SECTION CCS
CRUISE CONTROL SYSTEM

CONTENTS

ICC

ASCD

PRECAUTION

PRECAUTIONS

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

INFOID:0000000013001594

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. Information necessary to service the system safely is included in the SR and SB section 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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper repair, 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 SR section.**
- **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.**

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery or batteries, and wait at least three minutes before performing any service.**

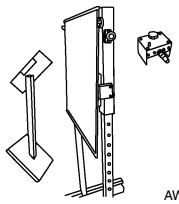
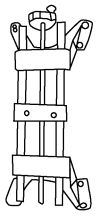
PREPARATION

PREPARATION

Special Service Tools

INFOID:0000000013001604

The actual shape of the tools may differ from those illustrated here.

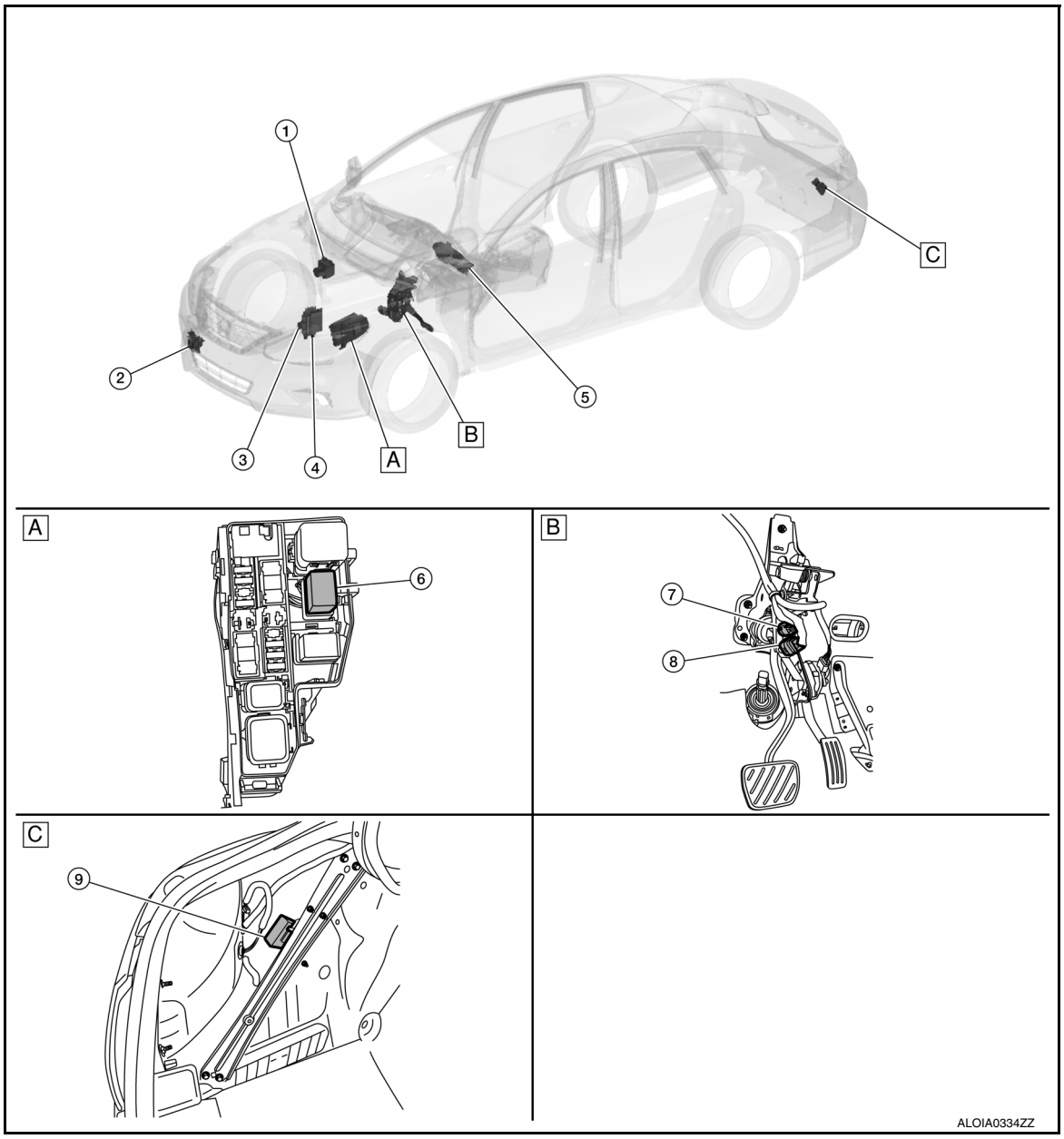
Tool number (TechMate No.) Tool name		Description
— (1-20-2721-1-IF) ICC Alignment Kit	 AWOIA0016ZZ	Adjusting ICC sensor
— (1-20-2722-1-IF) Wheel Adaptor	 AWOIA0017ZZ	Adjusting ICC sensor

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000012950817

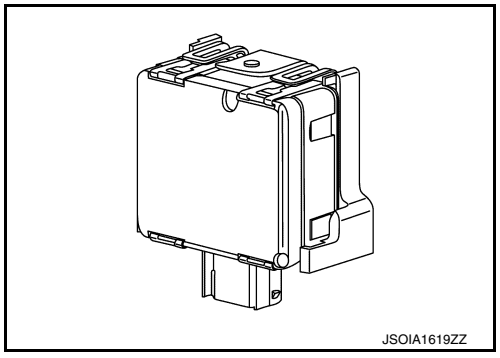


A. Engine room LH B. Brake pedal area C. Luggage compartment LH

No.	Component	Function
1.	ABS actuator and electric unit (control unit)	• ABS actuator and electric unit (control unit) transmits the vehicle speed signal (wheel speed), stop lamp signal and VDC/TCS/ABS system operation condition to ADAS control unit via CAN communication. • ABS actuator and electric unit (control unit) controls the brake based on a brake fluid pressure control signal received from the ADAS control unit via CAN communication. Refer to BRC-367, "Removal and Installation" for detailed installation location.
2.	ICC sensor	• Refer to CCS-7, "ICC Sensor".
3.	TCM	• TCM transmits the signal related to CVT control to ADAS control unit via CAN communication. • Refer to TM-16, "CVT CONTROL SYSTEM : TCM" (RE0F10D) or TM-223, "CVT CONTROL SYSTEM : TCM" (RE0F10H) for detailed installation location.
4.	ECM	• ECM transmits the accelerator pedal position signal, brake pedal position switch signal, stop lamp switch signal, ICC steering switch signal, etc., to ADAS control unit via CAN communication. • ECM controls the electric throttle control actuator based on the engine torque demand received from the ADAS control unit via CAN communication. • Refer to EC-27, "ECM" (QR25DE) or EC-585, "ENGINE CONTROL SYSTEM : Component Parts Location" (VQ35DE) for detailed installation location.
5.	Combination meter (Information display, FEB indicator lamp, buzzer)	• Description: Refer to CCS-9, "Combination Meter". • System display and warning: Refer to CCS-17, "INTELLIGENT CRUISE CONTROL : Menu Displayed by Pressing Each Switch".
6.	ICC brake hold relay	Refer to CCS-9, "ICC Brake Hold Relay".
7.	Brake pedal position switch	Refer to CCS-8, "Brake Pedal Position Switch/Stop Lamp Switch".
8.	Stop lamp switch	
9.	ADAS control unit	• Refer to CCS-8, "ADAS Control Unit". • Refer to CCS-6, "Component Parts Location" for detailed installation location.

ICC Sensor

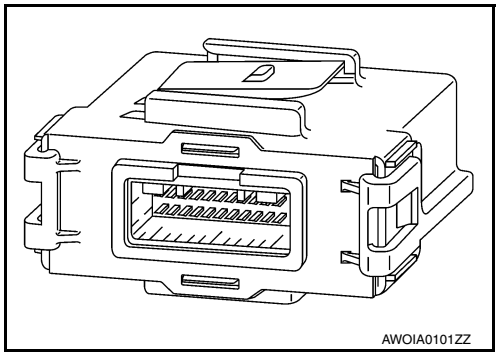
INFOID:0000000012950818



- ICC sensor is installed on the front of the bumper and detects a vehicle ahead using millimeter waves.
- ICC sensor detects radar reflected from a vehicle ahead by irradiating radar forward and calculates a distance from the vehicle ahead and relative speed, based on the detected signal.
- ICC sensor transmits information for ICC from the vehicle to ADAS control unit via ITS communication.

ADAS Control Unit

INFOID:0000000012950819

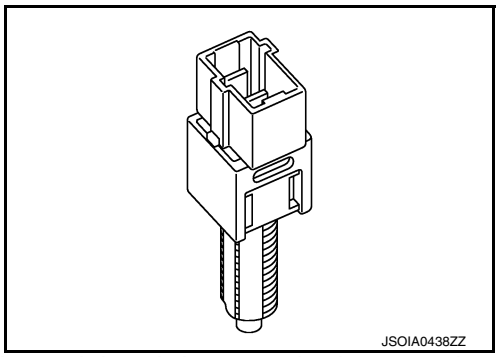


- ADAS control unit is installed.
- ADAS control unit calculates and transmits an engine torque command value to ECM and a brake fluid pressure control signal to ABS actuator and electric unit (control unit) via CAN communication.
- ADAS control unit transmits buzzer output signal and meter display signal to combination meter via CAN communication.

Brake Pedal Position Switch/Stop Lamp Switch

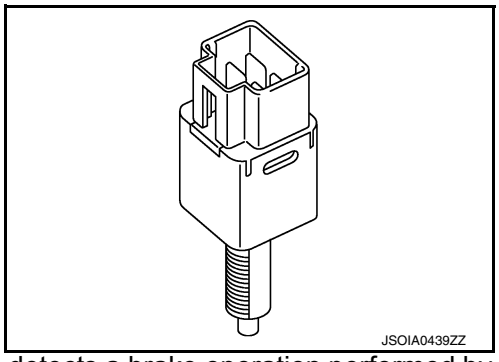
INFOID:0000000012950820

BRAKE PEDAL POSITION SWITCH



- Brake pedal position switch is installed at the upper part of the brake pedal and detects a brake operation performed by the driver.
- Brake pedal position switch is turned OFF when depressing the brake pedal.
- Brake pedal position switch signal is input to ECM. Brake pedal position switch signal is transmitted from ECM to ADAS control unit via CAN communication.

STOP LAMP SWITCH



- Stop lamp switch is installed at the upper part of the brake pedal and detects a brake operation performed by the driver.
- Stop lamp switch is turned ON when depressing the brake pedal.
- Stop lamp switch signal is inputted to ECM and ABS actuator and electric unit (control unit). Stop lamp switch signals are transmitted from ECM and ABS actuator and electric unit (control unit) to ADAS control unit via CAN communication.

ICC Steering Switch

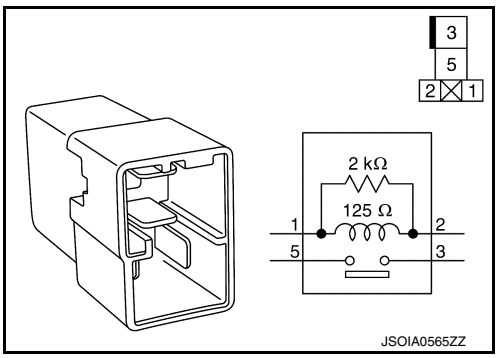
INFOID:0000000012950821

- ICC steering switch is installed to the steering wheel and allows the driver to operate the ICC system by using this switch.

- ICC steering switch controls the ON/OFF operation of the Intelligent Cruise Control and the settings of vehicle speed and distance between vehicles.
- ICC steering switch signal is transmitted to ECM. ECM transmits the signal to the ICC sensor unit via CAN communication.

ICC Brake Hold Relay

INFOID:0000000012950822



- ICC brake hold relay is installed in the engine room (LH).
- When the brake is activated by the ICC system, the ICC brake hold relay turns ON the stop lamp by bypassing the circuit of the stop lamp according to a signal transmitted from the ADAS control unit.

Combination Meter

INFOID:0000000012950823

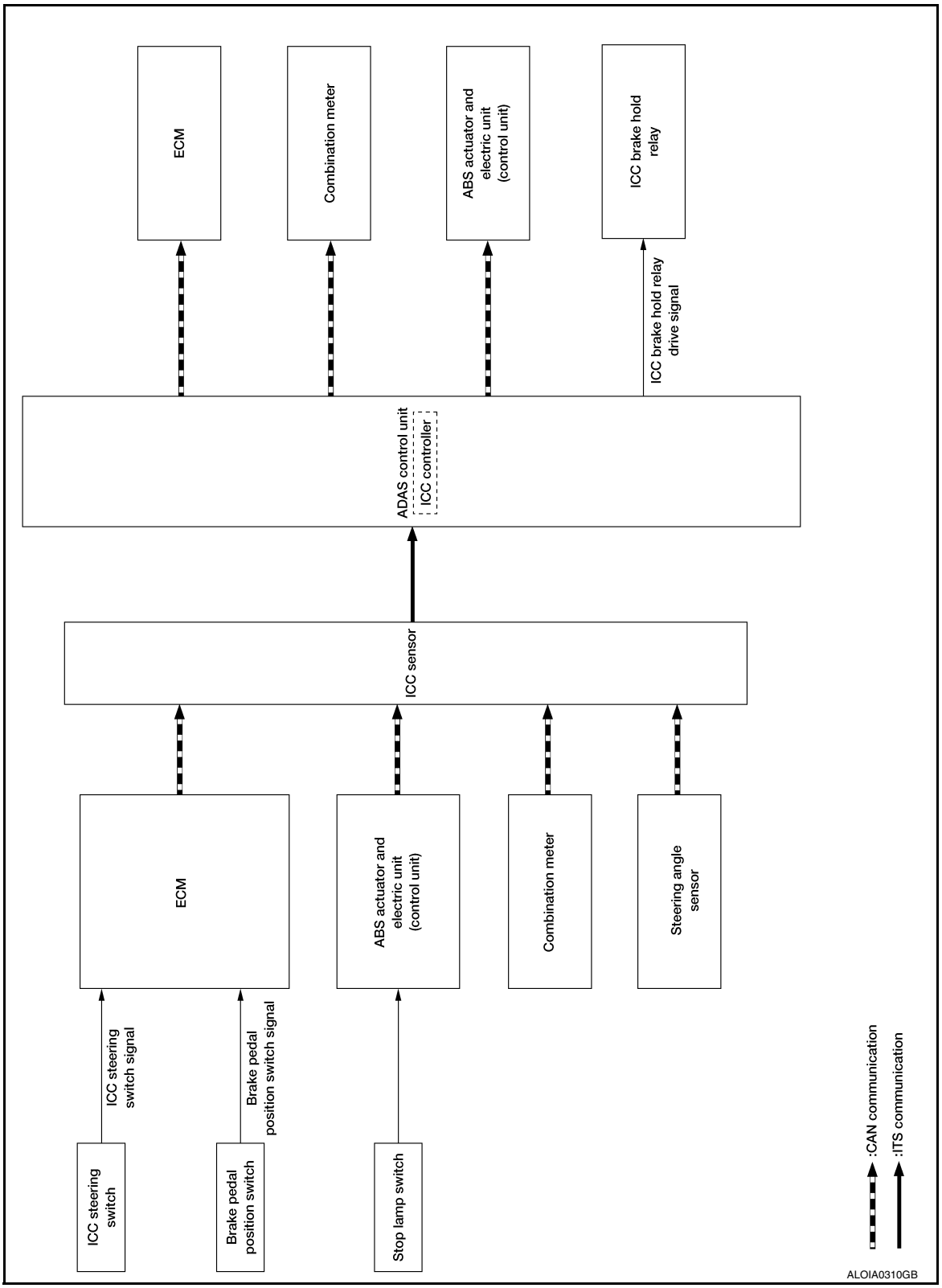
- Performs the following operations using the signals received from the ADAS control unit via the CAN communication:
- Displays the ICC system operation status using the meter display signal.
- Illuminates the ICC system warning lamp using the ICC warning lamp signal.
- Illuminates the FEB indicator lamp using the FEB indicator lamp signal.
- Operates the buzzer (ICC warning chime) using the buzzer output signal.
- Combination meter turns ON/OFF the FEB system and transmits a system selection signal to the ICC sensor.

SYSTEM

System Description

INFOID:0000000012950824

SYSTEM DIAGRAM



ICC SENSOR UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

Transmit unit	Signal name			Description
ECM	CAN communication	Closed throttle position signal		Receives idle position state (ON/OFF)
		Accelerator pedal position signal		Receives accelerator pedal position (angle)
		ICC prohibition signal		Receives an operable/inoperable state of the ICC system
		ICC steering switch signal	Main switch signal	Receives the operational state of the ICC steering switch
			SET/COAST switch signal	
			CANCEL switch signal	
			RESUME/ACCELERATE switch signal	
			DISTANCE switch signal	
		Engine speed signal		Receives engine speed
		Stop lamp switch signal		Receives an operational state of the brake pedal
		Brake pedal position switch signal		Receives an operational state of the brake pedal
TCM	CAN communication	Input speed signal		Receives the number of revolutions of input shaft
		Current gear position signal		Receives a current gear position
		Shift position signal		Receives a selector lever position
		Output shaft revolution signal		Receives the number of revolutions of output shaft
ABS actuator and electric unit (control unit)	CAN communication	ABS malfunction signal		Receives a malfunction state of ABS
		ABS operation signal		Receives an operational state of ABS
		ABS warning lamp signal		Receives an ON/OFF state of ABS warning lamp
		TCS malfunction signal		Receives a malfunction state of TCS
		TCS operation signal		Receives an operational state of TCS
		VDC OFF switch signal		Receives an ON/OFF state of VDC
		VDC malfunction signal		Receives a malfunction state of VDC
		VDC operation signal		Receives an operational state of VDC
		Vehicle speed signal (ABS)		Receives wheel speeds of four wheels
		Stop lamp switch signal		Receives an operational state of the brake pedal
		Yaw rate signal		Receives yaw rate acting on the vehicle
Combination meter	CAN communication	Parking brake switch signal		Receives an operational state of the parking brake
		System selection signal		Receives a selection state of FEB system
Steering angle sensor	CAN communication	Steering angle sensor malfunction signal		Receives a malfunction state of steering angle sensor
		Steering angle sensor signal		Receives the number of revolutions and turning direction of the steering wheel
		Steering angle speed signal		Receives the turning angle speed of the steering wheel
ADAS control unit	ITS communication	ADAS sensor signal		State of ADAS

Output Signal Item

Reception unit	Signal name		Description
ADAS control unit	ITS communication	ICC sensor signal	Transmits information for ICC

ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal

Reception unit	Signal name		Description
ECM	CAN communication	Engine speed signal	Receives engine speed
		Accelerator pedal position signal	Receives accelerator pedal position (angle)
TCM	CAN communication	Input speed signal	Receives the number of revolutions of input shaft
		Output shaft revolution signal	Receives the number of revolutions of output shaft
ICC sensor	ITS communication	ICC sensor signal	Receives information for ICC

Output Signal

Reception unit	Signal name			Description
ECM	CAN communication	ICC operation signal		Transmits an ICC operation signal necessary for Intelligent Cruise Control
TCM	CAN communication	ICC operation signal		Transmits an ICC operation signal necessary for Intelligent Cruise Control via ECM
ABS actuator and electric unit (control unit)	CAN communication	Brake fluid pressure control signal		Transmits a brake fluid pressure control signal to activate the brake
Combination meter	CAN communication	Meter display signal	ICC warning lamp signal	Transmits a signal to display a state of the system on the information display
			Vehicle ahead detection indicator signal	
			Set vehicle speed indicator signal	
			Set distance indicator signal	
			SET switch indicator signal	
			MAIN switch indicator signal	
		FEB indicator lamp signal		• Transmits a signal to turn ON the FEB indicator lamp • Transmits an ON/OFF state of the FEB system
		Buzzer output signal		Transmits a buzzer output signal to turn ON the buzzer of the following systems: • Intelligent Cruise Control (ICC) • Forward Emergency Braking (FEB)
ICC sensor	ITS communication	ADAS status signal		State of ADAS
ICC brake hold relay	ICC brake hold relay drive signal			Activates the brake hold relay and turns ON the stop lamp

DESCRIPTION

Intelligent Cruise Control

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

CAUTION:

Never set the cruise speed to exceed the posted speed limit.

WARNING:

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

Forward Collision Warning (FCW) System

FCW shares the systems and components with ICC system. Refer to CCS-10, "System Description".

Forward Emergency Braking (FEB) System

FEB system shares the systems and components with ICC system. Refer to BRC-203, "BRAKE ASSIST (WITH PREVIEW FUNCTION) : System Description-Forward Emergency Braking".

Fail-safe (ADAS Control Unit)

INFOID:0000000012950825

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning lamp or indicator lamp.

System	Buzzer	Warning lamp/Indicator lamp	Description
Intelligent Cruise Control System	High-pitched tone	ICC system warning lamp	Cancel

Fail-safe (ICC Sensor)

INFOID:0000000012950826

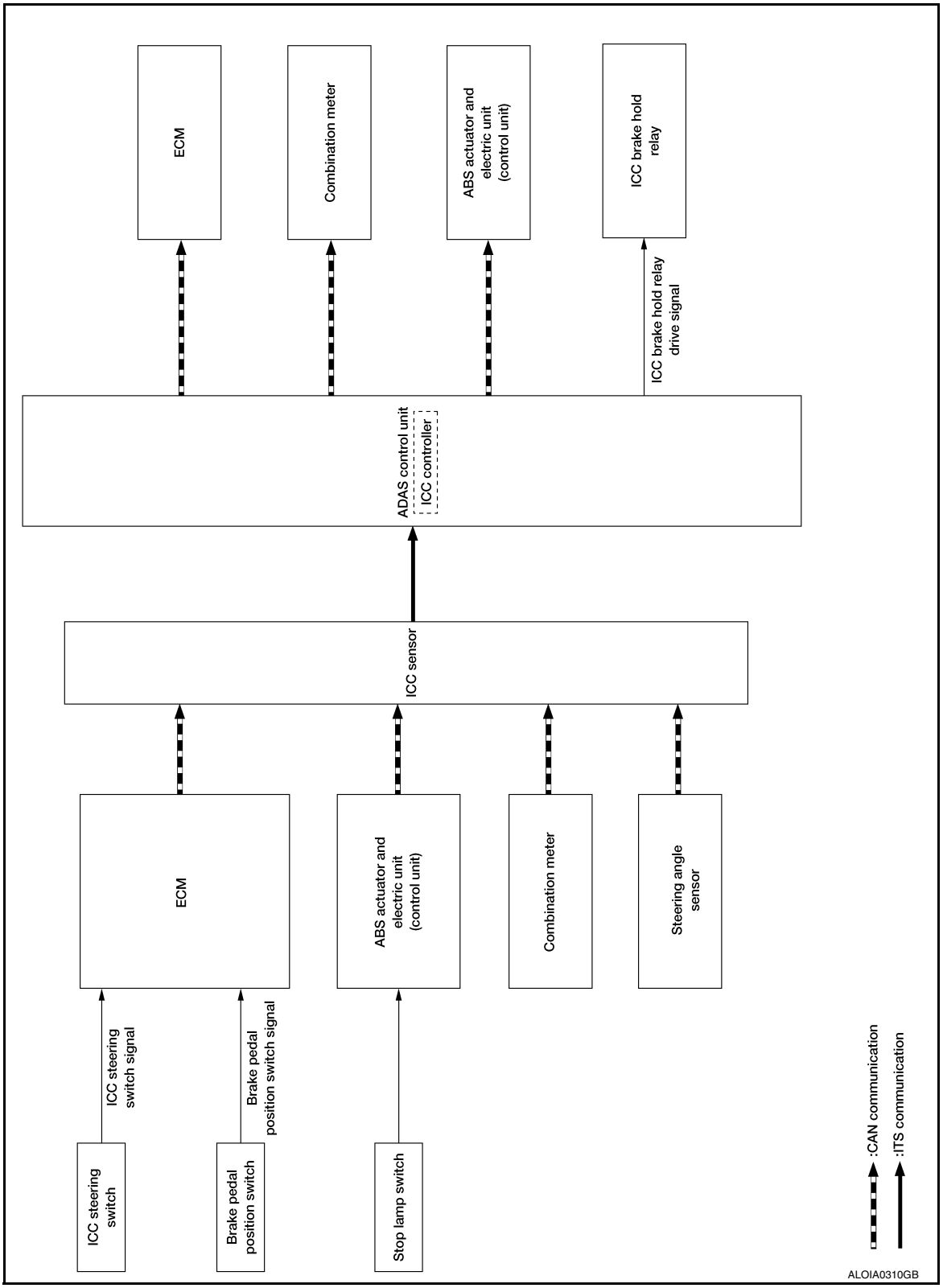
If a malfunction occurs in the ICC sensor, ADAS control unit cancels control, sounds a beep, and turns ON the ICC system warning lamp in the combination meter.

INTELLIGENT CRUISE CONTROL

INTELLIGENT CRUISE CONTROL : System Description

INFOID:0000000012950827

SYSTEM DIAGRAM



FUNCTION DESCRIPTION

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

With ICC system, the driver can maintain the same speed as other vehicles without the constant need to adjust the set speed as the driver would with a normal cruise control system.
The following items are controlled in the ICC system:

- When there are no vehicles traveling ahead, the ICC system maintains the speed set by the driver. The set speed range is between approximately 32 and 144 km/h (20 and 90 MPH).
- When there is a vehicle traveling ahead, the ICC system adjusts the speed to maintain the distance, selected by driver, from a vehicle ahead. The adjusting speed range is up to the set speed.
- When the vehicle traveling ahead has moved from its lane of travel, the ICC system accelerates and maintains vehicle speed up to the set speed.

CAUTION:
If the vehicle ahead comes to a stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges that the vehicle has come to a standstill and sound a warning chime.
To prevent the vehicle from moving, the driver must depress the brake pedal.
NOTE:
When the accelerator pedal is depressed, the brake operation and the warning are not performed by the ICC system.

OPERATION DESCRIPTION

Push and release the MAIN switch ON.
The MAIN switch indicator, set distance indicator and set vehicle speed indicator come on and ICC system is set to a standby state.
ADAS control unit performs the control as per the following:

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

Set Condition

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

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

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

- When the SET/COAST switch is pushed under the following conditions, the system cannot be set and the set vehicle speed indicator will blink for approximately 2 seconds:
- When traveling below 32 km/h (20 MPH) and the vehicle ahead is not detected.
- When the selector lever is not in the “D” position or manual mode.
- When the parking brake is applied.
- When the brakes are operated by the driver.
- When the SET/COAST switch is pushed under the following conditions, the system cannot be set and a warning chime will sound and display causes in combination meter (information display):
- When the VDC is OFF. (To use the ICC system, turn ON the VDC system, push the MAIN switch to turn OFF the ICC system and reset the ICC system by pushing the MAIN switch again.)
- When ABS or VDC (including the TCS) operates.
- When the wheel is slipping. (To use the ICC system, make sure the wheels are no longer spinning, push the MAIN switch to turn OFF the ICC system and reset the ICC system by pushing the MAIN switch again.)

Cancel Conditions

1. When CANCEL switch is pressed.
2. When brake pedal is depressed.
3. When the vehicle ahead is not detected below the speed of 24 km/h (15 MPH).

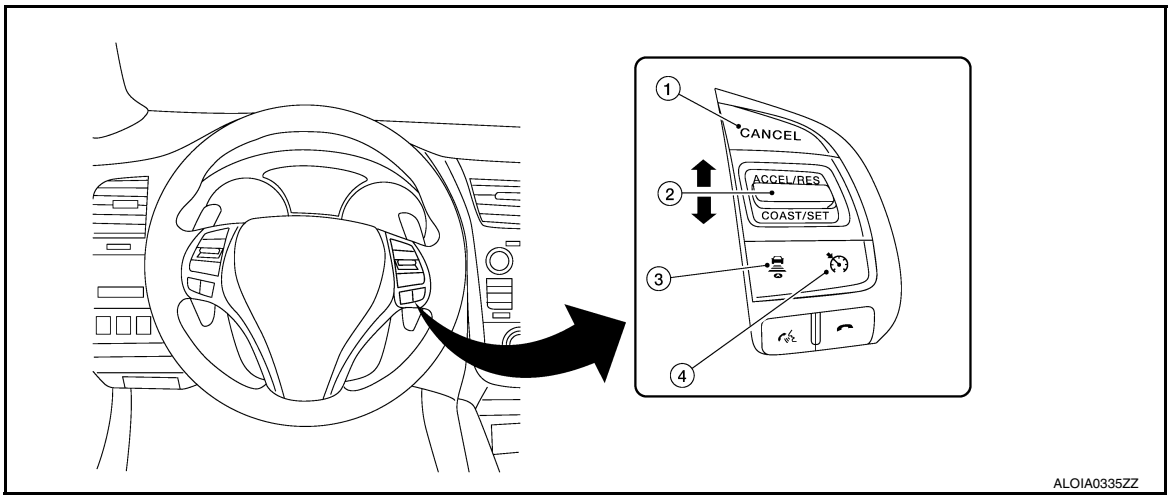
4. When the selector lever is not in the “D” position or manual mode.
5. When the parking brake is applied.
6. When the system judges the vehicle is at a standstill.
7. When ABS or VDC (including the TCS) operates.
8. When the MAIN switch is turned OFF.
9. When a wheel slips.
10. When the VDC is turned OFF.
11. When a system malfunction occurs.

OPERATION

INTELLIGENT CRUISE CONTROL

INTELLIGENT CRUISE CONTROL : Switch Name and Function

INFOID:0000000012950828

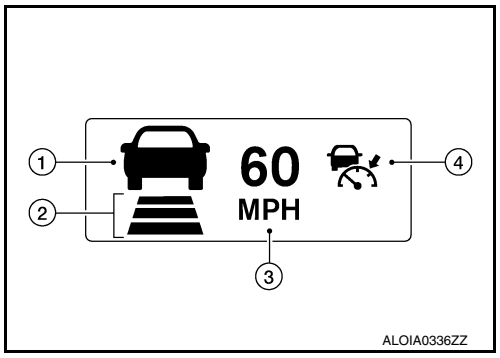


No.	Switch name	Description
1.	CANCEL switch	Deactivates the system without erasing the set speed
2.	RES/+ SET/- switch	Sets desired cruise speed or reduces speed incrementally • Push and hold the switch to decrease the set speed by 8 km/h (5 MPH). • Push then quickly release the switch to decrease the set speed by 1.6 km/h (1 MPH). **NOTE:** The minimum set speed is 32 km/h (20 MPH). Resumes set speed or increases speed incrementally • Push and hold the switch to increase the set speed by 8 km/h (5 MPH). • Push then quickly release the switch to increase the set speed by 1.6 km/h (1 MPH).
3.	DISTANCE switch	Changes the following distance from: Long, Middle, Short
4.	MAIN switch	Master switch to activate the system (Press for less than 1.5 seconds.)

INTELLIGENT CRUISE CONTROL : Menu Displayed by Pressing Each Switch

INFOID:0000000012950829

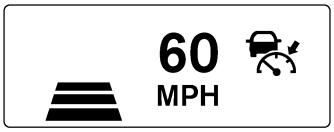
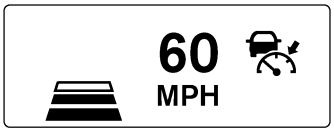
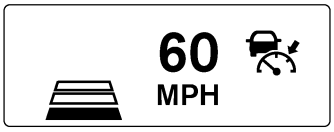
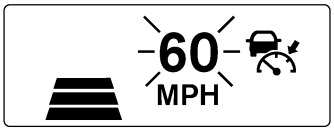
ICC SYSTEM DISPLAY (ON THE INFORMATION DISPLAY)

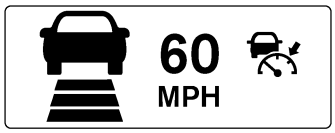
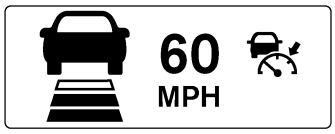
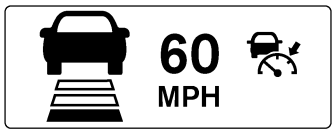
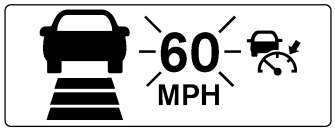


No.	Display item	Description
1.	Vehicle ahead detection indicator	Indicates whether it detects a vehicle ahead
2.	Set distance indicator	Indicates the selected distance between vehicles set with the DISTANCE switch
3.	Set vehicle speed indicator	• Indicates the set vehicle speed • Indicates 32 km/h (20 MPH) when setting is less than 32 km/h (20 MPH)
	Main switch indicator (white)	White: Indicates the main switch is ON (ICC system ON)
4.	ICC system warning lamp (orange)	Orange: Indicates that a malfunction occurred in the ICC system

SYSTEM CONTROL CONDITION DISPLAY

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

Condition			Display on ICC system display
Standby mode			 ALOIA0338ZZ
Control mode	Without a vehicle ahead	Set vehicle distance (Long)	 ALOIA0337ZZ
		Set vehicle distance (Middle)	 ALOIA0339ZZ
		Set vehicle distance (Short)	 ALOIA0340ZZ
		When the vehicle speed exceeds the set speed	 ALOIA0341ZZ

Condition			Display on ICC system display
Control mode	With a vehicle ahead	Set vehicle distance (Long)	 ALOIA0345ZZ
		Set vehicle distance (Middle)	 ALOIA0344ZZ
		Set vehicle distance (Short)	 ALOIA0343ZZ
		When the vehicle speed exceeds the set speed	 ALOIA0342ZZ

APPROACH WARNING DISPLAY

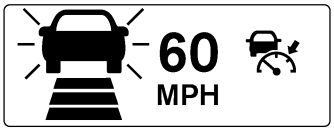
If own vehicle comes closer to a vehicle ahead due to rapid deceleration of that vehicle or if another vehicle cuts in, the system warns the driver with the chime and ICC system display. Decelerate by depressing the brake pedal to maintain a safe vehicle distance if:

- The chime sounds.
- The vehicle ahead detection indicator blinks in orange.

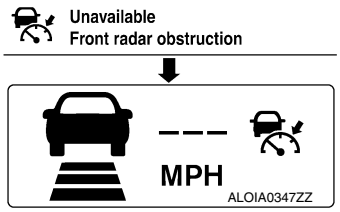
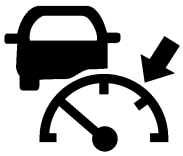
The warning chime may not sound in some cases when there is a short distance between vehicles. Some examples are:

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

The warning chime will not sound when own vehicle approaches vehicles that are parked or moving slowly.
The warning chime will not sound when the accelerator pedal is depressed, overriding the system.
The approach warning chime may sound and the system display may blink when the ICC sensor detects some reflectors which are fitted on vehicles in other lanes or on the side of the road.
This may cause the ICC system to decelerate or accelerate the vehicle.
The ICC sensor may detect these objects when the vehicle is driven on winding roads, hilly roads or when entering or exiting a curve.
The ICC sensor may also detect reflectors on narrow roads or in road construction zones.
In these cases, driver will have to manually control the proper distance ahead of own vehicle.
Also, the sensor sensitivity can be affected by vehicle operation (steering maneuver or driving position in the lane) or traffic or vehicle conditions (for example, if a vehicle is being driven with some damage).

Condition	Display on ICC system display
When own vehicle comes closer to the vehicle ahead and it is judged that the distance between the vehicles is not sufficient	 ALOIA0346ZZ

WARNING LAMP AND AUTOMATIC CANCELLATION DISPLAY

Condition		Description	Display on ICC system display
Automatic cancellation display	• When brake pedal is depressed • When CANCEL switch is pressed • When a vehicle ahead is not detected below the speed of 24 km/h (15 MPH) • When the system judges the vehicle is at a standstill • When the selector lever is not in "D" position or manual mode • When the parking brake is applied	A chime sounds and the control is automatically canceled. **NOTE:** • The system will be in a standby state after the control is automatically canceled. • A chime sounds when the control is automatically canceled except when brake pedal is depressed or when CANCEL switch is pressed.	 ALOIA0338ZZ
Warning display	• When the VDC is turned OFF • When the VDC or ABS (including the TCS) operates • When a wheel slips • When the driver mode selector (DMS) switch is in SNOW mode	A chime sounds and the control is automatically canceled. **NOTE:** When the conditions listed are no longer present, turn the system OFF using the MAIN switch. Turn the ICC system back on to use the system.	Example: When the front bumper near the ICC sensor is blocked or dirty, making it impossible to detect a vehicle ahead  ALOIA0347ZZ
	When the front bumper near the ICC sensor is blocked or dirty, making it impossible to detect a vehicle ahead	A chime sounds and the control is automatically canceled. **NOTE:** Park the vehicle in a safe place and turn the engine OFF. Clean the front bumper near the ICC sensor and then perform the settings again.	
	When the ICC system is malfunctioning	A chime sounds and the control is automatically canceled. **NOTE:** Turn the engine OFF and restart engine. If there is no malfunction, it is possible to set the system.	 ALOIA0279ZZ

NOTE:
When the ICC system is automatically canceled, the cancellation condition can be displayed in “Work support” of CONSULT (ICC/ADAS).

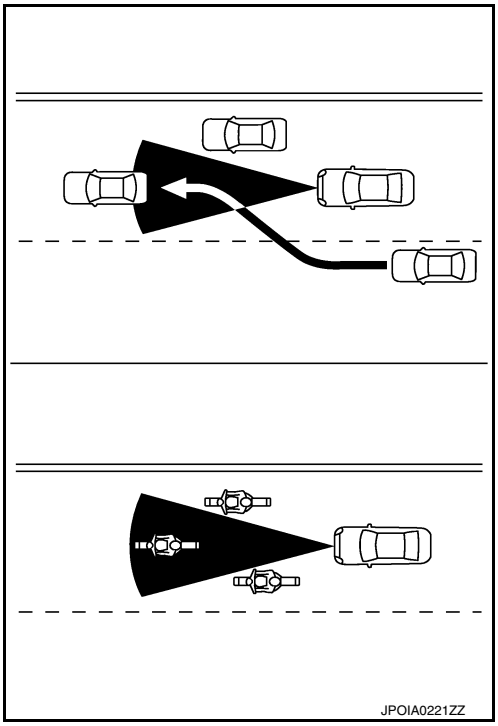
HANDLING PRECAUTION

Precautions for Intelligent Cruise Control

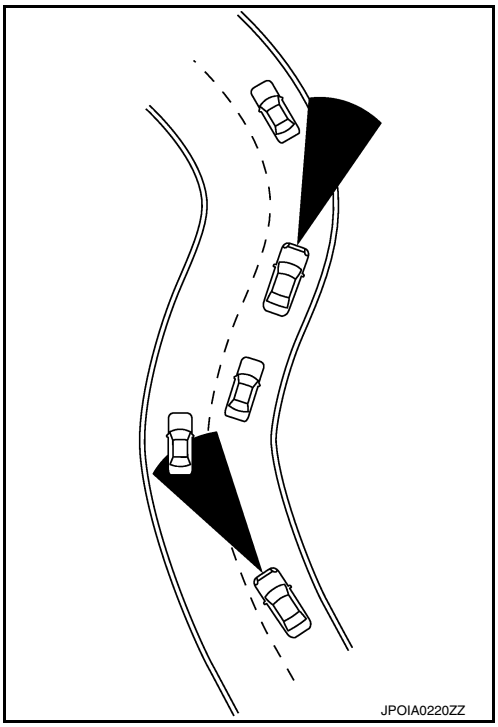
INFOID:0000000012950830

- ICC system is only an aid to assist the driver and is not a collision warning or avoidance system. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- The system is primarily intended for use on straight, dry, open roads with light traffic. It is not advisable to use the system in city traffic or congested areas.
- This system will not adapt automatically to road conditions. This system should be used in evenly flowing traffic. Never use the system on roads with sharp curves or on icy roads, in heavy rain or in fog.
- The ICC sensor will not detect the following objects:
- Stationary and slow-moving vehicles.
- Pedestrians or objects in the roadway.
- Oncoming vehicles in the same lane.
- Motorcycles traveling offset in the travel lane.
- As there is a performance limit to the distance control function, never rely solely on the ICC system. This system does not correct careless, inattentive or absent-minded driving or overcome poor visibility in rain, fog, or other bad weather. Decelerate the vehicle speed by depressing the brake pedal, depending on the distance to the vehicle ahead and the surrounding circumstances in order to maintain a safe distance between vehicles.
- If the vehicle ahead comes to a stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges that the vehicle has come to a standstill and sound a warning chime. To prevent the vehicle from moving, the driver must depress the brake pedal.
- The system may not detect the vehicle ahead of the driver in certain road or weather conditions. To avoid accidents, never use the ICC system under the following conditions:
- On roads where the traffic is heavy or there are sharp curves.
- On slippery road surfaces such as on ice or snow, etc.
- During bad weather (rain, fog, snow, etc.).
- When rain, snow or dirt adheres to the ICC sensor.
- On steep downhill roads (the vehicle may go beyond the set vehicle speed and frequent braking may result in overheating the brakes).
- On repeated uphill and downhill roads.
- When traffic conditions make it difficult to keep a proper distance between vehicles because of frequent acceleration or deceleration.
- Never use the ICC system if own vehicle is towing a trailer. The system may not detect a vehicle ahead.
- Interference by other radar sources.
- In some road or traffic conditions, a vehicle or object can unexpectedly come into the sensor detection zone and cause automatic braking. The driver may need to control the distance from other vehicles using the accelerator pedal. Always stay alert and avoid using the ICC system when it is not recommended in this section.
- The Intelligent Cruise Control uses a sensor located on the front of the vehicle to detect vehicles traveling ahead. The sensor generally detects the signals returned from the vehicle ahead. Therefore, if the sensor cannot detect the reflection from the vehicle ahead, the ICC system may not maintain the selected distance.
- The following are some conditions in which the sensor cannot detect the signals:
- When snow or road spray from traveling vehicles reduces the sensor's visibility.
- When excessively heavy baggage is loaded in the rear seat or the luggage room of own vehicle.
- The ICC system is designed to automatically check the sensor's operation within the limitations of the system. When the sensor area around the ICC sensor is covered with dirt or is obstructed, the system will automatically cancel. If the sensor area around the ICC sensor is covered with ice, a transparent or translucent vinyl bag, etc., the ICC system may not detect it. In these instances, the Intelligent Cruise Control may not cancel and may not be able to maintain the selected following distance from the vehicle ahead. Be sure to check and clean the sensor area around the ICC sensor regularly.
- The ICC system does not control vehicle speed or warn the driver when own vehicle approaches stationary or slow-moving vehicles. The driver must pay attention to vehicle operation to maintain proper distance from vehicles ahead when approaching toll gates or traffic congestion.

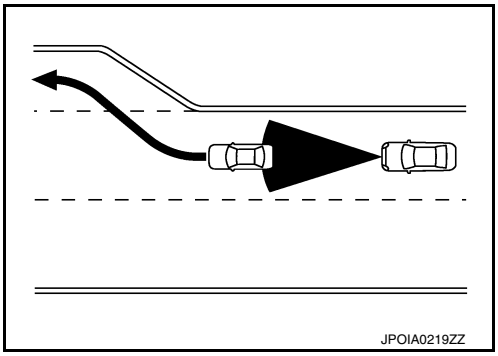
- The detection zone of the ICC sensor is limited. A vehicle ahead must be in the detection zone for the Intelligent Cruise Control to maintain the selected distance from the vehicle ahead. A vehicle ahead may move outside of the detection zone due to its position within the same lane of travel. Motorcycles may not be detected in the same lane ahead if they are traveling offset from the center line of the lane. A vehicle that is entering the lane ahead may not be detected until the vehicle has completely moved into the lane. If this occurs, the ICC system may warn the driver by blinking the system indicator and sounding the chime. The driver may have to manually control the proper distance from vehicle traveling ahead.



- When driving on some roads, such as winding, hilly, curved, narrow roads or roads which are under construction, the ICC sensor may detect vehicles in a different lane or may temporarily not detect a vehicle traveling ahead. This may cause the ICC system to decelerate or accelerate the vehicle. The detection of vehicles may also be affected by vehicle operation (steering maneuver or traveling position in the lane, etc.) or vehicle condition. If this occurs, the ICC system may warn the driver by blinking the system indicator and sounding the chime unexpectedly. The driver will have to manually control the proper distance away from the vehicle traveling ahead.



- When driving on the freeway at a set speed and approaching a slower traveling vehicle ahead, the ICC will adjust the speed to maintain the distance, selected by the driver, from the vehicle ahead. If the vehicle ahead changes lanes or exits the freeway, the ICC system will accelerate and maintain the speed up to the set speed. Pay attention to the driving operation to maintain control of the vehicle as it accelerates to the set speed. The vehicle may not maintain the set speed on winding or hilly roads. If this occurs, the driver will have to manually control the vehicle speed.



- Normally when controlling the distance to a vehicle ahead, this system automatically accelerates or decelerates own vehicle according to the speed of the vehicle ahead. Depress the accelerator to properly accelerate own vehicle when acceleration is required for a lane change. Depress the brake pedal when deceleration is required to maintain a safe distance to the vehicle ahead due to its sudden braking or if a vehicle cuts in. Always stay alert when using the ICC system.
- The sensor sensitivity can be affected by vehicle operation (steering maneuver or driving position in the lane) or traffic or vehicle conditions (for example, if a vehicle is being driven with some damage).

DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

CONSULT Function (ICC/ADAS)

INFOID:0000000013020119

APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using ADAS control unit:

Diagnosis mode	Description
Configuration	• The vehicle specification that is written in ADAS control unit can be displayed or stored. • The vehicle specification can be written when ADAS control unit is replaced.
Work support	Displays causes of automatic system cancellation that occurred during system control.
Self Diagnostic Result	Displays the name of a malfunctioning system stored in the ADAS control unit.
Data Monitor	Displays ADAS control unit input/output data in real time.
Active Test	Enables an operational check of a load by transmitting a driving signal from the ADAS control unit to the load.
ECU Identification	Displays ADAS control unit part number.
CAN Diag Support Monitor	Displays a reception/transmission state of CAN communication and ITS communication.

CONFIGURATION

Configuration includes functions as follows:

Function		Description
Read/Write Configuration	Before Replace ECU	Allows the reading of vehicle specification written in ADAS control unit to store the specification in CONSULT.
	After Replace ECU	Allows the writing of the vehicle information stored in CONSULT into the ADAS control unit.
Manual Configuration		Allows the writing of the vehicle specification into the ADAS control unit by hand.

WORK SUPPORT

Work support items	Description
CAUSE OF AUTO-CANCEL 5	Displays causes of automatic system cancellation that occurred during control of the Intelligent Cruise Control (ICC).

NOTE:

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

Display Items for the Cause of Automatic Cancellation 1

Cause of cancellation	Intelligent Cruise Control (ICC)	Description
CAN COMM ERROR	×	ADAS control unit received an abnormal signal with CAN communication.
NO RECORD	×	—

SELF DIAGNOSTIC RESULT

Refer to DAS-21, "DTC Index".

NOTE:
- The details of time display are as per the following:
- CRNT: A malfunction is detected now.
- PAST: A malfunction was detected in the past.
- ODO/TRIP METER (Mileage) and VOLTAGE (IGN voltage) are displayed on FFD (Freeze Frame Data).

DATA MONITOR

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (BSW)	Description
MAIN SW [On/Off]	×	×	×	Indicates [ON/OFF] status as judged from ICC steering switch.
SET/COAST SW [On/Off]	×	×		Indicates [ON/OFF] status as judged from ICC steering switch.
CANCEL SW [On/Off]	×	×		Indicates [ON/OFF] status as judged from ICC steering switch.
RESUME/ACC SW [On/Off]	×	×		Indicates [ON/OFF] status as judged from ICC steering switch.
DISTANCE SW [On/Off]	×			Indicates [ON/OFF] status as judged from ICC steering switch.
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 ADAS control unit through CAN communication (ECM transmits ON/OFF status through CAN communication).
SET DISTANCE [Short/Mid/Long]	×	×		Indicates set distance memorized in ADAS control unit.
CRUISE LAMP [On/Off]	×	×		Indicates [ON/OFF] status of MAIN switch 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 ADAS control 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 ADAS control unit.
BUZZER O/P [On/Off]	×			Indicates [ON/OFF] status of ICC warning chime output.
ENGINE RPM [rpm]	×			Indicates engine speed read from ADAS control unit through CAN communication (ECM transmits engine speed signal through CAN communication).
WIPER SW [OFF/LOW/HIGH]	×			Indicates wiper [OFF/LOW/HIGH] status (BCM transmits front wiper request signal through CAN communication).
BA WARNING [On/Off]	×			Indicates [ON/OFF] status of FEB indicator lamp output.
STP LMP DRIVE [On/Off]	×	×		Indicates [ON/OFF] status of ICC brake hold relay drive output.

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (BSW)	Description
D POSITION SW [On/Off]	×			Indicates [ON/OFF] status of “D” or “M” positions read from ADAS control unit through CAN communication; ON when position “D” or “M” (TCM transmits shift selector position signal through CAN communication).
NP RANGE SW [On/Off]	×			Indicates shift selector position signal read from ADAS control unit through CAN communication (TCM transmits shift selector position signal through CAN communication).
PKB SW [On/Off]	×			Parking brake switch status [ON/OFF] judged from the parking brake switch signal that ADAS control unit receives via CAN communication is displayed (combination meter transmits the parking brake switch signal via CAN communication).
PWR SUP MONI [V]	×	×		Indicates ignition voltage input monitored by ADAS control unit.
VHCL SPD AT [km/h] or [mph]	×			Indicates vehicle speed calculated from CVT vehicle speed sensor read from ADAS control unit through CAN communication (TCM transmits CVT vehicle speed sensor signal through CAN communication).
THRTL OPENING [%]	×	×		Indicates throttle position read from ADAS control unit through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).
GEAR [1, 2, 3, 4, 5, 6, 7]	×			Indicates CVT gear position read from ADAS control unit through CAN communication (TCM transmits current gear position signal through CAN communication).
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.
SIDE G [G]			×	Indicates lateral G acting on the vehicle. This lateral G is judged from a side G sensor signal read by ADAS control unit via CAN communication. (The ABS actuator and electric unit (control unit) transmits a side G sensor signal via CAN communication).
FUNC ITEM (FCW) [On/Off]	×	×	×	Indicates system which can be set to ON/OFF by selecting “Driver Assistance” ⇒“Emergency Brake” of the integral switch: Forward Emergency Braking.
FUNC ITEM (BSW) [On/Off]	×	×	×	Indicates system which can be set to ON/OFF by selecting “Driver Assistance” ⇒“Blind Spot” of the integral switch: Blind Spot Warning.
FCW SELECT [On/Off]	×	×	×	Indicates an ON/OFF state of the PFCW system. The PFCW system can be set to ON/OFF by selecting “Driver Assistance”⇒“Emergency Brake” of the integral switch.
BSW SELECT [On/Off]	×	×	×	Indicates an ON/OFF state of the BSW system. The BSW system can be set to ON/OFF by selecting “Driver Assistance”⇒“Blind Spot” of the integral switch.
BSW/BSI WARN LMP [On/Off]			×	Indicates [ON/OFF] status of Blind Spot warning malfunction.
BSW SYSTEM ON [On/Off]			×	Indicates [ON/OFF] status of BSW system.
WARN SYS SW [On/Off]			×	Indicates [ON/OFF] status of warning system switch.

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (BSW)	Description
FCW SYSTEM ON [On/Off]	×	×		Indicates [ON/OFF] status of PFCW system.
SYSTEM CANCEL MESSAGE [NOREQ/SLIP/VDC OFF]	×	×	×	Indicates [ON/OFF] status of system cancel display output.
BSW ON INDICATOR [On/Off]			×	Indicates [ON/OFF] status of BSW system ON display output.
SIDE RADAR BLOCK COND [On/Off]			×	Indicates [ON/OFF] status of side radar with dirt or foreign materials.
BSW IND BRIGHT-NESS [Nothing/Bright/Normal/Dark]			×	Indicates status of brightness of Blind Spot Warning indicator.

ACTIVE TEST

CAUTION:

- **Never perform "Active Test" while driving the vehicle.**
- **The "Active Test" cannot be performed when the following systems malfunction is displayed.**
  - **ICC system**
  - **Blind Spot Warning/RCTA**
  - **PFCW/FEB**
- **The "Active Test" cannot be performed when the FEB warning lamp is illuminated.**
- **The "Active Test" cannot be performed when the ICC System is ON.**

Test item	Description
METER LAMP	The FEB warning lamp can be illuminated by ON/OFF operation as necessary.
STOP LAMP	The ICC brake hold relay can be operated by ON/OFF operation as necessary, and the stop lamp can be illuminated.
ADAS BUZZER	Sounds a buzzer used for BSW, RCTA by arbitrarily operating ON/OFF.
METER BUZZER	Sounds a buzzer used for ICC, PFCW, FEB by arbitrarily operating ON/OFF.
BRAKE ACTUATOR 1	Activates the brake by an arbitrary operation.
BRAKE ACTUATOR 2	
BRAKE ACTUATOR 3	

METER LAMP

NOTE:

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

Test item	Operation	Description	FEB warning lamp
METER LAMP	Off	Stops sending the FEB warning lamp signal to exit from the test.	OFF
	On	Transmits the FEB warning lamp signal to the combination meter via CAN communication.	ON

STOP LAMP

Test item	Operation	Description	Stop lamp
STOP LAMP	Off	Stops transmitting the ICC brake hold relay drive signal to end the test.	OFF
	On	Transmits the ICC brake hold relay drive signal.	ON

METER BUZZER

Test item	Operation	Description	Operation sound
METER BUZZER	Off	Stops buzzer output to the combination meter via CAN communication.	OFF
	On	Starts buzzer output to the combination meter via CAN communication.	ON

ADAS BUZZER

Test item	Operation	Description	Operation sound
ADAS BUZZER	On	Starts buzzer output.	OFF
	Off	Stops buzzer output.	ON

BRAKE ACTUATOR

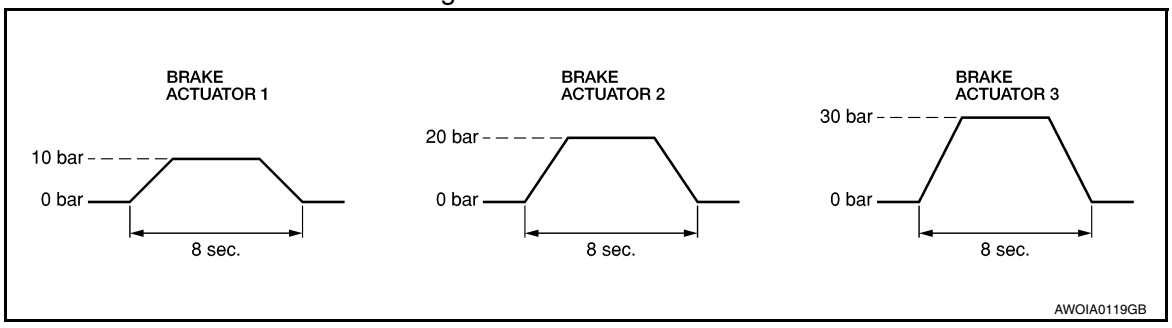
NOTE:

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

Test item	Operation	Description	"PRESS ORDER" value
BRAKE ACTUATOR 1	Off	Stops transmitting the brake fluid pressure control signal to end the test.	—
	On	Starts transmitting the brake fluid pressure control signal to start the test.	10 bar
BRAKE ACTUATOR 2	Off	Stops transmitting the brake fluid pressure control signal to end the test.	—
	On	Starts transmitting the brake fluid pressure control signal to start the test.	20 bar
BRAKE ACTUATOR 3	Off	Stops transmitting the brake fluid pressure control signal to end the test.	—
	On	Starts transmitting the brake fluid pressure control signal to start the test.	30 bar

NOTE:

The test is finished 10 seconds after starting.



ECU IDENTIFICATION

Displays ADAS control unit part number.

DIAGNOSIS SYSTEM (ICC SENSOR)

CONSULT Function (LASER/RADAR)

INFOID:0000000012950832

APPLICATION ITEMS

CONSULT performs the following functions via CAN communication with ADAS control unit and the communication with ICC sensor.

Diagnosis mode	Description
Self Diagnostic Result	Displays malfunctioning system memorized in ICC sensor
Data Monitor	Displays real-time input/output data of ICC sensor
Work support	It can monitor the adjustment direction indication in order to perform the radar adjustment operation smoothly
ECU Identification	Displays ICC sensor part number
CAN Diag Support Monitor	The results of transmit/receive diagnosis of ITS communication can be read.

SELF DIAGNOSTIC RESULT

Refer to CCS-43, "DTC Index".

DATA MONITOR

Monitored item [Unit]	Description
VHCL SPEED SE [km/h] or [mph]	Vehicle speed judged from a vehicle speed signal read by the ICC sensor via ITS communication is displayed [ADAS control unit receives a vehicle speed signal from ABS actuator and electric unit (control unit) via CAN communication and transmits the calculated vehicle speed to ICC sensor via ITS communication].
YAW RATE [deg/s]	Indicates yaw rate read from ADAS control unit through ITS communication [ADAS control unit receives yaw rate signal from ABS actuator and electric unit (control unit) via CAN communication and transmits yaw rate calculated by the ADAS control unit] Yaw rate judged from a yaw rate signal read by ICC sensor via ITS communication is displayed [ADAS control unit receives a yaw rate signal from ABS actuator and electric unit (control unit) via CAN communication and transmits the calculated yaw rate to ICC sensor via ITS communication].
PWR SUP MONI [V]	Indicates IGN voltage input by ICC sensor
DISTANCE [m]	Indicates the distance from the vehicle ahead
RELATIVE SPD [m/s]	Indicates the relative speed of the vehicle ahead
LASER OFFSET [m]	**NOTE:** The item is indicated but not used.
LASER HEIGHT [m]	**NOTE:** The item is indicated but not used.
STEERING ANGLE [deg]	The steering angle is displayed.
STRG ANGLE SPEED [deg/s]	The steering angle speed is displayed.
L/R ADJUST [deg]	Indicates a horizontal correction value of the radar
U/D ADJUST [deg]	Indicates a vertical correction value of the radar
FCW SYSTEM ON	NOTE: The item is indicated, but not used.
FCW SELECT	NOTE: The item is indicated, but not used.

Monitored item [Unit]	Description
PFCW SELECT	NOTE: The item is indicated, but not used.
PFCW SYSTEM ON	NOTE: The item is indicated, but not used.
FEB SW	NOTE: The item is indicated, but not used.
FEB SELECT	Indicates [ON/OFF] state of the PFCW system.
MAIN SW	Indicates [ON/OFF] status as judged from ICC steering switch.
ICC/ASCD MODE	NOTE: The item is indicated, but not used.
SET/COAST SW	Indicates [ON/OFF] status as judged from ICC steering switch.
CANCEL SW	Indicates [ON/OFF] status as judged from ICC steering switch.
RESUME/ACC SW	Indicates [ON/OFF] status as judged from ICC steering switch.
DISTANCE SW	Indicates [ON/OFF] status as judged from ICC steering switch.
BRAKE SW	Indicates [ON/OFF] status as judged from brake pedal position switch signal [ECM transmits brake pedal position switch signal through CAN communication].
STOP LAMP SW	Indicates [ON/OFF] status as judged from stop lamp switch signal [ABS actuator and electric unit (control unit) transmits stop lamp switch signal through CAN communication].
IDLE SW	Indicates [ON/OFF] status of idle switch read from ICC sensor through CAN communication (ECM transmits ON/OFF status through CAN communication.
CRUISE LAMP	Indicates [ON/OFF] status of MAIN switch indicator output.
OWN VHCL	NOTE: The item is indicated, but not used.
VHCL AHEAD	Indicates [ON/OFF] status of vehicle ahead detection indicator output.
SET DISTANCE	Indicates set distance memorized in ADAS control unit.
SET VHCL SPD [km/h] or [mph]	NOTE: The item is indicated, but not used.
THRTL SENSOR [%]	Indicates throttle position read from ISS sensor through CAN communication (ECM transmits accelerator pedal position signal through CAN communication).
VEHICLE AHEAD DETECT	Indicates [ON/OFF] status of vehicle ahead detection indicator output.
STATIC OBSTACLE DETECT	Indicates [ON/OFF] status of static obstacle detection.
BUZZER O/P	[ON/OFF] Indicates [On/Off] status of warning chime output.
FUNC ITEM (FCW)	NOTE: The item is indicated, but not used.
FUNC ITEM (PFCW)	Indicates systems status
FUNC ITEM (FEB)	Indicates systems status
FUNC ITEM (ICC)	Indicates systems status
PRESS_ORDER [bar]	Indicates status as judged from brake fluid pressure signal [ABS actuator and electric unit (control unit) transmits brake fluid pressure signal through CAN communication].
D RANGE SW	Indicates [ON/OFF] status as judged from D position switch signal (TCM transmits shift position signal through CAN communication).
NP RANGE SW	Indicates [ON/OFF] status as judged from N/P position switch signal (TCM transmits shift position signal through CAN communication).
PKB SW	Parking brake switch status [ON/OFF] judges from the parking brake switch signal that ADAS control unit readout via CAN communication is displayed (combination meter transmits the parking brake switch signal via CAN communication)
VHCL SPD AT	NOTE: The item is indicated, but not used.

Monitored item [Unit]	Description
Shift position	Indicates shift position read from ADAS control unit though CAN communication (TCM transmits shift position signal through CAN communication).
Turn signal	NOTE: The item is indicated, but not used.
SYSTEM CANCEL MESSAGE	Indicates [ON/OFF] status of system cancel display output.
DISP VHCL SPD [km/h] or [mph]	NOTE: The item is indicated, but not used.
VHCL SPD UNIT	Indicates vehicle speed unit read from ICC sensor through CAN communication (combination meter transmits vehicle speed unit through CAN communications).
ADAS AVAILABLE COND	NOTE: The item is indicated, but not used.
ICC SET STATUS	NOTE: The item is indicated, but not used.
ICC MALF	NOTE: The item is indicated, but not used.
ADAS MALF	Indicates [ON/OFF] status of ADAS malfunction.
STOP LAMP RELAY ON	Indicates [ON/OFF] status of stop lamp relay fixed on.
STOP LAMP RELAY OFF	Indicates [ON/OFF] status of stop lamp relay fixed off.
ACCEL COM VALUE 1 [m/s2]	Indicates accel command calculated from set speed and information of ahead vehicle.
ICC STATUS	Indicates ICC status.
ACCEL COM VALUE 2	NOTE: The item is indicated, but not used.
MILEAGE	NOTE: The item is indicated, but not used.

WORK SUPPORT

Work support items	Description
MILLIWAVE RADAR ADJUST	Outputs millimeter waves, calculates the displacement in radar direction, and indicates an adjustment direction
CAUSE OF AUTO-CANCEL	Displays causes of automatic cancellation occurred during Intelligent Cruise Control system.

ICC sensor Adjust
Refer to CCS-59, "Description".

ECU IDENTIFICATION

ICC sensor part number is displayed.

CAUSE OF AUTO CANCEL

Work support items	Description
OPERATING ABS	ABS function was operated.
OPERATING TCS	TCS function was operated.
OPERATING VDC	VDC function was operated.
ECM CIRCUIT	ECM did not permit ICC operation.
OP SW VOLT CIRC	The ICC steering switch input voltage is not within standard range.
OP SW DOUBLE TOUCH	The ICC steering switches were pressed at the same time.
VHCL SPD DOWN	Vehicle speed is lower than 24 km/h (15 mph).
WHL SPD ELEC NOISE	Wheel speed sensor signal caught electromagnetic noise.
VDC/TCS OFF SW	VDC OFF switch was pressed.

Work support items	Description
VHCL SPD UNMATCH	Wheel speed became different from CVT vehicle speed.
TIRE SLIP	Wheel slipped.
IGN LOW VOLT	Decrease in ICC sensor ignition voltage.
PARKING BRAKE ON	The parking brake is operating.
WHEEL SPD UNMATCH	The wheel speed of all four wheels are out of the specified values.
INCHING LOST	a vehicle ahead is not detected during the following driving when the vehicle speed is approximately 24 km/h (15mph) or less.
CAN COMM ERROR	ICC sensor received an abnormal signal with CAN communication.
ABS/TCS/VDC CIRC	An abnormal condition occurs in VDC/TCS/ABS system.
ECD CIRCUIT	An abnormal condition occurs in ECD system.
ASCD VHCL SPD DTAC	Vehicle speed is detached from the set vehicle speed.
ASCD DOUBLE COMD	Cancel switch and operation switch are detected simultaneously.
FEB OPERATED	FEB activated.
VHL AHAD LOST (CLSE RANGE)	A vehicle ahead lost close range.
NO RECORD	—

ECU DIAGNOSIS INFORMATION

ADAS CONTROL UNIT

Reference Value

INFOID:0000000013020115

VALUES ON THE DIAGNOSIS TOOL

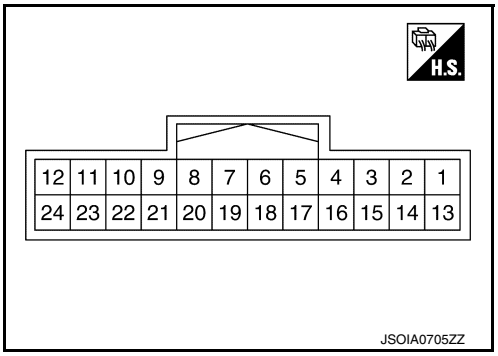
Monitor item	Condition		Value/Status
MAIN SW	Ignition switch ON	When MAIN (ON/OFF) switch is pressed.	On
		When MAIN (ON/OFF) switch is not pressed.	Off
SET/COAST SW	Ignition switch ON	When SET/COAST switch is pressed.	On
		When SET/COAST switch is not pressed.	Off
CANCEL SW	Ignition switch ON	When CANCEL 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	When ICC system is controlling.	On
		When ICC system is not controlling.	Off
BRAKE SW	Ignition switch ON	When brake pedal is depressed.	Off
		When brake pedal is not depressed.	On
STOP LAMP SW	Ignition switch ON	When brake pedal is depressed.	On
		When brake pedal is not depressed.	Off
IDLE SW	Engine running	Idling	On
		Except idling (depress accelerator pedal)	Off
SET DISTANCE	• Start the engine and turn the ICC system ON • Press the DISTANCE switch to change the ICC system	When set to “long”	Long
		When set to “middle”	Mid
		When set to “short”	Short
CRUISE LAMP	Start the engine and press MAIN switch	ICC system ON (MAIN switch indicator ON).	On
		ICC system OFF (MAIN switch indicator OFF).	Off
VHCL AHEAD	Drive the vehicle and activate the ICC system	When a vehicle ahead is detected (vehicle ahead detection indicator ON).	On
		When a vehicle ahead is not detected (vehicle ahead detection indicator OFF).	Off
ICC WARNING	Start the engine and press MAIN switch	When ICC system is malfunctioning (ICC system malfunction ON).	On
		When ICC system is normal (ICC system malfunction OFF).	Off
VHCL SPEED SE	While driving		Displays the vehicle speed calculated by ADAS control unit
SET VHCL SPD	While driving	When vehicle speed is set.	Displays the set vehicle speed

Monitor item	Condition		Value/Status
BUZZER O/P	Engine running	When the buzzer of the following system operates: • ICC system • PFCW system • FEB system	On
		When the buzzer of the following system does not operate: • ICC system • PFCW system • FEB system	Off
ENGINE RPM	Engine running		Equivalent to tachometer reading
WIPER SW	Ignition switch ON	Wiper not operating.	Off
		Wiper LO operation.	Low
		Wiper HI operation.	High
BA WARNING	Engine running	FEB OFF indicator lamp ON. • When FEB system is malfunctioning. • When FEB system is turned to OFF.	On
		FEB OFF indicator lamp OFF. • When FEB system is normal. • When FEB system is turned to ON.	Off
STP LMP DRIVE	Drive the vehicle and activate the ICC system	When ICC brake hold relay is activated.	On
		When ICC brake hold relay is not activated.	Off
D POSITION SW	Engine running	When the shift selector is in “D” position or manual mode.	On
		When the shift selector is in any position other than “D” or manual mode.	Off
NP RANGE SW	Engine running	When the shift selector is in “N” or “P” position.	On
		When the shift selector is in any position other than “N” or “P”.	Off
PKB SW	Ignition switch ON	When the parking brake is applied.	On
		When the parking brake is released.	Off
PWR SUP MONI	Engine running		Power supply voltage value of ADAS control unit
VHCL SPD AT	While driving		Value of CVT vehicle speed sensor signal
THRTL OPENING	Engine running	Depress accelerator pedal.	Displays the throttle position
GEAR	While driving		Displays the gear position
NP SW SIG	Ignition switch ON	When the shift selector is in neutral position.	On
		When the shift selector is in any position other than neutral.	Off
MODE SIG	Start the engine and press MAIN switch	When ICC system is deactivated.	Off
		When ICC system is activated.	ICC
SET DISP IND	Press SET/COAST switch	SET switch indicator ON.	On
		SET switch indicator OFF.	Off

Monitor item	Condition		Value/Status
DISTANCE	Drive the vehicle and activate the ICC system	When a vehicle ahead is detected.	Displays the distance from the preceding vehicle
		When a vehicle ahead is not detected.	0.0
RELATIVE SPD	Drive the vehicle and activate the ICC system	When a vehicle ahead is detected.	Displays the relative speed.
		When a vehicle ahead is not detected.	0.0
FCW SYSTEM ON	Ignition switch ON	When the PFCW system is ON.	On
		When the PFCW system is OFF.	Off
SIDE G	While driving	Vehicle turning right.	Negative value
		Vehicle turning left.	Positive value
FUNC ITEM (FCW)	Engine running		On
FUNC ITEM (BSW)	Engine running		On
FCW SELECT	Ignition switch ON	“Forward Emergency Braking” set when the integral switch is ON.	On
		“Forward Emergency Braking” set when the integral switch is OFF.	Off
BSW SELECT	Ignition switch ON	“Blind Spot Warning” set when the integral switch is ON.	On
		“Blind Spot Warning” set when the integral switch is OFF.	Off
BSW WARN LMP	Engine running	When the BSW system is malfunctioning.	On
		When the BSW system is normal.	Off
BSW SYSTEM ON	Ignition switch ON	When the BSW system is ON.	On
		When the BSW system is OFF.	Off
FCW SYSTEM ON	Engine running	When the FEB/PFCW system is ON.	On
		When the FEB/PFCW system is OFF.	Off
SYSTEM CANCEL MESSAGE	Engine running	System cancel display ON.	On
		System cancel display OFF.	Off
BSW ON INDICATOR	Engine running	BSW system display ON.	On
		BSW system display OFF.	Off
WARN SYS SW	Ignition switch ON	When warning system switch is pressed.	On
		When warning system switch is not pressed.	Off
SIDE RADAR BLOCK COND	Engine running	Front bumper or side radar is dirty.	On
		Front bumper and side radar are clean.	Off
BSW IND BRIGHTNESS	Ignition switch ON	BSW system OFF.	Nothing
		Blind Spot Warning indicator brightness bright.	Bright
		Blind Spot Warning indicator brightness normal.	Normal
		Blind Spot Warning indicator brightness dark.	Dark

TERMINAL LAYOUT

PHYSICAL VALUES



Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	−	Signal name	Input/ Output			
1 (B)	Ground	Ground	Input	—		0 V
2 (L)		ITS communication high	—	—		—
3 (LG)		Ignition power supply	Input	Ignition switch ON		Battery voltage
4 (V)		Warning buzzer signal	Output	Ignition switch ON	Warning buzzer operation	Battery voltage
					Warning buzzer not operating	0 V
5 (Y)		ITS communication low	—	—		—
6 (Y)		CAN Low	—	—		—
9 (L)		CAN high	—	—		—
10 (P)		CAN low	—	—		—
14 (L)		ICC brake hold relay drive signal	Output	Ignition switch ON	—	Battery voltage
18 (L)		CAN High	—	—	—	0 V

Fail-safe (ADAS Control Unit)

INFOID:0000000013020116

If a malfunction occurs in each system, ADAS control unit cancels each control, sounds a beep, and turns ON the warning or indicator lamp.

System	Buzzer	Warning lamp/Warning display	Description
Intelligent Cruise Control (ICC)	High-pitched tone	ICC system warning	Cancel
Forward Emergency Braking (FEB)	High-pitched tone	FEB warning lamp (Yellow)	Cancel
Predictive Forward Collision Warning (PFCW)	High-pitched tone	FEB warning lamp (Yellow)	Cancel
Blind Spot Warning (BSW)	Low-pitched tone	BSW system warning	Cancel
Rear Cross Traffic Alert (RCTA)	—	BSW system warning	Cancel

DTC Inspection Priority Chart

INFOID:0000000013020117

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

Priority	Detected items (DTC)
1	• U1507: LOST COMM (SIDE RDR R) • U1508: LOST COMM (SIDE RDR L)
2	• U1000: CAN COMM CIRCUIT • U1321: CONFIGURATION
3	• C1A17: ICC SENSOR MALF • C1B53: SIDE RDR R MALF • C1B54: SIDE RDR L MALF
4	• C1A01: POWER SUPPLY CIR • C1A02: POWER SUPPLY CIR 2 • C1A13: STOP LAMP RLY FIX • C1A14: ECM CIRCUIT • C1A34: COMMAND ERROR • U0121: VDC CAN CIR 2 • U0235: ICC SENSOR CAN CIRC 1 • U0401: ECM CAN CIR 1 • U0402: TCM CAN CIR 1 • U0415: VDC CAN CIR 1 • U0433: ICC SENSOR CAN CIRC 2 • U1503: SIDE RDR L CAN CIR 2 • U1504: SIDE RDR L CAN CIR 1 • U1505: SIDE RDR R CAN CIR 2 • U1506: SIDE RDR R CAN CIR 1
5	• C1A03: VHCL SPEED SE CIRC
6	• C1A00: CONTROL UNIT

DTC Index

INFOID:0000000013020118

Systems for fail-safe
- A: Intelligent Cruise Control (ICC)
- B: Forward Emergency Braking (FEB)
- C: Predictive Forward Collision Warning (PFCW)
- D: Blind Spot Warning (BSW)
- E: Rear Cross Traffic Alert (RCTA)

DTC	CONSULT display	Fail-safe	Reference
CONSULT		System	
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	—	—
U1507	LOST COMM (SIDE RDR R)	D, E	DAS-69
U1508	LOST COMM (SIDE RDR L)	D, E	DAS-70
U1000[NOTE]	CAN COMM CIRCUIT	A, B, C, D, E	DAS-62
U1321	CONFIGURATION	A, B, C, D, E	DAS-64
C1A17	ICC SENSOR MALF	A, B, C	DAS-52
C1B53	SIDE RDR R MALF	D, E	DAS-54
C1B54	SIDE RDR L MALF	D, E	DAS-55
C1A01	POWER SUPPLY CIR	A, B, C, D, E	DAS-41
C1A02	POWER SUPPLY CIR 2	A, B, C, D, E	DAS-41

Systems for fail-safe
- A: Intelligent Cruise Control (ICC)
- B: Forward Emergency Braking (FEB)
- C: Predictive Forward Collision Warning (PFCW)
- D: Blind Spot Warning (BSW)
- E: Rear Cross Traffic Alert (RCTA)

DTC	CONSULT display	Fail-safe	Reference
CONSULT		System	
C1A13	STOP LAMP RLY FIX	A, B, C	DAS-44
C1A14	ECM CIRCUIT	A, B, C	DAS-50
C1A34	COMMAND ERROR	A, B, C	DAS-53
U0121	VDC CAN CIR 2	A, B, C, D, E	DAS-56
U0235	ICC SENSOR CAN CIRC 1	A, C, D, E	DAS-57
U0401	ECM CAN CIR 1	A, B, C, D, E	DAS-58
U0402	TCM CAN CIR 1	A, B, C, D, E	DAS-59
U0415	VDC CAN CIR 1	A, B, C, D, E	DAS-60
U0433	ICC SENSOR CAN CIRC 2	A, B, C	DAS-61
U1503	SIDE RDR L CAN CIR 2	D, E	DAS-65
U1504	SIDE RDR L CAN CIR 1	D, E	DAS-66
U1505	SIDE RDR R CAN CIR 2	D, E	DAS-67
U1506	SIDE RDR R CAN CIR 1	D, E	DAS-68
C1A03	VHCL SPEED SE CIRC	D, E	DAS-42
C1A00	CONTROL UNIT	A, B, C, D, E	DAS-40

NOTE:
With the detection of “U1000” some systems do not perform the fail-safe operation.
A system controlling based on a signal received from the control unit performs fail-safe operation when the communication with the ADAS control unit becomes inoperable.

ICC SENSOR

Reference Value

INFOID:0000000012950837

VALUES ON THE DIAGNOSIS TOOL

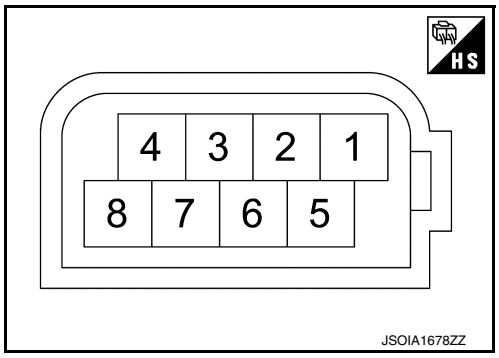
Monitor item	Condition		Value/Status
VHCL SPEED SE	While driving		Value of vehicle speed signal (wheel speed)
YAW RATE	While driving	Vehicle stopped	0.0
		Vehicle turning right	Positive value
		Vehicle turning left	Negative value
PWR SUP MONI	Ignition switch ON		Power supply voltage value of ICC sensor
DISTANCE	Drive the vehicle and activate the ICC system.	When a vehicle ahead is detected	Displays the distance from the preceding vehicle
		When a vehicle ahead is not detected	0.0
RELATIVE SPD	Drive the vehicle and activate the ICC system.	When a vehicle ahead is detected	Displays the relative speed
		When a vehicle ahead is not detected	0.0
LASER OFFSET	**NOTE:** The item is indicated but not used.		—
LASER HEIGHT	**NOTE:** The item is indicated but not used.		—
STEERING ANGLE	Ignition switch ON	When setting the steering wheel in straight-ahead position	0.0
		When turning the steering wheel 90° rightward	+90
		When turning the steering wheel 90° leftward	-90
STRG ANGLE SPEED	Ignition switch ON	At the time of turning the steering wheel	Steering wheel turning speed is displayed
L/R ADJUST	Ignition switch ON	At the completion of radar alignment adjustment	Horizontal correction value is displayed
U/D ADJUST	Ignition switch ON	At the completion of radar alignment adjustment	Vertical correction value is displayed
FCW SYSTEM ON	NOTE: The item is indicated, but not used	—	OFF
FCW SELECT	NOTE: The item is indicated, but not used		–
PFCW SYSTEM ON	NOTE: The item is indicated, but not used		OFF
PFCW SELECT	Engine running	PFCW system set with the information display is ON	ON
		PFCW system set with the information display is OFF	OFF
FEB SW	NOTE: The item is indicated, but not used	—	—
FEB SELECT	Engine running	PFCW system set with the information display is ON	ON
		PFCW system set with the information display is OFF	OFF

Monitor item	Condition		Value/Status
MAIN SW	Ignition switch ON	When MAIN switch is pressed	On
		When MAIN switch is not pressed	Off
ICC/ASCD MODE	Engine running	Intelligent Cruise Control System MAIN switch status	On
			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/ACC SW switch is pressed	On
		When RESUME/ACC SW switch is not pressed	Off
DISTANCE SW	Ignition switch ON	When DISTANCE switch is pressed	On
		When DISTANCE switch is not pressed	Off
BRAKE SW	Ignition switch ON	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
STOP LAMP SW	Ignition switch ON	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
IDLE SW	Engine running	Idling	On
		Except idling (depress accelerator pedal)	Off
CRUISE LAMP	Start the engine and press MAIN switch	ICC system ON (MAIN switch indicator ON)	On
		ICC system OFF (MAIN switch indicator OFF)	Off
OWN VHCL	NOTE: The item is indicated, but not used.	—	Off
VHCL AHEAD	Drive the vehicle and activate the Intelligent Cruise Control System	When a vehicle ahead is detected (vehicle ahead detection indicator ON)	On
		When a vehicle ahead is detected (vehicle ahead detection indicator OFF)	Off
SET DISTANCE	• Start the engine and turn the ICC system ON • Press the DISTANCE switch to change the distance setting	When set to “long”	LONG
		When set to “middle”	MID
		When set to “short”	SHORT
SET VHCL SPD	NOTE: The item is indicated, but not used.	—	—
THRT SENSOR [%]	Engine running	Depress accelerator pedal	Displays the throttle position
VEHICLE AHEAD DETECT	Engine running	—	—
STATIC OBSTACLE DETECT	Indicates [ON/Off] status of static obstacle detection		
BUZZER O/P	Engine running	When the buzzer of the following system operates: • Intelligent Cruise Control System • PFCW system • FEB system	On
		When the buzzer of the following system does not operate: • Intelligent Cruise Control System • PFCW system • FEB system	Off

Monitor item	Condition		Value/Status
FUNC ITEM (FCW)	Ignition switch ON	—	—
FUNC ITEM (PFCW)			On
FUNC ITEM (FEB)			
FUNC ITEM (ICC)			
PRESS_ORDER	Engine running	—	
D RANGE SW	Engine running	When the selector lever is in “D” position or manual mode	On
		When the selector lever is in any other than “D” or manual mode	Off
NP RANGE SW	Engine running	When the selector lever is in “N”“P”	On
		When the selector lever is in any other than “N”“P”	Off
PKB SW	Ignition switch ON	When the parking brake is applied	On
		When the parking brake is released	Off
VHCL SPD AT	While driving	—	Value of CVT vehicle speed sensor signal
Shift position	• Engine running • While driving	—	Displays the shift position
Turn signal	NOTE: The item is indicated, but not used	—	Off
SYSTEM CANCEL MESSAGE	Engine running	System cancel display OFF	NO REQ
		System cancel reason is slippery road	SLIP
		System cancel reason is VDC OFF	VDC OFF
DISP VHCL SPD UNIT			
VHCL SPD UNIT	Engine running	Meter indicates km/h	km/h
		Meter indicates mph	mph
ADAS AVAILABLE COND	NOTE: The item is indicated, but not used	—	—
ICC SET STATUS			
ICC MALF			
ADAS MALF	Engine running	ADAS is malfunction	On
		ADAS is not malfunction	Off
STOP LAMP RELAY ON	Engine running	Stop lamp relay is fixed on	On
		Stop lamp relay is not fixed on	Off
STOP LAMP RELAY OFF	Engine running	Stop lamp relay is fixed off	On
		Stop lamp relay is not fixed off	Off
ICC CANCEL	NOTE: The item is indicated, but not used	—	—
ACCEL COM VALUE 1 [m/s2]	Engine running	—	ICC sensor request accel command to ADAS controller
ICC STATUS	Engine running	Intelligent Cruise Control System Off	Off
		Intelligent Cruise Control System On	ICC
		Intelligent Cruise Control System On and vehicle is stopped	STOP1
		Intelligent Cruise Control System On and Driver depressed accelerator pedal	ACCEL

Monitor item	Condition		Value/Status
ACCCEL COM VALUE 2	NOTE: The item is indicated, but not used		—
MILEAGE			

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (GR)	—	Ground	—	Ignition switch ON	0 - 0.1 V	0 V
2 (L)	—	ITS communication-H	—	—	—	—
3 (Y)		ITS communication-L	—	—	—	—
8 (BG)	—	Ignition power supply	Input	Ignition switch ON	9.5 - 16 V	Battery voltage

Fail-safe

INFOID:0000000012950838

If a malfunction occurs in the ICC sensor, ADAS control unit cancels control, sounds a beep, and turns ON the ICC system warning lamp in the combination meter.

DTC Inspection Priority Chart

INFOID:0000000012950839

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

Priority	Detected items (DTC)
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• C1A50: ADAS MALFUNCTION • C1A0C: ADAS MSG COUNTER • C1A0C: ADAS CRC ERROR

Priority	Detected items (DTC)
3	• C1A01: POWER SUPPLY CIR • C1A02: POWER SUPPLY CIR 2 • C1A04: ABS/TCS/VDC CIRC • C1A05: BRAKE SW/STOP L SW • C1A06: OPERATION SW CIRC • C1A07: CVT CIRCUIT • C1A12: LASER BEAM OFFCNTR • C1A13: STOP_LAMP_RLY_FIX • C1A14: ECM_CIRCUIT • C1A16: RADAR STAIN • C1A18: LASER AIMING INCMP • C1A21: UNIT HIGH TEMP • C1A24: NP RANGE • C1A26: ECD MODE MALF • C1A27: ECD POWER SUPPLY CIRC • C1A39: STRG SEN CIR • C1B5D: FEB OPE COUNT LIMIT • C10B7: YAW RATE SENSOR • U0121: VDC CAN CIR2 • U153A: TCM CAN CIR 1 • U153B: TCM CAN CIR 2 • U153D: ECM CAN CIR 2 • U0126: STRG SEN CAN CIR1 • U0401: ECM CAN CIR 1 • U0415: VDC CAN CIR1 • U0428: STRG SEN CAN CIR2
4	• C1A03: VEHC_SPEED_SE_CIRC
5	• C1A15: GEAR POSITION
6	• C1A00: CONTROL UNIT • C1A17: ICC SENSOR MALF • C1A0D: RADAR CAN CIR

DTC Index

INFOID:0000000012950840

NOTE:

- The details of time display are as per the following.
- 0: The malfunctions that are detected now
  CAN communication system (U1000, U1010)
- 1 - 39: It increases like 0 → 1 → 2 ··· 38 → 39 after returning to the normal condition whenever the ignition is switched OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.
  Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ··· 48 → 49 after returning to the normal condition whenever the ignition is switched OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

×: Applicable

DTC	CONSULT display	ICC system warning lamp	Fail-safe function			Reference
CONSULT			Intelligent Cruise Control	Predictive Forward Collision Control	Forward Emergency Brake (FEB)	
C1A00	CONTROL UNIT	ON	×	×	×	CCS-72, "DTC Description"
C1A0C	ADAS CAN CIR 1	ON	×	×	×	CCS-120, "DTC Description"
C1A0D	RADAR CAN CIR	ON	×	×	×	CCS-121, "DTC Description"
C1A01	POWER SUPPLY CIR	ON	×	×	×	CCS-73, "DTC Description"
C1A02	POWER SUPPLY CIR2	ON	×	×	×	CCS-73, "DTC Description"
C1A03	VHCL SPEED SE CIRC	ON	×	×	×	CCS-74, "DTC Description"
C1A04	ABS/TCS/VDC CIRC	ON	×	×	×	CCS-76, "DTC Description"
C1A05	BRAKE SW/STOP L SW	ON	×	×	×	CCS-77, "DTC Description"
C1A06	OPERATION SW CIRC	ON	×			CCS-82, "DTC Description"
C1A07	CVT CIRCUIT	ON	×	×	×	CCS-117, "DTC Description"
C1A12	LASER BEAM OFFCNTR	ON	×	×	×	CCS-85, "DTC Description"
C1A13	STOP LAMP RLY FIX	ON	×	×	×	CCS-86, "DTC Description"
C1A14	ECM CIRCUIT	ON	×	×	×	CCS-88, "DTC Description"
C10B7	YAW RATE SENSOR	ON	×	×	×	CCS-106, "DTC Description"
C1A15	GEAR POSITION	ON	×	×	×	CCS-90, "DTC Logic"
C1A16	RADAR BLOCKED	ON	×	×	×	CCS-92, "DTC Description"
C1A17	ICC SENSOR MALF	ON	×	×	×	CCS-94, "DTC Description"
C1A18	LASER ALIGNMENT INCMPT	ON	×	×	×	CCS-95, "DTC Description"
C1A21	UNIT HIGH TEMP	ON	×	×	×	CCS-96, "DTC Description"
C1A24	NP RANGE	ON	×	×	×	CCS-97, "DTC Description"

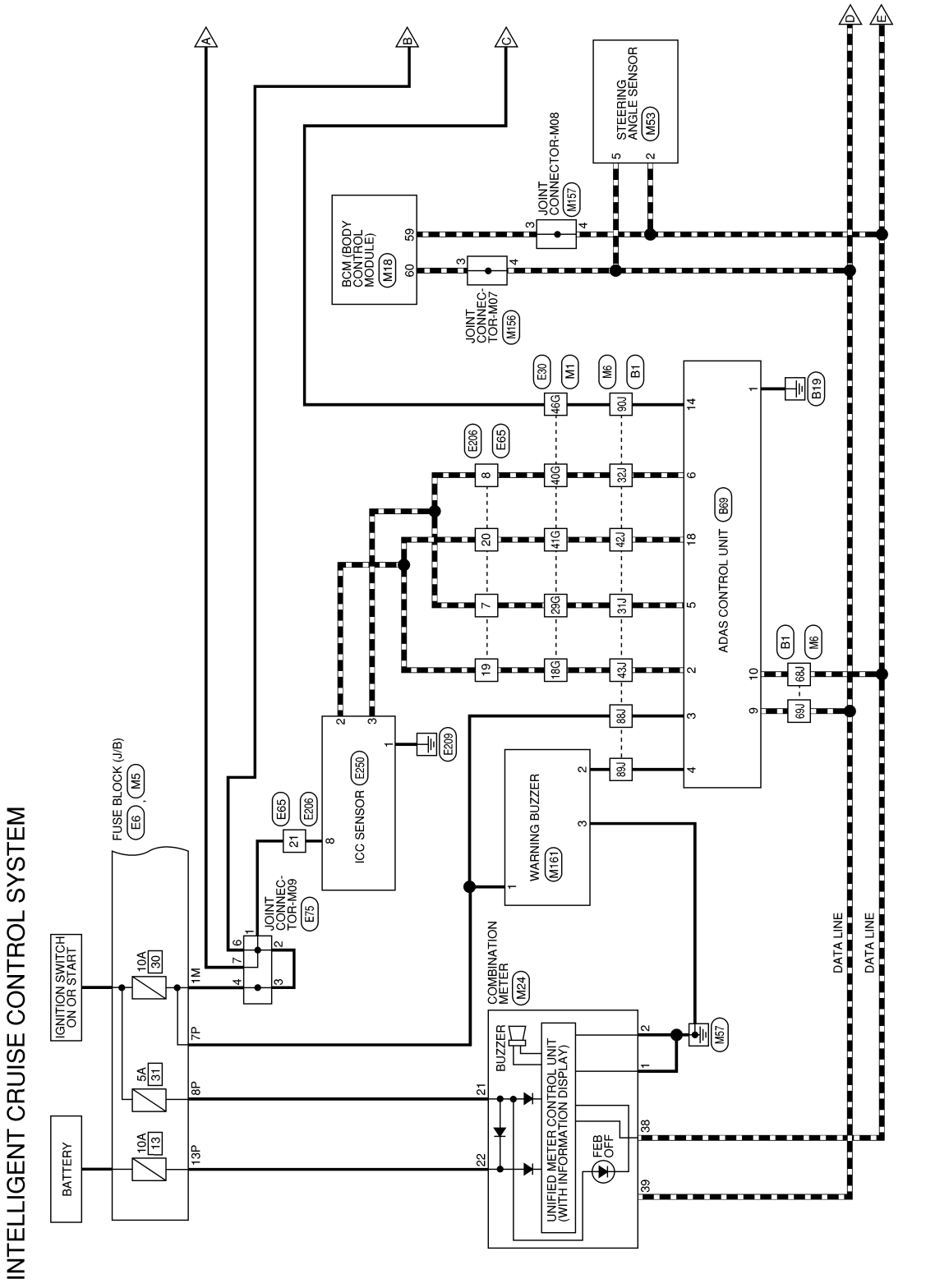
DTC	CONSULT display	ICC system warning lamp	Fail-safe function			Reference
CONSULT			Intelligent Cruise Control	Predictive Forward Collision Control	Forward Emergency Brake (FEB)	
C1A26	ECD MODE MALF	ON	×	×	×	CCS-99, "DTC Description"
C1A27	ECD POWER SUPPLY CIRCUIT	ON	×	×	×	CCS-101, "DTC Description"
C1A39	STRG SENS CIR	ON	×	×	×	CCS-103, "DTC Description"
C1A50	ADAS MALFUNCTION	ON	×	×	×	CCS-105, "DTC Description"
C1B5D	FEB OPE COUNT LIMIT	ON	×	×	×	CCS-104, "DTC Description"
C10B7	YAW RATE SENSOR	ON	×	×	×	CCS-106, "DTC Description"
U153A	TCM CAN CIR 1	ON	×	×	×	CCS-118, "DTC Description"
U153B	TCM CAN CIR 2	ON	×	×	×	CCS-119, "DTC Description"
U153D	ECM CAN CIR 2	ON	×	×	×	CCS-119, "DTC Description"
U0121	VDC CAN CIR2	ON	×	×	×	CCS-107, "DTC Description"
U0126	STRG SEN CAN CIR1	ON	×	×	×	CCS-109, "DTC Description"
U0401	ECM CAN CIR1	ON	×	×	×	CCS-110, "DTC Description"
U0415	VDC CAN CIR1	ON	×	×	×	CCS-111, "DTC Description"
U0428	STRG SEN CAN CIR2	ON	×	×	×	CCS-113, "DTC Description"
U1000	CAN COMM CIRCUIT	ON	×	×	×	CCS-114, "DTC Logic"
U1010	CONTROL UNIT (CAN)	ON	×	×	×	CCS-115, "DTC Logic"

WIRING DIAGRAM

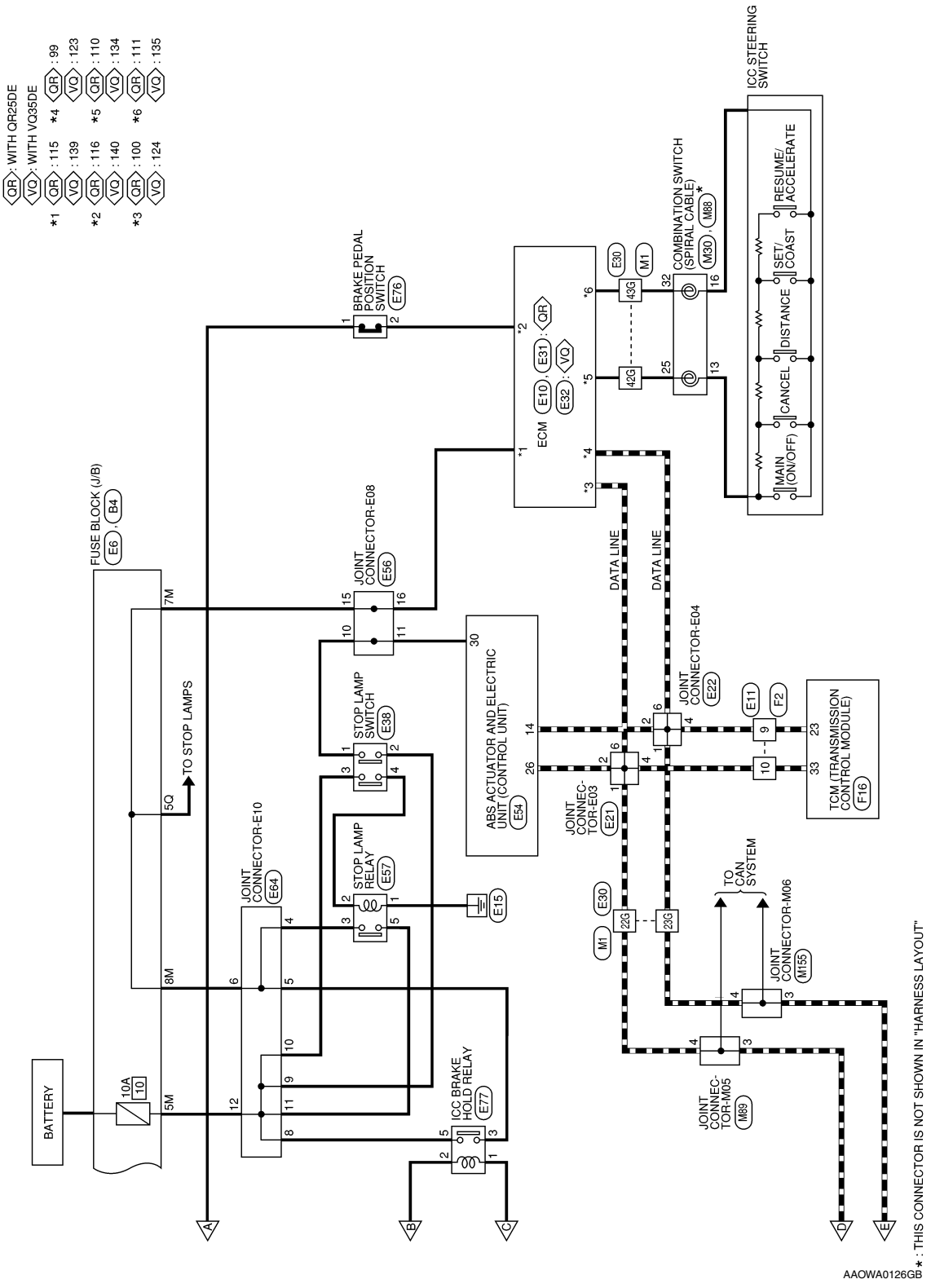
INTELLIGENT CRUISE CONTROL

Wiring Diagram

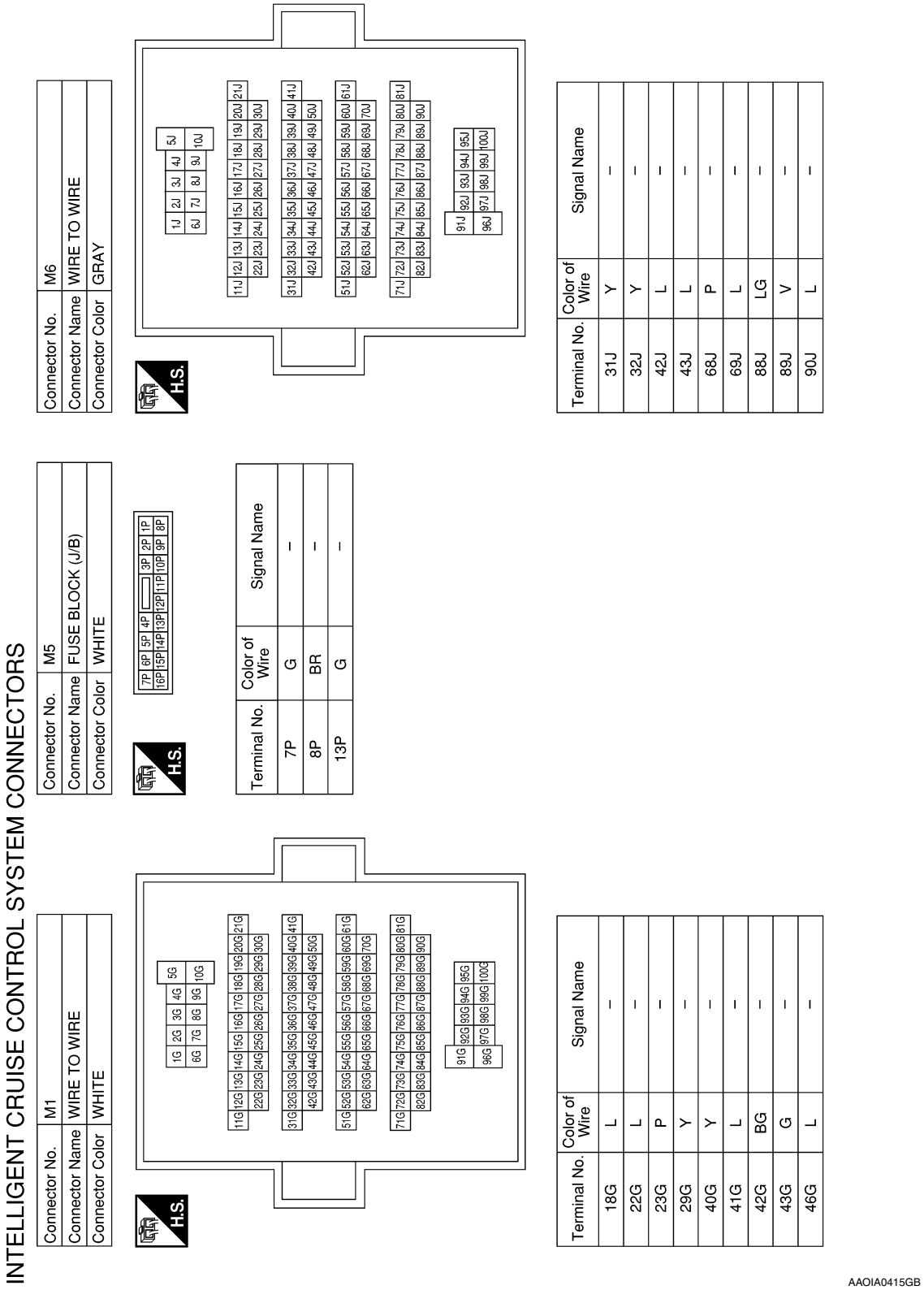
INFOID:0000000012950841



AAOWA0125GB


QR : WITH QR25DE
VQ : WITH VQ35DE
*1 QR : 115 VQ : 139
*2 QR : 116 VQ : 140
*3 QR : 100 VQ : 124
*4 QR : 99 VQ : 123
*5 QR : 110 VQ : 134
*6 QR : 111 VQ : 135
ICC STEERING SWITCH
RESUME/ ACCELERATE
SET/ COAST
DISTANCE
CANCEL
MAIN (ON/OFF)
COMBINATION SWITCH (SPIRAL CABLE)*
BRAKE PEDAL POSITION SWITCH E76
ECM E10, E31: QR E32: VQ
DATA LINE
DATA LINE
FUSE BLOCK (J/B) E6, B4
JOINT CONNECTOR-E08 E56
STOP LAMP SWITCH E38
STOP LAMP RELAY E57
JOINT CONNECTOR-E10 E64
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) E54
JOINT CONNECTOR-E04 E22
JOINT CONNEC-TOR-E03 E21
TCM (TRANSMISSION CONTROL MODULE) F16
TO STOP LAMPS
TO CAN SYSTEM
JOINT CONNECTOR-M06 M155
JOINT CONNEC-TOR-M05 M89
ICC BRAKE HOLD RELAY E77
BATTERY
10A 10
E15
* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT"
AAOWA0126GB

INTELLIGENT CRUISE CONTROL SYSTEM CONNECTORS



AAOIA0415GB

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

H.S.

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
59	P	CAN-L
60	L	CAN-H

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
1	B	GND1
2	B	GND2
21	BR	IGN
22	G	BAT
38	P	CAN-L
39	L	CAN-H

Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	GRAY

H.S.

25	24	31	32
27	21	22	33

Terminal No.	Color of Wire	Signal Name
25	BG	–
32	G	–

Connector No.	M53
Connector Name	STEERING ANGLE SENSOR
Connector Color	WHITE

H.S.

1	2	3	4
5	6	7	8

Terminal No.	Color of Wire	Signal Name
2	P	–
5	L	–

Connector No.	M88
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	GRAY

H.S.

20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
13	V	–
16	GR	–

Connector No.	M89
Connector Name	JOINT CONNECTOR-M05
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
3	L	–
4	L	–

AAOIA0416GB

Connector No.	M157
Connector Name	JOINT CONNECTOR-M08
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
3	P	–
4	P	–

Connector No.	M156
Connector Name	JOINT CONNECTOR-M07
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
3	L	–
4	L	–

Connector No.	E10
Connector Name	ECM (QR25DE EXCEPT FOR CALIFORNIA)
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H
110	O	ASCD STEERING SWITCH
111	R	SENSOR GROUND
115	L	STOP LAMP SWITCH
116	BR	BRAKE PEDAL POSITION SWITCH

Connector No.	M155
Connector Name	JOINT CONNECTOR-M06
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
3	P	–
4	P	–

Connector No.	E6
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1M	BG	–
5M	G	–
7M	L	–
8M	W	–

Connector No.	M161
Connector Name	WARNING BUZZER
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG	–
2	V	–
3	B	–

AAOIA0417GB

Connector No.	E11
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
9	P	–
10	L	–

Connector No.	E21
Connector Name	JOINT CONNECTOR-E03
Connector Color	GRAY

H.S.

6	5	4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	L	–
2	L	–
4	L	–
6	L	–

Connector No.	E22
Connector Name	JOINT CONNECTOR-E04
Connector Color	GRAY

H.S.

6	5	4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	P	–
2	P	–
4	P	–
6	P	–

Connector No.	E30
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
18G	L	–
22G	L	–
23G	P	–
29G	Y	–
40G	Y	–
41G	L	–
42G	O	–
43G	R	–
46G	L	–

Connector No.	E31
Connector Name	ECM (QR25DE FOR CALIFORNIA)
Connector Color	GRAY

H.S.

97	101	105	109	113	117	121	125
98	102	106	110	114	118	122	126
99	103	107	111	115	119	123	127
100	104	108	112	116	120	124	128

Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H
110	O	ASCD STEERING SWITCH
111	R	SENSOR GROUND
115	L	STOP LAMP SWITCH
116	BR	BRAKE PEDAL POSITION SWITCH

AAOIA0418GB

Connector No.	E32
Connector Name	ECM (WITH VQ35DE)
Connector Color	BLACK

H.S.

121	125	129	133	137	141	145	149
122	126	130	134	138	142	146	150
123	127	131	135	139	143	147	151
124	128	132	136	140	144	148	152

Terminal No.	Color of Wire	Signal Name
123	P	CAN COMMUNICATION LINE (CAN-L)
124	L	CAN COMMUNICATION LINE (CAN-H)
134	O	ASCD STEERING SWITCH
135	R	SENSOR GROUND
139	L	STOP LAMP SWITCH
140	BR	BRAKE PEDAL POSITION SWITCH

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE

H.S.

2	1
4	3

Terminal No.	Color of Wire	Signal Name
1	BR	–
2	P	–
3	G	–
4	R	–

Connector No.	E54
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK

H.S.

38	37	36	35	34	33	32	31	30	29	28	27	26	25
13	24	23	22	21	20	19	18	17	16	15	14	1	
	12	11	10	9	8	7	6	5	4	3	2		

Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H
30	L	BLS

Connector No.	E56
Connector Name	JOINT CONNECTOR-E08
Connector Color	WHITE

H.S.

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12
33	32	31	30	29	28	27	26	25	24	23

Terminal No.	Color of Wire	Signal Name
10	BR	–
11	L	–
15	L	–
16	L	–

Connector No.	E57
Connector Name	STOP LAMP RELAY
Connector Color	BLUE

H.S.

3	
5	
2	1

Terminal No.	Color of Wire	Signal Name
1	B	–
2	R	–
3	W	–
5	G	–

Connector No.	E64
Connector Name	JOINT CONNECTOR-E10
Connector Color	BLUE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1

Terminal No.	Color of Wire	Signal Name
4	W	–
5	P	–
6	W	–
8	W	–
9	P	–
10	G	–
11	G	–
12	G	–

AAOIA0419GB

Connector No.	E65
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1	
24	23	22	21	20	19	18	17	16	15	14	13	

Terminal No.	Color of Wire	Signal Name
7	Y	–
8	Y	–
19	L	–
20	L	–
21	R	–

Connector No.	E75
Connector Name	JOINT CONNECTOR-E09
Connector Color	BLACK

H.S.

5	4	3	2	1	
10	9	8	7	6	

Terminal No.	Color of Wire	Signal Name
1	R	–
2	L	–
3	L	–
4	BG	–
6	R	–
7	R	–

Connector No.	E76
Connector Name	BRAKE PEDAL POSITION SWITCH
Connector Color	BROWN

H.S.

2
1

Terminal No.	Color of Wire	Signal Name
1	R	–
2	BR	–

Connector No.	E77
Connector Name	ICC BRAKE HOLD RELAY
Connector Color	BLUE

H.S.

3	
5	
2	1

Terminal No.	Color of Wire	Signal Name
1	L	–
2	R	–
3	P	–
5	W	–

Connector No.	E206
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1	
24	23	22	21	20	19	18	17	16	15	14	13	

Terminal No.	Color of Wire	Signal Name
7	Y	–
8	Y	–
19	L	–
20	L	–
21	W	–

Connector No.	E250
Connector Name	ICC SENSOR
Connector Color	BLACK

H.S.

4	3	2	1	
8	7	6	5	

Terminal No.	Color of Wire	Signal Name
1	B	GND
2	L	ITS CAN-H
3	R	ITS CAN-L
4	–	–
5	–	–
6	–	–
7	–	–
8	W	IGN

AAOIA0420GB

Connector No.	F2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
9	P	–
10	L	–

Connector No.	F16
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK

H.S.

31	32	33	34	35	36	37	38	39	40	47	48
21	22	23	24	25	26	27	28	29	30	45	46
11	12	13	14	15	16	17	18	19	20	43	44
1	2	3	4	5	6	7	8	9	10	41	42

Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Connector No.	B4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

3Q		2Q	1Q
8Q	7Q	6Q	5Q	4Q

Terminal No.	Color of Wire	Signal Name
5Q	L	–

Connector No.	B1
Connector Name	WIRE TO WIRE
Connector Color	GRAY

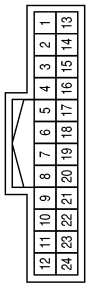
H.S.

			5J	4J	3J	2J	1J				
			10J	9J	8J	7J	6J				
21J	20J	19J	18J	17J	16J	15J	14J	13J	12J	11J	
	30J	29J	28J	27J	26J	25J	24J	23J	22J		
41J	40J	39J	38J	37J	36J	35J	34J	33J	32J	31J	
	50J	49J	48J	47J	46J	45J	44J	43J	42J		
61J	60J	59J	58J	57J	56J	55J	54J	53J	52J	51J	
	70J	69J	68J	67J	66J	65J	64J	63J	62J		
81J	80J	79J	78J	77J	76J	75J	74J	73J	72J	71J	
	90J	89J	88J	87J	86J	85J	84J	83J	82J		
			95J	94J	93J	92J	91J				
			100J	99J	98J	97J	96J				

Terminal No.	Color of Wire	Signal Name
31J	Y	–
32J	Y	–
42J	L	–
43J	L	–
68J	P	–
69J	L	–
88J	LG	–
89J	V	–
90J	L	–

AAOIA0433GB

Connector No.	B69
Connector Name	ADAS CONTROL UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	GND
2	L	ITS CAN-H
3	LG	IGN
4	V	BUZZER OUTPUT
5	Y	ITS CAN-L
6	Y	CAN-L
7	–	–
8	–	–
9	L	CAN-H
10	P	CAN-L
11	–	–
12	–	–
13	–	–
14	L	STOP LAMP RELAY DRIVE
15	–	–
16	–	–
17	–	–
18	L	CAN-L
19	–	–
20	–	–
21	–	–
22	–	–
23	–	–
24	–	–

AAOIA0422GB

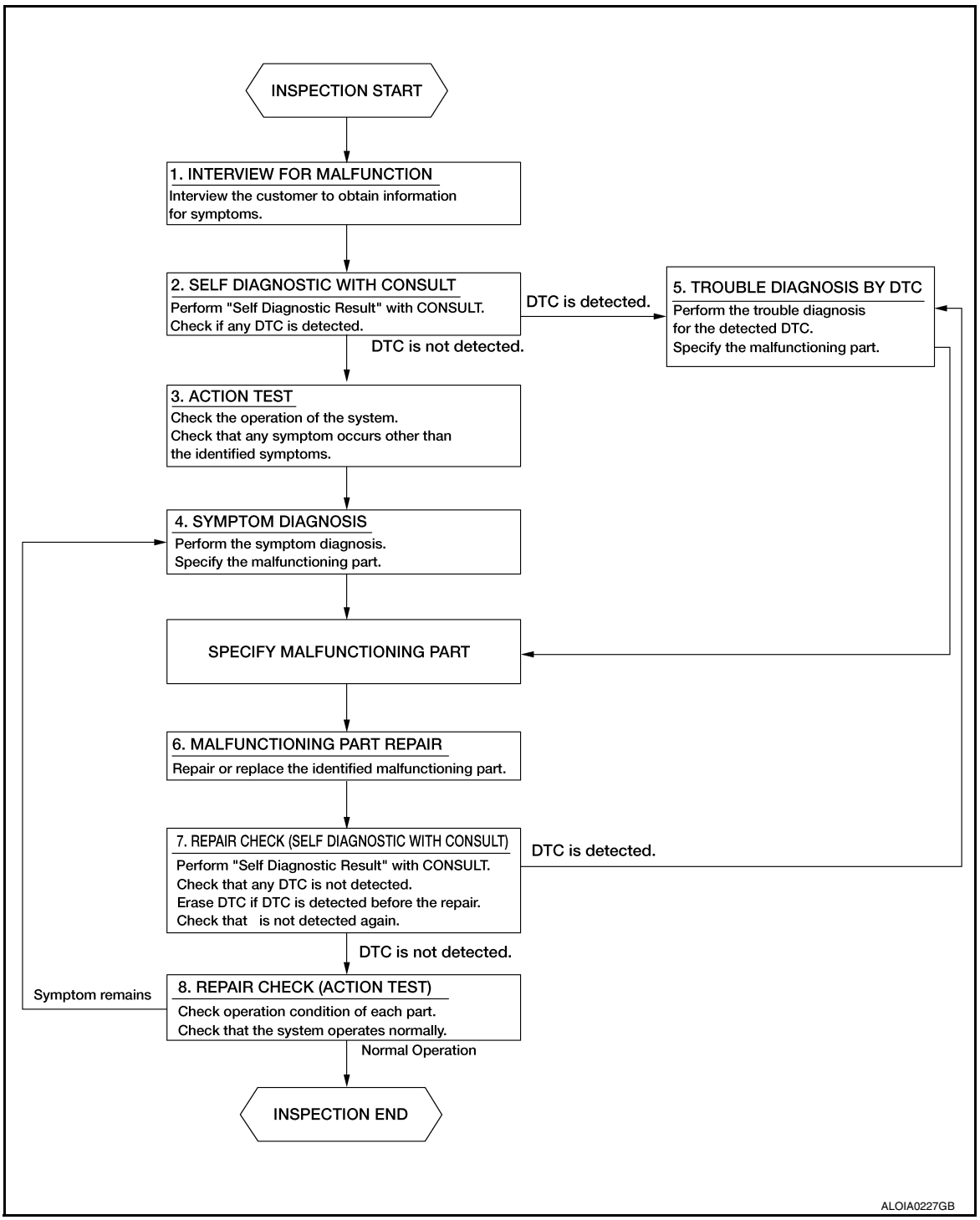
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000012950842

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW FOR MALFUNCTION

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

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

>> GO TO 2.

2.SELF DIAGNOSTIC RESULT WITH CONSULT

CONSULT
1. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
2. Check if the DTC is detected in the “Self Diagnostic Result” mode of “LASER/RADAR”.

Is any DTC detected?

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

3.ACTION TEST

Perform the FEB system action test to check the system operation. Check if any other malfunctions occur.

>> GO TO 4.

4.SYMPTOM DIAGNOSIS

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to CCS-122, "Symptom Table".

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the “Self Diagnostic Result”.
2. Perform trouble diagnosis for the detected DTC. Refer to CCS-43, "DTC Index".

>> GO TO 6.

6.MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 7.

7.REPAIR CHECK (SELF DIAGNOSTIC RESULT WITH CONSULT)

CONSULT
1. Erase “Self Diagnostic Result”.
2. Select “Self Diagnostic Result” again after repairing or replacing the specific items.
3. Check if any DTC is detected in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 8.

8.REPAIR CHECK (ACTION TEST)

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

Is there a malfunction symptom?

YES >> GO TO 4.
NO >> Inspection End.

ADDITIONAL SERVICE WHEN REPLACING ICC SENSOR

Description

INFOID:0000000012950843

- Always perform the radar alignment aiming adjustment after removing and installing or replacing the ICC sensor.
  CAUTION:
  The system does not operate normally unless the ICC sensor is aligned properly.
- Perform the ICC system action test to check that the ICC system operates normally.

Work Procedure

INFOID:0000000012950844

1.RADAR ALIGNMENT ADJUSTMENT

Adjust the radar alignment. Refer to CCS-59, "Description".

>> GO TO 2.

2.ICC SYSTEM ACTION TEST

1. Perform the ICC system action test. Refer to CCS-68, "Description".
2. Check that the ICC system operates normally.

>> Inspection End.

ICC SENSOR INITIAL VERTICAL ALIGNMENT

Description

INFOID:0000000013025164

WARNING:
Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electric medical equipment manufacturer for the possible influences before use.

OUTLINE OF ICC SENSOR INITIAL ALIGNMENT PROCEDURE

- Always perform the ICC sensor initial vertical alignment after removing and installing or replacing the ICC sensor.

CAUTION:
The system does not operate normally unless the ICC sensor is aligned properly.

1. For required tools, refer to CCS-59, "Required Tools".
2. For preparation, refer to CCS-59, "Preparation".
3. For ICC sensor initial vertical alignment, refer to CCS-60, "ICC Sensor Initial Vertical Alignment".

CAUTIONARY POINT FOR DISTANCE SENSOR ALIGNMENT PROCEDURE

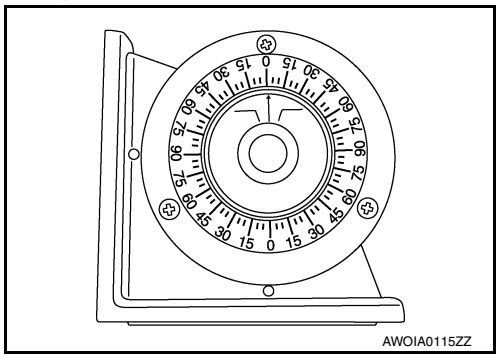
CAUTION:
- **For Distance sensor alignment procedure, choose a level location with a few feet of working space in front and surrounding the vehicle.**
- **Vehicle must be stationary and unoccupied during the whole alignment procedure.**
- **Never enter the vehicle during ICC sensor alignment.**
- **For proper system operation and adjustment, all vehicle wheels must be the original factory size.**

The ICC sensor requires alignment whenever the ICC sensor is removed and reinstalled and whenever front end structural repairs are performed. ICC sensor alignment consists of performing the mechanical vertical alignment (ICC sensor initial vertical alignment) described in the following procedure, followed by the electronic horizontal alignment (ICC sensor alignment) that is performed using CONSULT and the appropriate special service tools.

Required Tools

INFOID:0000000013025165

The following tool is necessary to perform the ICC sensor initial vertical alignment:
- Small level or angle meter.



Preparation

INFOID:0000000013025166

1. PREPARATION FOR ICC SENSOR INITIAL VERTICAL ALIGNMENT PROCEDURE

1. Verify correct vehicle suspension height. Refer to FSU-25, "Wheelarch Height (Unladen*[1])".
2. Repair or replace any damaged body components.
3. Verify proper tire inflation pressures. Refer to WT-60, "Tire".
4. Remove any accumulations of mud, snow or ice from the vehicle underbody.
5. Verify that there is no load in the vehicle (cargo or passenger).
6. Place the vehicle on a known level horizontal surface such as a wheel or frame alignment rack to achieve satisfactory sensor vertical alignment results.

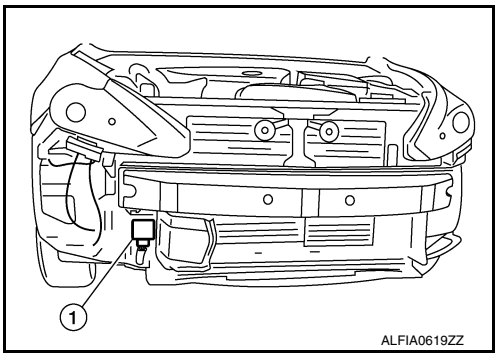
>> Refer to CCS-60, "ICC Sensor Initial Vertical Alignment".

ICC Sensor Initial Vertical Alignment

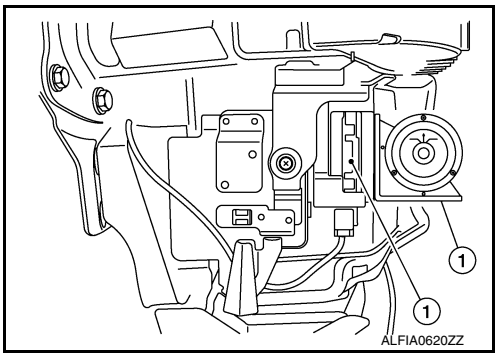
INFOID:0000000013025167

NOTE:
The ICC sensor initial vertical alignment procedure must be performed anytime the ICC sensor is removed and reinstalled.

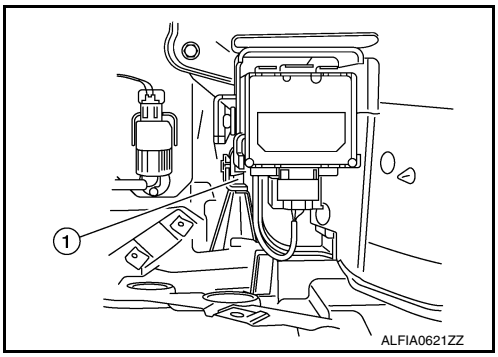
1. The ICC sensor (1) is located near the right front headlamp behind the front bumper fascia.



2. Place the small level or angle meter (2) against the face of the ICC sensor (1).



3. Turn the ICC sensor adjustment screw (1) to level the sensor.



4. Ensure the ICC sensor electrical connector located on the bottom of the sensor is connected.
5. Perform the ICC sensor alignment procedure. Refer to CCS-61, "Description".

ICC SENSOR ALIGNMENT

Description

INFOID:0000000013025168

WARNING:
Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electric medical equipment manufacturer for the possible influences before use.

OUTLINE OF ICC SENSOR ALIGNMENT PROCEDURE

- A 4-wheel vehicle alignment must be performed before proceeding with ICC sensor alignment procedure.
- Always perform the ICC sensor alignment after removing and installing or replacing the ICC sensor.
- If the ICC sensor was removed and installed or replaced, first perform ICC Sensor Initial Vertical Alignment, refer to CCS-59, "Description".

CAUTION:
The system does not operate normally unless the ICC sensor is aligned properly.

1. For required tools, refer to CCS-61, "Required Tools".
2. For preparation, refer to CCS-62, "Preparation".
3. For vehicle set up, refer to CCS-63, "Vehicle Set Up".
4. For setting the ICC target board, refer to CCS-65, "Setting The ICC Target Board".
5. For ICC sensor adjustment, refer to CCS-66, "ICC Sensor Adjustment".

CAUTIONARY POINT FOR ICC SENSOR ALIGNMENT PROCEDURE

CAUTION:

- **For ICC sensor alignment procedure, choose a level location with a few feet of working space in front and surrounding the vehicle.**
- **Vehicle must be stationary and unoccupied during the whole alignment procedure.**
- **Any slight vibration during the alignment procedure can cause the test to fail. If this happens, you will have to restart the alignment process.**
- **The ignition switch must be in the ON position.**
- **The battery voltage must not fall below 12 volts during the whole alignment procedure. Failure to maintain adequate battery voltage will cause the test to fail. If this happens, you will have to restart the alignment process.**
- **The ICC target board must be set in front of the vehicle facing the sensor.**
- **Adjust the ICC sensor alignment with CONSULT. (The ICC sensor alignment procedure cannot be adjusted without CONSULT.)**
- **Never enter the vehicle during ICC sensor alignment.**
- **Never block the area between the ICC sensor and the ICC target board at any time during the alignment process.**
- **Never break the laser beam between the laser assembly and front ICC target board or rear reflector at any time during alignment.**
- **Accurate steering wheel setting is crucial. Once set, do not disturb the steering wheel for the remainder of the alignment procedure.**
- **To avoid physical damage, the ICC sensor adjustment screw must not be forced to either clockwise or counter-clockwise limit. For proper adjustment procedure, follow the directions of the CONSULT exactly as instructed.**
- **For proper system operation and adjustment, all vehicle wheels must be of the same size.**

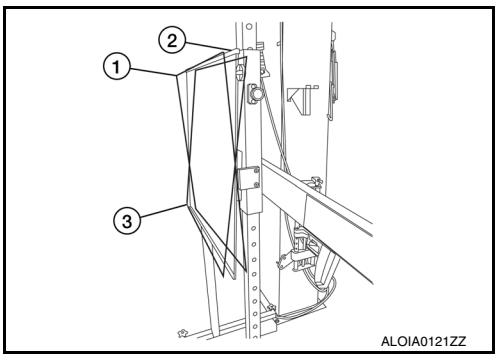
Required Tools

INFOID:0000000013025169

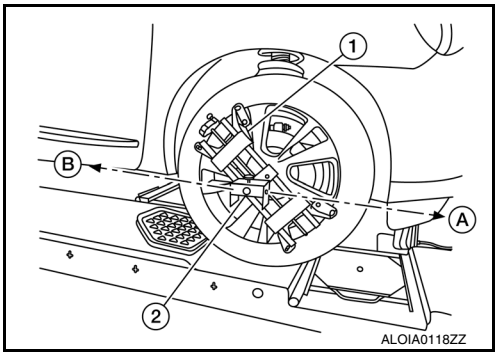
- ICC alignment kit 1-20-2721-1-IF in addition to one of the following:
  a) Hunter self-centering wheel adapter (Hunter wheel alignment tool)
  b) Special Service Tool kit 1-20-2722-1-IF (kit SCA W/Tire Clamp-ICC Aiming)

The following ICC alignment kit 1-20-2721-1-IF is necessary to perform the ICC sensor alignment:

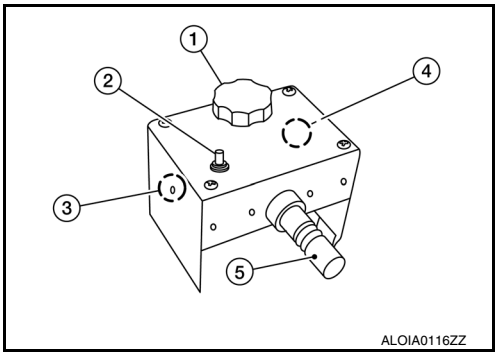
- ICC target board:
- Position 1: with top tilted 2° toward vehicle (1).
- Position 2: vertical (2).
- Position 3: with top tilted 2° away from vehicle (3).



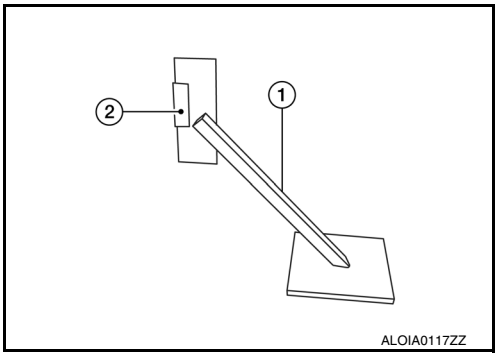
- Hunter self-centering wheel adapter (1) [shown with laser assembly (2) installed] (Hunter alignment rack head may be substituted).
NOTE:
Retailers that are not equipped with a Hunter self-centering wheel adapter will require the following kit:
Part No. 1-20-2722-1-IF (kit SCA with Tire Clamp-ICC Aiming).
When the power switch is turned ON, the front laser (A) will be emitted toward the front ICC target board, and the rear laser signal (B) will be emitted toward the rear of the vehicle.



- Laser assembly (with bi-directional laser beam) as shown in the illustration.
- Tightening knob (1)
- Power ON/OFF button (2)
- Front laser beam opening (3)
- Rear laser beam opening (4)
- Attaching shaft (5)



- Stationary target as shown in the illustration.
- Stationary target (1)
- Laser signal reception plate (2)



- Distance chain (not shown).

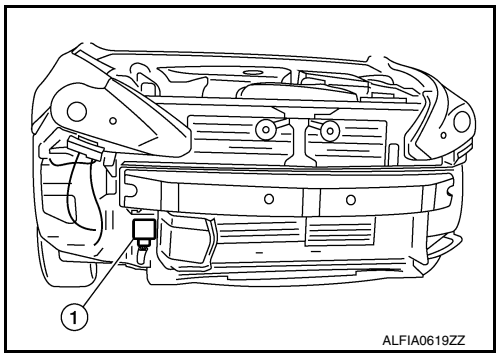
Preparation

INFOID:0000000013025170

1. ADVANCE PREPARATION FOR ICC SENSOR ALIGNMENT PROCEDURE

1. Adjust all tire pressure to the specified value.
2. Empty the vehicle. (Remove any luggage from the passenger compartment, luggage room, etc.)
3. Shift the selector lever to “P” position, and release the parking brake.
4. Fully fill the fuel tank, and then check that the coolant and oils are filled to correct level.
5. Clean off the front of the ICC sensor.

NOTE:
The ICC sensor is located behind the fascia and it is not exposed to the elements. Therefore, it should not require any cleaning.



1 : ICC sensor

>> Refer to CCS-63, "Vehicle Set Up".

Vehicle Set Up

INFOID:0000000013025171

DESCRIPTION

Accurate adjustment of the ICC sensor alignment requires that the ICC target board, wheel adapter, laser assembly, and stationary target be properly positioned.

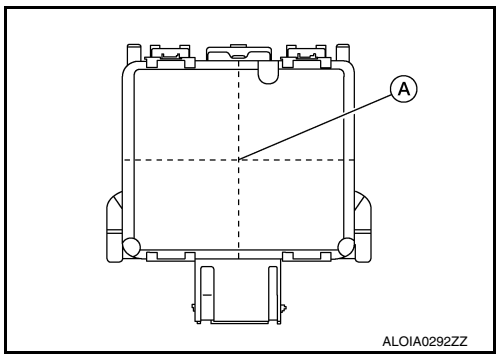
CAUTION:

If the ICC sensor alignment is adjusted with the ICC target board, wheel adapter, laser assembly, or stationary target in the incorrect position, the ICC system will not function properly or the alignment procedure may not be completed successfully.

1.PREPOSITION TARGET BOARD

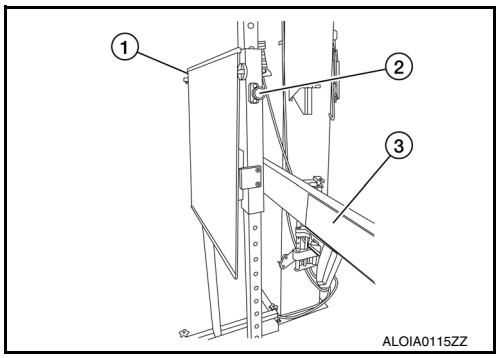
NOTE:

- The center of the sensor wave axis (A) is located at the center of the front lens.

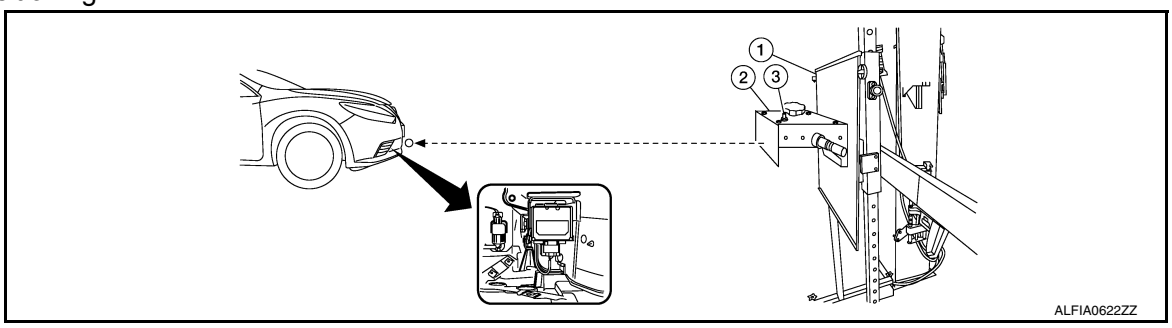


- Initial ICC target board setting must be in the center position.

1. Position the ICC target board in front facing the right front side of the vehicle:
- Using the full length of the supplied chain for distance, place the marked center of the ICC target board (1) 1200 mm (47.2 in.) ± 625 mm (24.6 in) away facing the ICC sensor.
- Adjust the height of the ICC target board using the adjustable nut (2) to achieve the proper height. The up/down tolerance is ± 80 mm (3.15 in).
- Adjust the ICC target board lateral position aligning the marked center of the board horizontally with the center of the ICC sensor front lens. The right/left tolerance is ± 80 mm (3.15 in).
2. Extend the machined arm of the ICC target board exposing the reflective surface (3) to the right front side of the vehicle.



3. Place one side of the laser assembly (2) flush against the center of the ICC target board (1) to assist in the positioning.



4. Turn the laser assembly ON (3) allowing the laser beam to emit through the opening of the laser assembly toward the center of the ICC sensor.
5. Move the ICC target board (1) as necessary so that center of ICC target board aligns with center of ICC sensor.
6. Turn the laser assembly OFF when done.

Are you using Hunter alignment equipment?

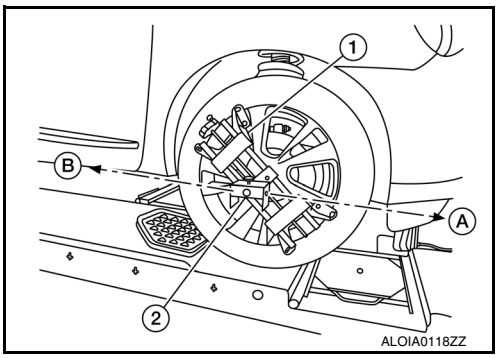
YES >> Refer to Hunter's equipment instructions for complete vehicle set up and ICC target board setting. Then, refer to CCS-66, "ICC Sensor Adjustment".

NO >> GO TO 2.

2. INSTALLING LASER ASSEMBLY

NOTE:
- Ensure the steering wheel is positioned in the center straight-forward position.
- Ensure all four vehicle wheels do not have any physical damage.

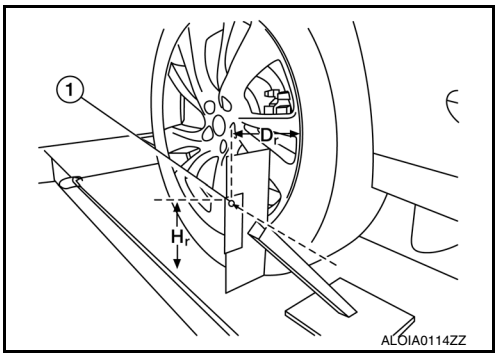
1. Install the wheel adapter (1) on the right front wheel.
2. Mount the laser assembly (2) to the wheel adapter (1) as shown in the figure.
   NOTE:
   When the power switch is turned ON, the front laser signal (A) will be emitted toward the front ICC target board, and the rear laser signal (B) will be emitted toward the rear of the vehicle.



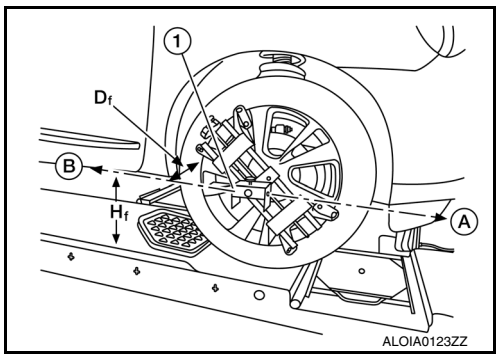
>> GO TO 3.

3. SETTING UP STATIONARY TARGET

1. Place the stationary target next to the right rear tire as shown in the figure.
2. Turn the laser assembly ON allowing the laser beam to be emitted through the front and rear laser assembly openings.
3. Measure and record the distance (D_r) between the edge of the right rear wheel and the laser beam (1) on the stationary target (horizontal line).
4. Measure and record the height (H_r) between the laser beam (1) on the stationary target and ground level (vertical line).



5. Measure and record the distance (D_f) between the edge of the right front wheel and the laser beam signal/opening (1) on the laser assembly (horizontal line).
6. Measure and record the height (H_f) between the laser beam signal/opening (1) on the laser assembly and ground level (vertical line).
   NOTE:
   - Horizontal adjustment [front distance (D_f) and rear distance (D_r)] is accomplished by slowly turning the steering wheel until the two distances are the same.
   - Vertical adjustment [front height (H_f) and rear height (H_r)] is accomplished by rotating the laser assembly around its axis until the two heights are the same.
   - Directional arrows (A) and (B) are shown to illustrate the direction of the laser assembly beams.



7. Adjust laser beam as necessary until the two distances match and the two heights match.
   NOTE:
   You will have to verify both horizontal and vertical adjustments anytime one adjustment is made.

>> Refer to CCS-65, "Setting The ICC Target Board".

Setting The ICC Target Board

INFOID:0000000013025172

DESCRIPTION

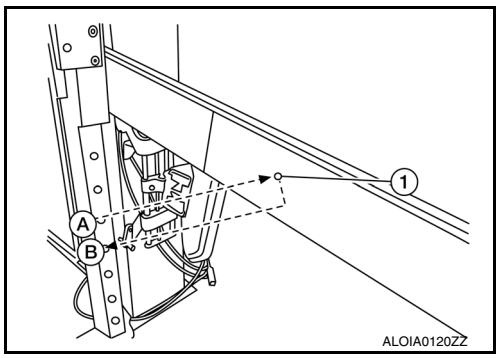
Accurate adjustment of the ICC sensor alignment requires that the ICC target board be accurately positioned.

CAUTION:

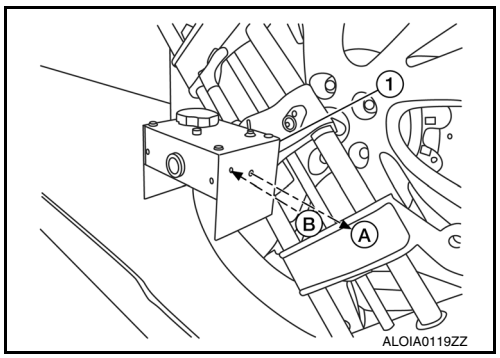
If the ICC sensor alignment is adjusted with the ICC target board in the incorrect position, the ICC system will not function properly or the alignment procedure may not be completed successfully.

1. ICC TARGET BOARD FINAL SETTING

1. With the ICC target board arm extended, the laser beam (1) emitted by the laser assembly (A) will be reflected back (B) toward the laser assembly.
   NOTE:
   When adjusted properly, reflected laser beam (B) must align with emitted laser beam (A) and the two laser beams will be seen as one.
2. Rotate the ICC target board to achieve the necessary horizontal adjustment.
3. Adjust the ICC target board leveling screws to achieve the necessary vertical adjustment.



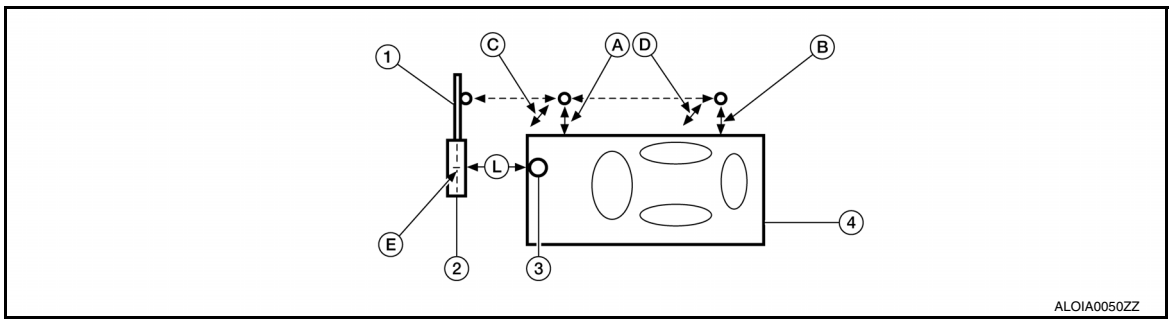
4. The figure shown illustrates the laser beam (A) emitted by the laser assembly (1) and its reflection (B) off the ICC target board arm.



>> GO TO 2.

2. CHECK THE POSITION OF THE ICC TARGET BOARD

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



1. ICC target board arm
2. ICC target board
3. ICC sensor
4. Vehicle
A. Distance between front wheel and laser beam (D_f)
B. Distance between rear wheel and laser beam (D_r)
C. Height between front laser beam and ground (H_f)
D. Height between rear laser beam and ground (H_r)
E. ICC target board center position (Position 2)
L. 1 - 1.5 m (39.3 - 59 in.)

>> Refer to CCS-66, "ICC Sensor Adjustment".

ICC Sensor Adjustment

INFOID:0000000013025173

DESCRIPTION

- Adjust the ICC sensor alignment in a vertical direction with CONSULT as per the following.
- The ICC sensor alignment in the horizontal direction is performed automatically and cannot be adjusted manually.

CAUTION:

- **Never look directly into or block the ICC sensor source (between the front fascia and ICC target board) during the ICC sensor alignment procedure.**
- **Perform all necessary work for ICC sensor alignment procedure until the adjustment completes as shown in the procedure. If the procedure is started but not completed, the ICC system is rendered inoperable.**

1.SET CONSULT TO THE ICC SENSOR ALIGNMENT MODE

1. Place ignition switch in the ON position.
2. Connect CONSULT and select “LASER/RADAR” then “Work Support”.
3. Select “MILLIWAVE RADAR ADJUST”.
4. Select “Start” after the “MILLIWAVE RADAR ADJUST” screen is displayed.

NOTE:

If the adjustment screen does not appear or an error appears within approximately 10 seconds after “RADAR Alignment” is selected, the following causes are possible:

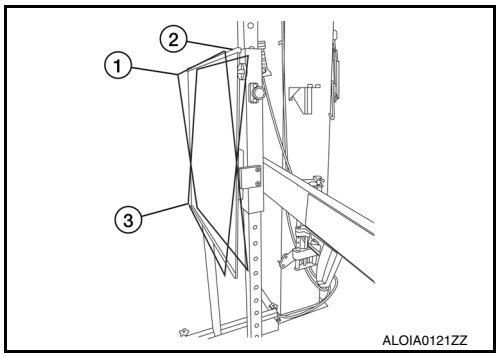
- The ICC target board is not installed in the correct position.
- Adequate space is not secured around the ICC target board.
- The ICC sensor alignment procedure exceeds its proper installation range:
  - Deformation of vehicle body
  - Deformation of unit
  - Deformation of bracket
- The area is not suitable for the adjustment work.
- Right front side of fascia (ICC sensor view) is not clean.
- The ICC system warning lamp illuminates.
- Battery voltage is low.
- The extended arm and mirror are not stationary.

>> GO TO 2.

2.ICC SENSOR ALIGNMENT

1. Once the ICC sensor alignment procedure is started, you will be prompted by CONSULT for the next instruction.
2. Follow all the instructions exactly as requested by CONSULT which will include the following:

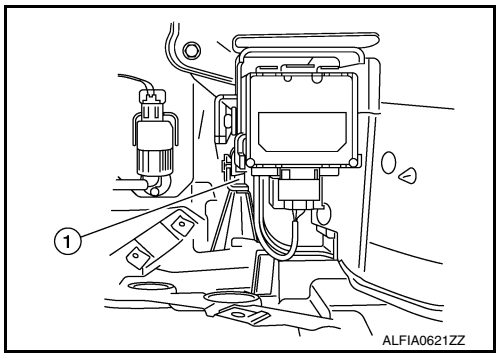
- Adjust ICC target board to position 1 (top tilted toward vehicle).
- Adjust ICC target board to position 2 (vertical position).
- Adjust ICC target board to position 3 (top tilted away from vehicle)



3. You will be prompted with specific instructions to perform physical adjustment to the sensor which may include turning the adjustment screw (1) for a certain number of turns in increments of 0.25 in either direction.

NOTE:
CONSULT is not live and will not automatically update while turning the tool.

CAUTION:
Be careful not to cover the right front side of the fascia (ICC sensor view) with a hand or any other body part during adjustment.



>> GO TO 3.

3. ICC SENSOR ALIGNMENT CONFIRMATION

1. When the “U/D CORRECT” value is executed and the "ADJ VALUE" has been performed, select "End".
2. When “COMPLETED THE VERTICAL AIMING OF LASER BEAM” display appears, select “End”.
   CAUTION:
   Always check that the value of “U/D CORRECT” remains accurate (within specification) when the ICC sensor is left alone for at least 2 seconds.
3. Check that “ADJUSTING AUTOMATIC HORIZONTAL LASER BEAM AIMING” is displayed and wait for a short period of time (Maximum: Approx. 10 seconds).
4. Check that “Normally Completed” is displayed, and select “End” to end “RADAR Alignment”.
   CAUTION:
   Once “RADAR Alignment” is started with CONSULT, always continue the work until the ICC sensor alignment is completed successfully. If the job is stopped midway, the ICC sensor alignment is not completed and the ICC system is rendered inoperative.
5. Confirm proper ICC sensor alignment by following CONSULT steps until it shows "ADJ VALUE" to be 0.00 turn.

>> Alignment End.

ACTION TEST

Description

INFOID:0000000012950855

Always perform the ICC system action test to check that the ICC system operates normally after replacing the ICC sensor or repairing any ICC system malfunction.

CAUTION:

- **Always drive safely when performing the action test.**

Work Procedure

INFOID:0000000012950856

NOTE:

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

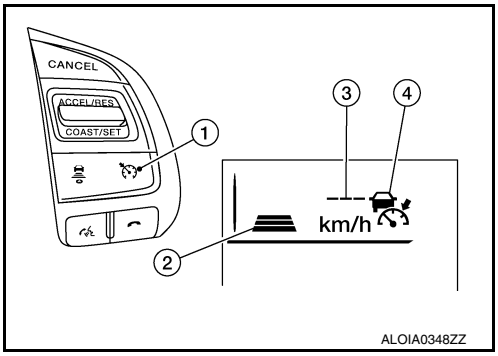
CAUTION:

Never set the cruise speed exceed the posted speed limit.

1.CHECK FOR MAIN SWITCH

1. Start the engine.
2. Press the MAIN switch (1) (for less than 1.5 seconds).

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



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

>> GO TO 2.

2.CHECK FOR DISTANCE SWITCH

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

4. Check that the set distance indicator changes display in order of: (Long)→(Middle)→(Short).

Distance	Display	Approximate distance at 100 km/h (60 MPH) [m (ft)]
Long	100 km/h	55 (180)
Middle	100 km/h	40 (130)
Short	100 km/h	25 (80)

JSOIA0572GB

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

>> GO TO 3.

3. CHECK FOR RES/+, SET/-, AND CANCEL SWITCHES

1. Check that RES/+, SET/-, and CANCEL switches are operated smoothly.
2. Check that switches come up as hand is released from the switches.

>> GO TO 4.

4. SET CHECKING (1)

1. Start the engine.
2. Press the MAIN switch (for less than 1.5 seconds) and turn the Intelligent Cruise Control ON.
3. Drive the vehicle at 32 km/h (20 MPH) or more.
4. Push down the SET/- switch.
5. Check that the desired speed is set and Intelligent Cruise Control starts when releasing SET/- switch.

NOTE:
The set vehicle speed is indicated on the set vehicle speed indicator in the Intelligent Cruise Control display on the information display.

>> GO TO 5.

5. CHECK FOR INCREASE OF CRUISING SPEED (1)

1. Set the Intelligent Cruise Control at desired speed.
2. Check that the set speed increases by 1 km/h (1 MPH) as RES/+ switch is pushed up.

NOTE:
The maximum set speed of the Intelligent Cruise Control is 144 km/h (90 MPH).

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

>> GO TO 6.

6. CHECK FOR DECREASE OF CRUISING SPEED (1)

1. Set the Intelligent Cruise Control at desired speed.
2. Check that the set speed decreases by 1 km/h (1 MPH) as SET/- switch is pushed down.

NOTE:
- The minimum set speed is approximately 32 km/h (20 MPH).

- Cancels the control automatically when the vehicle speed is less than approximately 24 km/h (15 MPH) and when the system does not detect any vehicle ahead.

>> GO TO 7.

7. SET CHECKING (2)

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

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

>> GO TO 8.

8. CHECK FOR INCREASE OF CRUISING SPEED (2)

1. Set the Intelligent Cruise control when the vehicle speed is less than approximately 32 km/h (20 MPH) and when a vehicle ahead is detected.
2. Check that the set speed increases by 1 km/h (1 MPH) as RES/+ switch is pushed up.

NOTE:
The maximum set speed of the Intelligent Cruise Control is 144 km/h (90 MPH).

CAUTION:
Never set the cruise speed to exceed the posted speed limit.

>> GO TO 9.

9. CHECK FOR DECREASE OF CRUISING SPEED (2)

1. Set the Intelligent Cruise Control when the vehicle speed is less than approximately 32 km/h (20 MPH) and when a vehicle ahead is detected.
2. Set vehicle speed to the desired vehicle speed “check for increase of cruising speed”.
3. Check that the set speed decreases by 1 km/h (1 MPH) as SET/- switch is pushed down.

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

>> GO TO 10.

10. CHECK FOR CANCELLATION OF INTELLIGENT CRUISE CONTROL

Check that the Intelligent Cruise Control is canceled when performing the following operations:
- When the brake pedal is depressed after Intelligent Cruise Control is set and the vehicle is driven.
- When the selector lever is in the “N” position after Intelligent Cruise control is set and the vehicle is driven.
- When the MAIN switch is turned OFF after Intelligent Cruise Control is set and the vehicle is driven.
- When the CANCEL switch is pressed after Intelligent Cruise Control is set and the vehicle is driven.

>> GO TO 11.

11. CHECK FOR RESTORING SPEED THAT IS SET BY INTELLIGENT CRUISE CONTROL BEFORE CANCELLATION

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

- Drive the vehicle when the Intelligent Cruise Control is set and depress the brake pedal to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when pushing up the RES/+ switch.
- Drive the vehicle when the Intelligent Cruise Control is set and shift the selector lever to the “N” position to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when shifting the selector lever to the “D” position and pushing up the RESUME/+ switch.
- Drive the vehicle when the Intelligent Cruise Control is set and press the CANCEL switch to cancel the control. Check that the vehicle restores the previous vehicle speed kept before the system deactivation when pushing up the RESUME/+ switch.

>> Inspection End.

DTC/CIRCUIT DIAGNOSIS

C1A00 CONTROL UNIT

DTC Description

INFOID:0000000012950857

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A00	CONTROL UNIT (Control unit malfunction)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	ICC sensor CAN failure
		Diagnosis delay time	—

POSSIBLE CAUSE

ICC sensor

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1A00” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A00” detected as the current malfunction?

YES >> Refer to CCS-72, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950858

1.CHECK SELF DIAGNOSTIC RESULT

Check if any DTC other than “C1A00” is detected in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to CCS-43, "DTC Index".
NO >> Replace the ICC sensor. Refer to CCS-59, "Description".

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

DTC Description

INFOID:0000000012950859

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A01	POWER SUPPLY CIR (Power supply circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	The battery voltage sent to ICC sensor remains less than 8.6 V.
		Diagnosis delay time	—
C1A02	POWER SUPPLY CIR 2 (Power supply circuit 2)	Diagnosis condition	When Ignition switch is ON.
		Signal (terminal)	—
		Threshold	The battery voltage sent to ICC sensor remains more than 19.3 V.
		Diagnosis delay time	—

POSSIBLE CAUSE

- Connector, harness or fuse
- ICC sensor

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is “C1A01” or “C1A02” detected as the current malfunction?

YES >> Refer to CCS-73, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950860

1.CHECK ICC SENSOR POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of ICC sensor. Refer to CCS-116, "ICC SENSOR : Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

C1A03 VEHICLE SPEED SENSOR

DTC Description

INFOID:0000000012950861

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A03	VHCL SPEED SE CIRC (Vehicle speed sensor circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	• If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) and the CVT vehicle speed sensor signal (output shaft revolution signal) from TCM, received by the ICC sensor unit via CAN communication, are inconsistent • If tire size is not correct
		Diagnosis delay time	—

POSSIBLE CAUSE

- Wheel speed sensor
- ABS actuator and electric unit (control unit)
- Vehicle speed sensor CVT (output speed sensor)
- TCM
- ICC sensor
- Tire

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)
- Blind Spot Warning (BSW)
- Back-up Collision Intervention (BCI)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A03” is displayed with DTC “U1000” or “C1A04”, first diagnose the DTC “U1000” or “C1A04”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC.
- U1000: Refer to CCS-114, "DTC Logic".
- C1A04: Refer to CCS-76, "DTC Description".

No-1 >> Check the tire size.

NO-2 >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Drive the vehicle at 30 km/h (19 MPH) or more.
   CAUTION:
   Always drive safely.
4. Stop the vehicle.
5. Perform “All DTC Reading” with CONSULT.
6. Check if the “C1A03” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A03” detected as the current malfunction?

YES >> Refer to CCS-75, "Diagnosis Procedure".

NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".

NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950862

1.CHECK DTC PRIORITY

If DTC “C1A03” is displayed with DTC “U1000” or “C1A04”, first diagnose the DTC “U1000” or “C1A04”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC.
- U1000: Refer to CCS-114, "DTC Logic".
- C1A04: Refer to CCS-76, "DTC Description".

NO >> GO TO 2.

2.CHECK DATA MONITOR

1. Start the engine.
2. Drive the vehicle.
3. Check that the value of “VHCL SPD AT” is almost the same as the value of “VHCL SPEED SE” in “Data Monitor” mode of “LASER/RADAR”.

CAUTION:

Be careful of the vehicle speed.

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to DAS-72, "Removal and Installation".

NO >> GO TO 3.

3.CHECK TCM SELF-DIAGNOSIS RESULTS

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

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-60, "DTC Index" (RE0F10D) or TM-267, "DTC Index" (RE0F10H).

NO >> GO TO 4.

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

Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".

NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

C1A04 ABS/TCS/VDC SYSTEM

DTC Description

INFOID:0000000012950863

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A04	ABS/TCS/VDC CIRC (ABS/TCS/VDC circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If a malfunction occurs in the VDC/TCS/ABS system
		Diagnosis delay time	—

POSSIBLE CAUSE

ABS actuator and electric unit (control unit)

FAIL-SAFE

The following systems are canceled:
- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A04” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "Diagnosis Procedure".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “C1A04” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A04” detected as the current malfunction?

YES >> Refer to CCS-76, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950864

1.CHECK DTC PRIORITY

If DTC “C1A04” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

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

Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-72, "Removal and Installation".

C1A05 BRAKE SW/STOP LAMP SW

DTC Description

INFOID:0000000012950865

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A05	BRAKE SW/STOP L SW (Brake switch/Stop lamp switch)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	A mismatch between a stop lamp switch signal and a brake pedal position switch signal received from ECM and a stop lamp signal received from the ABS actuator and electric unit (control unit) continues for 60 seconds or more when vehicle speed is approximately 40 km/h (65 MPH) or more.
		Diagnosis delay time	—

POSSIBLE CAUSE

- Stop lamp switch circuit
- Brake pedal position switch circuit
- Stop lamp switch
- Brake pedal position switch
- Incorrect stop lamp switch installation
- Incorrect brake pedal position switch installation
- ECM
- ABS actuator and electric unit (control unit)

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A05” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A05” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A05” detected as the current malfunction?

YES >> Refer to CCS-77, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950866

Regarding Wiring Diagram Information, refer to CCS-46, "Wiring Diagram".

1.CHECK DTC PRIORITY

If DTC “C1A05” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-77, "DTC Description".
NO >> GO TO 2.

2.CHECK STOP LAMP SWITCH AND BRAKE PEDAL POSITION SWITCH

Check that “STOP LAMP SW” and “BRAKE SW” operate normally in “Data Monitor” mode of “LASER/RADAR”.

Is the inspection result normal?

YES >> GO TO 3.
NO-1 >> When “BRAKE SW” operation is malfunctioning: GO TO 4.
NO-2 >> When “STOP LAMP SW” operation is malfunctioning: GO TO 9.

3.CHECK STOP LAMP SWITCH

Check that “STOP LAMP SW” operates normally in “Data Monitor” mode of “ABS”.

Is the inspection result normal?

YES >> GO TO 14.
NO >> GO TO 9.

4.CHECK BRAKE PEDAL POSITION SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check brake pedal position switch for correct installation. Refer to BR-14, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Adjust brake pedal position switch installation. Refer to BR-14, "Inspection and Adjustment".

5.BRAKE PEDAL POSITION SWITCH INSPECTION

1. Disconnect brake pedal position switch connector.
2. Check brake pedal position switch. Refer to CCS-80, "Component Inspection (Brake Pedal Position Switch)".

Is the inspection result normal?

YES >> GO TO 6.
NO >> Replace brake pedal position switch.

6.CHECK BRAKE PEDAL POSITION SWITCH POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between brake pedal position switch harness connector and ground.

(+)		(-)	Voltage (Approx.)
Brake pedal position switch		Ground	Battery voltage
Connector	Terminal		
E76	1		

Is the inspection result normal?

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

7.CHECK HARNESS BETWEEN BRAKE PEDAL POSITION SWITCH AND ECM

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

Brake pedal position switch		ECM		Continuity
Connector	Terminal	Connector	Terminal	
E76	2	E31	116 (QR25DE for California)	Yes
		E10	116 (QR25DE except California)	
			140 (VQ35DE)	

4. Check for continuity between brake pedal position switch harness connector and ground.

Brake pedal position switch		Ground	Continuity
Connector	Terminal		
E76	2		No

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair the harnesses or connectors.

8. PERFORM SELF DIAGNOSTIC RESULTS OF ECM

CONSULT

1. Connect all connectors if the connectors were disconnected.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “ENGINE”.
4. Check if any DTC is detected in “Self Diagnostic Result” mode of “ENGINE”. Refer to EC-110, "DTC Index" (QR25DE) or EC-676, "DTC Index" (VQ35DE).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.
NO >> Replace the ADAS control unit. Refer to DAS-72, "Removal and Installation".

9. CHECK STOP LAMP SWITCH INSTALLATION

1. Turn ignition switch OFF.
2. Check stop lamp switch for correct installation. Refer to BR-14, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 10.
NO >> Adjust stop lamp switch installation. Refer to BR-14, "Inspection and Adjustment".

10. STOP LAMP SWITCH INSPECTION

1. Disconnect stop lamp switch connector.
2. Check stop lamp switch. Refer to CCS-80, "Component Inspection (Stop Lamp Switch)".

Is the inspection result normal?

YES >> GO TO 11.
NO >> Replace stop lamp switch.

11. CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Check voltage between stop lamp switch harness connector and ground.

(+)		(-)	Voltage (Approx.)
Stop lamp switch		Ground	Battery voltage
Connector	Terminal		
E38	2		

Is the inspection result normal?

YES >> GO TO 12.
NO >> Repair the harnesses or connectors.

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

1. Disconnect ABS actuator and electric unit (control unit) connector and resistor.
2. Check for 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	
E38	1	E54	30	Yes

3. Check for continuity between stop lamp switch harness connector and ground.

Stop lamp switch		Ground	Continuity
Connector	Terminal		
E38	1		No

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair the harnesses or connectors.

13. PERFORM SELF DIAGNOSTIC RESULT OF ECM

1. Connect all connectors if the connectors are disconnected.
2. Turn ignition switch ON.
3. Perform “All DTC Reading”.
4. Check if any DTC is detected in “Self Diagnostic Result” mode of “ENGINE”. Refer to EC-110, "DTC Index" (QR25DE) or EC-676, "DTC Index" (VQ35DE).

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.
NO >> GO TO 14.

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

Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”. Refer to BRC-224, "DTC Index".

Is any DTC detected?

YES >> Repair or replace the malfunctioning parts identified by the self-diagnosis result.
NO >> Repair the ICC sensor. Refer to CCS-140, "Removal and Installation".

Component Inspection (Brake Pedal Position Switch)

INFOID:0000000012950867

1. CHECK BRAKE PEDAL POSITION SWITCH

Check for continuity between brake pedal position switch terminals.

Terminals		Condition	Continuity
1	2	When brake pedal is depressed	No
		When brake pedal is released	Yes

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace brake pedal position switch.

Component Inspection (Stop Lamp Switch)

INFOID:0000000012950868

1. CHECK STOP LAMP SWITCH

Check for continuity between stop lamp switch terminals.

Terminals		Condition	Continuity
1	2	When brake pedal is depressed	Yes
		When brake pedal is released	No
3	4	When brake pedal is depressed	Yes
		When brake pedal is released	No

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace stop lamp switch.

C1A06 OPERATION SW

DTC Description

INFOID:0000000012950869

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A06	OPERATION SW CIRC (Operation switch circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	• Any switch of the ICC steering switch is detected as “ON” continuously for 60 seconds. • An ON/OFF state judgment of the ICC differs between ECM and ICC sensor, and the state continues for 2 seconds or more.
		Diagnosis delay time	—

POSSIBLE CAUSE

- ICC steering switch circuit
- ICC steering switch
- ECM

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control system is canceled

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A06” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Wait for approximately 5 minutes after turning the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A06” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A06” detected as the current malfunction?

YES >> Refer to CCS-82, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950870

1.CHECK DTC PRIORITY

If DTC “C1A06” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.CHECK ICC STEERING SWITCH

1. Turn the ignition switch OFF.
2. Disconnect the ICC steering switch connector.
3. Check the ICC steering switch. Refer to CCS-83, "Component Inspection".

Is the inspection result normal?

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

3.CHECK HARNESS BETWEEN SPIRAL CABLE AND ECM

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

Spiral cable		ECM		Continuity
Connector	Terminal	Connector	Terminal	
M30	25	E31	110 (QR25DE for California)	Yes
		E10	110 (QR25DE except California)	
			134 (VQ35DE)	
	32	E31	111 (QR25DE for California)	
		E10	111 (QR25DE except California)	
			135 (VQ35DE)	

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

Spiral cable		Ground	Continuity
Connector	Terminal		
M30	25		No
	32		

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the harnesses or connectors.

4.CHECK SPIRAL CABLE

Check for continuity between spiral cable terminals.

Spiral cable		Continuity
Terminals		
25	13	Yes
32	16	

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace the spiral cable.

5.PERFORM SELF DIAGNOSTIC RESULT OF ECM

CONSULT
1. Connect the connectors of ICC steering switch and ECM connector.
2. Turn the ignition switch ON.
3. Select “Self Diagnostic Result” mode of “ENGINE”.
4. Check if any DTC is detected in “Self Diagnostic Result” mode of “ENGINE”.

Is any DTC detected?

YES >> Select “Self Diagnostic Result” on the detected DTC and repair or replace the malfunctioning parts. Refer to EC-110, "DTC Index" (QR25DE) or EC-676, "DTC Index" (VQ35DE).
NO >> Replace the ICC sensor. Refer to. CCS-140, "Removal and Installation"

Component Inspection

INFOID:0000000012950871

1.CHECK ICC STEERING SWITCH

Check resistance between ICC steering switch terminals.

Terminals		Switch operation	Approx. Resistance [Ω]
13	16	When pressing MAIN switch	1
		When pressing CANCEL switch	309
		When pressing DISTANCE switch	741
		When pressing SET/COAST switch	1406
		When pressing RESUME/ACCELERATE switch	2586
		When all switches are not pressed	5456

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace the ICC steering switch.

C1A12 LASER BEAM OFF CENTER

DTC Description

INFOID:0000000012950872

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A12	LASER BEAM OFFCNTR	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	Radar of ICC sensor is off the aiming point.
		Diagnosis delay time	—

POSSIBLE CAUSE

- ICC sensor

FAIL-SAFE

- Intelligent Cruise Control is canceled

Diagnosis Procedure

INFOID:0000000012950873

1.PERFORM ICC SENSOR SELF DIAGNOSTIC RESULT

CONSULT

1. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
2. Check if the “C1A12” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A12” detected?

YES >> Refer to CCS-85, "DTC Description".
NO >> GO TO 2.

2.VISUAL INSPECTION

1. Check ICC sensor and ICC sensor bracket for damage or looseness.

Does damage or looseness exist?

YES >> 1. Repair or replace affected components. Refer to CCS-140, "Removal and Installation".
2. Perform ICC sensor alignment. Refer to CCS-59, "Description".
3. Perform action test. Refer to CCS-68, "Description".

NO >> GO TO 3.

3.PERFORM ADAS CONTROL SELF DIAGNOSTIC RESULT

CONSULT

Check if the “C1A12” is detected as the current malfunction in “Self Diagnostic Result” mode of “ICC/ADAS”.

Is “C1A12” detected?

YES >> Replace ICC sensor. Refer to CCS-140, "Removal and Installation".
NO >> Inspection End.

C1A13 STOP LAMP RELAY

DTC Description

INFOID:0000000012950874

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A13	STOP LAMP RLY FIX (Stop lamp relay fix)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	• Stop lamp inactive state continues for 0.3 seconds or more despite the outputting of an ICC brake hold relay drive signal. • The stop lamp remains ON for 60 seconds or more under the following conditions: - Driving at 40 km/h (25 MPH) or more - No stop lamp drive signal outputted from ADAS control unit - No brake operation
		Diagnosis delay time	—

POSSIBLE CAUSE

- Stop lamp switch circuit
- Brake pedal position switch circuit
- ICC brake hold relay circuit
- Stop lamp switch
- Brake pedal position switch
- ICC brake hold relay
- Incorrect stop lamp switch installation
- Incorrect brake pedal position switch installation
- ECM
- ABS actuator and electric unit (control unit)

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A13” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE (1)

CONSULT

1. Start the engine.
2. Select the “Active Test” mode “STOP LAMP”.
3. Perform “All DTC Reading”.
4. Check if the “C1A13” is detected as the current malfunction in the “Self Diagnostic Result” mode of “ICC/ADAS”.

Is “C1A13” detected as the current malfunction?

YES >> Refer to BRC-283, "Diagnosis Procedure".
NO >> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE (2)

CONSULT

1. Drive the vehicle at a speed of 40 km/h (25 MPH) or more for approximately 20 seconds or more without the brake pedal depressed.
   CAUTION:
   Always drive safely.
   NOTE:
   If it is outside the above condition, repeat step 1.
2. Select “Self Diagnostic Result” mode of “ICC/ADAS”.
3. Check if the “C1A13” is detected as the current malfunction in the “Self Diagnostic Result” mode of “ICC/ADAS”.

Is “C1A13” detected as the current malfunction?

YES >> Refer to BRC-283, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

C1A14 ECM

DTC Description

INFOID:0000000012950875

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A14	ECM CIRCUIT (ECM circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ECM is malfunctioning
		Diagnosis delay time	—

POSSIBLE CAUSE

- Accelerator pedal position sensor
- ECM
- ICC sensor

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A14” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Operate the ICC system and drive.
   CAUTION:
   Always drive safely.
3. Stop the vehicle.
4. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
5. Check if the “C1A14” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A14” detected as the current malfunction?

YES >> Refer to CCS-88, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950876

1.CHECK DTC PRIORITY

If DTC “C1A14” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.CHECK SELF DIAGNOSTIC RESULT

Check if “U1000” is detected other than “C1A14” in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to CCS-114, "DTC Logic".
NO >> GO TO 3.

3. PERFORM SELF DIAGNOSTIC RESULT OF ECM

CONSULT
Select “Self Diagnostic Result” mode of “ENGINE”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to EC-110, "DTC Index" (QR25DE) or EC-676, "DTC Index" (VQ35DE).
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

C1A15 GEAR POSITION

DTC Description

INFOID:0000000012950877

ADAS control unit judges the gear position based on the following signals:
- Current gear position signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from input speed signal transmitted from TCM via CAN communication.
- Value of gear ratio calculated from the vehicle speed signal transmitted from ABS actuator and electric unit (control unit) via CAN communication.

DTC Logic

INFOID:0000000012950878

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A15	GEAR POSITION (Gear position)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	A mismatch between a current gear position signal transmitted from TCM via CAN communication and a gear position calculated by the ICC sensor continues for approximately 11 minutes or more.
		Diagnosis delay time	—

POSSIBLE CAUSE
- Input speed sensor
- Vehicle speed sensor CVT (output speed sensor)
- TCM

FAIL-SAFE
The following systems are canceled:
- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A15” is displayed with DTC “U1000”, “C1A03”, or “C1A04”, first diagnose the DTC “U1000”, “C1A03”, or “C1A04”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC.
- U1000: Refer to CCS-114, "DTC Logic".
- C1A03: Refer to CCS-74, "DTC Description".
- C1A04: Refer to CCS-76, "DTC Description".

NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT
1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Drive the vehicle at 10 km/h (6 MPH) or more for approximately 15 minutes or more.
   CAUTION:
   Always drive safely.
4. Stop the vehicle.
5. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
6. Check if “C1A15” is detected as the current malfunction in the “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A15” detected as the current malfunction?

YES >> Refer to CCS-91, "Diagnosis Procedure".

NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950879

1.CHECK DTC PRIORITY

If DTC “C1A15” is displayed with DTC “U1000” or “C1A03”, or “C1A04”, first diagnose the DTC “U1000”, “C1A03”, or “C1A04”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC.
- U1000: Refer to CCS-114, "DTC Logic".
- C1A03: Refer to CCS-74, "DTC Description".
- C1A04: Refer to CCS-76, "DTC Description".

NO >> GO TO 2.

2.CHECK VEHICLE SPEED SIGNAL

CONSULT
Check that “VHCL SPEED SE” operates normally in “Data Monitor” mode of “LASER/RADAR”.
CAUTION:
Be careful of the vehicle speed.

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 6.

3.CHECK GEAR POSITION SIGNAL

CONSULT
Check that “GEAR” operates normally in “Data Monitor” mode of “TRANSMISSION”.

Is the inspection result normal?

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

4.CHECK INPUT SPEED SENSOR SIGNAL

CONSULT
Check that “INPUT SPEED” operates normally in “Data Monitor” mode of “TRANSMISSION”.

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to DAS-72, "Removal and Installation".
NO >> GO TO 5.

5.CHECK TCM SELF DIAGNOSTIC RESULT

CONSULT
1. Select “Self Diagnostic Result” mode of “TRANSMISSION”.
2. Check if any DTC is detected in “Self Diagnostic Result” mode of “TRANSMISSION”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-60, "DTC Index". (RE0F10D) or TM-267, "DTC Index". (RE0F10H)
NO >> Replace the ADAS control unit. Refer toDAS-72, "Removal and Installation".

6.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

CONSULT
1. Select “Self Diagnostic Result” mode of “ABS”.
2. Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation"

C1A16 RADAR BLOCKED OR STAINED

DTC Description

INFOID:0000000012950880

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A16	RADAR BLOCKED	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If any stain occurs to distance sensor body window.
		Diagnosis delay time	—

NOTE:
DTC “C1A16” may be detected under the following conditions. (Explain to the customer about the difference between the contamination detection function and the indication when the malfunction is detected and tell them, “This is not a malfunction”)
- When contamination or foreign materials adhere to the ICC sensor area.
- When driving while it is snowing or when frost forms on the ICC sensor area.
- When ICC sensor area is temporarily fogged.

POSSIBLE CAUSE
- Stain or foreign material deposited on ICC sensor
- Cracked or scratched ICC sensor

FAIL-SAFE
- Intelligent Cruise Control system is canceled

Diagnosis Procedure

INFOID:0000000012950881

NOTE:
After ICC sensor alignment is performed, the vehicle must be driven at a speed of 4.5 MPH (7.2 km/h) or more for a minimum of 2 minutes before DTC C1A16 can be cleared.

1. VISUAL CHECK 1

Check for contamination and foreign matter on the ICC sensor area of the front bumper.

Does contamination or foreign material exist?

YES >> Clean the contamination and foreign material on the ICC sensor area of the front bumper.
NO >> GO TO 2.

2. VISUAL CHECK 2

Check ICC sensor for contamination and foreign materials.

Does contamination or foreign material exist?

YES >> Clean the contamination and foreign material from the ICC sensor.
NO >> GO TO 3.

3. VISUAL CHECK 3

Check ICC sensor and ICC sensor bracket for damage or looseness.

Does damage or looseness exist?

YES >> 1. Repair or replace effected components. Refer to CCS-140, "Removal and Installation".
2. Perform ICC sensor alignment. Refer to CCS-59, "Description".
3. Perform action test. Refer to CCS-68, "Description".
NO >> GO TO 4.

4. INTERVIEW

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

Are any of the above conditions seen?

YES >> Explain to the customer about the difference between the contamination detection function and an actual malfunction. Inform them “this is not a malfunction”.
NO >> 1. Perform ICC sensor alignment. Refer to CCS-61, "Description".
2. Perform action test. Refer to CCS-68, "Description".
3. GO TO 5.

5. CHECK ICC SENSOR SELF DIAGNOSTIC RESULTS

CONSULT
Check if “C1A16” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A16” detected?

YES >> Replace ICC sensor. Refer to CCS-140, "Removal and Installation".
NO >> Inspection End.

C1A17 ICC SENSOR

DTC Description

INFOID:0000000012950882

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A17	ICC SENSOR MALF	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor is malfunctioning
		Diagnosis delay time	—

NOTE:
If DTC “C1A17” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to CCS-114, "DTC Logic".

POSSIBLE CAUSE

ICC

FAIL-SAFE

The following systems are canceled:
- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

Diagnosis Procedure

INFOID:0000000012950883

1.CHECK ADAS CONTROL UNIT SELF DIAGNOSTIC RESULTS

CONSULT
1. Select “Self Diagnostic Result” mode of “ICC/ADAS”.
2. Check if “U1000” is detected along with “C1A17” in “Self Diagnostic Result” mode of “ICC/ADAS”.

Is “U1000” detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to CCS-114, "DTC Logic".

NO >> Replace ICC sensor. Refer to CCS-140, "Removal and Installation".

C1A18 RADAR AIMING INCMP

DTC Description

INFOID:0000000012950884

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A18	RADAR AIMING INCMP	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	The radar of the ICC sensor is not adjusted.
		Diagnosis delay time	—

POSSIBLE CAUSE

- The adjustment of the radar is not yet performed.
- Interruption in radar adjustment

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A18” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A18” detected as the current malfunction?

YES >> Refer to CCS-95, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012950885

1.ADJUST RADAR ALIGNMENT

CONSULT

1. Adjust the radar alignment. Refer to CCS-59, "Description".
2. Erase all “Self Diagnostic Result”.
3. Perform “All DTC Reading”.
4. Check if the “C1A18” is detected in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A18” detected?

YES >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".
NO >> Inspection End.

C1A21 UNIT HIGH TEMP

DTC Description

INFOID:0000000012950886

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A21	UNIT HIGH TEMP (Unit high temperature)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	Temperature around ICC sensor is high.
		Diagnosis delay time	—

POSSIBLE CAUSE

Temperature around the ICC sensor becomes extremely low or high.

FAIL-SAFE

The following systems are canceled:
- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT
1. Turn the ignition switch OFF.
2. Wait for 10 minutes or more.
3. Start the engine.
4. Turn the MAIN switch of ICC system ON.
5. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
6. Check if the “C1A21” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A21” detected as the current malfunction?

YES >> Refer to CCS-96, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950887

1.CHECK ENGINE COOLING SYSTEM

Check for any malfunctions in engine cooling system.

Is engine cooling system normal?

YES >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".
NO >> Repair engine cooling system.

C1A24 NP RANGE

DTC Description

INFOID:0000000012950888

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A24	NP RANGE (NP range)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	A mismatch between a shift position signal transmitted from TCM via CAN communication and a current gear position signal continues for 60 seconds or more.
		Diagnosis delay time	—

POSSIBLE CAUSE

- TCM
- Transmission range switch

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1. CHECK DTC PRIORITY

If DTC “C1A24” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2. CHECK DTC(1)

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Wait for approximately 5 minutes or more after shifting the selector lever to “P” position.
4. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
5. Check if the “C1A24” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A24” detected as the current malfunction?

YES >> Refer to CCS-97, "Diagnosis Procedure".
NO >> GO TO 3.

3. CHECK DTC (2)

CONSULT

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

Is “C1A24” detected as the current malfunction?

YES >> Refer to CCS-97, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950889

1. CHECK DTC PRIORITY

If DTC “C1A24” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.CHECK TCM DATA MONITOR

CONSULT
Check that “SLCT LVR POSI” operates normally in “Data Monitor” mode of “TRANSMISSION”.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Perform diagnosis for transmission range switch circuit and repair or replace the malfunctioning parts. Refer to TM-314, "Component Inspection".

3.PERFORM TCM SELF DIAGNOSTIC RESULT

CONSULT
1. “Self Diagnostic Result” mode of “TRANSMISSION”.
2. Check if any DTC is detected in “Self Diagnostic Result” mode of “TRANSMISSION”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-267, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-72, "Removal and Installation".

C1A26 ECD MODE MALFUNCTION

DTC Description

INFOID:0000000012950890

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A26	ECD MODE MALF (ECD mode malfunction)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If an abnormal condition occurs with ECD system
		Diagnosis delay time	—

POSSIBLE CAUSE
- ABS actuator and electric unit (control unit)
- ADAS control unit

FAIL-SAFE

The following systems are canceled:
- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A26” is displayed with DTC “U1000”, “U0415” or “U0121”, first diagnose the DTC “U1000”,“U0415” or “U0121”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable.
- U1000: Refer to CCS-114, "DTC Logic".
- U0415: Refer to CCS-107, "DTC Description".
- U0121: Refer to CCS-107, "DTC Description".
- C1A0C: Refer to CCS-120, "DTC Description".
- C1A50: Refer to CCS-105, "DTC Description".

NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT
1. Start the engine.
2. Wait for approximately 1 minute after turning the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A26” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A26” detected as the current malfunction?

YES >> Refer to CCS-99, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950891

1.CHECK DTC PRIORITY

If DTC “C1A26” is displayed with DTC “U1000”, “U0415” or “U0121”, first diagnose the DTC “U1000”,“U0415” or “U0121” or “C1A0C” or “C1A50”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable.
- U1000: Refer to CCS-114, "DTC Logic".
- U0415: Refer to CCS-111, "DTC Description".
- U0121: Refer to CCS-107, "DTC Description".

- C1A0C: Refer to CCS-120, "DTC Description".
- C1A50: Refer to CCS-105, "DTC Description".

NO >> GO TO 2.

2. PERFORM SELF DIAGNOSTIC RESULT OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".

NO >> Replace ICC sensor. Refer to CCS-140, "Removal and Installation".

C1A27 ECD POWER SUPPLY CIRCUIT

DTC Description

INFOID:0000000012950892

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A27	ECD PWR SUPLY CIR (ECD power supply circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	ECD system power supply voltage is excessively low
		Diagnosis delay time	—

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit) power supply circuit
- ABS actuator and electric unit (control unit)

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

CONSULT

If DTC “C1A27” is displayed with DTC “U1000”, “U0415” or “U0121”, first diagnose the DTC “U1000”,“U0415” or “U0121”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable.
- U1000: Refer to CCS-114, "DTC Logic".
- U0415: Refer to CCS-111, "DTC Description".
- U0121: Refer to CCS-107, "DTC Description".

NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Wait for approximately 1 minute after turning the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A27” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A27” detected as the current malfunction?

YES >> Refer to CCS-101, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950893

1.CHECK DTC PRIORITY

If DTC “C1A27” is displayed with DTC “U1000”, “U0415” or “U0121”, first diagnose the DTC “U1000”,“U0415” or “U0121”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable.
- U1000: Refer to CCS-114, "DTC Logic".
- U0415: Refer to CCS-111, "DTC Description".
- U0121: Refer to CCS-107, "DTC Description".

NO >> GO TO 2.

2.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-275, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Perform “Self Diagnostic Result” mode of ABS actuator and electric unit (control unit). Refer to BRC-224, "DTC Index".

NO >> Repair the harnesses or connectors.

C1A39 STEERING ANGLE SENSOR

DTC Description

INFOID:0000000012950894

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detecting condition	
C1A39	STRG SEN CIR (Steering angle sensor circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If the steering angle sensor is malfunctioning
		Diagnosis delay time	—

POSSIBLE CAUSE

Steering angle sensor

FAIL-SAFE

The following systems are canceled:
- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “C1A39” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT
1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A39” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A39” detected as the current malfunction?

YES >> Refer to CCS-103, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950895

1.CHECK DTC PRIORITY

If DTC “C1A39” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

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

CONSULT
Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

C1B5D FEB OPE COUNT LIMIT

DTC Description

INFOID:0000000012950896

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1B5D	FEB OPE COUNT LIMIT (Forward Emergency Braking operation count limit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	FEB system operated 3 times within ignition switch ON.
		Diagnosis delay time	—

NOTE:
If “C1B5D” is detected, perform the ICC system action test and check that ICC system operates normally.

POSSIBLE CAUSE

- FEB system operated 3 times within ignition switch ON.

FAIL-SAFE

—

DTC CONFIRMATION PROCEDURE

1.PERFORM ICC SYSTEM ACTION TEST

CONSULT
Perform the ICC system action test.

Is there any malfunction symptom?

YES >> Refer to CCS-104, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012950897

1.CHECK SELF DIAGNOSTIC RESULT

CONSULT
1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1B5D” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1B5D” detected as a current malfunction?

YES >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".
NO >> Perform ICC system action test. Refer to CCS-68, "Description".

C1A50 ADAS CONTROL UNIT

DTC Description

INFOID:0000000012950898

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A50	ADAS MALFUNCTION	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ADAS control unit is malfunctioning
		Diagnosis delay time	—

NOTE:
If DTC “C1A50” is detected along with DTC “U1000” or “C1A0C” first diagnose the DTC “U1000” or “C1A0C”. Refer to CCS-114, "DTC Logic".

POSSIBLE CAUSE

- ADAS control unit

FAIL-SAFE

The following systems are canceled:
- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT
1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A50” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A50” detected as the current malfunction?

YES >> Refer to CCS-105, "Diagnosis Procedure".
NO >> Refer to GI-44, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012950899

1.CHECK ICC SENSOR SELF-DIAGNOSIS RESULTS

If DTC “C1A50” is displayed with “U1000” diagnose the DTC “U1000” first.

Is “U1000” detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic" or CCS-120, "DTC Description".
NO >> GO TO 2.

2.CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

CONSULT
Check if any DTC is detected in “Self Diagnostic Result” mode of “ICC/ADAS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to CCS-43, "DTC Index".
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

C10B7 YAW RATE SENSOR

DTC Description

INFOID:0000000012950900

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C10B7	YAW RATE SENSOR	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	The yaw rate/side/decel G sensor calibration is incorrect.
		Diagnosis delay time	—

POSSIBLE CAUSE

- The calibration of yaw rate/side/decel G sensor is not yet performed.
- Interruption in yaw rate/side/decel G sensor calibration

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C10B7” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C10B7” detected as the current malfunction?

YES >> Refer to CCS-106, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012950901

1.PERFORM CALIBRATION OF THE YAW RATE/SIDE/DECEL G SENSOR

CONSULT

1. Perform calibration of the yaw rate/side/decel G sensor. Refer to BRC-249, "Work Procedure".
2. Erase “Self Diagnostic Result” with CONSULT.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C10B7” is detected in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C10B7” detected?

YES >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".
NO >> Inspection End.

U0121 VDC CAN 2

DTC Description

INFOID:0000000012950902

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
U0121	VDC CAN CIR2 (VDC CAN circuit 2)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication
		Diagnosis delay time	—

POSSIBLE CAUSE

ABS actuator and electric unit (control unit)

FAIL-SAFE

The following systems are canceled.

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “U0121” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U0121” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U0121” detected as the current malfunction?

YES >> Refer to CCS-107, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950903

1.CHECK DTC PRIORITY

If DTC “U0121” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".

NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

U0126 STRG SEN CAN 1

DTC Description

INFOID:0000000012950904

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
U0126	STRG SEN CAN CIR1 (Steering sensor CAN circuit 1)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor detects an error signal that is received from steering angle sensor via CAN communication
		Diagnosis delay time	—

POSSIBLE CAUSE

Steering angle sensor

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “U0126” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U0126” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U0126” detected as the current malfunction?

YES >> Refer to CCS-109, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950905

1.CHECK DTC PRIORITY

If DTC “U0126” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-72, "Removal and Installation".

U0401 ECM CAN 1

DTC Description

INFOID:0000000012950906

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
U0401	ECM CAN CIR1 (ECM CAN circuit 1)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ADAS control unit detects an error signal that is received from ECM via CAN communication
		Diagnosis delay time	—

POSSIBLE CAUSE

ECM

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “U0401” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U0401” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U0401” detected as the current malfunction?

YES >> Refer to CCS-110, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950907

1.CHECK DTC PRIORITY

If DTC “U0401” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.CHECK ECM SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “ENGINE”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to EC-110, "DTC Index" (QR25DE or EC-676, "DTC Index" (VQ35DE).
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

U0415 VDC CAN 1

DTC Description

INFOID:0000000012950908

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
U0415	VDC CAN CIR1 (VDC CAN circuit1)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication
		Diagnosis delay time	—

POSSIBLE CAUSE

ABS actuator and electric unit (control unit)

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “U0415” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U0415” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U0415” detected as the current malfunction?

YES >> Refer to CCS-111, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950909

1.CHECK DTC PRIORITY

If DTC “U0415” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".

NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

U0428 STRG SEN CAN 2

DTC Description

INFOID:0000000012950910

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
U0428	STRG SEN CAN CIR2 (Steering sensor CAN circuit2)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor detects an error signal that is received from steering angle sensor via CAN communication
		Diagnosis delay time	—

POSSIBLE CAUSE

Steering angle sensor

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC “U0428” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U0428” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U0428” detected as the current malfunction?

YES >> Refer to CCS-113, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950911

1.CHECK DTC PRIORITY

If DTC “U0428” is displayed with DTC “U1000”, first diagnose the DTC “U1000”.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable DTC. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-224, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-72, "Removal and Installation".

U1000 CAN COMM CIRCUIT

DTC Description

INFOID:0000000012950912

ITS COMMUNICATION

- ITS communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speeds by connecting control units with two communication lines.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

DTC Logic

INFOID:0000000012950913

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
U1000	CAN COMM CIRCUIT (CAN communication circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor is not transmitting or receiving ITS communication signal
		Diagnosis delay time	2 seconds or more

POSSIBLE CAUSE

ITS communication system

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1000” detected as the current malfunction?

YES >> Refer to CCS-114, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950914

1.PERFORM THE SELF DIAGNOSTIC RESULT

CONSULT

1. Turn the ignition switch ON.
2. Turn the MAIN switch of ICC system ON, and then wait for 2 seconds or more.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-19, "Trouble Diagnosis Flow Chart".
NO >> Inspection End.

U1010 CONTROL UNIT (CAN)

DTC Description

INFOID:0000000012950915

CAN controller controls the communication of ITS communication signal and the error detection.

DTC Logic

INFOID:0000000012950916

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor detects malfunction by CAN controller initial diagnosis
		Diagnosis delay time	—

POSSIBLE CAUSE

ICC sensor

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1010” detected as the current malfunction?

YES >> Refer to CCS-115, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000012950917

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Turn the MAIN switch of ICC system ON.
2. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1010” detected as the current malfunction?

YES >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".
NO >> Inspection End.

POWER SUPPLY AND GROUND CIRCUIT
ICC SENSOR
ICC SENSOR : Diagnosis Procedure

INFOID:0000000012950918

Regarding Wiring Diagram information, refer to CCS-46, "Wiring Diagram".

1.CHECK ICC SENSOR POWER SUPPLY CIRCUIT

Check voltage between ICC sensor harness connector and ground.

(+)		(–)	Condition	Standard voltage	Voltage (Approx.)
ICC sensor			Ignition switch		
Connector	Terminal				
E245	8	1	OFF	0 - 0.1 V	0 V
			ON	9.5 - 16 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the ICC sensor power supply circuit.

2.CHECK ICC SENSOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the ICC sensor connector.
3. Check for continuity between ICC sensor harness connector and ground.

ICC sensor		Ground	Continuity
Connector	Terminal		
E245	1		Yes

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair the ICC sensor ground circuit.

C1A07 CVT

DTC Description

INFOID:0000000012950919

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
C1A07	CVT MSG CIRCUIT	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor detects an error signal that is received from TCM via CAN communication.
		Diagnosis delay time	—

POSSIBLE CAUSE

TCM

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A07” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1A07” detected as the current malfunction?

YES >> Refer to CCS-117, "Diagnosis Procedure".
NO >> Refer to GI-44, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012950920

1.CHECK ICC SENSOR SELF-DIAGNOSIS RESULT

Check if “U1000” is also detected with “C1A07” in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to CCS-114, "DTC Description".
NO >> GO TO 2.

2.CHECK TCM SELF DIAGNOSTIC RESULTS

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “TRANSMISSION”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-60, "DTC Index" (RE0F10D) or TM-267, "DTC Index" (RE0F10D).
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

U153A CVT MESSAGE COUNTER FAILURE

DTC Description

INFOID:0000000012950921

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detection condition	
U153A	CVT MSG COUNTER	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor detects an error signal that is received from TCM via CAN communication
		Diagnosis delay time	—

POSSIBLE CAUSE

TCM

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U153A” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U153A” detected as the current malfunction?

YES >> Refer to CCS-118, "Diagnosis Procedure".
NO >> Refer to GI-44, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012950922

1.CHECK ICC SENSOR SELF DIAGNOSTIC RESULTS

Check if “U1000” is also detected with “U153A” in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.CHECK TCM SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “TRANSMISSION”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-60, "DTC Index" (RF0f10D) or TM-267, "DTC Index" (RF0F10H).
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

U153B CVT CHECK SUM FAILURE

DTC Description

INFOID:0000000012950923

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms	DTC detection condition	
U153B	CVT MSG COUNTER	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	If ICC sensor detects an error signal that is received from TCM via CAN communication
		Diagnosis delay time	—

POSSIBLE CAUSE

TCM

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “U153B” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U153B” detected as the current malfunction?

YES >> Refer to CCS-119, "Diagnosis Procedure".
NO >> Refer to GI-44, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012950924

1.CHECK ICC SENSOR SELF DIAGNOSTIC RESULT

Check if “U1000” is detected other than “U153B” in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.CHECK TCM SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “TRANSMISSION”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-60, "DTC Index" (RE0F10D) or TM-267, "DTC Index" (RE0F10H).
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

C1A0C ADAS MESSAGE COUNTER FAILURE

DTC Description

INFOID:0000000012950925

DTC DETECTION LOGIC

DTC No.	CONSULT terms	DTC detection condition	
C1A0C	ADAS MSG COUNTER	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	ICC sensor internal malfunction
		Diagnosis delay time	—

POSSIBLE CAUSE

ICC Sensor

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
3. Check if the “C1A0C” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A0C” detected as the current malfunction?

YES >> Refer to CCS-120, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012950926

1.CHECK ICC SENSOR SELF DIAGNOSTIC RESULT

Check if “U1000” is also detected with “C1A0C” in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.CHECK ADAS CONTROL UNIT SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “ICC/ADAS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to CCS-43, "DTC Index".
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

C1A0D MRR CAN FAILURE

DTC Description

INFOID:0000000012950927

DTC DETECTION LOGIC

DTC No.	Consult screen terms	DTC detection condition	
C1A0D	MRR CAN FAIL	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	ICC sensor internal malfunction
		Diagnosis delay time	—

POSSIBLE CAUSE

ICC Sensor

FAIL-SAFE

The following systems are canceled:

- Intelligent Cruise Control
- Forward Emergency Braking (FEB)
- Predictive Forward Collision Warning (PFCW)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Start the engine.
2. Turn the MAIN switch of ICC system ON.
3. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
4. Check if the “C1A0D” is detected as the current malfunction in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “C1A0D” detected as the current malfunction?

YES >> Refer to CCS-121, "Diagnosis Procedure".
NO >> Refer to GI-44, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012950928

1.CHECK ICC SENSOR SELF DIAGNOSTIC RESULT

Check if “U1000” is also detected with “C1A0D” in “Self Diagnostic Result” mode of “LASER/RADAR”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to CCS-114, "DTC Logic".
NO >> GO TO 2.

2.CHECK ADAS CONTROL UNIT SELF DIAGNOSTIC RESULT

CONSULT

Check if any DTC is detected in “Self Diagnostic Result” mode of “ICC/ADAS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to CCS-43, "DTC Index".
NO >> Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

SYMPTOM DIAGNOSIS

INTELLIGENT CRUISE CONTROL SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000012950929

Symptoms		Reference page
Operation	MAIN switch does not turn ON	CCS-123, "Description"
	MAIN switch does not turn OFF	
	ICC system cannot be set (MAIN switch turns ON/OFF)	CCS-125, "Description"
	CANCEL switch does not function	CCS-127, "Description"
	Resume does not function	
	Set speed does not increase	
	Set distance to a vehicle ahead cannot be changed	
	ICC is not canceled when the CVT selector lever is in “N” position	CCS-128, "Description"
Display/Chime	ICC system display does not appear	CCS-14, "INTELLIGENT CRUISE CONTROL : System Description"
	Chime does not sound	CCS-130, "Description"
Control	Driving force is hunting	CCS-132, "Description"
Function to detect a vehicle ahead	System frequently cannot detect a vehicle ahead	CCS-133, "Description"
	Distance to detect a vehicle ahead is short	
	System misidentifies a vehicle even though there is no vehicle ahead	• Adjust radar alignment. Refer to CCS-59, "Description". • Perform ICC system action test. Refer to CCS-68, "Description".
	System misidentifies a vehicle in the next lane	
	System does not detect a vehicle at all	CCS-135, "Description"

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

Description

INFOID:0000000012950930

MAIN switch does not turn ON
• ICC system display does not appear even when MAIN switch is pressed.

MAIN switch does not turn OFF
• When ICC system display is ON, display does not turn OFF even if MAIN switch is pressed.

NOTE:
When ICC system warning lamp illuminates, perform the self-diagnosis of ICC system, and then repair or replace the malfunctioning parts.

Diagnosis Procedure

INFOID:0000000012950931

1.MAIN SWITCH INSPECTION

CONSULT
1. Start the engine.
2. Check that “MAIN SW” and “CRUISE LAMP” operate normally in “Data Monitor” mode of “ICC/ADAS”.

Is the inspection result normal?

YES >> GO TO 2.
NO >> GO TO 4.

2.CHECK COMBINATION METER

CONSULT
Check that “CRUISE IND” operates normally in “Data Monitor” mode of “METER/M&A”.

Is the inspection result normal?

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

3.PERFORM SELF DIAGNOSTIC RESULT OF COMBINATION METER

CONSULT
1. Select “Self Diagnostic Result” mode of “METER/M&A”.
2. Check if DTC is detected. Refer to MWI-29, "DTC Index".

Is any DTC detected?

YES >> Repair or replace malfunctioning parts.
NO >> GO TO 4.

4.PERFORM SELF DIAGNOSTIC RESULT OF ICC SYSTEM

CONSULT
1. Select “Self Diagnostic Result” mode of “ICC/ADAS”.
2. Check if DTC “U1000” is detected in.

Is “U1000” detected?

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

5.CAN COMMUNICATION INSPECTION

Check the CAN communication and repair or replace malfunctioning parts. Refer to LAN-19, "Trouble Diagnosis Flow Chart".

>> Inspection End.

6.CHECK ICC STEERING SWITCH

Check the ICC steering switch. Refer to CCS-140, "Exploded View".

>> Inspection End.

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

Description

INFOID:0000000012950932

The MAIN switch can be turned ON/OFF, but the ICC system cannot be set even if the SET/COAST switch is pressed.

NOTE:

The system cannot be set in the following cases:

- When the vehicle ahead is not detected below the speed of 32 km/h (20 MPH).
- When the selector lever is not in the “D” position or manual mode.
- When the brake pedal is depressed.
- When the VDC is turned OFF.
- When ABS or VDC (including the TCS) operates.
- When a wheel slips.
- When ABS warning lamp is ON.

Diagnosis Procedure

INFOID:0000000012950933

1.CHECK CAUSE OF AUTOMATIC CANCELLATION

CONSULT

Check if the cancellation cause in the “CAUSE OF AUTO-CANCEL” in “Work support” mode of “LASER/RADAR”.

Is it displayed?

Not displayed>>GO TO 2.
“OPE SW VOLT CIRC”>> Refer to CCS-82, "DTC Description".
“VHCL SPD UNMATCH”>> Refer to CCS-74, "DTC Description".
“IGN LOW VOLT”>> Refer to CCS-101, "DTC Description".
“ECM CIRCUIT”>> Refer to CCS-88, "DTC Description".
“CAN COMM ERROR”>> Refer to CCS-114, "DTC Logic".
“ICC SENSOR CAN COMM ERR”>> Refer to CCS-116, "ICC SENSOR : Diagnosis Procedure".
“ABS/TCS/VDC CIRC”>> Refer to CCS-99, "DTC Description".
“ECD CIRCUIT”>> Refer to CCS-99, "DTC Description".

2.PERFORM THE SELF DIAGNOSTIC RESULT

CONSULT

1. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
2. Check if any DTC is detected in “Self Diagnostic Result” mode of “ICC/ADAS” or “LASER/RADAR”. Refer to CCS-43, "DTC Index" (ICC/ADAS) or CCS-43, "DTC Index" (LASER/RADAR).

Is any DTC detected?

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

3.REPAIR OR REPLACE MALFUNCTIONING PARTS

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

>> GO TO 6.

4.CHECK EACH SWITCH AND VEHICLE SPEED SIGNAL

CONSULT

1. Start the engine.
2. Check that the following items operate normally in “Data Monitor” mode of “LASER/RADAR”:

- “VHCL SPEED SE”
- “D RANGE SW”
- “SET/COAST SW”
- “BRAKE SW”
- “PKB SW”

Is there a malfunctioning item?

All items are normal>>GO TO 5.

"VHCL SPEED SE">> Refer to CCS-74, "DTC Description".
"D RANGE SW">> Refer to CCS-90, "DTC Logic".
"SET/COAST SW">> Refer to CCS-82, "DTC Description".
"BRAKE SW">> Refer to CCS-77, "DTC Description".
"PKB SW">> Refer to CCS-76, "DTC Description".

5. REPLACE ICC SENSOR

Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

>> GO TO 6.

6. CHECK ICC SYSTEM

CONSULT
1. Erase the "Self Diagnostic Result", and then select "Self Diagnostic Result" mode again after performing the action test. (Refer to CCS-68, "Description" for action test.)
2. Check that the ICC system is normal.

>> Inspection End.

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

Description

INFOID:0000000012950934

MAIN switch can be turned ON/OFF, but the operation of RESUME/+ switch, CANCEL switch, and DISTANCE switch cannot be performed during ICC system operation.

NOTE:

Resume is not accepted when the following condition is met:

- When the MAIN switch is turned OFF once.

Diagnosis Procedure

INFOID:0000000012950935

1.CHECK EACH SWITCH

CONSULT

1. Start the engine.
2. Check that each switch operates normally on “Data Monitor” mode of “LASER/RADAR”:

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

Is the inspection result normal?

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

2.PERFORM THE SELF DIAGNOSTIC RESULT

CONSULT

1. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
2. Check if DTC “U1000” is detected.

Is “U1000” detected?

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

3.CAN COMMUNICATION INSPECTION

Check the CAN communication and repair or replace malfunctioning parts. Refer to CCS-114, "DTC Logic".

>> Inspection End.

4.CHECK ICC STEERING SWITCH

Check the ICC steering switch. Refer to CCS-142, "Removal and Installation".

>> GO TO 6.

5.REPLACE ICC SENSOR

Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

>> GO TO 6.

6.CHECK ICC SYSTEM

CONSULT

1. Erase the “Self Diagnostic Result”, and then select “Self Diagnostic Result” mode again after performing the action test. (Refer to CCS-68, "Description" for action test.)
2. Check that the ICC system is normal.

>> Inspection End.

ICC SYSTEM DOES NOT CANCEL WHEN CVT SELECTOR LEVER SETS ON "N"

Description

INFOID:0000000012950936

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

Diagnosis Procedure

INFOID:0000000012950937

1.CHECK D RANGE SWITCH

CONSULT
Check if “D RANGE SW” operates normally in “Data Monitor” mode of “LASER/RADAR”.

Is the inspection result normal?

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

2.PERFORM DIAGNOSTIC RESULT

CONSULT
1. Select “Self Diagnostic Result” mode of “LASER/RADAR”.
2. Check if DTC “U1000” is detected in.

Is “U1000” detected?

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

3.CAN COMMUNICATION INSPECTION

Check the CAN communication and repair or replace malfunctioning parts. Refer to CCS-114, "DTC Logic".

>> Inspection End.

4.CHECK POSITION SWITCH

CONSULT
Check if “RANGE” operates normally in “Data Monitor” mode of “TRANSMISSION”.

Is the inspection result normal?

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

5.PERFORM TCM SELF DIAGNOSTIC RESULT

CONSULT
1. Select “Self Diagnostic Result” mode of “TRANSMISSION”.
2. Repair or replace malfunctioning parts. Refer to TM-60, "DTC Index" (RE0F10D) or TM-267, "DTC Index" (RE0F10H).

>> GO TO 7.

6.REPLACE ICC SENSOR

Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

>> GO TO 7.

7.CHECK ICC SYSTEM

CONSULT
1. Erase the “Self Diagnostic Result”, and then select “Self Diagnostic Result” again after performing the action test. (Refer to CCS-68, "Description" for action test.)
2. Check that the ICC system is normal.

>> Inspection End.

CHIME DOES NOT SOUND

Description

INFOID:0000000012950938

Symptom check: In the following conditions, the warning chime may not sound even if the vehicle distance is short:

- When the vehicles are traveling at the same speed and the distance between vehicles is not changing.
- When the vehicle ahead is traveling faster and the distance between vehicles is increasing.
- When the accelerator pedal is depressed, overriding the system.
- When own vehicle approaches vehicles that are parked or moving slowly.
- The warning chime does not sound when the system does not detect any vehicle ahead. (Diagnose the conditions under which the system is detecting the vehicle ahead and when the system is malfunctioning. If there is any malfunction in detecting the vehicle ahead, check the system. Refer to CCS-133, "Description".)

Diagnosis Procedure

INFOID:0000000012950939

1.PERFORM ACTIVE TEST

CONSULT
Check if the warning chime sounds on the active test item “ICC BUZZER” of “LASER/RADAR”.

Does the warning chime sound?

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

2.CHECK THE MALFUNCTION SYMPTOM DURING WARNING CHIME OPERATION

Understand the vehicle ahead detecting condition when the malfunction occurred. If the warning chime should have sounded, replace the ICC sensor. Refer to CCS-140, "Removal and Installation".

>> GO TO 8.

3.PERFORM ACTIVE TEST

CONSULT
Check if the warning chime sounds on the active test item “METER BUZZER” of “ICC/ADAS”.

Does the warning chime sound?

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

4.CHECK ICC WARNING CHIME CIRCUIT

Check the meter buzzer circuit. Refer to WCS-28, "Component Function Check".

Is the inspection result normal?

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

5.PERFORM THE SELF DIAGNOSTIC RESULT

CONSULT
1. Select “Self Diagnostic Result”mode of “ICC/ADAS”.
2. Check if DTC “U1000” is detected in “Self Diagnostic Result” mode of “ICC/ADAS”.

Is “U1000” detected?

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

6.CAN COMMUNICATION SYSTEM INSPECTION

Check the CAN communication system and repair or replace malfunctioning parts. Refer to CCS-114, "DTC Logic".

>> Inspection End.

7.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts.

>> GO TO 10.

8.REPLACE ADAS CONTROL UNIT

Replace the ADAS control unit. Refer to DAS-72, "Removal and Installation".

>> GO TO 8.

9.PERFORM ICC SENSOR ALIGNMENT

CONSULT
1. Perform ICC sensor alignment. Refer to CCS-59, "Description".
2. Perform action test. Refer to CCS-68, "Description".
3. Check that the vehicle ahead detection performance improves.

>> GO TO 10.

10.CHECK ICC SYSTEM

CONSULT
1. Erase the “Self Diagnostic Result”, and then select “Self Diagnostic Result” mode again after performing the action test. (Refer to CCS-68, "Description" for action test.)
2. Check that the ICC system is normal.

>> Inspection End.

DRIVING FORCE IS HUNTING

Description

INFOID:0000000012950940

The vehicle causes hunting when the ICC system is active.

Diagnosis Procedure

INFOID:0000000012950941

1.PERFORM SELF DIAGNOSTIC RESULT OF ECM

CONSULT
1. Select “Self Diagnostic Result”.
2. Check if DTC is detected in “Self Diagnostic Result” mode of “ENGINE”. Refer to EC-110, "DTC Index" (QR25DE) or EC-676, "DTC Index" (VQ35DE).

Is any DTC detected?

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

2.CHECK ICC SENSOR

1. Check the vehicle driving conditions. Refer to CCS-133, "Description".
2. Check the ICC sensor for contamination, foreign materials, or cracks. Refer to CCS-133, "Diagnosis Procedure".

>> Inspection End.

3.REPAIR OR REPLACE MALFUNCTIONING PARTS

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

>> GO TO 4.

4.CHECK ICC SYSTEM

CONSULT
1. Erase the “Self Diagnostic Result”, and then perform “Self Diagnostic Result” mode again after performing the action test. (Refer to CCS-68, "Description" for action test.)
2. Check that the ICC system is normal.

>> Inspection End.

FREQUENTLY CANNOT DETECT THE VEHICLE AHEAD / DETECTION ZONE IS SHORT

Description

INFOID:0000000012950942

The detection function may become unstable in the following cases.
- When radar reflections from the vehicle ahead are interrupted.
- When driving on a road with extremely sharp corners.
- When the sensor cannot detect a vehicle ahead while the vehicle ahead passes a hill or valley.

Diagnosis Procedure

INFOID:0000000012950943

1.VISUAL CHECK (1)

Check the contamination and foreign matter on the ICC sensor area.

Is foreign matter adhered?

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

2.VISUAL CHECK (2)

Check ICC sensor for contamination and foreign matter.

Is foreign matter adhered?

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

3.WIPE OUT DIRT AND FOREIGN MATERIALS

Wipe out the contamination and foreign matter in the area around the ICC sensor.

>> GO TO 8.

4.VISUAL CHECK (3)

Check ICC sensor for cracks and scratches.

Are there any cracks or scratches?

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

5.ADJUST RADAR ALIGNMENT

1. Adjust the radar alignment. Refer to CCS-59, "Description".
2. Perform ICC system action test. Refer to CCS-68, "Description".
3. Check that the vehicle ahead detection performance improves.

Does it improve?

YES >> Inspection End.
NO >> GO TO 6.

6.REPLACE ICC SENSOR

1. Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".
2. Adjust the radar alignment. Refer to CCS-59, "Description".
3. Perform ICC system action test. Refer to CCS-68, "Description".
4. Check that the vehicle ahead detection performance improves.

Does it improve?

YES >> Inspection End.
NO >> GO TO 7.

7.CHECK ICC SYSTEM

CONSULT
1. Erase the “Self Diagnostic Result”, and then select “Self Diagnostic Result” mode again after performing the action test. (Refer to CCS-68, "Description" for action test.)
2. Check that the ICC system is normal.

>> Inspection End.

THE SYSTEM DOES NOT DETECT THE VEHICLE AHEAD AT ALL

Description

INFOID:0000000012950944

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

Diagnosis Procedure

INFOID:0000000012950945

1. CHECK ICC SYSTEM DISPLAY ON INFORMATION DISPLAY

1. Start the self-diagnosis mode of combination meter. Refer to CCS-29, "CONSULT Function (LASER/RADAR)".
2. Check that the information display turns ON normally.

Is the inspection result normal?

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

2. VISUAL CHECK (1)

Check the contamination and foreign matter on the ICC sensor area of the front bumper.

Is foreign matter adhered?

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

3. VISUAL CHECK (2)

Check ICC sensor for contamination and foreign matter.

Is foreign matter adhered?

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

4. WIPE OUT DIRT AND FOREIGN MATTER

Wipe out the contamination and foreign matter in the area around the ICC sensor.

>> GO TO 10.

5. VISUAL CHECK (3)

Check ICC sensor for cracks and/or scratches.

Are there cracks or scratches?

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

6. RADAR ALIGNMENT ADJUSTMENT

CONSULT
1. Adjust the radar alignment. Refer to CCS-59, "Description".
2. Perform ICC system action test. Refer to CCS-68, "Description".
3. Check that the vehicle ahead detection performance improves.

Does it improve?

YES >> Inspection End.
NO >> GO TO 7.

7. CHECK INFORMATION DISPLAY

CONSULT
1. Select “Self Diagnostic Result” mode of “ICC SENSOR”. Refer to CCS-29, "CONSULT Function (LASER/RADAR)".
2. Check that the segment of information is displayed normally.

Is the inspection result normal?

YES >> GO TO 8.
NO >> Refer to CCS-43, "DTC Index"

8.REPLACE ICC SENSOR

1. Replace the ICC sensor. Refer to CCS-140, "Removal and Installation".
2. Adjust the radar alignment. Refer to CCS-59, "Description".
3. Perform ICC system action test. Refer to CCS-68, "Description".
4. Check that the vehicle ahead detection performance improves.

Does it improve?

YES >> Inspection End.
NO >> GO TO 9.

9.REPLACE ADAS CONTROL UNIT

Replace ADAS control unit. Refer to DAS-72, "Removal and Installation".

>> GO TO 10.

10.CHECK ICC SYSTEM

CONSULT
1. Erase the “Self Diagnostic Result”, and then select “Self Diagnostic Result” mode again after performing the action test. (Refer to CCS-68, "Description" for action test.)
2. Check that the ICC system is normal.

>> Inspection End.

NORMAL OPERATING CONDITION

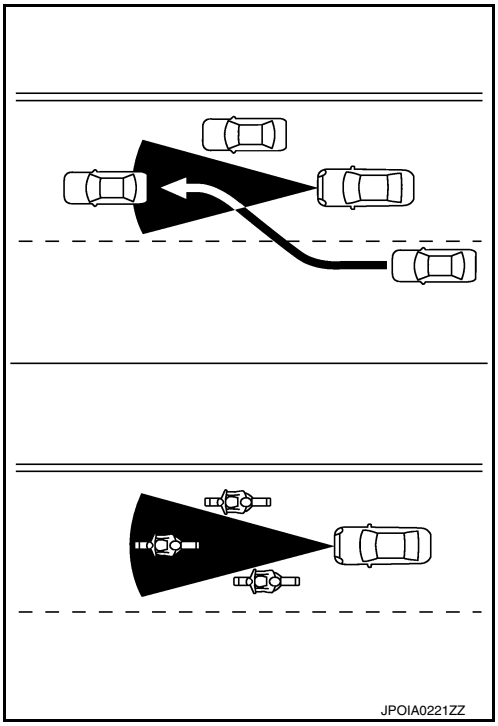
Description

INFOID:0000000012950946

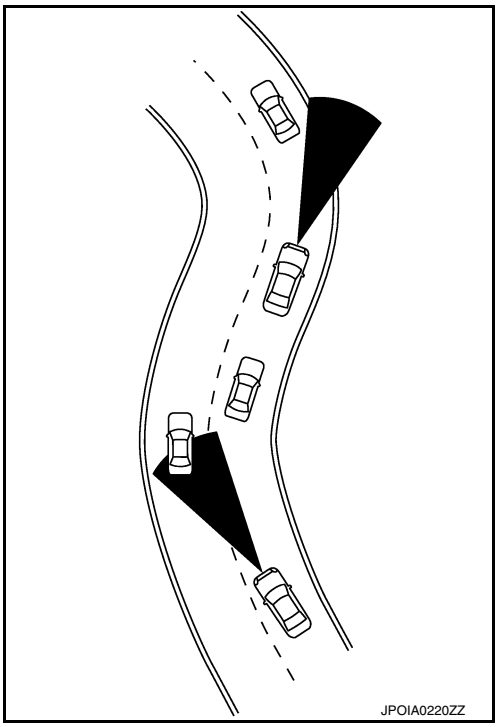
PRECAUTIONS FOR INTELLIGENT CRUISE CONTROL SYSTEM

- ICC system is only an aid to assist the driver and is not a collision warning or avoidance system. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- The system is primarily intended for use on straight, dry, open roads with light traffic. It is not advisable to use the system in city traffic or congested areas.
- This system will not adapt automatically to road conditions. This system should be used in evenly flowing traffic. Never use the system on roads with sharp curves or on icy roads, in heavy rain or in fog.
- The ICC sensor will not detect the following objects:
  - Stationary and slow-moving vehicles.
  - Pedestrians or objects in the roadway.
  - Oncoming vehicles in the same lane.
  - Motorcycles traveling offset in the travel lane.
- As there is a performance limit to the distance control function, never rely solely on the ICC system. This system does not correct careless, inattentive or absent-minded driving or overcome poor visibility in rain, fog, or other bad weather. Decelerate the vehicle speed by depressing the brake pedal, depending on the distance to the vehicle ahead and the surrounding circumstances in order to maintain a safe distance between vehicles.
- If the vehicle ahead comes to a stop, the vehicle decelerates to a standstill within the limitations of the system. The system will cancel once it judges that the vehicle has come to a standstill and sound a warning chime. To prevent the vehicle from moving, the driver must depress the brake pedal.
- The system may not detect the vehicle in front of the driver in certain road or weather conditions. To avoid accidents, never use the ICC system under the following conditions:
  - On roads where the traffic is heavy or there are sharp curves.
  - On slippery road surfaces such as on ice or snow, etc.
  - During bad weather (rain, fog, snow, etc.).
  - When rain, snow or dirt adheres to the ICC sensor.
  - On steep downhill roads (the vehicle may go beyond the set vehicle speed and frequent braking may result in overheating the brakes).
  - On repeated uphill and downhill roads.
  - When traffic conditions make it difficult to keep a proper distance between vehicles because of frequent acceleration or deceleration.
  - Never use the ICC system if own vehicle is towing a trailer. The system may not detect a vehicle ahead.
- In some road or traffic conditions, a vehicle or object can unexpectedly come into the sensor detection zone and cause automatic braking. The driver may need to control the distance from other vehicles using the accelerator pedal. Always stay alert and avoid using the ICC system when it is not recommended in this section.
- The ICC system uses a sensor located behind the front bumper of the vehicle to detect vehicles traveling ahead. The sensor generally detects the signals returned from the vehicle ahead. Therefore, if the sensor cannot detect the reflection from the vehicle ahead, the ICC system may not maintain the selected distance.
- The following are some conditions in which the sensor cannot detect the signals:
  - When the snow or road spray from traveling vehicles reduces the sensor's visibility.
  - When excessively heavy baggage is loaded in the rear seat or the luggage room of own vehicle.
- The ICC system is designed to automatically check the sensor's operation within the limitation of the system. When the front bumper area of the ICC sensor is covered with dirt or is obstructed, the system will automatically cancel. If the front bumper area of the ICC sensor is covered with ice, a transparent or translucent vinyl bag, etc., the ICC system may not detect it. In these instances, the ICC system may not cancel and may not be able to maintain the selected following distance from the vehicle ahead. Be sure to check and clean the front bumper area of the ICC sensor regularly.
- The ICC system does not control vehicle speed or warn the driver when own vehicle approaches stationary and slow moving vehicles. The driver must pay attention to vehicle operation to maintain proper distance from vehicles ahead when approaching toll gates or traffic congestion.

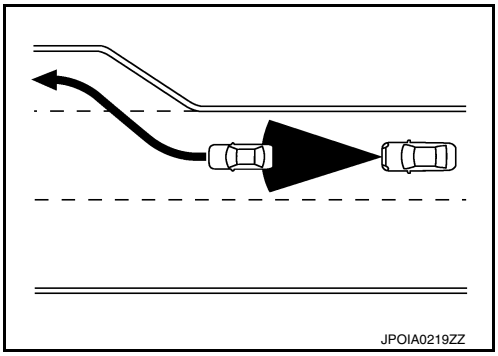
- The detection zone of the ICC sensor is limited. A vehicle ahead must be in the detection zone for the vehicle-to-vehicle distance detection mode to maintain the selected distance from the vehicle ahead. A vehicle ahead may move outside of the detection zone due to its position within the same lane of travel. Motorcycles may not be detected in the same lane ahead if they are traveling offset from the center line of the lane. A vehicle that is entering the lane ahead may not be detected until the vehicle has completely moved into the lane. If this occurs, the ICC system may warn the driver by blinking the system indicator and sounding the chime. The driver may have to manually control the proper distance from vehicle traveling ahead.



- When driving on some roads, such as winding, hilly, curved narrow roads or roads which are under construction, the ICC sensor may detect vehicles in a different lane or may temporarily not detect a vehicle traveling ahead. This may cause the ICC system to decelerate or accelerate the vehicle. The detection of vehicles may also be affected by vehicle operation (steering maneuver or traveling position in the lane, etc.) or vehicle condition. If this occurs, the ICC system may warn the driver by blinking the system indicator and sounding the chime unexpectedly. The driver will have to manually control the proper distance away from the vehicle traveling ahead.



- When driving on the freeway at a set speed and approaching a slower traveling vehicle ahead, the ICC will adjust the speed to maintain the distance, selected by the driver, from the vehicle ahead. If the vehicle ahead changes lanes or exits the freeway, the ICC system will accelerate and maintain the speed up to the set speed. Pay attention to the driving operation to maintain control of the vehicle as it accelerates to the set speed. The vehicle may not maintain the set speed on winding or hilly roads. If this occurs, the driver will have to manually control the vehicle speed.



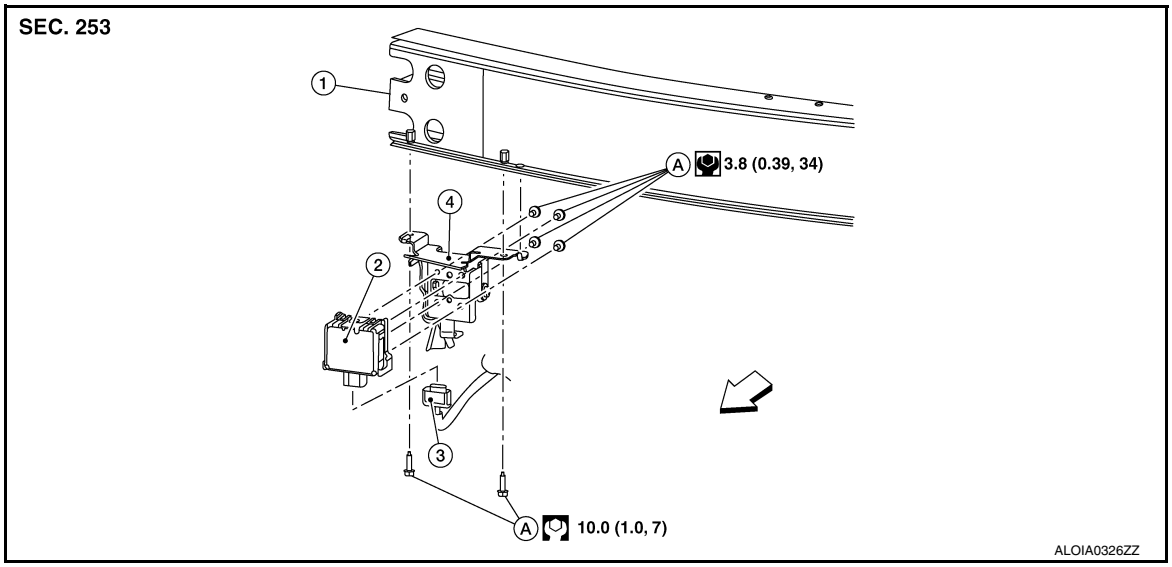
- Normally when controlling the distance to a vehicle ahead, this system automatically accelerates or decelerates own vehicle according to the speed of the vehicle ahead. Depress the accelerator to properly accelerate own vehicle when acceleration is required for a lane change. Depress the brake pedal when deceleration is required to maintain a safe distance to the vehicle ahead due to its sudden braking or if a vehicle cuts in. Always stay alert when using the ICC system.
- The sensor sensitivity can be affected by vehicle operation (steering maneuver or driving position in the lane) or traffic or vehicle condition (for example, if a vehicle is being driven with some damage).

REMOVAL AND INSTALLATION

ICC SENSOR

Exploded View

INFOID:0000000012965040



1. Front bumper reinforcement
2. ICC sensor
3. ICC sensor harness connector
4. ICC sensor bracket
A. Refer to INSTALLATION
⇦ Front

Removal and Installation

INFOID:0000000012965041

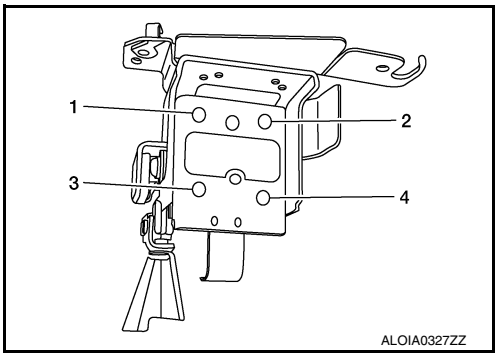
REMOVAL

1. Remove front bumper fascia. Refer to EXT-25, "Removal and Installation".
2. Disconnect harness connector from ICC sensor.
3. Remove bolts and ICC sensor and bracket assembly from front bumper reinforcement.
4. Remove bolts and ICC sensor from ICC sensor bracket.

INSTALLATION

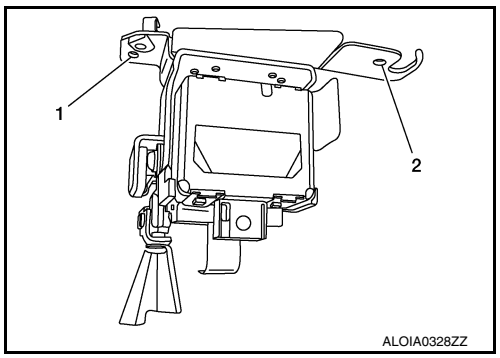
1. Install ICC sensor to ICC sensor bracket and torque bolts in sequence shown.

ICC sensor bolts : 3.8 N·m (0.39 kg-m, 34 ft-lb)



2. Install ICC sensor and bracket assembly to front bumper reinforcement and torque bolts in sequence shown.

ICC sensor bracket bolts : 10.0 N·m (1.0 kg-m, 7 ft-lb)



3. Connect harness connector to ICC sensor.
4. Install front bumper fascia. Refer to EXT-25, "Removal and Installation".

CAUTION:
- **Always perform ICC sensor alignment and check the operation after removal, installation or replacement of ICC sensor. Refer to CCS-58, "Work Procedure".**
- **Do not touch ICC sensor face.**
- **Do not drop or shock ICC sensor.**
- **Make sure ICC sensor harness is installed without any twists.**

ICC STEERING SWITCH

Removal and Installation

INFOID:0000000012965043

For removal and installation of the ICC steering switch, refer to AV-49, "Removal and Installation" (Base audio), AV-113, "Removal and Installation" (Display audio without BOSE™), AV-202, "Removal and Installation" (Display audio with BOSE™), AV-298, "Removal and Installation" (Navigation without BOSE™), or AV-418, "Removal and Installation" (Navigation with BOSE™).

CAUTION:

Always perform ICC system action test to check that the ICC system operates normally after replacing the ICC sensor or repairing any ICC system malfunction. Refer to CCS-58, "Work Procedure".

PRECAUTION

PRECAUTIONS

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

INFOID:0000000013043223

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. Information necessary to service the system safely is included in the SR and SB section 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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper repair, 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 SR section.**
- **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.**

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery or batteries, and wait at least three minutes before performing any service.**

SYSTEM DESCRIPTION

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Information

INFOID:0000000012950816

Automatic Speed Control Device (ASCD) system is controlled by ECM.
Regarding the information for ASCD system, refer to the following:

- QR25DE: EC-65, "AUTOMATIC SPEED CONTROL DEVICE (ASCD) : System Description"
- VQ35DE: EC-612, "AUTOMATIC SPEED CONTROL DEVICE (ASCD) : System Description"

REMOVAL AND INSTALLATION

STEERING WHEEL SWITCH

Removal and Installation

INFOID:0000000012590553

For removal and installation of the steering switch, refer to AV-49, "Removal and Installation".

BRAKE PEDAL POSITION SWITCH

Removal and Installation

INFOID:0000000012590554

REMOVAL

1. Remove the instrument lower panel LH. Refer to IP-21, "Removal and Installation".
2. Disconnect the harness connector from the brake pedal position switch.
3. Remove the brake pedal position switch from the brake pedal assembly.

INSTALLATION

Installation is in the reverse order of removal.