SECTION SCS
SUSPENSION CONTROL SYSTEM

CONTENTS

PRECAUTIONS

PFP:00001

Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

NES000AG

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 and SB section of this Service Manual.

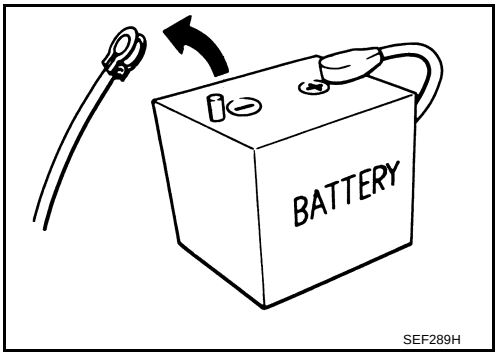
WARNING:

- **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 SRS 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

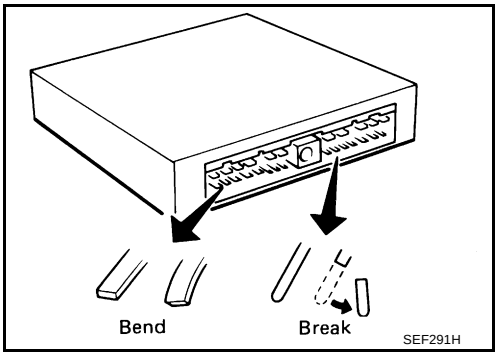
NES000AH

- **Before connecting or disconnecting the active damper suspension control unit harness connector, turn ignition switch “OFF” and disconnect the battery cable from the negative terminal. Battery voltage is applied to active damper suspension control unit even if ignition switch is turned “OFF”.**



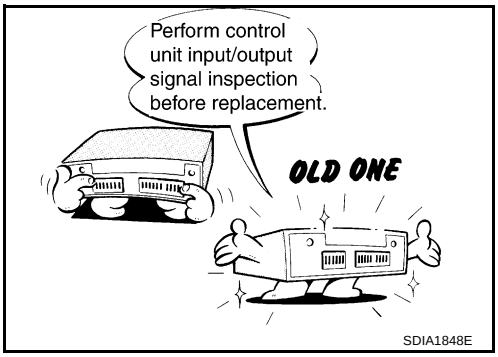
SEF289H

- **When connecting or disconnecting pin connectors into or from active damper suspension control unit, take care not to damage pin terminals (bend or break).**
  When connecting pin connectors make sure that there are not any bends or breaks on active damper suspension control unit pin terminals.



SEF291H

- **Before replacing active damper suspension control unit, perform active damper suspension control unit input/output signal inspection and make sure whether active damper suspension control unit functions properly or not. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .**



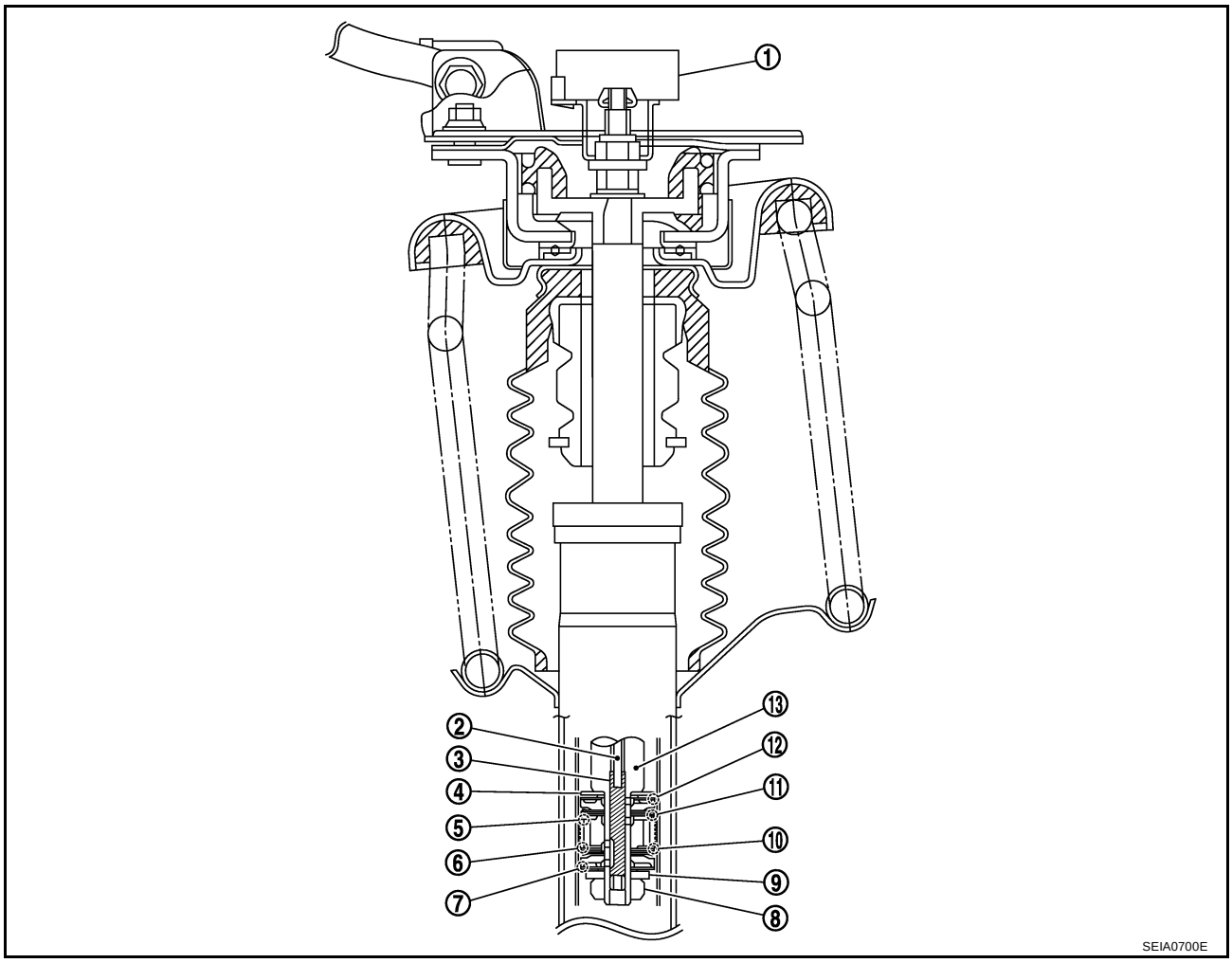
SDIA1848E

ACTIVE DAMPER SUSPENSION SYSTEM

PFP:28500

Cross-Section View

NES000B0



1. Shock absorber actuator
2. Control rod
3. Spool
4. Retainer
5. Oil flow inlet (extension side)
6. Main valve (extension side)
7. Check valve (extension side)
8. Nut
9. Collar
10. Oil flow inlet (compression side)
11. Main valve (compression side)
12. Check valve (compression side)
13. Stud

System Description

NES000I5

DESCRIPTION

- It controls the damping force of shock absorber in real time according to the driving conditions.
- Skyhook control is used to active damper suspension.

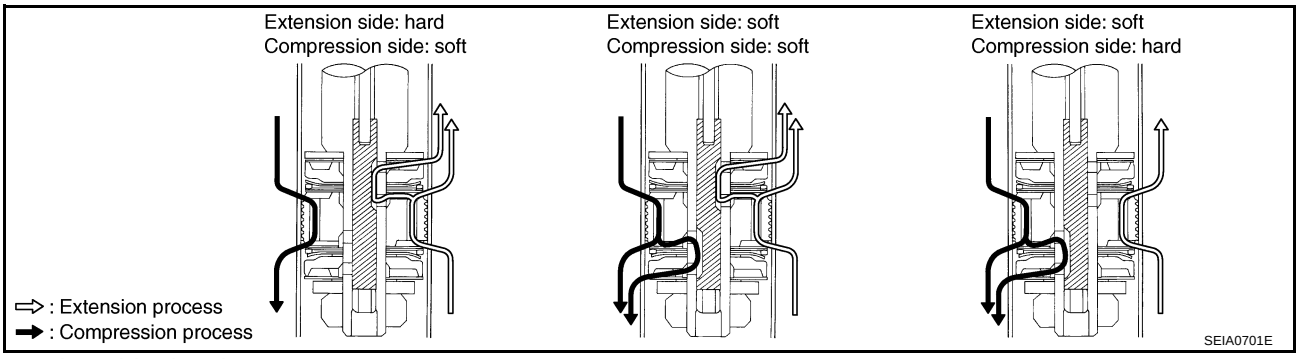
Skyhook Control

- Method of controlling the damping force of shock absorber on the actual vehicle just like the shock absorber supported at an aerial point that has an effect on the vehicle body.

  NOTE:
  As the damping force of shock absorber does not have an effect on the wheel side movement, the force from the road is not transmitted to the vehicle body.
- Only when the vehicle body itself is moved up/down with the roll caused by the starting/brake/steering operations will the damping force of shock absorber certainly act to control the vehicle body.

ACTIVE DAMPER SUSPENSION

Operation Principle



Extension side: hard

- The oil groove of spool is closed.
- The oil flowed from the extension side oil flow inlet via the extension side main valve. The oil flow amount is minimized, and the damping force of shock absorber rises.

Compression side: hard

- The oil groove of spool is closed.
- The oil flowed from the compression side oil flow inlet via the compression side main valve. The oil flow amount is minimized, and the damping force of shock absorber rises.

Extension side: soft

- The oil grooves of spool and stud are open.
- The oil flowed through 2 passages (one passage is from the extension side oil flow inlet via the extension side main valve and another passes the oil groove of spool via the extension side check valve). Therefore, the oil flow amount is maximized, and the damping force of shock absorber will weaken.

Compression side: soft

- The oil grooves of spool and stud are open
- The oil flowed through 2 passages (one passage is from the compression side oil flow inlet via the compression side main valve and another passes the oil groove of spool via the compression side check valve). Therefore, the oil flow amount is maximized, and the damping force of shock absorber will weaken.

VERTICAL G SENSOR

It detects the upper/lower acceleration applied to the vehicle body (front/rear).

STEERING ANGLE SENSOR

It detects the steering wheel angle.

SHOCK ABSORBER ACTUATOR

It rotates the spool, opens/closes the oil passage of stud (changes the flow amount), and then controls the damping force of shock absorber.

SHOCK ABSORBER

It continuously switches the damping force at the wide range in a short time and can control the damping forces of extension side and compression side individually.

ACTIVE DAMPER SUSPENSION SELECT SWITCH

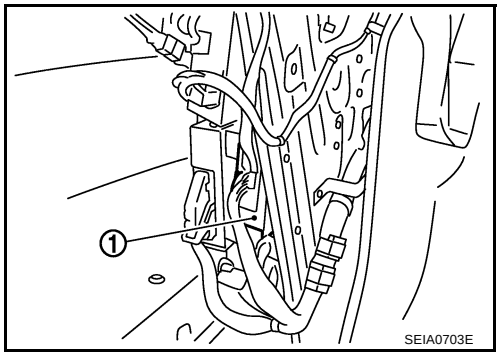
AUTO (normal driving) mode and SPORT (sports driving) mode can be changed. When selecting the SPORT mode, SPORT indicator in combination meter illuminates.

SPORT INDICATOR LAMP

- SPORT indicator lamp in combination meter is illuminated (SPORT mode) or turned off (AUTO mode) by switching the active damper suspension select switch, and it indicates the modes.
- It indicates a system malfunction (when the fail-safe function is activated) and the self-diagnostic results by turning on or blinking.

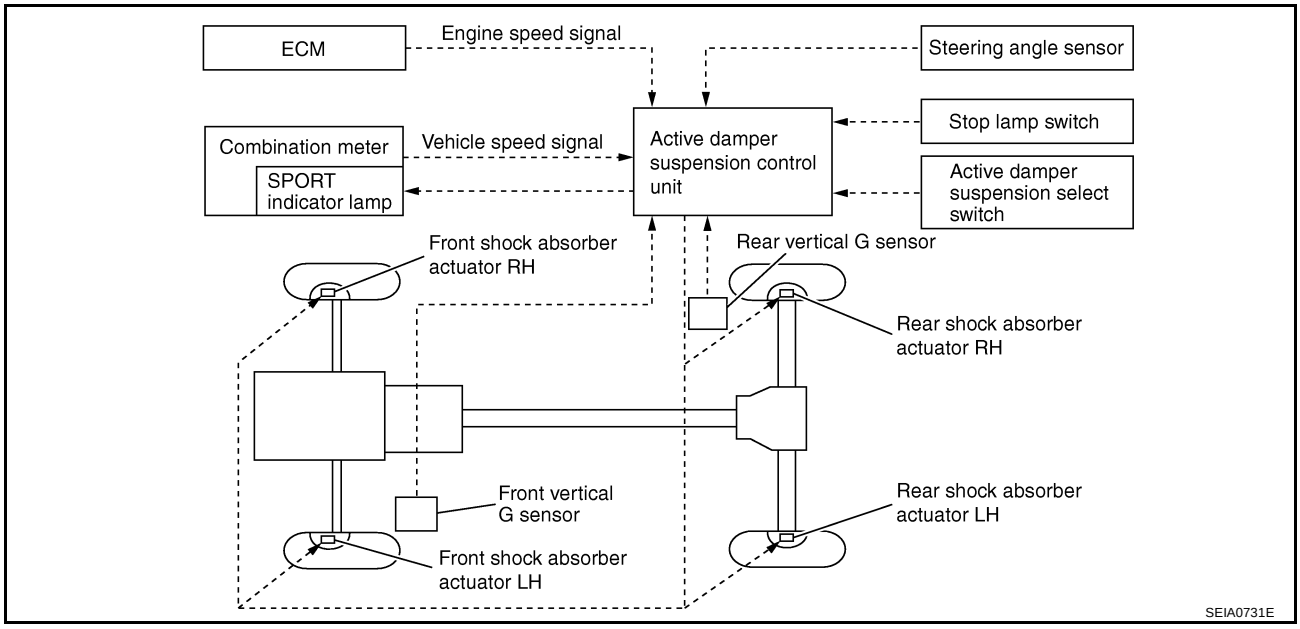
CONTROL UNIT

- The active damper suspension control unit (1) calculates the direction or speed of the vehicle body by the input signal from each sensor, and it controls the actuator to optimize the damping force of shock absorber.
- Self-diagnosis can be done.



System Diagram

NES000AL



COMPONENTS FUNCTION DESCRIPTION

Component parts	Function
Active damper suspension control unit	Controls shock absorber actuator. (with fail-safe function)
Front vertical G sensor	Detects the upper/lower acceleration applied to the vehicle body (front) and sends the output signal to the active damper suspension control unit.
Rear vertical G sensor	Detects the upper/lower acceleration applied to the vehicle body (rear) and sends the output signal to the active damper suspension control unit.
Steering angle sensor	Detects the steering wheel angle and sends the output signal to the active damper suspension control unit.
Actuator	Controls the damping force of shock absorber by the output signal from the active damper suspension control unit.
Active damper suspension select switch	Able to select from AUTO or SPORT mode.
SPORT indicator lamp	Indicates that active damper suspension system is under SPORT mode.
ECM	Transmits conditions of engine speed signal via CAN communication to active damper suspension control unit.
Combination meter	Transmits conditions of vehicle speed signal via CAN communication to active damper suspension control unit.

TROUBLE DIAGNOSIS

PFP:00004

Fail-Safe Function

NES000AM

If a malfunction occurs in each input/output signal and electrical system, the output signal of active damper suspension control unit controls the actuator and keeps the damping power of shock absorber constant.

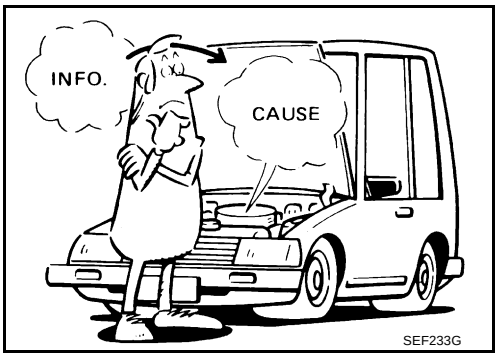
How to Perform Trouble Diagnosis

NES000AN

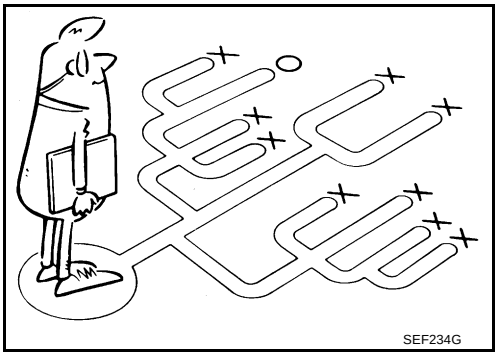
BASIC CONCEPT

- To perform trouble diagnosis, it is the most important to have understanding about vehicle systems (control and mechanism) thoroughly.
- It is also important to clarify customer complaints before inspection.
  First of all, reproduce symptoms, and understand them fully.
  Ask customer about his/her complaints carefully. In some cases, it will be necessary to check symptoms by driving vehicle with customer.

  CAUTION:
  Customers are not professional. It is dangerous to make an easy guess like “maybe the customer means that...,” or “maybe the customer mentions this symptom”.

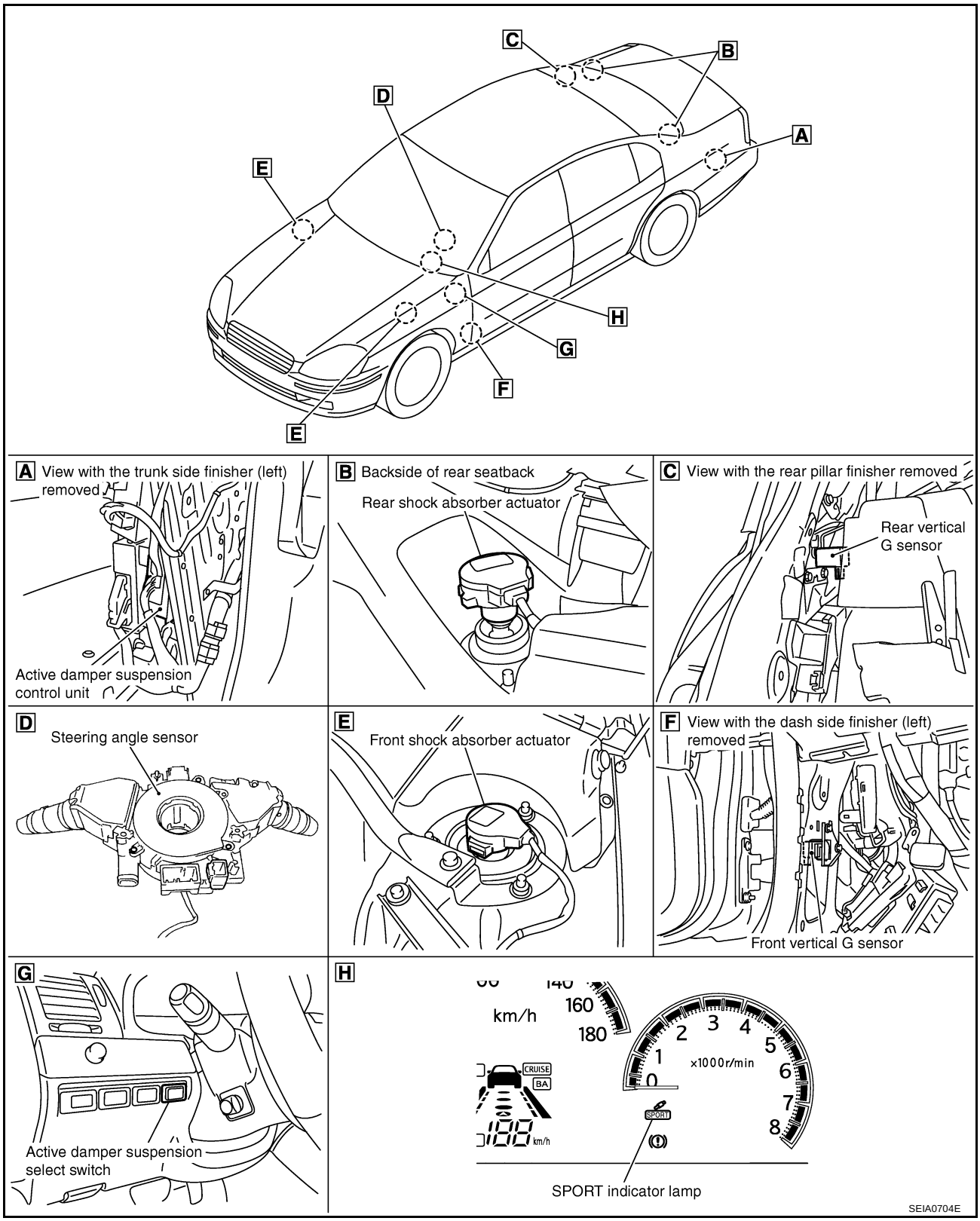


- It is essential to check symptoms right from the beginning in order to repair malfunctions completely.
  For intermittent malfunctions, reproduce symptoms based on interview with customer and past examples. Do not perform inspection on ad hoc basis. Most intermittent malfunctions are caused by poor contacts. In this case, it will be effective to shake suspected harness or connector by hand. When repairing without any symptom diagnosis, you cannot judge if malfunctions have actually been eliminated.
- After completing diagnosis, always erase diagnostic memory. Refer to SCS-29, "ERASE SELF-DIAGNOSIS" .
- For intermittent malfunctions, move harness or harness connector by hand. Then check for poor contact or reproduced open circuit.



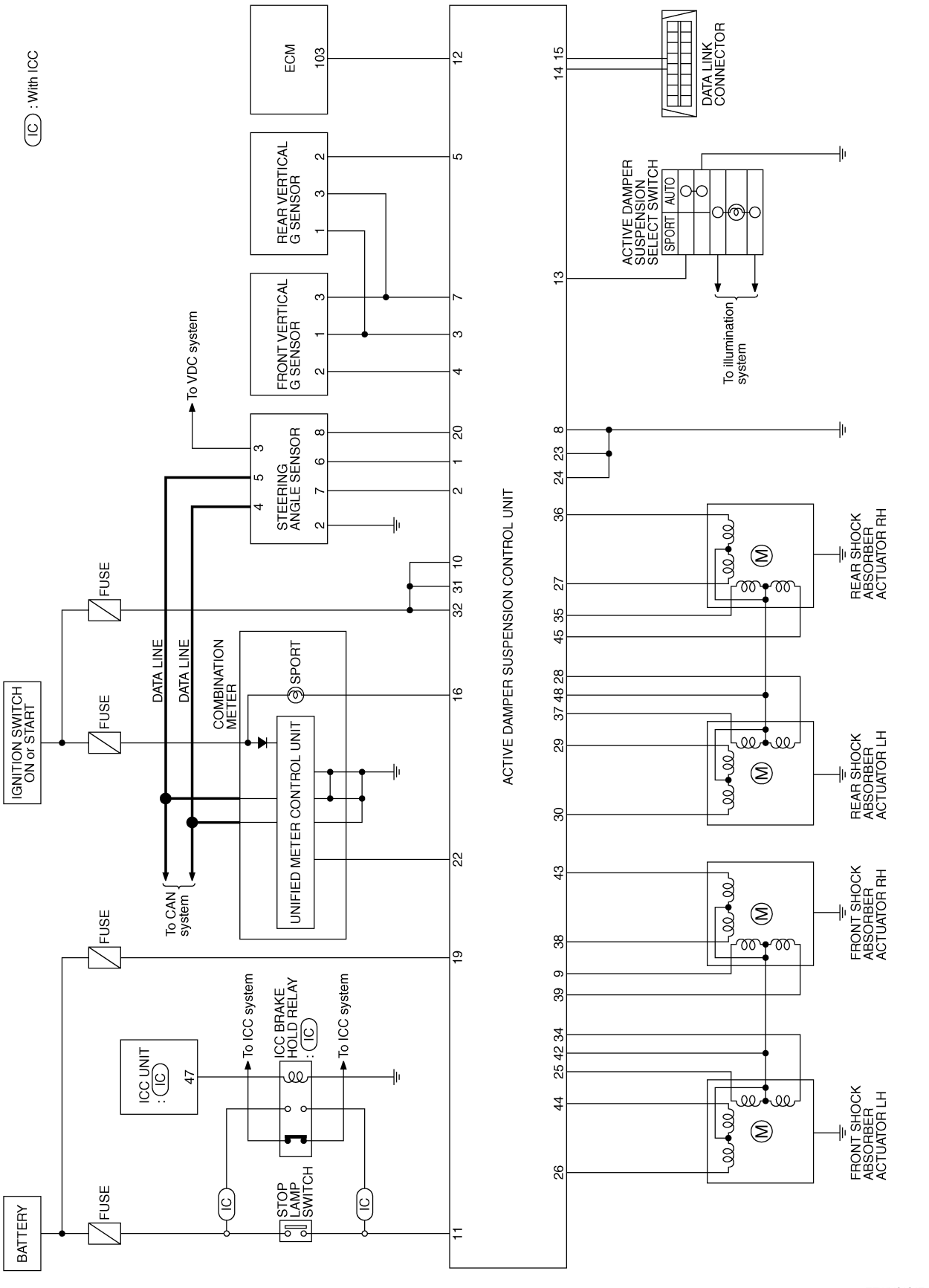
Component Parts Location

NES000AO



Circuit Diagram

NES000AP



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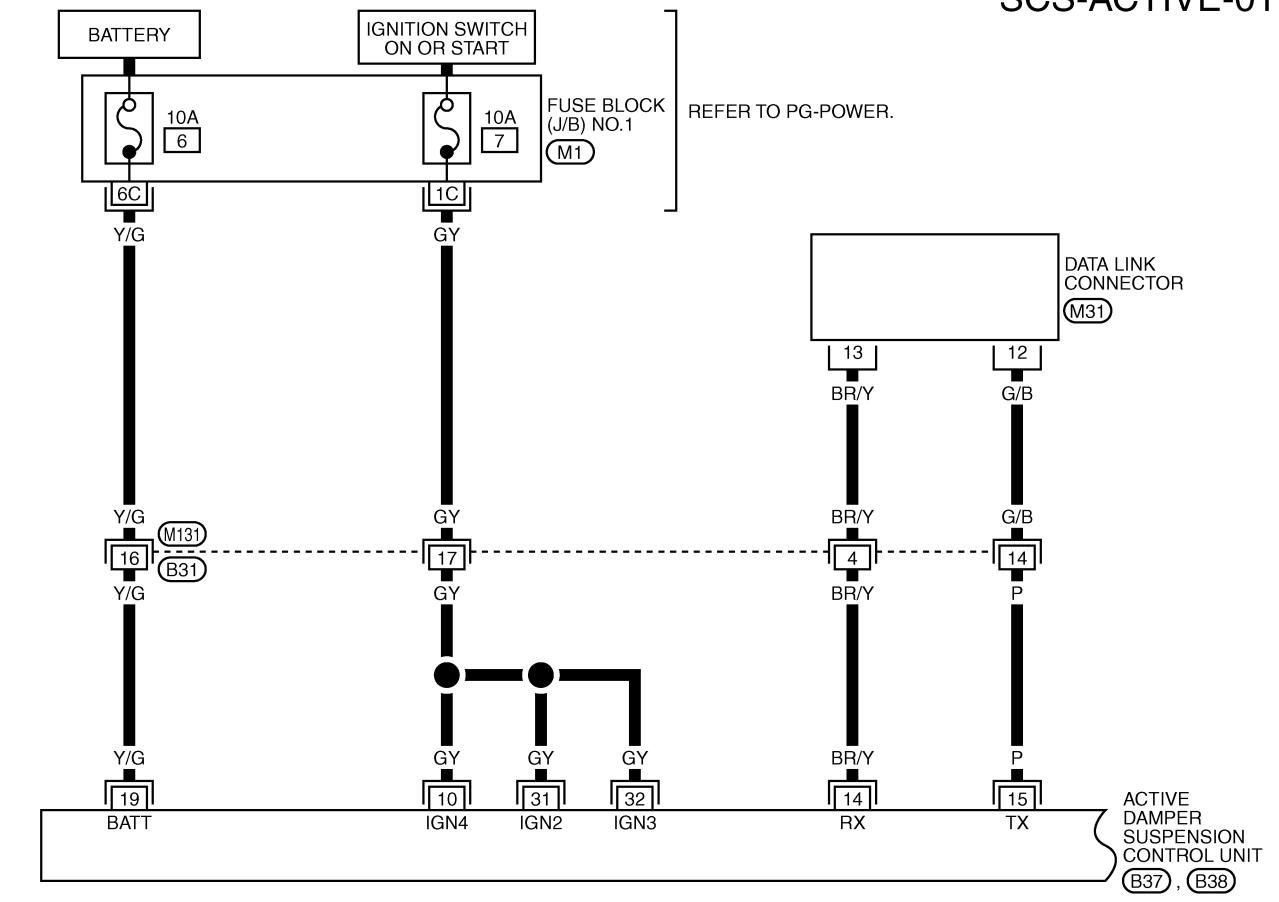
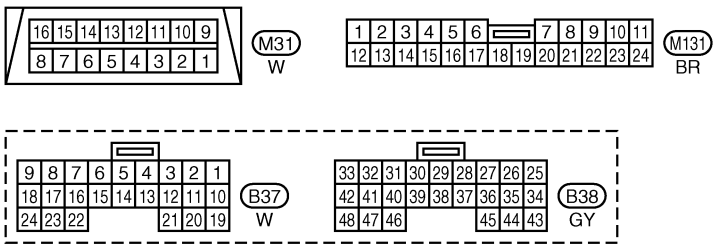
Wiring Diagram — ACTIVE —

NES000B1

SCS-ACTIVE-01





REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

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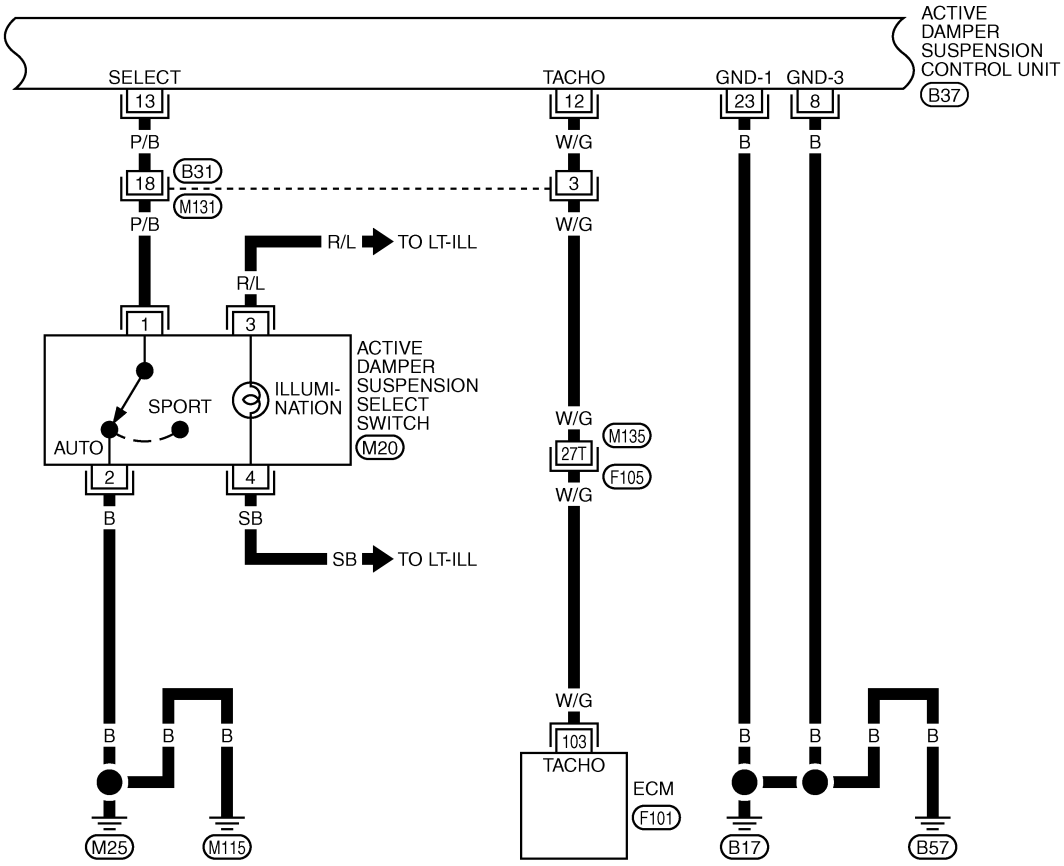
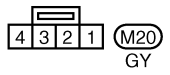
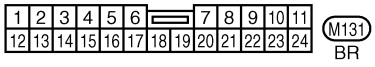
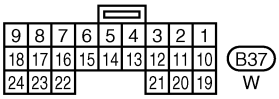
SCS-ACTIVE-02









REFER TO THE FOLLOWING.
F105 -SUPER MULTIPLE JUNCTION (SMJ)
F101 -ELECTRICAL UNITS

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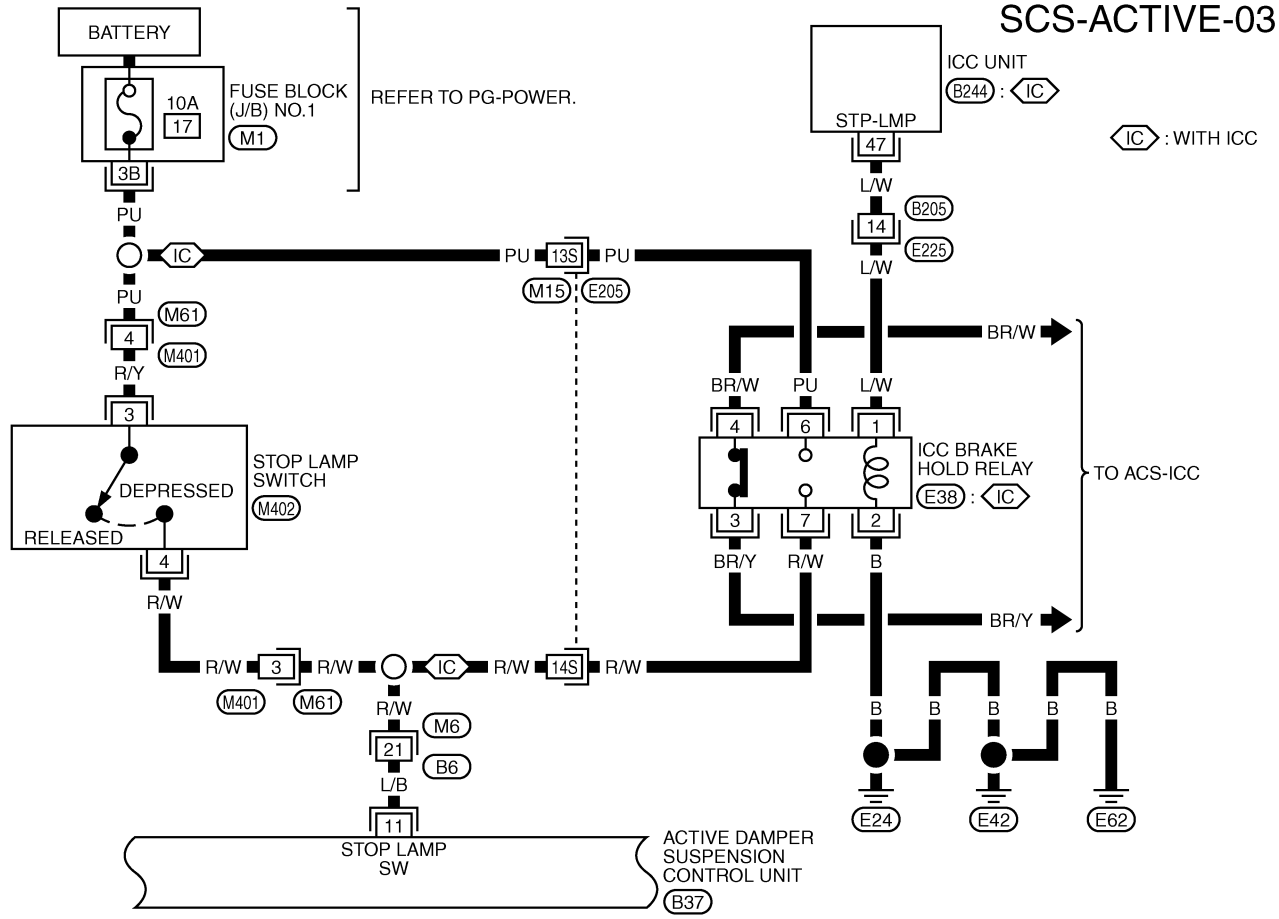
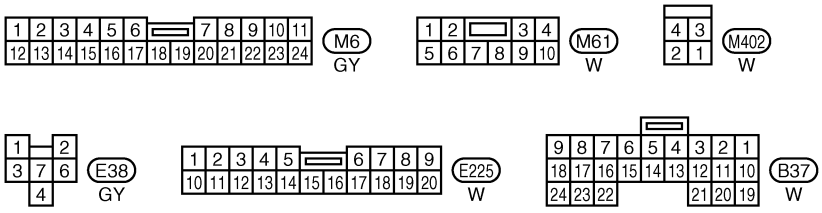
SCS-ACTIVE-03





REFER TO THE FOLLOWING.

E205 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

B244 -ELECTRICAL UNITS

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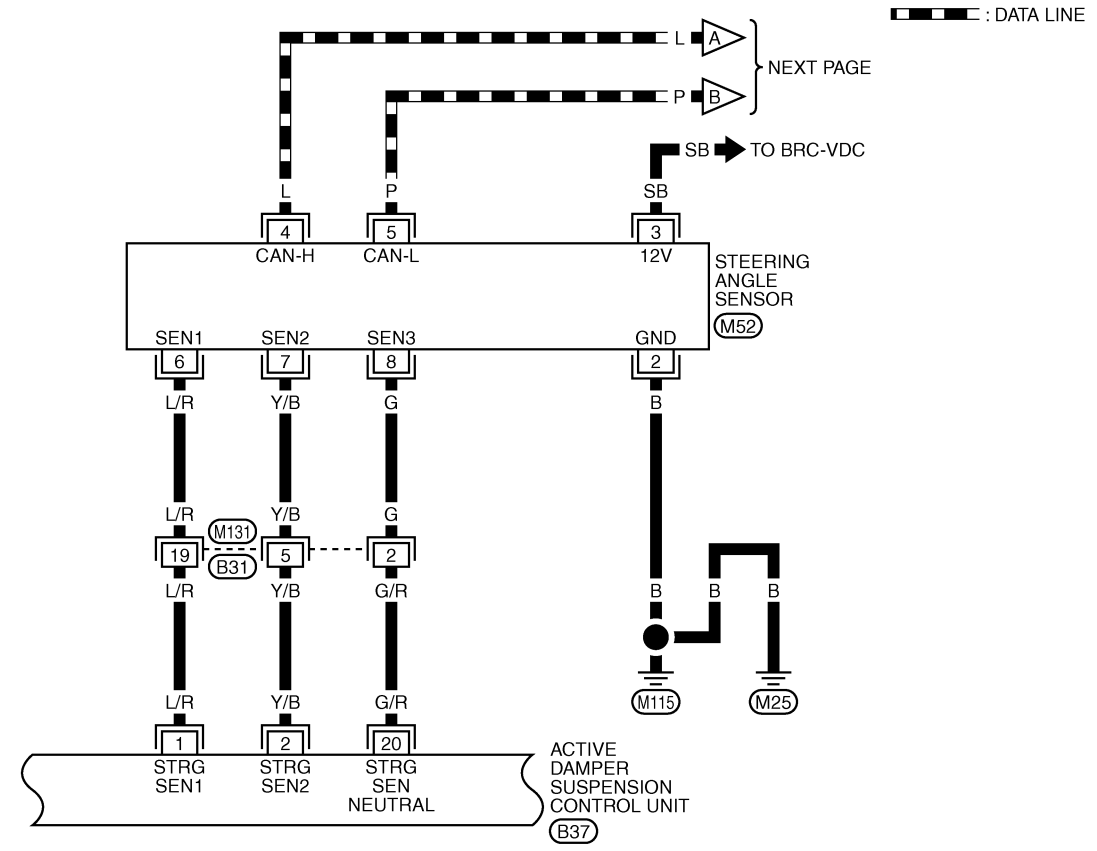
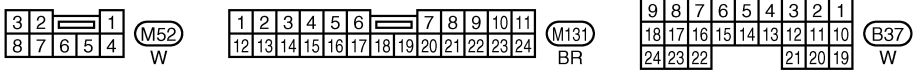
SCS-ACTIVE-04





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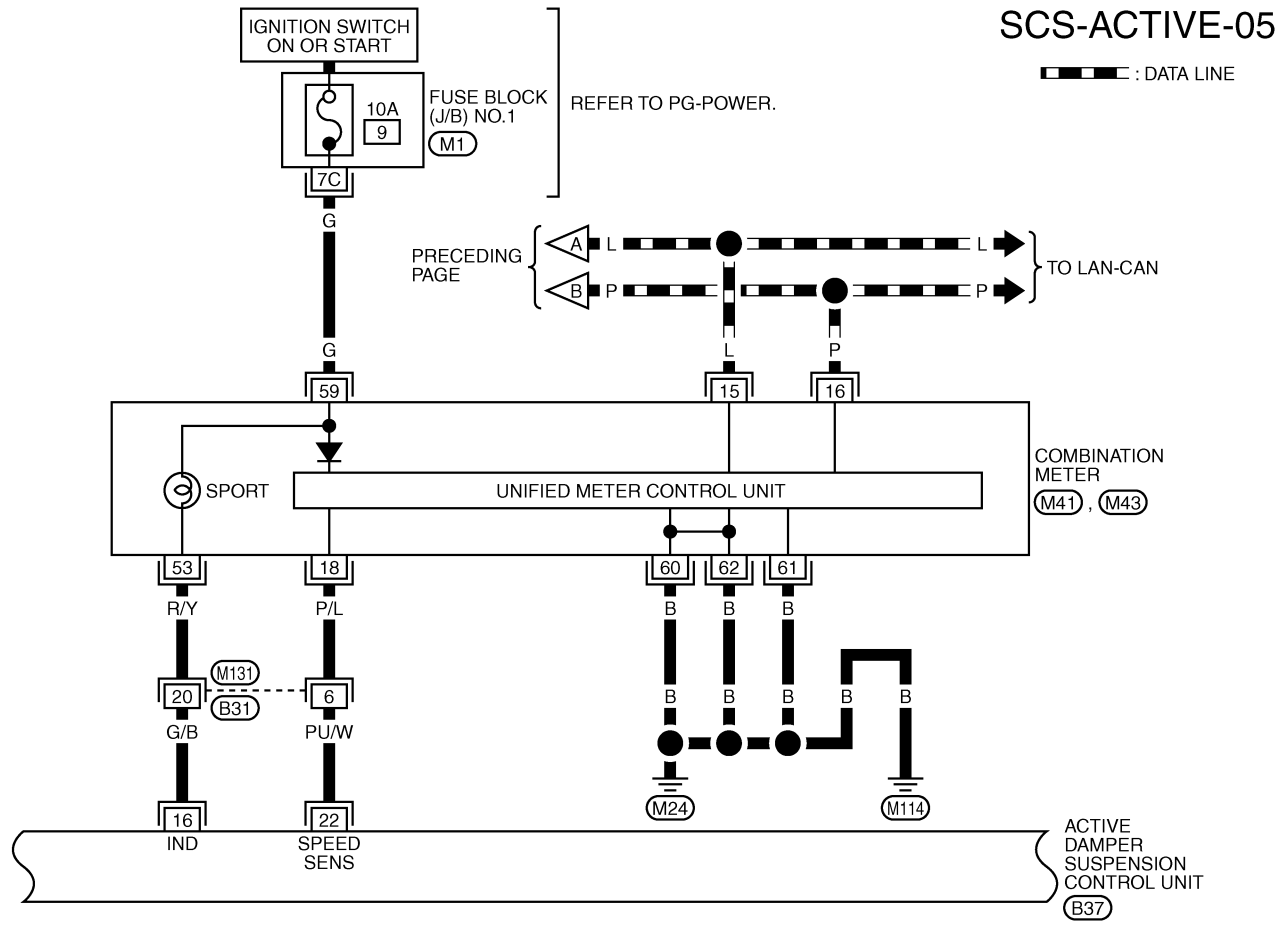

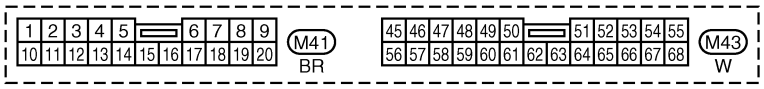

REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

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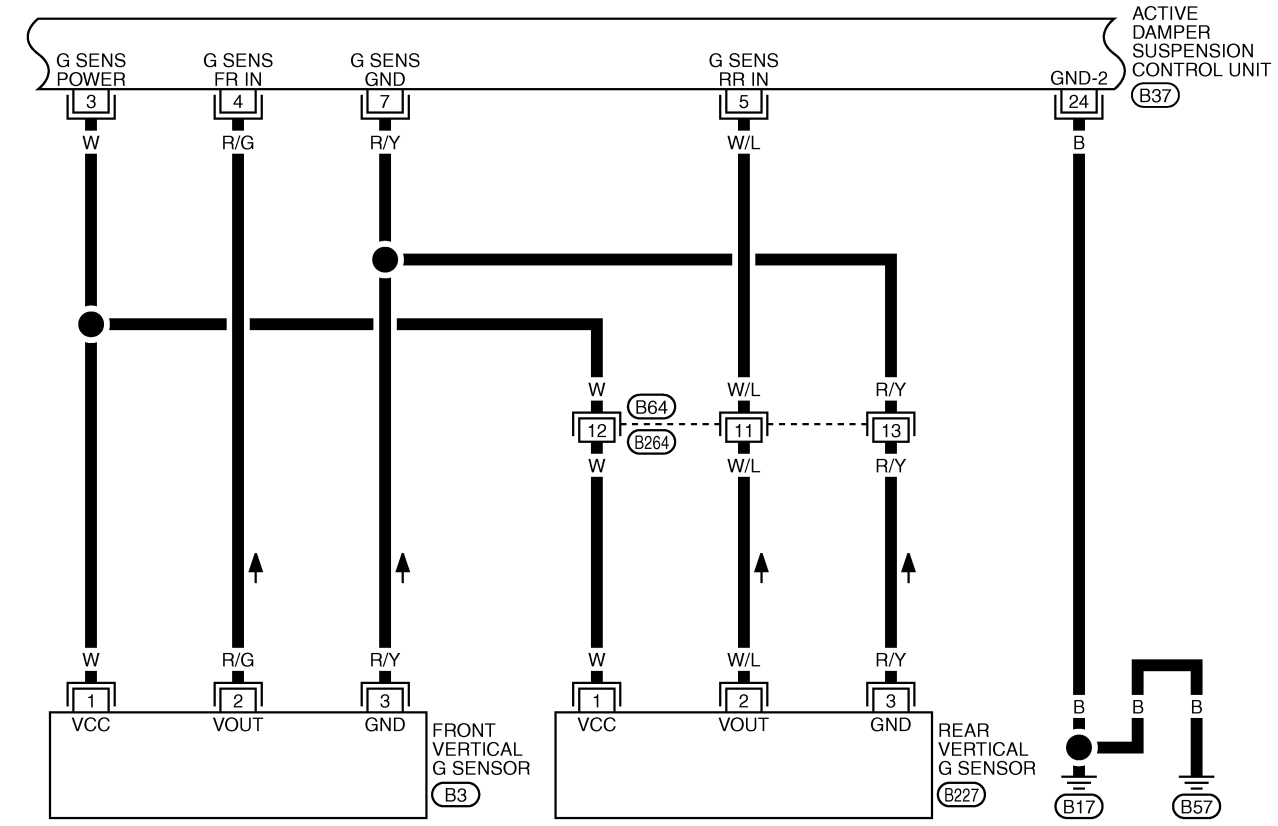
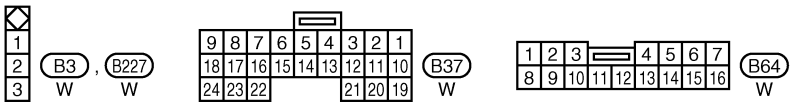
SCS-ACTIVE-06





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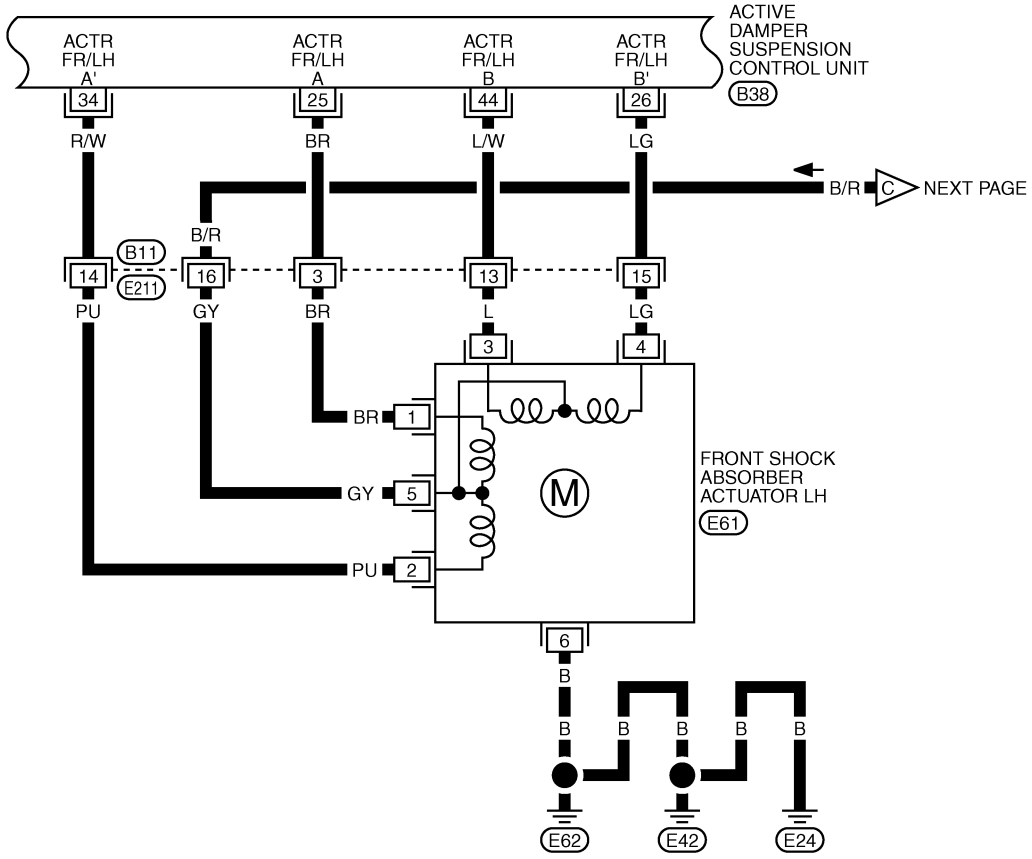

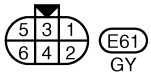

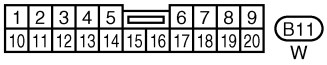

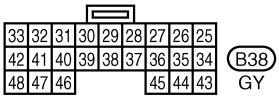

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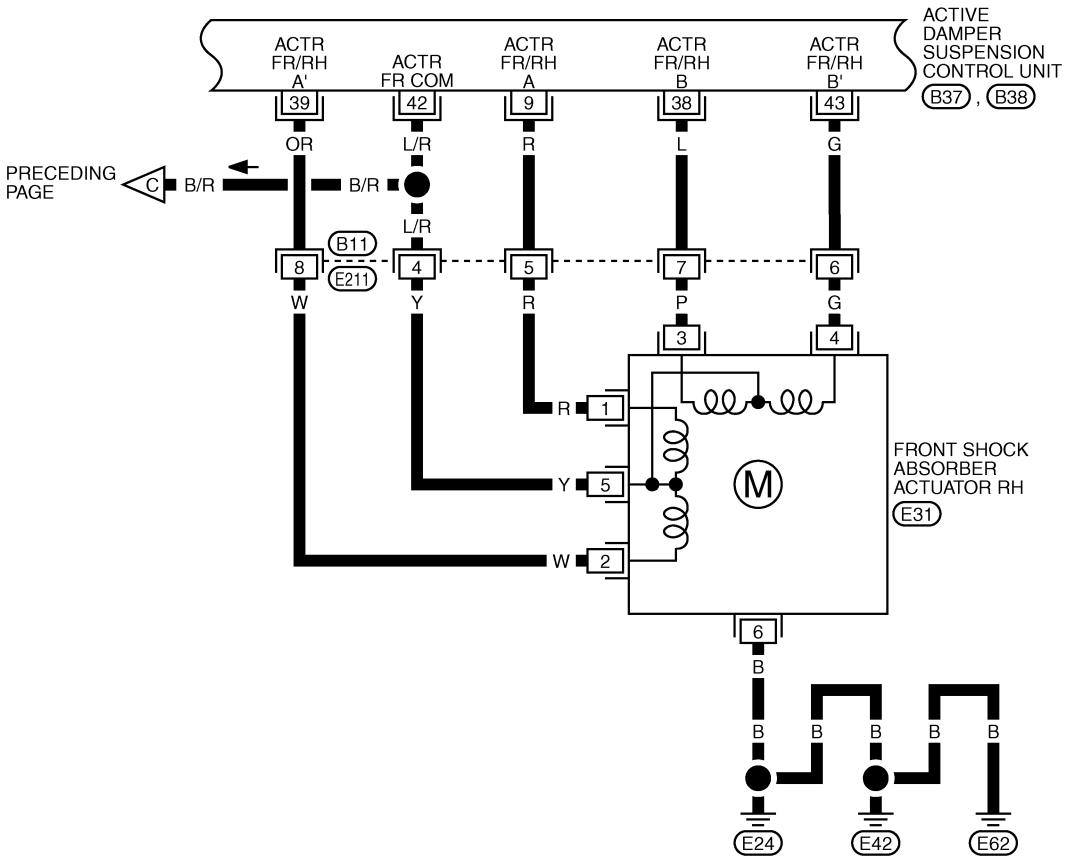

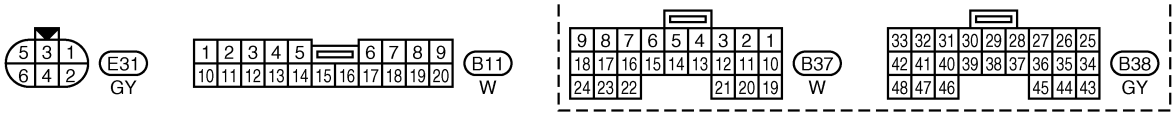

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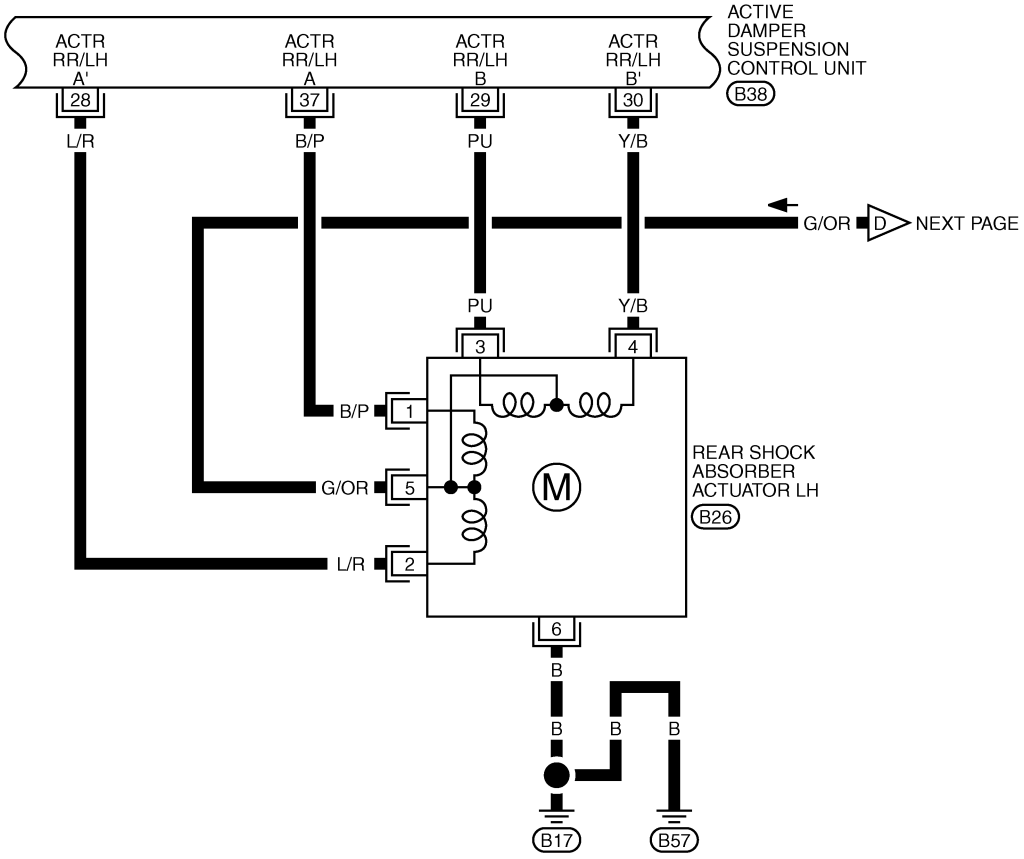

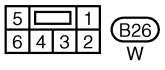

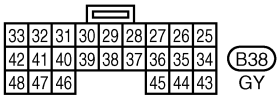

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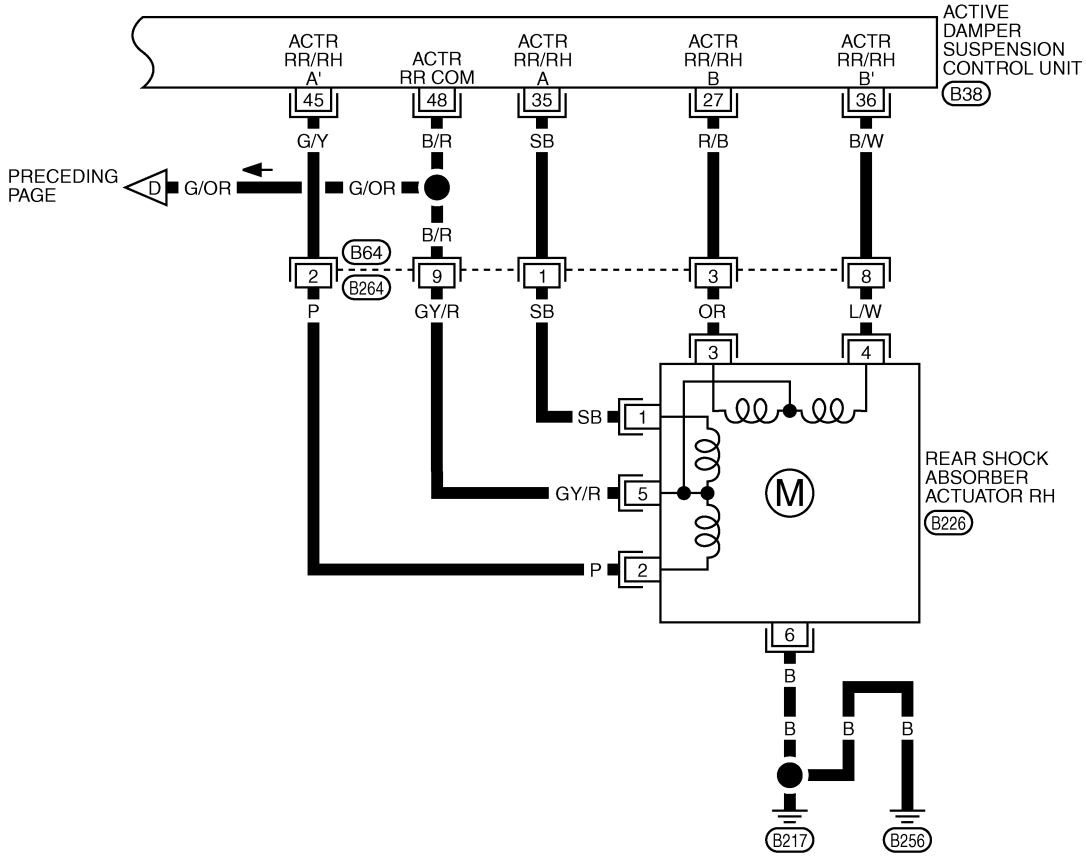
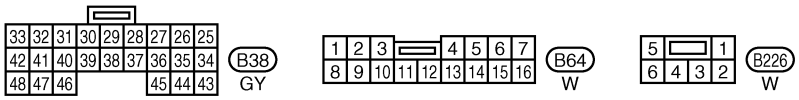
SCS-ACTIVE-10





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Active Damper Suspension Control Unit Input/Output Signal Reference Values

NES000AQ

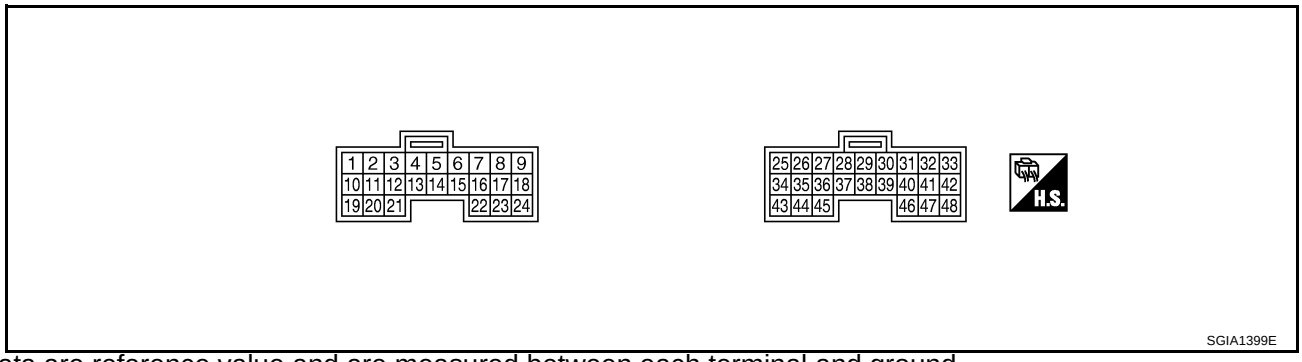
ACTIVE DAMPER SUSPENSION CONTROL UNIT INSPECTION TABLE

Specifications with CONSULT-II

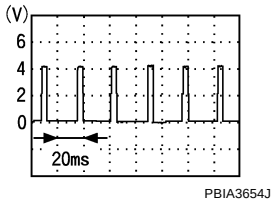
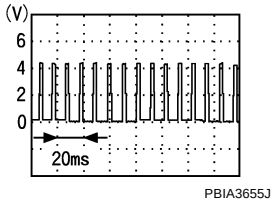
Monitor item [Unit]	Content	Condition		Display value
VHCL SPEED SE [km/h] or [mph]	Vehicle speed	Vehicle stopped		0 km/h (0 MPH)
		Vehicle running **CAUTION:** **Check air pressure of tire under standard condition.**		Approximately equal to the indication on speedometer (Inside of ±10%)
VERTI G SE FL [G]	Upper/lower acceleration condition of vehicle (front)	Vehicle stopped		Approx. 0.00G
		Vehicle running		D1.67 - U1.67G
VERTI G SE RR [G]	Upper/lower acceleration condition of vehicle (rear)	Vehicle stopped		Approx. 0.00G
		Vehicle running		D1.67 - U1.67G
STEERING ANG [°]	Steering angle detected by steering angle sensor	Steering wheel right turned		0° - R128°
		Straight-ahead		Approx. 0°
		Steering wheel left turned		0° - L128°
SELECT SWITCH [AUTO/SPORT]	Input condition from active damper suspension select switch	Active damper suspension select switch (Engine running)	AUTO	AUTO
			SPORT	SPORT
STOP LAMP SW [ON/OFF]	Condition of brake pedal operation	Brake pedal: Depressed		ON
		Brake pedal: Released		OFF
NEUTRAL SIG [ON/OFF]	Neutral condition of steering wheel	Straight-ahead		ON
		Steering wheel turned		OFF
DAMP MTR FR [step]	Condition of front shock absorber actuator RH	Vehicle stopped		0 step
		Vehicle running		-60 - 80 step
DAMP MTR FL [step]	Condition of front shock absorber actuator LH	Vehicle stopped		0 step
		Vehicle running		-60 - 80 step
DAMP MTR RR [step]	Condition of rear shock absorber actuator RH	Vehicle stopped		0 step
		Vehicle running		-60 - 80 step
DAMP MTR RL [step]	Condition of rear shock absorber actuator LH	Vehicle stopped		0 step
		Vehicle running		-60 - 80 step
INDICATOR [ON/OFF]	SPORT indicator lamp condition	SPORT indicator lamp: ON		ON
		SPORT indicator lamp: OFF		OFF
ENGINE SPEED [rpm]	Engine speed	Engine stopped		0 rpm
		Engine running (Engine speed: 400 rpm or more)		Approximately equal to the indication on tachometer

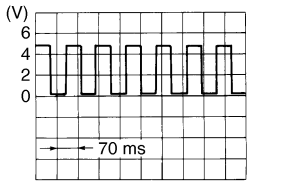
Specifications Between Active Damper Suspension Control Unit Terminals

ACTIVE DAMPER SUSPENSION CONTROL UNIT CONNECTOR LAYOUT



Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition	Data (Approx.)
1	L/R	Steering angle sensor 1	Steering wheel turned slowly	Repeats 0 - 5 V
			Steering wheel stopped	0 V
2	Y/B	Steering angle sensor 2	Steering wheel turned slowly	Repeats 0 - 5 V
			Steering wheel stopped	0 V
3	W	Front and rear vertical G sensor power supply	Ignition switch: ON	5 V
			Ignition switch: OFF	0 V
4	R/G	Front vertical G sensor	Vehicle speed: 0 km/h (0 MPH) (Engine is running)	2.5 V
			Vehicle running	Repeats 0 - 5 V
5	W/L	Rear vertical G sensor	Vehicle speed: 0 km/h (0 MPH) (Engine is running)	2.5 V
			Vehicle running	Repeats 0 - 5 V
7	R/Y	Front and rear vertical G sensor ground	Vehicle speed: 25 km/h (16 MPH) or more	0 V
8	B	Ground	Always	0 V
9	R	Front shock absorber actuator RH (A)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
10	GY	Power supply	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	0 V
11	L/B	Stop lamp switch	Brake pedal: Depressed	Battery voltage
			Brake pedal: Released	0 V
12	W/G	Engine speed	Engine speed: At idle (Warm-up condition)	 PBIA3654J
			Engine speed: Approx. 2,000 rpm (Warm-up condition)	 PBIA3655J

Terminal	Wire color	Item	Condition		Data (Approx.)
13	P/B	Active damper suspension select switch	Engine running	Active damper suspension select switch: AUTO	0 V
				Active damper suspension select switch: SPORT	5 V
14	BR/Y	Data link connector (RX)	—		—
15	P	Data link connector (TX)	—		—
16	G/B	SPORT indicator lamp	SPORT indicator lamp: ON		0 V
			SPORT indicator lamp: OFF		Battery voltage
19	Y/G	Power supply (Memory back-up)	Ignition switch: ON		Battery voltage
			Ignition switch: OFF		
20	G/R	Steering angle sensor (neutral)	Engine running	Straight-ahead	5 V
				Steering wheel turned	0 V
22	PU/W	Vehicle speed	Vehicle speed: 40 km/h (25 MPH)		 SEIA0775E
23	B	Ground	Always		0 V
24	B	Ground	Always		0 V
25	BR	Front shock absorber actuator LH (A)	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
26	LG	Front shock absorber actuator LH (B')	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
27	R/B	Rear shock absorber actuator RH (B)	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
28	L/R	Rear shock absorber actuator LH (A')	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
29	PU	Rear shock absorber actuator LH (B)	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
30	Y/B	Rear shock absorber actuator LH (B')	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
31	GY	Power supply	Ignition switch: ON		Battery voltage
			Ignition switch: OFF		0 V
32	GY	Power supply	Ignition switch: ON		Battery voltage
			Ignition switch: OFF		0 V
34	R/W	Front shock absorber actuator LH (A')	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
35	SB	Rear shock absorber actuator RH (A)	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
36	B/W	Rear shock absorber actuator RH (B')	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
37	B/P	Rear shock absorber actuator LH (A)	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage
38	L	Front shock absorber actuator RH (B)	Vehicle speed: 25 km/h (16 MPH) or more		Repeats 0 V - battery voltage

Terminal	Wire color	Item	Condition	Data (Approx.)
39	OR	Front shock absorber actuator RH (A')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
42	L/R	Front shock absorber actuator power supply	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	0 V
43	G	Front shock absorber actuator RH (B')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
44	L/W	Front shock absorber actuator LH (B)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
45	G/Y	Rear shock absorber actuator RH (A')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
48	B/R	Rear shock absorber actuator power supply	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	0 V

CAUTION:

When using circuit tester or oscilloscope to measure voltage for inspection, be sure not to extend forcibly any connector terminals.

CONSULT-II Function (ACT D/SUS)

NES000AR

FUNCTION

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

Diagnostic test mode	Function	Reference page
Self-diagnostic results	● Self-diagnostic results can be read and erased quickly.	SCS-24
Data monitor	● Input/Output data in the active damper suspension control unit can be read.	SCS-25
Active test	● Diagnostic Test Mode in which CONSULT-II drives some actuators apart from the active damper suspension control unit and also shifts some parameters in a specified range.	SCS-26
ECU part number	● Active damper suspension control unit part number can be read.	SCS-27

CONSULT-II SETTING PROCEDURE

Refer to GI-36, "CONSULT-II Start Procedure" .

SELF-DIAG RESULT MODE

Operation Procedure

1. Perform “CONSULT-II Start Procedure”. Refer to GI-36, "CONSULT-II Start Procedure" .
2. With engine at idle, touch “SELF-DIAG RESULTS”.
   Display shows malfunction experienced since the last erasing operation.

NOTE:
The details for “TIME” are as follows:

- “0”: Error currently detected with active damper suspension control unit.
- Except for “0”: Error detected in the past and memorized with active damper suspension control unit. Detects frequency of driving after DTC occurs (frequency of turning ignition switch “ON/OFF”).

Display Item List

Items (CONSULT-II screen terms)	Diagnostic item is detected when...	Check item
VEHICLE SPEED SEN	● Input signal does not change for some length of while driving. ● Input signal change abruptly while driving.	SCS-32, "Vehicle Speed Sensor (VEHICLE SPEED SEN)"
STEERING ANGLE SEN [ANG SIGNAL]	Input signal does not change for some length of time while driving at 60 km/h (37 MPH) or more.	SCS-34, "Steering Angle Sensor (STEERING ANGLE SEN)"
STEERING ANGLE SEN [NEUT SIGNAL]	● When driven straight ahead at least at 10 km/h (6 MPH) with no neutral signal. ● When the steering wheel is turned by 360° or more with no neutral signal. ● When the steering wheel is turned by 50° or more with neutral signal at all times.	SCS-34, "Steering Angle Sensor (STEERING ANGLE SEN)"
VERTI G SENSOR FL	Front vertical G sensor is malfunctioning, or signal line of front vertical G sensor is open or shorted.	SCS-37, "Vertical G Sensor (VERTI G SENSOR)"
VERTI G SENSOR RR	Rear vertical G sensor is malfunctioning, or signal line of rear vertical G sensor is open or shorted.	SCS-37, "Vertical G Sensor (VERTI G SENSOR)"

How to Erase Self-diagnostic Results

1. Perform applicable inspection of malfunctioning item and then repair or replace.
2. Start engine and select “SELF-DIAG RESULTS” mode for “ACT D/SUS” with CONSULT-II.
3. Touch “ERASE” on CONSULT-II screen to erase DTC memory.

   CAUTION:
   If memory cannot be erased, perform applicable diagnosis.

DATA MONITOR MODE

Operation Procedure

1. Perform “CONSULT-II Start Procedure”. Refer to GI-36, "CONSULT-II Start Procedure" .
2. Touch “DATA MONITOR”.
3. Select from “SELECT MONITOR ITEM”, screen of data monitor mode is displayed.

NOTE:
When malfunction is detected, CONSULT-II performs REAL-TIME DIAGNOSIS.
Also, any malfunction detected while in this mode will be displayed in real time.

Display Item List

×: Standard –: Not applicable

Monitored item (Unit)	Monitor item selection		Remarks
	MAIN SIGNALS	SELECTION FROM MENU	
VHCL SPEED SE [km/h] or [mph]	×	×	Vehicle speed calculated by combination meter.
VERTI G SE FL [G]	×	×	Upper/lower acceleration condition of vehicle (front) is displayed.
VERTI G SE RR [G]	×	×	Upper/lower acceleration condition of vehicle (rear) is displayed.
STEERING ANG [°]	×	×	Steering angle detected by the steering angle sensor is displayed.
SELECT SWITCH [AUTO/SPORT]	×	×	Active damper suspension select switch signal status is displayed.
STOP LAMP SW [ON/OFF]	×	×	Stop lamp switch signal status is displayed.
NEUTRAL SIG [ON/OFF]	×	×	Straight-ahead of steering wheel status is displayed.
DAMP MTR FR [step]	×	×	Condition of front RH actuator is displayed.
DAMP MTR FL [step]	×	×	Condition of front LH actuator is displayed.
DAMP MTR RR [step]	×	×	Condition of rear RH actuator is displayed.
DAMP MTR RL [step]	×	×	Condition of rear LH actuator is displayed.
POWER STR SOL [A]	×	×	Power steering solenoid controlling current that active damper suspension control unit outputs is displayed.
INDICATOR [ON/OFF]	×	×	Control status of SPORT indicator lamp is displayed.
ENGINE SPEED [rpm]	×	×	Engine speed calculated by ECM.
Voltage [V]	–	×	The value measured by the voltage probe is displayed.
Frequency [Hz]	–	×	The value measured by the pulse probe is displayed.
DUTY-HI (high) [%]	–	×	
DUTY-LOW (low) [%]	–	×	
PLS WIDTH-HI [msec]	–	×	
PLS WIDTH-LOW [msec]	–	×	

ACTIVE TEST MODE

Description

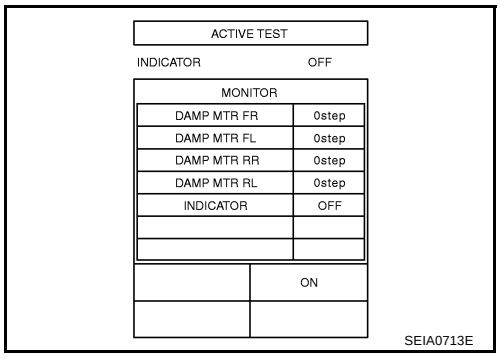
Use this mode to determine and identify the details of a malfunction based on self-diagnostic results or data monitor. Active damper suspension control gives drive signal to each shock absorber actuator and inspection of turning indicator with receiving command from CONSULT-II to check operation of each shock absorber actuator.

Operation Procedure

1. Perform “CONSULT-II Start Procedure”. Refer to GI-36, "CONSULT-II Start Procedure" .
2. Touch “ACTIVE TEST”.
3. Touch “INDICATOR” or “DAMPER”. Refer to SCS-26, "SPORT Indicator lamp" (SPORT indicator) or SCS-26, "Shock Absorber Actuator" (active damper suspension).

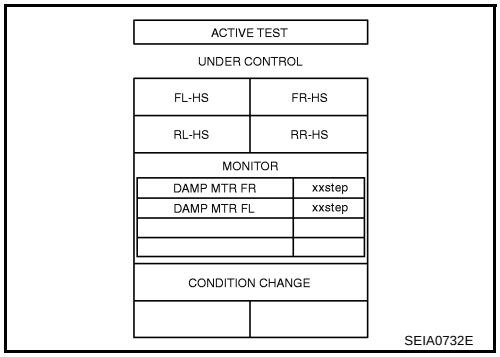
SPORT Indicator lamp

1. Touch “MAIN SIGNAL”, then “START”.
2. When “OFF” is touched, indicator lamp goes out regardless of select switch positions. Monitor indicator will then be turned “OFF”.
3. When “ON” is touched, indicator lamp comes on regardless of select switch positions. Monitor indicator will then be turned “ON”.

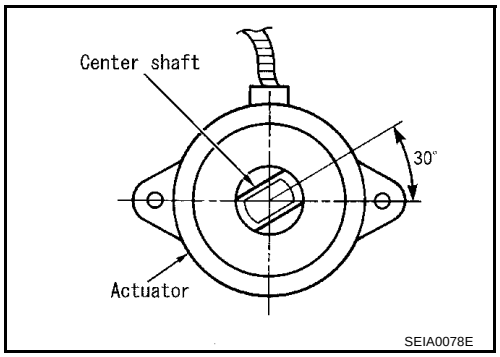


Shock Absorber Actuator

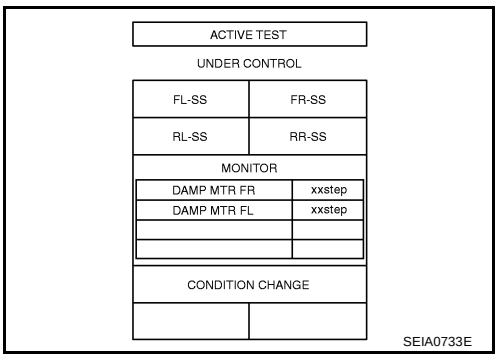
1. Touch “SELECTION FROM MENU”.
2. Select and touch “DAMP MTR F/R” or “DAMP MTR F/L”, and “DAMP MTR R/R” or “DAMP MTR R/L”, as required.
3. Touch “ENTER”, then “START”.
4. “4 step” for front damper motors and “4 step” for rear damper motor will be then shown on the display.
5. Touch “CONDITION CHANGE”, “FL-HS, FR-HS, RL-HS, RR-HS” and “START”.
6. “80 step” for front damper motors and “80 step” for rear damper motor will be then shown on the display.
7. Print out data as required.



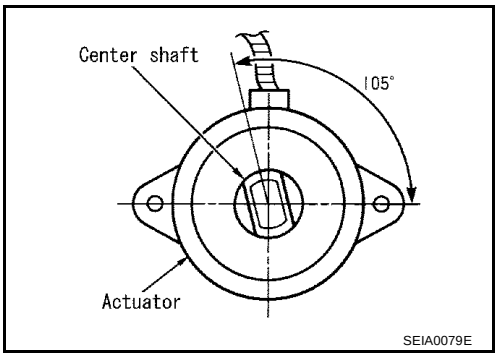
8. The actuator center shaft becomes as shown in the figure.



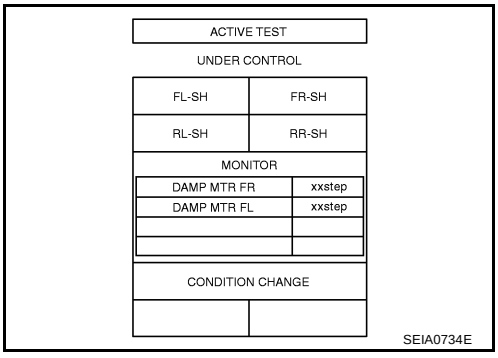
9. Touch “CONDITION CHANGE” FL-SS, FR-SS, RL-SS, RR-SS” and “START”.
10. “0 step” for front damper motors and “0 step” for rear damper motor will be then shown on the display.
11. Print out data as required.



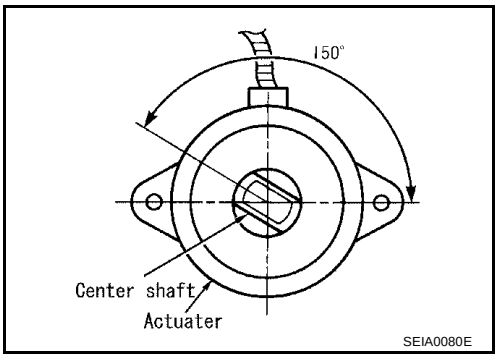
12. The actuator center shaft becomes as shown in the figure.



13. Touch “CONDITION CHANGE” “FL-SH, FR-SH, RL-SH, RR-SH” and “START”.
14. “-60 step” for front damper motors and “-60 step” for rear damper motor will be then shown on the display.
15. Print out data as required.



16. The actuator center shaft becomes as shown in the figure.



ACTIVE DAMPER SUSPENSION CONTROL UNIT PART NUMBER MODE

Ignore the active damper suspension control unit part number displayed in the “ECU PART NUMBER”. Refer to parts catalog to order the active damper suspension control unit.

Self-Diagnostic Procedure

NES000AS

SELF-DIAGNOSTIC PROCEDURE (WITH CONSULT-II)

Refer to SCS-24, "SELF-DIAG RESULT MODE" .

SELF-DIAGNOSTIC PROCEDURE (WITHOUT CONSULT-II)

Description

The SPORT indicator lamp in the combination meter will flicker according to the self-diagnostic results. As for the details of the SPORT indicator lamp flickering patterns, refer to SCS-28, "Diagnostic Procedure" .

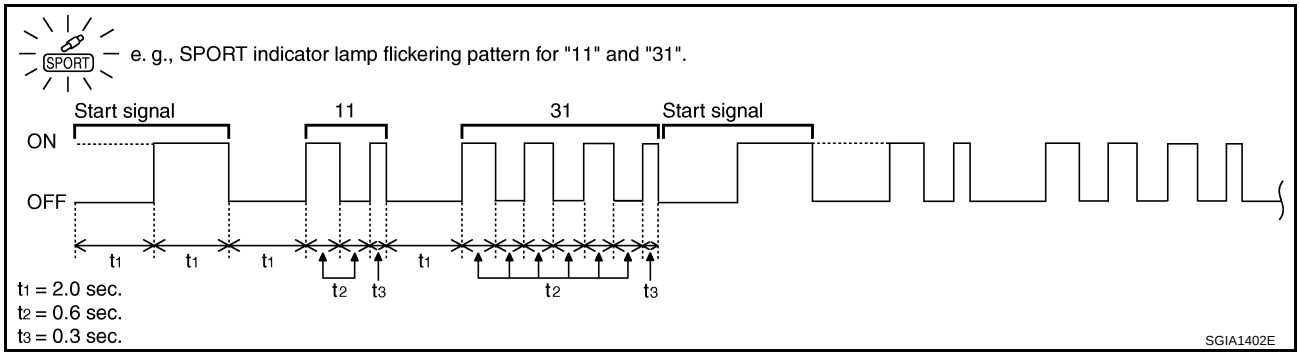
Diagnostic Procedure

1. Turn ignition switch to “OFF”.
2. Start the engine.
3. Quickly switch the active damper suspension select switch from “SPORT” to “AUTO”, and vice versa, at least 5 times within 10 seconds immediately after the engine has started.
4. Perform the following procedures to enter the corresponding signals.
   - Turn steering wheel 180° in either direction from neutral.
   - Depress brake pedal.
   - Release brake pedal.
   - Move the vehicle at least 5 m (16 ft) forward.
5. Read the flickering of SPORT indicator lamp. Refer to SCS-28, "Judgement Self-diagnosis" .

   NOTE:
   When the SPORT indicator lamp flashes 1/4 Hz and continues repeating it, the system is normal.

Judgement Self-diagnosis

When a malfunction is detected, the malfunction route is indicated by flickering of the SPORT indicator lamp.



NOTE:
When the SPORT indicator lamp flashes 1/4 Hz and continues repeating it, the system is normal.

Flickering pattern	Items	Diagnostic item is detected when...	Check item
11	Vehicle speed sensor	● Input signal does not change for some length of while driving. ● Input signal change abruptly while driving.	SCS-32, "Vehicle Speed Sensor (VEHICLE SPEED SEN)"
12	Steering angle sensor	Input signal does not change for some length of time while driving at 60 km/h (37 MPH) or more.	SCS-34, "Steering Angle Sensor (STEERING ANGLE SEN)"
13	Steering angle sensor (neutral)	● When driven straight ahead at least at 10 km/h (6 MPH) with no neutral signal. ● When the steering wheel is turned by 360° or more with no neutral signal. ● When the steering wheel is turned by 50° or more with neutral signal at all times.	SCS-34, "Steering Angle Sensor (STEERING ANGLE SEN)"
14	Stop lamp switch	Stop lamp signal transmission status does not change when depressing or releasing the brake pedal.	SCS-52, "Stop Lamp Switch"

Flickering pattern	Items	Diagnostic item is detected when...	Check item
22	Vertical G sensor (front)	Front vertical G sensor is malfunctioning, or signal line of front vertical G sensor is open or shorted.	SCS-37, "Vertical G Sensor (VERTI G SENSOR)"
23	Vertical G sensor (rear)	Rear vertical G sensor is malfunctioning, or signal line of rear vertical G sensor is open or shorted.	SCS-37, "Vertical G Sensor (VERTI G SENSOR)"
31	Engine speed signal	When the engine speed signal is 360 rpm or less.	SCS-47, "Engine Speed Signal"
No flickering	Active damper suspension select switch	Active damper suspension select switch circuit is shorted or open.	SCS-49, "Active Damper Suspension Select Switch"

Disconnecting the Self-Diagnostic Function

Disconnect the self-diagnostic function using one of the following three methods:

- Turn the ignition switch to “OFF”.
- Drive the vehicle at speeds greater than 30 km/h (19 MPH).
- Connect CONSULT-II.

ERASE SELF-DIAGNOSIS

Clear self-diagnostic data and fail-safe data stored in memory as follows:

- While self-diagnosis is being performed, depress the brake pedal at least 5 times and shift the select switch position at least 5 times. Pedal depression and switch shifting must be done within 10 seconds during self-diagnosis.

Inspections Before Trouble Diagnosis

NES000AZ

Check the following items

- Power steering fluid level. Refer to PS-6, "Checking Fluid Level" .
- Power steering fluid line for improper attachment, leaks, cracks, damage, loose connections, chafing and deterioration. Refer to PS-6, "Checking Fluid Leakage" .
- Tire pressure.
- Wheel alignment. Refer to FSU-5, "Wheel Alignment Inspection" .
- Shock absorber for oil leakage or other damage.

Trouble Diagnosis Chart for Symptoms

NES000B2

When SPORT indicator lamp in the combination meter cannot be switched between ON and OFF by using active damper suspension select switch. Refer to SCS-28, "Self-Diagnostic Procedure" .

Symptom	Condition	Check item	Reference page
Hard or soft feel.	While driving	Shock absorber actuator	SCS-56
		Active damper suspension select switch	
		Shock absorber	
Active damper suspension select switch does not change.	While driving	Power supply and ground for active damper suspension	SCS-58
		Active damper suspension select switch	
		Shock absorber	

TROUBLE DIAGNOSIS FOR SYSTEM

PFP:00000

Power Supply Circuit

NES000CF

ACTIVE DAMPER SUSPENSION CONTROL UNIT TERMINALS AND REFERENCE VALUE

Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition	Data (Approx.)
8	B	Ground	Always	0 V
10	GY	Power supply	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	0 V
19	Y/G	Power supply (Memory back-up)	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	
23	B	Ground	Always	0 V
24	B	Ground	Always	0 V
31	GY	Power supply	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	0 V
32	GY	Power supply	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	0 V

CAUTION:

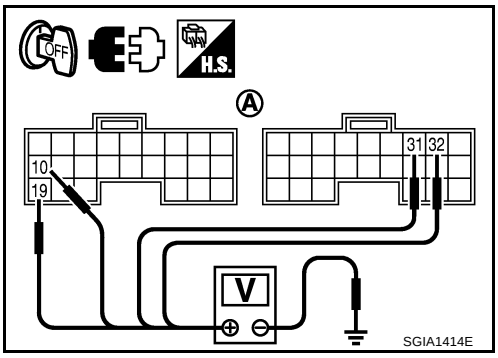
When using a circuit tester to measure voltage for inspection, be sure not to extend forcibly any connector terminals.

DIAGNOSTIC PROCEDURE

1. CHECK POWER SUPPLY

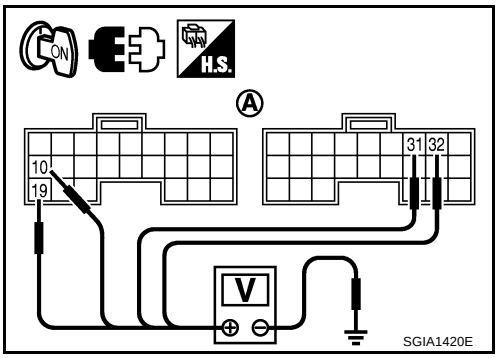
1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector.
3. Check voltage between active damper suspension control unit harness connector (A) terminals and ground.

Connector	Terminal	Voltage (Approx.)
B37	10 - Ground	0 V
	19 - Ground	Battery voltage
B38	31 - Ground	0 V
	32 - Ground	



4. Turn ignition switch “ON”. (Do not start engine.)
5. Check voltage between active damper suspension control unit harness connector (A) terminals and ground.

Connector	Terminal	Voltage (Approx.)
B37	10 - Ground	Battery voltage
	19 - Ground	
B38	31 - Ground	
	32 - Ground	



OK or NG

OK >> GO TO 2.

NG >> Check the following. If any items are damaged, repair or replace damaged parts.

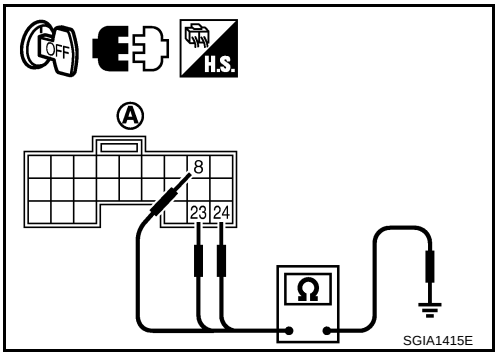
- 10A fuses [No. 6, 7 located in the fuse block (J/B) No.1]. Refer to PG-2, "POWER SUPPLY ROUTING" .
- Harness for short or open between battery and active damper suspension control unit harness connector B37 terminal 19.
- Harness for short or open between ignition switch and active damper suspension control unit harness connector B37 terminal 10, B38 terminals 31 and 32.
- Battery and ignition switch. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK GROUND CIRCUIT

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector.
3. Check continuity between active damper suspension control unit harness connector (A) B37 terminals 8, 23 and 24.

Continuity should exist.

Also check harness for short to power.



OK or NG

OK >> **INSPECTION END**

NG >> Repair open circuit or short to power in harness or connectors.

Vehicle Speed Sensor (VEHICLE SPEED SEN)

NES000C9

- Check the following if “VEHICLE SPEED SEN” is detected in self-diagnosis results with CONSULT-II or “flickering pattern for 11” is detected in self-diagnosis results without CONSULT-II.

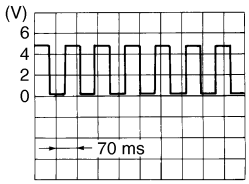
CONSULT-II REFERENCE VALUE IN DATA MONITOR MODE

Data are reference value.

Monitored item	Content	Condition	Display value
VHCL SPEED SE [km/h] or [mph]	Wheel speed	Vehicle stopped	0 km/h (0 MPH)
		Vehicle running **CAUTION:** **Check air pressure of tire under standard condition.**	Approximately equal to the indication on speedometer (Inside of ±10%)

ACTIVE DAMPER SUSPENSION CONTROL UNIT TERMINALS AND REFERENCE VALUE

Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition	Data (Approx.)
22	PU/W	Vehicle speed	Vehicle speed: 40 km/h (25 MPH)	 SEIA0775E

CAUTION:

When using a oscilloscope to measure voltage for inspection, be sure not to extend forcibly any connector terminal.

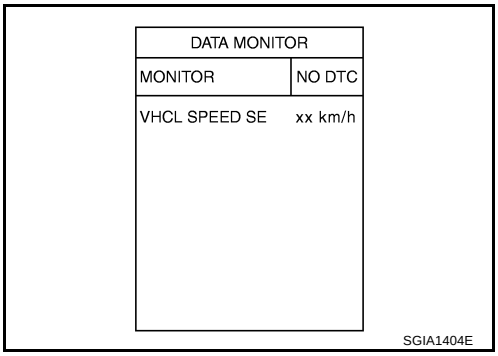
DIAGNOSTIC PROCEDURE

1. CHECK VEHICLE SPEED SENSOR

With CONSULT-II

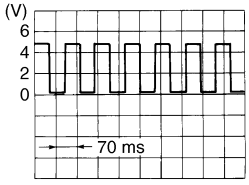
1. Start engine.
2. Select “DATA MONITOR” mode for “ACT D/SUS” with CONSULT-II.
3. Read out the value of “VHCL SPEED SE”.

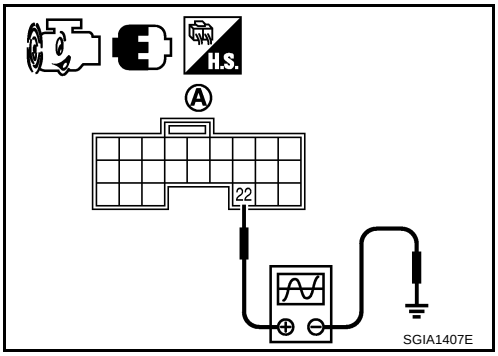
Condition	Display value
Vehicle stopped	0 km/h (0 MPH)
Vehicle running **CAUTION:** **Check air pressure of tire under standard condition.**	Approximately equal to the indication on speedometer (Inside of ±10%)



Without CONSULT-II

1. Start engine.
2. Check signal between active damper suspension control unit harness connector (A) terminal and ground with oscilloscope.

Connector	Terminal	Condition	Data (Approx.)
B37	22 - Ground	Vehicle speed: 40 km/h (25 MPH)	

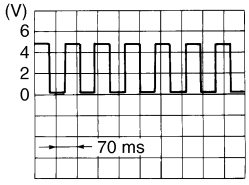


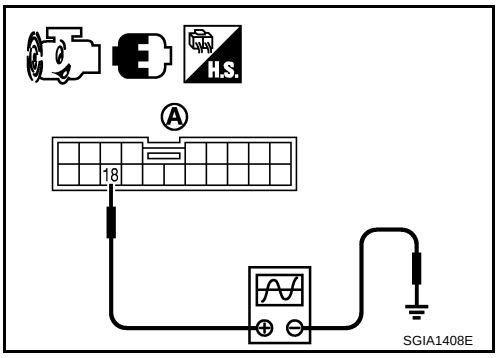
OK or NG

OK >> GO TO 4.
NG >> GO TO 2.

2. CHECK COMBINATION METER

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector.
3. Check signal between combination meter harness connector (A) terminal and ground with oscilloscope.

Connector	Terminal	Condition	Data (Approx.)
M41	18 - Ground	Vehicle speed: 40 km/h (25 MPH)	



Also check harness for short to ground and short to power.

OK or NG

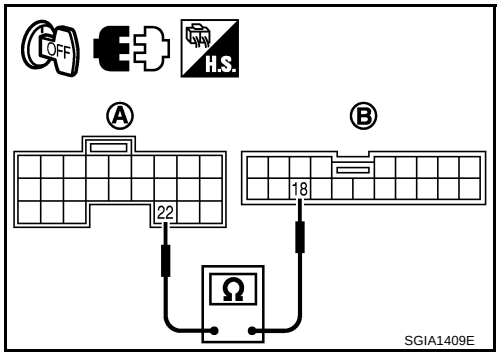
OK >> GO TO 3.
NG >> Check combination meter. Refer to DI-16, "Trouble Diagnosis" .

3. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND COMBINATION METER

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the combination meter harness connector.
3. Check continuity between active damper suspension control unit harness connector (A) B37 terminal 22 and combination meter harness connector (B) M41 terminal 18.

   Continuity should exist.

   Also check harness for short to ground and short to power.



OK or NG

OK >> GO TO 4.
NG >> Repair or replace damaged parts.

4. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> GO TO 5.
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

5. CHECK DTC

Perform the self-diagnosis, after driving a vehicle for a while.

OK or NG

OK >> **INSPECTION END**
NG >> Replace active damper suspension control unit. Refer to SCS-60, "Removal and Installation" .

Steering Angle Sensor (STEERING ANGLE SEN)

NES000CA

- Check the following if “STEERING ANGLE SEN” is detected in self-diagnosis results with CONSULT-II or “flickering pattern for 12 or 13” is detected in self-diagnosis results without CONSULT-II.

CONSULT-II REFERENCE VALUE IN DATA MONITOR MODE

Data are reference value.

Monitored item	Content	Condition	Display value
STEERING ANG [°]	Steering angle detected by steering angle sensor	Steering wheel right turned	0° - R128°
		Straight-ahead	Approx. 0°
		Steering wheel left turned	0° - L128°
NEUTRAL SIG [ON/OFF]	Neutral condition of steering wheel	Straight-ahead	ON
		Steering wheel turned	OFF

ACTIVE DAMPER SUSPENSION CONTROL UNIT TERMINALS AND REFERENCE VALUE

Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition		Data (Approx.)
1	L/R	Steering angle sensor 1	Steering wheel turned slowly		Repeats 0 - 5 V
			Steering wheel stopped		0 V
2	Y/B	Steering angle sensor 2	Steering wheel turned slowly		Repeats 0 - 5 V
			Steering wheel stopped		0 V
20	G/R	Steering angle sensor (neutral)	Engine running	Straight-ahead	5 V
				Steering wheel turned	0 V

CAUTION:

When using a circuit tester to measure voltage for inspection, be sure not to extend forcibly any connector terminals.

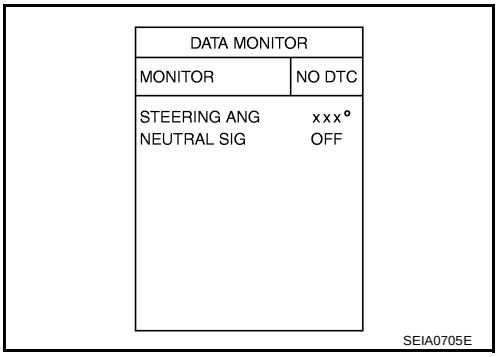
DIAGNOSTIC PROCEDURE

1. CHECK VEHICLE STEERING ANGLE SENSOR

With CONSULT-II

1. Start engine.
2. Select “DATA MONITOR” mode for “ACT D/SUS” with CONSULT-II.
3. Read out the value of “STEERING ANG” and “NEUTRAL SIG”.

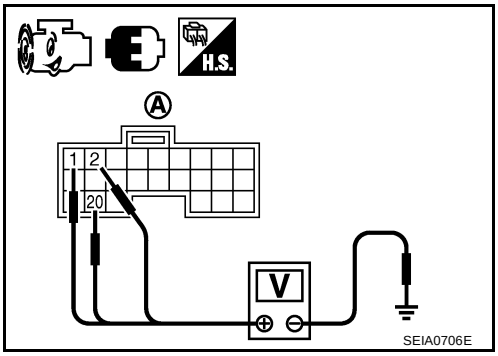
Monitored item	Condition	Display value
STEERING ANG	Steering wheel right turned	0° - R128°
	Straight-ahead	Approx. 0°
	Steering wheel left turned	0° - L128°
NEUTRAL SIG	Straight-ahead	ON
	Steering wheel turned	OFF



Without CONSULT-II

1. Start engine.
2. Check signal between active damper suspension control unit harness connector (A) terminals and ground.

Connector	Terminal	Condition		Data (Approx.)
B37	1 - Ground	Steering wheel turned slowly		Repeats 0 - 5 V
		Steering wheel stopped		0 V
	2 - Ground	Steering wheel turned slowly		Repeats 0 - 5 V
		Steering wheel stopped		0 V
	20 - Ground	Engine running	Straight-ahead	5 V
			Steering wheel turned	0 V



OK or NG

OK >> GO TO 5.
NG >> GO TO 2.

2. CHECK STEERING ANGLE SENSOR POWER SUPPLY CIRCUIT

Perform self-diagnosis with VDC/TCS/ABS control unit. Refer to BRC-24, "SELF-DIAG RESULT MODE" .

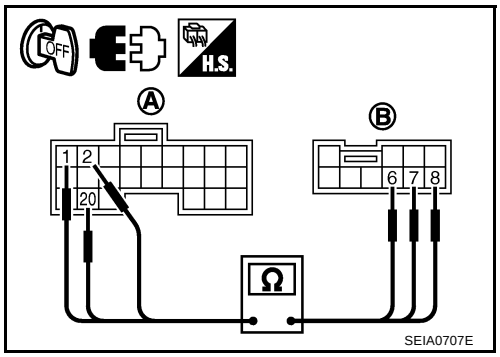
Is any malfunction detected by self-diagnosis?

YES >> Check the malfunctioning system.
NO >> GO TO 3.

3. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND STEERING ANGLE SENSOR

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the steering angle sensor harness connector.
3. Check continuity between the following terminals.

- Active damper suspension control unit harness connector (A) B37 terminal 1 and steering angle sensor harness connector (B) M52 terminal 6.
- Active damper suspension control unit harness connector (A) B37 terminal 2 and steering angle sensor harness connector (B) M52 terminal 7.
- Active damper suspension control unit harness connector (A) B37 terminal 20 and steering angle sensor harness connector (B) M52 terminal 8.



Continuity should exist.

Also check harness for short to ground and short to power.

OK or NG

OK >> GO TO 4
NG >> Repair or replace damaged parts.

4. CHECK STEERING ANGLE SENSOR

Check steering angle sensor. Refer to BRC-40, "Steering Angle Sensor" .

OK or NG

OK >> GO TO 5.
NG >> Replace steering angle sensor. Refer to BRC-70, "REMOVAL" .

5. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> GO TO 6.
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

6. CHECK DTC

Perform the self-diagnosis, after driving a vehicle for a while.

OK or NG

OK >> **INSPECTION END**
NG >> Replace active damper suspension control unit. Refer to SCS-60, "Removal and Installation" .

Vertical G Sensor (VERTI G SENSOR)

NES000CB

- Check the following if “VERTI G SENSOR” is detected in self-diagnosis results with CONSULT-II or “flickering pattern for 22 or 23” is detected in self-diagnosis results without CONSULT-II.

CONSULT-II REFERENCE VALUE IN DATA MONITOR MODE

Data are reference value.

Monitored item	Content	Condition	Display value
VERTI G SE FL [G]	Upper/lower acceleration condition of vehicle (front)	Vehicle stopped	Approx. 0.00G
		Vehicle running	D1.67 - U1.67G
VERTI G SE RR [G]	Upper/lower acceleration condition of vehicle (rear)	Vehicle stopped	Approx. 0.00G
		Vehicle running	D1.67 - U1.67G

ACTIVE DAMPER SUSPENSION CONTROL UNIT TERMINALS AND REFERENCE VALUE

Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition	Data (Approx.)
3	W	Front and rear vertical G sensor power supply	Ignition switch: ON	5 V
			Ignition switch: OFF	0 V
4	R/G	Front vertical G sensor	Vehicle speed: 0 km/h (0 MPH) (Engine is running)	2.5 V
			Vehicle running	Repeats 0 - 5 V
5	W/L	Rear vertical G sensor	Vehicle speed: 0 km/h (0 MPH) (Engine is running)	2.5 V
			Vehicle running	Repeats 0 - 5 V
7	R/Y	Front and rear vertical G sensor ground	Vehicle speed: 25 km/h (16 MPH) or more	0 V

CAUTION:

When using a circuit tester to measure voltage for inspection, be sure not to extend forcibly any connector terminals.

DIAGNOSTIC PROCEDURE

NOTE:

The front vertical G sensor is installed on the rear of the inner pillar and the rear vertical G sensor is located on the rear of the outer wheelhouse. To check each vertical G sensor output signal, remove the vertical G sensor, set it vertical, then measure voltage between terminals.

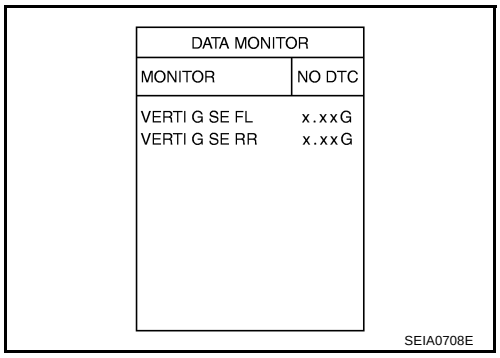
Be careful not to drop or bump the vertical G sensor as it is easy to break. If dropped or bumped, replace with a new one.

1. CHECK VEHICLE VERTICAL G SENSOR

With CONSULT-II

1. Start engine.
2. Select “DATA MONITOR” mode for “ACT D/SUS” with CONSULT-II.
3. Read out the value of “VERTI G SE FL” and “VERTI G SE RR”.

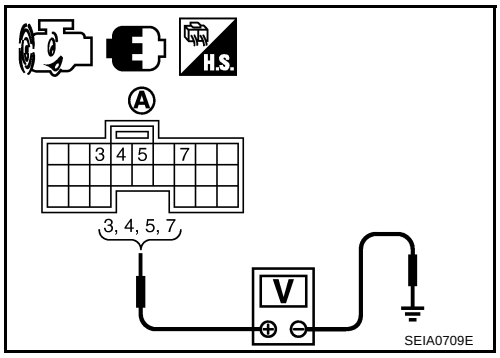
Monitored item	Condition	Display value
VERTI G SE FL	Vehicle stopped	Approx. 0.00G
	Vehicle running	D1.67 - U1.67G
VERTI G SE RR	Vehicle stopped	Approx. 0.00G
	Vehicle running	D1.67 - U1.67G



Without CONSULT-II

1. Start engine.
2. Check signal between active damper suspension control unit harness connector (A) terminals and ground.

Connector	Terminal	Condition	Data (Approx.)
B37	3 - Ground	Ignition switch: ON	5 V
		Ignition switch: OFF	0 V
	4 - Ground	Vehicle speed: 0 km/h (0 MPH) (Engine is running)	2.5 V
		Vehicle running	Repeats 0 - 5 V
	5 - Ground	Vehicle speed: 0 km/h (0 MPH) (Engine is running)	2.5 V
		Vehicle running	Repeats 0 - 5 V
	7 - Ground	Vehicle speed: 25 km/h (16 MPH) or more	0 V



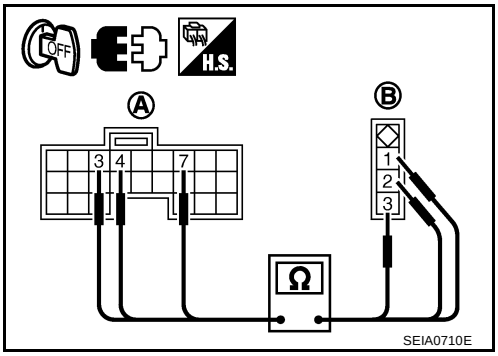
OK or NG

OK >> GO TO 5.
NG >> GO TO 2.

2. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND FRONT VERTICAL G SENSOR

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the front vertical G sensor harness connector.
3. Check continuity between the following terminals.

- Active damper suspension control unit harness connector (A) B37 terminal 3 and front vertical G sensor harness connector (B) B3 terminal 1.
- Active damper suspension control unit harness connector (A) B37 terminal 4 and front vertical G sensor harness connector (B) B3 terminal 2.
- Active damper suspension control unit harness connector (A) B37 terminal 7 and front vertical G sensor harness connector (B) B3 terminal 3.



Continuity should exist.

Also check harness for short to ground and short to power.

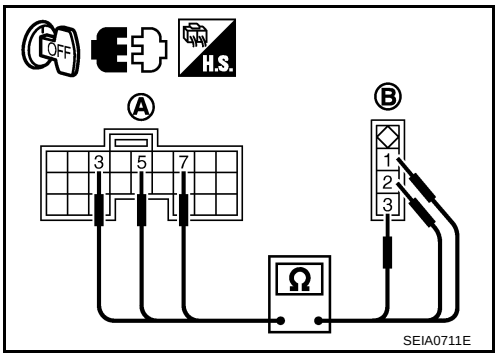
OK or NG

OK >> GO TO 3.
NG >> Repair or replace damaged parts.

3. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND REAR VERTICAL G SENSOR

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the rear vertical G sensor harness connector.
3. Check continuity between the following terminals.

- Active damper suspension control unit harness connector (A) B37 terminal 3 and rear vertical G sensor harness connector (B) B227 terminal 1.
- Active damper suspension control unit harness connector (A) B37 terminal 5 and rear vertical G sensor harness connector (B) B227 terminal 2.
- Active damper suspension control unit harness connector (A) B37 terminal 7 and rear vertical G sensor harness connector (B) B227 terminal 3.



Continuity should exist.

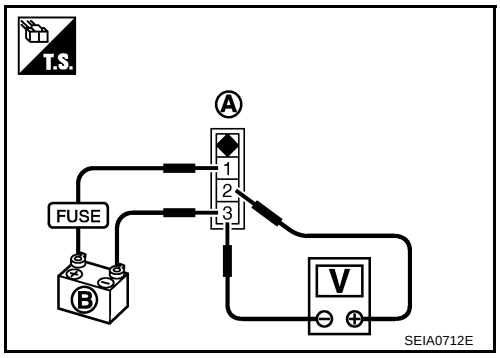
Also check harness for short to ground and short to power.

OK or NG

OK >> GO TO 4.
NG >> Repair or replace damaged parts.

4. CHECK VERTICAL G SENSOR

1. Turn ignition switch “OFF”.
2. Disconnect front vertical G sensor harness connector and rear vertical G sensor harness connector.
3. Remove front vertical G sensor and rear vertical G sensor. Refer to SCS-61, "Removal and Installation" .
4. Apply 5 V (B) direct current between each vertical G sensor connector (A) terminals 1 (positive) and 3 (negative).
5. Check voltage between each vertical G sensor connector (A) terminals 2 and 3.



Terminal	Condition	Voltage (Approx.)
2 (positive) - 3 (negative)	Vertical G sensor stop condition	2.5 V
	Vertical G sensor lift up/down condition	Repeats 0 - 5 V

OK or NG

OK >> GO TO 5.
NG >> Replace front vertical G sensor or rear vertical G sensor. Refer to SCS-61, "Removal and Installation" .

5. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> GO TO 6.
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

6. CHECK DTC

Perform the self-diagnosis, after driving a vehicle for a while.

OK or NG

OK >> **INSPECTION END**
NG >> Replace active damper suspension control unit. Refer to SCS-60, "Removal and Installation" .

Shock Absorber Actuator

NES000CC

CONSULT-II REFERENCE VALUE IN DATA MONITOR MODE

Data are reference value.

Monitored item	Content	Condition	Display value
DAMP MTR FR [step]	Condition of front shock absorber actuator RH	Vehicle stopped	0 step
		Vehicle running	-60 - 80 step
DAMP MTR FL [step]	Condition of front shock absorber actuator LH	Vehicle stopped	0 step
		Vehicle running	-60 - 80 step
DAMP MTR RR [step]	Condition of rear shock absorber actuator RH	Vehicle stopped	0 step
		Vehicle running	-60 - 80 step
DAMP MTR RL [step]	Condition of rear shock absorber actuator LH	Vehicle stopped	0 step
		Vehicle running	-60 - 80 step

ACTIVE DAMPER SUSPENSION CONTROL UNIT TERMINALS AND REFERENCE VALUE

Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition	Data (Approx.)
9	R	Front shock absorber actuator RH (A)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
25	BR	Front shock absorber actuator LH (A)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
26	LG	Front shock absorber actuator LH (B')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
27	R/B	Rear shock absorber actuator RH (B)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
28	L/R	Rear shock absorber actuator LH (A')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
29	PU	Rear shock absorber actuator LH (B)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
30	Y/B	Rear shock absorber actuator LH (B')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
34	R/W	Front shock absorber actuator LH (A')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
35	SB	Rear shock absorber actuator RH (A)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
36	B/W	Rear shock absorber actuator RH (B')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
37	B/P	Rear shock absorber actuator LH (A)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
38	L	Front shock absorber actuator RH (B)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
39	OR	Front shock absorber actuator RH (A')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
42	L/R	Front shock absorber actuator power supply	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	0 V
43	G	Front shock absorber actuator RH (B')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
44	L/W	Front shock absorber actuator LH (B)	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
45	G/Y	Rear shock absorber actuator RH (A')	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
48	B/R	Rear shock absorber actuator power supply	Ignition switch: ON	Battery voltage
			Ignition switch: OFF	0 V

CAUTION:

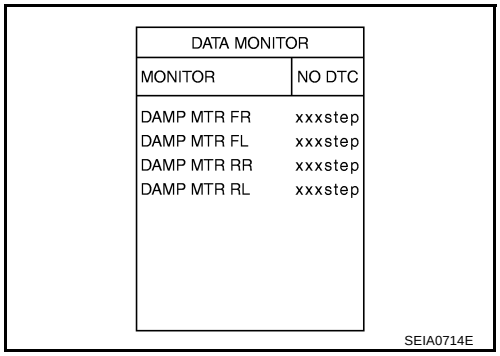
When using a circuit tester to measure voltage for inspection, be sure not to extend forcibly any connector terminals.

DIAGNOSTIC PROCEDURE

1. CHECK VEHICLE SHOCK ABSORBER ACTUATOR

With CONSULT-II

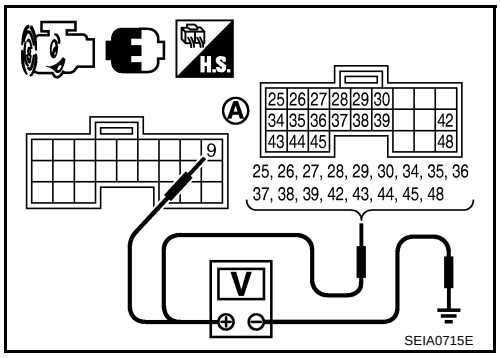
1. Start engine.
2. Select “DATA MONITOR” mode for “ACT D/SUS” with CONSULT-II.
3. Read out the value of “DAMP MTR FR”, “DAMP MTR FL”, “DAMP MTR RR” and “DAMP MTR RL”.



Monitored item	Condition	Display value
DAMP MTR FR	Vehicle stopped	0 step
	Vehicle running	-60 - 80 step
DAMP MTR FL	Vehicle stopped	0 step
	Vehicle running	-60 - 80 step
DAMP MTR RR	Vehicle stopped	0 step
	Vehicle running	-60 - 80 step
DAMP MTR RL	Vehicle stopped	0 step
	Vehicle running	-60 - 80 step

Without CONSULT-II

1. Start engine.
2. Check signal between active damper suspension control unit harness connector (A) terminals and ground.



Connector	Terminal	Condition	Data (Approx.)
B37	9 - Ground	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
B38	25 - Ground		
	26 - Ground		
	27 - Ground		
	28 - Ground		
	29 - Ground		
	30 - Ground		
	34 - Ground		
	35 - Ground		
	36 - Ground		
	37 - Ground		
	38 - Ground		
	39 - Ground		
	42 - Ground	Ignition switch: ON	Battery voltage
		Ignition switch: OFF	0 V
	43 - Ground	Vehicle speed: 25 km/h (16 MPH) or more	Repeats 0 V - battery voltage
	44 - Ground		
	45 - Ground		
	48 - Ground	Ignition switch: ON	Battery voltage
		Ignition switch: OFF	0 V

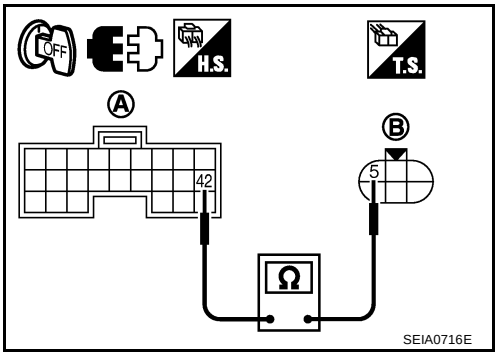
OK or NG

OK >> GO TO 8.
NG >> GO TO 2.

2. CHECK FRONT SHOCK ABSORBER ACTUATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the front shock absorber actuator harness connector.
3. Check continuity between the following terminals.

- Active damper suspension control unit harness connector (A) B38 terminal 42 and front shock absorber actuator LH harness connector (B) E61 terminal 5.
- Active damper suspension control unit harness connector (A) B38 terminal 42 and front shock absorber actuator RH harness connector (B) E31 terminal 5.



Continuity should exist.

Also check harness for short to ground and short to power.

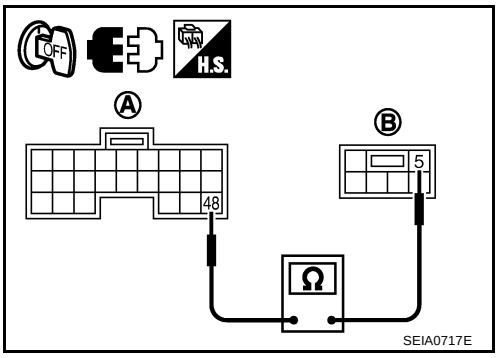
OK or NG

OK >> GO TO 3.
NG >> Repair or replace damaged parts.

3. CHECK REAR SHOCK ABSORBER ACTUATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the rear shock absorber actuator harness connector.
3. Check continuity between the following terminals.

- Active damper suspension control unit harness connector (A) B38 terminal 48 and rear shock absorber actuator LH harness connector (B) B26 terminal 5.
- Active damper suspension control unit harness connector (A) B38 terminal 48 and rear shock absorber actuator RH harness connector (B) B226 terminal 5.



Continuity should exist.

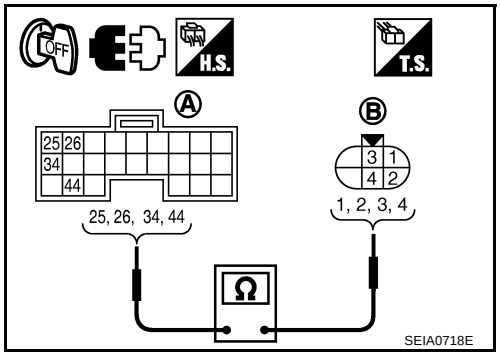
Also check harness for short to ground and short to power.

OK or NG

OK >> GO TO 4.
NG >> Repair or replace damaged parts.

4. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND FRONT SHOCK ABSORBER ACTUATOR LH

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the front shock absorber actuator LH harness connector.
3. Check continuity between the following terminals.



- Active damper suspension control unit harness connector (A) B38 terminal 25 and front shock absorber actuator LH harness connector (B) E61 terminal 1.
- Active damper suspension control unit harness connector (A) B38 terminal 26 and front shock absorber actuator LH harness connector (B) E61 terminal 4.
- Active damper suspension control unit harness connector (A) B38 terminal 34 and front shock absorber actuator LH harness connector (B) E61 terminal 2.
- Active damper suspension control unit harness connector (A) B38 terminal 44 and front shock absorber actuator LH harness connector (B) E61 terminal 3.

Continuity should exist.

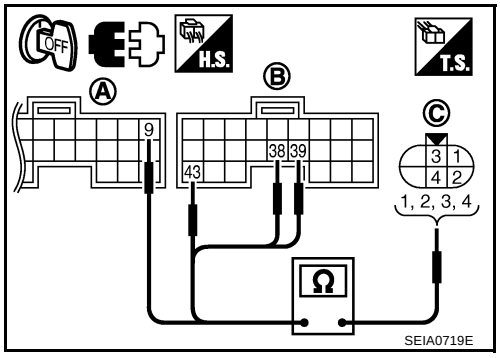
Also check harness for short to ground and short to power.

OK or NG

OK >> GO TO 5.
NG >> Repair or replace damaged parts.

5. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND FRONT SHOCK ABSORBER ACTUATOR RH

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the front shock absorber actuator RH harness connector.
3. Check continuity between the following terminals.



- Active damper suspension control unit harness connector (A) B37 terminal 9 and front shock absorber actuator RH harness connector (C) E31 terminal 1.
- Active damper suspension control unit harness connector (B) B38 terminal 38 and front shock absorber actuator RH harness connector (C) E31 terminal 3.
- Active damper suspension control unit harness connector (B) B38 terminal 39 and front shock absorber actuator RH harness connector (C) E31 terminal 2.
- Active damper suspension control unit harness connector (B) B38 terminal 43 and front shock absorber actuator RH harness connector (C) E31 terminal 4.

Continuity should exist.

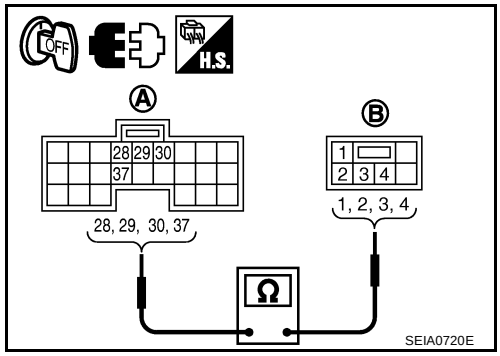
Also check harness for short to ground and short to power.

OK or NG

OK >> GO TO 6.
NG >> Repair or replace damaged parts.

6. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND REAR SHOCK ABSORBER ACTUATOR LH

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the rear shock absorber actuator LH harness connector.
3. Check continuity between the following terminals.



- Active damper suspension control unit harness connector (A) B38 terminal 28 and rear shock absorber actuator LH harness connector (B) B26 terminal 2.
- Active damper suspension control unit harness connector (A) B38 terminal 29 and rear shock absorber actuator LH harness connector (B) B26 terminal 3.
- Active damper suspension control unit harness connector (A) B38 terminal 30 and rear shock absorber actuator LH harness connector (B) B26 terminal 4.
- Active damper suspension control unit harness connector (A) B38 terminal 37 and rear shock absorber actuator LH harness connector (B) B26 terminal 1.

Continuity should exist.

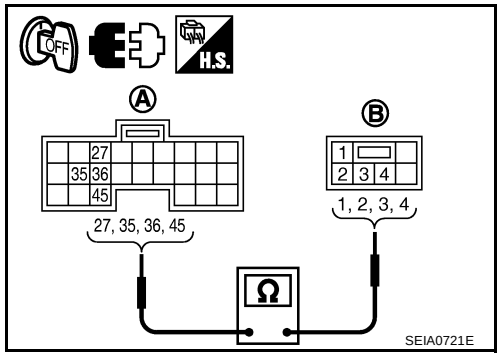
Also check harness for short to ground and short to power.

OK or NG

OK >> GO TO 7.
NG >> Repair or replace damaged parts.

7. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND REAR SHOCK ABSORBER ACTUATOR RH

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and the rear shock absorber actuator RH harness connector.
3. Check continuity between the following terminals.



- Active damper suspension control unit harness connector (A) B38 terminal 27 and rear shock absorber actuator RH harness connector (B) B226 terminal 3.
- Active damper suspension control unit harness connector (A) B38 terminal 35 and rear shock absorber actuator RH harness connector (B) B226 terminal 1.
- Active damper suspension control unit harness connector (A) B38 terminal 36 and rear shock absorber actuator RH harness connector (B) B226 terminal 4.
- Active damper suspension control unit harness connector (A) B38 terminal 45 and rear shock absorber actuator RH harness connector (B) B226 terminal 2.

Continuity should exist.

Also check harness for short to ground and short to power.

OK or NG

OK >> GO TO 8 (with CONSULT-II).
>> GO TO 9 (without CONSULT-II).
NG >> Repair or replace damaged parts.

8. CHECK SHOCK ABSORBER ACTUATOR (WITH CONSULT-II)

Use the “ACTIVE TEST” of CONSULT-II to check the shock absorber actuator. Refer to SCS-26, "Shock Absorber Actuator" .

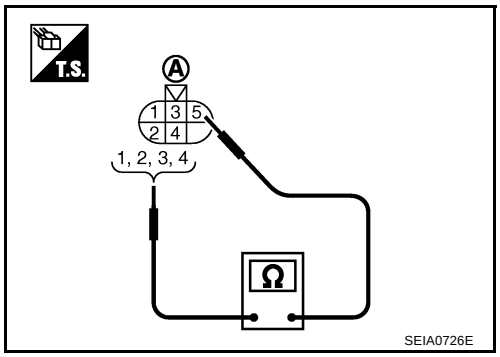
OK or NG

OK >> GO TO 10.
NG >> Replace shock absorber actuator.

9. CHECK SHOCK ABSORBER ACTUATOR (WITHOUT CONSULT-II)

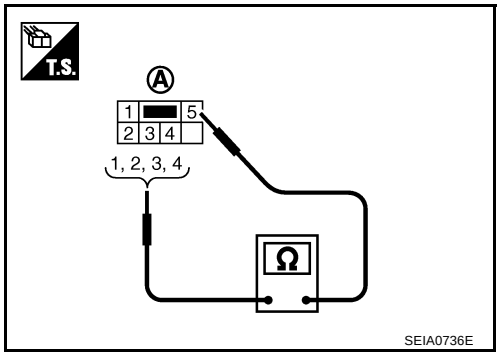
1. Turn ignition switch “OFF”.
2. Remove the each shock absorber actuator harness connector.
3. Check resistance between front shock absorber actuator connector (A) terminals 1, 2, 3, 4 and 5.

1 - 5 : Approx. 12 Ω
2 - 5 : Approx. 12 Ω
3 - 5 : Approx. 12 Ω
4 - 5 : Approx. 12 Ω



4. Check resistance between rear shock absorber actuator connector (A) terminals 1, 2, 3, 4 and 5.

1 - 5 : Approx. 12 Ω
2 - 5 : Approx. 12 Ω
3 - 5 : Approx. 12 Ω
4 - 5 : Approx. 12 Ω



OK or NG

OK >> GO TO 10.
NG >> Replace shock absorber actuator.

10. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> GO TO 10.
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

11. CHECK DTC

Perform the self-diagnosis, after driving a vehicle for a while.

OK or NG

OK >> **INSPECTION END**
NG >> Replace active damper suspension control unit. Refer to SCS-60, "Removal and Installation" .

Engine Speed Signal

NES000CE

- Check the following if “flickering pattern for 31” is detected in self-diagnosis results without CONSULT-II.

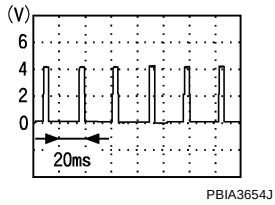
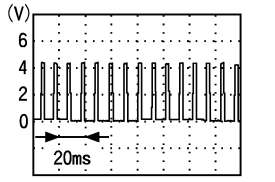
CONSULT-II REFERENCE VALUE IN DATA MONITOR MODE

Data are reference value.

Monitored item	Content	Condition	Display value
ENGINE SPEED [rpm]	Engine speed	Engine stopped	0 rpm
		Engine running (Engine speed: 400 rpm or more)	Approximately equal to the indication on tachometer

ACTIVE DAMPER SUSPENSION CONTROL UNIT TERMINALS AND REFERENCE VALUE

Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition	Data (Approx.)
12	W/G	Engine speed	Engine speed: At idle (Warm-up condition)	 PBIA3654J
			Engine speed: Approx. 2,000 rpm (Warm-up condition)	 PBIA3655J

CAUTION:

When using a oscilloscope to measure voltage for inspection, be sure not to extend forcibly any connector terminal.

DIAGNOSTIC PROCEDURE

1. CHECK DTC WITH ECM

Perform self-diagnosis with ECM. Refer to EC-118, "SELF-DIAG RESULTS MODE" .

Is any malfunction detected by self-diagnosis?

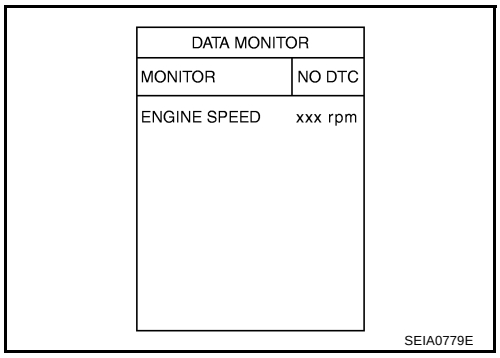
YES >> Check the malfunctioning system.
NO >> GO TO 2.

2. CHECK ENGINE SPEED SIGNAL

With CONSULT-II

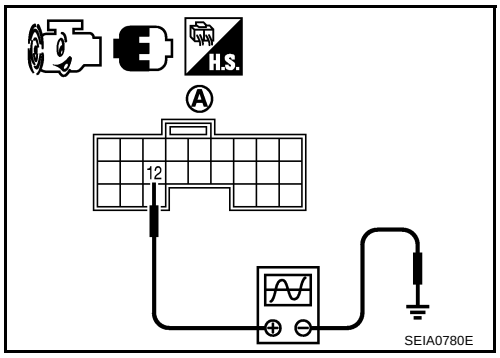
1. Start engine.
2. Select “DATA MONITOR” mode for “ACT D/SUS” with CONSULT-II.
3. Read out the value of “ENGINE SPEED”.

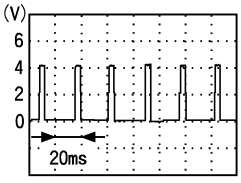
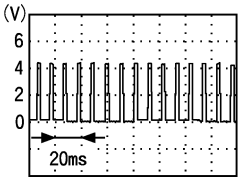
Condition	Display value
Engine stopped	0 rpm
Engine running (Engine speed: 400 rpm or more)	Approximately equal to the indication on tachometer



Without CONSULT-II

1. Start engine.
2. Check signal between active damper suspension control unit harness connector (A) terminal and ground.



Connector	Terminal	Condition	Data (Approx.)
B37	12 - Ground	Engine speed: At idle (Warm-up condition)	 PBIA3654J
		Engine speed: Approx. 2,000 rpm (Warm-up condition)	 PBIA3655J

Also check harness for short to ground and short to power.

OK or NG

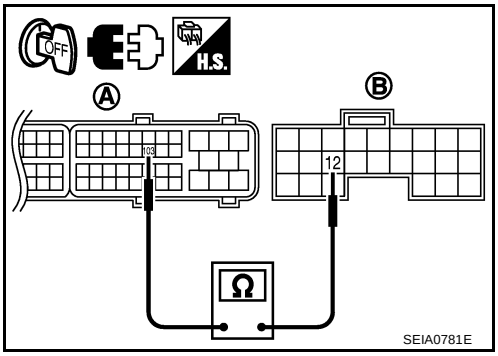
YES >> GO TO 4.
NO >> GO TO 3.

3. CHECK HARNESS BETWEEN ECM AND ACTIVE DAMPER SUSPENSION CONTROL UNIT

1. Turn ignition switch “OFF”.
2. Disconnect ECM harness connector and active damper suspension control unit harness connector.
3. Check continuity between ECM harness connector (A) F101 terminal 103 and active damper suspension control unit harness connector (B) B37 terminal 12.

   Continuity should exist.

   Also check harness for short to ground and short to power.



OK or NG

OK >> GO TO 4.
NG >> Repair or replace damaged parts.

4. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> GO TO 5.
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

5. CHECK DTC

Perform the self-diagnosis, after driving a vehicle for a while.

OK or NG

OK >> **INSPECTION END**
NG >> Perform self-diagnosis with ECM again. Refer to EC-118, "SELF-DIAG RESULTS MODE" .

Active Damper Suspension Select Switch

NES000CG

CONSULT-II REFERENCE VALUE IN DATA MONITOR MODE

Data are reference value.

Monitored item	Content	Condition		Display value
SELECT SWITCH [AUTO/SPORT]	Input condition from active damper suspension select switch	Active damper suspension select switch (Engine running)	AUTO	AUTO
			SPORT	SPORT

ACTIVE DAMPER SUSPENSION CONTROL UNIT TERMINALS AND REFERENCE VALUE

Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition		Data (Approx.)
13	P/B	Active damper suspension select switch	Engine running	Active damper suspension select switch: AUTO	0 V
				Active damper suspension select switch: SPORT	5 V

CAUTION:

When using a circuit tester to measure voltage for inspection, be sure not to extend forcibly any connector terminal.

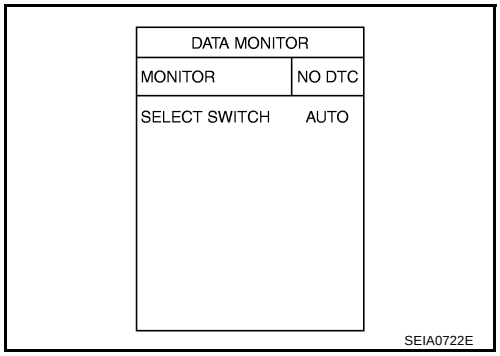
DIAGNOSTIC PROCEDURE

1. CHECK ACTIVE DAMPER SUSPENSION SELECT SWITCH SIGNAL

With CONSULT-II

1. Start engine.
2. Select “DATA MONITOR” mode for “ACT D/SUS” with CONSULT-II.
3. Read out AUTO/SPOR switching action of “SELECT SWITCH”.

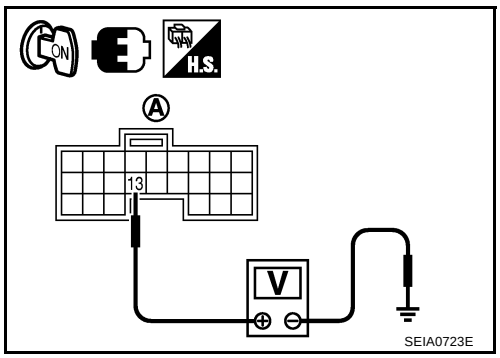
Monitor item	Condition		Display value
SELECT SWITCH	Active damper suspension select switch (Engine running)	AUTO	AUTO
		SPORT	SPORT



Without CONSULT-II

1. Turn ignition switch “ON”.
2. Check voltage between active damper suspension control unit harness connector (A) terminal and ground.

Connector	Terminal	Condition		Voltage (Approx.)
B37	13 - Ground	Engine running	Active damper suspension select switch: AUTO	0 V
			Active damper suspension select switch: SPORT	5 V



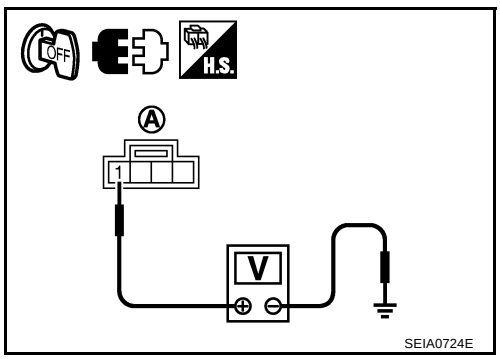
OK or NG

OK >> GO TO 5.
NG >> GO TO 2.

2. CHECK ACTIVE DAMPER SUSPENSION SELECT SWITCH SUPPLY CIRCUIT

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension select switch harness connector.
3. Turn ignition switch “ON”.
4. Check voltage between active damper suspension select switch harness connector (A) terminal 1 and ground.

Connector	Terminal	Voltage (Approx.)
M20	1 - Ground	Battery voltage



OK or NG

OK >> GO TO 3.
NG >> Check the following. If any items are damaged, repair or replace damaged parts.

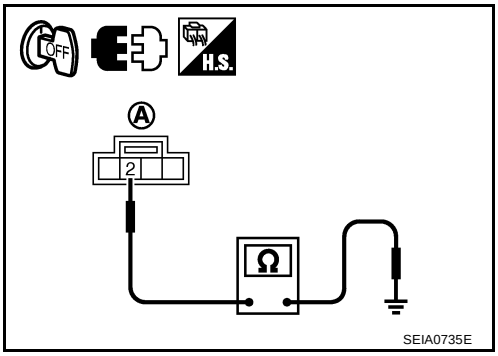
- Harness for short or open between active damper suspension control harness connector B37 terminal 13 and active damper suspension select switch harness connector M20 terminal 1.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension select switch harness connector.
3. Check continuity between active damper suspension select switch harness connector (A) M20 terminal 2 and ground.

   Continuity should exist.

   Also check harness for short to power.



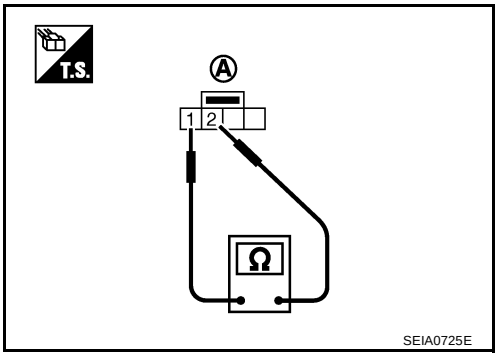
OK or NG

OK >> GO TO 4.
NG >> Repair open circuit or short to power in harness or connectors.

4. CHECK ACTIVE DAMPER SUSPENSION SELECT SWITCH

1. Turn ignition switch “OFF”.
2. Remove the active damper suspension select switch.
3. Operate active damper suspension select switch (A) and check continuity between active damper suspension select switch (A) terminals.

Terminal	Condition	Continuity
1 - 2	Active damper suspension select switch: AUTO	Yes
	Active damper suspension select switch: SPORT	No



OK or NG

OK >> GO TO 5.
NG >> Replace active damper suspension select switch.

5. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> **INSPECTION END**
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

Stop Lamp Switch

NES000HG

- Check the following if “flickering pattern for 14” is detected in self-diagnosis results without CONSULT-II.

CONSULT-II REFERENCE VALUE IN DATA MONITOR MODE

Data are reference value.

Monitored item	Content	Condition	Display value
STOP LAMP SW [ON/OFF]	Condition of brake pedal operation	Brake pedal: Depressed	ON
		Brake pedal: Released	OFF

ACTIVE DAMPER SUSPENSION CONTROL UNIT TERMINALS AND REFERENCE VALUE

Data are reference value and are measured between each terminal and ground.

Terminal	Wire color	Item	Condition	Data (Approx.)
11	L/B	Stop lamp switch	Brake pedal: Depressed	Battery voltage
			Brake pedal: Released	0 V

CAUTION:

When using a circuit tester to measure voltage for inspection, be sure not to extend forcibly any connector terminal.

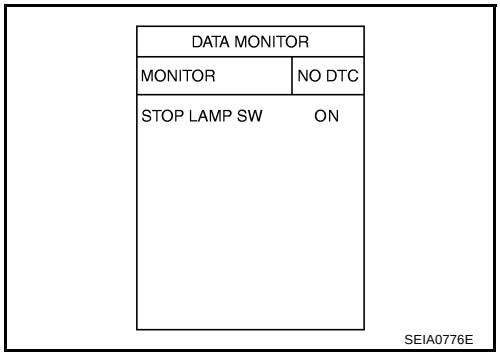
DIAGNOSTIC PROCEDURE

1. CHECK STOP LAMP SWITCH SIGNAL

With CONSULT-II

1. Start engine.
2. Select “DATA MONITOR” mode for “ACT D/SUS” with CONSULT-II.
3. Read out AUTO/SPOR switching action of “STOP LAMP SW”.

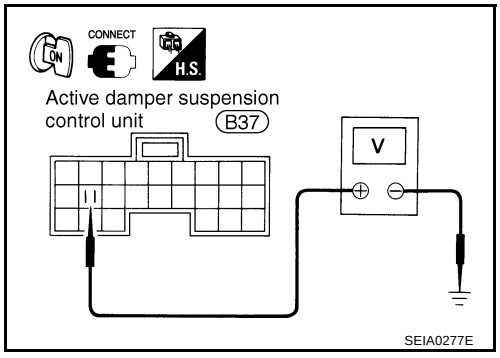
Monitor item	Condition	Display value
STOP LAMP SW	Brake pedal: Depressed	ON
	Brake pedal: Released	OFF



Without CONSULT-II

1. Turn ignition switch “ON”.
2. Check voltage between active damper suspension control unit harness connector terminal and ground.

Connector	Terminal	Condition	Voltage (Approx.)
M37	11 - Ground	Brake pedal: Depressed	Battery voltage
		Brake pedal: Released	0 V

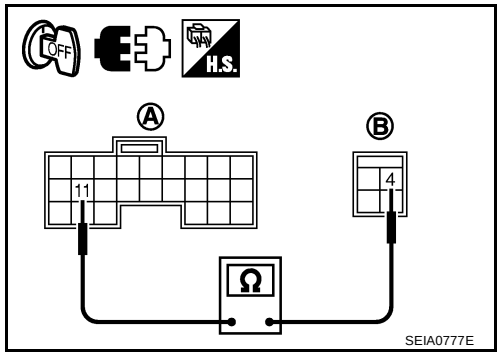


OK or NG

OK >> GO TO 4.
NG >> GO TO 2.

2. CHECK HARNESS BETWEEN ACTIVE DAMPER SUSPENSION CONTROL UNIT AND STOP LAMP SWITCH

1. Turn ignition switch “OFF”.
2. Disconnect active damper suspension control unit harness connector and stop lamp switch harness connector.
3. Check continuity between active damper suspension control unit harness connector (A) B37 terminal 11 and stop lamp switch harness connector (B) M402 terminal 4.



Continuity should exist.

Also check harness for short to ground and short to power.

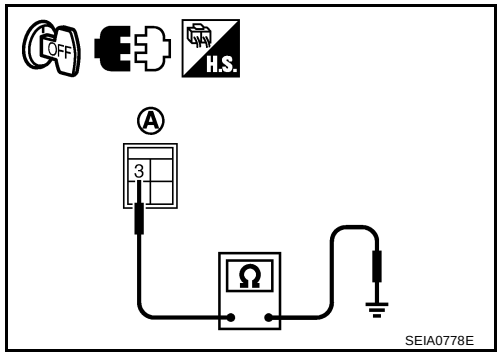
OK or NG

OK >> GO TO 3.
NG >> Check the following. If any items are damaged, repair or replace damaged parts.

- Harness for short or open between active damper suspension control unit harness connector B37 terminal 11 and stop lamp switch harness connector M402 terminal 4.
- Harness for short or open between active damper suspension control unit harness connector B37 terminal 11 and ICC brake hold relay harness connector E37 terminal 7 (ICC models).

3. CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch “OFF”.
2. Disconnect stop lamp switch harness connector.
3. Check voltage between stop lamp switch harness connector (A) terminal and ground.



Connector	Terminal	Condition	Voltage (Approx.)
M402	3 - Ground	Ignition switch: ON	Battery voltage

OK or NG

OK >> GO TO 4.
NG >> Check the following. If any items are damaged, repair or replace damaged parts.

- 10A fuses [No. 17 located in the fuse block (J/B) NO.1]. Refer to PG-2, "POWER SUPPLY ROUTING" .
- Harness for short or open between battery and stop lamp switch harness connector M402 terminal 3.
- Harness for short or open between battery and ICC brake relay harness connector E38 terminal 6. (ICC models)
- Play and clearance between brake pedal and floor panel with pedal. Refer to BR-6, "PLAY AND CLEARANCE BETWEEN BRAKE PEDAL AND FLOOR PANEL WITH PEDAL DEPRESSED" .
- Stop lamp switch
- ICC brake hold relay (ICC models)

4. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> GO TO 5.
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

5. CHECK DTC

Perform the self-diagnosis, after driving a vehicle for a while. Refer to SCS-24, "SELF-DIAG RESULT MODE" .

OK or NG

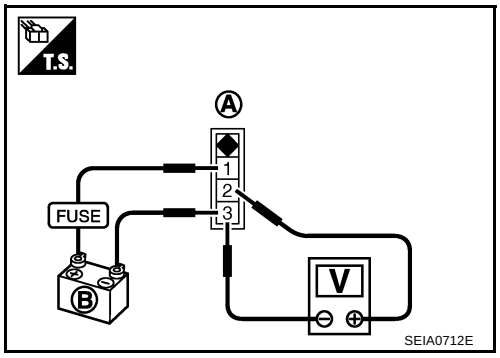
OK >> **INSPECTION END**
NG >> Replace active damper suspension control unit. Refer to SCS-60, "Removal and Installation" .

Component Inspection

NES000HH

VERTICAL G SENSOR

1. Turn ignition switch “OFF”.
2. Disconnect front vertical G sensor harness connector and rear vertical G sensor harness connector.
3. Remove front vertical G sensor and rear vertical G sensor. Refer to SCS-61, "Removal and Installation" .
4. Apply 5 V (B) direct current between each vertical G sensor connector (A) terminals 1 (positive) and 3 (negative).
5. Check voltage between each vertical G sensor connector (A) terminals 2 and 3.

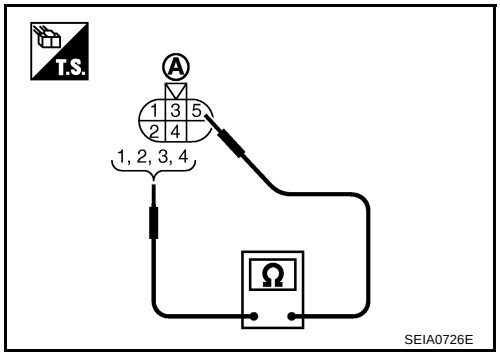


Terminal	Condition	Voltage (Approx.)
2 (positive) - 3 (negative)	Vertical G sensor stop condition	2.5 V
	Vertical G sensor lift up/down condition	Repeats 0 - 5 V

6. If NG, replace vertical G sensor.

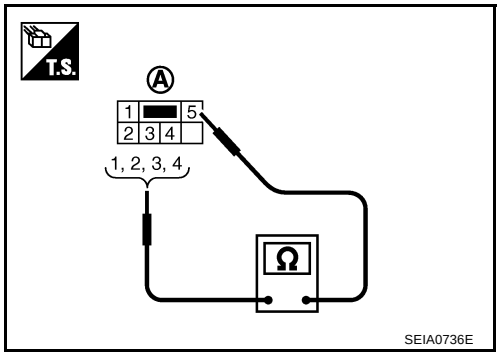
SHOCK ABSORBER ACTUATOR

1. Turn ignition switch “OFF”.
2. Remove the each shock absorber actuator harness connector.
3. Check resistance between front shock absorber actuator connector (A) terminals 1, 2, 3, 4 and 5.



1 - 5 : Approx. 12 Ω
2 - 5 : Approx. 12 Ω
3 - 5 : Approx. 12 Ω
4 - 5 : Approx. 12 Ω

4. Check resistance between rear shock absorber actuator connector (A) terminals 1, 2, 3, 4 and 5.



1 - 5 : Approx. 12 Ω
2 - 5 : Approx. 12 Ω
3 - 5 : Approx. 12 Ω
4 - 5 : Approx. 12 Ω

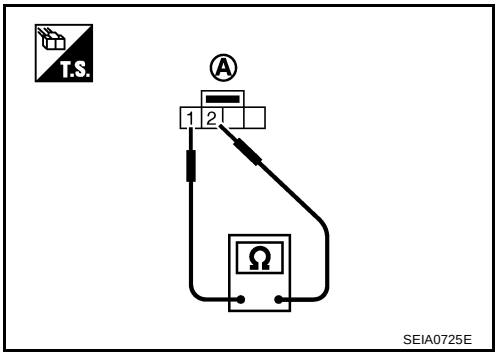
5. If NG, replace shock absorber actuator.

ACTIVE DAMPER SUSPENSION SELECT SWITCH

1. Turn ignition switch “OFF”.
2. Remove the active damper suspension select switch.
3. Operate active damper suspension select switch (A) and check continuity between active damper suspension select switch (A) terminal.

Terminal	Condition	Continuity
1 - 2	Active damper suspension select switch: AUTO	Yes
	Active damper suspension select switch: SPORT	No

4. If NG, replace active damper suspension select switch.



TROUBLE DIAGNOSIS FOR SYMPTOMS

PFP:00007

Hard or Soft Feel

NES000CH

SYMPTOM:

At starting or cornering

DIAGNOSTIC PROCEDURE

1. CHECK SELF-DIAGNOSTIC RESULTS

1. Disconnect active damper suspension control unit connector and each shock absorber actuator connector, then re-connect them.
2. Perform self-diagnosis to check that proper test results are obtained.

OK or NG

OK >> GO TO 2.
NG >> Check and repair detected area.

2. CHECK SHOCK ABSORBER ACTUATOR OPERATION

1. Set the diagnostic system in the self-diagnosis mode.
2. Depress parking brake pedal.
3. Set select switch to “AUTO”, then move vehicle body up and down to check that dampening force of each shock absorber is high. Brake pedal should be released during tests.
4. Set select lever to “SPORT”, then move vehicle body up and down to check that dampening force of each shock absorber is high.

OK or NG

OK >> GO TO 7.
NG >> GO TO 3.

3. CHECK SYSTEM FOR SHOCK ABSORBER ACTUATOR

Perform trouble diagnosis for shock Absorber Actuator system. Refer to SCS-41, "Shock Absorber Actuator" .

OK or NG

OK >> GO TO 4.
NG >> Repair or replace damaged parts.

4. CHECK SYSTEM FOR ACTIVE DAMPER SUSPENSION SELECT SWITCH

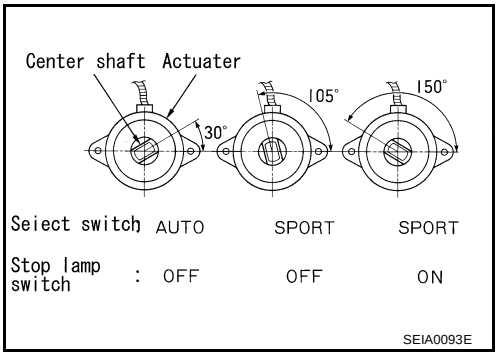
Perform trouble diagnosis for active damper suspension select switch system. Refer to SCS-49, "Active Damper Suspension Select Switch" .

OK or NG

OK >> GO TO 5.
NG >> Repair or replace damaged parts.

5. CHECK SHOCK ABSORBER ACTUATOR OPERATION

1. Remove actuator from strut.
2. Set diagnostic system in the self-diagnostic mode.
3. Check that actuator operates as shown in the figure when select switch is set to “AUTO” or “SPORT”, and brake pedal is depressed or released.



OK or NG

OK >> GO TO 6.
NG >> Replace shock absorber.

6. CHECK SHOCK ABSORBER CONTROL ROD

Pinch control rod with your fingers, then turn it 2 or 3 rotations to check that it rotates smoothly without free play.

OK or NG

OK >> GO TO 7.
NG >> Replace shock absorber.

7. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> GO TO 8.
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

8. CHECK SYMPTOM

Check again.

OK or NG

OK >> GO TO 9.
NG >> Replace active damper suspension control unit. Refer to SCS-60, "Removal and Installation" .

9. CHECK RIDE COMFORT

Check for improved riding comfort.

OK or NG

OK >> **INSPECTION END**
NG >> Replace shock absorber.

Active Damper Suspension Select Switch Does Not Change

NES000CI

SYMPTOM:

Active damper suspension select switch do not change when switching active damper suspension select switch.

DIAGNOSTIC PROCEDURE

1. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT POWER SUPPLY CIRCUIT

Perform trouble diagnosis for active damper suspension control unit power supply system. Refer to SCS-30, "Power Supply Circuit" .

OK or NG

OK >> GO TO 2.
NG >> Repair or replace damaged parts.

2. CHECK SYSTEM FOR ACTIVE DAMPER SUSPENSION SELECT SWITCH

Perform trouble diagnosis for active damper suspension select switch system. Refer to SCS-49, "Active Damper Suspension Select Switch" .

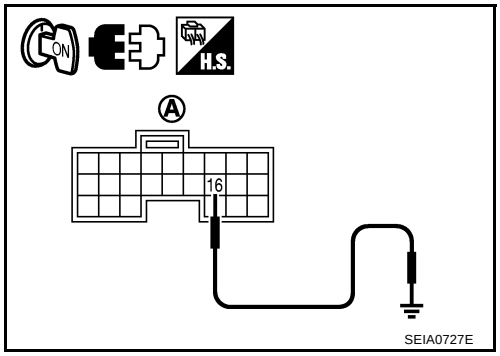
OK or NG

OK >> GO TO 3.
NG >> Repair or replace damaged parts.

3. CHECK INDICATOR LAMP CIRCUIT

1. Turn ignition switch “OFF”.
2. Connect combination meter harness connector.
3. Disconnect active damper suspension control unit harness connector.
4. Turn ignition switch “ON”. (Do not start engine.)
5. Ground the following terminal using suitable wiring.

– Active damper suspension control unit (A) harness connector B37 terminal 16 and ground.



Does SPORT indicator lamp turn on?

OK >> GO TO 4.
NG >> Check the following. If any items are damaged, repair or replace damaged parts.

- 10A fuses [No. 9 located in the fuse block (J/B) No.1]. Refer to PG-2, "POWER SUPPLY ROUTING" .
- Harness for short or open between ignition switch and combination meter harness connector M43 terminal 59.
- Harness for short or open between active damper suspension control unit harness connector B37 terminals 16 and combination meter harness connector M43 terminals 53.
- Ignition switch. Refer to PG-2, "POWER SUPPLY ROUTING" .
- Replace combination meter. Refer to DI-23, "Removal and Installation for Combination Meter" .

4. CHECK ACTIVE TEST

Check active test of SPORT indicator lamp. Refer to SCS-26, "SPORT Indicator lamp" .

OK or NG

OK >> GO TO 5.
NG >> GO TO 3.

5. CHECK ACTIVE DAMPER SUSPENSION CONTROL UNIT

Check active damper suspension control unit input/output signal. Refer to SCS-20, "Active Damper Suspension Control Unit Input/Output Signal Reference Values" .

OK or NG

OK >> GO TO 6.
NG >> Check active damper suspension control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

6. CHECK SYMPTOM

Check again.

OK or NG

OK >> **INSPECTION END**
NG >> Replace active damper suspension control unit. Refer to SCS-60, "Removal and Installation" .

CONTROL UNIT

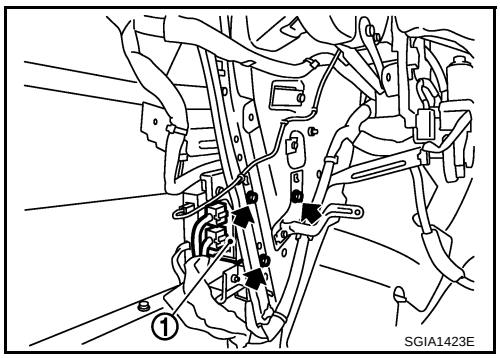
PFP:28400

Removal and Installation

NES000AX

REMOVAL

1. Turn the ignition switch OFF and disconnect the battery cable from the negative terminal.
2. Remove the trunk side finisher. Refer to EI-60, "Removal and Installation" .
3. Disconnect the two active damper suspension control unit connectors.
4. Remove the active damper suspension control unit bolts.
5. Remove the active damper suspension control unit (1).



INSTALLATION

Note the following, and installation is the reverse order of removal.

- When installing the active damper suspension control unit, tighten bolts to the specified torque.

Active damper suspension control unit bolts : 8.3 N·m (0.85 kg-m, 73 in-lb)

G SENSOR

PFP:98805

Removal and Installation

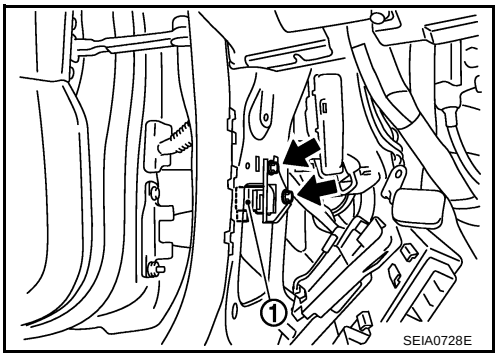
NES000CJ

CAUTION:
Never drop or strike the vertical G sensor, because it has little endurance to impact.

REMOVAL

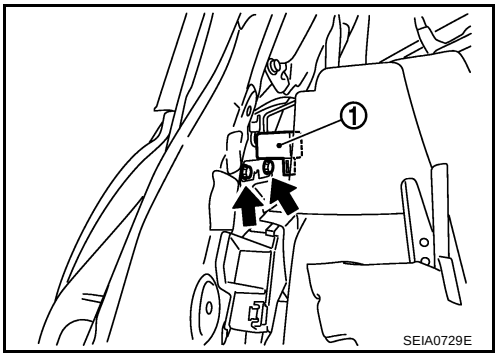
Front Vertical G Sensor

1. Remove the lower dash side finisher. Refer to EI-44, "DASH SIDE FINISHER" .
2. Remove the SMJ harness connector bolt.
3. Remove the IVMS control unit. Refer to LAN-8, "REMOVAL" .
4. Disconnect the front vertical G sensor connector.
5. Remove the front vertical G sensor bolts.
6. Remove the front vertical G sensor (1).



Rear Vertical G Sensor

1. Remove the seat cushion trim and pad (RH). Refer to SE-191, "Removal and Installation" .
2. Remove the seatback trim and pad (RH). Refer to SE-191, "Removal and Installation" .
3. Remove the rear pillar finisher. Refer to EI-43, "Removal and Installation" .
4. Disconnect the rear vertical G sensor connector.
5. Remove the rear vertical G sensor bolts.
6. Remove the rear vertical G sensor (1).



INSTALLATION

Note the following, and installation is the reverse order of removal.

- When installing each vertical G sensor, tighten bolts to the specified torque.

  Vertical G sensor bolts : 3.4 N·m (0.35 kg-m, 30 in-lb)

  CAUTION:
  Never drop or strike the vertical G sensor, because it has little endurance to impact.
- After the installation, check each vertical G sensor value on “DATA MONITOR” of CONSULT-II. If it is outside the standard, replace each vertical G sensor. Refer to SCS-25, "Display Item List" .