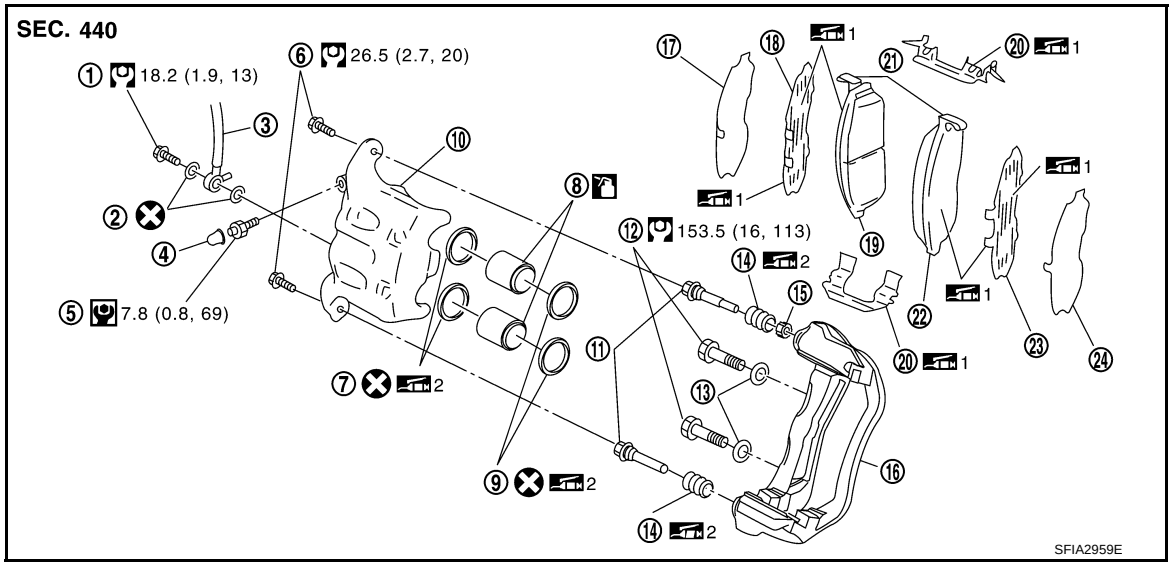


1. Union bolt
2. Copper washer
3. Brake hose
4. Cap
5. Bleed valve
6. Sliding pin bolt
7. Piston seal
8. Piston
9. Piston boot
10. Cylinder body
11. Sliding pin
12. Torque member mounting bolt
13. Washer
14. Sliding pin boot
15. Bushing
16. Torque member
17. Inner shim cover
18. Inner shim
19. Inner pad
20. Pad retainer
21. Pad wear sensor
22. Outer pad
23. Outer shim
24. Outer shim cover

1: PBC (Poly Butyl Cuprysil) grease or silicone-based grease

2: Rubber grease

: Brake fluid

Refer to GI section for additional symbol definitions.

SYMBOLS

SYMBOL	DESCRIPTION		SYMBOL	DESCRIPTION
	Tightening torque The tightening torque specifications of bolts and nuts may be presented as either a range or a standard tightening torque.	: N•m (kg-m, ft-lb)		Always replace after every disassembly.
		: N•m (kg-m, in-lb)	Ⓟ	Apply petroleum jelly.
	Should be lubricated with grease. Unless otherwise indicated, use recommended multi-purpose grease.		Ⓜ	Apply molybdenum added petroleum jelly.
	Should be lubricated with oil.		ATF	Apply ATF.
	Sealing point		★	Select with proper thickness.
Ⓛ	Sealing point with locking sealant.		☆	Adjustment is required.
	Checking point			

SAIA0749E

3. Read the symbol at the cross point of selected row and column in the “CONNECTING ROD BEARING SELECTION TABLE”.
4. Apply the symbol obtained to the “CONNECTING ROD BEARING GRADE TABLE” to select connecting rod bearing.

WHEN CONNECTING ROD AND CRANKSHAFT ARE REUSED

1. Measure the connecting rod big end diameter. Refer to EM-139, "Cylinder Block".
2. Check that the connecting rod big end diameter is within the standard value.
3. Measure the crankshaft pin journal diameter. Refer to EM-139, "Cylinder Block".
4. Determine the grade of crankshaft pin diameter grade by corresponding to the measured dimension in “Crankshaft pin journal diameter” column of “CONNECTING ROD BEARING SELECTION TABLE”.
5. Select connecting rod bearing of the same grade.

CONNECTING ROD BEARING SELECTION TABLE

Crankshaft pin journal diameter Unit: mm (in) / Mark	Axle diameter	Connecting rod big end diameter Unit: mm (in) / Hole diameter / Mark: A	B	C	D	E	F	G	H	J	K	L	M	N
		57.000 - 57.001 (2.2441 - 2.2441)	57.001 - 57.002 (2.2441 - 2.2442)	57.002 - 57.003 (2.2442 - 2.2442)	57.003 - 57.004 (2.2442 - 2.2442)	57.004 - 57.005 (2.2442 - 2.2443)	57.005 - 57.006 (2.2443 - 2.2443)	57.006 - 57.007 (2.2443 - 2.2444)	57.007 - 57.008 (2.2444 - 2.2444)	57.008 - 57.009 (2.2444 - 2.2444)	57.009 - 57.010 (2.2444 - 2.2445)	57.010 - 57.011 (2.2445 - 2.2445)	57.011 - 57.012 (2.2445 - 2.2446)	57.012 - 57.013 (2.2446 - 2.2446)
A	53.974 - 53.973 (2.1250 - 2.1249)	0	0	0	0	0	0	1	1	1	1	1	1	2
B	53.973 - 53.972 (2.1249 - 2.1249)	0	0	0	0	0	1	1	1	1	1	1	2	2
C	53.972 - 53.971 (2.1249 - 2.1248)	0	0	0	0	1	1	1	1	1	1	2	2	2
D	53.971 - 53.970 (2.1248 - 2.1248)	0	0	0	1	1	1	1	1	1	2	2	2	2
E	53.970 - 53.969 (2.1248 - 2.1248)	0	0	1	1	1	1	1	1	2	2	2	2	2
F	53.969 - 53.968 (2.1248 - 2.1247)	0	1	1	1	1	1	1	2	2	2	2	2	2
G	53.968 - 53.967 (2.1247 - 2.1247)	1	1	1	1	1	1	2	2	2	2	2	2	3
H	53.967 - 53.966 (2.1247 - 2.1246)	1	1	1	1	1	2	2	2	2	2	2	3	3
J	53.966 - 53.965 (2.1246 - 2.1246)	1	1	1	1	2	2	2	2	2	2	3	3	3
K	53.965 - 53.964 (2.1246 - 2.1246)	1	1	1	2	2	2	2	2	2	3	3	3	3
L	53.964 - 53.963 (2.1246 - 2.1245)	1	1	2	2	2	2	2	2	3	3	3	3	3
M	53.963 - 53.962 (2.1245 - 2.1245)	1	2	2	2	2	2	2	3	3	3	3	3	3
N	53.962 - 53.961 (2.1245 - 2.1244)	2	2	2	2	2	2	3	3	3	3	3	3	4
P	53.961 - 53.960 (2.1244 - 2.1244)	2	2	2	2	2	3	3	3	3	3	3	4	4
R	53.960 - 53.959 (2.1244 - 2.1244)	2	2	2	2	3	3	3	3	3	3	4	4	4
S	53.959 - 53.958 (2.1244 - 2.1243)	2	2	2	3	3	3	3	3	3	4	4	4	4
T	53.958 - 53.957 (2.1243 - 2.1243)	2	2	3	3	3	3	3	3	4	4	4	4	4
U	53.957 - 53.956 (2.1243 - 2.1242)	2	3	3	3	3	3	3	4	4	4	4	4	4

PBIC5435E

CONNECTING ROD BEARING GRADE TABLE

Connecting rod bearing grade table : Refer to EM-144, "Connecting Rod Bearing".

UNDERSIZE BEARING USAGE GUIDE

- When the specified connecting rod bearing oil clearance is not obtained with standard size connecting rod bearings, use undersize (US) bearings.
- When using undersize (US) bearing, measure the connecting rod bearing inner diameter with bearing installed, and grind crankshaft pin so that the connecting rod bearing oil clearance satisfies the standard.

CAUTION:

P0182, P0183 FTT SENSOR

DTC Logic

INFOID:0000000008139345

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name (Trouble diagnosis content)	DTC detecting condition	Possible cause
P0182	FTT SEN/CIRCUIT (Fuel tank temperature sensor circuit low input)	An excessively low voltage from the sensor is sent to ECM.	• Harness or connectors (The sensor circuit is open or shorted.) • Fuel tank temperature sensor
P0183	FTT SEN/CIRCUIT (Fuel tank temperature sensor circuit high input)	An excessively high voltage from the sensor is sent to ECM.	

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Go to EC-255, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008139346

1.CHECK GROUND CONNECTION

1. Turn ignition switch OFF.
2. Check ground connection M95. Refer to Ground Inspection in GI-52, "Circuit Inspection".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace ground connection.

2.CHECK DTC WITH “COMBINATION METER”

Refer to MWI-36, "CONSULT Function".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Go to MWI-67, "Component Function Check".

3.CHECK FUEL TANK TEMPERATURE SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect “fuel level sensor unit and fuel pump” harness connector.
3. Turn ignition switch ON.
4. Check the voltage between “fuel level sensor unit and fuel pump” harness connector and ground.

Question sheet						
Customer's name	MR/MS	Registration number		Initial year registration	Year Month Day	
		Vehicle type		Chassis No.		
Storage date	Year Month Day	Engine		Mileage	km	
Symptom	☐Warning lamp activated ( ) ☐Vehicle not READY ☐Poor starting ☐Engine stall ☐Rough idle ☐Idling stop does not occur. ☐Poor driving control ☐Overheating ☐Abnormal noise, gear noise ☐Shock ☐Vibration (judder) ☐Slipping ☐Poor shifting ☐Fixed shift position ☐Poor operating feel ☐Does not shift. ☐Shifting is heavy. ☐Gear slipout ☐Switch malfunction ☐Driving not possible ☐Other					
Details of problem						
Noise description						
Date of malfunction	☐>From when car is new ☐Recent (approx. date: , km)					
Frequency of occurrence	☐Always ☐Once only ☐Occasionally (times in past) ☐Other ( )					
Location of malfunction	☐Not applicable ☐Ordinary road ☐Expressway ☐Mountain road (ascending / descending) ☐Rough road ☐Flat road ☐Turning (right / left) ☐Other ( )					
Engine speed	☐Not applicable ☐Cold ☐During warm-up ☐Warm ☐Other ( )					
Climate conditions	☐Not applicable					
Weather	☐Clear ☐Overcast ☐Rain ☐Snow ☐Other ( )					
Temperature	_☐Hot ☐Warm ☐Cool ☐Cold ☐Temp. (approx. °C)					
Relative humidity	☐ High ☐ Medium ☐ Low					
Selector lever position	☐Not applicable ☐P ☐ R ☐N ☐D ☐L ☐S ☐3 ☐2 ☐1 ☐ M mode ( ) ☐1st ☐2nd ☐3rd ☐4th ☐5th ☐6th ☐ 7th					
Condition of shift lever operation	☐Not applicable ☐ AT select ( ) → ( ) ☐ MT shift operation ( ) → ( ) ☐Shift-up ( ) → ( ) ☐Shift down ( ) → ( ) ☐Other ( )					
Driving pattern	☐Not applicable ☐At engine start ☐Idling ☐ Stopped, D position ☐Starting from stop ☐Accelerating ☐Constant-speed driving ☐Decelerating ☐Just before stopping ☐Just after stopping ☐Engine stopped ☐ A/C ON ☐ P/S turned ☐Engine driving ☐Motor driving ☐Shifting ( ) → ( ) ☐Cruise control ON ☐ ECO mode ON ☐ SPORT mode ON ☐ SNOW mode ON ☐Other ( )					
	☐ ENG speed: rpm ☐Vehicle speed: km/h ☐TH position:					
When is malfunction corrected?	☐Is not corrected. ☐While idling ☐While engine is running ☐During motor driving ☐When ignition is turned OFF ☐When shift lever is operated ☐When clutch pedal is operated ☐Other ( )					
Other conditions						
Customer comments						

P3300 TOTAL VOLTAGE OVER

DTC Logic

INFOID:0000000008141023

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
P3300	TOTAL VOLTAGE OVER	When a total voltage exceeds the available voltage.	• Li-ion battery • Li-ion battery controller • HPCM • Traction motor inverter

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

WITH CONSULT
1. Turn ignition switch ON and wait at least 10 seconds.
2. Select “Self Diagnostic Result” mode of “HV BAT” using CONSULT.

Is P3300 detected?

YES >> Refer to HBB-136, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008141024

WARNING:
- **Because hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.**
- **Be sure to remove the service plug in order to shut off the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.**
- **Be sure to put the removed service plug in your pocket and carry it with you so that another person does not accidentally connect it while work is in progress.**
- **Be sure to wear insulating protective gear consisting of glove, shoes and glasses/face shield before beginning work on the high voltage system.**
- **Clearly identify the persons responsible for high voltage work and ensure that other persons do not touch the vehicle. When not working, cover high voltage parts with an insulating cover sheet or similar item to prevent other persons from contacting them.**
- **Refer to HBB-6, "High Voltage Precautions".**

CAUTION:
There is the possibility of a malfunction occurring if the vehicle is changed to READY status while the service plug is removed. Therefore do not change the vehicle to READY status unless instructed to do so in the Service Manual.

1.PERFORM SELF-DIAGNOSIS-1

WITH CONSULT
1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected in “Self Diagnostic Result” of “EV/HEV” and “MOTOR CONTROL”.

Is DTC detected?

YES >> Perform diagnosis of the applicable system.
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS-2

WITH CONSULT
1. Select “Self Diagnostic Result” mode of “HV BAT” using CONSULT.

Is DTC detected?

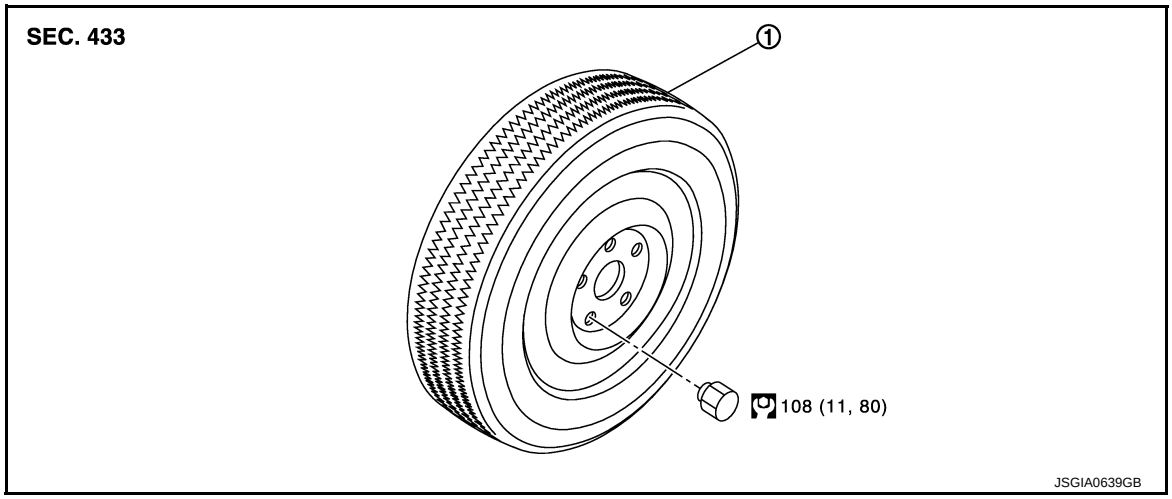
YES-1 >> If P30EF is detected, refer to HBB-118, "Diagnosis Procedure".
YES-2 >> If P3374 is detected, refer to HBB-154, "Diagnosis Procedure".
NO >> GO TO 3.

REMOVAL AND INSTALLATION

ROAD WHEEL TIRE ASSEMBLY

Exploded View

INFOID:0000000008141130



1. Tire assembly

Refer to GI-5, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000008141131

REMOVAL

1. Remove wheel nuts.
2. Remove tire assembly.

INSTALLATION

Note the following, install in the reverse order of removal.

- When replacing or rotating wheels, perform the ID registration. Refer to WT-24, "Work Procedure".

Inspection

INFOID:0000000008141132

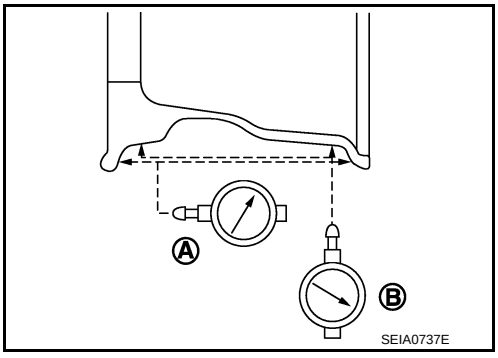
ALUMINUM WHEEL

1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.

a. Remove tire from aluminum wheel and mount on a tire balance machine.

b. Set dial indicator as shown in the figure.

c. Check runout, if the axial runout (A) or radial runout (B) exceeds the limit, replace aluminum wheel.



Limit

Axial runout (A) **: Refer to WT-64, "Road Wheel".**

Radial runout (B) **: Refer to WT-64, "Road Wheel".**

STEEL WHEEL

1. Check tires for wear and improper inflation.

3. PERFORM SELF-DIAGNOSIS (1)

With CONSULT
1. Erase self-diagnosis result for “ABS”.
2. Turn the ignition switch OFF → ON → OFF.
   CAUTION:
   Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
3. Set the vehicle to READY/Start the engine.
   CAUTION:
   Stop the vehicle.
4. Depress the brake pedal several times.
5. Turn the ignition switch OFF → ON.
   CAUTION:
   - **Be sure to wait of 10 seconds after turning ignition switch OFF or ON.**
   - **Set the vehicle to READY/Start the engine.**
6. Repeat step 5 two or more times.
7. Perform self-diagnosis for “ABS”.

Is DTC “C1176” detected?

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

4. PERFORM SELF-DIAGNOSIS (ELECTRICALLY-DRIVEN INTELLIGENT BRAKE)

With CONSULT
Perform self-diagnosis for “BRAKE”. Refer to BR-30, "CONSULT Function".

Is DTC “C1A68” detected?

YES >> Proceed to BR-132, "Diagnosis Procedure".
NO >> GO TO 5.

5. CHECK BRAKE SWITCH CLEARANCE

1. Turn the ignition switch OFF.
2. Check brake switch clearance. Refer to BR-270, "Inspection and Adjustment".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Adjust brake switch clearance. Refer to BR-270, "Inspection and Adjustment". GO TO 6.

6. CHECK DATA MONITOR (1)

With CONSULT
1. Erase self-diagnosis result for “ABS”.
2. Turn the ignition switch OFF → ON → OFF.
   CAUTION:
   Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
3. Set the vehicle to READY/Start the engine.
   CAUTION:
   Stop the vehicle.
4. Select “ABS”, “DATA MONITOR” and “STOP LAMP SW2” according to this order. Check that data monitor displays “On” or “Off” when brake pedal is depress or release. Refer to BRC-50, "Reference Value".
5. Select “ABS”, “DATA MONITOR” and “PRESSURE SENSOR” according to this order. Check that data monitor displays “5 bar” or less when brake pedal is depress. Refer to BRC-50, "Reference Value".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 7.

7. CHECK BRAKE SWITCH

Check brake switch. Refer to BRC-102, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 9.
NO >> Replace brake switch. Refer to BR-280, "Removal and Installation". GO TO 8.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000008143744

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.**

Precaution Necessary for Steering Wheel Rotation after Battery Disconnect

INFOID:0000000008143745

NOTE:

- Before removing and installing any control units, first turn the push-button ignition switch to the LOCK position, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

For vehicle with steering lock unit, if the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.
If turning the steering wheel is required with the battery disconnected or discharged, follow the operation procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.
   NOTE:
   Supply power using jumper cables if battery is discharged.
2. Turn the push-button ignition switch to ACC position.
   (At this time, the steering lock will be released.)
3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
4. Perform the necessary repair operation.

B2116 TILT MOTOR

DTC Logic

INFOID:0000000008141412

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2116	STEERING TILT	The automatic drive positioner control unit detects the output of tilt motor output terminal for 0.1 second or more even if the tilt switch is not input.	• Automatic drive positioner control unit • Tilt motor harness is shorted

DTC CONFIRMATION PROCEDURE

1.STEP 1

Turn ignition switch ON.

>> GO TO 2.

2.STEP 2

Check “Self diagnostic result” with CONSULT.

Is the DTC detected?

YES >> Perform diagnosis procedure. Refer to ADP-58, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008141413

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check “Self diagnostic result” with CONSULT.
3. Erase the DTC.
4. Perform DTC confirmation procedure. Refer to ADP-58, "DTC Logic".

Is the DTC displayed again?

YES >> GO TO 2.
NO >> Check intermittent incident. Refer to GI-49, "Intermittent Incident".

2.CHECK TILT MOTOR CIRCUIT (POWER SHORT)

1. Turn ignition switch OFF.
2. Disconnect automatic drive positioner control unit and tilt motor connector.
3. Check voltage between tilt motor harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Tilt motor			
Connector	Terminals		
M48	1	Ground	0
	2		

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness or connector.

3.CHECK AUTOMATIC DRIVER POSITIONER CONROL UNIT OUTPUT SIGNAL

1. Connect automatic drive positioner control unit connector.
2. Check voltage between automatic drive positioner control unit harness connector and ground.

B2601 SHIFT POSITION

DTC Logic

INFOID:0000000008142725

DTC DETECTION LOGIC

NOTE:

- If DTC B2601 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to BCS-67, "DTC Logic".
- If DTC B2601 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to BCS-68, "DTC Logic".

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2601	SHIFT POSITION	When there is a difference between P position signal from A/T shift selector (detention switch) and P position signal from IPDM E/R (CAN).	• Harness or connectors (CAN communication line is open or shorted.) • Harness or connectors [A/T shift selector (detention switch) circuit is open or shorted.] • IPDM E/R • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Shift the selector lever to the P position.
2. Turn ignition switch ON and wait 2 seconds or more.
3. Shift the selector lever to any position other than P, and wait 2 seconds or more.
4. Check DTC in “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Go to SEC-56, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008142726

1.CHECK A/T SHIFT SELECTOR CIRCUIT (BCM)

1. Turn ignition switch OFF.
2. Disconnect A/T shift selector (detention switch) connector.
3. Disconnect BCM connector.
4. Check continuity between A/T shift selector (detention switch) harness connector and BCM harness connector.

A/T shift selector (detention switch)		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M137	8	M120	37	Existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK A/T SHIFT SELECTOR CIRCUIT (IPDM E/R)

1. Disconnect IPDM E/R connector.
2. Check continuity between A/T shift selector (detention switch) harness connector and IPDM E/R harness connector.

A/T shift selector (detention switch)		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M137	8	E6	43	Existed

Is the inspection result normal?

HEADLAMP (LO) CIRCUIT

Component Function Check

INFOID:0000000008140134

1.CHECK HEADLAMP (LO) OPERATION

IPDM E/R AUTO ACTIVE TEST
1. Activate IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the headlamp is turned ON.

CONSULT ACTIVE TEST
1. Select “EXTERNAL LAMPS” of IPDM E/R active test item.
2. With operating the test items, check that the headlamp (LO) is turned ON.

Lo : Headlamp (LO) ON
Off : Headlamp (LO) OFF

Is the measurement normal?

YES >> Headlamp (LO) is normal.
NO >> Refer to EXL-73, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008140135

1.CHECK HEADLAMP (LO) OUTPUT VOLTAGE

CONSULT ACTIVE TEST
1. Turn ignition switch OFF.
2. Disconnect front combination lamp connector.
3. Turn ignition switch ON.
4. Select “EXTERNAL LAMPS” of IPDM E/R active test item.
5. With operating the test items, check voltage between IPDM E/R harness connector and ground.

(+)			(–)	Test item		Voltage (Approx.)
IPDM E/R						
Connector		Terminal				
RH	E7	83	Ground	EXTERNAL LAMPS	Lo	Battery voltage
					Off	0 V
LH		84			Lo	Battery voltage
					Off	0 V

Is the inspection result normal?

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

2.CHECK HEADLAMP (LO) OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

IPDM E/R			Front combination lamp		Continuity
Connector		Terminal	Connector	Terminal	
RH	E7	83	E24	4	Existed
LH		84	E54	4	

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace harness.

3.CHECK HEADLAMP (LO) FUSE

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:0000000008143468

AUTO ACTIVE TEST

Description

In auto active test, the IPDM E/R sends a drive signal to the following systems to check their operation.

- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Tail lamp
- Side marker lamp
- Front fog lamp
- Headlamp (LO, HI)
- Cooling fan (cooling fan control module)

Operation Procedure

CAUTION:

Wiper arm interferes with hood when wiper is operated while wiper arm is in the raised position. Always perform auto active test without setting wiper arm in the raised position. Always pour water on front windshield glass in advance to auto active test so that damage on front windshield glass surface is prevented.

NOTE:

Never perform auto active test in the following condition.

- CONSULT is connected
- Passenger door is open

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON, and within 20 seconds, press the front door switch (driver side) 10 times. Then turn the ignition switch OFF.
   NOTE:
   Within 5 seconds after ignition switch is turned to the ON position and when driver door switch is pressed 6 times or more within 4 seconds, self-diagnosis function for BOSE amp. activates and speaker sounds. After waiting for 5 seconds or more after ignition switch is turned to the ON position and when driver door switch is operated, self-diagnosis function for BOSE amp. does not activate.
3. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
   NOTE:
   Engine starts when ignition switch is turned ON while brake pedal is depressed.
4. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTE:

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to DLK-61, "Component Function Check".

Inspection in Auto Active Test

When auto active test is actuated, the following 4 steps are repeated 3 times.

Operation sequence	Inspection location	Operation
1	Front wiper motor	LO for 5 seconds → HI for 5 seconds
2	• Parking lamp • License plate lamp • Tail lamp • Side marker lamp • Front fog lamp	10 seconds
3	Headlamp	• LO 10 seconds • HI ON ⇔ OFF 5 times
4	Cooling fan	MID for 5 seconds → HI for 5 seconds

Combination meter			Continuity
Connector	Terminal		
M53	6	Ground	Not existed
	7		
	8		
	9		
	10		
	11		

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harness or connector.

Component Inspection

INFOID:0000000008144688

1. CHECK METER CONTROL SWITCH

1. Turn ignition switch OFF.
2. Disconnect meter control switch connector.
3. Check meter control switch.

Terminals		Condition	Continuity
Meter control switch			
1	2	When enter switch is pressed	Existed
		Other than the above	Not existed
11		When select switch is pressed	Existed
		Other than the above	Not existed
6		When illumination control switch (+) is pressed	Existed
		Other than the above	Not existed
3		When illumination control switch (–) is pressed	Existed
		Other than the above	Not existed
12		When trip reset switch is pressed	Existed
		Other than the above	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace meter control switch. Refer to MWI-82, "Removal and Installation".

Monitored item [Unit]	ALL SIG (ICC)	MAIN SIG (ICC)	MAIN SIG (LDW/LDP)	MAIN SIG (BSW/BSI)	Description
MAIN SW [On/Off]	×	×	×	×	Indicates [On/Off] status as judged from ICC steering switch signal (HPCM transmits ICC steering switch signal through CAN communication)
SET/COAST SW [On/Off]	×	×			Indicates [On/Off] status as judged from ICC steering switch signal (HPCM transmits ICC steering switch signal through CAN communication)
CANCEL SW [On/Off]	×	×			Indicates [On/Off] status as judged from ICC steering switch signal (HPCM transmits ICC steering switch signal through CAN communication)
RESUME/ACC SW [On/Off]	×	×			Indicates [On/Off] status as judged from ICC steering switch signal (HPCM transmits ICC steering switch signal through CAN communication)
DISTANCE SW [On/Off]	×				Indicates [On/Off] status as judged from ICC steering switch signal (HPCM transmits ICC steering switch signal through CAN communication)
CRUISE OPE [On/Off]	×	×			Indicates whether controlling or not (ON means “controlling”)
BRAKE SW [On/Off]	×	×	×	×	Indicates [On/Off] status as judged from brake switch signal (HPCM transmits brake switch signal through CAN communication)
STOP LAMP SW [On/Off]	×	×	×	×	Indicates [On/Off] status as judged from stop lamp switch signal (HPCM transmits stop lamp switch signal through CAN communication)
IDLE SW [On/Off]	×				Indicates [On/Off] status of idle switch read from ADAS control unit through CAN communication (HPCM transmits On/Off status through CAN communication)
SET DISTANCE [Short/Mid/Long]	×	×			Indicates set distance memorized in ADAS control unit
CRUISE LAMP [On/Off]	×	×			Indicates [On/Off] status of MAIN switch indicator output
OWN VHCL [On/Off]	×				Indicates [On/Off] status of own vehicle indicator output
VHCL AHEAD [On/Off]	×				Indicates [On/Off] status of vehicle ahead detection indicator output
ICC WARNING [On/Off]	×				Indicates [On/Off] status of ICC system warning lamp output
VHCL SPEED SE [km/h] or [mph]	×	×	×	×	Indicates vehicle speed calculated from ADAS control unit through CAN communication [ABS actuator and electric unit (control unit) transmits wheel speed signal through CAN communication]
SET VHCL SPD [km/h] or [mph]	×	×			Indicates set vehicle speed memorized in ADAS control unit
BUZZER O/P [On/Off]	×				Indicates [On/Off] status of ICC warning chime output
THRTL SENSOR [deg]	×	×			**NOTE:** The item is displayed, but it is not monitored
ENGINE RPM [rpm]	×				Indicates engine speed read from ADAS control unit through CAN communication (HPCM transmits engine speed signal through CAN communication)
PRESS SENS [bar]	×	×			Indicates a brake fluid pressure command value
WIPER SW [OFF/LOW/HIGH]	×				Indicates wiper [OFF/LOW/HIGH] status (BCM transmits front wiper request signal through CAN communication)
YAW RATE [deg/s]	×				**NOTE:** The item is displayed, but it is not monitored
RELEASE SW NO [On/Off]	×		×	×	Indicates a brake operation state read by ADAS control unit via CAN communication (Electrically-driven intelligent brake unit transmits driver brake detection signal via CAN communication)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

ENGINE COOLANT

ENGINE COOLANT : Periodical Maintenance Specification

INFOID:0000000008140261

ENGINE COOLANT CAPACITY (APPROXIMATE)

Unit: ℓ (US qt, Imp qt)

Engine coolant capacity [With reservoir tank (“MAX” level)]	8.6 (9-1/8, 7-5/8)
Reservoir tank engine coolant capacity (At “MAX” level)	0.8 (7/8, 3/4)

ENGINE OIL

ENGINE OIL : Periodical Maintenance Specification

INFOID:0000000008140262

ENGINE OIL CAPACITY (APPROXIMATE)

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	4.9 (5-1/8, 4-1/4)
	Without oil filter change	4.6 (4-7/8, 4)
Dry engine (Overhaul)		5.7 (6, 5)

SPARK PLUG

SPARK PLUG : Spark Plug

INFOID:0000000008140263

SPARK PLUG

Unit: mm (in)

Make	DENSO
Standard type	FXE22HR11
Gap (Nominal)	1.1 (0.043)

ROAD WHEEL

ROAD WHEEL : Road Wheel

INFOID:0000000008140264

CONVENTIONAL

Item		Limit
Runout	Axial runout	Less than 0.3 mm (0.012 in)
	Radial runout	
Allowable unbalance	Dynamic (At flange)	Less than 5 g (0.17 oz) (one side)
	Static (At flange)	Less than 10 g (0.35 oz)

EMERGENCY (STEEL WHEEL)

Item		Limit
Runout	Axial runout (Average)	Less than 1.5 mm (0.059 in)
	Radial runout (Average)	