SEAT BELT CONTROL SYSTEM

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< PRECAUTION > PRECAUTION PRECAUTIONS

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

Precautions for Removing of Battery Terminal

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

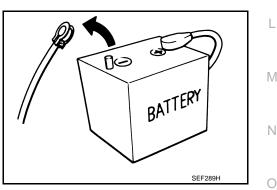
ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

• 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.



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< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

PRE-CRASH SEAT BELT SYSTEM

PRE-CRASH SEAT BELT SYSTEM : Component Parts Location

3 (5 6 6 ወ Â 4 B (7) JMHIA1522ZZ BCM 2. Combination meter 3. ADAS control unit

Seat belt buckle switch 4.

1.

- 7. Brake pedal stroke sensor
- Α. View with instrument driver lower cov- B. er removed
- 5. Steering angle sensor
- 8. Pre-crash seat belt control unit (driver side)
 - View with center pillar lower garnish removed (driver side)
- ABS actuator and electric unit (con-6. trol unit)

PRE-CRASH SEAT BELT SYSTEM : Component Description

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Component	Function
Pre-crush seat belt control unit (driver side)	 Total control of pre-crash seat belt system is operated according to transmit signal. Driver seat belt retractor integrates pre-crash seat belt control unit (driver side), driver seat belt motor, and tension reducer. Seat belt motor operates each operation of pull, return, and hold.
Pre-crush seat belt control unit (passenger side)	 Control of passenger pre-crash seat belt is operated according to transmit signal. Passenger seat belt retractor integrates pre-crash seat belt control unit (driver seat), driver seat belt motor, and tension reducer. Seat belt motor operates each operation of pull, return, and hold.



COMPONENT PARTS

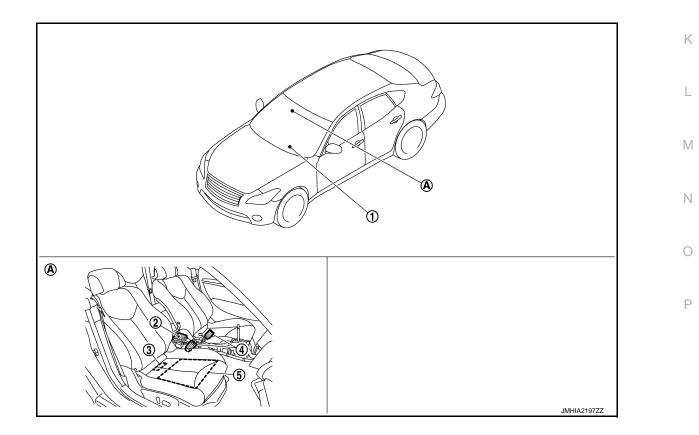
< SYSTEM DESCRIPTION >

Component	Function
Brake pedal stroke sensor	 It changes voltage according to brake pedal depressed amount and sends the signal to pre-crash seat belt control unit. There are 2 signals (brake pedal stroke sensor 1 and 2) sent from the brake pedal stroke sensor. Pre-crash seat belt control unit judges the stroke amount and the speed of the brake pedal according to the voltage of the signal sent by each side.
Seat belt buckle switch (driver side)	 Fastening or not fastening of seat belt is judged. This judgment is used for control of driver pre-crash seat belt system. Seat belt warning lamp on combination meter turns ON when seat belt is not fastened while ignition switch is ON. The seat belt buckle switch is installed in the seat belt buckle.
Seat belt buckle switch (passenger side)	 Fastening or not fastening of seat belt is judged. This judgment is used to control passenger pre-crash seat belt system. Control of passenger seat tension reducer is operated by ON/OFF of seat belt buckle switch. The seat belt buckle switch is installed in the seat belt buckle.
Combination meter	 Transmits vehicle speed signal to pre-crash seat belt control unit (driver side). Turns the seat belt warning lamp ON when the seat belt is unfastened.
ADAS control unit	Intelligent brake assistance operation signal is received from ADAS control unit via CAN communication.
Steering angle sensor	Steering angle sensor signal, steering angle speed signal, steering angle sensor neutral position adjustment completion signal, and steering angle sensor mal- function signal are received via CAN communication.
BCM	Ignition ON signal, sleep/wakeup signal, and door switch signal are received from BCM via CAN communication.
ABS actuator and electric unit (control unit)	ABS operation signal is received from ABS actuator and electric unit (control unit) via CAN communication.

SEAT BELT WARNING LAMP SYSTEM

SEAT BELT WARNING LAMP SYSTEM : Component Parts Location

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COMPONENT PARTS

< SYSTEM DESCRIPTION >

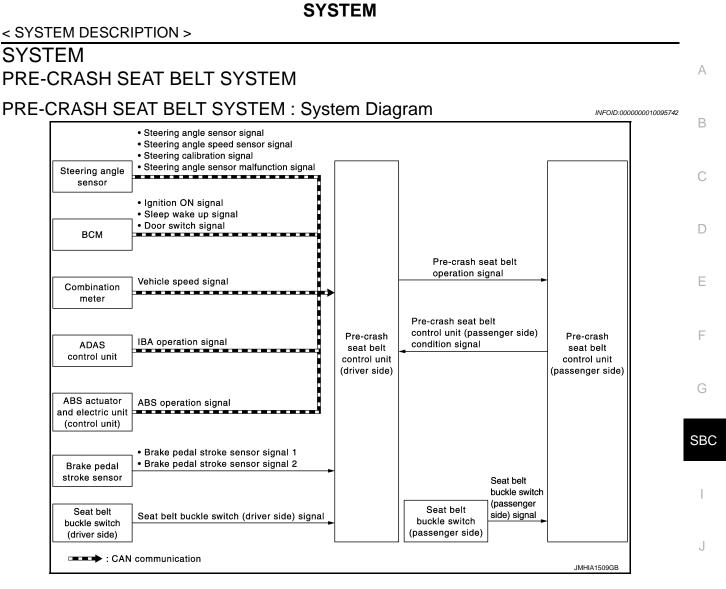
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- 1. Combination meter Refer to <u>MWI-6. "METER SYSTEM :</u> <u>Component Parts Location"</u>.
- 2. Air bag diagnosis sensor unit
- 3. Occupant classification system control unit
- 5. Occupant classification system sensor
- A. View with center console assembly removed

Seat belt buckle switch LH/RH

SEAT BELT WARNING LAMP SYSTEM : Component Description

Component parts	Outline of function
Seat belt buckle switch (Driver side)	Detects if the seat belt buckle switch (driver side) is fastened or unfastened
Seat belt buckle switch (Passenger side)	Detects if the seat belt buckle switch (passenger side) is fastened or unfastened
Seat belt warning lamp	Turns the seat belt warning lamp ON when the seat belt is unfastened
Occupant Classification System control unit	Judges the passenger seat condition based on the information from Occupant Classi- fication System control unit
Occupant Classification System seat sensor	Detects if the passenger seat is empty or occupied
Air bag diagnosis sensor unit	Turns ON seat belt warning lamp based on the information from Occupant Classifica- tion System control unit



PRE-CRASH SEAT BELT SYSTEM : System Description

- Pre-crash seat belt system integrates control unit and motor in driver and passenger seat belt retractors.
- Provides a sense of ease when pre-crash seat belt control unit judges the emergency braking operation, the intelligent brake assistance operating status, the continuous ABS operating status, the emergency steering wheel operation, or the lateral slippage status during cornering. The motor immediately retracts the seat belt and suppresses change in occupant posture.
- Even in a situation where a collision is unavoidable, effects of other safety devices, like the air bag, are maximized and damages are reduced.
- Motor retracts seat belt when unfastening and extracts seat belt when fastening to reduce the feeling of pressure. (comfort function)

FUNCTION DESCRIPTION

Pre-crash seat belt system operates under the following conditions.

- During emergency brake operation
- When ABS continuously operates
- When intelligent brake assistance operates
- When lateral slippage during cornering occurs
- When steering wheel is rotated for emergency
- When comfort function operates

OPERATION CONDITION

Operation while driving

- Operation start and stop conditions of pre-crash seat belt system are as shown in the following table.
- The activation and deactivation conditions of pre-crush seat belt are as per the following.

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SYSTEM

< SYSTEM DESCRIPTION >

Operation item	Operation start condition	Operation stop condition
During emergency brake operation	 Vehicle speed is 15 km/h (9 MPH) or more Emergency braking status is detected 	During acceleration
When ABS continuously operates	 ABS continuously operates for 2 seconds or more Brake pedal is in depressed state 	When stopped
When intelligent brake assistance oper- ates	System detects that intelligent brake assistance is in operating status	2 seconds after operation start
When lateral slippage during cornering occurs	 Vehicle speed is 30 km/h (19 MPH) or more System detects that the vehicle is in lateral slippage state System detects that the vehicle is driving on a curve 	 Vehicle stopped 1 second or more after maintaining storing wheel angle in straight drive
When steering wheel is rotated for emer- gency	 Vehicle speed is 60 km/h (36 MPH) or more Steering wheel angle is 90 degrees or more System detects that steering wheel is rotated for emergency 	steering wheel angle in straight driv ing state

NOTE:

For details of intelligent brake assist system.Refer to <u>BRC-168</u>, "INTELLIGENT BRAKE ASSIST : System <u>Description</u>".

Comfort function

- Seat belt is retracted and the looseness is reduced in the state as shown in the following table.
- Operation start and stop conditions of pre-crash seat belt system are as shown in the following table.

Operation item	Activating condition	Deactivating condition
Door open	 Seat belt is in not fastened state Door is operated to open from closed Vehicle stopped 	Seat belt retract is complete13 seconds after start retracting
Seat belt is fastened	When door is closedSeat belt is fastened	Seat belt is unfastened1 second after operation
Seat belt is release	Seat belt is unfastened	Seat belt retract is complete10 seconds after start retracting

Operation Prohibition Condition

Pre-crash seat belt system does not operate in the following conditions.

- When seat belt is not fastened (only the seat belt that is not fastened does not operate)
- When motor is overheat due to contentious operation*1
- When the system is in fail-safe mode

*1: System operation is temporarily deactivated to avoid overheating, when comfort function is continuously operated (18 times or more) during a short period of time by fastening and unfastening seat belts or opening and closing doors.

MALFUNCTION WARNING

When system malfunction is detected, comfort function is deactivated to warn customer of system malfunction.

PRE-CRASH SEAT BELT SYSTEM : Fail Safe

When a system malfunction is detected, deactivates a part of the system or all functions depending on the malfunctioning part.

When the malfunction condition recovers to the normal condition, the system returns to the normal operation.

DRIVER SIDE

Display contents of CONSULT	Fail-safe
B2451:SEAT BLT MTR DR CIRC	Fully deactivates the whole operation.
B2452:SEAT BLT MTR AS CIRC	Deactivates a part of comfort function.

SYSTEM

< SYSTEM DESCRIPTION >

Display contents of CONSULT	Fail-safe	
B2453:BR_STROKE_SEN_CIRC	 Stops the operation in the conditions as per the following. During emergency brake operation When ABS continuously operates A part of comfort function 	
B2454:SEAT BLT PWR DR CIRC	Fully deactivates the whole operation.	
B2455:CONTROL UNIT DR	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function 	
B2456:SEAT BLT PWR AS	Deactivates a part of comfort function.	
B2457:CONTROL UNIT AS	Deactivates a part of comfort function.	
B2458:LOCAL COMM	Deactivates a part of comfort function.	
B2461:VHCL SPEED SIGNAL	 Stops the operation in the conditions as per the following. During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When steering wheel is rotated for emergency When comfort function operates 	
B2466:DR/AS CONTROL UNIT	Deactivates a part of comfort function.	
B2470:SYS HEAT PROTC DR	 Fully deactivates the whole operation. Operation return 1 time operation becomes possible after approximately 30 seconds Returns to the initial condition after approximately 8 minutes 	
U0126:STRG ANG SEN SIG	 Stops the operation in the conditions as per the following. When lateral slippage during cornering occurs When steering wheel is rotated for emergency A part of comfort function 	
U0428:STRG ANGL CAL	 Stops the operation in the conditions as per the following. When lateral slippage during cornering occurs When steering wheel is rotated for emergency A part of comfort function 	
U1000:CAN communication circuit	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function 	

*1: The deactivation mode differs depending on the internal malfunctioning condition of control unit

PASSENGER SIDE

Display contents of CONSULT	Fail-safe	
B2452:SEAT BLT MTR DR CIRC	Fully deactivates the whole operation.	
B2453:BR_STROKE_SEN_CIRC	Stops the operation in the conditions as per the following.During emergency brake operationWhen ABS continuously operates	
B2455:CONTROL UNIT DR	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function 	

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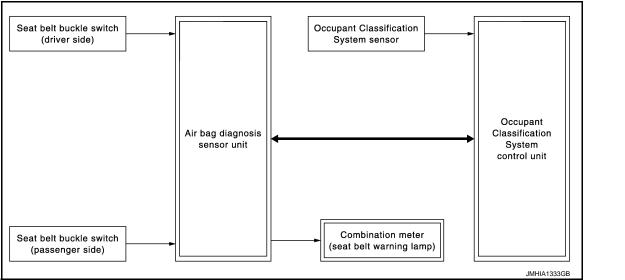
< SYSTEM DESCRIPTION >

Display contents of CONSULT	Fail-safe
B2456:SEAT BLT PWR AS	Fully deactivates the whole operation.
B2457:CONTROL UNIT AS	Fully deactivates the whole operation. *1
B2458:LOCAL COMM	Fully deactivates the whole operation. *1
B2461:VHCL SPEED SIGNAL	 Stops the operation in the conditions as per the following. During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When steering wheel is rotated for emergency A part or the whole comfort function
B2466:DR/AS CONTROL UNIT	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function
B2471:SYS HEAT PROTC AS	 Fully deactivates the whole operation. Operation return 1 time operation becomes possible after approximately 30 seconds Returns to the initial condition after approximately 8 minutes
U0126:STRG ANG SEN SIG	Stops the operation in the conditions as per the following.When lateral slippage during cornering occursWhen steering wheel is rotated for emergency
U0428:STRG ANGL CAL	Stops the operation in the conditions as per the following.When lateral slippage during cornering occursWhen steering wheel is rotated for emergency
U1000:CAN communication circuit	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function

*1: The deactivation mode differs depending on the internal malfunctioning condition of control unit

SEAT BELT WARNING LAMP SYSTEM

SEAT BELT WARNING LAMP SYSTEM : System Diagram



SYSTEM

< SYSTEM DESCRIPTION >

SEAT BELT WARNING LAMP SYSTEM : System Description

- Turns ON seat belt warning lamp, when the Occupant Classification System judges adult or child in the front passenger seat and the passenger seat belt buckle switch is OFF.
- Operation of air bag diagnosis sensor unit when air bag diagnosis sensor unit receives information from Occupant Classification System.
- In addition, seat belt warning lamp illuminates, when the driver side seat belt is not fasten. This does not
 relate to the air bag diagnosis sensor unit.
- For driver seat belt function, refer to MWI-36, "Reference Value".

Status (front passenger seat)	Seat belt warning lamp (When front passenger seat is unbuckled
Empty	OFF
An object	OFF
Child/ child-seat	ON
Adult	ON
Malfunction	OFF

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DIAGNOSIS SYSTEM (PRE-CRASH SEAT BELT)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (PRE-CRASH SEAT BELT)

CONSULT Function

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Diagnosis for pre-crash seat belt system can be performed using CONSULT.

APPLICATION ITEM

Part to be diagnosed	Diagnosis Mode	Function description	
	Self-diagnosis Results	 Displays data recorded when a malfunction is de tected. Can print out the display. Erases DTC recorded in memory. 	
Pre-crash seat belt	Data Monitor	Displays input data for pre-crash seat belt control unit in real time.	
	Work Support	Changes the setting for each system function.	
	CAN DIAG SUPPORT MNTR	Monitors communication status of CAN communi- cation.	
	ECU Identification	Displays pre-crash seat belt control unit part num- ber.	

SELF-DIAGNOSIS RESULTS Refer to SBC-16, "DTC Index".

CAUTION:

When malfunctions are detected in several systems, including the CAN communication [U1000], troubleshoot the CAN communication [U1000].

ERASING SELF-DIAGNOSIS RESULTS

 SELF-DIAGNOSIS RESULTS Current "SELF-DIAG RESULTS" are displayed. (If all suspect circuits have been repaired, "NO DTC" is displayed.)

SELF-DIAG RESULTS [MEMORY]

Resume trouble diagnosis item selection screen, confirm "SELF-DIAG RESULTS", and then touch ERASE MEMORY.

DATA MONITOR

Monitor item	Contents
BUCKLE SW RH	Indicates [ON/OFF] condition of seat belt buckle switch (RH).
BUCKLE SW LH	Indicates [ON/OFF] condition of seat belt buckle switch (LH).
VEHICLE DISTANCE	Indicates [ON/OFF] condition of intelligent brake assist signal.
IGN SW	Indicates [ON/OFF] condition of ignition switch.
FR DOOR SW RH	Indicates [Close/Open] condition of front door switch (RH).
FR DOOR SW LH	Indicates [Close/Open] condition of front door switch (LH).
ABS ACTIVATING	Indicates [ON/OFF] condition of ABS activating.
VHCL SPEED	Indicates [Km/h] vehicle speed signal.
BRK PEDAL SNSR1	Indicates [V] voltage of brake pedal stroke sensor 1 signal.
BRK PEDAL SNSR2	Indicates [V] voltage of brake pedal stroke sensor 2 signal.
STRG ANGLE	Indicates [deg] steering angle signal.
STRG ANGLE SPEED	Indicates [deg/s] steering angle speed signal.
HEAT PROTC RH	Indicates [ON/OFF] condition of heat protection (RH).
HEAT PROTC LH	Indicates [ON/OFF] condition of heat protection (LH).

WORK SUPPORT

DIAGNOSIS SYSTEM (PRE-CRASH SEAT BELT)

< SYSTEM DESCRIPTION >

Monitor item	Description	
DOOR OPENING RETRACT RETRY	Changes the number of times for the seat belt retract retry when the door opens.	

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< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION PRE-CRASH SEAT BELT CONTROL UNIT (DRIVER SIDE)

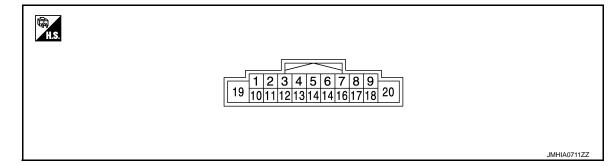
Reference Value

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VALUES ON THE DIAGNOSIS TOOL CONSULT MONITOR ITEM

Monitor item	Condition	Value/Status (Approx.)
BUCKLE SW RH	RH seat belt is not fastened	OFF
BUCKLE SW KH	RH seat belt is fastened	ON
BUCKLE SW LH	RH seat belt is not fastened	OFF
BUCKLE SW LH	RH seat belt is fastened	ON
VEHICLE DISTANCE	Not activated	OFF
VEHICLE DISTANCE	Activated	ON
	Ignition switch OFF	OFF
IGN SW	Ignition switch ON	ON
	LH door close	CLOSE
FR DOOR SW RH	LH door open	OPEN
	RH door close	CLOSE
FR DOOR SW LH	RH door open	OPEN
	ABS not activating	OFF
ABS ACTIVATING	ABS activating	ON
VHCL SPEED	While driving	Equivalent speedometer reading (km/h)
BRK PEDAL SNSR1	Brake released \rightarrow depressed	$(1 \text{ V} \rightarrow 4 \text{ V})$
BRK PEDAL SNSR2	Brake released \rightarrow depressed	$(4 \text{ V} \rightarrow 1 \text{V})$
	Steering wheel: 0° (Neutral)	±2.5 (deg)
STRG ANGLE	Steering wheel: 90° (Turned right)	+90 (deg)
	Steering wheel: 90° (Turned left)	-90 (deg)
STRG ANGLE SPEED	Ignition switch ON	Depending on steering angle speed (deg/s)
HEAT PROTC RH	RH heat protection is not activated	OFF
	RH heat protection is activated	ON
	LH heat protection is not activated	OFF
HEAT PROTC LH	LH heat protection is activated	ON

TERMINAL LAYOUT



PHYSICAL VALUES

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value* ¹	
+	_	Signal name	Input/ Output	Condition	(Approx.)	
1 (V)	GND	Power supply	Input	_	Battery voltage	
2 (G)	GND	Brake pedal stroke sensor signal 1	Input	Brake released \rightarrow depressed	1V→4V	
4 (R)	GND	CAN-L	Input/ Output	—	_	
6	GND	Seet helt husble quitch signal	Innut	Seat belt is fastened	0 V	
(LG)	GND	Seat belt buckle switch signal	Input	Seat belt is unfastened	5 V	
8 (BR)	GND	Local Communication Line 2	Input/ Output	IGN ON	5 V	
9 (–)	GND	Shield	_	_	_	
10 (R)	GND	Brake pedal stroke sensor power circuit	Output	IGN ON	5 V	
12 (B)	GND	Brake pedal stroke sensor signal 2	Input	Brake released \rightarrow depressed	4V→1V	
14 (L)	GND	CAN-H	Input/ Output	_	_	
16 (Y)	GND	Local Communication Line 1	Input/ Output	_	_	
17 (W)	GND	Brake pedal stroke sensor ground circuit	Input	_	0 V	
18 (B)	GND	GND	Output	_	0 V	
19 (Y)	GND	Motor drive circuit power supply	Input		Battery voltage	
20 (B)	GND	Motor drive circuit ground	Output	_	0 V	

*1: Perform the measurement while connecting the control unit and the harness.

Fail Safe

When a system malfunction is detected, deactivates a part of the system or all functions depending on the malfunctioning part.

When the malfunction condition recovers to the normal condition, the system returns to the normal operation.

Display contents of CONSULT	Fail-safe	
B2451:SEAT BLT MTR DR CIRC	Fully deactivates the whole operation.	
B2452:SEAT BLT MTR AS CIRC	Deactivates a part of comfort function.	
B2453:BR_STROKE_SEN_CIRC	 Stops the operation in the conditions as per the following. During emergency brake operation When ABS continuously operates A part of comfort function 	
B2454:SEAT BLT PWR DR CIRC	Fully deactivates the whole operation.	

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< ECU DIAGNOSIS INFORMATION >

Display contents of CONSULT	Fail-safe
B2455:CONTROL UNIT DR	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function
B2456:SEAT BLT PWR AS	Deactivates a part of comfort function.
B2457:CONTROL UNIT AS	Deactivates a part of comfort function.
B2458:LOCAL COMM	Deactivates a part of comfort function.
B2461:VHCL SPEED SIGNAL	 Stops the operation in the conditions as per the following. During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When steering wheel is rotated for emergency When comfort function operates
B2466:DR/AS CONTROL UNIT	Deactivates a part of comfort function.
B2470:SYS HEAT PROTC DR	 Fully deactivates the whole operation. Operation return 1 time operation becomes possible after approximately 30 seconds Returns to the initial condition after approximately 8 minutes
U0126:STRG ANG SEN SIG	 Stops the operation in the conditions as per the following. When lateral slippage during cornering occurs When steering wheel is rotated for emergency A part of comfort function
U0428:STRG ANGL CAL	 Stops the operation in the conditions as per the following. When lateral slippage during cornering occurs When steering wheel is rotated for emergency A part of comfort function
U1000:CAN communication circuit	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function

*1: The deactivation mode differs depending on the internal malfunctioning condition of control unit

DTC Index

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DISPLAY ITEM LIST (PRE-CRASH SEAT BELT)

DTC	Trouble diagnosis name (CONSULT display)	DTC detection condition	Reference
U1000	CAN COMM CIRCUIT	Pre-crash seat belt control unit cannot transmit and receive CAN communication signal for 2 seconds or more	<u>SBC-32</u>
B2451	SEAT BLT MTR DR CIRC	Motor or control unit malfunctionSeat belt motor circuit is shorted or open	<u>SBC-35</u>
B2452	SEAT BLT MTR AS CIRC	Motor or control unit malfunctionSeat belt motor circuit is shorted or open	<u>SBC-36</u>
B2453	BR_STROKE_SEN_CIRC	Brake pedal stroke sensor malfunctionBrake pedal stroke sensor circuit is short	<u>SBC-37</u>
B2454	SEAT BLT PWR DR CIRC	Motor power supply circuit is shorted or open	<u>SBC-40</u>
B2455	CONTROL UNIT DR	Malfunction in pre-crash seat belt control unit	<u>SBC-41</u>
B2456	SEAT BLT PWR AS CIRC	Motor power supply circuit is shorted or open	<u>SBC-42</u>

< ECU DIAGNOSIS INFORMATION >

DTC	Trouble diagnosis name (CONSULT display)	DTC detection condition	Reference
B2457	CONTROL UNIT AS	Malfunction in pre-crash seat belt control unit	<u>SBC-44</u>
B2458	LOCAL COMM	Local communication line shorted or open	<u>SBC-45</u>
B2461	VHCL SPEED SIGNAL	Vehicle speed signal malfunction is received	<u>SBC-47</u>
B2466	DR/AS CONTROL UNIT	Control unit is out of the vehicle specification	<u>SBC-48</u>
B2470	SYS HEAT PROTC DR	Deactivation for cooling to prevent system heating due to continuous operation	<u>SBC-49</u>
B2471	SYS HEAT PROTC AS	Deactivation for cooling to prevent system heating due to continuous operation	<u>SBC-50</u>
U0126	STRG ANG SEN SIG	Steering angle sensor malfunction is received	<u>SBC-33</u>
U0428	STRG ANGL CAL	Steering angle sensor calibration incomplete signal is received	SBC-34

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PRE-CRASH SEAT BELT CONTROL UNIT (PASSENGER SIDE)

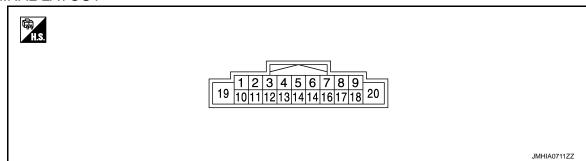
< ECU DIAGNOSIS INFORMATION >

PRE-CRASH SEAT BELT CONTROL UNIT (PASSENGER SIDE)

Reference Value

INFOID:0000000010095751

TERMINAL LAYOUT



PHYSICAL VALUES

	inal No. e color)	Description		Condition	Value* ¹	
+	_	Signal name	Input/ Output	Condition	(Approx.)	
1 (P)	GND	Power supply	Input	_	Battery voltage	
6	GND Seat belt buckle switch signal		Input	Seat belt is fastened	0 V	
(G)	GIND	Seat belt buckle switch signal	mput	Seat belt is unfastened	5 V	
8 (V)	GND	Local Communication Line 2	Input/ Output	IGN ON	5 V	
16 (LG)	GND	Local Communication Line 1	Input/ Output	_	—	
18 (B)	GND	GND	Output	_	0 V	
19 (W)	GND	Motor passenger circuit power supply	Input	_	Battery voltage	
20 (B)	GND	Motor passenger circuit ground	Output		0 V	

*1: Perform the measurement while connecting the control unit and the harness.

Fail Safe

INFOID:000000010095752

When a system malfunction is detected, deactivates a part of the system or all functions depending on the malfunctioning part.

When the malfunction condition recovers to the normal condition, the system returns to the normal operation.

Display contents of CONSULT	Fail-safe
B2452:SEAT BLT MTR DR CIRC	Fully deactivates the whole operation.
B2453:BR_STROKE_SEN_CIRC	Stops the operation in the conditions as per the following.During emergency brake operationWhen ABS continuously operates
B2455:CONTROL UNIT DR	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function
B2456:SEAT BLT PWR AS	Fully deactivates the whole operation.

PRE-CRASH SEAT BELT CONTROL UNIT (PASSENGER SIDE)

< ECU DIAGNOSIS INFORMATION >

Display contents of CONSULT	Fail-safe
B2457:CONTROL UNIT AS	Fully deactivates the whole operation. *1
B2458:LOCAL COMM	Fully deactivates the whole operation. * ¹
B2461:VHCL SPEED SIGNAL	 Stops the operation in the conditions as per the following. During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When steering wheel is rotated for emergency A part or the whole comfort function
B2466:DR/AS CONTROL UNIT	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function
B2471:SYS HEAT PROTC AS	 Fully deactivates the whole operation. Operation return 1 time operation becomes possible after approximately 30 seconds Returns to the initial condition after approximately 8 minutes
U0126:STRG ANG SEN SIG	Stops the operation in the conditions as per the following.When lateral slippage during cornering occursWhen steering wheel is rotated for emergency
U0428:STRG ANGL CAL	Stops the operation in the conditions as per the following.When lateral slippage during cornering occursWhen steering wheel is rotated for emergency
U1000:CAN communication circuit	 Stops the operation in the conditions as per the following. *1 During emergency brake operation When ABS continuously operates When lateral slippage during cornering occurs When Intelligent brake assistance operates When steering wheel is rotated for emergency A part or the whole comfort function

*1: The deactivation mode differs depending on the internal malfunctioning condition of control unit

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DIAGNOSIS SENSOR UNIT

< ECU DIAGNOSIS INFORMATION >

DIAGNOSIS SENSOR UNIT

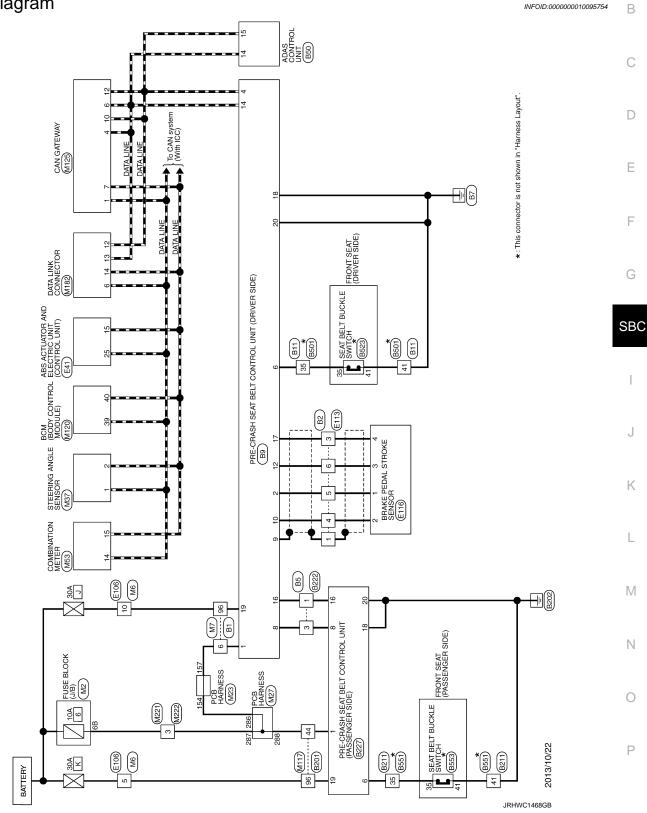
List of ECU Reference

ECU	Reference
AIR BAG DIAGNOSIS SENSOR UNIT	SRC-18, "DTC Index"



WIRING DIAGRAM PRE-CRASH SEAT BELT CONTROL UNIT

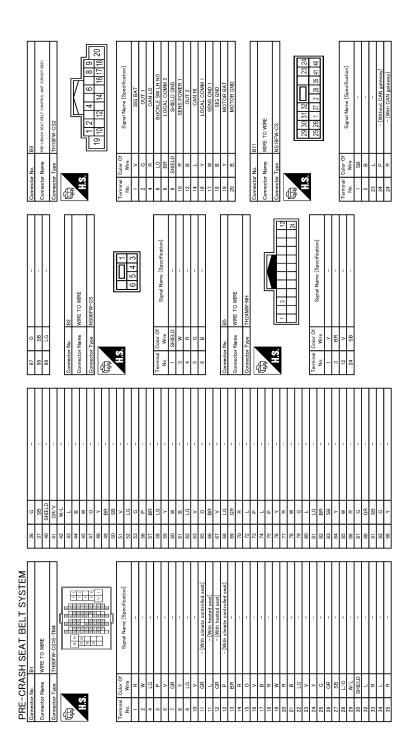
Wiring Diagram



PRE-CRASH SEAT BELT SYSTEM

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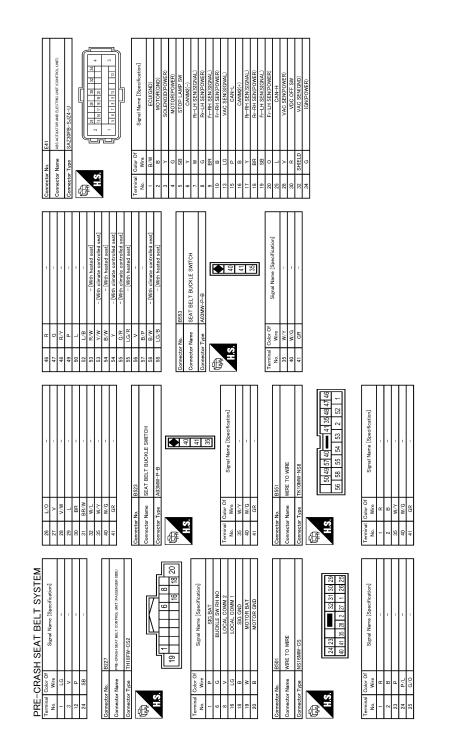


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PRE-CRASH SEAT BELT CONTROL UNIT

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Connector Type TH80FW-CS16-TM4		Connector No. E116	┢
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+	BR	Connector Name WIRE TO WIRE	80
GR	M	Т	LG LG
GR	æ	Connector Type TH80MW-CS16-TM4	BR
>	98 Y -		
Y	+		œ
17 GR -	100 V -		66 P -
18 V -			67 L – –
20 BR -			77 B -
21 P -	Connector No. E113		78 V -
	Г		9
	Connector Name WIRE TO WIRE		
SHIELD	Connector Type NS06MW-CS	Color Of	œ
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PRE-CRASH SEAT BELT CONTROL UNIT

< WIRING DIAGRAM >

PRE-CRASH SEAT BELT CONTROL UNIT

PRE-CRASH SEAT BELT SYSTEM	STEM								
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		36			66	LG	-	Connector No. M27	
Connector No. M7		37		-				Connector Name PCB HARNESS	ESS
Connector Name WIRE TO WIRE		41						Т	004
		42	> .		Conne	Connector No.	M23	Connector Type TH40FB-NH	
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12 P – [With climate controlled seat]	seat]	70	>	-	137	۲	-	295 B	-
		72	-	-	138	L	-	297 B	-
14 GR -		73	٩	-	135	٩	-	298 B	-
15 BG -		74	-	-	140	L	-	299 L	-
-		75	_	-	141	_	-	_	-
17 BG -		76	9	-	142	w	-	301 R	-
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PRE-CRASH SEAT BELT CONTROL UNIT

PRE-CRASH SEAT BELT SYSTEM									
Connector No. M37	24	8	FUEL LEVEL SENSOR GROUND	40	SHIELD	1	97	7	
	25	M	ALTERNATOR SIGNAL	41	œ		98	BR	1
Connector Name STEER(ING ANGLE SENSOR	26	>	PARKING BRAKE SWITCH SIGNAL	42	>		66	0	
Consector Type TH08FW-NH	76	>	REAKE FUID LEVEL SWITCH SIGNAL	44	>		6	>	
1	28	9	SECURITY SIGNAL	45	BS				
	29	_	WASHER LEVEL SWITCH SIGNAL	46	BG	- [With heated seat]			
下 手	39	c	PADDI F SHIFTER SHIFT DOWN SIGNAL	46	-	- [With climate controlled seat]	Connector No		M120
	8	, e	PADDI E SHIETER SHIET UP SIGNAL	47		- [With climate controlled seat]		Γ	
7 2 8	12	3 0	FIEL LEVEL SENSOR STONAL	47	, e	- [With heated seat]	Connector Name		BCM (BODY CONTROL MODULE)
2	5	> 3	SEAT BELT PLICKLE SWITCH STAND (DRIVED SIDE)	101	; >		Connector	-	Connector Line THADER-NH
	3 8	•		¢ \$. 2			adk -	
	er F	9	PASSENGER SEAT BELT WARNING SIGNAL	49	e R		ą		
-	37	9	NON-MANUAL MODE SIGNAL	20	P	1	B		
Terminal Color Of Simal Name [Snevification]	38	>	MANUAL MODE SHIFT DOWN SIGNAL	51	SB	1			K
	39	_	MANUAL MODE SHIFT UP SIGNAL	52	>	T	2		
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Connector No. M53	Connec	Connector Type	TH80FW-CS16-TM4	62	>	1	-	9	RR WINDOW DEFG RLY CONT
Connector Name COMBINATION METER	4		H١	63	œ	T	2	ß	COMBI SW INPUT 5
	E			99		1	m	ß	COMBI SW INPUT 4
Connector Type TH40FW-NH	it to			67	>		4	_	COMBI SW INPUT 3
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	Terminal	I Color Of	Cianol Masso [Canoiffortion]	75	٦		14	W	OPTICAL SENSOR
	No.	Wire	ORIGITATION CONCOUNTS	76	SHIELD	1	16	SB	DIMMER SIGNAL
	e e	>	1	17	σ	1	17	7	SENSOR PWR SPLY
Terminal Color Of	9	œ		78	œ		18		RECEIVER / SENSOR GND
No. Wire Signal Name [Specification]	13	>		52	-	,	19	œ	RECEIVER PWR SPLY
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GR VEHICLE SPEE	19	H	-	82	В		22	ВR	KYLS ENT RECEIVER RSSI
4 R VEHICLE SPEED SIGNAL (8-PULSE)	20	GR	-	83	GR	-	23	9	SECURITY IND CONT
5 B ILLUMINATION CONTROL SIGNAL	21	~	1	84	>	1	24	_	DONGLE LINK
6 B METER CONTROL SWITCH GROUND	22	LG	1	85	P	1	25	σ	NATS ANT AMP.
7 SB ENTER SWITCH SIGNAL	23	œ		86	>		26	σ	I-KEY IDENTIFICATION
8 LG SELECT SWITCH SIGNAL	24	g	-	87	œ	,	29	0	HAZARD SW
c	25	G		88	>	1	30	с	TR LID OPNR SW
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L I IRIPRES	27	×		90	-		32	ВК	COMBLSW OUTPUT 5
12 B GROUND	28	>	-	91	>	T	33	æ	COMBI SW OUTPUT 4
14 L CAN-H	29	٩	-	93	G	 [With heated seat] 	34	V	COMBI SW OUTPUT 3
15 P CAN-L	30	8	1	93	W	 [With climate controlled seat] 	35	۲	COMBI SW OUTPUT 2
16 R AIR BAG SIGNAL	31	σ	I	94	>	1	36	ΓC	COMBI SW OUTPUT 1
23 B GROUND	32	>		96	×	,	37	œ	P POSITION
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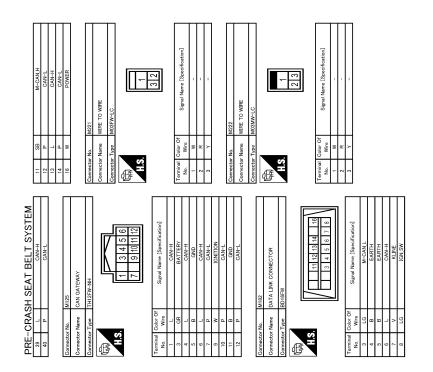
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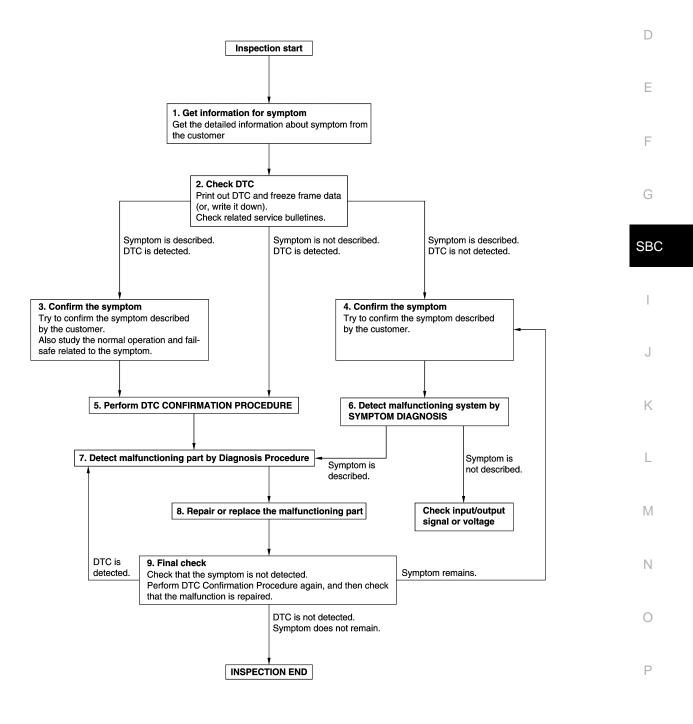
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< BASIC INSPECTION >

BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

OVERALL SEQUENCE



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DETAILED FLOW

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< BASIC INSPECTION >

1.GET INFORMATION FOR SYMPTOM

- 1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
- 2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

- 1. Check DTC.
- 2. Perform the following procedure if DTC is detected.
- Record DTC and freeze frame data (Print them out using CONSULT.)
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.
- 3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3. Symptom is described, DTC is not detected>>GO TO 4. Symptom is not described, DTC is detected>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Also study the normal operation and fail-safe related to the symptom. Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time. **NOTE:**

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIR-MATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.

NO >> Check according to <u>GI-47, "Intermittent Incident"</u>.

$\mathbf{6}$. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CON-SULT.

7. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system. Is malfunctioning part detected?

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

YES >> GO TO 8. NO >> Check according to <u>GI-47, "Intermittent Incident"</u> .	А			
8. REPAIR OR REPLACE THE MALFUNCTIONING PART				
 Repair or replace the malfunctioning part. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement. 	В			
3. Check DTC. If DTC is detected, erase it.	С			
>> GO TO 9.				
9.FINAL CHECK	D			
When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.				
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.	Е			
Is DTC detected and does symptom remain?				
YES-1 >> DTC is detected: GO TO 7. YES-2 >> Symptom remains: GO TO 4.	F			
NO >> Before returning the vehicle to the customer, always erase DTC.				
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< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010095757

- CAN (Controller Area Network) is a serial communication line for real time applications. It is an on board
 multiplex communication line with high data communication speed and excellent error detection ability. A
 modern vehicle is equipped with many ECMs, and each control unit shares information and links with other
 control units during operation (not independent). In CAN communication, two control units are connected
 with two communication lines (CAN H-line, CAN L-line) allowing a high rate of information transmission with
 less wiring. Each control unit transmits/receives data but selectively reads required data only.
- It transmits the vehicle status to pre-crash seat belt control unit using the CAN communication system.
- It consists of CAN system (unified meter and A/C amp., ICC sensor, BCM, steering angle sensor).
- Refer to <u>LAN-33, "CAN COMMUNICATION SYSTEM : CAN System Specification Chart"</u> in LAN section for CAN communication unit (2WD).

DTC Logic

INFOID:000000010095758

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
U1000	CAN communication circuit	Pre-crash seat belt control unit cannot transmit and re- ceive CAN communication system for 2 seconds or more.	 Harness or connectors (CAN communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH PRE-CRASH SEAT BELT CONTROL UNIT

- 1. Turn ignition switch ON and wait for 2 seconds or more.
- 2. Check "Self-diagnostic result" with CONSULT.

Is any DTC detected?

- YES >> Refer to <u>LAN-33</u>, "CAN COMMUNICATION SYSTEM : CAN System Specification Chart" in LAN section for CAN communication or CAN system.
- NO >> CAN communication system is normal.

U0126 ST ANG SEN SIG

U0126 ST ANG SEN SIG

Description

Inputs the steering angle signal from steering angle sensor via CAN communication.

DTC Logic

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DTC DETECTION LOGIC

NOTE:

If DTC U0126 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>SBC-32. "DTC Logic"</u>.

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
U0126	ST ANG SEN SIG	Receipt of a malfunction signal of Steering angle signal	Steering angle sensor
DTC COI	NFIRMATION PR	ROCEDURE	
1.SELF-I	DIAGNOSIS WITH	I PRE-CRASH SEAT BELT CONTROL UNIT	
1. Turn i	gnition switch ON		
	0	result" with CONSULT.	
Is DTC de			
	> Refer to <u>SBC-3</u> > INSPECTION E	3, "Diagnosis Procedure".	
Diagnos	sis Procedure		INFOID:000000010095761
1. CHECK	K DTC WITH "ABS	SACTUATOR AND ELECTRIC UNIT (CONTRO	DL UNIT)"
Check "Se	elf-diagnostic resu	It" for "ABS" with CONSULT. Refer to <u>BRC-41, "</u>	CONSULT Function".
<u>Is DTC de</u>	etected?		
YES >	> Repair or replac	ce malfunctioning parts.	
•	>> GO TO 2.		
	K INTERMITTENT		
Refer to C	<u> 31-47, "Intermittent</u>	Incident".	
	> INSPECTION E		
>	> INSPECTION E	IND	

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< DTC/CIRCUIT DIAGNOSIS >

U0428 STRG ANGL CAL

Description

INFOID:000000010095762

Inputs the steering calibration incomplete signal from steering angle sensor via CAN communication.

DTC Logic

INFOID:000000010095763

DTC DETECTION LOGIC

NOTE:

If DTC U0428 is displayed with DTC U0126, first perform the trouble diagnosis for DTC U0126. Refer to <u>SBC-33, "DTC Logic"</u>.

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
U0428	STRG ANGL CAL	Receipt of the calibration incomplete signal	Steering angle sensor calibration incomplete

DTC CONFIRMATION PROCEDURE

$1.{\tt SELF-DIAGNOSIS} \text{ with pre-Crash seat belt control unit}$

1. Turn ignition switch ON.

2. Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to <u>SBC-34, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000010095764

1.CHECK DTC WITH "ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)"

Check "Self-diagnostic result" for "ABS" with CONSULT. Refer to BRC-41, "CONSULT Function".

Is DTC detected?

YES >> Repair or replace malfunctioning parts.

NO >> GO TO 2.

2. CHECK INTERMITTENT INCIDENT

Refer to GI-47, "Intermittent Incident".

>> INSPECTION END

B2451 SEAT BLT MTR DR CIRC

< DTC/CIRCUIT DIAGNOSIS >

B2451 SEAT BLT MTR DR CIRC

DTC Logic

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INFOID:0000000010095765

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2451	SEAT BLT MTR DR CIRC	Circuit of seat belt motor (driver side) is open or shorted	Pre-crash seat belt control unit (driver side)
DTC CON	FIRMATION PROCED	DURE	
1.self-d	AGNOSIS WITH PRE-	CRASH SEAT BELT CONTROL UN	IT
	nition switch ON. "Self-diagnostic result" v ected?	vith CONSULT.	
YES >>	> Refer to <u>SBC-35, "Diac</u>	nosis Procedure". eat belt motor system is normal.	
Diagnosi	s Procedure		INFOID:00000001009576
1.INSPEC	TION START		
 Touch Perforr 	"Self-diagnostic result" v "ERASE". m DTC Confirmation Pro <u>BC-35, "DTC Logic"</u> .		
I <u>s DTC B2</u> YES >>	451 displayed again?	t belt control unit (driver side).	
2.снеск	INTERMITTENT INCID	ENT	
Refer to <u>GI</u>	-47, "Intermittent Incider	1 <u>t"</u> .	
>>	> INSPECTION END		

B2452 SEAT BLT MTR AS CIRC

< DTC/CIRCUIT DIAGNOSIS >

B2452 SEAT BLT MTR AS CIRC

DTC Logic

INFOID:000000010095767

INFOID:000000010095768

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2452	SEAT BLT MTR AS CIRC	Circuit of seat belt motor (passenger side) is open or shorted	Pre-crash seat belt control unit (passenger side)

DTC REPRODUCTION PROCEDURE

1.SELF-DIAGNOSIS WITH PRE-CRASH SEAT BELT CONTROL UNIT

- 1. Turn ignition switch ON.
- 2. Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

YES >> Refer to <u>SBC-36</u>, "Diagnosis Procedure".

NO >> Passenger side pre-crash seat belt motor system is normal.

Diagnosis Procedure

1.INSPECTION START

- 1. Check "Self-diagnostic result" with CONSULT.
- 2. Touch "ERASE".
- 3. Perform DTC Confirmation Procedure. See <u>SBC-36, "DTC Logic"</u>.

Is DTC B2452 displayed again?

- YES >> Replace pre-crash seat belt control unit (passenger side).
- NO >> GO TO 2.

2. CHECK INTERMITTENT INCIDENT

Refer to GI-47, "Intermittent Incident".

>> INSPECTION END

B2453 BR STROKE SEN CIRC

< DTC/CIRCUIT DIAGNOSIS >

B2453 BR STROKE SEN CIRC

DTC Logic

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INFOID:0000000010095769

INFOID-000000010095770

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes	
B2453	BR STROKE SEN CIRC	Circuit of brake pedal stroke sensor out- put is open or shorted	 Harness or connectors (The sensor circuit is open or shorted) Pre-crash seat belt control unit (driver side) Brake pedal stroke sensor 	(

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH PRE-CRASH SEAT BELT CONTROL UNIT

1. Turn ignition switch ON.

2. Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to <u>SBC-37, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

1.CHECK PRE-CRASH SEAT BELT CONTROL UNIT INPUT SIGNAL

- 1. Turn ignition switch ON.
- 2. Select "BRK PEDAL SNSR1" and "BRK PEDAL SNSR2" in "DATA MONITOR" mode with CONSULT.
- 3. Check "BRK PEDAL SNSR1" and "BRK PEDAL SNSR2" indication under the following conditions.

Monitor item	Condition		Voltage (V) (Approx.)	
BRK PEDAL SNSR1			$1 \rightarrow 4$ $4 \rightarrow 1$	
BRK PEDAL SNSR2	- Brake released \rightarrow de	epressea		
the inspection result normal?				
YES >> GO TO 6. NO >> GO TO 2.				
CHECK BRAKE PEDAL STROK	E SENSOR POWER SU	IPPLY		
 Turn ignition switch OFF. Disconnect brake pedal stroke s Check voltage between brake p 		ess connector and	ground.	
Brake pedal stroke se	nsor		Voltage (V)	
Connector	Terminal	Ground	(Approx.)	
E116	2		5	
the inspection result normal?				
YES >> GO TO 4. NO >> GO TO 3.				

${f 3.}$ check brake pedal stroke sensor power supply circuit

1. Disconnect pre-crash seat belt control unit (driver side) connector.

2. Check continuity between pre-crash seat belt control unit (driver side) harness connector and brake pedal stroke sensor harness connector.

Pre-crash seat belt c	Pre-crash seat belt control unit (driver side)		Brake pedal stroke sensor	
Connector	Terminal	Connector	Terminal	Continuity
B9	10	E116	2	Existed

P

B2453 BR STROKE SEN CIRC

< DTC/CIRCUIT DIAGNOSIS >

3. Check continuity between pre-crash seat belt control unit (driver side) and ground.

Pre-crash seat belt co	ontrol unit (driver side)		Continuity
Connector	Connector Terminal		Continuity
B9	10		Not existed

Is the inspection result normal?

YES >> Replace pre-crash seat belt control unit (driver side). Refer to <u>SBC-63, "Removal and Installation"</u>.
 NO >> Repair or replace harness or connector.

4.CHECK BRAKE PEDAL STROKE SENSOR CIRCUIT

- 1. Disconnect pre-crash seat belt control unit (driver side) connector.
- 2. Check continuity between pre-crash seat belt control unit (driver side) harness connector and brake pedal stroke sensor harness connector.

Pre-crash seat belt co	Pre-crash seat belt control unit (driver side)		stroke sensor	Continuity
Connector	Terminal	Connector	Terminal	Continuity
	2		1	
B9	12	E116	3	Existed
	17		4	*

3. Check continuity between pre-crash seat belt control unit harness connector (driver side) and ground.

Pre-crash seat belt c	ontrol unit (driver side)		Continuity	
Connector	Terminal		Continuity	
	2	Ground	Not existed	
В9	12			
	17			

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness or connector.

${f 5.}$ CHECK BRAKE PEDAL STROKE SENSOR

Refer to <u>SBC-38</u>, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace brake pedal stroke sensor. Refer to <u>SBC-62, "Removal and Installation"</u>.

6.CHECK INTERMITTENT INCIDENT

Refer to GI-47, "Intermittent Incident".

>> INSPECTION END

Component Inspection

COMPONENT PARTS INSPECTION

1.CHECK BRAKE PEDAL STROKE SENSOR

1. Turn ignition switch OFF.

2. Disconnect brake pedal stroke sensor connector.

3. Check resistance between brake pedal stroke sensor terminal as per the following.

INFOID:0000000010095771

B2453 BR STROKE SEN CIRC

< DTC/CIRCUIT DIAGNOSIS >

Brake pedal stroke sensor		Condition	Resistance ($k\Omega$)
	Terminal		(Approx.)
2	1	- Brake released \rightarrow depressed -	1.0 ightarrow 0.2
2	3	- Diake released → depressed -	0.2 ightarrow 1.0
e inspection result r	normal?		
S >> INSPECTIO			
	DN END ake pedal stroke sensor. Refer	to <u>SBC-62, "Removal and I</u>	nstallation".
		to <u>SBC-62, "Removal and I</u>	nstallation".
		to <u>SBC-62, "Removal and I</u>	nstallation".
		to <u>SBC-62, "Removal and I</u>	nstallation".
		to <u>SBC-62, "Removal and I</u>	nstallation".

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B2454 SEAT BLT PWR DR CIRC

< DTC/CIRCUIT DIAGNOSIS >

B2454 SEAT BLT PWR DR CIRC

DTC Logic

INFOID:0000000010095772

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2454	SEAT BLT PWR DR CIRC	Seat belt motor (driver side) power supply cir- cuit is open or shorted	 Harness or connectors [Pre-crash seat belt control unit (driver side) circuit is open or shorted] Pre-crash seat belt control unit (driver side)

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH PRE-CRASH SEAT BELT CONTROL UNIT

- 1. Turn ignition switch ON.
- 2. Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to <u>SBC-40, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

1.CHECK FUSE

- 1. Turn ignition switch OFF.
- 2. Check 30 A fusible link (Letter J).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fusible link after repairing the affected circuit if a fuse is blown.

2.check pre-crash seat belt motor power supply

- 1. Disconnect pre-crash seat belt control unit (driver side) connector.
- 2. Check voltage between pre-crash seat belt control unit (driver side) harness connector and ground.

Pre-crash seat belt co	ontrol unit (driver side)		Voltage (V)
 Connector	Terminal	Ground	Battery voltage
 B9	19		Dallery Vollage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connector.

 ${\it 3.}$ CHECK INTERMITTENT INCIDENT

Refer to GI-47, "Intermittent Incident".

>> INSPECTION END

INFOID:0000000010095773

B2455 CONTROL UNIT DR

< DTC/CIRCUIT DIAGNOSIS >

B2455 CONTROL UNIT DR

DTC Logic

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INFOID:0000000010095774

DTC DETECTION LOGIC

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DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2455	CONTROL UNIT DR	Pre-crash seat belt control unit (driver side) inter- nal circuit malfunction	Pre-crash seat belt control unit (driver side)
	FIRMATION PRC	CEDURE	
SELF-C	DIAGNOSIS WITH F	PRE-CRASH SEAT BELT CONTROL UNI	т
	-	sult" with CONSULT.	
	> Refer to <u>SBC-41.</u> > INSPECTION EN	<u>"Diagnosis Procedure"</u> . D	
Diagnos	is Procedure		INFOID:000000010095775
	CTION START		
2. Touch 3. Perfor	("Self-diagnostic res "ERASE". m DTC Confirmatio BC-41, "DTC Logic"		
YES >	455 displayed agair > Replace pre-crast > GO TO 2.	<u>n?</u> n seat belt control unit (driver side).	
2.CHECK		NCIDENT	
Refer to <u>G</u>	I-47, "Intermittent In	cident".	
>	> INSPECTION EN	D	

< DTC/CIRCUIT DIAGNOSIS >

B2456 SEAT BLT PWR AS

DTC Logic

INFOID:000000010095776

INFOID:000000010095777

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2456	SEAT BLT PWR AS	Pre-crash seat belt control unit (passenger side) power supply circuit is open or shorted	 Harness or connectors [Pre-crash seat belt control unit (pas- senger side) circuit is open or shorted] Pre-crash seat belt control unit (pas- senger side)

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH PRE-CRASH SEAT BELT CONTROL UNIT

- 1. Turn ignition switch ON.
- 2. Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to <u>SBC-42</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

Diagnosis Procedure

1.CHECK FUSE AND FUSIBLE LINK

Check that the following fusible link is not blown.

Terminal No.	Signal name	Fusible link No.
19	Battery power supply	К

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fusible link after repairing the affected circuit if a fuse or fusible link is blown.

2.CHECK PRE-CRASH SEAT BELT MOTOR POWER SUPPLY

- 1. Turn ignition switch OFF.
- 2. Disconnect pre-crash seat belt control unit (passenger side) connector.
- 3. Check voltage between pre-crash seat belt control unit (passenger side) harness connector and ground.

Pre-crash seat belt cont	Pre-crash seat belt control unit (passenger side)		Voltage (V) (Approx.)
Connector	Terminal	Ground	Battery voltage
B227	19		ballery vollage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness between pre-crash seat belt control unit (passenger side) and fusible link.

3.CHECK SELF DIAGNOSTIC RESULT

- 1. Connect pre-crash seat belt control unit (passenger side) connector.
- 2. Turn ignition switch ON.
- 3. Check "Self-diagnostic result" with CONSULT.
- 4. Touch "ERASE".
- 5. Perform DTC Confirmation Procedure. See <u>SBC-42</u>, "<u>DTC Logic</u>".

Is DTC B2456 displayed again?

YES >> Replace pre-crash seat belt control unit (passenger side).

NO >> GO TO 4.

SBC-42

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<pre> B2436 SEAT BLT PWR AS < DTC/CIRCUIT DIAGNOSIS > </pre>	
4.CHECK INTERMITTENT INCIDENT	
Refer to GI-47, "Intermittent Incident".	Α
>> INSPECTION END	В
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B2457 CONTROL UNIT AS

< DTC/CIRCUIT DIAGNOSIS >

B2457 CONTROL UNIT AS

DTC Logic

INFOID:0000000010095778

INFOID:000000010095779

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2457	CONTROL UNIT AS	Pre-crash seat belt control unit (passenger side) in- ternal circuit malfunction	Pre-crash seat belt control unit (passenger side)

DTC CONFIRMATION PROCEDURE

$1.{\tt SELF-DIAGNOSIS} \text{ with pre-Crash seat belt control unit}$

- 1. Turn ignition switch ON.
- 2. Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to <u>SBC-44, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

1. INSPECTION START

- 1. Check "Self-diagnostic result" with CONSULT.
- 2. Touch "ERASE".
- 3. Perform DTC Confirmation Procedure. See <u>SBC-44</u>, "DTC Logic".

Is DTC B2457 displayed again?

- YES >> Replace pre-crash seat belt control unit (passenger side).
- NO >> GO TO 2.

2. CHECK INTERMITTENT INCIDENT

Refer to GI-47, "Intermittent Incident".

>> INSPECTION END

B2458 LOCAL COMM

< DTC/CIRCUIT DIAGNOSIS >

B2458 LOCAL COMM

DTC Logic

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INFOID:0000000010095780

DTC DETECTION LOGIC

	agnosis item	DIC De	tection Condition	FUSSI	ole causes
32458 LOCAL	СОММ	crash seat belt con	nction signal between pre- trol unit (driver side) and control unit (passenger		belt control unit (driver side elt (passenger side) circui control unit (driver side)
TC CONFIRM	IATION PF	ROCEDURE			
.SELF-DIAGN	OSIS WITH	I PRE-CRASH S	EAT BELT CONTROL	UNIT	
DTC detected YES >> Refe	diagnostic <u>?</u>	result" with CON 5, "Diagnosis Pro			
iagnosis Pro	ocedure				INFOID:000000010095
CHECK PRE-	CRASH-SI	ΞΔΤ ΒΕΙ Τ ΟΟΝΤ	ROL UNIT (PASSEN		
			senger side) power si		12 "Diagnosis Proc
	TO 2. air or repla	ce harness betw	veen pre-crash seat b	elt control unit (pass	senger side) connecte
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p	TO 2. air or repla fusible link. AL COMML switch OF	ce harness betw JNICATION LINE F. eat belt control u	CIRCUIT	ssenger side) connec	
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p Check contir	TO 2. air or repla fusible link. AL COMMU switch OF pre-crash se nuity betwe	ce harness betw JNICATION LINE F. eat belt control u en local commun	E CIRCUIT nit (driver side and pa nication line harness co	ssenger side) connec onnectors.	
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p Check contin	TO 2. air or repla fusible link. AL COMMU switch OF ore-crash sinuity betwe at belt control	ce harness betw JNICATION LINE F. eat belt control u en local commun unit (driver side)	E CIRCUIT nit (driver side and par nication line harness co Pre-crash seat belt contr	ssenger side) connec onnectors. ol unit (passenger side)	
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p Check contir Pre-crash sea Connecto	TO 2. air or repla fusible link. AL COMMU switch OF ore-crash sinuity betwe at belt control	ce harness betw JNICATION LINE F. eat belt control u en local commun	CIRCUIT nit (driver side and particition line harness control Pre-crash seat belt control Connector	ssenger side) connec onnectors.	ctors.
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p Check contin	TO 2. air or repla fusible link. AL COMMU switch OF ore-crash sinuity betwe at belt control	ce harness betw JNICATION LINE F. eat belt control u en local commun unit (driver side) Terminal	E CIRCUIT nit (driver side and par nication line harness co Pre-crash seat belt contr	ssenger side) connec onnectors. ol unit (passenger side) Terminal	ctors.
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p Check contir Pre-crash sea Connecto B9	TO 2. air or repla fusible link. AL COMMU switch OF pre-crash se nuity betwe at belt control	ce harness betw JNICATION LINE F. eat belt control u en local commun unit (driver side) Terminal 8 16	CIRCUIT nit (driver side and particition line harness control Pre-crash seat belt control Connector	ssenger side) connectors. ol unit (passenger side) Terminal 8 16	Continuity Existed
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p Check contir Pre-crash sea Connecto B9 Check contir	TO 2. air or repla fusible link. AL COMMU switch OF pre-crash sinuity betwe at belt control r	ce harness betw JNICATION LINE F. eat belt control u en local commun unit (driver side) Terminal 8 16	E CIRCUIT nit (driver side and partication line harness control Pre-crash seat belt contro Connector B227 tt belt control unit (driv	ssenger side) connectors. ol unit (passenger side) Terminal 8 16	Continuity Existed nector and ground.
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p Check contir Pre-crash sea Connecto B9 Check contir	TO 2. air or repla fusible link. AL COMMU switch OF pre-crash se nuity betwe at belt control r	ce harness betw JNICATION LINE F. eat belt control u en local commun unit (driver side) Terminal 8 16 en pre-crash sea	E CIRCUIT nit (driver side and particition line harness control Pre-crash seat belt control Connector B227 at belt control unit (driv	ssenger side) connectors. ol unit (passenger side) Terminal 8 16 er side) harness con	Continuity Existed
YES >> GO NO >> Repa and CHECK LOCA Turn ignition Disconnect p Check contir Pre-crash sea Connecto B9 Check contir	TO 2. air or repla fusible link. AL COMMU switch OF pre-crash senuity betwe at belt control r huity betwe ash seat belt of actor	ce harness betw JNICATION LINE F. eat belt control u en local commun unit (driver side) Terminal 8 16 en pre-crash sea	E CIRCUIT nit (driver side and particition line harness control Pre-crash seat belt control Connector B227 at belt control unit (driv	ssenger side) connectors. ol unit (passenger side) Terminal 8 16	Continuity Existed nector and ground.

Replace pre-crash seat belt control unit (passenger side)
 Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

SBC-45

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 4.

NO >> INSPECTION END

4. REPLACE PRE-CRASH SEAT BELT CONTROL UNIT (DRIVER SIDE)

Replace pre-crash seat belt control unit (driver side)
 Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

YES >> GO TO 5.

NO >> INSPECTION END

5.CHECK INTERMITTENT INCIDENT

Refer to GI-47, "Intermittent Incident".

>> INSPECTION END

B2461 VHCL SPEED SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

Description

Inputs the vehicle speed signal from combination meter via CAN communication.

DTC Logic

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INFOID:0000000010095782

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DTC DETECTION LOGIC

NOTE:

If DTC B2461 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>SBC-32, "DTC Logic"</u>.

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes	
B2461	VHCL SPEED SIGNAL	Receipt of a malfunction signal of the vehicle speed signal	Combination meter	Е
DTC CON	IFIRMATION PROCE	DURE		
1.SELF-D	DIAGNOSIS WITH PRE	-CRASH SEAT BELT CONTROL UNIT		F
	nition switch ON. "Self-diagnostic result"			
Is DTC det	U			G
YES >:	> Refer to <u>SBC-47, "Dia</u> > INSPECTION END	agnosis Procedure".		
Diagnos	is Procedure		INFOID:000000010095784	SBC
1.снеск	DTC WITH "UNIFIED	METER AND A/C AMP."		I
		"METER/M&A" with CONSULT. Refer to MWI-31	, "CONSULT Function".	1
<u>Is DTC det</u> YES >:	<u>ected?</u> > Repair or replace mal	functioning parts		I
	> GO TO 2.	indictioning parts.		0
2.снеск	INTERMITTENT INCI	DENT		
Refer to G	I-47, "Intermittent Incide	ent".		K
>	> INSPECTION END			
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B2466 DR/AS CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

B2466 DR/AS CONTROL UNIT

DTC Logic

INFOID:000000010095785

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2466	DR/AS CONTROL UNIT	Pre-crash seat belt control unit is out of the vehicle specification	 Pre-crash seat belt control unit (driver side) Pre-crash seat belt control unit (passenger side)

DTC CONFIRMATION PROCEDURE

$1.{\tt SELF-DIAGNOSIS} \text{ with pre-crash seat belt control unit}$

1. Turn ignition switch ON.

2. Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

YES >> Refer to <u>SBC-48, "Diagnosis Procedure"</u>. NO >> INSPECTION END

Diagnosis Procedure

1.CHECK THE VEHICLE SPECIFICATION

Check the part number.

Does the part application fit to the vehicle specification?

YES >> GO TO 2.

NO >> Replace the malfunction parts.

2. CHECK INTERMITTENT INCIDENT

Refer to GI-47, "Intermittent Incident".

>> INSPECTION END

INFOID:000000010095786

< DTC/CIRCUIT DIAGNOSIS >

B2470 SYS HEAT PROTC DR

Description

INFOID:000000010095787

When fastening and unfastening seat belt or opening and closing door is repeated continuously for a short period of time, the system temporarily deactivates the retracting function of seat belt to prevent excessive heating. The system recovers automatically.

DTC Logic

INFOID:000000010095788

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DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2470	SYS HEAT PROTC DR	Deactivates to prevent excessive heating	Belt retracting function activates continuously in a short period of time.
DTC CON	FIRMATION PROCE	EDURE	
1.SELF-D	AGNOSIS WITH PRE	-CRASH SEAT BELT CONTROL UI	NIT
	nition switch ON. "Self-diagnostic result		
Is DTC det	•		
	Refer to <u>SBC-49, "Di</u>	agnosis Procedure".	
NO >>	> INSPECTION END	-	
Diagnosi	is Procedure		INFOID:0000000100957
1 .CHECK		DITION WITH CONSULT DATA MON	ITOR
	"HEAT PROTC LH" of		
2. Wait u	ntil "OFF" appears.		
	m the self-diagnosis, a "ERASE".	fter performing the check.	
5. Perfori	m DTC Confirmation P	rocedure.	
	BC-49, "DTC Logic"		
	470 displayed again? > GO TO 2.		
	> INSPECTION END		
2.снеск			
	-47, "Intermittent Incid	DENT	
	Tr, internittent inola		
Refer to <u>G</u>			
Refer to <u>G</u>	> INSPECTION END		
Refer to <u>G</u>			

< DTC/CIRCUIT DIAGNOSIS >

B2471 SYS HEAT PROTC AS

Description

INFOID:0000000010095790

When fastening and unfastening seat belt or opening and closing door is repeated continuously for a short period of time, the system temporarily deactivates the retracting function of seat belt to prevent excessive heating. The system recovers automatically.

DTC Logic

INFOID:000000010095791

INFOID:0000000010095792

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B2471	SYS HEAT PROTC AS	Deactivates to prevent excessive heating	Belt retracting function activates continuously in the short period of time

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH PRE-CRASH SEAT BELT CONTROL UNIT

1. Turn ignition switch ON.

2. Check "Self-diagnostic result" with CONSULT.

Is DTC detected?

YES >> Refer to <u>SBC-50, "Diagnosis Procedure"</u>.

NO >> INSPECTION END

Diagnosis Procedure

1.CHECK THE VEHICLE CONDITION WITH CONSULT DATA MONITOR

- 1. Check "HEAT PROTC RH" of DATA MONITOR.
- 2. Wait until "OFF" appears.
- 3. Perform the self-diagnosis, after performing the check.
- 4. Touch "ERASE".
- 5. Perform DTC Confirmation Procedure. See <u>SBC-50, "DTC Logic"</u>.

Is DTC B2471 displayed again?

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

2. CHECK INTERMITTENT INCIDENT

Refer to GI-47, "Intermittent Incident".

>> INSPECTION END

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

1.CHECK FUSE AND FUSIBLE LINK

Check that the following fuse is not blown.

Terminal No.		Signal name	Fuse No.
Driver side Passenger side	1	Battery power supply	6
te fuse blown? S >> Replace the blow D >> GO TO 2. CHECK POWER SUPPLY Turn ignition switch OFF. Disconnect pre-crash set	CIRCUIT	e affected circuit if a fuse is bl side and passenger side) co	nnectors.
Check voltage between I tor and ground.	arness pre-crash seat be	elt control unit (driver side ar	nd passenger side) co
Pre-crash seat belt control unit (driver side and passenger side))	Voltage (V)
Г	Terminal		(Approx.)
Connector	Terminar	Ground	
B9 B227 Ee measurement value no S >> GO TO 3. D >> Repair or replace CHECK GROUND CIRCL	1 o <u>rmal?</u> e harness. JIT		Battery voltage
B9 B227 Be measurement value no S >> GO TO 3. D >> Repair or replace CHECK GROUND CIRCL CRC continuity between pro ground.	1 e harness. JIT e-crash seat belt control u	unit (driver side and passeng	
B9 B227 Remeasurement value no S >> GO TO 3. D >> Repair or replace CHECK GROUND CIRCL ck continuity between pro ground.	1 e harness. JIT e-crash seat belt control u	unit (driver side and passeng	
B9 B227 Be measurement value no S >> GO TO 3. D >> Repair or replace CHECK GROUND CIRCL CRC continuity between pro ground.	1 e harness. JIT e-crash seat belt control u (driver side and passenger side) Terminal	unit (driver side and passeng	jer side) harness con
B9 B227 e measurement value no S >> GO TO 3. >> Repair or replace CHECK GROUND CIRCL ck continuity between pro ground.	1 e harness. JIT e-crash seat belt control u driver side and passenger side) Terminal 18	unit (driver side and passeng	jer side) harness con
B9 B227 The measurement value not S >> GO TO 3. D >> Repair or replace CHECK GROUND CIRCL Teck continuity between pro- ground. Pre-crash seat belt control unit (Connector	1 e harness. JIT e-crash seat belt control u (driver side and passenger side) Terminal	unit (driver side and passeng	jer side) harness con

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INFOID:0000000010095793

SEAT BELT BUCKLE SWITCH (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

SEAT BELT BUCKLE SWITCH (DRIVER SIDE)

Description

· Performs the control of tension reducer according to the seat belt buckle switch ON/OFF.

- Detects whether or not the seat belt is fastened when the ignition switch turns ON. If the seat belt is not fastened, illuminates the seat belt warning lamp on the combination meter.
- The seat belt buckle switch is installed in the seat belt buckle.

Component Function Check

INFOID:000000010095795

INFOID:000000010095794

1.CHECK PRE-CRASH SEAT BELT CONTROL UNIT INPUT SIGNAL

(I) With CONSULT

When checking "BUCKLE SW LH" on DATA MONITOR screen, check that ON/OFF display changes synchronized with the insertion operation to the seat belt buckle.

Monitor item	Condition
	When driver side seat belt is not fastened: OFF
BUCKLE SW LH	When driver side seat belt is fastened: ON

Is the inspection result normal?

YES >> Seat belt buckle switch (driver side) circuit is normal.

NO >> Refer to <u>SBC-52, "Diagnosis Procedure"</u>.

Diagnosis Procedure

INFOID:000000010095796

1.CHECK PRE-CRASH SEAT BELT CONTROL UNIT INPUT SIGNAL

Check that voltage between seat belt buckle switch (driver side) and ground.

(+) Seat belt buckle switch (driver side)		()	Condition	Voltage (V) (Approx.)	
Connector	Terminal			(
B523	35	Ground	When driver side seat belt is not fastened	5	
B323		Ground	When driver side seat belt is fastened	0	

Is the inspection result normal?

YES >> Seat belt buckle switch (driver side) circuit is normal.

NO >> GO TO 2.

2.CHECK SEAT BELT BUCKLE SWITCH (DRIVER SIDE) CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect pre-crash seat belt control unit (driver side) connector and seat belt buckle switch (driver side) connector.

3. Check continuity between pre-crash seat belt control unit (driver side) and seat belt buckle switch (driver side).

Pre-crash seat belt control unit (driver side)		Seat belt buckle switch (driver side)		Continuity
Connector	Terminal	Connector	Terminal	Continuity
B9	6	B523	35	Existed

4. Check continuity between pre-crash seat belt control unit (driver side) and ground.

Pre-crash seat belt control unit (driver side)			Continuity
Connector	Terminal	Ground	Continuity
B9	6		Not existed

SEAT BELT BUCKLE SWITCH (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

Is the i	inspection result norm	al?			
YES NO	>> GO TO 3.	ce harness between pre-c	crash seat belt control uni	t (driver side) and seat belt	А
3.сн	ECK SEAT BELT BUC	KLE SWITCH GROUND	CIRCUIT		В
Check	continuity between se	eat belt buckle switch (drive	er side) and ground.		
	Seat belt buckle	switch (driver side)			С
	Connector	Terminal	Ground	Continuity	
	B523	41		Existed	D
	inspection result norm	al?	1		
YES NO			elt buckle switch and grour	nd.	E
4. CH	ECK SEAT BELT BUC	KLE SWITCH (DRIVER S	IDE)		
Check	seat belt buckle switc	h (driver side). Refer to <u>SE</u>	3C-53, "Component Inspec	tion (Belt Buckle Switch)".	F
	nspection result norm				I
YES NO		sh seat belt control unit (d It buckle switch (driver sid			
Comr	·	(Belt Buckle Switch	,		G
00111			/	INFOID:000000010095797	
1.сн	ECK SEAT BELT BUC	KLE SWITCH (DRIVER S	IDE)		SB
	Irn ignition switch OFF				
	sconnect seat belt but beck continuity of seat	belt buckle (driver side).			I
<u> </u>					
		switch (driver side)	Condition	Continuity	
	Terr	minal			J
	25	41	When driver side seat belt is not fastened	Not existed	

When driver side seat belt is

fastened

Is the inspection result normal?

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YES >> INSPECTION END

NO >> Replace seat belt buckle switch (driver side).

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Existed

SEAT BELT BUCKLE SWITCH (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

SEAT BELT BUCKLE SWITCH (PASSENGER SIDE)

Description

• Performs the control of tension reducer according to the seat belt buckle switch ON/OFF.

- Detects whether or not the seat belt is fastened when the ignition switch turns ON. If the seat belt switch is
 not fastened, illuminates the seat belt warning lamp on the combination meter.
- The seat belt buckle switch is installed in the seat belt buckle.

Component Function Check

INFOID:0000000010095799

INFOID:000000010095798

1.CHECK PRE-CRASH SEAT BELT CONTROL UNIT INPUT SIGNAL

(P) With CONSULT

When checking "BUCKLE SW RH" on DATA MONITOR screen, check that ON/OFF display changes are synchronized with the insertion operation to the seat belt buckle.

Monitor item	Condition
BUCKLE SW RH	When driver side seat belt is not fastened: OFF
BOOKEE SWIKIT	When driver side seat belt is fastened: ON

Is the inspection result normal?

YES >> Seat belt buckle switch (passenger side) circuit is normal.

NO >> Refer to <u>SBC-54, "Diagnosis Procedure"</u>.

Diagnosis Procedure

INFOID:000000010095800

1.CHECK PRE-CRASH SEAT BELT CONTROL UNIT INPUT SIGNAL

Check that voltage between seat belt buckle switch (passenger side) and ground.

	(+) Seat belt buckle switch (passenger side)		Condition	Voltage (V) (Approx.)	
Connector	Terminal			(
B553	35	Ground	When driver side seat belt is not fastened	5	
6000	35	Ground	When driver side seat belt is fastened	0	

Is the inspection result normal?

YES >> Seat belt buckle switch (passenger side) circuit is normal.

NO >> GO TO 2.

2.CHECK SEAT BELT BUCKLE (PASSENGER SIDE) SWITCH CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect pre-crash seat belt control unit (passenger side) connector and seat belt buckle switch (passenger side) connector.
- 3. Check continuity between pre-crash seat belt control unit (passenger side) and seat belt buckle switch (passenger side).

Pre-crash seat belt control unit (passenger side)		Seat belt buckle switch (passenger side)		Continuity
Connector	Terminal	Connector	Terminal	Continuity
B227	6	B553	35	Existed

4. Check continuity between pre-crash seat belt control unit (passenger side) and ground.

Pre-crash seat belt control unit (passenger side)			Continuity
Connector	Terminal	Ground	Continuity
B227	6		Not existed

SEAT BELT BUCKLE SWITCH (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result norm	202			-
YES >> GO TO 3.				
	e harness between pre-cra	ash seat belt control unit (r	bassenger side) and seat be	
· · · ·	bassenger side).		subscriger slue) and sear se	
3.CHECK SEAT BELT BUG	0 /			
				_
Check continuity between se	eat belt buckle switch (pass	senger side) and ground.		
Seat belt buckle sw	vitch (passenger side)			
Connector	Terminal	Ground	Continuity	
B553	41	-	Existed	
Is the inspection result norm	nal?		· · · · · · · · · · · · · · · · · · ·	
YES >> GO TO 4.				
	e harness between seat b	elt buckle switch and grou	nd.	
4. CHECK SEAT BELT BUG		•		
				_
Switch)".	litch (passenger side). Re	eter to <u>SBC-55, "Compor</u>	nent Inspection (Belt Buckle	<u>e</u>
Is the inspection result norm				
	ash seat belt control unit (pa elt buckle switch (passenge			
		,		
Component Inspection	n (Belt Buckle Switch		INFOID:00000001009580	01
				S
1.CHECK SEAT BELT BUG	CKLE SWITCH (PASSENG	ER SIDE)		
1. Turn ignition switch OFI				
2. Disconnect seat belt bu				
3. Check continuity of sea	t belt buckle (passenger sid	de).		
Seat belt buckle sw	vitch (passenger side)			
	minal	Condition	Continuity	

	leri	minal			
_	35	41	When driver side seat belt is not fastened	Not existed	K
	30	41	When driver side seat belt is fastened	Existed	
ls t	he inspection result norm	al?			L

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace seat belt buckle switch (passenger side).

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SEAT BELT WARNING LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

SEAT BELT WARNING LAMP CIRCUIT

Component Function Check

INFOID:000000010095802

INFOID:000000010095803

1.CHECK SEAT BELT WARNING LAMP FUNCTION-I

1. Turn ignition switch ON.

2. Check seat belt warning lamp function.

Condition	Seat belt warning lamp
Seat belt (driver side) is fastened	Not illuminated
Seat belt (driver side) is unfastened	Illuminated

Is the inspection results normal?

YES >> GO TO 2.

NO >> Check combination meter circuit. Refer to <u>MWI-64, "Work flow"</u>.

2.CHECK SEAT BELT WARNING LAMP FUNCTION-II

1. Sits in the passenger seat.

- 2. Fasten the seat belt (passenger side).
- 3. Check seat belt warning lamp function.

Condition	Seat belt warning lamp
Seat belt (passenger side) is fastened	Not illuminated
Seat belt (passenger side) is unfastened	Illuminated

Is the inspection results normal?

YES >> Seat belt warning lamp circuit is normal.

NO >> Check seat belt warning lamp circuit. Refer to <u>SBC-56, "Diagnosis Procedure"</u>.

Diagnosis Procedure

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal and wait at least 3 minutes. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK SEAT BELT BUCKLE SWITCH (PASSENGER SIDE) CIRCUIT-I

- 1. Turn ignition switch OFF.
- 2. Disconnect air bag diagnosis sensor unit harness connector and seat belt buckle switch (passenger side) harness connector.
- Check continuity between air bag diagnosis sensor unit harness connector and seat belt buckle switch (passenger side) harness connector.

Air bag diagnosis sensor unit		Seat belt buckle switch (passenger side)		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
B215	29	B553	40	Existed	

4. Check continuity between air bag diagnosis sensor unit harness connector and ground.

Air bag diagnosis sensor unit			Continuity
Connector	Terminal	Ground	Continuity
B215	29		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace harness or connector.

2.CHECK SEAT BELT BUCKLE SWITCH (PASSENGER SIDE) CIRCUIT-II

Check continuity between seat belt buckle switch (passenger side) harness connector and ground.

SEAT BELT WARNING LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Connector	e switch (passenger side)	·		Continuity
	Termina	1	Ground	-
B553 the inspection result n	41			Existed
(ES >> GO TO 3. NO >> Repair or re .CHECK SEAT BELT neck seat belt buckle set perfer to SBC-57, "Compared the inspection result new fees and the inspection result new fees and the set of the set o	place harness or con BUCKLE SWITCH (F witch (passenger sid onent Inspection [Se ormal? It belt buckle (passer	PASSENGER SIDI le). eat Belt Buckle Sw	itch (Passenger S	
CHECK SEAT BELT				
	tion meter harness c tween air bag diagn		arness connector	and combination meter
Air bag diagnos			ination meter	Continuity
Connector	Terminal	Connector	Terminal	
. Check continuity be	24	M53	36	Existed
	iagnosis sensor unit			
Connector	Termina	I	Ground	Continuity
M147	24			Not existed
	ness or connector.			
CHECK COMBINATION Check combination meter Refer to <u>MWI-72, "COM</u> Sthe inspection result no YES >> GO TO 6. NO >> Repair or re CREPLACE COMBINA Replace combination meters Refer to <u>MWI-92, "Remo</u>	er power supply and g BINATION METER : ormal? place harness or con TION METER eter.	ground circuit. Diagnosis Proced		
Check combination meter Refer to <u>MWI-72, "COM</u> Sthe inspection result n YES >> GO TO 6. NO >> Repair or re CREPLACE COMBINA Replace combination me Refer to <u>MWI-92, "Remo</u> Sthe inspection result n YES >> INSPECTIO	er power supply and g BINATION METER : ormal? place harness or con TION METER eter. val and Installation". ormal? N END bag diagnosis senso	ground circuit. <u>Diagnosis Proced</u> nector. r unit. Refer to <u>SR</u>	ure". 8-25. "Removal and	
Check combination meter Refer to <u>MWI-72, "COM</u> Sthe inspection result n YES >> GO TO 6. NO >> Repair or re REPLACE COMBINA Replace combination me Refer to <u>MWI-92, "Remo</u> Sthe inspection result n YES >> INSPECTIO NO >> Replace air	er power supply and g BINATION METER : ormal? place harness or con TION METER eter. ormal? N END bag diagnosis senso tion [Seat Belt B	ground circuit. <u>Diagnosis Proced</u> nector. r unit. Refer to <u>SR</u> uckle Switch (ure". R-25, "Removal and Passenger Sid	

Disconnect seat belt buckle switch (passenger side) harness connector.
 Check continuity between seat belt buckle switch (passenger side) terminals.

SEAT BELT WARNING LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Seat belt buckle switch (passenger side)		Condition	Continuity	
Terr	minal	Condition	Continuity	
40	41	When passenger side seat belt is fastened	Not existed	
		When passenger side seat belt is not fastened	Existed	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace seat belt buckle (passenger side). Refer to <u>SE-108, "Removal and Installation"</u>.

PRE-CRASH SEAT BELT DOSE NOT OPERATE	
< SYMPTOM DIAGNOSIS >	
SYMPTOM DIAGNOSIS	
PRE-CRASH SEAT BELT DOSE NOT OPERATE	
BOTH SIDES	
BOTH SIDES : Diagnosis Procedure	INFOID:000000010095805
1.CHECK POWER SUPPLY AND GROUND CIRCUIT	
Check power supply and ground circuit. Refer to <u>SBC-51, "Diagnosis Procedure"</u>	
<u>Is the inspection result normal?</u> YES >> GO TO 2.	
NO >> Repair or replace the malfunctioning parts.	
2.CONFIRM THE OPERATION	
Confirm the operation again.	
Is the inspection result normal?	
YES >> Check intermittent incident. Refer to <u>GI-47, "Intermittent Incident"</u> . NO >> GO TO 1.	
DRIVER SIDE	
DRIVER SIDE : Diagnosis Procedure	INFOID:000000010095806
1.CHECK SEAT BELT BUCKLE SWITCH (DRIVER SIDE)	
Check seat belt buckle switch (driver side). Refer to <u>SBC-52, "Component Function Check"</u>	
Is the inspection result normal?	
YES >> GO TO 2. NO >> Repair or replace the malfunctioning parts.	
NO >> Repair or replace the malfunctioning parts. 2.CONFIRM THE OPERATION	
Confirm the operation again.	
Is the inspection result normal?	
YES >> Check intermittent incident. Refer to <u>GI-47, "Intermittent Incident"</u> .	
NO >> GO TO 1.	
PASSENGER SIDE	
PASSENGER SIDE : Diagnosis Procedure	INFOID:000000010095807
1. CHECK POWER SUPPLY AND GROUND CIRCUIT	
Check power supply and ground circuit. Refer to SBC-51. "Diagnosis Procedure"	
Is the inspection result normal?	
YES >> GO TO 2. NO >> Repair or replace the malfunctioning parts.	
2. CHECK SEAT BELT BUCKLE SWITCH (PASSENGER SIDE)	
Check seat belt buckle switch (passenger side). Refer to <u>SBC-54, "Component Function Check</u>	<u></u>
Is the inspection result normal?	
YES >> GO TO 3.	
NO >> Repair or replace the malfunctioning parts. 3.CONFIRM THE OPERATION	
Confirm the operation again. <u>Is the inspection result normal?</u>	
YES >> Check intermittent incident. Refer to <u>GI-47. "Intermittent Incident"</u> .	

NO >> GO TO 1.

SEAT BELT WARNING LAMP DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

SEAT BELT WARNING LAMP DOES NOT TURN OFF

Diagnosis Procedure

INFOID:000000010095808

1. CHECK SEAT BELT WARNING LAMP CIRCUIT

Check seat belt warning lamp circuit. Refer to <u>SBC-56, "Component Function Check"</u>.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to <u>GI-47, "Intermittent Incident"</u>.

NO >> GO TO 1.

SEAT BELT WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >	_
SEAT BELT WARNING LAMP DOES NOT TURN ON	А
Diagnosis Procedure	
1. CHECK SEAT BELT WARNING LAMP CIRCUIT	В
Check seat belt warning lamp circuit. Refer to <u>SBC-56, "Component Function Check"</u> .	
<u>Is the inspection result normal?</u> YES >> GO TO 2. NO >> Repair or replace the malfunctioning parts.	С
2.CONFIRM THE OPERATION	D
Confirm the operation again.	D
Is the inspection result normal?	_
YES >> Check intermittent incident. Refer to <u>GI-47, "Intermittent Incident"</u> . NO >> GO TO 1.	E
	F
	G

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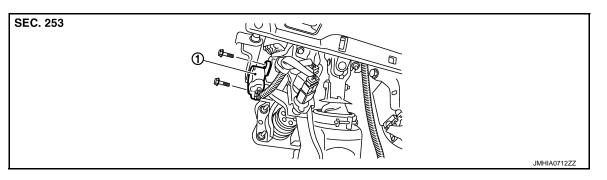
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< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION BRAKE PEDAL STROKE SENSOR

Exploded View

INFOID:000000010095810



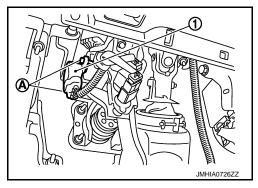
1. Brake pedal stroke sensor

Removal and Installation

INFOID:000000010095811

REMOVAL

- 1. Remove the instrument panel lower cover LH. Refer to IP-13, "Removal and Installation".
- 2. Disconnect the brake pedal stroke sensor connector.
- 3. Remove the screws (A).
- 4. Remove the brake pedal stroke sensor (1).



INSTALLATION Install in the reverse order of removal.

PRE-CRASH SEAT BELT CONTROL UNIT

< REMOVAL AND INSTALLATION >	
PRE-CRASH SEAT BELT CONTROL UNIT	Δ
Exploded View	~
Refer to SB-5, "SEAT BELT RETRACTOR : Exploded View".	В
Removal and Installation	
For removal and installation procedures, refer to <u>SB-7, "SEAT BELT RETRACTOR : Removal and Installa-</u> tion".	С
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