SUSPENSION CONTROL SYSTEM

CONTENTS

| HOW TO USE THIS MANUAL |
|--|
| HOW TO USE THIS MANUAL |
| BASIC INSPECTION4 |
| DIAGNOSIS AND REPAIR WORK FLOW 4 Work Flow |
| SYSTEM DESCRIPTION7 |
| Continuous Damping Control SYSTEM7System Diagram7System Description7Component Parts Location9Component Description10 |
| DIAGNOSIS SYSTEM (E-SUS CONTROL UNIT)11 CONSULT-III Function11 |
| |
| DTC/CIRCUIT DIAGNOSIS13 |
| DTC/CIRCUIT DIAGNOSIS13 C1D01 VEHICLE SPEED SIGNAL13 Description |
| DTC/CIRCUIT DIAGNOSIS13 C1D01 VEHICLE SPEED SIGNAL13 Description |
| DTC/CIRCUIT DIAGNOSIS 13 C1D01 VEHICLE SPEED SIGNAL 13 Description 13 DTC Logic 13 Diagnosis Procedure 13 C1D03 STEERING ANGLE SENSOR 15 Description 15 DTC Logic 15 Diagnosis Procedure 15 |
| DTC/CIRCUIT DIAGNOSIS 13 C1D01 VEHICLE SPEED SIGNAL 13 Description 13 DTC Logic 13 Diagnosis Procedure 13 C1D03 STEERING ANGLE SENSOR 15 Description 15 DTC Logic 15 DTC Logic 15 DTC Logic 15 DTC Logic 15 Diagnosis Procedure 15 DTC Logic 17 Description 17 Diagnosis Procedure 17 Diagnosis Procedure 17 |

| C1D09 BRAKE FLUID PRESSURE SIGNAL21 Description | F |
|--|---|
| C1D0B FRONT WHEEL VERTICAL G SEN- | |
| Description | H |
| C1D0C FRONT WHEEL VERTICAL G SEN- | |
| Description | J |
| C1D0D FRONT BODY VERTICAL G SEN- | K |
| Description | L |
| C1D10 FRONT BODY VERTICAL G SENSOR | M |
| Description | N |
| C1D11 REAR VERTICAL G SENSOR | 0 |
| C1D12 SHOCK ABSORBER ACTUATOR33 Description | Ρ |
| C1D13 SHOCK ABSORBER ACTUATOR35 Description | |

А

В

С

D

SCS

| DTC Logic Diagnosis Procedure | 35 35 |
|----------------------------------|------------|
| Component Inspection | 36 |
| C1D14 SHOCK ABSORBER ACTUATOR | 37 |
| Description | 37 |
| DTC Logic | 37 |
| Diagnosis Procedure | 37 |
| Component Inspection | 38 |
| C1D15 SHOCK ABSORBER ACTUATOR | 39 |
| Description | 39 |
| DTC Logic | 39 |
| Diagnosis Procedure | 39 |
| Component inspection | 40 |
| C1D16 E-SUS CONTROL UNIT | 41 |
| Description | 41 |
| DTC Logic | 41 |
| Diagnosis Procedure | 41 |
| C1D18 IGN POWER SUPPLY | 42 |
| Description | 42 |
| DTC Logic | 42 |
| Diagnosis Procedure | 42 |
| C1D23 E-SUS CONTROL UNIT | 44 |
| Description | 44 |
| DTC Logic | 44 |
| Diagnosis Procedure | 44 |
| U1000 CAN COMM CIRCUIT | 45 |
| Description | 45 |
| DTC Logic | 45 |
| Diagnosis Procedure | 45 |
| U1010 CONTROL UNIT (CAN) | 46 |
| Description | 46 |
| DTC Logic | 46 |
| Diagnosis Procedure | 46 |
| | E _ |
| I FCT) | ∟- 47 |
| Description | 47 |
| Component Function Check | 47 |
| Diagnosis Procedure | 47 |
| Component Inspection | 48 |
| SPORT MODE INDICATOR LAMP | <u>10</u> |
| Description | 49 |
| Component Function Check | 49 |
| Diagnosis Procedure | 49 |

| ECU DIAGNOSIS INFORMATION 50 |
|---|
| E-SUS CONTROL UNIT |
| TYPE A 52 TYPE A : Wiring Diagram - Continuous Damping Control SYSTEM - 53 |
| TYPE B58TYPE B : Wiring Diagram - Continuous DampingControl SYSTEM -Fail-safeG3DTC Inspection Priority ChartControl Index |
| SYMPTOM DIAGNOSIS65 |
| SPORT MODE INDICATOR LAMP DOES NOT TURN ON |
| PRECAUTION66 |
| PRECAUTIONS 66 Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN-SIONER" SIONER" 66 Precautions for terminology 66 Precautions for diagnosis 66 |
| REMOVAL AND INSTALLATION 67 |
| E-SUS CONTROL UNIT |
| FRONT BODY VERTICAL G SENSOR 68 Exploded View 68 Removal and Installation 68 |
| FRONT WHEEL VERTICAL G SENSOR 69 Exploded View 69 Removal and Installation 69 |
| REAR BODY VERTICAL G SENSOR 70 Exploded View 70 Removal and Installation 70 |
| SHOCK ABSORBER ACTUATOR |

< HOW TO USE THIS MANUAL >

HOW TO USE THIS MANUAL HOW TO USE THIS MANUAL

Application Notice

Check vehicle identification number to use the corresponding service information in this manual.

| Service information | Vehicle identification number | |
|--|--|-----|
| TYPE A | Up to VIN: JN8AS1MU*BM710003 JN8AS1MW*BM730002 JN8BS1MW*BM760006 | D |
| TYPE B | From VIN: JN8AS1MU*BM710004 JN8AS1MW*BM730003 JN8BS1MW*BM760007 | SCS |
| *: Refer to GI-24, "Information of the second secon | ation About Identification or Model Code" to vehicle identification number | F |
| | | |
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BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

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DETAILED FLOW

1.OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurs.

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

| >> GO TO 2. | А |
|--|-----|
| 2.снеск отс | |
| Check for DTC. If a DTC exists, perform the following operations. Records the DTCs. | В |
| Erase DTCs Check that the root cause clarified with DTC matches to the malfunction information described by the customer. | С |
| 3. Check also the related service information or others. | D |
| Malfunction information and DTC exist. >>GO TO 3. Malfunction information exists but no DTC. >>GO TO 4. No malfunction information, but DTC exists. >>GO TO 5. 3. REPRODUCE THE MALFUNCTION INFORMATION | SCS |
| Check the malfunction described by the customer on the vehicle. Record the status of each signal when a symptom occurs with "Data Monitor" in CONSULT-III. Inspect the relation of the information and the condition when it occurs. | F |
| >> GO TO 5. 4.CHECK THE MALEUNCTION | G |
| Check the malfunction described by the customer on the vehicle. Record the status of each signal when a symptom occurs with "Data Monitor" in CONSULT-III. Inspect the relation of the information and the condition when it occurs. | H |
| >> GO TO 6. | I |
| 5.PERFORM "DTC CONFIRMATION PROCEDURE" | |
| Perform the "DTC conformation procedure" to the detected DTC and check that the DTC is detected again. Refer to <u>SCS-64, "DTC Inspection Priority Chart"</u> when multiple DTCs are detected, and then judge the order for performing the diagnosis | J |
| Is any DTC detected? | Κ |
| YES >> GO TO 7. | |
| 6. IDENTIFY MALFUNCTIONING SYSTEM WITH "SYMPTOM DIAGNOSIS" | L |
| Use the "Symptom diagnosis" from the symptom inspection result in step 4. Then identify where to start per- forming the diagnosis based on the possible causes and the symptoms. | M |
| >> GO TO 7. | |
| I.IDENTIFY MALFUNCTIONING PARTS WITH "COMPONENT DIAGNOSIS" | Ν |
| Perform the inspection with the "component diagnosis" of the applicable system. | |
| The "component diagnosis" mainly consists of the check for an open circuit. The circuit check in the diagnosis procedure also requires the check for a short circuit. Refer to <u>GI-47, "Circuit</u> <u>Inspection"</u> for details. | 0 |
| >> GO TO 8 | Ρ |
| 8. REPAIR OR REPLACE THE MALFUNCTIONING PARTS | |

1. Repair or replace the part detected as malfunctioning.

2. After repairing or replacing, reinstall/reconnect parts or connectors removed/disconnected in the "component diagnosis", and then erase the DTC.

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

>> GO TO 9. 9.FINAL CHECK

Perform the "DTC confirmation procedure" or "Component Inspection" to check that the repair is correctly performed. Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 3 or 4.

Is the check result normal?

- YES >> Trouble diagnosis is completed.
- NO-1 >> The DTC is reproduced. GO TO 7.
- NO-2 >> The symptom is reproduced. GO TO 6.

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION CONTINUOUS DAMPING CONTROL SYSTEM

System Diagram

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System Description

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Description

- The Continuous Damping Control system mainly consists of the components such as the E-SUS control unit, front body vertical G sensor, front wheel vertical G sensor, rear body vertical G sensor, and shock absorber actuators on each wheel.
- It calculates the command values to be transmitted to the shock absorber actuator on each wheel based on the information from ECM, ABS actuator and electric unit (control unit) and steering angle sensor via CAN communication and information from the front body vertical G sensor, front wheel vertical G sensor and rear body vertical G sensor.
- The shock absorber actuator on each wheel controls the damping force based on the command values calculated by E-SUS control unit.
- Can perform the self-diagnosis with CONSULT-III.
- Communicates the signal from each control unit via CAN communication.

| Control unit | Signal status | |
|---|---|--|
| Steering angle sensor | Transmits mainly the following signals to E-SUS control unit via CAN communication. Steering angle signal | |
| ABS actuator and electric unit (control unit) | Transmits mainly the following signals to E-SUS control unit via CAN communication. Vehicle speed signal Brake pressure control signal Stop lamp switch signal | |

< SYSTEM DESCRIPTION >

| Control unit | Signal status | |
|----------------------------|---|--|
| ECM | Transmits mainly the following signals to E-SUS control unit via CAN communication. Requested torque signal | |
| Unified meter and A/C amp. | Transmits mainly the following signals from E-SUS control unit via CAN communication. • Sport mode indicator lamp signal | |

Operation principle



Controls damping force by changing the oil passage cross section area through control of orifice by solenoid core activation.

Operation characteristics

• Changes the damping force control by switching the switch (AUTO mode or SPORT mode).



• Changes the damping force depending on the output current to the shock absorber actuators.



< SYSTEM DESCRIPTION >

Component Parts Location

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- 1. Mode select switch (E-SUS mode select)
- 4. Front wheel vertical G sensor (left and right)
- 7. Rear body vertical G sensor
- A. Center console panel
- D. Front strut side
- G. Trunk floor

- 2. Front body vertical G sensor (left and right)
- 5. Rear shock absorber actuator (left and right)
- 8. Sport mode indicator lamp
- B. Strut tower
- E. Rear strut
- H. Combination meter

- 3. Front shock absorber actuator (left and right)
- 6. E-SUS control unit
- C. Front strut
- F. Trunk room left back

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< SYSTEM DESCRIPTION >

Component Description

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| Component | Reference/function | |
|---|---|--|
| E-SUS control unit | SCS-41, "Description" | |
| Front body vertical G sensor | SCS-27, "Description" | |
| Front wheel vertical G sensor | SCS-23, "Description" | |
| Rear body vertical G sensor | SCS-31, "Description" | |
| Shock absorber actuator | SCS-33, "Description" | |
| Mode select switch (E-SUS mode select) | SCS-47, "Description" | |
| Sport mode indicator lamp | SCS-49, "Description" | |
| Steering angle sensor | Transmits the steering angle signal to E-SUS control unit via CAN communication. | |
| ABS actuator and electric unit (control unit) | Transmits mainly the following signals to E-SUS control unit via CAN communication Vehicle speed signal Brake pressure control signal Brake lamp switch signal | |
| ECM | Transmits mainly the following signals to E-SUS control unit via CAN communication. Requested torque signal | |
| Unified meter and A/C amp. | Transmits mainly the following signals from E-SUS control unit via CAN communication. • Sport mode indicator lamp signal | |

DIAGNOSIS SYSTEM (E-SUS CONTROL UNIT)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (E-SUS CONTROL UNIT)

CONSULT-III Function

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FUNCTION

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

| Diagnostic test mode | Function | C |
|-----------------------|--|---|
| ECU identification | E-SUS control unit part number can be read. | |
| Self-diagnosis result | Self-diagnostic results can be read and erased quickly. * | |
| Data monitor | Input/Output data in the E-SUS control unit can be read. | Ľ |
| Active test | CONSULT-III drives some actuators via E-SUS, and changes some command signal values with- in the specified range. | 0 |

*: If the memory in E-SUS control unit is erased, the DTC diagnosis result is also erased.

ECU IDENTIFICATION

E-SUS control unit part number can be read.

SELF-DIAGNOSTIC RESULT

Display Item List Refer to <u>SCS-64, "DTC Index"</u>.

DATA MONITOR

Display Item List

| Monitor item (Unit) | Remarks |
|-------------------------------|---|
| VEHICLE SPEED (km/h) or (MPH) | Vehicle speed recognized by E-SUS control unit |
| ST ANGLE SIG (deg) | Steering angle recognized by E-SUS control unit |
| IGN (V) | Ignition voltage supplied to E-SUS control unit |
| REQUESTED TRQ (Nm) | Required torque recognized by E-SUS control unit |
| FR BDY G-SEN VOL (V) | Output voltage from front RH body vertical G sensor |
| FL BDY G-SEN VOL (V) | Output voltage from front LH body vertical G sensor |
| R G-SEN VOL (V) | Output voltage from rear body vertical G sensor |
| FR WHL G-SEN VOL (V) | Output voltage from front RH wheel vertical G sensor |
| FL WHL G-SEN VOL (V) | Output voltage from front LH wheel vertical G sensor |
| FR ACTUATOR CRNT (A) | Control current for front RH wheel shock absorber actuator operation |
| FL ACTUATOR CRNT (A) | Control current for front LH wheel shock absorber actuator operation |
| RR ACTUATOR CRNT (A) | Control current for rear RH wheel shock absorber actuator operation |
| RL ACTUATOR CRNT (A) | Control current for rear LH wheel shock absorber actuator operation |
| G-SEN VOL (V) | Voltage supplied to G-sensor |
| BRK FLD PRESS (bar) | Fluid pressure recognized by E-SUS control unit when brake is applied |
| STP LAMP SW (On/Off) | Brake pedal operation status recognized by E-SUS control unit |
| MODE SW (On/Off) | E-SUS mode lamp condition |
| FAIL MODE SIG (On/Off) | E-SUS control unit is in fail-safe status. |
| CONTROL MODE (AUTO/SPORT) | Each control mode status AUTO: AUTO mode SPORT: SPORT mode |

ACTIVE TEST

[•] Always perform while the vehicle is stopped.

DIAGNOSIS SYSTEM (E-SUS CONTROL UNIT)

< SYSTEM DESCRIPTION >

• Always check shock absorber actuator if DTC is detected using the shock absorber actuator active test.

Shock absorber actuator

The control signal from CONSULT-III forces activation of the shock absorber actuator. The check can be performed by confirming the operation noise.

| Test item | Display Item | Display |
|------------------------------|----------------------|--|
| | | Operation half cycle |
| SHOCK ABSORB- ER ACTUATOR | FRONT RIGHT ACTUATOR | |
| | FRONT LEFT ACTUATOR | |
| | REAR RIGHT ACTUATOR | 0.1 seconds – 1 second (cycles in 0.1 seconds) |
| | REAR LEFT ACTUATOR | |
| | FOUR WHEEL ACTUATOR | |

• Mode lamp

The control signal from CONSULT-III forces activation of the mode lamp (ON/OFF) for check.

| Test item | | Display | | |
|-----------|--------------|---------------------|-----|--|
| | Display Item | Illumination status | | |
| | | ON | OFF | |
| MODE LAMP | SPORT | ON | OFF | |

DTC/CIRCUIT DIAGNOSIS C1D01 VEHICLE SPEED SIGNAL

Description

The vehicle speed signal is transmitted from the ABS actuator and electric unit (control unit) to E-SUS control unit via CAN communication.

DTC Logic

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DTC DETECTION LOGIC

| DTC | Display Item | Malfunction detected condition | Possible causes |
|-------|-------------------|--|---|
| C1D01 | VEHICLE SPEED SIG | A malfunction is detected in the vehicle speed signal output from the ABS actuator and electric unit (control unit) to CAN communication. No transmission of vehicle speed signal from the ABS actuator and electric unit (control unit). | Harness or connector (CAN communication line) ABS actuator and electric unit (control unit) E-SUS control unit Battery low voltage |

DTC REPRODUCTION PROCEDURE

CAUTION:

If the CAN signal "Unavailable" or "Broken" is received while the battery voltage is in the low (between 6 V and 9 V) condition, and when intending to perform another self-diagnosis operation to record the DTC history, always start the procedure after checking that the battery voltage is within the specified normal value.

1.CHECK E-SUS CONTROL UNIT SIGNAL

| With CONSULT-III | |
|--|--------------|
| 1. Start the engine. | J |
| CAUTION: | |
| Always hold the vehicle stopped. | |
| 2. Select "DATA MONITOR" of "E-SUS". 3. Check the value of "IGN" on "DATA MONITOP" screen | Κ |
| 5. Check the value of 1GN off DATA MONITOR Scieen. | |
| Is the value in "DATA MONITOR" "between 6 V and 9 V" or more? | |
| YES >> GO TO 2. | L |
| NO >> Perform the diagnosis for the charging system. Refer to <u>CHG-28, "Symptom Table"</u> . | |
| 2.DTC REPRODUCTION PROCEDURE | |
| With CONSULT-III | \mathbb{N} |
| Perform "E-SUS" self-diagnosis. | |
| Is DTC "C1D01" detected? | |
| YES >> Proceed to diagnosis procedure. Refer to SCS-13, "Diagnosis Procedure". | Ν |
| NO >> INSPECTION ĔND | |
| Diagnosis Procedure | 0 |
| 1. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) | |
| (P)With CONSULT-III | Р |
| Perform "ABS" self-diagnosis. | |
| Is DTC detected? | |
| YES >> Check the detected DTC items | |
| NO $>>$ GO TO 2. | |
| 2. PERFORM SELF-DIAGNOSIS | |
| With CONSULT-III | |

C1D01 VEHICLE SPEED SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

Perform "E-SUS" self-diagnosis.

Is another DTC detected?

YES >> Check the detected DTC items. Refer to <u>SCS-64, "DTC Index"</u>.

NO >> GO TO 3.

3. CHECK INFORMATION

With CONSULT-III

- 1. Select "DATA MONITOR" of "E-SUS".
- 2. Check the "VEHICLE SPEED" of "DATA MONITOR" screen. Refer to SCS-50, "Reference Value".

Is each data within standard values?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connection. Repair or replace error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

C1D03 STEERING ANGLE SENSOR

Description

The steering angle signal is transmitted from the steering angle sensor to E-SUS control unit via CAN communication.

DTC Logic

INFOID:000000006566406

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DTC DETECTION LOGIC

| DTC | Display Item | Malfunction detected condition | Possible causes |
|-------|--------------------|---|---|
| C1D03 | ST ANGLE SPEED SIG | A malfunction is detected in the steering angle sensor signal output from the steering angle sen- sor to CAN communication. No transmission of the steering angle signal from the steering angle sensor. | Harness or connector (CAN communication line) Steering angle sensor E-SUS control unit Battery low voltage |

DTC REPRODUCTION PROCEDURE

CAUTION:

If the CAN signal "Unavailable" or "Broken" is received while the battery voltage is in the low (between 6 V and 9 V) condition, and when intending to perform another self-diagnosis operation to record the DTC history, always start the procedure after checking that the battery voltage is within the specified normal value.

| 1.CHECK E-SUS CONTROL UNIT SIGNAL | Н |
|--|----|
| With CONSULT-III Start the engine. CAUTION: | I |
| Always hold the vehicle stopped. Select "DATA MONITOR" of "E-SUS". Check the value of "IGN" on "DATA MONITOR" screen. Is the value in "DATA MONITOR" "between 6 V and 9 V" or more? | J |
| YES >> GO TO 2. NO >> Perform the diagnosis for the charging system. Refer to <u>CHG-28, "Symptom Table"</u> . 2. DTC REPRODUCTION PROCEDURE | K |
| With CONSULT-III Perform "E-SUS" self-diagnosis. In DTC "C1D03" detected? | L |
| YES >> Proceed to diagnosis procedure. Refer to <u>SCS-15. "Diagnosis Procedure"</u> . NO >> INSPECTION END | M |
| Diagnosis Procedure | N |
| 1. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) | 14 |
| With CONSULT-III Perform "ABS" self-diagnosis. Is DTC detected? | 0 |
| YES >> Check the detected DTC items. NO >> GO TO 2. | Ρ |
| ∠.PERFORM SELF-DIAGNOSIS | |
| With CONSULT-III Perform "E-SUS" self-diagnosis. Is another DTC detected? YES >> Check the detected DTC items. Refer to SCS-64. "DTC Index". | |

NO >> GO TO 3.

3. CHECK INFORMATION

With CONSULT-III

- 1. Select "DATA MONITOR" of "E-SUS".
- 2. Check "ST ANGLE SIG" of "DATA MONITOR" screen. Refer to SCS-50. "Reference Value".

Is each data within standard values?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connection. Repair or replace error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

C1D05 TORQUE SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

C1D05 TORQUE SIGNAL

Description

The required torque signal is transmitted from ECM to E-SUS control unit via CAN communication.

DTC Logic

INFOID:000000006566409

INFOID:00000006566408

DTC DETECTION LOGIC

| DTC | Display Item | Malfunction detected condition | Possible causes | |
|-------|---------------|---|---|----|
| C1D05 | REQST TRQ SIG | No transmission of the required torque signal from ECM. | Harness or connector (CAN communication line) ECM E-SUS control unit Battery low voltage | SC |

DTC REPRODUCTION PROCEDURE

CAUTION:

If the CAN signal "Unavailable" or "Broken" is received while the battery voltage is in the low (between 6 V and 9 V) condition, and when intending to perform another self-diagnosis operation to record the DTC history, always start the procedure after checking that the battery voltage is within the specified normal value.

1.CHECK E-SUS CONTROL UNIT SIGNAL

| | П |
|--|---|
| With CONSULT-III | |
| 1. Start the engine. | |
| Always hold the vehicle stopped. | |
| 2. Select "DATA MONITOR" of "E-SUS". | |
| Check the value of "IGN" on "DATA MONITOR" screen. | 1 |
| Is the value in "DATA MONITOR" "between 6 V and 9 V" or more? | J |
| YES >> GO TO 2. | |
| NO \rightarrow Perform the diagnosis for the charging system. Refer to <u>CHG-28, "Symptom Table"</u> . | Κ |
| ∠.DTC REPRODUCTION PROCEDURE | |
| BWith CONSULT-III | |
| Perform "E-SUS" self-diagnosis. | L |
| Is DTC "C1D05" detected? | |
| YES >> Proceed to diagnosis procedure. Refer to <u>SCS-17, "Diagnosis Procedure"</u> . NO >> INSPECTION END | M |
| Diagnosis Procedure | |
| 1.PERFORM SELF-DIAGNOSIS OF ECM | Ν |
| With CONSULT-III Porform "ENCINE" colf diagnosis | |
| Le DTC detected? | 0 |
| <u>IS DTC delected?</u> | |
| NO $>>$ GO TO 2 | D |
| | Ρ |
| | |
| With CONSULT-III Device of the diagnostic | |
| renorm E-505 sen-alagnosis. | |

YES >> Check the detected DTC items. Refer to <u>SCS-64, "DTC Index"</u>.

NO >> GO TO 3.

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3. CHECK INFORMATION

(B) With CONSULT-III

- 1. Select "DATA MONITOR" of "E-SUS".
- 2. Check "REQUESTED TRQ" of "DATA MONITOR" screen. Refer to SCS-50, "Reference Value".

Is each data within standard values?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connection. Repair or replace the error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

C1D07 STOP LAMP SWITCH

Description

The stop lamp switch signal is transmitted from the ABS actuator and electric unit (control unit) to E-SUS con-В trol unit via CAN communication.

DTC Logic

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INFOID:000000006566411

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DTC DETECTION LOGIC

| DTC | Display Item | Malfunction detected condition | Possible causes | |
|-------|------------------|--|---|---|
| C1D07 | STOP LAMP SW SIG | No transmission of stop lamp switch signal from the ABS actuator and electric unit (control unit). | Harness or connector (CAN communication line) ABS actuator and electric unit (control unit) E-SUS control unit Battery low voltage | S |

DTC REPRODUCTION PROCEDURE

CAUTION:

If the CAN signal "Unavailable" or "Broken" is received while the battery voltage is in the low (between 6 V and 9 V) condition, and when intending to perform another self-diagnosis operation to record the DTC history, always start the procedure after checking that the battery voltage is within the specified normal value.

1.CHECK E-SUS CONTROL UNIT SIGNAL

| With CONSULT-III | |
|--|---------------------|
| 1. Start the engine. | |
| CAUTION: Always hold the vehicle stopped | J. |
| 2. Select "DATA MONITOR" of "E-SUS". | 0 |
| 3. Check the value of "IGN" on "DATA MONITOR" screen. | |
| Is the value in "DATA MONITOR" "between 6 V and 9 V" or more? | K |
| YES >> GO TO 2. | |
| NO >> Perform the diagnosis for the charging system. Refer to <u>CHG-28, "Symptom Table"</u> . | |
| 2.DTC REPRODUCTION PROCEDURE | L |
| | |
| Perform "E-SUS" self-diagnosis. | M |
| Is DTC "C1D07" detected? | |
| YES >> Proceed to diagnosis procedure. Refer to <u>SCS-19, "Diagnosis Procedure"</u> . | |
| NO >> INSPECTION END | Ν |
| Diagnosis Procedure | CID:000000006566413 |
| $1. {\tt perform self-diagnosis of abs actuator and electric unit (control unit)}$ | 0 |
| With CONSULT-III | |
| Perform "ABS" self-diagnosis. | D |
| Is DTC detected? | F |
| YES >> Check the detected DTC items. NO >> GO TO 2. | |
| 2. PERFORM SELF-DIAGNOSIS | |
| With CONSULT-III Parform "E SUS" colf diagnosis | |
| Penoim E-505 sell-diagnosis. | |

C1D07 STOP LAMP SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Is another DTC detected?

YES >> Check the detected DTC items. Refer to <u>SCS-64, "DTC Index"</u>.

NO >> GO TO 3.

3. CHECK INFORMATION

With CONSULT-III

1. Select "DATA MONITOR" of "E-SUS".

2. Check "STP LAMP SW" of "DATA MONITOR". Refer to SCS-50, "Reference Value".

Is each data within standard values?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections. Repair or replace the error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

C1D09 BRAKE FLUID PRESSURE SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

C1D09 BRAKE FLUID PRESSURE SIGNAL

Description

The brake pressure control signal is transmitted from the ABS actuator and electric unit (control unit) to E-SUS control unit via CAN communication.

DTC Logic

INFOID:000000006566415

INFOID:000000006566414

DTC DETECTION LOGIC

| DTC | Display Item | Malfunction detected condition | Possible causes |
|-------|-------------------|--|---|
| C1D09 | BRK FLD PRESS SIG | A malfunction is detected in the brake pressure control signal output from the ABS actuator and electric unit (control unit) to CAN communication. No transmission of brake pressure control signal from the ABS actuator and electric unit (control unit). | Harness or connector (CAN communication line) ABS actuator and electric unit (control unit) E-SUS control unit Battery low voltage |

DTC REPRODUCTION PROCEDURE

CAUTION:

If the CAN signal "Unavailable" or "Broken" is received while the battery voltage is in the low (between 6 V and 9 V) condition, and when intending to perform another self-diagnosis operation to record the DTC history, always start the procedure after checking that the battery voltage is within the specified normal value.

1.CHECK E-SUS CONTROL UNIT SIGNAL

| With CONSULT-III | |
|---|------------|
| 1. Start the engine. | |
| CAUTION: | |
| Always hold the vehicle stopped. | J |
| 2. Select "DATA MONITOR" of "E-SUS". | |
| | |
| Is the value in "DATA MONITOR" "between 6 V and 9 V" or more? | K |
| YES >> GO TO 2. | |
| NO >> Perform the diagnosis for the charging system. Refer to <u>$CHG-28$, "Symptom Table"</u> . | |
| Z .DTC REPRODUCTION PROCEDURE | |
| With CONSULT-III | |
| Perform "E-SUS" self-diagnosis. | В. Л. |
| Is DTC "C1D09" detected? | IVI |
| YES >> Proceed to diagnosis procedure. Refer to <u>SCS-21, "Diagnosis Procedure"</u> . | |
| NO >> INSPECTION END | N |
| Diagnosis Procedure | 0006566416 |
| | |
| 1. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) | 0 |
| With CONSULT-III | |
| Perform "ABS" self-diagnosis. | |
| Is DTC detected? | Р |
| YES >> Check the detected DTC items. | |
| NO >> GO TO 2. | |
| 2. PERFORM SELF-DIAGNOSIS | |
| With CONSULT-III | |
| Perform "E-SUS" self-diagnosis. | |

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C1D09 BRAKE FLUID PRESSURE SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

Is another DTC detected?

YES >> Check the detected DTC items. Refer to <u>SCS-64, "DTC Index"</u>.

NO >> GO TO 3.

3. CHECK INFORMATION

(B) With CONSULT-III

- 1. Select "DATA MONITOR" of "E-SUS".
- 2. Check "BRK FLD PRESS" of "DATA MONITOR" screen. Refer to SCS-50, "Reference Value".

Is each data within standard values?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections. Repair or replace error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

C1D0B FRONT WHEEL VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C1D0B FRONT WHEEL VERTICAL G SENSOR

Description

Detects the vertical G applied at vehicle front, and outputs it to E-SUS control unit in analog voltage.

DTC Logic

INFOID:000000006566418

INFOID:000000006566417

DTC DETECTION LOGIC

| | DTC | Display | ' Item | Malfunction of | detected condition | Possible causes | |
|----------------------------------|---|---|--|--|---|--|----|
| (| C1D0B | FL WHL VER (| G-SEN | A malfunction occurs the front LH wheel ve A malfunction occurs front LH wheel vertic | in the output voltage from ertical G sensor. in the supply voltage to the al G sensor. | Harness or connector Front wheel LH vertical G sensor E-SUS control unit | D |
| DTC R | EPRODL | JCTION PRO | CEDURE | | | | |
| 1. DTC | REPROD | DUCTION PRO | OCEDURE | | | | F |
| With I. Tur 2. Per Is DTC YES NO | CONSUL n the ignit form "E-S <u>"C1D0B"</u> >> Proce >> INSP | T-III ion switch OF US" self-diagr detected? eed to diagnos ECTION END | F to ON. nosis. sis procedure | e. Refer to <u>SCS-23</u> | , "Diagnosis Procedure | <u>,"</u> . | G |
| Diagn | osis Pro | ocedure | | | | INFOID:000000006566419 | |
| 1 CUE | | | | | | | I |
| | | | | damade disconner | tion or looseness | | |
| Is the in | spection | result normal? | | damage, disconnet | | | J |
| NO 2.CHE 1. Disc | >> Repa | air or replace f NT LH WHEEL | ront LH whee VERTICAL trol unit harr | el vertical sensor. T G SENSOR HARN ness connector and | Then perform the self-di NESS I front LH wheel vertica | iagnosis. al G sensor harness con- | K |
| nec 2. Che sen | tor. eck the co sor harne | ontinuity betwo ess connector. | een the E-S | US control unit ha | rness connector and fr | ront LH wheel vertical G | L |
| | E-SUS con | trol unit | Front LH wh | eel vertical G sensor | | | M |
| Conr | nector | Terminal | Connector | Terminal | Continuity | | |
| | | 27 | | 1 | | | N |
| B | 38 | 10 | E86 | 2 | Existed | | IN |
| | | 26 | | 3 | | | |
| <u>Is the in</u> YES | spection i >> GO T | result normal? TO 3. | <u></u> | | | | 0 |
| NO 3. CHE | >> Repa CK FRON | air or replace t NT LH WHEEL | he malfunctio | oning harness or co G SENSOR POW | onnector. ER SUPPLY CIRCUIT | | Ρ |
| 1. Cor 2. Tur CA | nnect the n the ignit UTION: | E-SUS contro ion switch ON | l unit harnes l. | s connector. | | | |

Never start the engine.

3. Check the voltage between front LH wheel vertical G sensor harness connector.

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C1D0B FRONT WHEEL VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

| Front | Voltago | | |
|-------------------|----------------|---------|-----------------------|
| Connector | Terr | voltage | |
| E86 | 1 3 | | Approx. 4.75 – 5.25 V |
| Is the inspection | result normal? | | |

YES >> GO TO 4.

NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

4.PERFORM DATA MONITOR

With CONSULT-III

- 1. Connect the front LH wheel vertical G sensor harness connector.
- 2. Start the engine.
- 3. Select "DATA MONITOR" of "E-SUS".
- 4. Select "FL WHL G-SEN VOL" and "G-SEN VOL" of "DATA MONITOR".
- 5. Drive the vehicle and check whether it is within the following range.

| FL WHL G-SEN VOL | : Approx. 0.5 – 4.5 V |
|------------------|-------------------------|
| G-SEN VOL | : Approx. 4.75 – 5.25 V |

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections.
- NO >> Replace front LH wheel vertical G sensor. Refer to <u>SCS-69, "Exploded View"</u>.

C1D0C FRONT WHEEL VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C1D0C FRONT WHEEL VERTICAL G SENSOR

Description

Detects the vertical G applied at vehicle front, and outputs it to E-SUS control unit in analog voltage.

DTC Logic

INFOID:000000006566421

INFOID:000000006566420

DTC DETECTION LOGIC

| DTC | Display | / Item | Malfunction c | letected condition | Possible causes | |
|--|---|--------------------|--|---|--|----|
| C1D0C | FR WHL VER | G-SEN | A malfunction occurs the front RH wheel ve A malfunction occurs front RH wheel vertic | in the output voltage from ertical G sensor. in the supply voltage to the al G sensor. | Harness or connector Front RH wheel vertical G sensor E-SUS control unit | SC |
| | OUCTION PRO | DCEDURE | | | | |
| 1. DTC REPRO | DUCTION PR | OCEDURE | | | | F |
| With CONSU 1. Turn the igr 2. Perform "E- Is DTC "C1D0C | JLT-III nition switch OF -SUS" self-diag <u>2" detected?</u> | F to ON. nosis. | | "D' | | G |
| NO >> INS | SPECTION END | sis procedure. | Refer to <u>SCS-25.</u> | , "Diagnosis Procedure | <u>)"</u> . | Н |
| Diagnosis P | rocedure | | | | INFOID:000000006566422 | |
| | | | SENSOR | | | 1 |
| | | C Sensor for da | mage disconner | ction or looseness | | |
| Is the inspection | n result normal? | | anage, disconned | | | |
| YES >> GO | TO 2. | - | | | | J |
| NO >> Rep | pair or replace f | ront RH wheel | vertical sensor. T | Then perform the self-d | liagnosis. | |
| | | | SENSOR HARI | NESS | | K |
| Disconnect nector. | the E-SUS cor | itrol unit harnes | ss connector and | front RH wheel vertica | al G sensor narness con- | |
| 2. Check the | continuity betw | een the E-SUS | 6 control unit har | mess connector and fr | ont RH wheel vertical G | L |
| sensor han | less connector. | | | | | |
| E-SUS co | ontrol unit | Front RH whee | l vertical G sensor | | | N |
| Connector | Terminal | Connector | Terminal | Continuity | | |
| | 27 | | 1 | | | N |
| B38 | 24 | E84 | 2 | Existed | | I) |
| | 26 | | 3 | | | |
| Is the inspection | n result normal? | 2 | | | | С |
| YES >> GO NO >> Rei | 0 TO 3. pair or replace t | he malfunction | ing harness or co | onnector. | | |
| | ONT RH WHEE | | SENSOR POW | | | F |
| 1 Connect the | = F-SUS contro | | | | | |
| 2. Turn the igr CAUTION: | nition switch ON | l. | | | | |

Never start the engine.

3. Check the voltage between front RH wheel vertical G sensor harness connector.

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C1D0C FRONT WHEEL VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

| Front RH wheel vertical G sensor | | | Veltage | | | |
|---|----------------|---|-----------------------|--|--|--|
| Connector | Terminal | | vollage | | | |
| E84 | 1 | 3 | Approx. 4.75 – 5.25 V | | | |
| Is the inspection | result normal? | | | | | |
| YES >> GO 1 | S >> GO TO 4. | | | | | |
| NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u> . | | | | | | |
| 4.PERFORM D | ATA MONITOR | | | | | |

With CONSULT-III

- 1. Connect the front RH wheel vertical G sensor harness connector.
- 2. Start the engine.
- 3. Select "DATA MONITOR" of "E-SUS".
- 4. Select "FR WHL G-SEN VOL" and "G-SEN VOL" of "DATA MONITOR".
- 5. Drive the vehicle and check whether it is within the following range.

| FR WHL G-SEN VOL | : Approx. 0.5 – 4.5 V |
|------------------|-------------------------|
| G-SEN VOL | : Approx. 4.75 – 5.25 V |

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections.
- NO >> Replace front RH wheel vertical G sensor. Refer to <u>SCS-69, "Exploded View"</u>.

C1D0D FRONT BODY VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C1D0D FRONT BODY VERTICAL G SENSOR

Description

Detects the vertical G applied at vehicle front, and outputs it to E-SUS control unit in analog voltage.

DTC Logic

INFOID:000000006566424

INFOID:000000006566423

DTC DETECTION LOGIC

| DTC | Display | / Item | Malfunction c | letected condition | Possible causes | |
|---|--|--|--|--|---|----|
| C1D0D | FL BDY VER C | -SEN • | A malfunction occurs the front LH body ver A malfunction occurs front LH body vertica | in the output voltage from tical G sensor. in the supply voltage to the I G sensor. | Harness or connector Front body LH vertical G sensor E-SUS control unit | D |
| DTC REPROE | OUCTION PRO | CEDURE | | | <u>.</u> | |
| 1.DTC REPRO | DUCTION PRO | OCEDURE | | | | F |
| With CONSU 1. Turn the igu 2. Perform "E Is DTC "C1D0D YES >> Pro | JLT-III nition switch OF -SUS" self-diago <u>" detected?</u> preed to diagno | F to ON. nosis. sis procedure. | Refer to <u>SCS-27</u> | , "Diagnosis Procedure | <u>."</u> . | G |
| NO >> INS | |) | | | | Н |
| Diagnosis P | rocedure | | | | INFOID:00000006566425 | |
| 1.CHECK FRO | ONT LH BODY | VERTICAL G S | SENSOR | | | |
| Check front LH Is the inspection YES >> GC | body vertical G <u>n result normal?</u> TO 2. | sensor for dar | nage, disconnect | ion or looseness. | | J |
| NO >> Rep 2.CHECK FRC 1. Disconnect | pair or replace f ONT LH BODY the E-SUS cor | ront LH body v VERTICAL G S ntrol unit harne | vertical sensor. The SENSOR HARNE | en perform the self-dia SS d front LH body vertica | agnosis. I G sensor harness con- | K |
| nector. 2. Check the osor harness | continuity betwe s connector. | en the E-SUS | control unit harne | ess connector and from | t LH body vertical G sen- | L |
| E-SUS c | ontrol unit | Front LH body | vertical G sensor | | | M |
| Connector | Terminal | Connector | Terminal | Continuity | | |
| | 27 | | 1 | | | N |
| B38 | 12 | E39 | 2 | Existed | | IN |
| | 26 | | 3 | | | |
| YES >> GC NO >> Rep 3.CHECK FRC | n result normal? TO 3. Dair or replace t | / he malfunction VERTICAL G \$ | ing harness or co SENSOR POWEF | onnector. R SUPPLY CIRCUIT | | O |
| Connect the Turn the ign CAUTION: | e E-SUS contro nition switch ON | l unit harness (I. | connector. | | | |

Never start the engine.

3. Check the voltage between front LH body vertical G sensor harness connector.

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C1D0D FRONT BODY VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

| Front LH body vertical G sensor | | | Voltago | |
|---------------------------------|---------------------------|-----------------------------|-------------------------|--|
| Connector | Terminal | | vollage | |
| E39 | 1 3 | | Approx. 4.75 – 5.25 V | |
| Is the inspection | result normal? | | | |
| YES >> GO NO >> Repl | TO 4. ace E-SUS contro | ol unit. Refer to <u>So</u> | CS-67, "Exploded View". | |

4.PERFORM DATA MONITOR

(B) With CONSULT-III

- 1. Connect the front LH body vertical G sensor harness connector.
- 2. Start the engine.
- 3. Select "DATA MONITOR" of "E-SUS".
- 4. Select "FL BDY G-SEN VOL" and "G-SEN VOL" of "DATA MONITOR".
- 5. Drive the vehicle and check whether it is within the following range.

| FL BDY G-SEN VOL | : Approx. 0.5 – 4.5 V |
|------------------|-------------------------|
| G-SEN VOL | : Approx. 4.75 – 5.25 V |

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connection.
- NO >> Replace front LH body vertical G sensor. Refer to <u>SCS-68. "Exploded View"</u>.

C1D10 FRONT BODY VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C1D10 FRONT BODY VERTICAL G SENSOR

Description

Detects the vertical G applied at vehicle front, and outputs it to E-SUS control unit in analog voltage.

DTC Logic

INFOID:000000006566427

INFOID:000000006566426

DTC DETECTION LOGIC

| DTC | Display | / Item | Malfunction | detected condition | Possible causes | |
|---|---|--------------------------------|---|--|---|----|
| C1D10 | F VERTICAL C | G-SEN | A malfunction occurs he front RH body ve A malfunction occurs ront RH body vertica | in the output voltage from rtical G sensor. in the supply voltage to the al G sensor. | Harness or connector Front body RH vertical G sensor E-SUS control unit | D |
| DTC REPROD | UCTION PRO | DCEDURE | | | | |
| 1.DTC REPRO | DUCTION PR | OCEDURE | | | | Г |
| With CONSU Turn the igr Constraints Turn the igr Constraints Tender | ILT-III hition switch OF SUS" self-diag <u>' detected?</u> ceed to diagno | F to ON. nosis. | Refer to SCS-29 | "Diagnosis Procedure | 'n | G |
| NO >> INS | PECTION END |) | (0101 10 <u>000 20</u> | | <u> </u> | Н |
| Diagnosis Pi | rocedure | | | | INFOID:00000006566428 | |
| | | | | | | 1 |
| Check front RH | body vertical G | sensor for dar | nade disconnec | tion or looseness | | |
| Is the inspectior | n result normal? | | nage, disconnec | | | |
| YES >> GO NO >> Rep 2.CHECK FRC | TO 2. Dair or replace f ONT RH BODY | ront RH body v VERTICAL G S | ertical sensor. T SENSOR HARN | hen perform the self-dia | agnosis. | K |
| Disconnect nector. Check the c sor harness | the E-SUS cor continuity betwe connector. | ntrol unit harnes | ss connector and | d front RH body vertica | I G sensor harness con- t RH body vertical G sen- | L |
| E-SUS co | ontrol unit | Front RH body | vertical G sensor | | | M |
| Connector | Terminal | Connector | Terminal | Continuity | | |
| | 27 | | 1 | | | N |
| B38 | 11 | E20 | 2 | Existed | | IN |
| | 26 | | 3 | | | |
| YES >> GO NO >> Rep | <u>result normal'</u> TO 3. pair or replace t | <u>?</u> he malfunctioni | ng harness or c | onnector. | | 0 |
| 3.CHECK FRC | ONT RH BODY | VERTICAL G S | SENSOR POWE | R SUPPLY CIRCUIT | | Ρ |
| Connect the Turn the igr | e E-SUS contro nition switch ON | I unit harness c I. | connector. | | | |

Never start the engine.

3. Check the voltage between front RH body vertical G sensor harness connector.

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C1D10 FRONT BODY VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

| Connector Terminal Voltage E20 1 3 Approx. 4.75 – 5.25 | Fron | RH body vertical G s | sensor | Voltaga |
|--|-------------------|----------------------|--------|-----------------------|
| E20 1 3 Approx. 4.75 - 5.25 Is the inspection result normal? | Connector | Terr | minal | vollage |
| la the inequation require normal? | E20 | 1 | 3 | Approx. 4.75 – 5.25 V |
| is the inspection result normal? | Is the inspection | result normal? | | |
| YES >> GO TO 4. | YES >> GO | FO 4. | | |

NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

4.PERFORM DATA MONITOR

(B) With CONSULT-III

- 1. Connect the front RH body vertical G sensor harness connector.
- 2. Start the engine.
- 3. Select "DATA MONITOR" of "E-SUS".
- 4. Select "FR BDY G-SEN VOL" and "G-SEN VOL" of "DATA MONITOR".
- 5. Drive the vehicle and check whether it is within the following range.

| FR BDY G-SEN VOL | : Approx. 0.5 – 4.5 V |
|------------------|-------------------------|
| G-SEN VOL | : Approx. 4.75 – 5.25 V |

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections.
- NO >> Replace front RH body vertical G sensor. Refer to <u>SCS-68. "Exploded View"</u>.

C1D11 REAR VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C1D11 REAR VERTICAL G SENSOR

Description

Detects the vertical G applied at vehicle rear, and outputs it to E-SUS control unit in analog voltage.

DTC Logic

INFOID:000000006566430

INFOID:000000006566429

DTC DETECTION LOGIC

| DTC | Display | / Item | Malfunction of | letected condition | Possible causes | |
|--|--|---|---|--|---|-----|
| C1D11 | R VERTICAL C | G-SEN | A malfunction occurs the rear body vertica A malfunction occurs rear body vertical G s | in the output voltage from G sensor. in the supply voltage to the sensor. | Harness or connector rear body vertical G sensor E-SUS control unit | D |
| DTC REPROD | UCTION PRO | OCEDURE | | | | |
| 1.DTC REPRO | DUCTION PRO | OCEDURE | | | | F |
| With CONSU I. Turn the ign 2. Perform "E | LT-III ition switch OF SUS" self-diago detected? ceed to diagnos | F to ON. nosis. sis procedure. | Refer to <u>SCS-31</u> | , "Diagnosis Procedure | <u>.</u> . | G |
| NO >> INS | PECTION END |) | | | | Н |
| Diagnosis Pr | ocedure | | | | INFOID:0000000656643 | 1 |
| 1. CHECK REA | R BODY VERT | TICAL G SENS | OR | | | I |
| Check rear body | vertical G sen | sor for damage | e, disconnection | or looseness. | | - |
| Is the inspection | result normal? |) - | | | | J |
| NO >> Rep 2.CHECK REA 1. Disconnect | air or replace r R BODY VER1 the E-SUS con | ear body vertic TICAL G SENS trol unit harnes | al sensor. Then OR HARNESS s connector and | perform the self-diagno | nsor harness connector. | K |
| 2. Check the c harness cor | ontinuity betwe nector. | en the E-SUS | control unit harr | less connector and rea | r body vertical G sensoı، الم | ſ |
| E-SUS co | ntrol unit | Rear body ve | ertical G sensor | Continuity | | |
| Connector | Terminal | Connector | Terminal | Continuity | | M |
| Dee | 30 | BEO | 1 | | | |
| B38 | 14 | B56 | 2 | Existed | | Ν |
| Is the inspection | result normal? |) | 5 | | | |
| YES >> GO NO >> Rep 3. CHECK REA | TO 3. air or replace t R BODY VER1 | he malfunction | ing harness or co OR POWER SU | onnector. PPLY CIRCUIT | | 0 |
| Connect the Turn the ign CAUTION: | E-SUS contro | l unit harness c I. | connector. | | | - P |

Never start the engine.

3. Check the voltage between rear body vertical G sensor harness connector.

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C1D11 REAR VERTICAL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

| Rear body vertical G sensor | | | | Voltaga | |
|---|---|----------------|-------|-----------------------|---|
| Con | nector | Terr | ninal | vollage | |
| B | 356 | 1 | 3 | Approx. 4.75 – 5.25 V | |
| Is the ins | spection | result normal? | | | 1 |
| YES | >> GO 1 | FO 4. | | | |
| NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u> . | | | | iew". | |
| 4.PER | 4.PERFORM DATA MONITOR | | | | |
| With CONSULT-III | | | | | |
| 1. Con | 1. Connect the rear body vertical G sensor harness connector. | | | | |

- Start the engine.
 Select "DATA MONITOR" of "E-SUS".
- 4. Select "R G-SEN VOL" and "G-SEN VOL" of "DATA MONITOR".
- 5. Drive the vehicle and check whether it is within the following range.

| R G-SEN VOL | : Approx. 0.5 – 4.5 V |
|-------------|-------------------------|
| G-SEN VOL | : Approx. 4.75 – 5.25 V |

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections.
- NO >> Replace rear body vertical G sensor. Refer to <u>SCS-70, "Exploded View"</u>.

C1D12 SHOCK ABSORBER ACTUATOR

Description

Integrated into each the shock absorbers on wheels and opens or closes the orifice by moving the solenoid core vertically with the control current from E-SUS control unit to regulate the damping force.

DTC Logic

INFOID:000000006566433

INFOID:000000006566432

DTC DETECTION LOGIC

| DTC | Display | Item | Malfunction d | etected condition | Possible causes |
|--|---|--|---|--|---|
| C1D12 | FR ACTUATOR | SIG Ar RI | n open or short circu H wheel shock abso | it is detected in the front ber actuator. | Harness or connector Malfunction of the front RH wheel shock absorber ac- tuator E-SUS control unit |
| TC REPROD | UCTION PRC | CEDURE | | | |
| .DTC REPRO | DUCTION PRO | DCEDURE | | | |
| With CONSU Start the enform the act | LT-III gine and drive. tive test. Refer t | Or select "E-S to <u>SCS-11, "C</u> | SUS", "FRONT R ONSULT-III Fund | IGHT ACTUATOR" o | f "ACTIVE TEST", and per- |
| . Perform "E- | SUS" self-diagr ' detected? | nosis. | | | |
| YES >> Pro | ceed to diagnos | sis procedure. | Refer to SCS-3 | 3, "Diagnosis Procedu | ure". |
| NO >> INS | PECTION END |) | | - | |
| iagnosis Pr | ocedure | | | | INFOID:00000006566434 |
| .CHECK FRO | NT RH SHOCH | (ABSORBER | ACTUATOR CI | RCUIT (1) | |
| Disconnect | the E-SUS con | trol unit harne | ss connector. | | |
| . Check the r | esistance betwe | een the E-SUS | S control unit har | ness connector. | |
| E-SUS c | ontrol unit | | | | |
| Connector | Terminal | – Resista | ance | | |
| B38 | 3 | Approx. (| 0.65 Q | | |
| 200 | 2 | | | | |
| the inspection | <u>result normal?</u> | | | | |
| NO >> GO | TO 2. | | | | |
| CHECK FRO | NT RH SHOCH | ABSORBER | ACTUATOR CI | RCUIT (2) | |
| Disconnect Check the o actuator ha | the front RH sh continuity betwo rness connecto | ock absorber een the E-SU r. | actuator harness S control unit ha | s connector. arness connector and | d front RH shock absorber |
| E-SUS co | ontrol unit | Front RH shock | absorber actuator | Continuity | - |
| Connector | Terminal | Connector | Terminal | Continuity | - |
| B38 | 3 | E83 | 1 | Existed | |

Is the inspection result normal?

2

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning harness or connector.

SCS-33

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C1D12 SHOCK ABSORBER ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

3.CHECK FRONT RH SHOCK ABSORBER ACTUATOR

Perform the front RH shock absorber actuator. Refer to SCS-34, "Component Inspection".

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace the front RH shock absorber. Refer to <u>FSU-29, "Exploded View"</u>.

4.PERFORM DATA MONITOR

With CONSULT-III

- 1. Start the engine.
- 2. Select "DATA MONITOR" of "E-SUS".
- 3. Select "FR ACTUATOR CRNT" of "DATA MONITOR" screen.
- 4. Drive the vehicle and check whether it is within the following range.

FR ACTUATOR CRNT : Approx. 0.65 – 2.0 A

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections. Repair or replace error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

Component Inspection

INFOID:000000006566435

1.PERFORM ACTIVE TEST

With CONSULT-III

- 1. Connect the E-SUS control unit harness connector and front RH shock absorber actuator harness connector.
- 2. Select "FRONT RIGHT ACTUATOR" in "ACTIVE TEST".
- 3. On the display, change the "Operation half cycle", and check that the operation noise is heard from the actuator.

| Test item | Display Item | Display | |
|-------------------------|----------------------|---|--|
| rest terri | Display item | Operation half cycle | |
| SHOCK ABSORBER ACTUATOR | FRONT RIGHT ACTUATOR | 0.1 seconds – 1 second (cycle in 0.1 seconds) | |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the front RH wheel shock absorber. Refer to <u>FSU-29</u>, "Exploded View".

C1D13 SHOCK ABSORBER ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

C1D13 SHOCK ABSORBER ACTUATOR

Description

Integrated into each the shock absorbers on wheels and opens or closes the orifice by moving the solenoid core vertically with the control current from E-SUS control unit to regulate the damping force.

DTC Logic

INFOID:000000006566437

INFOID:000000006566436

DTC DETECTION LOGIC

| DTC | Display | ltem | Malfunction of | letected condition | Possible causes |
|---|--|---|--|--|---|
| C1D13 | FL ACTUATOR S | SIG An who | open or short circui eel shock absorber | t is detected in the front LH actuator. | Harness or connector Malfunction of the front LH wheel shock absorber ac- tuator E-SUS control unit |
| DTC REPROD | UCTION PRC | CEDURE | | | |
| 1. DTC REPRO | DUCTION PRO | OCEDURE | | | |
| With CONSU Start the en form the ac Perform "E- | JLT-III ngine and drive. tive test. Refer SUS" self-diagr | Or select "E-S to <u>SCS-11, "CC</u> nosis. | SUS", "FRONT I INSULT-III Fun | LEFT ACTUATOR" of ction". | "ACTIVE TEST", and per- |
| I <u>s DTC "C1D13'</u> YES >> Pro NO >> INS | <u>" detected?</u> ceed to diagnos PECTION END | sis procedure. I | Refer to <u>SCS-3</u> | 5, "Diagnosis Procedu | <u>ire"</u> . |
| Diagnosis Pi | rocedure | | | | INFOID:00000006566438 |
| | | | | | |
| | | | | | |
| 2. Check the r | esistance betwo | een the E-SUS | control unit ha | mess connector. | |
| E-SUS o | control unit | Posista | 200 | | |
| Connector | Terminal | - itesistai | | | |
| B38 | 5 4 | Approx. 0 | .65 Ω | | |
| s the inspectior | n result normal? | • | | | |
| YES >> GO NO >> GO | TO 3. TO 2. | | | | |
| 2. CHECK FRC | ONT LH SHOCK | ABSORBER / | ACTUATOR CI | RCUIT (2) | |
| Disconnect Check the actuator ha | the front LH sho continuity betwo rness connecto | ock absorber a een the E-SUS r. | ctuator harness S control unit h | arness connector and | d front LH shock absorber |
| E-SUS c | ontrol unit | Front LH shock | absorber actuator | Continuity | |
| Connector | Terminal | Connector | Terminal | Continuity | |
| B38 | 5 | E85 | 1 | Existed | |
| 200 | 4 | 200 | 2 | LAISICU | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunction harness or connector.

SCS-35

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C1D13 SHOCK ABSORBER ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

3.CHECK FRONT LH SHOCK ABSORBER ACTUATOR

Perform the front LH shock absorber actuator. Refer to SCS-36. "Component Inspection".

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace the front LH shock absorber. Refer to <u>FSU-29, "Exploded View"</u>.

4.PERFORM DATA MONITOR

With CONSULT-III

- 1. Start the engine.
- 2. Select "DATA MONITOR" of "E-SUS".
- 3. Select "FL ACTUATOR CRNT" of "DATA MONITOR" screen.
- 4. Drive the vehicle and check whether it is within the following range.

FL ACTUATOR CRNT : Approx. 0.65 – 2.0 A

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections. Repair or replace error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

Component Inspection

INFOID:000000006566439

1.PERFORM ACTIVE TEST

With CONSULT-III

- 1. Connect the E-SUS control unit harness connector and front LH shock absorber actuator harness connector.
- 2. Select "FRONT LEFT ACTUATOR" in "ACTIVE TEST".
- 3. On the display, change the "Operation half cycle", and check that the operation noise is heard from the actuator.

| Test item | Display Itom | Display | |
|-------------------------|---------------------|---|--|
| rest terri | Display item | Operation half cycle | |
| SHOCK ABSORBER ACTUATOR | FRONT LEFT ACTUATOR | 0.1 seconds – 1 second (cycle in 0.1 seconds) | |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the front LH wheel shock absorber. Refer to <u>FSU-29, "Exploded View"</u>.

C1D14 SHOCK ABSORBER ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

C1D14 SHOCK ABSORBER ACTUATOR

Description

Integrated into each the shock absorbers on wheels and opens or closes the orifice by moving the solenoid core vertically with the control current from E-SUS control unit to regulate the damping force.

DTC Logic

INFOID:000000006566441

INFOID:000000006566440

DTC DETECTION LOGIC

| DTC | Display | Item | Malfunction d | etected condition | Possible causes |
|--|--|---------------------------------------|---|---|--|
| C1D14 | RR ACTUATOR | SIG AI | n open or short circui heel shock absorber | t is detected in the rear RH actuator. | Harness or connector Malfunction of the rear RH wheel shock absorber ac- tuator E-SUS control unit |
| TC REPROD | UCTION PRC | CEDURE | | | |
| .DTC REPRO | DUCTION PRO | DCEDURE | | | |
| With CONSU . Start the en form the act | LT-III gine and drive. tive test. Refer t | Or select "E- to <u>SCS-11, "C</u> | SUS", "REAR RI <u>ONSULT-III Fun</u> d | GHT ACTUATOR" of ction". | "ACTIVE TEST", and per- |
| . Perform "E- | SUS" self-diagr | nosis. | | | |
| YES >> Pro | <u>ceed to diagnos</u> | sis procedure. | Refer to SCS-3 | 7, "Diagnosis Procedu | ıre". |
| NO >> INS | PECTION END |) | | · · · · · · · · · · · · · · · · · · · | |
| iagnosis Pr | rocedure | | | | INFOID:00000006566442 |
| .CHECK REA | R RH SHOCK | ABSORBER / | ACTUATOR CIR | CUIT (1) | |
| . Disconnect | the E-SUS con | trol unit harne | ess connector. | | |
| . Check the re | esistance betwo | een the E-SU | S control unit hai | ness connector. | |
| E-SUS c | ontrol unit | | | | |
| Connector | Terminal | – Resista | ance | | |
| B38 | 8 | Approx | 0.65.0 | | |
| Doo | 9 | Approx. | 0.00 12 | | |
| the inspection | n result normal? | | | | |
| res >> GO NO >> GO | TO 3. TO 2. | | | | |
| CHECK REA | R RH SHOCK | ABSORBER | ACTUATOR CIR | CUIT (2) | |
| Disconnect Check the o actuator har | the rear RH sho continuity betw rness connecto | ock absorber a een the E-SU r. | actuator harness JS control unit h | connector. arness connector and | d rear RH shock absorber |
| E-SUS co | ontrol unit | Rear RH shock | k absorber actuator | Continuity | |
| Connector | Terminal | Connector | Terminal | Continuity | |
| B38 - | 8 | B57 | 1 | Existed | |

Is the inspection result normal?

9

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning harness or connector.

SCS-37

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C1D14 SHOCK ABSORBER ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

3.CHECK REAR RH SHOCK ABSORBER ACTUATOR

Perform the rear RH shock absorber actuator. Refer to SCS-38, "Component Inspection".

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace the rear RH shock absorber. Refer to <u>RSU-10, "Exploded View"</u>.

4.PERFORM DATA MONITOR

With CONSULT-III

- 1. Start the engine.
- 2. Select "DATA MONITOR" of "E-SUS".
- 3. Select "RR ACTUATOR CRNT" of "DATA MONITOR" screen.
- 4. Drive the vehicle and check whether it is within the following range.

RR ACTUATOR CRNT : Approx. 0.65 – 2.0 A

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections. Repair or replace error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

Component Inspection

INFOID:000000006566443

1.PERFORM ACTIVE TEST

With CONSULT-III

- 1. Connect the E-SUS control unit harness connector and rear RH shock absorber actuator harness connector.
- 2. Select "REAR RIGHT ACTUATOR" in "ACTIVE TEST".
- 3. On the display, change the "Operation half cycle", and check that the operation noise is heard from the actuator.

| Test item | Display Item | Display | |
|-------------------------|---------------------|---|--|
| rest terri | Display item | Operation half cycle | |
| SHOCK ABSORBER ACTUATOR | REAR RIGHT ACTUATOR | 0.1 seconds – 1 second (cycle in 0.1 seconds) | |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the rear RH wheel shock absorber. Refer to <u>RSU-10, "Exploded View"</u>.

C1D15 SHOCK ABSORBER ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

C1D15 SHOCK ABSORBER ACTUATOR

Description

Integrated into each the shock absorbers on wheels and opens or closes the orifice by moving the solenoid core vertically with the control current from E-SUS control unit to regulate the damping force.

DTC Logic

INFOID:000000006566445

INFOID:000000006566444

DTC DETECTION LOGIC

| DTC | Display I | tem | Malfunction c | letected condition | Possible causes |
|---|---|---------------------------------|---|--|--|
| C1D15 | RL ACTUATOR S | SIG An wh | open or short circui neel shock absorber | t is detected in the rear LH actuator. | Harness or connector Malfunction of the rear LH wheel shock absorber ac- tuator E-SUS control unit |
| TC REPROD | UCTION PRO | CEDURE | | | |
| 1 .DTC REPRO | DUCTION PRO | CEDURE | | | |
| With CONSU 1. Start the en the active te | JLT-III gine and drive. (est. Refer to SC | Or select "E-S S-11, "CONSU | US", "REAR LEI JLT-III Function" | T ACTUATOR" of "A | CTIVE TEST", and perform |
| 2. Perform "E- <u>s DTC "C1D15</u> " | SUS" self-diagn " detected? | osis. | | | |
| YES >> Pro NO >> INS | ceed to diagnos | is procedure. | Refer to SCS-3 | <u>9, "Diagnosis Procedu</u> | <u>ıre"</u> . |
| Diagnosis Pi | rocedure | | | | INFOID:00000006566446 |
| 1.CHECK REA | R LH SHOCK A | ABSORBER A | CTUATOR CIR | CUIT (1) | |
| Disconnect Check the r | the E-SUS cont resistance betwe | rol unit harnes en the E-SUS | ss connector. S control unit hai | ness connector. | |
| E-SUS o | control unit | Resista | ince | | |
| Connector | Terminal | | | | |
| B38 | 6 7 | Approx. 0 |).65 Ω | | |
| s the inspectior | n result normal? | | | | |
| YES >> GO NO >> GO | TO 3. TO 2. | | | | |
| 2.CHECK REA | R LH SHOCK A | BSORBER A | CTUATOR CIRC | CUIT (2) | |
| Disconnect Check the actuator ha | the rear LH sho continuity betwe rness connector | ck absorber a een the E-SU | ctuator harness S control unit h | connector. arness connector an | d rear LH shock absorber |
| E-SUS c | ontrol unit | Rear LH shock | absorber actuator | - | |
| Connector | Terminal | Connector | Terminal | Continuity | |
| | 6 | _ | 1 | | - |

Is the inspection result normal?

7

YES >> GO TO 3.

B38

NO >> Repair or replace the malfunctioning harness or connector.

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SCS-39

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C1D15 SHOCK ABSORBER ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

3.CHECK REAR LH SHOCK ABSORBER ACTUATOR

Perform the rear LH shock absorber actuator. Refer to SCS-40, "Component Inspection".

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace the rear LH shock absorber. Refer to <u>RSU-10, "Exploded View"</u>.

4.PERFORM DATA MONITOR

With CONSULT-III

- 1. Start the engine.
- 2. Select "DATA MONITOR" of "E-SUS".
- 3. Select "RL ACTUATOR CRNT" of "DATA MONITOR" screen.
- 4. Drive the vehicle and check whether it is within the following range.

RL ACTUATOR CRNT : Approx. 0.65 – 2.0 A

Is the inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for damage or loose connections. Repair or replace error-detected parts.
- NO >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.

Component Inspection

INFOID:000000006566447

1.PERFORM ACTIVE TEST

With CONSULT-III

- 1. Connect the E-SUS control unit harness connector and rear LH shock absorber actuator harness connector.
- 2. Select "REAR LEFT ACTUATOR" in "ACTIVE TEST".
- 3. On the display, change the "Operation half cycle", and check that the operation noise is heard from the actuator.

| Test item | Display Itom | Display | |
|-------------------------|--------------------|---|--|
| reschem | Display item | Operation half cycle | |
| SHOCK ABSORBER ACTUATOR | REAR LEFT ACTUATOR | 0.1 seconds – 1 second (cycle in 0.1 seconds) | |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the rear LH wheel shock absorber. Refer to <u>RSU-10, "Exploded View"</u>.

C1D16 E-SUS CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

C1D16 E-SUS CONTROL UNIT

Description

• Controls the shock absorber actuators on 4 wheels according to the signals from each sensors.

• Stops the control signal to the shock absorber, when detecting any malfunction in the electrical system. The damping force is maintained at approximately the intermediate level between the maximum and the minimum values.

DTC Logic

INFOID:000000006566449

INFOID:000000006566448

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DTC DETECTION LOGIC

| | DTC | Display Item | Malfunction detected condition | Possible causes | |
|--------------------------|---|---|---|--------------------------|-----|
| _ | C1D16 | CONTROL UNIT | A malfunction occurs inside the E-SUS control unit. | E-SUS control unit | SCS |
| DT | C REPRODU | ICTION PROCEDURE | | | |
| 1. | DTC REPROD | OUCTION PROCEDURE | | | F |
| () 1. 2. | Vith CONSUL Turn the ignit Perform "E-S | T-III ion switch OFF to ON. US" self-diagnosis. | | | G |
| <u>Is L</u> YI N | ES >> Proce O >> INSP | detected? eed to diagnosis procedu ECTION END | re. Refer to <u>SCS-41, "Diagnosis Procedure</u> | <u>"</u> . | Н |
| Dia | agnosis Pro | ocedure | | INFOID:000000006566450 | |
| 1. | PERFORM SE | LF-DIAGNOSIS | | | I |
| (1) 1. 2. | Vith CONSUL Turn the ignit Perform "E-S CAUTION: | T-III ion switch OFF to ON. US" self-diagnosis and c | heck whether DTC "C1D16" is detected. | | J |
| 1- 5 | Even when a | a record exists in the dia | agnosis history, replace E-SUS control ι | ınit. | К |
| <u>IS L</u> VI | $\frac{D10^{\circ}C1D16^{\circ}C}{=}$ | <u>1etected ?</u> ace E-SUS control unit R | Refer to SCS-67 "Exploded View" | | |
| N | D >> Chec Repa | k pin terminal and conne ir or replace error-detected | ection of each harness connector for damaged parts. | ge or loose connections. | L |
| | | | | | M |
| | | | | | |
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C1D18 IGN POWER SUPPLY

Description

Power supply for E-SUS control unit.

DTC Logic

INFOID:000000006566452

INFOID:000000006566451

DTC DETECTION LOGIC

| DTC | Display Item | Malfunction detected condition | Possible causes |
|-------|--------------|--|---|
| C1D18 | IGN VOLT | A malfunction is detected in the IGN supply voltage to E-SUS control unit. | Harness or connectorE-SUS control unit |

DTC REPRODUCTION PROCEDURE

1.DTC REPRODUCTION PROCEDURE

With CONSULT-III

- 1. Turn the ignition switch OFF to ON.
- 2. Perform "E-SUS" self-diagnosis.

Is DTC "C1D18" detected?

- YES >> Proceed to diagnosis procedure. Refer to <u>SCS-42, "Diagnosis Procedure"</u>.
- NO >> INSPECTION ĔND

Diagnosis Procedure

INFOID:000000006566453

1.CHECK E-SUS CONTROL UNIT GROUND

- 1. Turn the ignition switch OFF.
- 2. Disconnect the E-SUS control unit harness connector.
- 3. Check the continuity between the E-SUS control unit harness connector and ground.

| E-SUS c | ontrol unit | | Continuity |
|-----------|-------------|--------|------------|
| Connector | Terminal | | Continuity |
| B38 | 18, 19 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning harness or connector.

2.CHECK E-SUS CONTROL UNIT POWER SUPPLY CIRCUIT

1. Turn the ignition switch ON. CAUTION:

Never start the engine.

2. Check the voltage between the E-SUS control unit harness connector and ground.

| E-SUS c | ontrol unit | | Voltago |
|-----------|-------------|--------|-----------------|
| Connector | Terminal | | voltage |
| B38 | 1 | Ground | Battery voltage |
| 550 | 17 | Giouna | ballery vollage |

Is the measured value "9.0 V" or less?

- >> Check the following items, and repair or replace the malfunctioning parts.
 - Open circuit in 10 Å fuse (#16)
 - Short circuit between the 10 Å fuse (#16) connector and E-SUS control unit harness connector terminal 1, 17
 - Battery or ignition switch

NO >> GO TO 3.

YES

SCS-42

C1D18 IGN POWER SUPPLY

| < DTC/CIRCUIT DIAGNOSIS > | |
|---|-----|
| 3. CHECK TERMINAL | Δ |
| Check that there is no malfunction in the pin terminals and connection of the E-SUS control unit harness con- nector. | |
| Is the inspection result normal? | В |
| YES >> GO TO 4. | |
| NO >> Repair or replace the malfunctioning parts. | |
| 4.CHECK E-SUS CONTROL UNIT SIGNAL | С |
| With CONSULT-III Connect the E-SUS control unit harness connector. Start the engine. CAUTION: Always hold the vehicle stopped. | D |
| 3. Select "DATA MONITOR" of "E-SUS". | SCS |
| 4. Check the value of "IGN" on "DATA MONITOR" screen. | |
| Is the value in "DATA MONITOR" "16 V" or more?YES>> Perform the diagnosis by symptom for the charging system. Refer to CHG-28, "Symptom Table".NO>> Replace E-SUS control unit. Refer to SCS-67, "Exploded View". | F |
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C1D23 E-SUS CONTROL UNIT

Description

Performs good/no good judgment of the E-SUS control unit reprogramming.

DTC Logic

INFOID:000000006566455

INFOID:000000006566454

DTC DETECTION LOGIC

| _ | DTC | Display Item | Malfunction detected condition | Possible causes |
|------------------------------------|--|--|---|---------------------|
| _ | C1D23 | C/U REPRO ERROR | A malfunction is detected at E-SUS control unit re- programming. | E-SUS control unit |
| DT | C REPRODI | JCTION PROCEDURE | E | |
| 1. | DTC REPROI | DUCTION PROCEDURE | | |
| 1. 2. | With CONSUL Turn the ignit Perform "E-S | T-III ion switch OFF to ON. US" self-diagnosis. | | |
| <u>is L</u> YI N | ES >> Proce O >> INSP | <u>betected ?</u> eed to diagnosis procedu ECTION END | ure. Refer to <u>SCS-44, "Diagnosis Procedure"</u> | 1 |
| Dia | agnosis Pro | ocedure | | INFOID:000000065664 |
| 1. | PERFORM E- | SUS CONTROL UNIT R | EPROGRAMMING | |
| Re Re Is it YI | With CONSUL program E-SU completed su ES >> GO 1 C >> GO 1 | T-III S control unit. Iccessfully? TO 2. | | |
| 2. | PERFORM SE | ELF-DIAGNOSIS | | |
| Per Is [VI No 3. | With CONSUL form "E-SUS" <u>OTC "C1D23" (</u> ES >> GO T O >> INSP PERFORM E- | T-III self-diagnosis. <u>detected?</u> O 3. ECTION END SUS CONTROL UNIT R | EPROGRAMMING AGAIN | |
| 1. 2. <u>Is [</u> YI N | With CONSUL Reprogram E Perform "E-S OTC "C1D23" (ES >> Repla O >> GO 1 | T-III -SUS control unit. -US" self-diagnosis. <u>detected?</u> ace E-SUS control unit. F -O 4. | Refer to <u>SCS-67, "Exploded View"</u> . | |
| 4. | ERASE ERRO | OR RECORD | | |

Erase the memory of E-SUS control unit self-diagnosis result (history).

>> End

U1000 CAN COMM CIRCUIT

Description

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

DTC Logic

INFOID:000000006566458

INFOID:000000006566457

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DTC DETECTION LOGIC

| DTC | Display item | Malfunction detected condition | Possible cause | SCS |
|---|--|---|--|--------------|
| U1000 | CAN COMM CIRCUIT | E-SUS control unit is not communicate CAN communication signal for 2 sec- onds or more. | CAN communication error Malfunction of E-SUS control unit | F |
| DTC CONFIR | MATION PROCEDUR | E | | |
| 1. DTC REPR | ODUCTION PROCEDU | RE | | G |
| With CONS | ULT-III | | | |
| Turn the ig Perform "E | nition switch OFF to ON SSUS" self-diagnosis. | | | Н |
| Is DTC "U1000 | " detected? | | | |
| YES >> Pro | oceed to diagnosis proce SPECTION END | edure. Refer to <u>SCS-45, "Diagnosis</u> | Procedure". | I |
| Diagnosis F | Procedure | | INFOID:00000006566459 | |
| Proceed to LA | N-36, "CAN System Spec | cification Chart". | | J |
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U1010 CONTROL UNIT (CAN)

Description

INFOID:000000006566460

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

DTC Logic

INFOID:000000006566461

DTC DETECTION LOGIC

| DTC | Display item | Malfunction detected condition | Possible cause |
|-------|--------------------|---|-----------------------------------|
| U1010 | CONTROL UNIT (CAN) | Detecting error during the initial diagno- sis of CAN controller of E-SUS control unit. | Malfunction of E-SUS control unit |

DTC CONFIRMATION PROCEDURE

1.DTC REPRODUCTION PROCEDURE

()With CONSULT-III

- 1. Turn the ignition switch OFF to ON.
- 2. Perform "E-SUS" self-diagnosis.

Is DTC "U1010" detected?

- YES >> Proceed to diagnosis procedure. Refer to <u>SCS-46, "Diagnosis Procedure"</u>.
- NO >> INSPECTION END

Diagnosis Procedure

1.CHECK E-SUS CONTROL UNIT

Check E-SUS control unit harness connector for disconnection and deformation.

Is the inspection result normal?

- YES >> Replace E-SUS control unit. Refer to <u>SCS-67, "Exploded View"</u>.
- NO >> Repair or replace error-detected parts.

INFOID:000000006566462

MODE SELECT SWITCH (E-SUS MODE SELECT)

< DTC/CIRCUIT DIAGNOSIS >

MODE SELECT SWITCH (E-SUS MODE SELECT)

Description

Mode select switch (E-SUS mode select) can be switched to SPORT mode or AUTO mode manually.

When the ignition switch is turned to ON, the mode lamp briefly illuminates, but it is not a malfunction.

| Selection mode | Target driving scene | C |
|----------------|---------------------------------|---|
| AUTO mode | Normal driving (basic position) | C |
| SPORT mode | Sport-conscious driving | |

Component Function Check

INFOID:000000006566464

INFOID:000000006566463

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1.CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) OPERATION

Operate the mode select switch (E-SUS mode select) and check that the sport mode indicator lamp in the combination meter turns ON/OFF correctly.

| Mode select switch (E-SUS mode select): SPORT ON Mode select switch (E-SUS mode select): AUTO OFF Is the inspection result normal? YES >> INSPECTION END NO >> Proceed to diagnosis procedure. Refer to SCS-47. "Diagnosis Procedure". Diagnosis Procedure Instruction of the select switch (E-SUS MODE SELECT) Check mode select switch (E-SUS mode select). Refer to SCS-48. "Component Inspection". Is the inspection result normal? YES >> GO TO 2. NO NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). Question result normal? YES YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). Question result normal? YES YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). 2.CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS 1. Disconnect E-SUS control unit harness connector. 2. Disconnect mode select switch (E-SUS mode select) connector. 3. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SU control unit harness connector. | Wide select switch (E-SUS mode select): AUTO ON Wide select switch (E-SUS mode select): AUTO OFF It the inspection result normal? YES YES >> INSPECTION END NO >> Proceed to diagnosis procedure. Refer to SCS-47. "Diagnosis Procedure". viagnosis Procedure | Condition | Sport mode indicator lamp illumination status | |
|---|--|--|---|-----------------|
| Mode select switch (E-SUS mode select): AUTO OFF Is the inspection result normal? YES >> INSPECTION END NO >> Proceed to diagnosis procedure. Refer to SCS-47. "Diagnosis Procedure". Diagnosis Procedure Diagnosis Procedure mronzonosis Procedure 1.CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) Check mode select switch (E-SUS mode select). Refer to SCS-48. "Component Inspection". Is the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). 2.CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS 1. Disconnect E-SUS control unit harness connector. 2. Disconnect mode select switch (E-SUS mode select) connector. 3. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SU control unit harness connector. | Mode select switch (E-SUS mode select): AUTO OFF it the inspection result normal? YES >> INSPECTION END NO >> Proceed to diagnosis procedure. Refer to SCS-47. "Diagnosis Procedure". ifagnosis Procedure | Mode select switch (E-SUS mode select): SPORT | T ON | |
| s the inspection result normal? YES >> INSPECTION END NO >> Proceed to diagnosis procedure. Refer to SCS-47. "Diagnosis Procedure". Diagnosis Procedure | ithe inspection result normal? YES >> INSPECTION END NO >> Proceed to diagnosis procedure. Refer to SCS-47. "Diagnosis Procedure". ifagnosis Procedure | Mode select switch (E-SUS mode select): AUTO | OFF | (|
| YES >> INSPECTION END NO >> Proceed to diagnosis procedure. Refer to SCS-47. "Diagnosis Procedure". Diagnosis Procedure | YES >> INSPECTION END NO >> Proceed to diagnosis procedure. Refer to SCS-47. "Diagnosis Procedure". Hagnosis Procedure INFOLE-000000000000000000000000000000000000 | s the inspection result normal? | | |
| Diagnosis Procedure INFOLXMODE SELECT SWITCH (E-SUS MODE SELECT) Check mode select switch (E-SUS mode select). Refer to SCS-48, "Component Inspection". s the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). 2.CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS . Disconnect E-SUS control unit harness connector. 2. Disconnect mode select switch (E-SUS mode select) connector. 3. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SU control unit harness connector. | Analysis Procedure NFORECOMMENT •CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) heck mode select switch (E-SUS mode select). Refer to SCS-48. "Component Inspection". •the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). •CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS •Disconnect E-SUS control unit harness connector. Disconnect E-SUS control unit harness connector. •Disconnect mode select switch (E-SUS mode select) connector. •Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. •E-SUS control unit Mode select switch (E-SUS mode select) connector. •E-SUS control unit Mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. •E-SUS control unit Mode select switch (E-SUS mode select) control unit harness connector. •E-SUS control unit Mode select switch (E-SUS control unit harness connector. •E-SUS control unit Mode select switch (E-SUS control unit harness connector. •E-SUS control unit Mode select switch (E-SUS control unit harness connector. •E-SUS control unit Connector •E-SUS control unit Connect | YES >> INSPECTION END NO >> Proceed to diagnosis proced | dure. Refer to SCS-47, "Diagnosis Procedure". | I |
| CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) Check mode select switch (E-SUS mode select). Refer to <u>SCS-48. "Component Inspection"</u>. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SU mode select). CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS Disconnect E-SUS control unit harness connector. Disconnect mode select switch (E-SUS mode select) connector. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SU control unit harness connector. | .CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) heck mode select switch (E-SUS mode select). Refer to SCS-48. "Component Inspection". .the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). .CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS Disconnect E-SUS control unit harness connector. Disconnect E-SUS control unit harness connector. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) continuity Connector Terminal B38 20 M179 | Diagnosis Procedure | INFOID:0 | 000000006566465 |
| Check mode select switch (E-SUS mode select). Refer to <u>SCS-48. "Component Inspection"</u>. <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SU mode select). 2.CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS Disconnect E-SUS control unit harness connector. Disconnect mode select switch (E-SUS mode select) connector. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SU control unit harness connector. | heck mode select switch (E-SUS mode select). Refer to <u>SCS-48. "Component Inspection"</u> . a the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS Disconnect E-SUS control unit harness connector. Disconnect mode select switch (E-SUS mode select) connector. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) continuity Connector Terminal B38 20 M179 | CHECK MODE SELECT SWITCH (E- | -SUS MODE SELECT) | |
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| YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SU mode select). 2.CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS Disconnect E-SUS control unit harness connector. Disconnect mode select switch (E-SUS mode select) connector. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SU control unit harness connector. | YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select) is malfunctioning. Replace Mode select switch (E-SUS mode select). CHECK MODE SELECT SWITCH (E-SUS MODE SELECT) HARNESS Disconnect E-SUS control unit harness connector. Disconnect mode select switch (E-SUS mode select) connector. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) continuity Connector Terminal B38 20 M179 | • | | |
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| Disconnect E-SUS control unit harness connector. Disconnect mode select switch (E-SUS mode select) connector. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SU control unit harness connector. | Disconnect E-SUS control unit harness connector. Disconnect mode select switch (E-SUS mode select) connector. Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) Connector Terminal Connector Terminal B38 20 M179 1 Existed | s the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS r mode select). | mode select) is malfunctioning. Replace Mode select switch | n (E-SUS |
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| . Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SL control unit harness connector. | Check the continuity between mode select switch (E-SUS mode select) harness connector and E-SUS control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) Connector Terminal Connector Terminal B38 20 M179 1 Existed | <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select). CHECK MODE SELECT SWITCH (E-Disconnect E-SUS control unit harne | mode select) is malfunctioning. Replace Mode select switch -SUS MODE SELECT) HARNESS | n (E-SUS |
| control unit harness connector. | control unit harness connector. E-SUS control unit Mode select switch (E-SUS mode select) Continuity Connector Terminal Connector Terminal B38 20 M179 1 Existed | <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select). CHECK MODE SELECT SWITCH (E- Disconnect E-SUS control unit harne Disconnect mode select switch (E-SUS) | mode select) is malfunctioning. Replace Mode select switch -SUS MODE SELECT) HARNESS ess connector. US mode select) connector. | n (E-SUS |
| | E-SUS control unit Mode select switch (E-SUS mode select) Connector Terminal Connector Terminal B38 20 M179 1 Existed | <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select). CHECK MODE SELECT SWITCH (E- Disconnect E-SUS control unit harne Disconnect mode select switch (E-SU Check the continuity between mode | mode select) is malfunctioning. Replace Mode select switch -SUS MODE SELECT) HARNESS ess connector. US mode select) connector. e select switch (E-SUS mode select) harness connector an | n (E-SUS |
| | E-SUS control unit Mode select switch (E-SUS mode select) Continuity Connector Terminal Connector Terminal B38 20 M179 1 Existed | <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select). CHECK MODE SELECT SWITCH (E- Disconnect E-SUS control unit harne Disconnect mode select switch (E-SUS) Check the continuity between mode control unit harness connector. | mode select) is malfunctioning. Replace Mode select switch -SUS MODE SELECT) HARNESS ess connector. US mode select) connector. e select switch (E-SUS mode select) harness connector an | n (E-SUS |
| E-SUS control unit Mode select switch (E-SUS mode select) Continuity | Connector Terminal Connector Terminal B38 20 M179 1 Existed | <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select). 2.CHECK MODE SELECT SWITCH (E-Disconnect E-SUS control unit harne Disconnect mode select switch (E-SUS). Check the continuity between mode control unit harness connector. | mode select) is malfunctioning. Replace Mode select switch -SUS MODE SELECT) HARNESS ess connector. US mode select) connector. e select switch (E-SUS mode select) harness connector an | n (E-SUS |
| Connector Terminal Connector Terminal | B38 20 M179 1 Existed | s the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select). 2.CHECK MODE SELECT SWITCH (E- Disconnect E-SUS control unit harne Disconnect mode select switch (E-SUS) Check the continuity between mode control unit harness connector. E-SUS control unit | mode select) is malfunctioning. Replace Mode select switch -SUS MODE SELECT) HARNESS ess connector. US mode select) connector. e select switch (E-SUS mode select) harness connector an | n (E-SUS |
| | | s the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select). 2.CHECK MODE SELECT SWITCH (E- Disconnect E-SUS control unit harne Disconnect mode select switch (E-SUS) Check the continuity between mode control unit harness connector. E-SUS control unit Mode select switch Connector Terminal | mode select) is malfunctioning. Replace Mode select switch -SUS MODE SELECT) HARNESS ess connector. US mode select) connector. e select switch (E-SUS mode select) harness connector an switch (E-SUS e select) Continuity | d E-SUS |
| B38 20 M179 1 Existed | | s the inspection result normal? YES >> GO TO 2. NO >> Mode select switch (E-SUS mode select). CHECK MODE SELECT SWITCH (E- Disconnect E-SUS control unit harne Disconnect mode select switch (E-SU Check the continuity between mode control unit harness connector. E-SUS control unit Mode select smode select smode mode control unit harness connector. E-SUS control unit Mode select smode select smode mode control unit harness connector. B38 20 M179 | mode select) is malfunctioning. Replace Mode select switch -SUS MODE SELECT) HARNESS ess connector. US mode select) connector. e select switch (E-SUS mode select) harness connector an switch (E-SUS select) continuity Terminal 1 Existed | n (E-SUS |

| Mode select switch (| (E-SUS mode select) | | Continuity |
|----------------------|---------------------|--------|------------|
| Connector | Terminal | _ | Continuity |
| M179 | 3 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> If the open or short in harness, repair or replace harness.

3.CHECK COMBINATION METER

Ρ

MODE SELECT SWITCH (E-SUS MODE SELECT)

< DTC/CIRCUIT DIAGNOSIS >

- 1. Connect E-SUS control unit harness connector.
- 2. Connect mode select switch (E-SUS mode select) harness connector.
- 3. Check the indication and operation of combination meter are normal. Refer to <u>MWI-46, "Diagnosis</u> <u>Description"</u>.

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Repair or replace combination meter.

Component Inspection

INFOID:000000006566466

1.CHECK MODE SELECT SWITCH (E-SUS MODE SELECT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect mode select switch (E-SUS mode select) harness connector.
- 3. Check the continuity between mode select switch (E-SUS mode select) connector terminals.

| Mode select switch (E-SUS mode select) | Condition | Continuity | |
|--|--|-------------|--|
| Terminal | Condition | Continuity | |
| 1 3 | When mode select switch (E-SUS mode select): SPORT | Existed | |
| | When mode select switch (E-SUS mode select): AUTO | Not existed | |

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace mode select switch (E-SUS mode select).

SPORT MODE INDICATOR LAMP

| < DTC/CIRCUIT DIAGNOSIS : | > | |
|-------------------------------------|--|--------------|
| SPORT MODE INDIC | ATOR LAMP | Λ |
| Description | INF0/D:00000006566467 | ~ |
| The following is the indications of | of indicator lamp after the engine start. | D |
| SPORT MODE INDICATOR L | _AMP | D |
| | | |
| Condition | Sport mode indicator lamp | С |
| AUTO mode | OFF | |
| SPORT mode | ON | D |
| Component Function Che | ECK INFOID:00000006566468 | |
| 1.SPORT MODE INDICATOR | LAMP OPERATION CHECK | SCS |
| Check that the sport mode india | cator lamp in the combination meter turns ON/OFF correctly when operating | |
| Ine mode select switch (E-SUS | mode select). | F |
| YES >> INSPECTION END | | |
| NO >> Proceed to diagnos | is procedure. Refer to SCS-49, "Diagnosis Procedure". | - |
| Diagnosis Procedure | INFOID:000000006566469 | G |
| 1. CHECK MODE SELECT SW | ITCH (E-SUS MODE SELECT) | Ц |
| Perform the trouble diagnosis for | r mode select switch (E-SUS mode select). Refer to SCS-47, "Diagnosis Pro- | |
| <u>cedure</u> . | | |
| YES >> GO TO 2 | | |
| NO >> Check mode select | switch (E-SUS mode select). Refer to <u>SCS-48, "Component Inspection"</u> . | |
| 2. CHECK SELF-DIAGNOSIS | | J |
| With CONSULT-III | | |
| Perform "E-SUS" self-diagnosis. | | Κ |
| Is the inspection result normal? | | |
| NO >> Check items display | /ed by self-diagnosis. | |
| 3. CHECK COMBINATION ME | TER | L |
| Check the indication and opera | tion of combination meter are normal. Refer to MWI-46, "Diagnosis Descrip- | |
| tion". | | \mathbb{M} |
| Is the inspection result normal? | | |
| YES >> Replace E-SUS cor | Itrol unit. Refer to <u>SCS-67, "Exploded View"</u> . Itrol unit. Refer to MWI-187, "Exploded View" | N |
| | ······································ | |
| | | |

Ρ

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION E-SUS CONTROL UNIT

Reference Value

INFOID:000000006566470

VALUES ON THE DIAGNOSIS TOOL

| Monitor item | Condition | Value/Status |
|--------------------|---|--|
| | Vehicle stopped | 0 km/h (MPH) |
| VEHICLE SPEED | While driving for a period of time after the engine starts. CAUTION: Check tire pressure in normal condition. | Almost in accordance with the speedometer display. (Within ±10%) |
| | Neutral | Approx. 0 deg |
| ST ANGLE SIG | Steering | 0 – 780 deg |
| IGN | Always | Battery voltage |
| REQUESTED TRQ | Engine: At idle speed after warm-upSelector lever: P or N position | Approx. 26 Nm |
| | When stopped | Approx. 2.35 – 2.65 V |
| IN BUT G-SEN VOL | While driving | Approx. 0.5 – 4.5 V |
| | When stopped | Approx. 2.35 – 2.65 V |
| FL BDT G-SEN VOL | While driving | Approx. 0.5 – 4.5 V |
| | When stopped | Approx. 2.35 – 2.65 V |
| R G-SEN VOL | While driving | Approx. 0.5 – 4.5 V |
| | When stopped | Approx. 2.35 – 2.65 V |
| FR WILL G-SEIN VOL | While driving | Approx. 0.5 – 4.5 V |
| | When stopped | Approx. 2.35 – 2.65 V |
| FL WHE G-SEN VOL | While driving | Approx. 0.5 – 4.5 V |
| | Vehicle stopped | Approx. 0.65 A |
| FR ACTUATOR CRIM | While driving | Approx. 0.65 – 2.0 A |
| | Vehicle stopped | Approx. 0.65 A |
| FLACIDATOR CRIT | While driving | Approx. 0.65 – 2.0 A |
| | Vehicle stopped | Approx. 0.65 A |
| KR ACTUATOR CRINT | While driving | Approx. 0.65 – 2.0 A |
| | Vehicle stopped | Approx. 0.65 A |
| REACTOATOR CRIM | While driving | Approx. 0.65 – 2.0 A |
| G-SEN VOL | Ignition switch ON | Approx. 4.75 – 5.25 V |
| | Brake deactivated | Approx. 0 bar |
| DRK FLD FRE33 | Brake activated | -40 - 300 bar |
| | Depress the brake | On |
| STP LAIVIP SW | Do not depress the brake | Off |
| | Sport mode | On |
| | Auto mode | Off |
| | Fail-safe mode | On |
| FAIL MODE SIG | Normal mode | Off |
| | Sport mode | SPORT |
| CONTROL MODE | Auto mode | AUTO |

TERMINAL LAYOUT

< ECU DIAGNOSIS INFORMATION >



PHYSICAL VALUES

| Terminal No. (Wire color) | | Description | | | Value (Approx.) | |
|------------------------------|--------|--|-------|--------------------|-----------------------|--|
| + | - | Signal name Input/ Output | | | | |
| 1 (L) | Ground | E-SUS control unit power supply | Input | Ignition switch ON | Battery voltage | |
| 2 (P) | | Front RH shock absorber actua- tor LOW terminal | _ | _ | _ | |
| 3 (V) | _ | Front RH shock absorber actua- tor HI terminal | | _ | _ | |
| 4 (G) | | Front LH shock absorber actuator LOW terminal | _ | _ | _ | |
| 5 (Y) | _ | Front LH shock absorber actuator HI terminal | | _ | _ | |
| 6 (LG) | | Rear LH shock absorber actuator HI terminal | | _ | _ | |
| 7 (V) | _ | Rear LH shock absorber actuator LOW terminal | _ | _ | _ | |
| 8 (L) | | Rear RH shock absorber actuator HI terminal | _ | _ | _ | |
| 9 (P) | | Rear RH shock absorber actuator LOW terminal | _ | _ | _ | |
| 10 (BG) | Ground | Front LH wheel vertical G sensor output voltage | Input | Ignition switch ON | Approx. 2.35 – 2.65 V | |
| 11 (SB) | Ground | Front RH body vertical G sensor output voltage | Input | Ignition switch ON | Approx. 2.35 – 2.65 V | |
| 12 (R) | Ground | Front LH body vertical G sensor output voltage | Input | Ignition switch ON | Approx. 2.35 – 2.65 V | |
| 14 (G) | Ground | Rear body vertical G sensor out- put voltage | Input | Ignition switch ON | Approx. 2.35 – 2.65 V | |
| 17 (L) | Ground | E-SUS control unit power supply | Input | Ignition switch ON | Battery voltage | |
| 18 (B) | Ground | Ground | _ | Always | 0 V | |
| 19 (B) | Ground | Ground | _ | Always | 0 V | |
| 20 (W) | — | Mode switch terminal | _ | — | _ | |
| 23 (G) | — | Mode lamp terminal | _ | — | _ | |
| 24 (W) | Ground | Front RH wheel vertical G sensor output voltage | Input | Ignition switch ON | Approx. 2.35 – 2.65 V | |

< ECU DIAGNOSIS INFORMATION >

| Terminal No. (Wire color) | | Description | | Condition | | |
|------------------------------|--------|--------------------------------------|------------------|--------------------|-----------------------|--|
| + - | | Signal name | Input/ Output | Condition | | |
| 25 (Y) | Ground | Rear body vertical G sensor ground | _ | Always | 0 V | |
| 26 (BR) | Ground | Front vertical G sensor ground | _ | Always | 0 V | |
| 27 (GR) | Ground | Front vertical G sensor power supply | Output | Ignition switch ON | Approx. 4.75 – 5.25 V | |
| 29 (P) | _ | CAN-L | _ | _ | _ | |
| 30 (LG) | Ground | Rear vertical G sensor power supply | Output | Ignition switch ON | Approx. 4.75 – 5.25 V | |
| 32 (L) | | CAN-H | | _ | _ | |

CAUTION:

Never extend connector terminals forcibly, when checking voltage using a circuit tester for voltage inspection.

TYPE A

< ECU DIAGNOSIS INFORMATION >





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< ECU DIAGNOSIS INFORMATION >

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Revision: 2011 December

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TYPE B

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E-SUS CONTROL UNIT

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< ECU DIAGNOSIS INFORMATION >



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< ECU DIAGNOSIS INFORMATION >



Fail-safe

INFOID:000000006566472

Continuous Damping Control system

- When detecting any malfunction in each component of the system, it enters the fail-safe status.
- The damping force is simultaneously maintained at approximately the intermediate level between the maximum and the minimum values, when entering the fail-safe status.
- Even if the switch is operated in the fail-safe status, lamp illuminates in SPORT mode or AUTO mode.

SCS-63

< ECU DIAGNOSIS INFORMATION >

DTC Inspection Priority Chart

INFOID:000000006566473

When multiple DTCs are detected simultaneously, check one by one depending on the following priority list.

| Priority | Priority order item (DTC) |
|----------|---|
| 1 | U1000 CAN COMM CIRCUIT U1010 CONTROL UNIT (CAN) |
| 2 | Other than the above |

DTC Index

INFOID:000000006566474

| DTC | Display Items | Reference |
|-------|--------------------|---------------------|
| C1D01 | VEHICLE SPEED SIG | SCS-13, "DTC Logic" |
| C1D03 | ST ANGLE SPEED SIG | SCS-15, "DTC Logic" |
| C1D05 | REQST TRQ SIG | SCS-17, "DTC Logic" |
| C1D07 | STOP LAMP SW SIG | SCS-19, "DTC Logic" |
| C1D09 | BRK FLD PRESS SIG | SCS-21, "DTC Logic" |
| C1D0B | FL WHL VER G-SEN | SCS-23, "DTC Logic" |
| C1D0C | FR WHL VER G-SEN | SCS-25, "DTC Logic" |
| C1D0D | FL BDY VER G-SEN | SCS-27, "DTC Logic" |
| C1D10 | F VERTICAL G-SEN | SCS-29, "DTC Logic" |
| C1D11 | R VERTICAL G-SEN | SCS-31, "DTC Logic" |
| C1D12 | FR ACTUATOR SIG | SCS-33, "DTC Logic" |
| C1D13 | FL ACTUATOR SIG | SCS-35, "DTC Logic" |
| C1D14 | RR ACTUATOR SIG | SCS-37, "DTC Logic" |
| C1D15 | RL ACTUATOR SIG | SCS-39, "DTC Logic" |
| C1D16 | CONTROL UNIT | SCS-41, "DTC Logic" |
| C1D18 | IGN VOLT | SCS-42, "DTC Logic" |
| C1D23 | C/U REPRO ERROR | SCS-44, "DTC Logic" |
| U1000 | CAN COMM CIRCUIT | SCS-45, "DTC Logic" |
| U1010 | CONTROL UNIT (CAN) | SCS-46, "DTC Logic" |

SPORT MODE INDICATOR LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS SPORT MODE INDICATOR LAMP DOES NOT TURN ON

| Description INFOID:000000005566475 | B |
|---|-----|
| Sport mode indicator lamp does not turns ON when mode select switch (E-SUS mode select) is operated to SPORT mode. | |
| Diagnosis Procedure | C |
| 1. CHECK SPORT MODE INDICATOR LAMP | D |
| Perform the trouble diagnosis of sport mode indicator lamp. Refer to <u>SCS-49, "Diagnosis Procedure"</u> . Is the inspection result normal? | |
| YES >> Check that there is no malfunction in each harness connector pin terminal or disconnection. NO >> Repair or replace the specific malfunctioning part. | SCS |
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< PRECAUTION >

PRECAUTION PRECAUTIONS

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

Precautions for terminology

The Continuous Damping Control is the trademark owned by ThyssenKrupp ZF Sachs AG.

Precautions for diagnosis

INFOID:000000006566479

INFOID:000000006566478

When disconnecting the harness connector from E-SUS control unit, disconnect it only after checking that the lock lever on the harness connector is opened.

< REMOVAL AND INSTALLATION > REMOVAL AND INSTALLATION

E-SUS CONTROL UNIT

Exploded View

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| 1. | Turn the ignition switch OFF. | |
|--|--|--|
| 2. | Remove the luggage side finisher lower (LH). Refer to INT-30, "Exploded View". | |
| 3. | Disconnect the E-SUS control unit connector. | |
| 4. | Remove the E-SUS control unit mounting bolts. | |
| 5. | Remove the E-SUS control unit from vehicle. | |
| INSTALLATION | | |
| Install in the reverse order of removal. | | |

FRONT BODY VERTICAL G SENSOR

< REMOVAL AND INSTALLATION >

FRONT BODY VERTICAL G SENSOR

Exploded View

INFOID:000000006566482



1. Front body vertical G sensor

C: Vehicle front

NOTE:

The above figure shows left side. Right side is the mirror image.

Removal and Installation

REMOVAL

- 1. Turn the ignition switch OFF.
- 2. Remove the engine room covers (LH/RH). Refer to EM-177, "Exploded View".
- 3. Disconnect the front body vertical G sensor connector.
- 4. Remove the front body vertical G sensor mounting bolts.
- 5. Remove the front body vertical G sensor from vehicle.

INSTALLATION

Install in the reverse order of removal.

INFOID:000000006566483

FRONT WHEEL VERTICAL G SENSOR

< REMOVAL AND INSTALLATION >

FRONT WHEEL VERTICAL G SENSOR

Exploded View

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REAR BODY VERTICAL G SENSOR

< REMOVAL AND INSTALLATION >

REAR BODY VERTICAL G SENSOR

Exploded View

INFOID:000000006566486



1. Rear body vertical G sensor

Removal and Installation

REMOVAL

- 1. Turn the ignition switch OFF.
- 2. Remove the Luggage floor spacer. Refer to INT-30, "Exploded View".
- 3. Disconnect the rear body vertical G sensor connector.
- 4. Remove the rear body vertical G sensor mounting bolts.
- 5. Remove the rear body vertical G sensor from vehicle.

INSTALLATION

Install in the reverse order of removal.

INFOID:000000006566487

SHOCK ABSORBER ACTUATOR

< REMOVAL AND INSTALLATION >

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