SECTION SCS
SUSPENSION CONTROL SYSTEM

CONTENTS

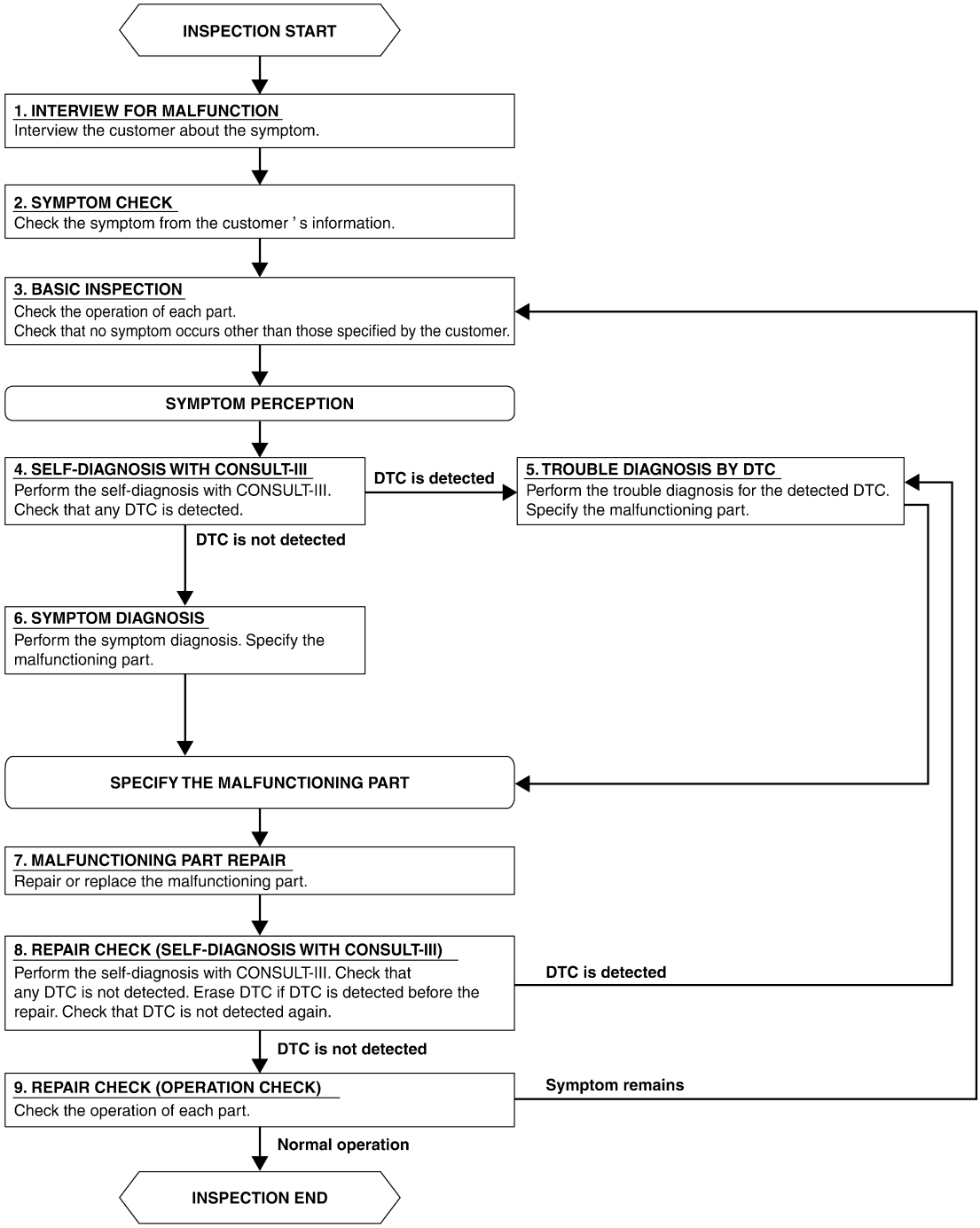
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000003772306

OVERALL SEQUENCE



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DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

Interview the customer about the symptom.

>> GO TO 2.

2.SYMPTOM CHECK

Verify the symptom from the customer's information.

>> GO TO 3.

3.BASIC INSPECTION

Check the operation of each part. Check that no symptoms occur other than those specified by the customer.

>> GO TO 4.

4.SELF-DIAGNOSIS WITH CONSULT-III

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

Is any DTC detected?

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

5.TROUBLE DIAGNOSIS BY DTC

Perform the trouble diagnosis for the detected DTC. Specify the malfunctioning part.

>> GO TO 7.

6.SYMPTOM DIAGNOSIS

Perform the symptom diagnosis. Specify the malfunctioning part.

>> GO TO 7.

7.MALFUNCTIONING PART REPAIR

Repair or replace the malfunctioning part.

>> GO TO 8.

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

Perform the self diagnosis with CONSULT-III. Verfied that no DTCs are detected. Erase all DTCs detected prior to the repair. Verify that DTC is not detected again.

Is any DTC detected?

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

9.REPAIR CHECK (OPERATION CHECK)

Check the operation of each part.

Does it operate normally?

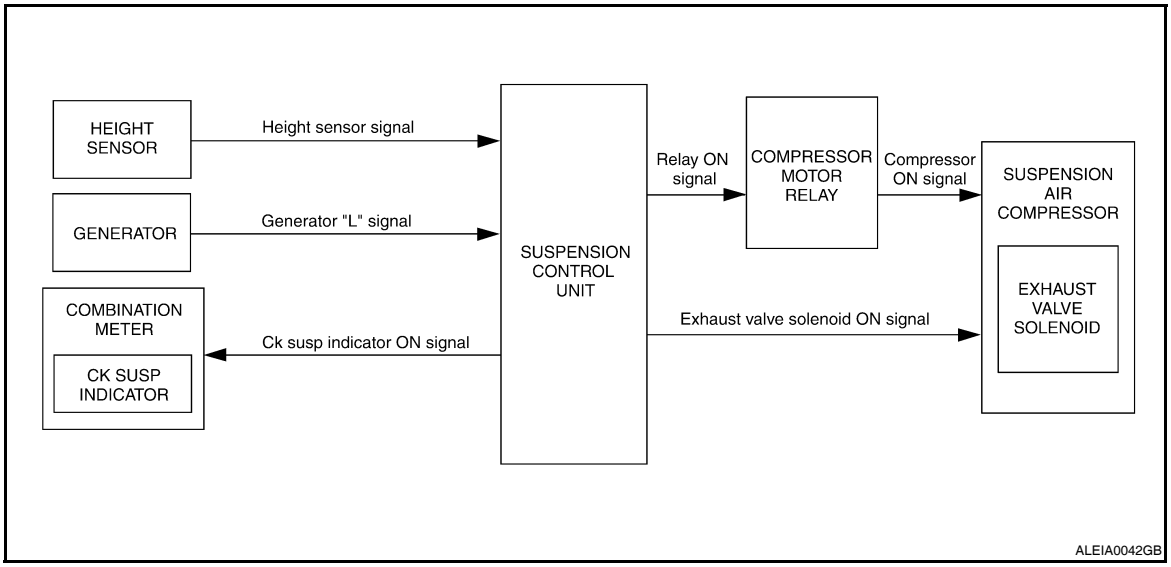
YES >> Inspection End.
NO >> GO TO 3.

FUNCTION DIAGNOSIS

SUSPENSION CONTROL SYSTEM

System Diagram

INFOID:0000000003772307



System Description

INFOID:0000000003772308

SUSPENSION CONTROL SYSTEM

The suspension control system consists of the following components

- Suspension control unit
- Compressor motor relay
- Suspension air compressor
- Exhaust valve solenoid (built into suspension air compressor)
- Height sensor

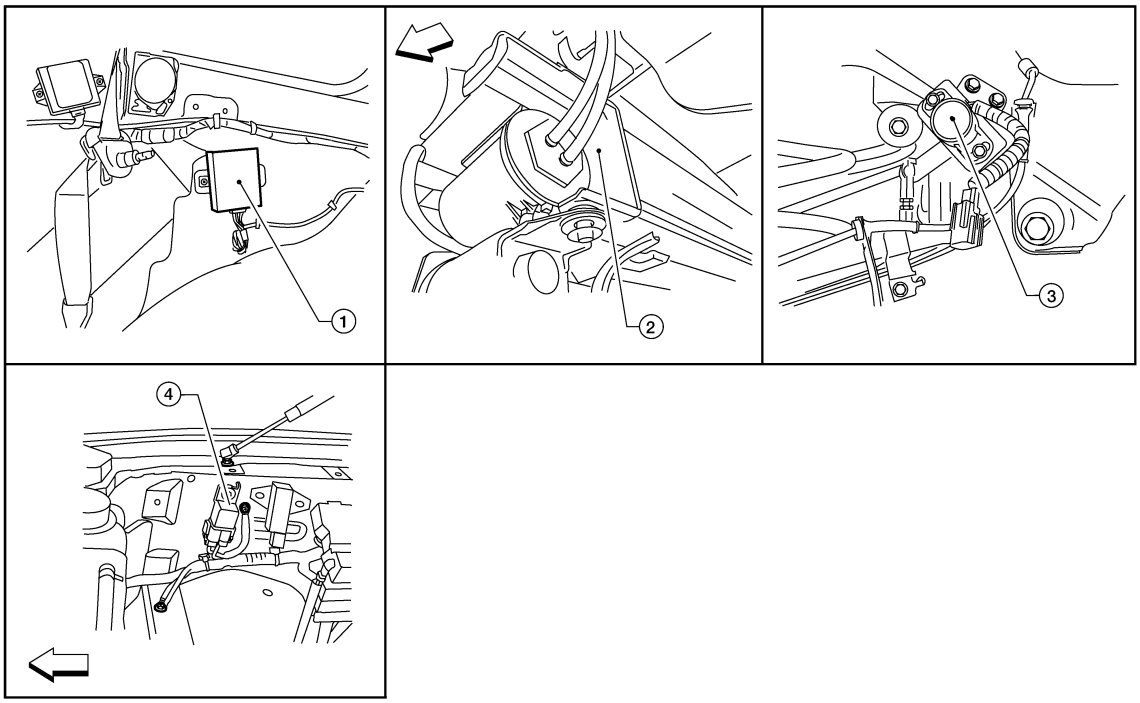
The suspension control unit monitors vehicle ride height as indicated by the height sensor. The suspension control unit actuates the compressor motor relay to raise the vehicle ride height. The suspension control unit actuates the exhaust valve solenoid to lower the vehicle ride height.

CK SUSP INDICATOR LAMP

The CK SUSP indicator lamp ground is controlled by the suspension control unit. The indicator lamp will come on for 2 seconds when the ignition switch is turned ON. If the indicator lamp does not turn OFF there is a fault detected. Refer to SCS-7, "CONSULT-III Function".

Component Parts Location

INFOID:0000000003772309



ALEIA0044ZZ

⇦ :Front

1. Suspension control unit B3 (view with upper and lower luggage side finishers LH removed)
2. Suspension air compressor C9 (view under vehicle behind LH rear suspension)
3. Height sensor C8 (view under vehicle at LH rear suspension)
4. Compressor motor relay E130, E131 (view with battery removed)

Component Description

INFOID:0000000003772310

Part name	Description
Suspension control unit	• Monitors height sensor input to determine vehicle height. • Actuates the compressor motor relay or exhaust valve solenoid to raise or lower the vehicle accordingly. • Sends a ground signal to the combination meter to activate the CK SUSP indicator lamp.
Suspension air compressor (with built in exhaust valve solenoid)	• When the compressor is actuated, it pumps air into the system to raise the rear suspension. • When the exhaust valve solenoid is actuated, it vents air from the system to lower the rear suspension.
Height sensor	Provides vehicle height input to the suspension control unit.

DIAGNOSIS SYSTEM (SUSPENSION CONTROL UNIT)

CONSULT-III Function

INFOID:0000000003772311

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

AIR LEVELIZER diagnosis mode	Description
WORK SUPPORT	Supports inspection and adjustment. Commands are transmitted to the suspension control unit for setting the status suitable for required operation, input/output signals are received from the suspension control unit and received data is displayed.
SELF-DIAG RESULTS	Displays suspension control unit self-diagnosis results.
DATA MONITOR	Displays suspension control unit input/output data in real time.
ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
ECU PART NUMBER	The part number of suspension control unit can be checked.

WORK SUPPORT

Display Item List

Item	Description	Condition
STANDARD HEIGHT LEVEL	Resets the vehicle height to the initialization flag setting stored in the suspension control unit.	Vehicle unladen, set in a horizontal position and not moving. **NOTE:** Do not take your eyes off the vehicle while CONSULT-III is processing.
ADJUST HEIGHT INI	Sets the height initialization flag in the suspension control unit when the control unit has been replaced or when the initialization flag has been cleared using the "CLEAR HEIGHT INI" procedure.	Vehicle unladen, move vehicle forward and backward approx. 5 m (16.4 ft) and rock vehicle side to side. **NOTE:** Do not move vehicle while CONSULT-III is processing.
CLEAR HEIGHT INI	Clears the initialization flag in the suspension control unit.	Vehicle unladen.

DATA MONITOR

Display Item List

Display item [unit]	ALL SIGNALS	SELECTION FROM MENU
HEIGT SEN [V]	X	X
HEIGT CALC [mm]	X	X
SEN FIX TIME [HR]	X	X
HEIGT INI VAL [V]	X	X
COMPRESSOR [ON/OFF]	X	X
EXH SOLENOID [ON/OFF]	X	X
ACG L [ON/OFF]	X	X

ACTIVE TEST

CAUTION:

Do not perform active test while driving.

Display Item List

Test Item	Description
COMPRESSOR	ON/OFF

EXHAUST SOLENOID	ON/OFF
WARNING LAMP	ON/OFF

CAUTION:
The "COMPRESSOR active test will remain ON until it is turned off using CONSULT-III. Allowing the compressor to run for an extended period of time may cause damage to the suspension control system components due to excessive pressure.
NOTE:
- "TEST IS STOPPED" is displayed approximately 10 seconds after operation starts for all active test items except "COMPRESSOR".
- After "TEST IS STOPPED" is displayed, to perform test again, repeat step 6.

COMPONENT DIAGNOSIS

C1801 VEHICLE HEIGHT SENSOR

Description

INFOID:0000000003772312

The vehicle height sensor operates on a 5 volt reference signal from the suspension control unit. The suspension control unit also provides ground to the height sensor. Depending on vehicle height, the height sensor signal should have between 0.2V and 4.8V.

DTC Logic

INFOID:0000000003772313

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	Diagnostic item is detected when ...	Probable malfunction location
C1801	VEHICLE HEIGHT SENSOR	Vehicle height sensor voltage is less than 0.2V or greater than 4.8V for more than 60 seconds.	• Height sensor power/ground supply. Refer to SCS-18, "HEIGHT SENSOR : Diagnosis Procedure". • Height sensor signal circuit. Refer to SCS-22, "Component Function Check".

Diagnosis Procedure

INFOID:0000000003772314

1.CHECK HEIGHT SENSOR OPERATION

CONSULT-III
1. Turn ignition switch ON
2. Select "HEIGT SEN" of AIR LEVELIZER data monitor test item.

HEIGHT SEN : 0.2V - 4.8V

Is the HEIGHT SEN voltage within the given range?

YES >> Height sensor is operating normally.
NO >> Refer to SCS-22, "Diagnosis Procedure".

C1802 COMPRESSOR RELAY

Description

INFOID:0000000003772315

The compressor motor relay is controlled by the suspension control unit. The suspension control unit supplies voltage to the coil side of the relay to activate it. The compressor motor relay, when activated, supplies power to the suspension air compressor.

DTC Logic

INFOID:0000000003772316

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	Diagnostic item is detected when ...	Probable malfunction location
C1802	COMPRESSOR RELAY	• Driving transistor for the compressor relay is OFF and monitor voltage continues at a high level for more than 10 seconds. • Driving transistor for the compressor relay is ON and monitor voltage continues at a low level for more than 5 seconds.	Compressor motor relay. Refer to SCS-20, "Component Function Check".

Diagnosis Procedure

INFOID:0000000003772317

1.CHECK COMPRESSOR MOTOR RELAY OPERATION

CAUTION:
The "COMPRESSOR" active test will remain ON until it is turned off using CONSULT-III. Allowing the compressor to run for an extended period of time may cause damage to the air levelizer system components due to excessive air pressure.

CONSULT-III
1. Turn ignition ON.
2. Select "COMPRESSOR" of AIR LEVELIZER active test items.
3. While operating test item, check that the suspension air compressor turns ON.

ON : Compressor turns ON
OFF : Compressor turns OFF

Does the suspension air compressor operate properly?

YES >> Compressor motor relay and suspension air compressor are operating normally.
NO >> Refer to SCS-20, "Diagnosis Procedure".

C1803 EXHAUST SOLENOID

Description

INFOID:0000000003772318

The exhaust valve solenoid controls the vent function of the suspension control system. The exhaust valve solenoid is built into the suspension air compressor. The suspension control unit supplies voltage to the exhaust valve solenoid to activate it.

DTC Logic

INFOID:0000000003772319

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	Diagnostic item is detected when ...	Probable malfunction location
C1803	EXHAUST SOLENOID	• Driving transistor for the exhaust valve solenoid is OFF and monitor voltage continues at a high level for more than 10 seconds. • Driving transistor for the exhaust valve solenoid is ON and monitor voltage continues at a low level for more than 5 seconds.	Open or short circuit in the exhaust valve solenoid control circuit. Refer to SCS-23, "Component Function Check".

Diagnosis Procedure

INFOID:0000000003772320

1.CHECK EXHAUST SOLENOID OPERATION

CAUTION:
While operating this active test, the suspension control system will vent air pressure and the vehicle ride height will lower. Ensure the area around the vehicle is free from obstructions before beginning test.

CONSULT-III
1. Ensure the suspension control system has air pressure and is not drooping in the rear.
2. Select "EXHAUST SOLENOID" of AIR LEVELIZER active test items.
3. While operating test item, check that the exhaust valve solenoid opens to vent air from the system. The vehicle should lower when the exhaust valve solenoid is activated.

ON : Air vents and vehicle ride height lowers
OFF : No air vents and vehicle ride height remains constant

Does the system vent properly?

YES >> Exhaust valve solenoid is operating normally.
NO >> Refer to SCS-23, "Description".

C1804 HEIGHT ADJUSTING MALFUNCTION (COMPRESSOR)

Description

INFOID:0000000003772321

The compressor motor relay is controlled by the suspension control unit. The suspension control unit supplies voltage to the coil side of the relay to activate it. The compressor motor relay, when activated, supplies power to the suspension air compressor.

DTC Logic

INFOID:0000000003772322

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	Diagnostic item is detected when ...	Probable malfunction location
C1804	VEHICLE HEIGHT ADJUSTING MALFUNCTION (COMPRESSOR)	Continuous compressor relay ON time is more than 120 seconds.	Compressor motor relay. Refer to SCS-20, "Component Function Check".

Diagnosis Procedure

INFOID:0000000003772323

1.CHECK COMPRESSOR MOTOR RELAY OPERATION

CAUTION:

The "COMPRESSOR" active test will remain ON until it is turned off using CONSULT-III. Allowing the compressor to run for an extended period of time may cause damage to the air levelizer system components due to excessive air pressure.

CONSULT-III

1. Turn ignition ON.
2. Select "COMPRESSOR" of AIR LEVELIZER active test items.
3. While operating test item, check that the suspension air compressor turns ON.

ON : Compressor turns ON

OFF : Compressor turns OFF

Does the suspension air compressor operate properly?

YES >> Compressor motor relay and suspension air compressor are operating normally.

NO >> Refer to SCS-20, "Diagnosis Procedure".

C1805 HEIGHT ADJUSTING MALFUNCTION (EXH SOLENOID)

Description

INFOID:0000000003772324

The exhaust valve solenoid controls the vent function of the suspension control system. The exhaust valve solenoid is built into the suspension air compressor. The suspension control unit supplies voltage to the exhaust valve solenoid to activate it.

DTC Logic

INFOID:0000000003772325

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	Diagnostic item is detected when ...	Probable malfunction location
C1805	VEHICLE HEIGHT ADJUSTING MALFUNCTION (EXHAUST SOLENOID)	Continuous exhaust valve solenoid ON time is more than 120 seconds.	Short to power in the exhaust valve solenoid control circuit. Refer to SCS-23, "Component Function Check".

Diagnosis Procedure

INFOID:0000000003772326

1.CHECK EXHAUST SOLENOID OPERATION

CAUTION:

While operating this active test, the suspension control system will vent air pressure and the vehicle ride height will lower. Ensure the area around the vehicle is free from obstructions before beginning test.

CONSULT-III

1. Ensure the suspension control system has air pressure and is not drooping in the rear.
2. Select "EXHAUST SOLENOID" of AIR LEVELIZER active test items.
3. While operating test item, check that the exhaust valve solenoid opens to vent air from the system. The vehicle should lower when the exhaust valve solenoid is activated.

ON : Air vents and vehicle ride height lowers

OFF : No air vents and vehicle ride height remains constant

Does the system vent properly?

YES >> Exhaust valve solenoid is operating normally.

NO >> Refer to SCS-23, "Description".

C1806 VEHICLE HEIGHT SENSOR LOCKING MALFUNCTION

Description

INFOID:0000000003772327

The vehicle height sensor operates on a 5 volt reference signal from the suspension control unit. The suspension control unit also provides ground to the height sensor.

DTC Logic

INFOID:0000000003772328

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	Diagnostic item is detected when ...	Probable malfunction location
C1806	VEHICLE HEIGHT SENSOR LOCKING MALFUNCTION	Output sensor voltage variation ±0.02V is more than 100 seconds when vehicle height range is normal.	• Height sensor power/ground supply. Refer to SCS-18, "HEIGHT SENSOR : Diagnosis Procedure". • Charging system malfunction. Refer to CHG-8, "Inspection Procedure".

Diagnosis Procedure

INFOID:0000000003772329

1.CHECK HEIGHT SENSOR OPERATION

CONSULT-III
1. Turn ignition switch ON
2. Select "HEIGT SEN" of AIR LEVELIZER data monitor test item.

HEIGHT SEN : 0.2V - 4.8V with no more than ±0.02V variation

Is the HEIGHT SEN voltage within the given range?

YES >> Height sensor is operating normally.
NO >> Refer to SCS-22, "Diagnosis Procedure".

C1807 SENSOR 5V MALFUNCTION

Description

INFOID:0000000003772330

The vehicle height sensor operates on a 5 volt reference signal from the suspension control unit. The suspension control unit also provides ground to the height sensor.

DTC Logic

INFOID:0000000003772331

DTC DETECTION LOGIC

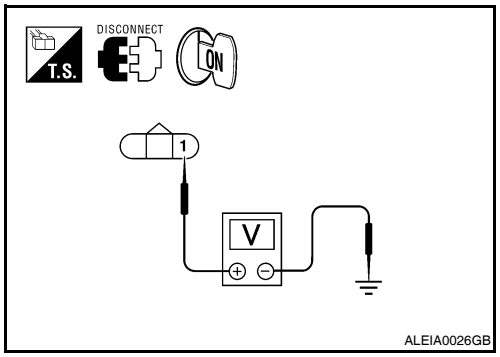
DTC	Display contents of CONSULT-III	Diagnostic item is detected when ...	Probable malfunction location
C1807	SENSOR 5V MALFUNCTION	Sensor reference voltage is less than 0.8V or more than 6V for 20 seconds.	• Height sensor power/ground supply. Refer to SCS-18, "HEIGHT SENSOR : Diagnosis Procedure". • Charging system malfunction. Refer to CHG-8, "Inspection Procedure".

Diagnosis Procedure

INFOID:0000000003772332

1.POWER SUPPLY CIRCUIT CHECK

1. Disconnect height sensor connector C8.
2. Turn the ignition switch ON.
3. Check voltage between the height sensor connector C8 terminal 1 and ground.



(+)		(-)	Voltage
Connector	Terminal		
C8	1	Ground	5V

Is 5V present?

YES >> System is working normally.

NO >> Check harness or connector for open or short. If OK, replace the suspension control unit. Refer to RSU-26, "Removal and Installation".

C1808 INTEGRAL TIME MALFUNCTION SUPPLYING AIR

Description

INFOID:0000000003772333

The suspension air compressor is supplied power by the compressor motor relay. The suspension control unit supplies power to the compressor motor relay in order to activate the relay and subsequently activate the suspension air compressor.

DTC Logic

INFOID:0000000003772334

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	Diagnostic item is detected when ...	Probable malfunction location
C1808	INTEGRAL TIME MALFUNCTION SUPPLYING AIR	A suspension air compressor ON request has been in effect for 180 seconds and the suspension air compressor has not activated during that time.	• Compressor motor relay. Refer to SCS-20, "Diagnosis Procedure". • Suspension air compressor. Refer to SCS-17, "SUSPENSION AIR COMPRESSOR : Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003772335

1.CHECK COMPRESSOR MOTOR RELAY OPERATION

CAUTION:

The "COMPRESSOR" active test will remain ON until it is turned off using CONSULT-III. Allowing the compressor to run for an extended period of time may cause damage to the air levelizer system components due to excessive air pressure.

CONSULT-III

1. Turn ignition ON.
2. Select "COMPRESSOR" of AIR LEVELIZER active test items.
3. While operating test item, check that the suspension air compressor turns ON.

ON : Compressor turns ON

OFF : Compressor turns OFF

Does the suspension air compressor operate properly?

YES >> Compressor motor relay and suspension air compressor are operating normally.

NO >> Refer to SCS-20, "Diagnosis Procedure".

POWER SUPPLY AND GROUND CIRCUIT
SUSPENSION CONTROL UNIT

SUSPENSION CONTROL UNIT : Diagnosis Procedure

INFOID:0000000003772336

1.CHECK FUSES

Check that the following fuses of the suspension control unit are not are not blown.

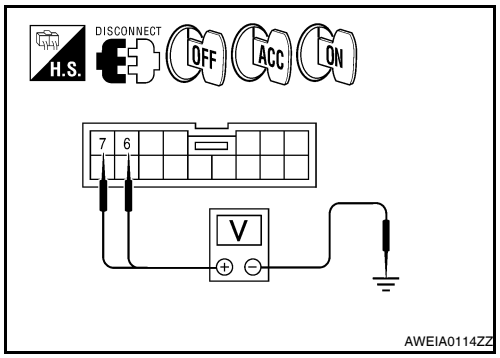
Unit	Terminals	Signal name	Fuse No.
Suspension control unit	7	Battery power	29
	6	Ignition switch ON or START	12

Are the fuses OK?

YES >> GO TO 2.
NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

2.POWER SUPPLY CIRCUIT CHECK

1. Disconnect suspension control unit connector B3.
2. Check voltage between the suspension control unit connector B3 and ground.



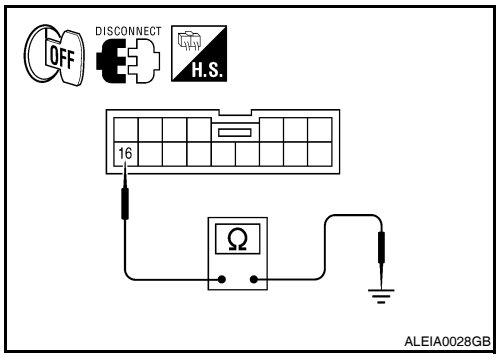
(+)		(-)	OFF	ACC	ON
Connector	Terminal				
B3	7	Ground	Battery voltage	Battery voltage	Battery voltage
	6	Ground	0V	0V	Battery voltage

Are the voltage results as specified?

YES >> GO TO 3.
NO >> • Check connector housings for disconnected or loose terminals.
• Repair harness or connector.

3.GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Check continuity between suspension control unit harness connector B3 and ground.



Connector	Terminal	—	Continuity
B3	16	Ground	Yes

Is continuity present?

YES >> Inspection End.
NO >> Repair harness or connector.

SUSPENSION AIR COMPRESSOR

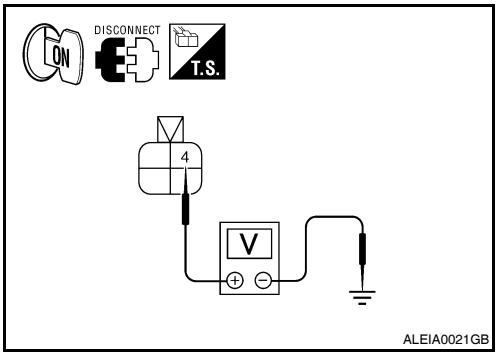
SUSPENSION AIR COMPRESSOR : Diagnosis Procedure

INFOID:0000000003772337

1.CHECK COMPRESSOR MOTOR RELAY OPRATION

CONSULT-III

1. Disconnect the suspension air compressor connector C9.
2. Turn ignition switch ON.
3. Select "COMPRESSOR" under AIR LEVELIZER active test items.
4. While operating the test item, check voltage at the suspension air compressor connector C9 terminal 4.



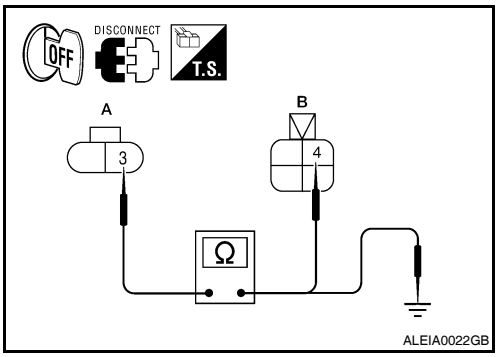
(+)		(-)	Voltage
Connector	Terminal		
C9	4	Ground	Battery Voltage

Is battery voltage present?

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

2.COMPRESSOR MOTOR RELAY POWER SUPPLY CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect the compressor motor relay connector.
3. Check continuity between compressor motor relay connector E131 (A) terminal 3 and suspension air compressor connector C9 (B) terminal 4.



A		B		Continuity
Connector	Terminal	Connector	Terminal	
E131	3	C9	4	Yes

4. Check continuity between compressor motor relay connector E131 (A) terminal 3 and ground.

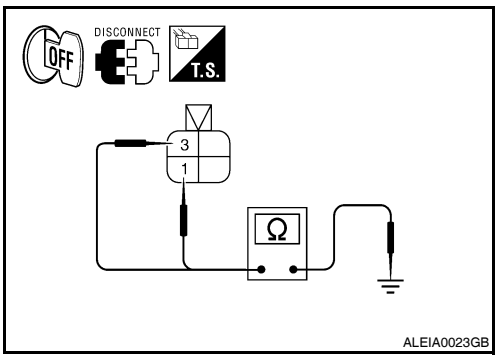
A		—	Continuity
Connector	Terminal		
E131	3	Ground	No

Are the continuity test results as specified?

YES >> Check compressor motor relay. Refer to SCS-20, "Diagnosis Procedure".
NO >> Repair harness or connector.

3.GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Check continuity between suspension air compressor connector C9 terminals 1 and 3 and ground.



Connector	Terminal	—	Continuity
C9	1	Ground	Yes
	3		

Is continuity present?

YES >> Inspection End.
NO >> Repair harness or connector.

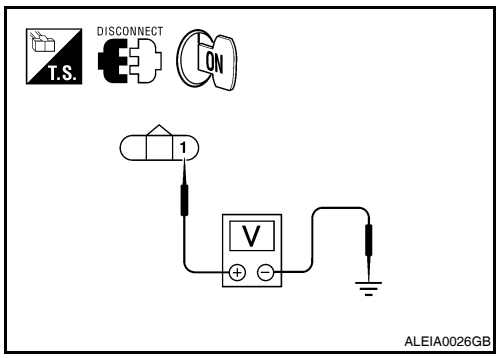
HEIGHT SENSOR

HEIGHT SENSOR : Diagnosis Procedure

INFOID:0000000003772338

1.POWER SUPPLY CIRCUIT CHECK

1. Disconnect height sensor connector C8.
2. Turn the ignition switch ON.
3. Check voltage between the height sensor connector C8 terminal 1 and ground.



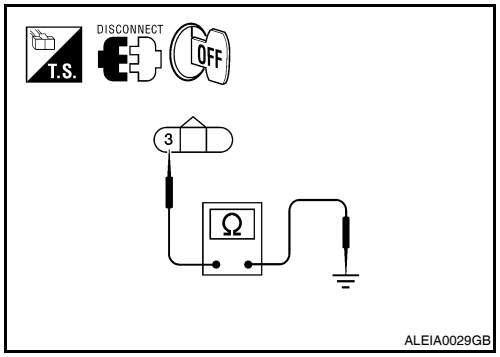
(+)		(-)	Voltage
Connector	Terminal		
C8	1	Ground	5V

Is 5V present?

YES >> GO TO 2.
NO >> Check harness or connector for open or short. If OK, replace the suspension control unit. Refer to RSU-26, "Removal and Installation".

2. GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Check continuity between height sensor connector C8 terminal 3 and ground.



Connector	Terminal	—	Continuity
C8	3	Ground	Yes

Is continuity present?

YES >> Ground circuit is OK.
NO >> Repair harness or connector.

COMPRESSOR MOTOR RELAY

Description

INFOID:0000000003772339

Receives suspension air compressor ON signal from suspension control unit. When activated, the compressor motor relay supplies power to the suspension air compressor.

Component Function Check

INFOID:0000000003772340

1.CHECK COMPRESSOR MOTOR RELAY OPERATION

CAUTION:
The "COMPRESSOR" active test will remain ON until it is turned off using CONSULT-III. Allowing the compressor to run for an extended period of time may cause damage to the suspension control system components due to excessive air pressure.

CONSULT-III
1. Turn ignition ON.
2. Select "COMPRESSOR" of AIR LEVELIZER active test items.
3. While operating test item, check that the suspension air compressor turns ON.

ON : Compressor turns ON
OFF : Compressor turns OFF

Does the suspension air compressor operate properly?

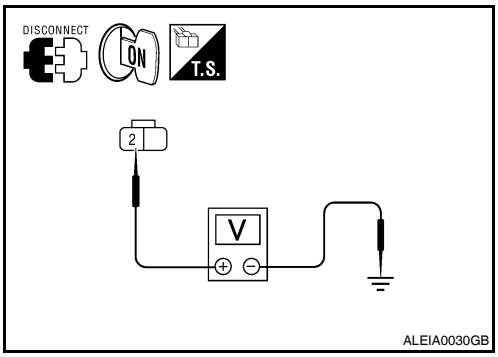
YES >> Compressor motor relay and suspension air compressor are operating normally.
NO >> Refer to SCS-20, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003772341

1.CHECK COMPRESSOR "ON" SIGNAL FROM SUSPENSION CONTROL UNIT

CONSULT-III
1. Turn ignition switch ON.
2. Disconnect compressor motor relay connector E130.
3. Select "COMPRESSOR" of AIR LEVELIZER active test items.
4. While operating test item, check voltage to compressor motor relay connector E130 terminal 2.



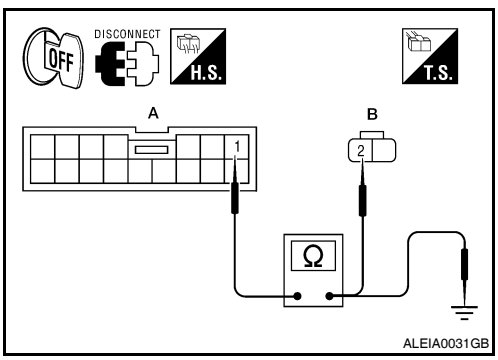
(+)		(-)	Voltage
Connector	Terminal		
E130	2	Ground	Battery voltage

Is battery voltage present while operating test item?

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

2.CHECK COMPRESSOR "ON" SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect suspension control unit connector B3.
3. Check continuity between suspension control unit connector B3 (A) terminal 1 and compressor motor relay connector E130 (B) terminal 2.



A		B		Continuity
Connector	Terminal	Connector	Terminal	
B3	1	E130	2	Yes

4. Check continuity between suspension control unit connector B3 (A) terminal 1 and ground.

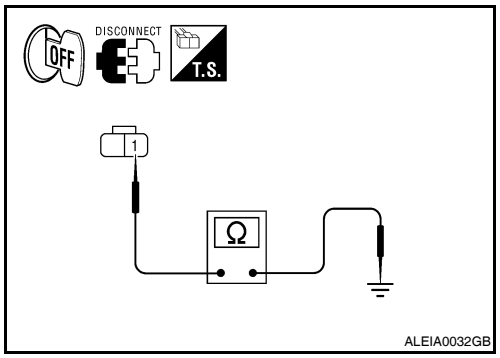
A		—	Continuity
Connector	Terminal		
B3	1	Ground	No

Are the continuity test results as specified?

YES >> Replace the suspension control unit. Refer to RSU-26, "Removal and Installation".
NO >> Repair harness or connector.

3. CHECK COMPRESSOR MOTOR RELAY GROUND

1. Turn ignition switch OFF.
2. Check continuity between compressor motor relay connector E130 terminal 1 and ground.



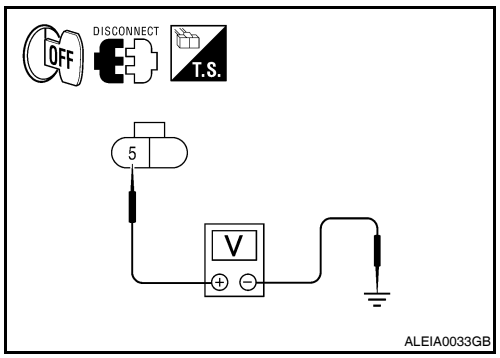
Connector	Terminal	—	Continuity
E130	1	Ground	Yes

Is continuity present?

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

4. CHECK COMPRESSOR MOTOR RELAY POWER SUPPLY

1. Disconnect compressor motor relay connector E131.
2. Check voltage between compressor motor relay E131 terminal 5 and ground.



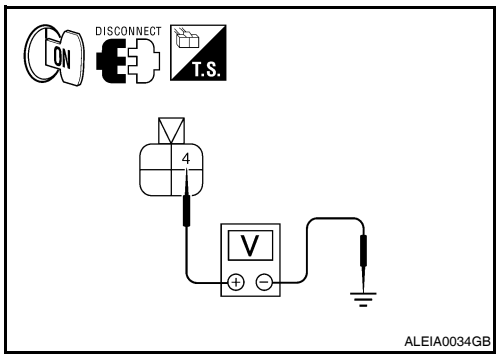
(+)		(-)	Voltage
Connector	Terminal		
E131	5	Ground	Battery voltage

Is battery voltage present?

YES >> GO TO 5.
NO >> Inspect fuse and repair harness or connector.

5. CHECK COMPRESSOR MOTOR RELAY OUTPUT

1. Connect compressor motor relay connectors E130 and E131.
2. Disconnect suspension air compressor connector C9.
3. Turn ignition ON.
4. Select "COMPRESSOR" of AIR LEVELIZER active test items.
5. Check voltage between compressor motor relay C9 terminal 4 and ground.



(+)		(-)	Voltage
Connector	Terminal		
C9	4	Ground	Battery voltage

Is battery voltage present?

YES >> Compressor motor relay is functioning properly.
NO >> GO TO 6.

6. CHECK AIR COMPRESSOR POWER SUPPLY CIRCUIT

Check the air compressor power supply circuit. Refer to SCS-17, "SUSPENSION AIR COMPRESSOR : Diagnosis Procedure".

Does the power supply circuit test OK?

YES >> Replace the compessor motor relay.
NO >> Repair harness or connector.

HEIGHT SENSOR SIGNAL CIRCUIT

Description

INFOID:0000000003772342

Supplies vehicle height input to the suspension control unit.

Component Function Check

INFOID:0000000003772343

1.CHECK HEIGHT SENSOR OPERATION

CONSULT-III
1. Select "HEIGT SEN" of AIR LEVELIZER data monitor test item.
2. While monitoring test item, add or take away weight from the rear of the vehicle. Check that the voltage value changes with vehicle height.

HEIGHT SEN : Voltage changes with vehicle height

Is the HEIGHT SEN data monitor responding normally?

YES >> Height sensor is operating normally.
NO >> Refer to SCS-22, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003772344

1.CHECK HEIGHT SENSOR POWER AND GROUND SUPPLY

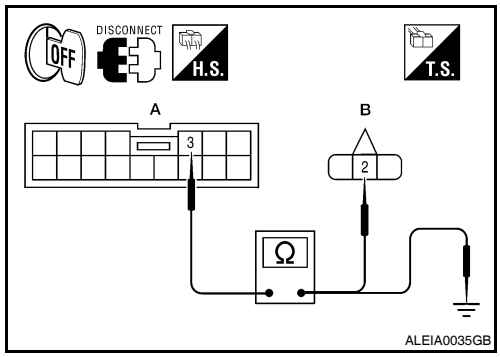
Check height sensor power and ground supply. Refer to SCS-18, "HEIGHT SENSOR : Diagnosis Procedure".

Are the inspection results normal?

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

2.CHECK HEIGHT SENSOR SIGNAL CIRCUIT

1. Disconnect suspension control unit connector B3 and height sensor connector C8.
2. Check continuity between suspension control unit connector B3 (A) terminal 3 and height sensor connector C8 (B) terminal 2.



A		B		Continuity
Connector	Terminal	Connector	Terminal	
B3	3	C8	2	Yes

3. Check continuity between display unit harness connector B3 (A) terminal 3 and ground.

A		—	Continuity
Connector	Terminal		
B3	3	Ground	No

Are the continuity results as specified?

YES >> Replace the height sensor. Refer to RSU-27, "Removal and Installation".
NO >> Repair harness or connector.

EXHAUST VALVE SOLENOID CIRCUIT

Description

INFOID:0000000003772345

Receives exhaust valve solenoid signal from suspension control unit. When activated, the exhaust valve solenoid releases air pressure from the suspension control system.

Component Function Check

INFOID:0000000003772346

1.CHECK EXHAUST SOLENOID OPERATION

CAUTION:
While operating this active test, the suspension control system will vent air pressure and the vehicle ride height will lower. Ensure the area around the vehicle is free from obstructions before beginning test.

CONSULT-III
1. Ensure the suspension control system has air pressure and is not drooping in the rear.
2. Select "EXHAUST SOLENOID" of AIR LEVELIZER active test items.
3. While operating test item, check that the exhaust valve solenoid opens to vent air from the system. The vehicle should lower when the exhaust valve solenoid is activated.

ON : Air vents and vehicle ride height lowers
OFF : No air vents and vehicle ride height remains constant

Does the system vent properly?

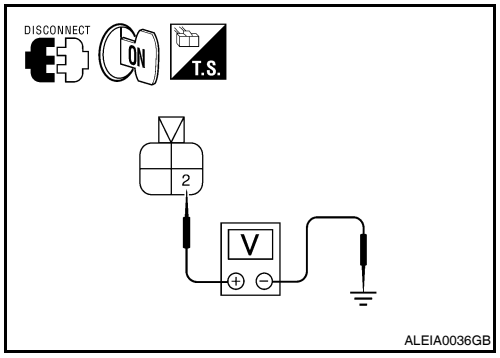
YES >> Exhaust valve solenoid is operating normally.
NO >> Refer to SCS-23, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003772347

1.CHECK EXHAUST VALVE SOLENOID SIGNAL

CONSULT-III
1. Connect suspension control unit connector B3.
2. Turn ignition switch ON.
3. Select "EXHAUST SOLENOID" of AIR LEVELIZER active test items.
4. While test item is operating, check signal between suspension air compressor connector C9 terminal 2 and ground.



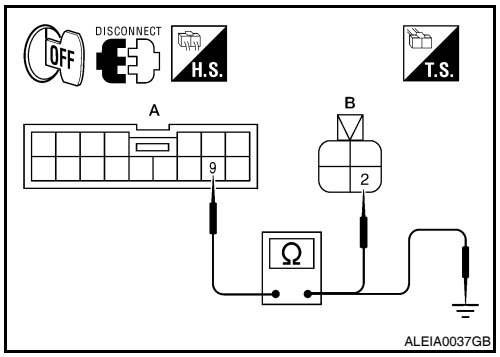
(+)		(-)	Voltage
Connector	Terminal		
C9	2	Ground	Battery voltage

Is battery voltage present?

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

2.CHECK CONTINUITY OF EXHAUST VALVE SOLENOID CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect suspension control unit connector B3 and suspension air compressor connector C9.
3. Check continuity between suspension control unit connector B3 (A) terminal 9 and suspension air compressor connector C9 (B) terminal 2.



A		B		Continuity
Connector	Terminal	Connector	Terminal	
B3	9	C9	2	Yes

4. Check continuity between suspension control unit connector B3 (A) terminal 9 and ground.

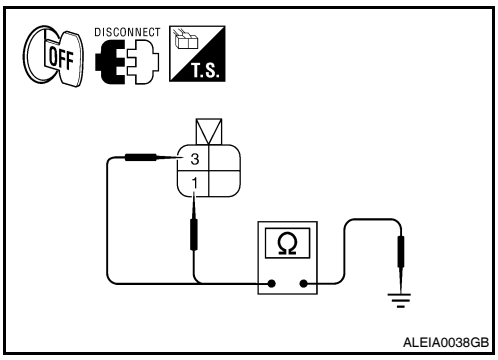
A		—	Continuity
Connector	Terminal		
B3	9	Ground	No

Are the continuity test results as specified?

YES >> Replace the suspension control unit. Refer to RSU-26, "Removal and Installation".
NO >> Repair harness or connector.

3. CHECK SUSPENSION AIR COMPRESSOR GROUND

1. Turn ignition switch OFF.
2. Check continuity between suspension air compressor connector C9 terminals 1 and 3 and ground.



Connector	Terminal	—	Continuity
C9	1	Ground	Yes
	3		

Is continuity present?

YES >> Replace the suspension air compressor. Refer to RSU-24, "Removal and Installation".
NO >> Repair harness or connector.

CK SUSP WARNING INDICATOR CONTROL CIRCUIT

Description

INFOID:0000000003772348

The CK SUSP warning lamp is controlled by a ground signal provided to the combination meter by the suspension control unit.

Component Function Check

INFOID:0000000003772349

1.CHECK WARNING LAMP OPERATION

CONSULT-III
1. Turn ignition ON.
2. Select "WARNING LAMP" of AIR LEVELIZER active test items.
3. While operating test item, check that the warning lamp activates.

ON : Warning lamp turns ON
OFF : Warning lamp turns OFF

Does the warning lamp operate properly?

YES >> Warning lamp is operating normally.
NO >> Refer to SCS-25, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003772350

1.PERFORM SUSPENSION CONTROL SYSTEM SELF-DIAGNOSIS

CONSULT-III
1. Turn ignition ON.
2. Perform SELF DIAGNOSIS function of AIR LEVELIZER system.

Are any DTC's present?

YES >> Refer to SCS-33, "DTC Index".
NO >> • If warning lamp is always ON, GO TO 2.
• If warning lamp is always OFF, GO TO 3

2.CHECK SUSPENSION CONTROL UNIT WARNING LAMP CONTROL

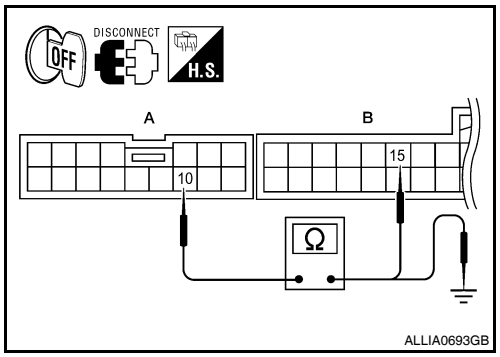
1. Turn ignition OFF.
2. Disconnect the suspension control unit connector B3.
3. Turn ignition ON.

Does the CK SUSP warning lamp turn ON?

YES >> GO TO 3.
NO >> Replace the suspension control unit. Refer to RSU-26, "Removal and Installation".

3.CHECK CONTINUITY OF WARNING LAMP CONTROL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect suspension control unit connector B3 and combination meter connector M24.
3. Check continuity between suspension control unit connector B3 (A) terminal 10 and combination meter connector M24 (B) terminal 15.



A		B		Continuity
Connector	Terminal	Connector	Terminal	
B3	10	M24	15	Yes

4. Check continuity between suspension control unit connector B3 (A) terminal 10 and ground.

A		—	Continuity
Connector	Terminal		
B3	10	Ground	No

Are the continuity test results as specified?

YES >> Replace the combination meter. Refer to MWI-102, "Removal and Installation".
NO >> Repair harness or connector.

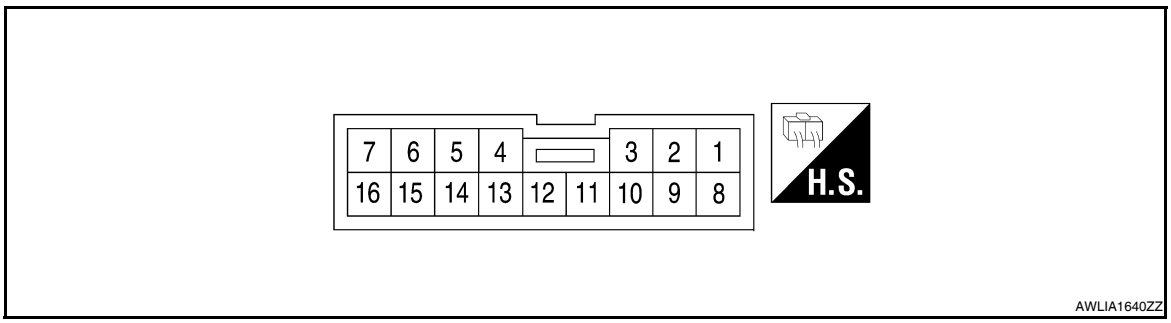
ECU DIAGNOSIS

SUSPENSION CONTROL UNIT

Reference Value

INFOID:0000000003772351

TERMINAL LAYOUT

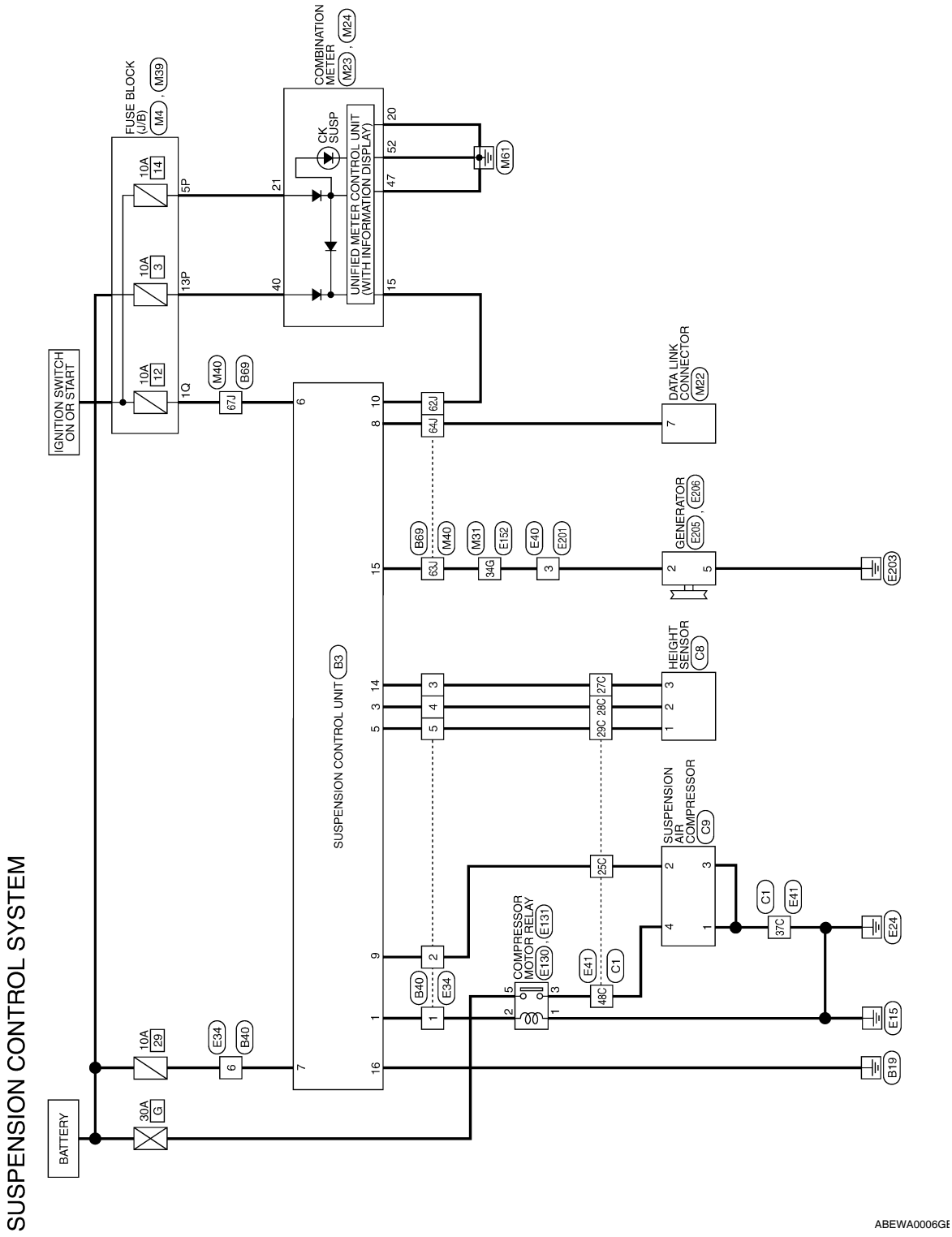


PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
1 (V)	Ground	Compressor relay output	Output	Ignition switch ON	Air levelizer raising vehicle ride height	Battery voltage
3 (W)	Ground	Height sensor input	Input	Ignition switch ON	—	0.2V - 4.8V
5 (R)	Ground	VREF output (height sensor)	Output	Ignition switch ON	—	5V
6 (G/R)	Ground	IGN power supply	Input	Ignition switch ON or START	—	Battery voltage
7 (W/L)	Ground	BAT power supply	Input	Ignition switch OFF	—	Battery voltage
8 (G/W)	Ground	Diagnostic K-line	Input/ Output	—	—	—
9 (SB)	Ground	Exhaust valve output	Output	Ignition switch ON	Air levelizer lowering vehicle ride height (venting)	Battery voltage
10 (BR)	Ground	Warning lamp output	Output	Ignition switch ON	Warning lamp ON	0V
					Warning lamp OFF	Battery voltage
14 (L)	Ground	Height sensor ground	Output	Ignition switch ON	—	Less than 0.2V
15 (BR/W)	Ground	Generator input	Input	Ignition switch ON	Charge light ON	0V
					Charge light OFF	Battery voltage
16 (B)	Ground	Suspension control unit ground	Input	Ignition switch ON	—	Less than 0.2V

Wiring Diagram

INFOID:0000000003772352



SUSPENSION CONTROL SYSTEM CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
5P	O/L	–
13P	P	–

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
7	G/W	–

Connector No.	M23
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

46	45	44	43	42	41
52	51	50	49	48	47

Terminal No.	Color of Wire	Signal Name
47	B	POWER GND
52	B	POWER GND

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
15	BR	AIR LEVELIZER
20	B	GROUND
21	O/L	RUN/START
40	P	BATTERY

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Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

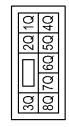
H.S.

				5G	4G	3G	2G	1G			
				10G	9G	8G	7G	6G			
21G	20G	19G	18G	17G	16G	15G	14G	13G	12G	11G	
30G	29G	28G	27G	26G	25G	24G	23G	22G			
41G	40G	39G	38G	37G	36G	35G	34G	33G	32G	31G	
50G	49G	48G	47G	46G	45G	44G	43G	42G			
61G	60G	59G	58G	57G	56G	55G	54G	53G	52G	51G	
70G	69G	68G	67G	66G	65G	64G	63G	62G			
				75G	74G	73G	72G	71G			
				80G	79G	78G	77G	76G			

Terminal No.	Color of Wire	Signal Name
34G	BR/W	–

Connector No.	M39
Connector Name	FUSE BLOCK(J/B)
Connector Color	WHITE

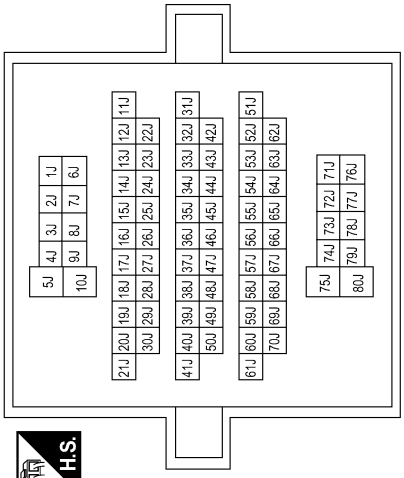
H.S.



Terminal No.	Color of Wire	Signal Name
1Q	G/R	–

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

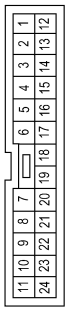
H.S.



Terminal No.	Color of Wire	Signal Name
62J	BR	–
63J	BR/W	–
64J	G/W	–
67J	G/R	–

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	V	–
2	SB	–
3	L	–
4	W	–
5	R	–
6	W/L	–

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
3	BR/W	–

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Connector No.	E41
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
25C	SB	–
27C	L	–
28C	W	–
29C	R	–
37C	B	–
48C	SB	–

Connector No.	E130
Connector Name	COMPRESSOR MOTOR RELAY
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
34G	BR/W	–

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Connector No.	E131
Connector Name	COMPRESSOR MOTOR RELAY
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
3	SB	–
5	Y/B	–

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Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
3	BR/W	–

Connector No.	E205
Connector Name	GENERATOR
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
2	BR/W	–

Connector No.	E206
Connector Name	GENERATOR
Connector Color	–

H.S.

Terminal No.	Color of Wire	Signal Name
5	B	–

Connector No.	C1
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
25C	SB	–
27C	L	–
28C	W	–
29C	R	–
37C	B	–
48C	SB	–

Connector No.	C8
Connector Name	HEIGHT SENSOR
Connector Color	BLACK

H.S.

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

Connector No.	C9
Connector Name	SUSPENSION AIR COMPRESSOR
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
2	SB	–
3	B	–
4	SB	–

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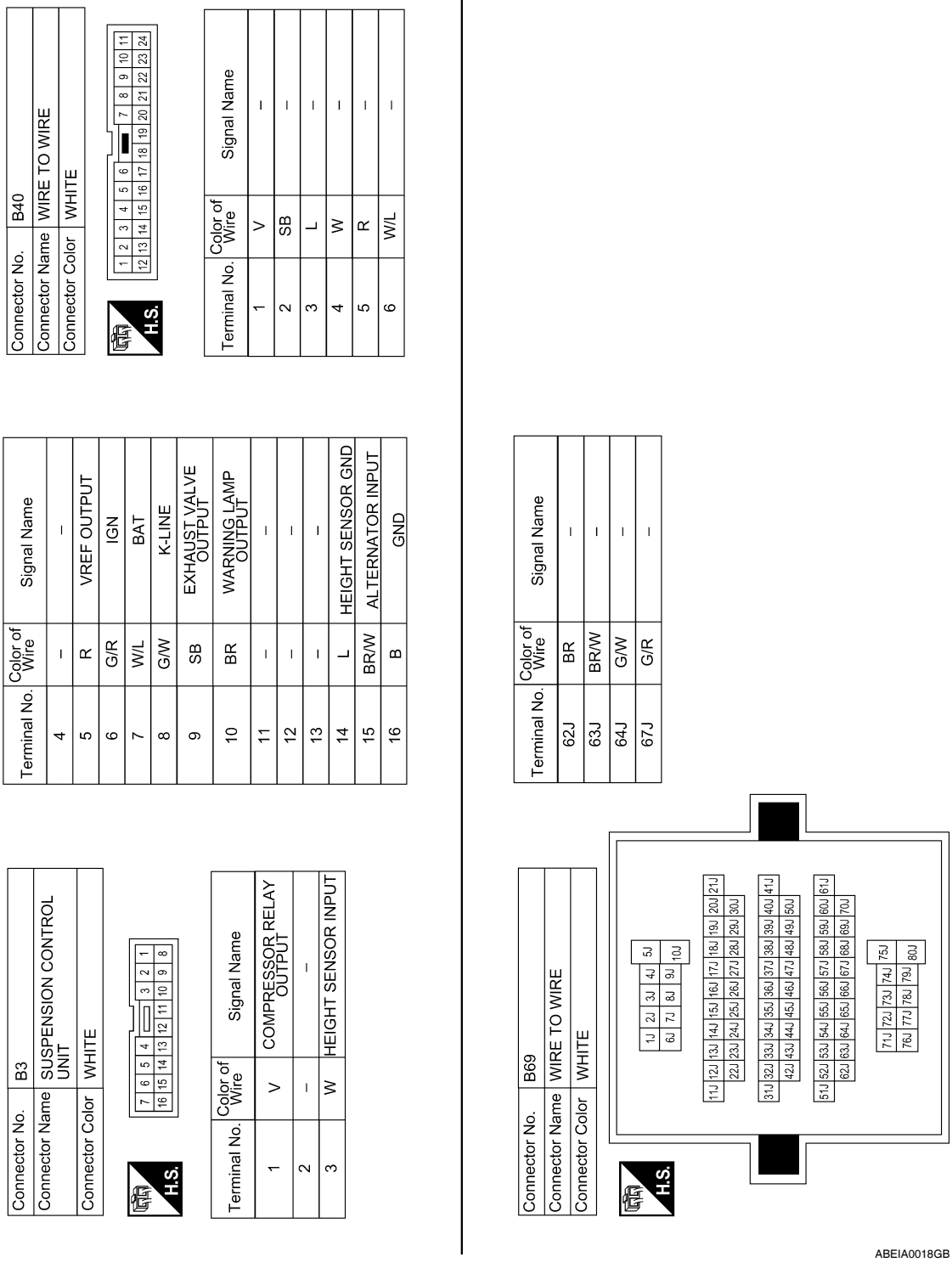

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DTC Index

INFOID:0000000003772353

Self-diagnosis results display item

CONSULT-III display	Malfunction	Reference page
Vehicle height sensor [C1801]	Vehicle height sensor voltage is less than 0.2V or greater than 4.8V for more than 60 seconds.	SCS-9, "Diagnosis Procedure".

Compressor relay [C1802]	• Driving transistor for compressor relay is OFF and monitor voltage continues at a high level for more than 10 seconds. • Driving transistor for compressor relay is ON and monitor voltage continues at a low level for more than 5 seconds.	SCS-10, "Diagnosis Procedure".
Exhaust solenoid [C1803]	• Driving transistor for exhaust valve solenoid is OFF and monitor voltage continues at a high level for more than 10 seconds. • Driving transistor for exhaust valve solenoid is ON and monitor voltage continues at a low level for more than 5 seconds.	SCS-11, "Diagnosis Procedure".
Vehicle height adjusting malfunction (compressor)[C1804]	Continuous compressor relay ON time is more than 120 seconds.	SCS-12, "Diagnosis Procedure".
Vehicle height adjusting malfunction (exhaust solenoid)[C1805]	Continuous exhaust valve solenoid ON time is more than 120 seconds.	SCS-13, "Diagnosis Procedure".
Vehicle height sensor locking malfunction [C1806]	Output sensor voltage variation ±0.02V is more than 100 seconds when vehicle height range is normal.	SCS-14, "Diagnosis Procedure".
Sensor 5V malfunction [C1807]	Sensor reference voltage is less than 0.8V or more than 6V for 20 seconds.	SCS-15, "Diagnosis Procedure"
Integral time malfunction by supplying air [C1808]	A suspension air compressor ON request has been in effect for 180 seconds and the suspension air compressor has not activated during that time.	SCS-16, "Diagnosis Procedure".

SYMPTOM DIAGNOSIS

SUSPENSION CONTROL SYSTEM

Symptom Table

INFOID:0000000003772354

AIR LEVELIZER

Symptom	Possible cause	Reference page
Inoperative	• Suspension control unit • Compressor motor relay • Suspension air compressor	SCS-36, "Diagnosis Procedure"
System does not raise	• Suspension control unit • Height sensor • Compressor motor relay • Suspension air compressor • Leak in system • Restriction in system	SCS-37, "Diagnosis Procedure"
System does not lower	• Suspension control unit • Height sensor • Compressor motor relay • Suspension air compressor • Restriction in system	SCS-38, "Diagnosis Procedure"
CK SUSP indicator lamp always ON with key ON	• CK SUSP indicator lamp control circuit • Suspension control unit	SCS-25, "Description"

SUSPENSION CONTROL SYSTEM INOPERATIVE

Description

INFOID:0000000003772355

The suspension control system does not activate. It does not raise or lower the vehicle in response to ride height changes.

Diagnosis Procedure

INFOID:0000000003772356

1.SUSPENSION CONTROL UNIT POWER AND GROUND INSPECTION

Check the suspension control unit power and ground supply. Refer to SCS-17, "SUSPENSION CONTROL UNIT : Diagnosis Procedure".

Does the suspension control unit power and ground pass inspection?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning part.

2.CHECK HEIGHT SENSOR SIGNAL INPUT

CONSULT-III DATA MONITOR
1. Turn ignition switch ON.
2. Select "HEIGT SEN" of AIR LEVELIZER data monitor item.
3. Check the monitor status.

HEIGT SEN : 0.2V - 4.8V

Is the height sensor voltage normal?

YES >> GO TO 3.
NO >> Check height sensor signal circuit. Refer to SCS-22, "Diagnosis Procedure" .

3.CHECK GENERATOR "L" CIRCUIT SIGNAL

CONSULT-III DATA MONITOR
1. Start the engine.
2. Select "ACG L" of AIR LEVELIZER data monitor item.
3. Check the monitor status.

ACG L : OFF with charge light OFF
: ON with charge light ON

Is the generator "L" signal operating normally?

YES >> GO TO 4.
NO >> Check generator L circuit. Refer to CHG-12, "Diagnosis Procedure".

4.SUSPENSION AIR COMPRESSOR POWER AND GROUND INSPECTION

Check the suspension air compressor power and ground supply. Refer to SCS-17, "SUSPENSION AIR COMPRESSOR : Diagnosis Procedure".

Does the suspension air compressor power and ground pass inspection?

YES >> System is operating normally.
NO >> Repair or replace the malfunctioning part.

SUSPENSION CONTROL SYSTEM DOES NOT RAISE

Description

INFOID:0000000003772357

The suspension control system does not raise the vehicle in accordance with ride height changes.

Diagnosis Procedure

INFOID:0000000003772358

1.SUSPENSION CONTROL UNIT POWER AND GROUND INSPECTION

Check the suspension control unit power and ground supply. Refer to SCS-17, "SUSPENSION CONTROL UNIT : Diagnosis Procedure".

Does the suspension control unit power and ground pass inspection?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning part.

2.CHECK HEIGHT SENSOR SIGNAL INPUT

CONSULT-III DATA MONITOR
1. Turn ignition ON.
2. Select "HEIGT SEN" of AIR LEVELIZER data monitor item.
3. Check the monitor status.

HEIGT SEN : 0.2V - 4.8V

Is the height sensor voltage normal?

YES >> GO TO 3.
NO >> Check height sensor signal circuit. Refer to SCS-22, "Diagnosis Procedure" .

3.SUSPENSION AIR COMPRESSOR POWER AND GROUND INSPECTION

Check the suspension air compressor power and ground supply. Refer to SCS-17, "SUSPENSION AIR COMPRESSOR : Diagnosis Procedure".

Does the suspension air compressor power and ground pass inspection?

YES >> Inspect for a weak compressor, leak or restriction in the system. Repair or replace malfunctioning part.
NO >> Repair or replace the malfunctioning part.

SUSPENSION CONTROL SYSTEM DOES NOT LOWER

Description

INFOID:0000000003772359

The suspension control system does not lower the vehicle in accordance with ride height changes.

Diagnosis Procedure

INFOID:0000000003772360

1.SUSPENSION CONTROL UNIT POWER AND GROUND INSPECTION

Check the suspension control unit power and ground supply. Refer to SCS-17, "SUSPENSION CONTROL UNIT : Diagnosis Procedure".

Does the suspension control unit power and ground pass inspection?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning part.

2.CHECK HEIGHT SENSOR SIGNAL INPUT

CONSULT-III DATA MONITOR

1. Turn ignition ON.
2. Select "HEIGT SEN" of AIR LEVELIZER data monitor item.
3. Check the monitor status.

HEIGT SEN : 0.2V - 4.8V

Is the height sensor voltage normal?

YES >> GO TO 3.
NO >> Check height sensor signal circuit. Refer to SCS-22, "Diagnosis Procedure" .

3.EXHAUST VALVE SOLENOID CIRCUIT INSPECTION

Check the exhaust valve solenoid circuit. Refer to SCS-23, "Component Function Check".

Does the exhaust valve solenoid circuit pass inspection?

YES >> Inspect for a restriction in the system. repair or replace the malfunctioning part.
NO >> Repair or replace the malfunctioning part.

PRECAUTION

PRECAUTIONS

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

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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 SR and SB section of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

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

WARNING:

- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

Precaution for Rear Suspension

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- When installing the rubber bushings, the final tightening must be done under unladen condition and with the tires on level ground. Oil will shorten the life of the rubber bushings, so wipe off any spilled oil immediately.
- Unladen condition means the fuel tank, engine coolant and lubricants are at the full specification. The spare tire, jack, hand tools, and mats are in their designated positions.
- After installing suspension components, check the wheel alignment.
- Caulking nuts are not reusable. Always use new caulking nuts for installation. New caulking nuts are pre-oiled, do not apply any additional lubrication.