SECTION DMS
DRIVE MODE SYSTEM

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000006483393

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. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

The vehicle may be equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate for certain types of collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the “SRS AIR BAG”.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**
- **The vehicle may be equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate for certain types of collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.**

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

WARNING:

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

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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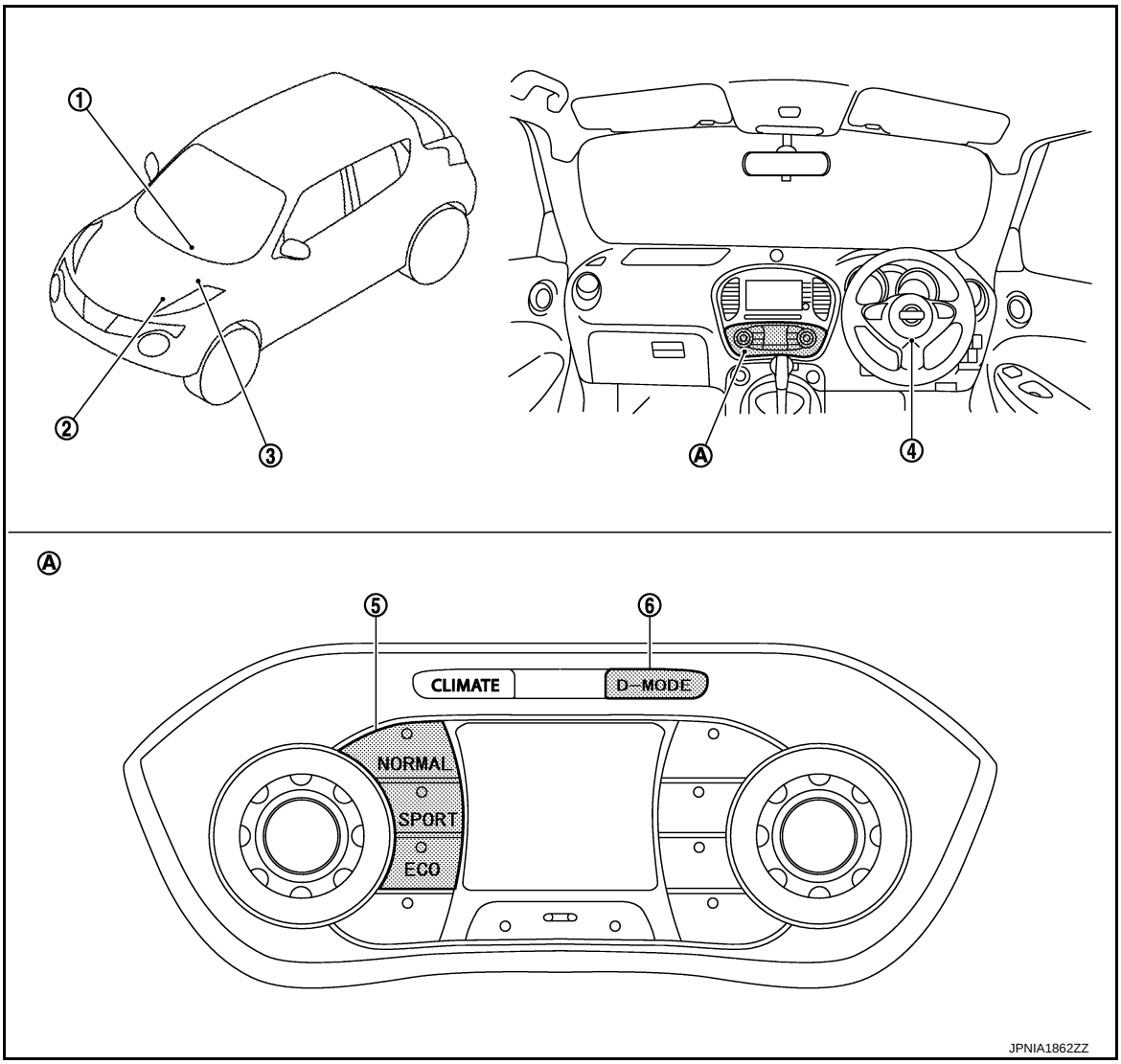

1. A/C auto amp
   Refer to HAC-12, "Component Parts Location"
2. ECM
   Refer to EC-25, "ENGINE CONTROL SYSTEM : Component Parts Location"
3. TCM
   Refer to TM-314, "CVT CONTROL SYSTEM : Component Parts Location"
4. EPS control unit
   Refer to STC-5, "Component Parts Location"
5. Drive mode switch
   - NORMAL switch
   - SPORT switch
   - ECO switch
6. D-MODE select switch

A. Multi display unit

Component Description

INFOID:0000000006483381

Part name	Description
Multi display unit	Transmits the ON/OFF status of each mode of the drive mode switch (NORMAL, SPORT, ECO) to TCM (CVT models), ECM (M/T models), EPS control unit and the A/C auto amp via CAN communication.
ECM	Based on the mode signals received from TCM (CVT models) or multi display unit (M/T models) via CAN communication, changes over the throttle position and other characteristics.
TCM	Based on the mode signals received from the multi display unit via CAN communication, changes over the gear shift line and other characteristics.
EPS control unit	Based on the mode signals received from the multi display unit via CAN communication, changes over the steering assist characteristic.
A/C auto amp	Based on the ECO mode signal received from the multi display unit via CAN communication, changes over the set temperature correction.

Multi Display Unit

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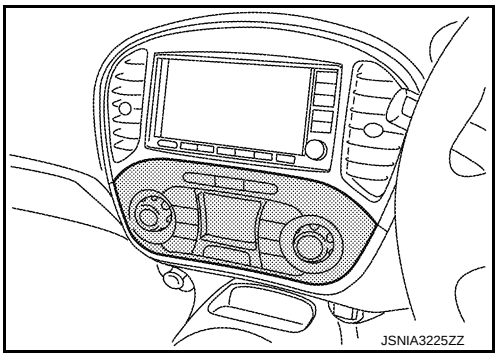
DESCRIPTION

- The multi display unit connects to other units via CAN communication and performs the drive mode control.
- The following 3 drive modes are available, NORMAL, SPORT, and ECO.
- The drive mode can be changed over as desired by pressing the D-MODE select switch. The characteristics of the engine, CVT, steering and air conditioner are changed accordingly.
- The display shows the current drive mode (NORMAL, SPORT, ECO) as well as the vehicle information for the mode.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VEHICLE INFORMATION DISPLAY

Drive Mode

Item	Display content	Display
NORMAL mode	• Displays the input voltage to the multi display unit in 5 grades. • Displays the engine torque in 5 grades.	 AVA1251

Item	Display content	Display
SPORT mode	Displays the engine power in 5 grades. (HR16DE, K9K)	 AVA1252
	Displays the boost pressure in 5 grades. (MR16DDT)	 AVA1257
ECO mode	Displays the instantaneous fuel consumption in 5 grades.	 AVA1254

SYSTEM

System Description

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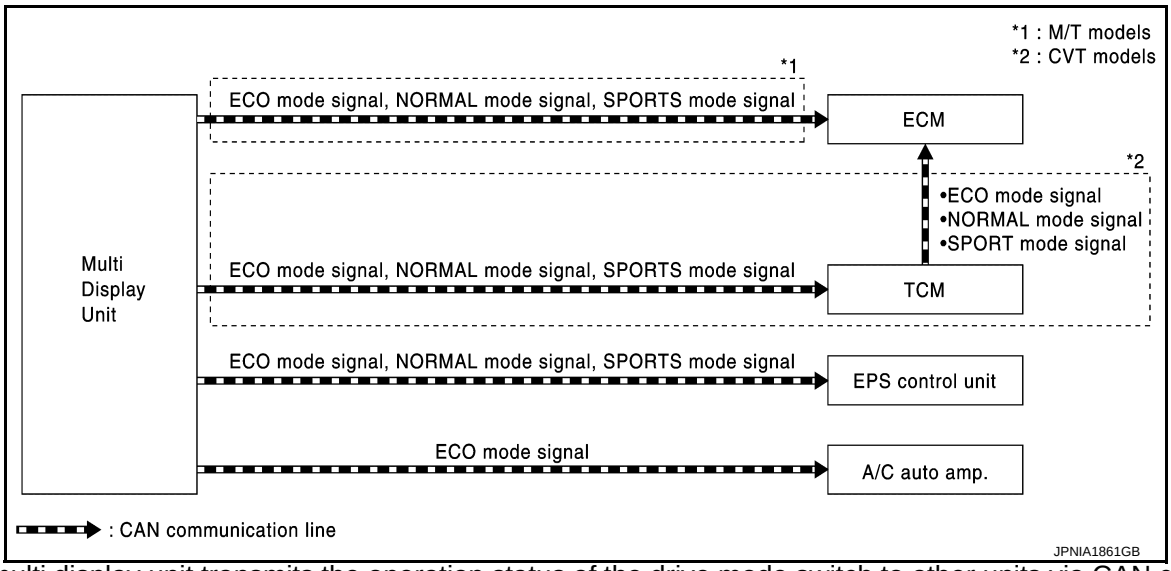
SYSTEM DIAGRAM



- The multi display unit transmits the operation status of the drive mode switch to other units via CAN communication as the mode signal (refer below).
- NORMAL: ON/OFF
- SPORT: ON/OFF
- ECO: ON/OFF
- Based on the mode signals received from TCM (CVT models) or multi display unit (M/T models) via CAN communication, ECM changes over the throttle position and other characteristics.
- Based on the mode signals received from the multi display unit via CAN communication, TCM changes over the gear shift line and other characteristics.
- Based on the mode signals received from the multi display unit via CAN communication, EPS C/U changes the steering assist characteristic.
- Based on the ECO mode signal received from the multi display unit via CAN communication, the A/C auto amp changes over the set temperature correction.

CONTROL DESCRIPTION

- The drive mode switch in the controller of the multi display unit is used to change over the vehicle mode and thus change the control characteristics for the engine, transmission, steering, and air conditioner.

Function Apply List

		HR16DE		MR16DDT		K9K
		M/T	CVT	M/T	CVT	M/T
SPORTS	ENGINE	×	×	×	×	
	CVT		×		×	
	STEERING	×	×	×	×	×
ECO	ENGINE	×	×	×	×	
	CVT		×		×	
	AIR CONDITIONER	×	×	×	×	×

- With the NORMAL mode as the base mode, the control of vehicle characteristics is changed over to the following modes.
- SPORT: The control characteristics for the engine, transmission, and steering system are changed so that a sporty feel is created in the driving behavior.
- ECO: The control characteristics for the engine, transmission, and automatic air conditioner are changed to help improve the practical fuel economy.

Control item		Control mode			Control
		SPORT	NORMAL	ECO	
ENGINE	Throttle position characteristic	× Half open	—	—	Improves the engine response to acceleration pedal operation and enhances the torque feel.
		—	—	× Late opening	Accelerates gently to assist in ECO driving.
	Speed limiter for throttle position	—	—	×	Controls the throttle position to a smaller level than NORMAL to help improve the practical fuel consumption.
TRANSMISSION	High speed gear shift line	×	—	—	Keeps the engine speed at a high level and improves the acceleration dynamism and response.
	Downshift upon braking	×	—	—	performs downshift upon braking before cornering to prevent a drop in the engine speed.
	Cornering ratio hold	×	—	—	Helps the vehicle clear a curve smoothly by restricting shift changes during cornering.
	Low speed gear shift line	—	—	×	Improves the practical fuel economy by controlling the engine speed to a low level.
STEERING	Assist characteristic	×	—	—	Changes the steering assist characteristc to enhance a stable steering feel.
AIR CONDITIONER	Air inlet control	—	—	×	Reduces the engine load by optimizing the air conditioner control to a level that does not adversely affect the interior comfort and thus helps improve the practical fuel economy.
	Blower fan control	—	—	×	

ENGINE, TRANSMISSION, STEERING, AIR CONDITIONER CONTROL

- For details on the engine control, refer to EC-67, "NISSAN DYNAMIC CONTROL SYSTEM : System Description" (MR16DDT) and EC-486, "NISSAN DYNAMIC CONTROL SYSTEM : System Description" (HR16DE).
- For details on the transmission control, refer to TM-341, "NISSAN DYNAMIC CONTROL SYSTEM : System Description".
- For details on the steering control, refer to STC-8, "EPS SYSTEM : System Description".
- For details on the air conditioner control, refer to HAC-24, "ECO Mode Control".

HANDLING PRECAUTION

NISSAN Dynamic Control System

INFOID:0000000006483384

- The engine torque, engine power, boost pressure, and instantaneous fuel consumption are provided for information purposes only. They are not intended to prompt the driver to adjust driving style. The readings may be slightly delayed relative to the actual vehicle behaviors. This is not a malfunction.
- The voltmeter reading cannot be used as an indicator for battery replacement because it indicates the input voltage to the multi display unit, not the battery voltage.
- The ECO information screen is operable only while the vehicle is stopped.
- If no time setting is performed, the daily and weekly fuel consumption history data are not displayed.
- The readings may differ from the actual values depending on driving conditions.

ECU DIAGNOSIS INFORMATION

MULTI DISPLAY UNIT

List of ECU Reference

INFOID:0000000006483385

ECU	Reference
Muiti display unit	AV-109, "Reference Value"
	AV-111, "DTC Inspection Priority Chart"
	AV-111, "DTC Index"

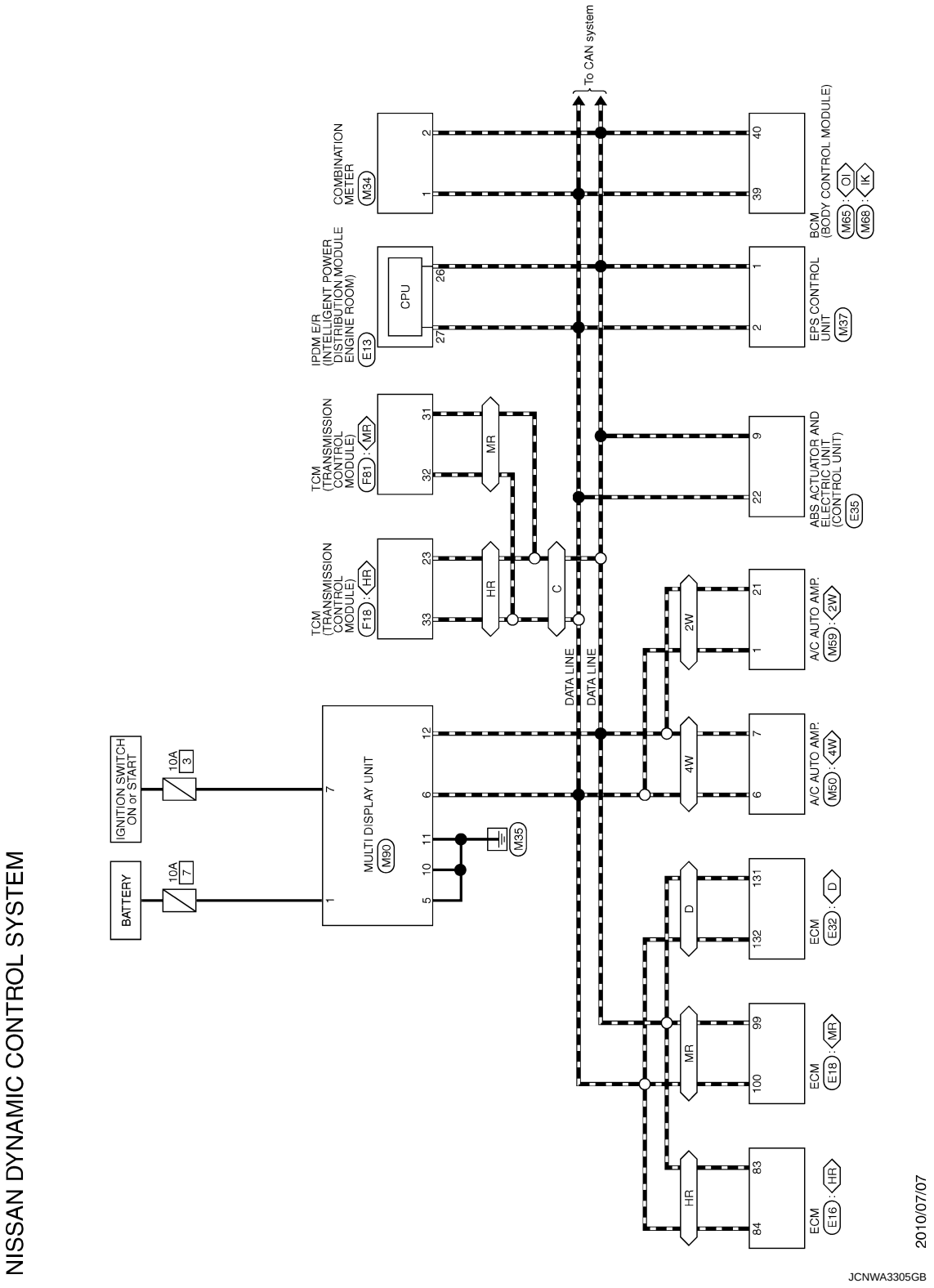
WIRING DIAGRAM

NISSAN DYNAMIC CONTROL SYSTEM

Wiring Diagram

INFOID:0000000006483386

For connector terminal arrangements, harness layouts, and alphabets in a ⬡ (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information/Explanation of Option Abbreviation".



BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

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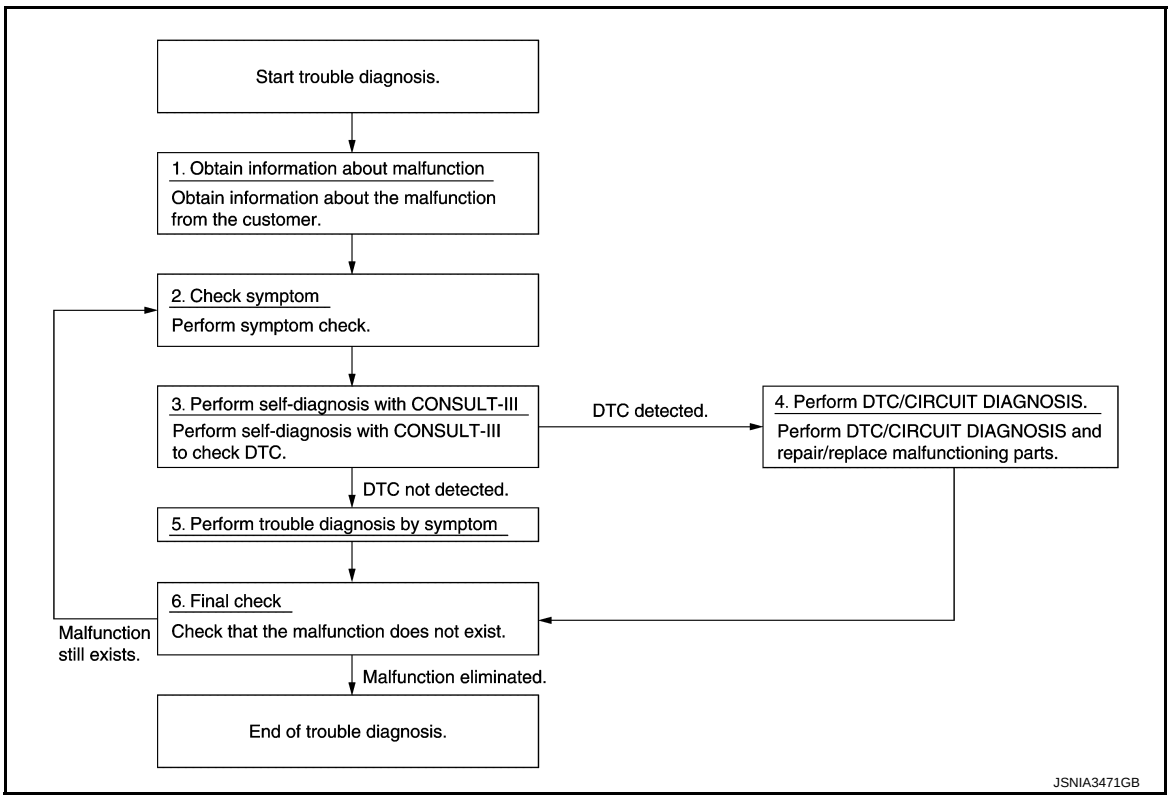
DESCRIPTION OF TROUBLE DIAGNOSIS FLOWCHART



DETAILS OF TROUBLE DIAGNOSIS FLOWCHART

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.

>> GO TO 2.

2. CHECK SYMPTOM

- Check the symptom based on the information obtained from the customer.
- Check if any other malfunctions are present.

>> GO TO 3.

3. CONSULT-III SELF-DIAGNOSIS

Perform “MULTI DISPLAY” “self diagnosis” by connecting CONSULT-III.

NOTE:

If “CAN COM CIRC [U1000]” is displayed, start the diagnosis from the CAN communication system. AV-116, "Diagnosis Procedure".

Is any DTC No. displayed?

YES >> GO TO 4.
NO >> GO TO 5.

4. DTC/SYSTEM DIAGNOSIS

Perform a DTC/system diagnosis and repair or replace any malfunctioning part.

>> GO TO 6.

5. PERFORM DIAGNOSIS BY SYMPTOM

Perform a diagnosis by symptom and repair or replace any malfunctioning part.

>> GO TO 6.

6. FINAL CHECK

Check that the multi display unit functions normally.

Does it operate normally?

YES >> End of trouble diagnosis
NO >> GO TO 2.

REMOVAL AND INSTALLATION

MULTI DISPLAY UNIT

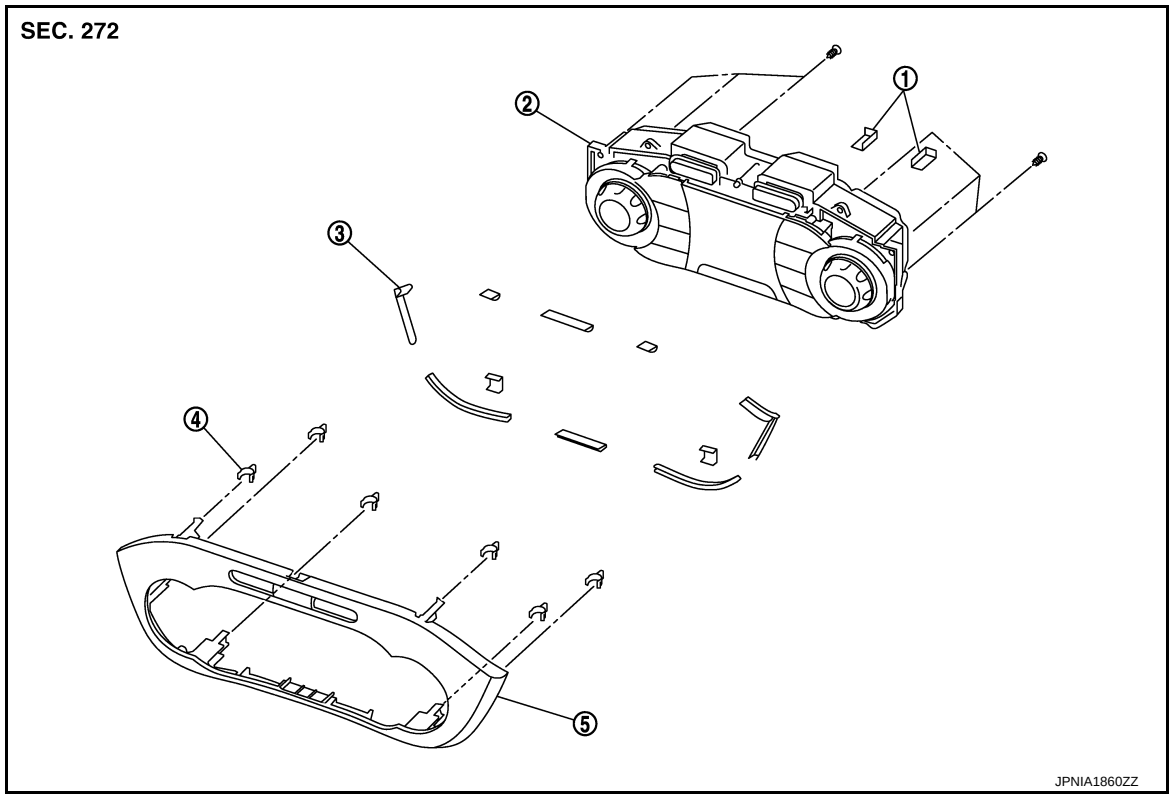
Exploded View

INFOID:0000000006483388

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



1. Silencer tape
2. Multi display unit
3. Silencer tape
4. Clip
5. Control finisher

Removal and Installation

INFOID:0000000006483389

REMOVAL

Refer to IP-12, "Exploded View".

CAUTION:

- **When performing the work, use a shop cloth to protect the parts from damage.**
- **Always fix the harness clamp in position.**

INSTALLATION

Install in the reverse order of removal.