SECTION CCS
CRUISE CONTROL SYSTEM

CONTENTS

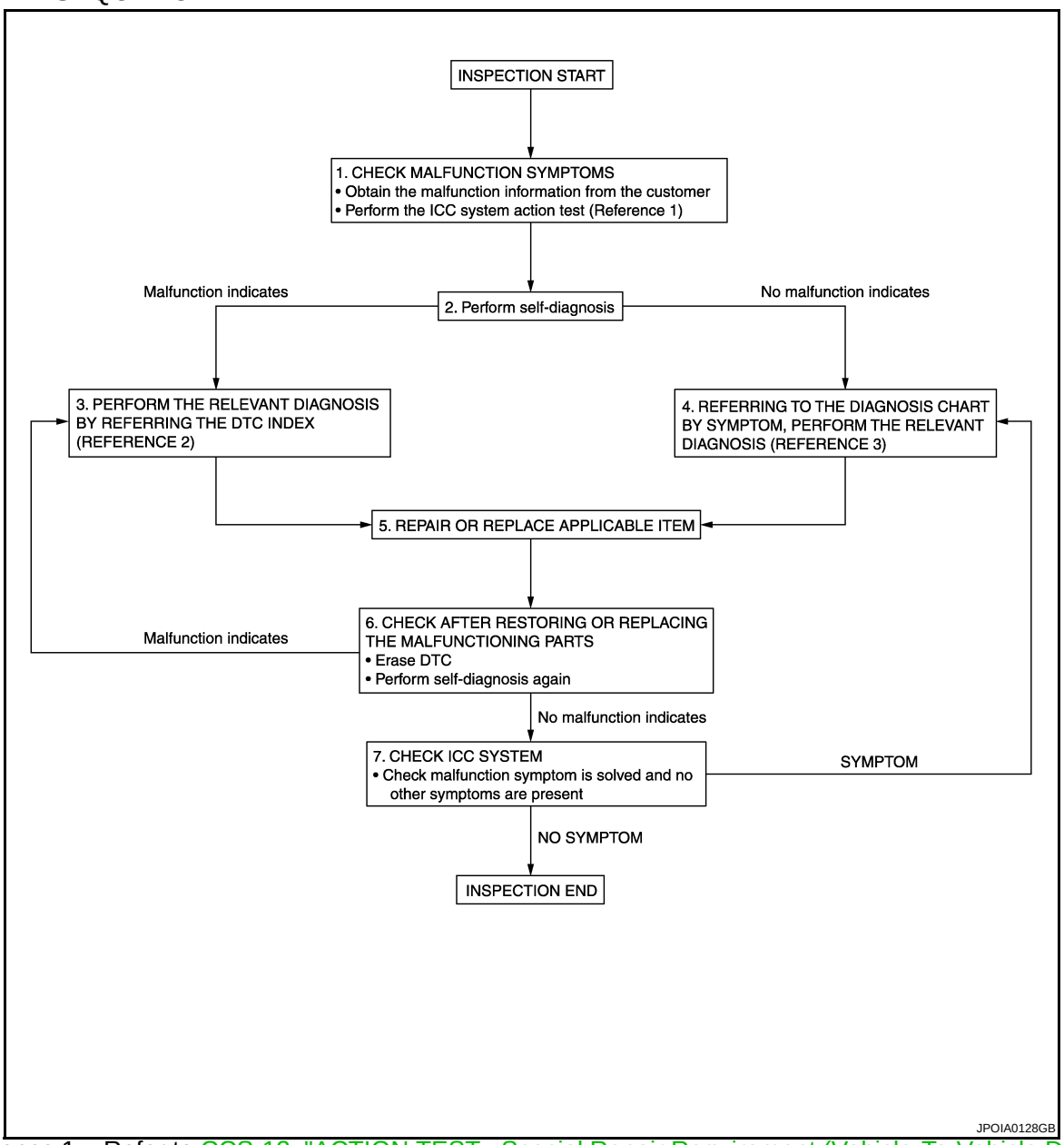
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000003130018

OVERALL SEQUENCE



- Reference 1··· Refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)".
- Reference 2··· Refer to CCS-85, "DTC Index".
- Reference 3··· Refer to CCS-87, "Symptom Table".

DETAILED FLOW

1.CHECK SYMPTOM

Check the malfunction symptoms by performing the following items.

- Obtain the malfunction information (conditions and environment when the malfunction occurred) from the customer.

- Perform the ICC system action test to check the ICC system operation status. Refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)".

>> GO TO 2.

2. PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC is detected.

Is any DTC detected?

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

3. CHECK SELF-DIAGNOSIS RESULTS

1. Check the DTC detected in the self-diagnosis results.
2. Perform the relevant diagnosis by referring to the DTC index. Refer to CCS-85, "DTC Index".

NOTE:
If “U1000: CAN COMM CIRCUIT” (DTC 100) is displayed, start with the diagnosis for the CAN communication system. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 5.

4. DIAGNOSIS BY SYMPTOM

Referring to the diagnosis chart by symptom, perform the relevant diagnosis. Refer to CCS-87, "Symptom Table".

>> GO TO 5.

5. REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace applicable item.

>> GO TO 6.

6. CHECK AFTER REPAIRING OR REPLACING THE APPLICABLE ITEM

1. Erase DTC.
2. Perform the self-diagnosis for the ICC sensor integrated unit again after repairing or replacing the applicable item.
3. Check if DTC is detected.

Is any DTC detected?

YES >> GO TO 3.
NO >> GO TO 7.

7. CHECK ICC SYSTEM

Test the ICC system for normal operation to see if the malfunction symptom is solved and no other symptoms are present.

No symptoms?

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

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:0000000003130019

Always perform the laser beam aiming adjustment after replacing the ICC sensor integrated unit. In addition, test the ICC system operations to see if it functions normally.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000003130020

1. LASER BEAM AIMING ADJUSTMENT

Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 2.

2. ICC SYSTEM ACTION TEST

1. Perform the ICC system action test. Refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)".
2. Check that the ICC system operates normally.

>> INSPECTION END

LASER BEAM AIMING ADJUSTMENT

LASER BEAM AIMING ADJUSTMENT : Description

INFOID:0000000003130021

OUTLINE OF LASER BEAM AIMING ADJUSTMENT

Adjust the laser beam aiming every time the ICC sensor integrated unit is removed or installed.

1. Set up the ICC target board [SST: KV99110100 (J-45718)].
2. Adjust the sensor following the procedure on CONSULT-III. (Turn manually the screw for up-down position adjustment. ICC sensor integrated unit automatically adjust the right-left position.)

CAUTIONARY POINTS FOR LASER BEAM AIMING

CAUTION:

- **Adjust laser beam aiming at a horizontal place as far as 12 m (39 ft) forward the vehicle can be seen.**
- **Adjust laser beam aiming 5 seconds after starting engine.**
- **Never view ICC sensor integrated unit body window directly during laser beam aiming adjustment.**
- **Follow the CONSULT-III when adjusting the laser beam aiming (laser beam aiming adjustment cannot be operated without CONSULT-III).**
- **Never ride on vehicle during laser beam aiming adjustment.**
- **Idle and turn headlamps OFF during laser beam aiming adjustment.**

LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)

INFOID:0000000003130022

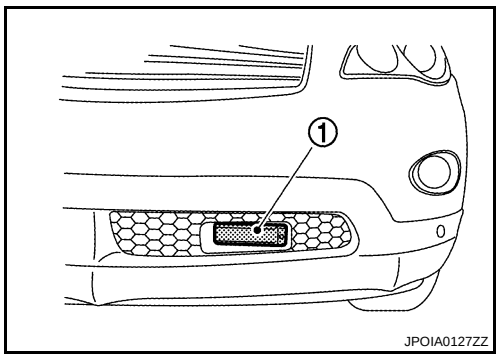
1. PREPARATION OF BEFORE LASER BEAM AIMING ADJUSTMENT

1. Adjust the tire pressure to the specified value.
2. See that there is no load in the vehicle.
3. Fill up the fuel tank full, and check coolant and engine oil are filled up to correct level.
4. Shift the selector lever to the “P” range and release the parking brake.

5. Clean the ICC sensor integrated unit body window with a soft cloth.

1: ICC sensor integrated unit

>> Go to CCS-9, "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:0000000003130023

Accurate ICC target board setting is required for the laser beam aiming adjustment.

CAUTION:

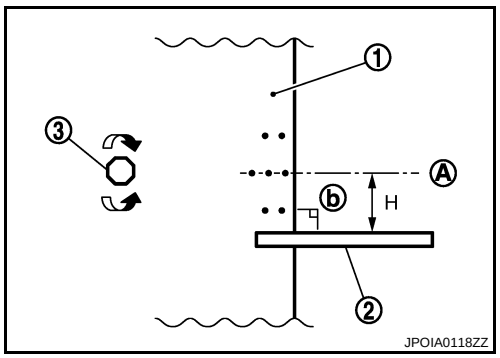
ICC system does not function normally if laser beam aiming is not accurate.

1.ADJUSTING HEIGHT OF THE ICC TARGET BOARD

1. Attach a ruler (2) at a position 42 mm (1.65 in) (H) below the center (A) of the ICC target board (1).

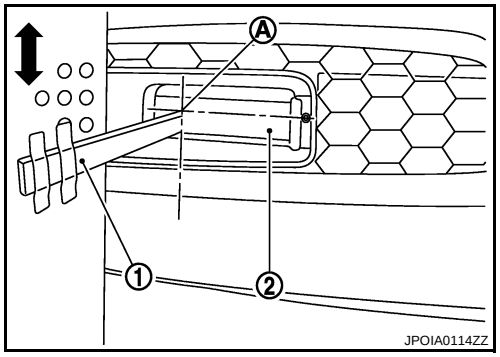
3 : Adjust nut

b : 90°



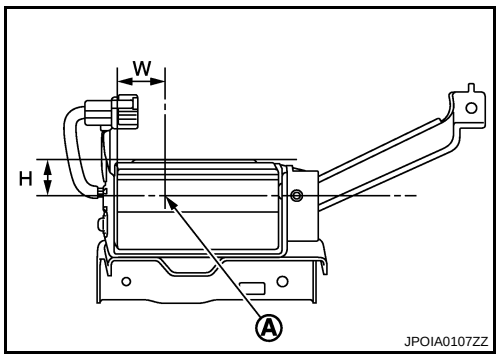
2. Adjust the height of the ICC target board aligning the upside tip of the ruler (1) with the center of laser beam axis (A).

2 : ICC sensor integrated unit

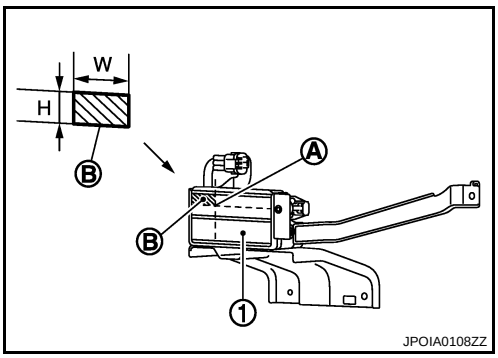


NOTE:

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



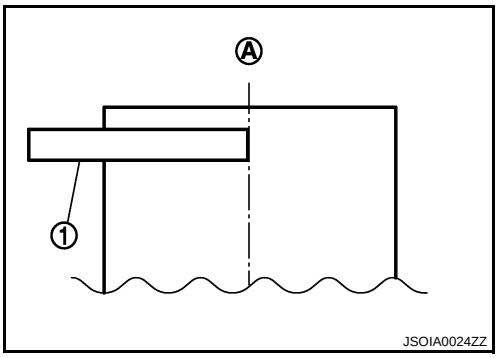
- To identify the center of laser beam axis (A) easily, prepare a piece of paper (B) cut to the size of 38 mm (1.5 in) (W) ×22 mm (0.87 in) (H) and attach it on the upper left point of the ICC sensor integrated unit (1).



>> GO TO 2.

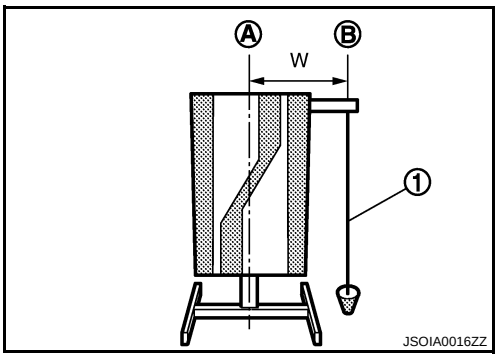
2. ADJUSTING THE RIGHT-LEFT POSITION OF THE ICC TARGET BOARD

1. Attach a ruler (1) or equivalent tool with a length of 450 mm (17.72 in) or more to the back face of the ICC target board center (A) in the leftward direction.



2. Suspend a thread with weight (1) at the point (B) rightward from the ICC target board center (A).

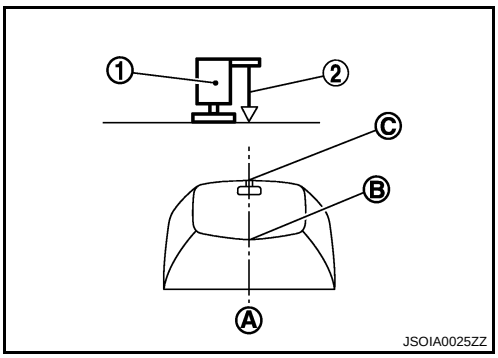
W [mm (in)] :257 (10.12)



>> GO TO 3.

3. SETTING THE ICC TARGET BOARD

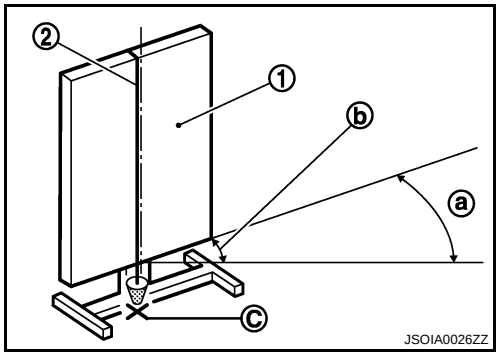
1. Suspend a thread with weight on tip from the center of the front and rear bumpers. Then, mark the center points on the ground as each weight points.
2. Link the front and rear bumpers center points marked on the ground and extend a straight line ahead. Then mark a point 3.9 m (12.8 ft) position ahead of the front bumper. Then, adjust the position of the ICC target board so that the weight come on the top of the marked point [3.9 m (12.8 ft) position ahead of the front bumper] and face to the vehicle.
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.
NOTE:
Approx. 90 mm (3.54 in) (b) shift rates the 25° movement.

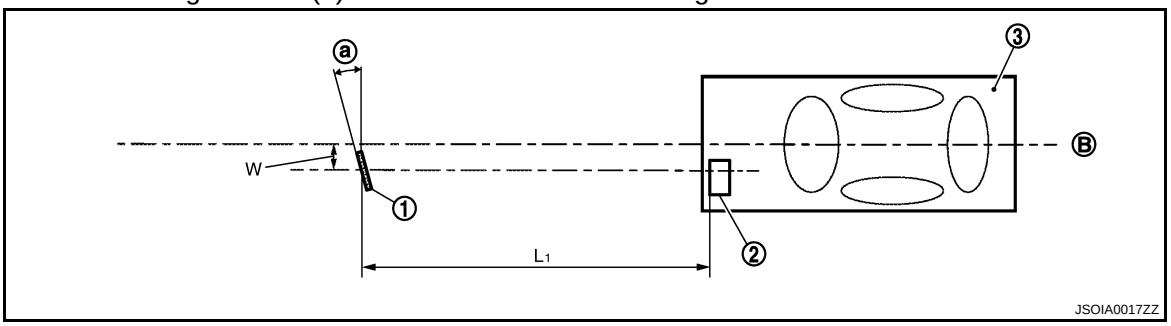
1 : ICC target board
2 : String with a weight
C : ICC target board center marking position



>> GO TO 4.

4. CHECKING THE ICC TARGET BOARD INSTALLATION POSITION

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



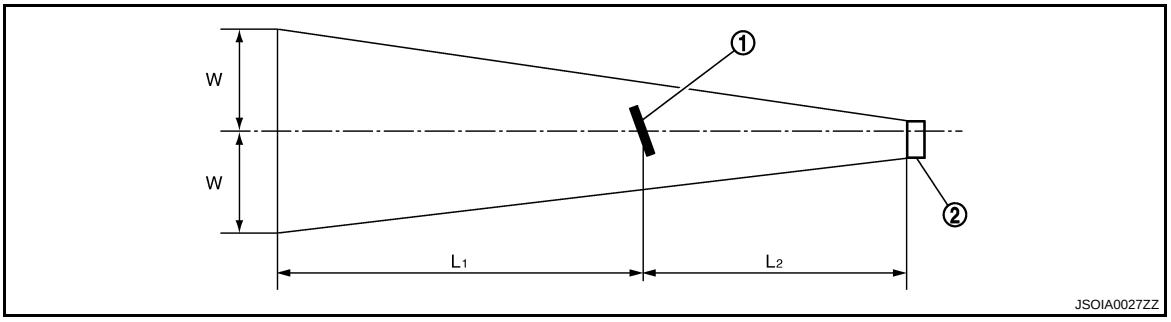
1. ICC target board
2. ICC sensor integrated unit
3. Vehicle
B. Vehicle center
L1. 4.0 m (13.0 ft)
W. 257 mm (10.12 in)
a. 25°

NOTE:
The distance between center of laser beam axis and ICC target board is 4 m (13.0 ft).

>> GO TO 5.

5. CHECKING THE ICC TARGET BOARD INSTALLATION AREA

Do not place anything 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-12, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Laser Beam Aiming Adjustment)".

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

INFOID:0000000003130024

CAUTION:

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

1. SET CONSULT-III TO THE LASER BEAM AIMING ADJUSTMENT MODE

1. Connect CONSULT-III and select “Work Support” of “ICC”.
2. Select “LASER BEAM ADJUST” after the “Work Support” screen is displayed.
3. Touch “START” after the “LASER BEAM ADJUST” screen is displayed.

NOTE:

If the adjustment screen does not appear on the CONSULT-III screen in 10 seconds, after touching “LASER BEAM ADJUST” screen, the following causes may be considered:

- ICC target is not set accurately.
- There is not enough space beside the ICC target.
- 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.

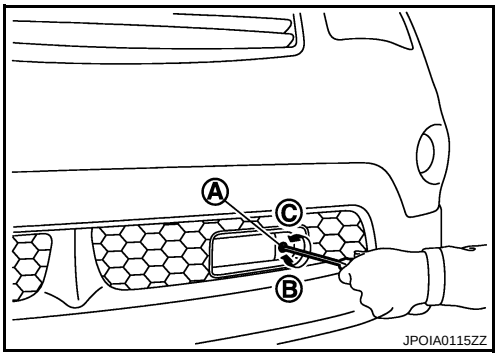
>> GO TO 2.

2. LASER BEAM AIMING ADJUSTMENT

1. After the CONSULT-III displays “ADJUST THE VERTICAL OF LASER BEAM AIMING” turn the up-down direction adjusting screw until “U/D CORRECT” value is set in the range of ±4.

NOTE:

- Turn the 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 screw is turned half a rotation.
- Turning the screw (A) clockwise directs the laser beam downward (B). The laser beam directs upward (C) when turning screw counterclockwise.



>> GO TO 3.

3. LASER BEAM AIMING CONFIRMATION

1. When “U/D CORRECT” value indicates ±4, confirm that the margin of value remains within ±4 at least for 2 seconds with no equipment or hand touching the ICC sensor integrated unit.
2. When “COMPLETED THE VERTICAL AIMING OF LASER BEAM” appears on screen, touch “END”.

NOTE:

Be sure that the margin of “U/D CORRECT” is within ±4 after leaving ICC sensor integrated unit for 2 seconds or more.

3. Confirm that “ADJUSTING AUTOMATIC HORIZONTAL LASER BEAM AIMING” is on screen and wait for a while (maximum: 10 seconds).

4. Confirm that “Normally Completed” is displayed on CONSULT-III and close the aiming adjustment procedure by touching “END”.
NOTE:
Perform all the procedures once “LASER BEAM ADJUST” mode is entered in CONSULT-III. When the procedure is discontinued, the ICC system is inoperable.

>> LASER BEAM AIMING ADJUSTMENT END

ACTION TEST

ACTION TEST : Description

INFOID:0000000003130025

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.

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

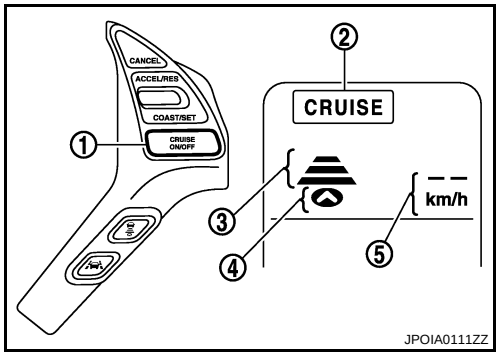
INFOID:0000000003130026

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 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 engine.
2. Press the MAIN switch (1) for less than 1.5 seconds.
3. Check the ICC system display in the combination meter to check that the vehicle-to-vehicle distance control mode is ready for activation.



ICC system display status		
“CRUISE” indicator lamp (2)	:	ON
Set distance indicator (3)	:	Long mode
Own vehicle indicator (4)	:	ON
Set vehicle speed indicator (5)	:	“— —” “km/h (MPH)”

4. Press the MAIN switch, and check that the ICC system display turns off when the ICC system is deactivated.
5. Check that the ICC system display turns off after starting the engine again.

>> GO TO 2.

2.CHECK FOR DISTANCE SWITCH

1. Start engine.
2. Press the MAIN switch for less than 1.5 seconds.
3. Press the DISTANCE switch.

4. Check if 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 (195)
Middle	100 km/h	40 (130)
Short	100 km/h	30 (90)

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NOTE:
The set distance indicator shows (Long) immediately after the engine starts.

>> GO TO 3.

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

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

>> GO TO 4.

4. SET CHECKING

1. Start engine.
2. Press the MAIN switch for less than 1.5 seconds.
3. Drive the vehicle at 40 km/h (25 MPH) or more.
4. Push down the SET/COAST switch.
5. Confirm that the desired speed is set as hand is released from the SET/COAST switch.

NOTE:
The set vehicle speed is displayed on the ICC system display.

>> GO TO 5.

5. CHECK FOR INCREASE OF CRUISING SPEED

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

NOTE:
- Vehicle-to-vehicle distance control mode is automatically cancelled when the driving speed lowers to 32 km/h (20 MPH) due to the deceleration of the vehicle ahead.
- The minimum set speed of the vehicle-to-vehicle distance control mode is 40 km/h (25 MPH).

>> GO TO 7.

7. 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 the system is turned ON.
- When the selector lever is shifted to the “N” range.
- When the MAIN switch is turned OFF.
- When CANCEL switch is operated.

>> GO TO 8.

8. 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.
- Cancel the system by depressing the brake pedal. Then check if the speed before cancellation is restored when pushing up RESUME/ACCELERATE switch with 40 km/h (25 MPH) or above.
- Shift the selector lever to the “N” range to cancel the system. Then shift the selector lever back to the “D” range. Check that the vehicle restores the previous speed kept before the system deactivation when pushing up the RESUME/ACCELERATE switch while the vehicle speed is 40 km/h (25 MPH) or more.
- Press the CANCEL switch to cancel the system. Then check that the vehicle restores the previous speed kept before the system deactivation when pushing up the RESUME/ACCELERATE switch while the vehicle speed is 40 km/h (25 MPH) or more.

>> OPERATION INSPECTION COMPLETION

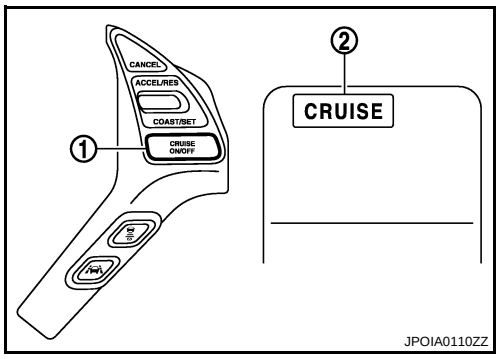
ACTION TEST : Special Repair Requirement (Conventional (Fixed Speed) Cruise Control Mode)

INFOID:0000000003130027

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 engine.
2. Press the MAIN switch (1) for more than 1.5 seconds.
3. Check that the ICC system display in the combination meter indicates that the conventional (fixed speed) cruise control mode is ready for activation.



ICC system display status
“CRUISE” indicator lamp (2) : ON

4. Press the MAIN switch, and check that the ICC system display turns off when the ICC system is deactivated.
5. Check that the ICC system display turns off after starting the engine again.

>> GO TO 2.

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

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

>> GO TO 3.

3. SET CHECKING

1. Start engine.

2. Press the MAIN switch for more than 1.5 seconds.
3. Drive the vehicle at 40 km/h (25 MPH) or more.
4. Push down the SET/COAST switch.
5. Confirm that the desired speed is set as hand is released from the SET/COAST switch.

NOTE:
- The set vehicle speed is not displayed on the ICC system display.
- The SET indicator in the ICC system display illuminates.

>> GO TO 4.

4. CHECK FOR INCREASE OF CRUISING SPEED

1. Set the conventional (fixed speed) cruise control mode at desired speed.
2. Check if the set speed increases by 1.6 km/h (1 MPH) as RESUME/ACCELERATE switch is pushed up.

NOTE:
- If the RESUME/ACCELERATE switch is kept pushing up during cruise control driving, the vehicle speed increases until the switch is released.
- The maximum set speed is 144 km/h (90 MPH).

CAUTION:
Never set the cruise speed exceeding the posted speed limit.

>> GO TO 5.

5. CHECK FOR DECREASE OF CRUISING SPEED

1. Set the conventional (fixed speed) cruise control mode at desired speed.
2. Check if the set speed decreases by 1.6 km/h (1 MPH) as SET/COAST switch is pushed down.

NOTE:
- Conventional (fixed speed) cruise control mode is automatically cancelled when the driving speed lowers to 32 km/h (20 MPH).
- The lowest set speed is 40 km/h (25 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 system is turned ON.
- When the selector lever is shifted to the “N” range.
- When the MAIN switch is turned OFF.
- When CANCEL switch is operated.

>> 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.
- Cancel the system by depressing the brake pedal. Then check if the speed before cancellation is restored when pushing up RESUME/ACCELERATE switch with 40 km/h (25 MPH) or above.
- Shift the selector lever to the “N” range to cancel the system. Then shift the selector lever back to the “D” range. Check that the vehicle restores the previous speed kept before the system deactivation when pushing up the RESUME/ACCELERATE switch while the vehicle speed is 40 km/h (25 MPH) or more.
- Press the CANCEL switch to cancel the system. Then check that the vehicle restores the previous speed kept before the system deactivation when pushing up the RESUME/ACCELERATE switch while the vehicle speed is 40 km/h (25 MPH) or more.

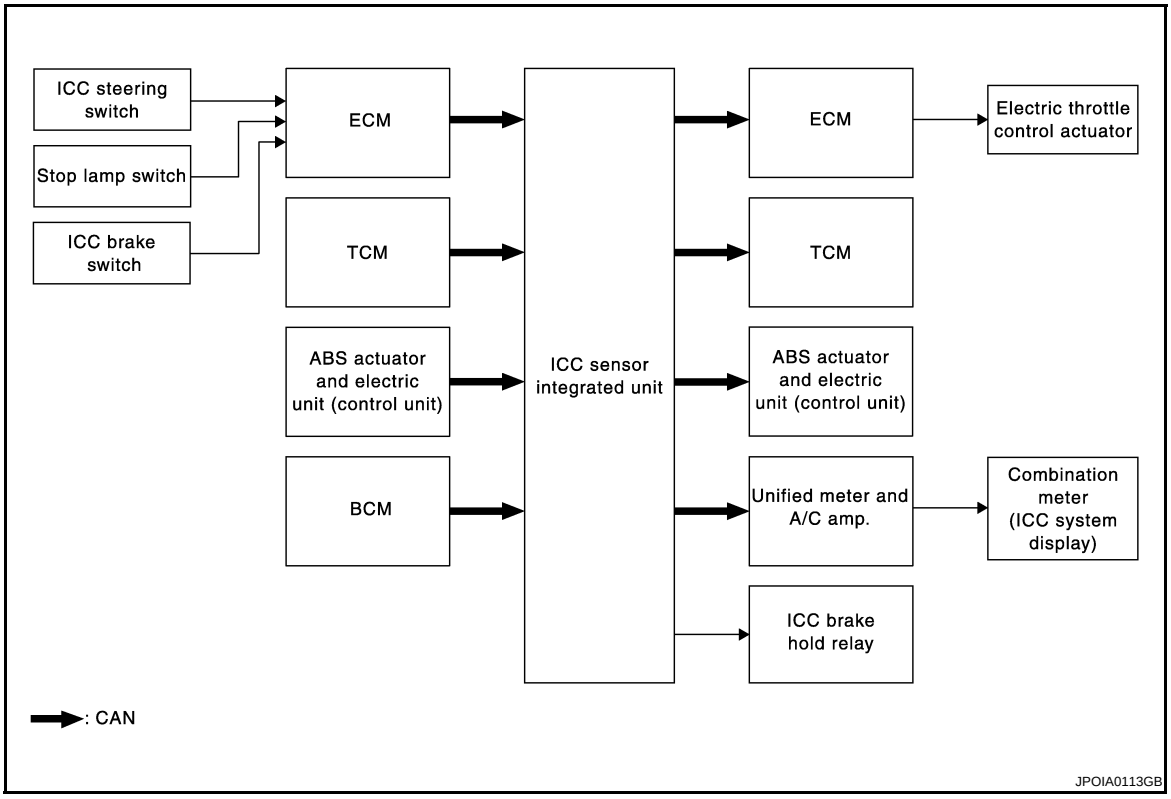
>> OPERATION INSPECTION COMPLETION

FUNCTION DIAGNOSIS

INTELLIGENT CRUISE CONTROL SYSTEM

System Diagram

INFOID:0000000003130028



System Description

INFOID:0000000003130029

- The Intelligent Cruise Control (ICC) system automatically maintains a selected distance from the vehicle ahead according to that vehicle's speed, or the set speed, if the road ahead is clear.
- The ICC function has two cruise control modes and brake assist (with preview function).
- To activate or deactivate the ICC system and set the vehicle speed and vehicle-to-vehicle distance, use the ICC steering switch.
- The operation status of the ICC system is indicated on the ICC system display of the combination meter.

VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE

- Vehicle-to-vehicle distance control mode, the driver can maintain the same speed as other vehicles without the constant need to adjust the set speed as the driver would with a normal cruise control system.
- The system is intended to enhance the operation of the vehicle when following the vehicle traveling in the same lane and direction.
- If the ICC sensor integrated unit detects a slower moving vehicle ahead, the system will reduce speed so that the vehicle ahead can be followed at the selected distance.
- The system automatically controls the throttle and applies the brakes (up to 25% of vehicle braking power) if necessary.
- The detection range of the sensor is approximately 390 ft (120 m) ahead.
- Refer to Owner's Manual for Intelligent Cruise Control System operating instructions.

CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE

- Conventional (fixed speed) cruise control mode is cruising at preset speeds.
- Refer to Owner's Manual for Intelligent Cruise Control System operating instructions.

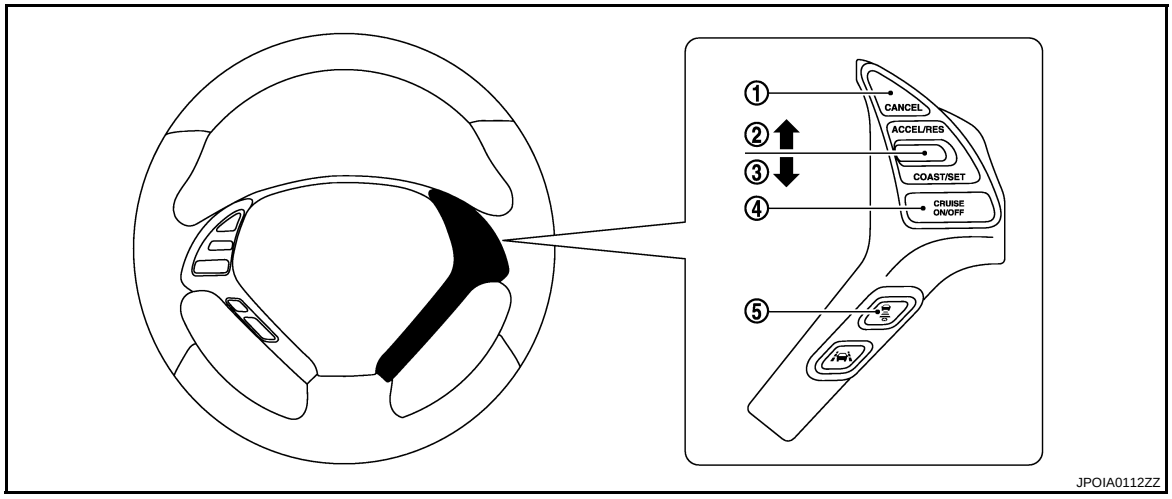
BRAKE ASSIST (WITH PREVIEW FUNCTION)

- When the force applied to brake pedal exceeds a certain level, the Brake Assist is activated and generates a greater braking force than that of a conventional brake booster even with light pedal force.

- When the Preview Function identifies the need to apply the sudden brake by sensing the vehicle ahead in the same lane and the distance and relative speed from it, it applies the brake pre-pressure before driver depresses the brake pedal and improves brake response by reducing its free play.
- Refer to Owner's Manual for BRAKE ASSIST (WITH PREVIEW FUNCTION) operating instructions.

ICC STEERING SWITCH

ICC system is operated by MAIN switch and four control switches, all mounted on the steering wheel.



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

NOTE:
The on board self-diagnosis function of the ICC system can be started with the RESUME/ACCELERATE switch and SET/COAST switch. Refer to CCS-23, "Diagnosis Description".

In Vehicle-To-Vehicle Distance Control Mode

No.	Switch name	Description
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	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).

In Conventional (Fixed Speed) Cruise Control Mode

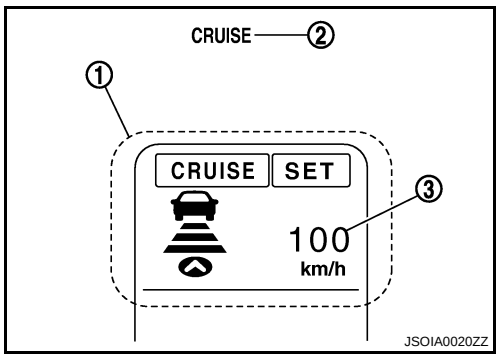
No.	Switch name	Description
1	CANCEL switch	Deactivates system without erasing set speed.
2	RESUME/ACCELERATE switch	Resumes set speed or increases speed incrementally.
3	SET/COAST switch	Sets desired cruise speed or reduces speed incrementally.
4	DISTANCE switch	Ineffective in this mode.
5	MAIN switch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

ICC SYSTEM DISPLAY

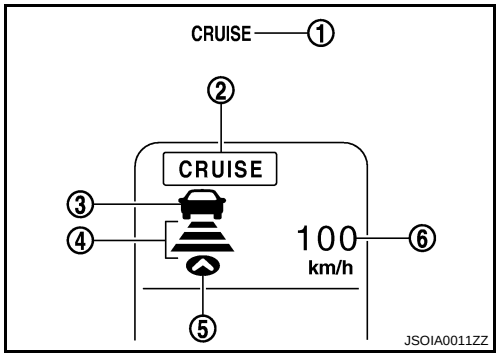
The multi information display (1) and ICC system warning lamp (2) in the combination meter indicate the operation status of the ICC system.

NOTE:

When the on board self-diagnosis is run, ICC system DTC (s), if any, are displayed in the set vehicle speed indicator (3). Refer to CCS-23, "Diagnosis Description".

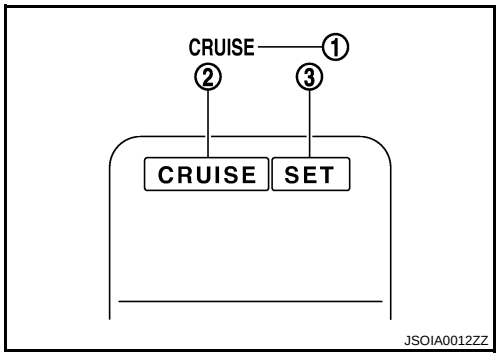


In Vehicle-To-Vehicle Distance Control Mode



No.	Display items	Description
1	ICC system warning lamp (CRUISE warning lamp)	This indicates that an abnormal condition is present 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 base vehicle.
6	Set vehicle speed indicator	Indicates the set vehicle speed.

In Conventional (Fixed Speed) Cruise Control Mode



No.	Display items	Description
1	ICC system warning lamp (CRUISE warning lamp)	This indicates that an abnormal condition is present 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.

ICC SENSOR INTEGRATED UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Items

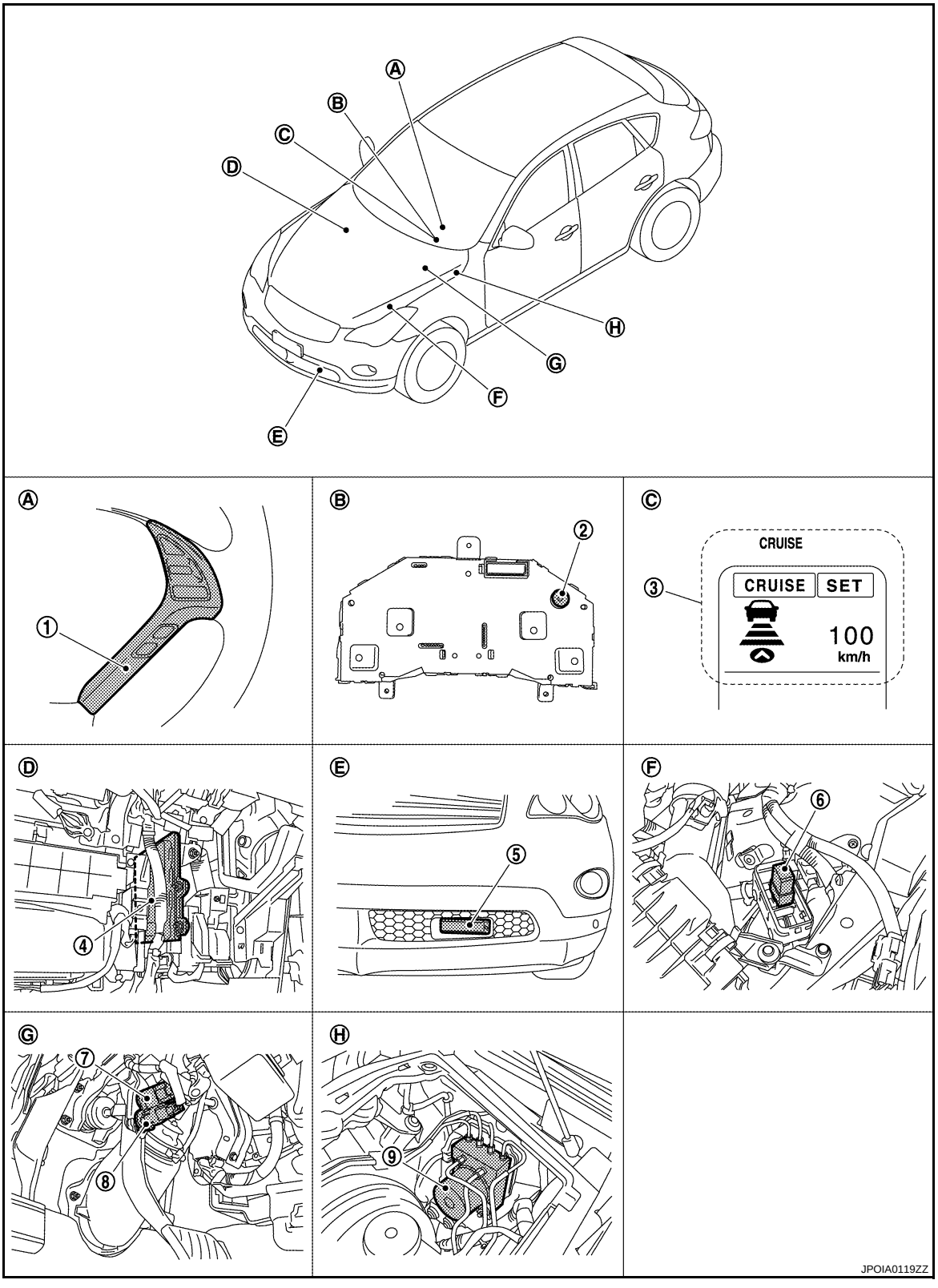
Transmission unit	Signal name		Description
ECM	Accelerator pedal position signal		ICC sensor integrated unit receives accelerator pedal position signal from ECM with CAN communication.
	ICC steering switch signal	MAIN switch signal	ICC sensor integrated unit receives ICC steering switch signal from ECM with CAN communication.
		SET/COAST switch signal	
		CANCEL switch signal	
		RESUME/ACCELERATE switch signal	
		DISTANCE switch signal	
	ICC brake switch signal		ICC sensor integrated unit receives ICC brake switch signal from ECM with CAN communication.
	Stop lamp switch signal		ICC sensor integrated unit receives stop lamp switch signal from ECM with CAN communication.
	Closed throttle position signal		ICC sensor integrated unit receives closed throttle position signal from ECM with CAN communication.
	Engine speed signal		ICC sensor integrated unit receives engine speed signal from ECM with CAN communication.
TCM	Shift position signal		ICC sensor integrated unit receives shift position signal from TCM with CAN communication.
	Output shaft revolution signal		ICC sensor integrated unit receives A/T vehicle speed sensor signal (output shaft revolution signal) from TCM with CAN communication.
	Current gear position signal		ICC sensor integrated unit receives current gear position signal from TCM with CAN communication.
ABS actuator and electric unit (control unit)	Vehicle speed signal		ICC sensor integrated unit receives vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) with CAN communication.
BCM	Front wiper request signal		ICC sensor integrated unit receives front wiper request signal from BCM with CAN communication.

Output Signal Items

Reception unit	Signal name		Description
Combination meter (through unified meter and A/C amp.)	Meter display signal	CRUISE indicator signal	ICC sensor integrated unit transmits meter display signal to combination meter (through unified meter and A/C amp.) with CAN communication.
		Own vehicle indicator signal	
		Vehicle ahead detection indicator signal	
		SET indicator signal	
		Set distance indicator signal	
	ICC system warning lamp signal		ICC sensor integrated unit transmits ICC system warning lamp signal to combination meter (through unified meter and A/C amp.) with CAN communication.
	Buzzer output signal		ICC sensor integrated unit transmits buzzer output signal to combination meter (through unified meter and A/C amp.) with CAN communication.
ICC brake hold relay	ICC brake hold relay drive signal		ICC sensor integrated unit output stop lamp drive signal to ICC brake hold relay.

Component Parts Location

INFOID:0000000003130030



1. ICC steering switch
2. Buzzer
3. ICC system display, ICC warning lamp
4. ECM
5. ICC sensor integrated unit
6. ICC brake hold relay
7. ICC brake switch
8. Stop lamp switch
9. ABS actuator and electric unit (control unit)

A. Steering wheel RH
B. Back of combination meter
C. In combination meter
D. Behind the glove box
E. Front bumper LH
F. Engine room LH
G. Brake pedal
H. Inside brake master cylinder cover

Component Description

INFOID:0000000003130031

×: Applicable

Component	Vehicle-to-vehicle distance control mode	Conventional (Fixed speed) cruise control mode	Brake assist (With preview function)	Description
ICC sensor integrated unit	×	×	×	Refer to CCS-28, "Description".
ECM	×	×	×	Refer to CCS-51, "Description".
ABS actuator and electric unit (control unit)	×	×	×	Refer to CCS-33, "Description".
BCM	×			Transmits front wiper request signal to ICC sensor integrated unit through CAN communication.
TCM	×	×		Refer to CCS-71, "Description".
Unified meter and A/C amp.	×	×	×	Receives the meter display signal, ICC warning lamp signal and buzzer output signal from the ICC sensor integrated unit with CAN communication. Transmits the data to the combination meter with communication line.
Combination meter	×	×	×	Using the signals received from the unified meter A/C amp. with communication line, performs the following operations. • Displays the ICC system operation status according to the meter display signal. • Illuminates the ICC warning lamp according to the ICC warning lamp signal. • Operates the buzzer according to the buzzer output signal.
ICC brake switch	×	×	×	Refer to CCS-35, "Description".
Stop lamp switch	×	×	×	
ICC brake hold relay	×	×	×	Refer to CCS-44, "Description".

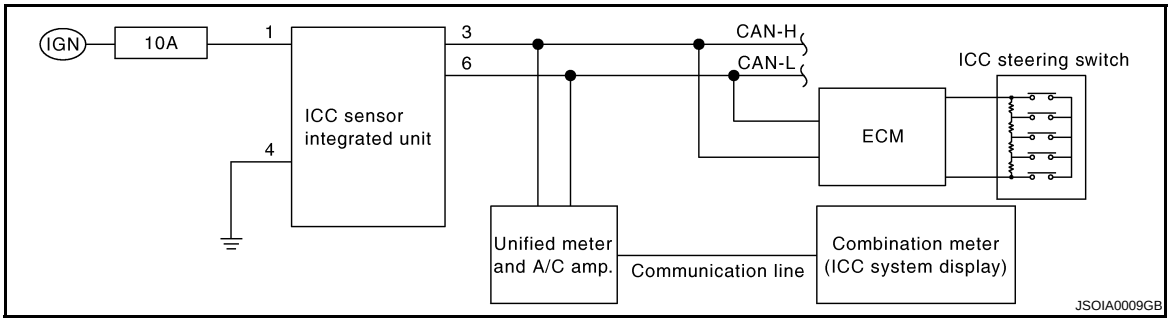
DIAGNOSIS SYSTEM (ICC SENSOR INTEGRATED UNIT)

Diagnosis Description

INFOID:0000000003130032

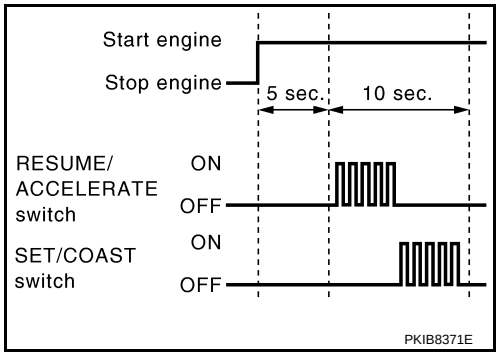
The ICC system includes the on board self-diagnosis function that allows the technician to check for any trouble codes on the ICC system display by operating the ICC steering switch.

ON BOARD SELF-DIAGNOSIS SYSTEM DIAGRAM

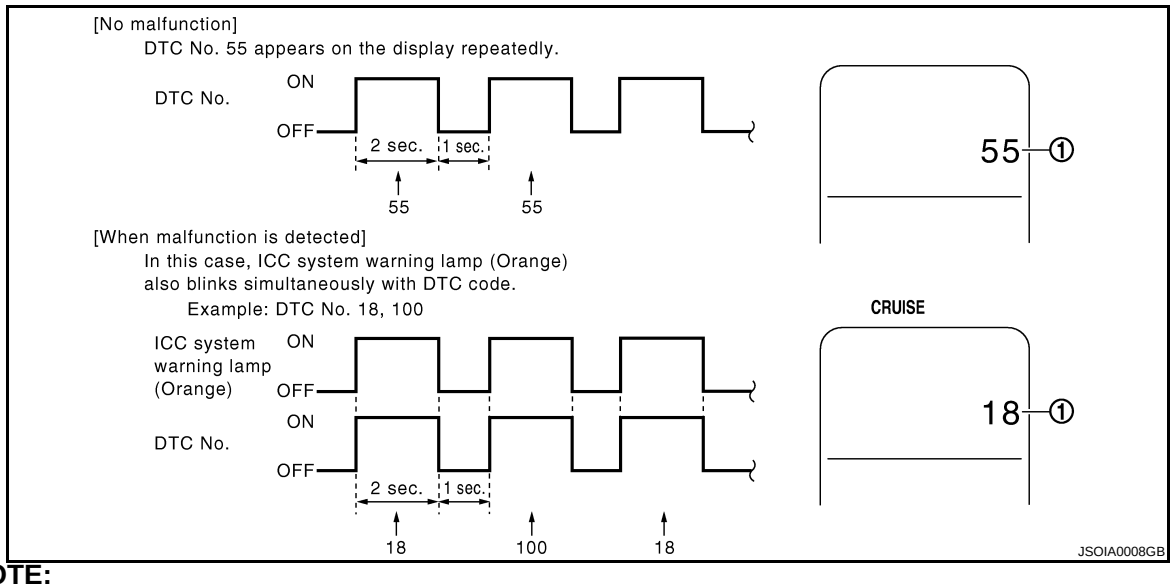


ON BOARD SELF-DIAGNOSIS OPERATION PROCEDURE

1. Turn ignition switch OFF.
2. Start engine.
3. Wait 5 seconds after starting engine, then within 10 seconds, push up RESUME/ACCELERATE switch 5 times, and push down SET/COAST switch 5 times.
   NOTE:
   - Never turn the MAIN switch ON.
   - When operation above is not completed within the specified period, go back to procedure 1 and do all over again.



4. When the on board self-diagnosis starts up, the ICC system display shows DTC No. (1) at the set vehicle speed indicator. Refer to CCS-85, "DTC Index".



NOTE:
- DTC will disappear after 5 minutes.
- When more than one malfunction is detected, a maximum of 3 code numbers can be stored; the latest malfunction will be displayed first.

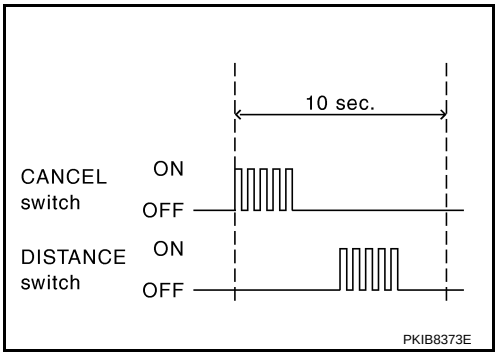
WHEN ON BOARD SELF-DIAGNOSIS WILL NOT START UP

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

Assumed abnormal point		Inspection item
Combination meter system.	Combination meter malfunction.	Check that the self-diagnosis function of the combination meter starts up. Refer to MWI-38, "Diagnosis Description".
	Unified meter and A/C amp. malfunction.	Inspect the unified meter and A/C amp. power and ground circuits. Refer to MWI-53, "UNIFIED METER AND A/C AMP. : Diagnosis Procedure".
	Communication error of the combination meter and the unified meter and A/C amp.	Start up the self-diagnosis of the unified meter and A/C amp. and check the self-diagnosis results. Refer to MWI-101, "DTC Index".
ICC steering switch malfunction.		Perform the inspection for DTC “C1A06: OPERATION SW CIR” (DTC 6). Refer to CCS-40, "Diagnosis Procedure".
Harness malfunction between ICC steering switch and ECM.		
ECM malfunction.		
ICC sensor integrated unit malfunction.		• Inspect the ICC sensor integrated unit power and ground circuits. Refer to CCS-77, "Diagnosis Procedure" • Perform the self-diagnosis for the ICC sensor integrated unit with CONSULT-III, and check the diagnosis results. Refer to CCS-85, "DTC Index".

ERASING ON BOARD SELF-DIAGNOSIS

1. Stop the vehicle and turn ignition switch OFF.
2. Start engine and start on board self-diagnosis.
3. During on board self-diagnosis, press CANCEL switch 5 times, and DISTANCE switch 5 times in this order.
   NOTE:
   • Press them within 10 seconds after pressing CANCEL switch at first.
   • When operation is not completed within 10 seconds, start again from step 2 above.
4. DTC 55 will be shown.
   NOTE:
   DTC of an existing malfunction will not be erased.
5. Turn ignition switch OFF to exit the diagnosis.



CONSULT-III Function (ICC)

INFOID:0000000003130033

DESCRIPTION

CONSULT-III can display each diagnostic item using the diagnostic test modes shown following.

Test mode	Function
Work Support	• Monitors aiming direction to facilitate laser beam aiming operation. • Indicates 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 sending driving signal to them.
ECU Identification	Displays part number of ICC sensor integrated unit.

WORK SUPPORT

Work support item	Function
CAUSE OF AUTO-CANCEL	Indicates causes of automatic cancellation of the ICC system.
LASER BEAM ADJUST	Outputs laser beam, calculates dislocation of the beam, and indicates adjustment direction. For the adjustment procedure, refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

Cause of Auto-Cancel Display Item List

×: Applicable

Cause of cancellation	Vehicle-to-vehicle distance control mode	Conventional (fixed speed) cruise control mode	Description
OPERATING WIPER	×		Windshield wipers were operated at HI or LO speed operation.
OPERATING ABS	×		ABS function was operated.
OPERATING TCS	×	×	TCS function was operated.
OPERATING VDC	×	×	VDC function was operated.
OPE SW VOLT CIRC	×	×	The ICC steering switch input voltage is not within standard range.
ECM CIRCUIT	×	×	ECM did not permit ICC operation.
LASER SUN BEAM	×		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.
WHEEL SPD UNMATCH	×	×	Wheel speed became different from A/T vehicle speed.
TIRE SLIP	×	×	Wheel slipped.
IGN LOW VOLT	×	×	Power supply voltage became low.
SNOW MODE SW	×		Snow mode switch was pressed.
VHCL SPD DOWN	×	×	Vehicle speed becomes 32 km/h (20 MPH) and under.
VHCL SPD UNMATCH	×	×	Vehicle speed becomes unusual.
CAN COMM ERROR	×	×	ICC sensor integrated unit received an abnormal signal with CAN communication.
ABS/TCS/VDC CIRC	×	×	An abnormal condition occurs in ABC/TCS/VDC system.
ECD CIRCUIT	×		An abnormal condition occurs in ECD system.
ASCD VHCL SPD DTAC		×	Vehicle speed is detached from set vehicle speed.
ASCD DOUBLE COMD		×	Cancel switch and operation switch are detected simultaneously.
NO RECORD	×	×	—

- Last five cancel (system cancel) causes are displayed.
- “CAUSE OF AUTO-CANCEL” displays times of ignition switch ON/OFF up to 254 maximum. 254 is kept though the number exceeds 254. The number returns to 0 when detecting the same cancellation causes.

SELF DIAGNOSTIC RESULT

For details, refer to CCS-85, "DTC Index".

NOTE:

“DTC RESULTS” and “TIME” are indicated on “Self Diagnostic Result”. “TIME” is used as a reference data of diagnosis. It shows when malfunction is detected.

“TIME” shows the following.

- 0: malfunction is detected at present (from malfunction detection to ignition switch OFF).
  CAN communication (U1000, U1010)
- 1 ~ 39: Displays when it is normal at present and finds malfunction in the past. It increases like 0→1→2...38→39 after returning to the normal condition whenever IGN OFF→ON. If it is over 39, it is fixed to 39 until the self-diagnostic results are erased. It returns to 0 when malfunction is detected again in the process.
  Other than CAN communication (other than U1000, U1010)
- 1 ~ 49: Displays when it is normal at present and finds malfunction in the past. It increases like 0→1→2...48→49 after returning to the normal condition whenever IGN OFF→ON. If it is over 49, it is fixed to 49 until the self-diagnostic results are erased. It returns to 0 when malfunction is detected again in the process.

DATA MONITOR

×: Applicable

Monitored Item [unit]	MAIN SIGNALS	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 switch read from ICC sensor integrated unit through CAN communication (ECM transmits On/Off status through CAN communication).
SET DISTANCE [Shor/Mid/Long]	×	Indicates set distance memorized in ICC sensor integrated unit.
CRUISE LAMP [On/Off]	×	Indicates [On/Off] status of MAIN switch indicator lamp 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.
BUZZER O/P [On/Off]		Indicates [On/Off] status of ICC warning chime output.
THRTL SENSOR [deg]	×	**NOTE:** This item is displayed, but cannot monitor.
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:** This item is displayed, but cannot monitor.
STP LMP DRIVE [On/Off]	×	Indicates [On/Off] status of ICC brake hold relay drive output.
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 indicator lamp signal through CAN communication).
NP RANGE SW [On/Off]		Indicates shift position indicator lamp signal read from ICC sensor integrated unit through CAN communication (TCM transmits shift position indicator lamp signal through CAN communication).

Monitored Item [unit]	MAIN SIGNALS	Description
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]		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 [Off]	×	**NOTE:** This item is displayed, but cannot monitor.
NP SW SIG [On/Off]	×	Indicates [On/Off] status as judged from park/neutral position switch signal (ECM transmits park/neutral position switch signal through CAN communication).
MODE SIG [OFF, ICC, ASCD]		Indicates the active mode from ICC or ASCD [conventional (fixed speed) cruise control mode].
SET DISP IND [On/Off]		Indicates [On/Off] status of SET switch indicator output.
DISTANCE [m]		Indicates the distance from the vehicle ahead.
RELATIVE SPD [m/s]		Indicates the relative speed of the vehicle ahead.

ACTIVE TEST

CAUTION:

- **Never perform the active test while driving.**
- **"ACTIVE TEST" cannot be started while ICC system warning lamp illuminates.**

ICC BUZZER

Test item	Operation	Description	Buzzer sound
ICC BUZZER	Test Start	Operates ICC warning chime	Beep
	Reset	Stops ICC warning chime	Not activated
	End	Return to a "SELECT TEST ITEM" screen	—

METER LAMP

CAUTION:

Start engine and perform active test.

Test item	Operation	Description	MAIN switch indicator lamp and ICC system warning lamp
METER LAMP	Off	MAIN switch indicator lamp and ICC warning lamp are turned off	Turn OFF
	On	MAIN switch indicator lamp and ICC warning lamp are turned on	Turn ON

STOP LAMP

Test item	Operation	Description	Stop lamp
STOP LAMP	Off	Stops the ICC brake hold relay	OFF
	On	Drives the ICC brake hold relay	ON

ECU IDENTIFICATION

Displays the part number of the ICC sensor integrated unit.

COMPONENT DIAGNOSIS

C1A00 CONTROL UNIT

Description

INFOID:0000000003130034

ICC sensor integrated unit function description.
- Irradiates laser beam, and receives reflected laser beam to measure distance from preceding vehicle.
- Controls vehicle distance by operating electric throttle control actuator based on that sensor signals and CAN communication.
- Controls vehicle distance by transmitting deceleration degree commandment value signal to ABS actuator and electric unit (control unit) when deceleration with brake is needed.

DTC Logic

INFOID:0000000003130035

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A00 (0)	CONTROL UNIT	ICC sensor integrated unit internal malfunction.	ICC sensor integrated unit

Diagnosis Procedure

INFOID:0000000003130036

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC other than “C1A00: CONTROL UNIT” (DTC 0) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 4.

3.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 4.

4.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

Description

INFOID:0000000003130037

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

DTC Logic

INFOID:0000000003130038

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A01 (1)	POWER SUPPLY CIR	ICC sensor integrated unit power supply voltage is excessively low (Less than 8 V).	• ICC sensor integrated unit • Connector, harness, fuse
C1A02 (2)	POWER SUPPLY CIR 2	ICC sensor integrated unit power supply voltage is excessively high (More than 19 V).	

Diagnosis Procedure

INFOID:0000000003130039

1. CHECK CONNECTOR OF ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.
2. Disconnect ICC sensor integrated unit connector, and connect it securely again.
3. Start engine and erase DTC.
4. Press MAIN switch (ICC system ON).
5. Perform self-diagnosis of ICC sensor integrated unit.
6. Check if DTC “C1A01: POWER SUPPLY CIR” (DTC 1) or “C1A02: POWER SUPPLY CIR 2” (DTC 2) is detected.

Is any DTC detected?

YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK ICC SENSOR INTEGRATED UNIT CONNECTOR

1. Check ICC sensor integrated unit connector housing for disconnected, loose, bent, and collapsed terminals.
2. Repair or replace the applicable item if any abnormal condition is found.

>> GO TO 6.

3. CHECK POWER SUPPLY AND GROUND CIRCUIT OF ICC SENSOR INTEGRATED UNIT

Check power supply and ground circuit of ICC sensor integrated unit. Refer to CCS-77, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. REPAIR OR REPLACE ICC SENSOR INTEGRATED UNIT POWER SUPPLY AND GROUND CIRCUIT

Repair and replace the malfunctioning ICC sensor integrated unit power supply and ground circuit.

>> GO TO 6.

5. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A03 VEHICLE SPEED SENSOR

Description

INFOID:0000000003130040

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

DTC Logic

INFOID:0000000003130041

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A03 (3)	VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from the 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 with CAN communication, are inconsistent.	• Wheel sensor • ABS actuator and electric unit (control unit) • A/T vehicle 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”.
- DTC “U1000”: Refer to CCS-75, "Diagnosis Procedure".
- DTC “C1A04”: Refer to CCS-33, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130042

1. PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) or “C1A04: ABS/TCS/VDC CIRC” (DTC 4) other than “C1A03: VHCL SPEED SE CIRC” (DTC 3) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2. DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 6.

3. CHECK A/T VEHICLE SPEED SENSOR

With CONSULT-III
1. Start engine.
2. With “Data Monitor” of “ICC”, check if “VHCL SPD AT” operates normally.

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. PERFORM SELF-DIAGNOSIS OF TCM

1. Perform self-diagnosis of TCM.
2. Repair or replace applicable item. Refer to TM-113, "DTC Index".

>> GO TO 6.

5. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.

2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A04 ABS/TCS/VDC SYSTEM

Description

INFOID:0000000003130043

- ABS actuator and electric unit (control unit) transmits the vehicle speed signal (wheel speed), the stop lamp switch signal, and the operation status of the VDC, TCS, and ABS systems to the ICC sensor integrated unit with CAN communication.
- ABS actuator and electric unit (control unit) receives the deceleration degree command value signal from the ICC sensor integrated unit with CAN communication and controls the brake fluid pressure.

DTC Logic

INFOID:0000000003130044

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A04 (4)	ABS/TCS/VDC CIRC	If an abnormal condition 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-75, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130045

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC100) other than “C1A04: ABS/TCS/VDC CIRC” (DTC 4) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 6.

3.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).
2. Check if DTC is detected.

Is any DTC detected?

YES >> GO TO 4.
NO >> GO TO 5.

4.REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A05 BRAKE SW/STOP LAMP SW

Description

INFOID:0000000003130046

- When the brake pedal is depressed, ICC brake switch is turned OFF and stop lamp switch is turned ON.
- ICC brake switch signal is inputted to ECM. ECM transmits the data to the ICC sensor integrated unit with CAN communication.
- Stop lamp switch signal is inputted to ECM and the ABS actuator and electric unit (control unit). ECM and the ABS actuator and electric unit (control unit) transmit the data to the ICC sensor integrated unit with CAN communication.

DTC Logic

INFOID:0000000003130047

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A05 (5)	BRAKE SW/STOP L SW	If the ICC sensor integrated unit receives signals indicating that the stop lamp switch [from ABS actuator and electric unit (control unit)] is ON and the ICC brake switch (from ECM) is ON.	• 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 • ABS actuator and electric unit (control unit)

NOTE:
If DTC “C1A05” is detected along with DTC “U1000”, “U0401”, “U0415” or “U0121”, first diagnose the DTC “U1000”, “U0401”, “U0415” or “U0121”.
- DTC “U1000”: Refer to CCS-75, "Diagnosis Procedure".
- DTC “U0401”: Refer to CCS-69, "Diagnosis Procedure".
- DTC “U0415”: Refer to CCS-73, "Diagnosis Procedure".
- DTC “U0121”: Refer to CCS-67, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130048

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100), “U0401: ECM CAN CIR 1” (DTC 120), “U0415: VDC CAN CIR 1” (DTC 126) or “U0121: VDC CAN CIR 2” (DTC 127) other than “C1A05: BRAKE SW/STOP L SW” (DTC 5) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 27.

3.CHECK ICC BRAKE SWITCH WITH ICC DATA MONITOR

With CONSULT-III
With “DATA MONITOR” of “ICC”, check if “BRAKE SW” operates normally.

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 7.

4. CHECK STOP LAMP SWITCH WITH ABS DATA MONITOR

With CONSULT-III
With “Data Monitor” of “ABS”, check if “STOP LAMP SW” operates normally.

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 16.

5. PERFORM SELF-DIAGNOSIS OF ECM

1. Perform self-diagnosis of ECM.
2. Check if DTC is detected. Refer to EC-514, "DTC Index".

Is any DTC detected?

YES >> GO TO 25.
NO >> GO TO 6.

6. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).
2. Check if DTC is detected. Refer to BRC-95, "DTC No. Index".

Is any DTC detected?

YES >> GO TO 25.
NO >> GO TO 26.

7. CHECK ICC BRAKE SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check ICC brake switch for proper installation. Refer to BR-7, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 9.
NO >> GO TO 8.

8. ADJUST ICC BRAKE SWITCH

Adjust ICC brake switch. Refer to BR-7, "Inspection and Adjustment".

>> GO TO 27.

9. CHECK ICC BRAKE SWITCH

1. Disconnect ICC brake switch connector.
2. Check ICC brake switch. Refer to CCS-39, "Component Inspection (ICC BRAKE SWITCH)".

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 10.

10. REPLACE ICC BRAKE SWITCH

Replace ICC brake switch.

>> GO TO 27.

11. CHECK ICC BRAKE SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between ICC brake switch harness connector and ground.

Terminal			Voltage (Approx.)
(+)		(–)	
ICC brake switch connector	Terminal		
E114	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

12. REPAIR OR REPLACE ICC BRAKE SWITCH HARNESS OR FUSE

Repair or replace ICC brake switch power supply harness or fuse.

>> GO TO 27.

13. CHECK HARNESS BETWEEN ICC BRAKE SWITCH AND ECM

1. Turn ignition switch OFF.
2. Disconnect ECM connector.
3. Check continuity between ICC brake switch harness connector and ECM harness connector.

ICC brake switch		ECM		Continuity
Connector	Terminal	Connector	Terminal	
E114	2	M107	126	Existed

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 14.

14. REPAIR OR REPLACE HARNESS BETWEEN ICC BRAKE SWITCH AND ECM

Repair or replace harness between ICC brake switch and ECM.

>> GO TO 27.

15. PERFORM SELF-DIAGNOSIS OF ECM

1. Perform self-diagnosis of ECM.
2. Check if DTC is detected. Refer to EC-514, "DTC Index".

Is any DTC detected?

YES >> GO TO 25.
NO >> GO TO 26.

16. CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check stop lamp switch for proper installation. Refer to BR-7, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 18.
NO >> GO TO 17.

17. ADJUST STOP LAMP SWITCH

Adjust stop lamp switch. Refer to BR-7, "Inspection and Adjustment".

>> GO TO 27.

18. CHECK STOP LAMP SWITCH

1. Disconnect stop lamp switch connector.
2. Check stop lamp switch. Refer to CCS-39, "Component Inspection (STOP LAMP SWITCH)".

Is the inspection result normal?

YES >> GO TO 20.
NO >> GO TO 19.

19. REPLACE STOP LAMP SWITCH

Replace stop lamp switch.

>> GO TO 27.

20. CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between stop lamp switch harness connector and ground.

Terminal			Voltage (Approx.)
(+)		(–)	
Stop lamp switch connector	Terminal		
E110	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 22.
NO >> GO TO 21.

21. REPAIR OR REPLACE STOP LAMP SWITCH HARNESS OR FUSE

Repair or replace stop lamp switch power supply harness or fuse.

>> GO TO 27.

22. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connector.
3. Check continuity between stop lamp switch harness connector and ABS actuator and electric unit (control unit) harness connector.

Stop lamp switch		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E110	2	E41	30	Existed

Is the inspection result normal?

YES >> GO TO 24.
NO >> GO TO 23.

23. REPAIR OR REPLACE HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Repair or replace harness between stop lamp switch and ABS actuator and electric unit (control unit).

>> GO TO 27.

24. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).
2. Check if DTC is detected. Refer to BRC-95, "DTC No. Index".

>> GO TO 25.

25. REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 27.

26. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 27.

27. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

Component Inspection (ICC BRAKE SWITCH)

INFOID:0000000003130050

1. CHECK ICC BRAKE SWITCH

Check continuity between ICC brake switch terminals.

terminals		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:0000000003130051

1. CHECK STOP LAMP SWITCH

Check continuity between stop lamp switch terminals.

terminals		Condition	Continuity
1	2	When brake pedal is depressed	Existed
		When brake pedal is released	Not existed
3	4	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.

C1A06 OPERATION SW

Description

INFOID:0000000003130053

- To activate or deactivate the ICC system and set the vehicle speed and vehicle-to-vehicle distance, use the ICC steering switch.
- The ICC steering switch signal is inputted to ECM. ECM transmits the data to the ICC sensor integrated unit with CAN communication.

DTC Logic

INFOID:0000000003130054

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A06 (6)	OPERATION SW CIRC	If any abnormal condition is present in the input signal from the ICC steering switch.	• ICC steering switch circuit • ICC steering switch • ECM

NOTE:
If DTC “C1A06” is detected along with DTC “U1000” or “U0401”, first diagnose the DTC “U1000” or “U0401”.
- DTC “U1000”: Refer to CCS-75, "Diagnosis Procedure".
- DTC “U0401”: Refer to CCS-69, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130055

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) or “U0401: ECM CAN CIR 1” (DTC 120) other than “C1A06: OPERATION SW CIRC” (DTC 6) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 12.

3.CHECK CONNECTOR OF ECM

1. Turn ignition switch OFF.
2. Disconnect ECM connector, and connect it securely again.
3. Erase DTC.
4. Operate the ICC steering switch.
5. Perform self-diagnosis of ICC sensor integrated unit.
6. Check if DTC “C1A06: OPERATION SW CIRC” (DTC 6) is detected.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK ECM CONNECTOR

1. Check ECM connector housing for disconnected, loose, bent, and collapsed terminals.
2. Repair or replace the applicable item if any abnormal condition is found.

>> GO TO 12.

5.CHECK ICC STEERING SWITCH

1. Turn ignition switch OFF.
2. Disconnect ICC steering switch connector.
3. Check ICC steering switch. Refer to CCS-42, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 6.

6. REPLACE ICC STEERING SWITCH

Replace ICC steering switch.

>> GO TO 12.

7. CHECK ICC STEERING SWITCH SIGNAL CIRCUIT

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

Spiral cable		ECM		Continuity
Connector	Terminal	Connector	Terminal	
M36	25	M107	101	Existed
	32		108	

3. Check 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 9.
NO >> GO TO 8.

8. REPAIR OR REPLACE HARNESS BETWEEN SPIRAL CABLE AND ECM

Repair or replace harness between spiral cable and ECM.

>> GO TO 12.

9. CHECK COMBINATION SWITCH (SPIRAL CABLE)

Check continuity between spiral cable terminals.

M36	M303	Continuity
Terminal	Terminal	
25	13	Existed
32	16	

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 10.

10. REPLACE SPIRAL CABLE

Replace spiral cable.

>> GO TO 12.

11. PERFORM SELF-DIAGNOSIS OF ECM

1. Perform self-diagnosis of ECM.

2. Repair or replace applicable item. Refer to EC-514, "DTC Index".

>> GO TO 12.

12. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

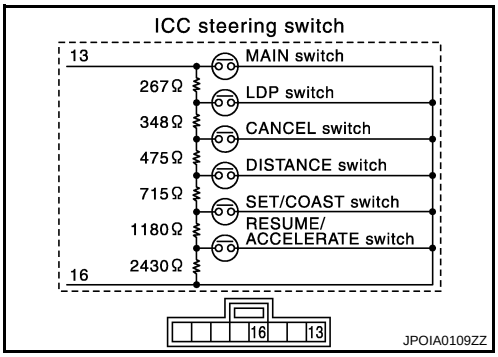
>> INSPECTION END

Component Inspection

INFOID:0000000003130056

1. CHECK ICC STEERING SWITCH

Check resistance between terminals by pressing each switch.



Terminal		Switch	Condition	Resistance [Ω]
13	16	MAIN	Pressed	Approx. 0
			Released	Approx. 5415
		LDP	Pressed	Approx. 267
			Released	Approx. 5415
		CANCEL	Pressed	Approx. 615
			Released	Approx. 5415
		DISTANCE	Pressed	Approx. 1090
			Released	Approx. 5415
		SET/COAST	Pressed	Approx. 1805
			Released	Approx. 5415
		RESUME/ACCELERATE	Pressed	Approx. 2985
			Released	Approx. 5415

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace ICC steering switch.

C1A12 LASER BEAM OFF CENTER

Description

INFOID:0000000003130057

ICC sensor integrated unit irradiates laser beam, and receives reflected laser beam to measure distance from preceding vehicle.

DTC Logic

INFOID:0000000003130058

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A12 (12)	LASER BEAM OFFCNTR	Laser beam of ICC sensor integrated unit is off the aiming point.	Laser beam aiming

Diagnosis Procedure

INFOID:0000000003130059

1.ADJUST LASER BEAM AIMING

1. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".
2. Erase DTC.
3. Activate the vehicle-to-vehicle distance control mode.
4. Perform self-diagnosis of ICC sensor integrated unit.
5. Check if DTC “C1A12: LASER BEAM OFFCNTR” (DTC 12) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> INSPECTION END

2.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 3.

3.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A13 STOP LAMP RELAY

Description

INFOID:0000000003130060

The ICC brake hold relay activates the stop lamp by the stop lamp drive signal (ICC brake hold relay signal) outputted by the ICC sensor integrated unit (Only in the vehicle-to-vehicle distance control mode).

DTC Logic

INFOID:0000000003130061

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A13 (13)	STOP LAMP RLY FIX	• If the stop lamp is not activated even though the ICC sensor integrated unit is transmitting a stop lamp drive signal (ICC brake hold relay signal). • If the stop lamp is activated even though the ICC sensor integrated unit is not transmitting a stop lamp drive signal (ICC brake hold relay signal).	• ICC brake hold relay • ICC brake switch • Stop lamp switch • Incorrect ICC brake switch • Incorrect stop lamp switch • ICC brake hold relay circuit • ICC brake switch circuit • Stop lamp switch circuit • ECM • ABS actuator and electric unit (control unit)

NOTE:
If DTC “C1A13” is displayed along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to CCS-75, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130062

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A13: STOP LAMP RLY FIX” (DTC 13) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 42.

3.CHECK CONNECTOR OF ECM

1. Turn ignition switch OFF.
2. Disconnect ECM connector, and connect it securely again.
3. Erase DTC.
4. Activate the vehicle-to-vehicle distance control mode and drive the vehicle following the preceding vehicle.
5. Perform self-diagnosis of ICC sensor integrated unit.
6. Check if DTC “C1A13: STOP LAMP RLY FIX” (DTC 13) is detected.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK ECM CONNECTOR

1. Check ECM connector housing for disconnected, loose, bent, and collapsed terminals.

2. Repair or replace the applicable item if any abnormal condition is found.

>> GO TO 42.

5. CHECK STOP LAMP SWITCH WITH ICC DATA MONITOR

With CONSULT-III
With “Data Monitor” of “ICC”, check if “STOP LAMP SW” operates normally.

Is the inspection result normal?

YES >> GO TO 17.
NO >> GO TO 6.

6. CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check stop lamp switch for proper installation. Refer to BR-7, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 7.

7. ADJUST STOP LAMP SWITCH

Adjust stop lamp switch. Refer to BR-7, "Inspection and Adjustment".

>> GO TO 42.

8. CHECK STOP LAMP SWITCH

1. Disconnect stop lamp switch connector.
2. Check stop lamp switch. Refer to CCS-39, "Component Inspection (STOP LAMP SWITCH)".

Is the inspection result normal?

YES >> GO TO 10.
NO >> GO TO 9.

9. REPLACE STOP LAMP SWITCH

Replace stop lamp switch.

>> GO TO 42.

10. CHECK STOP LAMP ILLUMINATION

1. Disconnect ICC brake hold relay.
2. Connect stop lamp switch connector.
3. Check if stop lamp is illuminated when depressing brake pedal.

Is the inspection result normal?

YES >> GO TO 12.
NO >> GO TO 11.

11. REPAIR OR REPLACE STOP LAMP SWITCH CIRCUIT

Repair or replace stop lamp circuit.

>> GO TO 42.

12. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ECM

1. Disconnect stop lamp switch connector and ECM connector.
2. Check continuity between stop lamp switch harness connector and ECM harness connector.

Stop lamp switch		ECM		Continuity
Connector	Terminal	Connector	Terminal	
E110	4	M107	122	Existed

Is the inspection result normal?

YES >> GO TO 14.
NO >> GO TO 13.

13. REPAIR OR REPLACE HARNESS BETWEEN STOP LAMP SWITCH AND ECM

Repair or replace harness between stop lamp switch and ECM.

>> GO TO 42.

14. CHECK ICC BRAKE HOLD RELAY CIRCUIT

1. Connect ICC brake hold relay and ECM connector.
2. Check if stop lamp does not illuminate when brake pedal is not depressed.

Is the inspection result normal?

YES >> GO TO 16.
NO >> GO TO 15.

15. CHECK ICC BRAKE HOLD RELAY

1. Disconnect ICC brake hold relay.
2. Check ICC brake hold relay. Refer to CCS-50, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 16.
NO >> GO TO 27.

16. PERFORM SELF-DIAGNOSIS OF ECM

1. Perform self-diagnosis of ECM.
2. Check if DTC is detected. Refer to EC-514, "DTC Index".

Is any DTC detected?

YES >> GO TO 40.
NO >> GO TO 41.

17. CHECK HARNESS BETWEEN ICC SENSOR INTEGRATED UNIT AND ICC BRAKE HOLD RELAY

1. Turn ignition switch OFF.
2. Disconnect ICC sensor integrated unit connector and ICC brake hold relay.
3. Check continuity between ICC sensor integrated unit harness connector and ICC brake hold relay harness connector.

ICC sensor integrated unit		ICC brake hold relay		Continuity
Connector	Terminal	Connector	Terminal	
E67	2	E51	2	Existed

4. Check continuity between ICC sensor integrated unit harness connector and ground.

ICC sensor integrated unit		Ground	Continuity
Connector	Terminal		
E67	2		Not existed

Is the inspection result normal?

YES >> GO TO 19.
NO >> GO TO 18.

18. REPAIR HARNESS BETWEEN ICC SENSOR INTEGRATED UNIT AND ICC BRAKE HOLD RELAY

Repair harness between ICC sensor integrated unit and ICC brake hold relay.

>> GO TO 42.

19. CHECK ICC BRAKE HOLD RELAY GROUND CIRCUIT

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

ICC brake hold relay connector	Terminal	Ground	Continuity
E51	1		Existed

Is the inspection result normal?

YES >> GO TO 21.
NO >> GO TO 20.

20. REPAIR OR REPLACE HARNESS BETWEEN ICC BRAKE HOLD RELAY AND GROUND

Repair or replace harness between ICC brake hold relay and ground.

>> GO TO 42.

21. CHECK ICC SENSOR INTEGRATED UNIT STANDARD VOLTAGE

1. Connect ICC sensor integrated unit connector.
2. Turn ignition switch ON.
3. With the “Active Test” function of “ICC”, activate “STP LMP DRIVE”.
4. Check voltage between ICC brake hold relay harness connector and ground.

Terminals			Condition	Voltage (Approx.)
(+)		(–)		
ICC brake hold relay connector	Terminal			
E51	2	Ground	During “Active Test”	12 V

Is the inspection result normal?

YES >> GO TO 22.
NO >> GO TO 41.

22. CHECK ICC BRAKE HOLD RELAY POWER SUPPLY CIRCUIT

1. Exit the “Active Test” of “ICC”.
2. Check voltage between ICC brake hold relay harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
ICC brake hold relay connector	Terminal		
E51	3	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 24.
NO >> GO TO 23.

23. REPAIR OR REPLACE ICC BRAKE HOLD RELAY HARNESS OR FUSE

Repair or replace ICC brake hold relay power supply harness or fuse.

>> GO TO 42.

24. CHECK HARNESS BETWEEN ICC BRAKE HOLD RELAY AND ECM

1. Turn ignition switch OFF.
2. Disconnect ECM connector.
3. Check continuity between ICC brake hold relay harness connector and ECM harness connector.

ICC brake hold relay		ECM		Continuity
Connector	Terminal	Connector	Terminal	
E51	5	M107	122	Existed

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

ICC brake hold relay		Ground	Continuity
Connector	Terminal		
E51	5		Not existed

Is the inspection result normal?

YES >> GO TO 26.
NO >> GO TO 25.

25. REPAIR HARNESS BETWEEN ICC BRAKE HOLD RELAY AND ECM

Repair harness between ICC brake hold relay and ECM.

>> GO TO 42.

26. CHECK ICC BRAKE HOLD RELAY

1. Connect ECM connector and ICC brake hold relay.
2. Disconnect stop lamp switch connector.
3. With the “Active Test” function of “ICC”, activate “STP LMP DRIVE”.
4. Check if stop lamp is illuminated.

Is the inspection result normal?

YES >> GO TO 28.
NO >> GO TO 27.

27. REPLACE ICC BRAKE HOLD RELAY

Replace ICC brake hold relay.

>> GO TO 42.

28. CHECK STOP LAMP SWITCH WITH ABS DATA MONITOR

With CONSULT-III
With “Data Monitor” of “ABS”, check if “STOP LAMP SW” are operates normally.

Normal?

YES >> GO TO 29.
NO >> GO TO 31.

29. PERFORM SELF-DIAGNOSIS OF ECM

1. Perform self-diagnosis of ECM.
2. Check if DTC is detected. Refer to EC-514, "DTC Index".

Is any DTC detected?

YES >> GO TO 40.
NO >> GO TO 30.

30. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).
2. Check if DTC is detected. Refer to BRC-95, "DTC No. Index".

Is any DTC detected?

YES >> GO TO 40.
NO >> GO TO 41.

31. CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.

2. Check stop lamp switch for proper installation. Refer to BR-7, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 33.
NO >> GO TO 32.

32. ADJUST STOP LAMP SWITCH

Adjust stop lamp switch. Refer to BR-7, "Inspection and Adjustment".

>> GO TO 42.

33. CHECK STOP LAMP SWITCH

1. Disconnect stop lamp switch connector.
2. Check stop lamp switch. Refer to CCS-39, "Component Inspection (STOP LAMP SWITCH)".

Is the inspection result normal?

YES >> GO TO 35.
NO >> GO TO 34.

34. REPLACE STOP LAMP SWITCH

Replace stop lamp switch.

>> GO TO 42.

35. CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between stop lamp switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
Stop lamp switch connector	Terminal		
E110	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 37.
NO >> GO TO 36.

36. REPAIR OR REPLACE STOP LAMP SWITCH HARNESS OR FUSE

Repair or replace stop lamp switch power supply harness or fuse.

>> GO TO 42.

37. CHECK HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connector.
3. Check continuity between stop lamp switch harness connector and ABS actuator and electric unit (control unit) harness connector.

Stop lamp switch		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E110	2	E41	30	Existed

Is the inspection result normal?

YES >> GO TO 39.
NO >> GO TO 38.

38. REPAIR OR REPLACE HARNESS BETWEEN STOP LAMP SWITCH AND ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Repair or replace harness between stop lamp switch and ABS actuator and electric unit (control unit).

>> GO TO 42.

39. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).
2. Check if DTC is detected. Refer to BRC-95, "DTC No. Index".

>> GO TO 40.

40. REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 42.

41. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 42.

42. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

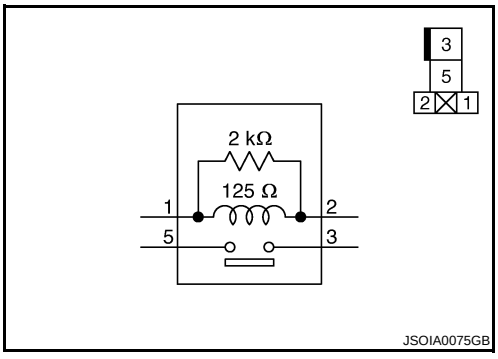
Component Inspection

INFOID:0000000003130063

1. CHECK ICC BRAKE HOLD RELAY

Check continuity between ICC brake hold relay terminals.

terminals		condition	Continuity
3	5	Applying battery voltage between terminal 1 and 2	Existed
		No battery voltage	Not existed



Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace ICC brake hold relay.

C1A14 ECM

Description

INFOID:0000000003130064

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

DTC Logic

INFOID:0000000003130065

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A14 (14)	ECM CIRCUIT	If an abnormal condition occurs with ECM.	• 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-75, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130066

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A14: ECM CIRCUIT” (DTC 14) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 6.

3.PERFORM SELF-DIAGNOSIS OF ECM

1. Perform self-diagnosis of ECM.
2. Check if DTC is detected. Refer to EC-514, "DTC Index".

Is any DTC detected?

YES >> GO TO 4.
NO >> GO TO 5.

4.REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A15 GEAR POSITION

Description

INFOID:0000000003130067

ICC sensor integrated unit judges gear positions according to the following signals.
- A/T turbine revolution signal transmitted from TCM with CAN communication.
- Gear ratio calculated from current gear position signal transmitted from TCM with CAN communication.
- Gear ratio calculated from vehicle speed signal transmitted from ABS actuator and electronic unit (control unit) with CAN communication

DTC Logic

INFOID:0000000003130068

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A15 (15)	GEAR POSITION	When a mismatch occurs between an A/T turbine revolution signal transmitted from TCM with CAN communication and a vehicle speed signal transmitted from ABS actuator and electric unit (control unit)	• A/T turbine revolution sensor • TCM • Wheel sensor • ABS actuator and electric unit (control unit)

NOTE:
If DTC “C1A15” is detected along with DTC “U1000”, “C1A03” or “C1A04”, first diagnose the DTC “U1000”, “C1A03” or “C1A04”.
- DTC “U1000”: Refer to CCS-75, "Diagnosis Procedure".
- DTC “C1A03”: Refer to CCS-31, "Diagnosis Procedure".
- DTC “C1A04”: Refer to CCS-33, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130069

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “C1A03: VHCL SPEED SE CIRC” (DTC 3), “C1A04: ABS/TCS/VDC CIRC” (DTC 4) or “U1000: CAN COMM CIRCUIT” (DTC100) other than “C1A15: GEAR POSITION” (DTC 15) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 9.

3.CHECK VEHICLE SPEED SIGNAL

With CONSULT-III
1. Start engine.
2. With “Data Monitor” of “ICC”, check if “VHCL SPEED SE” operates normally.

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 8.

4.CHECK SHIFT GEAR POSITION

Check if gear positions are correct in A/T.

Is the inspection result normal?

YES >> GO TO 6.
NO >> GO TO 5.

5.CHECK TCM GEAR POSITION SIGNAL

With CONSULT-III
With “Data Monitor” of “A/T”, check if “GEAR” operates normally.

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 7.

6.CHECK TCM TURBINE REVOLUTION

With CONSULT-III
With “Data Monitor” of “A/T”, check if “TURBINE REV” operates normally.

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 7.

7.PERFORM SELF-DIAGNOSIS OF TCM

1. Perform self-diagnosis of TCM.
2. Check if DTC is detected. Refer to EC-514, "DTC Index".
3. Repair or replace applicable item.

>> GO TO 9.

8.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 9.

9.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A16 RADAR STAIN

Description

INFOID:0000000003130070

ICC sensor integrated unit irradiates laser beam, and receives reflected laser beam to measure distance from preceding vehicle.

DTC Logic

INFOID:0000000003130071

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
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

Diagnosis Procedure

INFOID:0000000003130072

1. VISUAL INSPECTION 1

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

Is it found?

YES >> GO TO 2.
NO >> GO TO 3.

2. REMOVE DIRT AND FOREIGN OBJECTS

Remove any stain and foreign materials from the ICC sensor integrated unit body window.

>> GO TO 6.

3. VISUAL INSPECTION 2

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

Is it found?

YES >> GO TO 5.
NO >> GO TO 4.

4. ASKING COMPLAINTS

1. Ask if there is any trace of contamination or foreign material on ICC sensor integrated unit.
2. Ask if vehicle was driven in snow or ICC sensor integrated unit was frosted.
3. Ask if ICC sensor integrated unit was fogged temporarily. (Front window glass may have also tended to be fogged.)

Is there any symptom?

YES >> Explain difference in displays between contamination detection result and current indication to customer, and tell them “This is not malfunction”.
NO >> GO TO 5.

5. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").

2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A18 LASER AIMING INCMP

Description

INFOID:0000000003130073

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

DTC Logic

INFOID:0000000003130074

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A18 (18)	LASER AIMING INCMP	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

Diagnosis Procedure

INFOID:0000000003130075

1.ADJUST LASER BEAM AIMING

1. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Description".
2. Erase DTC.
3. Activate the vehicle-to-vehicle distance control mode.
4. Perform self-diagnosis of ICC sensor integrated unit.
5. Check if DTC “C1A18: LASER AIMING INCMP” (DTC 18) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> INSPECTION END

2.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 3.

3.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A21 UNIT HIGH TEMP

Description

INFOID:0000000003130076

ICC sensor integrated unit integrates a temperature sensor.

DTC Logic

INFOID:0000000003130077

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A21 (21)	UNIT HIGH TEMP	If temperature sensor (built in ICC sensor integrated unit) detects a high temperature.	Temperature around ICC sensor integrated unit is excessively high

Diagnosis Procedure

INFOID:0000000003130078

1.CHECK SYMPTOM

Check if engine cooling system malfunctions.

Does it malfunction?

YES >> GO TO 2.
NO >> GO TO 3.

2.REPAIR ENGINE COOLING SYSTEM

Repair engine cooling system.

>> GO TO 4.

3.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 4.

4.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A24 NP RANGE

Description

INFOID:0000000003130079

Park/neutral position switch signal is transmitted by TCM to ICC sensor integrated unit with CAN communication.

DTC Logic

INFOID:0000000003130080

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A24 (24)	NP RANGE	If park/neutral position switch signal and current gear position signal, transmitted by TCM with CAN communication, are inconsistent.	• Park/neutral position switch signal • Current gear position signal • TCM

NOTE:
If DTC “C1A24” is detected along with DTC “U1000” or “U0402”, first diagnose the DTC “U1000” or “U0402”.
- DTC “U1000”: Refer to CCS-75, "Diagnosis Procedure".
- DTC “U0402”: Refer to CCS-71, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130081

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC100) or “U0402: TCM CAN CIR 1” (DTC 122) other than “C1A24: NP RANGE” (DTC 24) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 6.

3.CHECK DATA MONITOR OF TCM

With CONSULT-III
With “Data Monitor” of “A/T”, check if “SLCT LVR POSI” are operates normally.

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4.PERFORM SELF-DIAGNOSIS OF TCM

1. Perform self-diagnosis of TCM.
2. Replace or replace applicable item. Refer o TM-113, "DTC Index".

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A26 ECD MODE MALFUNCTION

Description

INFOID:0000000003130082

ECD (ELECTRONICALLY CONTROLLED DECELERATION)
- Receives deceleration degree commandment value signal from ICC sensor integrated unit, and controls brake fluid pressure with the motor [built in ABS actuator and electric unit (control unit)].
- ECD control-related signals are transmitted by ABS actuator and electric unit (control unit) to ICC sensor integrated unit with CAN communication.

DTC Logic

INFOID:0000000003130083

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A26 (26)	ECD MODE MALF	If an abnormal condition occurs with ECD system.	ABS actuator and electric unit (control unit)

NOTE:
If DTC “C1A26” is detected along with DTC “U1000”, “U0415” or “U0121” first diagnose the DTC “U1000”, “U0415” or “U0121”.
- DTC “U1000”: Refer to CCS-75, "Diagnosis Procedure".
- DTC “U0415”: Refer to CCS-73, "Diagnosis Procedure".
- DTC “U0121”: Refer to CCS-67, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130084

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) or “U0415: VDC CAN CIR 1” (DTC 126), “U0121: VDC CAN CIR 2” (DTC 127) other than “C1A26: ECD MODE MALF” (DTC 26) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 6.

3.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).
2. Check if DTC is detected. Refer to BRC-95, "DTC No. Index".

Is any DTC detected?

YES >> GO TO 4.
NO >> GO TO 5.

4.REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.

2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A27 ECD POWER SUPPLY CIRCUIT

Description

INFOID:0000000003130085

ECD (ELECTRONICALLY CONTROLLED DECELERATION)
- Receives deceleration degree commandment value signal from ICC sensor integrated unit, and controls brake fluid pressure with the motor [built in ABS actuator and electric unit (control unit)].
- ECD control-related signals are transmitted by ABS actuator and electric unit (control unit) to ICC sensor integrated unit with CAN communication.

DTC Logic

INFOID:0000000003130086

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A27 (27)	ECD PWR SUPLY CIR	ECD system power supply voltage is excessively low.	• ABS actuator and electric unit (control unit) power supply circuit • ABS actuator and electric unit (control unit)

NOTE:
If DTC “C1A27” is detected along with DTC “U1000”, “U0415” or “U0121” first diagnose the DTC “U1000”, “U0415” or “U0121”.
- DTC “U1000”: Refer to CCS-75, "Diagnosis Procedure".
- DTC “U0415”: Refer to CCS-73, "Diagnosis Procedure".
- DTC “U0121”: Refer to CCS-67, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130087

1. PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) or “U0415: VDC CAN CIR 1” (DTC 126), “U0121: VDC CAN CIR 2” (DTC 127) other than “C1A27: ECD PWR SUPLY CIR” (DTC 27) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2. DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 6.

3. CHECK POWER SUPPLY CIRCUIT OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check power supply circuit of ABS actuator and electric unit (control unit). Refer to BRC-41, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. REPAIR OR REPLACE ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY

Repair or replace ABS actuator and electric unit (control unit) power supply.

>> GO TO 6.

5. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).

2. Repair or replace applicable item. Refer to BRC-95, "DTC No. Index".

>> GO TO 6.

6. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A33 CAN TRANSMISSION ERROR

Description

INFOID:0000000003130088

ICC sensor integrated unit transmits a signal required by ICC system to ECM with CAN communication.

DTC Logic

INFOID:0000000003130089

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A33 (33)	CAN TRANSMISSION ERROR	If an error occurs in 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-75, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130090

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A33: CAN TRANSMISSION ERROR” (DTC 33) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 4.

3.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 4.

4.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

C1A34 COMMAND ERROR

Description

INFOID:0000000003130091

ICC sensor integrated unit sends command signal required for ECM control with CAN communication.

DTC Logic

INFOID:0000000003130092

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
C1A34 (34)	COMMAND ERROR	If an error occurs in the command signal that ICC sensor integrated unit transmits to ECM with CAN communication	ICC sensor integrated unit

NOTE:
If DTC “C1A34” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to CCS-75, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130093

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) other than “C1A34: COMMAND ERROR” (DTC 34) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 4.

3.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 4.

4.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

U0121 VDC CAN 2

Description

INFOID:0000000003130094

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

DTC Logic

INFOID:0000000003130095

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
U0121 (127)	VDC CAN CIR2	When a mismatch occurs between a VDC system signal transmitted from ABS actuator electric unit (control unit) and a VDC system signal received by ICC sensor integrated unit.	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-75, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130096

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) other than “U0121: VDC CAN CIR2” (DTC 127) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 6.

3.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).
2. Check if DTC is detected. Refer to BRC-95, "DTC No. Index".

Is any DTC detected?

YES >> GO TO 4.
NO >> GO TO 5.

4.REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

U0401 ECM CAN 1

Description

INFOID:0000000003130097

ICC sensor integrated unit and ECM exchange ECM system-related signals with CAN communication.

DTC Logic

INFOID:0000000003130098

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
U0401 (120)	ECM CAN CIR1	When a counter value of CAN signals received from ECM does not change.	ECM

NOTE:
If DTC “U0401” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to CCS-75, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130099

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) other than “U0401: ECM CAN CIR1” (DTC 120) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 6.

3.PERFORM SELF-DIAGNOSIS OF ECM

1. Perform self-diagnosis of ECM.
2. Check if DTC is detected. Refer to EC-514, "DTC Index".

Is any DTC detected?

YES >> GO TO 4.
NO >> GO TO 5.

4.REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

U0402 TCM CAN 1

Description

INFOID:0000000003130100

TCM transmits A/T control system signal to ICC sensor integrated unit with CAN communication.

DTC Logic

INFOID:0000000003130101

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
U0402 (122)	TCM CAN CIR1	When a counter value of CAN signals received from TCM does not change.	TCM

NOTE:
If DTC “U0402” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to CCS-75, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130102

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) other than “U0402: TCM CAN CIR1” (DTC 122) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> GO TO 6.

3.PERFORM SELF-DIAGNOSIS OF TCM

1. Perform self-diagnosis of TCM.
2. Check if DTC is detected. Refer to TM-113, "DTC Index".

Is any DTC detected?

YES >> GO TO 4.
NO >> GO TO 5.

4.REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

U0415 VDC CAN 1

Description

INFOID:0000000003130103

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

DTC Logic

INFOID:0000000003130104

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
U0415 (126)	VDC CAN CIR1	When a counter value of CAN signals received from ABS actuator and electric unit (control unit) does not change.	ABS actuator and electric unit (control unit)

NOTE:
If DTC “U0415” is detected along with DTC “U1000” or “U0121”, first diagnose the DTC “U1000” or “U0121”.
- DTC “U1000”: Refer to CCS-75, "Diagnosis Procedure".
- DTC “U0121”: Refer to CCS-67, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003130105

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) or “U0121: VDC CAN CIR2” (DTC 127) other than “U0415: VDC CAN CIR1” (DTC 126) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 3.

2.DIAGNOSIS FOR DETECTED DTC

Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-85, "DTC Index".

>> GO TO 6.

3.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Perform self-diagnosis of ABS actuator and electric unit (control unit).
2. Check if DTC is detected. Refer to BRC-95, "DTC No. Index".

Is any DTC detected?

YES >> GO TO 4.
NO >> GO TO 5.

4.REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace the applicable item identified by the self-diagnosis result.

>> GO TO 6.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000003130106

- CAN communication is a multiplex communication system. This enables it to transmit and receive many communication signals at high speed by connecting control units with two communication lines (CAN-H and CAN-L).
- Control units on the CAN network transmit signals with CAN communication control circuit in the control unit and receive only necessary signals from other control units for various controls. Refer to LAN-27, "CAN Communication Signal Chart".
- CAN communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

DTC Logic

INFOID:0000000003130107

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
U1000 (100)	CAN COMM CIRCUIT	When ICC sensor integrated unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication

Diagnosis Procedure

INFOID:0000000003130108

1.PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result”.

Is “CAN COMM CIRCUIT” displayed?

YES >> Go to “LAN system”. Refer to LAN-18, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-38, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000003130109

Initial diagnosis for ICC sensor integrated unit.

DTC Logic

INFOID:0000000003130110

DTC DETECTION LOGIC

DTC No. (On board display)	Trouble diagnosis name	DTC detecting condition	Possible cause
U1010 (110)	CONTROL UNIT (CAN)	ICC sensor integrated unit detects malfunction by CAN initial diagnosis.	ICC sensor integrated unit

Diagnosis Procedure

INFOID:0000000003130111

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Print self-diagnosis result.
3. Erase DTC.
4. Perform self-diagnosis of ICC sensor integrated unit again.
5. Check if DTC “U1010: CONTROL UNIT (CAN)” (DTC110) is detected.

Is any DTC detected?

YES >> GO TO 2.
NO >> INSPECTION END

2.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 3.

3.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000003130112

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition switch ON or START	45

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT FOR ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.
2. Disconnect ICC sensor integrated unit connector.
3. Turn ignition switch ON.
4. Check voltage between ICC sensor integrated unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
ICC sensor integrated unit connector	Terminal		
E67	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace ICC sensor integrated unit power supply harness or fuse.

3.CHECK GROUND CIRCUIT FOR ICC SENSOR INTEGRATED UNIT

1. Turn ignition switch OFF.
2. Check continuity between ICC sensor integrated unit harness connector and ground.

ICC sensor integrated unit connector	Terminal	Ground	Continuity
E67	4		Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace ICC sensor integrated unit ground harness.

ECU DIAGNOSIS

ICC SENSOR INTEGRATED UNIT

Reference Value

INFOID:0000000003130117

VALUES ON THE DIAGNOSIS TOOL

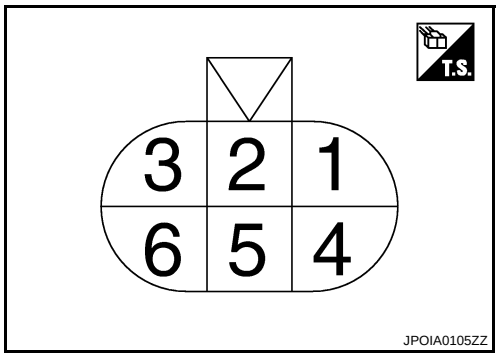
CONSULT-III MONITOR ITEM

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 activate the ICC system	ICC system control active	On
		ICC system control inactive	Off
BRAKE SW	Ignition switch ON	Brake pedal depressed	Off
		Brake pedal not depressed	On
STOP LAMP SW	Ignition switch ON	Brake pedal depressed	On
		Brake pedal not depressed	Off
IDLE SW	Engine running	Idling	On
		Except idling (depress acceleration pedal)	Off
SET DISTANCE	• Start the engine and activate the vehicle-to-vehicle distance control mode • 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 the MAIN switch	ICC system ON (MAIN switch indicator turned on)	On
		ICC system OFF (MAIN switch indicator turned off)	Off
OWN VHCL	Start the engine and press the MAIN switch	ICC system ON (Own vehicle detection indicator turned on)	On
		ICC system OFF (Own vehicle detection indicator turned off)	Off
VHCL AHEAD	• Start the engine and press the MAIN switch • Drive the vehicle in the vehicle-to-vehicle distance control mode	Vehicle ahead detected (Vehicle ahead indicator turned on)	On
		Vehicle ahead not detected (Vehicle ahead indicator turned off)	Off
ICC WARNING	Engine running	ICC system malfunctioning (ICC system warning lamp turned on)	On
		ICC system operating normally (ICC system warning lamp turned off)	Off
VHCL SPEED SE	While driving		Value of vehicle speed signal (wheel speed)

Monitor Item	Condition		Value/Status
SET VHCL SPD	While driving	When vehicle speed is set	Displays the set vehicle speed
BUZZER O/P	Engine running	When buzzer output signal is outputted	On
		When buzzer output signal is not outputted	Off
THRTL SENSOR	**NOTE:** This item is displayed, but cannot monitor		0.0 deg
ENGINE RPM	While driving		Equivalent to tachometer reading
WIPER SW	Ignition switch ON	Wiper switch at OFF	Off
		Wiper switch at LOW	Low
		Wiper switch at HIGH	High
YAW RATE	**NOTE:** This item is displayed, but cannot monitor		0.0 deg/s
STP LMP DRIVE	While driving	ICC brake hold relay activated	On
		ICC brake hold relay deactivated	Off
D RANGE SW	Ignition switch ON	When “D”, “DS” or “M” range is selected	On
		When any position other than “D”, “DS” or “M” range is selected	Off
NP RANGE SW	Ignition switch ON	When “N” or “P” range is selected	On
		When any position other than “N” or “P” range is selected	Off
PWR SUP MONI	Engine running		Power supply voltage of ICC sensor integrated unit
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:** This item is displayed, but cannot monitor		Off
NP SW SIG	Ignition switch ON	When any position other than “N” or “P” range is selected	On
		When any position other than “N” or “P” range is selected	Off
MODE SIG	Start the engine and press the 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	When SET switch indicator is turned on	On
		When SET switch indicator is turned off	Off
DISTANCE	Drive the vehicle in the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected	Displays the distance from the preceding vehicle
		When no vehicle ahead is detected	0.0 m

Monitor Item	Condition		Value/Status
RELATIVE SPD	Drive the vehicle in the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected	Displays the relative speed
		When no vehicle ahead is detected	0.0 m/s

TERMINAL LAYOUT

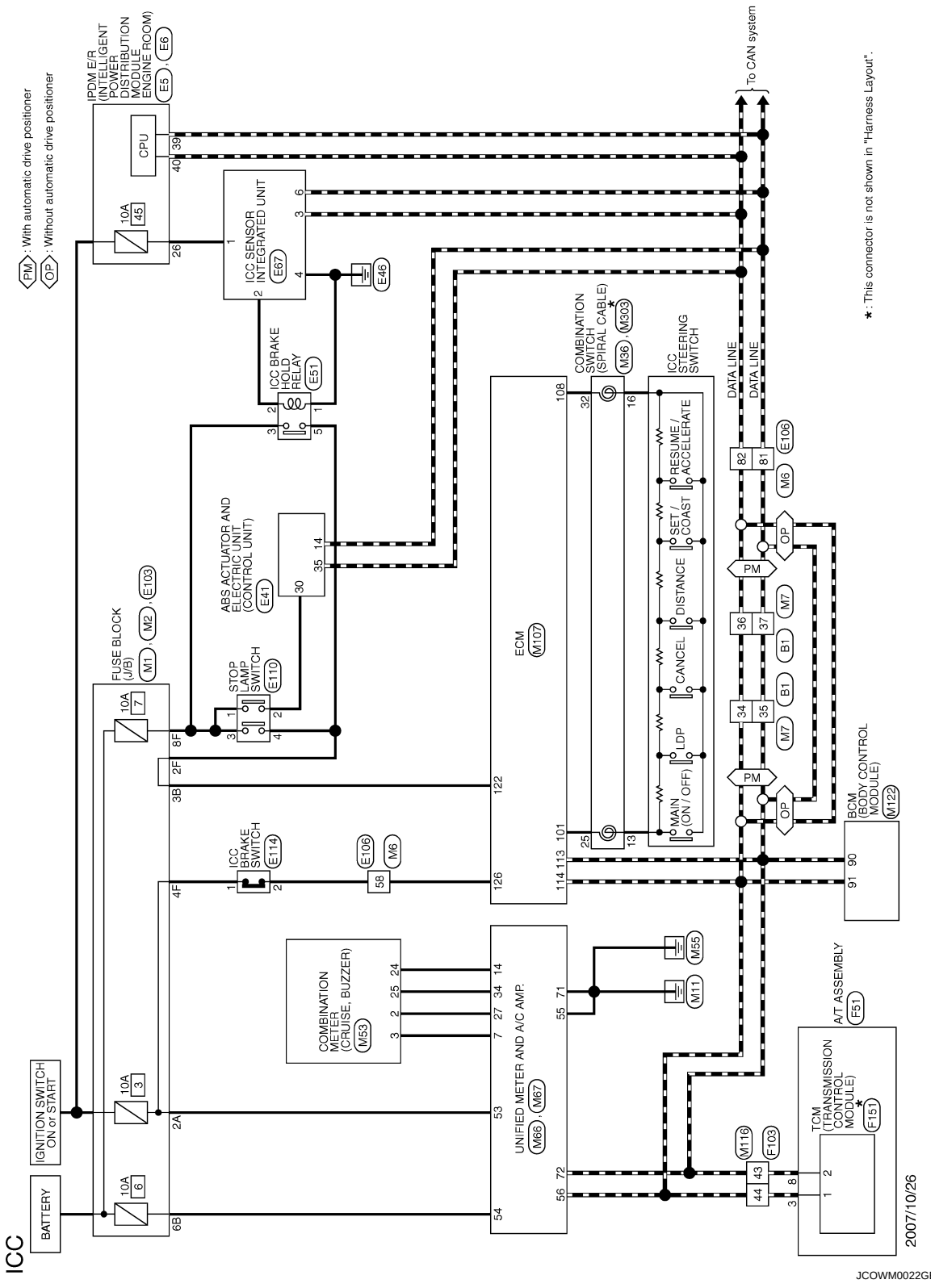


PHYSICAL VALUES

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 (V)		Stop lamp drive output signal	Output	Ignition switch ON	At “STOP LAMP” test on “ACTIVE TEST”	12 V
					—	0 V
3 (L)		CAN–H	—	—		—
4 (B)		Ground	—	Ignition switch ON		0 V
6 (P)		CAN–L	—	—		—

Wiring Diagram - ICC SYSTEM -

INFOID:0000000003130118



ICC

Connector No.	B1
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
34	L	–
35	P	–
36	L	–
37	P	–

Connector No.	E5
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH20FW-CS12-M4-1V

Terminal No.	Color of Wire	Signal Name [Specification]
26	R	–

Connector No.	E6
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH08FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
39	P	–
40	L	–

Connector No.	E41
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	BAA42FB-AH24-LH

Terminal No.	Color of Wire	Signal Name [Specification]
14	P	CAN-L
30	SB	BLS
35	L	CAN-H

Connector No.	E51
Connector Name	ICC BRAKE HOLD RELAY
Connector Type	MS02FL-M2

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	–
2	V	–
3	O	–
5	P	–

Connector No.	E67
Connector Name	ICC SENSOR INTEGRATED UNIT
Connector Type	RS06FB-PR

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	IGN
2	V	BRK LMP RLY
3	L	CAN-H
4	B	GND
6	P	CAN-L

Connector No.	E103
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
2F	W	–
4F	G	–
6F	L	–

Connector No.	E106
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
58	SB	–
61	P	–
82	L	–

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ICC

Connector No.	E110
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LC

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	–
2	SB	–
3	L	–
4	W	–

Connector No.	E114
Connector Name	ICC BRAKE SWITCH (WITH ICC)
Connector Type	M02FBR-LC

Terminal No.	Color of Wire	Signal Name [Specification]
1	G	–
2	SB	–

Connector No.	F151
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	SP10FBGY

Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	CAN-H
2	L/Y	CAN-L

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS06FW-M2

Terminal No.	Color of Wire	Signal Name [Specification]
2A	G	–

Connector No.	F51
Connector Name	A/T ASSEMBLY
Connector Type	RK10FG-DGY

Terminal No.	Color of Wire	Signal Name [Specification]
3	L	–
8	P	–

Connector No.	M2
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
3B	P	–
6B	Y	–

Connector No.	F103
Connector Name	WIRE TO WIRE
Connector Type	TK36FW-NS10

Terminal No.	Color of Wire	Signal Name [Specification]
43	P	–
44	L	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
58	BR	–
81	P	–
82	L	–

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ICC

Connector No.	M7
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
34	L	–
35	P	–
36	L	–
37	P	–

Connector No.	M36
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY-1V

Terminal No.	Color of Wire	Signal Name [Specification]
25	SB	–
32	Y	–

Connector No.	M53
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
2	LG	COMM (METER->AMP.)
3	GR	COMM (AMP.->METER)
24	BR	COMM (LCD->AMP.)
25	Y	COMM (AMP.->LCD)

Connector No.	M66
Connector Name	UNIFIED METER AND A/C AMP.
Connector Type	TH40FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
7	GR	COMM (AMP.->METER)
14	BR	COMM (LCD->AMP.)
27	LG	COMM (METER->AMP.)
34	Y	COMM (AMP.->LCD)

Connector No.	M67
Connector Name	UNIFIED METER AND A/C AMP.
Connector Type	TH32FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
53	G	IGN
54	Y	BAT
55	B	GND
56	L	CAN-H
71	B	GND
72	P	CAN-L

Connector No.	M107
Connector Name	ECM
Connector Type	RH24FGY-RZ8-R-LH-Z

Terminal No.	Color of Wire	Signal Name [Specification]
101	SB	ASCDSW
108	Y	GNDA ASCD
113	P	VEHCAN-L1
114	L	VEHCAN-H1
122	P	BRAKE
126	BR	BNC SW

Connector No.	M116
Connector Name	WIRE TO WIRE
Connector Type	TK36MW-NS10

Terminal No.	Color of Wire	Signal Name [Specification]
43	P	–
44	L	–

Connector No.	M122
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH

Terminal No.	Color of Wire	Signal Name [Specification]
90	P	CAN-L
91	L	CAN-H

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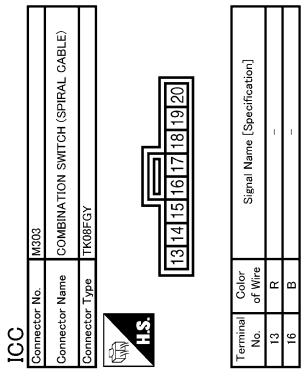


JCOWM0026GI

Fail-safe

INFOID:0000000003130119

When a malfunction occurs in ICC system, a chime sounds a beep, the system is released and ICC system warning lamp in combination meter illuminates. System setting is not accepted when malfunction is detected.

DTC Index

INFOID:0000000003130120

×: Applicable

DTC No.		CONSULT-III screen terms	ICC system warning lamp	Fail-safe			Reference page
CONSULT-III	On board display			Vehicle-to-vehicle distance control mode	Conventional (Fixed speed) cruise control mode	Brake assist (With preview function)	
C1A00	0	CONTROL UNIT	×	×	×	×	CCS-28
C1A01	1	POWER SUPPLY CIR	×	×	×	×	CCS-29
C1A02	2	POWER SUPPLY CIR 2	×	×	×	×	
C1A03	3	VHCL SPEED SE CIRC	×	×	×	×	CCS-31
C1A04	4	ABS/TCS/VDC CIRC	×	×	×	×	CCS-33
C1A05	5	BRAKE SW/STOP L SW	×	×	×	×	CCS-35
C1A06	6	OPERATION SW CIRC	×	×	×		CCS-40
C1A12	12	LASER BEAM OFFCNTR	×	×		×	CCS-43
C1A13	13	STOP LAMP RLY FIX	×	×		×	CCS-44
C1A14	14	ECM CIRCUIT	×	×	×	×	CCS-51
C1A15	15	GEAR POSITION	×	×	×		CCS-53
C1A16	16	RADAR STAIN	×	×		×	CCS-55
C1A18	18	LASER AIMING INCMP	×	×		×	CCS-57
C1A21	21	UNIT HIGH TEMP	×	×		×	CCS-58
C1A24	24	NP RANGE	×	×	×		CCS-59
C1A26	26	ECD MODE MALF	×	×	×	×	CCS-61
C1A27	27	ECD PWR SUPLY CIR	×	×	×	×	CCS-63
C1A33	33	CAN TRANSMISSION ERROR	×	×	×	×	CCS-65
C1A34	34	COMMAND ERROR	×	×	×	×	CCS-66
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	55	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	—	—	—	—	—
U0121	127	VDC CAN CIR2	×	×	×	×	CCS-67
U0401	120	ECM CAN CIR1	×	×	×	×	CCS-69
U0402	122	TCM CAN CIR1	×	×	×	×	CCS-71
U0415	126	VDC CAN CIR1	×	×	×	×	CCS-73
U1000	100	CAN COMM CIRCUIT	×	×	×	×	CCS-75
U1010	110	CONTROL UNIT (CAN)	×	×	×	×	CCS-76

SYMPTOM DIAGNOSIS

INTELLIGENT CRUISE CONTROL SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000003130121

Symptoms		Reference page
Operation	MAIN switch does not turn ON.	Symptom 1 CCS-88
	MAIN switch does not turn OFF.	
	Cruise does not function for setting (powering functions).	Symptom 2 CCS-90
	CANCEL switch does not function.	Symptom 3 CCS-92
	Resume does not function.	
	Set speed does not increase.	
	Set distance to the vehicle ahead cannot be changed.	
	ICC is not cancelled when the A/T selector lever is “N”.	Symptom 4 CCS-93
Display/Chime	Multi information display not appear.	Check combination meter. Refer to MWI-38, "Diagnosis Description".
	Chime does not function.	Symptom 5 CCS-95
Control	Driving force is hunting.	Symptom 6 CCS-97
Function to detect the vehicle ahead	System frequently cannot detect the vehicle ahead.	Symptom 7 CCS-98
	Distance to detect the vehicle ahead is short.	
	System misidentifies a vehicle even though there is no vehicle ahead.	• Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)". • Perform ICC action test. Refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)".
	System misidentifies a vehicle in the next lane.	
	System does not detect a vehicle at all.	Symptom 8 CCS-99

MAIN SWITCH DOES NOT TURN ON, MAIN SWITCH DOES NOT TURN OFF

Description

INFOID:0000000003130122

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:
- ICC system is in fail-safe mode when ICC system warning lamp is turned on. Therefore, ICC system display is not appeared even if MAIN switch is pressed.
- Perform the self-diagnosis for ICC sensor integrated unit if ICC system warning lamp is illuminated. Repair or replace applicable item.

Diagnosis Procedure

INFOID:0000000003130123

1.CHECK MAIN SWITCH

With CONSULT-III
1. Start engine.
2. With “Data Monitor” of “ICC”, check if “MAIN SW” and “CRUISE LAMP” operate normally.

Is the inspection result normal?

YES >> GO TO 2.
NO >> GO TO 5.

2.CHECK UNIFIED METER AND A/C AMP.

With CONSULT-III
With “Data Monitor” of “METER/M&A”, check if “CRUISE IND” operate normally.

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 5.

3.PERFORM SELF-DIAGNOSIS OF UNIFIED METER AND A/C AMP.

1. Perform self-diagnosis of unified meter and A/C amp.
2. Check if DTC is detected. Refer to MWI-101, "DTC Index".

Is any DTC detected?

YES >> Repair or replace applicable item.
NO >> GO TO 4.

4.PERFORM SELF-DIAGNOSIS MODE OF COMBINATION METER

1. Perform self-diagnosis mode of combination meter. Refer to MWI-38, "Diagnosis Description".
2. Check that the multi information display operates normally.
3. If it does not operate normally, repair the affected components or replace the combination meter.

>> INSPECTION END

5.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) is detected.

Is it DTC detected?

YES >> GO TO 6.
NO >> GO TO 7.

6.CAN COMMUNICATION INSPECTION

Perform CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> INSPECTION END

7. CHECK ICC STEERING SWITCH

Inspect ICC steering switch. Refer to CCS-40, "Diagnosis Procedure"

>> INSPECTION END

ICC SYSTEM CANNOT BE SET (MAIN SWITCH TURNS ON/OFF)

Description

INFOID:0000000003130124

ICC system cannot be set by pressing SET/COAST switch though MAIN switch can be turned ON/OFF.

NOTE:

ICC system cannot be set in the following cases.

- When the vehicle speed is not in range of approx. 40 km/h (25 MPH) to 144 km/h (90 MPH).
- When the A/T selector lever is in “N”.
- While the brake is in operation.
- When the wiper switch is at LOW/HI position.

Diagnosis Procedure

INFOID:0000000003130125

1.CHECK CAUSE OF AUTOMATIC CANCELLATION

With CONSULT-III

With “CAUSE OF AUTO-CANCEL” in “Work Support” at “ICC”, check if any cause of cancellation is found.

Is any cause found?

YES >> GO TO 2.
NO >> GO TO 3.

2.CHECK RELEVANT CANCEL FACTORS

According to cancel cause, go to specified diagnosis.

Cancel cause	Inspection item
OPE SW VOLT CIRC	Refer to CCS-40, "Diagnosis Procedure".
VHCL SPD UNMATCH	Refer to CCS-31, "Diagnosis Procedure".
IGN LOW VOLT	Refer to CCS-29, "Diagnosis Procedure".
ECM CIRCUIT	Refer to CCS-51, "Diagnosis Procedure".
CAN COMM ERROR	Refer to CCS-75, "Diagnosis Procedure".
ABS/TCS/VDC CIRC	Refer to CCS-33, "Diagnosis Procedure".
ECD CIRCUIT	Refer to CCS-61, "Diagnosis Procedure".

>> INSPECTION END

3.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC is detected. Refer to CCS-85, "DTC Index".

Is any DTC detected?

YES >> GO TO 6.
NO >> GO TO 4.

4.CHECK SWITCHES AND VEHICLE SPEED SIGNAL

With CONSULT-III

1. Start engine.
2. With “Data Monitor” of “ICC”, check the following items for normal operation.

- VHCL SPEED SE
- D RANGE SW
- SET/COAST SW
- BRAKE SW

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 5.

5.CHECK INOPERATIVE ITEMS

Check the items for which DATA MONITOR cannot operate normally

DATA MONITOR item	Inspection item
VHCL SPEED SE	Refer to CCS-31, "Diagnosis Procedure".
D RANGE SW	Refer to CCS-93, "Diagnosis Procedure"
SET/COAST SW	Refer to CCS-40, "Diagnosis Procedure".
BRAKE SW	Refer to CCS-35, "Diagnosis Procedure".

>> INSPECTION END

6. REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace applicable item identified by the self-diagnosis result.

>> GO TO 8.

7. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 8.

8. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

ICC STEERING SWITCH (OTHER THAN MAIN SWITCH) DOES NOT FUNCTION

Description

INFOID:0000000003130126

RESUME/ACCELERATE, CANCEL, and DISTANCE switches cannot be operated while ICC system is active though MAIN switch can be turned ON/OFF.

NOTE:

RESUME does not function in the following cases.

- When MAIN switch is turned OFF once.
- When the vehicle speed is less than 40 km/h (25 MPH).

Diagnosis Procedure

INFOID:0000000003130127

1.CHECK ICC STEERING SWITCHES

With CONSULT-III

1. Start engine.
2. With “Data Monitor” of “ICC”, check if ICC steering switches operate normally.

- “RESUME/ACC SW”
- “CANCEL SW”
- “DISTANCE SW”

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) is detected.

Is it DTC detected?

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

3.CAN COMMUNICATION INSPECTION

Perform CAN communication system inspection. Repair or replace applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> INSPECTION END

4.ICC STEERING SWITCH INSPECTION

Inspect ICC steering switch. Refer to CCS-42, "Component Inspection".

>> INSPECTION END

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

ICC SYSTEM DOES NOT CANCEL WHEN A/T SELECTOR LEVER SETS ON "N"

Description

INFOID:0000000003130128

ICC system is not canceled even when the selector lever is shifted to the “N” range while ICC system is active.

Diagnosis Procedure

INFOID:0000000003130129

1. CHECK INPUT “D” RANGE SWITCH SIGNAL (ICC SENSOR INTEGRATED UNIT)

With CONSULT-III
1. Start engine.
2. With “Data Monitor” of “ICC”, check if “D RANGE SW” and “NP RANGE SW” operate normally.

Is the inspection result normal?

YES >> GO TO 6.
NO >> GO TO 2.

2. PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) is detected.

Is it DTC detected?

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

3. CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace the applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> INSPECTION END

4. CHECK INPUT “D” RANGE SWITCH SIGNAL (TCM)

With CONSULT-III
With “Data Monitor” of “A/T”, check if “SLCT LVR POSI” operates normally.

Is the inspection result normal?

YES >> GO TO 6.
NO >> GO TO 5.

5. PERFORM SELF-DIAGNOSIS OF TCM

1. Perform self-diagnosis of TCM.
2. Repair or replace applicable item. Refer to TM-113, "DTC Index".

>> GO TO 7.

6. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 7.

7. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

CHIME DOES NOT SOUND

Description

INFOID:0000000003130130

The chime may not sound occasionally in the following cases even if the distance from the vehicle ahead is short:

- When the speed difference from that of the vehicle ahead is small (both vehicles driving at similar speed).
- When the vehicle ahead drives at faster speed (the actual distance is increasing).
- When depressing the accelerator pedal.
- Chime does not sound when the vehicle ahead is not driving.
- 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-98, "Diagnosis Procedure").

Diagnosis Procedure

INFOID:0000000003130131

1.CHECK ICC WARNING CHIME

With CONSULT-III

1. Start engine.
2. With “Active Test” of “ICC”, check if “ICC BUZZER” operates normally.

Is the inspection result normal?

YES >> GO TO 2.
NO >> GO TO 3.

2.CHECK THE MALFUNCTION SYMPTOM DURING BUZZER OPERATION

Determine preceding vehicle detection status when malfunction occurred. If chime should have sounded: replace ICC sensor integrated unit and adjust laser beam aiming.

>> INSPECTION END

3.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

1. Perform self-diagnosis of ICC sensor integrated unit.
2. Check if DTC “U1000: CAN COMM CIRCUIT” (DTC 100) is detected.

Is any DTC detected?

YES >> GO TO 4.
NO >> GO TO 5.

4.CAN COMMUNICATION INSPECTION

Perform the CAN communication system inspection. Repair or replace applicable item. Refer to CCS-75, "Diagnosis Procedure".

>> INSPECTION END

5.PERFORM SELF-DIAGNOSIS OF UNIFIED METER AND A/C AMP.

1. Perform self-diagnosis of unified meter and A/C amp.
2. Check if DTC is detected. Refer to MWI-101, "DTC Index".

Is any DTC detected?

YES >> GO TO 7.
NO >> GO TO 6.

6.CHECK COMBINATION METER CHIME OPERATION

With CONSULT-III

1. Select “BUZZER” on “BCM”.
2. With “Active Test” of “BUZZER”, check if “IGN KEY WARN ALM” and “LIGHT WARN ALM” operate normally.

Does chime sound?

YES >> GO TO 8.

NO >> Replace combination meter.

7. REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace applicable item identified by the self-diagnosis result.

>> GO TO 9.

8. REPLACE ICC SENSOR INTEGRATED UNIT.

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 9.

9. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

DRIVING FORCE IS HUNTING

Description

INFOID:0000000003130132

The vehicle causes hunting when the ICC system is active.

Diagnosis Procedure

INFOID:0000000003130133

1.PERFORM SELF-DIAGNOSIS OF ECM

1. Perform self-diagnosis of ECM.
2. Check if DTC is detected. Refer to EC-514, "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-98, "Description".
2. Check ICC sensor integrated unit body window. Refer to CCS-98, "Diagnosis Procedure".

>> INSPECTION END

3.REPAIR OR REPLACE APPLICABLE ITEM

Repair or replace applicable item identified by the self-diagnosis result.

>> GO TO 4.

4.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

ICC SYSTEM FREQUENTLY CANNOT DETECT THE VEHICLE AHEAD/ DETECTION ZONE IS SHORT

Description

INFOID:0000000003130134

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:0000000003130135

1.VISUAL INSPECTION 1

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

Is it found?

YES >> GO TO 2.
NO >> GO TO 3.

2.REMOVE DIRT AND FOREIGN OBJECTS

Remove any dirt and foreign objects from ICC sensor integrated unit body window.

>> GO TO 6.

3.VISUAL INSPECTION 2

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

Is it found?

YES >> GO TO 5.
NO >> GO TO 4.

4.ADJUST LASER BEAM AIMING

1. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".
2. Perform ICC system action test. Refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)".
3. Check if preceding vehicle detection performance has been improved.

Is it improved?

YES >> INSPECTION END
NO >> GO TO 5.

5.REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 6.

6.CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

THE SYSTEM DOES NOT DETECT THE VEHICLE AHEAD AT ALL

Description

INFOID:0000000003130136

When the ICC system is active, the vehicle-to-vehicle distance control mode does not perform any control even though there is a vehicle ahead.

Diagnosis Procedure

INFOID:0000000003130137

1. CHECK ICC SYSTEM DISPLAY IN COMBINATION METER

1. Perform the combination meter self-diagnosis. Refer to MWI-38, "Diagnosis Description".
2. Check if the multi information display turns on normally.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace combination meter.

2. VISUAL INSPECTION 1

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

Is it found?

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

3. REMOVE DIRT AND FOREIGN OBJECTS

Remove any stain and foreign materials from the ICC sensor integrated unit body window.

>> GO TO 6.

4. VISUAL INSPECTION 2

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

Is it found?

YES >> GO TO 6.
NO >> GO TO 5.

5. ADJUST LASER BEAM AIMING

1. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".
2. Perform ICC system action test. Refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)".
3. Check if preceding vehicle detection performance has been improved.

Is it improved?

YES >> INSPECTION END
NO >> GO TO 6.

6. REPLACE ICC SENSOR INTEGRATED UNIT

1. Replace ICC sensor integrated unit.
2. Adjust laser beam aiming. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

>> GO TO 7.

7. CHECK ICC SYSTEM

1. Erase DTC and perform ICC system action test. Then perform self-diagnosis of ICC sensor integrated unit. (For the details on the ICC system action test, refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)").
2. Check that no abnormal condition is present in the ICC system.

>> INSPECTION END

NORMAL OPERATING CONDITION

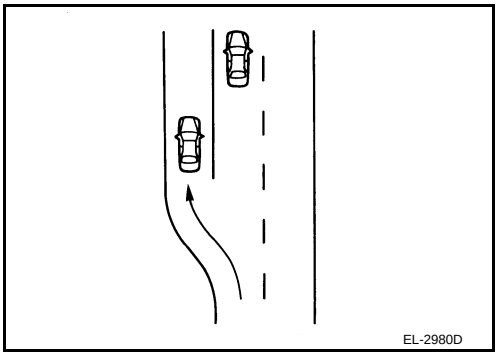
Description

INFOID:0000000003130138

PRECAUTIONS FOR VEHICLE-TO-VEHICLE DISTANCE CONTROL MODE

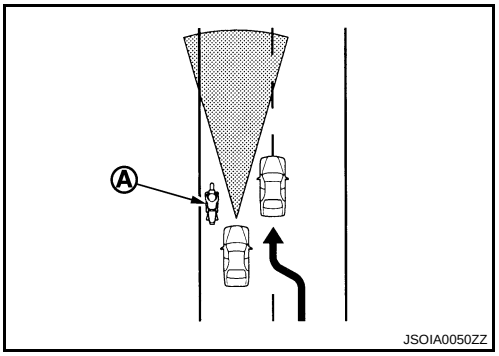
- Intelligent Cruise Control is functionally limited. This never supports careless driving and low visibility (rain, fog, etc.). Drive the vehicle safely. Keep a safe distance between vehicles by decreasing the vehicle speed according to the driving condition etc.
- Intelligent Cruise Control never stops the vehicle automatically. Intelligent Cruise Control is automatically released, and the buzzer sounds if any vehicle ahead is not detected when the vehicle speed is approximately 35 km (21.5 MPH) or less.
- Use this system when the vehicle speed does not extremely change. This system may not properly function when any vehicle cuts in, or when the vehicle ahead suddenly applies the brake. Then, the warnings (buzzer and indication) are activated.
- Never use Intelligent Cruise Control under the following conditions.

- A heavily-trafficked road and a tight turn.
  It may cause any accident because the driving speed does not fit to the road condition.
- A slippery road (e.g., freezing, or snowy road)
  The vehicle may lose the control by wheel spin.
- When driving in bad whether (rain, fog, snow etc.).
  The distance from the vehicle ahead is not detected precisely if the whether condition is bad. Intelligent Cruise Control is released automatically if the wipers are activated in low or high speed.
- The vehicle receives bright light (sunshine, etc.).
  The distance from the vehicle ahead is not detected precisely if bright light enters into the vehicle sensor.
- Raindrops or the snow is on the sensor.
  The distance from the vehicle ahead is not detected precisely if raindrops or the snow attaches on the sensor.
- A steep downhill
  The setting vehicle speed may exceed if Intelligent Cruise Control does not detect the vehicle ahead. The brake may heat up in the vehicle-to-vehicle distance control mode.
- A repeated uphill and downhill
  Intelligent Cruise Control may not detect the vehicle ahead precisely. An accident may occur by tailgating.
- Maintaining proper vehicle distance is difficult due to frequent acceleration/deceleration.
  It may cause any accident because the driving speed does not fit to the road condition if keeping a proper vehicle-to-vehicle distance is difficult.
- When entering in the highway interchange (swerving off the main line)
  Unexpected accident may cause if the vehicle ahead drives slower than the preset vehicle speed. The vehicle-to-vehicle distance control mode accelerates automatically because the vehicle ahead is not detected on the lane if the own vehicle or the vehicle ahead changes the lane.



- Intelligent Cruise Control is not activated to the parking vehicles, and vehicles driving extremely slower than the own vehicle. Never hit the vehicle stopping at a tollgate, or the tail end of traffic jam.
- Intelligent Cruise Control is not activated to the vehicle edging way, and non-vehicle objects (pedestrian, etc.).
- This function detects the reflector of the vehicle ahead. Intelligent Cruise Control may not detect the vehicle ahead, therefore keep a proper vehicle-to-vehicle distance under the following conditions. Drive the vehicle according to the driving condition.

- The vehicle ahead installs the reflector higher (trailer etc.).
- The rear of the vehicle ahead is extremely dirt.
- The vehicle ahead or vehicle on other lanes splashes water or snow on the road.
- The vehicle ahead provides dark exhaust gas. Smoke blocks the visibility.
- The vehicle ahead attaches film on the reflector. The vehicle ahead does not install the reflector. The reflector is broken.
- Extremely heavy load is on the rear seat, or in the trunk room.
- The vehicle drives on a repeated uphill and downhill



- The sensor detection distance is limited if the vehicle-to-vehicle distance is close. The vehicle distance may not maintain properly because the motorcycle (A) driving on the lane edge is not detected or the detection of the vehicle ahead (cutting in the own vehicle) delays.
- The sensor dirt is detected automatically. But it is not perfect. Dirt is not judged despite the sensor is dirt. Dirt is not detected if the snow or ice is on the sensor.
  Keeping the vehicle-to-vehicle distance is difficult if the snow or ice is on the sensor. Drive the vehicle safely. Always clean the sensor. Intelligent Cruise Control is released automatically if dirt is detected.
- The following conditions may occur depend on road shapes (curve and narrow road) and the vehicle condition (steering condition, driving lane position, malfunctions and accidents, etc.).

- A vehicle ahead may not be detected temporarily.
- The vehicle may be controlled by detecting a vehicle/object on the neighboring lane.
- The warning buzzer may sounds.
- The vehicle running ahead cannot be detected temporarily, therefore the vehicle may get too close.

PRECAUTIONS FOR CONVENTIONAL (FIXED SPEED) CRUISE CONTROL MODE

- Conventional cruise control mode does neither control the brake nor activate the warning.
  Drive the vehicle safely. Keep a safe distance between vehicles by decreasing the vehicle speed according to the driving condition etc.
- Never use the conventional cruise control mode under the following conditions.

- A heaving-trafficked road and a tight turn.
  It may cause any accident because the driving speed does not fit to the road condition.
- A slippery road (e.g., freezing, or snowy road)
  The vehicle may lose the control by wheel spin.
- A steep downhill
  The engine brake does not work effectively on a steep downhill. Therefore, the preset vehicle speed may exceed and cause any accident.

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000003737078

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 AIRBAG” and “SEAT BELT” of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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 the “SRS AIRBAG”.**
- **Do not 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.**

ICC System Service

INFOID:0000000003130140

- Do not 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.
- Do not use the ICC sensor integrated unit removing from vehicle. Never disassemble and remodel.
- Erase DTC when replacing parts of ICC system, then check the operation of ICC system after adjusting laser beam aiming if necessary.

PREPARATION

PREPARATION

Special Service Tools

INFOID:0000000003130141

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

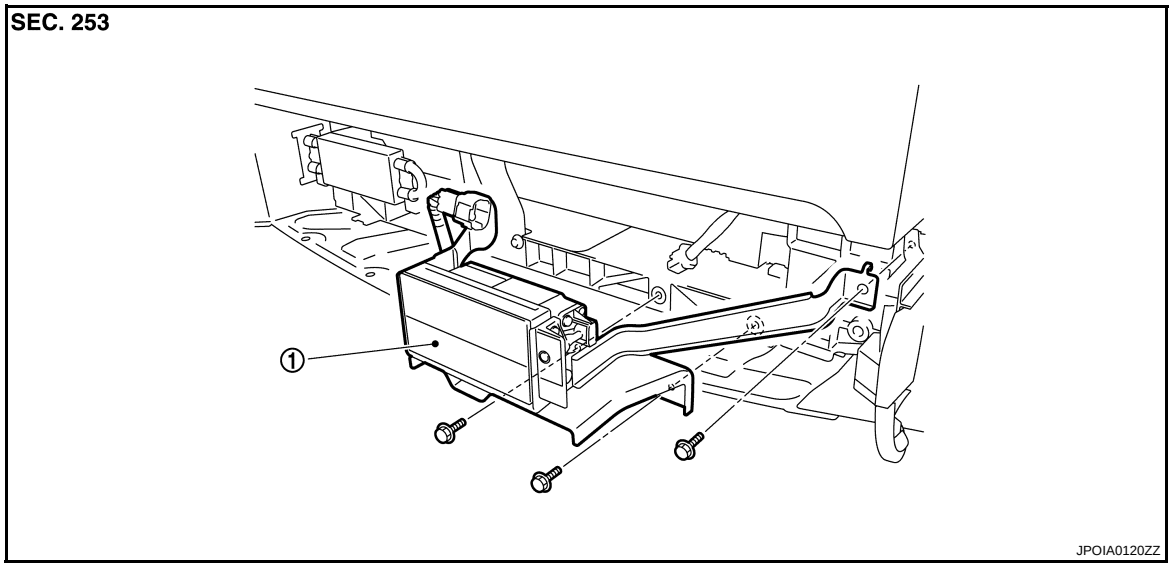
Tool number (Kent-Moore No.) Tool name	Description
KV99110100 (J-45718) ICC target board  PKIA0358J	Uses for laser beam aiming adjustment

ON-VEHICLE REPAIR

ICC SENSOR INTEGRATED UNIT

Exploded View

INFOID:0000000003130142



1. ICC sensor integrated unit

Removal and Installation

INFOID:0000000003130143

REMOVAL

1. Remove the front bumper fascia. Refer to EXT-12, "Exploded View".
2. Disconnect ICC sensor integrated unit connector.
3. Remove mounting bolts from ICC sensor integrated unit.
4. Remove ICC sensor integrated unit.

INSTALLATION

Install in the reverse order of removal.

Inspection and Adjustment

INFOID:0000000003130144

ADJUSTMENT

Always perform the laser beam aiming adjustment after replacing or removing/installing the ICC sensor integrated unit. Refer to CCS-8, "LASER BEAM AIMING ADJUSTMENT : Special Repair Requirement (Preparation)".

INSPECTION

Always perform the laser beam aiming adjustment and the ICC system operation inspection after replacing or removing/installing the ICC sensor integrated unit. Refer to CCS-13, "ACTION TEST : Special Repair Requirement (Vehicle-To-Vehicle Distance Control Mode)".

ICC STEERING SWITCH

Exploded View

INFOID:0000000003130145

Refer to ST-16, "Exploded View".

Removal and Installation

INFOID:0000000003130146

REMOVAL

Refer to ST-16, "Exploded View".

INSTALLATION

Install in the reverse order of removal.

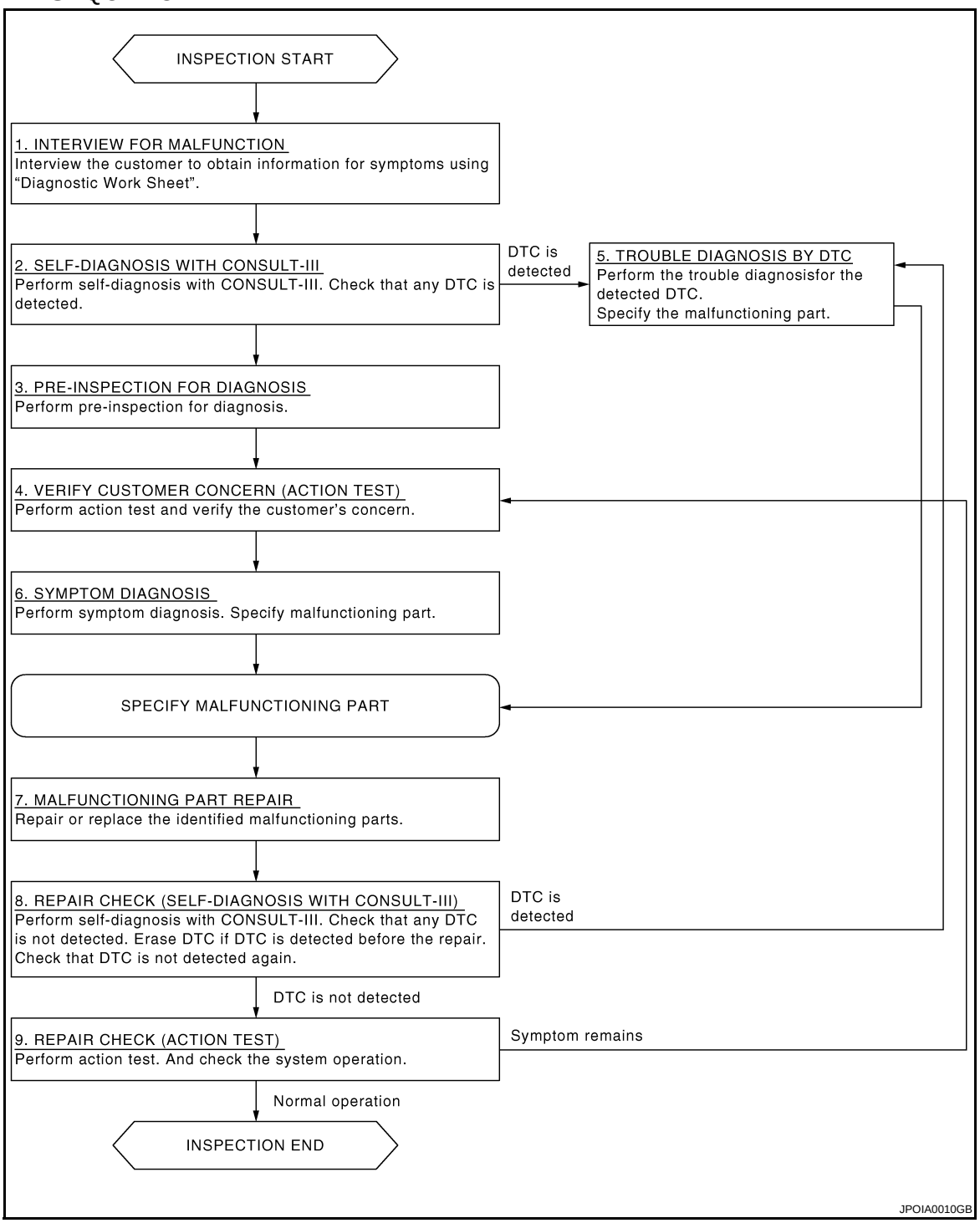
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000003514556

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

Interview the customer to obtain information about symptoms using “Diagnostic Work Sheet”. (Refer to CCS-107, "Diagnostic Work Sheet".)

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT-III

Perform self-diagnosis with CONSULT-III. Check if any DTC is detected.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 3.

3.PRE-INSPECTION FOR DIAGNOSIS

Perform pre-inspection for diagnosis. Refer to CCS-109, "Inspection Procedure".

>> GO TO 4.

4.VERIFY CUSTOMER CONCERN (ACTION TEST)

Perform action test and verify the customer's information. Refer to CCS-110, "Description".

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

Perform trouble diagnosis for the detected DTC. Specify a malfunctioning part. Refer to CCS-174, "DTC Index" (Lane camera unit) and/or CCS-185, "DTC No. Index" [ABS actuator and electric unit (control unit)].

>> GO TO 7.

6.SYMPTOM DIAGNOSIS

Perform symptom diagnosis. Specify malfunctioning part. Refer to CCS-187, "Symptom Table".

>> GO TO 7.

7.MALFUNCTION PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 8.

8.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT-III)

Perform self-diagnosis with CONSULT-III. Check that any DTC is not detected. Erase DTC if DTC is detected before the repair. Check that DTC is not detected again.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 9.

9.REPAIR CHECK (ACTION TEST)

Perform action test. Also check the system operation.

Does it operate normally?

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

Diagnostic Work Sheet

INFOID:0000000003514557

DESCRIPTION

In general, each customer feels differently about an incident. It is important to fully understand the symptoms or conditions for a customer complaint.
There are many operating conditions that lead to the malfunction. A good grasp of such conditions can make troubleshooting faster and more accurate.
Some conditions may cause the lane departure warning lamp to stay ON.
Utilize a work sheet sample to organize all of the information for troubleshooting.

KEY POINTS
- WHAT..... System and functions
- WHEN..... Date, Frequencies
- WHERE..... Road conditions
- HOW..... Operating conditions, Symptoms

WORK SHEET SAMPLE

Customer name MR/MS	Model and Year	VIN
Engine #	Trans.	Mileage
Incident Date	Manuf. Date	In Service Date

Symptoms				
Indcator/Warning lamps	☐ Lane departure warning lamp	☐ Stays ON ☐ Turned ON occasionally	☐ Stays OFF ☐ Others ( )	☐ Blinks
	☐ LDW ON indicator	☐ Stays ON	☐ Stays OFF ☐ Others ( )	☐ Blinks
	☐ LDP ON indicator lamp	☐ Stays ON ☐ Turned ON occasionally	☐ Stays OFF ☐ Others ( )	☐ Blinks
	☐ Other lamps ( )	☐ Stays ON ☐ Turned ON occasionally	☐ Stays OFF ☐ Others ( )	☐ Blinks
Functions	☐ When using LDW ☐ When using LDP			
	☐ All functions do not operate. ☐ Warning function does not operate. (☐ No sound ☐ No indicator) ☐ Yawing function does not operate. (Warning function is operated.) ☐ Functions when changing the course in the turn signal direction. ☐ Functions are untimely. ☐ Does not function when driving on lane markers. ☐ Functions when driving in a lane. ☐ Functions in a different position from the actual position. ☐ Others ( )			

Conditions			
Frequency	☐ Continuously	☐ Intermittently	
Light conditions	☐ Not affected ☐ In the daytime ☐ Direct light	☐ At night ☐ Backlight	☐ Sunrise/sunset (Strong light) ☐ Others ( )
Driving conditions	☐ Not affected ☐ Vehicle speed MPH (km/h)		☐ Vehicle is stopped
Weather conditions	☐ Not affected ☐ Fine ☐ Clouding	☐ Raining	☐ Snowing ☐ Others ( )
Road conditions	☐ Not affected ☐ Highway ☐ Uneven roads	☐ In town ☐ Winding roads	☐ Others ( )
Lane maker conditions	☐ Not affected ☐ Clear	☐ Unclear	☐ Others ( )
Other conditions			

JPOIA0029GB

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

INFOID:0000000003514558

1.CHECK CAMERA LENS AND WINDSHIELD

Are camera lens and windshield contaminated with foreign materials?

YES >> Clean camera lens and windshield.
NO >> GO TO 2.

2.CHECK LANE CAMERA UNIT INSTALLATION CONDITION

Check lane camera unit installation condition (installation position, properly tightened, a bent bracket).

Is it properly installed?

YES >> GO TO 3.
NO >> Install lane camera unit properly, and perform camera aiming. Refer to CCS-112, "CAMERA AIMING ADJUSTMENT : Description".

3.CHECK VEHICLE HEIGHT

Check vehicle height. Refer to FSU-20, "Wheel Height" (2WD) or FSU-39, "Wheel Height" (AWD).

Is vehicle height appropriate?

YES >> INSPECTION END
NO >> Repair vehicle to appropriate height.

ACTION TEST

Description

INFOID:0000000003514559

- Perform action test to verify the customer's concern.
- Perform action test and check the system operation after system diagnosis.

WARNING:
Be careful of traffic conditions and safety around the vehicle when performing road test.
CAUTION:
• Fully understand the following items well before the road test;
- Precautions: Refer to CCS-191, "Precaution for LDW/LDP System Service".
- System description for LDW: Refer to CCS-117, "System Description".
- System description for LDP: Refer to CCS-122, "System Description".
- Normal operating condition: Refer to CCS-189, "Description".

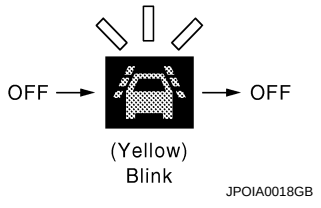
Inspection Procedure

INFOID:0000000003514560

WARNING:
Be careful of traffic conditions and safety around the vehicle when performing road test.
CAUTION:
• Fully understand the following items well before the road test;
- Precautions: Refer to CCS-191, "Precaution for LDW/LDP System Service".
- System description for LDW: Refer to CCS-117, "System Description".
- System description for LDP: Refer to CCS-122, "System Description".
- Normal operating condition: Refer to CCS-189, "Description".

1.ACTION TEST FOR LDW

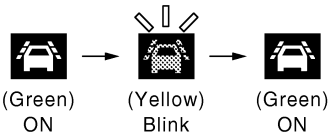
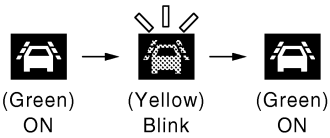
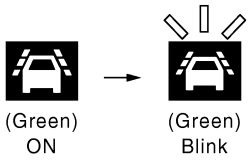
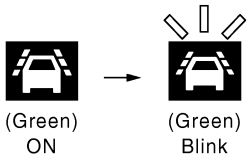
1. Drive the vehicle.
2. Turn LDW switch ON (LDW ON indicator is ON).
   NOTE:
   LDP system is OFF.
3. Check the LDW operation according to the following table.

Input		Output			
Vehicle speed [Km/h (MPH)]	Vehicle condition/ Driver's operation	Action	LDW ON indicator	Indication on the combination meter	Buzzer
Less than 64 (40)	Close to lane marker	No action	ON	OFF	—
72 (45) or more	Close to lane marker	Warning • Buzzer sounds • Warning lamp blinks	ON		Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	ON	OFF	—

>> GO TO 2.

2.ACTION TEST FOR LDP

1. Turn LDP ON switch ON (LDP ON indicator lamp is ON).
   NOTE:
   LDW system is OFF.
2. Check the LDP operation according to the following table.

Input		Output		
Vehicle speed [Km/h (MPH)]	Vehicle condition/ Driver's operation	Action	Indication on the combination meter	Buzzer
Less than 64 (40)	Close to lane marker	No action	 (Green) ON JPOIA0021GB	—
72 (45) or more	Close to lane marker	Warning and yawing • Buzzer sounds • Warning lamp blinks • Brake control	 (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	 (Green) ON JPOIA0021GB	—
	Close to lane marker with soft braking	Warning • Buzzer sounds • Warning lamp blinks	 (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short continuous beeps
	VDC OFF switch: OFF ⇒ ON	Cancellation • Buzzer sounds • Indicator lamp blinks **NOTE:** When LDP ON switch is ON ⇒ OFF, indicator lamp is turned OFF.	 (Green) ON (Green) Blink JPOIA0023GB	Beep
	Snow mode switch: OFF ⇒ ON (If equipped)	Cancellation • Buzzer sounds • Indicator lamp blinks **NOTE:** When LDP ON switch is ON ⇒ OFF, indicator lamp is turned OFF.	 (Green) ON (Green) Blink JPOIA0023GB	Beep

>> WORK END

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (LANE CAMERA UNIT)

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (LANE CAMERA UNIT) : Description

INFOID:0000000003514561

Always perform the camera aiming adjustment after replacing the lane camera unit.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (LANE CAMERA UNIT) : Special Repair Requirement

INFOID:0000000003514562

1.CAMERA AIMING ADJUSTMENT

Perform the camera aiming adjustment with CONSULT-III. Refer to CCS-112, "CAMERA AIMING ADJUSTMENT : Description".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

Perform the self-diagnosis of lane camera unit with CONSULT-III. Check if any DTC is detected.

Is any DTC detected?

YES >> Perform the trouble diagnosis for the detected DTC. Refer to CCS-174, "DTC Index".
NO >> GO TO 3.

3.LDW/LDP SYSTEM ACTION TEST

1. Perform the LDW/LDP system action test. Refer to CCS-110, "Description".
2. Check that the LDW/LDP system operates normally.

>> WORK END

CAMERA AIMING ADJUSTMENT

CAMERA AIMING ADJUSTMENT : Description

INFOID:0000000003514563

OUTLINE

Perform the camera aiming every time the lane camera unit is removed and installed.

CAUTION:

- **Place the vehicle on level ground when the camera aiming adjustment is operated.**
- **Follow the CONSULT-III when performing the camera aiming. (Camera aiming adjustment cannot be operated without CONSULT-III.)**

CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Preparation)

INFOID:0000000003514564

1.PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of lane camera unit.

Is any DTC detected?

Except “C1B01”>>Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-174, "DTC Index".
“C1B01” or no DTC>>GO TO 2.

2.PREPARATION BEFORE CAMERA AIMING ADJUSTMENT

1. Adjust the tire pressure to the specified pressure value.
2. Maintain no-load in vehicle.
3. Check if coolant and Engine oil are filled up to correct level and fuel tank is full.
4. Shift the selector lever to “P” position and release the parking brake.
5. Clean the windshield.

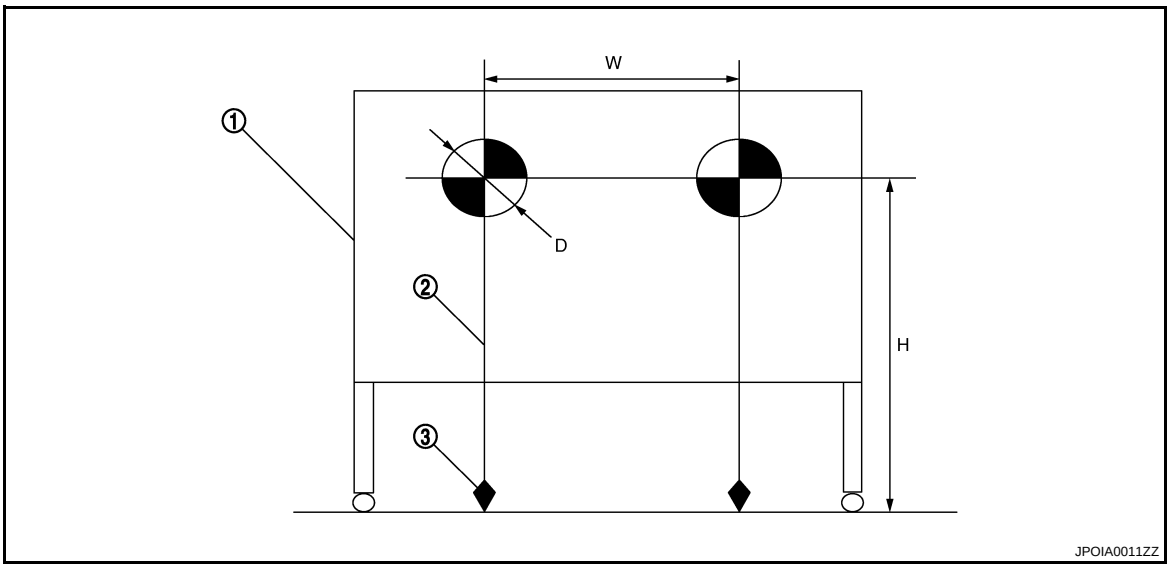
6. Completely clear off the instrument panel.

>> GO TO 3.

3. PREPARATION OF AIMING ADJUSTMENT JIG

Prepare the aiming adjustment jig according to the following procedure and the figure.

1. Print out the target mark attached in this SM. Refer to CCS-116, "CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Mark Sample)".
2. Stick a printed target mark on the board with a scotch tape or a piece of double-sided tape.
   NOTE:
   - Use the board that peripheral area of the target is monochrome such as a white-board.
   - Notice that the cross of the target is horizontal and vertical.



1. Board
2. String
3. Cone

: Target mark

Diameter of a target (D)	**: 200 mm (7.87 in)**
Height of a target center (H)	**: 1450 mm (57.09 in)**
Width between a right target center from a left target center (W)	**: 600 mm (23.62 in)**

>> Go to CCS-113, "CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Setting)".

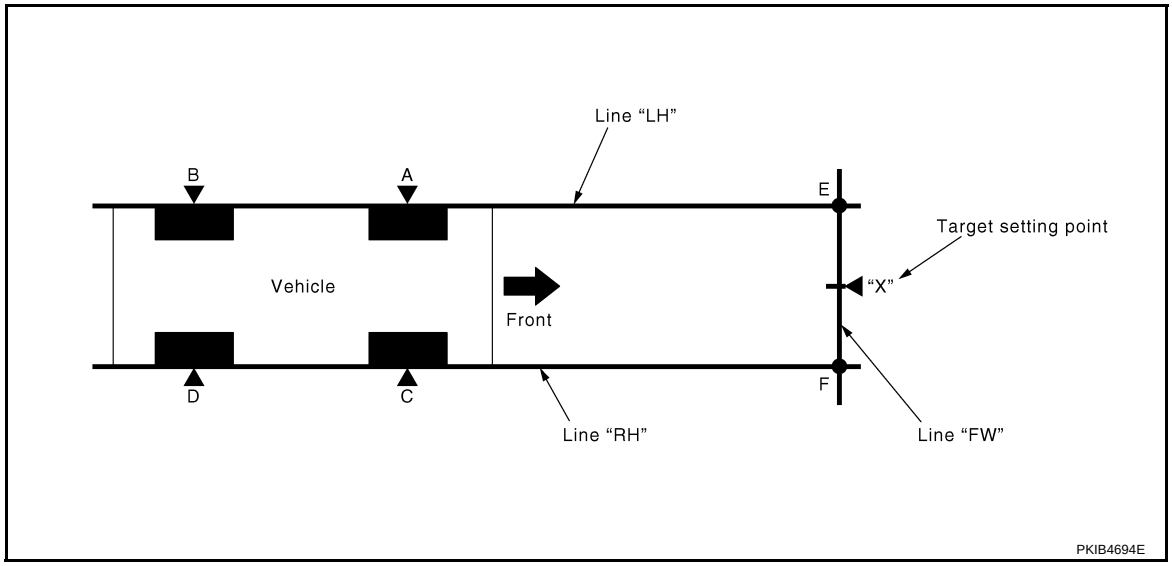
CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Setting)

INFOID:0000000003514565

CAUTION:

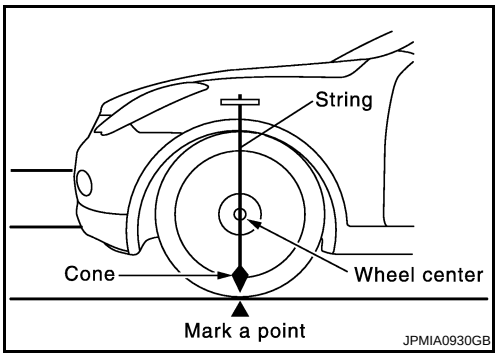
- **Perform this operation in a horizontal position where there is a clear view for 5 m (16.4 ft) forward and 3 m (9.84 ft) wide.**
- **Place the target in a well-lighted location. (Poor lighting may make it hard to adjust.)**
- **The target may not be detected when there is a light source within 1.5 m (4.92 ft) from either side and within 1 m (3.28 ft) upward/downward from the target.**
- **Check the location of the sun. (Sunlight should not shine directly on the front of the vehicle.)**
- **The target may not be detected when there is the same pattern of black and white as the target when the pattern is within 1 m (3.28 ft) from either side and upward/downward position from the target. (It is desirable that the vehicle is positioned on the opposite side of a single-color wall.)**

1. TARGET SETTING

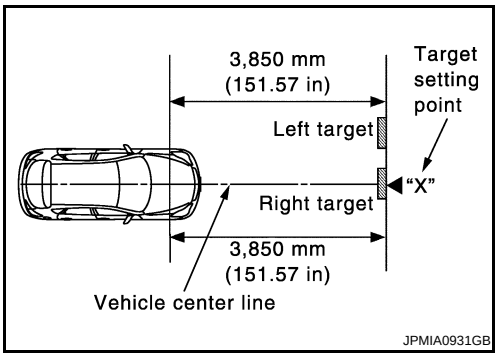


“A” – “E” (“C” – “F”) : 3850 mm (151.57 in)

1. Mark points “A”, “B”, “C” and “D”at the center of the lateral surface of each wheels.
   NOTE:
   Hang a string with a cone from the fender so as to pass through the center of wheel, and then mark a point at the center of the lateral surface of the wheel.
2. Draw line “LH” passing through points “A” and “B” on the left side of vehicle.
   NOTE:
   Approximately 4 m (13.12 ft) or more from the front end of vehicle.
3. Mark point “E” on the line “LH” at the positions 3850 mm (151.57 in) from point “A”.
4. Draw line “RH” passing through points “C” and “D” on the right side of vehicle in the same way as step 2.
   NOTE:
   Approximately 4 m (13.12 ft) or more from the front end of vehicle.
5. Mark point “FW” on the line “RH” at the positions 3850 mm (151.57 in) from point “C”.
6. Draw line “E” and “F” passing through the points.
7. Mark point “X” at the center of point “E” and “F” on the line “FW”.
   CAUTION:
   Make sure that “E” to “X” is equal to “F” to “X”.
8. Position the center of the right target to point of “X”.



>> Go to CCS-114, "CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Camera Aiming Adjustment)".



CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Camera Aiming Adjustment)

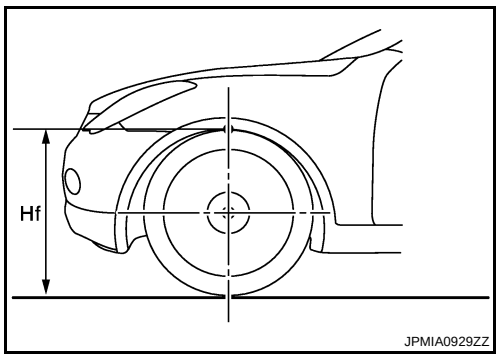
INFOID:0000000003514566

CAUTION:
Perform the adjustment under unloaded vehicle condition.

1.CHECK VEHICLE HEIGHT

Measure the wheelarch height. Calculate “Dh”.

Dh [mm] = (Hfl + Hfr) ÷ 2 – 747
where,
Hfl: Front left wheelarch height [mm]
Hfr: Front right wheelarch height [mm]



NOTE:
“Dh” may be calculated as a minus value.

>> GO TO 2.

2.CAMERA AIMING ADJUSTMENT

CONSULT-III WORK SUPPORT
CAUTION:
Operate CONSULT-III outside the vehicle, and close all the doors. (To retain vehicle attitude appropriately)
1. Select “Work Support” on “LANE CAM” with CONSULT-III.
2. Select “AUTO AIM”.
3. Confirm the following items;
- The target should be accurately placed.
- The vehicle should be stopped.
4. Select “Start” to perform camera aiming.
CAUTION:
Never select “Start” when the target is not accurately placed.
5. Input “Dh”, and then select “Start”.
CAUTION:
Never change “Ht” and “Dt”.
6. Confirm the displayed item.
- “Normally Completed”: Select “Completion”.
- “SUSPENSION” or “ABNORMALLY COMPLETED”: Perform the following services.

Displayed item		Service procedure
SUSPENSION	00H Routine not activated	Position the target appropriately again. Perform the aiming again. Refer to CCS-113, "CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Setting)".
	10H Writing error	
ABNORMALLY COMPLETED	—	

NOTE:
Replace camera unit if “SUSPENSION” is repeatedly indicated during the above two services are performed.

7. Confirm that “Normally Completed” is displayed and then select “End” to close the aiming adjustment procedure.

>> GO TO 3.

3.PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of lane camera unit with CONSULT-III.
Is any DTC detected?
YES >> Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to CCS-174, "DTC Index".
NO >> GO TO 4.

4.ACTION TEST

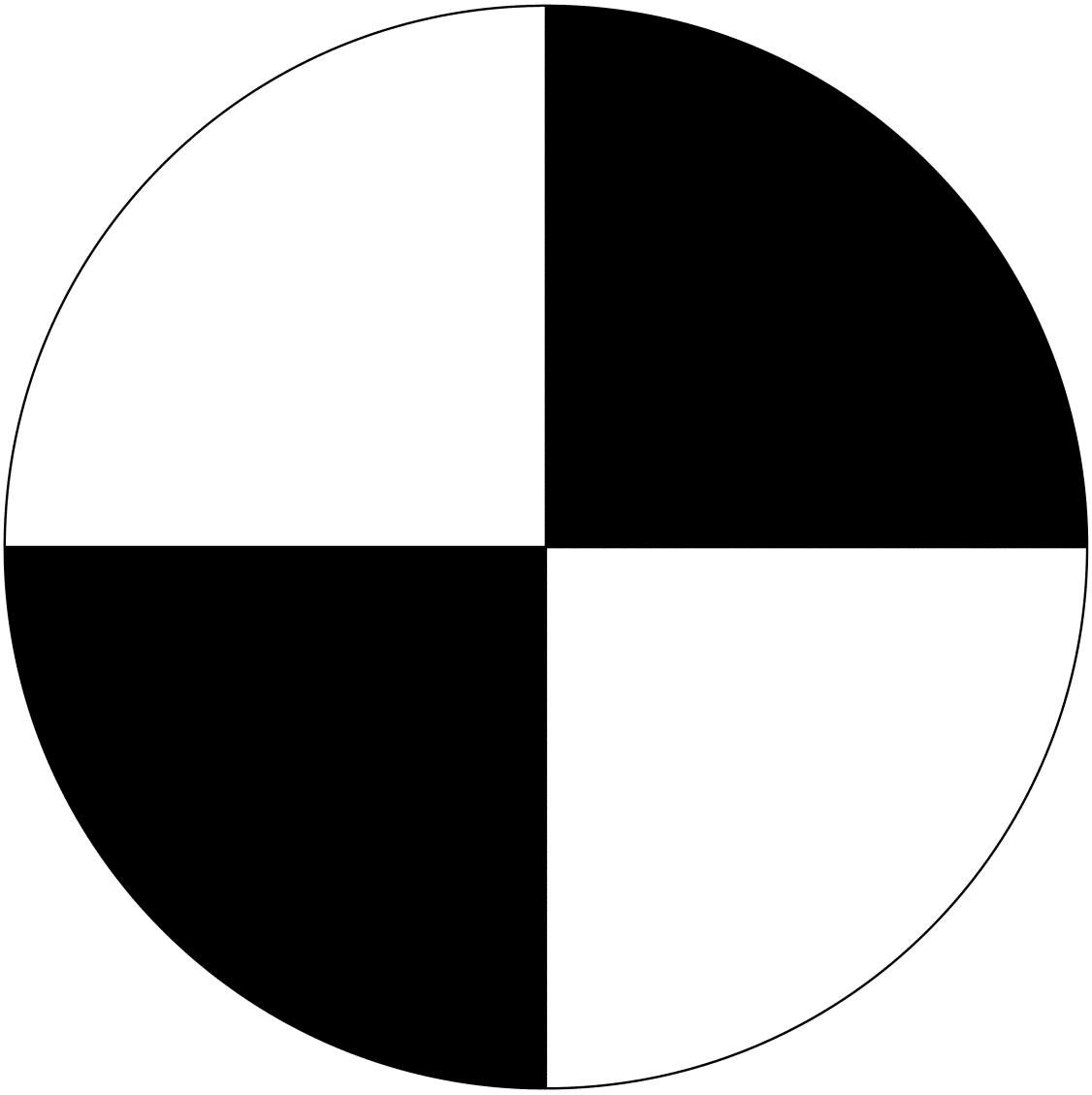
Test the LDW/LDP system operation by action test. Refer to CCS-110, "Description".

>> WORK END

CAMERA AIMING ADJUSTMENT : Special Repair Requirement (Target Mark Sample)

INFOID:0000000003514567

NOTE:
Print this illustration so that the diameter of the circle is 200 mm (7.87 in).



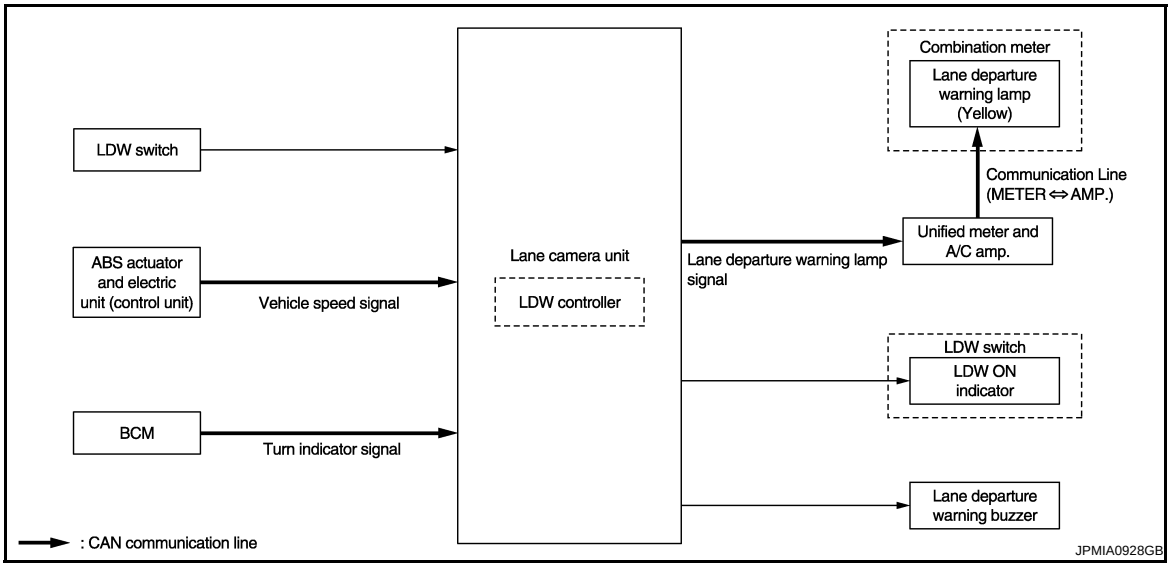
PGIA0105J

FUNCTION DIAGNOSIS

LANE DEPARTURE WARNING (LDW) SYSTEM

System Diagram

INFOID:0000000003514568

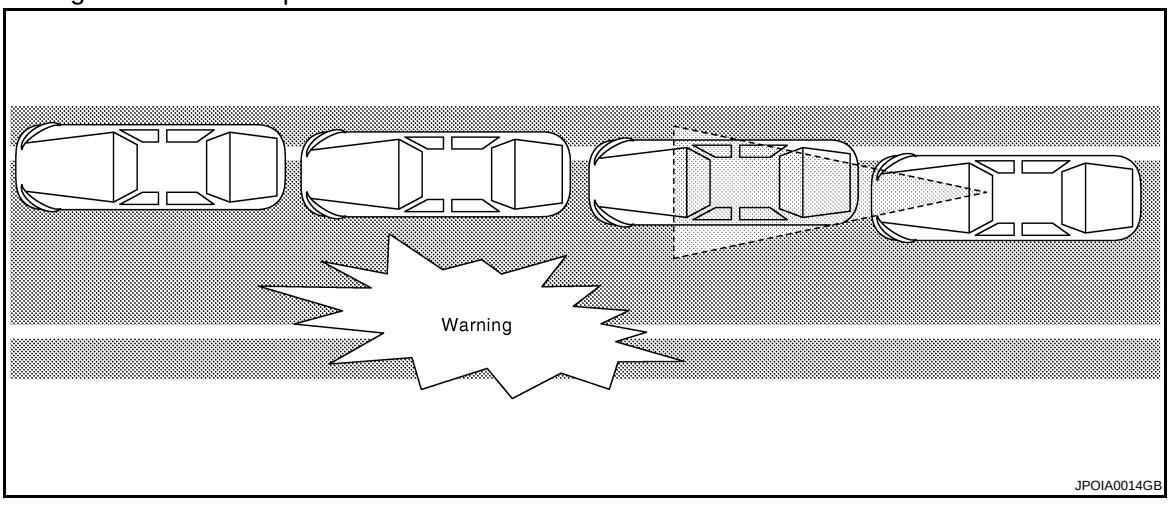


System Description

INFOID:0000000003514569

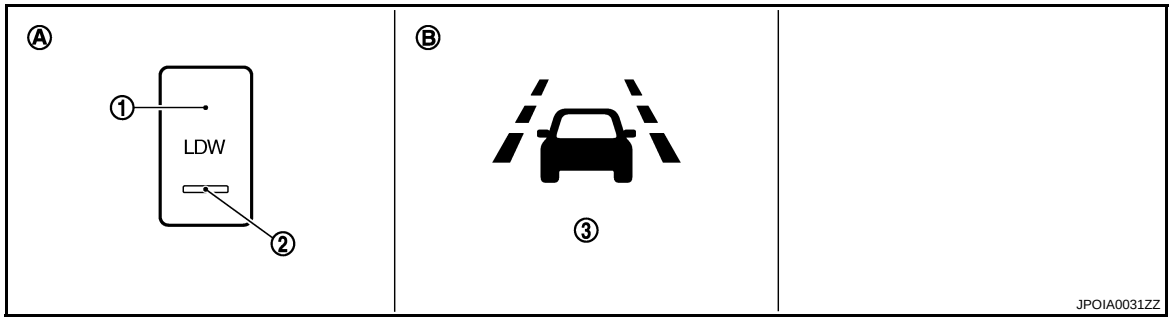
OUTLINE

- Lane Departure Warning (LDW) system provides a lane departure warning function when the vehicle is driven at speeds of approximately 72 km/h (45 MPH) or more.
- When the vehicle approaches either the left or the right side of the traveling lane, a warning will sound and the lane departure warning lamp (yellow) on the combination meter will blink to alert the driver.
- The warning function will stop when the vehicle returns inside of the lane markers.



BASIC OPERATIONS

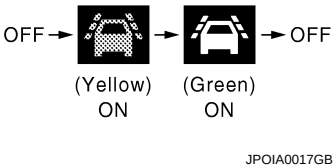
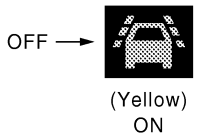
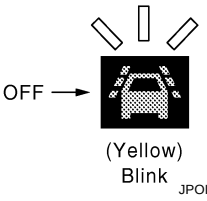
Switches And Indicator/Warning Lamps



1. LDW switch
2. LDW ON indicator
3. Lane departure warning lamp (Yellow)

A. On the instrument driver lower panel B. On the combination meter

Bulb Check Action and Fail-safe Indication

Vehicle condition/ Driver's operation	LDW ON indicator	Indication on the combination meter
Ignition switch: OFF ⇒ ON	2 sec. ON	
When DTC is detected (Except “C1B01” and “C1B03”)	ON	
Camera aiming is not completed (“C1B01” is detected)	ON	
Temporary disabled status at high temperature (“C1B03” is detected)	Blink	OFF

LDW INITIAL STATE CHANGE

CAUTION:

Never change LDW initial state “ON” ⇒ “OFF” without the consent of the customer.

LDW initial state can be changed.

- LDW initial ON* - LDW function is automatically turned ON, when the ignition switch OFF ⇒ ON.
- LDW initial OFF - LDW function is still OFF when the ignition switch OFF ⇒ ON.

*: Factory setting

How to change LDW initial state

1. Turn ignition switch ON.
2. Switch LDW and LDP functions to OFF.
3. Push and hold LDW switch for more than 4 seconds.
4. Buzzer sounds and blinking of the lane departure warning lamp informs that the LDW initial state change is completed.

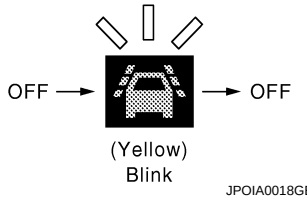
LDW SYSTEM CONTROL DESCRIPTION

- LDW system is controlled by lane camera unit.
- Lane camera unit monitors lane markers of the traveling lane.
- Combination meter turns the lane departure warning lamp ON/OFF according to the signal from the lane camera unit via CAN communication (through unified meter and A/C amp.).
- When the lane camera unit judges vehicle deviation from the traveling lane, it controls following actions to alert the driver.
- Requests the lane departure warning lamp activation to combination meter.
- Controls the lane departure warning buzzer.

LDW OPERATING CONDITION

- LDW ON indicator: ON
  NOTE:
  LDP ON indicator lamp is OFF.
- Vehicle speed: approximately 72 km/h (45 MPH) or more

NOTE:
For details of LDW system operating conditions, refer to normal operating condition CCS-189, "Description".

Input		Output			
Vehicle speed (Approx.) [km/h (MPH)]	Vehicle condition/ Driver's operation	Action	LDW ON indictor	Indication on the combination meter	Buzzer
Less than 64 (40)	Close to lane marker	No action	ON	OFF	—
72 (45) or more	Close to lane marker	Warning • Buzzer sounds • Warning lamp blinks	ON		Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	ON	OFF	—

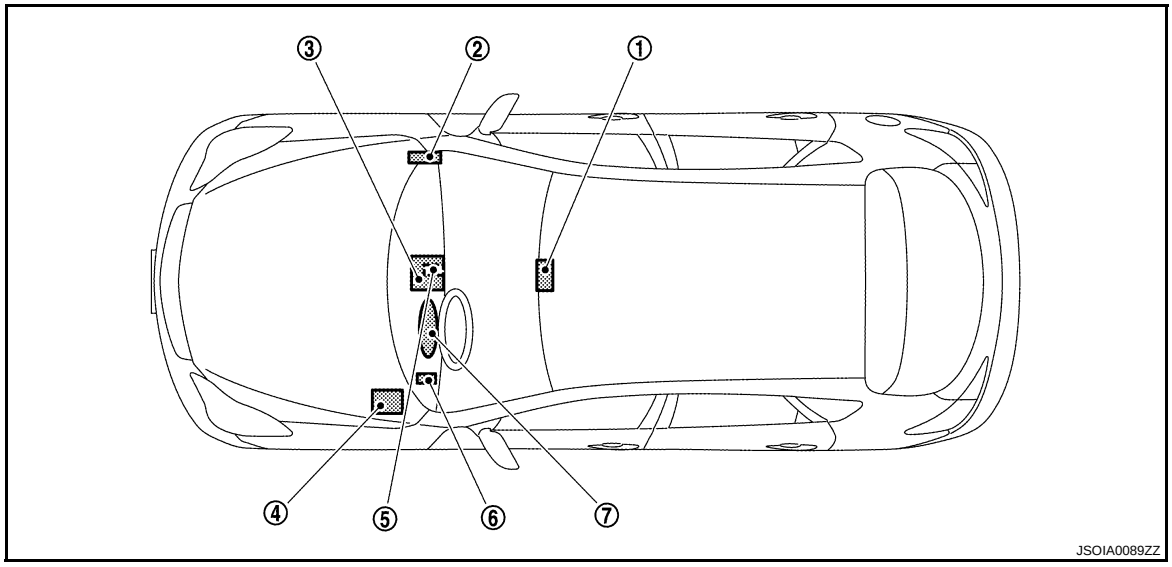
SIGNAL INPUT/OUTPUT BY CAN COMMUNICATION

Lane camera unit receives signals via CAN communication. It also detects vehicle conditions that are necessary for LDW control.

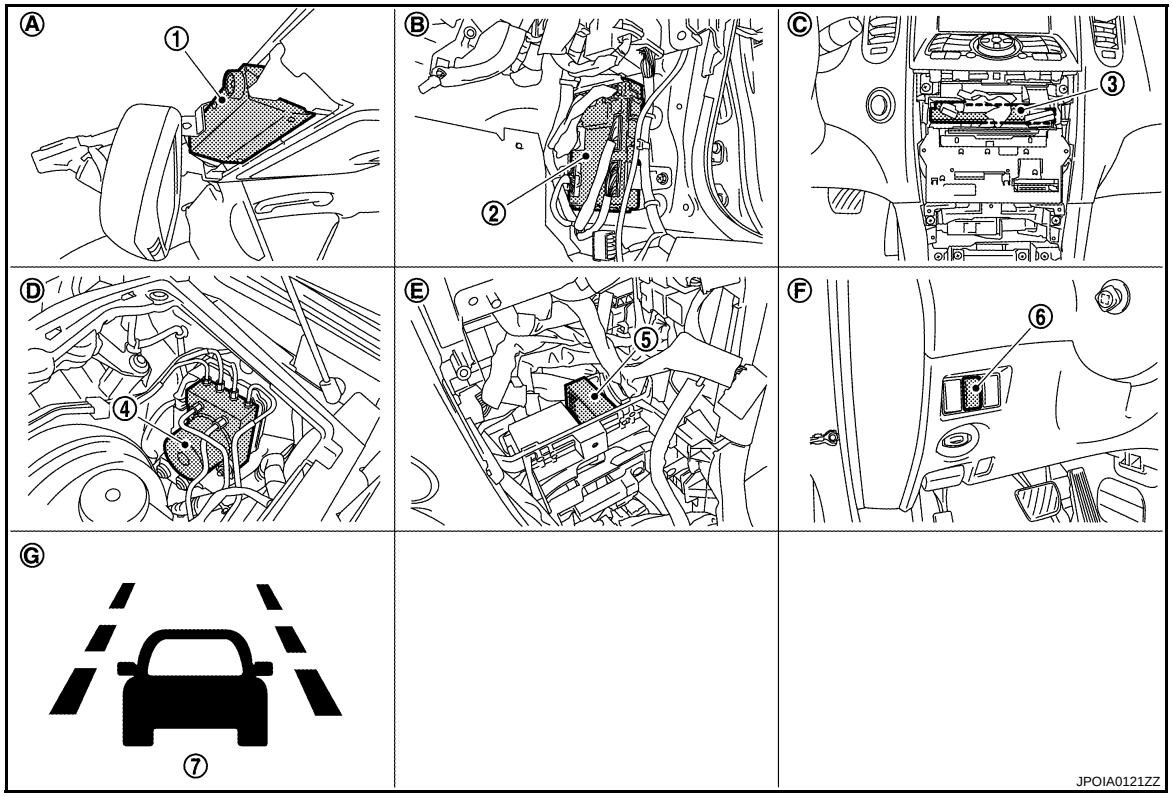
Reception Unit	Signal Name	Transmission Unit	Description
Lane camera unit	Vehicle speed signal	ABS actuator and electric unit (control unit)	Detects the vehicle speed
	Turn indicator signal	BCM	Detects operation of turn signals
Combination meter (through unified meter and A/C amp.)	Lane departure warning lamp signal	Lane camera unit	Turns the lane departure warning lamp ON/OFF according to the request

Component Parts Location

INFOID:0000000003514570



1. Lane camera unit
2. BCM
3. Unified meter and A/C amp.
4. ABS actuator and electric unit (control unit)
5. Lane departure warning buzzer
6. LDW switch
7. Lane departure warning lamp (Yellow)



1. Lane camera unit
2. BCM
3. Unified meter and A/C amp.
4. ABS actuator and electric unit (control unit)
5. Lane departure warning buzzer
6. LDW switch
7. Lane departure warning lamp (Yellow)
- A. Front of the map lamp
- B. Dash side lower (passenger side)
- C. Behind the cluster lid C

D. Inside the brake master cylinder cover E. Behind the cluster lid C (Under the AV control unit) F. Instrument driver lower panel (LH)

G. On the combination meter

Component Description

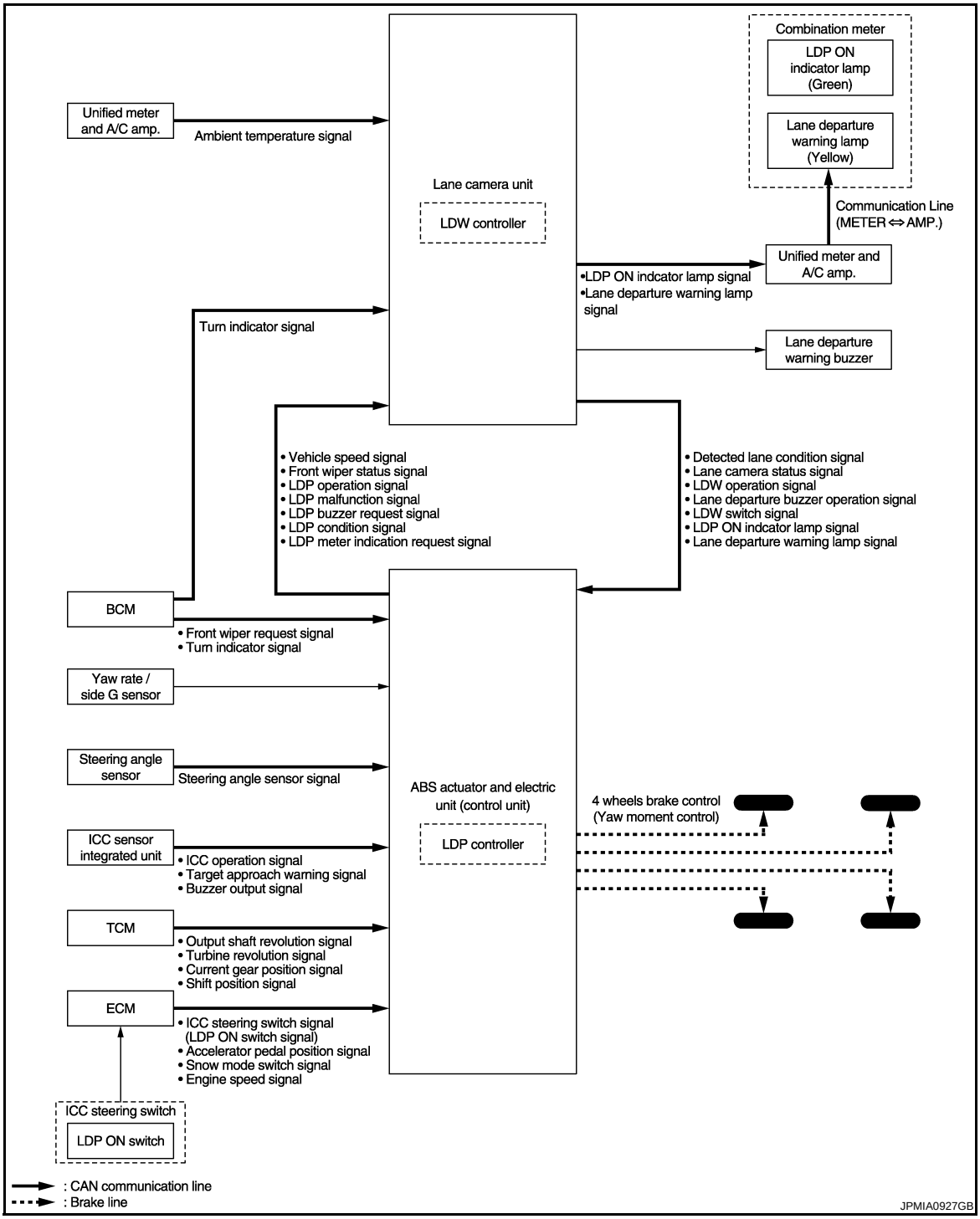
INFOID:0000000003514571

Component	Description
Lane camera unit (LDW controller)	• Detects the lane marker by the built-in camera. • Judges the lane departure depending on the lane detection result and each signals. • Controls the lane departure warning buzzer, lane departure warning lamp and LDW ON indicator.
ABS actuator and electric unit (control unit)	Transmits vehicle speed signal to lane camera unit via CAN communication.
LDW switch	Inputs the switch signal to lane camera unit.
LDW ON indicator (On the LDW ON switch)	Indicates LDW system status.
Lane departure warning buzzer	Gives a warning according to the direction from lane camera unit.
Combination meter	Turns the lane departure warning lamp and LDP ON indicator lamp ON/OFF according to the signals from the lane camera unit via CAN communication (through unified meter and A/C amp.).
Lane departure warning lamp (Yellow)	• Blinks when LDW is functioning to alert the driver. • Stays ON when LDW system is malfunctioning.
BCM	Transmits turn indicator signal to lane camera unit via CAN communication.

LANE DEPARTURE PREVENTION (LDP) SYSTEM

System Diagram

INFOID:0000000003514572



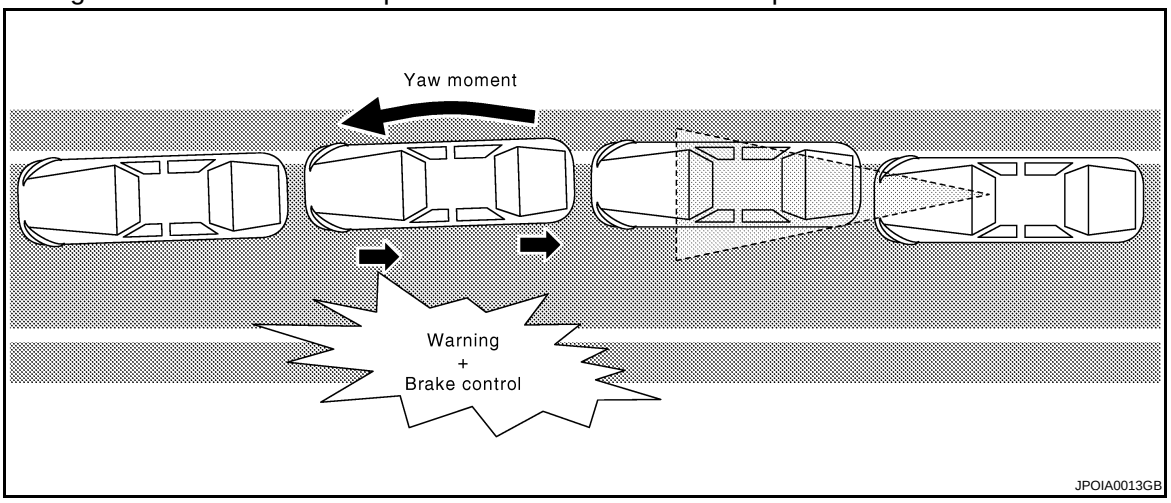
System Description

INFOID:0000000003514573

OUTLINE

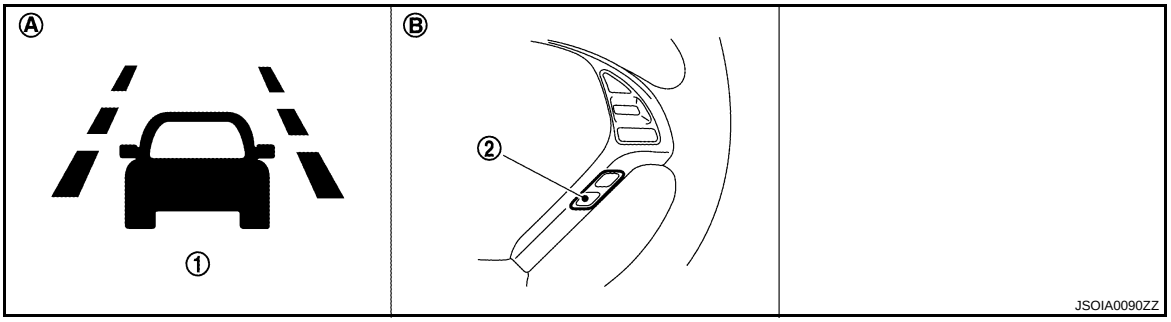
- Lane Departure Prevention (LDP) system provides a lane departure warning and brake control assistance when the vehicle is driven at speeds of approximately 72 km/h (45 MPH) or more.
- When the vehicle approaches either the left or the right side of the traveling lane, a warning sounds and the lane departure warning lamp (yellow) on the combination meter blinks to alert the driver.
- Then, the LDP system automatically applies the brakes for a short period of time to help assist the driver to return the vehicle to the center of the traveling lane.

- The warning and assist functions stop when the vehicle returns to a position inside of the lane marker.



BASIC OPERATIONS

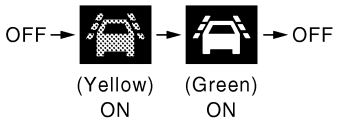
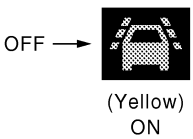
Switches And Indicator/Warning Lamps

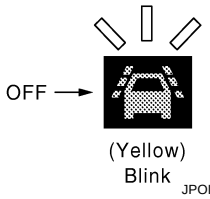


1. • LDP ON indicator lamp (Green)
   • Lane departure warning lamp (Yellow)
2. LDP ON switch

A. On the combination meter B. On the ICC steering switch

Bulb Check Action and Fail-safe Indication

Vehicle condition/ Driver's operation	Indication on the combination meter
Ignition switch: OFF ⇒ ON	
When DTC is detected (Except “C1B01” and “C1B03”)	

Vehicle condition/ Driver's operation	Indication on the combination meter
Camera aiming is not completed (“C1B01” is detected)	 JPOIA0020GB
Temporary disabled status at high temperature (“C1B03” is detected)	 JPOIA0036GB

LDP SYSTEM CONTROL DESCRIPTION

- LDP system is controlled by lane camera unit and LDP controller [ABS actuator and electric unit (control unit)].

  NOTE:

  LDP controller is integrated in the ABS actuator and electric unit (control unit).
- Lane camera unit monitors lane markers of the traveling lane. It transmits the detected lane condition signal to ABS actuator and electric unit (control unit) via CAN communication.
- ABS actuator and electric unit (control unit) detects vehicle conditions depending on each signal.
- Combination meter turns the lane departure warning lamp and LDP ON indicator lamp ON/OFF according to the signals from the lane camera unit via CAN communication (through unified meter and A/C amp.).
- When ABS actuator and electric unit (control unit) judges vehicle deviation from the traveling lane, it controls following actions.

- Requests warning to the lane camera unit via CAN communication to alert the driver. And then lane camera unit controls the lane departure warning buzzer and it requests the lane departure warning lamp activation to combination meter.
- Calculates the necessary yaw moment. And then it controls the brake pressure of each wheel individually to generate the intended movement.

LDP OPERATING CONDITION

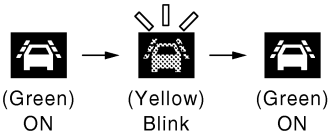
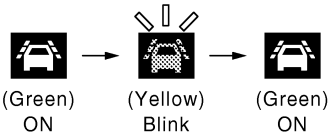
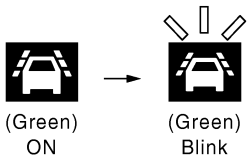
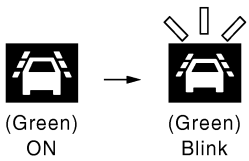
- LDP ON indicator lamp: ON

  NOTE:

  LDW ON indicator is OFF.
- Vehicle speed: approximately 72 km/h (45 MPH) or more

NOTE:

For details of LDP system operating conditions, refer to normal operating condition CCS-189, "Description".

Input		Output		
Vehicle speed (Approx.) [km/h (MPH)]	Vehicle condition/ Driver's operation	Action	Indication on the combination meter	Buzzer
Less than 64 (40)	Close to lane marker	No action	 (Green) ON JPOIA0021GB	—
72 (45) or more	Close to lane marker	Warning and yawing • Buzzer sounds • Warning lamp blinks • Brake control	 (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	 (Green) ON JPOIA0021GB	—
	Close to lane with soft braking	Warning • Buzzer sounds • Warning lamp blinks	 (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short continuous beeps
	VDC OFF switch: OFF ⇒ ON	Cancellation • Buzzer sounds • Indicator lamp blinks **NOTE:** When LDP ON switch is ON ⇒ OFF, indicator lamp is turned OFF.	 (Green) ON (Green) Blink JPOIA0023GB	Beep
	SNOW MODE switch: OFF ⇒ ON (If equipped)	Cancellation • Buzzer sounds • Indicator lamp blinks **NOTE:** When LDP ON switch is ON ⇒ OFF, indicator lamp is turned OFF.	 (Green) ON (Green) Blink JPOIA0023GB	Beep

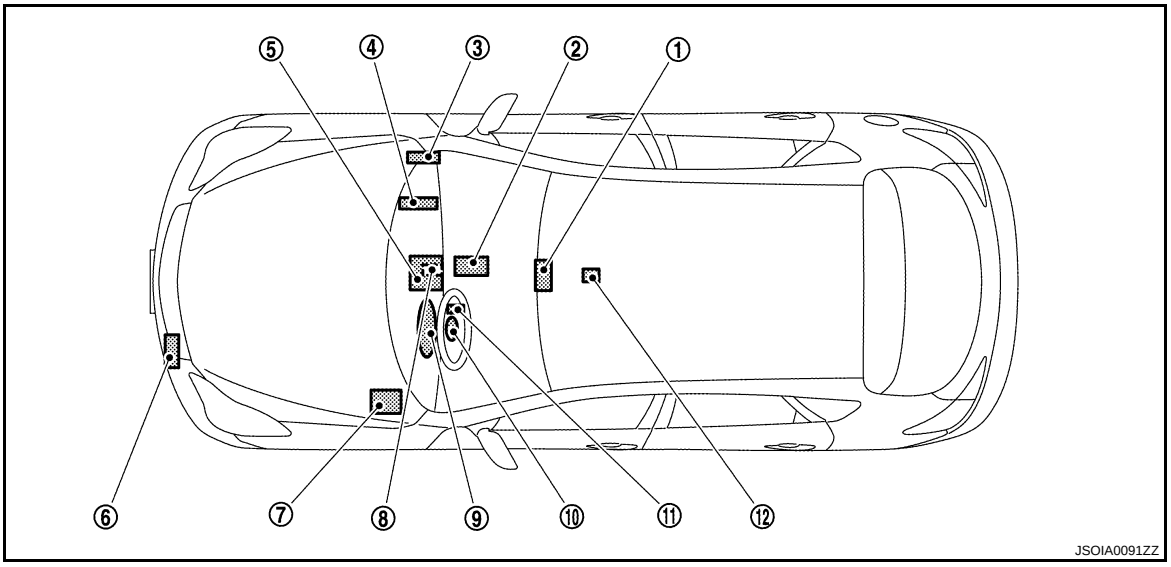
SIGNAL INPUT/OUTPUT BY CAN COMMUNICATION

The lane camera unit and ABS actuator and electric unit (control unit) transmit/receive each signals via CAN communication. They also detect the vehicle conditions necessary for LDP control.

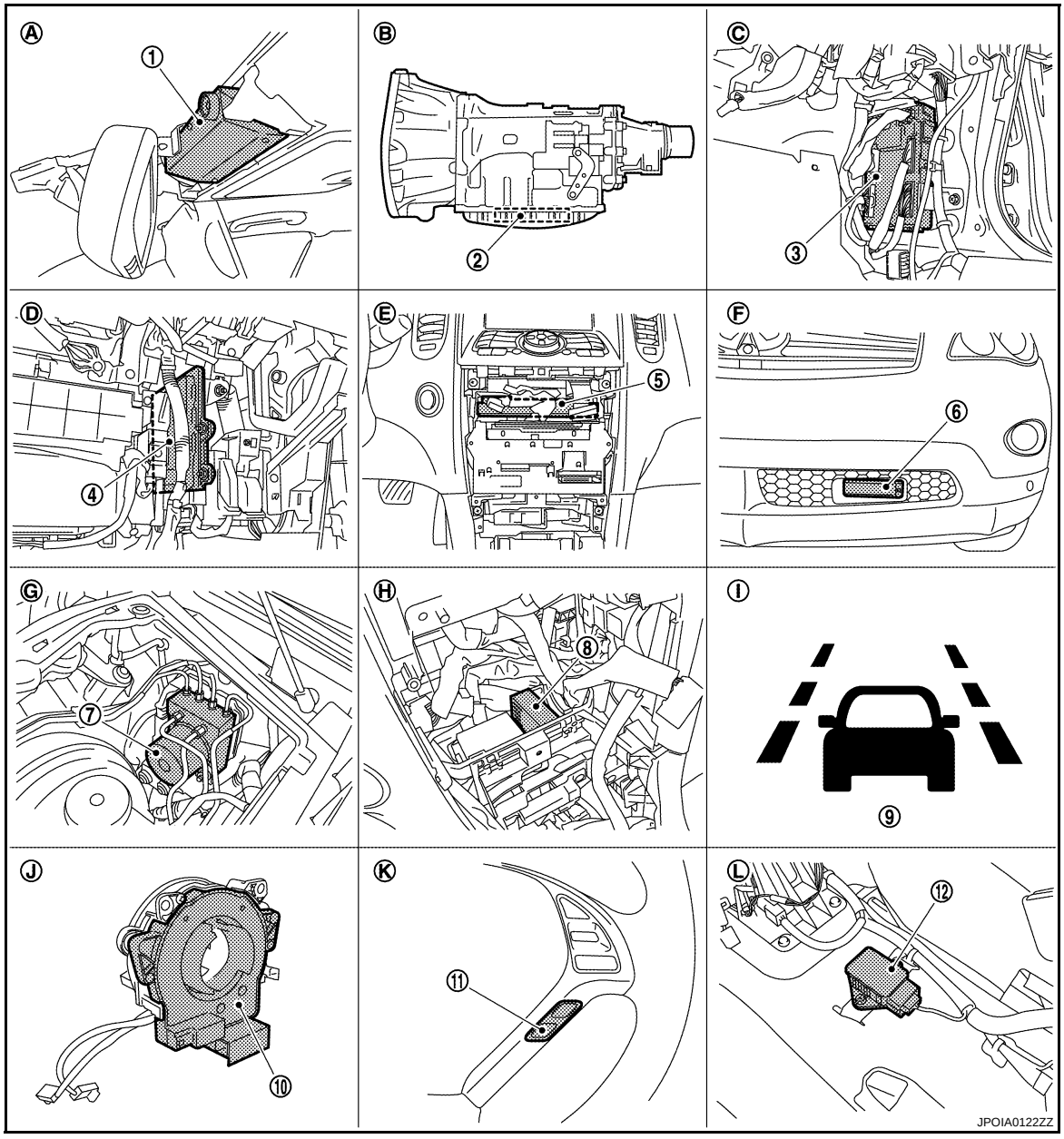
Reception Unit	Signal Name	Transmission Unit	Description (Reception unit uses...)
Lane camera unit	LDP operation signal	ABS actuator and electric unit (control unit)	Detects the LDP operating condition
	LDP condition signal		Detects the LDP conditions
	LDP buzzer request signal		Controls the lane departure warning buzzer according to the request
	LDP meter indication request signal		Controls the LDP ON indicator lamp and lane departure warning lamp according to the request
	Vehicle speed signal		Detects the vehicle speed
	Front wiper status signal		Detects operation of the front wiper
	Turn indicator signal	BCM	Detects operation of turn signals
	Ambient temperature signal	Unified meter and A/C amp.	Detects the ambient temperature
ABS actuator and electric unit (control unit)	Detected lane condition signal	Lane camera unit	Detects the lane marker condition
	Lane camera status signal		Detects the lane camera status
	LDW operation signal		Detects the LDW operation
	Lane departure buzzer operation signal		Detects the lane departure warning buzzer operation
	LDW switch signal		Detects LDW switch status
	LDP ON indicator lamp signal		Detects the LDP ON indicator lamp condition
	Lane departure warning lamp signal		Detects the lane departure warning lamp condition
	Snow mode switch signal	ECM	Detects the snow mode status
	ICC steering switch signal (LDP ON switch signal)		Detects LDP ON switch status
	Accelerator pedal position signal		Detects vehicle conditions to calculate the acceleration/deceleration of the vehicle
	Engine speed signal		
	Shift position signal	TCM	Detects the transmission conditions
	Output shaft revolution signal		
	Turbine revolution signal		
	Current gear position signal		
	Steering angle sensor signal	Steering angle sensor	Detects the steering angle
	ICC operation signal	ICC sensor integrated unit	Detects ICC system conditions
	Target approach warning signal		
	Buzzer output signal		
	Turn indicator signal	BCM	Detects operation of the front wiper
	Front wiper request signal		Detects operation of turn signals
Combination meter (through unified meter and A/C amp.)	LDP ON indicator lamp signal	Lane camera unit	Turns the LDP ON indicator lamp ON/OFF according to the request
	Lane departure warning lamp signal		Turns the lane departure warning lamp ON/OFF according to the request

Component Parts Location

INFOID:0000000003514574



1. Lane camera unit
2. TCM
3. BCM
4. ECM
5. Unified meter and A/C amp.
6. ICC sensor integrated unit
7. ABS actuator and electric unit (control unit)
8. Lane departure warning buzzer
9. • LDP ON indicator lamp (Green)
   • Lane departure warning lamp (Yellow)
10. Steering angle sensor
11. LDP ON switch
12. Yaw rate/side G sensor



1. Lane camera unit	2. TCM	3. BCM
4. ECM	5. Unified meter and A/C amp.	6. ICC sensor integrated unit
7. ABS actuator and electric unit (control unit)	8. Lane departure warning buzzer	9. • LDP ON indicator lamp (Green) • Lane departure warning lamp (Yellow)
10. Steering angle sensor	11. LDP ON switch	12. Yaw rate/side G sensor
A. Front of the map lamp	B. Integrated in the A/T assembly	C. Dash side lower (passenger side)
D. Behind the glove box	E. Behind the cluster lid C	F. Front bumper LH
G. Inside brake master cylinder cover	H. Behind the cluster lid C (Under the AV control unit)	I. On the combination meter
J. Integrated in the spiral cable	K. On the ICC steering switch	L. Under the center console

Component Description

INFOID:0000000003514575

Component	Description
Lane camera unit	• Detects the lane marker by the built-in camera. • Judges the lane departure depending on the lane detection result and each signal. • Transmits the detected lane conditions to ABS actuator and electric unit (control unit) via CAN communication. • Controls the lane departure warning buzzer, lane departure warning lamp, LDW ON indicator and LDP ON indicator lamp.
ABS actuator and electric unit (control unit)	• Transmits vehicle speed signal to lane camera unit via CAN communication. • Judges necessary yaw moment depending on each signal. • Controls the brake pressure of each wheel individually to generate the intended movement.
Lane departure warning buzzer	Gives a warning according to the direction from lane camera unit.
LDP ON switch (On the ICC steering switch)	Inputs the switch signal to ECM.
Combination meter	Turns the lane departure warning lamp and LDP ON indicator lamp ON/OFF according to the signals from the lane camera unit via CAN communication (through unified meter and A/C amp.).
LDP ON indicator lamp (Green)	Indicates LDP system status.
Lane departure warning lamp (Yellow)	• Blinks when LDP is functioning to alert the driver. • Stays ON when LDW/LDP system is malfunctioning.
BCM	• Transmits turn indicator signal to lane camera unit via CAN communication. • Transmits vehicle conditions to ABS actuator and electric unit (control unit) via CAN communication.
ECM	Transmits vehicle conditions and ICC steering switch signal (LDP ON switch signal) to ABS actuator and electric unit (control unit) via CAN communication.
Unified meter and A/C amp.	Transmits ambient temperature signal to lane camera unit via CAN communication.
Steering angle sensor	Transmits steering angle sensor signal to ABS actuator and electric unit (control unit) via CAN communication.
TCM	Transmits vehicle conditions to ABS actuator and electric unit (control unit) via CAN communication.
ICC sensor integrated unit	Transmits ICC system conditions to ABS actuator and electric unit (control unit) via CAN communication.
Yaw rate/side G sensor	Inputs detected yaw rate signal to ABS actuator and electric unit (control unit).

DIAGNOSIS SYSTEM (LANE CAMERA UNIT)

CONSULT-III Function (LANE CAMERA)

INFOID:0000000003514576

DESCRIPTION

CONSULT-III performs the following functions by communicating with the lane camera unit.

Select diag mode	Function
Work support	• Performs the camera aiming. • Displays causes of automatic cancellation of the LDP function.
Self Diagnostic Result	Displays memorized DTC in the lane camera unit.
Data Monitor	Displays real-time data of lane camera unit.
Active Test	Enables operation check of electrical loads by sending driving signal to them.
Ecu Identification	Displays part number of lane camera unit.

WORK SUPPORT

Work support item	Function
CAUSE OF AUTO-CANCEL	Indicates causes of automatic cancellation of the LDP.
AUTO AIM	Outputs camera unit, calculates dislocation of the camera, and displays adjustment direction. Refer to CCS-112, "CAMERA AIMING ADJUSTMENT : Description".
AIM CHECK	**NOTE:** The item is indicated, but not used.

Cause of Auto-Cancel Display Item List

When LDP control is canceled under the operating condition, “CAUSE OF AUTO-CANCEL” is memorized.

- Last five cancel (system cancel) causes are displayed.
- “CAUSE OF AUTO-CANCEL” displays the number of times of ignition switch ON/OFF up to a maximum of “39”. “39” is kept even when the number exceeds “39”. The number returns to 0 when detecting the same cancellation causes are detected.

Cause of cancellation	Description
NO RECORD	—
Operating VDC/ABS	VDC or ABS function was operated.
Vehicle dynamics	Vehicle behavior exceeds specified value.
Steering speed	Steering speed was more than the specified value in evasive direction.
End by yaw angle	Yaw angle was the end of LDP control.
Departure yaw large	Detected more than the specified value of yaw angle in departure direction.
ICC WARNING	Target approach warning of ICC system was activated.
VDC OFF SW	VDC OFF switch was pressed.
CURVATURE	Road curve was more than the specified value.
Steering angle large	Steering angle was more than the specified value.
ICC main SW hold ON	ICC MAIN switch was held ON for more than a certain period.
Brake is operated	Brake pedal was operated.
Lateral offset	Distance of vehicle and lane was detached in lateral direction more than the specified value.
Lane marker lost	Lane camera unit lost the trace of lane marker.
Lane marker unclear	Detected lane marker was unclear.
Bank	Road bank angle was more than the specified value.
Yaw acceleration	Detected yawing speed was more than the specified value.
Deceleration large	Deceleration in a longitudinal direction was more than the specified value.
Accel is operated	Accelerator pedal was depressed.

Departure steering	Steering wheel was steered more than the specified value in departure direction.
Evasive steering	Steering wheel was steered more than the specified value in the evasive direction.
R range	Selector lever was operated to R range.
Parking brake drift	Rear wheels lock was detected.
Not operating condition	Did not meet the operating condition (vehicle speed, turn signal operation, etc.).

SELF DIAGNOSTIC RESULT

Displays memorized DTC in lane camera unit. Refer to CCS-174, "DTC Index".

DATA MONITOR

Monitored Item [unit]		Description
LDW SW	[On/Off]	Switch status judged from LDW switch signal
LDW ON LAMP	[On/Off]	Signal output status of LDW ON indicator
LDP ON IND	[On/Off]	Request signal status of LDP ON indicator lamp
LANE DPRT W/L	[On/Off]	Request signal status of lane departure warning lamp
BUZZER OUTPUT	[On/Off]	Signal output status of lane departure warning buzzer
LC INACCURAT	[On/Off]	Lane camera unit status
CAM HIGH TEMP	[On/Off]	Status of lane camera unit high temperature judgment
VHCL SPD SE	[km/h] or [mph]	Vehicle speed received from ABS actuator and electric unit (control unit) via CAN communication
TURN SIGNAL	[Off/LH/RH]	Status of “Turn signal” determined from BCM via CAN communication
LANE DETCT LH	[On/Off]	Left side lane marker detection
LANE DETCT RH	[On/Off]	Right side lane marker detection
CROSS LANE LH	[On/Off]	Condition that the vehicle is crossing left lane marker
CROSS LANE RH	[On/Off]	Condition that the vehicle is crossing right lane marker
WARN LANE LH	[On/Off]	Warning for left lane marker
WARN LANE RH	[On/Off]	Warning for right lane marker
VALID POS LH	[VLD/INVLD]	Lateral position for left lane marker is valid
VALID POS RH	[VLD/INVLD]	Lateral position for right lane marker is valid
AIMING DONE	[OK/NG]	Status that camera aiming is done
AIMING RESULT	[OK/NOK]	Result of camera aiming
XOFFSET	[pixel]	Lane camera unit installation condition
CHK AIM YAW	[deg]	Check result of camera aiming
CHK AIM ROLL	[deg]	Check result of camera aiming
CHK AIM PITCH	[deg]	Check result of camera aiming
FCTRY AIM YAW	[deg]	Lane camera unit installation condition
FCTRY AIM ROL	[deg]	Lane camera unit installation condition
FCTRY AIM PIT	[deg]	Lane camera unit installation condition

ACTIVE TEST

CAUTION:

- **Never perform the active test while driving.**
- **Active test cannot be started while the lane departure warning lamp is illuminated.**

Active test item	Operation	Description
BUZZER DRIVE	On	Outputs the voltage to sound the lane departure warning buzzer.
	Off	Stops the voltage to sound the lane departure warning buzzer.

Active test item	Operation	Description
LDW ON IND	On	Outputs the voltage to illuminate the LDW ON indicator (on the LDW switch).
	Off	Stops the voltage to illuminate the LDW ON indicator.
LDP ON IND	On	Requests the LDP ON indicator lamp ON [on the combination meter (Green)] to combination meter (through unified meter and A/C amp.) via CAN communication.
	Off	Stops the illumination request.
LANE DEPARTURE W/L	On	Requests the lane departure warning lamp ON [on the combination meter (Yellow)] to combination meter (through unified meter and A/C amp.) via CAN communication.
	Off	Stops the illumination request.

NOTE:

“Active test” of indicator/warning lamp cannot be performed when applicable indicator/warning lamp is turned ON.

DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

CONSULT-III Function

INFOID:0000000003554291

FUNCTION

CONSULT-III can display each diagnostic item using the diagnostic test modes shown following.

Diagnostic test mode	Function
Work support	This mode enables a technician to adjust some devices faster and more accurately by following the indications on CONSULT-III.
Self diagnostic result	Self-diagnostic results can be read and erased quickly.
Data monitor	Input/Output data in the ABS actuator and electric unit (control unit) can be read.
Active test	CONSULT-III drives some actuators apart from ABS actuator and electric unit (control unit) and also shifts some parameters in a specified range.
ECU identification	ABS actuator and electric unit (control unit) part number can be read.

WORK SUPPORT

CAUTION:

Erase DTC memory of the lane camera unit after implementing work support. Refer to CCS-130, "CONSULT-III Function (LANE CAMERA)".

Item	Description
ST ANG SEN ADJUSTMENT	Adjusts the neutral position of the steering angle sensor.

SELF DIAGNOSTIC RESULT

Operation Procedure

Before performing the self-diagnosis, start engine and drive vehicle at 30 km/h (19 MPH) or more for approximately 1 minute.

Display Item List

Refer to BRC-95, "DTC No. Index".

How to Erase Self-diagnosis Results

After erasing DTC memory, start the engine and drive the vehicle at 30 km/h (19 MPH) or more for approximately 1 minute as the final inspection, and make sure that the ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp and brake warning lamp turn OFF.

CAUTION:

If memory cannot be erased, perform applicable diagnosis.

NOTE:

- When the wheel sensor malfunctions, after inspecting the wheel sensor system, ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp and brake warning lamp will not turn OFF even when the system is normal unless the vehicle is driven at approximately 30 km/h (19 MPH) or more for approximately 1 minute.
- Brake warning lamp will turn ON in case of parking brake operation (when switch is ON) or in case of brake fluid level switch operation (when brake fluid is insufficient).
- VDC OFF switch should not stay in “ON” position.

DATA MONITOR

Display Item List

×: Applicable ▼: Optional item

Monitor item (Unit)	SELECT MONITOR ITEM		Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	
FR LH SENSOR [km/h (MPH)]	×	×	Wheel speed
FR RH SENSOR [km/h (MPH)]	×	×	
RR LH SENSOR [km/h (MPH)]	×	×	
RR RH SENSOR [km/h (MPH)]	×	×	
STOP LAMP SW (On/Off)	×	×	Stop lamp switch signal status
BATTERY VOLT (V)	×	×	Battery voltage supplied to the ABS actuator and electric unit (control unit)
GEAR	×	×	Gear position determined by TCM
SLCT LVR POSI	×	×	A/T selector lever position
YAW RATE SEN (d/s)	×	×	Yaw rate detected by yaw rate/side G sensor
ACCEL POS SIG (%)	×	▼	Throttle actuator opening/closing is displayed (Linked with accelerator pedal)
SIDE G-SENSOR (m/s^2)	×	▼	Transverse G detected by yaw rate/side G sensor
STR ANGLE SIG (°)	×	▼	Steering angle detected by steering angle sensor
PRESS SENSOR (bar)	×	▼	Brake fluid pressure detected by pressure sensor
ENGINE RPM [tr/min (rpm)]	×	▼	Engine speed
FLUID LEV SW (On/Off)	×	▼	Brake fluid level switch signal status
PARK BRAKE SW (On/Off)	×	▼	Parking brake switch signal status
LDP) APP SEN (%) (Note 2)	×	×	Accelerator pedal position sensor status received from ECM via CAN communication
FR RH IN SOL (On/Off) (Note 1)	▼	×	Operation status of each solenoid valve
FR RH OUT SOL (On/Off) (Note 1)	▼	×	
FR LH IN SOL (On/Off) (Note 1)	▼	×	
FR LH OUT SOL (On/Off) (Note 1)	▼	×	
RR RH IN SOL (On/Off) (Note 1)	▼	×	
RR RH OUT SOL (On/Off) (Note 1)	▼	×	
RR LH IN SOL (On/Off) (Note 1)	▼	×	
RR LH OUT SOL (On/Off) (Note 1)	▼	×	
MOTOR RELAY (On/Off)	▼	×	Motor and motor relay operation

Monitor item (Unit)	SELECT MONITOR ITEM		Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	
ACTUATOR RLY (On/Off) (Note 1)	▼	×	Actuator relay operation
ABS WARN LAMP (On/Off)	▼	×	ABS warning lamp
OFF LAMP (On/Off)	▼	×	VDC OFF indicator lamp
SLIP LAMP (On/Off)	▼	×	SLIP indicator lamp
EBD SIGNAL (On/Off)	▼	▼	EBD operation
ABS SIGNAL (On/Off)	▼	▼	ABS operation
TCS SIGNAL (On/Off)	▼	▼	TCS operation
VDC SIGNAL (On/Off)	▼	▼	VDC operation
EBD FAIL SIG (On/Off)	▼	▼	EBD fail-safe signal
ABS FAIL SIG (On/Off)	▼	▼	ABS fail-safe signal
TCS FAIL SIG (On/Off)	▼	▼	TCS fail-safe signal
VDC FAIL SIG (On/Off)	▼	▼	VDC fail-safe signal
CRANKING SIG (On/Off)	▼	▼	Crank operation
USV[FR-RL] (On/Off) (Note 1)	▼	▼	VDC switch-over valve
USV[FL-RR] (On/Off) (Note 1)	▼	▼	
HSV[FR-RL] (On/Off) (Note 1)	▼	▼	
HSV[FL-RR] (On/Off) (Note 1)	▼	▼	
V/R OUTPUT (On/Off)	▼	▼	Solenoid valve relay activated
M/R OUTPUT (On/Off)	▼	▼	Actuator motor and motor relay activated
LDP) SHIFT POSITION (OFF/P/R/N/D/MM 1st – MM 6th) (Note 2)	×	×	Shift position received from TCM via CAN communication
LDP) ICC MAIN SW (On/Off) (Note 2)	×	×	ICC main switch status received from ECM via CAN communication
LDP) LDP ON SW (On/Off) (Note 2)	×	×	LDP ON switch status received from ECM via CAN communication
LDP) WIPER SIGNAL (Stop/PRTCT/1low/1high/Low/High) (Note 2)	×	×	Front wiper operating condition received from BCM via CAN communication
LDP) TURN SIGNAL (Off/LH/RH/LH&RH) (Note 2)	×	×	Turn signal operating condition received from BCM via CAN communication

Monitor item (Unit)	SELECT MONITOR ITEM		Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	
LDP) STOP LMP SW (On/Off) (Note 2)	×	×	Stop lamp switch signal status
LDP) BRAKE SW (On/Off) (Note 2)	×	×	Brake switch signal status
LDP) LDW SW (On/Off) (Note 2)	×	×	LDW switch status received from lane camera unit via CAN communication

NOTE:

1: A brief moment of On/Off condition occurs every 20 seconds after ignition switch turned ON. This is not malfunction because it is an operation for checking.

2: With LDP models.

ACTIVE TEST

CAUTION:

- **Do not perform active test while driving vehicle.**
- **Make sure to completely bleed air from brake system.**
- **The active test cannot be started when ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp and brake warning lamp are ON.**
- **ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp and brake warning lamp are ON during active test.**
- **Erase memory of ICC system after implementing active test. Refer to CCS-24, "CONSULT-III Function (ICC)".**
- **Erase memory of the lane camera unit after implementing active test. Refer to CCS-130, "CONSULT-III Function (LANE CAMERA)".**

NOTE:

- When active test is performed while depressing the pedal, the pedal depression amount will change. This is normal. (Only solenoid valve and ABS motor.)
- “TEST IS STOPPED” is displayed 10 seconds after operation start.
- After “TEST IS STOPPED” is displayed, to perform test again.

Test Item

ABS SOLENOID VALVE

- Touch “Up”, “Keep” and “Down”. Then use screen monitor to check that solenoid valve operates as shown in the table below.

Test item	Display item	Display (Note)		
		Up	Keep	Down
FR RH SOL	FR RH IN SOL	Off	On	On
	FR RH OUT SOL	Off	Off	On*
	USV[FR-RL]	Off	Off	Off
	HSV[FR-RL]	Off	Off	Off
FR LH SOL	FR LH IN SOL	Off	On	On
	FR LH OUT SOL	Off	Off	On*
	USV[FL-RR]	Off	Off	Off
	HSV[FL-RR]	Off	Off	Off
RR RH SOL	RR RH IN SOL	Off	On	On
	RR RH OUT SOL	Off	Off	On*
	USV[FL-RR]	Off	Off	Off
	HSV[FL-RR]	Off	Off	Off

Test item	Display item	Display (Note)		
		Up	Keep	Down
RR LH SOL	RR LH IN SOL	Off	On	On
	RR LH OUT SOL	Off	Off	On*
	USV[FR-RL]	Off	Off	Off
	HSV[FR-RL]	Off	Off	Off

*: On for 1 to 2 seconds after the touch, and then Off.

NOTE:

A brief moment of On/Off condition occurs every 20 seconds after ignition switch turned ON. This is not malfunction because it is an operation for checking.

ABS SOLENOID VALVE (ACT)

- Touch “Up”, “ACT UP” and “ACT KEEP”. Then use screen monitor to check that solenoid valve operates as shown in the table below.

Test item	Display item	Display (Note)		
		Up	ACT UP	ACT KEEP
FR RH ABS SOLENOID (ACT)	FR RH IN SOL	Off	Off	Off
	FR RH OUT SOL	Off	Off	Off
	USV[FR-RL]	Off	On	On
	HSV[FR-RL]	Off	On*	Off
FR LH ABS SOLENOID (ACT)	FR LH IN SOL	Off	Off	Off
	FR LH OUT SOL	Off	Off	Off
	USV[FL-RR]	Off	On	On
	HSV[FL-RR]	Off	On*	Off
RR RH ABS SOLENOID (ACT)	RR RH IN SOL	Off	Off	Off
	RR RH OUT SOL	Off	Off	Off
	USV[FL-RR]	Off	On	On
	HSV[FL-RR]	Off	On*	Off
RR LH ABS SOLENOID (ACT)	RR LH IN SOL	Off	Off	Off
	RR LH OUT SOL	Off	Off	Off
	USV[FR-RL]	Off	On	On
	HSV[FR-RL]	Off	On*	Off

*: On for 1 to 2 seconds after the touch, and then Off.

NOTE:

A brief moment of On/Off condition occurs every 20 seconds after ignition switch turned ON. This is not malfunction because it is an operation for checking.

ABS MOTOR

- Touch “On” and “Off” on screen. Make sure motor relay and actuator relay operates as shown in table below.

Test item	Display item	Display	
		On	Off
ABS MOTOR	MOTOR RELAY	On	Off
	ACTUATOR RLY (Note)	On	On

NOTE:

A brief moment of On/Off condition occurs every 20 seconds after ignition switch turned ON. This is not malfunction because it is an operation for checking.

ECU IDENTIFICATION

ABS actuator and electric unit (control unit) part number can be read.

COMPONENT DIAGNOSIS

C1B00 CAMERA UNIT MALF

DTC Logic

INFOID:0000000003514578

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B00	CAMERA UNIT MALF	Lane camera unit internal malfunction	Erase DTC with CONSULT-III	Lane camera unit

Diagnosis Procedure

INFOID:0000000003514579

1.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “C1B00” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

C1B01 CAM AIMING INCMP

DTC Logic

INFOID:0000000003514580

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B01	CAM AIMING INCMP	Camera aiming is not completed.	Camera aiming is completed.	• Lane camera aiming is not adjusted. • Lane camera unit

Diagnosis Procedure

INFOID:0000000003514581

1.CAMERA AIMING

Perform the camera aiming. Refer to CCS-112, "CAMERA AIMING ADJUSTMENT : Description".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS OF LANE CAMERA UNIT

Perform the self-diagnosis of lane camera unit with CONSULT-III.

Is the DTC “C1B01” detected?

YES >> Replace the lane camera unit.
NO >> INSPECTION END

C1B02 VHCL SPD DATA MALF

DTC Logic

INFOID:0000000003514582

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B02	VHCL SPD DATA MALF	Lane camera unit detected vehicle speed signal error from ABS actuator and electric unit (control unit).	Erase DTC with CONSULT-III	• Vehicle speed signal • ABS actuator and electric unit (control unit) • Lane camera unit

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of lane camera unit with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition ON.
2. Drive at 40 km/h or more.
3. Stop the vehicle.
4. Perform the self-diagnosis of lane camera unit with CONSULT-III.

Is the DTC “C1B02” detected?

YES >> Refer to CCS-140, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000003514583

1.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Perform self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is any DTC detected?

YES >> Perform trouble diagnosis of ABS actuator and electric unit (control unit). Refer to CCS-185, "DTC No. Index".
NO >> Replace the lane camera unit.

C1B03 ABNRML TEMP DETECT

DTC Logic

INFOID:0000000003514584

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B03	ABNRML TEMP DETECT	Temperature around lane camera unit is excessively high.	Erase DTC with CONSULT-III	Interior room temperature is excessively high.

Diagnosis Procedure

INFOID:0000000003514585

1.COOLING LANE CAMERA UNIT

Cooling the lane camera unit.

>> GO TO 2.

2.ERASE DTC

Erase DTC memory of the lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “C1B03” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

C1B07 ABS DIAGNOSIS

DTC Logic

INFOID:0000000003514586

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B07	ABS DIAGNOSIS	• Lane camera unit received that ABS actuator and electric unit (control unit) is detecting any DTC. • Lane camera unit received that ABS actuator and electric unit (control unit) is performing “Work support” or “Active test” with CONSULT-III.	Erase DTC with CONSULT-III	ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000003514587

1.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Perform self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is any DTC detected?

YES >> Perform trouble diagnosis of ABS actuator and electric unit (control unit). Refer to CCS-185, "DTC No. Index".

NO >> GO TO 2.

2.ERASE DTC

Erase DTC memory of the lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “C1B07” erased?

YES >> INSPECTION END

NO >> Replace the lane camera unit.

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000003514588

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-line, CAN L-line) 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-27, "CAN Communication Signal Chart".

DTC Logic

INFOID:0000000003514589

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U1000	CAN COMM CIRCUIT	When lane camera unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	Erase DTC with CONSULT-III	CAN communication

Diagnosis Procedure

INFOID:0000000003514590

1.ERASE DTC

Erase DTC memory of the lane camera unit with self-diagnosis of CONSULT-III.

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS OF LANE CAMERA UNIT

Perform the self-diagnosis of the lane camera unit with CONSULT-III.
Is “U1000” displayed?

YES >> Refer to LAN-18, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-38, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000003514591

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U1010	CONTROL UNIT (CAN)	Lane camera unit detected internal CAN communication circuit malfunction.	Erase DTC with CONSULT-III	Lane camera unit

Diagnosis Procedure

INFOID:0000000003514592

1.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U1010” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

U0122 VDC CAN CIR1 (LDP)

DTC Logic

INFOID:0000000003514593

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0122	VDC CAN CIR1 (LDP)	Lane camera unit detected an error of CAN communication signal that was received from ABS actuator and electric unit (control unit).	Erase DTC with CONSULT-III	• ABS actuator and electric unit (control unit) • Lane camera unit

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of lane camera unit with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of lane camera unit with CONSULT-III.

Is the DTC “U0122” detected?

YES >> Refer to CCS-145, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000003514594

1.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Perform self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) TROUBLE DIAGNOSIS

Perform trouble diagnosis of ABS actuator and electric unit (control unit). Refer to CCS-185, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U0122” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

4.PROVISIONAL REPLACEMENT OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Remove ABS actuator and electric unit (control unit). Install the normal ABS actuator and electric unit (control unit).

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U0122” erased?

YES >> Replace ABS actuator and electric unit (control unit).

NO >> Replace the lane camera unit.

U0416 VDC CAN CIR2 (LDP)

DTC Logic

INFOID:0000000003514595

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0416	VDC CAN CIR2 (LDP)	Lane camera unit detected an error of CAN communication signal that was received from ABS actuator and electric unit (control unit).	Erase DTC with CONSULT-III	• ABS actuator and electric unit (control unit) • Lane camera unit

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of lane camera unit with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of lane camera unit with CONSULT-III.

Is the DTC “U0416” detected?

YES >> Refer to CCS-147, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident"

Diagnosis Procedure

INFOID:0000000003514596

1.PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Perform self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) TROUBLE DIAGNOSIS

Perform trouble diagnosis of ABS actuator and electric unit (control unit). Refer to CCS-185, "DTC No. Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U0416” erased?

YES >> INSPECTION END
NO >> Replace the lane camera unit.

4.PROVISIONAL REPLACEMENT OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Remove ABS actuator and electric unit (control unit). Install the normal ABS actuator and electric unit (control unit).

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of lane camera unit with self-diagnosis of CONSULT-III.

Is the DTC “U0416” erased?

YES >> Replace ABS actuator and electric unit (control unit).

NO >> Replace the lane camera unit.

C1B00 LDP) CAMERA MALF

DTC Logic

INFOID:0000000003514597

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B00	LDP) CAMERA MALF	ABS actuator and electric unit (control unit) received that lane camera unit is detecting “C1B00” (Lane camera unit internal malfunction).	Erase DTC with CONSULT-III	Lane camera unit

Diagnosis Procedure

INFOID:0000000003514598

1.LANE CAMERA UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of the lane camera unit for “C1B00 CAMERA UNIT MALF”. Refer to CCS-138, "DTC Logic".

>> GO TO 2.

2.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “C1B00” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

C1B04 LDP) ICC STG SW MALF

DTC Logic

INFOID:0000000003514599

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B04	LDP) ICC STG SW MALF	ABS actuator and electric unit (control unit) received ICC steering switch malfunction from ECM.	Erase DTC with CONSULT-III	• ICC steering switch circuit • ICC steering switch • ECM • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000003514600

1.ECM TROUBLE DIAGNOSIS

Perform trouble diagnosis of ECM for “P1564 ICC STEERING SWITCH”. Refer to EC-396, "Description".

>> GO TO 2.

2.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “C1B04” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

C1B05 LDP) APP SEN MALF

DTC Logic

INFOID:0000000003514601

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B05	LDP) APP SEN MALF	ABS actuator and electric unit (control unit) detects that accelerator pedal position sensor signal is malfunctioning.	Erase DTC with CONSULT-III	• Accelerator pedal position sensor • Accelerator pedal position sensor circuit • ECM • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000003514602

1.ECM TROUBLE DIAGNOSIS

Perform trouble diagnosis of ECM for “P2122, P2123 APP SENSOR and P2127, P2128 APP SENSOR”. Refer to the following items;
- P2122, P2123 APP SENSOR: EC-421, "Description"
- P2127, P2128 APP SENSOR: EC-425, "Description"

>> GO TO 2.

2.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “C1B05” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

C1B06 LDP) TCM MALF

DTC Logic

INFOID:0000000003514603

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
C1B06	LDP) TCM MALF	ABS actuator and electric unit (control unit) detects that TCM has a malfunction.	Erase DTC with CONSULT-III	• Any of A/T system components • TCM • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000003514604

1.PERFORM SELF-DIAGNOSIS OF TCM

Perform self-diagnosis of TCM with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> Replace ABS actuator and electric unit (control unit).

2.TCM TROUBLE DIAGNOSIS

Perform trouble diagnosis of TCM. Refer to TM-113, "DTC Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “C1B06” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

U0100 LDP) ECM CAN CIR2

DTC Logic

INFOID:0000000003514605

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0100	LDP) ECM CAN CIR2	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from ECM.	Erase DTC with CONSULT-III	• ECM • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U0100” detected?

YES >> Refer to CCS-153, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000003514606

1.PERFORM SELF-DIAGNOSIS OF ECM

Perform self-diagnosis of ECM with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ECM TROUBLE DIAGNOSIS

Perform trouble diagnosis of ECM. Refer to EC-514, "DTC Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0100” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF ECM

Remove ECM. Install a normal ECM.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0100” erased?

YES >> Replace ECM.
NO >> Replace ABS actuator and electric unit (control unit).

U0101 LDP) TCM CAM CAN CIR2

DTC Logic

INFOID:0000000003514607

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0101	LDP) TCM CAN CIR2	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from TCM.	Erase DTC with CONSULT-III	• TCM • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U0101” detected?

YES >> Refer to CCS-154, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000003514608

1.PERFORM SELF-DIAGNOSIS OF TCM

Perform self-diagnosis of TCM with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.TCM TROUBLE DIAGNOSIS

Perform trouble diagnosis of TCM. Refer to TM-113, "DTC Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0101” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF TCM

Remove TCM. Install a normal TCM.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0101” erased?

YES >> Replace TCM.
NO >> Replace ABS actuator and electric unit (control unit).

U0104 LDP) ICC CAM CAN CIR2

DTC Logic

INFOID:0000000003514609

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0104	LDP) ICC CAM CAN CIR1	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from ICC sensor integrated unit.	Erase DTC with CONSULT-III	• ICC sensor integrated unit • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1. DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2. DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U0104” detected?

YES >> Refer to CCS-155, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000003514610

1. PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

Perform ICC sensor integrated unit self-diagnosis with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2. ICC SENSOR INTEGRATED UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of ICC sensor integrated unit. Refer to CCS-85, "DTC Index".

>> GO TO 3.

3. ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0104” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4. PROVISIONAL REPLACEMENT OF ICC SENSOR INTEGRATED UNIT

Remove ICC sensor integrated unit. Install a normal ICC sensor integrated unit.

>> GO TO 5.

5. ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0104” erased?

YES >> Replace ICC sensor integrated unit.
NO >> Replace ABS actuator and electric unit (control unit).

U0405 LDP) ICC CAM CAN CIR1

DTC Logic

INFOID:0000000003514611

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U0405	LDP) ICC CAM CAN CIR1	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from ICC sensor integrated unit.	Erase DTC with CONSULT-III	• ICC sensor integrated unit • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U0405” detected?

YES >> Refer to CCS-156, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000003514612

1.PERFORM SELF-DIAGNOSIS OF ICC SENSOR INTEGRATED UNIT

Perform ICC sensor integrated unit self-diagnosis with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.ICC SENSOR INTEGRATED UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of ICC sensor integrated unit. Refer to CCS-85, "DTC Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0405” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF ICC SENSOR INTEGRATED UNIT

Remove ICC sensor integrated unit. Install a normal ICC sensor integrated unit.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U0405” erased?

YES >> Replace ICC sensor integrated unit.
NO >> Replace ABS actuator and electric unit (control unit).

U1500 LDP) CAM CAN CIR1

DTC Logic

INFOID:0000000003514613

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U1500	LDP) CAM CAN CIR1	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from the lane camera unit.	Erase DTC with CONSULT-III	• Lane camera unit • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U1500” detected?

YES >> Refer to CCS-157, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000003514614

1.PERFORM SELF-DIAGNOSIS OF LANE CAMERA UNIT

Perform self-diagnosis of lane camera unit with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.LANE CAMERA UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of the lane camera unit. Refer to CCS-174, "DTC Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U1500” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF LANE CAMERA UNIT

Remove the lane camera unit. Install a normal lane camera unit.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U1500” erased?

YES >> Replace the lane camera unit.
NO >> Replace ABS actuator and electric unit (control unit).

U1501 LDP) CAM CAN CIR2

DTC Logic

INFOID:0000000003514615

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	DTC erase conditions	Possible cause
U1501	LDP) CAM CAN CIR2	ABS actuator and electric unit (control unit) detected an error of CAN communication signal that was received from the lane camera unit.	Erase DTC with CONSULT-III	• Lane camera unit • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.DTC ERASE

Erase the DTC memory of ABS actuator and electric unit (control unit) with CONSULT-III.

>> GO TO 2.

2.DTC CONFIRMATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform the self-diagnosis of ABS actuator and electric unit (control unit) with CONSULT-III.

Is the DTC “U1501” detected?

YES >> Refer to CCS-158, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000003514616

1.PERFORM SELF-DIAGNOSIS OF LANE CAMERA UNIT

Perform self-diagnosis of lane camera unit with CONSULT-III.

Is any DTC detected?

YES >> GO TO 2.
NO >> GO TO 4.

2.LANE CAMERA UNIT TROUBLE DIAGNOSIS

Perform trouble diagnosis of the lane camera unit. Refer to CCS-174, "DTC Index".

>> GO TO 3.

3.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U1501” erased?

YES >> INSPECTION END
NO >> Replace ABS actuator and electric unit (control unit).

4.PROVISIONAL REPLACEMENT OF LANE CAMERA UNIT

Remove lane camera unit. Install a normal lane camera unit.

>> GO TO 5.

5.ERASE DTC

Erase DTC memory of ABS actuator and electric unit (control unit) with self-diagnosis of CONSULT-III.

Is the DTC “U1501” erased?

YES >> Replace the lane camera unit.
NO >> Replace ABS actuator and electric unit (control unit).

POWER SUPPLY AND GROUND CIRCUIT
LANE CAMERA UNIT

LANE CAMERA UNIT : Diagnosis Procedure

INFOID:0000000003514617

1.FUSE INSPECTION

Check that the following fuses are not fusing.

Signal name	Connection position	Fuse No.	Capacity
Ignition power supply	FUSE BLOCK (J/B)	3	10 A

Is the fuse fusing?

YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between the lane camera unit harness connector and ground.

Terminals			Condition	Voltage (Approx.)
(+)		(–)		
Lane camera unit		Ground	Ignition switch	
Connector	Terminal			
R8	1		OFF	0 V
			ON	Battery voltage

Is the measurement value normal?

YES >> GO TO 3.
NO >> Check harness between lane camera unit and fuse.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the lane camera unit connector.
3. Check continuity between the lane camera unit harness connectors and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
R8	6		Existed
	12		

Does continuity exist?

YES >> Power supply and ground circuit are normal.
NO >> Repair harness or connector.

LDW SWITCH CIRCUIT

Component Function Check

INFOID:0000000003514619

1.CHECK LDW SWITCH SIGNAL BY CONSULT-III

CONSULT-III DATA MONITOR
1. Turn the ignition switch ON.
2. Select “LDW SW” of “LANE CAM” data monitor item.
3. With operating the LDW switch, check the monitor status.

Monitor item	Condition		Monitor status
LDW SW	LDW switch	Pressed ⇔ Released	On ⇔ Off

Is the item status normal?

YES >> LDW switch circuit is normal.
NO >> Refer to CCS-160, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003514620

1.CHECK LDW SWITCH SIGNAL INPUT

1. Turn the ignition switch ON.
2. With operating the LDW switch, check the voltage between the lane camera unit harness connector and the ground.

Terminals			Condition	Voltage (Approx.)
(+)		(–)		
Lane camera unit		Ground	LDW switch	
Connector	Terminal			
R8	9		Pressed	0 V
			Released	5 V

Is the measurement value normal?

YES >> Replace the lane camera unit.
NO >> GO TO 2.

2.CHECK LDW SWITCH

1. Turn ignition switch OFF.
2. Remove LDW switch.
3. Check LDW switch. Refer to CCS-161, "Component Inspection".

Is the LDW switch normal?

YES >> GO TO 3.
NO >> Replace LDW switch.

3.CHECK LDW SWITCH GROUND CIRCUIT

Check continuity between LDW switch harness connector terminal and the ground.

LDW switch		Ground	Continuity
Connector	Terminal		
M29	6		Existed

Does continuity exist?

YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK LDW SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

1. Disconnect the lane camera unit connector.

2. Check continuity between the lane camera unit harness connector and LDW switch harness connector.

Lane camera unit		LDW switch		Continuity
Connector	Terminal	Connector	Terminal	
R8	9	M29	7	Existed

Does continuity exist?

YES >> GO TO 5.
NO >> Repair the harnesses or connectors.

5.CHECK LDW SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

Check continuity between the lane camera unit harness connector and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
R8	9		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> Replace the lane camera unit.

Component Inspection

INFOID:0000000003514621

1.CHECK LDW SWITCH

Check continuity of LDW switch.

LDW switch		Condition	Continuity
Terminal		LDW switch	
6	7	Pressed	Existed
		Released	Not existed

Is the check result normal?

YES >> LDW switch is normal.
NO >> Replace LDW switch.

LDW ON INDICATOR CIRCUIT

Component Function Check

INFOID:0000000003514622

1.CHECK LDW ON INDICATOR BY CONSULT-III

CONSULT-III ACTIVE TEST
1. Turn the ignition switch ON.
2. Select “LDW ON IND” of “LANE CAM” active test item.
3. With operating the test item, check the operation.

On : LDW ON indicator illuminates.
Off : LDW ON indicator is turned OFF.

Does the LDW ON indicator illuminate?

YES >> LDW ON indicator circuit is normal.
NO >> Refer to CCS-162, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003514623

1.CHECK LDW ON INDICATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect LDW switch connector.
3. Turn ignition switch ON.
4. Check voltage between LDW switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
LDW switch		Ground	
Connector	Terminal		
M29	3		Battery voltage

Is the measurement value normal?

YES >> GO TO 2.
NO >> Check harness between fuse and LDW switch.

2.CHECK LDW ON INDICATOR SIGNAL FOR OPEN

Check continuity between the lane camera unit harness connector and LDW switch harness connector.

Lane camera unit		LDW switch		Continuity
Connector	Terminal	Connector	Terminal	
R8	4	M29	2	Existed

Does continuity exist?

YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3.CHECK LDW ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the lane camera unit harness connector and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
R8	4		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> GO TO 4.

4.CHECK LDW ON INDICATOR

1. Connect LDW switch connector.
2. Turn ignition switch ON.
3. Apply ground to LDW switch terminal 2.
4. Check condition of the LDW ON indicator.

Does LDW ON indicator illuminate?

YES >> Replace the lane camera unit.
NO >> Replace LDW switch.

LANE DEPARTURE WARNING BUZZER CIRCUIT

Component Function Check

INFOID:0000000003514624

1.CHECK LANE DEPARTURE WARNING BUZZER BY CONSULT-III

CONSULT-III ACTIVE TEST
1. Turn the ignition switch ON.
2. Select “BUZZER DRIVE” of “LANE CAM” active test item.
3. With operating the test item, check the operation.

On : Lane departure warning buzzer is activated.
Off : Lane departure warning buzzer is not activated.

Is the lane departure warning buzzer activated?

YES >> Lane departure warning buzzer circuit is normal.
NO >> Refer to CCS-164, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003514625

1.CHECK LANE DEPARTURE WARNING BUZZER POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the lane departure warning buzzer connector.
3. Turn ignition switch ON.
4. Check voltage between the lane departure warning buzzer harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
Lane departure warning buzzer		Ground	
Connector	Terminal		
M45	1		Battery voltage

Is the measurement value normal?

YES >> GO TO 2.
NO >> Check harness between fuse and lane departure warning buzzer.

2.CHECK LANE DEPARTURE WARNING BUZZER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between lane departure warning buzzer harness connector and ground.

Lane departure warning buzzer		Ground	Continuity
Connector	Terminal		
M45	3		Existed

Does continuity exist?

YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3.CHECK LANE DEPARTURE WARNING BUZZER SIGNAL CIRCUIT FOR OPEN

1. Disconnect the lane camera unit connector.
2. Check continuity between the lane camera unit harness connector and lane departure warning buzzer harness connector.

Lane camera unit		Lane departure warning buzzer		Continuity
Connector	Terminal	Connector	Terminal	
R8	3	M45	2	Existed

Does continuity exist?

YES >> GO TO 4.
NO >> Repair the harnesses or connectors.

4. CHECK LANE DEPARTURE WARNING BUZZER SIGNAL CIRCUIT FOR SHORT

Check continuity between the lane camera unit harness connector and ground.

Lane camera unit		Ground	Continuity
Connector	Terminal		
R8	3		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> GO TO 5.

5. CHECK LANE DEPARTURE WARNING BUZZER OPERATION

1. Connect lane departure warning buzzer connector.
2. Turn ignition switch ON.
3. Apply ground to lane departure warning buzzer terminal 2.
4. Check condition of the lane departure warning buzzer.

Does lane departure warning buzzer sound?

YES >> Replace the lane camera unit.
NO >> Replace lane departure warning buzzer.

ECU DIAGNOSIS

LANE CAMERA UNIT

Reference Value

INFOID:0000000003514630

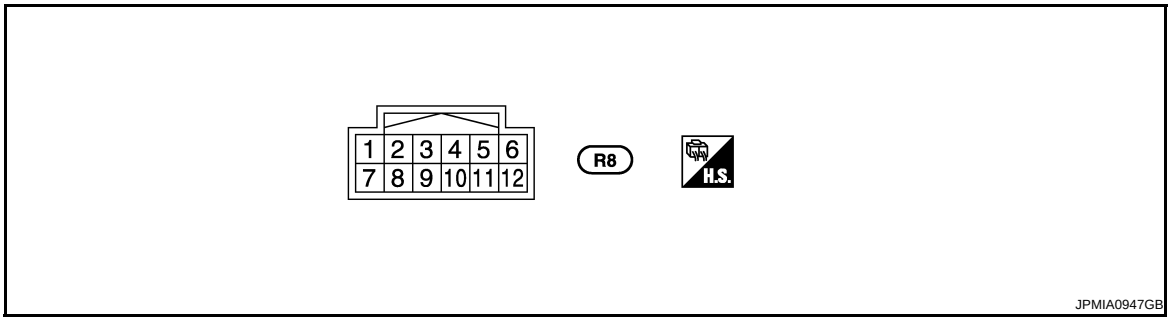
VALUES ON THE DIAGNOSIS TOOL

CONSULT-III MONITOR ITEM

Monitor Item	Condition	Value/Status
LDW SW	LDW switch is ON. (LDW ON indicator illuminates.)	On
	LDW switch is OFF. (LDW ON indicator OFF.)	Off
LDW ON LAMP	LDW ON indicator illuminates.	On
	LDW ON indicator OFF	Off
LDP ON IND	LDP ON indicator lamp illuminates.	On
	LDP ON indicator lamp OFF	Off
LANE DPRT W/L	Lane departure warning lamp illuminates.	On
	Lane departure warning lamp OFF	Off
BUZZER OUTPUT	Lane departure warning buzzer is sounding.	On
	Lane departure warning buzzer is not sounding.	Off
LC INACCURAT	Lane camera malfunction	On
	Lane camera normal	Off
VHCL SPD SE	While driving	Approximately equivalent to speed-ometer reading
TURN SIGNAL	Turn signal lamp LH and RH blinking.	LH/RH
	Turn signal lamp LH blinking.	LH
	Turn signal lamp RH blinking.	RH
	Turn signal lamps OFF.	Off
LANE DETCT LH	Left side lane marker is detected.	On
	Left side lane marker is not detected.	Off
LANE DETCT RH	Right side lane marker is detected.	On
	Right side lane marker is not detected.	Off
CROSS LANE LH	The vehicle is crossing left side lane marker.	On
	The vehicle is not crossing left side lane marker.	Off
CROSS LANE RH	The vehicle is crossing right side lane marker.	On
	The vehicle is not crossing right side lane marker.	Off
WARN LANE LH	Warning for left side lane.	On
	Not warning for left side lane.	Off
WARN LANE RH	Warning for right side lane.	On
	Not warning for right side lane.	Off
VALID POS LH	Lateral position for left side lane marker is valid.	VLD
	Lateral position for left side lane marker is invalid.	INVLD
VALID POS RH	Lateral position for right side lane marker is valid.	VLD
	Lateral position for right side lane marker is invalid.	INVLD
AIMING DONE	Camera aiming is completed.	OK
	Camera aiming is not adjusted.	NG
AIMING RESULT	Camera aiming is completed.	OK
	Camera aiming is not completed.	NOK

Monitor Item	Condition	Value/Status
XOFFSET	Camera aiming is completed.	Approx. 180 pixel
CHK AIM YAW	**NOTE:** The item is indicated, but not used.	—
CHK AIM ROLL	**NOTE:** The item is indicated, but not used.	—
CHK AIM PITCH	**NOTE:** The item is indicated, but not used.	—
FCTRY AIM YAW	Camera aiming is not completed.	+12.0 deg
	Camera aiming is completed.	0 ± 5.0 deg
FCTRY AIM ROL	Camera aiming is not completed.	0.0 deg
	Camera aiming is completed.	0 ± 5.0 deg
FCTRY AIM PIT	Camera aiming is not completed.	+12.0 deg
	Camera aiming is completed.	0 ± 5.0 deg

TERMINAL LAYOUT

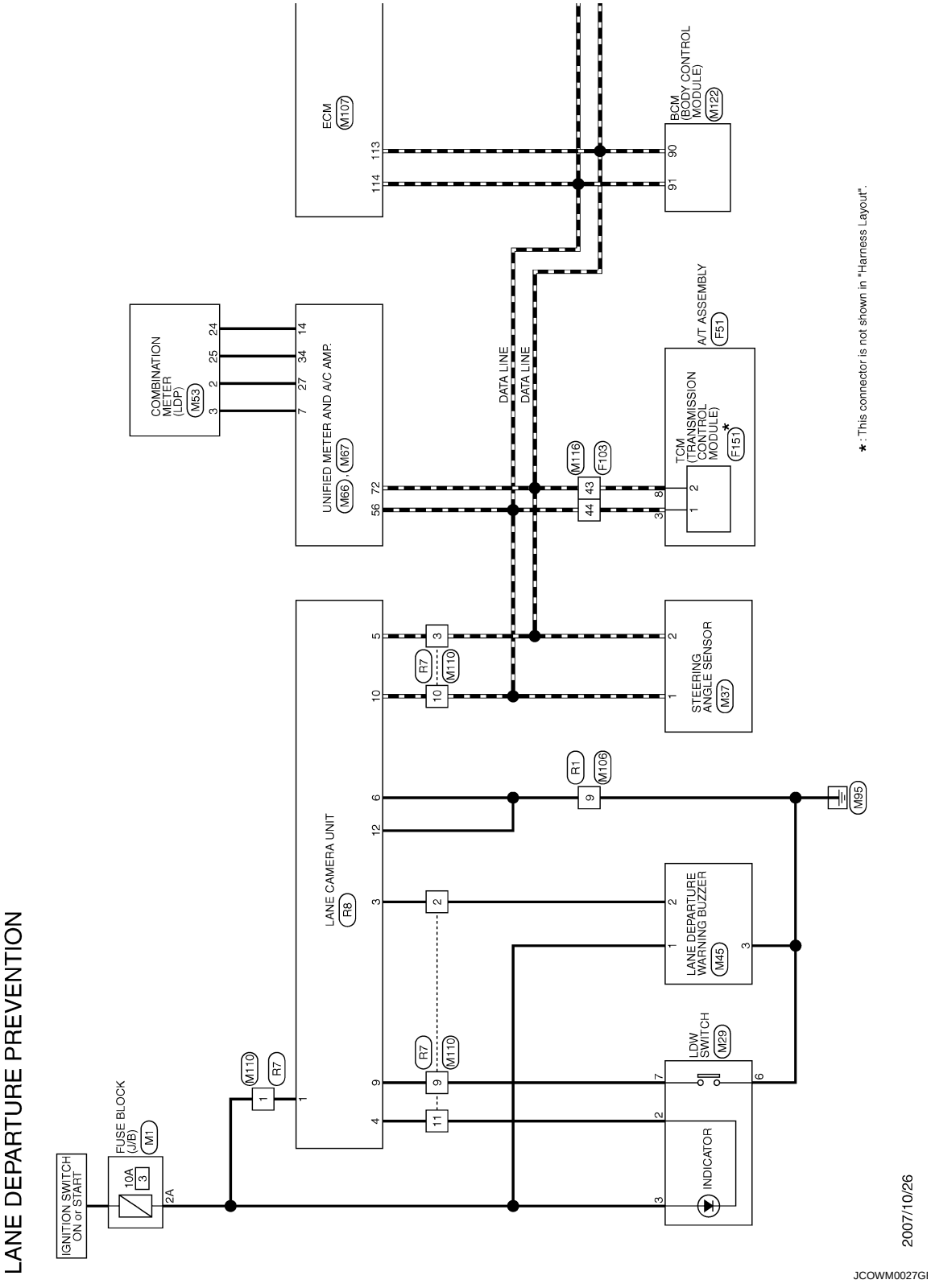


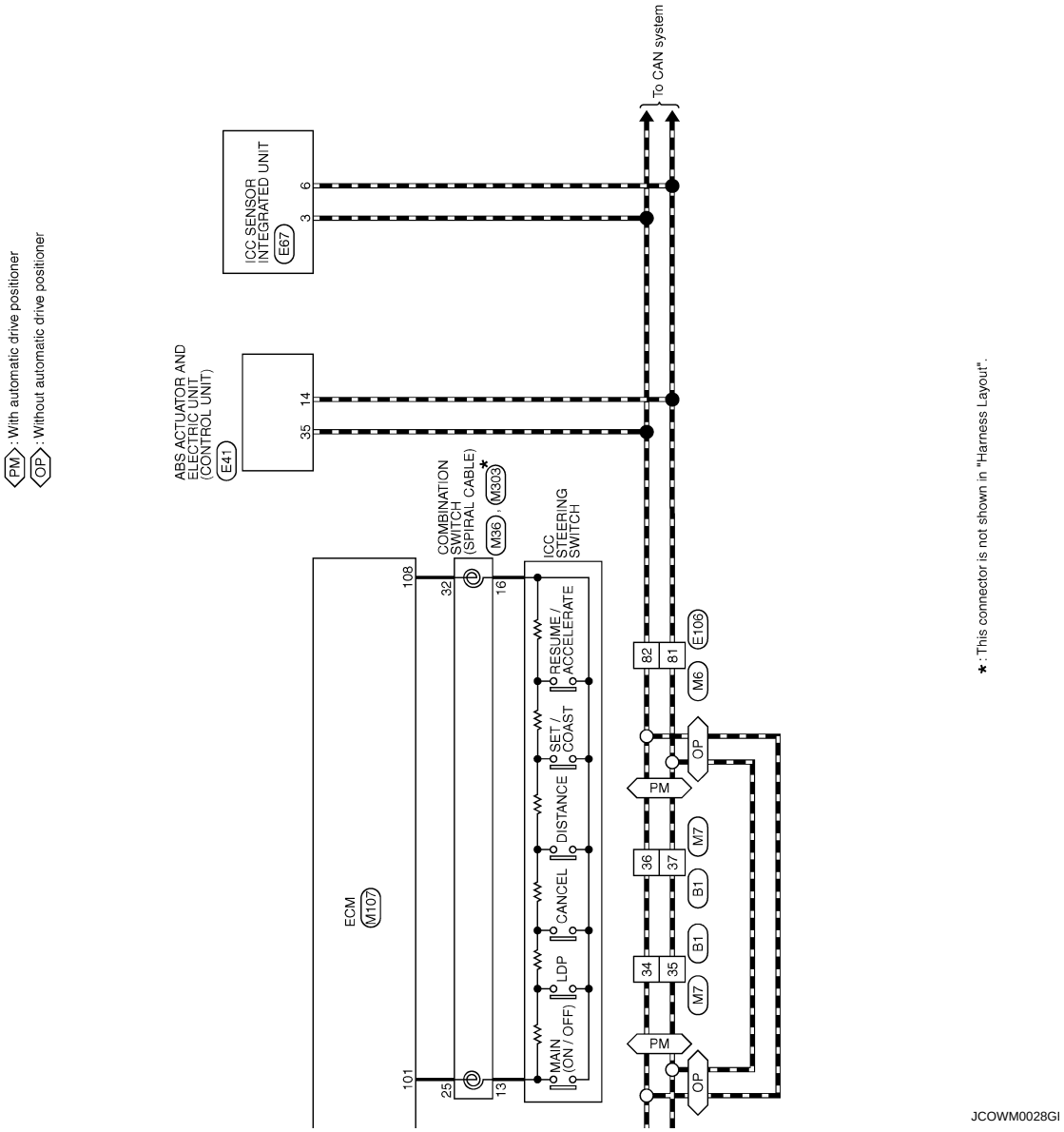
PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
1 (Y)	Ground	Ignition power supply	Input	Ignition switch ON		Battery voltage
3 (R)	Ground	Lane departure warning buzzer	Output	Lane departure warning buzzer	Sounding	0 V
					Not sounding	12 V
4 (SB)	Ground	LDW ON indicator	Output	LDW ON indicator	Illuminated	0 V
					OFF	12 V
5 (P)	Ground	CAN-L	—	—		—
6 (B)	Ground	Ground	—	—		0 V
9 (V)	Ground	LDW switch	Input	LDW switch	Pressed	0 V
					Released	5 V
10 (L)	Ground	CAN-H	—	—		—
12 (B)	Ground	Ground	—	—		0 V

Wiring Diagram - LDW & LDP -

INFOID:0000000003514632




PM : With automatic drive positioner
OP : Without automatic drive positioner
To CAN system
ICC SENSOR INTEGRATED UNIT
E67
6
3
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E41
14
35
COMBINATION SWITCH (SPIRAL CABLE)
M36
M303
ICC STEERING SWITCH
RESUME/ ACCELERATE
SET/ COAST
DISTANCE
CANCEL
LDP
MAIN (ON / OFF)
ECM
M107
108
101
32
25
16
13
82
81
E106
M6
OP
PM
36
37
M7
B1
34
35
* : This connector is not shown in "Harness Layout".
JCOWM0028GI

LANE DEPARTURE PREVENTION

Connector No.	B1
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
34	L	–
35	P	–
36	L	–
37	P	–

Connector No.	E41
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	BAA42FB-AH24-LH

Terminal No.	Color of Wire	Signal Name [Specification]
14	P	CAN-L
35	L	CAN-H

Connector No.	E67
Connector Name	ICC SENSOR INTEGRATED UNIT
Connector Type	RS06FB-PR

Terminal No.	Color of Wire	Signal Name [Specification]
3	L	CAN-H
6	P	CAN-L

Connector No.	E106
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
81	P	–
82	L	–

Connector No.	F51
Connector Name	A/T ASSEMBLY
Connector Type	RK10FG-DGY

Terminal No.	Color of Wire	Signal Name [Specification]
3	L	–
8	P	–

Connector No.	F103
Connector Name	WIRE TO WIRE
Connector Type	TK36FW-NS10

Terminal No.	Color of Wire	Signal Name [Specification]
43	P	–
44	L	–

Connector No.	F151
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	SP10FBGY

Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	CAN-H
2	L/Y	CAN-L

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS06FW-M2

Terminal No.	Color of Wire	Signal Name [Specification]
2A	G	–

JCOWM0029GI

LANE DEPARTURE PREVENTION

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
81	P	–
82	L	–

Connector No.	M7
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
34	L	–
35	P	–
36	L	–
37	P	–

Connector No.	M29
Connector Name	LDW SWITCH
Connector Type	TK08FGY

Terminal No.	Color of Wire	Signal Name [Specification]
2	SB	–
3	Y	–
6	B	–
7	V	–

Connector No.	M36
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY-1V

Terminal No.	Color of Wire	Signal Name [Specification]
25	SB	–
32	Y	–

Connector No.	M37
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	CAN-H
2	P	CAN-L

Connector No.	M45
Connector Name	LANE DEPARTURE WARNING BUZZER
Connector Type	NS04FBR-CS

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	–
2	R	–
3	B	–

Connector No.	M53
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
2	LG	COMM (METER->AMP.)
3	GR	COMM (AMP.->METER)
24	BR	COMM (LCD->AMP.)
25	Y	COMM (AMP.->LCD)

Connector No.	M66
Connector Name	UNIFIED METER AND A/C AMP
Connector Type	TH40FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
7	GR	COMM (AMP.->METER)
14	BR	COMM (LCD->AMP.)
27	LG	COMM (METER->AMP.)
34	Y	COMM (AMP.->LCD)

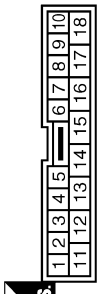
JCOWM0030GI

LANE DEPARTURE PREVENTION

Connector No.	M67
Connector Name	UNIFIED METER AND A/C AMP.
Connector Type	TH32FW-NH

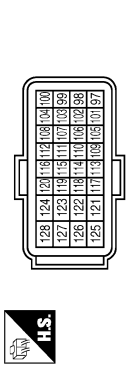
Terminal No.	Color of Wire	Signal Name [Specification]
56	L	CAN-H
72	P	CAN-L

Connector No.	M106
Connector Name	WIRE TO WIRE
Connector Type	TK10MW-NS8



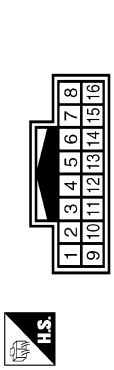
Terminal No.	Color of Wire	Signal Name [Specification]
9	B	–

Connector No.	M107
Connector Name	ECM
Connector Type	RH24FGY-RZ8-R-LH-Z



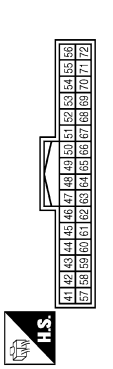
Terminal No.	Color of Wire	Signal Name [Specification]
101	SB	ASCDSW
108	Y	GNDA ASCD
113	P	VEHCAN-LI
114	L	VEHCAN-HI

Connector No.	M110
Connector Name	WIRE TO WIRE
Connector Type	TH16MW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	–
2	R	–
3	P	–
9	V	–
10	L	–
11	SB	–

Connector No.	M116
Connector Name	WIRE TO WIRE
Connector Type	TK36MW-NS10



Terminal No.	Color of Wire	Signal Name [Specification]
43	P	–
44	L	–

Connector No.	M122
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH

Terminal No.	Color of Wire	Signal Name [Specification]
90	P	CAN-L
91	L	CAN-H

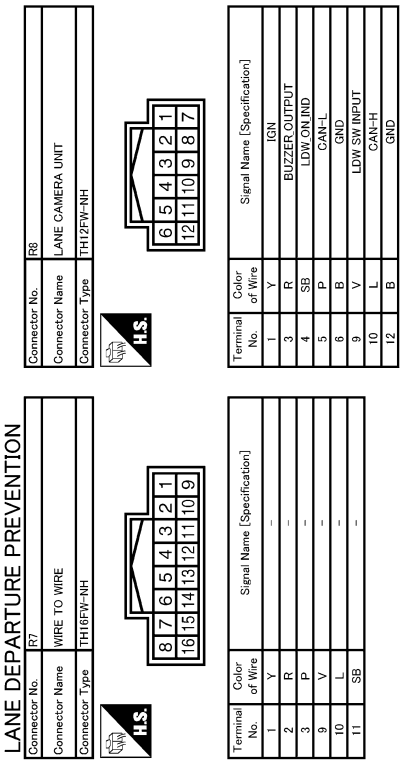
Connector No.	M303
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY

Terminal No.	Color of Wire	Signal Name [Specification]
13	R	–
16	B	–

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Type	TK10FW-NS8

Terminal No.	Color of Wire	Signal Name [Specification]
9	B	–

JCOWM0031GI



JCOWM0032GI

Fail-safe

INFOID:0000000003514633

FAIL-SAFE CONTROL BY DTC

When any DTC is detected, the LDW/LDP systems do not operate.

TEMPORARY DISABLED STATUS AT HIGH TEMPERATURE

When using LDW

- If the vehicle is parked in direct sunlight under high temperature conditions [approximately over 104°F (40°C)] and then started, the system may sound a buzzer and cancel automatically. In this case LDW ON indicator will blink.
- When the interior temperature is reduced, LDW ON indicator is turned ON.

When using LDP
- If the vehicle is parked in direct sunlight under high temperature conditions [approximately over 104°F (40°C)] and then started, the system may sound a buzzer and cancel automatically. In this case LDP ON indicator lamp will blink.
- When the interior temperature is reduced, LDP ON indicator lamp is turned ON.

DTC Inspection Priority Chart

INFOID:0000000003514634

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	Detected items (DTC)
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• U0122: VDC CAN CIR1(LDP) • U0416: VDC CAN CIR2(LDP)
3	C1B00: CAMERA UNIT MALF
4	• C1B01: CAM AIMING INCMP • C1B02: VHCL SPD DATA MALF • C1B03: ABNRML TEMP DETECT • C1B07: ABS DIAGNOSIS

DTC Index

INFOID:0000000003514635

×: Applicable

DTC		Lane departure warning lamp	LDW ON indicator	LDP ON indicator lamp	Fail-safe	Reference page
C1B00	CAMERA UNIT MALF	ON	—	—	×	CCS-138
C1B01	CAM AIMING INCMP	Blink	—	—	×	CCS-139
C1B02	VHCL SPD DATA MALF	ON	—	—	×	CCS-140
C1B03	ABNRML TEMP DETECT	—	Blink (When using LDW)	Blink (When using LDP)	×	CCS-141
C1B07	ABS DIAGNOSIS	ON	—	—	×	CCS-142
U1000	CAN COMM CIRCUIT	ON	—	—	×	CCS-143
U1010	CONTROL UNIT (CAN)	ON	—	—	×	CCS-144
U0122	VDC CAN CIR1 (LDP)	ON	—	—	×	CCS-145
U0416	VDC CAN CIR2 (LDP)	ON	—	—	×	CCS-147

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Reference Value

INFOID:0000000003554292

VALUES ON THE DIAGNOSIS TOOL

CAUTION:

The display shows the control unit calculation data, so a normal value might be displayed even in the event the output circuit (harness) is open or short-circuited.

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
FR LH SENSOR	Wheel speed	Vehicle stopped	0 [km/h (MPH)]
		Vehicle running (Note 1)	Nearly matches the speedometer display (± 10% or less)
FR RH SENSOR	Wheel speed	Vehicle stopped	0 [km/h (MPH)]
		Vehicle running (Note 1)	Nearly matches the speedometer display (± 10% or less)
RR LH SENSOR	Wheel speed	Vehicle stopped	0 [km/h (MPH)]
		Vehicle running (Note 1)	Nearly matches the speedometer display (± 10% or less)
RR RH SENSOR	Wheel speed	Vehicle stopped	0 [km/h (MPH)]
		Vehicle running (Note 1)	Nearly matches the speedometer display (± 10% or less)
STOP LAMP SW	Stop lamp switch signal status	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
BATTERY VOLT	Battery voltage supplied to the ABS actuator and electric unit (control unit)	Ignition switch ON	10 – 16 V
GEAR	Gear position determined by TCM	1st gear 2nd gear 3rd gear 4th gear 5th gear	1 2 3 4 5
SLCT LVR POSI	A/T selector lever position	P position R position N position D position	P R N D
YAW RATE SEN	Yaw rate detected by yaw rate/side G sensor	Vehicle stopped	Approx. 0 d/s
		Vehicle turning right	Negative value
		Vehicle turning left	Positive value
ACCEL POS SIG	Throttle actuator opening/closing is displayed (linked with accelerator pedal)	Accelerator pedal not depressed (ignition switch is ON)	0 %
		Depress accelerator pedal (ignition switch is ON)	0 - 100 %
SIDE G-SENSOR	Transverse G detected by side G sensor	Vehicle stopped	Approx. 0 m/s^2
		Vehicle turning right	Negative value
		Vehicle turning left	Positive value

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
STR ANGLE SIG	Steering angle detected by steering angle sensor	Driving straight	±2.5°
		Turn 90° to right	Approx. +90°
		Turn 90° to left	Approx. –90°
PRESS SENSOR	Brake fluid pressure detected by pressure sensor	With ignition switch turned ON and brake pedal released	Approx. 0 bar
		With ignition switch turned ON and brake pedal depressed	–40 to 300 bar
ENGINE RPM	With engine running	With engine stopped	0 rpm
		Engine running	Almost in accordance with tachometer display
FLUID LEV SW	Brake fluid level switch signal status	When brake fluid level switch ON	On
		When brake fluid level switch OFF	Off
PARK BRAKE SW	Parking brake switch signal status	Parking brake switch is active	On
		Parking brake switch is inactive	Off
LDP) APP SEN (Note 4)	Accelerator pedal position sensor status	Accelerator pedal is not depressed (Ignition switch ON)	0 %
		Depress accelerator pedal (Ignition switch ON)	0 - 100 %
FR RH IN SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
FR RH OUT SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
FR LH IN SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
FR LH OUT SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
RR RH IN SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
RR RH OUT SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
RR LH IN SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
RR LH OUT SOL	Operation status of each solenoid valve	Actuator (solenoid valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator (solenoid valve) is not active and actuator relay is active (ignition switch ON)	Off
MOTOR RELAY	Motor and motor relay operation	When the motor relay and motor are operating	On
		When the motor relay and motor are not operating	Off
ACTUATOR RLY (Note 2)	Actuator relay operation	When the actuator relay is operating	On
		When the actuator relay is not operating	Off
ABS WARN LAMP	ABS warning lamp (Note 3)	When ABS warning lamp is ON	On
		When ABS warning lamp is OFF	Off
OFF LAMP	VDC OFF indicator lamp (Note 3)	When VDC OFF indicator lamp is ON	On
		When VDC OFF indicator lamp is OFF	Off
SLIP LAMP	SLIP indicator lamp (Note 3)	When SLIP indicator lamp is ON	On
		When SLIP indicator lamp is OFF	Off
EBD SIGNAL	EBD operation	EBD is active	On
		EBD is inactive	Off
ABS SIGNAL	ABS operation	ABS is active	On
		ABS is inactive	Off
TCS SIGNAL	TCS operation	TCS is active	On
		TCS is inactive	Off
VDC SIGNAL	VDC operation	VDC is active	On
		VDC is inactive	Off
EBD FAIL SIG	EBD fail-safe signal	In EBD fail-safe	On
		EBD is normal	Off
ABS FAIL SIG	ABS fail-safe signal	In ABS fail-safe	On
		ABS is normal	Off
TCS FAIL SIG	TCS fail-safe signal	In TCS fail-safe	On
		TCS is normal	Off
VDC FAIL SIG	VDC fail-safe signal	In VDC fail-safe	On
		VDC is normal	Off
CRANKING SIG	Crank operation	Crank is active	On
		Crank is inactive	Off
USV [FL-RR] (Note 2)	VDC switch-over valve	When actuator (switch-over valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When actuator (switch-over valve) is not active and actuator relay is active (ignition switch ON)	Off

Monitor item	Display content	Data monitor	
		Condition	Reference value in normal operation
USV [FR-RL] (Note 2)	VDC switch-over valve	When actuator (switch-over valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When actuator (switch-over valve) is not active and actuator relay is active (ignition switch ON)	Off
HSV [FL-RR] (Note 2)	VDC switch-over valve	When actuator (switch-over valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When actuator (switch-over valve) is not active and actuator relay is active (ignition switch ON)	Off
HSV [FR-RL] (Note 2)	VDC switch-over valve	When actuator (switch-over valve) is active (“ACTIVE TEST” with CONSULT-III)	On
		When actuator (switch-over valve) is not active and actuator relay is active (ignition switch ON)	Off
V/R OUTPUT (Note 2)	Solenoid valve relay activated	When the solenoid valve relay is active (When ignition switch OFF)	On
		When the solenoid valve relay is not active (in the fail-safe mode)	Off
M/R OUTPUT	Actuator motor and motor relay activated	When the actuator motor and motor relay are active (“ACTIVE TEST” with CONSULT-III)	On
		When the actuator motor and motor relay are inactive	Off
LDP) SHIFT POSITION (Note 4)	Shift position	Shift position is not received	Off
		Selector lever position	P/R/N/D
		When using manual mode	MM 1st – MM 6th
LDP) ICC MAIN SW (Note 4)	ICC main switch	ICC main switch is ON	On
		ICC main switch is OFF	Off
LDP) LDP ON SW (Note 4)	LDP ON switch	LDP ON switch is ON	On
		LDP ON switch is OFF	Off
LDP) WIPER SIGNAL (Note 4)	Front wiper operation	Front wiper is OFF.	Stop
		Front wiper stops at fail-safe operation	PRTCT
		Front wiper INT is operating.	1low
		Front wiper LO is operating.	Low
		Front wiper HI is operating.	High
LDP) TURN SIGNAL (Note 4)	Turn signal operation	Turn signal is OFF.	Off
		Turn signal lamp RH is blinking.	LH
		Turn signal lamp LH is blinking.	RH
		Turn signal lamp LH and RH are blinking.	LH&RH
LDP) STOP LMP SW (Note 4)	Stop lamp switch signal status	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
LDP) BRAKE SW (Note 4)	Brake switch signal status	When brake pedal is not depressed	On
		When brake pedal is depressed	Off
LDP) LDW SW (Note 4)	LDW switch condition	LDW switch is ON (LDW ON indicator is ON)	On
		LDW switch is OFF (LDW ON indicator is OFF)	Off

NOTE:

- 1: Confirm tire pressure is normal.
- 2: A brief moment of On/Off condition occurs every 20 seconds after ignition switch turned ON. This is not malfunction because it is an operation for checking.
- 3: On and off timing for warning lamp and indicator lamp.
  - ABS warning lamp: Refer to BRC-81, "Description".
  - Brake warning lamp: Refer to BRC-82, "Description".
  - VDC OFF indicator lamp: Refer to BRC-83, "Description".
  - SLIP indicator lamp: Refer to BRC-84, "Description".
  - Lane departure warning lamp: Refer to CCS-122, "System Description".
- 4: With LDP models.

Wiring Diagram - BRAKE CONTROL SYSTEM -

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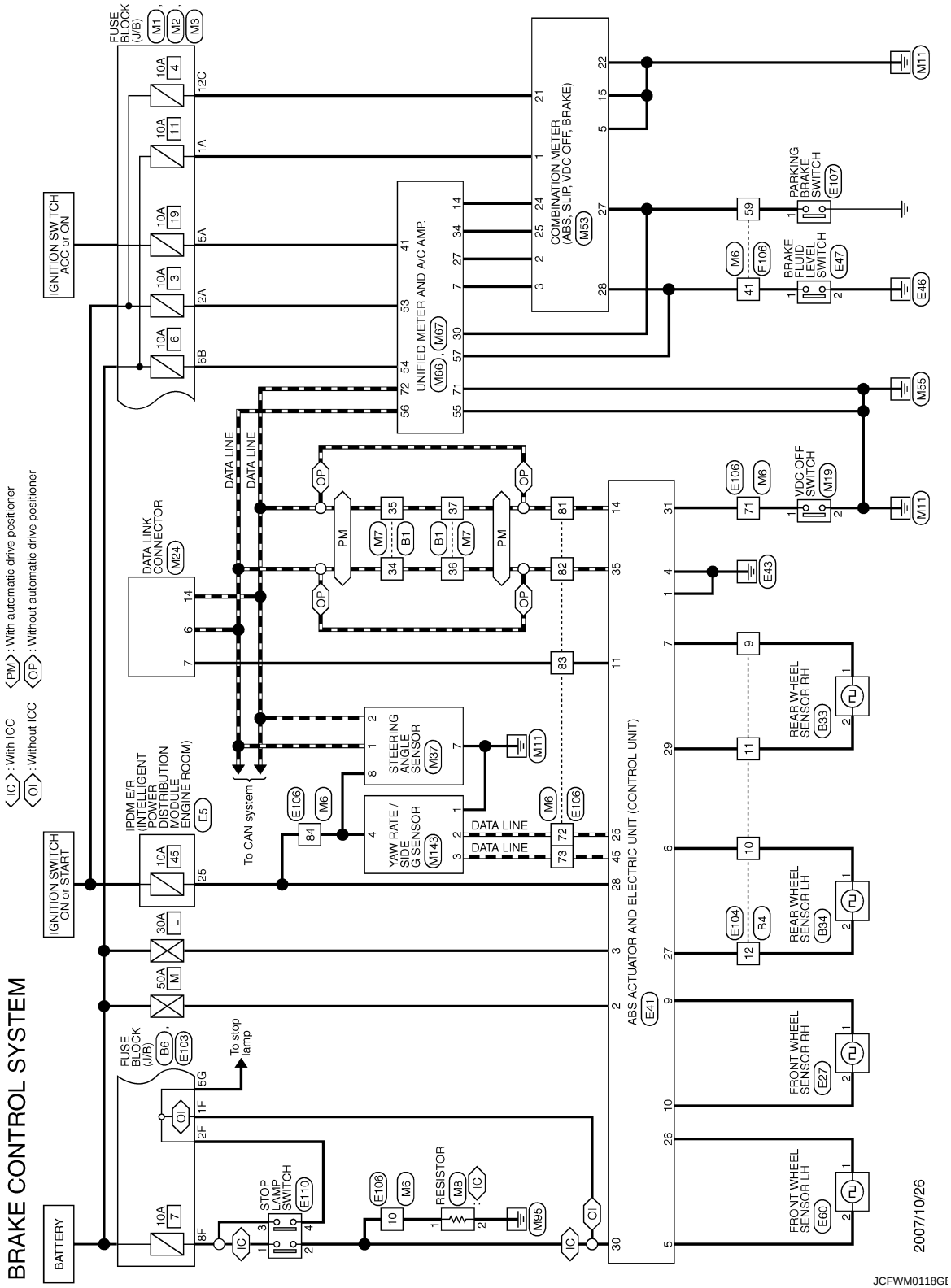
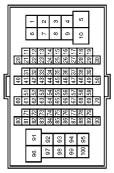


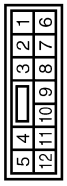
BRAKE CONTROL SYSTEM

Connector No.	B1
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
34	L	–
35	P	–
36	L	–
37	P	–

Connector No.	B4
Connector Name	WIRE TO WIRE
Connector Type	NS12FW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
9	BR	–
10	O	–
11	LG	–
12	GR	–

Connector No.	E5
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH20FW-CS12-M4-1V

Terminal No.	Color of Wire	Signal Name [Specification]
25	G	–

Connector No.	B6
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS12FBR-CS

Terminal No.	Color of Wire	Signal Name [Specification]
5G	LG	–

Connector No.	E27
Connector Name	FRONT WHEEL SENSOR RH
Connector Type	AAZ02FB1

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	–
2	W	–

Connector No.	B34
Connector Name	REAR WHEEL SENSOR LH
Connector Type	AAZ02FB2

Terminal No.	Color of Wire	Signal Name [Specification]
1	O	–
2	GR	–

Connector No.	B33
Connector Name	REAR WHEEL SENSOR RH
Connector Type	AAZ02FB1

Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	–
2	LG	–

JCFWM0119GE

BRAKE CONTROL SYSTEM

Connector No.	E41
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	BAA42FB-AHZ4-LH

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	GND
2	G	UBMR
3	R	UBVR
4	B	GND
5	Y	DS FL
6	O	DP RL
7	BR	DP RR
9	B	DP FR
10	W	DS FR
11	V	DIAG-K
14	P	CAN-L

Connector No.	E103
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FW-CS

H.S.

7F 6F 5F 4F 3F 2F 1F
16F 15F 14F 13F 12F 11F 10F 9F 8F

Terminal No.	Color of Wire	Signal Name [Specification]
1F	SB	-
2F	W	-
8F	L	-

25	Y	BUS-L
26	LG	DP FL
27	GR	DS RL
28	G	UZ
29	LG	DS RR
30	SB	BLS
31	R	VDC OFF SW
35	L	CAN-H
45	B	BUS-H

Connector No.	E104
Connector Name	WIRE TO WIRE
Connector Type	NS12MW-CS

H.S.

1 2 3 4 5
6 7 8 9 10 11 12

Terminal No.	Color of Wire	Signal Name [Specification]
9	BR	-
10	O	-
11	LG	-
12	GR	-

Connector No.	E47
Connector Name	BRAKE FLUID LEVEL SWITCH
Connector Type	YV02FGY

H.S.

1 2

Terminal No.	Color of Wire	Signal Name [Specification]
1	W	-
2	B	-

Connector No.	E60
Connector Name	FRONT WHEEL SENSOR LH
Connector Type	AAZ02FB1

H.S.

2 1

Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	-
2	Y	-

Connector No.	E106
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
10	SB	-
41	W	-
59	O	-
71	R	-
72	Y	-
73	B	-
81	P	-
82	L	-
83	V	-
84	G	-

Connector No.	E107
Connector Name	PARKING BRAKE SWITCH
Connector Type	TB01FW

H.S.

1

Terminal No.	Color of Wire	Signal Name [Specification]
1	O	-

JCFWM0120GB

BRAKE CONTROL SYSTEM

Connector No.	E110
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LC

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	–
2	SB	–
3	L	–
4	W	–

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS06FW-M2

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
1A	GR	–
2A	G	–
5A	V	–

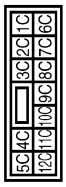
Connector No.	M2
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
6B	Y	–

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS12FW-CS

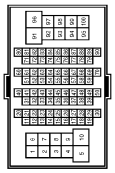
H.S.



Terminal No.	Color of Wire	Signal Name [Specification]
12C	O	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

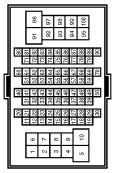
H.S.



Terminal No.	Color of Wire	Signal Name [Specification]
10	L	–
41	W	–
59	V	–
71	LG	–
72	Y	–
73	SB	–
81	P	–
82	L	–
83	R	–
84	G	–

Connector No.	M7
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.



Terminal No.	Color of Wire	Signal Name [Specification]
34	L	–
35	P	–
36	L	–
37	P	–

Connector No.	M8
Connector Name	RESISTOR
Connector Type	M02FBR-LC

H.S.

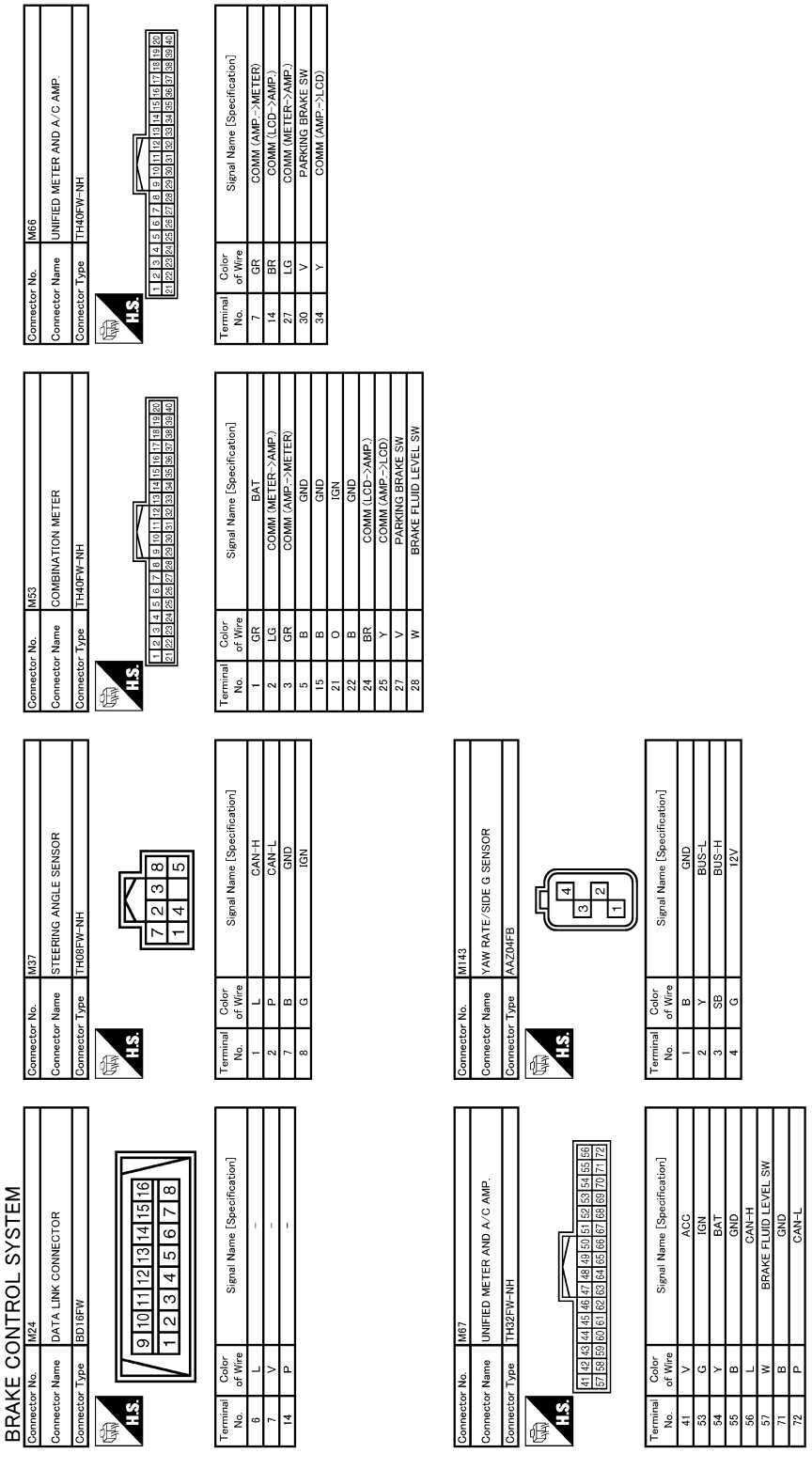
Terminal No.	Color of Wire	Signal Name [Specification]
1	L	–
2	B	–

Connector No.	M19
Connector Name	VDC OFF SWITCH
Connector Type	TK06FGY

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	–
2	B	–

JCFWM0121GE



JCFWM0122GB

Fail-Safe

INFOID:0000000003554294

ABS, EBD SYSTEM

If ABS malfunction electrically, ABS warning lamp, VDC OFF indicator lamp, SLIP indicator lamp will turn on. If EBD malfunction electrically, brake warning lamp, ABS warning lamp, VDC OFF indicator lamp and SLIP indicator lamp will turn on. Simultaneously, the VDC/TCS/ABS become one of the following conditions of the fail-safe function.

- For malfunction of ABS, only the EBD is activated and the condition of vehicle is the same condition of vehicles without TCS/ABS system.
  NOTE:
  ABS self-diagnosis sound may be heard. That is a normal condition because a self-diagnosis for “Ignition switch ON” and “The first starting” are being performed.
- For malfunction of EBD, EBD and ABS become inoperative, and the condition of vehicle is the same as the condition of vehicles without TCS/ABS, EBD system.

VDC / TCS

If VDC/TCS/ABS system malfunction electrically, VDC OFF indicator lamp, SLIP indicator lamp are turned on, and the condition of vehicle is the same as the condition of vehicles without VDC/TCS control.

CAUTION:
If the Fail-Safe function is activated, then perform self-diagnosis for VDC/TCS/ABS control system.

LDW/LDP SYSTEM

- In case of malfunction in the LDW/LDP system, lane departure warning lamp is turned ON, and the condition of vehicle is the same as the condition of vehicles without LDW/LDP control.
- In case of malfunction in the VDC/TCS/ABS system, lane departure warning lamp is turned ON, and the condition of vehicle is the same as the condition of vehicles without LDW/LDP control.

DTC No. Index

INFOID:0000000003554295

DTC	Items (CONSULT screen terms)	Reference
C1101	RR RH SENSOR-1	BRC-35, "DTC Logic"
C1102	RR LH SENSOR-1	
C1103	FR RH SENSOR-1	
C1104	FR LH SENSOR-1	
C1105	RR RH SENSOR-2	BRC-38, "DTC Logic"
C1106	RR LH SENSOR-2	
C1107	FR RH SENSOR-2	
C1108	FR LH SENSOR-2	
C1109	BATTERY VOLTAGE [ABNORMAL]	BRC-41, "DTC Logic"
C1110	CONTROLLER FAILURE	BRC-43, "DTC Logic"
C1111	PUMP MOTOR	BRC-44, "DTC Logic"
C1114	MAIN RELAY	BRC-46, "DTC Logic"
C1115	ABS SENSOR [ABNORMAL SIGNAL]	BRC-48, "DTC Logic"
C1116	STOP LAMP SW	BRC-51, "DTC Logic"
C1120	FR LH IN ABS SOL	BRC-53, "DTC Logic"
C1121	FR LH OUT ABS SOL	BRC-55, "DTC Logic"
C1122	FR RH IN ABS SOL	BRC-53, "DTC Logic"
C1123	FR RH OUT ABS SOL	BRC-55, "DTC Logic"
C1124	RR LH IN ABS SOL	BRC-55, "DTC Logic"
C1125	RR LH OUT ABS SOL	BRC-55, "DTC Logic"
C1126	RR RH IN ABS SOL	BRC-53, "DTC Logic"
C1127	RR RH OUT ABS SOL	BRC-55, "DTC Logic"
C1130	ENGINE SIGNAL 1	BRC-57, "DTC Logic"
C1142	PRESS SEN CIRCUIT	BRC-58, "DTC Logic"
C1143	ST ANG SEN CIRCUIT	BRC-60, "DTC Logic"
C1144	ST ANG SEN SIGNAL	BRC-62, "DTC Logic"
C1145	YAW RATE SENSOR	BRC-63, "DTC Logic"
C1146	SIDE G-SEN CIRCUIT	

DTC	Items (CONSULT screen terms)	Reference
C1147	USV LINE [FL-RR]	BRC-66, "DTC Logic"
C1148	USV LINE [FR-RL]	
C1149	HSV LINE [FL-RR]	
C1150	HSV LINE [FR-RL]	
C1153	EMERGENCY BRAKE	BRC-43, "DTC Logic"
C1154	PNP POSI SIG	BRC-69, "DTC Logic"
C1155	BR FLUID LEVEL LOW	BRC-71, "DTC Logic"
C1170	VARIANT CORDING	BRC-43, "DTC Logic"
C1185	ACC CONT	BRC-73, "DTC Logic"
C1B00	LDP) CAMERA MALF	CCS-149, "DTC Logic"
C1B04	LDP) ICC STG SW MALF	CCS-150, "DTC Logic"
C1B05	LDP) APP SEN MALF	CCS-151, "DTC Logic"
C1B06	LDP) TCM MALF	CCS-152, "DTC Logic"
U0100	LDP) ECM CAN CIR2	CCS-153, "DTC Logic"
U0101	LDP) TCM CAM CAN CIR2	CCS-154, "DTC Logic"
U0104	LDP) ICC CAM CAN CIR2	CCS-155, "DTC Logic"
U0405	LDP) ICC CAM CAN CIR1	CCS-156, "DTC Logic"
U1000	CAN COMM CIRCUIT	BRC-74, "DTC Logic"
U1002	SYSTEM COMM (CAN)	
U1100	ACC COMM CIRCUIT	BRC-75, "DTC Logic"
U1500	LDP) CAM CAN CIR1	CCS-157, "DTC Logic"
U1501	LDP) CAM CAN CIR2	CCS-158, "DTC Logic"

SYMPTOM DIAGNOSIS

LDW & LDP SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000003514641

CAUTION:
Perform the self-diagnosis with CONSULT-III before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON.	Lane departure warning lamp (Yellow) does not illuminate.	• Lane departure warning lamp signal (CAN) - Unified meter and A/C amp. - Lane camera unit • Lane departure warning lamp (Combination meter)	• LANE CAM Active test “LANE DEPARTURE W/L” • METER/M&A Data monitor “LANE W/L”
	LDP ON indicator lamp (Green) does not illuminate.	• LDP ON indicator lamp signal (CAN) - Unified meter and A/C amp. - Lane camera unit • LDP ON indicator lamp (Combination meter)	• LANE CAM Active test “LDP ON IND” • METER/M&A Data monitor “LDP IND”
	LDW ON indicator (on the LDW switch) does not illuminate.	• Harness between lane camera unit and LDW switch. • LDW ON indicator (LDW switch) • Lane camera unit	LDW ON indicator circuit CCS-162
	Lane departure warning lamp (Yellow) and LDP ON indicator lamp (Green) do not illuminate.	• Combination meter • Unified meter and A/C amp. • Lane camera unit	—
	All of indicator/warning lamps do not illuminate; • Lane departure warning lamp (Yellow) • LDP ON indicator lamp (Green) • LDW ON indicator	• Power supply and ground circuit of lane camera unit • Lane camera unit	Power supply and ground circuit of lane camera unit CCS-159
LDW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON.)	LDW ON indicator is not turned ON ⇔ OFF when operating LDW switch.	• Harness between lane camera unit and LDW switch. • Harness between LDW switch and ground. • Lane camera unit	LDW switch circuit CCS-160
	Lane departure warning buzzer is not sounding. (Lane departure warning lamp is activated.)	• Harness between the fuse and lane departure warning buzzer. • Harness between lane camera unit and lane departure warning buzzer. • Harness between lane departure warning buzzer and ground. • Lane departure warning buzzer • Lane camera unit	Lane departure warning buzzer circuit CCS-164
	Lane departure warning lamp is not activated. (Lane departure warning buzzer is sounding.)	Lane camera unit	—

Symptom		Possible cause	Inspection item/Reference page
LDP system is not activated. (LDW system is functioning normally)	LDP ON indicator lamp is not turned ON ⇔ OFF when operating LDP ON switch.	LDP ON switch (ICC steering switch)	LDP ON switch (ICC steering switch)
	Warning is functioning but yawing is not functioning.	—	• Cause of auto-cancel CCS-130 • Normal operating condition CCS-189
	Yawing is functioning but warning is not functioning.	• ABS actuator and electric unit (control unit) • Lane camera unit	—
Warning functions are not timely. (Example) • Does not function when driving on lane markers. • Functions when driving in a lane. • Functions in a different position from the actual position.		• Camera aiming adjustment • Lane camera unit	Camera aiming adjustment CCS-112
Functions when changing the course in direction of the turn signal.		Turn signal • BCM • Lane camera unit	LANE CAM Data monitor “TURN SIGNAL”

NORMAL OPERATING CONDITION

Description

INFOID:0000000003514642

LANE DEPARTURE WARNING (LDW)

- LDW system is only a warning device to inform the driver of a potential unintended lane departure. It does not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.
- LDW system does not operate at speeds below approximately 72 km/h (45 MPH) or if it cannot detect lane markers.
- Excessive noise interfere with the warning sound, and the buzzer may not be heard.
- LDW system may not function properly under the following conditions:
- On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers; or covered with water, dirt or snow, etc.
- On roads where the discontinued lane markers are still detectable.
- On roads where there are sharp curves.
- On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs. (The LDW system could detect these items as lane markers.)
- On roads where the traveling lane merges or separates.
- When the vehicle's traveling direction does not align with the lane marker.
- When traveling close to other vehicle in front of the vehicle, which obstructs the lane camera unit detection range.
- When rain, snow or dirt adheres to the windshield in front of the lane camera unit.
- When the headlights are not bright due to dirt on the lens or if the aiming is not adjusted properly.
- When strong light enters the lane camera unit. (For example, the light directly shines on the front of the vehicle at sunrise or sunset.)
- When a sudden change in brightness occurs. (For example, when the vehicle enters or exits a tunnel or under a bridge.)

LANE DEPARTURE PREVENTION (LDP)

- LDP system does not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of vehicle at all times.
- LDP system is primarily intended for use on well-developed freeways or highways. It may not detect the lane markers in certain roads, weather or driving conditions.
- Using the LDP system under some conditions of road, lane marker or weather, or when driver changes lanes without using the turn signal could lead to an unexpected system operation. In such conditions, driver needs to correct the vehicle's direction with driver's steering operation to avoid accidents.
- When the LDP system is operating, avoid excessive or sudden steering maneuvers. Otherwise, driver could lose control of the vehicle.
- The LDP system does not operate at speeds below approximately 72 km/h (45 MPH) or if it cannot detect lane markers.
- The LDP system may not function properly under the following conditions, and do not use the LDP system:
- During bad weather (rain, fog, snow, wind, etc.).
- When driving on slippery roads, such as on ice or snow, etc.
- When driving on winding or uneven roads.
- When there is a lane closure due to road repairs.
- When driving in a makeshift lane.
- When driving on roads where the lane width is too narrow.
- When driving without normal tire conditions (for example, tire wear, low tire pressure, installation of spare tire, tire chains, non-standard wheels).
- When the vehicle is equipped with non-original brake parts or suspension parts.
- Excessive noise does interfere with the warning sound, and the buzzer may not be heard.
- The functions of the LDP system (warning and brake control assist) may or may not operate properly under the following conditions:
-
- On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers or covered with water, dirt or snow, etc.
- On roads where discontinued lane markers are still detectable.
- On roads where there are sharp curves.
- On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs (The LDP system could detect these items as lane markers.)

- On roads where the traveling lane merges or separates.
- When the vehicle's traveling direction does not align with the lane marker.
- When traveling close to other vehicle in front of the vehicle, which obstructs the lane camera unit detection range.
- When rain, snow or dirt adheres to the windshield in front of the lane camera unit.
- When the headlights are not bright due to dirt on the lens or if the aiming is not adjusted properly.
- When strong light enters the lane camera unit (For example, the light directly shines on the front of the vehicle at sunrise or sunset.)
- When a sudden change in brightness occurs (For example, when the vehicle enters or exits a tunnel or under a bridge.)

• While the LDP system is operating, driver may hear a sound of brake operation. This is normal and indicates that the LDP system is operating properly.

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000003554306

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 AIRBAG” and “SEAT BELT” of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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 the “SRS AIRBAG”.**
- **Do not 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.**

Precaution for LDW/LDP System Service

INFOID:0000000003514643

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- **Never use the LDP system when driving with free rollers or a chassis dynamometer.**
- **Never perform the active test while driving.**
- **Never disassemble and remodel the lane camera unit.**
- **Do not use the lane camera unit that is removed from the vehicle.**
- **Never change LDW initial state ON ⇒ OFF without the consent of the customer.**

To keep the LDW/LDP system operating properly, be sure to observe the following items:

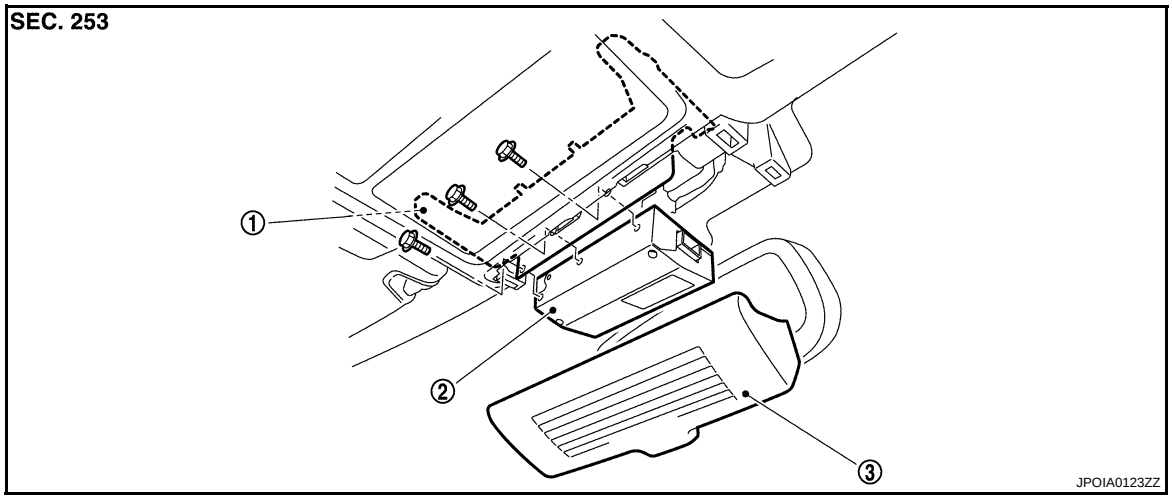
- **Always keep the windshield clean. The sensing capability of the camera unit depends on the condition of the windshield. See “Appearance and care” for cleaning instructions.**
- **Never strike or damage the areas around the lane camera unit.**
- **Never touch the camera lens.**
- **Never attach a sticker (including transparent material) or install an accessory near the lane camera unit.**
- **Never place reflective materials, such as a white paper or mirrors on the instrument panel. Reflection of the sunlight may adversely affect the camera unit's lane marker detection capability.**

ON-VEHICLE REPAIR

LANE CAMERA UNIT

Exploded View

INFOID:0000000003514644



1. Lane camera bracket
2. Lane camera unit
3. Lane camera cover

Removal and Installation

INFOID:0000000003514645

REMOVAL

1. Remove the lane camera cover.
2. Remove the bolts.
3. Disconnect lane camera unit connector, and remove lane camera unit.

NOTE:
When replace the lane camera bracket, remove the headlining assembly.

INSTALLATION

Installation is the reverse order of removal.

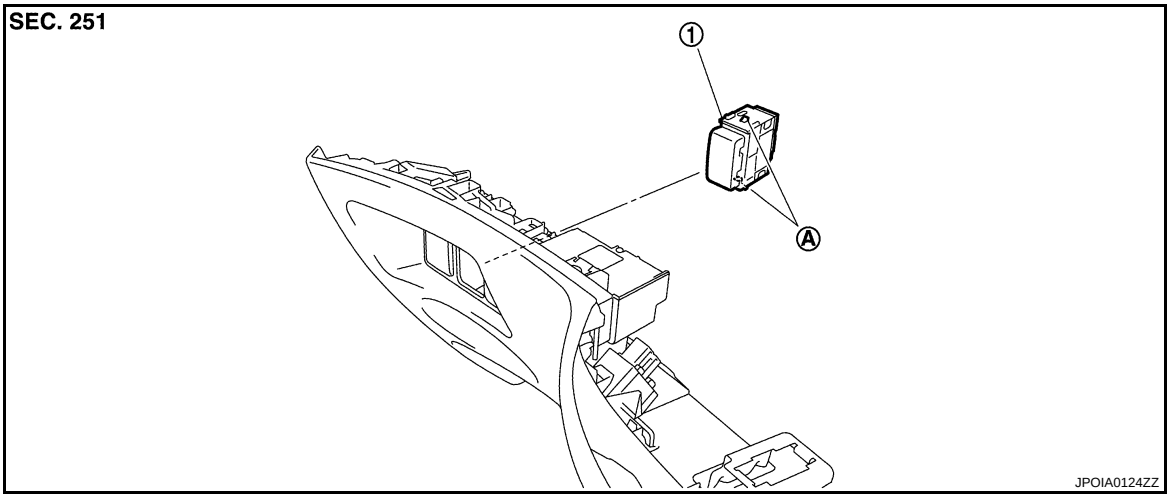
CAUTION:

- **Remove the camera lens cap for replacement.**
- **Never give an impact to the lane camera unit.**
- **Perform the camera aiming every time the lane camera unit is removed and installed. Refer to CCS-112, "CAMERA AIMING ADJUSTMENT : Description".**

LDW SWITCH

Exploded View

INFOID:0000000003514646



1. LDW switch
A. Pawls

Removal and Installation

INFOID:0000000003514647

REMOVAL

1. Remove the instrument driver lower panel. Refer to IP-11, "Exploded View".
2. Disengage the pawl. Then remove LDW switch.

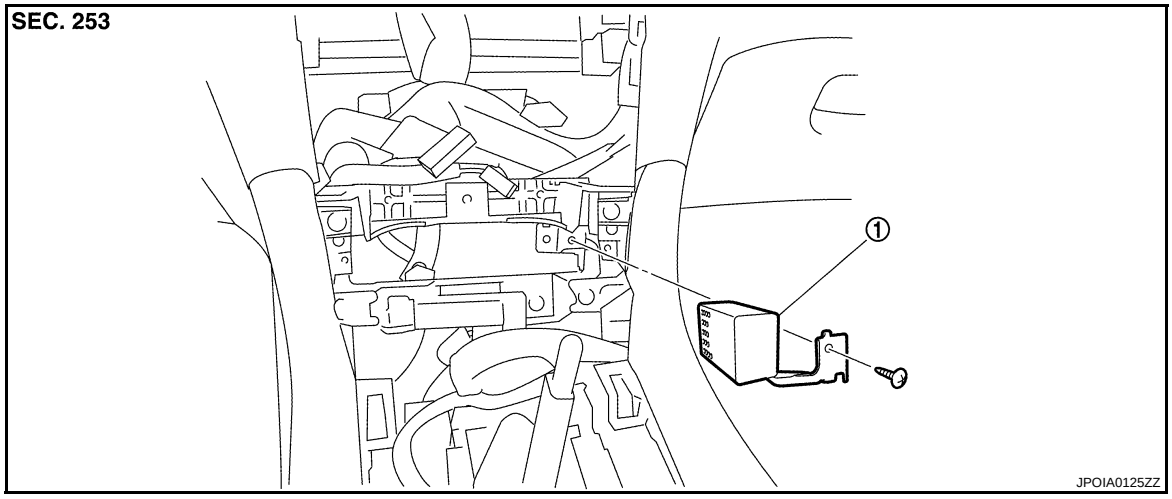
INSTALLATION

Install in the reverse order of removal.

LANE DEPARTURE WARNING BUZZER

Exploded View

INFOID:0000000003514648



1. Lane departure warning buzzer

Removal and Installation

INFOID:0000000003514649

REMOVAL

1. Remove the cluster lid C assembly. Refer to IP-11, "Exploded View".
2. Remove the AV control unit.
3. Remove the screw.
4. Disconnect the connector. And remove lane departure warning buzzer.

INSTALLATION

Installation is the reverse order of removal.

LDP ON SWITCH

Exploded View

INFOID:0000000003514650

LDP ON switch is integrated in the ICC steering switch. Refer to ST-16, "Exploded View".