

# TERMINOLOGY

## TERMINOLOGY

PF0:00011

### SAE J1930 Terminology List

EAS001Q6

All emission related terms used in this publication in accordance with SAE J1930 are listed. Accordingly, new terms, new acronyms/abbreviations and old terms are listed in the following chart.

NEW TERM	NEW ACRONYM / ABBREVIATION	OLD TERM
Air cleaner	ACL	Air cleaner
Barometric pressure	BARO	***
Barometric pressure sensor-BCDD	BAROS-BCDD	BCDD
Camshaft position	CMP	***
Camshaft position sensor	CMPS	Crank angle sensor
Canister	***	Canister
Carburetor	CARB	Carburetor
Charge air cooler	CAC	Intercooler
Closed loop	CL	Closed loop
Closed throttle position switch	CTP switch	Idle switch
Clutch pedal position switch	CPP switch	Clutch switch
Continuous fuel injection system	CFI system	***
Continuous trap oxidizer system	CTOX system	***
Crankshaft position	CKP	***
Crankshaft position sensor	CKPS	***
Data link connector	DLC	***
Data link connector for CONSULT-II	DLC for CONSULT-II	Diagnostic connector for CONSULT-II
Diagnostic test mode	DTM	Diagnostic mode
Diagnostic test mode selector	DTM selector	Diagnostic mode selector
Diagnostic test mode I	DTM I	Mode I
Diagnostic test mode II	DTM II	Mode II
Diagnostic trouble code	DTC	Malfunction code
Direct fuel injection system	DFI system	***
Distributor ignition system	DI system	Ignition timing control
Early fuel evaporation-mixture heater	EFE-mixture heater	Mixture heater
Early fuel evaporation system	EFE system	Mixture heater control
Electrically erasable programmable read only memory	EEPROM	***
Electronic ignition system	EI system	Ignition timing control
Engine control	EC	***
Engine control module	ECM	ECCS control unit
Engine coolant temperature	ECT	Engine temperature
Engine coolant temperature sensor	ECTS	Engine temperature sensor
Engine modification	EM	***
Engine speed	RPM	Engine speed
Erasable programmable read only memory	EPROM	***
Evaporative emission canister	EVAP canister	Canister
Evaporative emission system	EVAP system	Canister control solenoid valve
Exhaust gas recirculation valve	EGR valve	EGR valve

# CYLINDER HEAD

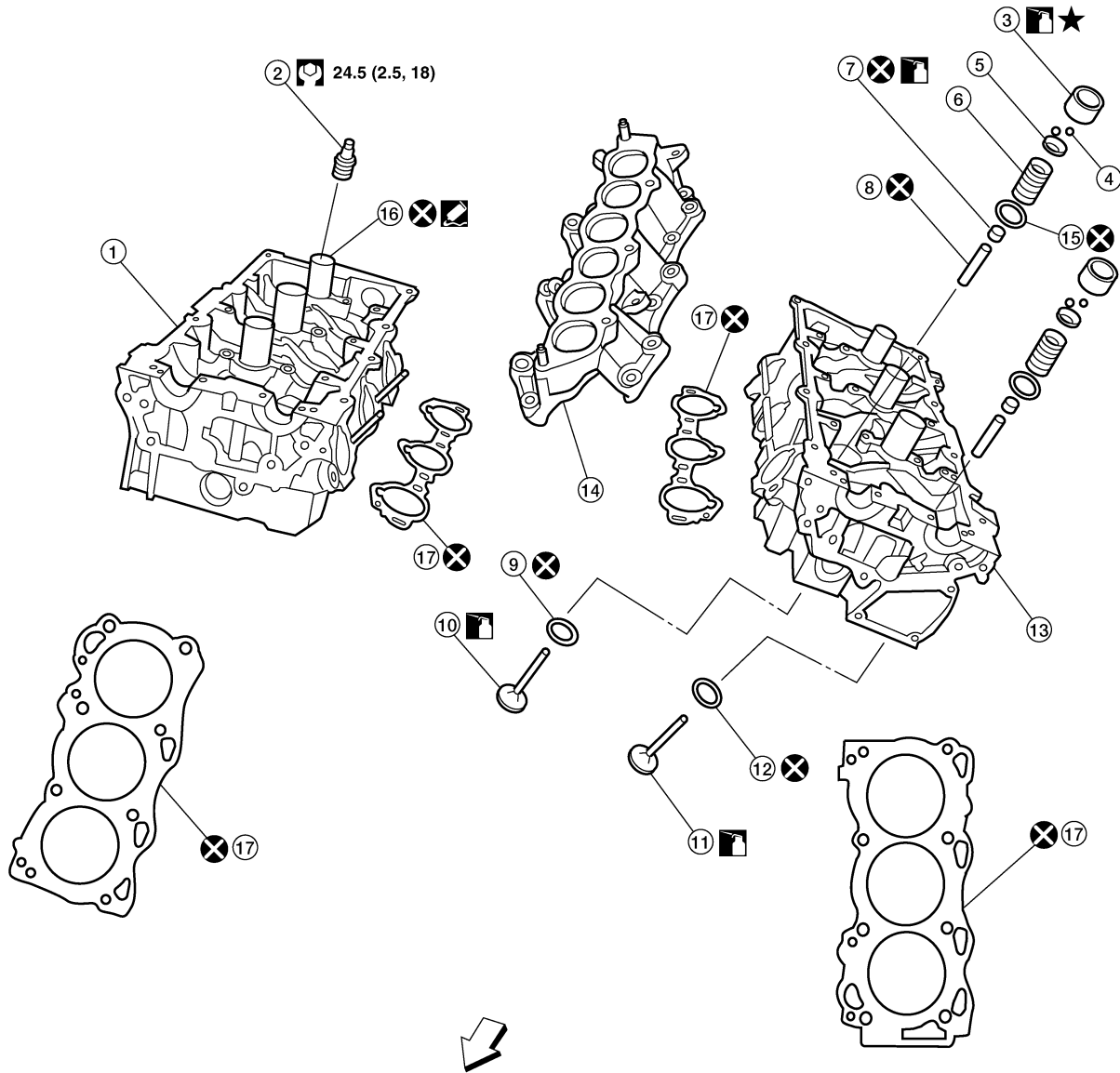
## Disassembly and Assembly

EBS00PS2

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- 1. Cylinder head (right bank)
- 4. Valve collet
- 7. Valve oil seal
- 10. Valve (INT)
- 13. Cylinder head (left bank)
- 16. Spark plug tube

- 2. Spark plug
- 5. Valve spring retainer
- 8. Valve guide
- 9. Valve seat (INT)
- 11. Valve (EXH)
- 12. Valve seat (EXH)
- 14. Intake manifold
- 17. Gaskets

- 3. Valve lifter
- 6. Valve spring
- 15. Valve spring seat
- ⇒ Engine front

WBIA0693E

# PRECAUTIONS

## PRECAUTIONS

PF:00001

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

UBS00P0K

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

#### WARNING:

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

### On Board Diagnostic (OBD) System of Engine and A/T

UBS00P0L

The ECM has an on board diagnostic system. It will light up the malfunction indicator lamp (MIL) to warn the driver of a malfunction causing emission deterioration.

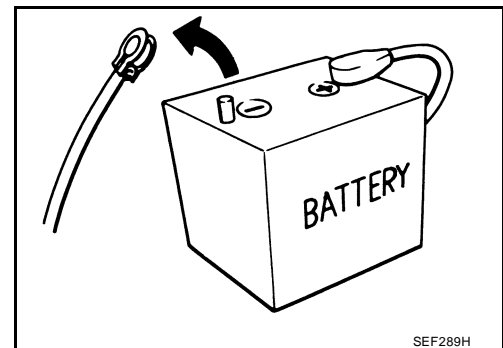
#### CAUTION:

- Be sure to turn the ignition switch OFF and disconnect the negative battery cable before any repair or inspection work. The open/short circuit of related switches, sensors, solenoid valves, etc. will cause the MIL to light up.
- Be sure to connect and lock the connectors securely after work. A loose (unlocked) connector will cause the MIL to light up due to the open circuit. (Be sure the connector is free from water, grease, dirt, bent terminals, etc.)
- Certain systems and components, especially those related to OBD, may use a new style slide-locking type harness connector. For description and how to disconnect, refer to [PG-76, "HARNESS CONNECTOR"](#).
- Be sure to route and secure the harnesses properly after work. The interference of the harness with a bracket, etc. may cause the MIL to light up due to the short circuit.
- Be sure to connect rubber tubes properly after work. A misconnected or disconnected rubber tube may cause the MIL to light up due to the malfunction of the EVAP system or fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the ECM and TCM (Transmission control module) before returning the vehicle to the customer.

### Precaution

UBS00P0M

- Always use a 12 volt battery as power source.
- Do not attempt to disconnect battery cables while engine is running.
- Before connecting or disconnecting the ECM harness connector, turn ignition switch OFF and disconnect negative battery cable. Failure to do so may damage the ECM because battery voltage is applied to ECM even if ignition switch is turned OFF.
- Before removing parts, turn ignition switch OFF and then disconnect negative battery cable.



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# TROUBLE DIAGNOSIS

## Engine Control Component Parts Location

UBS00P10

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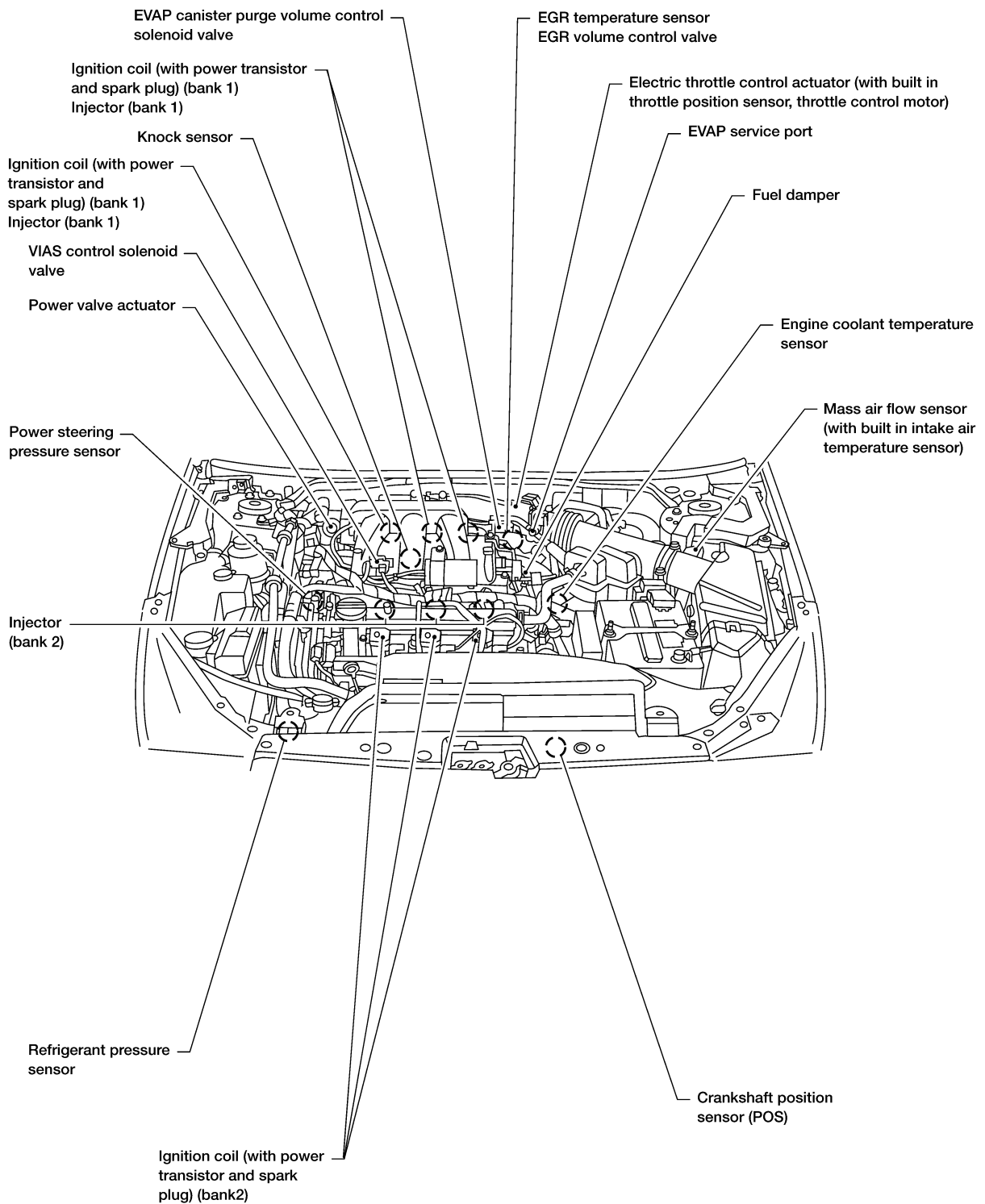
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BBIA0314E

# DTC P0102, P0103 MAF SENSOR

## DTC P0102, P0103 MAF SENSOR

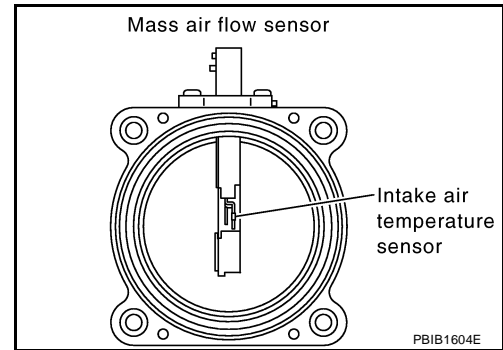
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### Component Description

UBS00P3J

The mass air flow sensor is placed in the stream of intake air. It measures the intake flow rate by measuring a part of the entire intake flow. The mass air flow sensor controls the temperature of the hot wire to a certain amount. The heat generated by the hot wire is reduced as the intake air flows around it. The more air, the greater the heat loss.

Therefore, the electric current supplied to hot wire is changed to maintain the temperature of the hot wire as air flow increases. The ECM detects the air flow by means of this current change.



### CONSULT-II Reference Value in Data Monitor Mode

UBS00P3K

Specification data are reference values.

MONITOR ITEM	CONDITION	SPECIFICATION
MAS A/F SE-B1	<ul style="list-style-type: none"> <li>See <a href="#">EC-139, "TROUBLE DIAGNOSIS - SPECIFICATION VALUE"</a>.</li> </ul>	
CAL/LD VALUE	<ul style="list-style-type: none"> <li>Engine: After warming up</li> <li>Shift lever: P or N</li> <li>Air conditioner switch: OFF</li> <li>No load</li> </ul>	Idle 5% - 35%
		2,500 rpm 5% - 35%
MASS AIRFLOW	<ul style="list-style-type: none"> <li>Engine: After warming up</li> <li>Shift lever: P or N</li> <li>Air conditioner switch: OFF</li> <li>No load</li> </ul>	Idle 2.0 - 6.0 g-m/s
		2,500 rpm 7.0 - 20.0 g-m/s

### On Board Diagnosis Logic

UBS00P3L

These self-diagnoses have the one trip detection logic.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P0102 0102	Mass air flow sensor circuit low input	An excessively low voltage from the sensor is sent to ECM.	<ul style="list-style-type: none"> <li>Harness or connectors (The sensor circuit is open or shorted.)</li> <li>Intake air leaks</li> <li>Mass air flow sensor</li> </ul>
P0103 0103	Mass air flow sensor circuit high input	An excessively high voltage from the sensor is sent to ECM.	<ul style="list-style-type: none"> <li>Harness or connectors (The sensor circuit is open or shorted.)</li> <li>Mass air flow sensor</li> </ul>

### FAIL-SAFE MODE

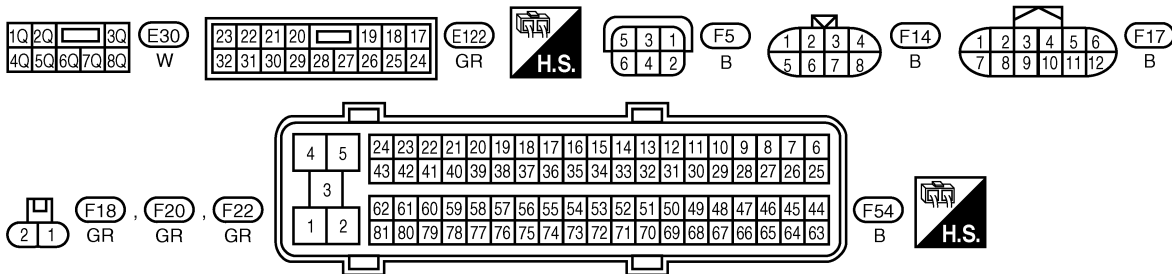
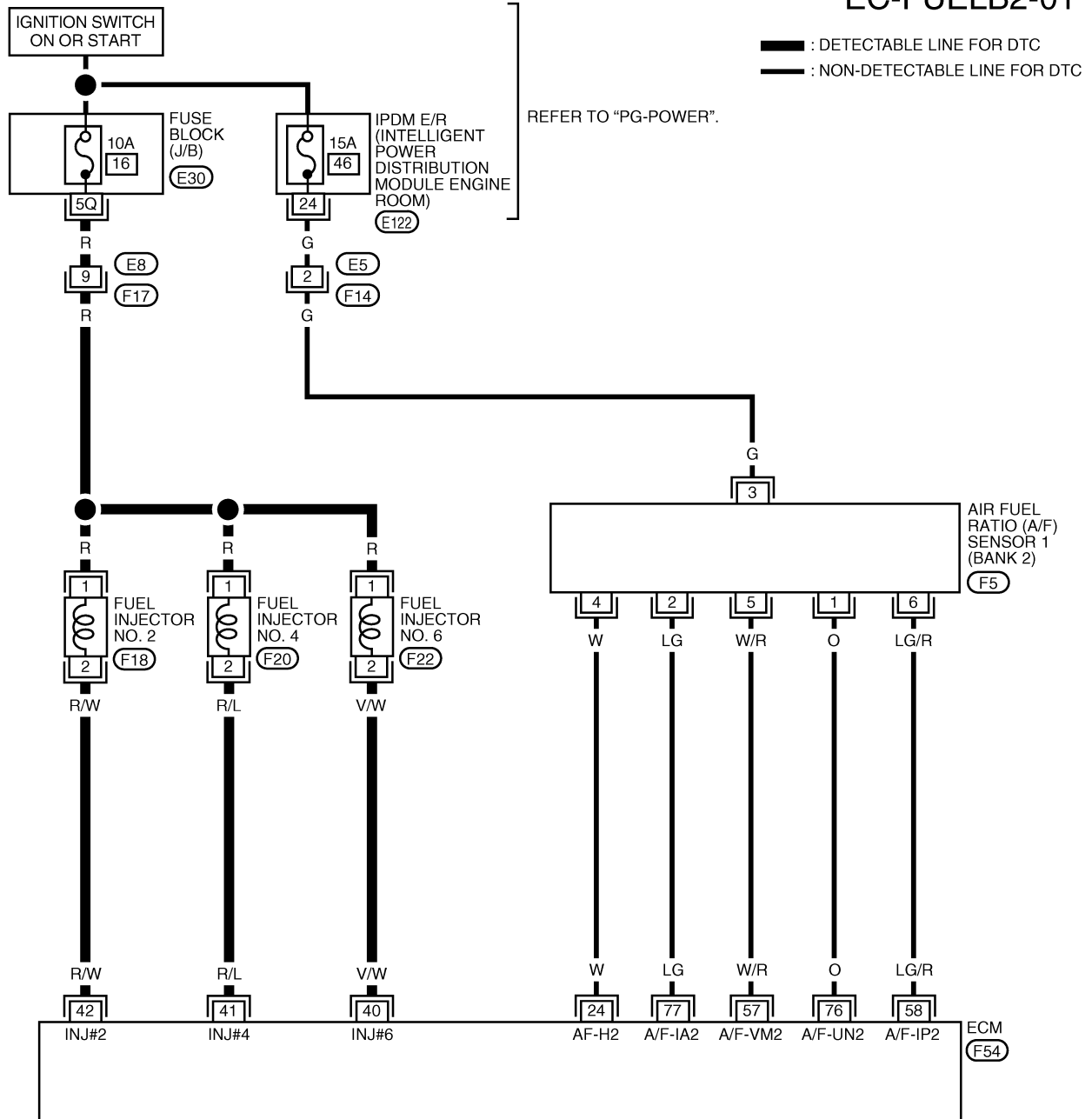
When the malfunction is detected, the ECM enters fail-safe mode and the MIL lights up.

Detected items	Engine operating condition in fail-safe mode
Mass air flow sensor circuit	Engine speed will not rise more than 2,400 rpm due to the fuel cut.

# DTC P0171, P0174 FUEL INJECTION SYSTEM FUNCTION

## BANK 2

### EC-FUELB2-01



BBWA2515E

# FRONT LOWER LINK

## FRONT LOWER LINK

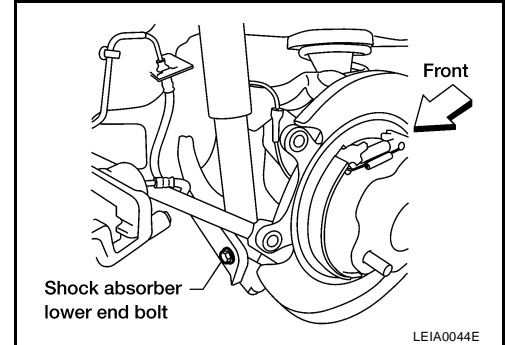
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### Removal and Installation

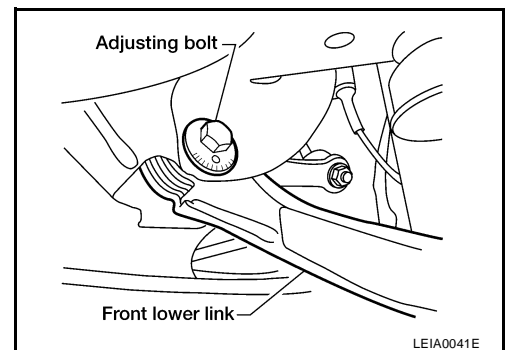
EES00215

#### REMOVAL

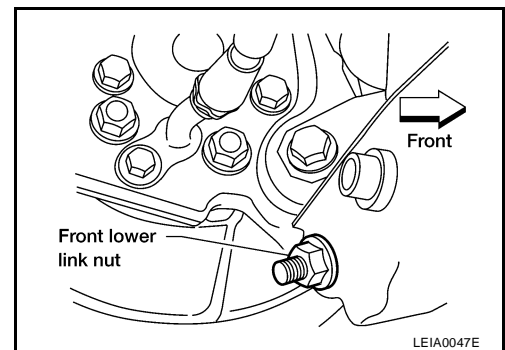
1. Remove the wheel and tire assembly using power tool. Refer to [WT-7, "ROAD WHEEL TIRE ASSEMBLY"](#)
2. Set a transmission jack or suitable tool, to relieve the coil spring tension and support the front lower link.
3. Disconnect the shock absorber lower end bolt using power tool.



4. Remove the front lower link adjusting bolt using power tool.



5. Disconnect the front lower link nut and bolt from the wheel hub and spindle assembly using power tool, then remove front lower link.



#### INSTALLATION

Installation is in the reverse order of removal. Refer to [RSU-5, "Components"](#) .

- After installing the front lower link, check the wheel alignment and adjust if necessary. Refer to [RSU-6, "Rear Wheel Alignment"](#) .

#### Inspection

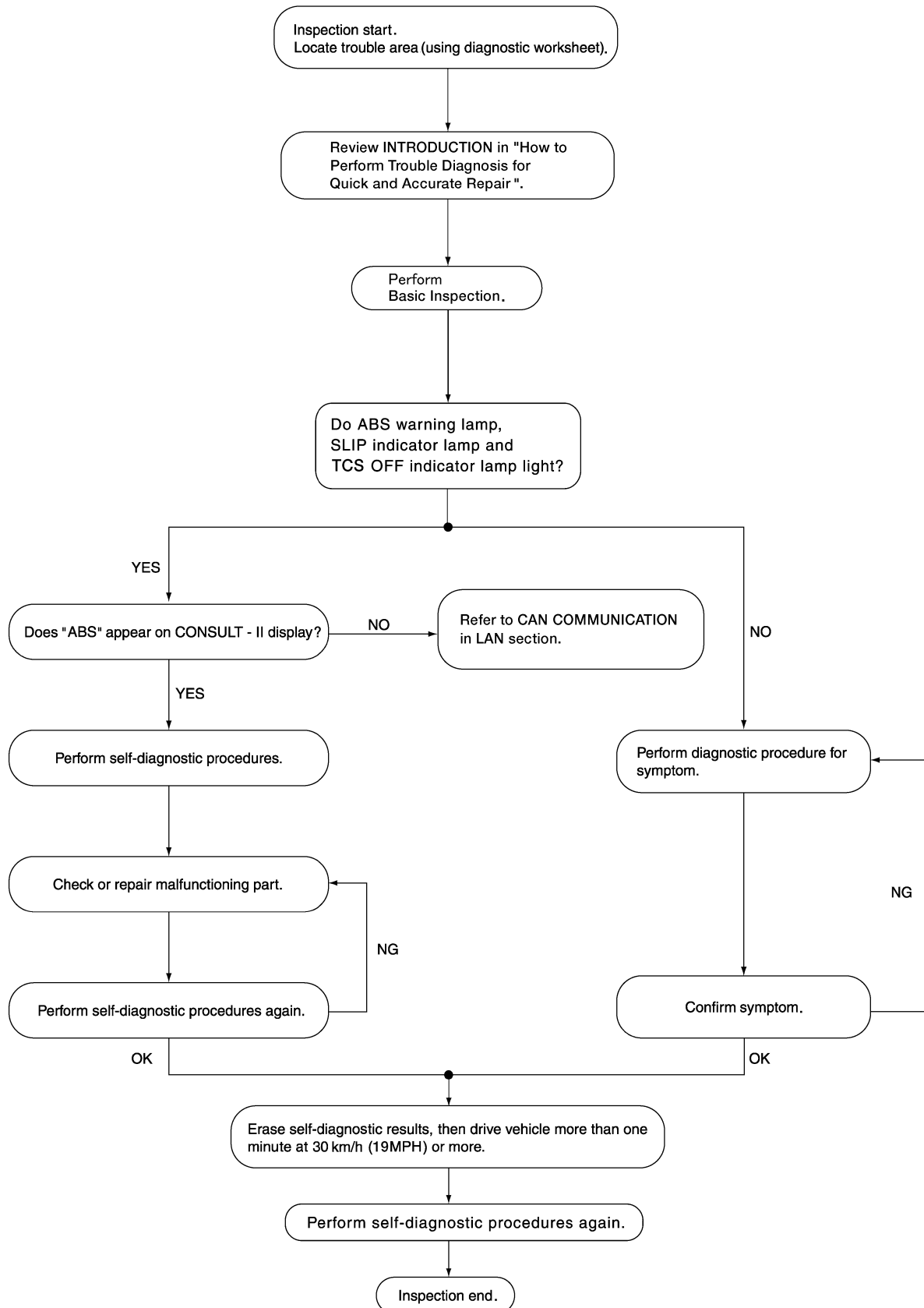
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Check front lower link for any deformation, cracks, or damage and replace if necessary.

# TROUBLE DIAGNOSIS

[TCS/ABS]

## WORK FLOW



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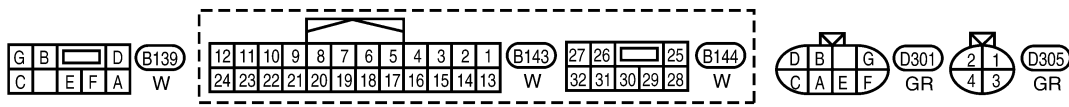
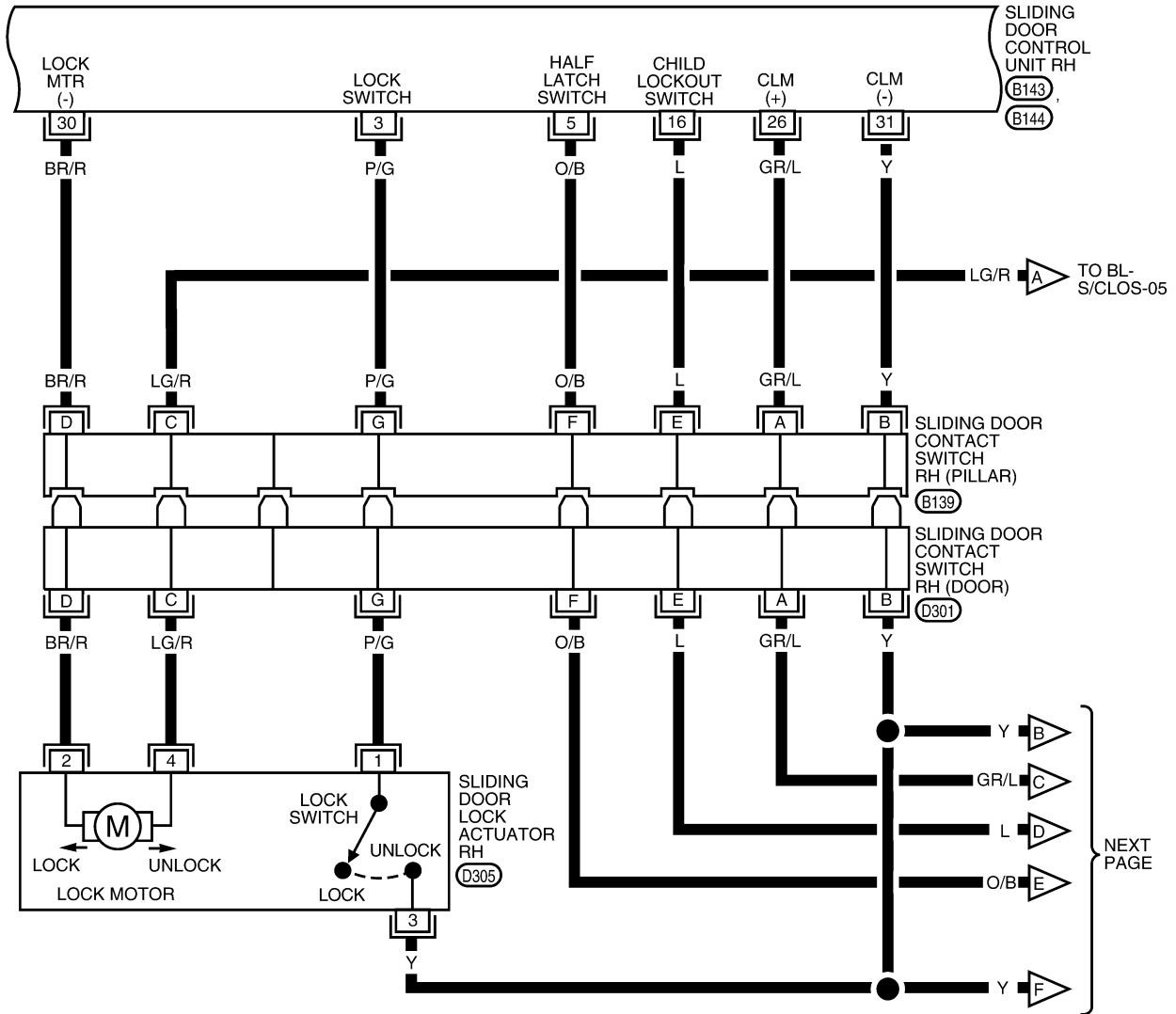
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WFIA0414E



# AUTOMATIC SLIDING DOOR SYSTEM

BL-S/CLOS-03



W1WA1940E

# POWER WINDOW SYSTEM

## 4. CHECK BCM OUTPUT SIGNAL

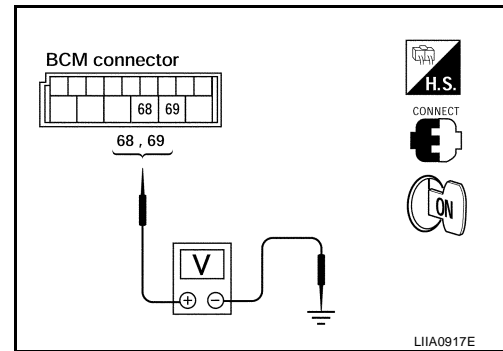
1. Connect BCM.
2. Turn ignition switch ON.
3. Check voltage between BCM connector M20 terminals 68, 69 and ground.

**68 - Ground : Battery voltage**

**69 - Ground : Battery voltage**

### OK or NG

- OK >> Check the condition of the harness and the connector.  
NG >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).



## Main Power Window and Door Lock/Unlock Switch Power Supply Circuit Check (With Rear Power Vent Windows)

EIS00712

### 1. CHECK POWER SUPPLY CIRCUIT

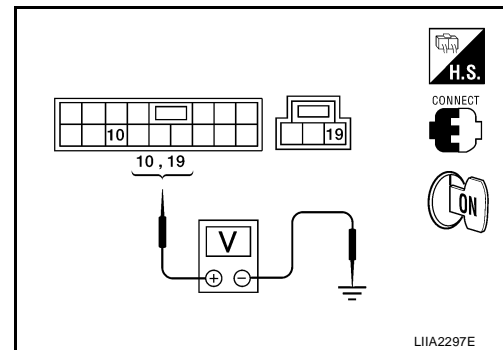
1. Turn ignition switch ON.
2. Check voltage between main power window and door lock/unlock switch connector D7 terminal 10, D8 terminal 19 and ground.

**10 - Ground : Battery voltage**

**19 - Ground : Battery voltage**

### OK or NG

- OK >> GO TO 2.  
NG >> Repair or replace harness.



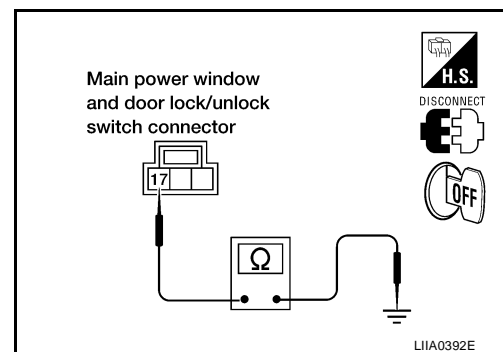
### 2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect main power window and door lock/unlock switch.
3. Check continuity between main power window and door lock/unlock switch connector D8 terminal 17 and ground.

**17 - Ground : Continuity should exist.**

### OK or NG

- OK >> GO TO 3.  
NG >> Repair or replace harness.



# TROUBLE DIAGNOSIS

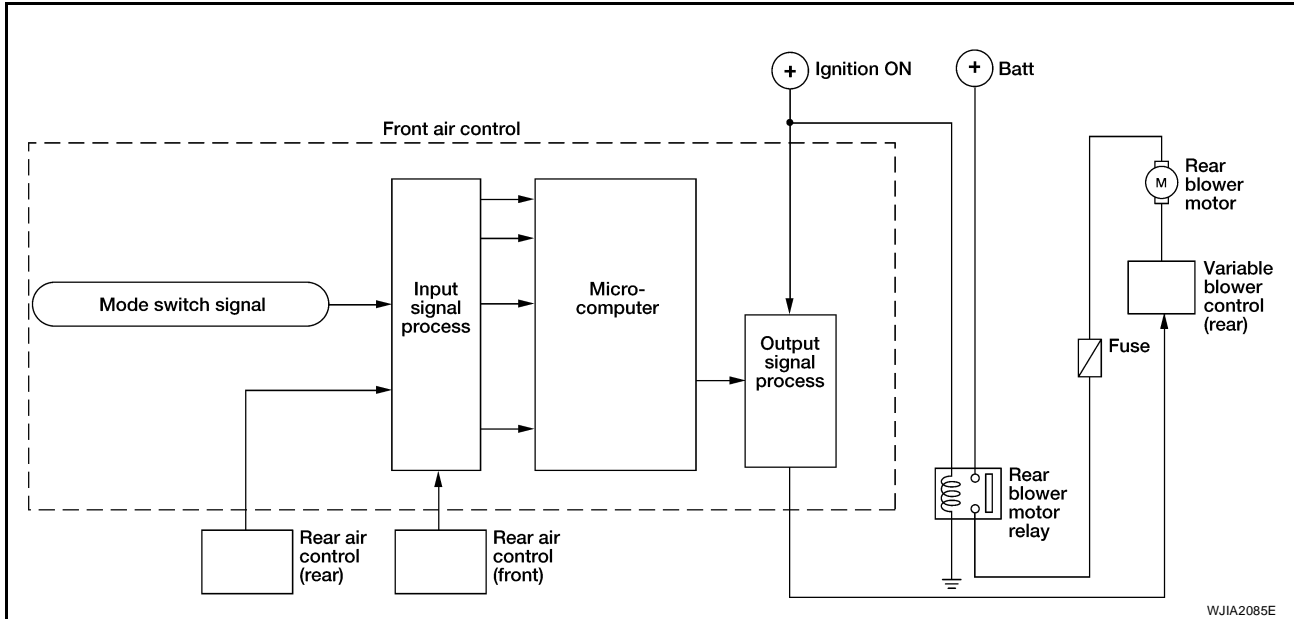
## SYSTEM DESCRIPTION

### Component Parts

Rear blower speed control system components are:

- Front air control
- Rear air control (front)
- Rear air control (rear)
- Variable blower control (rear)
- Rear blower motor
- Rear blower motor relay

### System Operation



### Rear Blower Control

#### NOTE:

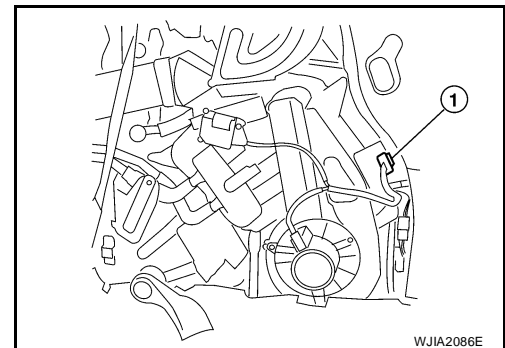
**The rear blower motor can only operate when the front blower motor is on.**

When the rear air control (front) blower control dial is turned on and the REAR CTRL switch is pressed (indicator on), it allows the rear air control (rear) to control the rear blower motor speed. If the REAR CTRL switch is off (indicator off), the rear air control (front) controls the rear blower motor speed regardless of the rear air control (rear) blower speed control dial position.

### COMPONENT DESCRIPTION

#### Variable Blower Control (Rear)

The variable blower control (rear) (1) is located on the rear blower motor case. The variable blower control (rear) receives a gate voltage from the front air control to steplessly maintain the blower fan motor voltage in the 0 to 5 volt range (approx.).



# FRONT FOG LAMP

## Bulb Replacement

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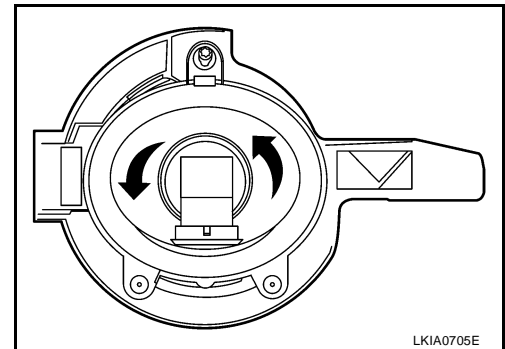
The front fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb.

### REMOVAL

#### CAUTION:

- Turn fog lamp switch OFF before disconnecting and connecting the connector.
- Do not touch bulb by hand while it is lit or right after being turned off. Burning may result.
- Grasp only the plastic base when handling the bulb. Never touch the glass envelope. Touching the glass could significantly affect the bulb life and/or fog lamp performance. Keep grease and other oily substances away from bulb.
- Do not leave bulb out of fog lamp reflector for a long time because dust, moisture, smoke, etc., may affect the performance of fog lamp. When replacing bulb, be sure to replace it with new one.

1. Position the front fender protector aside. Refer to [EI-22, "FENDER PROTECTOR"](#) .
2. Disconnect electrical connector.
3. Turn the bulb socket counterclockwise and remove bulb.



### INSTALLATION

Installation is in the reverse order of removal.

## Front Fog Lamp Assembly

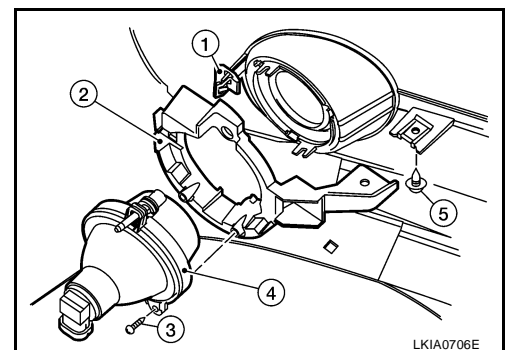
### REMOVAL

EKS00FCH

#### CAUTION:

- Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from it. Do not touch bulb by hand while it is lit or right after being turned off. Burning may result.
- Grasp only the plastic base when handling the bulb. Never touch the glass envelope. Touching the glass could significantly affect the bulb life and/or fog lamp performance.
- Do not leave bulb out of fog lamp reflector for a long time because dust, moisture smoke, etc., may affect the performance of fog lamp. When replacing bulb, be sure to replace it with new one.

1. Position the fender protector aside. Refer to [EI-22, "FENDER PROTECTOR"](#) .
2. Disconnect the electrical connector.
3. Remove the front fog lamp assembly.
  - Remove the screw (5).
  - Pull the bracket (2) toward the rear of vehicle to release the snap clip (1).
  - Remove the front fog lamp screws (3) and remove the front fog lamp housing (4).



## Trouble Diagnosis Procedure

### INTERVIEW WITH CUSTOMER

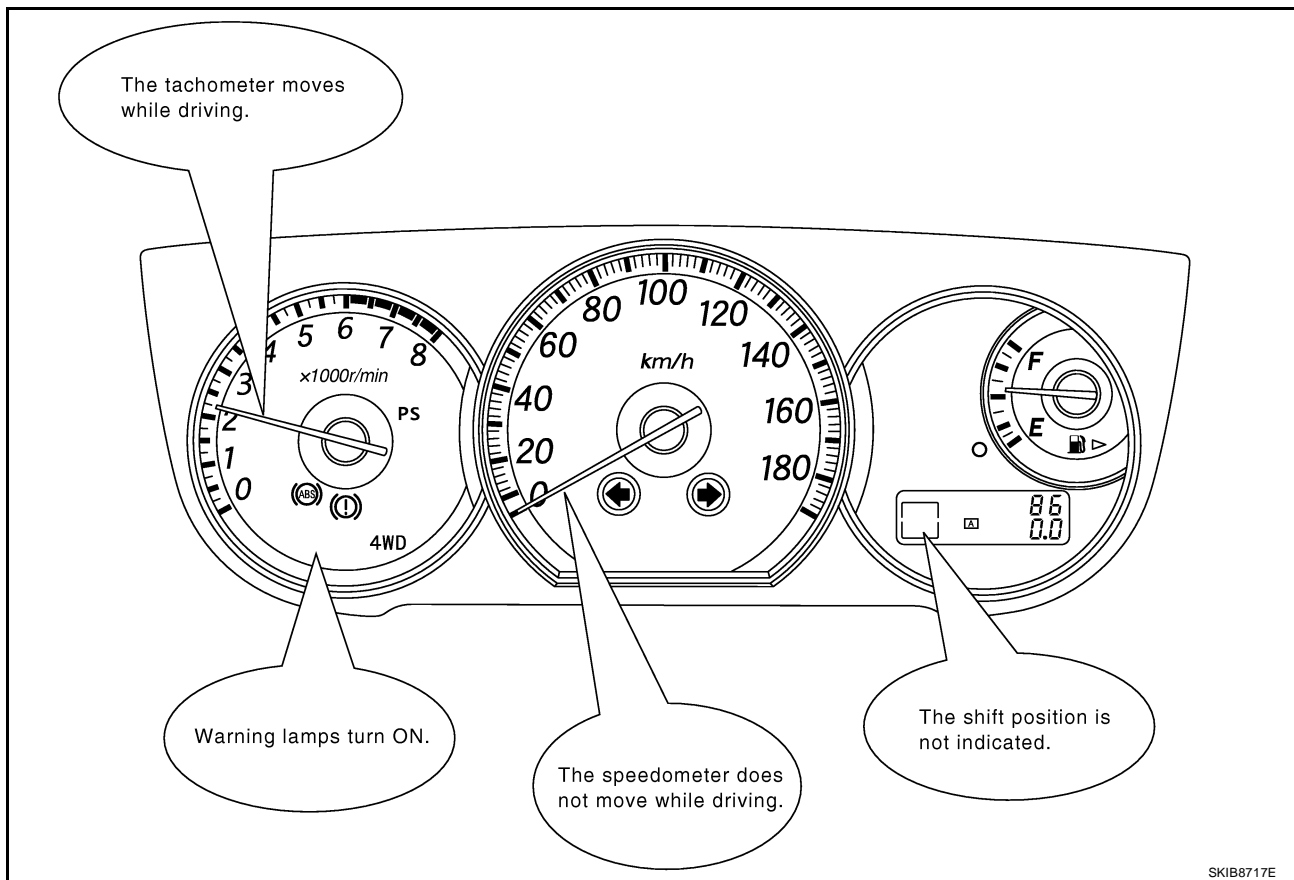
Interview with the customer is important to detect the root cause of CAN communication system errors and to understand vehicle condition and symptoms for proper trouble diagnosis.

Points in interview

- What: Parts name, system name
- When: Date, Frequency
- Where: Road condition, Place
- In what condition: Driving condition/environment
- Result: Symptom

#### NOTE:

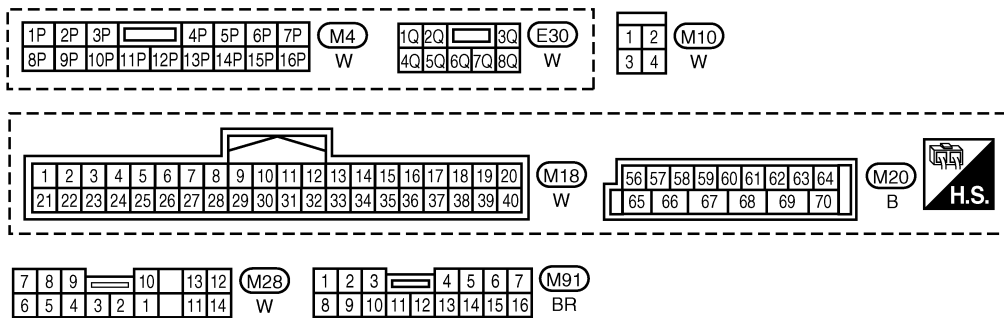
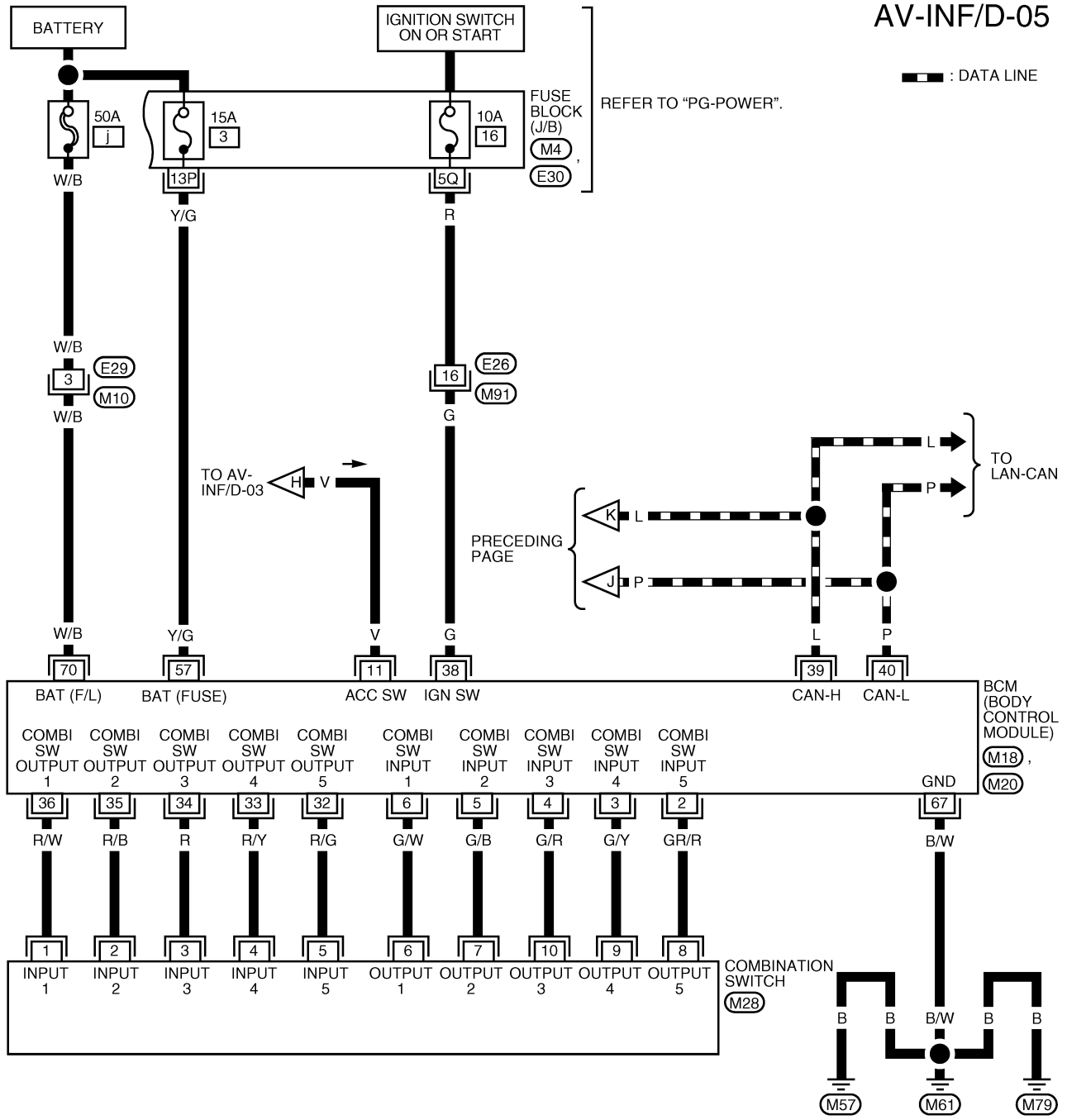
- Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.
- When a CAN communication system error is present, multiple control units may malfunction or go into fail-safe mode.
- Indication of the combination meter is important to detect the root cause because it is the most obvious from the customer, and it performs CAN communication with many units.



SKIB8717E

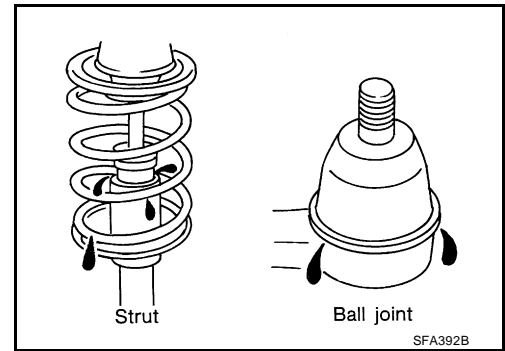
# INTEGRATED DISPLAY SYSTEM

AV-INF/D-05



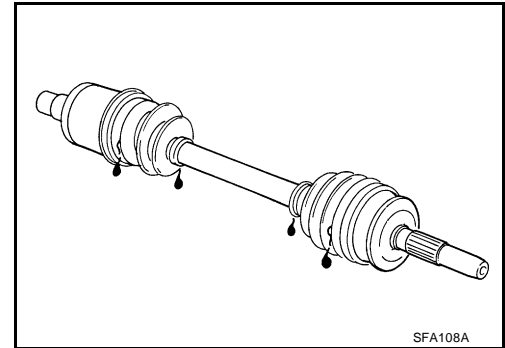
## CHASSIS AND BODY MAINTENANCE

- Check the struts for oil leakage or other damage.
- Check suspension ball joint for grease leakage and ball joint dust cover for cracks or other damage.

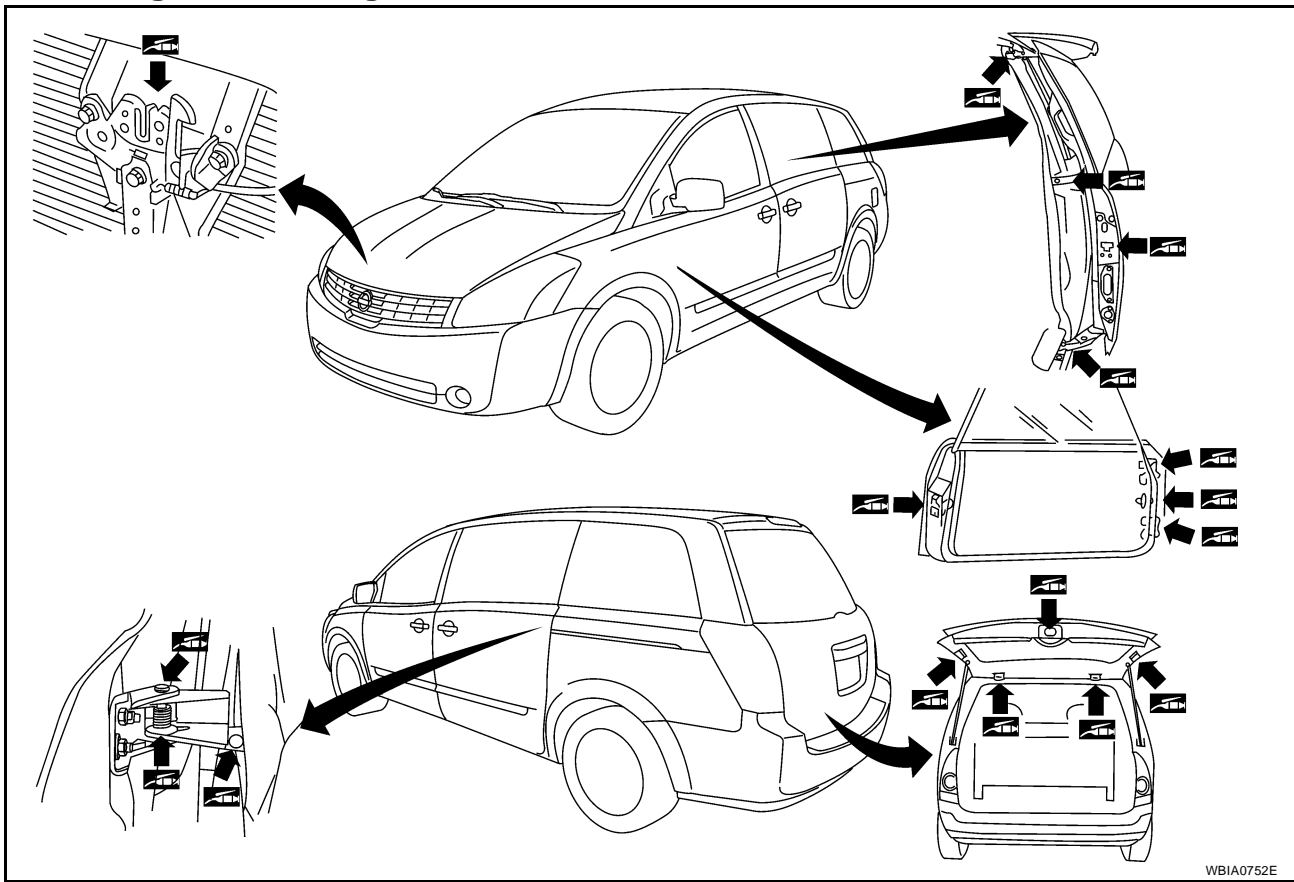


### Drive Shaft

- Check the boot and drive shaft for cracks, wear, damage and grease leakage as shown.



### Lubricating Locks, Hinges and Hood Latch



### Checking Seat Belts, Buckles, Retractors, Anchors and Adjusters

Check the seat belt buckles, webbing, retractors, anchors and adjusters. Replace any seat belt assembly as necessary. Refer to [SB-10, "Seat Belt Inspection"](#).

- Check the seat belt anchors for loose bolts, damage, or excessive wear.