

SECTION **DAS** DRIVER ASSISTANCE SYSTEM

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PRECAUTION

PRECAUTIONS

FOR USA AND CANADA

FOR USA AND CANADA : Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000009723198

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

FOR USA AND CANADA : Precautions for Removing of Battery Terminal

INFOID:0000000010089128

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

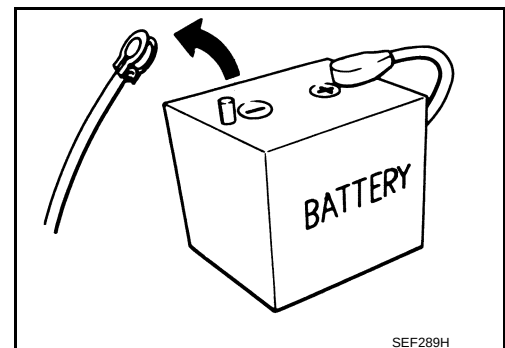
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



SEF289H

FOR USA AND CANADA : Precaution for LDW System Service

INFOID:000000009723199

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

PRECAUTIONS

< PRECAUTION >

[LDW]

CAUTION:

- Never perform the active test while driving.
- Never change LDW initial state ON ⇒ OFF without the consent of the customer.

FOR MEXICO

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

INFOID:000000009723200

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 "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

FOR MEXICO : Precautions for Removing of Battery Terminal

INFOID:0000000010089127

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

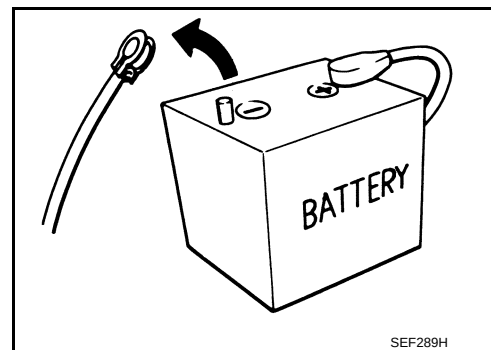
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



FOR MEXICO : Precaution for LDW System Service

INFOID:000000009723201

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

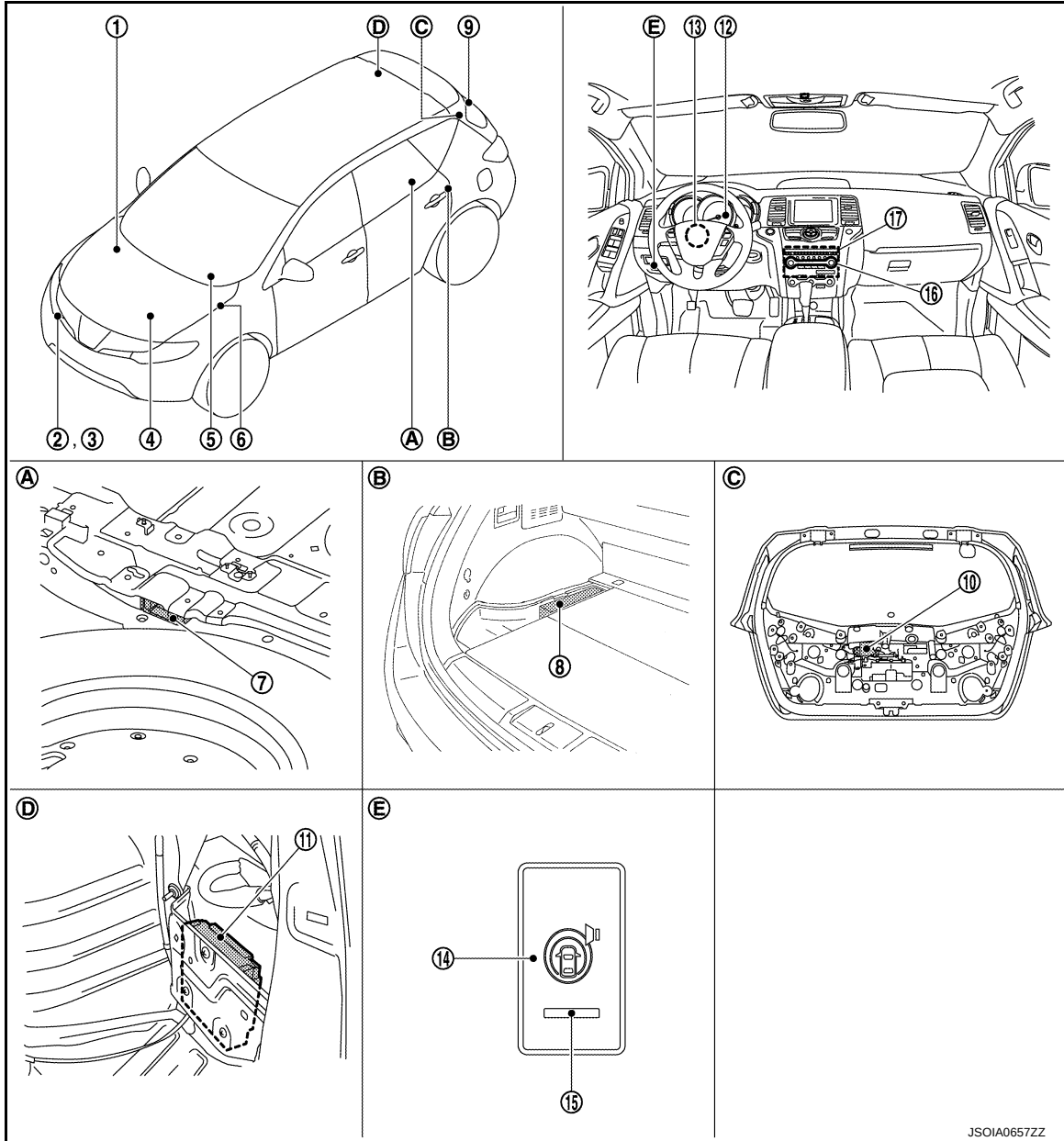
- Never perform the active test while driving.
- Never change LDW initial state ON ⇒ OFF without the consent of the customer.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000009723202



(A) Front side of spare tire

(B) Luggage room LH

(C) Inside back door

(D) Luggage room RH

(E) Instrument lower panel LH

No.	Component	Function
①	ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal (wheel speed) to camera control unit via CAN communication Refer to BRC-12, "Component Parts Location" for detailed installation location
②	Washer pump	Pumps washer fluid from washer tank Refer to WW-18, "Component Parts Location" for detailed installation location
③	Washer level switch	Transmits the washer level switch signal to camera control unit

COMPONENT PARTS

< SYSTEM DESCRIPTION >

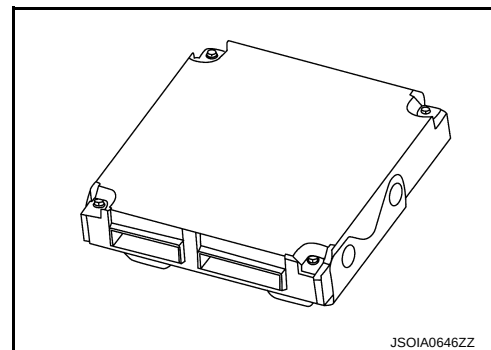
[LDW]

No.	Component	Function
④	ECM	Transmits the engine status signal and engine coolant temperature signal to camera control unit via CAN communication Refer to EC-36, "Component Parts Location" for detailed installation location
⑤	BCM	Transmits the turn indicator signal to camera control unit via CAN communication Refer to BCS-9, "Component Parts Location" for detailed installation location
⑥	Rear view camera washer relay	Refer to DAS-11, "Rear View Camera Washer Relay"
⑦	Pump control unit	Refer to DAS-10, "Pump Control Unit"
⑧	Air pump	Refer to DAS-11, "Air Pump"
⑨	Rear view camera	Refer to DAS-9, "Rear View Camera"
⑩	Washer switching solenoid valve	Refer to DAS-11, "Washer Switching Solenoid Valve"
⑪	Camera control unit	Refer to DAS-9, "Camera Control Unit"
⑫	Combination meter	- Description: DAS-9, "Combination Meter" - System display and warning: DAS-18, "System Display and Warning"
⑬	Steering angle sensor	Transmits the steering angle sensor signal to camera control unit via CAN communication
⑭	Warning systems switch	Refer to DAS-11, "Warning Systems Switch/Warning Systems ON Indicator"
⑮	Warning systems ON indicator (On the warning systems switch)	Refer to DAS-11, "Warning Systems Switch/Warning Systems ON Indicator"
⑯	A/C auto amp.	Transmits the ambient sensor signal to camera control unit via CAN communication Refer to HAC-150, "Component Part Location" for detailed installation location
⑰	AV control unit	Transmits the system selection signal to camera control unit via CAN communication Refer to AV-303, "Component Parts Location" for detailed installation location

Camera Control Unit

INFOID:000000009723203

- Camera control unit is installed in the luggage room RH.
- The adoption of CAN communication allows the signal transmission/reception between the camera control unit and each control unit.
- When the ignition switch is turned ON, electric power is supplied to the rear view camera.
- The camera control unit receives a camera image signal from the rear view camera and recognizes the lane that the own vehicle is currently traveling.
- When the own vehicle is almost deviated from the lane, the lane departure warning lamp on the combination meter blinks to warn the driver.
- The camera control unit communicates with the rear view camera via serial communication and receives the specific information of the camera. When the information matches the specific information of the camera written in the camera control unit, camera is activated normally.



Combination Meter

INFOID:000000009723204

- Receives lane departure warning lamp signal, LDW ON indicator lamp signal, meter display signal and buzzer output signal from camera control unit via CAN communication.
- Turns the lane departure warning lamp and LDW ON indicator lamp ON/OFF according to the signals from camera control unit.
- Displays the clean camera display according to the signal from the camera control unit.
- Operates the buzzer according to the signal from the camera control unit.

Rear View Camera

INFOID:000000009723205

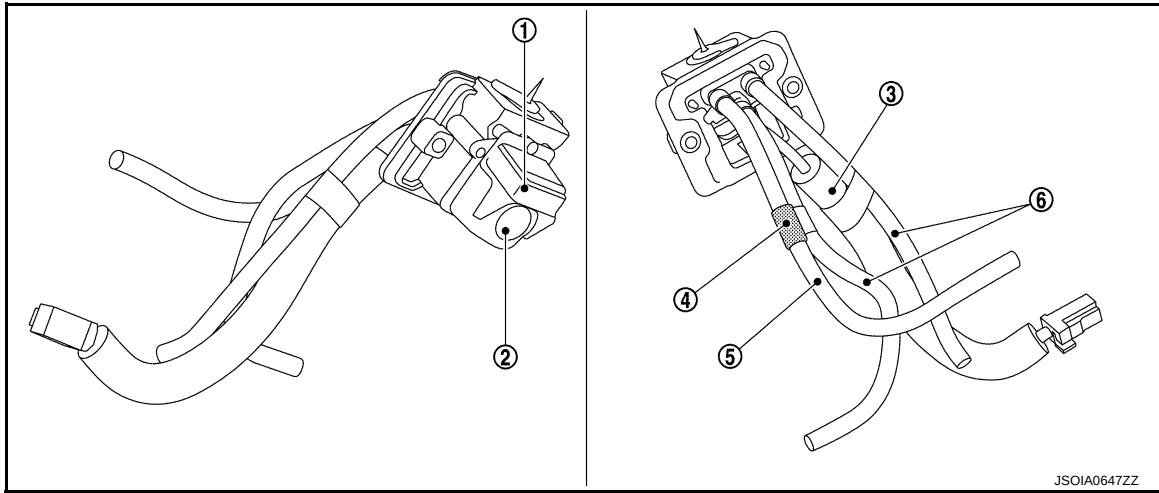
- The rear view camera is installed to the back door finisher.
- Super-small CMOS camera (color) using CMOS* for the image pickup element is adopted.
- With the mirror processing function, a mirror image is sent as if it is viewed by a rear view mirror.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[LDW]

- Power for the camera is supplied from the camera control unit, and the image at the rear of the vehicle is sent to the camera control unit.
- The rear view camera is equipped with a washer nozzle and air nozzle for cleaning camera. A check valve is installed to the tube connected to the washer nozzle.



- | | | |
|---------------------|--------------------|------------|
| ① Washer/Air nozzle | ② Rear view camera | ③ Harness |
| ④ Check valve | ⑤ Washer tube | ⑥ Air tube |

NOTE:

*: "CMOS" is abbreviation of Complementary Metal Oxide Semiconductor, and features low power consumption and high speed reading rate of electric charge.

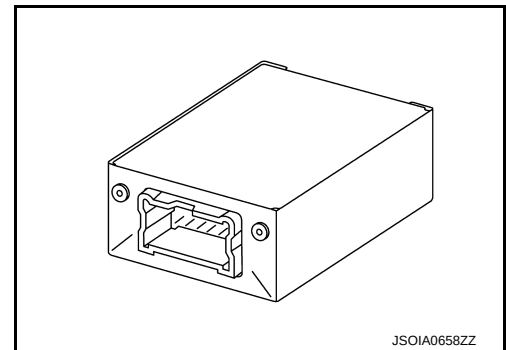
Camera Specification

Manufacturer name	SONY Corp.
Image pickup element	1/4-inch CMOS image sensor
Effective number of pixels	Approx. 300,000 pixels (632 × 480)
Minimum brightness	2 lx
Angle of view	H: 190.4° V: 141.8°
Image	With mirror processing function

Pump Control Unit

INFOID:000000009723206

- Pump control unit is installed in under the luggage floor front fin-isher.



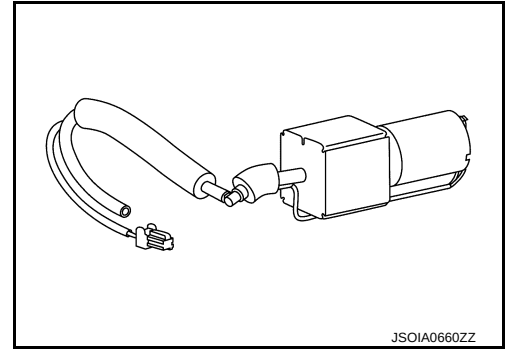
- Communicates with camera control unit via communication line.
- Activates air pump and washer pump according to the signal from camera control unit.
- Receives rear washer signal from washer switching solenoid valve.

< SYSTEM DESCRIPTION >

Air Pump

INFOID:000000009723207

- Air pump is installed in the luggage floor spacer LH in the luggage room.

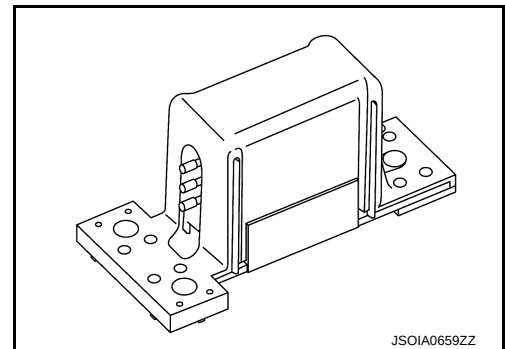


- Air pump is activated and generates compressed air when power is supplied from the pump control unit.
- Compressed air jets out from the air nozzle of rear view camera via air tube.

Washer Switching Solenoid Valve

INFOID:000000009723208

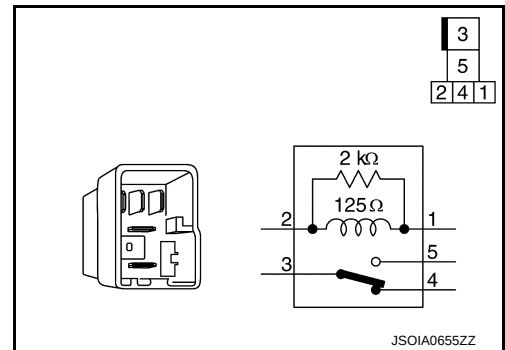
- Washer switching solenoid valve is installed in the back door.
- When rear washer is in the inactive condition, the solenoid valve is inactive and rear view camera washer path is activated.
- When rear washer is in the active condition, the solenoid valve is active and the washer path is switched to rear washer side.
- When solenoid valve is active, a rear washer signal is transmitted to the pump control unit.



Rear View Camera Washer Relay

INFOID:000000009723209

- Rear view camera washer relay 1 and 2 are installed in the engine room LH
- When the relay is in the inactive state, the circuit of window washer is energized.
- Rear view camera washer relay 1 and 2 are activated according to a signal from the pump control unit and activate the washer pump regardless of window washer activation.



Warning Systems Switch/Warning Systems ON Indicator

INFOID:000000009723210

- Installed to the instrument lower panel, the warning systems switch is used to activate/deactivate the LDW and BSW systems.
- Transmits a warning systems switch signal to the camera control unit.

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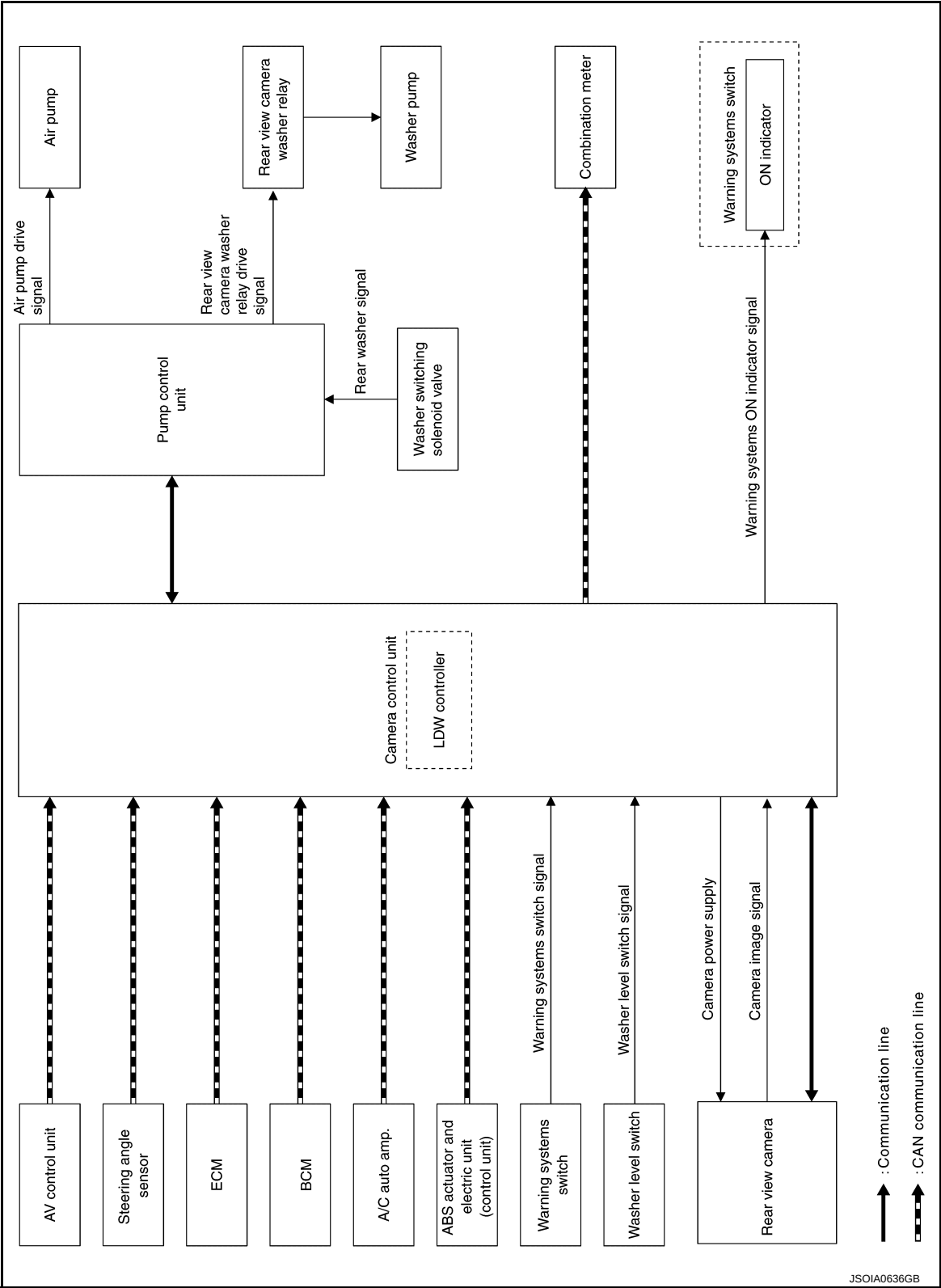
DAS

SYSTEM

System Description

INFOID:000000009723211

SYSTEM DIAGRAM



CAMERA CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

SYSTEM

< SYSTEM DESCRIPTION >

[LDW]

Transmit unit	Signal name		Description
ABS actuator and electric unit (control unit)	CAN communication	Vehicle speed signal (ABS)	Receives wheel speeds of four wheels
		VDC malfunction signal	Receives a malfunction state of VDC
BCM	CAN communication	Turn indicator signal	Receives an operational state of the turn signal lamp and the hazard lamp
AV control unit	CAN communication	System selection signal	Receives a selection state of each item in "Driver assist" selected with the navigation system
Steering angle sensor	CAN communication	Steering angle sensor signal	Receives the number of revolutions, turning direction of the steering wheel
ECM	CAN communication	Engine status signal	Receives the engine status
		Engine coolant temperature signal	Receives the engine coolant temperature
A/C auto amp.	CAN communication	Ambient sensor signal	Receives the ambient temperature
Rear view camera	Communication line	Camera image signal	Receives the camera image signal
Washer level switch	Washer level switch signal		Receives a status of washer fluid level
Warning systems switch	Warning systems switch signal		Receives an ON/OFF state of the warning systems switch

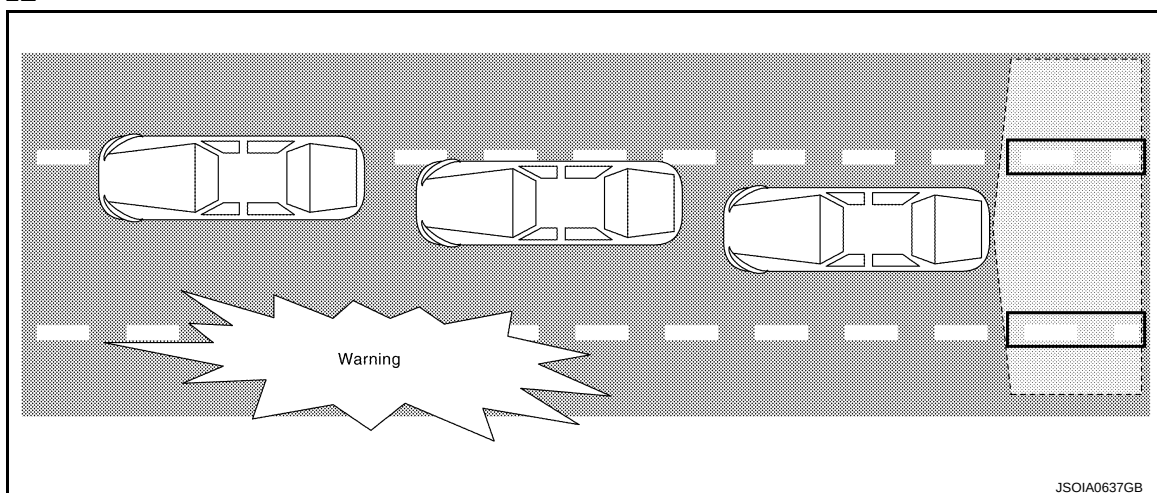
Output Signal Item

Reception unit	Signal name		Description
Combination meter	CAN communication	Lane departure warning lamp signal	Transmits a lane departure warning lamp signal to turn ON the lane departure warning lamp
		LDW ON indicator lamp signal	Transmits a LDW ON indicator lamp signal to turn ON the LDW ON indicator lamp
		Meter display signal	Clean camera display signal
		Buzzer output signal	
Pump control unit	Communication line	Rear view camera washer signal	
		Rear view camera air blow signal	
Warning systems ON indicator	Warning systems ON indicator signal		Turns ON the warning systems ON indicator

FUNCTION DESCRIPTION

- Lane Departure Warning (LDW) system provides a lane departure warning function when the vehicle is driven at speeds of approximately 70 km/h (45 MPH) or more.
- When the vehicle approaches either the left or the right side of the traveling lane, a warning will sound and the lane departure warning lamp (yellow) on the combination meter will blink to alert the driver.
- The warning does not occur during turn signal operation (Lane change side).
- The warning function will stop when the vehicle returns inside of the lane markers.

EXAMPLE



When the vehicle approaches the right lane marker, the driver is alerted by the buzzer and the blinking of lane departure warning lamp (yellow).

OPERATION DESCRIPTION

- When the system is turned ON by operating the warning systems switch, camera control unit turns ON the LDW ON indicator lamp and the warning systems ON indicator.
- Rear view camera monitors the traveling lane. It transmits the camera image signal to camera control unit.
- When judging from a camera image signal that the vehicle is approaching the lane marker, the camera control unit controls the following item to alert the driver.
 - Activates warning buzzer in the combination meter.
 - Camera control unit transmits a lane departure warning lamp signal to combination meter via CAN communication and turns ON/OFF the lane departure warning lamp (yellow).

Operating Condition

- LDW ON indicator lamp: ON
- Warning systems ON indicator: ON
- Vehicle speed: approximately 70 km/h (45 MPH) or more
- Turn indicator signal: After 2 seconds or more from turned OFF
- Back door: Close
- Low washer fluid warning: OFF

NOTE:

- When the LDW system setting on the navigation screen is ON.
- After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH)
- The LDW system may not function properly, depending on the situation. Refer to [DAS-20, "Precautions for Lane Departure Warning"](#)

Bulb Check Action and Fail-safe Indication

Vehicle condition/ Driver's operation	Warning systems ON indicator	Indication on the combination meter
Ignition switch OFF ⇒ ON (Bulb check)	Approx. 5 sec. ON	OFF →  →  (Yellow) ON (Green) ON

JSOIA0667GB

SYSTEM

< SYSTEM DESCRIPTION >

[LDW]

Vehicle condition/ Driver's operation	Warning systems ON indicator	Indication on the combination meter	
When DTC is detected (Except "U1308")	ON	 (Yellow) ON JSOIA0668GB	A
Camera calibration is not completed ("U1308" is detected) NOTE: This is detected while driving the vehicle and the indication remains ON until the ignition switch is turned OFF	ON		B
When lane markers cannot be detected due to dirt on the camera.	ON	 (Green) Blink JPOIA0036GB	C
		In the information display  JSOIA0638GB	D
When the washer fluid level is low (Low washer fluid warning ON)	ON	Blinks at intervals of two seconds.  (Green) Blink JPOIA0036GB	E
		Blinks at intervals of two seconds.  (Green) Blink JPOIA0036GB	F
When the back door is open (Back door open warning ON)	ON	Blinks at intervals of two seconds.  (Green) Blink JPOIA0036GB	G
			H
			I
			J
			K
			L
			M

REAR VIEW CAMERA WASHER OPERATION

- When judging that the rear view camera has water droplets, the camera control unit transmits a rear view camera washer activation signal or rear view camera air blow signal to the pump control unit via serial communication.
- When receiving a rear view camera washer activation signal, the pump control unit simultaneously activates the washer pump to clean the rear view camera by spraying washer fluid from the nozzle installed to the rear view camera bracket.
- The washer switching solenoid valve switches the washer path from rear window to rear view camera.
- When receiving a rear view camera air blow signal, the pump control unit activates the air pump to clean the rear view camera by blowing air from the nozzle installed to the rear view camera bracket.

OPERATION CONDITION

- Approximately 30 km/h (20 MPH) or more
- When the camera control unit judges that the rear view camera has water droplets.
- When the front washer and the rear washer are not activated.
- When the low washer fluid warning is OFF.

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NOTE:

The camera is cleaned intermittently by spraying washer fluid and blowing air. When the camera control unit judges that dirt on the camera cannot be removed even after approximately 5 minutes from the first detection of dirt, the activation of LDW is canceled.

Fail-Safe

INFOID:000000009723212

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
C1A03 VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the camera control unit via CAN communication, are inconsistent	- LDW system is cancel - BSW system is cancel
C1A04 ABS/TCS/VDC CIRC	If a malfunction occurs in the VDC/TCS/ABS system	- LDW system is cancel - BSW system is cancel
C1A39 STRG SEN CIR	If the steering angle sensor is malfunction	- LDW system is cancel - BSW system is cancel
U0122 VDC P-RUN DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	- LDW system is cancel - BSW system is cancel
U0416 VDC CHECKSUM DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	- LDW system is cancel - BSW system is cancel
U0428 ST ANGLE SENSOR CALIBRATION	Neutral position adjustment of steering angle sensor is not complete.	- Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped.
U1000 CAN COMM CIRCUIT	When camera control unit cannot transmit/receive CAN communication signal continuously for 2 seconds or more.	The following functions are stopped - When communication of steering angle sensor signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Front tire angle display is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed. - When communication of vehicle signal, wheel speed sensor signal, and shift signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed - When communication of sonar signal is not normal - Predicted course line is not displayed.
U1010 CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	- MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped.

SYSTEM

< SYSTEM DESCRIPTION >

[LDW]

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U111A REAR CAMERA IMAGE SIGNAL	No-signal status of rear camera image signal is continued for 500 ms or more while ignition switch is ON. NOTE: Current malfunction is displayed only and is not saved.	- Camera image is not displayed (Gray screen display). - LDW system is stopped. - BSW system is stopped.
U1232 ST ANGLE SEN CALIB	Neutral position adjustment of steering angle sensor is performed. NG signal from steering angle sensor is received.	- Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Tire icon is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed.
U1305 CONFIG UNFINISH	The vehicle setting of camera control unit is incomplete. NOTE: Current malfunction is displayed only and is not saved.	Operation is according to the vehicle setting value as default value.
U1308 R-CAMERA (R&L) CALIB JDG-MNT	Camera image calibration is incomplete	- MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped.
U1309 PUMP INPUT CURRENT JUDGE	Camera control unit detects the value of current from pump control unit is incorrect	- MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped.
U130B RR CAMERA COMM ERROR	Camera control unit receives the incorrect communication signal from rear view camera	- MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped.
U1310 PUMP ECU JUDGE	If the pump control unit is malfunction	- LDW system is stopped. - BSW system is stopped.
Other	When camera control unit is not normal.	Switch to camera screen is not allowed.
	When communication between camera control unit and each camera is not normal.	On applicable camera screen  marking (Red) is displayed.
	When communication line between camera control unit and each camera image line are affected by electromagnetic noises.	On applicable camera image screen,  display (Blue) is displayed.

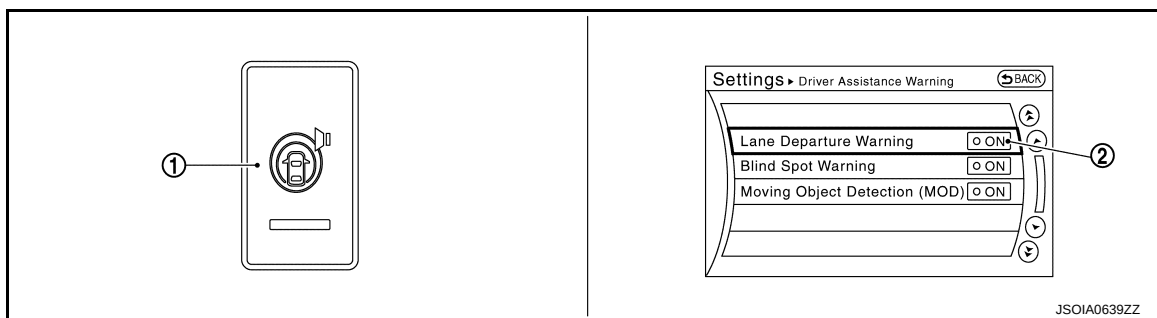
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OPERATION

Switch Name and Function

INFOID:000000009723213



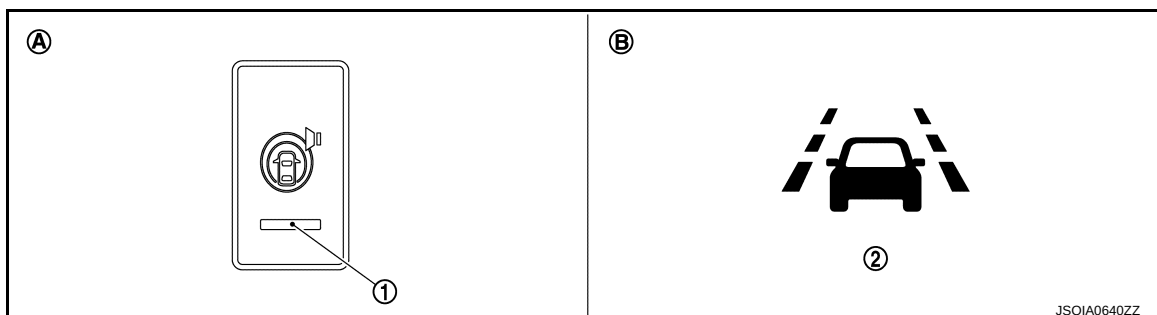
JSOIA0639ZZ

No.	Switch name	Description
①	Warning systems switch	Turns LDW system ON/OFF (When the setting of LDW system on the navigation system screen is ON)
②	LDW system setting screen (Navigation system setting screen)	Turns setting of LDW system can be switched between ON and OFF

System Display and Warning

INFOID:000000009723214

INDICATOR LAMP AND WARNING LAMP



JSOIA0640ZZ

No.	Display item	Description
①	Warning systems ON indicator	Indicates that the LDW and/or BSW system is ON
②	Lane departure warning lamp (Yellow)	- Blinks when LDW system is warning to driver - Turns ON when LDW system has a malfunction
	LDW ON indicator lamp (Green)	- Turns ON when LDW system is activated - Blinks when the back door is open - Blinks when the washer fluid level is low

DISPLAY AND WARNING

Vehicle condition/ Driver's operation		Action	Warning sys-tems ON indi-cator	Indication on the combination meter	Buzzer
Less than Ap-prox. 60 km/h (40 MPH)	Close to lane marker	No action	ON	 (Green) ON JPOIA0021GB	—
Approx. 70 km/h (45 MPH) or more	Close to lane marker	Warning • Buzzer sounds • Warning lamp blinks	ON	 →  →  (Green) ON (Yellow) Blink (Green) ON JPOIA0022GB	Short con-tinuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	ON	 (Green) ON JPOIA0021GB	—

NOTE:
After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-12. "System Description"](#).

HANDLING PRECAUTION

Precautions for Lane Departure Warning

INFOID:000000009723215

REAR VIEW CAMERA HANDLING

The rear view camera for the LDW/BSW systems is located above the rear licence plate. To keep the proper operation of the LDW/BSW systems and prevent a system malfunction, be sure to observe the following:

- Always keep the rear view camera clean. Be careful not to damage the nozzle of automatic washer and blower.
- Do not attach "licence plate accessory" that reflect light.
- Do not strike or damage the areas around the rear view camera.

LANE DEPARTURE WARNING (LDW)

- The LDW system is only a warning device to inform the driver of a potential unintended lane departure. It will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.
- The rear view camera may not detect properly under the following conditions:
 - When towing a trailer.
 - When strong light enters the rear view camera. (For example, direct sunlight or headlight from the rear)
 - When ambient brightness changes instantly. (For example, when the vehicle enters or exits a tunnel or passes under a bridge.)
- Automatic washer and blower may not be able to secure detection capability when excessive dirt adheres on the camera lens.
- LDW system may not function properly under the following conditions:
 - Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The rear view camera may not be able to detect properly under the following conditions:
 - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers; or lane markers covered with water, dirt, snow, etc.
 - On roads where the discontinued lane markers are still detectable.
 - On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs. (The LDW system could detect these items as lane markers.)
 - On roads where the traveling lane merges or separates.
 - When the vehicle's traveling direction does not align with the lane marker.
 - When the road surface is very dark due to scarce ambient light or impaired tail lamp.
- When driving on curved road, warning will be late on the outside of the curve due to the nature of the system.

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW]

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

CONSULT Function

INFOID:000000009723216

CONSULT FUNCTIONS

CONSULT performs the following functions via the CAN communication with the camera control unit.

Diagnosis mode	Description
ECU Identification	Camera control unit part number can be identified.
Self Diagnostic Results	Camera control unit diagnosis is performed. Current and previous malfunctions are displayed collectively.
Data Monitor	Diagnosis of vehicle signal that is received by camera control unit can be performed.
Work Support	- Target line calibration of rear wide view can be performed. - Display of predicted course line can be switched to ON/OFF. - Calibration and initialization of rear view camera can be performed. - Neutral position adjustment of steering angle sensor can be performed. - Calibration for LDW and BSW can be performed. - Displays causes of system cancellation occurred during system control.
Active Test	Enables an operational check of a load by transmitting a driving signal from the camera control unit to the load.
Configuration	- The vehicle specification that is written in camera control unit can be displayed or stored. - The vehicle specification can be written when camera control unit is replaced.

ECU IDENTIFICATION

Camera control unit part number can be identified.

SELF DIAGNOSIS RESULT

Refer to [DAS-30, "DTC Index"](#).

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000] and [U1010] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Freeze Frame Data (FFD)

The following vehicle status is recorded when DTC is detected and is displayed on CONSULT.

Item name	Display content
IGN counter (0 to 39)	Numerical value is displayed indicating the number of times that ignition switch is turned ON after the DTC is detected. - When "0" is displayed, it indicates that the system is presently malfunctioning. - When any numerical number other than "0" is displayed, it indicates that system malfunction in the past is detected, but the system is presently normal. NOTE: Each time when ignition switch turns OFF→ON, numerical number increases from 1→2→3...38→39. When number of times exceeds 39, numeric display does not increase and 39 is displayed until self-diagnosis is erased.

DATA MONITOR

NOTE:

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

- Displays the status of the following vehicle signals inputted into the camera control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

Display Item	Remarks
ST ANGLE SENSOR SIGNAL [ON/OFF]	Receiving status of steering angle signal received from steering angle sensor is switched to ON/OFF.
REVERSE SIGNAL [ON/OFF]	Receiving status of reverse signal received from AV control unit is displayed by ON/OFF.

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

[LDW]

< SYSTEM DESCRIPTION >

Display Item	Remarks
VEHICLE SPEED SIGNAL [ON/OFF]	Receiving status of vehicle speed signal received from ABS actuator control unit is displayed by ON/OFF.
ILL [ON/OFF]	Receiving status of dimmer signal received from BCM is displayed by ON/OFF.
CAMERA SWITCH SIGNAL [ON/OFF]	Receiving status of camera switch signal received from AV control unit is displayed by ON/OFF.
CAMERA OFF SIGNAL [ON/OFF]	Receiving status of camera OFF signal received from AV control unit is displayed by ON/OFF.
ITS SW 1 [ON/OFF]	Indicates the state of the warning system switch as seen by the camera control unit.
ITS SW 1 IND [ON/OFF]	Indicates the state of the warning system switch indicator output.
ST ANGLE SENSOR TYPE [ABSOLUTE]	Input type of steering angle sensor is displayed. NOTE: For this vehicle, "Absolute" is displayed.
STEERING GEAR RATIO TYPE [TYPE1]	Type of steering gear ratio is displayed. NOTE: For this vehicle, "TYPE 1" is displayed.
STEERING POSITION [LHD]	Steering position is displayed. NOTE: For this vehicle, "LHD" is displayed.
WASH SW [ON/OFF]	Indicates [On/Off] status of the washer switch signal input
REAR CAMERA IMAGE SIGNAL [OK/NG]	Input status of rear view camera image signal is displayed by OK/NG in real time.
R-CAMERA COMM STATUS [OK/NG]	Communication status with rear camera is displayed by OK/NG in real time.
R-CAMERA COMM LINE [OK/NG]	Status of communication line with rear camera is displayed by OK/NG in real time.
TURN SIGNAL [ON/OFF]	Indicates [On/Off] status of the turn signal input
ITS SW 2 [No setting]	Indicates the status of warning systems switch as seen by the camera control unit. NOTE: For this vehicle, "No setting" is displayed.
PUMP COMM STATUS [OK/NG]	Communication status with pump control unit is displayed by OK/NG in real time.
ITS SW 2 IND [No setting]	Indicates the status of warning systems switch indicator output. NOTE: For this vehicle, "No setting" is displayed.

WORK SUPPORT

Display Item	Remarks
REAR WIDE-VIEW FIXED GUIDE LINE CORRECTION	The position of rear wide view guiding line can be changed.
PREDICTIVE COURSE LINE DIS- PLAY	ON/OFF setting of predictive course line can be performed.
INITIALIZE CAMERA IMAGE CALI- BRATION	The calibration can be initialized to factory shipment condition. NOTE: Calibration of camera image caused by misalignment of the camera installation position is performed.

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW]

Display Item	Remarks
STEERING ANGLE SENSOR ADJUSTMENT	Steering angle sensor neutral position can be adjusted and registered. CAUTION: For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement" .
REAR CAMERA ITS	Calibration for LDW/BSW can be performed.
CAUSE OF LDW CANCEL	Displays causes of automatic system cancellation occurred during control of the LDW system.
CAUSE OF BSW CANCEL	Displays causes of automatic system cancellation occurred during control of the BSW system.

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 LDW/BSW Cancel

Cause of cancellation	Description
REAR CAMERA DIRTY	Rear view camera lens is dirty.
TRUNK OPEN	Back door is open.
TRAILER HITCH ON	Towing (by attaching a trailer).
R CAMERA COMM ERR	Communication error between camera control unit and rear view camera.
LOW WASH FLUID	Washer fluid level is low.
LO TMP(AIR WIPING)	Ambient temperature drops to -20 °C (-4 °F) or less.
LO TMP(WSH WIPING)	Ambient temperature drops to -20 °C (-4 °F) or less.
NO RECORD	—

ACTIVE TEST

CAUTION:

- Never perform "Active Test" while driving the vehicle.
- The "Active Test" cannot be performed when the following systems warning indicator is illuminated.
 - Lane departure warning lamp
 - BSW warning lamp
- Shift the selector lever to "P" position, and then perform the test.

Test items	Description
LED LH INDICATOR	BSW indicator LH can be illuminated by ON/OFF operations as necessary.
LED RH INDICATOR	BSW indicator RH can be illuminated by ON/OFF operations as necessary.
WASH ACTIVE	Camera washer can be operated by ON/OFF operations as necessary.
AIR ACTIVE	Camera blower can be operated by ON/OFF operations as necessary.
AIR & WASH ACTIVE	Camera blower and washer can be operated by ON/OFF operations as necessary.

LED LH INDICATOR

Test item	Operation	Description	BSW indicator LH
LED LH INDICATOR	Off	Stops transmitting the BSW indicator LH signal below to end the test	OFF
	On	Transmits the BSW indicator LH signal to the BSW indicator	ON

LED RH INDICATOR

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

< SYSTEM DESCRIPTION >

[LDW]

Test item	Operation	Description	BSW indicator RH
LED RH INDICATOR	Off	Stops transmitting the BSW indicator RH signal below to end the test	OFF
	On	Transmits the BSW indicator RH signal to the BSW indicator	ON

WASH ACTIVE

Test item	Operation	Description	Rear view camera washer
WASH ACTIVE	Off	Stops transmitting the rear view camera washer signal below to end the test	OFF
	On	Transmits the rear view camera washer signal to the pump control unit via communication line	ON

AIR ACTIVE

Test item	Operation	Description	Rear view camera air blower
AIR ACTIVE	Off	Stops transmitting the rear view camera air blow signal below to end the test	OFF
	On	Transmits the rear view camera air blow signal to the pump control unit via communication line	ON

AIR & WASHER ACTIVE

Test item	Operation	Description	Rear view camera air blower and washer
AIR & WASHER ACTIVE	Off	Stops transmitting the rear view camera air blow / washer signal below to end the test	OFF
	On	Transmits the rear view camera air blow / washer signal to the pump control unit via communication line	ON

CONFIGURATION

Configuration includes functions as follows.

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

CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW]

ECU DIAGNOSIS INFORMATION

CAMERA CONTROL UNIT

Reference Value

INFOID:000000009723217

VALUES ON THE DIAGNOSIS TOOL

NOTE:

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

CONSULT MONITOR ITEM

Monitor Item	Condition		Value/Status
ST ANGLE SENSOR SIGNAL [ON/OFF]	Ignition switch ON	When steering angle sensor signal is input	ON
		Other than the above	OFF
REVERSE SIGNAL [ON/OFF]	Ignition switch ON	R position	ON
		Other than R position	OFF
VEHICLE SPEED SIGNAL [ON/OFF]	Ignition switch ON	When vehicle speed is input	ON
		Other than the above	OFF
ILL [ON/OFF]	Ignition switch ON	When lighting switch is ON	ON
		When lighting switch is OFF	OFF
CAMERA SWITCH SIGNAL [ON/OFF]	Ignition switch ON	When camera switch signal is input	ON
		Other than the above	OFF
CAMERA OFF SIGNAL [ON/OFF]	Ignition switch ON	When camera OFF signal is input	ON
		Other than the above	OFF
ITS SW 1 [ON/OFF]	Ignition switch ON	Warning systems switch is ON. (Warning systems ON indicator illuminates.)	ON
		Warning systems switch is OFF. (Warning systems ON indicator OFF.)	OFF
ITS SW 1 IND [ON/OFF]	Ignition switch ON	Warning systems ON indicator illuminates.	ON
		Warning systems ON indicator OFF	OFF
ST ANGLE SENSOR TYPE [Absolute]	Ignition switch ON	—	Absolute
STEERING GEAR RATIO TYPE [TYPE1]	Ignition switch ON	—	TYPE1
STEERING POSITION [LHD]	Ignition switch ON	—	LHD
WASH SW [ON/OFF]	Ignition switch ON	When washer switch signal is input	ON
		Other than the above	OFF
REAR CAMERA IMAGE SIGNAL [OK/NG]	Ignition switch ON	When rear camera image signal input status is normal	OK
		When rear view camera image signal input status is not normal	NG
R-CAMERA COMM STATUS [OK/NG]	Ignition switch ON	When communication status with rear camera is normal	OK
		When communication status with rear camera is not normal	NG
TURN SIGNAL [ON/OFF]	Ignition switch ON	Turn signal is ON	ON
		Turn signal is OFF	OFF
ITS SW 2 [No setting]	Ignition switch ON	—	No setting

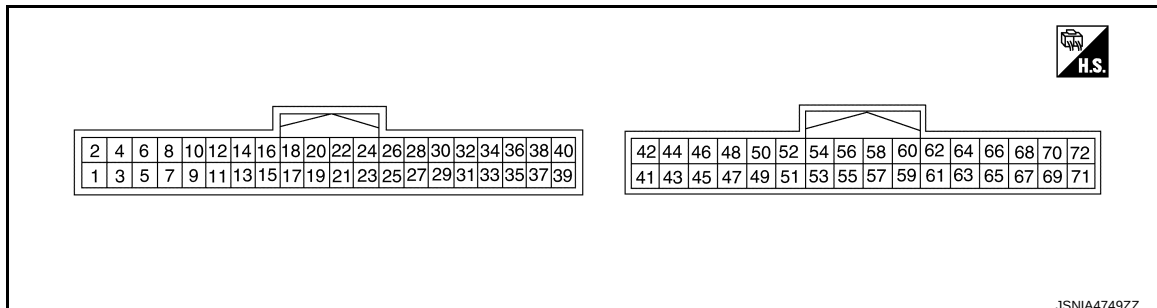
CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW]

Monitor Item	Condition		Value/Status
PUMP COMM STATUS [OK/NG]	Ignition switch ON	When communication signal is input	OK
		Other than the above	NG
ITS SW 2 IND [No setting]	Ignition switch ON	—	No setting

TERMINAL LAYOUT



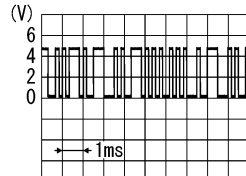
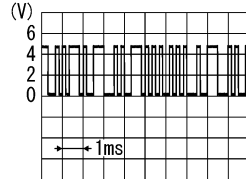
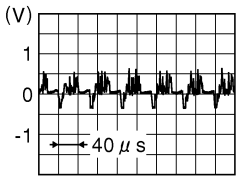
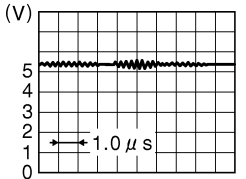
PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
1 (B)	Ground	Ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
2 (V)	1 (B)	Battery power supply	Input	Ignition switch OFF	—	9.5 - 16 V	Battery voltage
3 (G)	1 (B)	Ignition signal	Input	Ignition switch ON	—	9.5 - 16 V	Battery voltage
7 (R)	Ground	BSW indicator LH	Output	Ignition switch ON	Approx. 2 sec. after ignition switch OFF ⇒ ON (bulb check).	5.5 - 16 V	6.0 V
8 (G)	Ground	BSW indicator RH	Output	Ignition switch ON	Approx. 2 sec. after ignition switch OFF ⇒ ON (bulb check)	5.5 - 16 V	6.0 V
15 (BR)	Ground	Warning systems ON indicator	Output	Ignition switch ON	Warning systems ON indi- cator ON	0 - 0.1 V	0 V
					Warning systems ON indi- cator OFF	9.5 - 16 V	12.0 V
17 (GR)	Ground	Warning systems switch	Input	Ignition switch ON	When warning systems switch is not pressed	9.5 - 16 V	12.0 V
					When warning systems switch is pressed	0 - 0.1 V	0 V
25 (R)	1 (B)	Reverse signal	Input	Ignition switch ON	R position	9.5 - 16 V	12.0 V
					Other than R position	0 - 0.1 V	0 V
27 (L)	—	CAN-H	Input/ Output	—	—	—	—
28 (P)	—	CAN-L	Input/ Output	—	—	—	—

CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW]

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
36 (W)	Ground	Communication signal (CAMERA → PUMP)	Output	Ignition switch ON	—	Input the waveform synchronized with the communication status.  PKIB5039J	
37 (SB)	Ground	COMM GND	—	Ignition switch ON	—	0 - 0.1 V	0 V
38 (V)	Ground	Communication signal (PUMP → CAMERA)	Input	Ignition switch ON	—	Input the waveform synchronized with the communication status.  PKIB5039J	
40 (R)	Ground	Washer level switch	Input	Ignition switch ON	Washer is empty	0 - 0.1 V	0 V
					Washer is not empty	9.5 - 16 V	12 V
47 (B)	48	Camera image signal	Output	Ignition switch ON	—	Input the waveform synchronized with the camera image signal.  JSNIA0834GB	
48	Ground	Camera image signal ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
49 (W)	52 (R/W)	Rear camera commu- nication signal	Input/ Output	Ignition switch ON	—	Input the waveform synchronized with the communication status.  JSNIA0836GB	
50 (R/L)	52 (R/W)	Rear camera power supply	Output	Ignition switch ON	—	5.0 - 9.0 V	6.0 V
52 (R/W)	Ground	Rear camera ground	—	Ignition switch ON	—	0 - 0.1 V	0 V

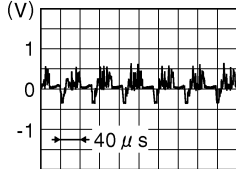
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CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW]

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
53 (B)	54	Rear camera image signal (+)	Input	Ignition switch ON	—	Input the waveform synchronized with the camera image signal.  JSNIA0834GB	
54	Ground	Rear camera image signal (—)	—	Ignition switch ON	—	0 - 0.1 V	0 V

Fail-Safe

INFOID:000000009723218

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
C1A03 VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the camera control unit via CAN communication, are inconsistent	• LDW system is cancel • BSW system is cancel
C1A04 ABS/TCS/VDC CIRC	If a malfunction occurs in the VDC/TCS/ABS system	• LDW system is cancel • BSW system is cancel
C1A39 STRG SEN CIR	If the steering angle sensor is malfunction	• LDW system is cancel • BSW system is cancel
U0122 VDC P-RUN DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	• LDW system is cancel • BSW system is cancel
U0416 VDC CHECKSUM DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	• LDW system is cancel • BSW system is cancel
U0428 ST ANGLE SENSOR CALIBRATION	Neutral position adjustment of steering angle sensor is not complete.	• Predicted course line is not displayed. • MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.

CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW]

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1000 CAN COMM CIRCUIT	When camera control unit cannot transmit/receive CAN communication signal continuously for 2 seconds or more.	The following functions are stopped • When communication of steering angle sensor signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Front tire angle display is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed. • When communication of vehicle signal, wheel speed sensor signal, and shift signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed • When communication of sonar signal is not normal - Predicted course line is not displayed.
U1010 CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U111A REAR CAMERA IMAGE SIGNAL	No-signal status of rear camera image signal is continued for 500 ms or more while ignition switch is ON. NOTE: Current malfunction is displayed only and is not saved.	• Camera image is not displayed (Gray screen display). • LDW system is stopped. • BSW system is stopped.
U1232 ST ANGLE SEN CALIB	Neutral position adjustment of steering angle sensor is performed. NG signal from steering angle sensor is received.	• Predicted course line is not displayed. • MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped. • Tire icon is stopped. • Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed.
U1305 CONFIG UNFINISH	The vehicle setting of camera control unit is incomplete. NOTE: Current malfunction is displayed only and is not saved.	Operation is according to the vehicle setting value as default value.
U1308 R-CAMERA (R&L) CALIB JDG-MNT	Camera image calibration is incomplete	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.

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CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW]

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1309 PUMP INPUT CURRENT JUDGE	Camera control unit detects the value of current from pump control unit is incorrect	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U130B RR CAMERA COMM ERROR	Camera control unit receives the incorrect communication signal from rear view camera	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U1310 PUMP ECU JUDGE	If the pump control unit is malfunction	• LDW system is stopped. • BSW system is stopped.
Other	When camera control unit is not normal.	Switch to camera screen is not allowed.
	When communication between camera control unit and each camera is not normal.	On applicable camera screen  marking (Red) is displayed.
	When communication line between camera control unit and each camera image line are affected by electromagnetic noises.	On applicable camera image screen,  display (Blue) is displayed.

DTC Inspection Priority Chart

INFOID:000000009723219

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	• U1232: ST ANGLE SEN CALIB • U1305: CONFIG UNFINISH
3	• U0428: ST ANGLE SENSOR CALIBRATION
4	• U130B: RR CAMERA COMM ERROR
5	• U1308: R-CAMERA (R&L) CALIB JDGMNT
6	• C1A04: ABS/TCS/VDC CIRC • C1A39: STRG SEN CIR • U0122: VDC P-RUN DIAGNOSIS • U0416: VDC CHECKSUM DIAGNOSIS • U111A: REAR CAMERA IMAGE SIGNAL • U1309: PUMP INPUT CURRENT JUDGE • U1310: PUMP ECU JUDGE
7	• C1A03: VHCL SPEED SE CIRC

DTC Index

INFOID:000000009723220

DTC	CONSULT display	Warning lamp		"MOD" (Moving Object Detection) icon	Reference
		Lane departure warning lamp	BSW warning lamp		
C1A03	VHCL SPEED SE CIRC	ON	ON	Orange	DAS-58, "DTC Logic"
C1A04	ABS/TCS/VDC CIRC	ON	ON	Orange	DAS-59, "DTC Logic"
C1A39	STRG SEN CIR	ON	ON	Orange	DAS-60, "DTC Logic"
U0122	VDC P-RUN DIAGNOSIS	ON	ON	Orange	DAS-61, "DTC Logic"
U0416	VDC CHECKSUM DIAGNOSIS	ON	ON	Orange	DAS-62, "DTC Logic"
U0428	ST ANGLE SENSOR CALIBRATION	ON	ON	Orange	AV-378, "DTC Logic"

CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW]

DTC	CONSULT display	Warning lamp		"MOD" (Moving Object Detection) icon	Reference
		Lane departure warning lamp	BSW warning lamp		
U1000	CAN COMM CIRCUIT	ON	ON	Orange	AV-379, "CAMERA CONTROL UNIT : DTC Logic"
U1010	CONTROL UNIT (CAN)	ON	ON	Orange	AV-381, "CAMERA CONTROL UNIT : DTC Logic"
U111A	REAR CAMERA IMAGE SIGNAL	ON	ON	Orange	AV-382, "DTC Logic"
U1232	ST ANGLE SEN CALIB	ON	ON	Orange	AV-406, "CAMERA CONTROL UNIT : DTC Logic"
U1305	CONFIG UNFINISH	ON	ON	Orange	AV-415, "DTC Logic"
U1308	R-CAMERA (R&L) CALIB JDGMNT	ON	ON	Orange	DAS-70, "DTC Logic"
U1309	PUMP INPUT CURRENT JUDGE	ON	ON	Blue	DAS-71, "DTC Logic"
U130B	RR CAMERA COMM ERROR	ON	ON	Orange	AV-417, "DTC Logic"
U1310	PUMP ECU JUDGE	ON	ON	Blue	DAS-73, "DTC Logic"

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PUMP CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

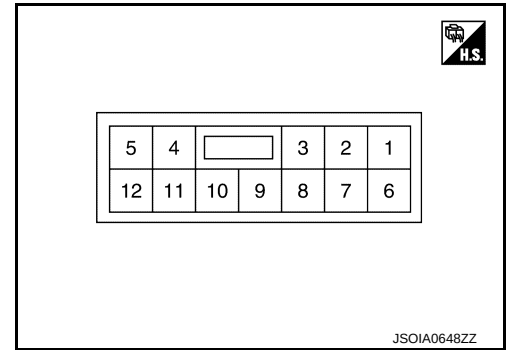
[LDW]

PUMP CONTROL UNIT

Reference Value

INFOID:000000009723221

TERMINAL LAYOUT



PHYSICAL VALUES

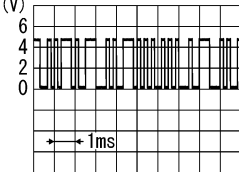
Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
1 (W)	2 (B)	Air pump power supply	Output	Ignition switch ON	Air pump operated	9.5 - 16 V	12 V
					Other than above	0 - 0.1 V	0 V
2 (B)	Ground	Air pump ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
3 (L)	5 (B)	Rear view camera washer relay 2	Output	Ignition switch ON	Rear view camera washer operated	0 - 0.1 V	0 V
					Other than above	9.5 - 16 V	12 V
4 (R)	5 (B)	Rear view camera washer relay 1	Output	Ignition switch ON	Rear view camera washer operated	0 - 0.1 V	0 V
					Other than above	9.5 - 16 V	0 V
5 (B)	Ground	Ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
6 (SB)	—	Communication line ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
7 (V)	—	Communication line (PUMP → CAMERA)	Output	Ignition switch ON	—	Input the waveform synchronized with the communication status. 	

PKIB5039J

PUMP CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[LDW]

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
8 (W)	—	Communication line (CAMERA → PUMP)	Input	Ignition switch ON	—	Input the waveform synchronized with the communication status.  PKIB5039J	
9 (G)	5 (B)	Rear washer status	input	Ignition switch ON	Rear washer switch is ON.	0 - 0.1 V	0 V
					Rear washer switch is OFF.	9.5 - 16 V	12 V
10 (BR)	5 (B)	Rear washer switch input	Input	Ignition switch ON	Rear washer switch is ON.	9.5 - 16 V	12 V
					Rear washer switch is OFF.	0 - 0.1 V	0 V
12 (Y)	5 (B)	Ignition power supply	Input	Ignition switch ON	—	9.5 - 16 V	12 V

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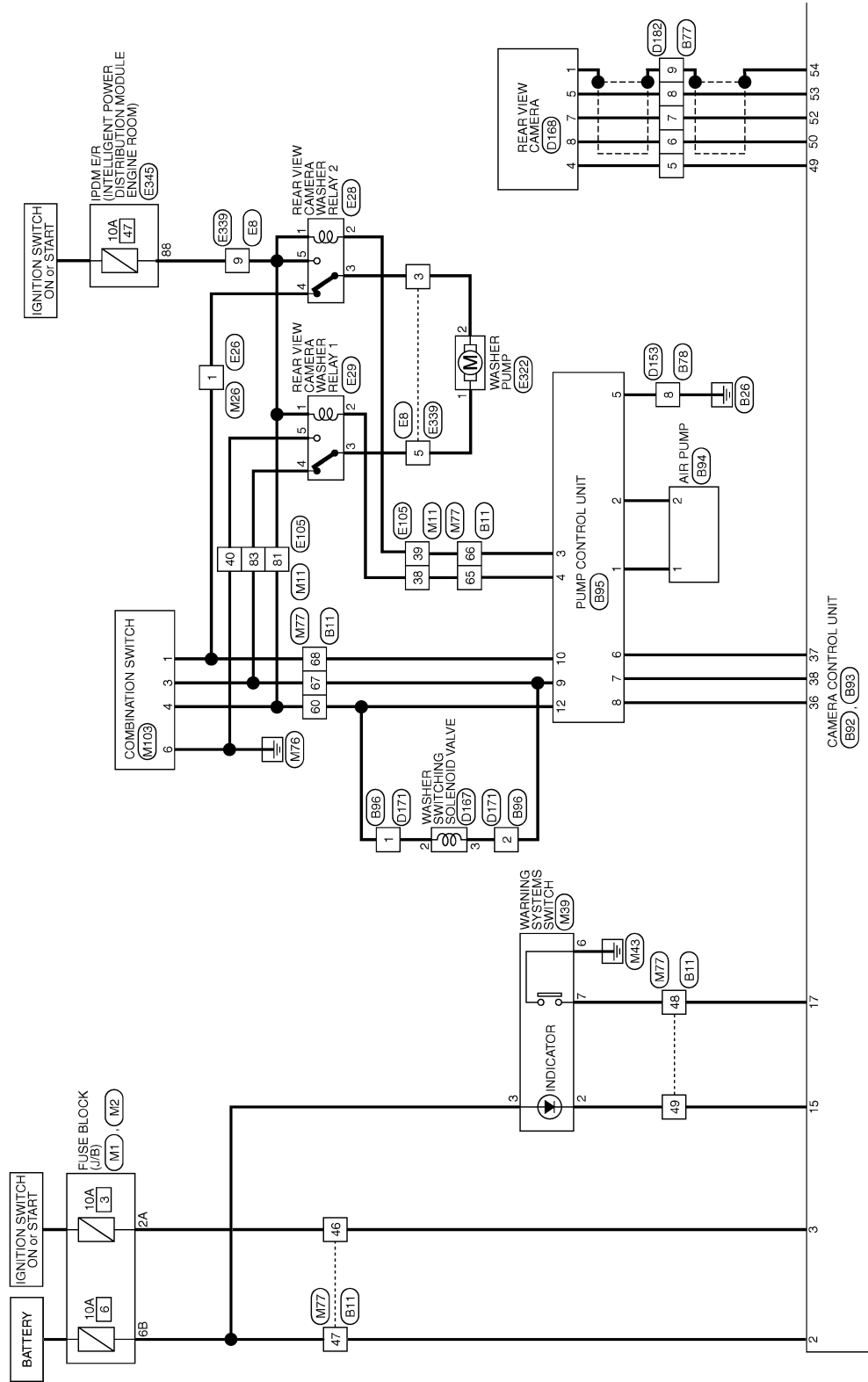
WIRING DIAGRAM

DRIVER ASSISTANCE SYSTEMS

Wiring Diagram

INFOID:000000009723222

DRIVER ASSISTANCE SYSTEMS



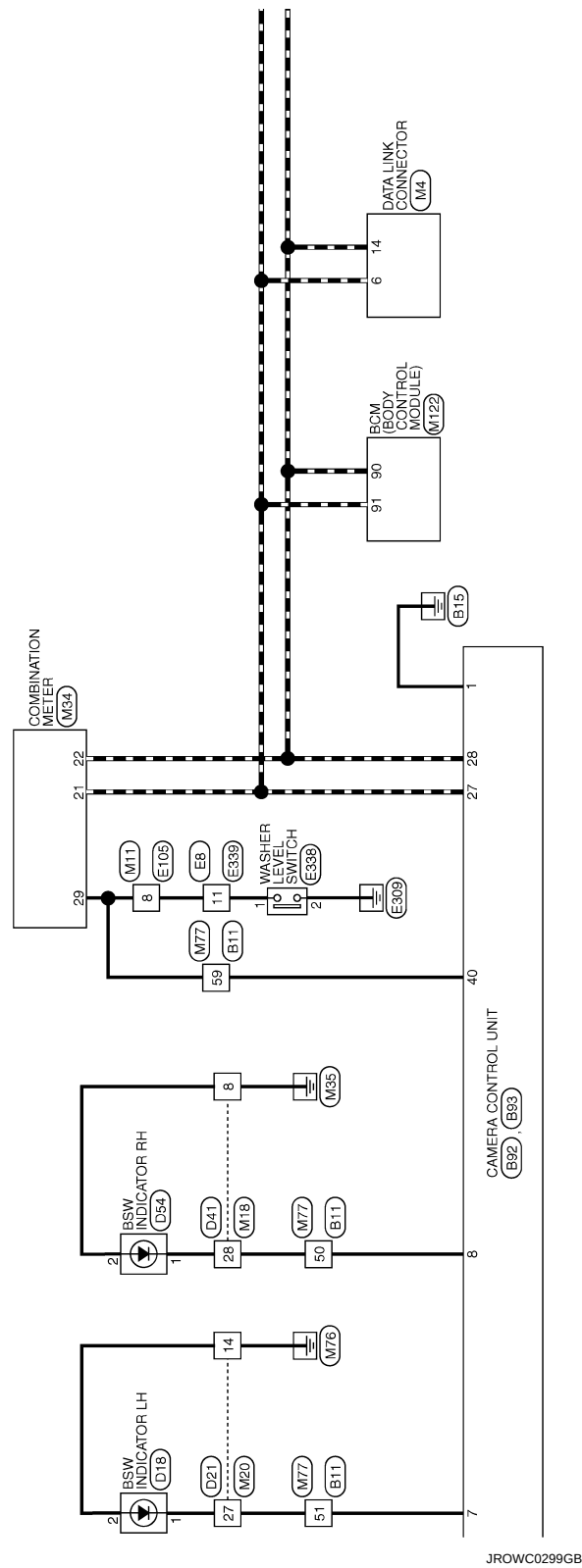
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DRIVER ASSISTANCE SYSTEMS

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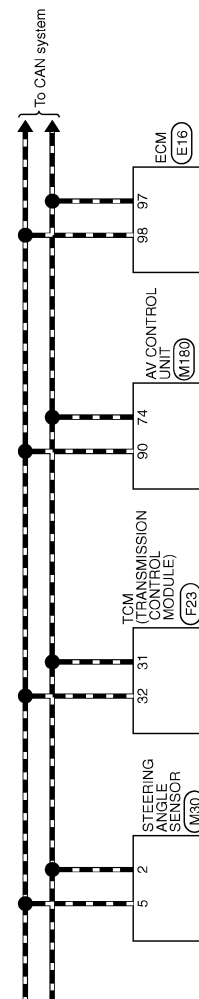
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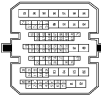
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DRIVER ASSISTANCE SYSTEMS

Connector No.	B11
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS19



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	
2	R	
3	R/L	
4	R/W	
5	P	
6	V	
7	SHIELD	
8	BR/L	
9	Y/G	
10	Y/L	
11	W/L	
12	L	
13	BR	
14	SB	
15	GR	
16	SB	
17	R	
18	R	
19	P	
20	LG	
21	W	
22	Y	
23	GR	
24	Y	
25	R	
26	P	
27	BR	
28	SB	
29	SHIELD	
30	LG	
31	Y	
32	R	
33	GR	
34	SB	
35	SHIELD	
36	LG	
37	Y	
38	R	
39	GR	
40	SB	
41	SHIELD	

33	BR	-
34	G	-
35	G	-
36	SB	-
37	R	-
38	G	-
39	GR	-
40	Y	-
41	G	-
42	BR	-
43	G	-
44	V	-
45	R/L	-
46	BR	-
47	R	-
48	GR	-
49	SB	-
50	G	-
51	R	-
52	B	-
53	LG	-
54	P	-
55	L	-
56	R	-
57	SHIELD	-
58	BR/L	-
59	Y/G	-
60	Y/L	-
61	W/L	-
62	L	-
63	BR	-
64	SB	-
65	GR	-
66	SB	-
67	R	-
68	GR	-
69	SB	-
70	G	-
71	V	-
72	R/L	-
73	BR	-
74	G	-
75	R	-
76	GR	-
77	G	-
78	SB	-
79	SHIELD	-
80	LG	-
81	Y	-
82	R	-
83	GR	-



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

Connector No.	B77
Connector Name	WIRE TO WIRE
Connector Type	TK12MW

Connector No.	B78
Connector Name	WIRE TO WIRE
Connector Type	NIS1MW-CS



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

Terminal No.	Color Of Wire	Signal Name [Specification]
1	LG	
2	SB	
3	R	
4	V	
5	B	
6	L	
7	R	
8	P	
9	W	
10	GR	
11	G	
12	Y	
13	BR	
14	SB	
15	GR	
16	BR	

1	LG	-
2	P	-
3	L	-
4	Y	-
5	W	-
6	R/L	-
7	R/W	-
8	B	-
9	SHIELD	-
10	W	-
11	V	-
12	Y	-

Connector No.	B82
Connector Name	CAMERA CONTROL UNIT
Connector Type	TH40FW-NH



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

Terminal No.	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1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DRIVER ASSISTANCE SYSTEMS

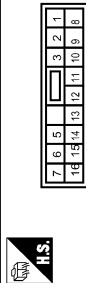
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17	GR	-
18	GR	-
19	BR	-
20	LG	-
24	LG	-
25	W	-
26	O	-
28	G	-
29	V	-
30	SB	-
31	BR	-
32	R	-
33	G	-
34	Y	-
35	L	-

Connector No.	D54
Connector Name	BSW INDICATOR RH
Connector Type	THDMMW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	INDICATOR R
4	B	GROUND

Connector No.	D153
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
1	LG	-
2	W	-
3	V	-
5	R	-
6	V	-
8	B	-
9	L	-
10	R	-
11	O	-
12	W	-
13	GR	-
14	G	-
15	O	-
16	BR	-

Connector No.	D167
Connector Name	WASHER SWITCHING SOLENOID VALVE
Connector Type	THQ4FW-AH



Terminal No.	Color Of Wire	Signal Name [Specification]
2	Y	-
3	G	-

Connector No.	D168
Connector Name	REAR VIEW CAMERA
Connector Type	THS8MW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	VIDEO-
5	B	CONTROL
7	G	VIDEO+
8	R	POWER

Connector No.	D171
Connector Name	WIRE TO WIRE
Connector Type	TK02FW



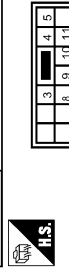
Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	Y	-

Connector No.	D182
Connector Name	WIRE TO WIRE
Connector Type	TK12FW



Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	-
2	GR	-
3	G	-
4	O	-
5	W	-
6	R	-
7	G	-
8	B	-
9	SHIELD	-
10	LG	-
11	O	-
12	G	-

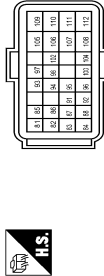
Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Type	NS12MBR-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
3	GR	-
5	SB	-
8	G	-
9	W	-
10	Y	-
11	G	-

DRIVER ASSISTANCE SYSTEMS

Connector No.	E16
Connector Name	ECM
Connector Type	RH24EB-R28-L-LH



Terminal No.	Color Of Wire	Signal Name [Specification]
81	W	ACCELERATOR PEDAL POSITION SENSOR 1
82	O	ACCELERATOR PEDAL POSITION SENSOR 2
83	BR	SENSOR POWER SUPPLY
84	BR	SENSOR GROUND
85	Y	ASCD STEERING SWITCH
86	SB	EVAP CONTROL SYSTEM PRESSURE SENSOR
87	GR	SENSOR POWER SUPPLY
88	O	DATA LINK CONNECTOR
91	L	SENSOR POWER SUPPLY
92	BR	IGNITION SWITCH
93	BR	ENGINE SPEED OUTPUT SIGNAL
94	GR	FUEL TANK TEMPERATURE SENSOR
95	Y	SENSOR GROUND (CAN-L)
96	P	CAN COMMUNICATION LINE (CAN-L)
98	L	CAN COMMUNICATION LINE (CAN-H)
100	G	SENSOR GROUND
102	R	PNP SIGNAL
104	SB	SENSOR GROUND
105	V	POWER SUPPLY FOR ECM
106	SB	STOP LAMP SWITCH
107	B	ECM GROUND
108	B	ECM GROUND
109	W	EVAP CANISTER VENT CONTROL VALVE
110	G	ASCD BRAKE SWITCH
111	B	ECM GROUND
112	B	ECM GROUND

Connector No.	E28
Connector Name	WIRE TO WIRE
Connector Type	NS32MW-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
2	GR	-
2	Y	-



Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	-
2	L	-
3	GR	-
4	GR	-
5	W	-

Connector No.	E29
Connector Name	REAR VIEW CAMERA WASHER RELAY 1
Connector Type	MS30FB-M2-LC



Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	-
2	R	-
3	O	-
4	O	-
5	B	-

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH70MW-CS10-M3



Terminal No.	Color Of Wire	Signal Name [Specification]
3	Y	-
5	LG	-
6	GR	-
8	G	-
11	P	-
12	L	-
13	O	-
15	BR	-
20	Y	-
21	BR	-
22	P	-
24	L	-
25	O	-
28	SB	-

29	W	-
30	Y	-
38	R	-
39	L	-
40	B	-
47	P	-
48	L	-
49	SB	-
50	GR	-
51	LG	-
52	V	-
53	GR	-
54	BR	-
55	Y	-
58	W	-
60	Y	-
61	BR	-
62	O	-
63	L/O	-
64	SHIELD	-
66	W	-
67	BR	-
68	Y	-
69	SB	-
70	GR	-
71	SB	-
72	Y	-
73	W	-
74	W	-
75	BR	-
76	GR	-
77	O	-
78	V	- [With Pod without navigation system]
78	Y	- [Without Pod and navigation system]
79	Y	- [With navigation system]
80	R	-
81	W	-
82	LG	-
83	O	-

DRIVER ASSISTANCE SYSTEMS

Connector No.	E322
Connector Name	WASHER PUMP
Connector Type	E02FGY-RS



5	4	3	2	1
1	1	1	1	1

Connector No.	E339
Connector Name	WIRE TO WIRE
Connector Type	NS12FBS-CS



5	4	3	2	1
1	1	1	1	1

Connector No.	F23
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	RH4PFB-E23-L-RH



31	32	33	34					37	38	39	40	47	48
				25	26	27	28	29	30			46	
11		13	14	15						19	20		
1	2	3	4	5				7	8	9	10		42

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS08FW-M2



3A	2A	1A
8A	7A	6A

Terminal No.	Color Of Wire	Signal Name [Specification]
1	O	-
2	O	-

Connector No.	E338
Connector Name	WASHER LEVEL SWITCH
Connector Type	Z02FBR



Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	-
2	B	-

Terminal No.	Color Of Wire	Signal Name [Specification]
1	P/B	TRANSMISSION RANGE SWITCH 2
2	P/B	TRANSMISSION RANGE SWITCH 2
3	G/O	TRANSMISSION RANGE SWITCH 2
4	GR	TRANSMISSION RANGE SWITCH 1 (MONITOR)
5	B	GROUND
7	W	SENSOR GROUND
8	G/W	CLOCK (SEL 2)
9	L/R	CHIP SELECT (SEL 1)
10	BR/W	DATA L/O (SEL 3)
11	BR/W	TRANSMISSION RANGE SWITCH 1
13	V	CVT FLUID TEMPERATURE SENSOR
14	R/W	PRIMARY PRESSURE SENSOR
15	V/W	SECONDARY PRESSURE SENSOR
19	G/B	REVERSE LAMP RELAY
20	G/B	STARTER RELAY
21	W/L	WIPER MOTOR
26	V/O	SENSOR POWER
27	R/G	STEP MOTOR D
28	R	STEP MOTOR C
29	O/B	STEP MOTOR B
30	G/R	STEP MOTOR A
31	P	CAN-L
32	L	CAN-H
33	L/G	PRIMARY SPEED SENSOR
34	L/G/R	SECONDARY SPEED SENSOR
37	V/R	LOOK-UP SELECT SOLENOID VALVE
38	L/W	TORQUE CONVERTER CLUTCH SOLENOID VALVE
39	W/B	SECONDARY PRESSURE SOLENOID VALVE
40	R/L	LINE PRESSURE SOLENOID VALVE
41	W	POWER SUPPLY
46	Y	POWER SUPPLY
47	L/R	POWER SUPPLY (MEMORY BACK-UP)
48	Y	POWER SUPPLY

Connector No.	E345
Connector Name	POWER DISTRIBUTION MODULE ENGINE
Connector Type	NS08FW-CS



8A	7A	6A	5A	4A	3A	2A	1A
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Terminal No.	Color Of Wire	Signal Name [Specification]
83	Y	-
84	L	-
86	SB	-
87	GR	-
88	W	-
89	L	-
90	G	-

Terminal No.	Color Of Wire	Signal Name [Specification]
1B	W	-
3B	L	-
4B	G	-
5B	L	-
6B	Y	-
7B	R	-
8B	GR	-

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

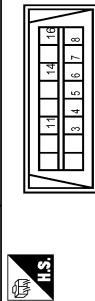


4B	3B	2B	1B
9B	8B	7B	6B

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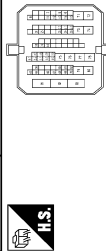
DRIVER ASSISTANCE SYSTEMS

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16W



Terminal No.	Color Of Wire	Signal Name [Specification]
1	LG	-
2	B	-
3	B	-
4	L	-
5	BR	-
6	G	-
7	SB	-
8	P	-
9	Y	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-

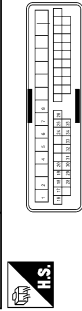
Connector No.	M11
Connector Name	WIRE TO WIRE
Connector Type	TH10PW-GS10-M3



Terminal No.	Color Of Wire	Signal Name [Specification]
1	P	-
2	BR	-
3	O	-
4	G	-
5	SB	-
6	Y	-
7	L	-
8	V	-
9	W	-
10	R	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-

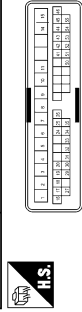
Terminal No.	Color Of Wire	Signal Name [Specification]
20	Y	-
21	BR	-
22	LG	-
23	L	-
24	Y	-
25	BR	-
26	L	-
27	R	-
28	R	-
29	L	-
30	R	-
31	L	-
32	B	-
33	P	-
34	BR	-
35	R	-
36	L	-
37	W	-
38	Y	-
39	BR	-
40	LG	-
41	L	-
42	Y	-
43	BR	-
44	L	-
45	P	-
46	W	-
47	R	-
48	Y	-
49	BR	-
50	LG	-
51	L	-
52	Y	-
53	V	-
54	SB	-
55	P	-
56	LG	-
57	L	-
58	Y	-
59	BR	-
60	LG	-
61	GR	-
62	BR	-
63	V	-
64	SHIELD	-
65	W	-
66	R	-
67	R	-
68	P	-
69	G	-
70	G	-
71	Y	-
72	BR	-
73	L	-
74	W	-
75	BR	-
76	R	-
77	G	-
78	Y	-
79	G	-
80	R	-
81	W	-
82	W	-
83	BR	-

Connector No.	M18
Connector Name	WIRE TO WIRE
Connector Type	TH40MW-GS15



Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	-
2	G	-
3	W	-
4	L	-
5	B	-
6	BR	-
7	G	-
8	B	-
9	W	-
10	L	-
11	G	-
12	B	-
13	GR	-
14	Y	-
15	P	-
16	R	-
17	Y	-
18	Y	-
19	Y	-
20	SB	-
21	P	-
22	V	-
23	W	-
24	Y	-
25	P	-
26	BR	-
27	R	-
28	L	-
29	SB	-
30	W	-
31	Y	-
32	P	-
33	Y	-
34	BR	-
35	R	-

Connector No.	M20
Connector Name	WIRE TO WIRE
Connector Type	TH40MW-GS15



Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	-
2	G	-
3	W	-
4	B	-
5	G	-
6	L	-
7	BR	-
8	W	-
9	SB	-
10	L	-
11	G	-
12	B	-
13	GR	-
14	Y	-
15	Y	-
16	Y	-
17	Y	-
18	W	-
19	Y	-
20	SB	-
21	P	-
22	V	-
23	W	-
24	R	-
25	R	-
26	L	-
27	SB	-
28	W	-
29	Y	-
30	BR	-
31	R	-
32	Y	-
33	Y	-
34	Y	-
35	P	-

JROWC1667GB

DRIVER ASSISTANCE SYSTEMS

16	P	-
50	V	-
52	RG	- [With automatic drive positioner]
52	GR	- [Without automatic drive positioner]
52	R	- [With automatic drive positioner]
53	L	- [Without automatic drive positioner]
53	V	- [With automatic drive positioner]
54	G	- [Without automatic drive positioner]
54	LG	- [With automatic drive positioner]
55	GR	- [Without automatic drive positioner]
55	SB	- [With automatic drive positioner]

Connector No.	M26
Connector Name	WIRE TO WIRE
Connector Type	NSDFW-CS



Terminal No.	Wire	Signal Name [Specification]
1	G	-
2	Y	-

Connector No.	M30
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH8DFW-NH



Terminal No.	Wire	Signal Name [Specification]
1	B	-
2	P	-
4	G	-
5	L	-

Connector No.	M24
Connector Name	COMBINATION METER
Connector Type	TH4DFW-NH



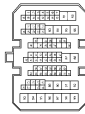
Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	BATTERY POWER SUPPLY
2	G	IGNITION SWITCH SIGNAL
3	B	GROUND
4	B	GROUND
5	SB	ILLUMINATION CONTROL SIGNAL
8	SB	TRIP RESET SIGNAL
9	W	SW ILL POWER
10	LG	METER CONTROL SWITCH GROUND
11	L	ENTER SWITCH SIGNAL
12	R	SELECT SWITCH SIGNAL
13	V	ILLUMINATION CONTROL SWITCH SIGNAL (-)
14	GR	ILLUMINATION CONTROL SWITCH SIGNAL (-)
15	BR	AIR BAG SIGNAL
18	L	AMBIENT SENSOR SIGNAL
19	P	AMBIENT SENSOR POWER
20	Y	AMBIENT SENSOR GROUND
21	L	CAN-L
22	P	GROUND
23	B	FUEL LEVEL SENSOR GROUND
24	W	ALTERNATOR SIGNAL
25	BR	PARKING BRAKE SWITCH SIGNAL
26	G	WASHER FLUID LEVEL SWITCH SIGNAL
27	V	WASHER LEVEL SWITCH SIGNAL
29	R	VEHICLE SPEED SIGNAL (2-PULSE)
30	P	VEHICLE SPEED SIGNAL (8-PULSE)
31	V	OVERDRIVE CONTROL SWITCH SIGNAL
32	LG	FUEL LEVEL SENSOR SIGNAL
34	G	SEAT BELT BUOGE SWITCH SIGNAL (DRIVER SIDE)
35	SB	SEAT BELT BUOGE SWITCH SIGNAL (PASSENGER SIDE)
36	R	SEAT BELT BUOGE SWITCH SIGNAL (PASSENGER SIDE)

Connector No.	M39
Connector Name	WARNING SYSTEMS SWITCH
Connector Type	TK08EGY



Terminal No.	Color Of Wire	Signal Name [Specification]
2	BR	-
3	BR	-
4	SB	-
5	R	-
6	B	-
7	GR	-

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH8DFW-CS19



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	-
2	B	-
3	W	-
4	R	-
6	W	-
7	G	-
8	SHIELD	-
9	SHIELD	-
10	R	-
11	G	-
12	B	-
13	P	-
14	R	-
15	SB	-

16	R	-
17	V	-
18	P	-
19	P	-
20	LG	-
21	Y	-
22	BR	-
23	LG	-
24	SB	-
25	Y	-
27	Y	-
28	R	-
30	Y	-
31	W	-
32	BR	-
33	SHIELD	-
34	B	-
36	G	-
37	Y	-
40	BR	-
41	LG	-
42	SB	-
46	G	-
47	LG	-
47	SB	-
47	Y	-
48	GR	-
48	SHIELD	-
49	BR	-
49	SHIELD	-
50	LG	-
50	R	-
51	R	-
51	V	-
52	B	-
53	BR	-
54	B	-
55	G	-
56	P	-
57	L	-
58	SB	-
59	R	-
59	SHIELD	-
60	B	-
60	Y	-
61	R	-
62	W	-
63	LG	-
64	Y	-
65	R	-

DRIVER ASSISTANCE SYSTEMS

85	V	-
86	Y	-
87	G	-
88	W	-
89	SHIELD	-
90	L	-
91	P	-
92	LG	-
93	Y	-
94	R	-
95	P	-
96	L	-
97	BR	-
98	S	-
99	W	-
100	L	-
101	GR	-
102	W	-
103	Y	-
104	R	-
105	P	-
106	L	-
107	BR	-
108	S	-
109	W	-
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111	GR	-
112	W	-
113	Y	-
114	R	-
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143	Y	-
144	R	-
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568	S	-
569	W	-
570	L	-
571	GR	-
572	W	-
573	Y	-
574	R	-
575	P	-
576	L	-
577	BR	-
578	S	-
579	W	-
580	L	-
581	GR	-
582	W	

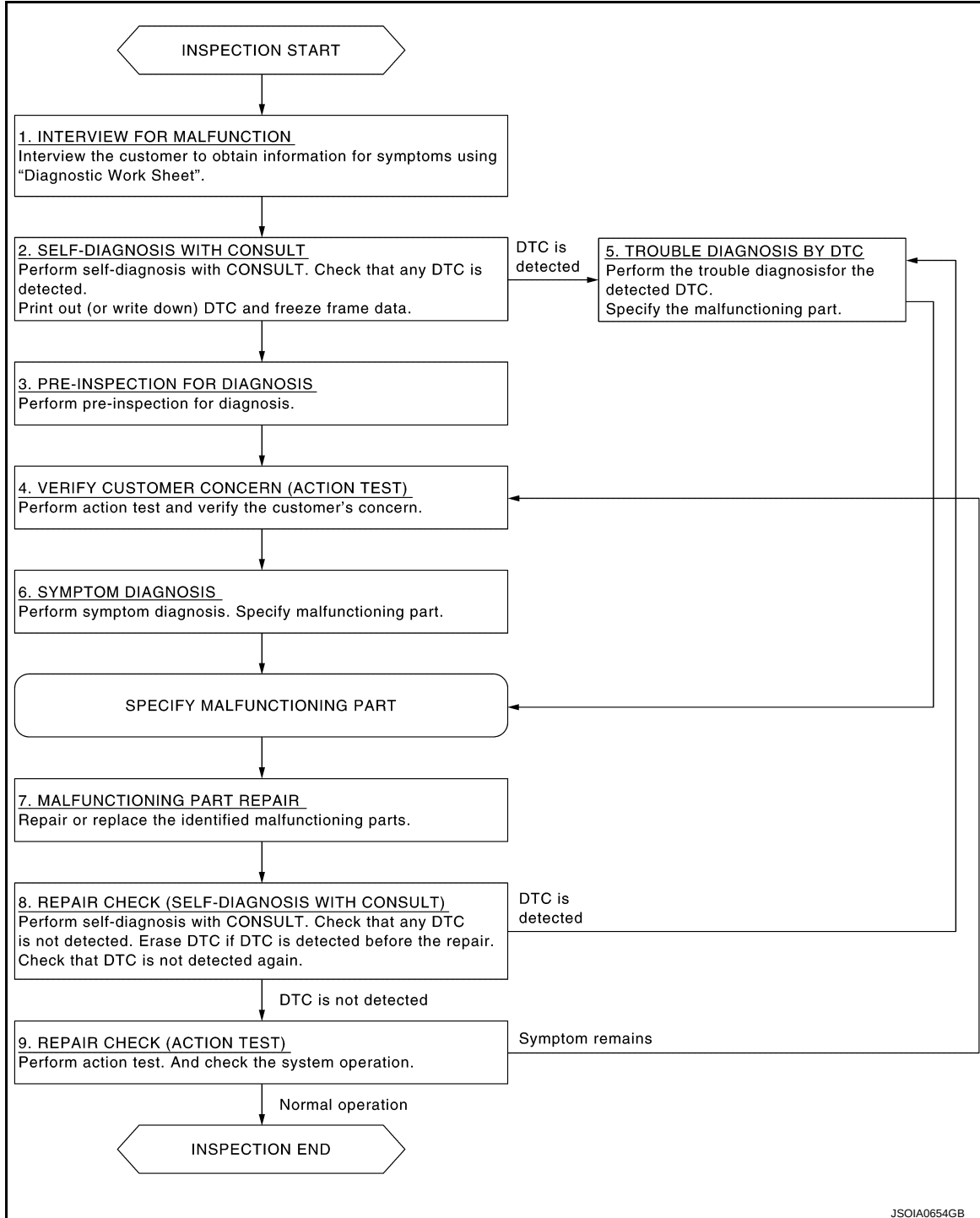
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009723223

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW FOR MALFUNCTION

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

NOTE:

DIAGNOSIS AND REPAIR WORK FLOW

[LDW]

< BASIC INSPECTION >

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

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of “AVM”.
3. When DTC is detected, follow the instructions below:
 - Record DTC and Freeze Frame Data.

Is any DTC detected?

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

3.PRE-INSPECTION FOR DIAGNOSIS

Perform pre-inspection for diagnosis. Refer to [DAS-47. "Inspection Procedure"](#).

>> GO TO 4.

4.ACTION TEST

Perform LDW system action test to check the operation status. Refer to [DAS-49. "Description"](#).

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC. Specify a malfunctioning part. Refer to [DAS-30. "DTC Index"](#) (AVM).

>> GO TO 8.

6.SYMPTOM DIAGNOSIS

Perform symptom diagnosis. Specify malfunctioning part. Refer to [DAS-87. "Symptom Table"](#).

>> GO TO 7.

7.MALFUNCTION PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 8.

8.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

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

Is any DTC detected?

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

9.REPAIR CHECK (ACTION TEST)

Perform LDW system action test. Also check the system operation.

Does it operate normally?

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

PRE-INSPECTION FOR DIAGNOSIS

< BASIC INSPECTION >

[LDW]

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

INFOID:000000009723224

1.CHECK REAR VIEW CAMERA LENS

Are rear view camera lens contaminated with foreign materials?

YES >> Clean rear view camera lens.

NO >> GO TO 2.

2.CHECK REAR VIEW CAMERA INSTALLATION CONDITION

Check rear view camera installation condition (e.g. position, looseness, bent in back door).

Is it properly installed?

YES >> INSPECTION END

NO >> Install rear view camera properly, and perform rear view camera calibration. Refer to [DAS-53](#),
["Description"](#).

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DAS

REAR VIEW CAMERA WASHER/AIR BLOWER FUNCTION INSPECTION

< BASIC INSPECTION >

[LDW]

REAR VIEW CAMERA WASHER/AIR BLOWER FUNCTION INSPECTION

Inspection Procedure

INFOID:000000009723225

1. CHECK REAR VIEW CAMERA WASHER/AIR BLOWER FUNCTION

1. Start the engine.
2. Select the ACTIVE TEST item "AIR&WASH ACTIVE" of "AVM" with CONSULT.

NOTE:

Before function check, perform the following items:

- Fill with washer fluid.
- Perform ACTIVE TEST item "WASH ACTIVE" of "AVM" with CONSULT for 4 seconds.

3. With operating the test item, check the operation.

Is it properly operated?

Washer fluid ejects 2 or 3 times. (Normal function)>>INSPECTION END.

Washer fluid ejects 4 times or more.>>Properly install or replace air tube.

Washer fluid ejects only once>> Properly install or replace air tube.

Washer fluid does not eject>>Properly install washer tube or replace washer tube and check valve.

ACTION TEST

Description

INFOID:000000009723226

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

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

Fully understand the following items well before the road test;

- Precautions: Refer to [DAS-6, "FOR USA AND CANADA : Precaution for LDW System Service"](#).
- System description for LDW: Refer to [DAS-12, "System Description"](#).
- Handling precaution: Refer to [DAS-20, "Precautions for Lane Departure Warning"](#).

Inspection Procedure

INFOID:000000009723227

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

Fully understand the following items well before the road test;

- Precautions: Refer to [DAS-6, "FOR USA AND CANADA : Precaution for LDW System Service"](#).
- System description for LDW: Refer to [DAS-12, "System Description"](#).
- Handling precaution: Refer to [DAS-20, "Precautions for Lane Departure Warning"](#).

1.CHECK LDW SYSTEM SETTING

1. Start the engine.
2. Check that the LDW system setting can be enabled/disabled on the navigation screen.
3. Turn OFF the ignition switch and wait for 30 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 2.

2.ACTION TEST FOR LDW

1. Enable the setting of the LDW system on the navigation screen.
2. Turn warning systems switch ON (warning systems ON indicator is ON).
3. Check the LDW operation according to the following table.

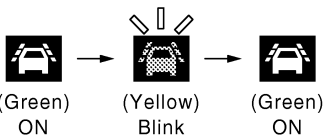
Vehicle condition/ Driver's operation		Action	Warning sys-tems ON indi-cator	Indication on the combination meter	Buzzer
Less than Ap-prox. 60 km/h (40 MPH)	Close to lane marker	No action	ON	 (Green) ON JPOIA0021GB	—

DAS

ACTION TEST

< BASIC INSPECTION >

[LDW]

Vehicle condition/ Driver's operation		Action	Warning systems ON indicator	Indication on the combination meter	Buzzer
Approx. 70 km/h (45 MPH) or more	Close to lane marker	Warning - Buzzer sounds - Warning lamp blinks	ON	 JPOIA0022GB	Short continuous beeps
	- Close to lane marker - Turn signal ON (Deviate side)	No action	ON	 JPOIA0021GB	—

NOTE:

After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-12. "System Description"](#).

>> INSPECTION END

ADDITIONAL SERVICE WHEN REPLACING CAMERA CONTROL UNIT

< BASIC INSPECTION >

[LDW]

ADDITIONAL SERVICE WHEN REPLACING CAMERA CONTROL UNIT

Description

INFOID:000000009723228

- Always perform the camera control unit configuration after replacing the camera control unit.
- Always perform the rear view camera calibration after removing and installing or replacing the rear view camera.
- Always perform the rear view camera calibration after replacing the camera control unit.

CAUTION:

The system does not operate normally unless the rear view camera calibration is performed. Always perform it.

Work Procedure

INFOID:000000009723229

1. CAMERA CONTROL UNIT CONFIGURATION

Perform the camera control unit configuration with CONSULT. Refer to [DAS-52, "Description"](#).

>> GO TO 2.

2. REAR VIEW CAMERA CALIBRATION

Perform the rear view camera calibration with CONSULT. Refer to [DAS-53, "Work Procedure \(Preparation\)"](#).

>> GO TO 3.

3. PERFORM SELF-DIAGNOSIS

Perform the self-diagnosis of camera control unit with CONSULT (AVM). Check if any DTC is detected.

Is any DTC detected?

- YES >> Perform the trouble diagnosis for the detected DTC. Refer to [DAS-30, "DTC Index"](#).
- NO >> GO TO 4.

4. LDW SYSTEM ACTION TEST

1. Perform the LDW system action test. Refer to [DAS-49, "Description"](#).
2. Check that the LDW system operates normally.

>> WORK END

DAS

CONFIGURATION (CAMERA CONTROL UNIT)

< BASIC INSPECTION >

[LDW]

CONFIGURATION (CAMERA CONTROL UNIT)

Description

INFOID:000000009723230

- Since vehicle specifications are not included in the camera control unit after replacement, it is required to write vehicle specifications with CONSULT.
- Configuration has three functions as follows.

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

Work Procedure

INFOID:000000009723231

1.SAVING VEHICLE SPECIFICATION

ⒶCONSULT Configuration

Perform "Before Replace ECU", and save the current vehicle specification in CONSULT.

>> GO TO 2.

2.REPLACE CAMERA CONTROL UNIT

Replace camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

>> GO TO 3.

3.WRITE VEHICLE SPECIFICATION

ⒶCONSULT Configuration

Write vehicle specification into camera control unit.

To write vehicle specification stored in CONSULT into the camera control unit>>GO TO 4.

To write vehicle specification into the camera control unit by hand>>GO TO 5.

4.WRITE STORED DATA

ⒶCONSULT Configuration

Select "After Replace ECU" in "Read/Write Configuration." Write data stored in CONSULT with the "Before Replace ECU" function into the camera control unit.

>> GO TO 6.

5.MANUALLY WRITE VEHICLE SPECIFICATION

ⒶCONSULT Configuration

Perform "Manual Configuration." to write vehicle specification into the camera control unit.

NOTE:

If selection items are not displayed on the CONSULT screen, touch "NEXT".

>> GO TO 6.

6.OPERATION CHECK

Check that the operation of the camera control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> WORK END

CALIBRATING CAMERA IMAGE (REAR VIEW CAMERA)

< BASIC INSPECTION >

[LDW]

CALIBRATING CAMERA IMAGE (REAR VIEW CAMERA)

Description

INFOID:000000009723232

- Always perform the rear view camera calibration after removing and installing or replacing the rear view camera.
- Always perform the rear view camera calibration after replacing the camera control unit.

CAUTION:

- **Place the vehicle on level ground when the calibration is operated.**
- **Follow the CONSULT when performing the calibration. (Rear view camera calibration cannot be operated without CONSULT.)**

Work Procedure (Preparation)

INFOID:000000009723233

1.PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of the camera control unit with CONSULT (AVM).

Is any DTC detected?

Except "U1308">>Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to [DAS-30, "DTC Index"](#).

"U1308" or no DTC>>GO TO 2.

2.PREPARATION BEFORE REAR VIEW CAMERA CALIBRATION

1. Perform pre-inspection for diagnosis. Refer to [DAS-47, "Inspection Procedure"](#).
2. Adjust the tire pressure to the specified pressure value.
3. Maintain no-load in vehicle.
4. Check if coolant and engine oil are filled up to correct level and fuel tank is full.
5. Shift the selector lever to "P" position and release the parking brake.
6. Clean the rear view camera.

>> GO TO 3.

3.PREPARATION OF CALIBRATION TARGET MARK

1. Prepare six sheets of white paper and black paper, respectively, with dimensions of 200 mm (7.87 in) × 200 mm (7.87 in) to create a left target, right target, and center target.

NOTE:

Correct the magnification of print and print the target mark sample in the service manual on the black paper. Refer to [DAS-57, "Work Procedure \(Target Mark Sample\)"](#).

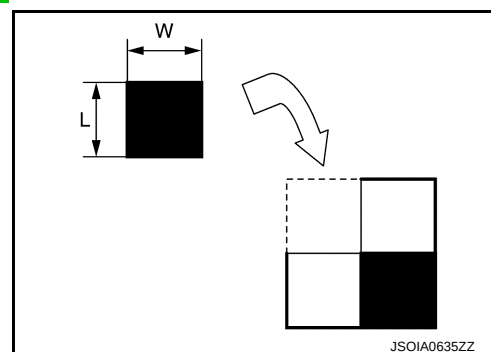
2. Tape two sheets of black paper and two sheets of white paper together to make a target of 400 mm (15.75 in) × 400 mm (15.75 in).

W : 200 mm (7.87 in)

L : 200 mm (7.87 in)

NOTE:

Use a transparent tape.

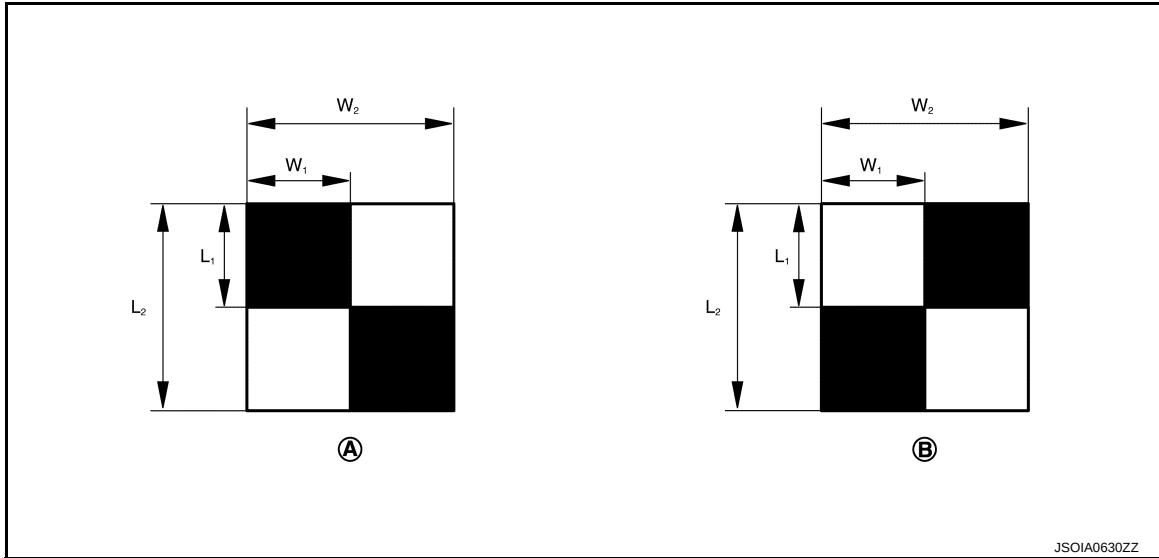


3. Create two more targets according to step 2.

CALIBRATING CAMERA IMAGE (REAR VIEW CAMERA)

< BASIC INSPECTION >

[LDW]



W1 : 200 mm (7.87 in) W2 : 400 mm (15.75 in)

L1 : 200 mm (7.87 in) L2 : 400 mm (15.75 in)

(A) Left target and right target (B) Center target

Side of the square target: 400 mm (15.75 in)

Side of the black or white area: 200 mm (7.87 in)

>> Go to [DAS-54, "Work Procedure \(Target Setting\)".](#)

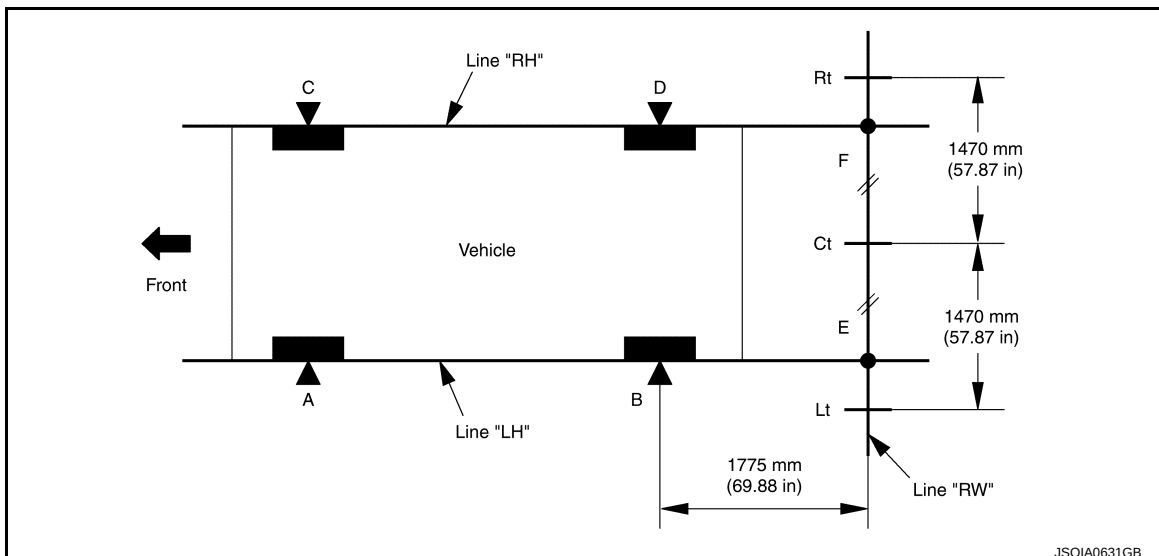
Work Procedure (Target Setting)

INFOID:000000009723234

CAUTION:

- Perform this operation in a horizontal position where there is a clear view for 3 m (9.84 ft) backward and 4 m (13.12 ft) wide.
- Place the target in a well-lighted location. (Poor lighting may make it hard to adjust.)
- The target may not be detected when it shines by the reflected light of the sun or lighting.
- The target may not be detected when there is the same pattern of black and white as the target when the pattern is within 0.5 m (1.64 ft) from either side and upward/downward position from the target. (It is desirable that the target is positioned on the single-color floor.)

1. TARGET SETTING



CALIBRATING CAMERA IMAGE (REAR VIEW CAMERA)

< BASIC INSPECTION >

[LDW]

Distance between B and E (D and F) : 1775 mm (69.88 in)

Distance between Ct and Lt (Ct and Rt) : 1470 mm (57.87 in)

1. Mark points "A", "B", "C" and "D" at the center of the lateral surface of each wheel.

NOTE:

Hang a string with a cone from the fender so as to pass through the center of wheel, and then mark a point at the center of the lateral surface of the wheel.

2. Draw line "LH" passing through points "A" and "B" on the left side of vehicle.

NOTE:

Approximately 2.2 m (7.22 ft) or more at the rear from the rear axle.

3. Mark point "E" on the line "LH" at the positions 1775 mm (69.88 in) from point "B".

4. Draw line "RH" passing through points "C" and "D" on the right side of vehicle in the same way as step 2.

5. Mark point "F" on the line "RH" at the positions 1775 mm (69.88 in) from point "D".

6. Draw line "RW" passing through the points "E" and "F" on the rear of vehicle.

NOTE:

Approximately 1.8 m (5.91 ft) or more at both left and right sides from vehicle center.

7. Mark point "Ct" at the center of point "E" and "F" on the line "RW".

CAUTION:

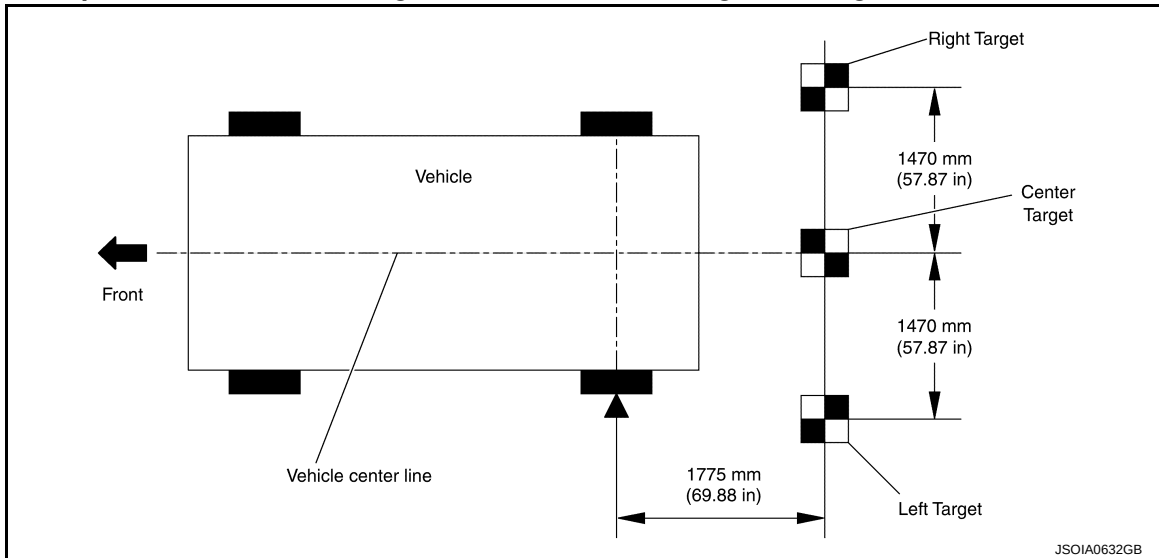
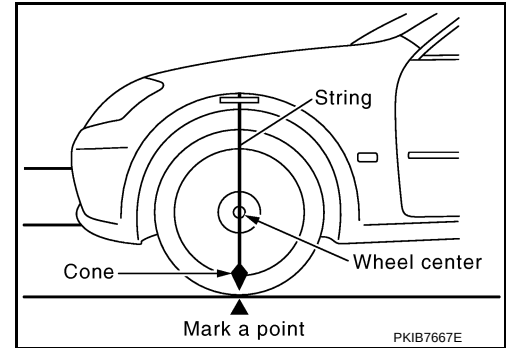
Make sure that "E" to "Ct" is equal to "F" to "Ct".

8. Mark point "Lt" and "Rt" on the line "RW" at the positions 1470 mm (57.87 in) from point "Ct".

9. Position the center of the target mark to point of "Ct", "Lt" and "Rt".

CAUTION:

To perform an accurate calibration, check that the black-and-white pattern is as shown in the figure. The pattern of the center target differs from that of right/left target.



>> Go to [DAS-55. "Work Procedure \(Rear View Camera Calibration\)".](#)

Work Procedure (Rear View Camera Calibration)

INFOID:000000009723235

CAUTION:

For accuracy, perform the calibration under the specified vehicle condition (Fuel full, no-load, specified tire pressure, etc.). Refer to [DAS-53. "Work Procedure \(Preparation\)".](#)

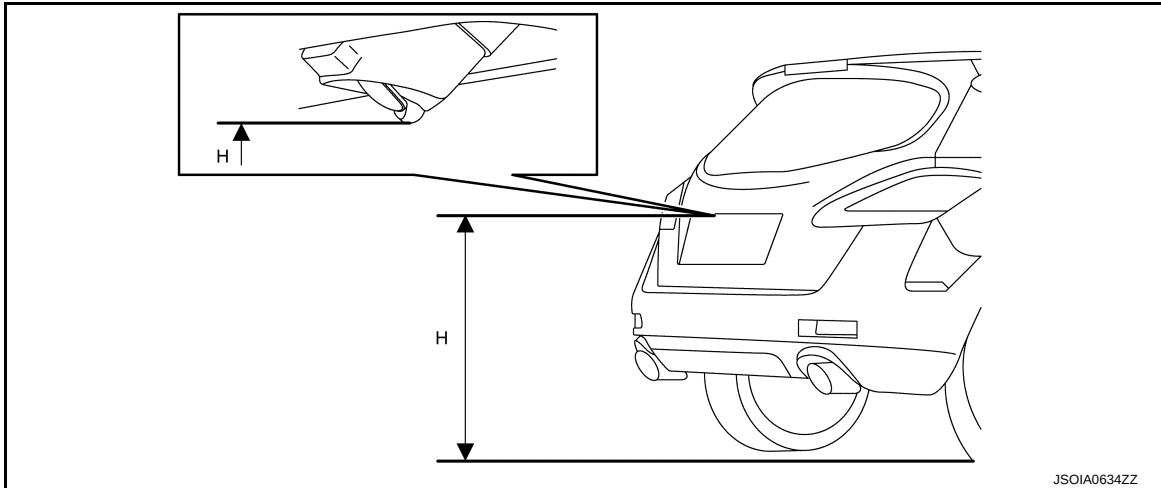
1. CHECK REAR VIEW CAMERA HEIGHT

CALIBRATING CAMERA IMAGE (REAR VIEW CAMERA)

[LDW]

< BASIC INSPECTION >

Measure the rear view camera height.



H: Rear view camera height.

>> GO TO 2.

2. REAR VIEW CAMERA CALIBRATION

1. Select "Work Support" on "AVM" with CONSULT.
2. Select "REAR CAMERA ITS" and then touch "Start"
3. Touch "OK".
4. Input the rear view camera height "H", and then touch "APPLY".
5. Confirm that the same value is displayed on the center display.
6. Confirm the following items;
 - The target should be accurately placed.
 - The vehicle should be stopped.
 - The vehicle should be under the specified vehicle condition.
7. Select "Start" to perform camera aiming.

CAUTION:

To properly maintain vehicle attitude, operate CONSULT outside the vehicle with all the doors closed.

8. Confirm the displayed item.
 - "Completed": Select "Completion".
 - "Not completed": Perform the following services.

Displayed item	Possible causes	Service procedure
Check the error contents using the screen of navigation system.	Target mark position is incorrect.	Set target mark as specified. Refer to DAS-54, "Work Procedure (Target Setting)" .
	Target mark direction is incorrect.	Set target mark direction as shown in the figure. Refer to DAS-54, "Work Procedure (Target Setting)" .
	Target mark reflects the light.	Shut out the light reflecting on target mark.

>> GO TO 3.

3. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis of camera control unit with CONSULT (AVM).

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to [DAS-30, "DTC Index"](#).

NO >> GO TO 4.

4. ACTION TEST

CALIBRATING CAMERA IMAGE (REAR VIEW CAMERA)

< BASIC INSPECTION >

[LDW]

Test the system operation by action test. Refer to [DAS-49. "Description"](#).

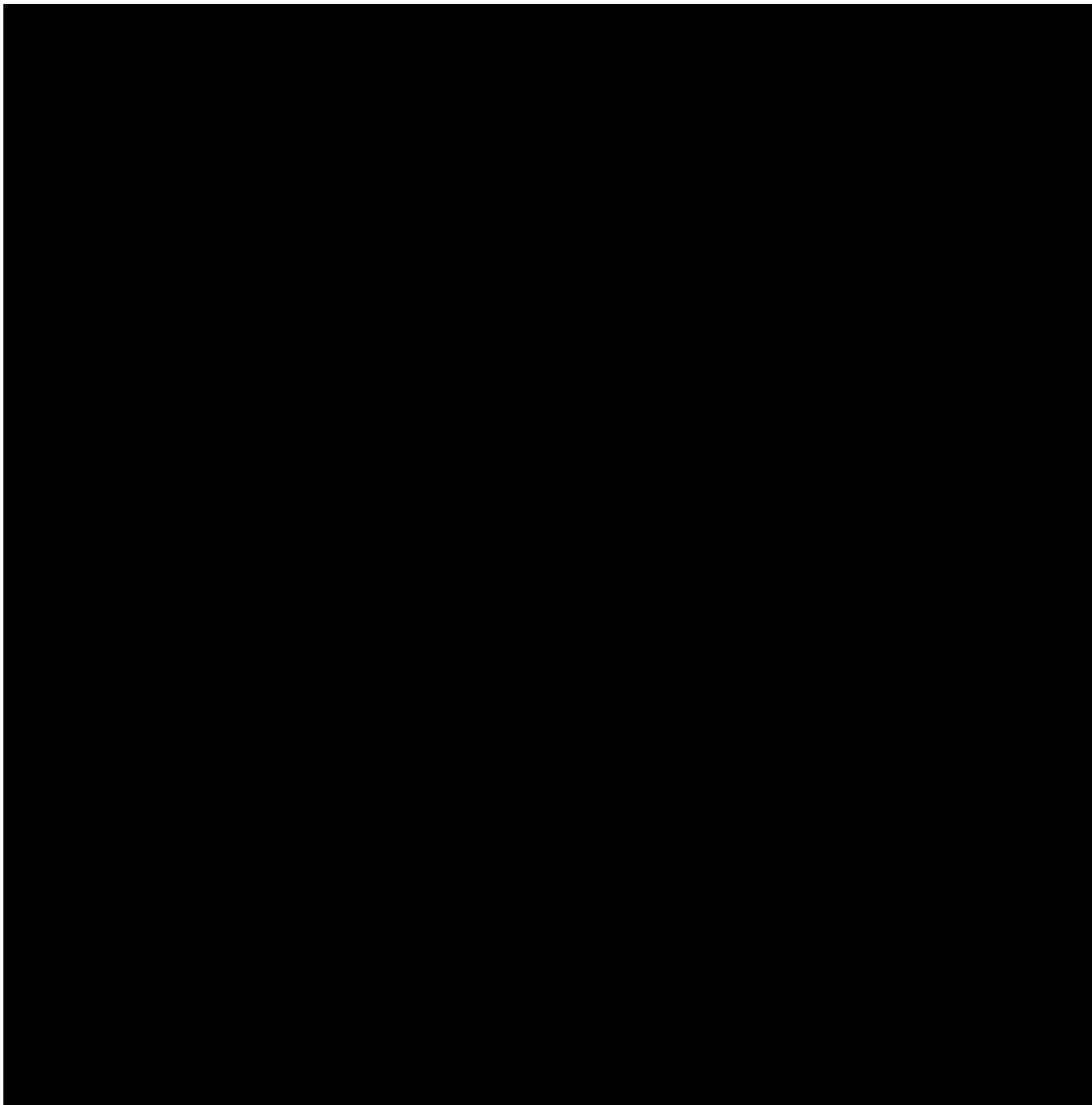
>> WORK END

Work Procedure (Target Mark Sample)

INFOID:0000000009723236

NOTE:

Change the magnification of print to 200 mm (7.87 in) × 200 mm (7.87 in) and print the target mark sample.



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DTC/CIRCUIT DIAGNOSIS**C1A03 VEHICLE SPEED SENSOR****DTC Logic**

INFOID:000000009723237

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A03	VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the camera control unit via CAN communication, are inconsistent	• Wheel speed sensor • ABS actuator and electric unit (control unit) • Camera control unit

NOTE:

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

- Refer to [DAS-64, "DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-59, "DTC Logic"](#) for DTC "C1A04".

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

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

CAUTION:**Always drive safety.**

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

Is "C1A03" detected as the current malfunction?

- YES >> Refer to [DAS-58, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723238

1. CHECK SELF-DIAGNOSIS RESULTS

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-30, "DTC Index"](#).
 NO >> GO TO 2.

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

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).
 NO >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

C1A04 ABS/TCS/VDC SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

C1A04 ABS/TCS/VDC SYSTEM

DTC Logic

INFOID:000000009723239

DTC DETECTION LOGIC

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

NOTE:

If DTC "C1A04" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-64, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Wait for approximately 10 minutes after turning the LDW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A04" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "C1A04" detected as the current malfunction?

- YES >> Refer to [DAS-59, "Diagnosis Procedure"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723240

1.CHECK SELF-DIAGNOSIS RESULTS

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

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [DAS-64, "DTC Logic"](#).
NO >> GO TO 2.

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

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).
NO >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

DAS

C1A39 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

C1A39 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009723241

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A39	STRG SEN CIR	If the steering angle sensor is malfunction	Steering angle sensor

NOTE:

If DTC "C1A39" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-64, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1A39" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "C1A39" detected as the current malfunction?

- YES >> Refer to [DAS-60, "Diagnosis Procedure"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723242

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A39" in "Self Diagnostic Result" of "AVM".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [DAS-64, "DTC Logic"](#).
NO >> GO TO 2.

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

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).
NO >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

U0122 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U0122 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

DTC Logic

INFOID:000000009723243

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0122	VDC P-RUN DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:

If DTC "U0122" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-64, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0122" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U0122" detected as the current malfunction?

YES >> Refer to [DAS-61, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723244

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0122" in "Self Diagnostic Result" of "AVM".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [DAS-64, "DTC Logic"](#).

NO >> GO TO 2.

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

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

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).

NO >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

DAS

U0416 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U0416 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

DTC Logic

INFOID:000000009723245

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0416	VDC CHECKSUM DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:

If DTC "U0416" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-64, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0416" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U0416" detected as the current malfunction?

YES >> Refer to [DAS-62, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723246

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0416" in "Self Diagnostic Result" of "AVM".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [DAS-64, "DTC Logic"](#).

NO >> GO TO 2.

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

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

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).

NO >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

U0428 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U0428 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009723247

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0428	ST ANGLE SENSOR CALIBRATION	The neutral position adjustment of the steering angle sensor is incomplete.	- Neutral position of steering angle sensor is not yet adjusted - Steering angle sensor

NOTE:

If DTC "U0428" is detected along with DTC "U1232", first diagnose the DTC "U1232". Refer to [DAS-68, "DTC Logic"](#).

Diagnosis Procedure

INFOID:000000009723248

1. ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U0428 is detected, adjust the neutral position of the steering angle sensor.

>> Perform adjustment of the neutral position of the steering angle sensor. Refer to [BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

CAUTION:

For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.

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DAS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009723249

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to [LAN-29, "CAN Communication Signal Chart"](#).

DTC Logic

INFOID:000000009723250

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	Camera control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system

NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

Diagnosis Procedure

INFOID:000000009723251

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the LDW system ON, and then wait for 30 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U1000" detected as the current malfunction?

- YES >> Refer to [LAN-18, "Trouble Diagnosis Flow Chart"](#).
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000009723252

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

DTC Logic

INFOID:0000000009723253

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1010	CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	Camera control unit

Diagnosis Procedure

INFOID:0000000009723254

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U1010" detected as the current malfunction?

- YES >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).
NO >> INSPECTION END

DAS

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:000000009723255

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U111A	REAR CAMERA IMAGE SIGNAL	Camera image signal circuit is open or shorted.	• Camera image signal circuit between rear view camera and camera control unit • Camera control unit • Rear view camera

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Shift the selector lever to "R" position.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U111A" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U111A" detected as the current malfunction?

YES >> Refer to [DAS-66, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723256

1.CHECK CONTINUITY REAR VIEW CAMERA POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect camera control unit connector and rear view camera connector.
3. Check continuity between camera control unit harness connector and rear view camera harness connector.

Camera control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
B93	50	D168	8	Existed
	52		7	

4. Check continuity between camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B93	50		Not existed

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK VOLTAGE REAR VIEW CAMERA POWER SUPPLY

1. Connect camera control unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Check voltage between camera control unit harness connector and ground.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

Terminal				Standard voltage	Reference voltage (Approx.)
(+)		(-)			
Camera control unit					
Connector	Terminal	Connector	Terminal		
B93	50	B93	52	5.0 - 9.0 V	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect camera control unit connector and rear view camera connector.
3. Check continuity between camera control unit harness connector and rear view camera harness connector.

Camera control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
B93	53	D168	5	Existed
	54		1	

4. Check continuity between camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminals		
B93	53		Not existed
	54		

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK CAMERA IMAGE SIGNAL

1. Connect camera control unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Check signal between camera control unit harness connector.

Terminal				Reference value
(+)		(-)		
Camera control unit				
Connector	Terminal	Connector	Terminal	
B93	53	B93	54	(V)

Is inspection result normal?

YES >> Replace camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

NO >> Replace rear view camera. Refer to [DAS-95, "Removal and Installation"](#).

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009723257

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1232	ST ANGLE SEN CALIB	The neutral position registration of the steering angle sensor can not finish.	- Steering angle sensor - Camera control unit

Diagnosis Procedure

INFOID:000000009723258

1.REGISTER THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

- Turn the ignition switch ON.
- Perform registration of the neutral position of the steering angle sensor. Refer to [BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).
- Check "Self Diagnostic Result" of "AVM" with CONSULT.

Is "U1232" detected as the current malfunction?

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

2.CHECK STEERING ANGLE SENSOR

Check steering angle sensor.

Is the inspection result normal?

- YES >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).
NO >> Repair or replace malfunctioning parts.

U1305 CONFIG UNFINISH

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U1305 CONFIG UNFINISH

DTC Logic

INFOID:0000000009723259

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1305	CONFIG UNFINISH	The vehicle specifications of camera control unit is incomplete.	Vehicle specifications for camera control unit is incomplete

NOTE:

Current malfunction is displayed only and is not saved.

Diagnosis Procedure

INFOID:0000000009723260

1.PERFORM CONFIGURATION OF CAMERA CONTROL UNIT

Perform configuration of camera control unit when DTC U1305 is detected.

>> Perform configuration of camera control unit. Refer to [DAS-52, "Work Procedure"](#).

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U1308 REAR CAMERA

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U1308 REAR CAMERA

DTC Logic

INFOID:000000009723261

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1308	R-CAMERA (R&L) CAL- IB JDGMNT	Camera image calibration is incomplete	• Calibration for camera image is incomplete • Camera communication line is open

NOTE:

If DTC U1308 is detected along with DTC U130B, first diagnose the DTC U130B. Refer to [DAS-72, "DTC Logic"](#).

Diagnosis Procedure

INFOID:000000009723262

1.PERFORM CALIBRATION OF CAMERA IMAGE

Perform calibration of camera image when DTC U1308 is detected.

>> Perform calibration of camera image. Refer to [DAS-53, "Work Procedure \(Preparation\)"](#).

U1309 AIR PUMP

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U1309 AIR PUMP

DTC Logic

INFOID:0000000009723263

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1309	PUMP INPUT CURRENT JUDGE	Camera control unit detects the value of current from air pump is incorrect	Air pump

Diagnosis Procedure

INFOID:0000000009723264

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1309" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U1309" detected as the current malfunction?

- YES >> Replace the air pump. Refer to [DAS-97, "Removal and Installation"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

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U130B REAR CAMERA

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U130B REAR CAMERA

DTC Logic

INFOID:000000009723265

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U130B	REAR CAMERA COMM ERROR	Camera control unit receives the incorrect communication signal from rear camera unit	• Rear view camera • Camera control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Shift the selector lever to "R" position.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U130B" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U130B" detected as the current malfunction?

- YES >> Refer to [DAS-72, "Diagnosis Procedure"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723266

1.REPLACE REAR VIEW CAMERA

1. Turn ignition switch OFF.
2. Replace the rear view camera. Refer to [DAS-95, "Removal and Installation"](#).
3. Turn ignition switch ON.
4. Erases All self-diagnosis results.
5. Shift selector lever to "R" position.
6. Perform "All DTC Reading" again.
7. Check if the "U130B" is detected in self-diagnosis results of "AVM".

Is inspection result normal?

- YES >> Refer to INSPECTION END.
NO >> Replace camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

U1310 PUMP CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

U1310 PUMP CONTROL UNIT

DTC Logic

INFOID:000000009723267

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1310	PUMP ECU JUDGE	If the pump control unit is malfunction	Pump control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the LDW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1310" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U1310" detected as the current malfunction?

- YES >> Refer to [DAS-73, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009723268

1.CHECK VOLTAGE PUMP CONTROL UNIT POWER SUPPLY

Check pump control unit power supply and ground circuit. Refer to [DAS-74, "PUMP CONTROL UNIT : Diagnosis Procedure"](#).

Is inspection result normal?

- YES >> Replace the pump control unit. Refer to [DAS-96, "Removal and Installation"](#).
NO >> Repair the pump control unit power supply and ground circuit.

DAS

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

POWER SUPPLY AND GROUND CIRCUIT CAMERA CONTROL UNIT

CAMERA CONTROL UNIT : Diagnosis Procedure

INFOID:000000009723269

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery power supply	6
Ignition signal	3

Is the inspection result normal?

YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK CAMERA CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between camera control unit harness connector and ground.

Terminal				Condition	Standard voltage	Reference voltage (Approx.)
(+)		(-)				
Camera control unit				Ignition switch		
Connector	Terminal	Connector	Terminal			
B92	2	B92	1	OFF	9.5 - 16 V	Battery voltage
	3			OFF	0 - 0.1 V	0 V
				ON	9.5 - 16 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the camera control unit power supply circuit.

3.CHECK CAMERA CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the camera control unit connector.
3. Check for continuity between camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B92	1		Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the camera control unit ground circuit.

PUMP CONTROL UNIT

PUMP CONTROL UNIT : Diagnosis Procedure

INFOID:000000009723270

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition power supply	47

Is the inspection result normal?

POWER SUPPLY AND GROUND CIRCUIT

[LDW]

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK PUMP CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between pump control unit harness connector and ground.

Terminal				Condition	Standard voltage	Reference voltage
(+)		(-)				
Pump control unit				Ignition switch		
Connector	Terminal	Connector	Terminal			
D170	12	D170	5	OFF	0 - 0.1 V	0 V
				ON	9.5 - 16 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the pump control unit power supply circuit.

3.CHECK PUMP CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the pump control unit connector.
3. Check for continuity between pump control unit harness connector and ground.

Pump control unit		Ground	Continuity
Connector	Terminal		
D170	5		Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the pump control unit ground circuit.

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DAS

WARNING SYSTEMS SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

WARNING SYSTEMS SWITCH CIRCUIT

Component Function Check

INFOID:000000009723271

1.CHECK WARNING SYSTEMS SWITCH INPUT SIGNAL

1. Turn the ignition switch ON.
2. Select the DATA MONITOR item "ITS SW 1" of "AVM" with CONSULT.
3. With operating the warning systems switch, check the monitor status.

Monitor item	Condition	Monitor status
ITS SW 1	Warning systems switch is pressed	On
	Warning systems switch is not pressed	OFF

Is the inspection result normal?

- YES >> Warning systems switch circuit is normal.
NO >> Refer to [DAS-76, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009723272

1.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT

1. Turn the ignition switch ON.
2. Check voltage between camera control unit harness connector and ground.

Terminals		Condition	Standard voltage	Reference voltage
(+)	(-)			
Camera control unit		Warning systems switch	0 - 0.1 V	0 V
Connector	Terminal			
B92	17	Pressed	0 - 0.1 V	0 V
		Released	9.5 - 16 V	12 V

Is the inspection result normal?

- YES >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK WARNING SYSTEMS SWITCH

1. Turn ignition switch OFF.
2. Remove warning systems switch.
3. Check warning systems switch. Refer to [DAS-101, "Removal and Installation"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace the warning systems switch. Refer to [DAS-101, "Removal and Installation"](#).

3.CHECK WARNING SYSTEMS SWITCH GROUND CIRCUIT

Check continuity between warning systems switch harness connector and the ground.

Warning systems switch		Ground	Continuity
Connector	Terminal		
M39	6		Existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

1. Disconnect the camera control unit connector.

WARNING SYSTEMS SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

2. Check continuity between the camera control unit harness connector and warning systems switch harness connector.

Camera control unit		Warning systems switch		Continuity
Connector	Terminal	Connector	Terminal	
B92	17	M39	7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

Check continuity between the camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B92	17		Not existed

Is the inspection result normal?

YES >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:000000009723273

1.CHECK WARNING SYSTEMS SWITCH

Check continuity of warning systems switch.

Terminal		Condition	Continuity
7	9	When warning systems switch is pressed	Existed
		When warning systems switch is released	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace warning systems switch.

DAS

WARNING SYSTEMS ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

WARNING SYSTEMS ON INDICATOR CIRCUIT

Component Function Check

INFOID:000000009723274

1.CHECK WARNING SYSTEMS ON INDICATOR

1. Turn the ignition switch ON.
2. Select the ACTIVE TEST item "ITS SW 1 IND" of "AVM" with CONSULT.
3. With operating the test item, check the operation.

On : Warning systems ON indicator illuminates

Off : Warning systems ON indicator is turned OFF

Is the inspection result normal?

YES >> Warning systems switch indicator circuit is normal.

NO >> Refer to [DAS-78, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009723275

1.CHECK WARNING ON INDICATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect warning systems switch connector.
3. Check voltage between warning systems switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Warning systems switch		Ground	
Connector	Terminal		
M39	3		Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the warning systems ON indicator power supply circuit.

2.CHECK WARNING SYSTEMS ON INDICATOR SIGNAL FOR OPEN

1. Disconnect the camera control unit harness connector.
2. Check continuity between the camera control unit harness connector and warning systems switch harness connector.

Camera control unit		Warning systems switch		Continuity
Connector	Terminal	Connector	Terminal	
B92	15	M39	2	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK WARNING SYSTEMS ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B92	15		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

WARNING SYSTEMS ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

4.CHECK WARNING SYSTEMS ON INDICATOR

Check the warning systems ON indicator. Refer to [DAS-79. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the camera control unit. Refer to [DAS-94. "Removal and Installation"](#).

NO >> Replace warning systems switch. [DAS-101. "Removal and Installation"](#).

Component Inspection

INFOID:0000000009723276

1.CHECK WARNING SYSTEMS ON INDICATOR

Apply battery voltage to warning systems switch terminals 1 and 2, and then check if the warning systems ON indicator illuminates.

Terminals		Condition	Warning systems ON indicator
(+)	(-)		
3	2	When the battery voltage is applied	On
		When the battery voltage is not applied	Off

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the warning systems switch. Refer to [DAS-101. "Removal and Installation"](#).

DAS

REAR VIEW CAMERA WASHER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

REAR VIEW CAMERA WASHER RELAY CIRCUIT

Component Function Check

INFOID:000000009723277

1.CHECK REAR VIEW CAMERA WASHER RELAY CIRCUIT

1. Turn the ignition switch ON.
2. Select the ACTIVE TEST item "WASH ACTIVE" of "AVM" with CONSULT.
3. With operating the test item, check the operation.

On : Rear view camera washer is activated.

Off : Rear view camera washer is not activated.

Is the inspection result normal?

YES >> Washer rear view camera washer relay circuit is normal.

NO >> Refer to [DAS-83, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009723278

1.CHECK REAR VIEW CAMERA WASHER RELAY 1 POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between rear view camera washer relay 1 harness connector and ground.

Terminals		Voltage (Approx.)
(+)	(-)	
Rear view camera washer relay 1		Ground
Connector	Terminal	
E29	1	
		Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair rear view camera washer relay 1 power supply circuit.

2.CHECK REAR VIEW CAMERA WASHER RELAY 1 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera washer relay 1.
3. Disconnect pump control unit connector.
4. Check continuity between rear view camera washer relay 1 harness connector and the pump control unit harness connector.

Rear view camera washer relay 1		Pump control unit		Continuity
Connector	Terminal	Connector	Terminal	
E29	2	D170	4	Existed

5. Check continuity between rear view camera washer relay 1 harness connector and the ground.

Rear view camera washer relay 1		Ground	Continuity
Connector	Terminal		
E29	2		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK REAR VIEW CAMERA WASHER RELAY 2 POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between rear view camera washer relay 2 harness connector and ground.

REAR VIEW CAMERA WASHER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

Terminals			Voltage (Approx.)
(+)		(-)	
Rear view camera washer relay 2		Ground	
Connector	Terminal		
E28	1		
			Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair rear view camera washer relay 2 power supply circuit.

4.CHECK REAR VIEW CAMERA WASHER RELAY 2 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera washer relay 2.
3. Check continuity between rear view camera washer relay 2 harness connector and the pump control unit harness connector.

Rear view camera washer relay 2		Pump control unit		Continuity
Connector	Terminal	Connector	Terminal	
E28	2	D170	3	Existed

4. Check continuity between rear view camera washer relay 2 harness connector and the ground.

Rear view camera washer relay 2		Ground	Continuity
Connector	Terminal		
E28	2		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK REAR VIEW CAMERA WASHER RELAY 1 AND 2

Check rear view camera washer relay 1 and 2. Refer to [DAS-81, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace pump control unit.

NO >> Repair harness or connector.

Component Inspection

INFOID:000000009723279

1.CHECK REAR VIEW CAMERA WASHER RELAY 1

Apply battery voltage to rear view camera washer relay terminals 1 and 2, and then check for continuity under the following conditions.

Terminal		Condition	Continuity
5	3	When the battery voltage is applied	Existed
		When the battery voltage is not applied	Not existed
4	3	When the battery voltage is applied	Not existed
		When the battery voltage is not applied	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace rear view camera washer relay 1.

2.CHECK REAR VIEW CAMERA WASHER RELAY 2

REAR VIEW CAMERA WASHER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

Apply battery voltage to rear view camera washer relay terminals 1 and 2, and then check for continuity under the following conditions.

Terminal		Condition	Continuity
5	3	When the battery voltage is applied	Existed
		When the battery voltage is not applied	Not existed
4	3	When the battery voltage is applied	Not existed
		When the battery voltage is not applied	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace rear view camera washer relay 2.

WASHER SWITCHING SOLENOID VALVE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

WASHER SWITCHING SOLENOID VALVE CIRCUIT

Component Function Check

INFOID:000000009723280

1.CHECK WASHER SWITCHING SOLENOID VALVE CIRCUIT

1. Turn the ignition switch ON.
2. Select the ACTIVE TEST item "WASH ACTIVE" of "AVM" with CONSULT.
3. With operating the test item, check the operation.

On : Rear view camera washer is activated.

Off : Rear view camera washer is not activated.

Is the inspection result normal?

YES >> Washer switching solenoid valve circuit is normal.

NO >> Refer to [DAS-83, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009723281

1.CHECK WASHER SWITCHING SOLENOID VALVE POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between washer switching solenoid valve harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Washer switching solenoid valve			
Connector	Terminal	Ground	
D167	2		Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair washer switching solenoid valve power supply circuit.

2.CHECK WASHER SWITCHING SOLENOID VALVE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect washer switching solenoid valve connector and pump control unit connector.
3. Check continuity between washer switching solenoid valve harness connector and the pump control unit harness connector.

Washer switching solenoid valve		Pump control unit		Continuity
Connector	Terminal	Connector	Terminal	
D167	3	D170	9	Existed

4. Check continuity between washer switching solenoid valve harness connector and the ground.

Washer switching solenoid valve		Ground	Continuity
Connector	Terminal		
D167	3		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK WASHER SWITCHING SOLENOID VALVE GROUND CIRCUIT

1. Disconnect combination switch.
2. Check continuity between washer switching solenoid valve harness connector and the combination switch harness connector.

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WASHER SWITCHING SOLENOID VALVE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

Washer switching solenoid valve		Combination switch		Continuity
Connector	Terminal	Connector	Terminal	
D167	3	M103	3	Existed

Is the inspection result normal?

YES >> Replace washer switching solenoid valve.

NO >> Repair harness or connector.

REAR WASHER SWITCH INPUT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

REAR WASHER SWITCH INPUT SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000009723282

1. CHECK COMBINATION SWITCH INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect pump control unit connector and combination switch connector.
3. Check continuity between combination switch harness connector and pump control unit harness connector.

Terminals				Continuity
Pump control unit		Combination switch		
Connector	Terminal	Connector	Terminal	
D170	10	M103	1	Existed

4. Check continuity between pump control unit harness connector and the ground.

Pump control unit		Ground	Continuity
Connector	Terminal		
D170	10		Not existed

Is the inspection result normal?

- YES >> Replace pump control unit. Refer to [DAS-96, "Removal and Installation"](#).
NO >> Repair harness or connector.

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WASHER LEVEL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LDW]

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000009723283

1.CHECK WASHER LEVEL SWITCH INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and camera control unit.
3. Check continuity between combination meter harness connector and camera control unit harness connector.

Combination meter		Camera control unit		Continuity
Connector	Terminal	Connector	Terminal	
M34	29	B93	40	Existed

4. Disconnect washer level switch harness connector.
5. Check continuity between camera control unit harness connector and the ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B93	40		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

Check washer level switch signal circuit. Refer to [MWI-49, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK WASHER LEVEL SWITCH

Perform a unit check for the washer level switch. Refer to [MWI-50, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

NO >> Replace washer tank. Refer to [WW-128, "Removal and Installation"](#).

SYMPTOM DIAGNOSIS

LDW SYSTEM SYMPTOMS

Symptom Table

INFOID:000000009723284

NOTE:

For the operational conditions of Lane Departure Warning (LDW), refer to [DAS-12, "System Description"](#).

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON	Lane departure warning lamp (Yellow) does not illuminate.	- Combination meter - Camera control unit	Lane departure warning lamp does not turned ON Refer to DAS-89, "Description"
	LDW ON indicator lamp (Green) does not illuminate.	- Combination meter - Camera control unit	LDW ON indicator lamp does not turned ON Refer to DAS-90, "Description"
	Warning systems ON indicator does not illuminate.	- Harness between camera control unit and warning systems switch - Warning systems switch - Camera control unit	Warning systems ON indicator circuit Refer to DAS-78, "Component Function Check"
	Lane departure warning lamp (Yellow) or LDW ON indicator lamp (Green) does not illuminate.	- Combination meter - Camera control unit	- Lane departure warning lamp does not turned ON Refer to DAS-89, "Description" - LDW ON indicator lamp does not turned ON Refer to DAS-90, "Description"
	All of indicator/warning lamps does not illuminate; - Lane departure warning lamp (Yellow) - LDW ON indicator lamp (Green) - Warning systems ON indicator	- Power supply and ground circuit of camera control unit - Camera control unit	Power supply and ground circuit of camera control unit Refer to DAS-74, "CAMERA CONTROL UNIT : Diagnosis Procedure"
LDW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON)	LDW ON indicator lamp is not turned ON ⇔ OFF when operating warning systems switch	- Harness between camera control unit and warning systems switch - Harness between warning systems switch and ground - Warning systems switch - Camera control unit	- Warning systems switch circuit Refer to DAS-76, "Component Function Check" - LDW system setting can not be turned ON/OFF on the navigation screen Refer to DAS-92, "Diagnosis Procedure"
	Warning buzzer is not sounding. (Lane departure warning lamp is activated.)	- Combination meter - Camera control unit	Meter buzzer circuit Refer to WCS-24, "Component Function Check"
Warning functions are not timely (Example)		- Rear view camera calibration - Rear view camera - Camera control unit	Rear view camera calibration DAS-53, "Description"
Functions when changing the course in direction of the turn signal		Turn indicator signal (CAN) - BCM - Camera control unit	System operates even when using turn signal Refer to DAS-91, "Description"

LDW SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[LDW]

Symptom	Possible cause	Inspection item/Reference page
Rear view camera washer is not activated (Rear window washer is functioning normally)	• Rear view camera washer relay circuit • Washer switching solenoid valve circuit • Pump control unit • Camera control unit	• Rear view camera washer relay circuit Refer to DAS-80, "Component Function Check" • Washer switching solenoid valve circuit Refer to DAS-83, "Component Function Check"
Rear view camera wash is insufficient	• Washer tube (include check valve) • Air tube • Washer/Air nozzle (Rear view camera)	Rear view camera washer/air blower function Refer to DAS-48, "Inspection Procedure"

LANE DEPARTURE WARNING LAMP DOES NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[LDW]

LANE DEPARTURE WARNING LAMP DOES NOT TURNED ON

Description

INFOID:000000009723285

The lane departure warning lamp in the combination meter does not turn ON when turning on the ignition switch

Diagnosis Procedure

INFOID:000000009723286

1.CHECK COMBINATION METER

Turn the ignition switch from OFF to ON to check that "LDW IND" included in "DATA MONITOR" in "METER/M&A" operates normally.

Is the inspection result normal?

YES >> Replace the combination meter. Refer to [MWI-105, "Removal and Installation"](#).

NO >> GO TO 2.

2.CHECK SELF-DIAGNOSIS RESULTS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.

2. Check if the DTC is detected in self-diagnosis results of "METER/M&A". Refer to [MWI-77, "DTC Index"](#).

Is any DTC detected?

YES >> Repair or replace malfunctioning parts.

NO >> GO TO 3.

3.CHECK SELF-DIAGNOSIS RESULTS OF CAMERA CONTROL UNIT

Check if the DTC is detected in self-diagnosis results of "AVM" Refer to [DAS-30, "DTC Index"](#).

Is any DTC detected?

YES >> Repair or replace malfunctioning parts.

NO >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

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LDW ON INDICATOR LAMP DOES NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[LDW]

LDW ON INDICATOR LAMP DOES NOT TURNED ON

Description

INFOID:000000009723287

The LDW ON indicator lamp in the combination meter does not turn ON when turning on the ignition switch

Diagnosis Procedure

INFOID:000000009723288

1.CHECK COMBINATION METER

Turn the ignition switch from OFF to ON to check that "LDW IND" included in "DATA MONITOR" in "METER/M&A" operates normally.

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-105, "Removal and Installation"](#).
- NO >> GO TO 2.

2.CHECK SELF-DIAGNOSIS RESULTS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "METER/M&A" Refer to [MWI-77, "DTC Index"](#).

Is any DTC detected?

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

3.CHECK SELF-DIAGNOSIS RESULTS OF CAMERA CONTROL UNIT

Check if the DTC is detected in self-diagnosis results of "AVM" Refer to [DAS-30, "DTC Index"](#).

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

THE SYSTEM OPERATES EVEN WHEN USING TURN SIGNAL

< SYMPTOM DIAGNOSIS >

[LDW]

THE SYSTEM OPERATES EVEN WHEN USING TURN SIGNAL

Description

INFOID:000000009723289

The warning of Lane Departure Warning (LDW) is activated during the use of a turn signal.

NOTE:

For the operational conditions of Lane Departure Warning (LDW), refer to [DAS-12, "System Description"](#).

Diagnosis Procedure

INFOID:000000009723290

1.CHECK TURN SIGNAL OPERATION

Check that both right and left turn signals are normal.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts. Refer to [EXL-162, "Symptom Table"](#).

2.CHECK SELF-DIAGNOSIS RESULTS

1. Perform "All DTC Reading" with CONSULT.

2. Check if the DTC is detected in self-diagnosis results of "AVM" Refer to [DAS-30, "DTC Index"](#).

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts.

NO >> Replace camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

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SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

< SYMPTOM DIAGNOSIS >

[LDW]

SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

Description

INFOID:000000009723291

- LDW system setting is not selectable on the navigation screen.

NOTE:

When the ignition switch is in ACC position, LDW system settings cannot be changed.

- "Lane Departure Warning" is not indicated on the navigation screen.
- The switching between ON and OFF cannot be performed by operating the navigation system.
- The item of "Lane Departure Warning" on the navigation screen is not active.
- After turning ON the ignition switch or starting the engine, LDW settings of the navigation system cannot be selected for several tens of seconds under the following conditions:
 - After replacing AV control unit.
 - After erasing connection history of the navigation system.
 - After erasing self-diagnosis results of AV control unit.
- The LDW system setting differs from the one set at the previous driving.

NOTE:

Turn OFF the ignition switch and wait for 5 seconds or more.

Diagnosis Procedure

INFOID:000000009723292

1.CHECK LDW SYSTEM SETTING

1. Start the engine.
2. Check that the LDW system settings is selectable on the navigation screen.

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.PERFORM THE SELF-DIAGNOSIS

1. Perform self-diagnosis with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "AVM" and "MULTI AV". Refer to the following.
 - AVM: [DAS-30, "DTC Index"](#)
 - MULTI AV: [AV-340, "DTC Index"](#)

Is any DTC detected?

YES >> Repair or replace malfunctioning parts.

NO >> INSPECTION END

3.CHECK MULTIFUNCTION SWITCH

Operate the multifunction switch to check that the audio, navigation system, and air conditioner operate properly.

Is the inspection result normal?

YES >> Replace the camera control unit. Refer to [DAS-94, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

NORMAL OPERATING CONDITION

Description

INFOID:000000009723293

PRECAUTIONS FOR LANE DEPARTURE WARNING (LDW)

- The LDW system is only a warning device to inform the driver of a potential unintended lane departure. It will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.
- The rear view camera may not detect properly under the following conditions:
 - When towing a trailer.
 - When strong light enters the rear view camera. (For example, direct sunlight or headlight from the rear)
 - When ambient brightness changes instantly. (For example, when the vehicle enters or exits a tunnel or passes under a bridge.)
- Automatic washer and blower may not be able to secure detection capability when excessive dirt adheres on the camera lens.
- LDW system may not function properly under the following conditions:
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The rear view camera may not be able to detect properly under the following conditions:
 - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers; or lane markers covered with water, dirt, snow, etc.
 - On roads where the discontinued lane markers are still detectable.
 - On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs. (The LDW system could detect these items as lane markers.)
 - On roads where the traveling lane merges or separates.
 - When the vehicle's traveling direction does not align with the lane marker.
 - When the road surface is very dark due to scarce ambient light or impaired tail lamp.
- When driving on curved road, warning will be late on the outside of the curve due to the nature of the system.

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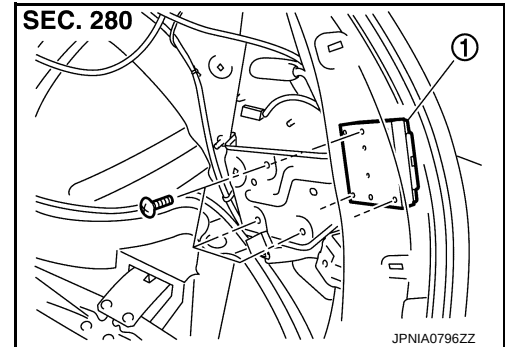
REMOVAL AND INSTALLATION

CAMERA CONTROL UNIT

Exploded View

INFOID:000000009723294

- ① Camera control unit



Removal and Installation

INFOID:000000009723295

REMOVAL

CAUTION:

Before replacing camera control unit, perform “Read/Write Configuration” to save or print current vehicle specification. For details, refer to [DAS-52, "Description"](#).

1. Remove luggage side finisher lower (RH). Refer to [INT-35, "Removal and Installation"](#).
2. Disengage air tube clip from camera control unit bracket.
3. Remove camera control unit screws, disconnect camera control unit connector and remove the camera control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Must be perform additional service when replacing camera control unit. Refer to [DAS-51, "Work Procedure"](#).

REAR VIEW CAMERA

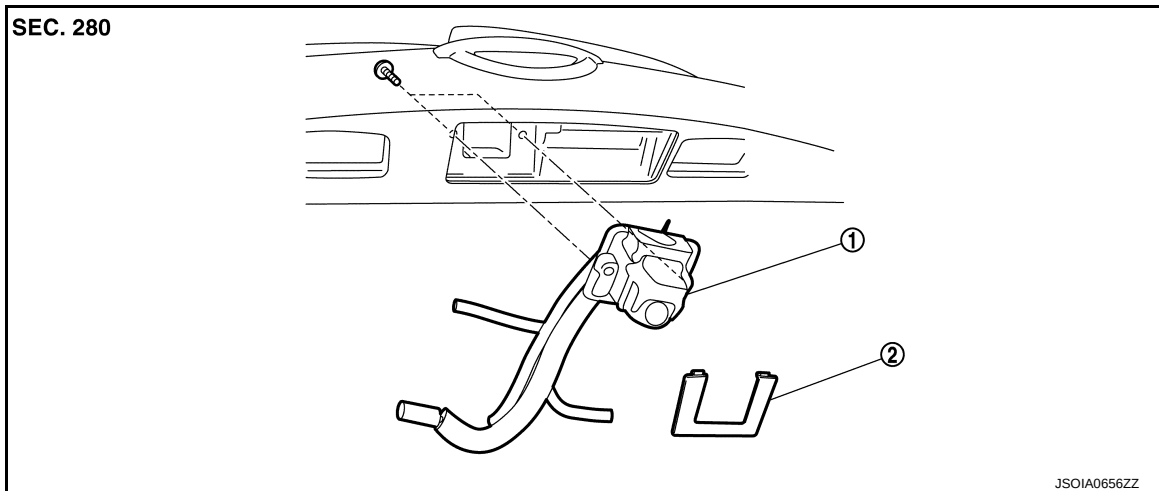
< REMOVAL AND INSTALLATION >

[LDW]

REAR VIEW CAMERA

Exploded View

INFOID:000000009723296



① Rear view camera

② Finisher

Removal and Installation

INFOID:000000009723297

REMOVAL

1. Remove back door finisher inner. Refer to [INT-38, "Removal and Installation"](#).
2. Remove finisher.
3. Disconnect air tube and washer tube from rear view camera.
4. Remove rear view camera mounting screws, disconnect rear view camera connector and remove rear view camera from back door assembly.

CAUTION:

To prevent a malfunction resulting from a short circuit, never allow washer fluid to drip from tube to rear view camera and connector.

INSTALLATION

Install in the reverse order of removal.

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PUMP CONTROL UNIT

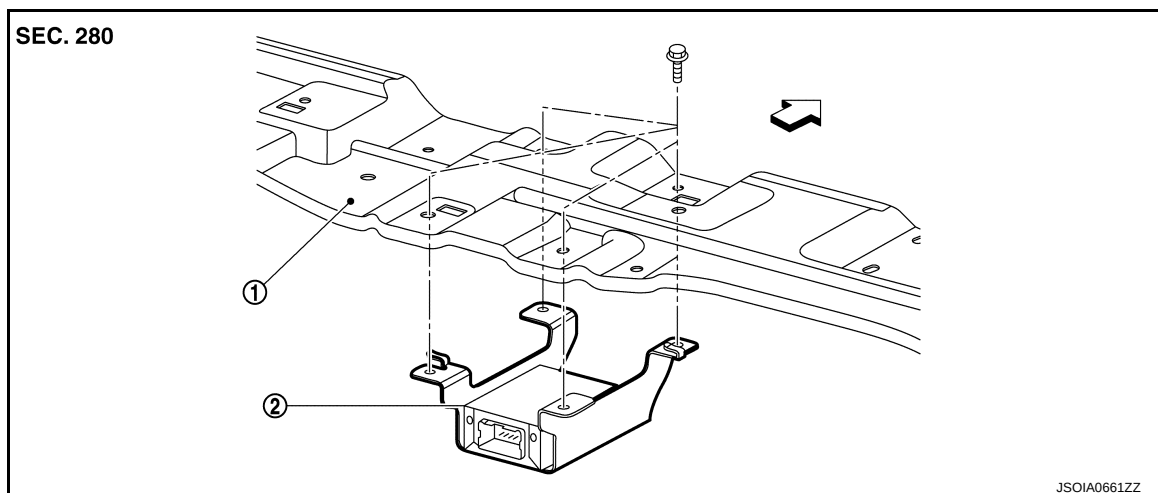
< REMOVAL AND INSTALLATION >

[LDW]

PUMP CONTROL UNIT

Exploded View

INFOID:000000009723298



① Luggage trim bracket

② Pump control unit

↖ : Vehicle front

Removal and Installation

INFOID:000000009723299

REMOVAL

1. Remove luggage floor front finisher. Refer to [INT-35, "Removal and Installation"](#).
2. Remove luggage mask. Refer to [INT-34, "Exploded View"](#).
3. Remove pump control unit mounting screws, disconnect pump control unit harness connector and remove pump control unit.

INSTALLATION

Install in the reverse order of removal.

AIR PUMP

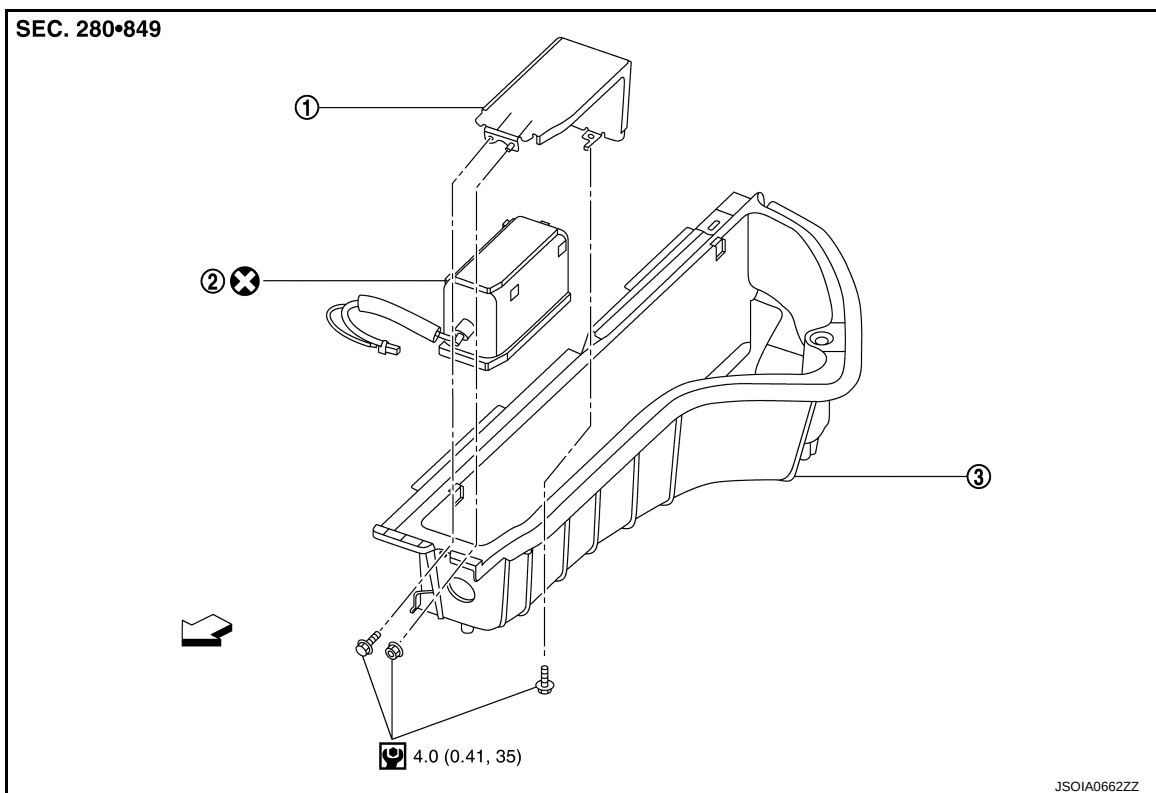
< REMOVAL AND INSTALLATION >

[LDW]

AIR PUMP

Exploded View

INFOID:000000009723300



① Air pump cover

② Air pump

③ Luggage floor spacer LH

← : Vehicle front

⊗ : Always replace after every disassembly.

Ⓐ : N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000009723301

REMOVAL

1. Remove luggage floor spacer LH. Refer to [INT-35, "Removal and Installation"](#).
2. Disconnect air tube and air pump harness connector.
3. Remove air pump cover bolts and nut and remove air pump cover.
4. Remove air pump from luggage floor spacer LH.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

Remove double-sided tape remaining on luggage floor spacer LH with a double-sided tape remover, after removing air pump.

WASHER SWITCHING SOLENOID VALVE

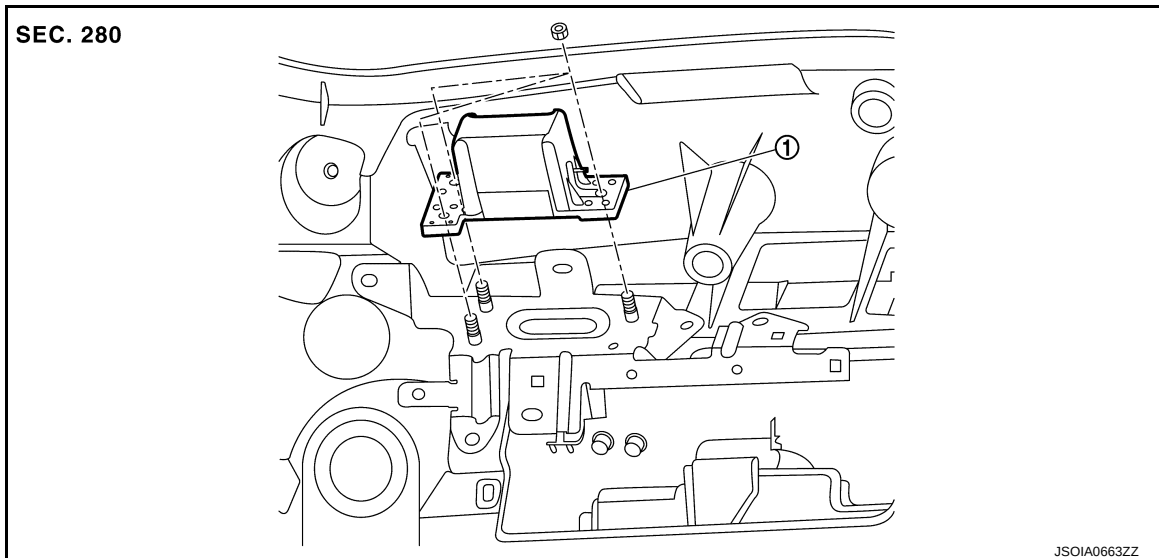
< REMOVAL AND INSTALLATION >

[LDW]

WASHER SWITCHING SOLENOID VALVE

Exploded View

INFOID:000000009723302



① Washer switching solenoid valve

Removal and Installation

INFOID:000000009723303

REMOVAL

1. Remove back door finisher inner. Refer to [INT-38. "Removal and Installation"](#).
2. Remove the nuts.
3. Remove washer switching solenoid valve.

INSTALLATION

Install in the reverse order of removal.

REAR VIEW CAMERA WASHER/AIR NOZZLE & TUBE

< REMOVAL AND INSTALLATION >

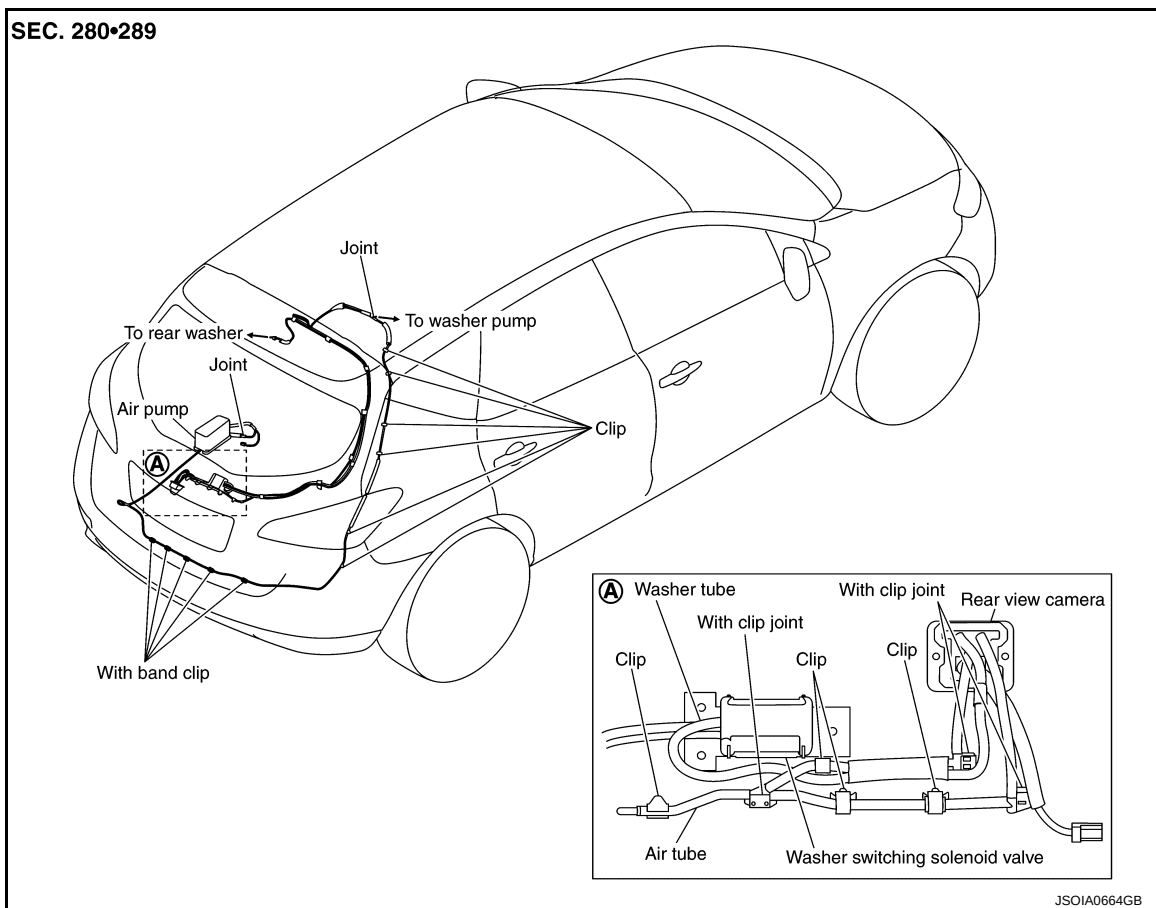
[LDW]

REAR VIEW CAMERA WASHER/AIR NOZZLE & TUBE

Exploded View

INFOID:000000009723304

REAR VIEW CAMERA WASHER / AIR NOZZLE & TUBE



A Details

NOTE:

For washer pump and rear washer path, refer to [WW-145, "Hydraulic Layout"](#).

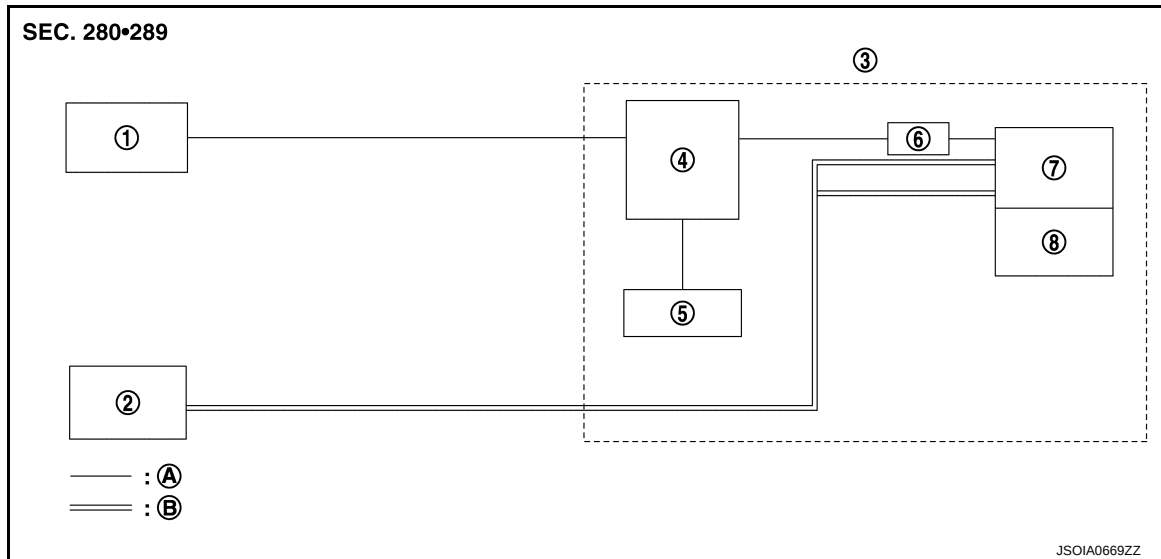
HYDRAULIC LAYOUT

DAS

REAR VIEW CAMERA WASHER/AIR NOZZLE & TUBE

< REMOVAL AND INSTALLATION >

[LDW]



- | | | |
|-----------------------------------|----------------------|---------------|
| ① Washer pump | ② Air pump | ③ Back door |
| ④ Washer switching solenoid valve | ⑤ Rear washer nozzle | ⑥ Check valve |
| ⑦ Air/washer nozzle | ⑧ Rear view camera | |
| (A) Washer tube | (B) Air tube | |

WARNING SYSTEMS SWITCH

< REMOVAL AND INSTALLATION >

[LDW]

WARNING SYSTEMS SWITCH

Removal and Installation

INFOID:000000009723305

REMOVAL

- 1. Remove the instrument lower panel LH. Refer to [IP-15. "Removal and Installation"](#).
- 2. Remove warning systems switch from instrument lower panel LH.

INSTALLATION

Install in the reverse order of removal.

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PRECAUTION

PRECAUTIONS

FOR USA AND CANADA

FOR USA AND CANADA : Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000009723306

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

FOR USA AND CANADA : Precautions for Removing of Battery Terminal

INFOID:0000000010089129

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

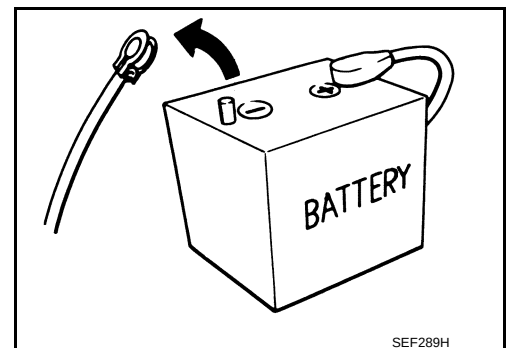
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



SEF289H

FOR USA AND CANADA : Precaution for BSW System Service

INFOID:000000009723307

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- Never perform the active test while driving.
- Never change BSW initial state ON ⇒ OFF without the consent of the customer.

FOR MEXICO

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

INFOID:000000009723308

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 "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

FOR MEXICO : Precautions for Removing of Battery Terminal

INFOID:0000000010089130

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

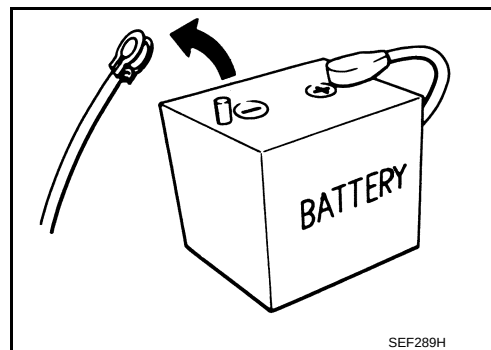
NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:

The removal of 12V battery may cause a DTC detection error.



SEF289H

FOR MEXICO : Precaution for BSW System Service

INFOID:000000009723309

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

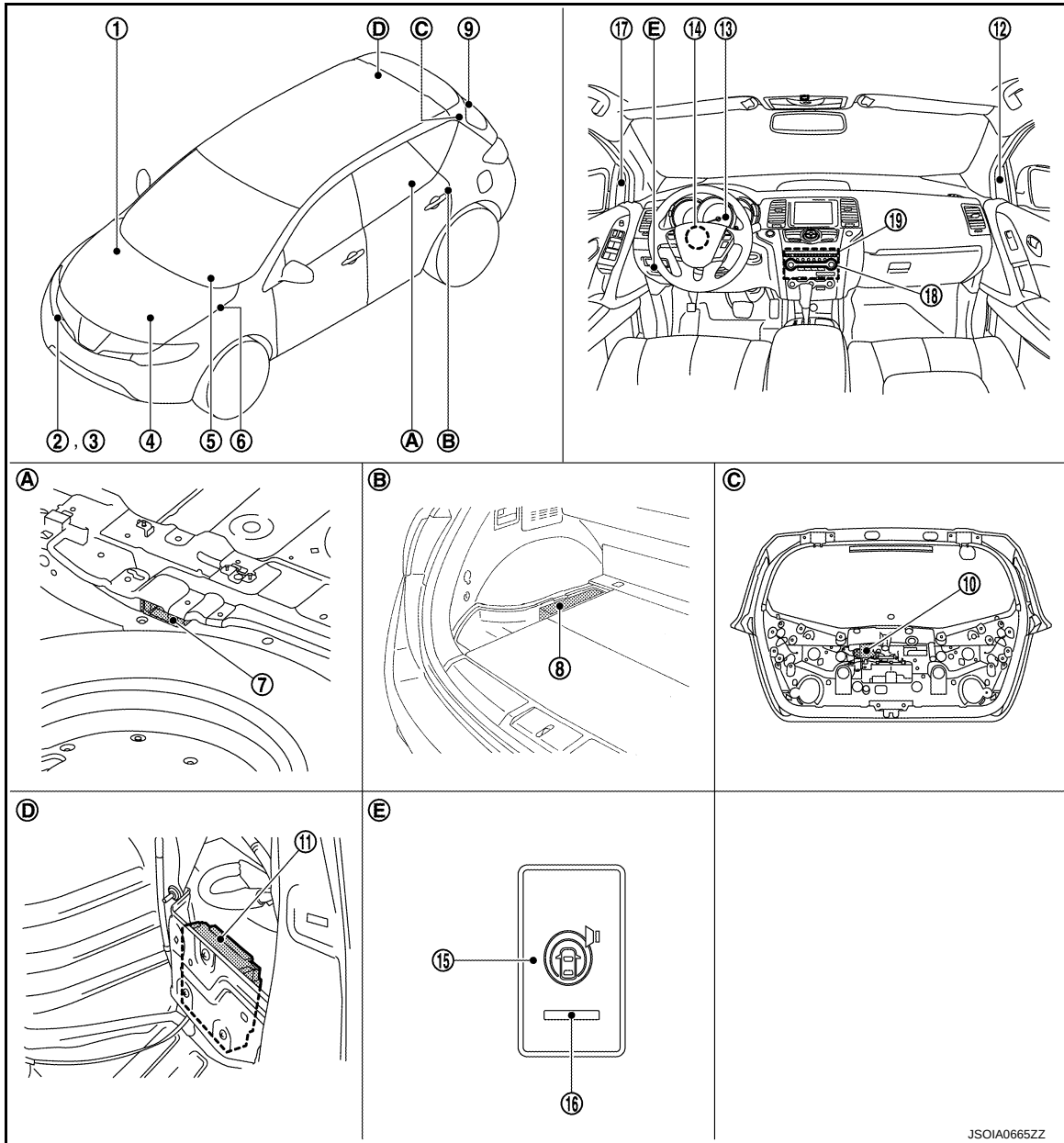
- Never perform the active test while driving.
- Never change BSW initial state ON ⇒ OFF without the consent of the customer.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000009723310



(A) Front side of spare tire

(B) Luggage room LH

(C) Inside back door

(D) Luggage room RH

(E) Instrument lower panel LH

No.	Component	Function
①	ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal (wheel speed) to camera control unit via CAN communication Refer to BRC-12, "Component Parts Location" for detailed installation location
②	Washer pump	Washer fluid is sprayed according to rear view camera washer relay status Refer to WW-18, "Component Parts Location" for detailed installation location
③	Washer level switch	Transmits the washer level switch signal to camera control unit

COMPONENT PARTS

< SYSTEM DESCRIPTION >

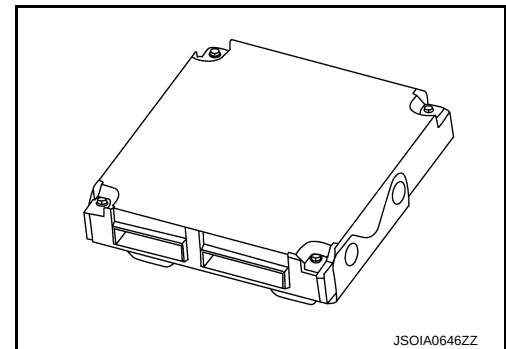
[BSW]

No.	Component	Function
④	ECM	Transmits the engine status signal and engine coolant temperature signal to camera control unit via CAN communication Refer to EC-36, "Component Parts Location" for detailed installation location
⑤	BCM	Transmits the turn indicator signal to camera control unit via CAN communication Refer to BCS-9, "Component Parts Location" for detailed installation location
⑥	Rear view camera washer relay	Refer to DAS-108, "Rear View Camera Washer Relay"
⑦	Pump control unit	Refer to DAS-107, "Pump Control Unit"
⑧	Air pump	Refer to DAS-107, "Air Pump"
⑨	Rear view camera	Refer to DAS-106, "Rear View Camera"
⑩	Washer switching solenoid valve	Refer to DAS-107, "Washer Switching Solenoid Valve"
⑪	Camera control unit	Refer to DAS-105, "Camera Control Unit"
⑫	BSW indicator RH	Refer to DAS-105, "BSW Indicator LH/RH"
⑬	Combination meter	- Description: DAS-105, "Combination Meter" - System display and warning: DAS-116, "System Display and Warning"
⑭	Steering angle sensor	Transmits the steering angle sensor signal to camera control unit via CAN communication Refer to BRC-12, "Component Parts Location" for detailed installation location
⑮	Warning systems switch	Refer to DAS-108, "Warning Systems Switch/Warning Systems ON Indicator"
⑯	Warning systems ON indicator (On the warning systems switch)	Refer to DAS-108, "Warning Systems Switch/Warning Systems ON Indicator"
⑰	BSW indicator LH	Refer to DAS-105, "BSW Indicator LH/RH"
⑱	A/C auto amp.	Transmits the ambient sensor signal to camera control unit via CAN communication Refer to HAC-150, "Component Part Location" for detailed installation location
⑲	AV control unit	Transmits the system selection signal to camera control unit via CAN communication Refer to AV-303, "Component Parts Location" for detailed installation location

Camera Control Unit

INFOID:000000009723311

- Camera control unit is installed in the luggage room RH.
- The adoption of CAN communication allows the signal transmission/reception between the camera control unit and each control unit.
- When the ignition switch is turned ON, electric power is supplied to the rear view camera.
- Camera control unit receives a camera image signal from rear view camera and recognizes a vehicle traveling in the adjacent lane.
- When a vehicle traveling in the adjacent lane approaches, camera control unit sounds the buzzer and blinks the BSW indicator to warn the driver.
- The camera control unit communicates with the rear view camera via serial communication and receives the specific information of the camera. When the information matches the specific information of the camera written in the camera control unit, camera is activated normally.



BSW Indicator LH/RH

INFOID:000000009723312

- BSW indicator is installed in the door mirror corner cover.
- Receives a BSW indicator operation signal from the camera control unit and blinks or turns ON/OFF the BSW indicator.

Combination Meter

INFOID:000000009723313

- Receives BSW warning lamp signal, BSW ON indicator lamp signal and buzzer output signal from camera control unit via CAN communication.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

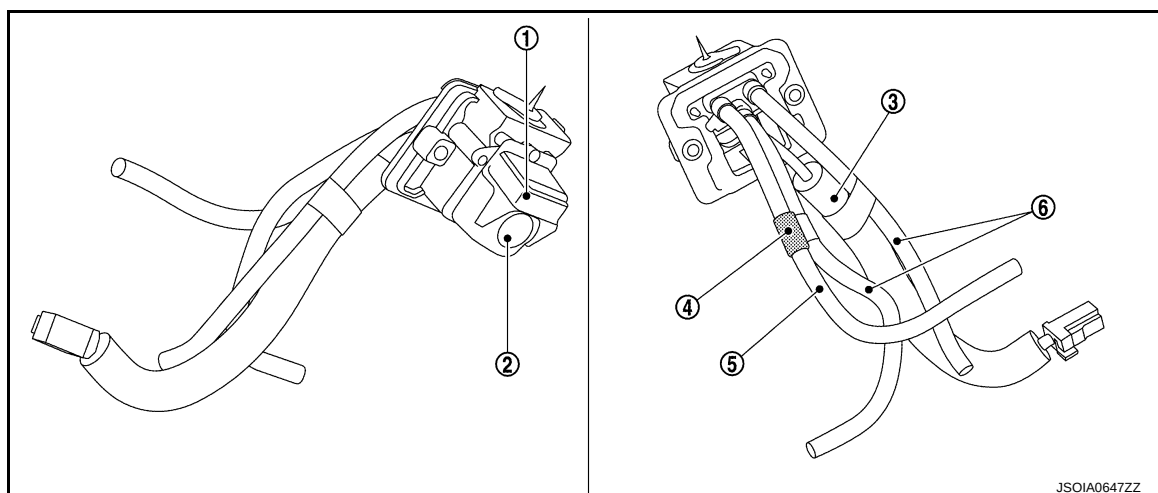
[BSW]

- Turns the BSW warning lamp, BSW ON indicator lamp ON/OFF according to the signals from camera control unit.
- Displays the clean camera display according to the signal from the camera control unit.
- Operates the buzzer according to the signal from the camera control unit.

Rear View Camera

INFOID:000000009723314

- The rear view camera is installed to the back door finisher.
- Super-small CMOS camera (color) using CMOS* for the image pickup element is adopted.
- With the mirror processing function, a mirror image is sent as if it is viewed by a rear view mirror.
- Power for the camera is supplied from the camera control unit, and the image at the rear of the vehicle is sent to the camera control unit.
- The rear view camera is equipped with a washer nozzle and air nozzle for cleaning camera. A check valve is installed to the tube connected to the washer nozzle.



① Washer/Air nozzle

② Rear view camera

③ Harness

④ Check valve

⑤ Washer tube

⑥ Air tube

NOTE:

*: "CMOS" is abbreviation of Complementary Metal Oxide Semiconductor, and features low power consumption and high speed reading rate of electric charge.

Camera Specification

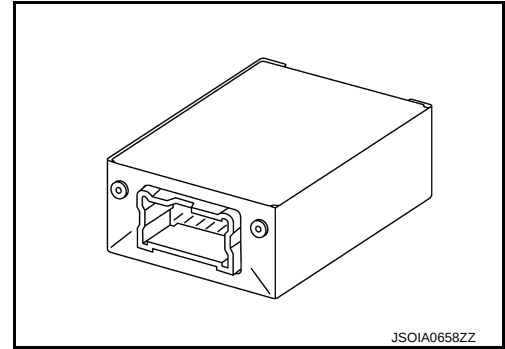
Manufacturer name	SONY Corp.
Image pickup element	1/4-inch CMOS image sensor
Effective number of pixels	Approx. 300,000 pixels (632 × 480)
Minimum brightness	2 lx
Angle of view	H: 190.4° V: 141.8°
Image	With mirror processing function

< SYSTEM DESCRIPTION >

Pump Control Unit

INFOID:000000009723315

- Pump control unit is installed in under the luggage floor front finisher.

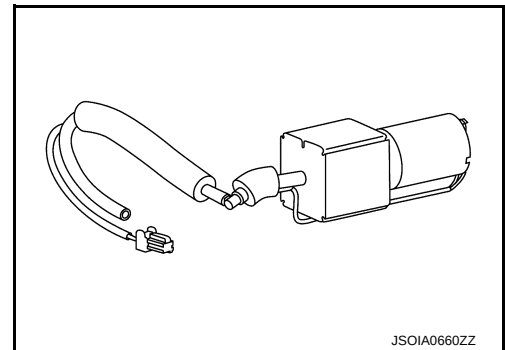


- Communicates with camera control unit via communication line.
- Activates air pump and washer pump according to the signal from camera control unit.
- Receives rear washer signal from washer switching solenoid valve.

Air Pump

INFOID:0000000009723316

- Air pump is installed in the luggage floor spacer LH in the luggage room.

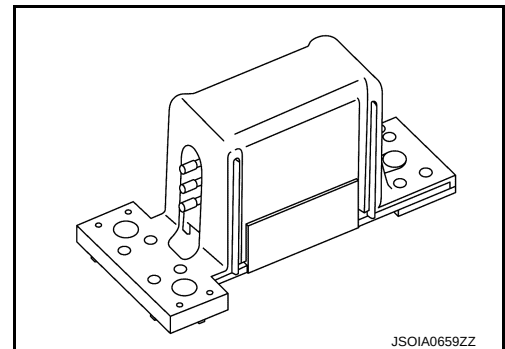


- Air pump is activated and generates compressed air when power is supplied from the pump control unit.
- Compressed air jets out from the air nozzle of rear view camera via air tube.

Washer Switching Solenoid Valve

INFOID:0000000009723317

- Washer switching solenoid valve is installed in the back door.
- When rear washer is in the inactive condition, the solenoid valve is inactive and rear view camera washer path is activated.
- When rear washer is in the active condition, the solenoid valve is active and the washer path is switched to rear washer side.
- When solenoid valve is active, a rear washer signal is transmitted to the pump control unit.



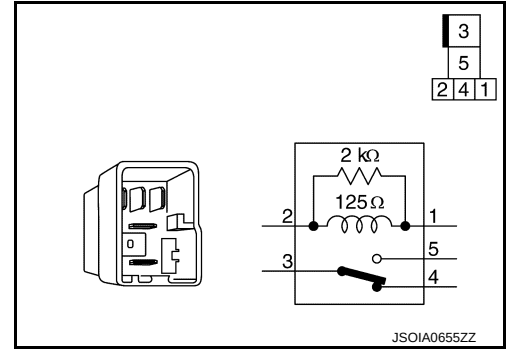
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DAS

Rear View Camera Washer Relay

INFOID:000000009723318

- Rear view camera washer relay 1 and 2 are installed in the engine room LH
- When the relay is in the inactive state, the circuit of window washer is energized.
- Rear view camera washer relay 1 and 2 are activated according to a signal from the pump control unit and activate the washer pump regardless of window washer activation.



Warning Systems Switch/Warning Systems ON Indicator

INFOID:000000009723319

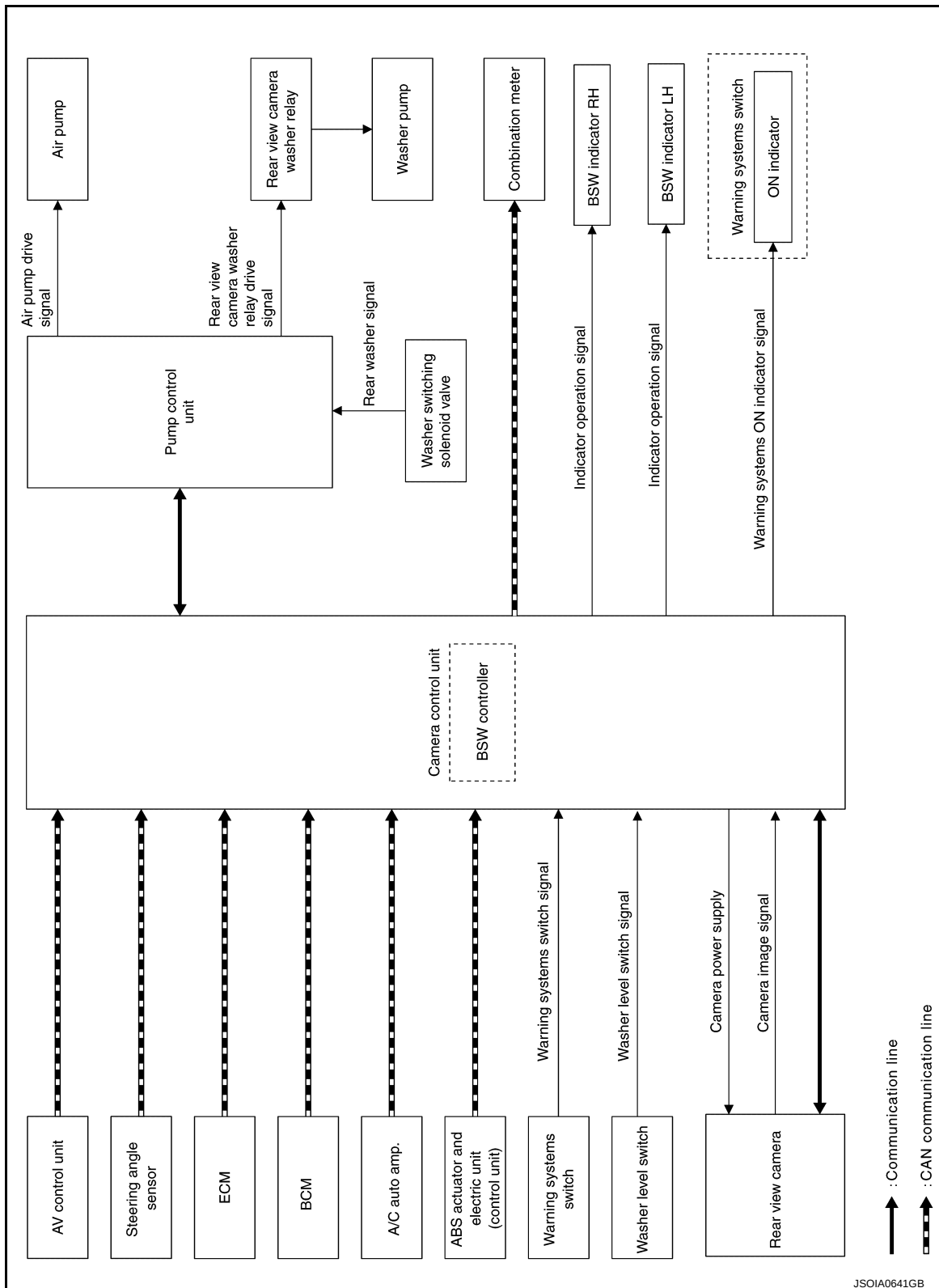
- Installed to the instrument lower panel, the warning systems switch is used to activate/deactivate the LDW and BSW systems.
- Transmits a warning systems switch signal to the camera control unit.

SYSTEM

System Description

INFOID:000000009723320

SYSTEM DIAGRAM



CAMERA CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Camera control unit receives signals via CAN communication. It also detects vehicle conditions that are necessary for BSW control.

< SYSTEM DESCRIPTION >

Input Signal Item

Transmit unit	Signal name		Description
ABS actuator and electric unit (control unit)	CAN communication	Vehicle speed signal (ABS)	Receives wheel speeds of four wheels
BCM	CAN communication	Turn indicator signal	Receives an operational state of the turn signal lamp and the hazard lamp
		Dimmer signal	Receives an ON/OFF state of dimmer signal
AV control unit	CAN communication	System selection signal	Receives a selection state of each item in "Driver assist" selected with the navigation system
Steering angle sensor	CAN communication	Steering angle sensor signal	Receives the number of revolutions, turning direction of the steering wheel
ECM	CAN communication	Engine status signal	Receives the engine status
		Engine coolant temperature signal	Receives the engine coolant temperature
A/C auto amp.	CAN communication	Ambient sensor signal	Receives the ambient temperature
Rear view camera	Communication line	Camera image signal	Receives the camera image signal
Washer level switch	Washer level switch signal		Receives a status of washer fluid level
Warning systems switch	Warning systems switch signal		Receives an ON/OFF state of the warning systems switch

Output Signal Item

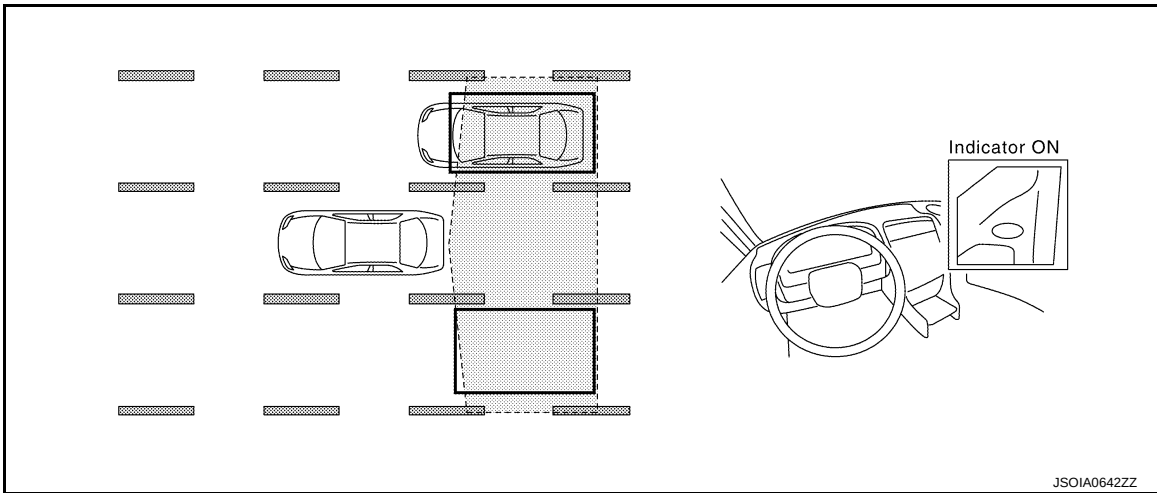
Reception unit	Signal name		Description
Combination meter	CAN communication	BSW warning lamp signal	Transmits a BSW warning lamp signal to turn ON the Blind Spot Warning/Blind Spot Intervention warning lamp
		BSW ON indicator signal	Transmits a BSW ON indicator lamp signal to turn ON the BSW ON indicator lamp
		Meter display signal	Transmits a meter display signal to turn ON the clean camera indication on the information display.
		Clean camera display signal	Transmits a meter display signal to turn ON the clean camera indication on the information display.
Pump control unit	Communication line	Buzzer output signal	Transmits a buzzer output signal to activates the warning buzzer
		Rear view camera washer signal	Transmits a rear view camera washer signal to activates the washer pump
		Rear view camera air blow signal	Transmits a rear view camera air blow signal to activates the air pump
Warning systems ON indicator	Warning systems ON indicator signal		Turns ON the warning systems ON indicator
Warning buzzer	Warning buzzer operation signal		Activates the warning buzzer
BSW indicator LH, RH	Indicator operation signal		Turns ON the BSW indicator LH, RH

FUNCTION DESCRIPTION

- The BSW system can help alert the driver of other vehicles in adjacent lanes when changing lanes.
- The BSW system uses rear view camera installed near the rear bumper to detect vehicles in an adjacent lane.

< SYSTEM DESCRIPTION >

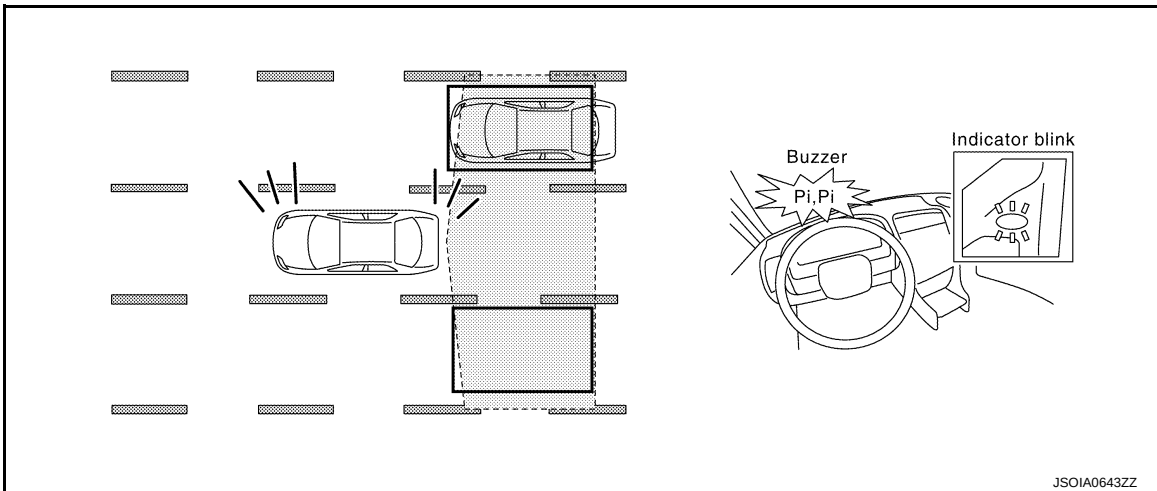
- The rear view camera can detect vehicles on either side of vehicle within the detection zone shown as illustrated.
- This detection zone starts from the outside mirror of vehicle and extends approximately 10 ft (3.0 m) behind the rear bumper, and approximately 10 ft (3.0 m) sideways.
- The BSW system operates above approximately 32 km/h (20 MPH).
- If the rear view camera detects vehicles in the detection zone, the BSW indicator illuminates.



- If the driver then activates the turn signal, a buzzer will sound twice and the BSW indicator will blink.

NOTE:

A buzzer sounds if the rear view camera have already detected vehicles when the driver activates the turn signal. If a vehicle comes into the detection zone after the driver activates the turn signal, then only the BSW indicator blinks and no buzzer sounds.



BSW SYSTEM OPERATION DESCRIPTION

- Camera control unit enables BSW system.
- The camera control unit turns on the BSW system when the warning systems switch is turned ON.
- Rear view camera transmits the camera image signal to camera control unit via communication line.
- Camera control unit starts the control as follows, based on a camera image signal, turn signal and dimmer signal transmitted from BCM via CAN communication:
 - Buzzer output signal transmission to combination meter via CAN communication.
- Camera control unit transmits an indicator operation signal to the BSW indicator according to BSW indicator signal and BSW dimmer signal.

Operation Condition of BSW System

Camera control unit performs the control when the following conditions are satisfied.

- When the warning systems switch in turned ON*.
- When the vehicle drives at 32 km/h (20 MPH) or more to the forward direction.

NOTE:

*: When the BSW system setting on the navigation screen is ON.

- After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 29 km/h (18 MPH)

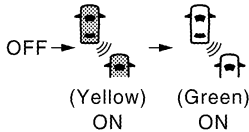
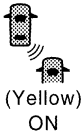
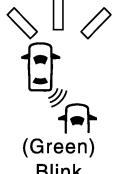
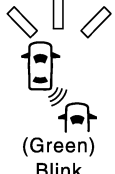
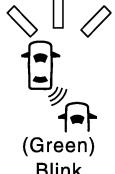
SYSTEM

< SYSTEM DESCRIPTION >

[BSW]

- The BSW system may not function properly, depending on the situation. Refer to [DAS-118, "Precautions for Blind Spot Warning"](#).

BULB CHECK ACTION AND FAIL-SAFE INDICATION

Vehicle condition/Driver's operation	BSW indicator	Warning systems ON indicator	Indication on the combination meter
Ignition switch: OFF ⇒ ON	Approx. 2 sec. ON	Approx. 5 sec. ON	 OFF → (Yellow) ON → (Green) ON JSOIA0670GB
When DTC is detected	OFF	ON	 (Yellow) ON JSOIA0671GB
When vehicles cannot be detected due to dirt on the rear view camera	OFF	ON	 (Green) Blink JSOIA0261GB In the information display  UNAVAILABLE Clean Rear Camera JSOIA0638GB
When the washer fluid level is low (Low washer warning ON)	OFF	ON	Blinks at intervals of two seconds.  (Green) Blink JSOIA0261GB
When the back door is open (Back door open warning ON)	OFF	ON	Blinks at intervals of two seconds.  (Green) Blink JSOIA0261GB

REAR VIEW CAMERA WASHER OPERATION

- When judging that the rear view camera has water droplets, the camera control unit transmits a rear view camera washer activation signal or rear view camera air blow signal to the pump control unit via serial communication.

SYSTEM

[BSW]

< SYSTEM DESCRIPTION >

- When receiving a rear view camera washer activation signal, the pump control unit simultaneously activates the washer pump to clean the rear view camera by spraying washer fluid from the nozzle installed to the rear view camera bracket.
- The washer switching solenoid valve switches the washer path from rear window to rear view camera.
- When receiving a rear view camera air blow signal, the pump control unit activates the air pump to clean the rear view camera by blowing air from the nozzle installed to the rear view camera bracket.

OPERATION CONDITION

- Approximately 30 km/h (20 MPH) or more
- When the camera control unit judges that the rear view camera has water droplets.
- When the front washer and the rear washer are not activated.
- When the low washer fluid warning is OFF.

NOTE:

The camera is cleaned intermittently by spraying washer fluid and blowing air. When the camera control unit judges that dirt on the camera cannot be removed even after approximately 5 minutes from the first detection of dirt, the activation of BSW is canceled.

Fail-Safe

INFOID:000000009723321

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
C1A03 VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the camera control unit via CAN communication, are inconsistent	• LDW system is cancel • BSW system is cancel
C1A04 ABS/TCS/VDC CIRC	If a malfunction occurs in the VDC/TCS/ABS system	• LDW system is cancel • BSW system is cancel
C1A39 STRG SEN CIR	If the steering angle sensor is malfunction	• LDW system is cancel • BSW system is cancel
U0122 VDC P-RUN DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	• LDW system is cancel • BSW system is cancel
U0416 VDC CHECKSUM DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	• LDW system is cancel • BSW system is cancel
U0428 ST ANGLE SENSOR CALIBRATION	Neutral position adjustment of steering angle sensor is not complete.	• Predicted course line is not displayed. • MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.

DAS

SYSTEM

< SYSTEM DESCRIPTION >

[BSW]

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1000 CAN COMM CIRCUIT	When camera control unit cannot transmit/receive CAN communication signal continuously for 2 seconds or more.	The following functions are stopped • When communication of steering angle sensor signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Front tire angle display is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed. • When communication of vehicle signal, wheel speed sensor signal, and shift signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed • When communication of sonar signal is not normal - Predicted course line is not displayed.
U1010 CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U111A REAR CAMERA IMAGE SIGNAL	No-signal status of rear camera image signal is continued for 500 ms or more while ignition switch is ON. NOTE: Current malfunction is displayed only and is not saved.	• Camera image is not displayed (Gray screen display). • LDW system is stopped. • BSW system is stopped.
U1232 ST ANGLE SEN CALIB	Neutral position adjustment of steering angle sensor is performed. NG signal from steering angle sensor is received.	• Predicted course line is not displayed. • MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped. • Tire icon is stopped. • Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed.
U1305 CONFIG UNFINISH	The vehicle setting of camera control unit is incomplete. NOTE: Current malfunction is displayed only and is not saved.	Operation is according to the vehicle setting value as default value.
U1308 R-CAMERA (R&L) CALIB JDG-MNT	Camera image calibration is incomplete	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.

SYSTEM

< SYSTEM DESCRIPTION >

[BSW]

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1309 PUMP INPUT CURRENT JUDGE	Camera control unit detects the value of current from pump control unit is incorrect	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U130B RR CAMERA COMM ERROR	Camera control unit receives the incorrect communication signal from rear view camera	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U1310 PUMP ECU JUDGE	If the pump control unit is malfunction	• LDW system is stopped. • BSW system is stopped.
Other	When camera control unit is not normal.	Switch to camera screen is not allowed.
	When communication between camera control unit and each camera is not normal.	On applicable camera screen  marking (Red) is displayed.
	When communication line between camera control unit and each camera image line are affected by electromagnetic noises.	On applicable camera image screen,  display (Blue) is displayed.

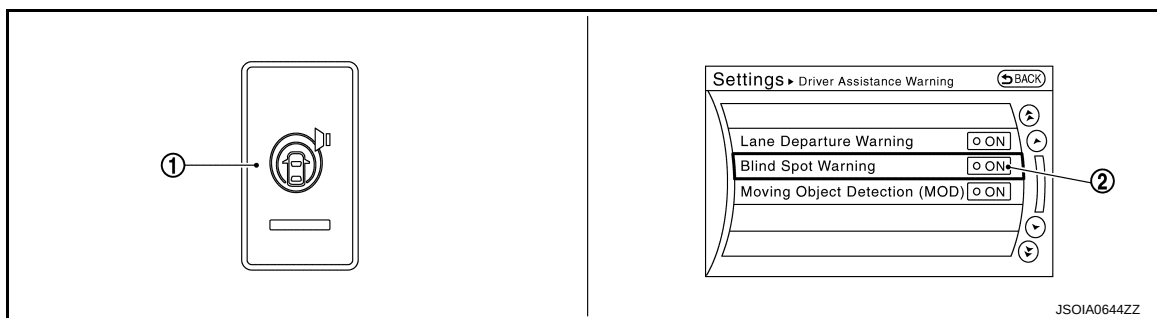
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OPERATION

Switch Name and Function

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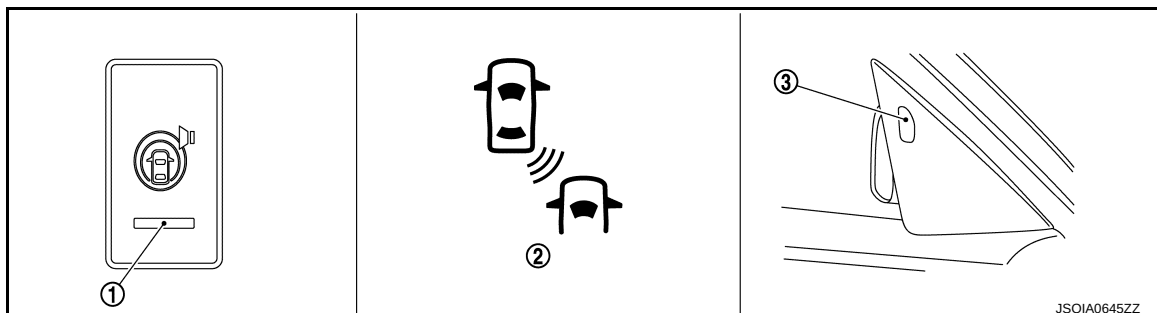


No.	Name	Function
①	Warning systems switch	Turns BSW system ON/OFF (When the setting of BSW system on the navigation system setting screen is ON)
②	BSW setting screen (Navigation setting screen)	Turns setting of BSW system can be switched between ON and OFF

System Display and Warning

INFOID:000000009723323

INDICATOR AND WARNING LAMP



No.	Name	Description
①	Warning systems ON indicator	Indicates that the LDW system and/or BSW system is ON
②	BSW warning lamp (yellow)	Turns ON when BSW system has a malfunction
	BSW ON indicator lamp (Green)	- Turns ON when BSW system is activated - Blinks when the back door is open - Blinks when the washer fluid level is low
c③	BSW indicator	Blinks when BSW system is warning to driver

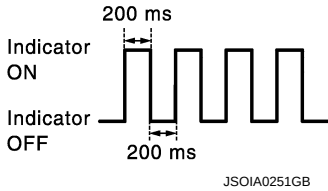
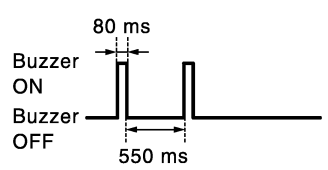
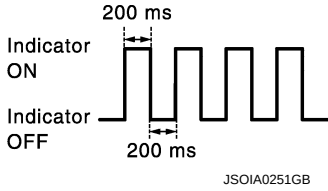
DISPLAY AND WARNING OPERATION

Vehicle condition/ Driver's operation				Action	
Warning systems ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the BSW indicator	Buzzer
OFF	—	—	—	OFF	OFF

OPERATION

[BSW]

< SYSTEM DESCRIPTION >

Vehicle condition/ Driver's operation				Action	
Warning systems ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the BSW indicator	Buzzer
ON	Less than approx. 29 (18)	—	—	ON	OFF
	Approx. 32 (20) or more	—	Vehicle is absent	ON	OFF
		OFF	Vehicle is detected	ON	OFF
		ON (vehicle detected direction)	Before turn signal operates Vehicle is detected	Blink 	Short continuous beep 
			Vehicle is detected after turn signal operates	Blink 	OFF

NOTE:

- If vehicle speed exceeds approximately 32 km/h (20MPH), BSW function operates until the vehicle speed becomes lower than approximately 29km/h (18MPH).
- Time shown in the figure is approximate time.

DAS

HANDLING PRECAUTION

Precautions for Blind Spot Warning

INFOID:000000009723324

REAR VIEW CAMERA HANDLING

The rear view camera for the LDW/BSW systems is located above the rear licence plate. To keep the proper operation of the LDW/BSW systems and prevent a system malfunction, be sure to observe the following:

- Always keep the rear view camera clean. Be careful not to damage the nozzle of automatic washer and blower.
- Do not attach "licence plate accessory" that reflect light.
- Do not strike or damage the areas around the rear view camera.

BLIND SPOT WARNING (BSW)

- The BSW system is not a replacement for proper driving procedure and is not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction you will move to ensure it is safe to change lanes. Never rely solely on the BSW system.
- The rear view camera may not detect properly under the following conditions:
 - When towing a trailer.
 - When strong light enters the rear view camera. (For example, direct sunlight or headlight from the rear)
 - When ambient brightness changes instantly. (For example, when the vehicle enters or exits a tunnel or passes under a bridge.)
- Automatic washer and blower may not be able to secure detection capability when excessive dirt adheres on the camera lens.
- The camera unit may not be able to detect when certain objects are present such as:
 - Pedestrians, bicycles, animals
 - Several types of vehicles such as motorcycles
 - Oncoming vehicles
 - A vehicle approaching rapidly from behind.
 - A vehicle which your vehicle overtakes rapidly.
- The rear view camera may not be able to detect property when your vehicle travels beside the middle section of a vehicle with long wheelbase(e.g. trailer truck, semi-trailer, tractor).
- The rear view camera detection zone is designed based on a standard lane width. When driving in a wider lane, the camera unit may not detect vehicles in an adjacent lane. When driving in a narrow lane, the camera unit may detect vehicles driving two lanes away.
- The rear view camera is designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.
- The rear view camera may detect reflection image of vehicles or roadside objects that are not actually in the detection zone, especially when the road is wet.

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW]

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

CONSULT Function

INFOID:000000009723325

CONSULT FUNCTIONS

CONSULT performs the following functions via the CAN communication with the camera control unit.

Diagnosis mode	Description
ECU Identification	Camera control unit part number can be identified.
Self Diagnostic Results	Camera control unit diagnosis is performed. Current and previous malfunctions are displayed collectively.
Data Monitor	Diagnosis of vehicle signal that is received by camera control unit can be performed.
Work Support	- Target line calibration of rear wide view can be performed. - Display of predicted course line can be switched to ON/OFF. - Calibration and initialization of rear view camera can be performed. - Neutral position adjustment of steering angle sensor can be performed. - Calibration for LDW and BSW can be performed. - Displays causes of system cancellation occurred during system control.
Active Test	Enables an operational check of a load by transmitting a driving signal from the camera control unit to the load.
Configuration	- The vehicle specification that is written in camera control unit can be displayed or stored. - The vehicle specification can be written when camera control unit is replaced.

ECU IDENTIFICATION

Camera control unit part number can be identified.

SELF DIAGNOSIS RESULT

Refer to [DAS-128, "DTC Index"](#).

- In CONSULT self-diagnosis, self-diagnosis results and error history are displayed collectively.
- The current malfunction indicates "CRNT". The past malfunction indicates "PAST".
- The timing is displayed as "0" if any of the error codes [U1000] and [U1010] is detected. The counter increases by 1 if the condition is normal at the next ignition switch ON cycle.

Freeze Frame Data (FFD)

The following vehicle status is recorded when DTC is detected and is displayed on CONSULT.

Item name	Display content
IGN counter (0 to 39)	Numerical value is displayed indicating the number of times that ignition switch is turned ON after the DTC is detected. - When "0" is displayed, it indicates that the system is presently malfunctioning. - When any numerical number other than "0" is displayed, it indicates that system malfunction in the past is detected, but the system is presently normal. NOTE: Each time when ignition switch turns OFF→ON, numerical number increases from 1→2→3...38→39. When number of times exceeds 39, numeric display does not increase and 39 is displayed until self-diagnosis is erased.

DATA MONITOR

NOTE:

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

- Displays the status of the following vehicle signals inputted into the camera control unit.
- For each signal, actual signal can be compared with the condition recognized on the system.

Display Item	Remarks
ST ANGLE SENSOR SIGNAL [ON/OFF]	Receiving status of steering angle signal received from steering angle sensor is switched to ON/OFF.
REVERSE SIGNAL [ON/OFF]	Receiving status of reverse signal received from AV control unit is displayed by ON/OFF.

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW]

Display Item	Remarks
VEHICLE SPEED SIGNAL [ON/OFF]	Receiving status of vehicle speed signal received from ABS actuator control unit is displayed by ON/OFF.
ILL [ON/OFF]	Receiving status of dimmer signal received from BCM is displayed by ON/OFF.
CAMERA SWITCH SIGNAL [ON/OFF]	Receiving status of camera switch signal received from AV control unit is displayed by ON/OFF.
CAMERA OFF SIGNAL [ON/OFF]	Receiving status of camera OFF signal received from AV control unit is displayed by ON/OFF.
ITS SW 1 [ON/OFF]	Indicates the state of the warning system switch as seen by the camera control unit.
ITS SW 1 IND [ON/OFF]	Indicates the state of the warning system switch indicator output.
ST ANGLE SENSOR TYPE [ABSOLUTE]	Input type of steering angle sensor is displayed. NOTE: For this vehicle, "Absolute" is displayed.
STEERING GEAR RATIO TYPE [TYPE1]	Type of steering gear ratio is displayed. NOTE: For this vehicle, "TYPE 1" is displayed.
STEERING POSITION [LHD]	Steering position is displayed. NOTE: For this vehicle, "LHD" is displayed.
WASH SW [ON/OFF]	Indicates [On/Off] status of the washer switch signal input
REAR CAMERA IMAGE SIGNAL [OK/NG]	Input status of rear view camera image signal is displayed by OK/NG in real time.
R-CAMERA COMM STATUS [OK/NG]	Communication status with rear camera is displayed by OK/NG in real time.
R-CAMERA COMM LINE [OK/NG]	Status of communication line with rear camera is displayed by OK/NG in real time.
TURN SIGNAL [ON/OFF]	Indicates [On/Off] status of the turn signal input
ITS SW 2 [No setting]	Indicates the status of warning systems switch as seen by the camera control unit. NOTE: For this vehicle, "No setting" is displayed.
PUMP COMM STATUS [OK/NG]	Communication status with pump control unit is displayed by OK/NG in real time.
ITS SW 2 IND [No setting]	Indicates the status of warning systems switch indicator output. NOTE: For this vehicle, "No setting" is displayed.

WORK SUPPORT

Display Item	Remarks
REAR WIDE-VIEW FIXED GUIDE LINE CORRECTION	The position of rear wide view guiding line can be changed.
PREDICTIVE COURSE LINE DIS- PLAY	ON/OFF setting of predictive course line can be performed.
INITIALIZE CAMERA IMAGE CALI- BRATION	The calibration can be initialized to factory shipment condition. NOTE: Calibration of camera image caused by misalignment of the camera installation position is performed.

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW]

Display Item	Remarks
STEERING ANGLE SENSOR ADJUSTMENT	Steering angle sensor neutral position can be adjusted and registered. CAUTION: For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side. Refer to BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement" .
REAR CAMERA ITS	Calibration for LDW/BSW can be performed.
CAUSE OF LDW CANCEL	Displays causes of automatic system cancellation occurred during control of the LDW system.
CAUSE OF BSW CANCEL	Displays causes of automatic system cancellation occurred during control of the BSW system.

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 LDW/BSW Cancel

Cause of cancellation	Description
REAR CAMERA DIRTY	Rear view camera lens is dirty.
TRUNK OPEN	Back door is open.
TRAILER HITCH ON	Towing (by attaching a trailer).
R CAMERA COMM ERR	Communication error between camera control unit and rear view camera.
LOW WASH FLUID	Washer fluid level is low.
LO TMP(AIR WIPING)	Ambient temperature drops to -20 °C (-4 °F) or less.
LO TMP(WSH WIPING)	Ambient temperature drops to -20 °C (-4 °F) or less.
NO RECORD	—

ACTIVE TEST

CAUTION:

- **Never perform "Active Test" while driving the vehicle.**
- **The "Active Test" cannot be performed when the following systems warning indicator is illuminated.**
 - Lane departure warning lamp
 - BSW warning lamp
- **Shift the selector lever to "P" position, and then perform the test.**

Test items	Description
LED LH INDICATOR	BSW indicator LH can be illuminated by ON/OFF operations as necessary.
LED RH INDICATOR	BSW indicator RH can be illuminated by ON/OFF operations as necessary.
WASH ACTIVE	Camera washer can be operated by ON/OFF operations as necessary.
AIR ACTIVE	Camera blower can be operated by ON/OFF operations as necessary.
AIR & WASH ACTIVE	Camera blower and washer can be operated by ON/OFF operations as necessary.

LED LH INDICATOR

Test item	Operation	Description	BSW indicator LH
LED LH INDICATOR	Off	Stops transmitting the BSW indicator LH signal below to end the test	OFF
	On	Transmits the BSW indicator LH signal to the BSW indicator	ON

LED RH INDICATOR

DIAGNOSIS SYSTEM (CAMERA CONTROL UNIT)

< SYSTEM DESCRIPTION >

[BSW]

Test item	Operation	Description	BSW indicator RH
LED RH INDICATOR	Off	Stops transmitting the BSW indicator RH signal below to end the test	OFF
	On	Transmits the BSW indicator RH signal to the BSW indicator	ON

WASH ACTIVE

Test item	Operation	Description	Rear view camera washer
WASH ACTIVE	Off	Stops transmitting the rear view camera washer signal below to end the test	OFF
	On	Transmits the rear view camera washer signal to the pump control unit via communication line	ON

AIR ACTIVE

Test item	Operation	Description	Rear view camera air blower
AIR ACTIVE	Off	Stops transmitting the rear view camera air blow signal below to end the test	OFF
	On	Transmits the rear view camera air blow signal to the pump control unit via communication line	ON

AIR & WASHER ACTIVE

Test item	Operation	Description	Rear view camera air blower and washer
AIR & WASHER ACTIVE	Off	Stops transmitting the rear view camera air blow / washer signal below to end the test	OFF
	On	Transmits the rear view camera air blow / washer signal to the pump control unit via communication line	ON

CONFIGURATION

Configuration includes functions as follows.

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

ECU DIAGNOSIS INFORMATION

CAMERA CONTROL UNIT

Reference Value

INFOID:000000009723326

VALUES ON THE DIAGNOSIS TOOL

NOTE:

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

CONSULT MONITOR ITEM

Monitor Item	Condition		Value/Status
ST ANGLE SENSOR SIGNAL [ON/OFF]	Ignition switch ON	When steering angle sensor signal is input	ON
		Other than the above	OFF
REVERSE SIGNAL [ON/OFF]	Ignition switch ON	R position	ON
		Other than R position	OFF
VEHICLE SPEED SIGNAL [ON/OFF]	Ignition switch ON	When vehicle speed is input	ON
		Other than the above	OFF
ILL [ON/OFF]	Ignition switch ON	When lighting switch is ON	ON
		When lighting switch is OFF	OFF
CAMERA SWITCH SIGNAL [ON/OFF]	Ignition switch ON	When camera switch signal is input	ON
		Other than the above	OFF
CAMERA OFF SIGNAL [ON/OFF]	Ignition switch ON	When camera OFF signal is input	ON
		Other than the above	OFF
ITS SW 1 [ON/OFF]	Ignition switch ON	Warning systems switch is ON. (Warning systems ON indicator illuminates.)	ON
		Warning systems switch is OFF. (Warning systems ON indicator OFF.)	OFF
ITS SW 1 IND [ON/OFF]	Ignition switch ON	Warning systems ON indicator illuminates.	ON
		Warning systems ON indicator OFF	OFF
ST ANGLE SENSOR TYPE [Absolute]	Ignition switch ON	—	Absolute
STEERING GEAR RATIO TYPE [TYPE1]	Ignition switch ON	—	TYPE1
STEERING POSITION [LHD]	Ignition switch ON	—	LHD
WASH SW [ON/OFF]	Ignition switch ON	When washer switch signal is input	ON
		Other than the above	OFF
REAR CAMERA IMAGE SIGNAL [OK/NG]	Ignition switch ON	When rear camera image signal input status is normal	OK
		When rear view camera image signal input status is not normal	NG
R-CAMERA COMM STATUS [OK/NG]	Ignition switch ON	When communication status with rear camera is normal	OK
		When communication status with rear camera is not normal	NG
TURN SIGNAL [ON/OFF]	Ignition switch ON	Turn signal is ON	ON
		Turn signal is OFF	OFF
ITS SW 2 [No setting]	Ignition switch ON	—	No setting

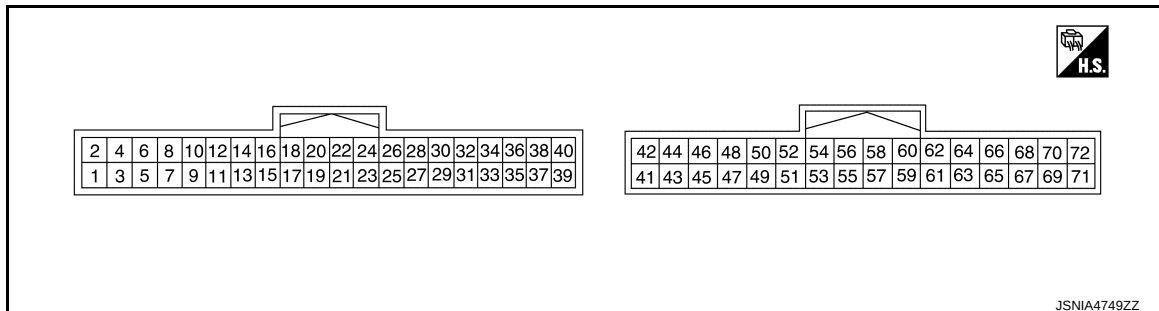
CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW]

Monitor Item	Condition		Value/Status
PUMP COMM STATUS [OK/NG]	Ignition switch ON	When communication signal is input	OK
		Other than the above	NG
ITS SW 2 IND [No setting]	Ignition switch ON	—	No setting

TERMINAL LAYOUT



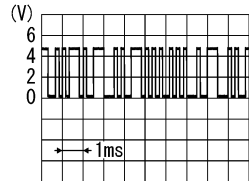
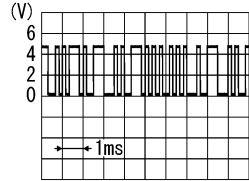
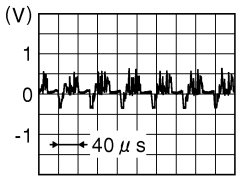
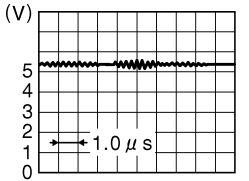
PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
1 (B)	Ground	Ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
2 (V)	1 (B)	Battery power supply	Input	Ignition switch OFF	—	9.5 - 16 V	Battery voltage
3 (G)	1 (B)	Ignition signal	Input	Ignition switch ON	—	9.5 - 16 V	Battery voltage
7 (R)	Ground	BSW indicator LH	Output	Ignition switch ON	Approx. 2 sec. after ignition switch OFF ⇒ ON (bulb check).	5.5 - 16 V	6.0 V
8 (G)	Ground	BSW indicator RH	Output	Ignition switch ON	Approx. 2 sec. after ignition switch OFF ⇒ ON (bulb check)	5.5 - 16 V	6.0 V
15 (BR)	Ground	Warning systems ON indicator	Output	Ignition switch ON	Warning systems ON indi- cator ON	0 - 0.1 V	0 V
					Warning systems ON indi- cator OFF	9.5 - 16 V	12.0 V
17 (GR)	Ground	Warning systems switch	Input	Ignition switch ON	When warning systems switch is not pressed	9.5 - 16 V	12.0 V
					When warning systems switch is pressed	0 - 0.1 V	0 V
25 (R)	1 (B)	Reverse signal	Input	Ignition switch ON	R position	9.5 - 16 V	12.0 V
					Other than R position	0 - 0.1 V	0 V
27 (L)	—	CAN-H	Input/ Output	—	—	—	—
28 (P)	—	CAN-L	Input/ Output	—	—	—	—

CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW]

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
36 (W)	Ground	Communication signal (CAMERA → PUMP)	Output	Ignition switch ON	—	Input the waveform synchronized with the communication status. 	
37 (SB)	Ground	COMM GND	—	Ignition switch ON	—	0 - 0.1 V	0 V
38 (V)	Ground	Communication signal (PUMP → CAMERA)	Input	Ignition switch ON	—	Input the waveform synchronized with the communication status. 	
40 (R)	Ground	Washer level switch	Input	Ignition switch ON	Washer is empty	0 - 0.1 V	0 V
					Washer is not empty	9.5 - 16 V	12 V
47 (B)	48	Camera image signal	Output	Ignition switch ON	—	Input the waveform synchronized with the camera image signal. 	
48	Ground	Camera image signal ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
49 (W)	52 (R/W)	Rear camera commu- nication signal	Input/ Output	Ignition switch ON	—	Input the waveform synchronized with the communication status. 	
50 (R/L)	52 (R/W)	Rear camera power supply	Output	Ignition switch ON	—	5.0 - 9.0 V	6.0 V
52 (R/W)	Ground	Rear camera ground	—	Ignition switch ON	—	0 - 0.1 V	0 V

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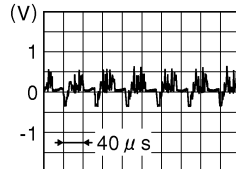
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CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW]

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	−	Signal name	Input/ Output				
53 (B)	54	Rear camera image signal (+)	Input	Ignition switch ON	—	Input the waveform synchronized with the camera image signal.  JSNIA0834GB	
54	Ground	Rear camera image signal (−)	—	Ignition switch ON	—	0 - 0.1 V	0 V

Fail-Safe

INFOID:000000009723327

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
C1A03 VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the camera control unit via CAN communication, are inconsistent	• LDW system is cancel • BSW system is cancel
C1A04 ABS/TCS/VDC CIRC	If a malfunction occurs in the VDC/TCS/ABS system	• LDW system is cancel • BSW system is cancel
C1A39 STRG SEN CIR	If the steering angle sensor is malfunction	• LDW system is cancel • BSW system is cancel
U0122 VDC P-RUN DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	• LDW system is cancel • BSW system is cancel
U0416 VDC CHECKSUM DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	• LDW system is cancel • BSW system is cancel
U0428 ST ANGLE SENSOR CALIBRATION	Neutral position adjustment of steering angle sensor is not complete.	• Predicted course line is not displayed. • MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.

CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW]

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1000 CAN COMM CIRCUIT	When camera control unit cannot transmit/receive CAN communication signal continuously for 2 seconds or more.	The following functions are stopped • When communication of steering angle sensor signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Front tire angle display is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed. • When communication of vehicle signal, wheel speed sensor signal, and shift signal is not normal - Predicted course line is not displayed. - MOD (Moving Object Detection) function is stopped. - LDW system is stopped. - BSW system is stopped. - Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed • When communication of sonar signal is not normal - Predicted course line is not displayed.
U1010 CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U111A REAR CAMERA IMAGE SIGNAL	No-signal status of rear camera image signal is continued for 500 ms or more while ignition switch is ON. NOTE: Current malfunction is displayed only and is not saved.	• Camera image is not displayed (Gray screen display). • LDW system is stopped. • BSW system is stopped.
U1232 ST ANGLE SEN CALIB	Neutral position adjustment of steering angle sensor is performed. NG signal from steering angle sensor is received.	• Predicted course line is not displayed. • MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped. • Tire icon is stopped. • Using "SETTING" menu display, switch each indicator of predicted course line display and MOD switch to "OFF" (turn OFF) so that switch operation cannot be performed.
U1305 CONFIG UNFINISH	The vehicle setting of camera control unit is incomplete. NOTE: Current malfunction is displayed only and is not saved.	Operation is according to the vehicle setting value as default value.
U1308 R-CAMERA (R&L) CALIB JDG-MNT	Camera image calibration is incomplete	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.

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CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW]

DTC Display contents of CONSULT	Malfunction detection condition	Fail-safe condition
U1309 PUMP INPUT CURRENT JUDGE	Camera control unit detects the value of current from pump control unit is incorrect	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U130B RR CAMERA COMM ERROR	Camera control unit receives the incorrect communication signal from rear view camera	• MOD (Moving Object Detection) function is stopped. • LDW system is stopped. • BSW system is stopped.
U1310 PUMP ECU JUDGE	If the pump control unit is malfunction	• LDW system is stopped. • BSW system is stopped.
Other	When camera control unit is not normal.	Switch to camera screen is not allowed.
	When communication between camera control unit and each camera is not normal.	On applicable camera screen  marking (Red) is displayed.
	When communication line between camera control unit and each camera image line are affected by electromagnetic noises.	On applicable camera image screen,  display (Blue) is displayed.

DTC Inspection Priority Chart

INFOID:000000009723328

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	• U1232: ST ANGLE SEN CALIB • U1305: CONFIG UNFINISH
3	• U0428: ST ANGLE SENSOR CALIBRATION
4	• U130B: RR CAMERA COMM ERROR
5	• U1308: R-CAMERA (R&L) CALIB JDGMNT
6	• C1A04: ABS/TCS/VDC CIRC • C1A39: STRG SEN CIR • U0122: VDC P-RUN DIAGNOSIS • U0416: VDC CHECKSUM DIAGNOSIS • U111A: REAR CAMERA IMAGE SIGNAL • U1309: PUMP INPUT CURRENT JUDGE • U1310: PUMP ECU JUDGE
7	• C1A03: VHCL SPEED SE CIRC

DTC Index

INFOID:000000009723329

DTC	CONSULT display	Warning lamp		"MOD" (Moving Object Detection) icon	Reference
		Lane departure warning lamp	BSW warning lamp		
C1A03	VHCL SPEED SE CIRC	ON	ON	Orange	DAS-149, "DTC Log-ic"
C1A04	ABS/TCS/VDC CIRC	ON	ON	Orange	DAS-150, "DTC Log-ic"
C1A39	STRG SEN CIR	ON	ON	Orange	DAS-151, "DTC Log-ic"
U0122	VDC P-RUN DIAGNOSIS	ON	ON	Orange	DAS-152, "DTC Log-ic"

CAMERA CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW]

DTC	CONSULT display	Warning lamp		"MOD" (Moving Object Detection) icon	Reference
		Lane departure warning lamp	BSW warning lamp		
U0416	VDC CHECKSUM DIAGNOSIS	ON	ON	Orange	DAS-153, "DTC Log-ic"
U0428	ST ANGLE SENSOR CALIBRATION	ON	ON	Orange	DAS-154, "DTC Log-ic"
U1000	CAN COMM CIRCUIT	ON	ON	Orange	DAS-155, "DTC Log-ic"
U1010	CONTROL UNIT (CAN)	ON	ON	Orange	DAS-156, "DTC Log-ic"
U111A	REAR CAMERA IMAGE SIGNAL	ON	ON	Orange	DAS-157, "DTC Log-ic"
U1232	ST ANGLE SEN CALIB	ON	ON	Orange	DAS-159, "DTC Log-ic"
U1305	CONFIG UNFINISH	ON	ON	Orange	DAS-160, "DTC Log-ic"
U1308	R-CAMERA (R&L) CALIB JDGMNT	ON	ON	Orange	DAS-161, "DTC Log-ic"
U1309	PUMP INPUT CURRENT JUDGE	ON	ON	Blue	DAS-162, "DTC Log-ic"
U130B	RR CAMERA COMM ERROR	ON	ON	Orange	DAS-163, "DTC Log-ic"
U1310	PUMP ECU JUDGE	ON	ON	Blue	DAS-164, "DTC Log-ic"

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PUMP CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

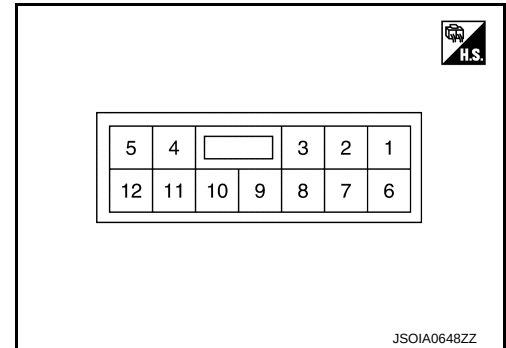
[BSW]

PUMP CONTROL UNIT

Reference Value

INFOID:000000009723330

TERMINAL LAYOUT



PHYSICAL VALUES

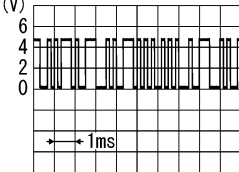
Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
1 (W)	2 (B)	Air pump power supply	Output	Ignition switch ON	Air pump operated	9.5 - 16 V	12 V
					Other than above	0 - 0.1 V	0 V
2 (B)	Ground	Air pump ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
3 (L)	5 (B)	Rear view camera washer relay 2	Output	Ignition switch ON	Rear view camera washer operated	0 - 0.1 V	0 V
					Other than above	9.5 - 16 V	12 V
4 (R)	5 (B)	Rear view camera washer relay 1	Output	Ignition switch ON	Rear view camera washer operated	0 - 0.1 V	0 V
					Other than above	9.5 - 16 V	0 V
5 (B)	Ground	Ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
6 (SB)	—	Communication line ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
7 (V)	—	Communication line (PUMP → CAMERA)	Output	Ignition switch ON	—	Input the waveform synchronized with the communication status. 	

PKIB5039J

PUMP CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[BSW]

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
8 (W)	—	Communication line (CAMERA → PUMP)	Input	Ignition switch ON	—	Input the waveform synchronized with the communication status.  PKIB5039J	
9 (G)	5 (B)	Rear washer status	input	Ignition switch ON	Rear washer switch is ON.	0 - 0.1 V	0 V
					Rear washer switch is OFF.	9.5 - 16 V	12 V
10 (BR)	5 (B)	Rear washer switch input	Input	Ignition switch ON	Rear washer switch is ON.	9.5 - 16 V	12 V
					Rear washer switch is OFF.	0 - 0.1 V	0 V
12 (Y)	5 (B)	Ignition power supply	Input	Ignition switch ON	—	9.5 - 16 V	12 V

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DAS

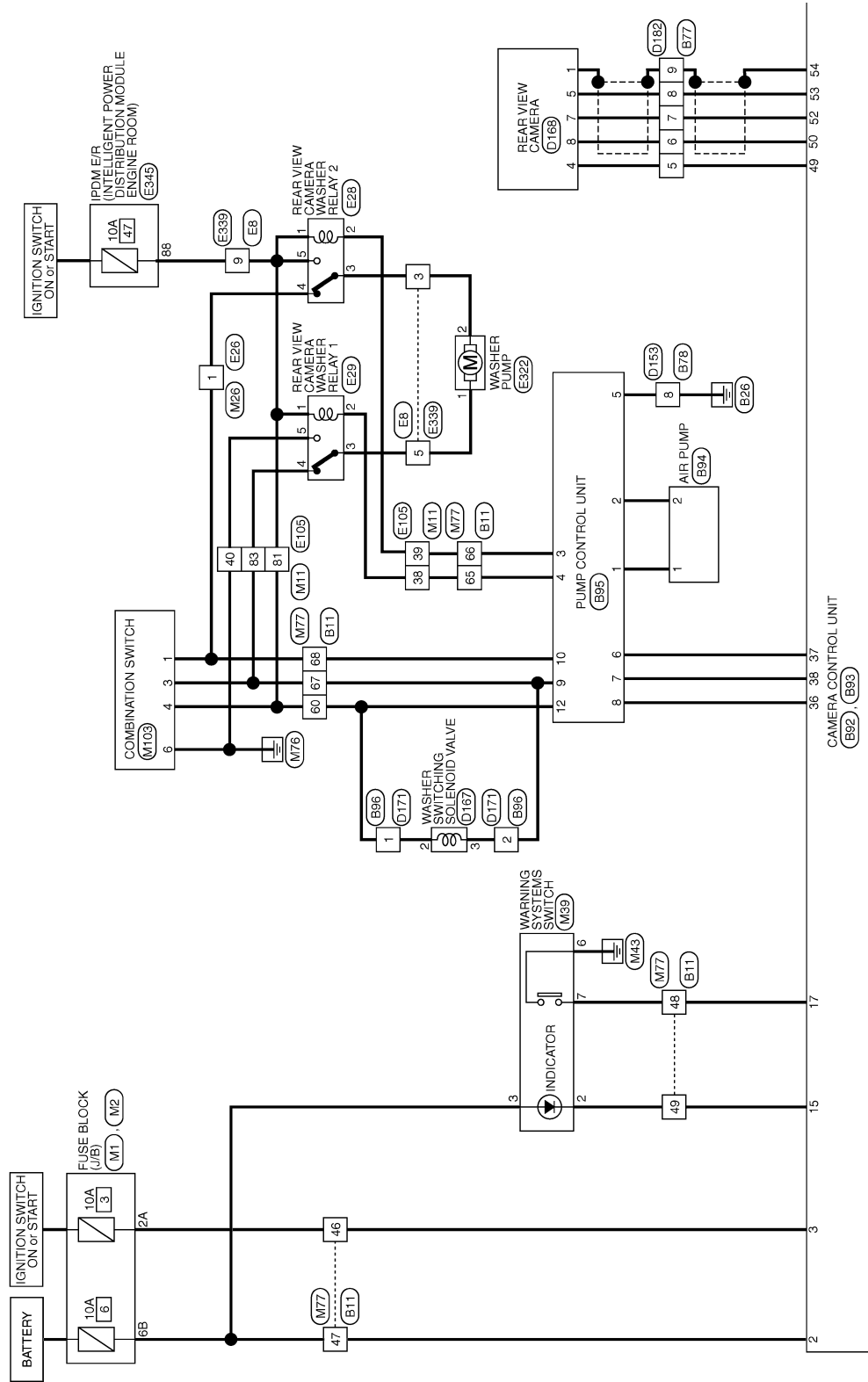
WIRING DIAGRAM

DRIVER ASSISTANCE SYSTEMS

Wiring Diagram

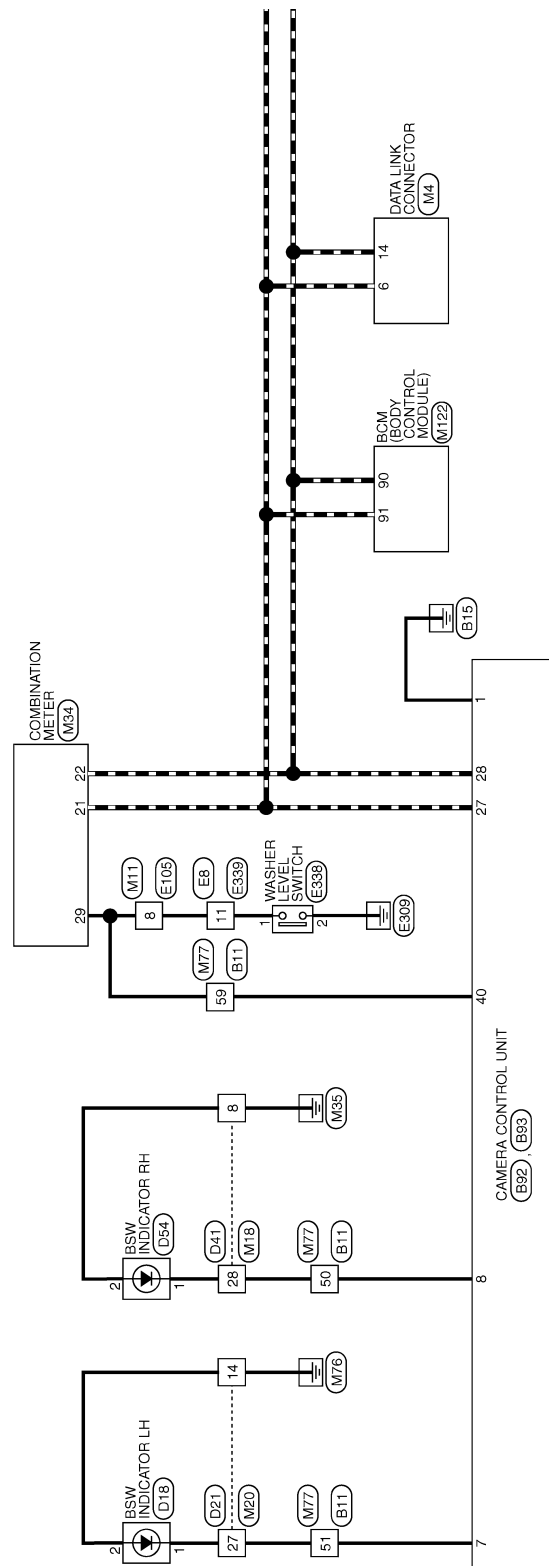
INFOID:0000000010089132

DRIVER ASSISTANCE SYSTEMS



2012/08/24

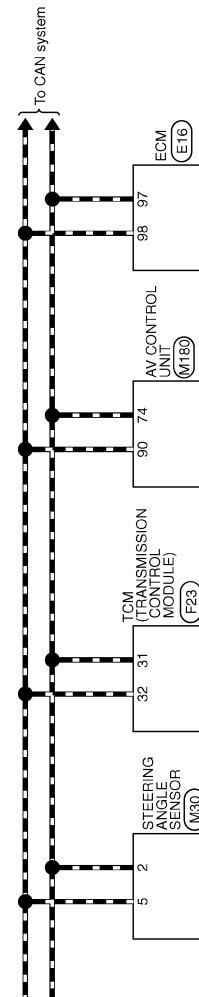
JROWC0298GB



JROWC0299GB

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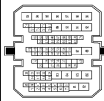
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JROWC0300GB

DRIVER ASSISTANCE SYSTEMS

Connector No.	B11
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS19



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	
2	R	
3	R/L	
4	R/W	
5	P	
6	V	
7	SHIELD	
8	BR/L	
9	Y/G	
10	Y/L	
11	W/L	
12	L	
13	BR	
14	SB	
15	GR	
16	SB	
17	R	
18	V	
19	P	
20	LG	
21	W	
22	Y	
23	GR	
24	Y	
25	R	
26	P	
27	BR	
28	SB	
29	SHIELD	
30	LG	
31	W	
32	R	
33	V	
34	P	
35	LG	
36	W	
37	R	
38	V	
39	P	
40	LG	
41	W	

42	G	-
43	G	-
44	LG	-
45	SS	-
46	V	-
47	GR	-
48	SHIELD	-
49	B	-
50	G	-
51	R/W	-
52	R	-
53	R/L	-
54	B	-
55	LG	-
56	P	-
57	L	-
58	R	-
59	R	-
60	SHIELD	-
61	B	-
62	Y	-
63	R/L	-
64	LG	-
65	Y	-
66	BR	-
67	R	-
68	L	-
69	V	-
70	G	-
71	GR	-
72	R	-
73	SHIELD	-
74	W/R	-
75	Y	-
76	LG	-
77	SS	-
78	L	-
79	G	-
80	R	-
81	B	-
82	W	-
83	R	-

DRIVER ASSISTANCE SYSTEMS

Terminal No.	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1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DRIVER ASSISTANCE SYSTEMS

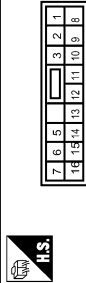
16	G	-
17	GR	-
18	GR	-
19	BR	-
20	LG	-
24	LG	-
25	W	-
26	O	-
28	G	-
29	V	-
30	SB	-
31	BR	-
32	R	-
33	G	-
34	Y	-
35	L	-

Connector No.	D54
Connector Name	BSW INDICATOR RH
Connector Type	THDMMW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	INDICATOR R
4	B	GROUND

Connector No.	D153
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
1	LG	-
2	W	-
3	V	-
5	R	-
6	V	-
8	B	-
9	L	-
10	R	-
11	O	-
12	W	-
13	GR	-
14	G	-
15	O	-
16	BR	-

Connector No.	D167
Connector Name	WASHER SWITCHING SOLENOID VALVE
Connector Type	THQ4FW-AH



Terminal No.	Color Of Wire	Signal Name [Specification]
2	Y	-
3	G	-

Connector No.	D168
Connector Name	REAR VIEW CAMERA
Connector Type	THS8BW-NH



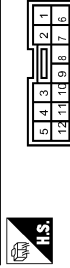
Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	VIDEO-
5	B	CONTROL
7	G	VIDEO+
8	R	POWER

Connector No.	D171
Connector Name	WIRE TO WIRE
Connector Type	TK02FW



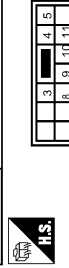
Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	Y	-

Connector No.	D182
Connector Name	WIRE TO WIRE
Connector Type	TK12FW



Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	-
2	GR	-
3	G	-
4	O	-
5	W	-
6	R	-
7	G	-
8	B	-
9	SHIELD	-
10	LG	-
11	O	-
12	G	-

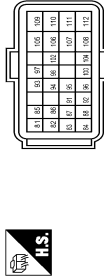
Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Type	NS12MBR-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
3	GR	-
5	SB	-
8	G	-
9	W	-
10	Y	-
11	G	-

DRIVER ASSISTANCE SYSTEMS

Connector No.	E16
Connector Name	ECM
Connector Type	RH24EB-R28-L-LH



Terminal No.	Color Of Wire	Signal Name [Specification]
81	W	ACCELERATOR PEDAL POSITION SENSOR 1
82	O	ACCELERATOR PEDAL POSITION SENSOR 2
83	BR	SENSOR POWER SUPPLY
84	B	SENSOR GROUND
85	Y	ASCO STEERING SWITCH
86	SB	EVAP CONTROL SYSTEM PRESSURE SENSOR
87	GR	SENSOR POWER SUPPLY
88	O	DATA LINK CONNECTOR
91	L	SENSOR POWER SUPPLY
92	BR	IGNITION SWITCH
93	BR	ENGINE SPEED OUTPUT SIGNAL
94	GR	FUEL TANK TEMPERATURE SENSOR
95	Y	SENSOR GROUND (CAN-L)
96	P	CAN COMMUNICATION LINE (CAN-L)
98	L	CAN COMMUNICATION LINE (CAN-H)
100	G	SENSOR GROUND
102	R	PNP SIGNAL
104	SB	SENSOR GROUND
105	V	POWER SUPPLY FOR ECM
106	SB	STOP LAMP SWITCH
107	B	ECM GROUND
108	B	ECM GROUND
109	W	EVAP CANISTER VENT CONTROL VALVE
110	G	ASCO BRAKE SWITCH
111	B	ECM GROUND
112	B	ECM GROUND

Connector No.	E28
Connector Name	WIRE TO WIRE
Connector Type	NS32MW-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
2	GR	-
3	Y	-

Connector No.	E28
Connector Name	REAR VIEW CAMERA WASHER RELAY 2
Connector Type	MS30FB-M2-LC



Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	-
2	L	-
3	GR	-
4	GR	-
5	W	-

Connector No.	E29
Connector Name	REAR VIEW CAMERA WASHER RELAY 1
Connector Type	MS30FB-M2-LC



Terminal No.	Color Of Wire	Signal Name [Specification]
2	GR	-
3	R	-
4	O	-
5	B	-

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH70MW-CS10-M3



Terminal No.	Color Of Wire	Signal Name [Specification]
3	Y	-
5	LG	-
6	GR	-
8	G	-
11	P	-
12	L	-
13	O	-
15	BR	-
20	Y	-
21	BR	-
22	P	-
24	L	-
25	O	-
28	SB	-

29	W	-
30	Y	-
38	R	-
39	L	-
40	B	-
47	P	-
48	L	-
49	SB	-
50	GR	-
51	LG	-
52	V	-
53	GR	-
54	BR	-
55	Y	-
58	W	-
60	Y	-
61	BR	-
62	O	-
63	L/O	-
64	SHIELD	-
66	W	-
67	BR	-
68	Y	-
69	SB	-
70	GR	-
71	SB	-
72	Y	-
73	W	-
74	W	-
75	BR	-
76	GR	-
77	O	-
78	G	- [With Pod without navigation system]
78	V	- [Without Pod and navigation system]
78	Y	- [With navigation system]
79	Y	-
80	R	-
81	W	-
82	LG	-
83	O	-

DRIVER ASSISTANCE SYSTEMS

Connector No.	E322
Connector Name	WASHER PUMP
Connector Type	E02FGY-RS



5	4	3	2	1
1	1	1	1	1

Connector No.	E339
Connector Name	WIRE TO WIRE
Connector Type	NS12FBS-CS



5	4	3	2	1
1	1	1	1	1

Connector No.	F23
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	RH4PFB-E23-L-RH



31	32	33	34					37	38	39	40	47	48
				25	26	27	28	29	30			46	
11		13	14	15						19	20		
1	2	3	4	5				7	8	9	10		42

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS08FW-M2



3A	2A	1A
8A	7A	6A

Terminal No.	Color Of Wire	Signal Name [Specification]
1	O	-
2	O	-

Connector No.	E338
Connector Name	WASHER LEVEL SWITCH
Connector Type	Z02FBR



Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	-
2	B	-

Terminal No.	Color Of Wire	Signal Name [Specification]
1	P/B	TRANSMISSION RANGE SWITCH 2
2	P/B	TRANSMISSION RANGE SWITCH 2
3	G/O	TRANSMISSION RANGE SWITCH 2
4	GR	TRANSMISSION RANGE SWITCH 1 (MONITOR)
5	B	GROUND
7	W	SENSOR GROUND
8	G/W	CLOCK (SEL 2)
9	L/R	CHIP SELECT (SEL 1)
10	BR/W	DATA L/O (SEL 3)
11	BR/W	TRANSMISSION RANGE SWITCH 1
13	V	CVT FLUID TEMPERATURE SENSOR
14	R/W	PRIMARY PRESSURE SENSOR
15	V/W	SECONDARY PRESSURE SENSOR
19	G/B	REVERSE LAMP RELAY
20	G/B	STARTER RELAY
21	W/R	STARTER RELAY
26	L/O	SENSOR POWER
27	R/G	STEP MOTOR C
28	R	STEP MOTOR D
29	O/B	STEP MOTOR B
30	G/R	STEP MOTOR A
31	P	CAN-L
32	L	CAN-H
33	L/G	PRIMARY SPEED SENSOR
34	L/G/R	SECONDARY SPEED SENSOR
37	V/R	LOOK-UP SELECT SOLENOID VALVE
38	L/W	TORQUE CONVERTER CLUTCH SOLENOID VALVE
39	W/B	SECONDARY PRESSURE SOLENOID VALVE
40	R/L	LINE PRESSURE SOLENOID VALVE
41	W/G	POWER SUPPLY
46	Y	POWER SUPPLY (MEMORY BACK-UP)
47	L/R	POWER SUPPLY
48	Y	POWER SUPPLY

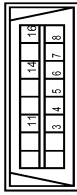
Connector No.	E345
Connector Name	POWER DISTRIBUTION MODULE ENGINE ROOM
Connector Type	NS08FW-CS



8A	8B	8C	8D	8E	8F	8G	8H	8I	8J	8K	8L	8M	8N	8O	8P	8Q	8R	8S	8T	8U	8V	8W	8X	8Y	8Z	8AA	8AB	8AC	8AD	8AE	8AF	8AG	8AH	8AI	8AJ	8AK	8AL	8AM	8AN	8AO	8AP	8AQ	8AR	8AS	8AT	8AU	8AV	8AW	8AX	8AY	8AZ	8BA	8BB	8BC	8BD	8BE	8BF	8BG	8BH	8BI	8BJ	8BK	8BL	8BM	8BN	8BO	8BP	8BQ	8BR	8BS	8BT	8BU	8BV	8BW	8BX	8BY	8BZ	8CA	8CB	8CC	8CD	8CE	8CF	8CG	8CH	8CI	8CJ	8CK	8CL	8CM	8CN	8CO	8CP	8CQ	8CR	8CS	8CT	8CU	8CV	8CW	8CX	8CY	8CZ	8DA	8DB	8DC	8DD	8DE	8DF	8DG	8DH	8DI	8DJ	8DK	8DL	8DM	8DN	8DO	8DP	8DQ	8DR	8DS	8DT	8DU	8DV	8DW	8DX	8DY	8DZ	8EA	8EB	8EC	8ED	8EE	8EF	8EG	8EH	8EI	8EJ	8EK	8EL	8EM	8EN	8EO	8EP	8EQ	8ER	8ES	8ET	8EU	8EV	8EW	8EX	8EY	8EZ	8FA	8FB	8FC	8FD	8FE	8FF	8FG	8FH	8FI	8FJ	8FK	8FL	8FM	8FN	8FO	8FP	8FQ	8FR	8FS	8FT	8FU	8FV	8FW	8FX	8FY	8FZ	8GA	8GB	8GC	8GD	8GE	8GF	8GG	8GH	8GI	8GJ	8GK	8GL	8GM	8GN	8GO	8GP	8GQ	8GR	8GS	8GT	8GU	8GV	8GW	8GX	8GY	8GZ	8HA	8HB	8HC	8HD	8HE	8HF	8HG	8HH	8HI	8HJ	8HK	8HL	8HM	8HN	8HO	8HP	8HQ	8HR	8HS	8HT	8HU	8HV	8HW	8HX	8HY	8HZ	8IA	8IB	8IC	8ID	
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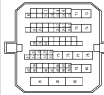
DRIVER ASSISTANCE SYSTEMS

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16W



Terminal No.	Color Of Wire	Signal Name [Specification]
1	LG	-
2	B	-
3	B	-
4	L	-
5	BR	-
6	G	-
7	SB	-
8	P	-
9	Y	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-

Connector No.	M11
Connector Name	WIRE TO WIRE
Connector Type	TH10PW-GS10-M3



Terminal No.	Color Of Wire	Signal Name [Specification]
1	P	-
2	BR	-
3	O	-
4	G	-
5	W	-
6	P	-
7	L	-
8	V	-
9	Y	-
10	R	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-

- (With colour diodes)		
20	Y	-
21	BR	-
22	LG	-
24	Y	-
25	L	-
26	BR	-
29	L	-
30	R	-
38	R	-
39	L	-
41	P	-
42	L	-
44	L	-
48	L	-
49	W	-
50	GR	-
51	LG	-
52	Y	-
53	V	-
54	SB	-
55	P	-
56	LG	-
57	W	-
61	GR	-
62	GR	-
63	V	-
64	SHIELD	-
66	W	-
67	R	-
68	W	-
69	P	-
70	G	-
71	G	-
72	BR	-
73	W	-
74	W	-
75	BR	-
76	R	-
77	G	-
78	Y	-
79	G	-
80	R	-
81	W	-
82	W	-

DRIVER ASSISTANCE SYSTEMS

16	P	-
50	V	-
52	BG	- [With automatic drive positioner]
52	GR	- [Without automatic drive positioner]
53	R	- [With automatic drive positioner]
53	L	- [Without automatic drive positioner]
53	V	- [With automatic drive positioner]
54	G	- [Without automatic drive positioner]
54	LG	- [With automatic drive positioner]
55	GR	- [Without automatic drive positioner]
55	SB	- [With automatic drive positioner]

Connector No.	M26
Connector Name	WIRE TO WIRE
Connector Type	INSDFW-CS



Terminal No.	Wire	Signal Name [Specification]
1	G	-
2	Y	-

Connector No.	M30
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH8DFW-NH



Terminal No.	Wire	Signal Name [Specification]
1	B	-
2	P	-
4	G	-
5	L	-

Connector No.	M24
Connector Name	COMBINATION METER
Connector Type	TH4DFW-NH



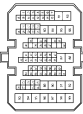
Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	BATTERY POWER SUPPLY
2	G	IGNITION SWITCH
3	B	GROUND
4	B	GROUND
5	SB	ILLUMINATION CONTROL SIGNAL
8	SB	TRIP RESET SIGNAL
9	W	SWILL POWER
10	LG	METER CONTROL SWITCH GROUND
11	L	ENTER SWITCH SIGNAL
12	R	SELECT SWITCH SIGNAL
13	V	ILLUMINATION CONTROL SWITCH SIGNAL (-)
14	GR	ILLUMINATION CONTROL SWITCH SIGNAL (-)
15	BR	AIR BAG SIGNAL
18	L	AMBIENT SENSOR SIGNAL
19	P	AMBIENT SENSOR POWER
20	Y	AMBIENT SENSOR GROUND
21	L	CAN-L
22	P	GROUND
23	B	FUEL LEVEL SENSOR GROUND
24	W	ALTERNATOR SIGNAL
25	BR	PARKING BRAKE SWITCH SIGNAL
26	G	WASHER FLUID LEVEL SWITCH SIGNAL
27	V	WASHER FLUID LEVEL SWITCH SIGNAL
29	R	VEHICLE SPEED SIGNAL (2-PULSE)
30	P	VEHICLE SPEED SIGNAL (8-PULSE)
31	V	OVERDRIVE CONTROL SWITCH SIGNAL
32	LG	FUEL LEVEL SENSOR SIGNAL
34	G	SEAT BELT BUOGE SWITCH SIGNAL (DRIVER SIDE)
35	SB	SEAT BELT BUOGE SWITCH SIGNAL (PASSENGER SIDE)
36	R	SEAT BELT BUOGE SWITCH SIGNAL (PASSENGER SIDE)

Connector No.	M39
Connector Name	WARNING SYSTEMS SWITCH
Connector Type	TK08EGY



Terminal No.	Color Of Wire	Signal Name [Specification]
2	BR	-
3	BR	-
4	SB	-
5	R	-
6	B	-
7	GR	-

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH8DFW-CS19



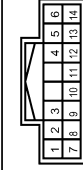
Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	-
2	B	-
3	W	-
4	R	-
6	W	-
7	G	-
8	SHIELD	-
9	SHIELD	-
10	R	-
11	G	-
12	B	-
13	P	-
14	R	-
15	SB	-

16	R	-
17	V	-
18	P	-
19	P	-
20	LG	-
21	Y	-
22	BR	-
23	LG	-
24	SB	-
25	Y	-
27	Y	-
28	R	-
30	Y	-
31	W	-
32	BR	-
33	SB	-
35	B	-
36	G	-
37	Y	-
40	BR	-
41	LG	-
42	SB	-
46	G	-
47	SB	-
47	Y	-
48	GR	-
48	SHIELD	-
49	BR	-
49	LG	-
50	R	-
51	R	-
51	V	-
52	B	-
53	BR	-
54	B	-
55	G	-
56	P	-
57	L	-
58	SB	-
59	R	-
59	SHIELD	-
60	B	-
61	R	-
62	W	-
63	LG	-
64	Y	-
65	R	-

DRIVER ASSISTANCE SYSTEMS

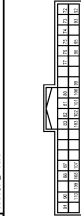
85	V	-
86	Y	-
87	G	-
88	W	-
89	SHIELD	-
90	L	-
91	P	-
92	LG	-
93	Y	-
94	R	-
95	P	-
96	L	-
97	BR	-
98	S	-
99	W	-
81	L	-
82	L	-
83	GR	- [Without automatic drive positioner]
84	W	- [With automatic drive positioner]
85	R	-
86	V	-
87	R	-
88	G	-
89	B	-
90	V	-
91	G	-
92	BR	-
93	P	-
94	V	-
95	W	-
96	SB	-
97	L	-
98	LG	-
99	Y	-

Connector No.	M103
Connector Name	COMBINATION SWITCH
Connector Type	TH18FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	O	-
2	Y	OUTPUT 4
3	BG	IGN
4	W	GROUND
5	V	OUTPUT 3
6	B	GROUND
7	GR	INPUT 3
8	L	OUTPUT 5
9	SB	INPUT 2
10	P	INPUT 4
11	O	INPUT 1
12	W	OUTPUT 1
13	R	INPUT 5
14	P	OUTPUT 2

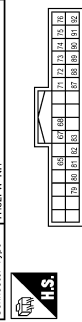
Connector No.	M122
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
72	B	ROOM ANT-
73	W	ROOM ANT+
74	Y	PASSENGER DOOR ANT-
75	LG	PASSENGER DOOR ANT+
76	V	DRIVER DOOR ANT-
77	P	DRIVER DOOR ANT+

80	SB	NATS ANT AMP
81	O	NATS ANT AMP
82	BR	IGN RELAY F/B CONT
83	P	KEYLESS ENTRY RECEIVER COMM
87	R	COMBI SW INPUT 5
88	GR	COMBI SW INPUT 3
90	P	CAN-L
91	L	CAN-H
92	R	KEY SLOT ILL CONT
93	P	IGN IND
95	L	ACC RELAY CONT
96	Y	CVT SHIFT SELECTOR POWER SUPPLY
99	V	SHIFT P
100	P	PASSENGER DOOR REQUEST SW
101	Y	DRIVER DOOR REQUEST SW
102	Y	DOOR RELAY POWER SUPPLY
103	L	KEYLESS ENTRY RECEIVER POWER SUPPLY
107	O	COMBI SW INPUT 1
108	P	COMBI SW INPUT 4
109	SB	COMBI SW INPUT 2
110	G	HAZARD SW

Connector No.	M180
Connector Name	AV CONTROL UNIT
Connector Type	TH35FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
65	LG	PARKING BRAKE
67	L	-
68	LG	-
71	SHIELD	SHIELD
72	B	MICROPHONE VCG
73	P	COMM (CAN-L-DBSP)
74	P	CAN-L
75	LG	AV COMM (L)
76	LG	AV COMM (L)
79	R	ILLUMINATION SIGNAL
80	G	IGNITION
81	SB	REVERSE
82	V	VEHICLE SPEED SIGNAL (8-PULSE)

JROWC1669GB

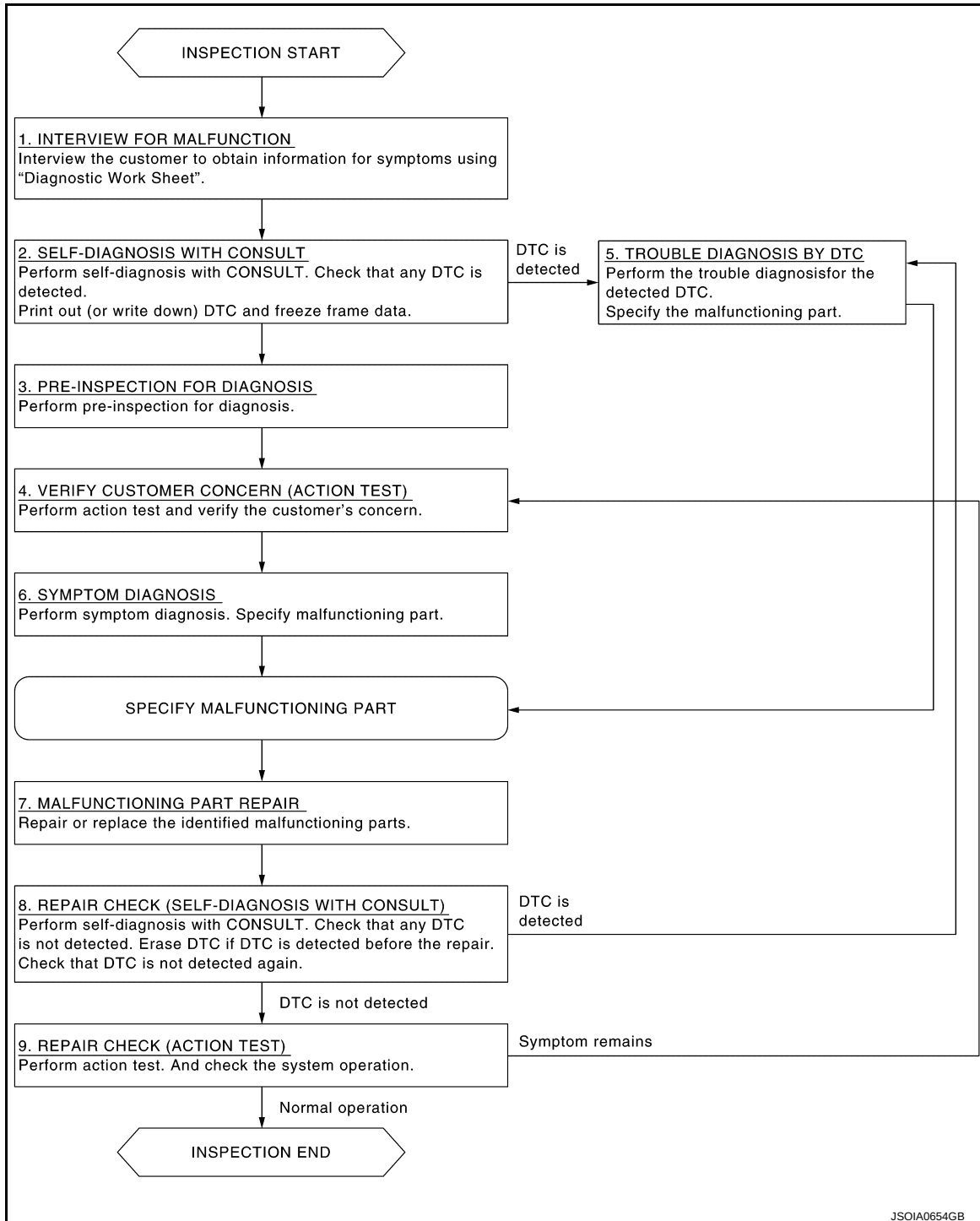
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009723332

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW FOR MALFUNCTION

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

NOTE:

DIAGNOSIS AND REPAIR WORK FLOW

[BSW]

< BASIC INSPECTION >

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

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of “AVM”.
3. When DTC is detected, follow the instructions below:
 - Record DTC and Freeze Frame Data.

Is any DTC detected?

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

3.PRE-INSPECTION FOR DIAGNOSIS

Perform pre-inspection for diagnosis. Refer to [DAS-145. "Inspection Procedure"](#).

>> GO TO 4.

4.ACTION TEST

Perform BSW system action test to check the operation status. Refer to [DAS-147. "Work Procedure"](#).
Check if any other malfunctions occur.

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC. Specify a malfunctioning part. Refer to [DAS-128. "DTC Index"](#) (AVM).

>> GO TO 8.

6.SYMPTOM DIAGNOSIS

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to [DAS-180. "Symptom Table"](#).

>> GO TO 7.

7.MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 8.

8.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

1. Erases self-diagnosis results.
2. Perform “All DTC Reading” again after repairing or replacing the specific items.
3. Check if any DTC is detected in self-diagnosis results of “AVM”.

Is any DTC detected?

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

9.REPAIR CHECK (ACTION TEST)

Perform the BSW 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

PRE-INSPECTION FOR DIAGNOSIS

< BASIC INSPECTION >

[BSW]

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

INFOID:000000009723333

1.CHECK REAR VIEW CAMERA LENS

Are rear view camera lens contaminated with foreign materials?

YES >> Clean rear view camera lens.

NO >> GO TO 2.

2.CHECK REAR VIEW CAMERA INSTALLATION CONDITION

Check rear view camera installation condition (e.g. position, looseness, bent in back door).

Is it properly installed?

YES >> INSPECTION END

NO >> Install rear view camera properly, and perform rear view camera calibration. Refer to [DAS-53](#),
["Description"](#).

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DAS

ADDITIONAL SERVICE WHEN REPLACING CAMERA CONTROL UNIT

< BASIC INSPECTION >

[BSW]

ADDITIONAL SERVICE WHEN REPLACING CAMERA CONTROL UNIT

Description

INFOID:000000009723334

- Always perform the camera control unit configuration after replacing the camera control unit.
- Always perform the rear view camera calibration after removing and installing or replacing the rear view camera.
- Always perform the rear view camera calibration after replacing the camera control unit.

CAUTION:

The system does not operate normally unless the rear view camera calibration is performed. Always perform it.

Work Procedure

INFOID:000000009723335

1.CAMERA CONTROL UNIT CONFIGURATION

Perform the camera control unit configuration with CONSULT. Refer to [DAS-52, "Description"](#).

>> GO TO 2.

2.REAR VIEW CAMERA CALIBRATION

Perform the rear view camera calibration with CONSULT. Refer to [DAS-53, "Work Procedure \(Preparation\)"](#).

>> GO TO 3.

3.PERFORM SELF-DIAGNOSIS

Perform the self-diagnosis of camera control unit with CONSULT (AVM). Check if any DTC is detected.

Is any DTC detected?

- YES >> Perform the trouble diagnosis for the detected DTC. Refer to [DAS-128, "DTC Index"](#).
- NO >> GO TO 4.

4.LDW SYSTEM ACTION TEST

1. Perform the BSW system action test. Refer to [DAS-147, "Description"](#).
2. Check that the BSW system operates normally.

>> WORK END

ACTION TEST

Description

INFOID:000000009723336

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

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

Fully understand the following items well before the road test;

- Precautions: Refer to [DAS-102, "FOR USA AND CANADA : Precaution for BSW System Service"](#).
- System description for Blind Spot Warning: Refer to [DAS-109, "System Description"](#).
- Normal operating condition: Refer to [DAS-185, "Description"](#).

Work Procedure

INFOID:000000009723337

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

Fully understand the following items well before the road test;

- Precautions: Refer to [DAS-102, "FOR USA AND CANADA : Precaution for BSW System Service"](#).
- System description for Blind Spot Warning: Refer to [DAS-109, "System Description"](#).
- Normal operating condition: Refer to [DAS-185, "Description"](#).

1.CHECK BSW SYSTEM SETTING

1. Start the engine.
2. Check that the BSW system setting can be enabled/disabled on the navigation screen.
3. Turn OFF the ignition switch and wait for 5 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 2.

2.BSW SYSTEM ACTION TEST

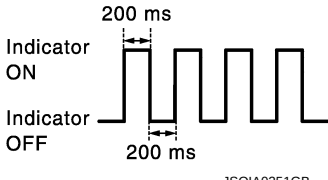
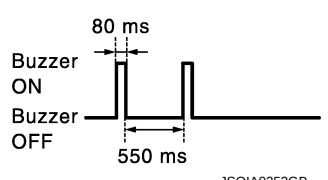
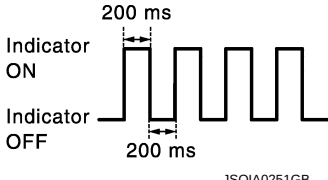
1. Enable the setting of the BSW system on the navigation screen.
2. Turn warning systems switch ON (warning systems ON indicator is ON).
3. Check BSW operation according to the following table.

Vehicle condition/ Driver's operation				Action	
Warning systems ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the BSW indicator	Buzzer
OFF	—	—	—	OFF	OFF

ACTION TEST

< BASIC INSPECTION >

[BSW]

Vehicle condition/ Driver's operation				Action	
Warning systems ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the BSW indicator	Buzzer
ON	Less than approx. 29 (18)	—	—	OFF	OFF
	Approx. 32 (20) or more	—	Vehicle is absent	OFF	OFF
		OFF	Vehicle is detected	ON	OFF
		ON (vehicle detected direction)	Before turn signal operates Vehicle is detected	Blink  JSOIA0251GB	Short continuous beep  JSOIA0252GB
			Vehicle is detected after turn signal operates	Blink  JSOIA0251GB	OFF

NOTE:

- If vehicle speed exceeds approximately 32 km/h (20MPH), BSW function operates until the vehicle speed becomes lower than approximately 29km/h (18MPH).
- Time shown in the figure is approximate time.

>> INSPECTION END

C1A03 VEHICLE SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

DTC/CIRCUIT DIAGNOSIS

C1A03 VEHICLE SPEED SENSOR

DTC Logic

INFOID:000000009723338

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A03	VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the camera control unit via CAN communication, are inconsistent	• Wheel speed sensor • ABS actuator and electric unit (control unit) • Camera control unit

NOTE:

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

- Refer to [DAS-155, "DTC Logic"](#) for DTC "U1000".
- Refer to [DAS-150, "DTC Logic"](#) for DTC "C1A04".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

CAUTION:

Always drive safety.

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

Is "C1A03" detected as the current malfunction?

- YES >> Refer to [DAS-149, "Diagnosis Procedure"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723339

1.CHECK SELF-DIAGNOSIS RESULTS

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [DAS-155, "DTC Logic"](#).
NO >> GO TO 2.

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

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).
NO >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

DAS

C1A04 ABS/TCS/VDC SYSTEM**DTC Logic**

INFOID:000000009723340

DTC DETECTION LOGIC

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

NOTE:

If DTC "C1A04" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-155, "DTC Logic"](#).

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

1. Start the engine.
2. Wait for approximately 10 minutes after turning the BSW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "C1A04" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "C1A04" detected as the current malfunction?

- YES >> Refer to [DAS-150, "Diagnosis Procedure"](#).
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723341

1.CHECK SELF-DIAGNOSIS RESULTS

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

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
 Refer to [DAS-155, "DTC Logic"](#).
 NO >> GO TO 2.

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

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).
 NO >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

C1A39 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

C1A39 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009723342

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A39	STRG SEN CIR	If the steering angle sensor is malfunction	Steering angle sensor

NOTE:

If DTC "C1A39" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-155, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Perform "All DTC Reading" with CONSULT.
3. Check if the "C1A39" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "C1A39" detected as the current malfunction?

- YES >> Refer to [DAS-151, "Diagnosis Procedure"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723343

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A39" in "Self Diagnostic Result" of "AVM".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [DAS-155, "DTC Logic"](#).
NO >> GO TO 2.

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

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).
NO >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

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U0122 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U0122 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

DTC Logic

INFOID:000000009723344

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0122	VDC P-RUN DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:

If DTC "U0122" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-155, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0122" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U0122" detected as the current malfunction?

YES >> Refer to [DAS-152, "Diagnosis Procedure"](#).

NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723345

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0122" in "Self Diagnostic Result" of "AVM".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [DAS-155, "DTC Logic"](#).

NO >> GO TO 2.

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

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

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).

NO >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

U0416 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U0416 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

DTC Logic

INFOID:000000009723346

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0416	VDC CHECKSUM DIAGNOSIS	If camera control unit detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:

If DTC "U0416" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to [DAS-155, "DTC Logic"](#).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U0416" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U0416" detected as the current malfunction?

- YES >> Refer to [DAS-153, "Diagnosis Procedure"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723347

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0416" in "Self Diagnostic Result" of "AVM".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts.
Refer to [DAS-155, "DTC Logic"](#).
NO >> GO TO 2.

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

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

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to [BRC-111, "DTC No. Index"](#).
NO >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

DAS

U0428 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U0428 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009723348

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0428	ST ANGLE SENSOR CALIBRATION	The neutral position adjustment of the steering angle sensor is incomplete.	- Neutral position of steering angle sensor is not yet adjusted - Steering angle sensor

NOTE:

If DTC "U0428" is detected along with DTC "U1232", first diagnose the DTC "U1232". Refer to [DAS-159, "DTC Logic"](#).

Diagnosis Procedure

INFOID:000000009723349

1. ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U0428 is detected, adjust the neutral position of the steering angle sensor.

>> Perform adjustment of the neutral position of the steering angle sensor. Refer to [BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

CAUTION:

For vehicles with VDC, adjust the steering angle sensor neutral position on the ABS actuator control unit side.

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009723350

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to [LAN-29, "CAN Communication Signal Chart"](#).

DTC Logic

INFOID:000000009723351

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	Camera control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system

NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

Diagnosis Procedure

INFOID:000000009723352

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the BSW system ON, and then wait for 30 seconds or more.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1000" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U1000" detected as the current malfunction?

- YES >> Refer to [LAN-18, "Trouble Diagnosis Flow Chart"](#).
 NO >> Refer to [GI-44, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U1010 CONTROL UNIT (CAN)

Description

INFOID:000000009723353

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

DTC Logic

INFOID:000000009723354

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1010	CONTROL UNIT (CAN)	CAN initial diagnosis malfunction is detected.	Camera control unit

Diagnosis Procedure

INFOID:000000009723355

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U1010" detected as the current malfunction?

- YES >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).
- NO >> INSPECTION END

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:000000009723356

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U111A	REAR CAMERA IMAGE SIGNAL	Camera image signal circuit is open or shorted.	• Camera image signal circuit between rear view camera and camera control unit • Camera control unit • Rear view camera

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Shift the selector lever to "R" position.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U111A" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U111A" detected as the current malfunction?

- YES >> Refer to [DAS-157, "Diagnosis Procedure"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723357

1.CHECK CONTINUITY REAR VIEW CAMERA POWER SUPPLY AND GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect camera control unit connector and rear view camera connector.
3. Check continuity between camera control unit harness connector and rear view camera harness connector.

Camera control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
B93	50	D168	8	Existed
	52		7	

4. Check continuity between camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B93	50		Not existed

Is inspection result normal?

- YES >> GO TO 2.
NO >> Repair harness or connector.

2.CHECK VOLTAGE REAR VIEW CAMERA POWER SUPPLY

1. Connect camera control unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Check voltage between camera control unit harness connector and ground.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

Terminal				Standard voltage	Reference voltage (Approx.)
(+)		(-)			
Camera control unit					
Connector	Terminal	Connector	Terminal		
B93	50	B93	52	5.0 - 9.0 V	6.0 V

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

3.CHECK CONTINUITY CAMERA IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect camera control unit connector and rear view camera connector.
3. Check continuity between camera control unit harness connector and rear view camera harness connector.

Camera control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
B93	53	D168	5	Existed
	54		1	

4. Check continuity between camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminals		
B93	53		Not existed
	54		

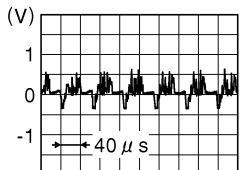
Is inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK CAMERA IMAGE SIGNAL

1. Connect camera control unit connector and rear view camera connector.
2. Turn ignition switch ON.
3. Check signal between camera control unit harness connector.

Terminal				Reference value
(+)		(-)		
Camera control unit				
Connector	Terminal	Connector	Terminal	
B93	53	B93	54	(V)  -1 JSNIA0834GB

Is inspection result normal?

YES >> Replace camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

NO >> Replace rear view camera. Refer to [DAS-188, "Removal and Installation"](#).

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:000000009723358

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1232	ST ANGLE SEN CALIB	The neutral position registration of the steering angle sensor can not finish.	- Steering angle sensor - Camera control unit

Diagnosis Procedure

INFOID:000000009723359

1.REGISTER THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

- Turn the ignition switch ON.
- Perform registration of the neutral position of the steering angle sensor. Refer to [BRC-9, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).
- Check "Self Diagnostic Result" of "AVM" with CONSULT.

Is "U1232" detected as the current malfunction?

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

2.CHECK STEERING ANGLE SENSOR

Check steering angle sensor.

Is the inspection result normal?

- YES >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).
NO >> Repair or replace malfunctioning parts.

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U1305 CONFIG UNFINISH

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U1305 CONFIG UNFINISH

DTC Logic

INFOID:000000009723360

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1305	CONFIG UNFINISH	The vehicle specifications of camera control unit is incomplete.	Vehicle specifications for camera control unit is incomplete

NOTE:

Current malfunction is displayed only and is not saved.

Diagnosis Procedure

INFOID:000000009723361

1.PERFORM CONFIGURATION OF CAMERA CONTROL UNIT

Perform configuration of camera control unit when DTC U1305 is detected.

>> Perform configuration of camera control unit. Refer to [DAS-52, "Work Procedure"](#).

U1308 REAR CAMERA

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U1308 REAR CAMERA

DTC Logic

INFOID:000000009723362

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1308	R-CAMERA (R&L) CAL- IB JDGMNT	Camera image calibration is incomplete	• Calibration for camera image is incomplete • Camera communication line is open

NOTE:

If DTC U1308 is detected along with DTC U130B, first diagnose the DTC U130B. Refer to [DAS-163, "DTC Logic"](#).

Diagnosis Procedure

INFOID:000000009723363

1.PERFORM CALIBRATION OF CAMERA IMAGE

Perform calibration of camera image when DTC U1308 is detected.

>> Perform calibration of camera image. Refer to [DAS-53, "Work Procedure \(Preparation\)"](#).

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U1309 AIR PUMP

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U1309 AIR PUMP

DTC Logic

INFOID:000000009723364

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1309	PUMP INPUT CURRENT JUDGE	Camera control unit detects the value of current from air pump is incorrect	Air pump

Diagnosis Procedure

INFOID:000000009723365

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1309" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U1309" detected as the current malfunction?

- YES >> Replace the air pump. Refer to [DAS-187, "Removal and Installation"](#).
- NO >> Refer to [GI-44, "Intermittent Incident"](#).

U130B REAR CAMERA

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U130B REAR CAMERA

DTC Logic

INFOID:000000009723366

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U130B	REAR CAMERA COMM ERROR	Camera control unit receives the incorrect communication signal from rear camera unit	• Rear view camera • Camera control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch ON.
2. Shift the selector lever to "R" position.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U130B" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U130B" detected as the current malfunction?

- YES >> Refer to [DAS-163, "Diagnosis Procedure"](#).
NO >> Refer to [GI-44, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:000000009723367

1.REPLACE REAR VIEW CAMERA

1. Turn ignition switch OFF.
2. Replace the rear view camera. Refer to [DAS-188, "Removal and Installation"](#).
3. Turn ignition switch ON.
4. Erases All self-diagnosis results.
5. Shift selector lever to "R" position.
6. Perform "All DTC Reading" again.
7. Check if the "U130B" is detected in self-diagnosis results of "AVM".

Is inspection result normal?

- YES >> Refer to INSPECTION END.
NO >> Replace camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

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U1310 PUMP CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

U1310 PUMP CONTROL UNIT

DTC Logic

INFOID:000000009723368

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1310	PUMP ECU JUDGE	If the pump control unit is malfunction	Pump control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform "All DTC Reading" with CONSULT.
4. Check if the "U1310" is detected as the current malfunction in "Self Diagnostic Result" of "AVM".

Is "U1310" detected as the current malfunction?

- YES >> Refer to [DAS-164, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009723369

1.CHECK VOLTAGE PUMP CONTROL UNIT POWER SUPPLY

Check pump control unit power supply and ground circuit. Refer to [DAS-165, "PUMP CONTROL UNIT : Diagnosis Procedure"](#).

Is inspection result normal?

- YES >> Replace the pump control unit. Refer to [DAS-189, "Removal and Installation"](#).
NO >> Repair the pump control unit power supply and ground circuit.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

POWER SUPPLY AND GROUND CIRCUIT

CAMERA CONTROL UNIT

CAMERA CONTROL UNIT : Diagnosis Procedure

INFOID:000000009723370

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery power supply	6
Ignition signal	3

Is the inspection result normal?

YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK CAMERA CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between camera control unit harness connector and ground.

Terminal				Condition	Standard voltage	Reference voltage (Approx.)
(+)		(−)				
Camera control unit				Ignition switch		
Connector	Terminal	Connector	Terminal			
B92	2	B92	1	OFF	9.5 - 16 V	Battery voltage
	3			OFF	0 - 0.1 V	0 V
				ON	9.5 - 16 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the camera control unit power supply circuit.

3.CHECK CAMERA CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the camera control unit connector.
3. Check for continuity between camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B92	1		Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the camera control unit ground circuit.

PUMP CONTROL UNIT

PUMP CONTROL UNIT : Diagnosis Procedure

INFOID:000000009723371

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition power supply	47

Is the inspection result normal?

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POWER SUPPLY AND GROUND CIRCUIT

[BSW]

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK PUMP CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between pump control unit harness connector and ground.

Terminal				Condition	Standard voltage	Reference voltage
(+)		(−)				
Pump control unit				Ignition switch		
Connector	Terminal	Connector	Terminal			
D170	12	D170	5	OFF	0 - 0.1 V	0 V
				ON	9.5 - 16 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the pump control unit power supply circuit.

3.CHECK PUMP CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the pump control unit connector.
3. Check for continuity between pump control unit harness connector and ground.

Pump control unit		Ground	Continuity
Connector	Terminal		
D170	5		Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the pump control unit ground circuit.

WARNING SYSTEMS SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

WARNING SYSTEMS SWITCH CIRCUIT

Component Function Check

INFOID:000000009723372

1.CHECK WARNING SYSTEMS SWITCH INPUT SIGNAL

1. Turn the ignition switch ON.
2. Select the DATA MONITOR item "ITS SW 1" of "AVM" with CONSULT.
3. With operating the warning systems switch, check the monitor status.

Monitor item	Condition	Monitor status
ITS SW 1	Warning systems switch is pressed	On
	Warning systems switch is not pressed	OFF

Is the inspection result normal?

- YES >> Warning systems switch circuit is normal.
NO >> Refer to [DAS-167, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009723373

1.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT

1. Turn the ignition switch ON.
2. Check voltage between camera control unit harness connector and ground.

Terminals		Condition	Standard voltage	Reference voltage
(+)	(-)			
Camera control unit		Warning systems switch	0 - 0.1 V	0 V
Connector	Terminal			
B92	17			
		Released	9.5 - 16 V	12 V

Is the inspection result normal?

- YES >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK WARNING SYSTEMS SWITCH

1. Turn ignition switch OFF.
2. Remove warning systems switch.
3. Check warning systems switch. Refer to [DAS-194, "Removal and Installation"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace the warning systems switch. Refer to [DAS-194, "Removal and Installation"](#).

3.CHECK WARNING SYSTEMS SWITCH GROUND CIRCUIT

Check continuity between warning systems switch harness connector and the ground.

Warning systems switch		Ground	Continuity
Connector	Terminal		
M39	6		Existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

1. Disconnect the camera control unit connector.

WARNING SYSTEMS SWITCH CIRCUIT

[BSW]

< DTC/CIRCUIT DIAGNOSIS >

2. Check continuity between the camera control unit harness connector and warning systems switch harness connector.

Camera control unit		Warning systems switch		Continuity
Connector	Terminal	Connector	Terminal	
B92	17	M39	7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5.CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

Check continuity between the camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B92	17		Not existed

Is the inspection result normal?

YES >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:0000000009723374

1.CHECK WARNING SYSTEMS SWITCH

Check continuity of warning systems switch.

Terminal		Condition	Continuity
7	9	When warning systems switch is pressed	Existed
		When warning systems switch is released	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace warning systems switch.

WARNING SYSTEMS ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

WARNING SYSTEMS ON INDICATOR CIRCUIT

Component Function Check

INFOID:000000009723375

1.CHECK WARNING SYSTEMS ON INDICATOR

1. Turn the ignition switch ON.
2. Select the ACTIVE TEST item "ITS SW 1 IND" of "AVM" with CONSULT.
3. With operating the test item, check the operation.

On : Warning systems ON indicator illuminates

Off : Warning systems ON indicator is turned OFF

Is the inspection result normal?

YES >> Warning systems switch indicator circuit is normal.

NO >> Refer to [DAS-169, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009723376

1.CHECK WARNING ON INDICATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect warning systems switch connector.
3. Check voltage between warning systems switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Warning systems switch		Ground	
Connector	Terminal		
M39	3		Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the warning systems ON indicator power supply circuit.

2.CHECK WARNING SYSTEMS ON INDICATOR SIGNAL FOR OPEN

1. Disconnect the camera control unit harness connector.
2. Check continuity between the camera control unit harness connector and warning systems switch harness connector.

Camera control unit		Warning systems switch		Continuity
Connector	Terminal	Connector	Terminal	
B92	15	M39	2	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK WARNING SYSTEMS ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B92	15		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

WARNING SYSTEMS ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

4.CHECK WARNING SYSTEMS ON INDICATOR

Check the warning systems ON indicator. Refer to [DAS-170. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the camera control unit. Refer to [DAS-187. "Removal and Installation"](#).

NO >> Replace warning systems switch. [DAS-194. "Removal and Installation"](#).

Component Inspection

INFOID:000000009723377

1.CHECK WARNING SYSTEMS ON INDICATOR

Apply battery voltage to warning systems switch terminals 1 and 2, and then check if the warning systems ON indicator illuminates.

Terminals		Condition	Warning systems ON indicator
(+)	(-)		
3	2	When the battery voltage is applied	On
		When the battery voltage is not applied	Off

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the warning systems switch. Refer to [DAS-194. "Removal and Installation"](#).

REAR VIEW CAMERA WASHER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

REAR VIEW CAMERA WASHER RELAY CIRCUIT

Component Function Check

INFOID:000000009723378

1.CHECK REAR VIEW CAMERA WASHER RELAY CIRCUIT

1. Turn the ignition switch ON.
2. Select the ACTIVE TEST item "WASH ACTIVE" of "AVM" with CONSULT.
3. With operating the test item, check the operation.

On : Rear view camera washer is activated.

Off : Rear view camera washer is not activated.

Is the inspection result normal?

YES >> Washer rear view camera washer relay circuit is normal.

NO >> Refer to [DAS-171, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009723379

1.CHECK REAR VIEW CAMERA WASHER RELAY 1 POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between rear view camera washer relay 1 harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Rear view camera washer relay 1			
Connector	Terminal	Ground	
E29	1		Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair rear view camera washer relay 1 power supply circuit.

2.CHECK REAR VIEW CAMERA WASHER RELAY 1 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera washer relay 1.
3. Disconnect pump control unit connector.
4. Check continuity between rear view camera washer relay 1 harness connector and the pump control unit harness connector.

Rear view camera washer relay 1		Pump control unit		Continuity
Connector	Terminal	Connector	Terminal	
E29	2	D170	4	Existed

5. Check continuity between rear view camera washer relay 1 harness connector and the ground.

Rear view camera washer relay 1		Ground	Continuity
Connector	Terminal		
E29	2		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK REAR VIEW CAMERA WASHER RELAY 2 POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between rear view camera washer relay 2 harness connector and ground.

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REAR VIEW CAMERA WASHER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

Terminals			Voltage (Approx.)
(+)		(-)	
Rear view camera washer relay 2			
Connector	Terminal	Ground	
E28	1		Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair rear view camera washer relay 2 power supply circuit.

4.CHECK REAR VIEW CAMERA WASHER RELAY 2 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera washer relay 2.
3. Check continuity between rear view camera washer relay 2 harness connector and the pump control unit harness connector.

Rear view camera washer relay 2		Pump control unit		Continuity
Connector	Terminal	Connector	Terminal	
E28	2	D170	3	Existed

4. Check continuity between rear view camera washer relay 2 harness connector and the ground.

Rear view camera washer relay 2		Ground	Continuity
Connector	Terminal		
E28	2		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK REAR VIEW CAMERA WASHER RELAY 1 AND 2

Check rear view camera washer relay 1 and 2. Refer to [DAS-172, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace pump control unit.

NO >> Repair harness or connector.

Component Inspection

INFOID:000000009723380

1.CHECK REAR VIEW CAMERA WASHER RELAY 1

Apply battery voltage to rear view camera washer relay terminals 1 and 2, and then check for continuity under the following conditions.

Terminal		Condition	Continuity
5	3	When the battery voltage is applied	Existed
		When the battery voltage is not applied	Not existed
4	3	When the battery voltage is applied	Not existed
		When the battery voltage is not applied	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace rear view camera washer relay 1.

2.CHECK REAR VIEW CAMERA WASHER RELAY 2

REAR VIEW CAMERA WASHER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

Apply battery voltage to rear view camera washer relay terminals 1 and 2, and then check for continuity under the following conditions.

Terminal		Condition	Continuity
5	3	When the battery voltage is applied	Existed
		When the battery voltage is not applied	Not existed
4	3	When the battery voltage is applied	Not existed
		When the battery voltage is not applied	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace rear view camera washer relay 2.

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WASHER SWITCHING SOLENOID VALVE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

WASHER SWITCHING SOLENOID VALVE CIRCUIT

Component Function Check

INFOID:000000009723381

1.CHECK WASHER SWITCHING SOLENOID VALVE CIRCUIT

1. Turn the ignition switch ON.
2. Select the ACTIVE TEST item "WASH ACTIVE" of "AVM" with CONSULT.
3. With operating the test item, check the operation.

On : Rear view camera washer is activated.

Off : Rear view camera washer is not activated.

Is the inspection result normal?

YES >> Washer switching solenoid valve circuit is normal.

NO >> Refer to [DAS-174, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009723382

1.CHECK WASHER SWITCHING SOLENOID VALVE POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON.
2. Check voltage between washer switching solenoid valve harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Washer switching solenoid valve		Ground	
Connector	Terminal		
D167	2		Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair washer switching solenoid valve power supply circuit.

2.CHECK WASHER SWITCHING SOLENOID VALVE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect washer switching solenoid valve connector and pump control unit connector.
3. Check continuity between washer switching solenoid valve harness connector and the pump control unit harness connector.

Washer switching solenoid valve		Pump control unit		Continuity
Connector	Terminal	Connector	Terminal	
D167	3	D170	9	Existed

4. Check continuity between washer switching solenoid valve harness connector and the ground.

Washer switching solenoid valve		Ground	Continuity
Connector	Terminal		
D167	3		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK WASHER SWITCHING SOLENOID VALVE GROUND CIRCUIT

1. Disconnect combination switch.
2. Check continuity between washer switching solenoid valve harness connector and the combination switch harness connector.

WASHER SWITCHING SOLENOID VALVE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

Washer switching solenoid valve		Combination switch		Continuity
Connector	Terminal	Connector	Terminal	
D167	3	M103	3	Existed

Is the inspection result normal?

YES >> Replace washer switching solenoid valve.

NO >> Repair harness or connector.

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REAR WASHER SWITCH INPUT SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

REAR WASHER SWITCH INPUT SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000009723383

1. CHECK COMBINATION SWITCH INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect pump control unit connector and combination switch connector.
3. Check continuity between combination switch harness connector and pump control unit harness connector.

Terminals				Continuity
Pump control unit		Combination switch		
Connector	Terminal	Connector	Terminal	
D170	10	M103	1	Existed

4. Check continuity between pump control unit harness connector and the ground.

Pump control unit		Ground	Continuity
Connector	Terminal		
D170	10		Not existed

Is the inspection result normal?

- YES >> Replace pump control unit. Refer to [DAS-189, "Removal and Installation"](#).
NO >> Repair harness or connector.

WASHER LEVEL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000009723384

1.CHECK WASHER LEVEL SWITCH INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and camera control unit.
3. Check continuity between combination meter harness connector and camera control unit harness connector.

Combination meter		Camera control unit		Continuity
Connector	Terminal	Connector	Terminal	
M34	29	B93	40	Existed

4. Disconnect washer level switch harness connector.
5. Check continuity between camera control unit harness connector and the ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B93	40		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

Check washer level switch signal circuit. Refer to [MWI-49, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK WASHER LEVEL SWITCH

Perform a unit check for the washer level switch. Refer to [MWI-50, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

NO >> Replace washer tank. Refer to [WW-128, "Removal and Installation"](#).

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BLIND SPOT WARNING INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

BLIND SPOT WARNING INDICATOR CIRCUIT

Diagnosis Procedure

INFOID:000000009723385

1.CHECK BSW INDICATOR CIRCUIT FOR OPEN 1

1. Turn ignition switch OFF.
2. Disconnect camera control unit harness connector and BSW indicator harness connector.
3. Check continuity between camera control unit harness connector and BSW indicator harness connector.

Camera control unit		BSW indicator		Continuity
Connector	Terminal	Connector	Terminal	
B92	7 (LH)	D18 (LH)	1	Existed
	8 (RH)	D54 (RH)		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the harnesses or connectors.

2.CHECK BSW INDICATOR CIRCUIT FOR OPEN 2

Check continuity between BSW indicator harness connector and ground.

BSW indicator		Ground	Continuity
Connector	Terminal		
D18 (LH)	2		Existed
D54 (RH)			

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK BSW INDICATOR CIRCUIT FOR SHORT

1. Turn ignition switch OFF.
2. Disconnect camera control unit harness connector and BSW indicator harness connector.
3. Check continuity between camera control unit harness connector and ground.

Camera control unit		Ground	Continuity
Connector	Terminal		
B92	7		Not existed
	8		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4.CHECK CAMERA CONTROL UNIT VOLTAGE OUTPUT

1. Connect camera control unit harness connector.
2. Check voltage between BSW indicator harness connector and ground.

BLIND SPOT WARNING INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

Terminal			Condition	Voltage (Approx.)
(+)		(-)		
BSW indicator		Ground		
Connector	Terminal			
D18 (LH)	1			
D54 (RH)				
			Ignition switch OFF ⇒ ON (Approx. 2 sec.)	6 V

Is the inspection result normal?

YES >> Replace BSW indicator.

NO >> Replace camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

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DAS

SYMPTOM DIAGNOSIS

BSW SYSTEM SYMPTOMS

Symptom Table

INFOID:000000009723386

CAUTION:

Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

NOTE:

The operational conditions of BSW, refer to [DAS-109, "System Description"](#).

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON.	BSW warning lamp (Yellow) does not illuminate	- Combination meter - Camera control unit	BSW warning lamp does not turned ON. Refer to DAS-182, "Diagnosis Procedure"
	BSW ON indicator lamp (Green) does not illuminate	- Combination meter - Camera control unit	BSW ON indicator lamp does not turned ON. Refer to DAS-183, "Diagnosis Procedure"
	Warning systems ON indicator (on the warning systems switch) does not illuminate	- Harness between camera control unit and warning systems switch - Warning systems switch - Camera control unit	Warning systems ON indicator circuit. Refer to DAS-169, "Diagnosis Procedure"
	BSW ON indicator lamp (Green) or BSW warning lamp (Yellow) do not illuminate	- Combination meter - Camera control unit	- BSW warning lamp does not turned ON. Refer to DAS-182, "Diagnosis Procedure" - BSW ON indicator lamp. Refer to DAS-183, "Diagnosis Procedure"
	All of indicator/warning lamps do not illuminate; - BSW warning lamp - BSW ON indicator lamp - Warning systems ON indicator	- Power supply and ground circuit of camera control unit - Camera control unit - Combination meter	Power supply and ground circuit of camera control unit. Refer to DAS-165, "CAMERA CONTROL UNIT : Diagnosis Procedure"
	BSW indicator does not turn ON	- Harness between camera control unit and BSW indicator - Camera control unit - BSW indicator	BSW indicator circuit. Refer to DAS-178, "Diagnosis Procedure"
BSW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON.)	Warning systems ON indicator is not turned ON ⇔ OFF when operating warning systems switch	- Harness between camera control unit and warning systems switch - Harness between warning systems switch and ground - Camera control unit - Warning systems switch	- Warning systems switch circuit. Refer to DAS-167, "Diagnosis Procedure". - BSW system setting cannot be turned ON/OFF on the navigation screen. Refer to DAS-184, "Diagnosis Procedure"
	Buzzer is not sounding	- Combination meter - Camera control unit	Meter buzzer circuit. Refer to WCS-24, "Component Function Check"
BSW functions are not are not timely (Example) Does not function when approaching a adjacent vehicle while BSW ON indicator lamp is illuminated		- Rear view camera calibration - Rear view camera - Camera control unit	Rear view camera calibration DAS-53, "Description"

BSW SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[BSW]

Symptom	Possible cause	Inspection item/Reference page
Rear view camera washer is not activated (Rear window washer is functioning normally)	• Rear view camera washer re-lay circuit • Washer switching solenoid valve circuit • Pump control unit • Camera control unit	• Rear view camera washer re-lay circuit Refer to DAS-171. "Component Function Check" • Washer switching solenoid valve circuit Refer to DAS-174. "Component Function Check"
Rear view camera wash is insufficient	• Washer tube (include check valve) • Air tube • Washer/Air nozzle (Rear view camera)	Rear view camera washer/air blower function Refer to DAS-48. "Inspection Procedure"

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DAS

BSW WARNING LAMP DOES NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[BSW]

BSW WARNING LAMP DOES NOT TURNED ON

Description

INFOID:000000009723387

The BSW warning lamp in the combination meter does not turn ON when turning on the ignition switch

Diagnosis Procedure

INFOID:000000009723388

1.CHECK COMBINATION METER

Turn the ignition switch from OFF to ON to check that "BSW W/L" included in "DATA MONITOR" in "METER/M&A" operates normally.

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-105, "Removal and Installation"](#).
- NO >> GO TO 2.

2.CHECK SELF-DIAGNOSIS RESULTS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "METER/M&A". Refer to [MWI-77, "DTC Index"](#).

Is any DTC detected?

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

3.CHECK SELF-DIAGNOSIS RESULTS OF CAMERA CONTROL UNIT

Check if the DTC is detected in self-diagnosis results of "AVM" Refer to [DAS-128, "DTC Index"](#).

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

BSW ON INDICATOR DOES NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[BSW]

BSW ON INDICATOR DOES NOT TURNED ON

Description

INFOID:000000009723389

The BSW ON indicator lamp in the combination meter does not turn ON when turning on the ignition switch

Diagnosis Procedure

INFOID:000000009723390

1.CHECK COMBINATION METER

Turn the ignition switch from OFF to ON to check that "BSW IND" included in "DATA MONITOR" in "METER/M&A" operates normally.

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-105, "Removal and Installation"](#).
- NO >> GO TO 2.

2.CHECK SELF-DIAGNOSIS RESULTS OF COMBINATION METER

1. Perform "All DTC Reading" with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "METER/M&A" Refer to [MWI-77, "DTC Index"](#).

Is any DTC detected?

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

3.CHECK SELF-DIAGNOSIS RESULTS OF CAMERA CONTROL UNIT

Check if the DTC is detected in self-diagnosis results of "AVM" Refer to [DAS-128, "DTC Index"](#).

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).

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DAS

SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

< SYMPTOM DIAGNOSIS >

[BSW]

SYSTEM SETTINGS CANNOT BE TURNED ON/OFF ON THE NAVIGATION SCREEN

Description

INFOID:000000009723391

- BSW system setting is not selectable on the navigation screen.

NOTE:

When the ignition switch is in ACC position, Blind Spot Warning system settings cannot be changed.

- "Blind Spot Warning" is not indicated on the navigation screen.
- The switching between ON and OFF cannot be performed by operating the navigation system.
- The item "Blind Spot Warning" on the navigation screen is not active.
- The Blind Spot Warning or system setting differs from the one set at the previous driving.

NOTE:

Turn OFF the ignition switch and wait for 5 seconds or more.

Diagnosis Procedure

INFOID:000000009723392

1.CHECK BSW SYSTEM SETTING

1. Start the engine.
2. Check that the Blind Spot Warning system settings is selectable on the navigation screen.

Is the inspection result normal?

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

2.PERFORM THE SELF-DIAGNOSIS

1. Perform self-diagnosis with CONSULT.
2. Check if the DTC is detected in self-diagnosis results of "AVM" and "MULTI AV". Refer to the following.
 - AVM: [DAS-128, "DTC Index"](#)
 - MULTI AV: [AV-340, "DTC Index"](#)

Is any DTC detected?

- YES >> Repair or replace malfunctioning parts.
- NO >> INSPECTION END

3.CHECK MULTIFUNCTION SWITCH

Operate the multifunction switch to check that the audio, navigation system, and air conditioner operate properly.

Is the inspection result normal?

- YES >> Replace the camera control unit. Refer to [DAS-187, "Removal and Installation"](#).
- NO >> Repair or replace malfunctioning parts.

NORMAL OPERATING CONDITION

Description

INFOID:000000009723393

PRECAUTIONS FOR BLIND SPOT WARNING (BSW)

- The BSW system is not a replacement for proper driving procedure and is not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction you will move to ensure it is safe to change lanes. Never rely solely on the BSW system.
- The rear view camera may not detect properly under the following conditions:
 - When towing a trailer.
 - When strong light enters the rear view camera. (For example, direct sunlight or headlight from the rear)
 - When ambient brightness changes instantly. (For example, when the vehicle enters or exits a tunnel or passes under a bridge.)
- Automatic washer and blower may not be able to secure detection capability when excessive dirt adheres on the camera lens.
- The camera unit may not be able to detect when certain objects are present such as:
 - Pedestrians, bicycles, animals
 - Several types of vehicles such as motorcycles
 - Oncoming vehicles
 - A vehicle approaching rapidly from behind.
 - A vehicle which your vehicle overtakes rapidly.
- The rear view camera may not be able to detect property when your vehicle travels beside the middle section of a vehicle with long wheelbase(e.g. trailer truck, semi-trailer, tractor).
- The rear view camera detection zone is designed based on a standard lane width. When driving in a wider lane, the camera unit may not detect vehicles in an adjacent lane. When driving in a narrow lane, the camera unit may detect vehicles driving two lanes away.
- The rear view camera is designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.
- The rear view camera may detect reflection image of vehicles or roadside objects that are not actually in the detection zone, especially when the road is wet.

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REMOVAL AND INSTALLATION

BSW INDICATOR

Removal and Installation

INFOID:000000009723394

REMOVAL AND INSTALLATION

Removal

1. Remove the door mirror corner cover. Refer to [MIR-72, "DOOR MIRROR ASSEMBLY : Removal and Installation"](#).
2. Remove the BSW indicator mounting screw.
3. Remove the BSW indicator from door mirror corner cover.

Installation

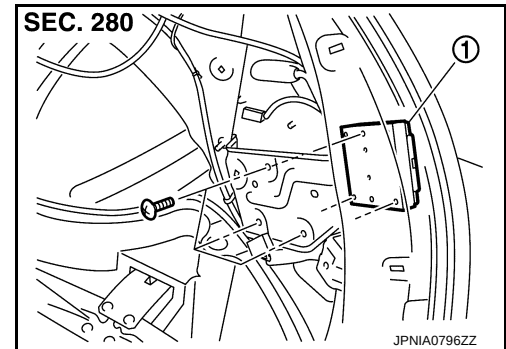
Install in the reverse order of removal.

CAMERA CONTROL UNIT

Exploded View

INFOID:000000009723395

- ① Camera control unit



Removal and Installation

INFOID:000000009723396

REMOVAL

CAUTION:

Before replacing camera control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to [DAS-52, "Description"](#).

1. Remove luggage side finisher lower (RH). Refer to [INT-35, "Removal and Installation"](#).
2. Disengage air tube clip from camera control unit bracket.
3. Remove camera control unit screws, disconnect camera control unit connector and remove the camera control unit.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Must be perform additional service when replacing camera control unit. Refer to [DAS-146, "Work Procedure"](#).

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REAR VIEW CAMERA

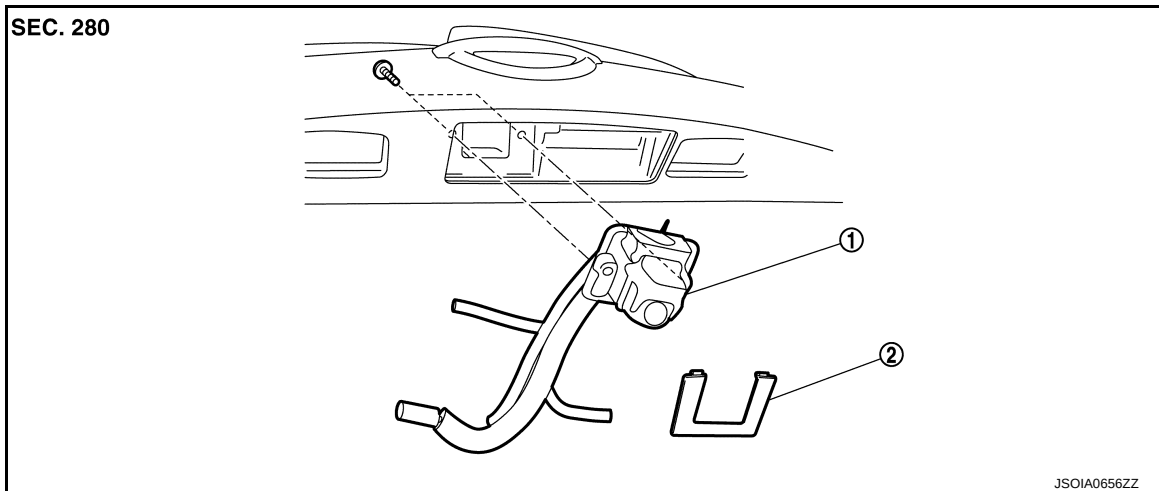
< REMOVAL AND INSTALLATION >

[BSW]

REAR VIEW CAMERA

Exploded View

INFOID:000000009723397



① Rear view camera

② Finisher

Removal and Installation

INFOID:000000009723398

REMOVAL

1. Remove back door finisher inner. Refer to [INT-38, "Removal and Installation"](#).
2. Remove finisher.
3. Disconnect air tube and washer tube from rear view camera.
4. Remove rear view camera mounting screws, disconnect rear view camera connector and remove rear view camera from back door assembly.

CAUTION:

To prevent a malfunction resulting from a short circuit, never allow washer fluid to drip from tube to rear view camera and connector.

INSTALLATION

Install in the reverse order of removal.

PUMP CONTROL UNIT

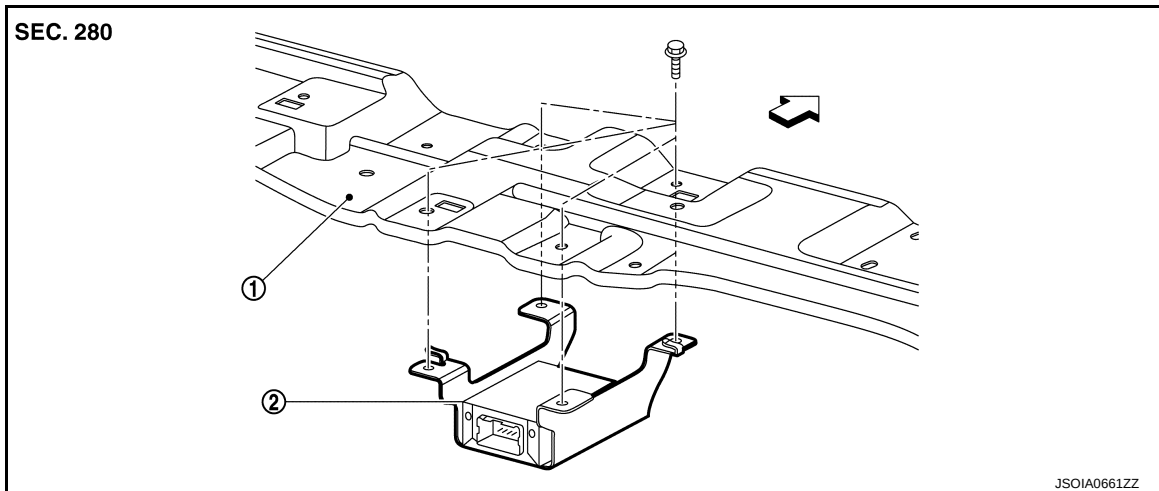
< REMOVAL AND INSTALLATION >

[BSW]

PUMP CONTROL UNIT

Exploded View

INFOID:000000009723399



① Luggage trim bracket

② Pump control unit

⇨ : Vehicle front

Removal and Installation

INFOID:000000009723400

REMOVAL

1. Remove luggage floor front finisher. Refer to [INT-35, "Removal and Installation"](#).
2. Remove luggage mask. Refer to [INT-34, "Exploded View"](#).
3. Remove pump control unit mounting screws, disconnect pump control unit harness connector and remove pump control unit.

INSTALLATION

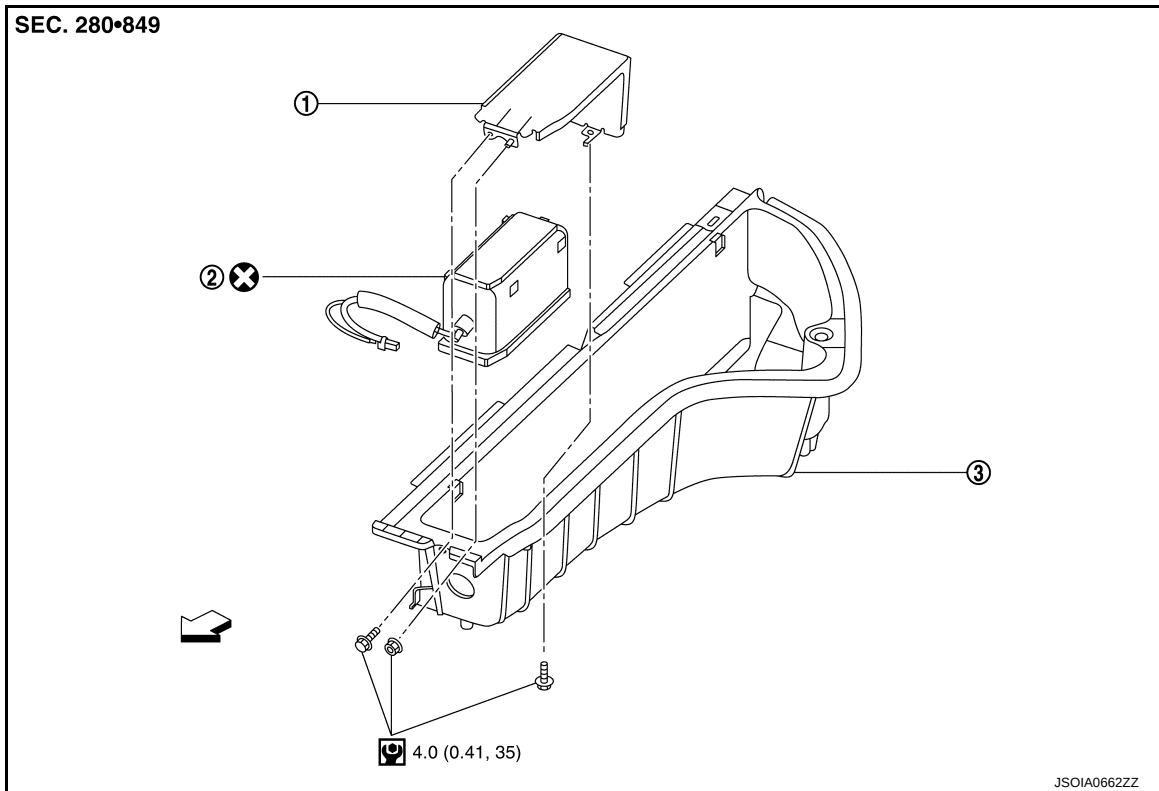
Install in the reverse order of removal.

DAS

AIR PUMP

Exploded View

INFOID:000000009723401



① Air pump cover

② Air pump

③ Luggage floor spacer LH

↶ : Vehicle front

⊗ : Always replace after every disassembly.

Ⓜ : N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000009723402

REMOVAL

1. Remove luggage floor spacer LH. Refer to [INT-35, "Removal and Installation"](#).
2. Disconnect air tube and air pump harness connector.
3. Remove air pump cover bolts and nut and remove air pump cover.
4. Remove air pump from luggage floor spacer LH.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

Remove double-sided tape remaining on luggage floor spacer LH with a double-sided tape remover, after removing air pump.

WASHER SWITCHING SOLENOID VALVE

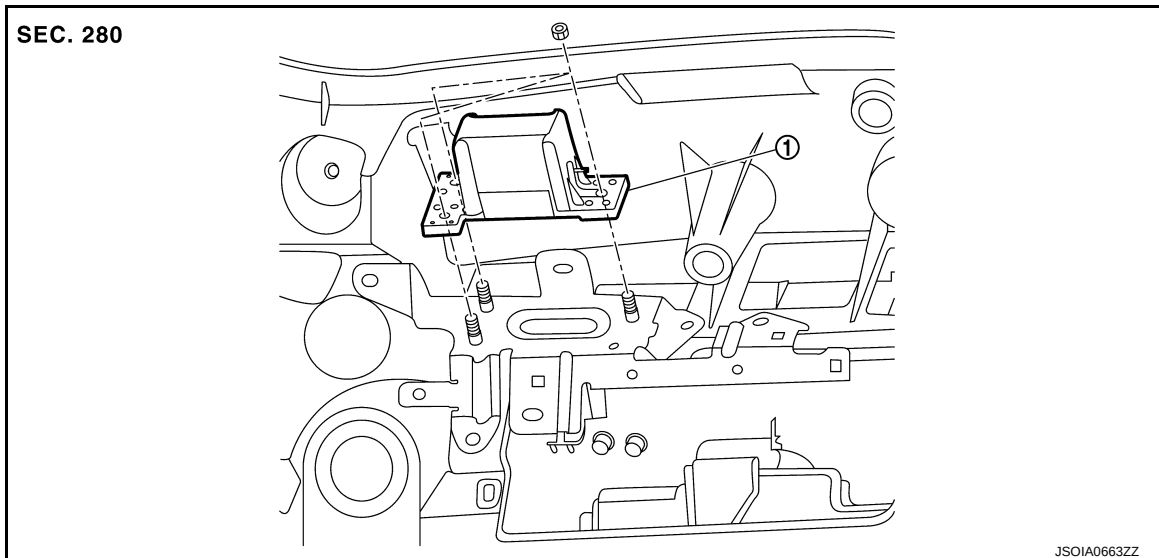
< REMOVAL AND INSTALLATION >

[BSW]

WASHER SWITCHING SOLENOID VALVE

Exploded View

INFOID:000000009723403



① Washer switching solenoid valve

Removal and Installation

INFOID:000000009723404

REMOVAL

1. Remove back door finisher inner. Refer to [INT-38, "Removal and Installation"](#).
2. Remove the nuts.
3. Remove washer switching solenoid valve.

INSTALLATION

Install in the reverse order of removal.

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REAR VIEW CAMERA WASHER/AIR NOZZLE & TUBE

< REMOVAL AND INSTALLATION >

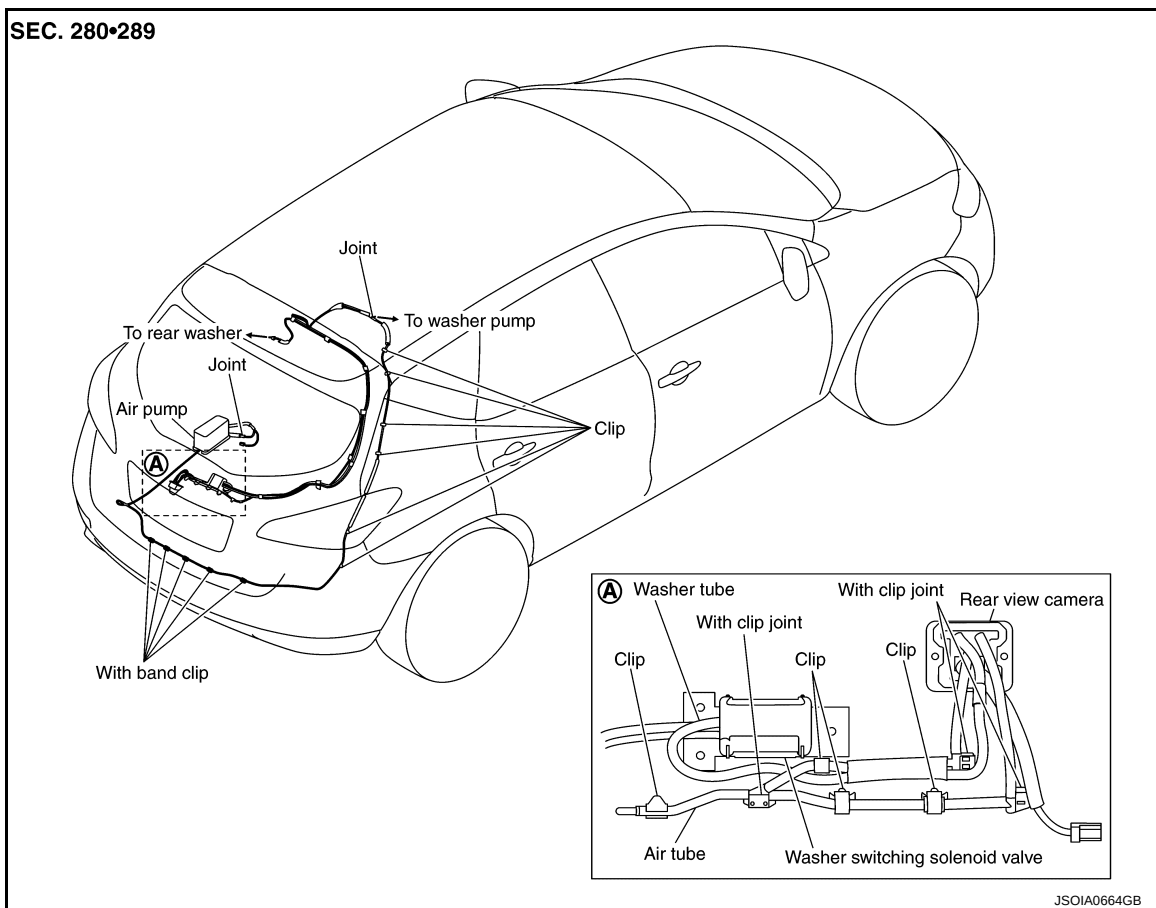
[BSW]

REAR VIEW CAMERA WASHER/AIR NOZZLE & TUBE

Exploded View

INFOID:000000009723405

REAR VIEW CAMERA WASHER / AIR NOZZLE & TUBE



A Details

NOTE:

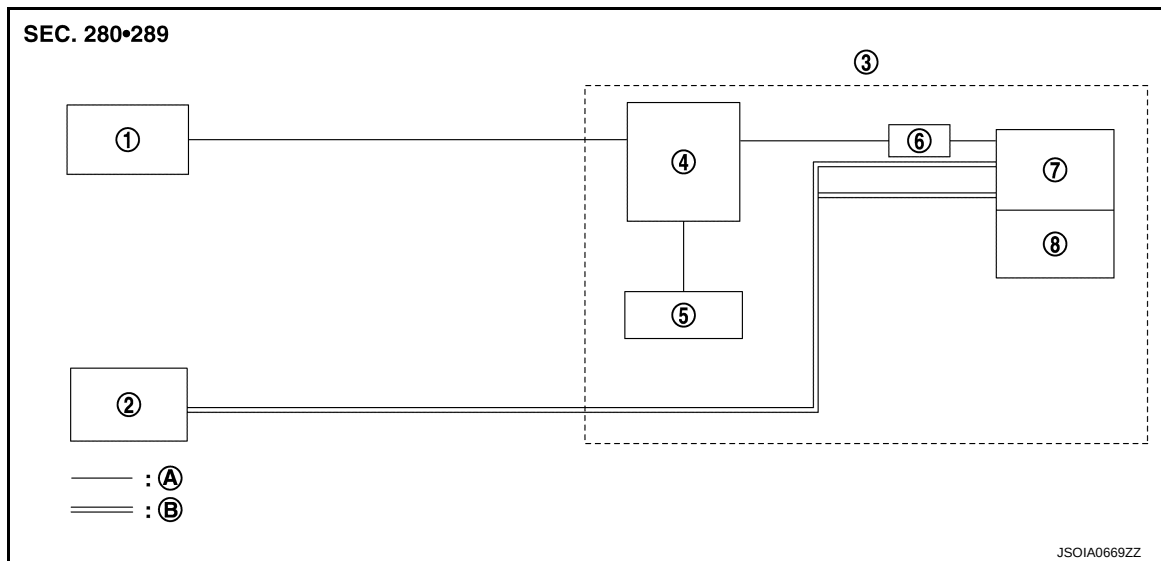
For washer pump and rear washer path, refer to [WW-145, "Hydraulic Layout"](#).

HYDRAULIC LAYOUT

REAR VIEW CAMERA WASHER/AIR NOZZLE & TUBE

< REMOVAL AND INSTALLATION >

[BSW]



- | | | |
|-----------------------------------|----------------------|---------------|
| ① Washer pump | ② Air pump | ③ Back door |
| ④ Washer switching solenoid valve | ⑤ Rear washer nozzle | ⑥ Check valve |
| ⑦ Air/washer nozzle | ⑧ Rear view camera | |
| (A) Washer tube | (B) Air tube | |

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WARNING SYSTEMS SWITCH

< REMOVAL AND INSTALLATION >

[BSW]

WARNING SYSTEMS SWITCH

Removal and Installation

INFOID:000000009723406

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-15. "Removal and Installation"](#).
2. Remove warning systems switch from instrument lower panel LH.

INSTALLATION

Install in the reverse order of removal.