listed above are no longer present, turn the system OFF using the MAIN switch. Turn the ICC system back on to use the system.	 JPOIA0151ZZ
Warning display	When the sensor window is dirty, making it impossible to detect a vehicle ahead.	A chime sounds and the control is automatically canceled. NOTE: Park the vehicle in a safe place, turn the engine OFF. Clean the sensor window with a soft cloth and then perform the settings again.  JPOIA0152ZZ
	When the ICC system is malfunctioning	A chime sounds and the control is automatically canceled. NOTE: Turn the engine OFF and restart engine. If there is no malfunction, it is possible to set the system.  JPOIA0153ZZ
Automatic cancellation display	- When brake pedal is depressed - When CANCEL switch is pressed - When a vehicle ahead is not detected below the speed of 24 km/h (15 MPH) - When the system judges the vehicle is at standstill - When the selector lever is not in "D", "DS" position or manual mode - When the front wipers are operating at LO or HI (If the vehicle is equipped with a rain sensing auto-wiper, the system may cancel when the wipers are set to INT) - When the parking brake are applied	A chime sounds and the control is automatically canceled. NOTE: - The system will be in a standby, after the control is automatically canceled. - A chime sounds when the control is automatically canceled, except when brake pedal is depressed or when CANCEL switch is pressed.  JPOIA0154ZZ

NOTE:

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VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

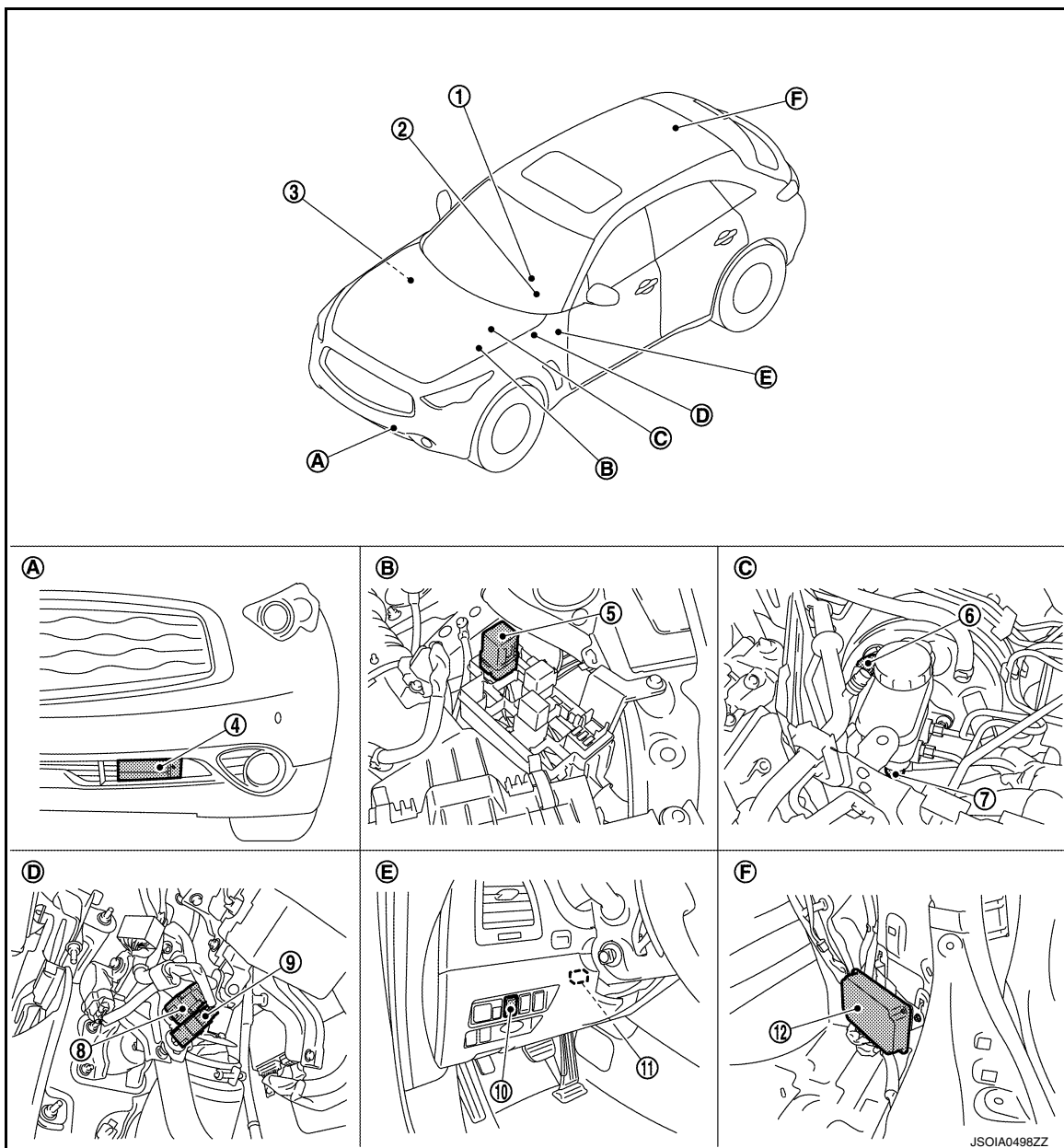
< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

When the ICC system is automatically canceled, the cancellation condition can be displayed on "WORK SUPPORT" of CONSULT (ICC/ADAS).

Component Parts Location

INFOID:0000000010579623



- | | | |
|-------------------------------|---|--|
| 1. ICC steering switch | 2. Information display, ICC system warning lamp, IBA OFF indicator lamp | 3. ECM
Refer to EC-51, "Component Parts Location" . |
| 4. ICC sensor integrated unit | 5. ICC brake hold relay | 6. Booster solenoid/Release switch |
| 7. Brake pressure sensor | 8. Stop lamp switch | 9. ICC brake switch |
| 10. IBA OFF switch | 11. ICC warning chime | 12. Brake booster control unit |
| A. Front bumper (LH) | B. Engine room (LH) | C. Inside brake master cylinder cover |
| D. Upper side of brake pedal | E. Instrument driver lower panel (LH) | F. Luggage room (RH) |

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Component Description

INFOID:000000010579624

×: Applicable

Component	Function Description			Description
	*1	*2	*3	
ICC sensor integrated unit	×	×	×	Refer to CCS-47, "Description" .
ECM	×	×	×	Refer to CCS-82, "Description" .
ABS actuator and electric unit (control unit)	×	×	×	Refer to CCS-53, "Description" .
BCM	×			Transmits the front wiper request signal to ICC sensor integrated unit via CAN communication.
TCM	×	×		Refer to CCS-123, "Description" .
Unified meter and A/C amp.	×	×	×	Receives the meter display signal, ICC warning lamp signal, and IBA OFF indicator lamp signal from ICC sensor integrated unit via CAN communication and transmits them to the combination meter via the communication line.
Combination meter	×	×	×	Performs the following operations using the signals received from the unified meter and A/C amp. via the communication line. - Displays the ICC system operation status using the meter display signal. - Illuminates the ICC system warning lamp using the ICC warning lamp signal. - Illuminates the IBA OFF indicator lamp using the IBA OFF indicator lamp signal.
ICC brake switch	×	×	×	Refer to CCS-55, "Description" .
Stop lamp switch	×	×	×	
ICC brake hold relay	×		×	Refer to CCS-75, "Description" .
Brake booster control unit	×	×	×	Refer to CCS-93, "Description" .
Brake booster	×		×	Refer to CCS-93, "Description" .
Brake pressure sensor	×		×	Refer to CCS-63, "Description" .
Booster solenoid/Release switch	×		×	- Refer to CCS-65, "Description" for booster solenoid. - Refer to CCS-68, "Description" for release switch.
ICC warning chime	×	×	×	Refer to CCS-136, "Description" .
Steering angle sensor	×			Refer to CCS-117, "Description" .
IBA OFF switch			× ^{NOTE}	Refer to CCS-112, "Description" .

*1: Vehicle-to-vehicle distance control mode

*2: Conventional (fixed speed) cruise control mode

*3: IBA system and Brake Assist (With Preview Function)

NOTE:

Only IBA system uses

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CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE FUNCTION

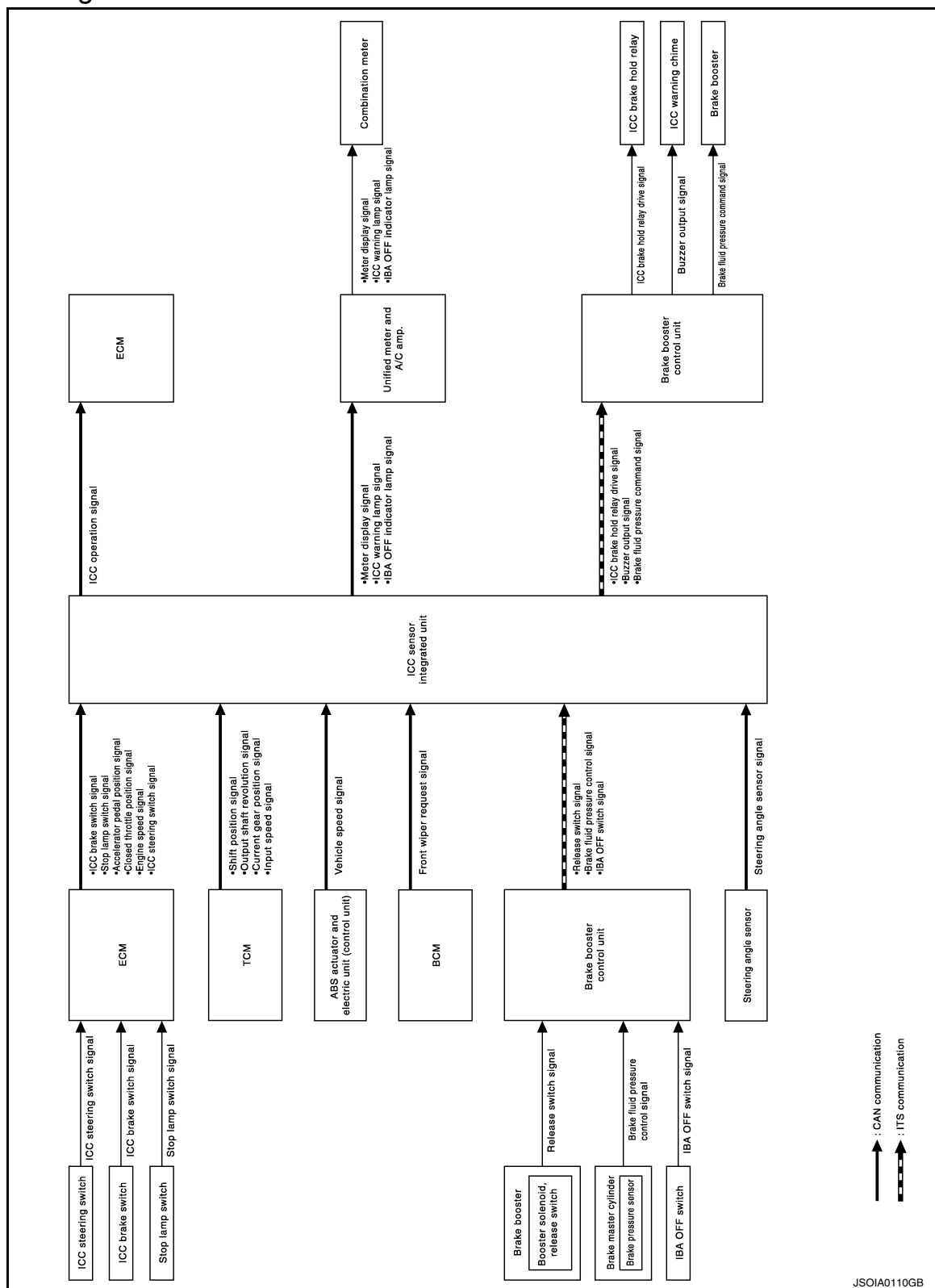
< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE FUNCTION

System Diagram

INFOID:0000000010579625



System Description

INFOID:0000000010579626

FUNCTION DESCRIPTION

CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

This mode allows driving at a speed between 40 to 144 km/h (25 to 90 MPH) without keeping foot on the accelerator pedal.

NOTE:

In the conventional (fixed speed) cruise control mode, a warning chime does not sound to warn driver if own vehicle are too close to the vehicle ahead, as neither the presence of the vehicle ahead nor the vehicle-to-vehicle distance is detected.

OPERATION DESCRIPTION

To turn ON the conventional (fixed speed) cruise control mode, push and hold the MAIN switch for longer than approximately 1.5 seconds when ICC system is OFF.

When pushing the MAIN switch ON, the ICC system display and the MAIN switch indicator are displayed on the information display.

After hold the MAIN switch ON for longer than approximately 1.5 seconds, the ICC system display goes out.

The MAIN switch indicator stays lit and brings the system to standby state.

NOTE:

- To turn on the vehicle-to-vehicle distance control mode again, turn OFF the system and quickly push (less than 1.5 seconds) the MAIN switch.
- When the DCA system is ON, the conventional (fixed speed) cruise control mode cannot be turned on even though the MAIN switch is pushed and held.
- To turn ON the conventional (fixed speed) cruise control mode, turn OFF the DCA system. Refer to [DAS-12, "System Description"](#).

ICC sensor integrated unit performs the control as per the following:

Constant speed	Comparing the set vehicle speed with the current vehicle speed, transmits the command to ECM via CAN communication to reach the set vehicle speed, and controls the electronic throttle control actuator.
----------------	---

Set Condition

When the system is under a standby state and the vehicle speed is between approximately 40 km/h (25 MPH) and 144 km/h (90 MPH), pushing the SET/COAST switch will start system control.

If the system is canceled by conditions 1-6 below, the system will resume control at the last set cruising speed by pushing the RESUME/ACCELERATE switch.

Cancel conditions

1. When CANCEL switch is pressed.
2. When brake pedal depressed.
3. When the vehicle speed falls below approximately 32 km/h (20 MPH).
4. When the vehicle slows down more than 13 km/h (8 MPH) below the set speed.
5. When the selector lever is not in the "D", "DS" position or manual mode.
6. When the parking brakes are applied.
7. When the MAIN switch is turned OFF.
8. When VDC (including the TCS) operates.
9. When a wheel slips.
10. When the system malfunction occurs.

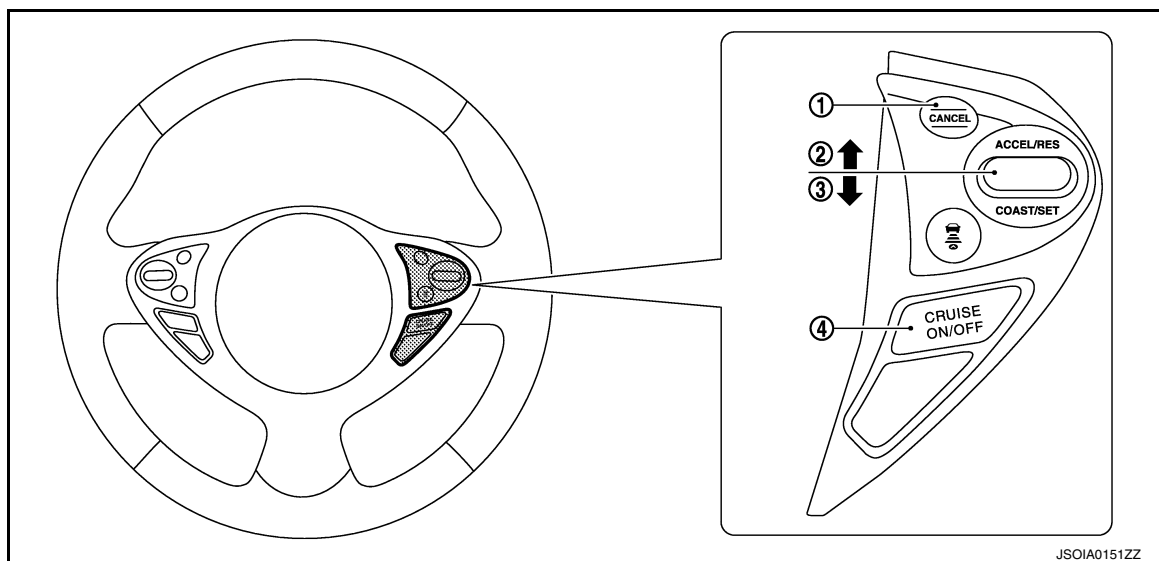
OPERATION AND DISPLAY

ICC Steering Switch

CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

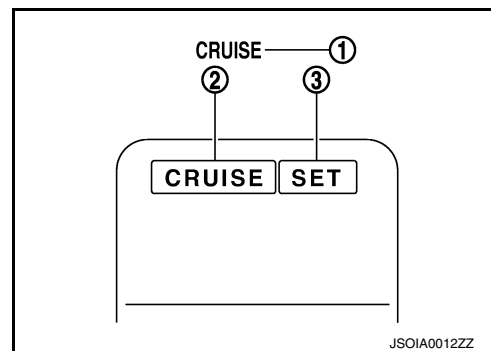
[ICC (FULL SPEED RANGE)]



1. CANCEL switch
2. RESUME/ACCELERATE switch
3. SET/COAST switch
4. MAIN switch

No.	Description	Function
1	CANCEL switch	Deactivates system without erasing set speed.
2	RESUME/ACCELERATE switch	Resumes set speed or increases speed incrementally.
3	SET/COAST switch	Sets desired cruise speed or reduces speed incrementally.
4	MAIN switch	Master switch to activate the system (Press for more than 1.5 seconds).

ICC System Display (On The Information Display)



No.	Description	Function
1	ICC system warning lamp	Indicates that a malfunction occurs in the ICC system.
2	MAIN switch indicator	Indicates that the MAIN switch is ON (ICC system ON).
3	SET switch indicator	Indicates that the set conventional (fixed speed) cruise control mode is controlled.

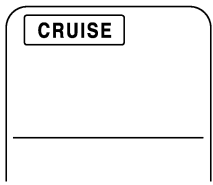
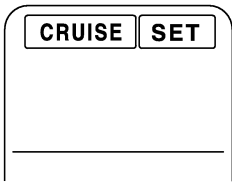
System Control Condition Display

Push and hold the MAIN switch for longer than approximately 1.5 seconds. This mode will be in a standby state for setting.

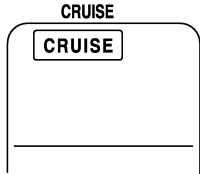
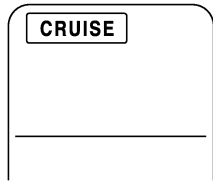
CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Condition	Display on ICC system display
Standby mode	 JPOIA0158ZZ
Control mode	 JPOIA0156ZZ

Warning and Automatic Cancellation Display

Condition	Description	Display on ICC system display
Warning display	When the ICC system is malfunctioning A chime sounds and the control is automatically canceled. NOTE: Turn the engine OFF and restart engine. If there is no malfunction, it is possible to set the system.	 JPOIA0157ZZ
System cancel display	- When brake pedal is depressed - When pressing CANCEL switch - When the vehicle speed falls below approximately 32 km/h (20 MPH) - When the vehicle slows down more than 13 km/h (8 MPH) below the set speed - When the selector lever is not in the "D", "DS" position or manual mode - When the parking brakes are applied - When VDC (including the TCS) operates - When a wheel slips A chime sounds and the control is automatically canceled. NOTE: - The system will be in a standby, after the control is automatically canceled. - A chime sounds when the control is automatically canceled, except when brake pedal is depressed or when CANCEL switch is pressed.	 JPOIA0158ZZ

NOTE:

When the ICC system is automatically canceled, the cancellation condition can be displayed on "WORK SUPPORT" of CONSULT (ICC/ADAS).

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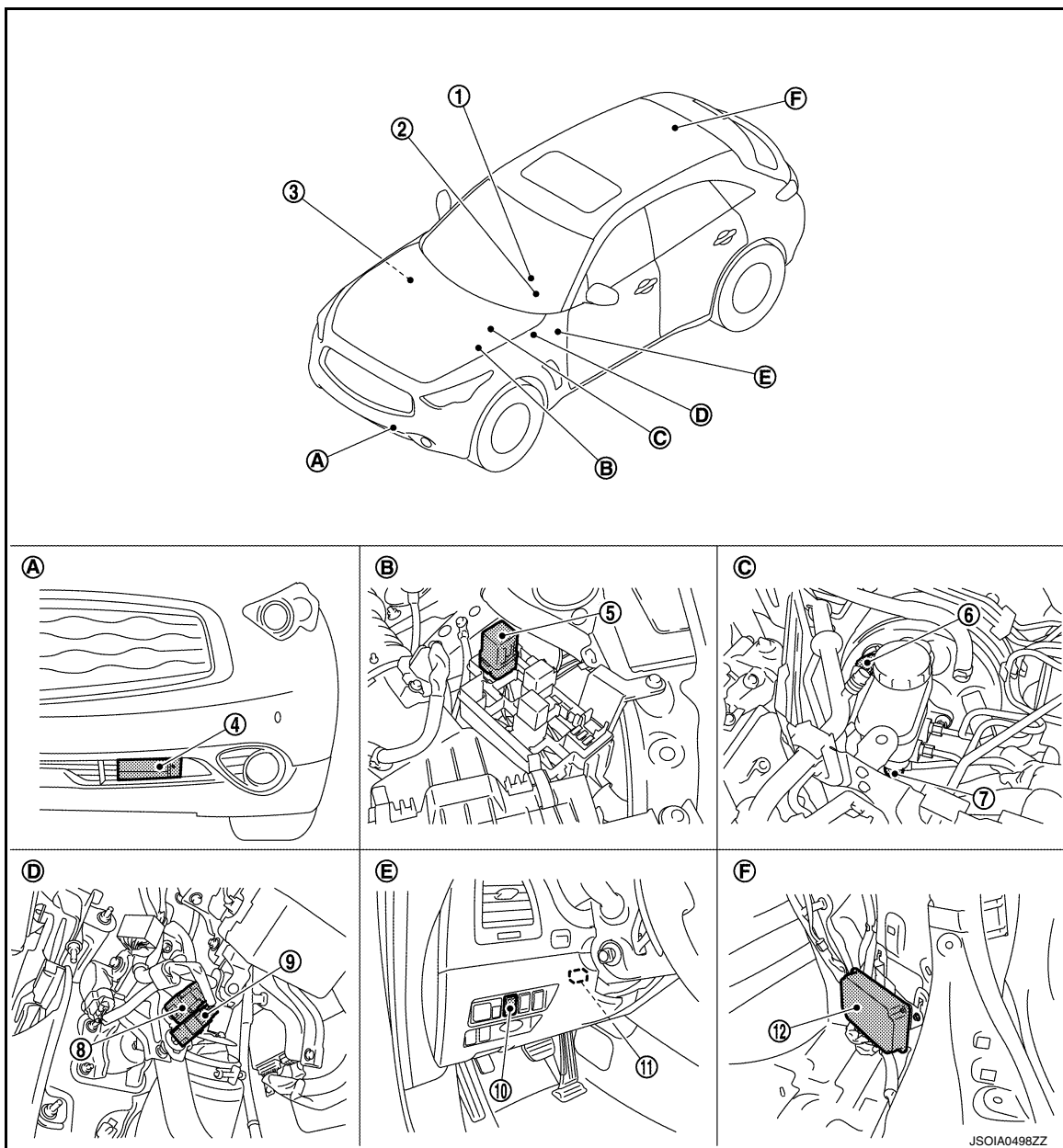
CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Component Parts Location

INFOID:000000010579627



- | | | |
|-------------------------------|---|--|
| 1. ICC steering switch | 2. Information display, ICC system warning lamp, IBA OFF indicator lamp | 3. ECM
Refer to EC-51. "Component Parts Location" . |
| 4. ICC sensor integrated unit | 5. ICC brake hold relay | 6. Booster solenoid/Release switch |
| 7. Brake pressure sensor | 8. Stop lamp switch | 9. ICC brake switch |
| 10. IBA OFF switch | 11. ICC warning chime | 12. Brake booster control unit |
| A. Front bumper (LH) | B. Engine room (LH) | C. Inside brake master cylinder cover |
| D. Upper side of brake pedal | E. Instrument driver lower panel (LH) | F. Luggage room (RH) |

CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE FUNCTION

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Component Description

INFOID:0000000010579628

×: Applicable

Component	Function Description			Description
	*1	*2	*3	
ICC sensor integrated unit	×	×	×	Refer to CCS-47, "Description" .
ECM	×	×	×	Refer to CCS-82, "Description" .
ABS actuator and electric unit (control unit)	×	×	×	Refer to CCS-53, "Description" .
BCM	×			Transmits the front wiper request signal to ICC sensor integrated unit via CAN communication.
TCM	×	×		Refer to CCS-123, "Description" .
Unified meter and A/C amp.	×	×	×	Receives the meter display signal, ICC warning lamp signal, and IBA OFF indicator lamp signal from ICC sensor integrated unit via CAN communication and transmits them to the combination meter via the communication line.
Combination meter	×	×	×	Performs the following operations using the signals received from the unified meter and A/C amp. via the communication line. - Displays the ICC system operation status using the meter display signal. - Illuminates the ICC system warning lamp using the ICC warning lamp signal. - Illuminates the IBA OFF indicator lamp using the IBA OFF indicator lamp signal.
ICC brake switch	×	×	×	Refer to CCS-55, "Description" .
Stop lamp switch	×	×	×	
ICC brake hold relay	×		×	Refer to CCS-75, "Description" .
Brake booster control unit	×	×	×	Refer to CCS-93, "Description" .
Brake booster	×		×	Refer to CCS-93, "Description" .
Brake pressure sensor	×		×	Refer to CCS-63, "Description" .
Booster solenoid/Release switch	×		×	- Refer to CCS-65, "Description" for booster solenoid. - Refer to CCS-68, "Description" for release switch.
ICC warning chime	×	×	×	Refer to CCS-136, "Description" .
Steering angle sensor	×			Refer to CCS-117, "Description" .
IBA OFF switch			× ^{NOTE}	Refer to CCS-112, "Description" .

*1: Vehicle-to-vehicle distance control mode

*2: Conventional (fixed speed) cruise control mode

*3: IBA system and Brake Assist (With Preview Function)

NOTE:

Only IBA system uses

CCS

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

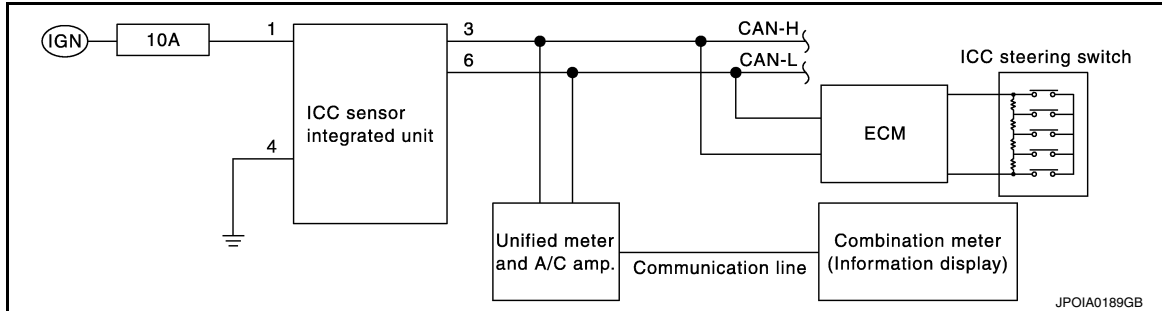
DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

Diagnosis Description

INFOID:0000000010579629

The DTC is displayed on the information display by operating the ICC steering switch.

ON BOARD SELF-DIAGNOSIS SYSTEM DIAGRAM



ON BOARD SELF-DIAGNOSIS OPERATION PROCEDURE

CAUTION:

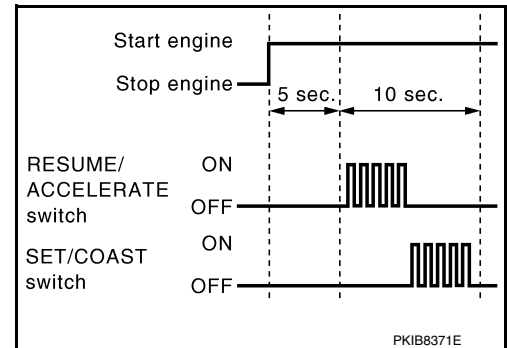
Start condition of on board self-diagnosis

- ICC system OFF
- DCA system OFF
- Vehicle speed 0 km/h (0 MPH)

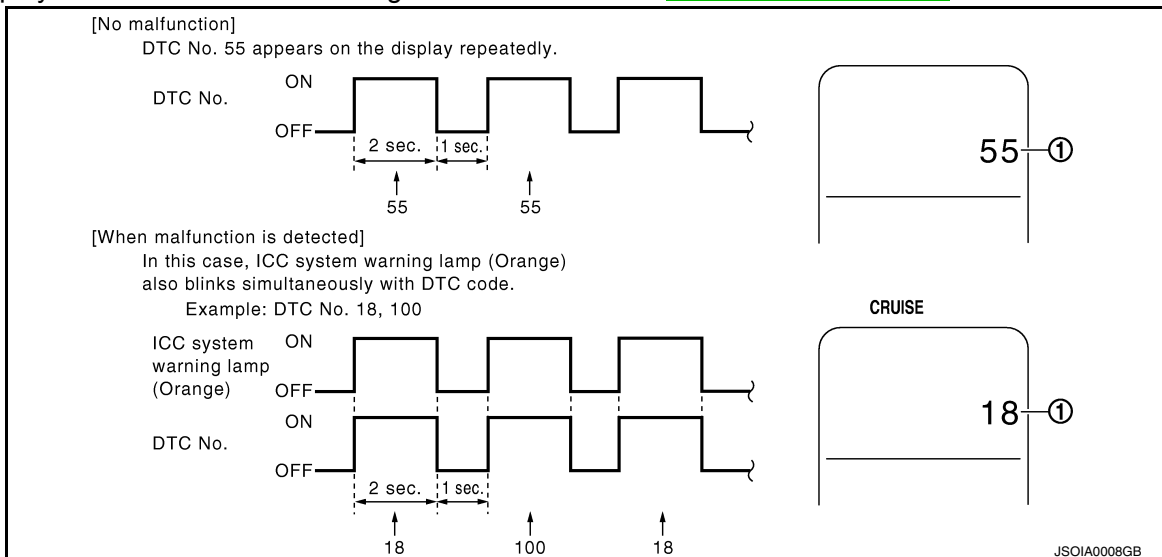
1. Turn the ignition switch OFF.
2. Start the engine.
3. Wait for 5 seconds after starting the engine. Push up the RESUME/ACCELERATE switch 5 times and push down the SET/COAST switch 5 times within 10 seconds.

NOTE:

If the above operation cannot be performed within 10 seconds after waiting for 5 seconds after starting the engine, repeat the procedure from step 1.



4. The DTC is displayed on the set vehicle speed indicator (1) on the ICC system display on the information display when the on board self-diagnosis starts. Refer to [CCS-153, "DTC Index"](#).



NOTE:

- It displays for up to 5 minutes and then stops.

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

- If multiple malfunctions exist, up to 3 DTCs can be stored in memory at the most, and the most recent one is displayed first.

WHEN THE ON BOARD SELF-DIAGNOSIS DOES NOT START

If the on board self-diagnosis does not start, check the following items.

Assumed abnormal part		Inspection item
ICC system display	Combination meter malfunction	Check that the self-diagnosis function of the combination meter operates. Refer to MWI-43, "Diagnosis Description" .
	Unified meter and A/C amp. malfunction	Check power supply and ground circuit of unified meter and A/C amp. Refer to MWI-58, "UNIFIED METER AND A/C AMP. : Diagnosis Procedure" .
	Communication error of the combination meter and the unified meter and A/C amp.	Start the self-diagnosis of the unified meter and A/C amp. and then check the self-diagnosis results. Refer to MWI-117, "DTC Index" .
ICC steering switch malfunction		Perform the inspection for DTC “C1A06”. Refer to CCS-60, "Diagnosis Procedure" .
Harness malfunction between ICC steering switch and ECM		
ECM malfunction		
ICC sensor integrated unit malfunction		• Check power supply and ground circuit of ICC sensor integrated unit. Refer to CCS-134, "ICC SENSOR INTEGRATED UNIT : Diagnosis Procedure". • Perform SELF-DIAGNOSIS for “ICC/ADAS” with CONSULT, and then check the malfunctioning parts. Refer to CCS-153, "DTC Index".

HOW TO ERASE ON BOARD SELF-DIAGNOSIS

- Turn the ignition switch OFF.
- Start the engine, and then start the on board self-diagnosis.
- Press the CANCEL switch 5 times, and then press the DISTANCE switch 5 times under the condition that the on board self-diagnosis starts.

NOTE:

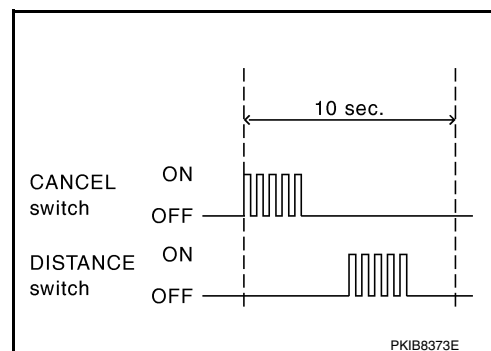
- Complete the operation within 10 seconds after pressing the CANCEL switch first.
- If the operation is not completed within 10 seconds, repeat the procedure from step 1.

- DTC 55 is displayed after erasing.

NOTE:

DTCs for existing malfunction can not be erased.

- Turn ignition switch OFF, and finish the diagnosis.



CONSULT Function (ICC/ADAS)

INFOID:0000000010579630

DESCRIPTION

CONSULT performs the following functions via CAN communication using ICC sensor integrated unit.

Diagnosis mode	Description
Work Support	- It can monitor the adjustment direction indication in order to perform the laser beam aiming operation smoothly. - Displays causes of automatic cancellation of the ICC system.
Self Diagnostic Result	Displays malfunctioning system memorized in ICC sensor integrated unit.
Data Monitor	Displays real-time input/output data of ICC sensor integrated unit.
Active Test	Enables operation check of electrical loads by transmitting driving signal to them.

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Diagnosis mode	Description
Ecu Identification	- Displays ICC sensor integrated unit part number. - Displays brake booster control unit part number. - Displays accelerator pedal assembly part number.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.

WORK SUPPORT

Work support items	Description
CAUSE OF AUTO-CANCEL	Displays causes of automatic cancellation of the ICC system.
LASER BEAM ADJUST	Outputs laser beam, calculates dislocation of the beam, and indicates adjustment direction.

Display Items For The Cause Of Automatic Cancellation

NOTE:

- Causes of the maximum five cancellations (system cancel) are displayed.
- The displayed cancellation causes display the number of the ignition switch ON/OFF up to 254. It is fixed to 254 if it is over 254. It returns to 0 when the same cancellation cause is detected again.

×: Applicable

Cause of cancellation	Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	DCA system	Description
OPERATING WIPER	×			The wiper operates at HI or LO (it includes when the wiper is operated at LO or HI with the wiper switch INT position)
OPERATING ABS	×		×	ABS function was operated
OPERATING TCS	×	×	×	TCS function was operated
OPERATING VDC	×	×	×	VDC function was operated
ECM CIRCUIT	×	×		ECM did not permit ICC operation
OPE SW VOLT CIRC	×	×	×	The ICC steering switch input voltage is not within standard range.
LASER SUNBEAM	×		×	Intense light such as sunlight entered ICC sensor integrated unit light sensing part
LASER TEMP	×		×	Temperature around ICC sensor integrated unit became low
OP SW DOUBLE TOUCH	×	×		ICC steering switches were pressed at the same time
WHL SPD ELEC NOISE	×	×	×	Wheel speed sensor signal caught electromagnetic noise
VDC/TCS OFF SW	×		×	VDC OFF switch was pressed
SNOW MODE SW	×		×	Snow mode switch was pressed
VHCL SPD UNMATCH	×	×	×	Wheel speed became different from A/T vehicle speed
TIRE SLIP	×	×		Wheel slipped
IGN LOW VOLT	×	×	×	Power supply voltage became low
WHEEL SPD UNMATCH	×	×	×	The wheel speeds of 4 wheels are out of the specified values
VHCL SPD DOWN	×	×	×	Vehicle speed lower than the speed as follows - Vehicle-to-vehicle distance control mode is 24 km/h (15 MPH) - Conventional (fixed speed) cruise control mode is 32 km/h (20 MPH)
CAN COMM ERROR	×	×	×	ICC sensor integrated unit received an abnormal signal with CAN communication
ABS/TCS/VDC CIRC	×	×	×	An abnormal condition occurs in VDC/TCS/ABS system
BCU CIRCUIT	×	×	×	The brake booster control unit is malfunctioning

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

INCHING LOST	×			A vehicle ahead is not detected during the following driving when the vehicle speed is approximately 24 km/h (15 MPH) or less
ASCD VHCL SPD DTAC		×		Vehicle speed is detached from set vehicle speed
ASCD DOUBLE COMD		×		Cancel switch and operation switch are detected simultaneously
PARKING BRAKE ON	×	×		The parking brake is operating
APA HI TEMP			×	The accelerator pedal actuator integrated motor temperature is high
NO RECORD	×	×	×	—

Laser Beam Adjust

Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

SELF DIAGNOSTIC RESULT

Refer to [CCS-153, "DTC Index"](#).

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

×: Applicable

Monitored item [Unit]	MAIN SIGNAL	Description
MAIN SW [On/Off]	×	Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication).
SET/COAST SW [On/Off]	×	Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication).
CANCEL SW [On/Off]	×	Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication).
RESUME/ACC SW [On/Off]	×	Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication).
DISTANCE SW [On/Off]		Indicates [On/Off] status as judged from ICC steering switch signal (ECM transmits ICC steering switch signal through CAN communication).
CRUISE OPE [On/Off]	×	Indicates whether controlling or not (ON means "controlling").
BRAKE SW [On/Off]	×	Indicates [On/Off] status as judged from ICC brake switch signal (ECM transmits ICC brake switch signal through CAN communication).
STOP LAMP SW [On/Off]	×	Indicates [On/Off] status as judged from stop lamp switch signal (ECM transmits stop lamp switch signal through CAN communication).
IDLE SW [On/Off]		Indicates [On/Off] status of idle position read from ICC sensor integrated unit through CAN communication (ECM transmits On/Off status through CAN communication).
SET DISTANCE [Short/Mid/Long]	×	Indicates set distance memorized in ICC sensor integrated unit.
CRUISE LAMP [On/Off]	×	Indicates [On/Off] status of MAIN switch indicator output.
OWN VHCL [On/Off]		Indicates [On/Off] status of own vehicle indicator output.
VHCL AHEAD [On/Off]		Indicates [On/Off] status of vehicle ahead detection indicator output.
ICC WARNING [On/Off]		Indicates [On/Off] status of ICC system warning lamp output.
VHCL SPEED SE [km/h] or [mph]	×	Indicates vehicle speed calculated from ICC sensor integrated unit through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication].
SET VHCL SPD [km/h] or [mph]	×	Indicates set vehicle speed memorized in ICC sensor integrated unit.

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Monitored item [Unit]	MAIN SIGNAL	Description
BUZZER O/P [On/Off]		Indicates [On/Off] status of ICC warning chime output.
THRTL SENSOR [deg]	×	NOTE: The item is displayed, but it is not monitored.
ENGINE RPM [rpm]		Indicates engine speed read from ICC sensor integrated unit through CAN communication (ECM transmits engine speed through CAN communication).
WIPER SW [Off/Low/High]		Indicates wiper [Off/Low/High] status (BCM transmits front wiper request signal through CAN communication).
YAW RATE [deg/s]		NOTE: The item is displayed, but it is not monitored.
BA WARNING [On/Off]		Indicates [On/Off] status of IBA OFF indicator lamp output.
FUNC ITEM [FUNC1]		Indicates the equipment status of DCA system and LDP system.
LDP SELECT [On/Off]		Indicates [On/Off] status of LDP system setting displayed on the navigation screen.
DCA SELECT [On/Off]		Indicates [On/Off] status of DCA system setting displayed on the navigation screen.
RELEASE SW NO [On/Off]		Indicates [On/Off] status as judged from release switch signal. ON: When brake pedal is depressed. OFF: When brake pedal is not depressed.
RELEASE SW NC [On/Off]		Indicates [On/Off] status as judged from release switch signal. ON: When brake pedal is not depressed. OFF: When brake pedal is depressed.
STP LMP DRIVE [On/Off]	×	Indicates [On/Off] status of ICC brake hold relay drive output.
PRESS SENS [bar]	×	Indicates brake fluid pressure value calculated from signal voltage of brake pressure sensor.
D RANGE SW [On/Off]		Indicates [On/Off] status of "D" or "DS" or "M" positions read from ICC sensor integrated unit through CAN communication; ON when position "D" or "DS" or "M" (TCM transmits shift position signal through CAN communication).
NP RANGE SW [On/Off]		Indicates shift position signal read from ICC sensor integrated unit through CAN communication (TCM transmits shift position signal through CAN communication).
PKB SW [On/Off]		Parking brake switch status [On/Off] judged from the parking brake switch signal that ICC sensor integrated unit readout via CAN communication is displayed (Unified meter and A/C amp. transmits the parking brake switch signal via CAN communication).
PWR SUP MONI [V]	×	Indicates IGN voltage input by ICC sensor integrated unit.
VHCL SPD AT [km/h] or [mph]		Indicates vehicle speed calculated from A/T vehicle speed sensor read from ICC sensor integrated unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication).
THRTL OPENING [%]	×	Indicates throttle position read from ICC sensor integrated unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).
GEAR [1, 2, 3, 4, 5, 6, 7]		Indicates A/T gear position read from ICC sensor integrated unit through CAN communication (TCM transmits current gear position signal through CAN communication).
CLUTCH SW SIG [On/Off]	×	NOTE: The item is displayed, but it is not monitored.
NP SW SIG [On/Off]	×	NOTE: The item is displayed, but it is not used.
MODE SIG [OFF, ICC, ASCD]		Indicates the active mode from ICC or ASCD [conventional (fixed speed) cruise control mode].

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Monitored item [Unit]	MAIN SIGNAL	Description
SET DISP IND [On/Off]		Indicates [On/Off] status of SET switch indicator output.
LDP SYSTEM ON [On/Off]		Indicates [On/Off] status of LDP system.
LDW SYSTEM ON [On/Off]		Indicates [On/Off] status of LDW system.
FCW SYSTEM ON [On/Off]		Indicates [On/Off] status of FCW system.
DISTANCE [m]		Indicates the distance from the vehicle ahead.
RELATIVE SPD [m/s]		Indicates the relative speed of the vehicle ahead.
DCA ON SW [On/Off]	×	NOTE: The item is displayed, but it is not used.
DCA ON IND [On/Off]		The status [On/Off] of DCA system switch indicator output is displayed.
DCA VHL AHED [On/Off]		The status [On/Off] of vehicle ahead detection indicator output in DCA system is displayed.
IBA SW [On/Off]		Status [On/Off] judged from IBA OFF switch signal that ICC sensor integrated unit readout via ITS communication is displayed (Brake booster control unit transmits the IBA OFF switch signal via ITS communication).
DYNA ASIST SW [On/Off]		Indicates [On/Off] status as judged from ICC steering switch signal (dynamic driver assistance switch signal) [ECM transmits ICC steering switch signal (dynamic driver assistance switch signal) through CAN communication].
APA TEMP [°C]		The accelerator pedal actuator integrated motor temperature that the ICC sensor integrated unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the integrated motor temperature via ITS communication).
APA PWR [V]		Accelerator pedal actuator power supply voltage that the ICC sensor integrated unit readout via ITS communication is displayed (Accelerator pedal actuator transmits the power supply voltage via ITS communication).

ACTIVE TEST

CAUTION:

- Never perform “Active Test” while driving the vehicle.
- The “Active Test” cannot be performed when the ICC system warning lamp is illuminated.
- Shift the selector lever to “P” position, and then perform the test.

Test item	Description
METER LAMP	The ICC system warning lamp, MAIN switch indicator, SET switch indicator and IBA OFF indicator lamp can be illuminated by ON/OFF operations as necessary.
DCA INDICATOR	The DCA system switch indicator can be illuminated by ON/OFF operations as necessary.
STOP LAMP	The ICC brake hold relay can be operated by ON/OFF operations as necessary, and the stop lamp can be illuminated.
BOOSTER SOL/V	The booster solenoid can be operated as necessary, and the brake can be operated.
ICC BUZZER	The ICC warning chime can sound by ON/OFF operations as necessary.
ACCELERATOR PEDAL ACTUATOR	The accelerator pedal actuator can be operated as necessary.

METER LAMP

NOTE:

The test can be performed only when the engine is running.

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

Test item	Operation	Description	- MAIN switch indicator - SET switch indicator - ICC system warning lamp - IBA OFF indicator lamp
METER LAMP	Off	Stops transmitting the signals below to end the test. - Meter display signal - ICC warning lamp signal - IBA OFF indicator lamp signal	OFF
	On	Transmits the following signals to the unified meter and A/C amp. via CAN communication. - Meter display signal - ICC warning lamp signal - IBA OFF indicator lamp signal	ON

DCA INDICATOR

NOTE:

The test can be performed only when the engine is running.

Test item	Operation	Description	DCA system switch indicator
DCA INDICATOR	Off	Stops transmitting the DCA system switch indicator signal below to end the test.	OFF
	On	Transmits the DCA system switch indicator signal to the unified meter and A/C amp. via CAN communication.	ON

STOP LAMP

Test item	Operation	Description	Stop lamp
STOP LAMP	Off	Stops transmitting the ICC brake hold relay drive signal below to end the test.	OFF
	On	Transmits the ICC brake hold relay drive signal to the brake booster control unit via ITS communication.	ON

BOOSTER SOL/V

NOTE:

The test can be performed only when the engine is running.

Test item	Operation	Description	"PRESS SENS" value
BOOSTER SOL/V	MODE1	Transmits the brake fluid pressure command signal to the brake booster control unit via ITS communication.	10 bar
	MODE2		20 bar
	MODE3		30 bar
	Test start	Starts the tests of "MODE1", "MODE2" and "MODE3".	—
	Reset	Stops transmitting the brake fluid pressure command signal below to end the test.	—
	End	Returns to the "SELECT TEST ITEM" screen.	—

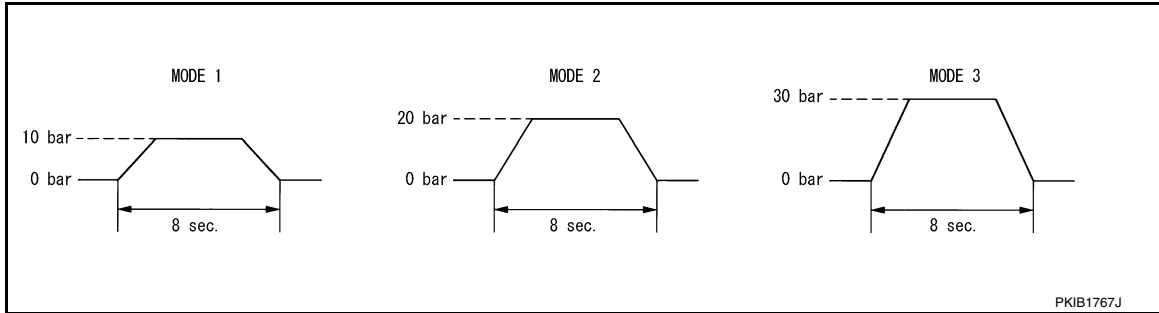
NOTE:

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

The test is finished in 10 seconds after starting.



ICC BUZZER

Test item	Operation	Description	ICC warning chime operation sound
ICC BUZZER	MODE1	Transmits the buzzer output signal to the brake booster control unit via ITS communication.	Intermittent beep sound
	MODE2		Continuous beep sound
	MODE3		Beep sound
	Test start	Starts the tests of "MODE1", "MODE2" and "MODE3".	
	Reset	Stops transmitting the buzzer output signal below to end the test.	—
	End	Returns to the "SELECT TEST ITEM" screen.	

ACCELERATOR PEDAL ACTUATOR

CAUTION:

- Shift the selector lever to "P" position, and then perform the test.
- Never depress the accelerator pedal excessively. (The engine speed may rise unexpectedly when finishing the test.)

NOTE:

- Depress the accelerator pedal to check when performing the test.
- The test can be performed only when the engine is running.

Test item	Operation	Description	Accelerator pedal operation
ACCELERATOR PEDAL ACTUATOR	MODE1	Transmit the accelerator pedal feedback force control signal to the accelerator pedal actuator via ITS communication.	Constant with a force of 25 N for 8 seconds
	MODE2		Constant with a force of 15 N for 8 seconds
	MODE3		Change up to a force of 25 N for 8 seconds
	MODE4		Change up to a force of 15 N for 8 seconds
	Test start	Starts the tests of "MODE1", "MODE2", "MODE3", and "MODE4".	—
	Reset	Stops transmitting the accelerator pedal feedback force control signal below to end the test.	—
	End	Returns to the "SELECT TEST ITEM" screen.	—

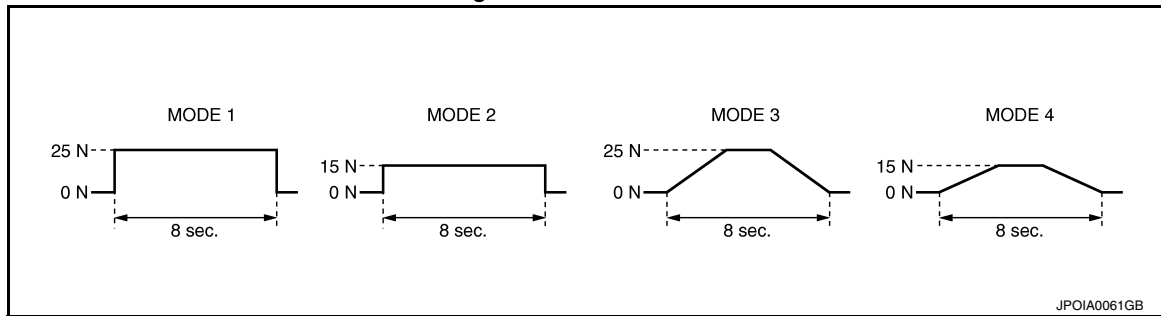
NOTE:

DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

< SYSTEM DESCRIPTION >

[ICC (FULL SPEED RANGE)]

The test is finished in 10 seconds after starting.



DTC/CIRCUIT DIAGNOSIS**C1A00 CONTROL UNIT****Description**

INFOID:0000000010579631

ICC sensor integrated unit function description

- It detects the reflected light from the vehicle ahead by irradiating a laser forward. It calculates the vehicle distance from and relative speed with the vehicle ahead depending on the detected signal.
- It calculates the target vehicle distance and the target vehicle speed depending on the signals from various sensors and switches, outputs the engine torque demand to ECM via CAN communication, and outputs the brake fluid pressure command signal to the brake booster control unit via ITS communication.

DTC Logic

INFOID:0000000010579632

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A00 (0)	CONTROL UNIT	ICC sensor integrated unit internal malfunction	ICC sensor integrated unit

DTC CONFIRMATION PROCEDURE**1.PERFORM DTC CONFIRMATION PROCEDURE**

1. Start the engine.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1A00" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A00" detected as the current malfunction?

- YES >> Refer to [CCS-47, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000010579633

1.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than "C1A00" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [CCS-153, "DTC Index"](#).
 NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579634

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT**1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT**

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

CCS

P

2.CHECK ICC SYSTEM

1. Erase the “Self Diagnostic Result”, and then perform “All DTC Reading” again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

Description

INFOID:0000000010579635

The ICC sensor integrated unit controls the system with the ignition power supply.

DTC Logic

INFOID:0000000010579636

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A01 (1)	POWER SUPPLY CIR	ICC sensor integrated unit power supply voltage is excessively low (less than 8 V).	• Connector, harness, fuse • ICC sensor integrated unit
C1A02 (2)	POWER SUPPLY CIR 2	ICC sensor integrated unit power supply voltage is excessively high (more than 19 V).	

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A01" or "C1A02" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A01" or "C1A02" detected as the current malfunction?

YES >> Refer to [CCS-49, "Diagnosis Procedure"](#).

NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579637

1.CHECK ICC SENSOR INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of ICC sensor integrated unit. Refer to [CCS-134, "ICC SENSOR INTEGRATED UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

NO >> Repair or replace the malfunctioning parts.

Special Repair Requirement

INFOID:0000000010579638

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Check that the ICC system is normal.

>> WORK END

C1A03 VEHICLE SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A03 VEHICLE SPEED SENSOR

Description

INFOID:0000000010579639

The ICC sensor integrated unit receives the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) and the A/T vehicle speed sensor signal (output shaft revolution signal) from TCM via CAN communication.

DTC Logic

INFOID:0000000010579640

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A03 (3)	VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) and the A/T vehicle speed sensor signal (output shaft revolution signal) from TCM, received by the ICC sensor integrated unit via CAN communication, are inconsistent	• Wheel speed sensor • ABS actuator and electric unit (control unit) • Vehicle speed sensor A/T (output speed sensor) • TCM • ICC sensor integrated unit

NOTE:

If DTC "C1A03" is detected along with DTC "U1000" or "C1A04", first diagnose the DTC "U1000" or "C1A04".

- Refer to [CCS-131, "DTC Logic"](#) for DTC "U1000".
- Refer to [CCS-53, "DTC Logic"](#) for DTC "C1A04".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Drive the vehicle at 30 km/h (19 MPH) or more.

CAUTION:

Always drive safely.

4. Stop the vehicle.
5. Perform "All DTC Reading" with CONSULT.
6. Check if the "C1A03" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A03" detected as the current malfunction?

- YES >> Refer to [CCS-51, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579641

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A04" or "U1000" is detected other than "C1A03" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [CCS-153, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK DATA MONITOR

1. Start the engine.
2. Drive the vehicle.
3. Check that the value of "VHCL SPD AT" is almost the same as the value of "VHCL SPEED SE" in "DATA MONITOR" of "ICC/ADAS".

CAUTION:

Be careful of the vehicle speed.

C1A03 VEHICLE SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Is the inspection result normal?

- YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
NO >> GO TO 3.

3.CHECK TCM SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-157, "DTC Index"](#).
NO >> GO TO 4.

4.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-120, "DTC Index"](#).
NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579642

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A04 ABS/TCS/VDC SYSTEM

Description

INFOID:0000000010579643

ABS actuator and electric unit (control unit) transmits the vehicle speed signal (wheel speed), and VDC/TCS/ABS system operation condition to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579644

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A04 (4)	ABS/TCS/VDC CIRC	If a malfunction occurs in the VDC/TCS/ABS system	ABS actuator and electric unit (control unit)

NOTE:

If DTC "C1A04" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

Diagnosis Procedure

INFOID:0000000010579645

1.CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected other than "C1A04" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [CCS-131, "DTC Logic"](#).
- NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-120, "DTC Index"](#).
- NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579646

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

C1A04 ABS/TCS/VDC SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

>> WORK END

C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A05 BRAKE SW/STOP LAMP SW

Description

INFOID:0000000010579647

- ICC brake switch is turned OFF and stop lamp switch is turned ON, when depressing the brake pedal.
- ICC brake switch signal and stop lamp switch signal are input to ECM. These signals are transmitted from ECM to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579648

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A05 (5)	BRAKE SW/STOP L SW	If ICC sensor integrated unit receives the ICC brake switch signal ON status during the stop lamp switch signal ON status	• Stop lamp switch circuit • ICC brake switch circuit • Stop lamp switch • ICC brake switch • Incorrect stop lamp switch installation • Incorrect ICC brake switch installation • ECM

NOTE:

If DTC "C1A05" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

Diagnosis Procedure

INFOID:0000000010579649

1.CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected other than "C1A05" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).

NO >> GO TO 2.

2.CHECK STOP LAMP SWITCH AND ICC BRAKE SWITCH

Check that "STOP LAMP SW" and "BRAKE SW" operate normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

YES >> GO TO 12.

NO-1 >> When "BRAKE SW" operation is malfunctioning: GO TO 3.

NO-2 >> When "STOP LAMP SW" operation is malfunctioning: GO TO 8.

3.CHECK ICC BRAKE SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check ICC brake switch for correct installation. Refer to [BR-9, "Inspection and Adjustment"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Adjust ICC brake switch installation. Refer to [BR-9, "Inspection and Adjustment"](#).

4.ICC BRAKE SWITCH INSPECTION

1. Disconnect ICC brake switch connector.
2. Check ICC brake switch. Refer to [CCS-58, "Component Inspection \(ICC Brake Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace ICC brake switch.

C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

5.CHECK ICC BRAKE HOLD RELAY

1. Remove ICC brake hold relay.
2. Check for continuity between ICC brake hold relay terminals.

ICC brake hold relay		Continuity
Terminal		
3	4	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace ICC brake hold relay.

6.CHECK HARNESS BETWEEN ICC BRAKE HOLD RELAY AND ICC BRAKE SWITCH

1. Check for continuity between ICC brake hold relay harness connector and ICC brake switch harness connector.

ICC brake hold relay		ICC brake switch		Continuity
Connector	Terminal	Connector	Terminal	
E91	4	E114	1	Existed

2. Check for continuity between ICC brake hold relay harness connector and ground.

ICC brake hold relay		Ground	Continuity
Connector	Terminal		
E91	4		Not existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the harnesses or connectors.

7.CHECK HARNESS BETWEEN ECM AND ICC BRAKE SWITCH

1. Disconnect ECM connector.
2. Check for continuity between the ECM harness connector and ICC brake switch harness connector.

ECM		ICC brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M164	126	E114	2	Existed

3. Check for continuity between ECM harness connector and ground.

ECM		Ground	Continuity
Connector	Terminal		
M164	126		Not existed

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair the harnesses or connectors.

8.CHECK STOP LAMP FOR ILLUMINATION

Check the stop lamp for illumination.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair the stop lamp circuit.

9.CHECK ICC BRAKE HOLD RELAY

1. Turn ignition switch OFF.

C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Remove ICC brake hold relay.
3. Check for continuity between ICC brake hold relay terminals.

ICC brake hold relay		Continuity
Terminal		
3	4	Existed
7	6	Not existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Replace ICC brake hold relay.

10. CHECK HARNESS BETWEEN ECM AND ICC BRAKE HOLD RELAY

1. Disconnect ECM, rear combination lamp, and high-mounted stop lamp connectors.
2. Check for continuity between the ECM harness connector and ICC brake hold relay harness connector.

ECM		ICC brake hold relay		Continuity
Connector	Terminal	Connector	Terminal	
M164	122	E91	6	Existed

3. Check for continuity between ECM harness connector and ground.

ECM		Ground	Continuity
Connector	Terminal		
M164	122		Not existed

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair the harnesses or connectors.

11. CHECK HARNESS BETWEEN BRAKE BOOSTER CONTROL UNIT AND ICC BRAKE HOLD RELAY

1. Disconnect brake booster control unit connector.
2. Check for continuity between the brake booster control unit harness connector and brake hold relay harness connector.

Brake booster control unit		ICC brake hold relay		Continuity
Connector	Terminal	Connector	Terminal	
B249	47	E91	1	Existed

3. Check for continuity between brake booster control unit harness connector and ground.

Brake booster control unit		Ground	Continuity
Connector	Terminal		
B249	47		Not existed

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair the harnesses or connectors.

12. PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-574. "DTC Index"](#).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.

NO >> GO TO 13.

C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

13.CHECK ICC BRAKE HOLD RELAY DRIVE SIGNAL OUTPUT

1. Select the active test item "STOP LAMP" of "ICC/ADAS".
2. Check if "STP LMP DRIVE" is turned ON when operating the test item.

Is the inspection result normal?

YES >> Replace brake booster control unit.

NO >> Replace ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Component Inspection (ICC Brake Switch)

INFOID:0000000010579650

1.CHECK ICC BRAKE SWITCH

Check for continuity between ICC brake switch terminals.

Terminal		Condition	Continuity
1	2	When brake pedal is depressed	Not existed
		When brake pedal is released	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ICC brake switch.

Component Inspection (Stop Lamp Switch)

INFOID:0000000010579651

1.CHECK STOP LAMP SWITCH

Check for continuity between stop lamp switch terminals.

Terminal		Condition	Continuity
1	2	When brake pedal is depressed	Existed
		When brake pedal is released	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch.

Special Repair Requirement

INFOID:0000000010579652

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

>> WORK END

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CCS

C1A06 OPERATION SW

Description

INFOID:0000000010579653

- Operate the ICC system ON/OFF and vehicle speed/vehicle distance setting by the ICC steering switch.
- The ICC steering switch signal is input to the ECM. It is transmitted from ECM to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579654

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A06 (6)	OPERATION SW CIRC	If the input signal from ICC steering switch is malfunctioning	• ICC steering switch circuit • ICC steering switch • ECM

NOTE:

If DTC "C1A06" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Wait for approximately 5 minutes after turning the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A06" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A06" detected as the current malfunction?

- YES >> Refer to [CCS-60, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579655

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A06" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2. CHECK ICC STEERING SWITCH

1. Turn the ignition switch OFF.
2. Disconnect the ICC steering switch connector.
3. Check the ICC steering switch. Refer to [CCS-61, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Replace the ICC steering switch.

3. CHECK HARNESS BETWEEN SPIRAL CABLE AND ECM

1. Disconnect the ECM connector.
2. Check for continuity between the spiral cable harness connector and ECM harness connector.

Spiral cable		ECM		Continuity
Connector	Terminal	Connector	Terminal	

M36	25	M164	101	Existed
	32		108	

3. Check for continuity between spiral cable harness connector and ground.

Spiral cable		Ground	Continuity
Connector	Terminal		
M36	25		Not existed
	32		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4.CHECK SPIRAL CABLE

Check for continuity between spiral cable terminals.

Spiral cable		Continuity
Terminal		
13	25	Existed
16	32	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace the spiral cable.

5.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect the connectors of ICC steering switch and ECM connector.
2. Turn the ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

YES >> Perform self-diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-574, "DTC Index"](#).

NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

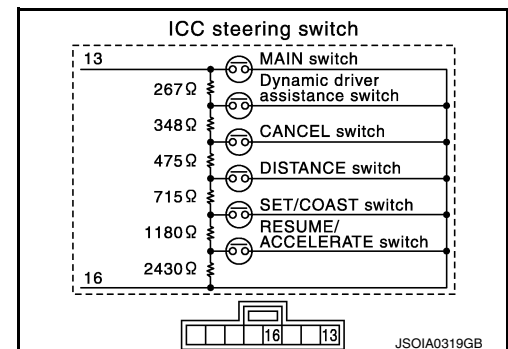
Component Inspection

INFOID:0000000010579656

1.CHECK ICC STEERING SWITCH

Check resistance between ICC steering switch terminals.

Terminal	Switch operation	Resistance [Ω]
13 16	When pressing MAIN switch	Approx. 0
	When pressing dynamic driver assistance switch	Approx. 267
	When pressing CANCEL switch	Approx. 615
	When pressing DISTANCE switch	Approx. 1090
	When pressing SET/COAST switch	Approx. 1805
	When pressing RESUME/ACCELERATE switch	Approx. 2985
	When all switches are not pressed	Approx. 5415



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the ICC steering switch.

Special Repair Requirement

INFOID:0000000010579657

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A08 PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A08 PRESSURE SENSOR

Description

INFOID:0000000010579658

- The brake pressure sensor detects the brake fluid pressure value in the brake master cylinder and outputs the value to the brake booster control unit.
- The brake booster control unit receives the brake fluid pressure command signal from the ICC sensor integrated unit via ITS communication and controls the brake fluid pressure while feeding back the brake fluid pressure value (brake fluid pressure control signal).

DTC Logic

INFOID:0000000010579659

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A08 (8)	PRESS SEN CIRCUIT	If the brake pressure sensor value that is input to the brake booster control unit is malfunctioning	• Brake pressure sensor circuit • Brake pressure sensor • Brake booster control unit

NOTE:

If DTC "C1A08" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A08" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A08" detected as the current malfunction?

- YES >> Refer to [CCS-63, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579660

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A08" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).
NO >> GO TO 2.

2.CHECK HARNESS BETWEEN BRAKE BOOSTER CONTROL UNIT AND BRAKE PRESSURE SENSOR

1. Turn the ignition switch OFF.
2. Disconnect connectors of brake booster control unit and brake pressure sensor.
3. Check for continuity between the brake booster control unit harness connector and brake pressure sensor harness connector.

Brake booster control unit		Brake pressure sensor		Continuity
Connector	Terminal	Connector	Terminal	
B250	8	E45	3	Existed
	17		2	
	24		1	

4. Check for continuity between brake booster control unit harness connector and ground.

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C1A08 PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Brake booster control unit		Ground	Continuity
Connector	Terminal		
B250	8		Not existed
	17		
	24		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK BRAKE PRESSURE SENSOR POWER SUPPLY CIRCUIT

1. Connect connectors of brake booster control unit and brake pressure sensor.
2. Turn the ignition switch ON.
3. Check voltage between brake booster control unit harness connectors.

Terminals			Voltage (Approx.)
(+) (-)			
Brake booster control unit			
Connector	Terminal		
B250	8	24	5 V

Is the inspection result normal?

YES >> Replace the brake pressure sensor.

NO >> Replace the brake booster control unit.

Special Repair Requirement

INFOID:0000000010579661

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A09 BOOSTER SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A09 BOOSTER SOLENOID

Description

INFOID:0000000010579662

- The booster solenoid is integrated with the brake booster.
- The brake booster control unit activates the booster solenoid to operate the brake booster (brake) according to the brake fluid pressure command signal received from ICC sensor integrated unit via ITS communication.

DTC Logic

INFOID:0000000010579663

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A09 (9)	BOOSTER SOL/V CIRC	If the booster solenoid is malfunctioning	• Booster solenoid • Booster solenoid circuit • Brake booster control unit

NOTE:

If DTC "C1A09" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform the active test item "BOOSTER SOL/V" with CONSULT.
3. Perform "All DTC Reading".
4. Check if the "C1A09" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A09" detected as the current malfunction?

- YES >> Refer to [CCS-65, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579664

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A09" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).
NO >> GO TO 2.

2.CHECK BRAKE BOOSTER CONTROL UNIT POWER SUPPLY CIRCUIT

Check power supply and ground circuit of brake booster control unit. Refer to [CCS-134, "BRAKE BOOSTER CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

3.CHECK HARNESS BETWEEN BRAKE BOOSTER (BOOSTER SOLENOID) AND BRAKE BOOSTER CONTROL UNIT

1. Turn the ignition switch OFF.
2. Disconnect connectors of brake booster control unit and brake booster.
3. Check for continuity between the brake booster control unit harness connector and brake booster harness connector.

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C1A09 BOOSTER SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Brake booster control unit		Brake booster		Continuity
Connector	Terminal	Connector	Terminal	
B250	10	E44	4	Existed
	12		6	

4. Check for continuity between brake booster control unit harness connector and ground.

Brake booster control unit		Ground	Continuity
Connector	Terminal		
B250	10		Not existed
	12		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4.CHECK BOOSTER SOLENOID

Check the booster solenoid. Refer to [CCS-66, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the brake booster control unit.

NO >> Replace the brake booster.

Component Inspection

INFOID:0000000010579665

1.CHECK BRAKE BOOSTER (BOOSTER SOLENOID)

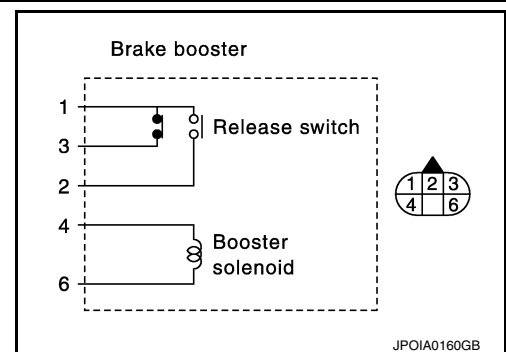
Check resistance between brake booster (booster solenoid) terminals.

Brake booster		Resistance
Terminal		
4	6	Approx. 1.4 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the brake booster.



Special Repair Requirement

INFOID:0000000010579666

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)

C1A09 BOOSTER SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Check that the ICC system is normal.

>> WORK END

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C1A10 RELEASE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A10 RELEASE SWITCH

Description

INFOID:0000000010579667

- The release switch is integrated with the brake booster.
- The release switch detects that the driver depresses the brake pedal, and it outputs the signal to the brake booster control unit.
- The brake booster control unit transmits the release switch signal [release switch NO signal (normal open), release switch NC signal (normal close)] to the ICC sensor integrated unit via ITS communication.

DTC Logic

INFOID:0000000010579668

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A10 (10)	RELEASE SW CIRC	If the release switch NO signal and the release switch NC signal, received from the brake booster control unit via ITS communication, are inconsistent	• Release switch • Release switch circuit • Brake booster control unit

NOTE:

If DTC "C1A10" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE (1)

1. Start the engine.
2. Wait for approximately 5 minutes or more after turning the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A10" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A10" detected as the current malfunction?

YES >> Refer to [CCS-68, "Diagnosis Procedure"](#).

NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE (2)

1. Depress the brake pedal strongly 10 times or more.
2. Perform "All DTC Reading".
3. Check if the "C1A10" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A10" detected as the current malfunction?

YES >> Refer to [CCS-68, "Diagnosis Procedure"](#).

NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579669

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A10" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).

NO >> GO TO 2.

2.CHECK HARNESS BETWEEN BRAKE BOOSTER (RELEASE SWITCH) AND BRAKE BOOSTER CONTROL UNIT

1. Turn the ignition switch OFF.
2. Disconnect connectors of brake booster and brake booster control unit.
3. Check for continuity between the brake booster control unit harness connector and brake booster harness connector.

C1A10 RELEASE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Brake booster control unit		Brake booster		Continuity
Connector	Terminal	Connector	Terminal	
B250	6	E44	1	Existed
	15		3	
	22		2	

4. Check for continuity between brake booster control unit harness connector and ground.

Brake booster control unit		Ground	Continuity
Connector	Terminal		
B250	6		Not existed
	15		
	22		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK RELEASE SWITCH POWER SUPPLY CIRCUIT

1. Connect the brake booster control unit connector.
2. Turn the ignition switch ON.
3. Check voltage between brake booster control unit harness connector and ground.

Terminal		Voltage (Approx.)
(+)	(-)	
Brake booster control unit		Ground
Connector	Terminal	
B250	6	
		10 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the brake booster control unit.

4.CHECK RELEASE SWITCH

Check the release switch. Refer to [CCS-69, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the brake booster control unit.

NO >> Replace the brake booster.

Component Inspection

INFOID:0000000010579670

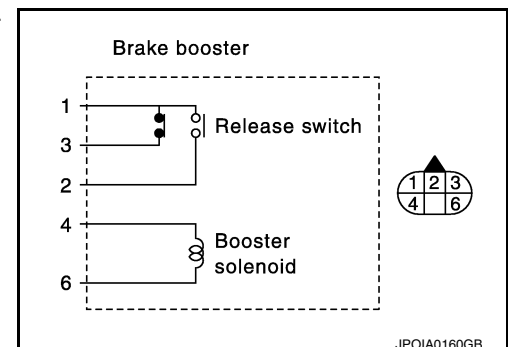
1.CHECK BRAKE BOOSTER (RELEASE SWITCH)

Check for continuity between brake booster (release switch) terminals.

Condition	1 – 3	1 – 2	2 – 3
Brake pedal not depressed	Continuity	No continuity	No continuity
Brake pedal depressed	No continuity ^{NOTE}	Continuity ^{NOTE}	No continuity

NOTE:

If the depressing force is weak, it may not be changed.



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C1A10 RELEASE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace the brake booster.

Special Repair Requirement

INFOID:0000000010579671

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A11 PRESSURE CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A11 PRESSURE CONTROL

Description

INFOID:0000000010579672

- The brake booster control unit receives the brake fluid pressure command signal from ICC sensor integrated unit via ITS communication and activates the booster solenoid to operate the brake booster.
- The brake booster adjusts the brake fluid pressure by driving the booster solenoid.
- The brake pedal is controlled when the brake booster adjusts the brake fluid pressure.

DTC Logic

INFOID:0000000010579673

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A11 (11)	PRESSURE CONTROL	If the brake booster is malfunctioning	Brake booster

NOTE:

If DTC "C1A11" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform the active test item "BOOSTER SOL/V" with CONSULT.
3. Perform "All DTC Reading".
4. Check if the "C1A11" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A11" detected as the current malfunction?

- YES >> Refer to [CCS-71, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579674

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A11" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).
NO >> GO TO 2.

2.CHECK BRAKE OPERATION

Check if the brake operates normally.

Does it operate normally?

- YES >> GO TO 4.
NO >> GO TO 3.

3.BRAKE LINE INSPECTION

1. Check the brake system, and then repair malfunctioning parts.
2. Erases All self-diagnosis results.
3. Perform "BOOSTER SOL/V" on "Active Test" of "ICC/ADAS".

Does it operate normally?

- YES >> INSPECTION END
NO >> GO TO 4.

4.CHECK BOOSTER SOLENOID

Check the booster solenoid. Refer to [CCS-72, "Component Inspection"](#).

C1A11 PRESSURE CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace the brake booster.

5.CHECK HARNESS BETWEEN BRAKE BOOSTER (BOOSTER SOLENOID) AND BRAKE BOOSTER CONTROL UNIT

1. Turn the ignition switch OFF.
2. Disconnect connectors of brake booster control unit and brake booster.
3. Check for continuity between the brake booster control unit harness connector and brake booster harness connector.

Brake booster control unit		Brake booster		Continuity
Connector	Terminal	Connector	Terminal	
B250	10	E44	4	Existed
	12		6	

4. Check for continuity between brake booster control unit harness connector and ground.

Brake booster control unit		Ground	Continuity
Connector	Terminal		
B250	10		Not existed
	12		

Is the inspection result normal?

YES >> Replace the brake booster control unit.

NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:0000000010579675

1.CHECK BRAKE BOOSTER (BOOSTER SOLENOID)

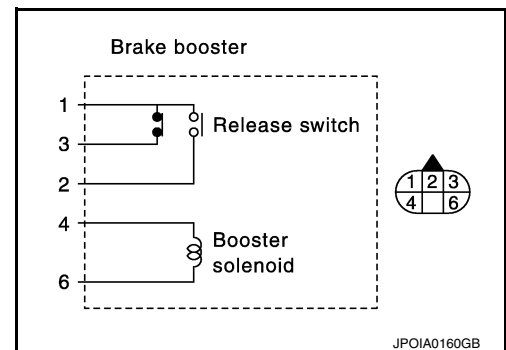
Check resistance between brake booster (booster solenoid) terminals.

Brake booster		Resistance
Terminal		
4	6	Approx. 1.4 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the brake booster.



Special Repair Requirement

INFOID:0000000010579676

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

C1A11 PRESSURE CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2.CHECK ICC SYSTEM

1. Erase the “Self Diagnostic Result”, and then perform “All DTC Reading” again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

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C1A12 LASER BEAM OFF CENTER

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A12 LASER BEAM OFF CENTER

Description

INFOID:0000000010579677

ICC sensor integrated unit detects the reflected light from the vehicle ahead by irradiating a laser forward. It calculates the distance from and relative speed with the vehicle ahead based on the detected signal.

DTC Logic

INFOID:0000000010579678

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A12 (12)	LASER BEAM OFFCNTR	Laser beam of ICC sensor integrated unit is off the aiming point	Laser beam is off the aiming point

Diagnosis Procedure

INFOID:0000000010579679

1. ADJUST LASER BEAM AIMING

1. Adjust the laser beam aiming with CONSULT. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).
2. Perform "All DTC Reading".
3. Check if the "C1A12" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A12" detected?

- YES >> Replace ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
NO >> INSPECTION END

Special Repair Requirement

INFOID:0000000010579680

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A13 STOP LAMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A13 STOP LAMP RELAY

Description

INFOID:0000000010579681

- The ICC sensor integrated unit transmits the ICC brake hold relay drive signal to the brake booster control unit via ITS communication.
- The ICC brake hold relay activates the stop lamp by the ICC brake hold relay drive signal (stop lamp drive signal) outputted by the brake booster control unit.

DTC Logic

INFOID:0000000010579682

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A13 (13)	STOP LAMP RLY FIX	• If the stop lamp is not activated even though the ICC sensor integrated unit is transmitting a ICC brake hold relay drive signal. • If the stop lamp is activated even though the ICC sensor integrated unit is not transmitting a ICC brake hold relay drive signal.	• Stop lamp switch circuit • ICC brake switch circuit • ICC brake hold relay circuit • Stop lamp switch • ICC brake switch • ICC brake hold relay • Incorrect stop lamp switch installation • Incorrect ICC brake switch installation • ECM

NOTE:

If DTC "C1A13" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE (1)

1. Start the engine.
2. Perform the active test item "STOP LAMP" with CONSULT.
3. Perform "All DTC Reading".
4. Check if the "C1A13" is detected as the current malfunction in the "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A13" detected as the current malfunction?

YES >> Refer to [CCS-75, "Diagnosis Procedure"](#).

NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE (2)

1. Drive at the vehicle speed of 40 km/h (25 MPH) or more for approximately 20 seconds or more without the brake pedal depressed.

CAUTION:

Always drive safely.

NOTE:

If it is outside the above condition, repeat step 1.

2. Perform "All DTC Reading".
3. Check if the "C1A13" is detected as the current malfunction in the "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A13" detected as the current malfunction?

YES >> Refer to [CCS-75, "Diagnosis Procedure"](#).

NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579683

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A13" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

C1A13 STOP LAMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).
- NO >> GO TO 2.

2.CHECK STOP LAMP SWITCH AND ICC BRAKE SWITCH

Check that "STOP LAMP SW" and "BRAKE SW" operate normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

- YES >> GO TO 12.
- NO-1 >> When "BRAKE SW" operation is malfunctioning: GO TO 3.
- NO-2 >> When "STOP LAMP SW" operation is malfunctioning: GO TO 9.

3.CHECK ICC BRAKE SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check ICC brake switch for correct installation. Refer to [BR-9, "Inspection and Adjustment"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Adjust ICC brake switch installation. Refer to [BR-9, "Inspection and Adjustment"](#).

4.CHECK ICC BRAKE SWITCH

1. Disconnect ICC brake switch connector.
2. Check ICC brake switch. Refer to [CCS-58, "Component Inspection \(ICC Brake Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Replace ICC brake switch.

5.CHECK ICC BRAKE HOLD RELAY

1. Remove ICC brake hold relay.
2. Check for continuity between ICC brake hold relay terminals.

ICC brake hold relay		Continuity
Terminal		
3	4	Existed

Is the inspection result normal?

- YES >> GO TO 6.
- NO >> Replace ICC brake hold relay.

6.CHECK HARNESS BETWEEN ICC BRAKE HOLD RELAY AND ICC BRAKE SWITCH

1. Check for continuity between ICC brake hold relay harness connector and ICC brake switch harness connector.

ICC brake hold relay		ICC brake switch		Continuity
Connector	Terminal	Connector	Terminal	
E91	4	E114	1	Existed

2. Check for continuity between ICC brake hold relay harness connector and ground.

ICC brake hold relay		Ground	Continuity
Connector	Terminal		
E91	4		Not existed

Is the inspection result normal?

- YES >> GO TO 7.
- NO >> Repair the harnesses or connectors.

7.CHECK HARNESS BETWEEN ECM AND ICC BRAKE SWITCH

1. Disconnect ECM connector.

C1A13 STOP LAMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Check for continuity between the ECM harness connector and ICC brake switch harness connector.

ECM		ICC brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M164	126	E114	2	Existed

3. Check for continuity between ECM harness connector and ground.

ECM		Ground	Continuity
Connector	Terminal		
M164	126		Not existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair the harnesses or connectors.

8.CHECK ICC BRAKE HOLD RELAY POWER SUPPLY CIRCUIT

1. Connect ECM connector.
2. Turn the ignition switch ON.
3. Check the voltage between ICC brake hold relay harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
ICC brake hold relay			Ground
Connector	Terminal		
E91	3		
			Battery voltage

Is the inspection result normal?

YES >> GO TO 20.

NO >> Repair ICC brake hold relay power supply circuit.

9.CHECK STOP LAMP FOR ILLUMINATION

1. Turn the ignition switch OFF.
2. Remove ICC brake hold relay.
3. Check that the stop lamp is illuminated by depressing the brake pedal to turn the stop lamp ON.

Is the inspection result normal?

YES >> GO TO 10.

NO >> Check the stop lamp circuit, and repair or replace the malfunctioning parts.

10.CHECK ICC BRAKE HOLD RELAY CIRCUIT

1. Connect ICC brake hold relay.
2. Disconnect the stop lamp switch connector.
3. Check that the stop lamp does not illuminate when brake pedal is not depressed.

Is the inspection result normal?

YES >> GO TO 20.

NO >> GO TO 11.

11.CHECK ICC BRAKE HOLD RELAY

1. Remove ICC brake hold relay.
2. Check for continuity between ICC brake hold relay terminals.

ICC brake hold relay		Continuity
Terminal		
7	6	Not existed

Is the inspection result normal?

C1A13 STOP LAMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

YES >> GO TO 20.

NO >> Replace ICC brake hold relay.

12.CHECK HARNESS BETWEEN BRAKE BOOSTER CONTROL UNIT AND ICC BRAKE HOLD RELAY

1. Turn ignition switch OFF.
2. Disconnect brake booster control unit connector and remove ICC brake hold relay.
3. Check for continuity between the brake booster control unit harness connector and ICC brake hold relay harness connector.

Brake booster control unit		ICC brake hold relay		Continuity
Connector	Terminal	Connector	Terminal	
B249	47	E91	1	Existed

4. Check for continuity between brake booster control unit harness connector and ground.

Brake booster control unit		Ground	Continuity
Connector	Terminal		
B249	47		Not existed

Is the inspection result normal?

YES >> GO TO 13.

NO >> Repair the harnesses or connectors.

13.CHECK HARNESS BETWEEN ICC BRAKE HOLD RELAY AND GROUND

Check for continuity between ICC brake hold relay harness connector and ground.

ICC brake hold relay		Ground	Continuity
Connector	Terminal		
E91	2		Existed

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair the harnesses or connectors.

14.CHECK ICC BRAKE HOLD RELAY

Check resistance between ICC brake hold relay terminals.

ICC brake hold relay		Resistance
Terminal		
1	2	Approx. 75 Ω

Is the inspection result normal?

YES >> GO TO 15.

NO >> Replace ICC brake hold relay.

15.CHECK BRAKE BOOSTER CONTROL UNIT OUTPUT VOLTAGE

1. Connect the brake booster control unit connector.
2. Turn ignition switch ON.
3. Perform "STOP LAMP" on "Active Test" of "ICC/ADAS", and then check the voltage between ICC brake hold relay harness connector and ground.

C1A13 STOP LAMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Terminal		Condition	Voltage (Approx.)
(+)	(-)		
ICC brake hold relay		Active Test item “STOP LAMP”	
Connector	Terminal		
E91	1		
		Ground	
		Off	0 V
		On	Battery voltage

Is the inspection result normal?

YES >> GO TO 16.

NO >> GO TO 21.

16.CHECK ICC BRAKE HOLD RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Check the voltage between ICC brake hold relay harness connector and ground.

Terminal		Voltage (Approx.)
(+)	(-)	
ICC brake hold relay		Ground Battery voltage
Connector	Terminal	
E91	7	

Is the inspection result normal?

YES >> GO TO 17.

NO >> Repair or replace ICC brake hold relay power supply circuit.

17.CHECK HARNESS BETWEEN ICC BRAKE HOLD RELAY AND ECM

1. Disconnect ECM, rear combination lamp, and high-mounted stop lamp connectors.
2. Check for continuity between ICC brake hold relay harness connector and ECM harness connector.

ICC brake hold relay		ECM		Continuity
Connector	Terminal	Connector	Terminal	
E91	6	M164	122	Existed

3. Check for continuity between ICC brake hold relay harness connector and ground.

ICC brake hold relay		Ground	Continuity
Connector	Terminal		
E91	6		Not existed

Is the inspection result normal?

YES >> GO TO 18.

NO >> Repair the harnesses or connectors.

18.CHECK ICC BRAKE HOLD RELAY

1. Connect ECM, rear combination lamp, and high-mounted stop lamp connectors and ICC brake hold relay.
2. Disconnect the stop lamp switch connector.
3. Turn ignition switch ON.
4. Perform "STOP LAMP" on "Active Test" of "ICC/ADAS", and then check the stop lamp for illumination.

Is the inspection result normal?

YES >> GO TO 19.

NO >> Replace ICC brake hold relay.

19.CHECK ICC BRAKE SWITCH STANDARD VOLTAGE

C1A13 STOP LAMP RELAY

[ICC (FULL SPEED RANGE)]

< DTC/CIRCUIT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Connect the stop lamp switch connector.
3. Turn ignition switch ON.
4. Perform "STOP LAMP" on "Active Test" of "ICC/ADAS", and then check the voltage between ICC brake switch harness connector and ground.

Terminal		Condition	Voltage (Approx.)
(+)	(-)		
ICC brake switch		Active Test item "STOP LAMP"	Battery voltage
Connector	Terminal		
E114	1	Off	Battery voltage
		On	0 V

Is the inspection result normal?

YES >> GO TO 20.

NO >> Replace ICC brake hold relay.

20.PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE". Refer to [EC-574, "DTC Index"](#).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.

NO >> GO TO 21.

21.CHECK ICC BRAKE HOLD RELAY DRIVE SIGNAL OUTPUT

1. Select the active test item "STOP LAMP" of "ICC/ADAS".
2. Check that "STP LMP DRIVE" is turned ON when operating the test item.

Is the inspection result normal?

YES >> Replace brake booster control unit.

NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

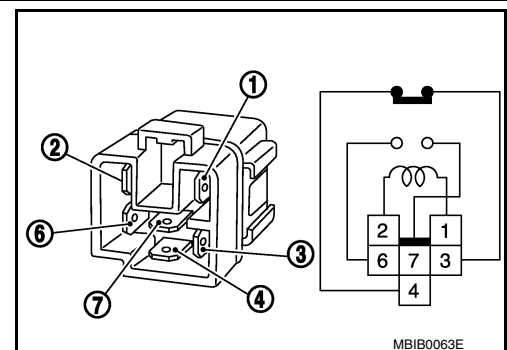
Component Inspection

INFOID:0000000010579684

1.CHECK ICC BRAKE HOLD RELAY

Apply battery voltage to ICC brake hold relay terminals 1 and 2, and then check for continuity under the following conditions.

Condition	Terminal		Continuity
When the battery voltage is applied	3	4	Not existed
	7	6	Existed
When the battery voltage is not applied	3	4	Existed
	7	6	Not existed



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ICC brake hold relay.

Special Repair Requirement

INFOID:0000000010579685

DESCRIPTION

C1A13 STOP LAMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

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CCS

C1A14 ECM

Description

INFOID:0000000010579686

- ECM transmits the accelerator pedal position signal, ICC brake switch signal, stop lamp switch signal, ICC steering switch signal, etc. to ICC sensor integrated unit via CAN communication.
- ECM controls the electric throttle control actuator based on the engine torque demand received from the ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579687

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A14 (14)	ECM CIRCUIT	If ECM is malfunctioning	• Accelerator pedal position sensor • ECM • ICC sensor integrated unit

NOTE:

If DTC "C1A14" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Operate the ICC system and drive.
CAUTION:
Always drive safely.
3. Stop the vehicle.
4. Perform "All DTC Reading" with CONSULT.
5. Check if the "C1A14" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A14" detected as the current malfunction?

- YES >> Refer to [CCS-82, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579688

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A14" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2. PERFORM SELF-DIAGNOSIS OF ECM

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-574, "DTC Index"](#).
 NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579689

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

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CCS

C1A15 GEAR POSITION

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A15 GEAR POSITION

Description

INFOID:0000000010579690

ICC sensor integrated unit judges the gear position based on the following signals.

- Shift position signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from input speed signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from the vehicle speed signal transmitted from ABS actuator and electric unit (control unit) via CAN communication.

DTC Logic

INFOID:0000000010579691

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A15 (15)	GEAR POSITION	If a mismatch occurs between a shift position signal transmitted from TCM via CAN communication and the gear position calculated by ICC sensor integrated unit	• Input speed sensor • Vehicle speed sensor A/T (output speed sensor) • TCM

NOTE:

If DTC "C1A15" is detected along with DTC "U1000", "C1A03", or "C1A04", first diagnose the DTC "U1000", "C1A03", or "C1A04".

- Refer to [CCS-131, "DTC Logic"](#) for DTC "U1000".
- Refer to [CCS-51, "DTC Logic"](#) for DTC "C1A03".
- Refer to [CCS-53, "DTC Logic"](#) for DTC "C1A04".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Drive the vehicle at 10 km/h (6 MPH) or faster for approximately 15 minutes or more.
CAUTION:
Always drive safely.
4. Stop the vehicle.
5. Perform "All DTC Reading" with CONSULT.
6. Check if "C1A15" is detected as the current malfunction in the "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A15" detected as the current malfunction?

- YES >> Refer to [CCS-84, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579692

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A03", "C1A04", or "U1000" is detected other than "C1A15" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [CCS-153, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK VEHICLE SPEED SIGNAL

Check that "VHCL SPEED SE" operates normally in "DATA MONITOR" of "ICC/ADAS".

CAUTION:

Be careful of the vehicle speed.

Is the inspection result normal?

- YES >> GO TO 3.

C1A15 GEAR POSITION

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

NO >> GO TO 7.

3.CHECK GEAR POSITION

Check that "GEAR" operates normally in "DATA MONITOR" of "ICC/ADAS".

CAUTION:

Be careful of the vehicle speed.

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK GEAR POSITION SIGNAL

Check that "GEAR" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 6.

5.CHECK INPUT SPEED SENSOR SIGNAL

Check that "INPUT SPEED" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

NO >> GO TO 6.

6.CHECK TCM SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading".

2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-157, "DTC Index"](#).

NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

7.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading".

2. Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-120, "DTC Index"](#).

NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579693

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)

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C1A15 GEAR POSITION

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Check that the ICC system is normal.

>> WORK END

C1A16 RADAR STAIN

Description

INFOID:0000000010579694

ICC sensor integrated unit detects the reflected light from the vehicle ahead by irradiating a laser beam forward. It calculates the distance from and relative speed with the vehicle ahead based on the detected signal.

DTC Logic

INFOID:0000000010579695

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A16 (16)	RADAR STAIN	If any stain occurs to ICC sensor integrated unit body window	- Stain or foreign materials is deposited - Cracks or scratches exist

NOTE:

DTC "C1A16" may be detected under the following conditions. (Explain to the customer about the difference between the contamination detection function and the indication when the malfunction is detected and tell them "This is not malfunction".)

- When contamination or foreign materials adhere to the ICC sensor integrated unit body window
- When driving while it is snowing or when frost forms on the ICC sensor integrated unit body window
- When ICC sensor integrated unit body window is temporarily fogged

Diagnosis Procedure

INFOID:0000000010579696

1. VISUAL CHECK 1

Check ICC sensor integrated unit body window for contamination and foreign materials.

Does contamination or foreign materials adhere?

- YES >> Wipe out the contamination and foreign materials from the ICC sensor integrated unit body window.
- NO >> GO TO 2.

2. VISUAL CHECK 2

Check ICC sensor integrated unit body window for cracks and scratches.

Is it found?

- YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
- NO >> GO TO 3.

3. INTERVIEW

- Ask if there is any trace of contamination or foreign materials adhering to the ICC sensor integrated unit body window.
- Ask if ICC sensor integrated unit body window was frosted during driving or if vehicle was driven in snow.
- Ask if ICC sensor integrated unit body window was temporarily fogged. (Windshield glass may also tend to fog, etc.)

What is the result of the interview with the customer?

- YES >> Explain to the customer about the difference between the contamination detection function and the indication when the malfunction is detected and tell them "This is not malfunction".
- NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579697

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT**1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT**

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A18 LASER AIMING INCMP

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A18 LASER AIMING INCMP

Description

INFOID:0000000010579698

Always perform the laser beam aiming adjustment after replacing the ICC sensor integrated unit.

DTC Logic

INFOID:0000000010579699

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A18 (18)	LASER AIMING IN-CMP	Laser beam aiming of ICC sensor integrated unit is not adjusted	- No laser beam aiming adjustment is performed - Laser beam aiming adjustment has been interrupted

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A18" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A18" detected as the current malfunction?

- YES >> Refer to [CCS-89, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000010579700

1.AJUST LASER BEAM AIMING

1. Adjust the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).
2. Erase All self-diagnosis results with CONSULT.
3. Perform "All DTC Reading".
4. Check if the "C1A18" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A18" detected?

- YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
NO >> INSPECTION END

Special Repair Requirement

INFOID:0000000010579701

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

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C1A18 LASER AIMING INCOMP

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

1. Erase the “Self Diagnostic Result”, and then perform “All DTC Reading” again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A21 UNIT HIGH TEMP

Description

INFOID:0000000010579702

ICC sensor integrated unit integrates the temperature sensor.

DTC Logic

INFOID:0000000010579703

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A21 (21)	UNIT HIGH TEMP	If the temperature sensor (integrated in the ICC sensor integrated unit) detects a high temperature	Temperature around ICC sensor integrated unit is excessively high

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch OFF.
2. Wait for 10 minutes or more to cool the ICC sensor integrated unit.
3. Start the engine.
4. Turn the MAIN switch of ICC system ON.
5. Perform "All DTC Reading" with CONSULT.
6. Check if the "C1A21" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A21" detected as the current malfunction?

- YES >> Refer to [CCS-91, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579704

1.CHECK ENGINE COOLING SYSTEM

Check for any malfunctions in engine cooling system.

Is engine cooling system normal?

- YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
 NO >> Repair engine cooling system.

Special Repair Requirement

INFOID:0000000010579705

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

C1A21 UNIT HIGH TEMP

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

>> WORK END

C1A22 BCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A22 BCU CIRCUIT

Description

INFOID:0000000010579706

- The brake booster control unit receives the brake fluid pressure command signal from ICC sensor integrated unit via ITS communication and activates the booster solenoid to operate the brake booster.
- The brake booster adjusts the brake fluid pressure by driving the booster solenoid.
- The brake pedal is controlled when the brake booster adjusts the brake fluid pressure.

DTC Logic

INFOID:0000000010579707

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A22 (22)	BCU CIRCUIT	If the brake booster control unit cannot control the brake booster	• Stop lamp switch circuit • ICC brake switch circuit • Stop lamp switch • ICC brake switch • Incorrect stop lamp switch installation • Incorrect ICC brake switch installation • ECM • Brake booster control unit

NOTE:

If DTC "C1A22" is detected along with DTC "U1000", or "C1A05", first diagnose the DTC "U1000", or "C1A05".

- Refer to [CCS-131, "DTC Logic"](#) for DTC "U1000".
- Refer to [CCS-55, "DTC Logic"](#) for DTC "C1A05".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A22" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A22" detected as the current malfunction?

- YES >> Refer to [CCS-93, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579708

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "C1A05" or "U1000" is detected other than "C1A22" in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [CCS-153, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK STOP LAMP SWITCH AND ICC BRAKE SWITCH

Check that "STOP LAMP SW" and "BRAKE SW" operate normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

- YES >> GO TO 10.
NO-1 >> When "BRAKE SW" operation is malfunctioning: GO TO 3.
NO-2 >> When "STOP LAMP SW" operation is malfunctioning: GO TO 5.

3.CHECK ICC BRAKE SWITCH INSTALLATION

1. Turn the ignition switch OFF.

C1A22 BCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Check ICC brake switch for correct installation. Refer to [BR-9. "Inspection and Adjustment"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Adjust ICC brake switch installation. Refer to [BR-9. "Inspection and Adjustment"](#).

4. ICC BRAKE SWITCH INSPECTION

1. Disconnect ICC brake switch connector.

2. Check ICC brake switch. Refer to [CCS-58. "Component Inspection \(ICC Brake Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace the ICC brake switch.

5. CHECK STOP LAMP FOR ILLUMINATION

Check stop lamp illumination.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Check the stop lamp circuit, and repair or replace the malfunctioning parts.

6. CHECK ICC BRAKE HOLD RELAY

1. Turn the ignition switch OFF.

2. Remove ICC brake hold relay.

3. Check for continuity between ICC brake hold relay terminals.

ICC brake hold relay		Continuity
Terminal		
3	4	Existed
7	6	Not existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace ICC brake hold relay.

7. CHECK HARNESS BETWEEN ECM AND ICC BRAKE HOLD RELAY

1. Disconnect ECM connector.

2. Check for continuity between the ECM harness connector and ICC brake hold relay harness connector.

ECM		ICC brake hold relay		Continuity
Connector	Terminal	Connector	Terminal	
M164	122	E91	6	Existed

3. Check for continuity between ECM harness connector and ground.

ECM		Ground	Continuity
Connector	Terminal		
M164	122		Not existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair the harnesses or connectors.

8. CHECK HARNESS BETWEEN ECM AND ICC BRAKE SWITCH

1. Check for continuity between the ECM harness connector and ICC brake switch harness connector.

ECM		ICC brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M164	126	E114	2	Existed

C1A22 BCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Check for continuity between ECM harness connector and ground.

ECM		Ground	Continuity
Connector	Terminal		
M164	126		Not existed

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair the harnesses or connectors.

9. CHECK HARNESS BETWEEN ICC BRAKE SWITCH AND ICC BRAKE HOLD RELAY

1. Disconnect ICC brake switch connector.
2. Check for continuity between ICC brake switch harness connector and ICC brake hold relay harness connector.

ICC brake switch		ICC brake hold relay		Continuity
Connector	Terminal	Connector	Terminal	
E114	1	E91	4	Existed

3. Check for continuity between ICC brake switch harness connector and ground.

ICC brake switch		Ground	Continuity
Connector	Terminal		
E114	1		Not existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair the harnesses or connectors.

10. PERFORM SELF-DIAGNOSIS OF ECM

1. Connect all connectors again if the connectors are disconnected.
2. Turn the ignition switch ON.
3. Perform "All DTC Reading".
4. Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-574, "DTC Index"](#).

NO >> Replace the brake booster control unit.

Special Repair Requirement

INFOID:0000000010579709

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. CHECK ICC SYSTEM

C1A22 BCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

1. Erase the “Self Diagnostic Result”, and then perform “All DTC Reading” again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A24 NP RANGE

Description

INFOID:0000000010579710

ICC sensor integrated unit judges the NP position status from the shift position signal and current gear position signal received from TCM via CAN communication.

DTC Logic

INFOID:0000000010579711

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A24 (24)	NP RANGE	If the shift position signal and the current gear position signal, transmitted from TCM via CAN communication, are inconsistent	• TCM • Transmission range switch

NOTE:

If DTC "C1A24" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.CHECK DTC REPRODUCE (1)

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Wait for approximately 5 minutes or more after shifting the selector lever to "P" position.
4. Perform "All DTC Reading" with CONSULT.
5. Check if the "C1A24" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A24" detected as the current malfunction?

- YES >> Refer to [CCS-97, "Diagnosis Procedure"](#).
 NO >> GO TO 2.

2.CHECK DTC REPRODUCE (2)

1. Wait for approximately 5 minutes or more after shifting the selector lever to "N" position.
2. Perform "All DTC Reading".
3. Check if the "C1A24" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A24" detected as the current malfunction?

- YES >> Refer to [CCS-97, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579712

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A24" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2.CHECK TCM DATA MONITOR

Check that "SLCT LVR POSI" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Perform diagnosis for transmission range switch circuit and repair or replace the malfunctioning parts. Refer to [TM-75, "DTC Logic"](#).

3.PERFORM TCM SELF-DIAGNOSIS

1. Perform "All DTC Reading".
2. Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-157, "DTC Index"](#).
- NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579713

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT**1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT**

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A28 BCU POWER SUPPLY CIRCUIT, C1A29 BCU POWER SUPPLY CIRCUIT2

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A28 BCU POWER SUPPLY CIRCUIT, C1A29 BCU POWER SUPPLY CIRCUIT2

Description

INFOID:0000000010579714

The brake booster control unit controls the brake booster, etc. with the battery power supply and ignition power supply.

DTC Logic

INFOID:0000000010579715

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A28 (28)	BCU PWR SUPPLY CIR	The brake booster control unit power supply voltage is excessively low (less than 8 V).	• Brake booster control unit • Harness, connector, fuse
C1A29 (29)	BCU PWR SUPPLY CIR 2	The brake booster control unit power supply voltage is excessively high (more than 19 V).	

NOTE:

If DTC "C1A28" or "C1A29" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A28" or "C1A29" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A28" or "C1A29" detected as the current malfunction?

YES >> Refer to [CCS-99, "Diagnosis Procedure"](#).

NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579716

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A28", "C1A29" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).

NO >> GO TO 2.

2.CHECK BRAKE BOOSTER CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check brake booster control unit power supply and ground circuit. Refer to [CCS-134, "BRAKE BOOSTER CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the brake booster control unit.

NO >> Repair brake booster control unit power supply and ground circuit.

Special Repair Requirement

INFOID:0000000010579717

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

C1A28 BCU POWER SUPPLY CIRCUIT, C1A29 BCU POWER SUPPLY CIRCUIT2

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2. CHECK ICC SYSTEM

-
1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
 2. Check that the ICC system is normal.

>> WORK END

C1A30 BCU CAN COMM CIRC

Description

INFOID:0000000010579718

The brake booster control unit communicates with ICC sensor integrated unit for brake booster control via ITS communication.

DTC Logic

INFOID:0000000010579719

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A30 (30)	BCU CAN COMM CIRC	If ICC sensor integrated unit receives the signal for improper condition for brake booster control unit via ITS communication	ITS communication system

Diagnosis Procedure

INFOID:0000000010579720

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A30" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A30" detected as the current malfunction?

- YES >> Perform trouble diagnosis for the ITS communication system. Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).
- NO >> Refer to [GI-47, "Intermittent Incident"](#).

Special Repair Requirement

INFOID:0000000010579721

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

C1A31 BCU INTERNAL MALF

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A31 BCU INTERNAL MALF

Description

INFOID:0000000010579722

The brake booster control unit inputs the brake fluid pressure control signal and release switch signal and transmits them to ICC sensor integrated unit via ITS communication. Also, it receives the brake fluid pressure command signal from ICC sensor integrated unit via ITS communication and activates the booster solenoid to operate the brake booster (brake).

DTC Logic

INFOID:0000000010579723

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A31 (31)	BCU INTERNAL MALF	Brake booster control unit internal malfunction	Brake booster control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A31" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A31" detected as the current malfunction?

- YES >> Refer to [CCS-102, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579724

1.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than "C1A31" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [CCS-153, "DTC Index"](#).
NO >> Replace the brake booster control unit.

Special Repair Requirement

INFOID:0000000010579725

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)

C1A31 BCU INTERNAL MALF

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Check that the ICC system is normal.

>> WORK END

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C1A32 IBA FLAG STUCK

Description

INFOID:0000000010579726

ICC sensor integrated unit shares components with the IBA system.

DTC Logic

INFOID:0000000010579727

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A32 (32)	IBA FLAG STUCK	If the control (detection) of IBA is malfunctioning	• ICC sensor integrated unit • Brake booster control unit

NOTE:

If DTC "C1A32" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Wait for approximately 5 minutes or more after turning the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A32" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A32" detected as the current malfunction?

- YES >> Refer to [CCS-104, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579728

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A32" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2. REPLACE BRAKE BOOSTER CONTROL UNIT

1. Turn the ignition switch OFF.
2. Replace the brake booster control unit.
3. Erases All self-diagnosis results.
4. Perform DTC confirmation procedure. Refer to [CCS-104, "DTC Logic"](#).
5. Perform "All DTC Reading".
6. Check if the "C1A32" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A32" detected?

- YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
 NO >> INSPECTION END

Special Repair Requirement

INFOID:0000000010579729

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

C1A32 IBA FLAG STUCK

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

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CCS

C1A33 CAN TRANSMISSION ERROR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A33 CAN TRANSMISSION ERROR

Description

INFOID:0000000010579730

ICC sensor integrated unit transmits the signal required by the ICC system control to ECM via CAN communication.

DTC Logic

INFOID:0000000010579731

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A33 (33)	CAN TRANSMISSION ERROR	If an error occurs in the CAN communication signal that ICC sensor integrated unit transmits to ECM	ICC sensor integrated unit

NOTE:

If DTC "C1A33" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A33" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A33" detected as the current malfunction?

- YES >> Refer to [CCS-106, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579732

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A33" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).
NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579733

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

C1A33 CAN TRANSMISSION ERROR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

1. Erase the “Self Diagnostic Result”, and then perform “All DTC Reading” again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

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C1A34 COMMAND ERROR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A34 COMMAND ERROR

Description

INFOID:0000000010579734

ICC sensor integrated unit transmits the command signal required for the ECM control via CAN communication.

DTC Logic

INFOID:0000000010579735

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A34 (34)	COMMAND ERROR	If an error occurs in the command signal that ICC sensor integrated unit transmits to ECM via CAN communication	ICC sensor integrated unit

NOTE:

If DTC "C1A34" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Operate the ICC system and drive.
CAUTION:
Always drive safely.
3. Stop the vehicle.
4. Perform "All DTC Reading" with CONSULT.
5. Check if the "C1A34" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A34" detected as the current malfunction?

YES >> Refer to [CCS-108, "Diagnosis Procedure"](#).

NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579736

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A34" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).

NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579737

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

C1A34 COMMAND ERROR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

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C1A39 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A39 STEERING ANGLE SENSOR

Description

INFOID:0000000010579738

It measures the rotation amount, rotation speed, and rotation direction of steering wheel, and then transmits them to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579739

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A39 (39)	STRG SEN CIR	If the steering angle sensor is malfunction	Steering angle sensor is malfunction

NOTE:

If DTC "C1A39" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A39" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A39" detected as the current malfunction?

- YES >> Refer to [CCS-110, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579740

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A39" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-120, "DTC Index"](#).
NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579741

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

C1A39 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

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CCS

C1A40 SYSTEM SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

C1A40 SYSTEM SWITCH CIRCUIT

Description

INFOID:0000000010579742

IBA OFF SWITCH

- The IBA ON/OFF operation is performed by IBA OFF switch.
- The IBA OFF switch signal is input to the brake booster control unit and transmits from the brake booster control unit to the ICC sensor integrated unit via ITS communication.

DTC Logic

INFOID:0000000010579743

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A40 (40)	SYSTEM SW CIRC	If the IBA OFF switch is stuck to ON	• IBA OFF switch circuit • IBA OFF switch • Brake booster control unit

NOTE:

If DTC "C1A40" is displayed along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for approximately 10 minutes or more.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1A40" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "C1A40" detected as the current malfunction?

YES >> Refer to [CCS-112, "Diagnosis Procedure"](#).

NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579744

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A40" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).

NO >> GO TO 2.

2.CHECK DATA MONITOR

Check that "IBA SW" operate normally in "DATA MONITOR" of "ICC/ADAS".

Is the inspection result normal?

YES >> Refer to [GI-47, "Intermittent Incident"](#).

NO >> GO TO 3.

3.CHECK IBA OFF SWITCH

1. Turn the ignition switch OFF.
2. Disconnect the IBA OFF switch connector.
3. Check the IBA OFF switch. Refer to [CCS-113, "Component Inspection \(IBA OFF Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IBA OFF switch.

4.CHECK HARNESS BETWEEN BRAKE BOOSTER CONTROL UNIT AND IBA OFF SWITCH

1. Disconnect brake booster control unit connector.

C1A40 SYSTEM SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2. Check for continuity between the brake booster control unit harness connector and IBA OFF switch harness connector.

Brake booster control unit		IBA OFF switch		Continuity
Connector	Terminal	Connector	Terminal	
B249	40	M184	7	Existed

3. Check for continuity between brake booster control unit and ground.

Brake booster control unit		Ground	Continuity
Connector	Terminal		
B249	40		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5.CHECK IBA OFF SWITCH GROUND CIRCUIT

Check for continuity between IBA OFF switch harness connector and ground.

IBA OFF switch		Ground	Continuity
Connector	Terminal		
M184	6		Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

6.CHECK IBA OFF SWITCH SIGNAL

1. Connect the brake booster control unit connector.
2. Turn the ignition switch ON.
3. Check voltage between brake booster control unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Brake booster control unit		Ground	
Connector	Terminal		
B249	40		
			Battery voltage

Is the inspection result normal?

YES >> Replace ICC sensor integrated unit. Refer to [CCS-175. "Exploded View"](#).

NO >> Replace the brake booster control unit.

Component Inspection (IBA OFF Switch)

INFOID:0000000010579745

1.CHECK IBA OFF SWITCH

Check for continuity of IBA OFF switch.

Terminal		Condition	Continuity
6	7	When the IBA OFF switch is pressed	Existed
		When the IBA OFF switch is released	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the IBA OFF switch.

C1A40 SYSTEM SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Special Repair Requirement

INFOID:0000000010579746

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U0121 VDC CAN 2

Description

INFOID:0000000010579747

ABS actuator and electric unit (control unit) transmits the VDC system signal to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579748

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U0121 (127)	VDC CAN CIR2	If ICC sensor integrated unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:

If DTC "U0121" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0121" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0121" detected as the current malfunction?

- YES >> Refer to [CCS-115, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579749

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0121" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [CCS-131, "DTC Logic"](#).
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-120, "DTC Index"](#).
NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579750

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the “Self Diagnostic Result”, and then perform “All DTC Reading” again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U0126 STRG SEN CAN 1

Description

INFOID:0000000010579751

It measures the rotation amount, rotation speed, and rotation direction of steering wheel, and then transmits them to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579752

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U0126 (130)	STRG SEN CAN CIR1	If ICC sensor integrated unit detects an error signal that is received from steering angle sensor via CAN communication	Steering angle sensor error

NOTE:

If DTC "U0126" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0126" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0126" detected as the current malfunction?

- YES >> Refer to [CCS-117, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579753

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0126" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-120, "DTC Index"](#).
 NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579754

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

U0126 STRG SEN CAN 1

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U0129 BCU CAN 2

Description

INFOID:0000000010579755

The brake booster control unit transmits the signal related to brake control to ICC sensor integrated unit via ITS communication.

DTC Logic

INFOID:0000000010579756

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U0129 (125)	BCU CAN CIR2	If ICC sensor integrated unit detects an error signal that is received from brake booster control unit via ITS communication	Brake booster control unit

NOTE:

If DTC "U0129" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0129" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0129" detected as the current malfunction?

- YES >> Refer to [CCS-119, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579757

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0129" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2. REPLACE BRAKE BOOSTER CONTROL UNIT

1. Turn ignition switch OFF.
2. Replace brake booster control unit.
3. Erases All self-diagnosis results.
4. Perform DTC confirmation procedure. Refer to [CCS-119, "DTC Logic"](#).
5. Perform "All DTC Reading".
6. Check if the "U0129" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0129" detected?

- YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
 NO >> INSPECTION END

Special Repair Requirement

INFOID:0000000010579758

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT**1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT**

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U0401 ECM CAN 1

Description

INFOID:0000000010579759

ECM transmits the signal related to engine control (ICC system) to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579760

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U0401 (120)	ECM CAN CIR1	If ICC sensor integrated unit detects an error signal that is received from ECM via CAN communication	ECM

NOTE:

If DTC "U0401" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0401" detected as the current malfunction?

- YES >> Refer to [CCS-121, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579761

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2. CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [EC-574, "DTC Index"](#).
 NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579762

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U0402 TCM CAN 1

Description

INFOID:0000000010579763

TCM transmits the signal related to A/T control to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579764

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U0402 (122)	TCM CAN CIRC1	If ICC sensor integrated unit detects an error signal that is received from TCM via CAN communication	TCM

NOTE:

If DTC "U0402" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0402" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0402" detected as the current malfunction?

- YES >> Refer to [CCS-123, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579765

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0402" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2. CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "TRANSMISSION".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [TM-157, "DTC Index"](#).
 NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579766

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1. LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U0415 VDC CAN 1

Description

INFOID:0000000010579767

ABS actuator and electric unit (control unit) transmits the signal related to the VDC system to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579768

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U0415 (126)	VDC CAN CIR1	If ICC sensor integrated unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:

If DTC "U0415" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0415" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0415" detected as the current malfunction?

- YES >> Refer to [CCS-125, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579769

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0415" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to [CCS-131, "DTC Logic"](#).
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-120, "DTC Index"](#).
NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579770

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U0418 BCU CAN 1

Description

INFOID:0000000010579771

The brake booster control unit transmits the signal related to brake control to ICC sensor integrated unit via ITS communication.

DTC Logic

INFOID:0000000010579772

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U0418 (124)	BCU CAN CIR1	If ICC sensor integrated unit detects an error signal that is received from brake booster control unit via ITS communication	Brake booster control unit

NOTE:

If DTC "U0418" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0418" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0418" detected as the current malfunction?

- YES >> Refer to [CCS-127, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579773

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0418" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [CCS-131, "DTC Logic"](#).
 NO >> GO TO 2.

2.REPLACE BRAKE BOOSTER CONTROL UNIT

1. Turn the ignition switch OFF.
2. Replace the brake booster control unit.
3. Erases All self-diagnosis results.
4. Perform DTC confirmation procedure. Refer to [CCS-127, "DTC Logic"](#).
5. Perform "All DTC Reading".
6. Check if the "U0418" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0418" detected?

- YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
 NO >> INSPECTION END

Special Repair Requirement

INFOID:0000000010579774

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT**1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT**

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U0428 STRG SEN CAN 2

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

U0428 STRG SEN CAN 2

Description

INFOID:0000000010579775

It detects the rotation amount, rotation speed, and rotation direction of steering wheel, and then transmits them to ICC sensor integrated unit via CAN communication.

DTC Logic

INFOID:0000000010579776

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U0428 (131)	STRG SEN CAN CIR2	If ICC sensor integrated unit detects an error signal that is received from steering angle sensor via CAN communication	Steering angle sensor

NOTE:

If DTC "U0428" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [CCS-131, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0428" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U0428" detected as the current malfunction?

- YES >> Refer to [CCS-129, "Diagnosis Procedure"](#).
NO >> Refer to [GI-47, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010579777

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0428" in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [CCS-131, "DTC Logic"](#).
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "ABS".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-120, "DTC Index"](#).
NO >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

Special Repair Requirement

INFOID:0000000010579778

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

U0428 STRG SEN CAN 2

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010579779

CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.

CAN communication signal chart. Refer to [LAN-35, "CAN Communication Signal Chart"](#).

ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting ICC sensor integrated unit, brake booster control unit, and accelerator pedal actuator with 2 communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

DTC Logic

INFOID:0000000010579780

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000 (100)	CAN COMM CIRCUIT	If ICC sensor integrated unit is not transmitting or receiving CAN communication signal or ITS communication signal for 2 seconds or more	- CAN communication system - ITS communication system

NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

Diagnosis Procedure

INFOID:0000000010579781

1.PERFORM THE SELF-DIAGNOSIS

- Turn the ignition switch ON.
- Turn the MAIN switch of ICC system ON, and then wait for 30 seconds or more.
- Perform "All DTC Reading" with CONSULT.
- Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected as the current malfunction?

YES >> Refer to [LAN-25, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-47, "Intermittent Incident"](#).

Special Repair Requirement

INFOID:0000000010579782

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2.CHECK ICC SYSTEM

1. Erase the “Self Diagnostic Result”, and then perform “All DTC Reading” again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000010579783

- CAN controller controls the communication of CAN communication signal and the error detection.
- CAN controller controls the communication of ITS communication signal and the error detection.

DTC Logic

INFOID:0000000010579784

DTC DETECTION LOGIC

DTC (On board display)	Trouble diagnosis name	DTC detecting condition	Possible causes
U1010 (110)	CONTROL UNIT (CAN)	If ICC sensor integrated unit detects malfunction by CAN controller initial diagnosis	ICC sensor integrated unit

Diagnosis Procedure

INFOID:0000000010579785

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the MAIN switch of ICC system ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1010" detected as the current malfunction?

- YES >> Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
NO >> INSPECTION END

Special Repair Requirement

INFOID:0000000010579786

DESCRIPTION

Perform the action test after adjusting the laser beam aiming of ICC sensor integrated unit when the following operation is performed.

- Removal and installation of ICC sensor integrated unit
- Replacement of ICC sensor integrated unit

SPECIAL REPAIR REQUIREMENT

1.LASER BEAM AIMING ADJUSTMENT OF ICC SENSOR INTEGRATED UNIT

Adjust the laser beam aiming of the ICC sensor integrated unit. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 2.

2.CHECK ICC SYSTEM

1. Erase the "Self Diagnostic Result", and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> WORK END

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

POWER SUPPLY AND GROUND CIRCUIT

ICC SENSOR INTEGRATED UNIT

ICC SENSOR INTEGRATED UNIT : Diagnosis Procedure

INFOID:0000000010579787

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Ignition power supply	45

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

2.CHECK ICC SENSOR INTEGRATED UNIT POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between ICC sensor integrated unit harness connector and ground.

Terminal			Voltage (Approx.)
(+)	(-)		
ICC sensor integrated unit		Ground	Battery voltage
Connector	Terminal		
E67	1		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the ICC sensor integrated unit power supply circuit.

3.CHECK ICC SENSOR INTEGRATED UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the ICC sensor integrated unit connector.
3. Check for continuity between ICC sensor integrated unit harness connector and ground.

ICC sensor integrated unit		Ground	Continuity
Connector	Terminal		
E67	4		Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the ICC sensor integrated unit ground circuit.

BRAKE BOOSTER CONTROL UNIT

BRAKE BOOSTER CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010579788

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Battery power supply	33
Ignition power supply	45

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

2.CHECK BRAKE BOOSTER CONTROL UNIT POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between brake booster control unit harness connector and ground.

Terminal			Condition	Voltage (Approx.)
(+)		(-)		
Brake booster control unit			Ignition switch	Battery volt- age
Connector	Terminal	Ground		
B250	1			
	2			
B249	33			
	42			

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the brake booster control unit power supply circuit.

3.CHECK BRAKE BOOSTER CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect brake booster control unit connector.
3. Check for continuity between brake booster control unit harness connector and ground.

Brake booster control unit		Ground	Continuity
Connector	Terminal		
B250	19	Ground	Existed
	20		
B249	46		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the brake booster control unit ground circuit.

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ICC WARNING CHIME CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

ICC WARNING CHIME CIRCUIT

Description

INFOID:0000000010579789

- The ICC sensor integrated unit transmits the buzzer output signal to the brake booster control unit via ITS communication.
- The brake booster control unit outputs the buzzer output signal to the ICC warning chime.
- A warning chime sounds when the system is canceled or when the vehicle distance from the vehicle ahead is too close.

Component Function Check

INFOID:0000000010579790

1. ICC WARNING CHIME OPERATION INSPECTION

1. Select the active test item "ICC BUZZER" of "ICC/ADAS" with CONSULT.
2. Check if the ICC warning chime sounds when operating each test item.

Does the ICC warning chime sound?

- YES >> The ICC warning chime circuit is normal.
NO >> Refer to [CCS-136, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010579791

1. CHECK ICC WARNING CHIME POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the ICC warning chime connector.
3. Turn ignition switch ON.
4. Check voltage between ICC warning chime harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
ICC warning chime		Ground	
Connector	Terminal		
M17	1		Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the harnesses or connectors.

2. CHECK ICC WARNING CHIME SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect brake booster control unit connector.
3. Check for continuity between the ICC warning chime harness connector and brake booster control unit harness connector.

ICC warning chime		Brake booster control unit		Continuity
Connector	Terminal	Connector	Terminal	
M17	3	B250	21	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3. CHECK ICC WARNING CHIME SIGNAL CIRCUIT SHORT

Check for continuity between ICC warning chime harness connector and ground.

ICC WARNING CHIME CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

ICC warning chime		Ground	Continuity
Connector	Terminal		
M17	3		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4.CHECK ICC WARNING CHIME

Check the ICC warning chime. Refer to [CCS-137, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the brake booster control unit.

NO >> Replace the ICC warning chime.

Component Inspection

INFOID:0000000010579792

1.ICC WARNING CHIME INSPECTION

Apply the battery voltage between ICC warning chime terminals, and then check if the ICC warning chime sounds.

Terminal		Condition	Warning chime
(+)	(-)		
1	3	When the battery voltage is applied	Sounds
		When the battery voltage is not applied	Does not sound

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the ICC warning chime.

CCS

ECU DIAGNOSIS INFORMATION

ICC SENSOR INTEGRATED UNIT

Reference Value

INFOID:0000000010579793

VALUES ON THE DIAGNOSIS TOOL

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition		Value/Status
MAIN SW	Ignition switch ON	When MAIN switch is pressed	On
		When MAIN switch is not pressed	Off
SET/COAST SW	Ignition switch ON	When SET/COAST switch is pressed	On
		When SET/COAST switch is not pressed	Off
CANCEL SW	Ignition switch ON	When CANCEL switch is pressed	On
		When CANCEL switch is not pressed	Off
RESUME/ACC SW	Ignition switch ON	When RESUME/ACCELERATE switch is pressed	On
		When RESUME/ACCELERATE switch is not pressed	Off
DISTANCE SW	Ignition switch ON	When DISTANCE switch is pressed	On
		When DISTANCE switch is not pressed	Off
CRUISE OPE	Drive the vehicle and operate the ICC system.	When ICC system is controlling	On
		When ICC system is not controlling	Off
BRAKE SW	Ignition switch ON	When brake pedal is depressed	Off
		When brake pedal is not depressed	On
STOP LAMP SW	Ignition switch ON	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
IDLE SW	Engine running	Idling	On
		Except idling (depress accelerator pedal)	Off
SET DISTANCE	- Start the engine and turn the ICC system ON. - Press the DISTANCE switch to change the vehicle-to-vehicle distance setting.	When set to "long"	Long
		When set to "middle"	Mid
		When set to "short"	Short
CRUISE LAMP	Start the engine and press MAIN switch.	ICC system ON (MAIN switch indicator ON)	On
		ICC system OFF (MAIN switch indicator OFF)	Off
OWN VHCL	Start the engine and press MAIN switch.	ICC system ON (Own vehicle indicator ON)	On
		ICC system OFF (Own vehicle indicator OFF)	Off
VHCL AHEAD	Drive the vehicle and activate the vehicle-to-vehicle distance control mode.	When a vehicle ahead is detected (vehicle ahead detection indicator ON)	On
		When a vehicle ahead is not detected (vehicle ahead detection indicator OFF)	Off
ICC WARNING	Start the engine and press the MAIN switch.	When ICC system is malfunctioning (ICC system warning lamp ON)	On
		When ICC system is normal (ICC system warning lamp OFF)	Off

ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

Monitor item	Condition		Value/Status
VHCL SPEED SE	While driving		Value of vehicle speed signal (wheel speed)
SET VHCL SPD	While driving	When vehicle speed is set	Displays the set vehicle speed.
BUZZER O/P	Engine running	When the buzzer output signal is output	On
		When the buzzer output signal is not output	Off
THRTL SENSOR	NOTE: The item is indicated, but not monitored.		0.0
ENGINE RPM	Engine running		Equivalent to tachometer reading
WIPER SW	Ignition switch ON	Wiper not operating	Off
		Wiper LO operation	Low
		Wiper HI operation	High
YAW RATE	NOTE: The item is indicated, but not monitored.		0.0
BA WARNING	Engine running	IBA OFF indicator lamp ON • When IBA system is malfunctioning • When IBA system is turned to OFF	On
		IBA OFF indicator lamp OFF • When IBA system is normal • When IBA system is turned to ON	Off
FUNC ITEM	Ignition switch ON		FUNC1
LDP SELECT	Ignition switch ON	When the LDP system setting is ON	On
		When the LDP system setting is OFF	Off
DCA SELECT	Ignition switch ON	When the DCA system setting is ON	On
		When the DCA system setting is OFF	Off
RELEASE SW NO	Engine running	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
RELEASE SW NC	Engine running	When brake pedal is depressed	Off
		When brake pedal is not depressed	On
STP LMP DRIVE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode.	When ICC brake hold relay is activated	On
		When the ICC brake hold relay is not activated	Off
PRESS SENS	Engine running	When brake pedal is not depressed	0.0
		When brake pedal is depressed	Brake fluid pressure value
D RANGE SW	Engine running	When the selector lever is in "D", "DS" position or manual mode	On
		When the selector lever is in any position other than "D", "DS" or manual mode	Off
NP RANGE SW	Engine running	When the selector lever is in "N", "P" position	On
		When the selector lever is in any position other than "N", "P"	Off
PKB SW	Ignition switch ON	When the parking brake is applied	On
		When the parking brake is released	Off
PWR SUP MONI	Engine running		Power supply voltage value of ICC sensor integrated unit

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ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

Monitor item	Condition		Value/Status
VHCL SPD AT	While driving		Value of A/T vehicle speed sensor signal
THRTL OPENING	Engine running	Depress accelerator pedal	Displays the throttle position.
GEAR	While driving		Displays the shift position.
CLUTCH SW SIG	NOTE: The item is indicated, but not monitored.		Off
NP SW SIG	NOTE: The item is indicated, but not used.		—
MODE SIG	Start the engine and press MAIN switch.	When ICC system is deactivated	Off
		When vehicle-to-vehicle distance control mode is activated	ICC
		When conventional (fixed speed) cruise control mode is activated	ASCD
SET DISP IND	- Start the engine and activate the conventional (fixed speed) cruise control mode. - Press SET/COAST switch.	SET switch indicator lamp ON	On
		SET switch indicator lamp OFF	Off
LDP SYSTEM ON	Engine running	When the LDP system is ON (LDP ON indicator lamp ON)	On
		When the LDP system is OFF (LDP ON indicator lamp OFF)	Off
LDW SYSTEM ON	Ignition switch ON	When the LDW system is ON (Warning systems ON indicator lamp ON)	On
		When the LDW system is OFF (Warning systems ON indicator lamp OFF)	Off
FCW SYSTEM ON	Ignition switch ON	When the FCW system is ON (Warning systems ON indicator lamp ON)	On
		When the FCW system is OFF (Warning systems ON indicator lamp OFF)	Off
DISTANCE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode.	When a vehicle ahead is detected	Displays the distance from the preceding vehicle.
		When a vehicle ahead is not detected	0.0
RELATIVE SPD	Drive the vehicle and activate the vehicle-to-vehicle distance control mode.	When a vehicle ahead is detected	Displays the relative speed.
		When a vehicle ahead is not detected	0.0
DCA ON SW	NOTE: The item is indicated, but not monitored.		Off
DCA ON IND	Start the engine	DCA system OFF (DCA system switch indicator OFF)	Off
		DCA system ON (DCA system switch indicator ON)	On
DCA VHL AHED	Drive the vehicle and activate the DCA system.	When a vehicle ahead is not detected (vehicle ahead detection indicator OFF)	Off
		When a vehicle ahead is detected (vehicle ahead detection indicator ON)	On
IBA SW	Ignition switch ON	When the IBA OFF switch is not pressed	Off
		When the IBA OFF switch is pressed	On

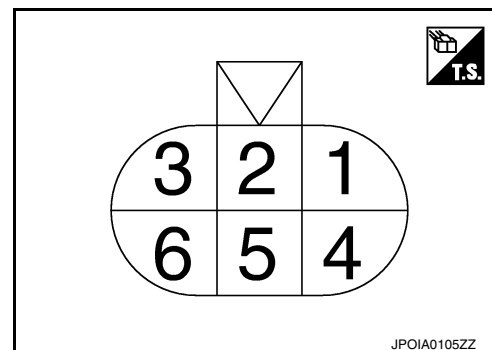
ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

Monitor item	Condition		Value/Status
DYNA ASIST SW	Ignition switch ON	When the dynamic driver assistance switch is pressed	On
		When the dynamic driver assistance switch is not pressed	Off
APA TEMP	Engine running		Display the accelerator pedal actuator integrated motor temperature
APA PWR	Ignition switch ON		Power supply voltage

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	—	Signal name	Input/ Output		
1 (R)	Ground	Ignition power supply	Input	Ignition switch ON	Battery voltage
2 (L)		ITS communication-H	Input/ Output	—	—
3 (L)		CAN-H	Input/ Output	—	—
4 (B)		Ground	—	Ignition switch ON	0 V
5 (P)		ITS communication-L	Input/ Output	—	—
6 (P)		CAN-L	Input/ Output	—	—

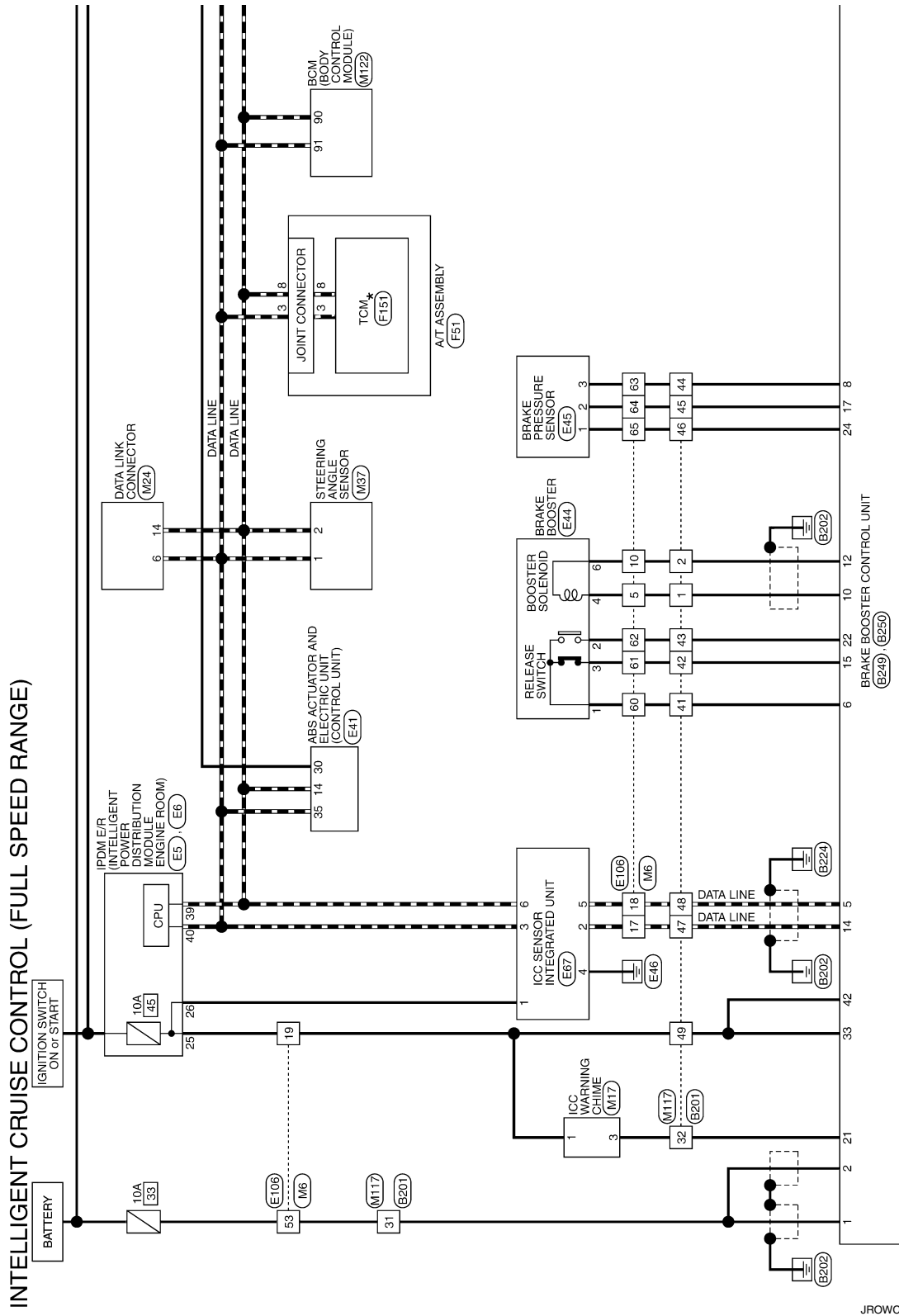
ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

Wiring Diagram - INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE) -

INFOID:0000000010579794



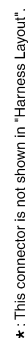
★: This connector is not shown in "Harness Layout".

2014/03/18

JROWC2915GB

[ICC (FULL SPEED RANGE)]

A
B
C
D
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F
G
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I
J
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N
CC
P

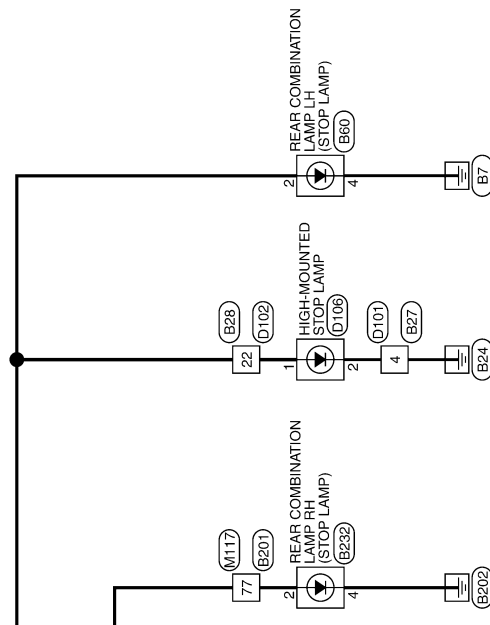


JROWC2916GB

ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]



JROWC2917GB

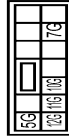
ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE)

Connector No.	B6
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS12FBR-CS



Connector No.	B60
Connector Name	REAR COMBINATION LAMP LH
Connector Type	TH04MW-AH



Terminal No.	Color Of Wire	Signal Name [Specification]
10G	W	-
11G	W	-
12G	GR	-
13G	LG	-
14G	LG	-
15G	LG	-
16G	LG	-
17G	LG	-

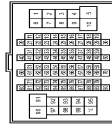
Connector No.	B27
Connector Name	WIRE TO WIRE
Connector Type	M08MW-GY-LC



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	B	-
3	W	-
4	B	-
6	BR	-
7	G	-
8	SHIELD	-

Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	-
2	LG	-
3	G	-
4	B	-

Connector No.	B201
Connector Name	WIRE TO WIRE
Connector Type	TH60FW-CS16-TM4



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	R	-
3	BR	-
4	SB	-
6	BG	-
7	GR	-
8	W	-
10	G	-
11	SHIELD	-
20	P	-
21	P	-
22	GR	-
23	LG	-
24	W	-
25	V	-

26	G	-
27	Y	-
28	SHIELD	-
31	W	-
32	GR	-
33	SB	-
36	L	-
37	P	-
38	L	-
39	P	-
40	LG	- [With ICC]
41	SB	- [Without ICC]
42	V	- [With ICC]
43	W	- [Without ICC]
44	B	- [With ICC]
45	BR	- [Without ICC]
46	R	- [With ICC]
47	G	- [Without ICC]
48	SHIELD	- [With ICC]
49	B	- [Without ICC]
50	L	- [With ICC]
51	W	- [Without ICC]
52	R	-
53	G	-
54	L	-
55	SB	-
60	GR	-
61	LG	-
62	SB	-
63	P	-
64	BR	-
65	BG	-
66	Y	-
67	W	-
69	G	-
71	SB	-
72	V	-
73	LG	-
74	W	-
75	BR	-
76	V	-

ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

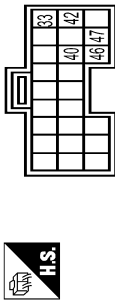
INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE)

Connector No.	Signal Name [Specification]
77 LG	-
80 BG	-
82 P	-
83 Y	-
84 R	-
85 SB	-
86 GR	-
87 L	-
91 V	-
92 W	-
93 R	-
94 LG	-
95 GR	-
96 W	-
97 G	-
98 BG	-
99 L	-

Connector No.	Signal Name [Specification]
B232	REAR COMBINATION LAMP RH
TH4MW-NH	

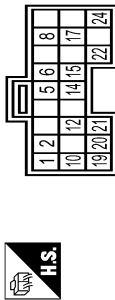


Connector No.	Signal Name [Specification]
B249	BRAKE BOOSTER CONTROL UNIT
TK24FGY	



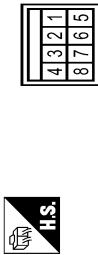
Terminal No.	Color	Wire	Signal Name [Specification]
33	G		IGNITION
40	SB		IBAF OFF SW
42	G		IGNITION
46	B		GROUND
47	LG		BRAKE HOLD RLY DRIVE SIGNAL

Connector No.	Signal Name [Specification]
B250	BRAKE BOOSTER CONTROL UNIT
TK24FW	



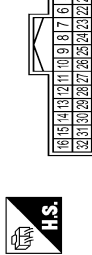
Terminal No.	Color	Wire	Signal Name [Specification]
1	P		
2	LG		
3	V		
4	B		

Connector No.	Signal Name [Specification]
D101	WIRE TO WIRE
M08FW-GY-LC	



Terminal No.	Color	Wire	Signal Name [Specification]
1	G		
2	B		
3	R		
4	GR		
6	LW		
7	LB		
8	SHIELD		

Connector No.	Signal Name [Specification]
D102	WIRE TO WIRE
TH62FW-NH	



Terminal No.	Color	Wire	Signal Name [Specification]
1	G		
2	L		
3	Y		
4	SHIELD		
5	R		
6	G		
7	Y		
8	L		
9	W		
10	SHIELD		
11	G		
12	L		
13	W		

Terminal No.	Color	Wire	Signal Name [Specification]
14	LG		
15	BG		
16	G		
17	W		
18	LG		
19	BR		
20	R		
21	V		
22	LG		
23	P		
24	BG		
25	BG		
26	GR		
27	L		
32	BG		

Connector No.	Signal Name [Specification]
D106	HIGH-MOUNTED STOP LAMP
TH02MW	



Terminal No.	Color	Wire	Signal Name [Specification]
1	LG		
2	B		

Connector No.	Signal Name [Specification]
E5	POWER INTELLIGENT POWER DISTRIBUTION MODULE (ENGINE ROOM)
TH20FW-CS12-M4-1V	



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ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE)

Terminal No.	Color Of Wire	Signal Name [Specification]
4	V	-
5	L	-
7	R	-
10	SB	-
12	B	-
13	Y	-
16	LG	-
19	W	-
25	G	-
26	R	-
27	Y	-
28	BG	-
30	GR	-
36	G	-



Connector No.	E41
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	BAA42FBAH24-LH



Connector No.	E44
Connector Name	BRAKE BOOSTER
Connector Type	RV06FGY



Connector No.	E67
Connector Name	ICC SENSOR INTEGRATED UNIT
Connector Type	RS06FB-PR

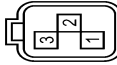
Terminal No.	Color Of Wire	Signal Name [Specification]
1	B	GROUND
2	G	UBVR
3	R	UBVR
4	B	GROUND
5	Y	DS FL
6	BG	DP RL
7	BR	DP RL
9	B	DP RR
10	W	DS FR
12	L	VAC
14	P	CANL
15	SHIELD	AGND
19	P	UST
25	Y	BUS-L
26	R	DP FL
27	GR	DS RL
28	G	UZ
29	LG	DS RR
30	SB	BLS
31	R	VDC OFF SW
35	L	CANH
45	B	BUS-H



Connector No.	E66
Connector Name	INTELLIGENT POWER DISTRIBUTION MODULE (POWER MODULE)
Connector Type	TH06FW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
39	P	-
40	L	-
41	B	-
42	Y	-
43	SB	-
44	W	-
45	G	-
46	BR	-

Terminal No.	Color Of Wire	Signal Name [Specification]
1	SB	-
2	P	-
3	V	-
4	Y	-
6	BR	-



Connector No.	E45
Connector Name	BRAKE PRESSURE SENSOR
Connector Type	IA203FB2-S

Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	IGNITION
2	L	ITS COMA-H
3	L	CANL
4	B	GROUND
5	P	ITS COMA-L
6	P	CANL



Connector No.	E91
Connector Name	ICC BRAKE HOLD RELAY
Connector Type	W06FGY-R-US

Terminal No.	Color Of Wire	Signal Name [Specification]
1	BG	-
2	L	-
3	LG	-

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	B	-
3	G	-
4	G	-
6	W	-
7	L	-

JROWC2920GB

ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE)

Connector No.	E103
Connector Name	FUSE BLOCK (J/B)
Connector Type	INS16FW-CS



10F	1F	2F	3F	4F	5F	6F	7F	8F	9F
-----	----	----	----	----	----	----	----	----	----

Terminal No.	Color Of Wire	Signal Name [Specification]
10F	L	-
1F	SB	-
2F	W	-
3F	Y	-
4F	G	-
6F	BG	-
8F	L	-
9F	R	-

Connector No.	E106
Connector Name	WIRE TO WIRE
Connector Type	TH60FW-CS16-TM4



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	BG	-
3	SB	-
4	LG	-
5	Y	-
6	W	-
7	G	-
8	V	-
9	R	-
10	BR	-
11	B	-
12	G	-

70	SHIELD	-
71	G	-
72	G	-
73	R	-
74	BR	-
76	L	-
77	W	-
78	Y	-
80	SB	-
81	L	-
82	W	-
83	LG	-
84	GR	-
85	G	-
86	P	-
87	W	-
88	BG	-
89	LG	-
90	BR	-
91	GR	-
92	BR	-
93	SB	-
95	Y	-
96	W	-
97	W	-
98	SHIELD	-
100	Y	-

Connector No.	E110
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LC



3	4	1	2
---	---	---	---

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	W	-
3	G	-
4	BR	-

Connector No.	E114
Connector Name	ICC BRAKE SWITCH
Connector Type	M02FBR-LC



2	1
---	---

Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	SB	-

Connector No.	F51
Connector Name	A/T ASSEMBLY
Connector Type	RK0FG-DGY



5	4	3	2	1
10	9	8	7	6

Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	IGNITION POWER SUPPLY
2	R	BATTERY POWER SUPPLY (MEMORY BACK-UP)
3	L	CAN-H
4	V	K-LINE
5	B	GROUND
6	Y	IGNITION POWER SUPPLY
7	R	BACK-UP LAMP RELAY
8	P	CAN-L
9	GR	STARTER RELAY [With VQ engine]
9	LG	STARTER RELAY [With VK engine]
10	B	GROUND

ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE)

Connector No.	IF151
Connector Name	TCM
Connector Type	SP10FG



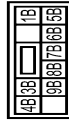
Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	IGNITION POWER SUPPLY
2	B	BATTERY POWER SUPPLY (MEMORY BACK-UP)
3	R	CAN-H
4	O	CAN-L
5	G	GROUND
6	GR	IGNITION POWER SUPPLY
7	L	BACK-UP LAMP RELAY
8	BR	CAN-L
9	Y	STARTER RELAY
10	W/B	GROUND

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS08FW-M2



Terminal No.	Color Of Wire	Signal Name [Specification]
1A	BG	-
2A	G	-
3A	L	-
4A	R	-
5A	V	-
6A	Y	-
7A	R	-
8A	L	-

Connector No.	M2
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
1B	LG	-
2B	P	-
3B	G	-
4B	GR	-
5B	Y	-
6B	L	-
7B	R	-
8B	BR	-
9B	BR	-

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Type	TH80MM-CS16-TM4

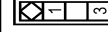


Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	BG	-
3	LG	- [Without Auto aircon seat]
4	SB	- [With Auto aircon seat]
5	GR	-
6	W	-
7	G	-
8	W	-
9	P	-
10	BR	-
11	B	-

12	G	-
13	R	-
14	W	-
15	SHIELD	-
16	BR	-
17	L	-
18	P	-
19	G	-
20	GR	- [Without ICC]
21	W	- [With ICC]
22	BR	- [Without ICC]
23	L	- [With ICC]
24	G	-
25	P	- [Without ICC]
26	Y	- [With ICC]
27	SHIELD	-
28	GR	-
29	V	-
30	BG	-
31	W	-
32	W	-
33	Y	-
34	L	-
35	G	-
36	R	-
37	G	-
38	R	-
39	G	-
40	L	-
41	W	-
42	R	-
43	LG	-
44	GR	-
45	Y	-
46	W	-
47	L	-
48	P	-
49	BG	-
50	LG	-
51	SB	-
52	Y	-
53	BG	-
54	BR	-
55	SB	-
56	SB	-
57	SB	-
58	SB	-
59	SB	-
60	SB	-
61	V	-
62	P	-
63	R	-
64	L	-

65	BG	-
66	V	-
67	SHIELD	-
68	BG	-
69	GR	-
70	W	-
71	SB	-
72	V	-
73	Y	-
74	W	-
75	SHIELD	-
76	V	-
77	Y	-
78	W	-
79	BG	-
80	L	-
81	W	-
82	Y	-
83	Y	-
84	L	-
85	P	-
86	BR	-
87	P	-
88	V	-
89	G	-
90	P	-
91	R	-
92	R	-
93	GR	-
94	G	-
95	W	-
96	W	-
97	SHIELD	-
98	Y	-
99	Y	-
100	Y	-

Connector No.	M17
Connector Name	ICC WARNING CHIME
Connector Type	A03FW



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	W	-
3	W	-

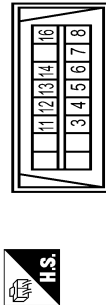
ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE)

Connector No.	M24
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW



Connector No.	M37
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH38FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
3	LG	-
4	B	-
5	B	-
6	L	-
7	GR	-
8	G	-
11	SB	-
12	P	-
13	L	-
14	P	-
16	BG	-

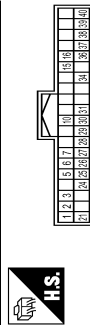
Connector No.	M36
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY-1V



Terminal No.	Color Of Wire	Signal Name [Specification]
24	P	-
25	SB	-
26	B	-
31	L	-
32	V	-
33	B	-
34	G	-

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	CANH
2	P	CANH
7	B	GROUND
8	GR	IGN

Connector No.	M53
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH

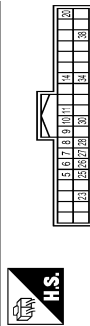


Terminal No.	Color Of Wire	Signal Name [Specification]
1	BG	BATTERY POWER SUPPLY
2	LG	COMMUNICATION SIGNAL (METER->AMP)
3	GR	COMMUNICATION SIGNAL (AMP->METER)
5	B	GROUND
6	W	ALTERNATOR SIGNAL
7	P	AIR BAG SIGNAL
10	G	SECURITY INDICATOR SIGNAL
15	B	GROUND
16	B	METER CONTROL SWITCH GROUND
21	R	IGNITION SIGNAL
24	BR	COMMUNICATION SIGNAL (LCD->AMP)
25	V	COMMUNICATION SIGNAL (AMP->LCD)
26	R	VEHICLE SPEED SIGNAL (8-PULSE)
27	V	PARKING BRAKE SWITCH SIGNAL
28	W	VEHICLE SPEED SIGNAL (METER->LCD)
29	SB	VEHICLE SPEED SIGNAL (METER->AMP)

30	G	PASSENGER SEAT BELT WARNING SIGNAL
31	L	WASHER LEVEL SWITCH SIGNAL
34	B	ILLUMINATION CONTROL SIGNAL
36	LG	SELECT SWITCH SIGNAL
37	SB	ENTER SWITCH SIGNAL
38	L	TRIP AIR RESET SWITCH SIGNAL
39	P	ILLUMINATION CONTROL SWITCH SIGNAL (-)
40	BG	ILLUMINATION CONTROL SWITCH SIGNAL (+)



Connector No.	M66
Connector Name	UNIFIED METER AND A/C AMP.
Connector Type	TH40FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
5	L	MANUAL MODE SHIFT UP SIGNAL
6	BG	PADDLE SHIFTER UP SIGNAL
7	GR	COMMUNICATION SIGNAL (AMP->METER)
8	L	VEHICLE SPEED SIGNAL (2-PULSE)
9	SB	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)
10	W	MANUAL MODE SIGNAL
11	G	NON-MANUAL MODE SIGNAL
14	BR	COMMUNICATION SIGNAL (LCD->AMP)
20	L	ION SENSOR SIGNAL
23	Y	AT SNOW SWITCH SIGNAL
25	V	MANUAL MODE SHIFT DOWN SIGNAL
26	G	PADDLE SHIFTER DOWN SIGNAL
27	LG	COMMUNICATION SIGNAL (METER->AMP)
28	R	VEHICLE SPEED SIGNAL (8-PULSE)
30	V	PARKING BRAKE SWITCH SIGNAL
34	Y	COMMUNICATION SIGNAL (AMP->LCD)
38	L	BLOWER MOTOR CONTROL SIGNAL

Connector No.	M67
Connector Name	UNIFIED METER AND A/C AMP.
Connector Type	TH32FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
41	V	ACC POWER SUPPLY
42	Y	FUEL LEVEL SENSOR SIGNAL
43	R	INTAKE SENSOR SIGNAL
44	LG	IN-VEHICLE SENSOR SIGNAL
45	P	AMBIENT SENSOR SIGNAL
46	BG	SUNLOAD SENSOR SIGNAL
47	V	GAS SENSOR SIGNAL
53	G	IGNITION POWER SUPPLY
54	BG	BATTERY POWER SUPPLY
55	B	GROUND
56	L	CANH
57	W	BRAKE FLUID LEVEL SWITCH SIGNAL
58	B	FUEL LEVEL SENSOR GROUND
59	GR	INTAKE SENSOR GROUND
60	L	IN-VEHICLE SENSOR GROUND
61	BR	AMBIENT SENSOR GROUND
62	SB	SUNLOAD SENSOR GROUND
63	R	ION MODE SIGNAL
65	BG	ECV SIGNAL
69	L	A/C LAN SIGNAL
70	R	EACH DOOR MOTOR POWER SUPPLY
71	B	GROUND
72	P	CANH

JROWC2923GB

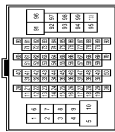
ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

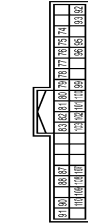
INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE)

Connector No.	M117
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4



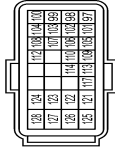
Terminal No.	Color	Wire	Signal Name [Specification]
1	GR	-	-
2	BR	-	-
3	V	-	-
4	SB	-	-
6	Y	-	-
7	B	-	-
8	W	-	-
10	W	-	-
11	SHIELD	-	-
20	R	-	-
21	G	-	-
22	GR	-	-
23	V	-	-
24	W	-	-
25	R	-	-
26	P	-	-
27	L	-	-
28	SHIELD	-	-
31	W	-	-
32	W	-	-
33	SB	-	-
36	L	-	-
37	P	-	-
38	L	-	-
39	P	-	-
40	V	-	-
41	SB	-	- [With ICC]
41	Y	-	- [With ICC]
42	V	-	- [With ICC]
43	W	-	- [With ICC]
43	B	-	- [With ICC]
43	P	-	- [With ICC]
44	R	-	-
45	G	-	- [With ICC]
45	L	-	- [With ICC]
46	BG	-	- [With ICC]

Connector No.	M122
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH



Terminal No.	Color	Wire	Signal Name [Specification]
74	SB	-	PASSENGER DOOR ANT-
75	BR	-	PASSENGER DOOR ANT+
76	V	-	DRIVER DOOR ANT-
77	LG	-	DRIVER DOOR ANT+
78	Y	-	ROOM ANT-
79	BR	-	ROOM ANT+
80	GR	-	NATS ANT AMP-
81	W	-	NATS ANT AMP+
82	P	-	IGN RELAY (P/B) CONT
83	GR	-	KEYLESS ENTRY RECEIVER SIGNAL
87	BR	-	COMBI SW INPUT 5
88	V	-	COMBI SW INPUT 3
90	P	-	CANL
91	L	-	CANH
92	LG	-	KEY SLOT ILL
93	V	-	ON IND
95	BG	-	ACC RELAY CONT
96	GR	-	AT SHIFT SELECTOR POWER SUPPLY
99	R	-	SHIFT P
100	G	-	PASSENGER DOOR REQUEST SW
101	SB	-	DRIVER DOOR REQUEST SW
102	BG	-	BLOWER FAN MOTOR RELAY COAT
103	BR	-	KEYLESS ENTRY RECEIVER POWER SUPPLY
107	LG	-	COMBI SW INPUT 1
108	R	-	COMBI SW INPUT 4
109	Y	-	COMBI SW INPUT 2
110	G	-	HAZARD SW

Connector No.	M164
Connector Name	ECM
Connector Type	RM24FGY-R28-R-LH-Z



Terminal No.	Color	Wire	Signal Name [Specification]
97	R	-	ACCELERATOR PEDAL POSITION SENSOR 1
98	P	-	ACCELERATOR PEDAL POSITION SENSOR 2
98	Y	-	ACCELERATOR PEDAL POSITION SENSOR 3
98	G	-	SENSOR POWER SUPPLY [With NAVI]
99	L	-	SENSOR POWER SUPPLY [Without NAVI]
100	W	-	SENSOR GROUND
101	SB	-	ASCD/ICC STEERING SWITCH
102	LG	-	EVAP CONTROL SYSTEM PRESSURE SENSOR
103	G	-	SENSOR POWER SUPPLY [Without NAVI]
103	L	-	SENSOR POWER SUPPLY [With NAVI]
104	BR	-	SENSOR GROUND [Without NAVI]
105	L	-	SENSOR GROUND [With NAVI]
106	W	-	REFRIGERANT PRESSURE SENSOR
107	BG	-	FUEL TANK TEMPERATURE SENSOR
108	V	-	SENSOR POWER SUPPLY
109	G	-	SENSOR GROUND
110	R	-	PNP SIGNAL
112	V	-	ENGINE SPEED OUTPUT SIGNAL
112	W	-	ENGINE OIL PRESSURE SENSOR
113	P	-	ENGINE OIL PRESSURE SENSOR
114	L	-	CAN COMMUNICATION LINE
117	GR	-	DATA LINK CONNECTOR
121	LG	-	EVAP CANISTER VENT CONTROL VALVE
122	P	-	STOP LAMP SWITCH
123	B	-	ECM GROUND
124	B	-	ECM GROUND
125	GR	-	POWER SUPPLY FOR ECM
126	BR	-	ASCD/ICC BRAKE SWITCH
127	B	-	ECM GROUND
128	B	-	ECM GROUND

ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE)

Connector No.	M184
Connector Name	IBA OFF SWITCH
Connector Type	TK08FGY



Terminal No.	Color Of Wire	Signal Name [Specification]
4	Y	-
5	BG	-
6	B	-
7	SB	-

Connector No.	M303
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY



Terminal No.	Color Of Wire	Signal Name [Specification]
13	R	-
14	W	-
15	L	-
16	B	-
17	BR	-
18	G	-
19	P	-
20	Y	-

JROWC2925GB

INFOID:0000000010579795

Fail-Safe

If a malfunction occurs in the system, a chime sounds a beep, and ICC sensor integrated unit cancels the control. Then the ICC system warning lamp in the combination meter illuminates.

ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

DTC Inspection Priority Chart

INFOID:0000000010579796

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

Priority	Detected items (DTC)
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• C1A31: BCU INTERNAL MALF • C1F02: APA C/U MALF
3	• C1A01: POWER SUPPLY CIR • C1A02: POWER SUPPLY CIR 2 • C1A04: ABS/TCS/VDC CIRC • C1A05: BRAKE SW/STOP L SW • C1A06: OPERATION SW CIRC • C1A08: PRESS SEN CIRCUIT • C1A09: BOOSTER SOL/V CIRC • C1A10: RELEASE SW CIRC • C1A11: PRESSURE CONTROL • C1A12: LASER BEAM OFFCNTR • C1A13: STOP LAMP RLY FIX • C1A14: ECM CIRCUIT • C1A16: RADAR STAIN • C1A18: LASER AIMING INCOMP • C1A21: UNIT HIGH TEMP • C1A22: BCU CIRCUIT • C1A24: NP RANGE • C1A28: BCU PWR SUPPLY CIR • C1A29: BCU PWR SUPPLY CIR2 • C1A30: BCU CAN COMM CIRC • C1A32: IBA FLAG STUCK • C1A33: CAN TRANSMISSION ERROR • C1A34: COMMAND ERROR • C1A35: APA CIR • C1A36: APA CAN COMM CIR • C1A37: APA CAN CIR2 • C1A38: APA CAN CIR1 • C1A39: STRG SEN CIR • C1A40: SYSTEM SW CIRC • C1F01: APA MOTOR MALF • C1F05: APA PWR SUPPLY CIR • U0121: VDC CAN CIR2 • U0126: STRG SEN CAN CIR1 • U0129: BCU CAN CIR2 • U0401: ECM CAN CIR1 • U0402: TCM CAN CIR1 • U0415: VDC CAN CIR1 • U0418: BCU CAN CIR1 • U0428: STRG SEN CAN CIR2
4	• C1A03: VHCL SPEED SE CIRC
5	• C1A15: GEAR POSITION
6	• C1A00: CONTROL UNIT

DTC Index

INFOID:0000000010579797

NOTE:

- The details of time display are as per the following.
 - CRNT: A malfunction is detected now
 - PAST: A malfunction was detected in the past
- IGN counter is displayed on FFD (Freeze Frame Data).
- 0: The malfunctions that are detected now
CAN communication system (U1000, U1010)

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ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

- 1 - 39: It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.
- Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ... 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

NOTE:

IBA system automatically returns to ON, when erasing self diagnosis result.

×: Applicable

DTC		CONSULT display	ICC sys- tem warning lamp	Fail-safe function			Reference
CONSULT	On board display			Vehicle-to-ve- hicle distance control mode	Conven- tional (fixed speed) cruise con- trol mode	IBA sys- tem	
C1A00	0	CONTROL UNIT	×	×	×	×	CCS-47
C1A01	1	POWER SUPPLY CIR	×	×	×	×	CCS-49
C1A02	2	POWER SUPPLY CIR 2	×	×	×	×	CCS-49
C1A03	3	VHCL SPEED SE CIRC	×	×	×	×	CCS-51
C1A04	4	ABS/TCS/VDC CIRC	×	×	×	×	CCS-53
C1A05	5	BRAKE SW/STOP L SW	×	×	×	×	CCS-55
C1A06	6	OPERATION SW CIRC	×	×	×		CCS-60
C1A08	8	PRESS SEN CIRCUIT	×	×	×	×	CCS-63
C1A09	9	BOOSTER SOL/V CIRC	×	×	×	×	CCS-65
C1A10	10	RELEASE SW CIRC	×	×	×	×	CCS-68
C1A11	11	PRESSURE CONTROL	×	×	×	×	CCS-71
C1A12	12	LASER BEAM OFFCNTR	×	×		×	CCS-74
C1A13	13	STOP LAMP RLY FIX	×	×		×	CCS-75
C1A14	14	ECM CIRCUIT	×	×	×		CCS-82
C1A15	15	GEAR POSITION	×	×	×	×	CCS-84
C1A16	16	RADAR STAIN	×	×		×	CCS-87
C1A18	18	LASER AIMING INCOMP	×	×		×	CCS-89
C1A21	21	UNIT HIGH TEMP	×	×	×	×	CCS-91
C1A22	22	BCU CIRCUIT	×	×	×	×	CCS-93
C1A24	24	NP RANGE	×	×	×	×	CCS-97
C1A28	28	BCU PWR SUPPLY CIR	×	×	×	×	CCS-99
C1A29	29	BCU PWR SUPPLY CIR2	×	×	×	×	CCS-99
C1A30	30	BCU CAN COMM CIRC	×	×	×	×	CCS-101
C1A31	31	BCU INTERNAL MALF	×	×	×	×	CCS-102
C1A32	32	IBA FLAG STUCK	×	×	×	×	CCS-104
C1A33	33	CAN TRANSMISSION ERROR	×	×	×	×	CCS-106
C1A34	34	COMMAND ERROR	×	×	×	×	CCS-108
C1A35	35	APA CIR	×	×			DAS-94
C1A36	36	APA CAN COMM CIR	×	×			DAS-95
C1A37	133	APA CAN CIR2	×	×	×		DAS-97
C1A38	132	APA CAN CIR1	×	×	×		DAS-99
C1A39	39	STRG SEN CIR	×	×	×		CCS-110

ICC SENSOR INTEGRATED UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

DTC		CONSULT display	ICC sys- tem warning lamp	Fail-safe function			Reference
CONSULT	On board display			Vehicle-to-ve- hicle distance control mode	Conven- tional (fixed speed) cruise con- trol mode	IBA sys- tem	
C1A40	40	SYSTEM SW CIRC	x	x	x	x	CCS-112
NO DTC IS DETECTED. FURTHER TESTING MAY BE RE- QUIRED	55	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	—	—	—	—	—
C1F01	91	APA MOTOR MALF	x	x			DAS-106
C1F02	92	APA C/U MALF	x	x			DAS-108
C1F05	95	APA PWR SUPPLY CIR	x	x			DAS-111
U0121	127	VDC CAN CIR2	x	x	x	x	CCS-115
U0126	130	STRG SEN CAN CIR1	x	x	x		CCS-117
U0129	125	BCU CAN CIR2	x	x	x	x	CCS-119
U0401	120	ECM CAN CIR1	x	x	x	x	CCS-121
U0402	122	TCM CAN CIR1	x	x	x	x	CCS-123
U0415	126	VDC CAN CIR1	x	x	x	x	CCS-125
U0418	124	BCU CAN CIR1	x	x	x	x	CCS-127
U0428	131	STRG SEN CAN CIR2	x	x	x		CCS-129
U1000	100	CAN COMM CIRCUIT	x	x	x	x	CCS-131
U1010	110	CONTROL UNIT (CAN)	x	x	x	x	CCS-133

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BRAKE BOOSTER CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

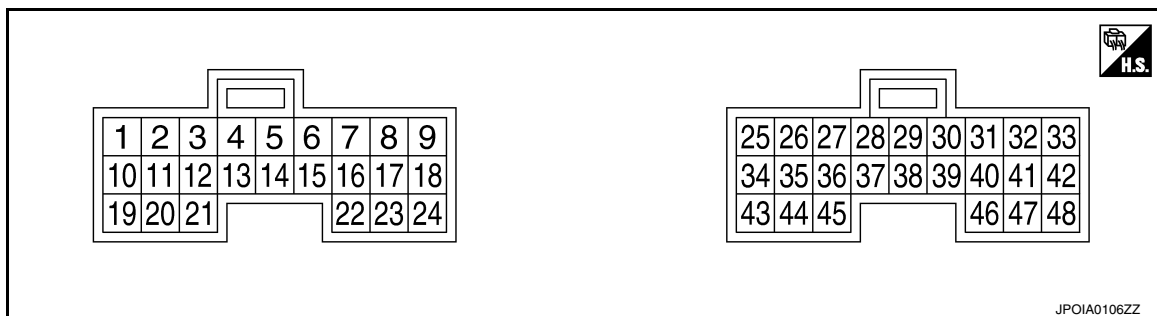
[ICC (FULL SPEED RANGE)]

BRAKE BOOSTER CONTROL UNIT

Reference Value

INFOID:000000010579798

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	—	Signal name	Input/ Output			
1 (W)	Ground	Battery power supply	—	Ignition switch OFF	—	Battery voltage
2 (W)		Battery power supply	—	Ignition switch OFF	—	Battery voltage
5 (P)		ITS communication-L	Input/ Output	—	—	—
6 (SB)		Release switch power supply	—	Ignition switch ON	—	10 V
8 (R)	24 (BG)	Brake pressure sensor power supply	—	Ignition switch ON	—	5 V
10 (G)	Ground	Booster solenoid pow- er supply	—	Ignition switch ON	—	12 V
12 (R)		Booster solenoid ground	Output	Ignition switch ON	At "BOOSTER SOL/V " test of "Active test"	PKIB1763J
14 (L)		ITS communication-H	Input/ Output	—	—	—
15 (V)		Release switch (nor- mal close)	—	Ignition switch ON	Press the brake pedal Brake pedal not depressed	0 V 10 V
17 (G)	24 (BG)	Brake pressure sensor signal	Input	Ignition switch ON	Brake pedal not depressed Press the brake pedal	0.5 V 0.5 - 3.5 V Note: The harder the brake is pressed, the higher the voltage.

BRAKE BOOSTER CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[ICC (FULL SPEED RANGE)]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	—	Signal name	Input/ Output			
19 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
20 (B)		Ground	—	Ignition switch ON	—	0 V
21 (GR)		ICC warning chime signal	Output	Ignition switch ON	ICC warning chime not oper- ating	12 V
					ICC warning chime opera- tion	0 V
22 (BR)		Release switch (normal open)	Input	Ignition switch ON	Brake pedal depressed	10 V
					Brake pedal not depressed	0 V
24 (BG)		Brake pressure sensor ground	—	—	—	—
33 (G)		Ignition power supply	—	Ignition switch ON	—	Battery voltage
40 (SB)		IBA OFF switch	Input	Ignition switch ON	IBA OFF switch pressed	0 V
					IBA OFF switch not pressed	12 V
42 (G)		Ignition power supply	—	Ignition switch ON	—	Battery voltage
46 (B)		Ground	—	Ignition switch ON	—	0 V
47 (LG)		ICC brake hold relay drive signal	Output	Ignition switch ON	—	0 V
					At “STOP LAMP” test of “Ac- tive test”	12 V

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SYMPTOM DIAGNOSIS

INTELLIGENT CRUISE CONTROL (FULL SPEED RANGE) SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010579799

	Symptoms	Reference page
Operation	MAIN switch does not turn ON.	Refer to CCS-159, "Description" .
	MAIN switch does not turn OFF.	
	ICC system cannot be set (MAIN switch turns ON/OFF)	Refer to CCS-160, "Description" .
	CANCEL switch does not function.	Refer to CCS-162, "Description" .
	Resume does not function.	
	Set speed does not increase.	
	Set distance to a vehicle ahead cannot be changed.	
	ICC is not canceled when the A/T selector lever is "N" position.	Refer to CCS-163, "Description" .
Display/Chime	ICC system display not appear.	Refer to MWI-43, "Diagnosis Description" .
	Chime does not sound.	Refer to CCS-164, "Description" .
Control	Driving force is hunting.	Refer to CCS-166, "Description" .
Function to detect a vehicle ahead	System frequently cannot detect a vehicle ahead.	Refer to CCS-167, "Description" .
	Distance to detect a vehicle ahead is short.	
	System misidentifies a vehicle even though there is no vehicle ahead.	- Adjust laser beam aiming: Refer to CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description". - Perform ICC system action test. Refer to CCS-12, "ACTION TEST : Description".
	System misidentifies a vehicle in the next lane.	
	System does not detect a vehicle at all.	Refer to CCS-168, "Description" .

MAIN SWITCH DOES NOT TURN ON, MAIN SWITCH DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

MAIN SWITCH DOES NOT TURN ON, MAIN SWITCH DOES NOT TURN OFF

Description

INFOID:0000000010579800

MAIN switch does not turn ON

- ICC system display does not appear even when MAIN switch is pressed.

MAIN switch does not turn OFF

- When ICC system display is ON, display does not turn OFF even if MAIN switch is pressed.

NOTE:

When ICC system warning lamp illuminates, perform the self-diagnosis of ICC system, and then repair or replace the malfunctioning parts.

Diagnosis Procedure

INFOID:0000000010579801

1.MAIN SWITCH INSPECTION

1. Start the engine.
2. Check that "MAIN SW" and "CRUISE LAMP" operate normally in "DATA MONITOR" of "ICC/ADAS" with CONSULT.

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK UNIFIED METER AND A/C AMP.

Check that "CRUISE IND" operates normally in "DATA MONITOR" of "METER/M&A".

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

3.PERFORM SELF-DIAGNOSIS OF UNIFIED METER AND A/C AMP.

1. Perform "Self Diagnostic Result" of "METER/M&A".
2. Check if DTC is detected. Refer to [MWI-117, "DTC Index"](#).

Is any DTC detected?

YES >> Repair or replace malfunctioning parts.

NO >> GO TO 4.

4.PERFORM SELF-DIAGNOSIS RESULTS OF ICC SYSTEM

1. Perform "All DTC Reading".
2. Check if the "U1000" is detected in self-diagnosis results of "ICC/ADAS".

Is "U1000" detected?

YES >> GO TO 5.

NO >> GO TO 6.

5.CAN COMMUNICATIONS INSPECTION

Check the CAN communication and repair or replace malfunctioning parts. Refer to [CCS-131, "DTC Logic"](#).

>> INSPECTION END

6.CHECK ICC STEERING SWITCH

Check the ICC steering switch. Refer to [CCS-60, "Diagnosis Procedure"](#).

>> INSPECTION END

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ICC SYSTEM CANNOT BE SET (MAIN SWITCH TURNS ON/OFF)

< SYMPTOM DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

ICC SYSTEM CANNOT BE SET (MAIN SWITCH TURNS ON/OFF)

Description

INFOID:0000000010579802

The MAIN switch can be turned ON/OFF, but the ICC system cannot be set even if the SET/COAST switch is pressed.

NOTE:

The system cannot be set in the following case.

- When the vehicle ahead is not detected below the speed of 32 km/h (20 MPH).
- When the selector lever is not in the "D", "DS" position or manual mode.
- When the front wipers are operating at LO or HI.
(If the vehicle is equipped with a rain sensing auto-wiper, the system may cancel when the wipers are set to INT)
- When the brake pedal is depressed.
- When driving into a strong light (i.e., sunlight).
- When the snow mode switch is turned ON.
- When the VDC is turned OFF.
- When ABS or VDC (including the TCS) operates.
- When a wheel slips.

Diagnosis Procedure

INFOID:0000000010579803

1. CHECK CAUSE OF AUTOMATIC CANCELLATION

Check if there is the cancellation cause in the "CAUSE OF AUTO-CANCEL" on "WORK SUPPORT" of "ICC/ADAS" with CONSULT.

Is it displayed?

Not displayed>>GO TO 2.

"OPE SW VOLT CIRC">>Refer to [CCS-60, "DTC Logic"](#).

"VHCL SPD UNMATCH">>Refer to [CCS-51, "DTC Logic"](#).

"IGN LOW VOLT">>Refer to [CCS-49, "DTC Logic"](#).

"ECM CIRCUIT">>Refer to [CCS-82, "DTC Logic"](#).

"CAN COMM ERROR">>Refer to [CCS-131, "DTC Logic"](#).

"ABS/TCS/VDC CIRC">>Refer to [CCS-53, "DTC Logic"](#).

"BCU CIRCUIT">>Refer to [CCS-93, "DTC Logic"](#).

2. PERFORM THE SELF-DIAGNOSIS

1. Perform "All DTC Reading".

2. Check if any DTC is detected in "Self Diagnostic Result" of "ICC/ADAS". Refer to [CCS-153, "DTC Index"](#).

Is any DTC detected?

YES >> GO TO 3.

NO >> GO TO 4.

3. REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts identified by the self-diagnosis result.

>> GO TO 6.

4. CHECK EACH SWITCH AND VEHICLE SPEED SIGNAL

1. Start the engine.

2. Check that the following items operate normally in "DATA MONITOR" of "ICC/ADAS".

- "VHCL SPEED SE"
- "D RANGE SW"
- "SET/COAST SW"
- "BRAKE SW"
- "WIPER SW"
- "PKB SW"

Is there a malfunctioning item?

All items are normal>>GO TO 5.

"VHCL SPEED SE">>Refer to [CCS-51, "DTC Logic"](#).

ICC SYSTEM CANNOT BE SET (MAIN SWITCH TURNS ON/OFF)

< SYMPTOM DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

"D RANGE SW">>Refer to [CCS-163, "Diagnosis Procedure"](#).

"SET/COAST SW">>Refer to [CCS-60, "DTC Logic"](#).

"BRAKE SW">>Refer to [CCS-55, "DTC Logic"](#).

"WIPER SW" (When the front wiper operation is normal)>>GO TO 5.

"WIPER SW" (When the front wiper operation is malfunctioning)>>Performs the diagnosis of the front wiper.

Refer to [WW-108, "WITH RAIN SENSOR : Symptom Table"](#) (With rain sensor) or [WW-110,](#)

["WITHOUT RAIN SENSOR : Symptom Table"](#) (Without rain sensor).

"PKB SW">>Refer to [MWI-70, "Diagnosis Procedure"](#).

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).

2. Perform the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase the self-diagnosis results, and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)

2. Check that the ICC system is normal.

>> INSPECTION END

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ICC STEERING SWITCH (OTHER THAN MAIN SWITCH) DOES NOT FUNCTION

< SYMPTOM DIAGNOSIS > [ICC (FULL SPEED RANGE)]

ICC STEERING SWITCH (OTHER THAN MAIN SWITCH) DOES NOT FUNCTION

Description

INFOID:0000000010579804

MAIN switch can be turned ON/OFF, but the operation of RESUME/ACCELERATE switch, CANCEL switch, and DISTANCE switch cannot be performed during ICC system operation.

NOTE:

Resume is not accepted when the following condition is met.

- When the MAIN switch is turned OFF once.

The set distance change is not accepted when any of the following condition is met.

- When the DCA system is turned ON.

Diagnosis Procedure

INFOID:0000000010579805

1.CHECK EACH SWITCH

1. Start the engine.
2. Check that each switch operates normally on "DATA MONITOR" of "ICC/ADAS" with CONSULT.
 - "RESUME/ACC SW"
 - "CANCEL SW"
 - "DISTANCE SW"

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2.PERFORM ALL OF THE SELF-DIAGNOSIS ITEMS

1. Perform "All DTC Reading".
2. Check if the "U1000" is detected in "Self Diagnostic Result" of "ICC/ADAS".

Is "U1000" detected?

YES >> GO TO 3.

NO >> GO TO 4.

3.CAN COMMUNICATIONS INSPECTION

Check the CAN communication and repair or replace malfunctioning parts. Refer to [CCS-131, "DTC Logic"](#).

>> INSPECTION END

4.CHECK ICC STEERING SWITCH

Check the ICC steering switch. Refer to [CCS-61, "Component Inspection"](#).

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
2. Adjust the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase the self-diagnosis results, and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> INSPECTION END

ICC SYSTEM DOES NOT CANCEL WHEN A/T SELECTOR LEVER SETS ON "N"

Description

INFOID:0000000010579806

The ICC system is not canceled even when the A/T selector lever is shifted to the N position while the ICC system is active.

Diagnosis Procedure

INFOID:0000000010579807

1.CHECK D RANGE SWITCH

Check if "D RANGE SW" operates normally in "DATA MONITOR" of "ICC/ADAS" with CONSULT.

Is the inspection result normal?

- YES >> GO TO 6.
- NO >> GO TO 2.

2.PERFORM ALL SELF-DIAGNOSIS ITEMS

1. Perform "All DTC Reading".
2. Check if the "U1000" is detected in "self-diagnosis results" of "ICC/ADAS".

Is "U1000" detected?

- YES >> GO TO 3.
- NO >> GO TO 4.

3.CAN COMMUNICATIONS INSPECTION

Check the CAN communication and repair or replace malfunctioning parts. Refer to [CCS-131, "DTC Logic"](#).

>> INSPECTION END

4.CHECK POSITION SWITCH

Check if "SLCT LVR POSI" operates normally in "DATA MONITOR" of "TRANSMISSION".

Is the inspection result normal?

- YES >> GO TO 6.
- NO >> GO TO 5.

5.PERFORM TCM SELF-DIAGNOSIS

1. Perform the "Self Diagnostic Result" of "TRANSMISSION".
2. Repair or replace malfunctioning parts. Refer to [TM-157, "DTC Index"](#).

>> GO TO 7.

6.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
2. Perform the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 7.

7.CHECK ICC SYSTEM

1. Erase the self-diagnosis results, and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> INSPECTION END

CHIME DOES NOT SOUND

Description

INFOID:0000000010579808

Symptom check: In the following conditions, the warning chime may not sound even if the vehicle distance is short.

- When the vehicles are traveling at the same speed and the distance between vehicles is not changing.
- When the vehicle ahead is traveling faster and the distance between vehicles is increasing.
- The warning chime will not sound when the accelerator pedal is depressed, overriding the system.
- The warning chime will not sound when own vehicle approaches vehicles that are parked or moving slowly.
- The warning chime does not sound when the system does not detect any vehicle ahead. (Diagnose the conditions under which the system is detecting the vehicle ahead and when the system is malfunctioning. If there is any malfunction in detecting the vehicle ahead, check the system following the [CCS-167, "Description"](#).)

Diagnosis Procedure

INFOID:0000000010579809

1.PERFORM ACTIVE TEST

Check if the warning chime sounds on the active test item "ICC BUZZER" of "ICC/ADAS" with CONSULT.

Does the warning chime sound?

YES >> GO TO 2.

NO >> GO TO 3.

2.CHECK THE MALFUNCTION SYMPTOM DURING WARNING CHIME OPERATION

1. Understand the vehicle ahead detecting condition when the malfunction occurred. If the warning chime should have sounded, replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
2. Adjust the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 8.

3.CHECK ICC WARNING CHIME CIRCUIT

Check the ICC warning chime circuit. Refer to [CCS-136, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4.PERFORM THE SELF-DIAGNOSIS

1. Perform "All DTC Reading" with CONSULT.
2. Check if the "U1000" is detected in self-diagnosis results of "ICC/ADAS".

Is "U1000" detected?

YES >> GO TO 5.

NO >> GO TO 7.

5.CAN COMMUNICATIONS SYSTEM INSPECTION

Check the CAN communication system and repair or replace malfunctioning parts. Refer to [CCS-131, "DTC Logic"](#).

>> INSPECTION END

6.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts.

>> GO TO 8.

7.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
2. Adjust the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

CHIME DOES NOT SOUND

< SYMPTOM DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

>> GO TO 8.

8.CHECK ICC SYSTEM

1. Erase the self-diagnosis results, and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> INSPECTION END

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DRIVING FORCE IS HUNTING

Description

INFOID:0000000010579810

The vehicle causes hunting when the ICC system is active.

Diagnosis Procedure

INFOID:0000000010579811

1.PERFORM SELF-DIAGNOSIS OF ECM

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "ENGINE". Refer to [EC-574, "DTC Index"](#).

Is any DTC detected?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK ICC SENSOR INTEGRATED UNIT BODY WINDOW

1. Check the vehicle driving conditions. Refer to [CCS-167, "Description"](#).
2. Check the ICC sensor integrated unit body window for contamination, foreign materials, or cracks. Refer to [CCS-167, "Diagnosis Procedure"](#).

>> INSPECTION END

3.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts identified by the self-diagnosis result.

>> GO TO 4.

4.CHECK ICC SYSTEM

1. Erase the self-diagnosis results, and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> INSPECTION END

FREQUENTLY CANNOT DETECT THE VEHICLE AHEAD / DETECTION ZONE IS SHORT

< SYMPTOM DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

FREQUENTLY CANNOT DETECT THE VEHICLE AHEAD / DETECTION ZONE IS SHORT

Description

INFOID:0000000010579812

The detection function may become unstable in the following cases.

- When the reflector of the vehicle ahead is deficient/ not clean enough to reflect the radar.
- When driving a road with extremely sharp corners.
- When the sensor cannot detect the reflector of the vehicle ahead as the vehicle ahead is passing a hill or passing the peak.

Diagnosis Procedure

INFOID:0000000010579813

1.VISUAL CHECK (1)

Check ICC sensor integrated unit body window for contamination and/or foreign materials.

Do foreign materials adhere?

- YES >> GO TO 2.
- NO >> GO TO 3.

2.WIPE OUT DIRT AND FOREIGN MATERIALS

Wipe out the contamination and/or foreign materials from the ICC sensor integrated unit body window.

>> GO TO 6.

3.VISUAL CHECK (2)

Check ICC sensor integrated unit body window for cracks and scratches.

Are there any cracks or scratches?

- YES >> GO TO 5.
- NO >> GO TO 4.

4.AJUST LASER BEAM AIMING

1. Adjust the laser beam aiming. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).
2. Perform ICC system action test. Refer to [CCS-12. "ACTION TEST : Description"](#).
3. Check that the vehicle ahead detection performance improves.

Does it improve?

- YES >> INSPECTION END
- NO >> GO TO 5.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace the ICC sensor integrated unit. Refer to [CCS-175. "Exploded View"](#).
2. Adjust the laser beam aiming. Refer to [CCS-7. "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase the self-diagnosis results, and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12. "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> INSPECTION END

THE SYSTEM DOES NOT DETECT THE VEHICLE AHEAD AT ALL

< SYMPTOM DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

THE SYSTEM DOES NOT DETECT THE VEHICLE AHEAD AT ALL

Description

INFOID:0000000010579814

When ICC system is active, the ICC system does not perform any control even through there is a vehicle ahead.

Diagnosis Procedure

INFOID:0000000010579815

1. CHECK ICC SYSTEM DISPLAY ON MULTI INFORMATION DISPLAY

1. Start the self-diagnosis mode of combination meter. Refer to [MWI-43, "Diagnosis Description"](#).
2. Check that the multi information display turns on normally.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the combination meter.

2. VISUAL CHECK (1)

Check ICC sensor integrated unit body window for contamination and/or foreign materials.

Do foreign materials adhere?

- YES >> GO TO 3.
NO >> GO TO 4.

3. WIPE OUT DIRT AND FOREIGN MATERIALS

Wipe out the contamination and/or foreign materials from the ICC sensor integrated unit body window.

>> GO TO 7.

4. VISUAL CHECK (2)

Check ICC sensor integrated unit body window for cracks and/or scratches.

Are there cracks?

- YES >> GO TO 6.
NO >> GO TO 5.

5. LASER BEAM AIMING ADJUSTMENT

1. Adjust the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).
2. Perform ICC system action test. Refer to [CCS-12, "ACTION TEST : Description"](#).
3. Check that the vehicle ahead detection performance improves.

Does it improve?

- YES >> INSPECTION END
NO >> GO TO 6.

6. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace the ICC sensor integrated unit. Refer to [CCS-175, "Exploded View"](#).
2. Adjust the laser beam aiming. Refer to [CCS-7, "LASER BEAM AIMING ADJUSTMENT : Description"](#).

>> GO TO 7.

7. CHECK ICC SYSTEM

1. Erase the self-diagnosis results, and then perform "All DTC Reading" again after performing the action test. (Refer to [CCS-12, "ACTION TEST : Description"](#) for action test.)
2. Check that the ICC system is normal.

>> INSPECTION END

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

NORMAL OPERATING CONDITION

Description

INFOID:0000000010579816

PRECAUTIONS FOR VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE

CAUTION:

- ICC system is only an aid to assist the driver and is not a collision warning or avoidance device. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- The system is primarily intended for use on straight, dry, open roads with light traffic. It is not advisable to use the system in city traffic or congested areas.
- This system will not adapt automatically to road conditions. This system should be used in evenly flowing traffic. Do not use the system on roads with sharp curves, or on icy roads, in heavy rain or in fog.
- The distance sensor will not detect under most conditions.
 - Stationary and slow moving vehicles.
 - Pedestrians or objects in the roadway.
 - Oncoming vehicles in the same lane.
 - Motorcycles traveling offset in the travel lane.
- As there is a performance limit to the distance control function, never rely solely on the ICC system. This system does not correct careless, inattentive or absent-minded driving, or overcome poor visibility in rain, fog, or other bad weather. Decelerate the vehicle speed by depressing the brake pedal, depending on the distance to the vehicle ahead and the surrounding circumstances in order to maintain a safe distance between vehicles.
- If the vehicle ahead comes to a stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges that the vehicle has come to a standstill and sound a warning chime. To prevent the vehicle from moving, the driver must depress the brake pedal.
- The system may not detect the vehicle in front of the driver in certain road or weather conditions. To avoid accidents, never use the ICC system under the following conditions:
 - On roads where the traffic is heavy or there are sharp curves.
 - On slippery road surfaces such as on ice or snow, etc.
 - During bad weather (rain, fog, snow, etc.)
- When the front wiper is operated at the low speed (LO) or high speed (HI) position, the ICC system is automatically canceled.
- When strong light (for example, at sunrise or sunset) is directly shining on the front of the vehicle.
- When rain, snow or dirt adhere to the system sensor.
- On steep downhill roads (the vehicle may go beyond the set vehicle speed and frequent braking may result in overheating the brakes).
- On repeated uphill and downhill roads.
- When traffic conditions make it difficult to keep a proper distance between vehicles because of frequent acceleration or deceleration.
- Do not use the ICC system if own vehicle is towing a trailer. The system may not detect a vehicle ahead.
- In some road or traffic conditions, a vehicle or object can unexpectedly come into the sensor detection zone and cause automatic braking. The driver may need to control the distance from other vehicles using the accelerator pedal. Always stay alert and avoid using the ICC system when it is not recommended in this section.
- The vehicle-to-vehicle distance control mode uses a sensor located on the front of the vehicle to detect vehicles traveling ahead. The sensor generally detects the signals returned from the reflectors on a vehicle ahead. Therefore, if the sensor cannot detect the reflector on the vehicle ahead, the ICC system may not maintain the selected distance.
- The following are some conditions in which the sensor cannot detect the signals:
 - When the reflector of the vehicle ahead is positioned high on the vehicle (trailer, etc.).
 - When the reflector on the vehicle ahead is missing, damaged or covered.
 - When the reflector of the vehicle ahead is covered with dirt, snow and road spray.
 - When the snow or road spray from traveling vehicles reduces the sensor's visibility.
 - When dense exhaust or other smoke (black smoke) from vehicles reduces the sensor's visibility.
 - When excessively heavy baggage is loaded in the rear seat or the luggage room of own vehicle.
- The ICC system is designed to automatically check the sensor's operation within the limitation of the system. When the sensor is covered with dirt or is obstructed, the system will automatically be canceled. If the sensor is covered with ice, a transparent or translucent vinyl bag, etc., the ICC system may not detect them. In these instances, the vehicle-to-vehicle distance control mode may not can-

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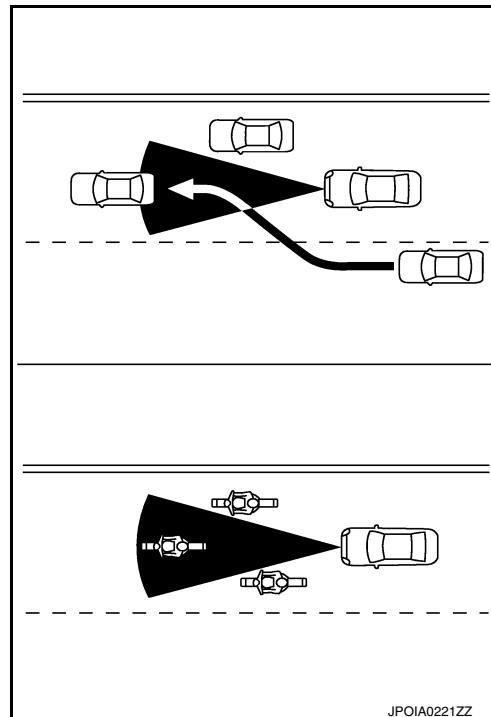
NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

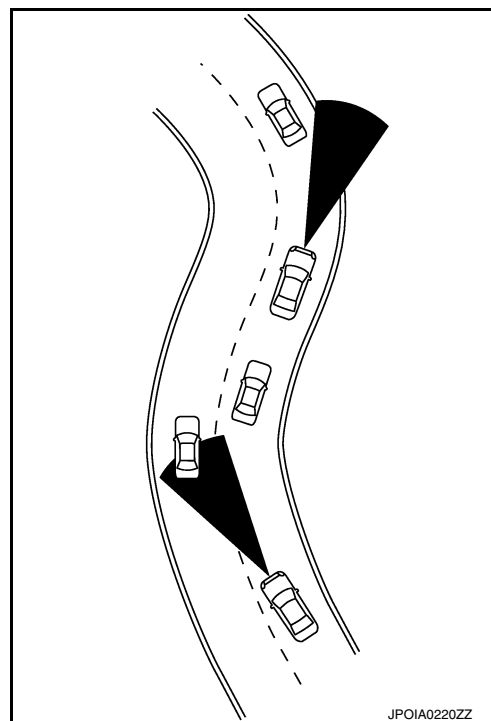
[ICC (FULL SPEED RANGE)]

cel and may not be able to maintain the selected following distance from the vehicle ahead. Be sure to check and clean the sensor regularly.

- The ICC system does not control vehicle speed or warn the driver when own vehicle approaches stationary and slow moving vehicles. The driver must pay attention to vehicle operation to maintain proper distance from vehicles ahead when approaching toll gates or traffic congestion.
- The detection zone of the ICC sensor is limited. A vehicle ahead must be in the detection zone for the vehicle-to-vehicle distance detection mode to maintain the selected distance from the vehicle ahead. A vehicle ahead may move outside of the detection zone due to its position within the same lane of travel. Motorcycles may not be detected in the same lane ahead if they are traveling offset from the center line of the lane. A vehicle that is entering the lane ahead may not be detected until the vehicle has completely moved into the lane. If this occurs, the ICC system may warn the driver by blinking the system indicator and sounding the chime. The driver may have to manually control the proper distance away from vehicle traveling ahead.



- When driving on some roads, such as winding, hilly, curved, narrow roads, or roads which are under construction, the ICC sensor may detect vehicles in a different lane, or may temporarily not detect a vehicle traveling ahead. This may cause the ICC system to decelerate or accelerate the vehicle. The detection of vehicles may also be affected by vehicle operation (steering maneuver or traveling position in the lane, etc.) or vehicle condition. If this occurs, the ICC system may warn the driver by blinking the system indicator and sounding the chime unexpectedly. The driver will have to manually control the proper distance away from the vehicle traveling ahead.

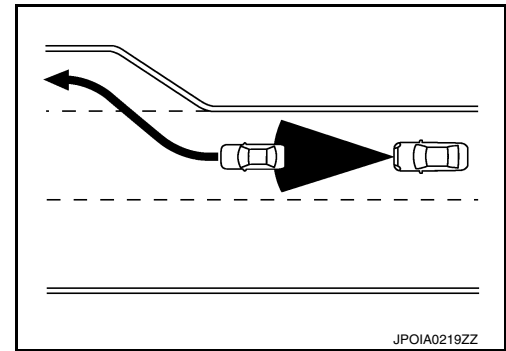


NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[ICC (FULL SPEED RANGE)]

- When driving on the freeway at a set speed and approaching a slower traveling vehicle ahead, the ICC will adjust the speed to maintain the distance, selected by the driver, from the vehicle ahead. If the vehicle ahead changes lanes or exits the freeway, the ICC system will accelerate and maintain the speed up to the set speed. Pay attention to the driving operation to maintain control of the vehicle as it accelerates to the set speed. The vehicle may not maintain the set speed on winding or hilly roads. If this occurs, the driver will have to manually control the vehicle speed.



- The sensor sensitivity can be affected by vehicle operation (steering maneuver or driving position in the lane) or traffic or vehicle condition (for example, if a vehicle is being driven with some damage).
- Normally when controlling the distance to a vehicle ahead, this system automatically accelerates or decelerates own vehicle according to the speed of the vehicle ahead. Depress the accelerator to properly accelerate own vehicle when acceleration is required for a lane change. Depress the brake pedal when deceleration is required to maintain a safe distance to the vehicle ahead due to its sudden braking or if a vehicle cuts in. Always stay alert when using the ICC system.

PRECAUTIONS FOR CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE

CAUTION:

- In the conventional (fixed speed) cruise control mode, a warning chime does not sound to warn the driver if own vehicle is too close to the vehicle ahead, as neither the presence of the vehicle ahead nor the vehicle-to-vehicle distance is detected.
- Pay special attention to the distance between own vehicle and the vehicle ahead or a collision could occur.
- Always confirm the setting in the ICC system display.
- Do not use the conventional (fixed speed) cruise control mode when driving under the following conditions:
 - when it is not possible to keep the vehicle at a set speed.
 - in heavy traffic or in traffic that varies in speed.
 - on winding or hilly roads.
 - on slippery roads (rain, snow, ice, etc.).
 - in very windy areas.
- Doing so could cause a loss of vehicle control and result in an accident.
- To avoid accidentally engaging cruise control, make sure to the MAIN switch OFF when not using ICC system.

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PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010579817

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precautions for Removing Battery Terminal

INFOID:0000000010957839

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

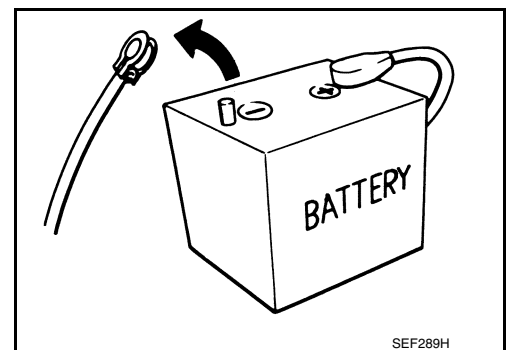
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



Precautions For Harness Repair

INFOID:0000000010579818

ITS communication uses a twisted pair line. Be careful when repairing it.

PRECAUTIONS

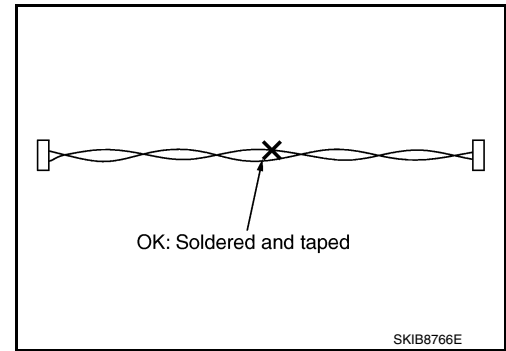
< PRECAUTION >

[ICC (FULL SPEED RANGE)]

- Solder the repaired area and wrap tape around the soldered area.

NOTE:

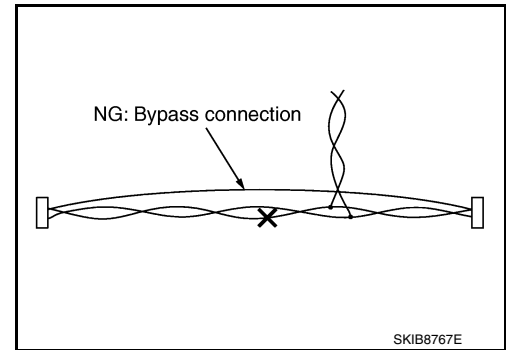
A fray of twisted lines must be within 110 mm (4.33 in).



- Bypass connection is never allowed at the repaired area.

NOTE:

Bypass connection may cause ITS communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



ICC System Service

INFOID:0000000010579819

CAUTION:

- Never look straight into the laser beam discharger when adjusting laser beam aiming.
- Turn the MAIN switch OFF in conditions similar to driving, such as free rollers or a chassis dynamometer.
- Never use the ICC sensor integrated unit removed from vehicle. Never disassemble or remodel.
- Erase DTC when replacing parts of ICC system, then check the operation of ICC system after adjusting laser beam aiming if necessary.

CCS

PREPARATION

< PREPARATION >

[ICC (FULL SPEED RANGE)]

PREPARATION

PREPARATION

Special Service Tools

INFOID:0000000010579820

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
KV99110100 (J-45718) ICC target board	Uses for laser beam aiming adjustment



PKIA0358J

REMOVAL AND INSTALLATION

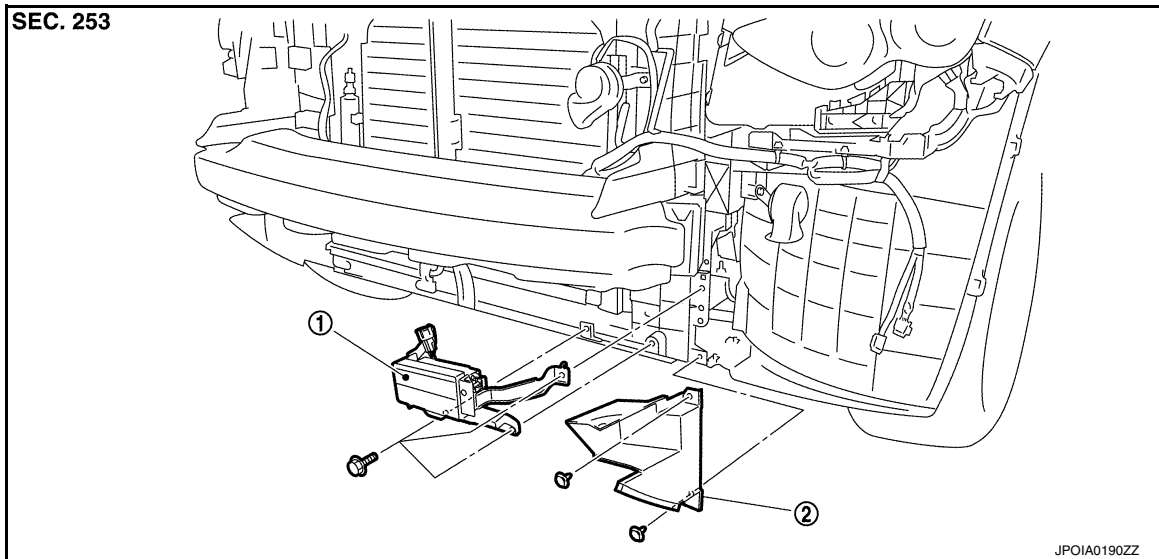
ICC SENSOR INTEGRATED UNIT

Exploded View

INFOID:0000000010579821

CAUTION:

Always perform the laser beam aiming adjustment and check the operation after the replacement, removal and installation of ICC sensor integrated unit.



1. ICC sensor integrated unit

2. Air guide lower (LH)

Removal and Installation

INFOID:0000000010579822

REMOVAL

1. Remove front bumper fascia. Refer to [EXT-12, "Exploded View"](#).
2. Remove air guide lower (LH). Refer to [DLK-311, "Exploded View"](#).
3. Disconnect ICC sensor integrated unit connector.
4. Remove mounting bolts from ICC sensor integrated unit.
5. Remove ICC sensor integrated unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Always perform the laser beam aiming adjustment and check the operation after the replacement, removal, and installation of ICC sensor integrated unit. Refer to [CCS-7, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT \(ICC SENSOR INTEGRATED UNIT\) : Description"](#).

CCS

BRAKE BOOSTER CONTROL UNIT

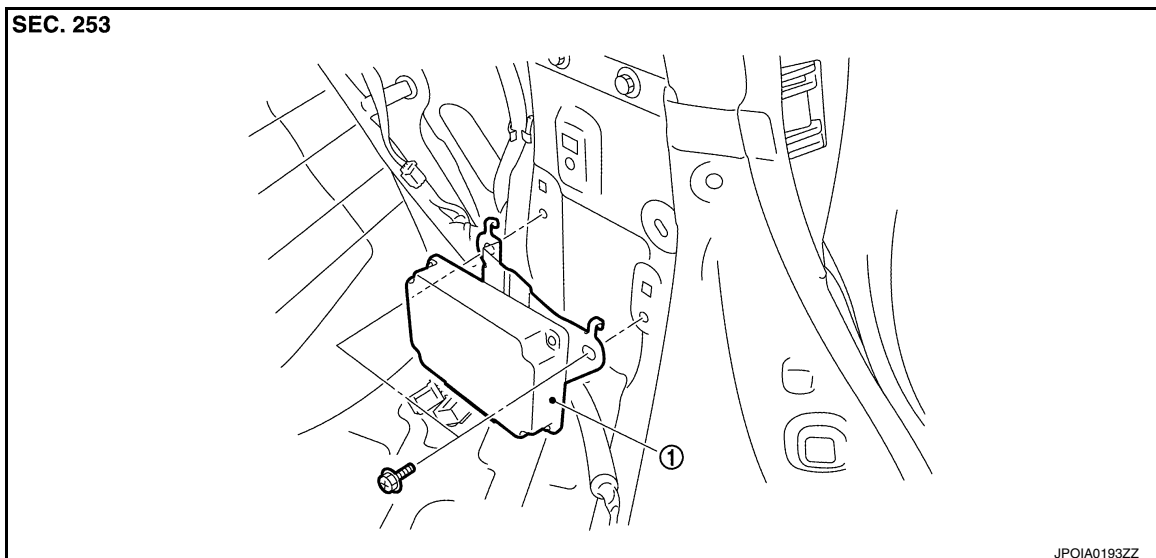
< REMOVAL AND INSTALLATION >

[ICC (FULL SPEED RANGE)]

BRAKE BOOSTER CONTROL UNIT

Exploded View

INFOID:0000000010579823



1. Brake booster control unit

Removal and Installation

INFOID:0000000010579824

REMOVAL

1. Remove clips on the back of the luggage side finisher lower (RH) to obtain space for work. Refer to [INT-30, "Exploded View"](#).
2. Disconnect brake booster control unit connector.
3. Remove mounting bolts from brake booster control unit.
4. Remove brake booster control unit.

INSTALLATION

Install in the reverse order of removal.

ICC WARNING CHIME

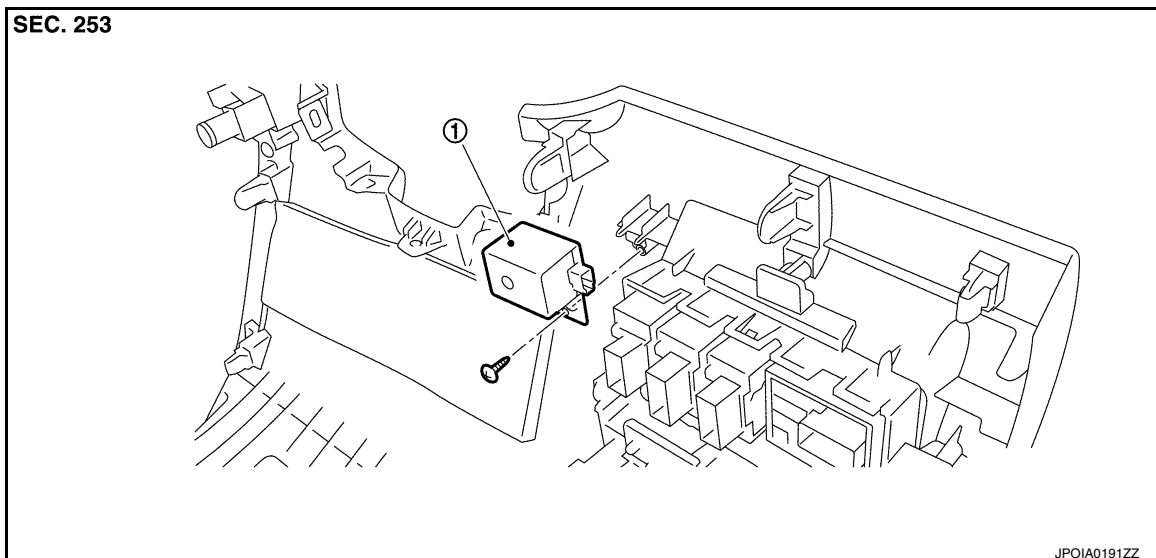
< REMOVAL AND INSTALLATION >

[ICC (FULL SPEED RANGE)]

ICC WARNING CHIME

Exploded View

INFOID:0000000010579825



1. ICC warning chime

Removal and Installation

INFOID:0000000010579826

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-12, "Exploded View"](#).
2. Remove mounting screw from ICC warning chime.
3. Remove ICC warning chime from the instrument lower panel LH.

INSTALLATION

Install in the reverse order of removal.

CCS

ICC STEERING SWITCH

< REMOVAL AND INSTALLATION >

[ICC (FULL SPEED RANGE)]

ICC STEERING SWITCH

Exploded View

INFOID:0000000010579827

Refer to [SR-11, "Exploded View"](#).

SYSTEM DESCRIPTION

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Information

INFOID:0000000010579828

Automatic Speed Control Device (ASCD) system is controlled by ECM.

Regarding the information for ASCD system, refer to following;

- VQ37VHR FOR USA AND CANADA: [EC-89. "System Description"](#)
- VQ37VHR FOR MEXICO: [EC-691. "System Description"](#)
- VK50VE: [EC-1187. "System Description"](#)

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