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Publication No. SM5E-1S50U1

INFINITI

FX35/FX45

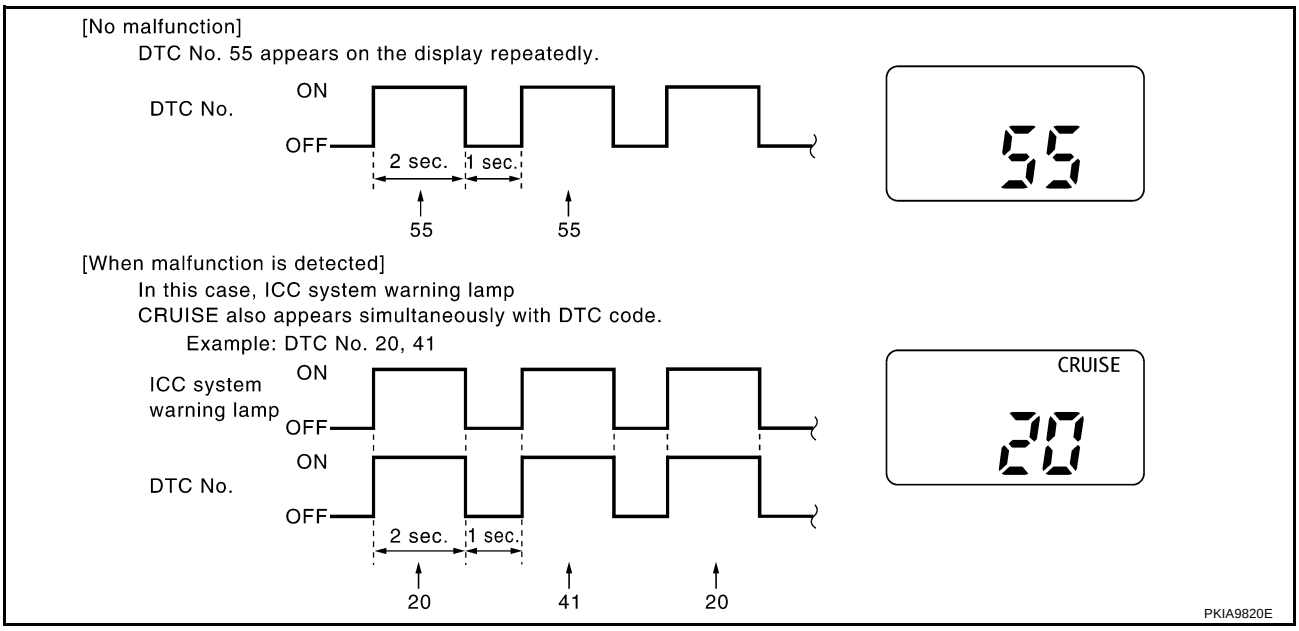
MODEL S50 SERIES

QUICK REFERENCE INDEX

A B C D E F G H I J K L M

INFINITI

5. When self-diagnosis mode is started, DTC are shown on set vehicle speed indicator.



CAUTION:

- **DTC will disappear after 5 minutes.**
- **When more than one malfunctions are detected, a maximum of 3 code numbers can be stored; the latest malfunction will be displayed first.**

6. Check ACS-41, "Diagnostic Trouble Code (DTC) Chart" , and repair or replace if necessary.
7. After repair, erase DTC stored in the ICC unit.
8. DTC 55 will be shown.
9. Turn ignition switch OFF to exit the diagnosis.
10. Perform ICC system running test (drive vehicle with ICC system ON), and make sure that ICC warning lamp (Orange) does not illuminate.

Self-Diagnostic Erasing Method

1. Stop the vehicle and turn the ignition switch OFF.
2. Turn ignition switch ON and start self-diagnosis.
3. During self-diagnosis mode, press CANCEL switch 5 times, and DISTANCE switch 5 times in this order.

CAUTION:

- **Press them within 10 seconds after pressing CANCEL switch at first.**
- **When operation is not completed within 10 seconds, start again from above go to 2.**

4. DTC 55 will be shown.

CAUTION:
DTC of an existing malfunction will not be erased.

5. Turn ignition switch OFF to exit the diagnosis.
6. Perform ICC system running test (drive vehicle with ICC system ON), and make sure that ICC system warning lamp (Orange) does not illuminate.

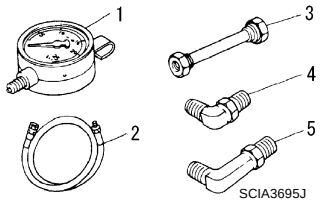
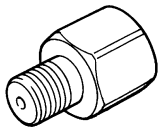
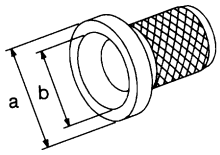
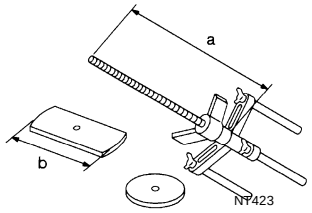
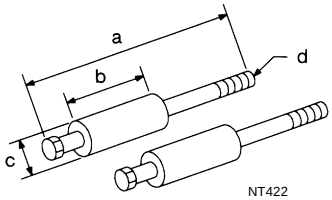
PREPARATION

PFP:00002

Special Service Tools

ACS002L9

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
ST2505S001 (J-34301-C) Oil pressure gauge set 1. ST25051001 (—) Oil pressure gauge 2. ST25052000 (—) Hose 3. ST25053000 (—) Joint pipe 4. ST25054000 (—) Adapter 5. ST25055000 (—) Adapter  SCIA3695J	Measuring line pressure
KV31103600 (J-45674) Joint pipe adapter (With ST25054000)  ZZA1227D	Measuring line pressure
ST33400001 (J-26082) Drift a: 60 mm (2.36 in) dia. b: 47 mm (1.85 in) dia.  NT086	● Installing rear oil seal (2WD models) ● Installing oil pump housing oil seal
KV31102400 (J-34285 and J-34285-87) Clutch spring compressor a: 320 mm (12.60 in) b: 174 mm (6.85 in)  NT423	Installing reverse brake return spring retainer
ST25850000 (J-25721-A) Sliding hammer a: 179 mm (7.05 in) b: 70 mm (2.76 in) c: 40 mm (1.57 in) d: M12X1.75P  NT422	Removing oil pump assembly

Check at Idle

ACS002M0

1. CHECK STARTING THE ENGINE

1. Park vehicle on level surface.
2. Move selector lever to “P” or “N” position.
3. Turn ignition switch OFF.
4. Start engine.

Does the engine start?

YES >> GO TO 2.
NO >> Stop the road test and go to AT-194, "Engine Cannot Be Started in “P” or “N” Position" .

2. CHECK STARTING THE ENGINE

1. Turn ignition switch to ON.
2. Move selector lever in “D”, “M” or “R” position.
3. Start engine.

Does the engine start in each position?

YES >> Stop the road test and go to AT-194, "Engine Cannot Be Started in “P” or “N” Position" .
NO >> GO TO 3.

3. CHECK “P” POSITION FUNCTIONS

1. Move selector lever to “P” position.
2. Turn ignition switch OFF.
3. Disengage the parking brake.
4. Push the vehicle forward or backward.
5. Engage the parking brake.

When you push the vehicle with disengaging the parking brake, does it move?

YES >> Enter a check mark at “In “P” Position Vehicle Moves When Pushed” on the AT-47, "DIAGNOSTIC WORKSHEET" , then continue the road test.
NO >> GO TO 4.

4. CHECK “N” POSITION FUNCTIONS

1. Start engine.
2. Move selector lever to “N” position.
3. Disengage the parking brake.

Does vehicle move forward or backward?

YES >> Enter a check mark at “In “N” Position Vehicle Moves” on the AT-47, "DIAGNOSTIC WORKSHEET" , then continue the road test.
NO >> GO TO 5.

5. CHECK SHIFT SHOCK

1. Engage the brake.
2. Move selector lever to “D” position.

When the transmission is shifted from “N” to “D”, is there an excessive shock?

YES >> Enter a check mark at “Large Shock (“N” to “D” Position)” on the AT-47, "DIAGNOSTIC WORKSHEET" , then continue the road test.
NO >> GO TO 6.

4. CHECK SELF-DIAGNOSIS CODE

Check A/T CHECK indicator lamp. Refer to AT-104, "Judgement Self-diagnosis Code" .
If the system does not go into self-diagnostics. Refer to AT-114, "DTC P0705 PARK/NEUTRAL POSITION SWITCH" , AT-170, "DTC P1815 MANUAL MODE SWITCH" , AT-187, "CLOSED THROTTLE POSITION AND WIDE OPEN THROTTLE POSITION CIRCUIT" , AT-188, "BRAKE SIGNAL CIRCUIT" .

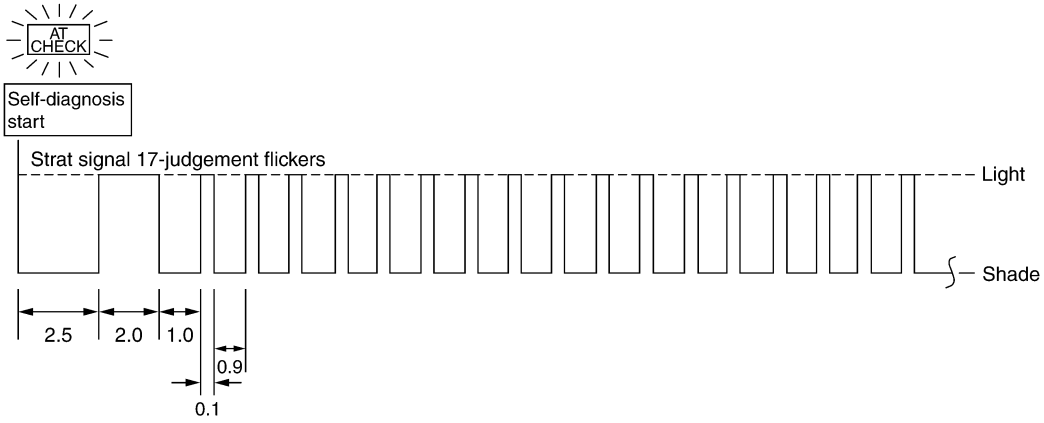
>> **DIAGNOSIS END**

Judgement Self-diagnosis Code

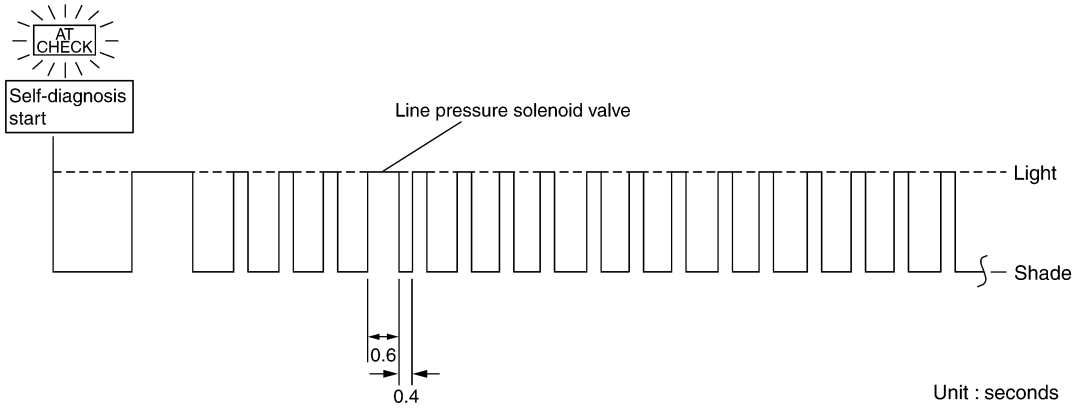
If there is a malfunction, the lamp lights up for the time corresponding to the suspect circuit.

No.	Malfunctioning item	No.	Malfunctioning item
1	Revolution sensor AT-118	10	A/T fluid temperature sensor AT-136
2	Direct clutch solenoid valve AT-158 , AT-160	11	Turbine revolution sensor AT-141
3	Torque converter clutch solenoid valve AT-125 , AT-127	12	A/T interlock AT-145
4	Line pressure solenoid valve AT-129	13	A/T 1st engine braking AT-148
5	Input clutch solenoid valve AT-150 , AT-152	14	Start signal AT-109
6	Front brake solenoid valve AT-154 , AT-156	15	Accelerator pedal position sensor AT-133
7	Low coast brake solenoid valve AT-166 , AT-168	16	Engine speed signal AT-123
8	High and low reverse clutch solenoid valve AT-162 , AT-164	17	CAN communication line AT-106
9	PNP switch AT-114		

All circuits that can be confirmed by self-diagnosis are OK.



Example: No.4 Line pressure solenoid valve



SCIA5767E

Diagnostic Procedure

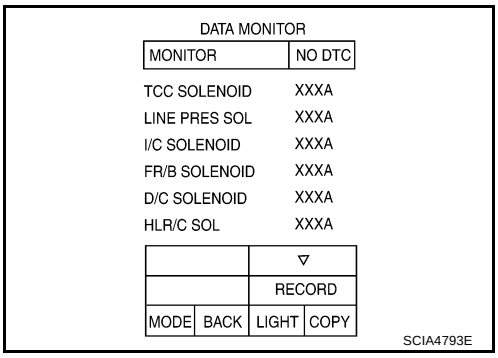
ACS002P0

1. CHECK INPUT SIGNAL

With CONSULT-II

1. Turn ignition switch ON. (Do not start engine.)
2. Select “MAIN SIGNALS” in “DATA MONITOR” mode for “A/T” with CONSULT-II.
3. Start the engine.
4. Read out the value of “I/C SOLENOID” while driving.

Item name	Condition	Display value (Approx.)
I/C SOLENOID	Input clutch disengaged. Refer to AT-21 .	0.6 - 0.8 A
	Input clutch engaged. Refer to AT-21 .	0 - 0.05 A



OK or NG

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

2. CHECK TCM POWER SUPPLY AND GROUND CIRCUIT

Check TCM power supply and ground circuit. Refer to AT-183, "MAIN POWER SUPPLY AND GROUND CIRCUIT" .

OK or NG

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

3. DETECT MALFUNCTIONING ITEM

Check the following.

- The A/T assembly harness connector pin terminals for damage or loose connection with harness connector.

OK or NG

OK >> Replace the control valve with TCM. Refer to AT-243, "Control Valve with TCM and A/T Fluid Temperature Sensor 2" .
NG >> Repair or replace damaged parts.

4. CHECK DTC

Perform “DTC Confirmation Procedure”.

- Refer to AT-158, "DTC Confirmation Procedure" .

OK or NG

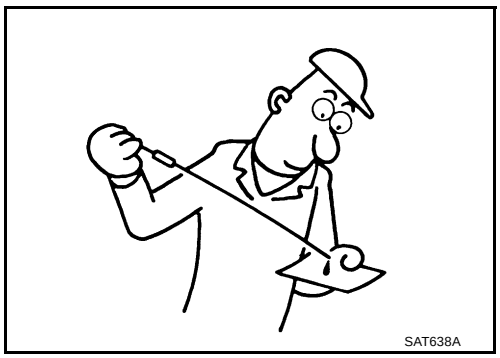
OK >> **INSPECTION END**
NG >> GO TO 2.

4. CHECK A/T FLUID LEVEL

Check the A/T fluid level. Refer to AT-13, "Checking A/T Fluid" .

OK or NG

OK >> GO TO 5.
NG >> Refill ATF.

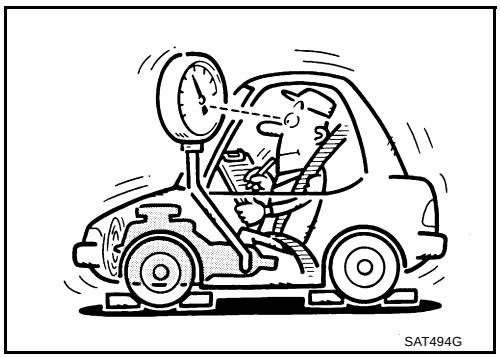


5. CHECK LINE PRESSURE

Check line pressure at idle with selector lever in “D” position. Refer to AT-54, "LINE PRESSURE TEST" .

OK or NG

OK >> GO TO 8.
NG - 1 >> Line pressure high: GO TO 6.
NG - 2 >> Line pressure low: GO TO 7.



6. DETECT MALFUNCTIONING ITEM

1. Check control valve with TCM. Refer to AT-243, "Control Valve with TCM and A/T Fluid Temperature Sensor 2" .
2. Disassemble A/T. Refer to AT-290, "DISASSEMBLY" .
3. Check the following.

- Oil pump assembly. Refer to AT-308, "Oil Pump" .

OK or NG

OK >> GO TO 8.
NG >> Repair or replace damaged parts.

7. DETECT MALFUNCTIONING ITEM

1. Check control valve with TCM. Refer to AT-243, "Control Valve with TCM and A/T Fluid Temperature Sensor 2" .
2. Disassemble A/T. Refer to AT-290, "DISASSEMBLY" .
3. Check the following.

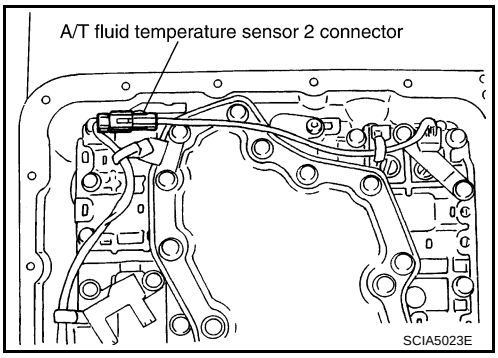
- Oil pump assembly. Refer to AT-308, "Oil Pump" .
- Power train system. Refer to AT-290, "DISASSEMBLY" .
- Transmission case. Refer to AT-290, "DISASSEMBLY" .

OK or NG

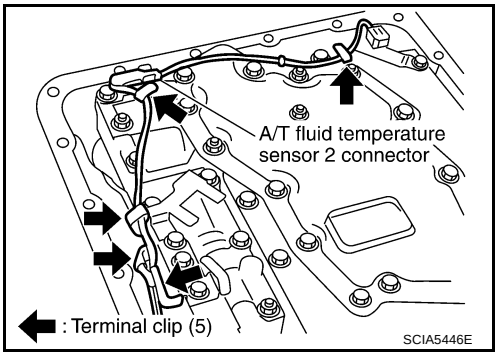
OK >> GO TO 8.
NG >> Repair or replace damaged parts.

11. Disconnect A/T fluid temperature sensor 2 connector.

CAUTION:
Be careful not to damage connector.

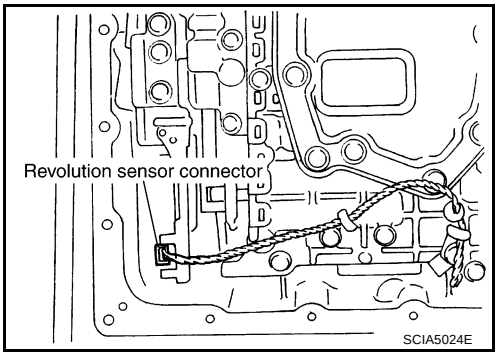


12. Straighten terminal clips to free terminal cord assembly and A/T fluid temperature sensor 2 harness.

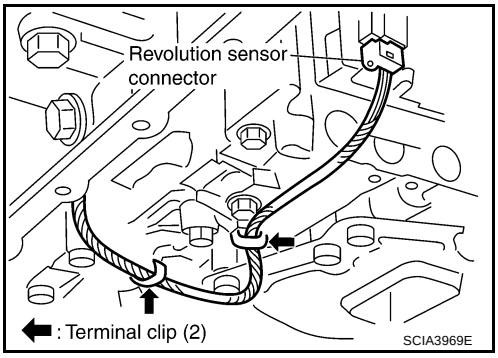


13. Disconnect revolution sensor connector.

CAUTION:
Be careful not to damage connector.

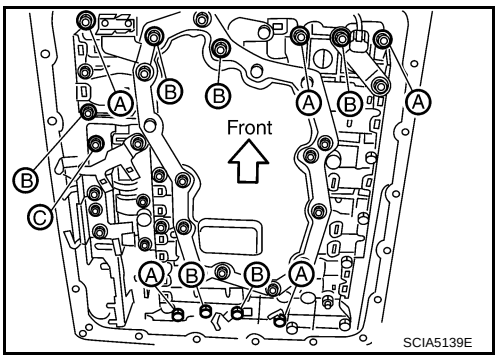


14. Straighten terminal clips to free revolution sensor harness.

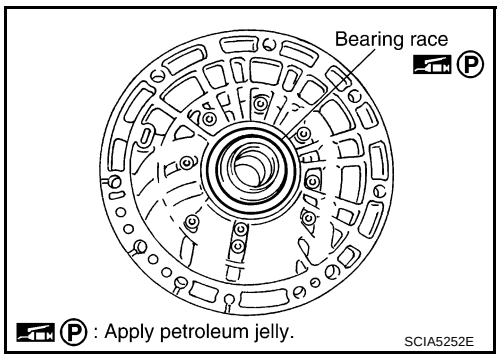


15. Remove bolts A, B and C from control valve with TCM.

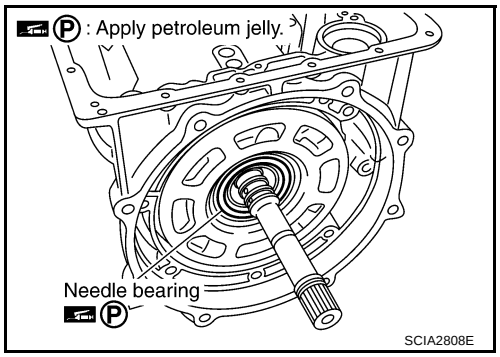
Bolt symbol	Length mm (in)	Number of bolts
A	42 (1.65)	5
B	55 (2.17)	6
C	40 (1.57)	1



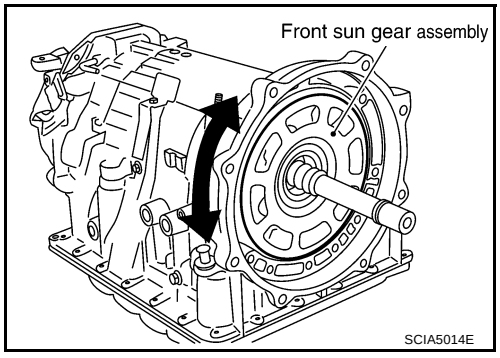
9. Remove bearing race from oil pump assembly.



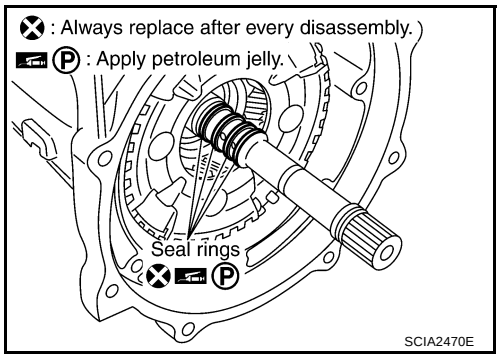
10. Remove needle bearing from front sun gear.



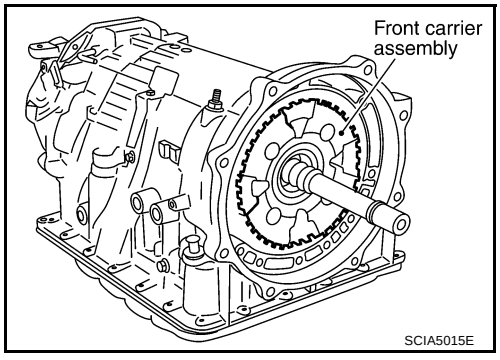
11. Remove front sun gear assembly from front carrier assembly.
NOTE:
Remove front sun gear by rotating left/right.



12. Remove seal rings from input clutch assembly.

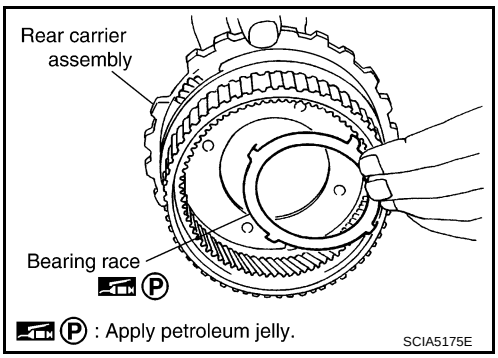


13. Remove front carrier assembly from rear carrier assembly. (With input clutch assembly and rear internal gear.)
CAUTION:
Be careful to remove it with needle bearing.

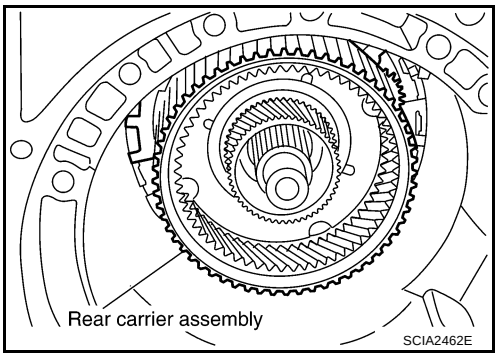


41. Install bearing race in rear carrier assembly.

CAUTION:
Apply petroleum jelly to bearing race.

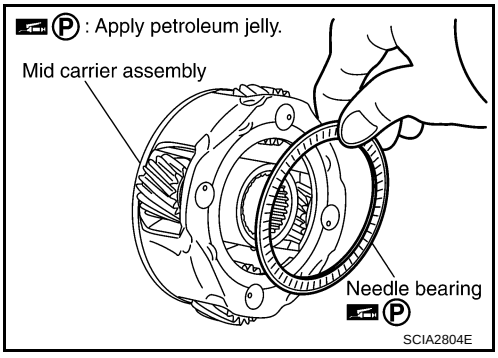


42. Install rear carrier assembly in direct clutch drum.



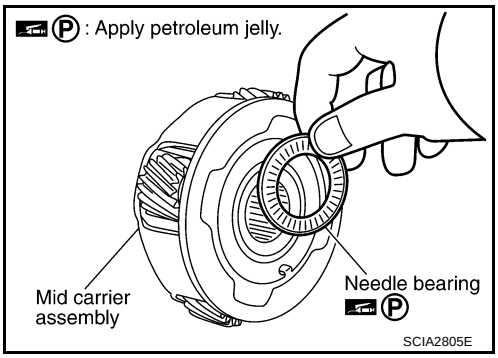
43. Install needle bearing (rear side) to mid carrier assembly.

CAUTION:
Apply petroleum jelly to needle bearing.

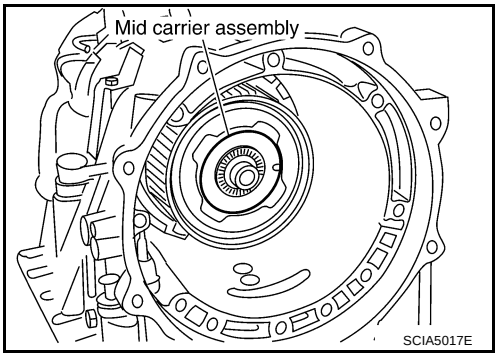


44. Install needle bearing (front side) to mid carrier assembly.

CAUTION:
Apply petroleum jelly to needle bearing.

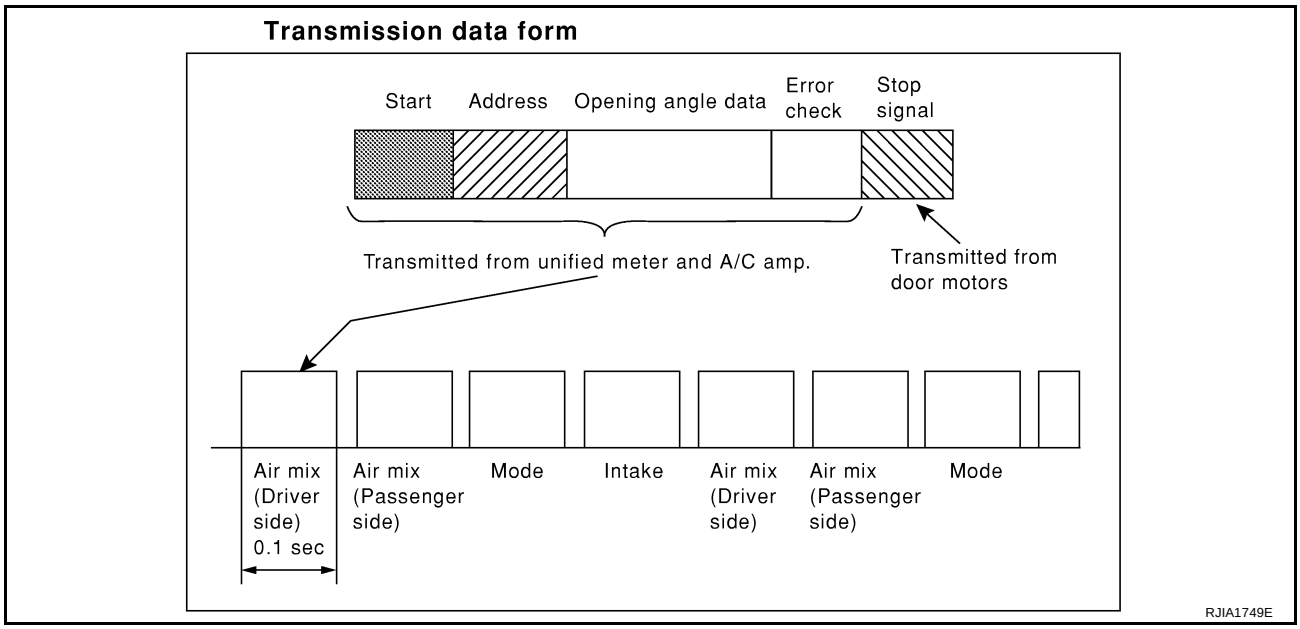


45. Install mid carrier assembly in rear carrier assembly.



Stop Signal:

At the end of each transmission, a stop operation, in-operation, or internal malfunction message is delivered to the unified meter and A/C amp. This completes one data transmission and control cycle.



AIR MIX DOOR CONTROL (AUTOMATIC TEMPERATURE CONTROL)

The air mix door is automatically controlled so that in-vehicle temperature is maintained at a predetermined value by the temperature setting, ambient temperature, in-vehicle temperature and amount of sunload.

FAN SPEED CONTROL

Blower speed is automatically controlled by the temperature setting, ambient temperature, in-vehicle temperature, intake temperature, amount of sunload and air mix door position.
With pressing AUTO switch, the blower motor starts to gradually increase air flow volume.
When engine coolant temperature is low, the blower motor operation is delayed to prevent cool air from flowing.

INTAKE DOOR CONTROL

The intake doors are automatically controlled by the temperature setting, ambient temperature, in-vehicle temperature, intake temperature, amount of sunload and ON-OFF operation of the compressor.

OUTLET DOOR CONTROL

The outlet door is automatically controlled by the temperature setting, ambient temperature, in-vehicle temperature, intake temperature and amount of sunload.

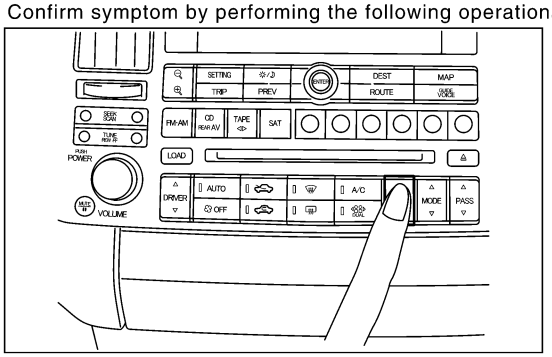
Blower Motor Circuit

AJS0014X

SYMPTOM: Blower motor operation is malfunctioning.

INSPECTION FLOW

1. Confirm symptom by performing the following operational check.



OPERATIONAL CHECK - Blower
a. Press fan control (UP) switch.
Blower should operate on low speed.
b. Press fan control (UP) switch,
and continue checking blower speed and fan symbol until all speeds are checked.
If OK (symptom cannot be duplicated), perform complete operational check (*1).
If NG (symptom is confirmed), continue with STEP-2 following.

2. Check for any service bulletins.

3. Perform self-diagnosis STEP-2. (*3)
Code No. 20 should be displayed after approx. 25 seconds.
NG → Go to appropriate malfunctioning sensor circuit. (*5)
OK ↓

4. Perform self-diagnosis STEP-4. (*4)
Does blower motor speed change according to each code No.?

Code No.	41	42	43	44	45	46
Blower motor duty ratio	37%	91%	65%			91%

NO → Go to Blower Motor Circuit. (*6)
YES ↓

5. Is engine coolant temperature below 56˚C (133˚F)?
NO → Blower motor operation is normal.
YES ↓

6. Is blower motor operating under starting blower speed control?
NO → Go to Blower Motor Circuit. (*6)
YES **[Cause cannot be confirmed by self-diagnosis.]** ↓
OK → Check engine coolant temperature sensor circuit. (*11)

7. Check ambient sensor circuit. (*8)
OK ↓

8. Check in-vehicle sensor circuit. (*9)
OK ↓

9. Check sunload sensor circuit. (*10)
OK ↓

10. Check intake sensor circuit. (*2)
OK ↓

If the symptom still exists, perform a complete operational check (*1) and check for other symptoms. [Refer to symptom table, (*7).] Does another symptom exist?
YES → Go to Trouble Diagnosis for related symptom.
Another symptom exists.
NO ↓

Replace unified meter and A/C amp. → INSPECTION END

RJIA1994E

*1	ATC-61, "Operational Check"	*2	ATC-113, "Intake Sensor Circuit"	*3	ATC-54, "FUNCTION CONFIRMATION PROCEDURE", see No.4.
*4	ATC-54, "FUNCTION CONFIRMATION PROCEDURE", see No.6.	*5	ATC-54, "FUNCTION CONFIRMATION PROCEDURE", see No.13.	*6	ATC-81, "DIAGNOSIS PROCEDURE FOR BLOWER MOTOR"
*7	ATC-42, "SYMPTOM TABLE"	*8	ATC-104, "Ambient Sensor Circuit"	*9	ATC-107, "In-vehicle Sensor Circuit"
*10	ATC-110, "Sunload Sensor Circuit"	*11	EC-208, "DTC P0117, P0118 ECT SENSOR" (VQ35DE) or EC-914, "DTC P0117, P0118 ECT SENSOR" (VK45DE)		

HEATER & COOLING UNIT ASSEMBLY

PFP:27110

Removal and Installation

AJS0015J

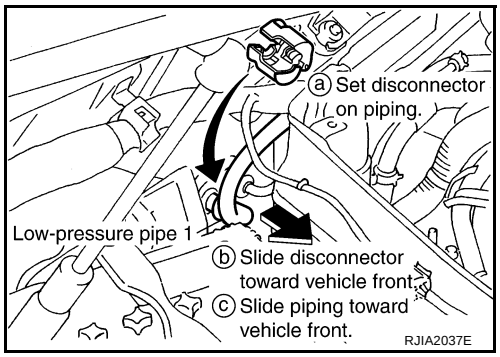
REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge refrigerant.
2. Drain coolant from cooling system. Refer to CO-11, "Changing Engine Coolant" (VQ35DE) or CO-37, "Changing Engine Coolant" (VK45DE).
3. Remove cowl top cover. Refer to EI-23, "COWL TOP" .
4. Remove high-pressure pipe 2 mounting clip.
5. Remove low-pressure flexible hose bracket mounting bolt.
6. Disconnect low-pressure pipe 1 and high-pressure pipe 2 from evaporator.

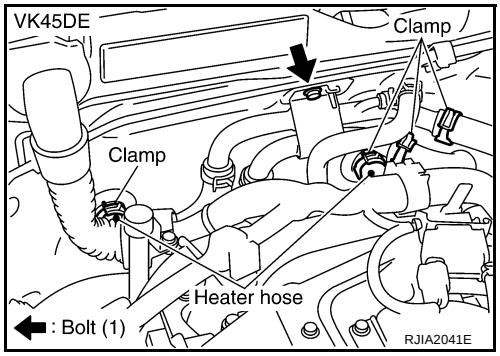
a. Set a disconnector [High-pressure side (SST: 9253089908), Low-pressure side (SST: 9253089916)] on A/C piping.
b. Slide a disconnector toward vehicle front until it clicks.
c. Slide A/C piping toward vehicle front and disconnect it.

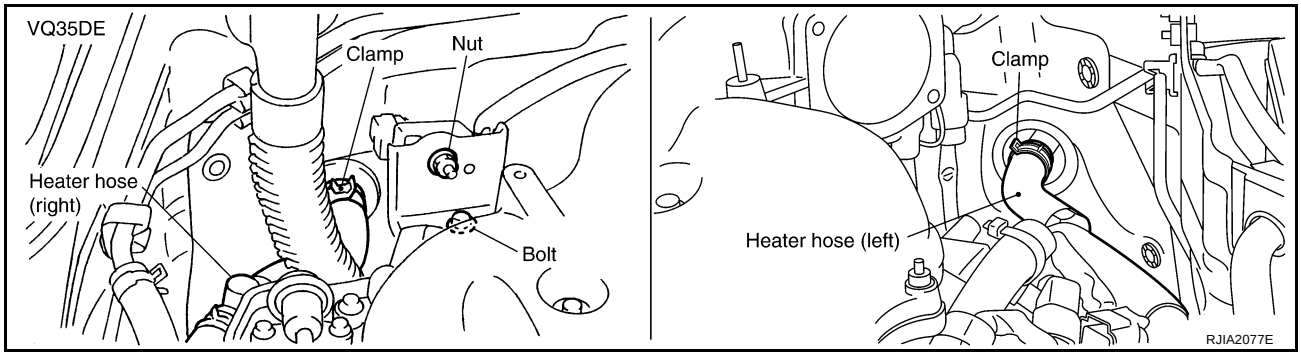
CAUTION:
Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.

7. Remove electric throttle control actuator (VQ35DE). Refer to EM-19, "INTAKE MANIFOLD COLLECTOR" .



8. Disconnect two heater hoses from heater core.
9. Remove instrument panel assembly. Refer to IP-11, "Removal and Installation" .
10. Remove blower unit. Refer to ATC-121, "BLOWER UNIT" .

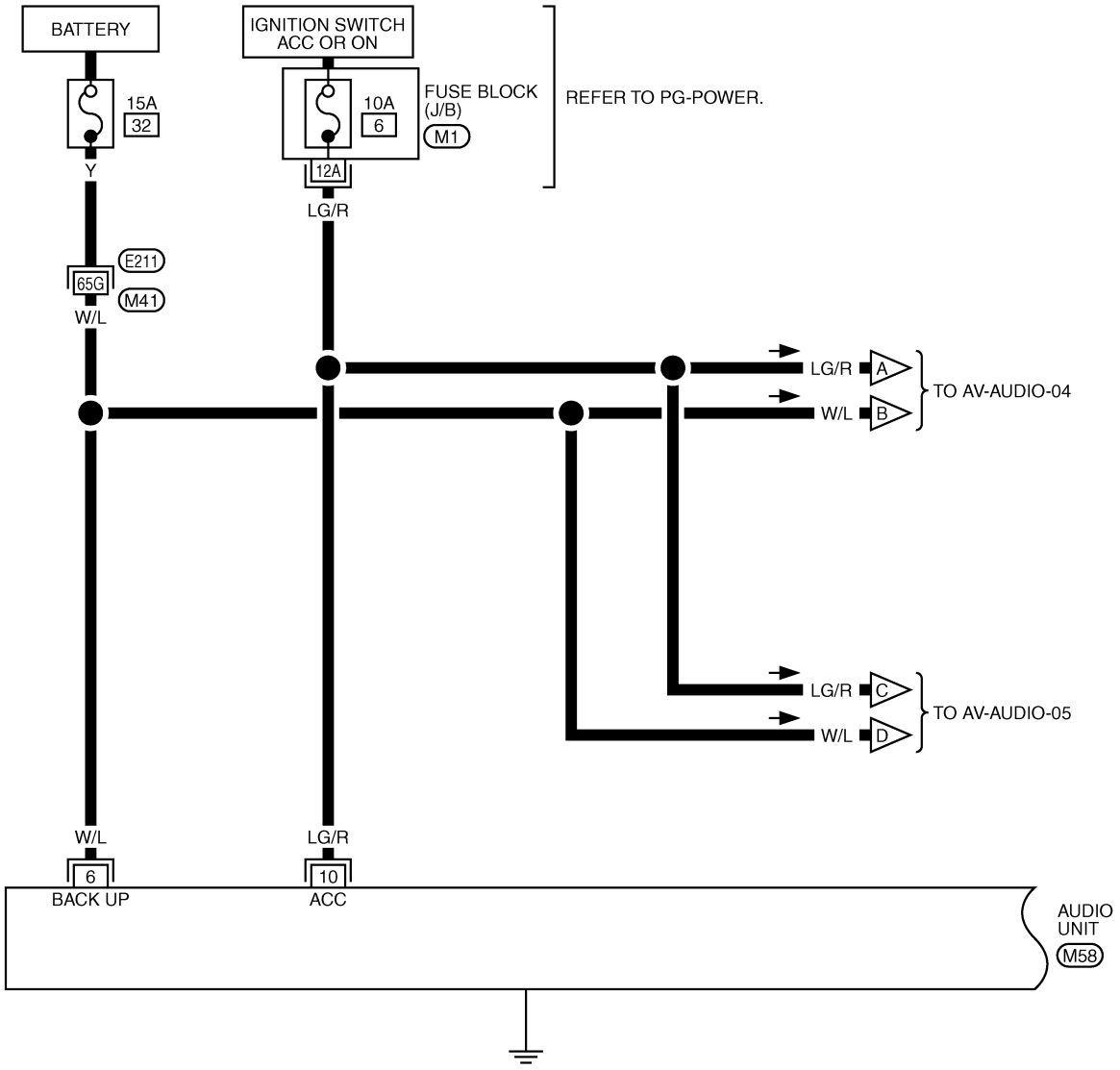


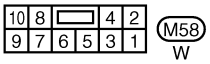


Wiring Diagram - AUDIO - / Base System

AKS007X2

AV-AUDIO-01





REFER TO THE FOLLOWING.

E211 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

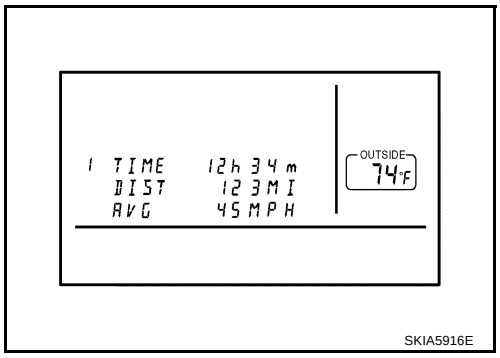
TKWM2070E

DRIVE COMPUTER

Refer to Owner's Manual for drive computer operating instructions.

TRIP Switch

When "TRIP" switch is pressed, display TRIP screen. As TRIP information, it indicates journey time (TIME), trip odometer (DIST), average vehicle speed (AVG).
Pressing "TRIP" switch once cycles display from TRIP 1→TRIP 2→Display OFF→TRIP 1.



"TIME"

- Journey time indication is performed by reset or battery connection.
- When pushing "TRIP RESET" or "TRIP" switch more than approximately 1.5 seconds, journey time will be reset.
- If journey time is reset, journey distance and average speed will be reset at the same time.

"DIST"

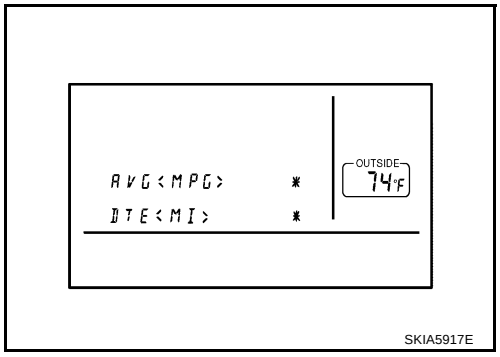
- Trip odometer indication is performed by vehicle speed signal.
- When pushing "TRIP RESET" or "TRIP" switch more than approximately 1.5 seconds, driving distance will be reset.
- If trip odometer is reset, journey time and average speed will be reset at the same time.

"AVG"

- Average speed indication is performed by running distance and running time.
- Indication will be renewed every 30 seconds.
- When pushing "TRIP RESET" or "TRIP" switch more than approximately 1.5 seconds, average speed will be reset.
- After reset operation, the displays shows "∗" for 30 seconds.

FUEL ECON Switch

When "FUEL ECON" switch is pressed, display FUEL ECON screen. As FUEL ECON information, it indicates average fuel consumption (AVG), distance to empty (DTE).
Pressing "FUEL ECON" switch once cycles display from FUEL ECON→Display OFF→FUEL ECON.



"AVG" (Average Fuel Consumption)

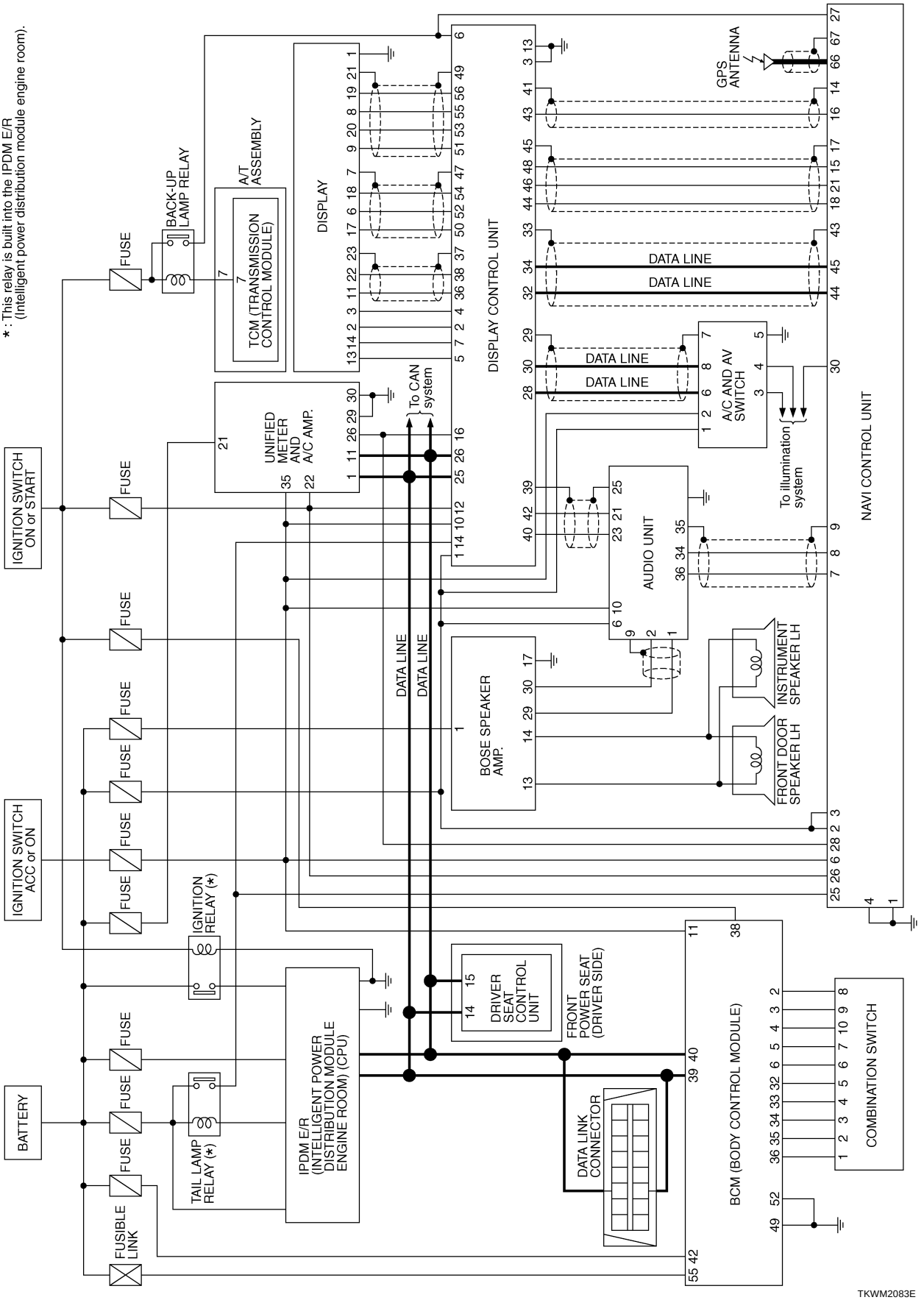
- Average fuel consumption indication is performed by fuel consumption signal and vehicle speed signal after system is reset.
- Indication will be renewed every 30 seconds.
- When pushing "TRIP RESET" or "FUEL ECON" switch more than approximately 1.5 seconds, average fuel economy will be reset.
- After reset operation, the display shows "∗.∗" until the vehicle is driven 500 m (1,600 ft.) or 30 seconds has passed.

"DTE" (Distance to Empty)

- Distance to empty receives via CAN communication and indicates values calculated by meter.
- Display range is max 999 miles (max 999 km).
- If low-fuel WARNING is received from meter via CAN communication, distance to empty indication will be "∗".
- Indication will be renewed every 30 seconds.

Schematic—NAVI—

AKS007IS

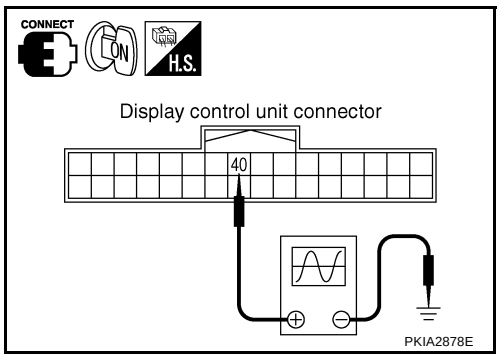


TKWM2083E

5. CHECK 3: AUDIO-TX COMMUNICATION SIGNAL

Check signal between display control unit harness connector M76 terminal 40 (LG) and ground with CONSULT-II or oscilloscope.

40 (LG) - Ground : Refer to AV-121, "Terminals and Reference Value for Display Control Unit" .



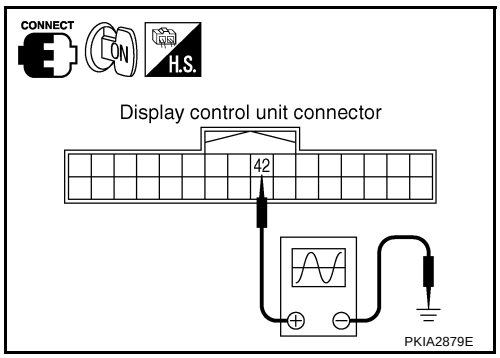
OK or NG

OK >> GO TO 6.
NG >> Replace audio unit.

6. CHECK 4: AUDIO-RX COMMUNICATION SIGNAL

Check signal between display control unit harness connector M76 terminal 42 (B/Y) and ground with CONSULT-II or oscilloscope.

42 (B/Y) - Ground : Refer to AV-121, "Terminals and Reference Value for Display Control Unit" .



OK or NG

OK >> Replace audio unit.
NG >> Replace display control unit.

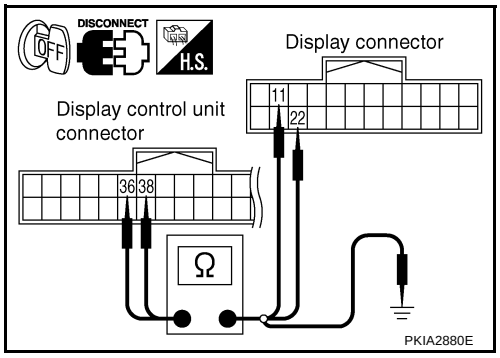
Display Communication Line Check (Between Display Control Unit and Display)

AKS007JJ

1. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect display connector and display control unit connector.
3. Check continuity between display control unit and Display.

Terminals				Continuity
Display control unit		Display		
Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
M76	36 (PU)	M63	11 (PU)	Yes
	38 (LG)		22 (LG)	



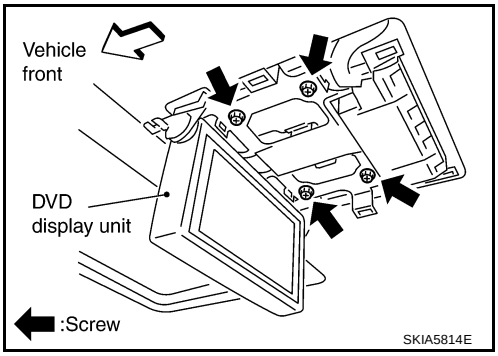
4. Check continuity between display control unit and ground.

Terminals			Continuity
Display control unit		Terminal	
Connector	Terminal (Wire color)		
M76	36 (PU)	Ground	No
	38 (LG)		

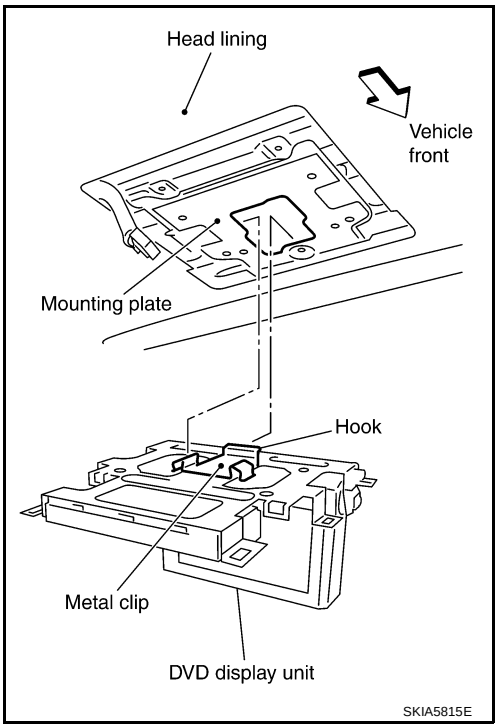
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

3. Remove screws (4) with power tool.



4. Pull DVD display unit to downside, and remove rear display unit from mounting plate.



INSTALLATION

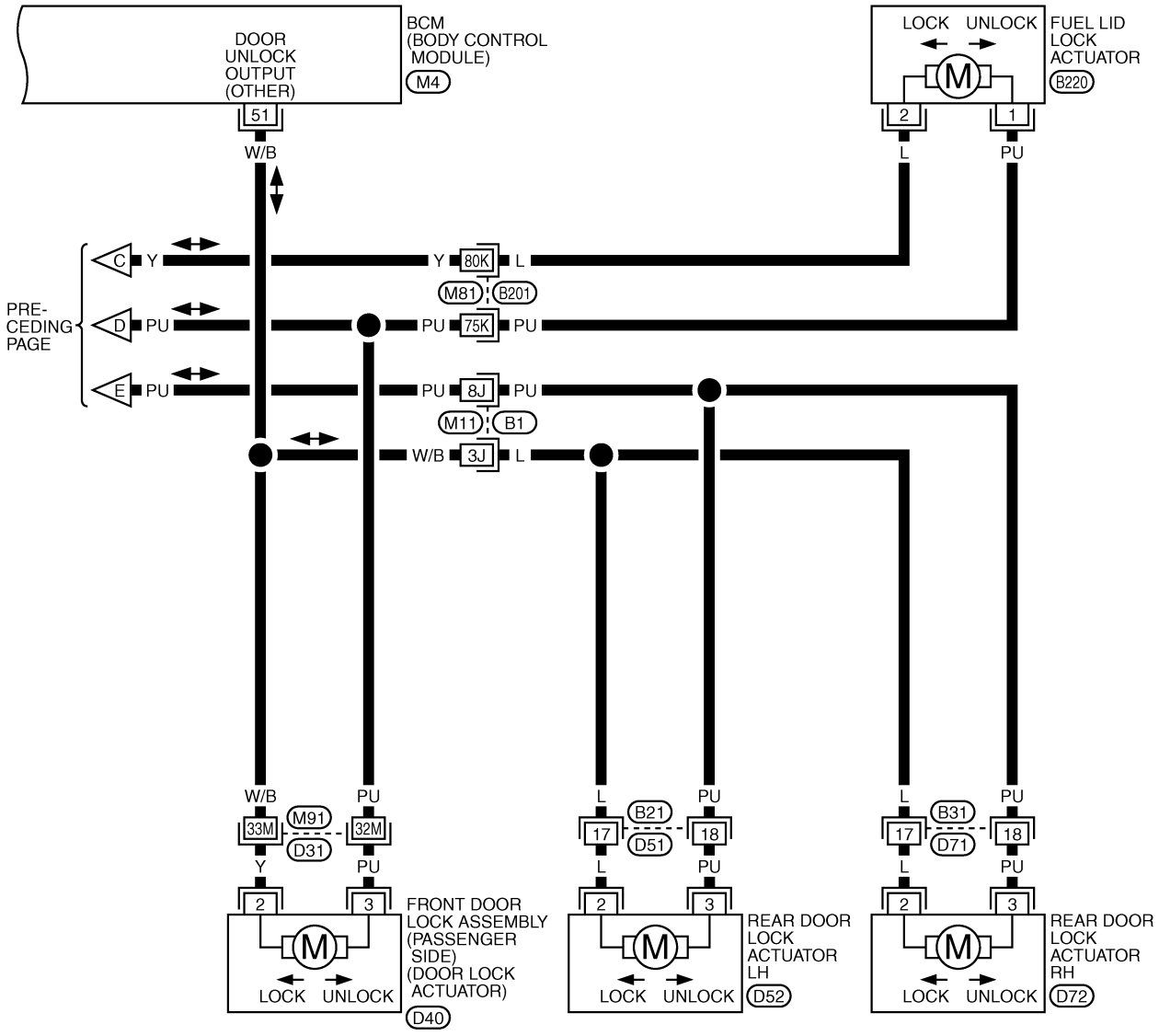
Installation is the reverse order of removal.

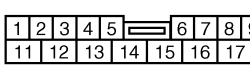
CAUTION:

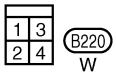
Put metal clip hook in mounting plate, and press it securely.

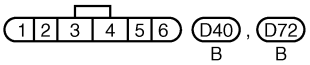
FIG. 5

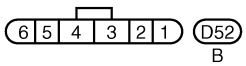
BL-D/LOCK-05











REFER TO THE FOLLOWING.
B1 , B201 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M4 -ELECTRICAL UNITS

TIWH0037E

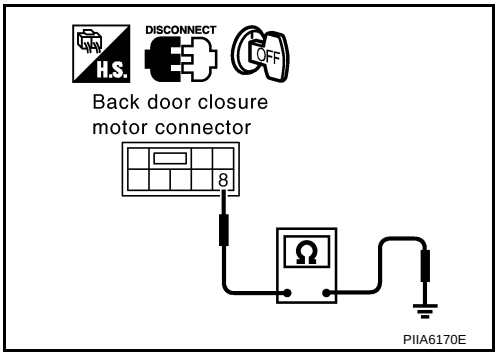
3. CHECK GROUND CIRCUIT

Check continuity between back door closure motor connector D109 terminal 8 and ground.

8 (B) – Ground : Continuity should exist.

OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness.



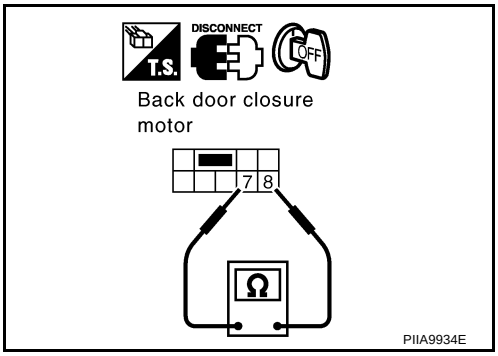
4. CHECK BACK DOOR SWITCH

Check continuity between back door closure motor D109 terminals 7 and 8.

Terminals		Back door condition	Continuity
7	8	Open	Yes
		Close	No

OK or NG

OK >> GO TO 5.
NG >> Replace back door closure motor.



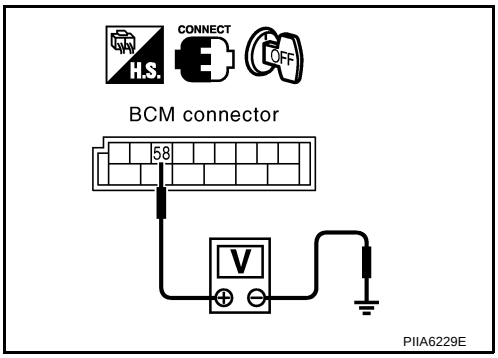
5. CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between BCM connector and ground.

58 (L) – Ground : Approx. 9V

OK or NG

OK >> Check condition of harness and connector.
NG >> Replace BCM.



DOOR LOCK FUNCTION MALFUNCTION

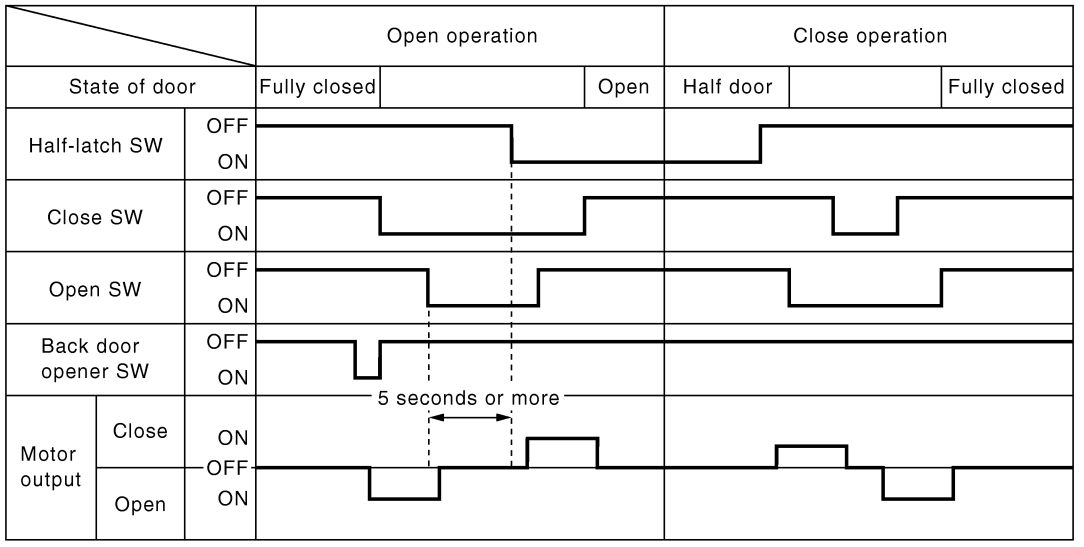
Before conducting the diagnosis in the following table, check all power door lock system function. Refer to BL-21, "POWER DOOR LOCK SYSTEM" .

Symptom	Diagnoses service procedure	Refer to page
Door lock/unlock does not operate when door request switch operation is used (power door lock system is normal).	1. Check door lock/unlock setting	BL-120
	2. Check outside key antenna	BL-140
	3. Intelligent Key battery inspection	BL-152
	4. Replace Intelligent Key unit	BL-151
Door lock/unlock do not operate using door request switch operated (power door lock system is normal).	1. Check door switch	BL-133
	2. Check key switch (Intelligent Key unit input)	BL-129
	3. Check ignition knob switch	BL-132
	4. Replace Intelligent Key unit	BL-151
Driver side selective door unlock function does not operate, when door request switch is operated. (All other door lock function is OK.)	1. Check selective door unlock setting	BL-120
	2. Replace BCM	BCS-16
Passenger side selective door unlock function does not operate, when door request switch is operated. (All other door lock function is OK.)	1. Check selective door unlock setting	BL-120
	2. Check passenger side select unlock relay	BL-149
	3. Replace Intelligent Key unit	BL-151
Hazard lamps do not flash during door lock operation using door request switch operated. (Turn signal lamp operation is normal.) (All other door lock function is OK.)	1. Check key reminder setting	BL-120
	2. Replace BCM	BCS-16
	3. Replace Intelligent Key unit	BL-151
Hazard lamps do not flash during door lock operation using door request switch operated. (Turn signal lamps do not operate.)	Check hazard function	BL-150
Intelligent Key warning buzzer does not sound during door lock/unlock operation using Intelligent Key (regardless of whether Intelligent Key remote controller button or request switch operation is used).	1. Check if the operation confirmation Intelligent Key warning buzzer was cancelled by the CONSULT-II settings change function	BL-120
	2. Check Intelligent Key warning buzzer	BL-139
	3. Replace Intelligent Key unit	BL-151
Door lock/unlock operation confirmation Intelligent Key warning buzzer sounds, but door lock actuator does not operate. (And hazard lamps do not flash.)	1. Check CAN communication	BL-128
	2. Replace Intelligent Key unit	BL-151

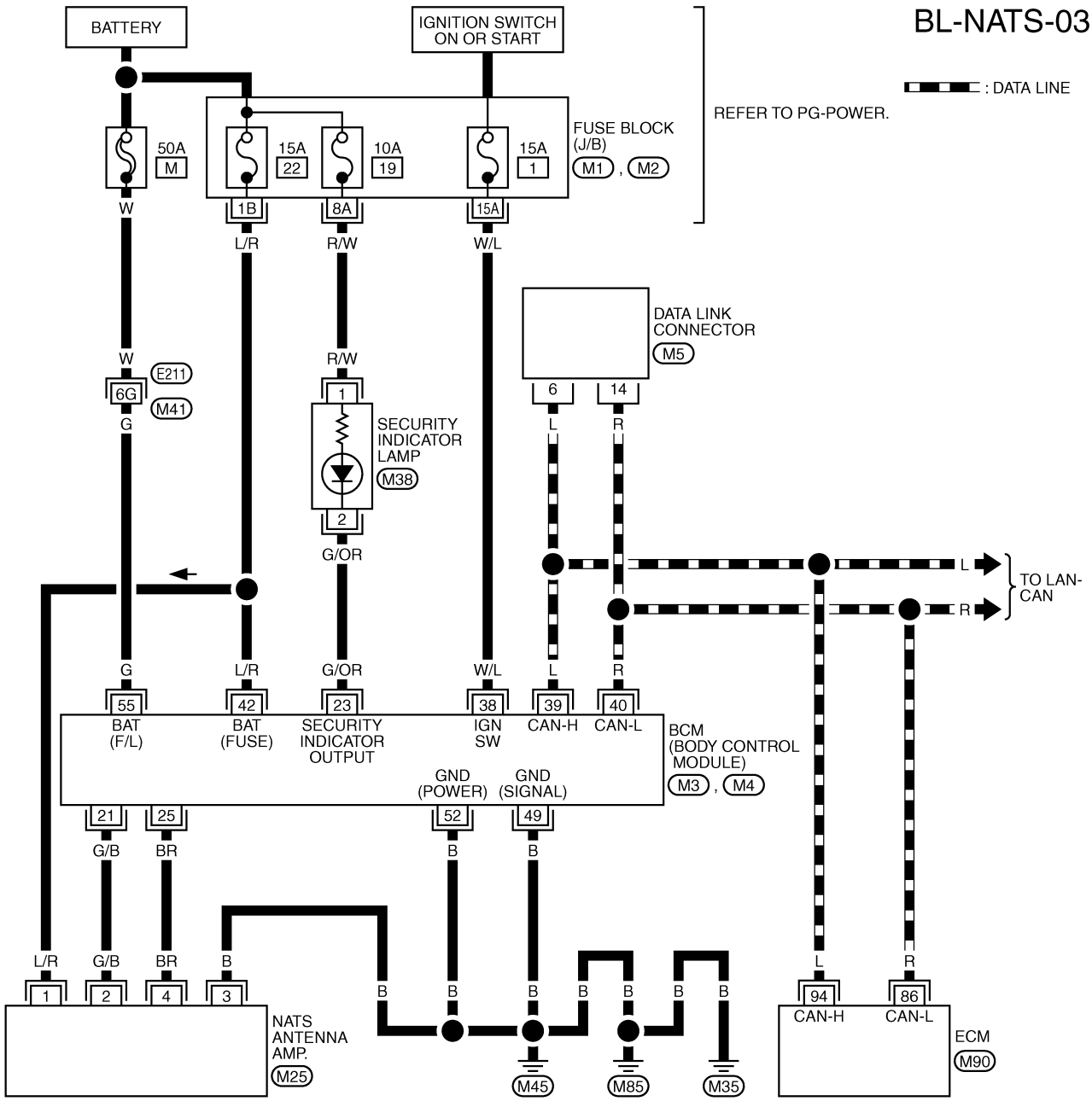
OPEN OPERATION

- When passenger side door unlock and back door shuts, back door opener switch is pushed.
- Back door closure control unit receives the signal, closure motor is operated in an open direction, and back door opens.
- Closure motor is operated in the close direction and stops at a neutral position when the following conditions detected after turning on open switch.

– When back door is in half-open state, and
– 5 seconds past without opening back door.



MODELS WITHOUT INTELLIGENT KEY SYSTEM



TIWM0339E

Precautions In Repairing High Strength Steel

AIS0034X

High strength steel is used for body panels in order to reduce vehicle weight.
Accordingly, precautions in repairing automotive bodies made of high strength steel are described below:

HIGH STRENGTH STEEL (HSS) USED IN NISSAN VEHICLES

Tensile strength	Nissan/Infiniti designation	Major applicable parts
373 N/mm^2 (38kg/mm^2 ,54klb/sq in)	SP130	● Front & rear side member assembly ● Hoodledge assembly ● Lower dash ● Hood ● Other reinforcements

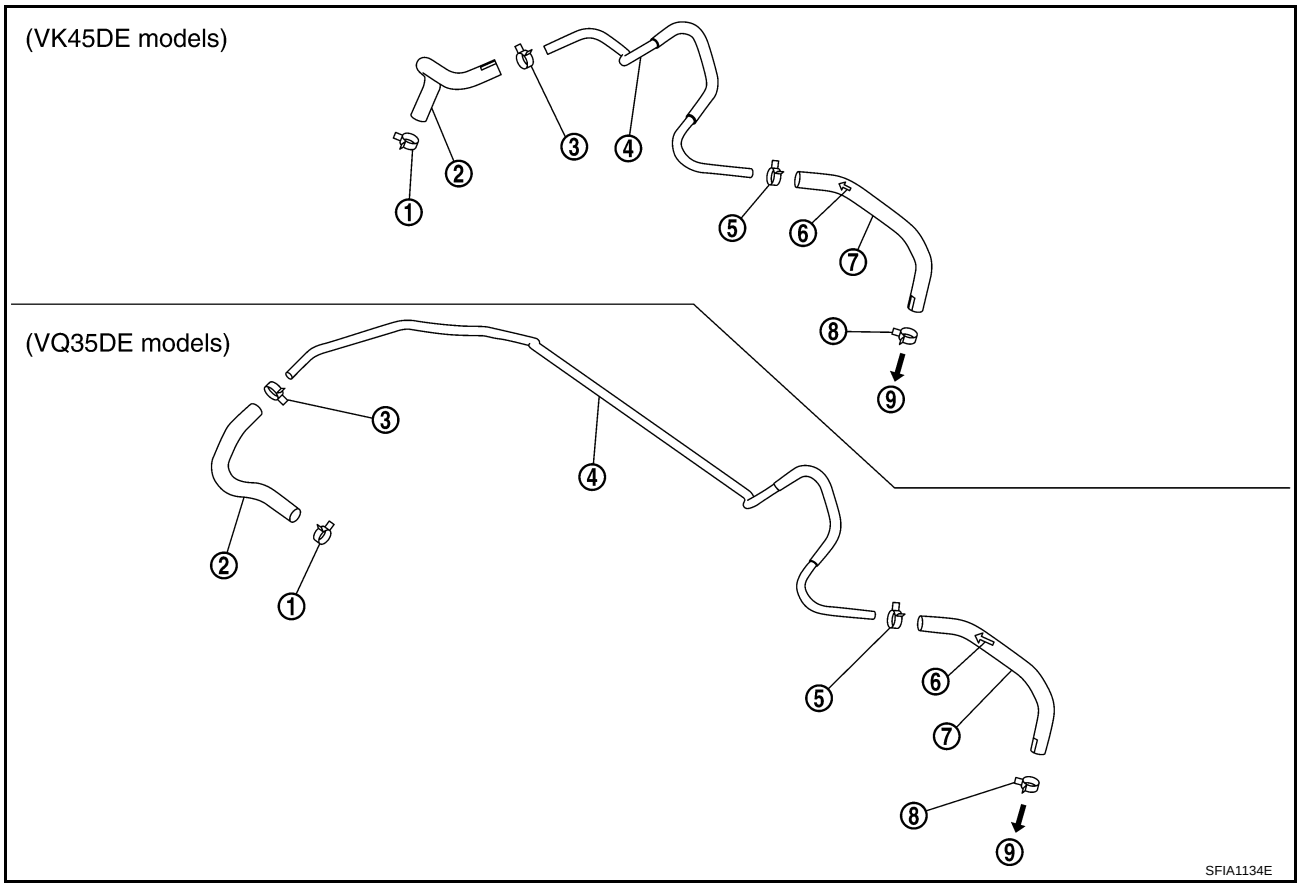
SP130 is the most commonly used HSS.
SP150 HSS is used only on parts that require much more strength.

VACUUM LINES

PFP:41920

Removal and Installation

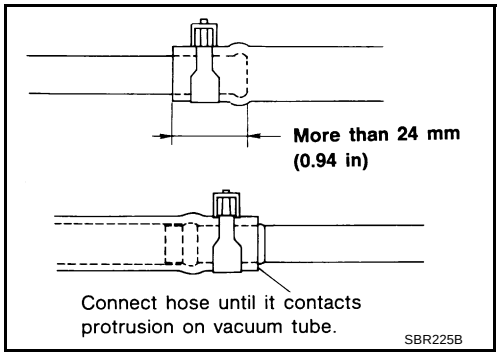
AFS001N8



1. Clamp
2. Vacuum hose
3. Clamp
4. Vacuum piping
5. Clamp
6. Check valve inclusion position stamp
7. Vacuum hose
8. Clamp
9. Brake booster

CAUTION:

- **Because vacuum hose contains a check valve, it must be installed in the correct direction. Refer to the stamp or label to confirm correct installation. The brake booster will not operate normally if hose is installed in the wrong direction.**
- **Insert vacuum hose for at least 24 mm (0.94 in).**
- **Do not use lubricating oil during assembly.**



Inspection

AFS001N9

VISUAL INSPECTION

Check for improper assembly, damage and deterioration.

Item (Unit)	Data monitor item selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
CRANKING SIG (ON/OFF)	–	–	×	Cranking condition (ON/OFF) status is displayed.
4WD FAIL REQ (ON/OFF)	–	–	×	AWD fail-safe signal (ON/OFF) status is displayed.
2WD/4WD (2WD/4WD)	–	–	×	Distinguish 2WD and AWD

×:Applicable
–:Not applicable
Note: Serves as EBD warning lamp.

ACTIVE TEST

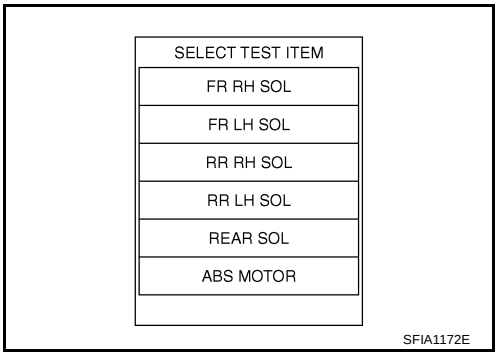
CAUTION:

- **Do not perform active test while driving.**
- **Make sure to completely bleed air from the brake system.**
- **Active test can not be performed when EBD, ABS, TCS or VDC operation is malfunction.**
- **ABS and brake warning lamps turn on during the active test.**

Operation Procedure

1. Connect CONSULT-II and CONVERTER to data link connector and start engine.

   CAUTION:
   If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which performs CAN communication.
2. Touch “START (NISSAN BASED VHCL) ” on the display screen.
3. Touch “ABS”.
   If “ABS” is not indicated, go to GI-39, "CONSULT-II Data Link Connector (DLC) Circuit" .
4. Touch “ACTIVE TEST”.
5. The test item selection screen is displayed.
6. Touch necessary test item.

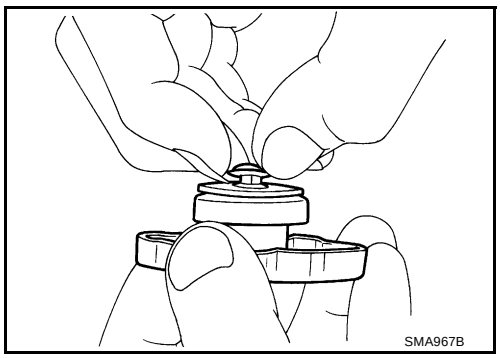


7. With the “MAIN SIGNALS” display shown in reverse, touch “START”.
8. The “ACTIVE TEST” screen will be displayed, so perform the following test.

Solenoid Valve Operation Chart

Operation	ABS solenoid valve			ABS solenoid valve (ACT)		
	UP	KEEP	DOWN	UP	ACTUATOR UP	ACTUATOR KEEP
FR RH IN SOL	OFF	ON	ON	OFF	OFF	OFF
FR RH OUT SOL	OFF	OFF	ON*	OFF	OFF	OFF
FR LH IN SOL	OFF	ON	ON	OFF	OFF	OFF
FR LH OUT SOL	OFF	OFF	ON*	OFF	OFF	OFF
RR RH IN SOL	OFF	ON	ON	OFF	OFF	OFF
RR RH OUT SOL	OFF	OFF	ON*	OFF	OFF	OFF

- Pull negative-pressure valve to open it, and make sure that it close completely when released.
  - Make sure that there is no dirt or damage on the valve seat of radiator cap negative-pressure valve.
  - Make sure that there are no unusualness in the opening and closing conditions of negative-pressure valve.



- Check radiator cap relief pressure.

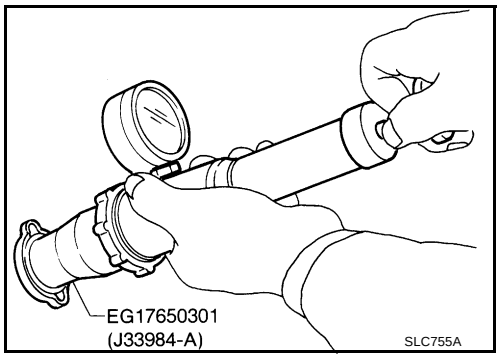
  Standard:

  78 - 98 kPa (0.8 - 1.0 kg/cm^2 , 11 - 14 psi)

  Limit:

  59 kPa (0.6 kg/cm^2 , 9 psi)

  - When connecting radiator cap to the radiator cap tester (commercial service tool) and the radiator cap tester adapter [SST], apply engine coolant to the cap seal surface.



- Replace radiator cap if there is an unusualness related to the above three.

CAUTION:

When installing radiator cap, thoroughly wipe out the radiator filler neck to remove any waxy residue or foreign material.

Checking Radiator

ABS008FX

Check radiator for mud or clogging. If necessary, clean radiator as follows.

- Be careful not to bend or damage radiator fins.
- When radiator is cleaned without removal, remove all surrounding parts such as radiator cooling fan assembly and horns. Then tape harness and connectors to prevent water from entering.

1. Apply water by hose to the back side of the radiator core vertically downward.
2. Apply water again to all radiator core surfaces once per minute.
3. Stop washing if any stains no longer flow out from radiator.
4. Blow air into the back side of radiator core vertically downward.
   - Use compressed air lower than 490 kPa (5 kg/cm^2 , 71 psi) and keep distance more than 30 cm (11.81 in).
5. Blow air again into all the radiator core surfaces once per minute until no water sprays out.

SPEEDOMETER

ABS actuator and electric unit (control unit) provides a vehicle speed signal to the unified meter and A/C amp. with CAN communication line. After unified meter and A/C amp. received the vehicle speed signal, it changes the signal to 8 pulse signal and provides the 8 pulse signal to the combination meter for the speedometer.

TACHOMETER

The tachometer indicates engine speed in revolutions per minute (rpm).
ECM provides an engine speed signal to unified meter and A/C amp. with CAN communication line. Unified meter and A/C amp. provides an engine speed signal to combination meter for tachometer with communication line between unified meter and A/C amp. and combination meter.

WATER TEMPERATURE GAUGE

The water temperature gauge indicates the engine coolant temperature.
ECM provides an engine coolant temperature signal to unified meter and A/C amp. with CAN communication line. Unified meter and A/C amp. provides a engine coolant temperature signal to combination meter for water temperature gauge with communication line between unified meter and A/C amp. and combination meter.

FUEL GAUGE

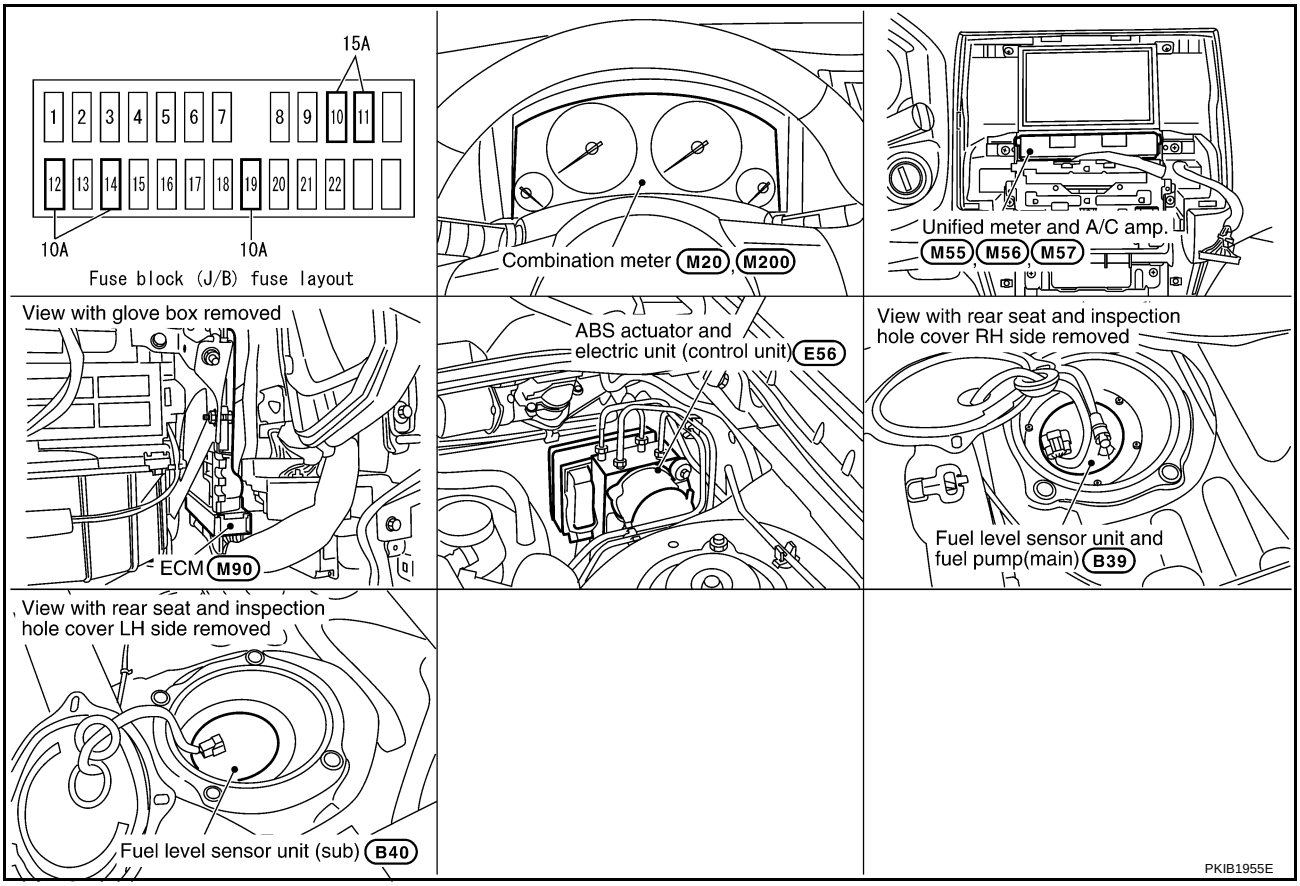
The fuel gauge indicates the approximate fuel level in the fuel tank.
The fuel gauge is regulated by a variable ground signal supplied

- from unified meter and A/C amp. terminal 36
- through the fuel level sensor unit and fuel pump (main) terminals 5 and 2, and
- through the fuel level sensor unit (sub) terminals 2 and 1
- to unified meter and A/C amp. terminal 28 for the fuel gauge.

Unified meter and A/C amp. provides a fuel level signal to combination meter for fuel gauge with communication line between unified meter and A/C amp. and combination meter.

Component Parts and Harness Connector Location

AKS005MI



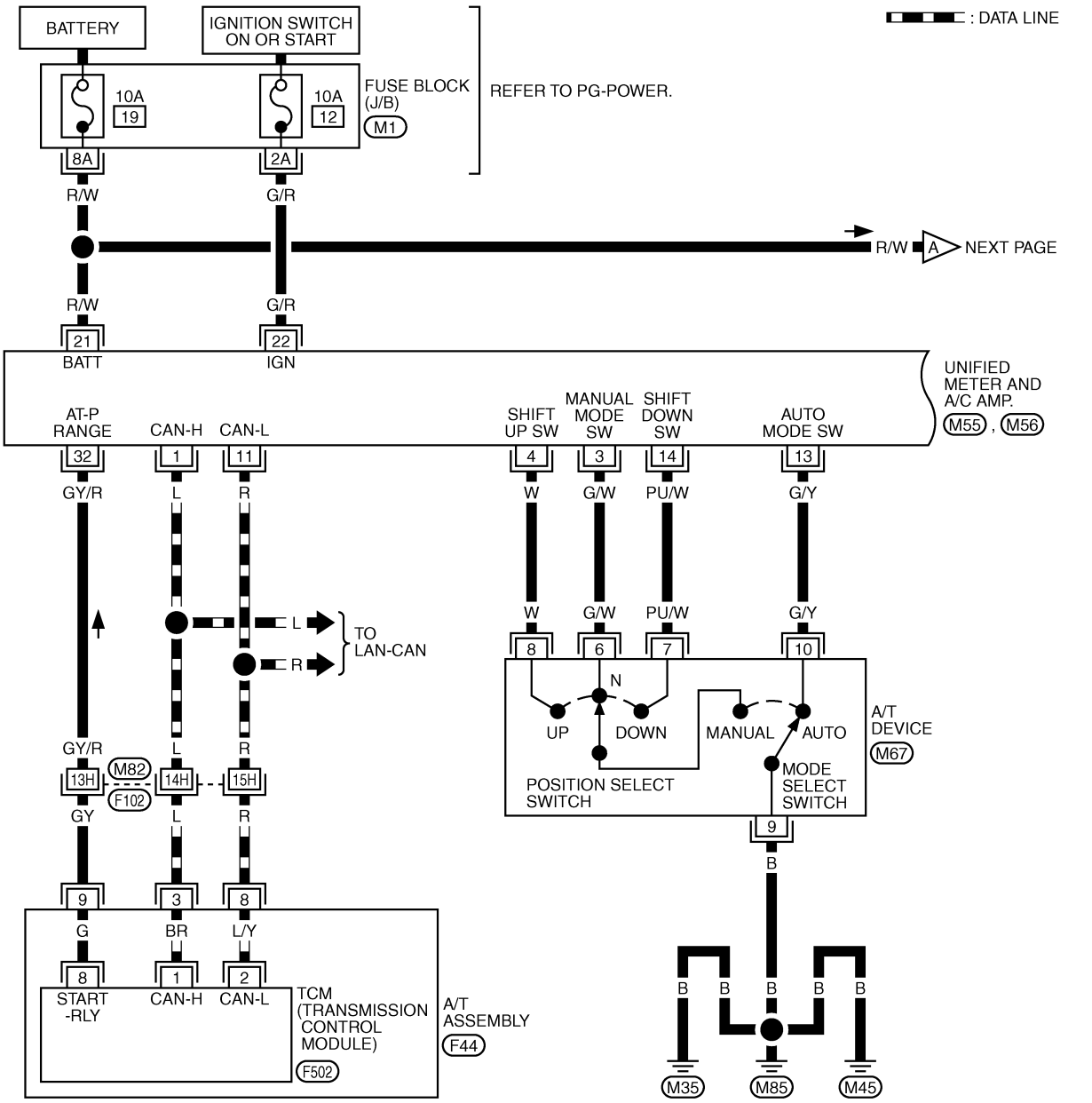
A/T INDICATOR

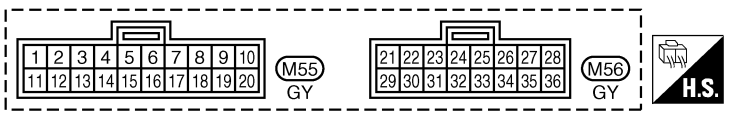
PFP:24814

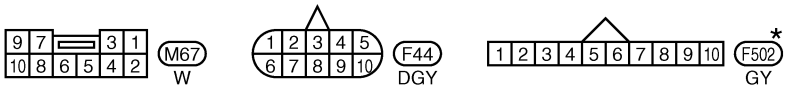
Wiring Diagram — AT/IND —

AKS005NI

DI-AT/IND-01







REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM1282E

Monitored Item [unit]	ALL SIGNALS	SELECTION FROM MENU	Description
WARN LANE RH [ON/OFF]	×	×	Displays warning for right lane.
VALID POS LH [VLD/INVLD]	×	×	Displays lateral position for left lane marker is valid.
VALID POS RH [VLD/INVLD]	×	×	Displays lateral position for right lane marker is valid.
AIMING DONE [OK/NG]	×	×	Displays camera aiming done.
AIMING RESULT [OK/NOK]	×	×	Displays camera aiming result.
FCTRY AIM YAW [deg]	×	×	Displays camera unit installation condition.
FCTRY AIM ROLL [deg]	×	×	Displays camera unit installation condition.
FCTRY AIM PIT [deg]	×	×	Displays camera unit installation condition.
XOFFSET [pixel]	×	×	Displays camera unit installation condition.

ACTIVE TEST

CAUTION:

- **Never perform the active test while driving.**
- **Active test cannot be started while LDW indicator lamp is illuminated.**

1. Touch “ACTIVE TEST” on “SELECT DIAG MODE” screen. Refer to DI-98, "CONSULT-II BASIC OPERATION" .
2. Touch any field, “BUZZER DRIVE ”, “SYSTEM ON LAMP DRIVE” and “INDICATOR LAMP DRIVE”, on selection screen.
3. Touch necessary item and “START”.
4. Active test screen will be shown.

Active Test Item

Active test item	Operation item	Function	Reference page
BUZZER DRIVE	LDW chime	This test is able to check LDW chime operation.	DI-101
SYSTEM ON LAMP DRIVE	LDW system ON indicator	This test is able to check LDW system ON indicator operation.	DI-102
INDICATOR LAMP DRIVE	LDW indicator lamp	This test is able to check LDW indicator lamp operation.	DI-102

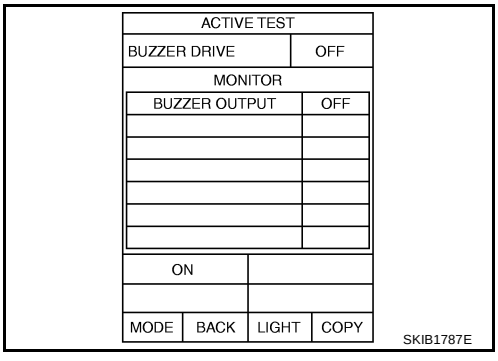
BUZZER DRIVE

Touch “ON” and “OFF” to check if LDW chime operates as follows.

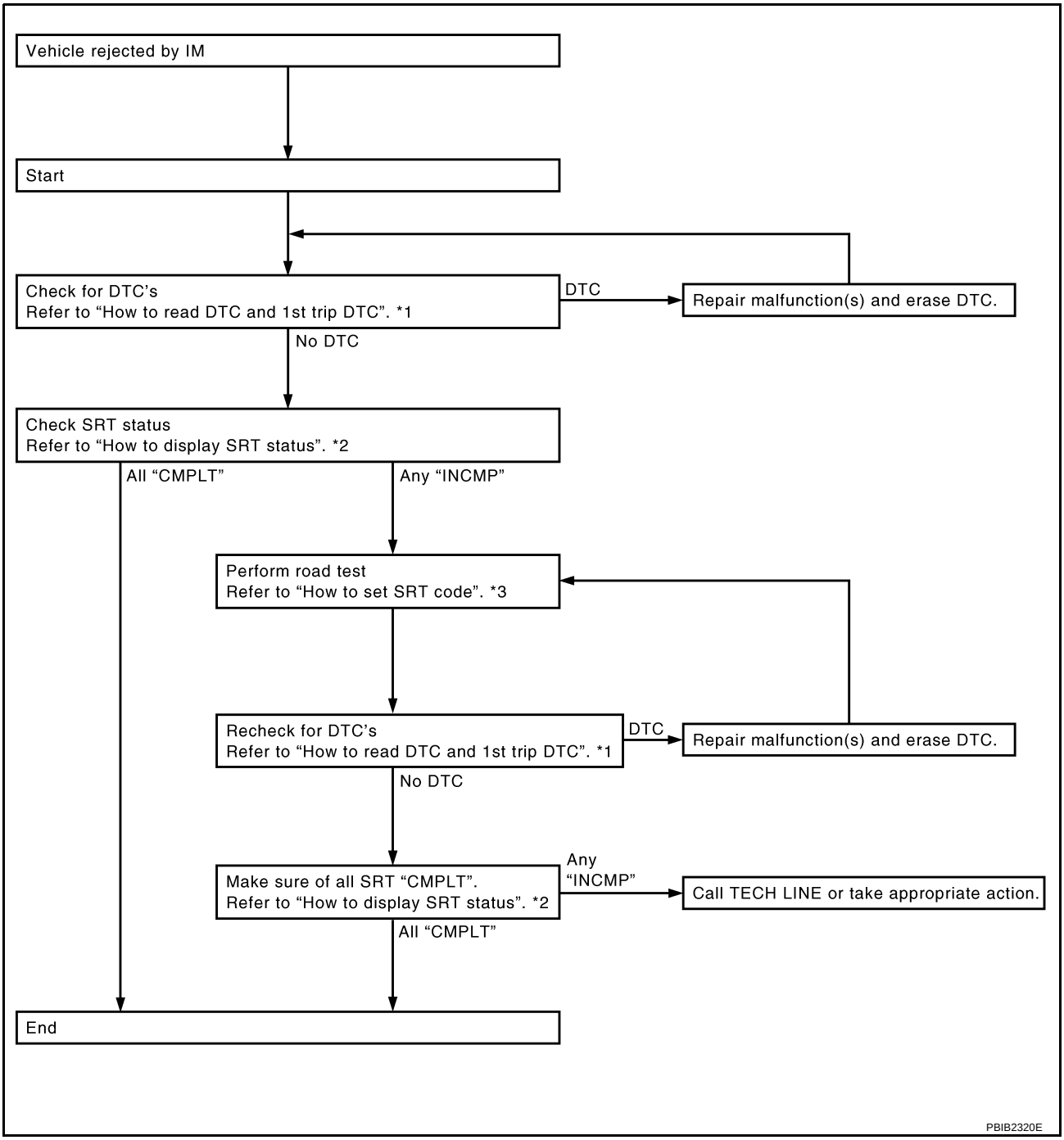
“BUZZER DRIVE”

Touch “ON” : LDW chime is activated.

Touch “OFF” : LDW chime is not activated.



DTC*1		Items (CONSULT-II screen terms)	Reference page
CONSULT-II GST*2	ECM*3		
P0302	0302	CYL 2 MISFIRE	EC-285
P0303	0303	CYL 3 MISFIRE	EC-285
P0304	0304	CYL 4 MISFIRE	EC-285
P0305	0305	CYL 5 MISFIRE	EC-285
P0306	0306	CYL 6 MISFIRE	EC-285
P0327	0327	KNOCK SEN/CIRC-B1	EC-295
P0328	0328	KNOCK SEN/CIRC-B1	EC-295
P0335	0335	CKP SEN/CIRCUIT	EC-300
P0340	0340	CMP SEN/CIRC-B1	EC-307
P0345	0345	CMP SEN/CIRC-B2	EC-307
P0420	0420	TW CATALYST SYS-B1	EC-316
P0430	0430	TW CATALYST SYS-B2	EC-316
P0441	0441	EVAP PURG FLOW/MON	EC-322
P0442	0442	EVAP SMALL LEAK	EC-327
P0444	0444	PURG VOLUME CONT/V	EC-336
P0445	0445	PURG VOLUME CONT/V	EC-336
P0447	0447	VENT CONTROL VALVE	EC-343
P0451	0451	EVAP SYS PRES SEN	EC-350
P0452	0452	EVAP SYS PRES SEN	EC-353
P0453	0453	EVAP SYS PRES SEN	EC-359
P0455	0455	EVAP GROSS LEAK	EC-367
P0456	0456	EVAP VERY SML LEAK	EC-375
P0460	0460	FUEL LEV SEN SLOSH	EC-385
P0461	0461	FUEL LEVEL SENSOR	EC-387
P0462	0462	FUEL LEVL SEN/CIRC	EC-389
P0463	0463	FUEL LEVL SEN/CIRC	EC-389
P0500	0500	VEH SPEED SEN/CIRC*5	EC-391
P0506	0506	ISC SYSTEM	EC-393
P0507	0507	ISC SYSTEM	EC-395
P0550	0550	PW ST P SEN/CIRC	EC-397
P0605	0605	ECM	EC-402
P0700	0700	TCM	AT-113
P0705	0705	PNP SW/CIRC	AT-114
P0710	0710	ATF TEMP SEN/CIRC	AT-136
P0720	0720	VEH SPD SEN/CIR AT*5	AT-118
P0725	0725	ENGINE SPEED SIG	AT-123
P0740	0740	TCC SOLENOID/CIRC	AT-125
P0744	0744	A/T TCC S/V FNCTN	AT-127
P0745	0745	L/PRESS SOL/CIRC	AT-129
P1031	1031	A/F SEN1 HTR (B1)	EC-405
P1032	1032	A/F SEN1 HTR (B1)	EC-405
P1051	1051	A/F SEN1 HTR (B2)	EC-405



*1 EC-59 *2 EC-63 *3 EC-64

How to Display SRT Status

WITH CONSULT-II

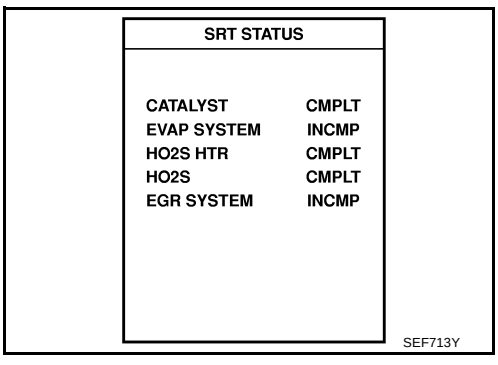
Selecting "SRT STATUS" in "DTC CONFIRMATION" mode with CONSULT-II.

For items whose SRT codes are set, a "CMPLT" is displayed on the CONSULT-II screen; for items whose SRT codes are not set, "INCMP" is displayed.

A sample of CONSULT-II display for SRT code is shown in the figure.

"INCMP" means the self-diagnosis is incomplete and SRT is not set.

"CMPLT" means the self-diagnosis is complete and SRT is set.



WITH GST

Selecting Service $01 with GST (Generic Scan Tool)

Symptom Matrix Chart

ABS006KS

SYSTEM — BASIC ENGINE CONTROL SYSTEM

		SYMPTOM													Reference page
		HARD/NO START/RESTART (EXCP. HA)	ENGINE STALL	HESITATION/SURGING/FLAT SPOT	SPARK KNOCK/DETONATION	LACK OF POWER/POOR ACCELERATION	HIGH IDLE/LOW IDLE	ROUGH IDLE/HUNTING	IDLING VIBRATION	SLOW/NO RETURN TO IDLE	OVERHEATS/WATER TEMPERATURE HIGH	EXCESSIVE FUEL CONSUMPTION	EXCESSIVE OIL CONSUMPTION	BATTERY DEAD (UNDER CHARGE)	
Warranty symptom code		AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	HA	
Fuel	Fuel pump circuit	1	1	2	3	2		2	2			3		2	EC-668
	Fuel pressure regulator system	3	3	4	4	4	4	4	4	4		4			EC-99
	Injector circuit	1	1	2	3	2		2	2			2			EC-661
	Evaporative emission system	3	3	4	4	4	4	4	4	4		4			EC-39
Air	Positive crankcase ventilation system	3	3	4	4	4	4	4	4	4		4	1		EC-51
	Incorrect idle speed adjustment						1	1	1	1		1			EC-78
	Electric throttle control actuator	1	1	2	3	3	2	2	2	2		2		2	EC-424, EC-426
Ignition	Incorrect ignition timing adjustment	3	3	1	1	1		1	1			1			EC-78
	Ignition circuit	1	1	2	2	2		2	2			2			EC-648
Power supply and ground circuit		2	2	3	3	3		3	3		2	3			EC-164
Mass air flow sensor circuit		1	1	2	2	2		2	2			2			EC-186, EC-195
Engine coolant temperature sensor circuit					3		3			3					EC-208, EC-220
Air fuel ratio (A/F) sensor			1	2	3	2		2	2			2			EC-488 EC-497 EC-506 EC-516 EC-526 EC-536 EC-548
Throttle position sensor circuit							2			2					EC-213, EC-278, EC-479, EC-481, EC-633
Accelerator pedal position sensor circuit				3	2	1									EC-483, EC-619, EC-626, EC-640
Knock sensor circuit				2								3			EC-295
Crankshaft position sensor (POS) circuit		2	2												EC-300
Camshaft position sensor (PHASE) circuit		3	2												EC-307

5. CHANGE ENGINE OIL

1. Stop the engine.
2. Change engine oil.

NOTE:
This symptom may occur when a large amount of gasoline is mixed with engine oil because of driving conditions (such as when engine oil temperature does not rise enough since a journey distance is too short during winter). The symptom will not be detected after changing engine oil or changing driving condition.

>> **INSPECTION END**

6. CHECK FUEL PRESSURE

Check fuel pressure. (Refer to EC-99, "Fuel Pressure Check" .)

OK or NG

OK >> GO TO 9.
NG (Fuel pressure is too high)>>Replace fuel pressure regulator, refer to EC-99, "Fuel Pressure Check" . GO TO 8.
NG (Fuel pressure is too low)>>GO TO 7.

7. DETECT MALFUNCTIONING PART

1. Check the following.
- Clogged and bent fuel hose and fuel tube
- Clogged fuel filter
- Fuel pump and its circuit (Refer to EC-668, "FUEL PUMP CIRCUIT" .)
2. If NG, repair or replace the malfunctioning part. (Refer to EC-99, "Fuel Pressure Check" .)
If OK, replace fuel pressure regulator.

>> GO TO 8.

8. CHECK “A/F ALPHA-B1”, “A/F ALPHA-B2”

1. Start engine.
2. Select “A/F ALPHA-B1”, “A/F ALPHA-B2” in “DATA MONITOR (SPEC)” mode, and make sure that the each indication is within the SP value.

OK or NG

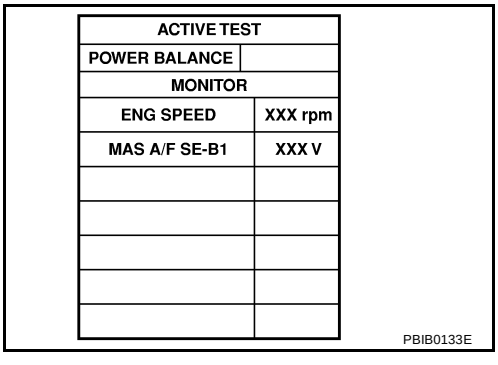
OK >> **INSPECTION END**
NG >> GO TO 9.

9. PERFORM POWER BALANCE TEST

1. Perform “POWER BALANCE” in “ACTIVE TEST” mode.
2. Make sure that the each cylinder produces a momentary engine speed drop.

OK or NG

OK >> GO TO 12.
NG >> GO TO 10.

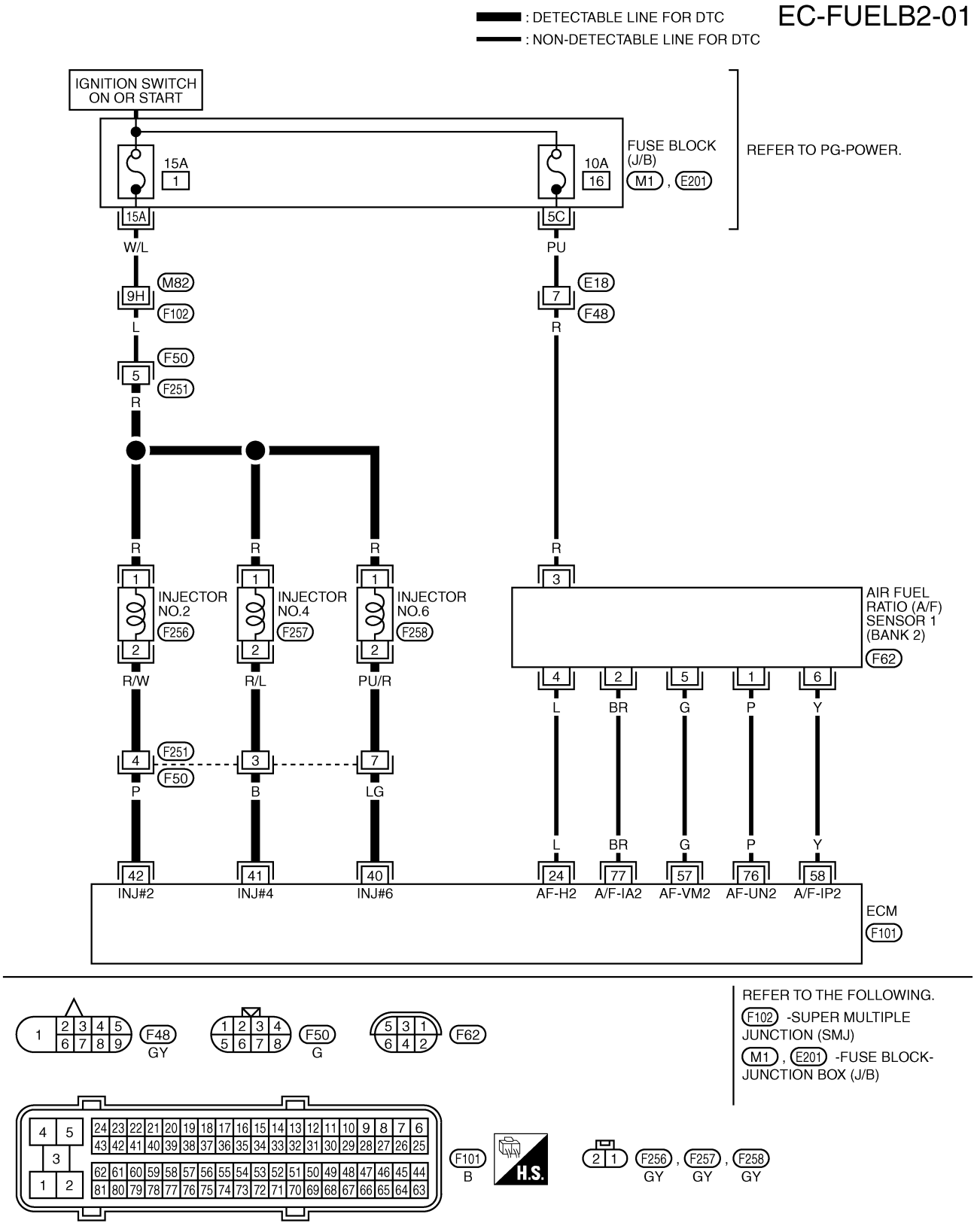


WITH GST

Follow the procedure “WITH CONSULT-II” above.

BANK 2

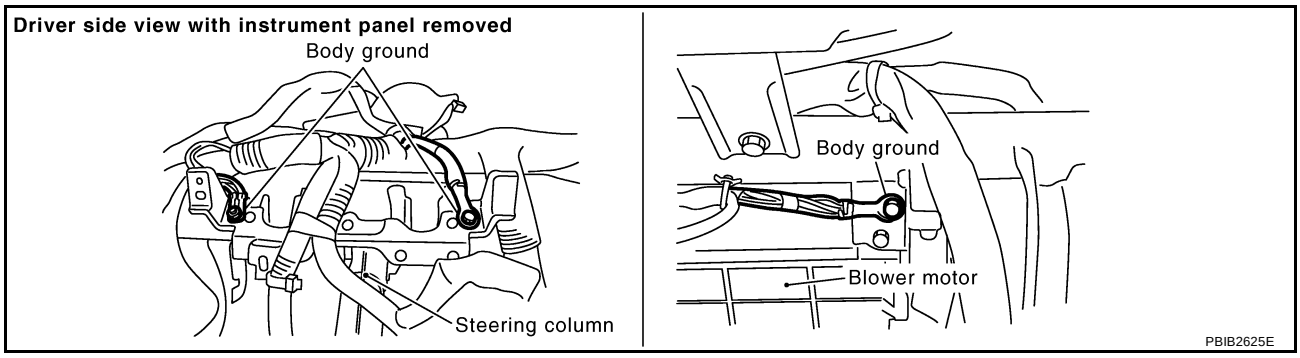
EC-FUELB2-01



TBWM0387E

5. CHECK GROUND CONNECTIONS

Loosen and retighten ground three screws on the body. Refer to EC-170, "Ground Inspection" .



OK or NG

OK >> GO TO 6.
NG >> Repair or replace ground connections.

6. CHECK KNOCK SENSOR SHIELD CIRCUIT FOR OPEN AND SHORT

1. Disconnect knock sensor harness connector.
2. Check harness continuity between knock sensor terminal 2 and ground. Refer to Wiring Diagram.

Continuity should exist.

OK or NG

OK >> GO TO 8.
NG >> GO TO 7.

7. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors F20, F252
- Harness connectors F102, M82
- Harness for open or short between knock sensor terminal 2 and ground

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

8. CHECK INTERMITTENT INCIDENT

Refer to EC-163, "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT" .

>> **INSPECTION END**

Component Inspection

ABS006Q0

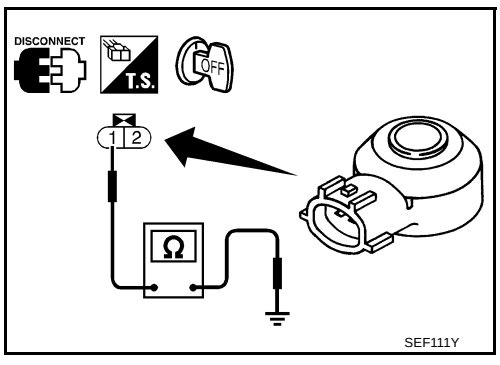
KNOCK SENSOR

Check resistance between knock sensor terminal 1 and ground.

NOTE:
It is necessary to use an ohmmeter which can measure more than 10 MΩ.

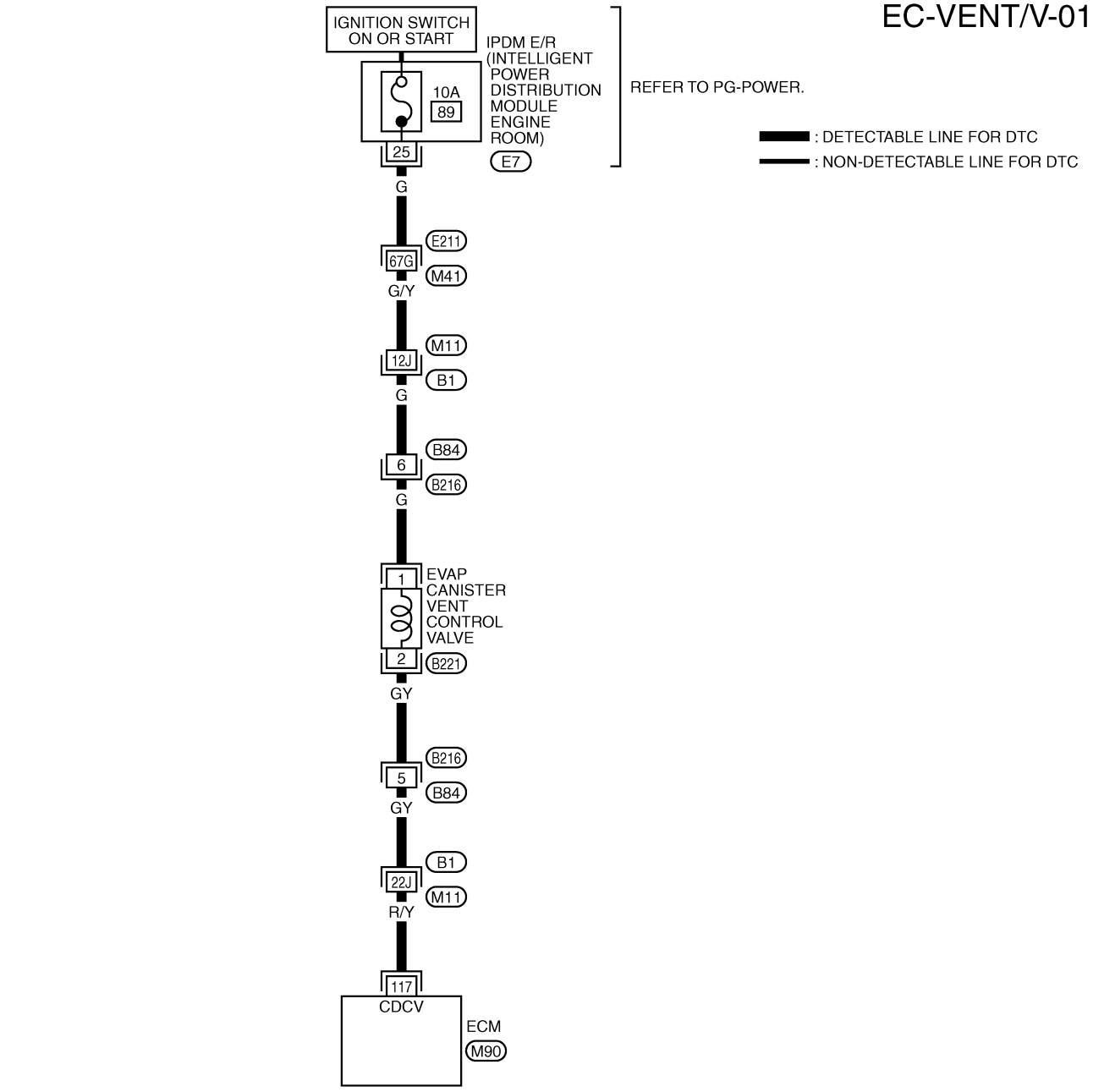
Resistance: Approximately 532 - 588 kΩ [at 20°C (68°F)]

CAUTION:
Do not use any knock sensors that have been dropped or physically damaged. Use only new ones.



Wiring Diagram

ABS006R5



TBWH0110E

WITH GST

1. Lift up drive wheels.
2. Start engine.
3. Read vehicle speed sensor signal in Service $01 with GST.
   The vehicle speed sensor on GST should be able to exceed 10 km/h (6 MPH) when rotating wheels with suitable gear position.
4. If NG, go to EC-392, "Diagnostic Procedure" .

Diagnostic Procedure

ABS006SD

1. CHECK DTC WITH “ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)”

Refer to BRC-12, "TROUBLE DIAGNOSIS" .

OK or NG

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

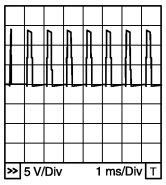
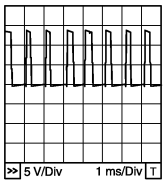
2. CHECK DTC WITH “UNIFIED METER AND A/C AMP.”

Refer to DI-5, "COMBINATION METERS" .

>> **INSPECTION END**

Specification data are reference values and are measured between each terminal and ground.
Pulse signal is measured by CONSULT-II.

CAUTION:
Do not use ECM ground terminals when measuring input/output voltage. Doing so may result in damage to the ECM's transistor. Use a ground other than ECM terminals, such as the ground.

TERMINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
4	L/W	Throttle control motor (Close)	**[Ignition switch: ON]** ● Engine stopped ● Selector lever: D ● Accelerator pedal: Fully released	0 - 14V★  PBIB1104E
5	L/B	Throttle control motor (Open)	**[Ignition switch: ON]** ● Engine stopped ● Selector lever: D ● Accelerator pedal: Fully depressed	0 - 14V★  PBIB1105E

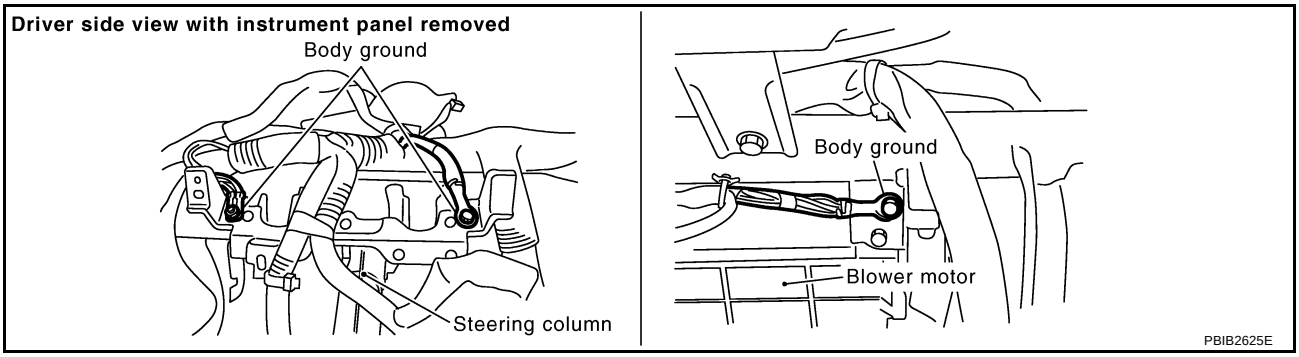
★: Average voltage for pulse signal (Actual pulse signal can be confirmed by oscilloscope.)

Diagnostic Procedure

ABS006TV

1. CHECK GROUND CONNECTIONS

1. Turn ignition switch OFF.
2. Loosen and retighten ground three screws on the body. Refer to EC-170, "Ground Inspection" .

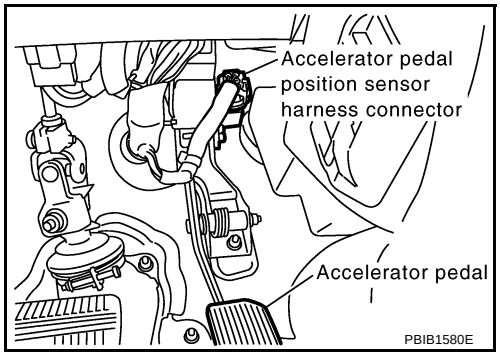


OK or NG

OK >> GO TO 2.
NG >> Repair or replace ground connections.

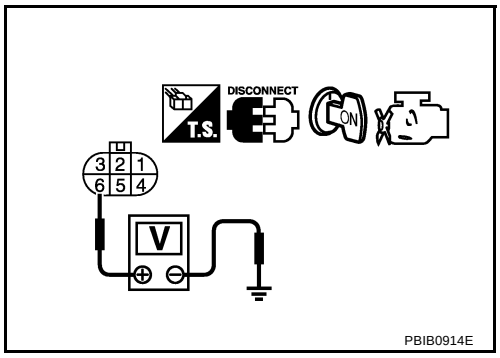
2. CHECK ACCELERATOR PEDAL POSITION SENSOR 1 POWER SUPPLY CIRCUIT

1. Disconnect accelerator pedal position (APP) sensor harness connector.
2. Turn ignition switch ON.



3. Check voltage between APP sensor terminal 6 and ground with CONSULT-II or tester.

Voltage: Approximately 5V



OK or NG

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

3. CHECK SENSOR POWER SUPPLY CIRCUITS

Check the following.

- Harness for short to power and short to ground, between the following terminals.

ECM terminal	Sensor terminal	Reference Wiring Diagram
90	APP sensor terminal 6	EC-621
49	Refrigerant pressure sensor terminal 1	EC-675
68	PSP sensor terminal 1	EC-398
48	EVAP control system pressure sensor terminal 3	EC-355

- ECM pin terminal.

OK or NG

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

4. CHECK COMPONENTS

Check the following.

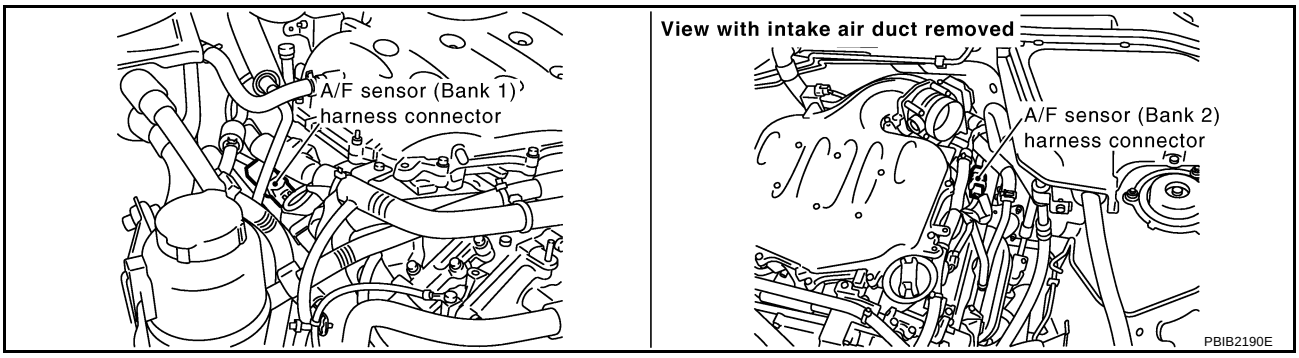
- Refrigerant pressure sensor (Refer to ATC-90, "COMPONENT INSPECTION" .)
- Power steering pressure sensor (Refer to EC-401, "Component Inspection" .)
- EVAP control system pressure sensor (Refer to EC-352, "Component Inspection" .)

OK or NG

OK >> GO TO 7.
NG >> Replace malfunctioning component.

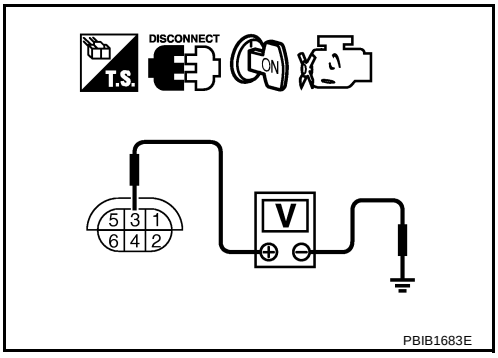
2. CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY CIRCUIT

1. Disconnect air fuel ratio (A/F) sensor 1 harness connector.



2. Turn ignition switch ON.
3. Check voltage between air fuel ratio (A/F) sensor 1 terminal 3 and ground with CONSULT-II or tester.

Voltage: Battery voltage



OK or NG

OK >> GO TO 4.
NG >> GO TO 3.

3. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors E18, F48
- Fuse block (J/B) connector E201
- 10A fuse
- Harness for open or short between air fuel ratio (A/F) sensor 1 and fuse

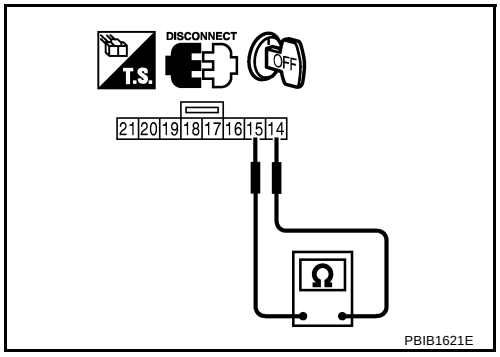
>> Repair or replace harness or connectors.

Component Inspection

ABS007Z5

ICC STEERING SWITCH

1. Disconnect combination switch (spiral cable) harness connector.
2. Check continuity between combination switch (spiral cable) terminals 14 and 15 with pushing each switch.



Switch	Condition	Resistance [Ω]
MAIN switch	Pressed	Approx. 0
	Released	Approx. 5,500
CANCEL switch	Pressed	Approx. 310
	Released	Approx. 5,500
RESUME/ACCELERATE switch	Pressed	Approx. 2,600
	Released	Approx. 5,500
SET/COAST switch	Pressed	Approx. 1,400
	Released	Approx. 5,500
DISTANCE switch	Pressed	Approx. 740
	Released	Approx. 5,500

If NG, replace ICC steering switch.

DTC Confirmation Procedure

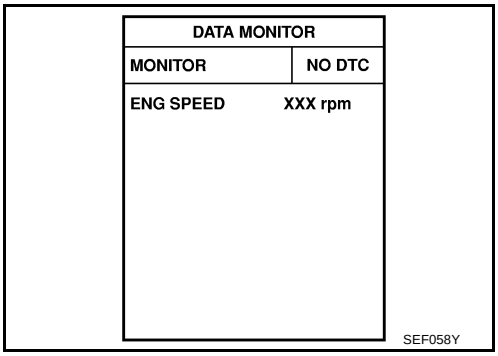
ABS006XJ

NOTE:
If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

TESTING CONDITION:
Before performing the following procedure, confirm that battery voltage is more than 10V at idle.

WITH CONSULT-II

1. Turn ignition switch ON.
2. Select “DATA MONITOR” mode with CONSULT-II.
3. Start engine and let it idle for 1 second.
4. If DTC is detected, go to EC-629, "Diagnostic Procedure" .



WITH GST

Follow the procedure “WITH CONSULT-II” above.

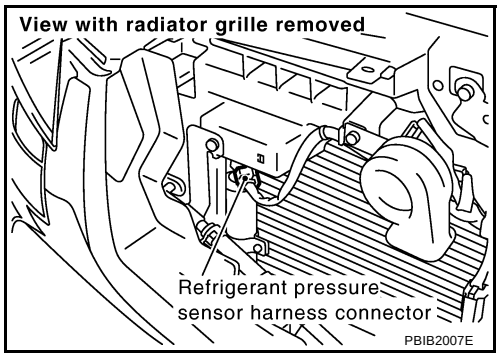
REFRIGERANT PRESSURE SENSOR

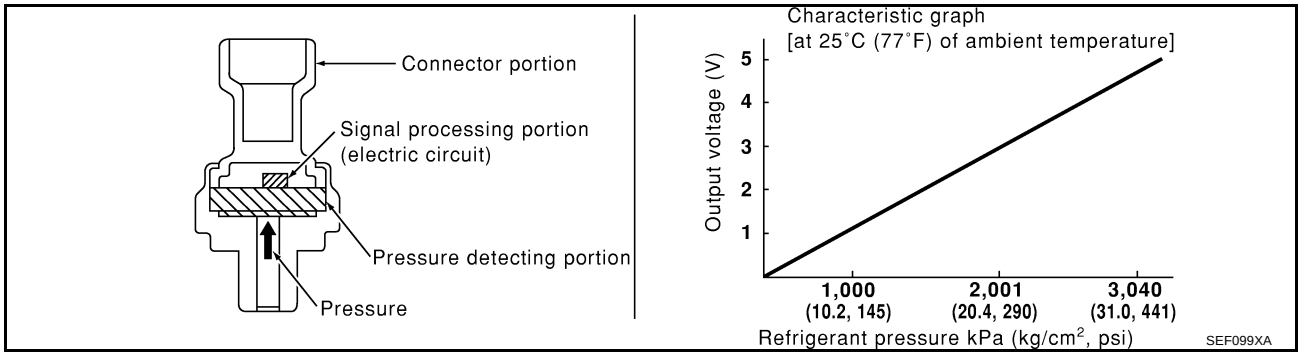
PFP:92136

Component Description

ABS006YL

The refrigerant pressure sensor is installed at the liquid tank of the air conditioner system. The sensor uses an electrostatic volume pressure transducer to convert refrigerant pressure to voltage. The voltage signal is sent to ECM, and ECM controls cooling fan system.



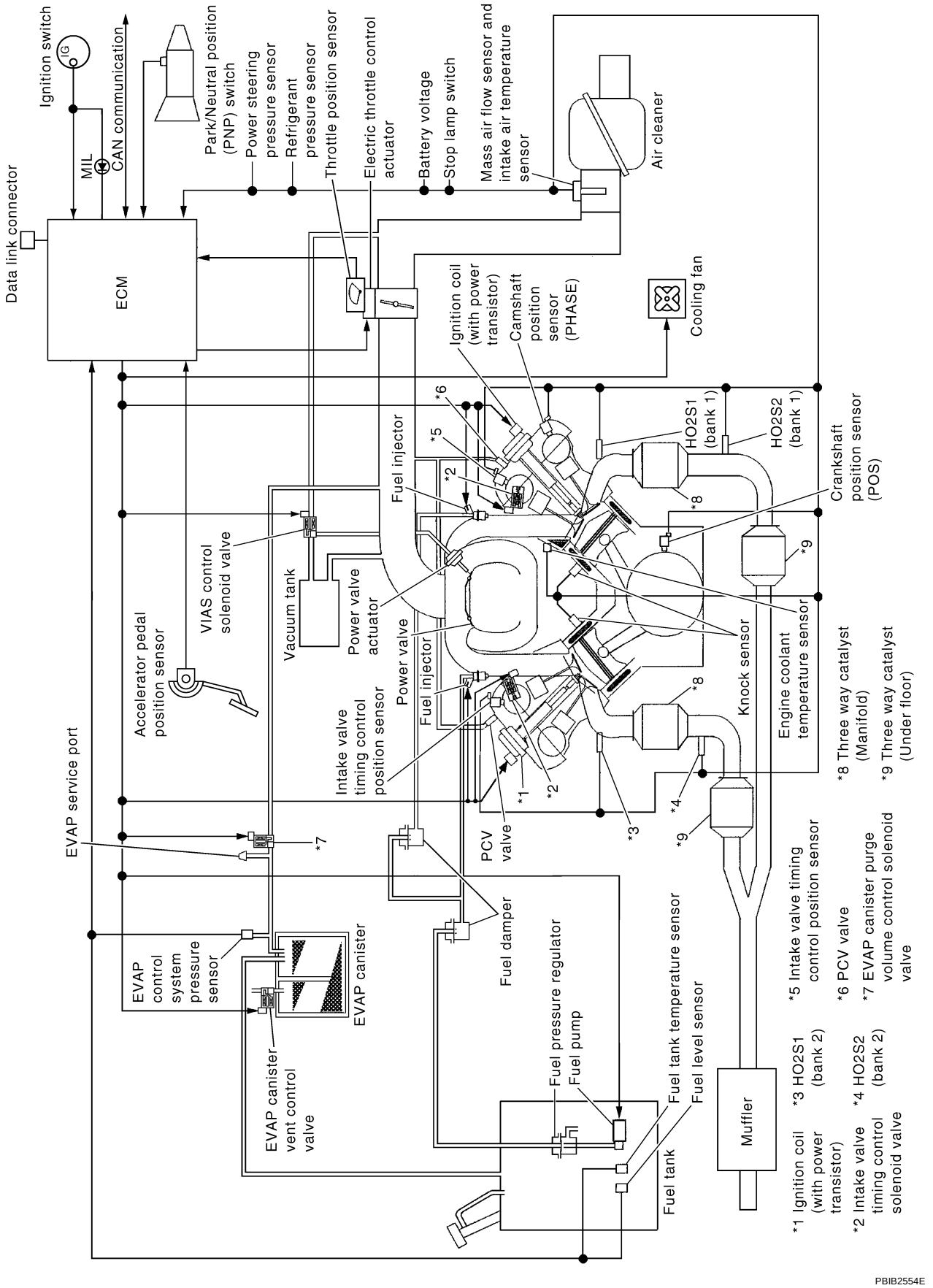


ENGINE CONTROL SYSTEM

PFP:23710

System Diagram

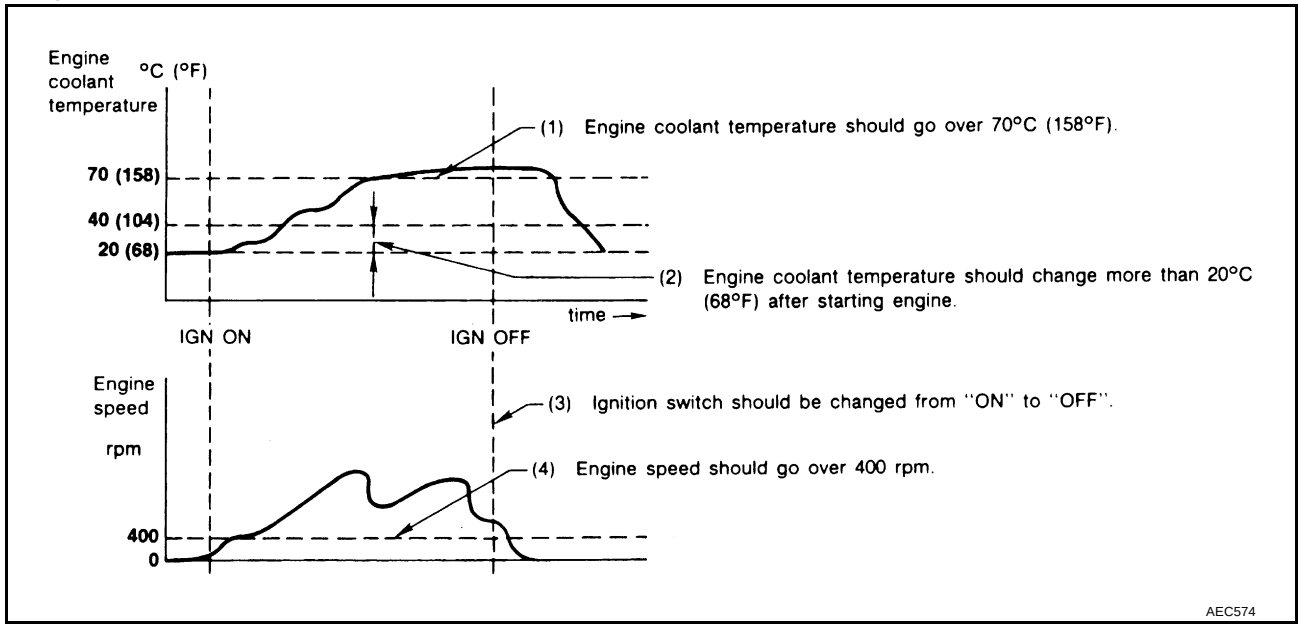
ABS00E3X



PBIB2554E

EXPLANATION FOR DRIVING PATTERNS EXCEPT FOR "MISFIRE <EXHAUST QUALITY DETERIORATION>", "FUEL INJECTION SYSTEM"

<Driving Pattern A>

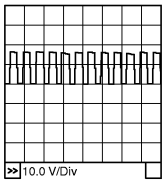
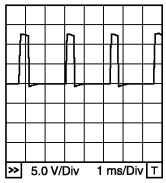
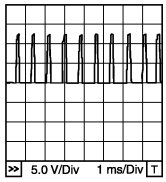
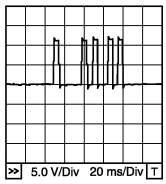
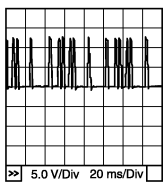


- The A counter will be cleared when the malfunction is detected regardless of (1) - (4).
- The A counter will be counted up when (1) - (4) are satisfied without the same malfunction.
- The DTC will not be displayed after the A counter reaches 40.

<Driving Pattern B>

Driving pattern B means the vehicle operation as follows:
All components and systems should be monitored at least once by the OBD system.

- The B counter will be cleared when the malfunction is detected once regardless of the driving pattern.
- The B counter will be counted up when driving pattern B is satisfied without any malfunctions.
- The MIL will go off when the B counter reaches 3 (*2 in OBD SYSTEM OPERATION CHART).

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
11	BR	Intake valve timing control solenoid valve (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	BATTERY VOLTAGE (11 - 14V)
			[Engine is running] ● **Warm-up condition** ● Engine speed: 2,000rpm	7 - 12V★  PBIB1790E
12	R/G	Power steering pressure sensor	**[Engine is running]** ● Steering wheel: Being turned	0.5 - 4.5V
			[Engine is running] ● Steering wheel: Not being turned	0.4 - 0.8V
13	Y	Crankshaft position sensor (POS)	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle	1.0 - 2.0V★  PBIB1041E
			[Engine is running] ● Engine speed: 2,000 rpm	1.0 - 2.0V★  PBIB1042E
14	W	Camshaft position sensor (PHASE)	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle	1.0 - 4.0V★  PBIB1039E
			[Engine is running] ● Engine speed: 2,000 rpm	1.0 - 4.0V★  PBIB1040E
15	W	Knock sensor (bank 1)	**[Engine is running]** ● Idle speed	Approximately 2.5V
16	R/L	Heated oxygen sensor 1 (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Engine speed: 2,000 rpm	0 - Approximately 1.0V (Periodically change)

DTC U1000, U1001 CAN COMMUNICATION LINE

PFP:23710

Description

ABS007IJ

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 detection ability. 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 transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

On Board Diagnosis Logic

ABS007IK

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
U1000*1 1000*1	CAN communication line	● ECM cannot communicate to other control units. ● ECM cannot communicate for more than the specified time.	● Harness or connectors (CAN communication line is open or shorted)
U1001*2 1001*2			

*1: **This self-diagnosis has the one trip detection logic.**
*2: **The MIL will not light up for this diagnosis.**

DTC Confirmation Procedure

ABS007IL

1. Turn ignition switch ON and wait at least 3 seconds.
2. Select “DATA MONITOR” mode with CONSULT-II.
3. If 1st trip DTC is detected, go to EC-864, "Diagnostic Procedure" .

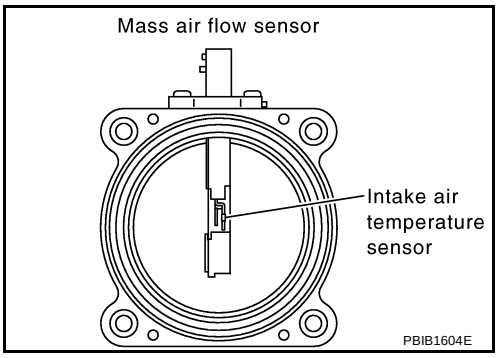
DTC P0112, P0113 IAT SENSOR

PFP:22630

Component Description

ABS007JT

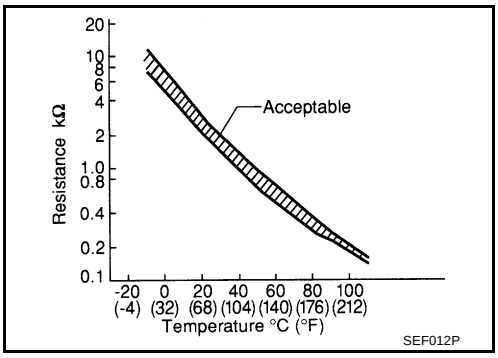
The intake air temperature sensor is built-into mass air flow sensor. The sensor detects intake air temperature and transmits a signal to the ECM.
The temperature sensing unit uses a thermistor which is sensitive to the change in temperature. Electrical resistance of the thermistor decreases in response to the temperature rise.



<Reference data>

Intake air temperature °C (°F)	Voltage* V	Resistance kΩ
25 (77)	3.32	1.94 - 2.06
80 (176)	1.23	0.295 - 0.349

*: These data are reference values and are measured between ECM terminal 34 (Intake air temperature sensor) and ground.



CAUTION:
Do not use ECM ground terminals when measuring input/output voltage. Doing so may result in damage to the ECM's transistor. Use a ground other than ECM terminals, such as the ground.

On Board Diagnosis Logic

ABS007JU

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P0112 0112	Intake air temperature sensor circuit low input	An excessively low voltage from the sensor is sent to ECM.	● Harness or connectors (The sensor circuit is open or shorted.) ● Intake air temperature sensor
P0113 0113	Intake air temperature sensor circuit high input	An excessively high voltage from the sensor is sent to ECM.	

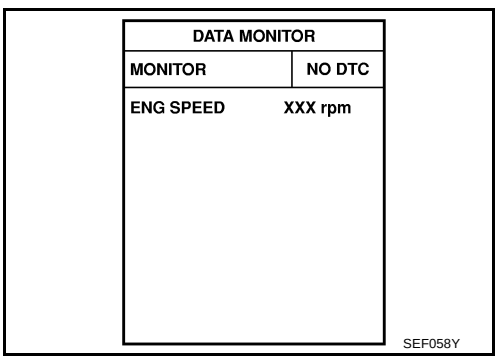
DTC Confirmation Procedure

ABS007JV

NOTE:
If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

WITH CONSULT-II

1. Turn ignition switch ON.
2. Select “DATA MONITOR” mode with CONSULT-II.
3. Wait at least 5 seconds.
4. If 1st trip DTC is detected, go to EC-912, "Diagnostic Procedure"
.



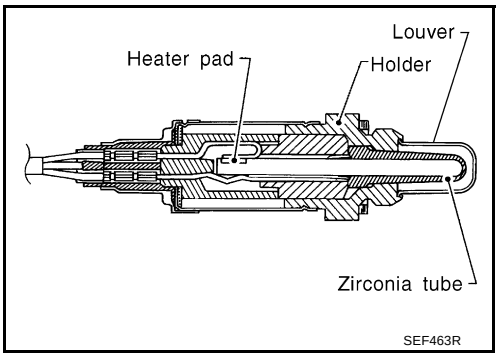
DTC P0134, P0154 HO2S1

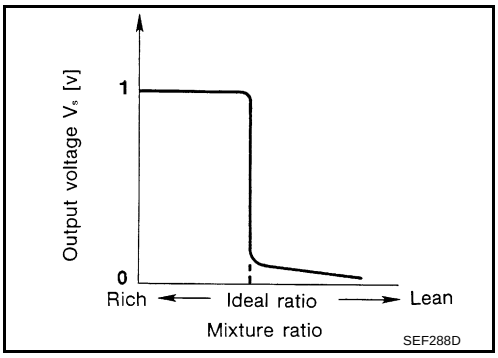
PFP:22690

Component Description

ABS007LD

The heated oxygen sensor 1 is placed into the exhaust manifold. It detects the amount of oxygen in the exhaust gas compared to the outside air. The heated oxygen sensor 1 has a closed-end tube made of ceramic zirconia. The zirconia generates voltage from approximately 1V in richer conditions to 0V in leaner conditions. The heated oxygen sensor 1 signal is sent to the ECM. The ECM adjusts the injection pulse duration to achieve the ideal air-fuel ratio. The ideal air-fuel ratio occurs near the radical change from 1 to 0V.





CONSULT-II Reference Value in Data Monitor Mode

ABS007LE

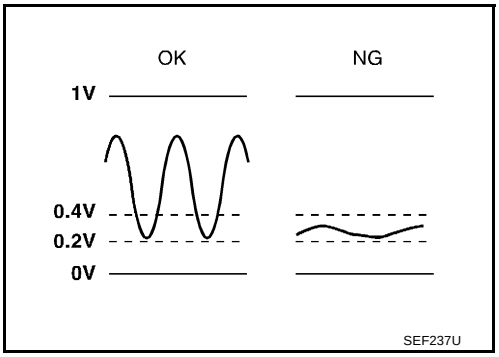
Specification data are reference values.

MONITOR ITEM	CONDITION		SPECIFICATION
HO2S1 (B1) HO2S1 (B2)	● Engine: After warming up	Maintaining engine speed at 2,000 rpm	0 - 0.3V ←→ Approx. 0.6 - 1.0V
HO2S1 MNTR (B1) HO2S1 MNTR (B2)			LEAN ←→ RICH Changes more than 5 times during 10 seconds.

On Board Diagnosis Logic

ABS007LF

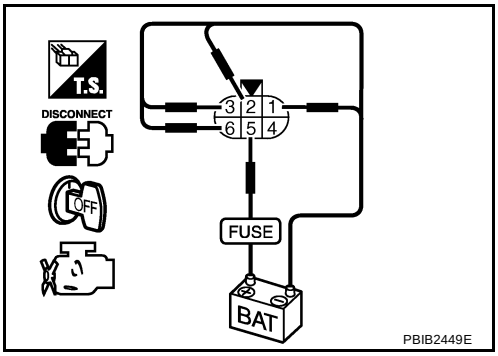
Under the condition in which the heated oxygen sensor 1 signal is not input, the ECM circuits will read a continuous approximately 0.3V. Therefore, for this diagnosis, the time that output voltage is within 200 to 400 mV range is monitored, and the diagnosis checks that this time is not inordinately long.



DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P0134 0134 (Bank 1)	Heated oxygen sensor 1 circuit no activity detected	The voltage from the sensor is constantly approx. 0.3V.	● Harness or connectors (The sensor circuit is open or shorted) ● Heated oxygen sensor 1
P0154 0154 (Bank 2)			

9. CHECK FUNCTION OF INJECTOR-II

Provide battery voltage between the following terminals, and then interrupt it. Listen to each injector operating sound.



Cylinder	Harness connector	terminal	
		(+)	(–)
1	F201	5	3
3			2
5			1
7			6
2	F221	5	3
4			2
6			1
8			6

Operating sound should exist.

OK or NG

OK >> GO TO 10.
NG >> Perform trouble diagnosis for INJECTOR CIRCUIT, refer to EC-1351 .

10. CHECK INJECTOR

1. Turn ignition switch OFF.
2. Confirm that the engine is cooled down and there are no fire hazards near the vehicle.
3. Remove injector gallery assembly. Refer to EM-192, "FUEL INJECTOR AND FUEL TUBE" .
   Keep fuel hose and all injectors connected to injector gallery.
4. Disconnect all injector harness connectors.
5. Disconnect all ignition coil harness connectors.
6. Prepare pans or saucers under each injectors.
7. Crank engine for about 3 seconds.
   Make sure fuel does not drip from injector.

OK or NG

OK (Does not drip.)>>GO TO 11.
NG (Drips.)>>Replace the injectors from which fuel is dripping. Always replace O-ring with new one.

11. CHECK INTERMITTENT INCIDENT

Refer to EC-854, "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT" .

>> **INSPECTION END**

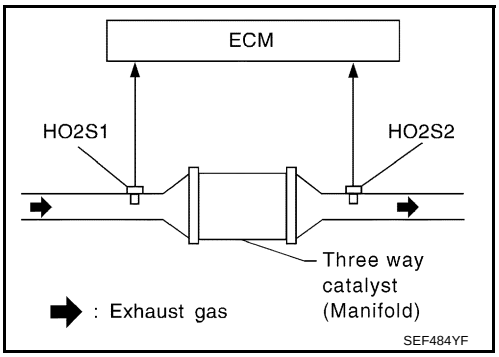
DTC P0420, P0430 THREE WAY CATALYST FUNCTION

PFP:20905

On Board Diagnosis Logic

ABS00E5B

The ECM monitors the switching frequency ratio of heated oxygen sensors 1 and 2.
A three way catalyst (Manifold) with high oxygen storage capacity will indicate a low switching frequency of heated oxygen sensor 2. As oxygen storage capacity decreases, the heated oxygen sensor 2 switching frequency will increase.
When the frequency ratio of heated oxygen sensors 1 and 2 approaches a specified limit value, the three way catalyst (Manifold) malfunction is diagnosed.



DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P0420 0420 (Bank 1)	Catalyst system efficiency below threshold	● Three way catalyst (Manifold) does not operate properly. ● Three way catalyst (Manifold) does not have enough oxygen storage capacity.	● Three way catalyst (Manifold) ● Exhaust tube ● Intake air leaks ● Fuel injector ● Fuel injector leaks ● Spark plug ● Improper ignition timing
P0430 0430 (Bank 2)			

DTC Confirmation Procedure

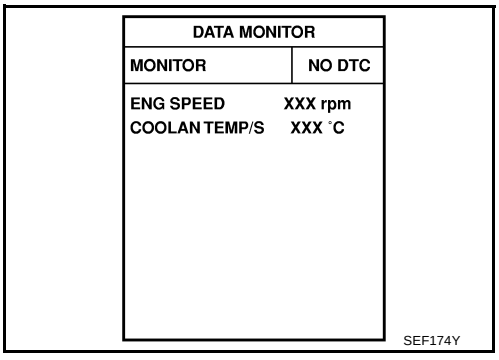
ABS00E5C

NOTE:
If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

WITH CONSULT-II

TESTING CONDITION:
Do not hold engine speed for more than the specified minutes below.

1. Turn ignition switch ON and select “DATA MONITOR” mode with CONSULT-II.
2. Start engine and warm it up to the normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
5. Let engine idle for 1 minute.
6. Make sure that “COOLAN TEMP/S” indicates more than 70°C (158°F).
   If not, warm up engine and go to next step when “COOLAN TEMP/S” indication reaches to 70°C (158°F).
7. Open engine hood.



5. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check harness continuity between EVAP control system pressure sensor terminal 1 and ECM terminal 67.
   Refer to Wiring Diagram.

   Continuity should exist.

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

OK or NG

OK >> GO TO 7.
NG >> GO TO 6.

6. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors B201, M81
- Harness connectors M82, F102
- Harness for open or short between EVAP control system pressure sensor and ECM

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

7. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Check harness continuity between ECM terminal 32 and EVAP control system pressure sensor terminal 2.
   Refer to Wiring Diagram.

   Continuity should exist.

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

OK or NG

OK >> GO TO 9.
NG >> GO TO 8.

8. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors B201, M81
- Harness connectors M82, F102
- Harness for open or short between EVAP control system pressure sensor and ECM

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

9. CHECK RUBBER TUBE

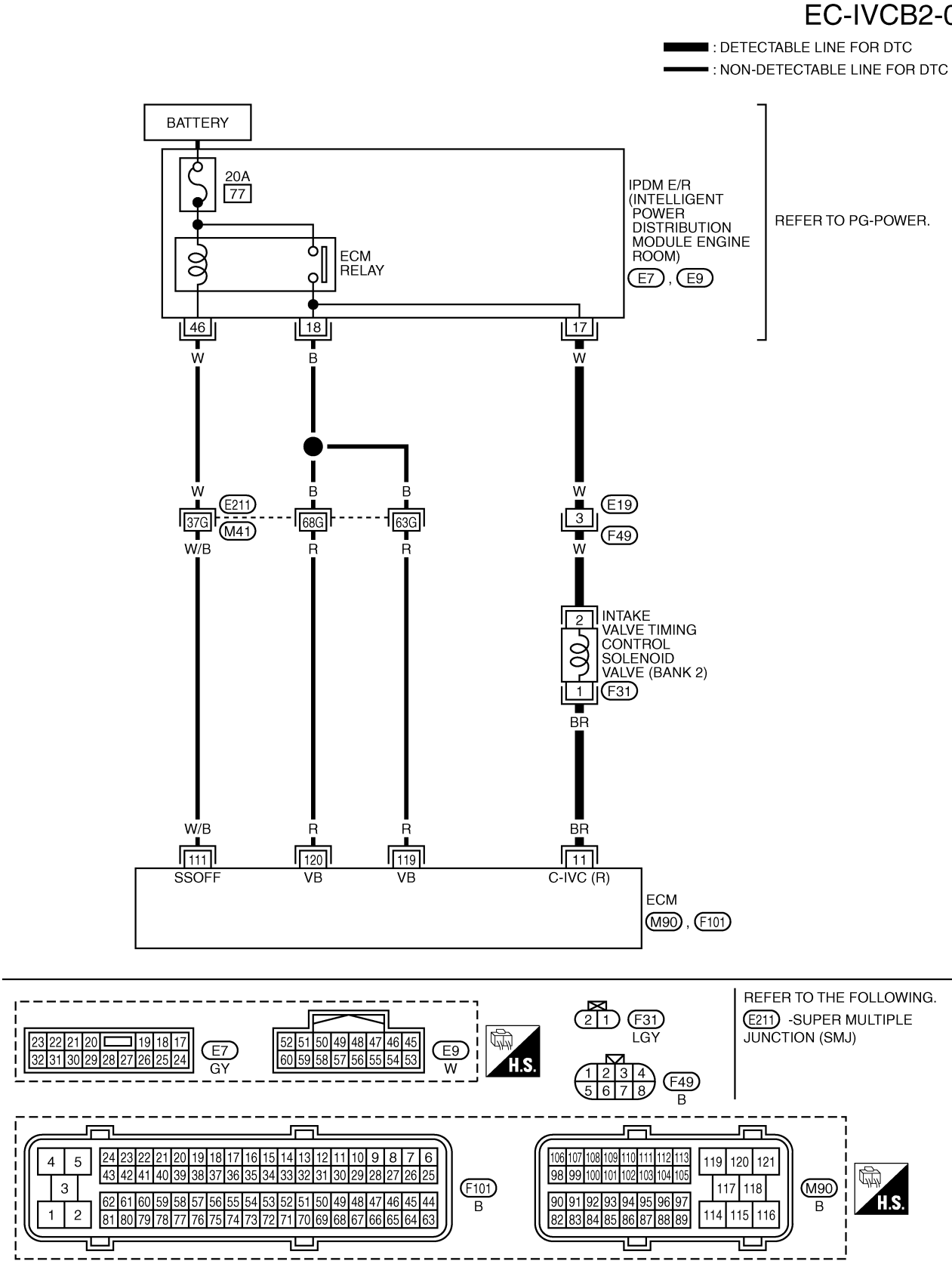
1. Disconnect rubber tube connected to EVAP canister vent control valve.
2. Check the rubber tube for clogging.

OK or NG

OK >> GO TO 10.
NG >> Clean the rubber tube using an air blower, repair or replace rubber tube.

BANK 2

EC-IVCB2-01



TBWM0220E

Specification data are reference values and are measured between each terminal and ground.

CAUTION:

Do not use ECM ground terminals when measuring input/output voltage. Doing so may result in damage to the ECM's transistor. Use a ground other than ECM terminals, such as the ground.

TERMINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
55	W/R	Heated oxygen sensor 2 (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Revving engine from idle to 3,000 rpm quickly after the following conditions are met – After keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load	0 - Approximately 1.0V
78	B/R	Sensor ground (Heated oxygen sensor)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 0V

4. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR CONNECTOR

1. Disconnect EVAP control system pressure sensor harness connector.
2. Check connectors for water.

Water should not exist.

OK or NG

OK >> GO TO 5.
NG >> Replace EVAP control system pressure sensor.

5. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Refer to EC-1091, "Component Inspection" .

OK or NG

OK (With CONSULT-II)>>GO TO 6.
OK (Without CONSULT-II)>>GO TO 7.
NG >> Replace EVAP control system pressure sensor.

6. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

With CONSULT-II

1. Turn ignition switch OFF.
2. Reconnect harness connectors disconnected.
3. Start engine.
4. Perform “PURG VOL CONT/V” in “ACTIVE TEST” mode with CONSULT-II. Check that engine speed varies according to the valve opening.

ACTIVE TEST	
PURG VOL CONT/V	0 %
MONITOR	
ENG SPEED	XXX rpm
HO2S1 MNTR (B1)	LEAN
HO2S1 MNTR (B2)	LEAN
A/F ALPHA-B1	XXX %
A/F ALPHA-B2	XXX %

PBIB0147E

OK or NG

OK >> GO TO 8.
NG >> GO TO 7.

7. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

Refer to EC-1240, "Component Inspection" .

OK or NG

OK >> GO TO 8.
NG >> Replace EVAP canister purge volume control solenoid valve.

8. CHECK RUBBER TUBE FOR CLOGGING

1. Disconnect rubber tube connected to EVAP canister vent control valve.
2. Check the rubber tube for clogging.

OK or NG

OK >> GO TO 9.
NG >> Clean the rubber tube using an air blower.

9. CHECK EVAP CANISTER VENT CONTROL VALVE

Refer to EC-1081, "Component Inspection" .

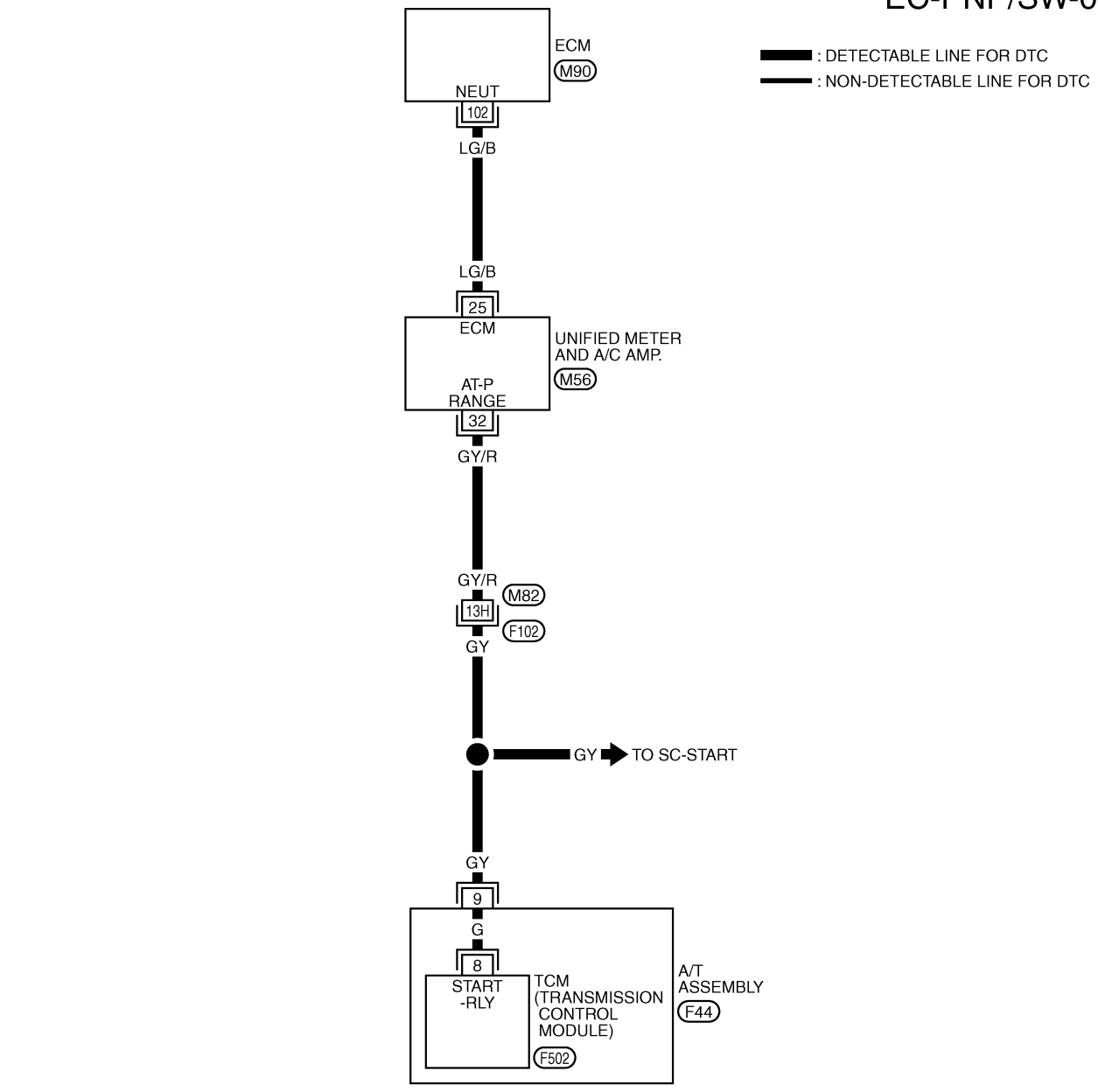
OK or NG

OK >> GO TO 10.
NG >> Replace EVAP canister vent control valve.

Wiring Diagram

ABS00DC9

EC-PNP/SW-01



*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

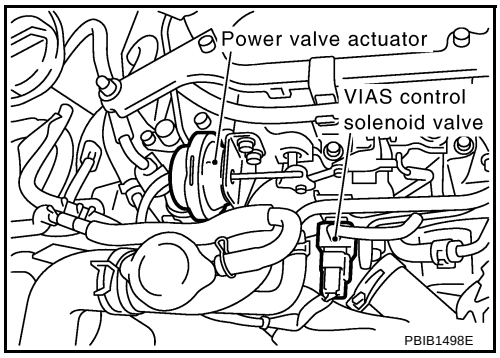
REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)

TBWM0521E

COMPONENT DESCRIPTION

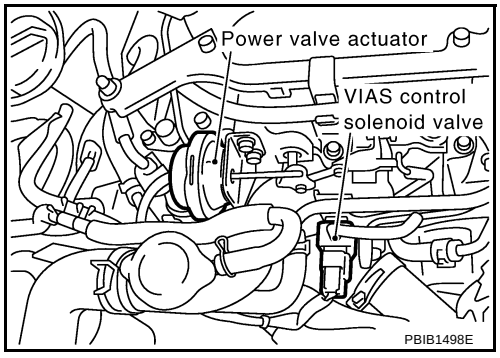
Power Valve

The power valve is installed in intake manifold collector and used to control the suction passage of the variable induction air control system. It is set in the fully closed or fully opened position by the power valve actuator operated by the vacuum stored in the surge tank. The vacuum in the surge tank is controlled by the VIAS control solenoid valve.



VIAS Control Solenoid Valve

The VIAS control solenoid valve cuts the intake manifold vacuum signal for power valve control. It responds to ON/OFF signals from the ECM. When the solenoid is off, the vacuum signal from the intake manifold is cut. When the ECM sends an ON signal the coil pulls the plunger downward and feeds the vacuum signal to the power valve actuator.



CONSULT-II Reference Value in Data Monitor Mode

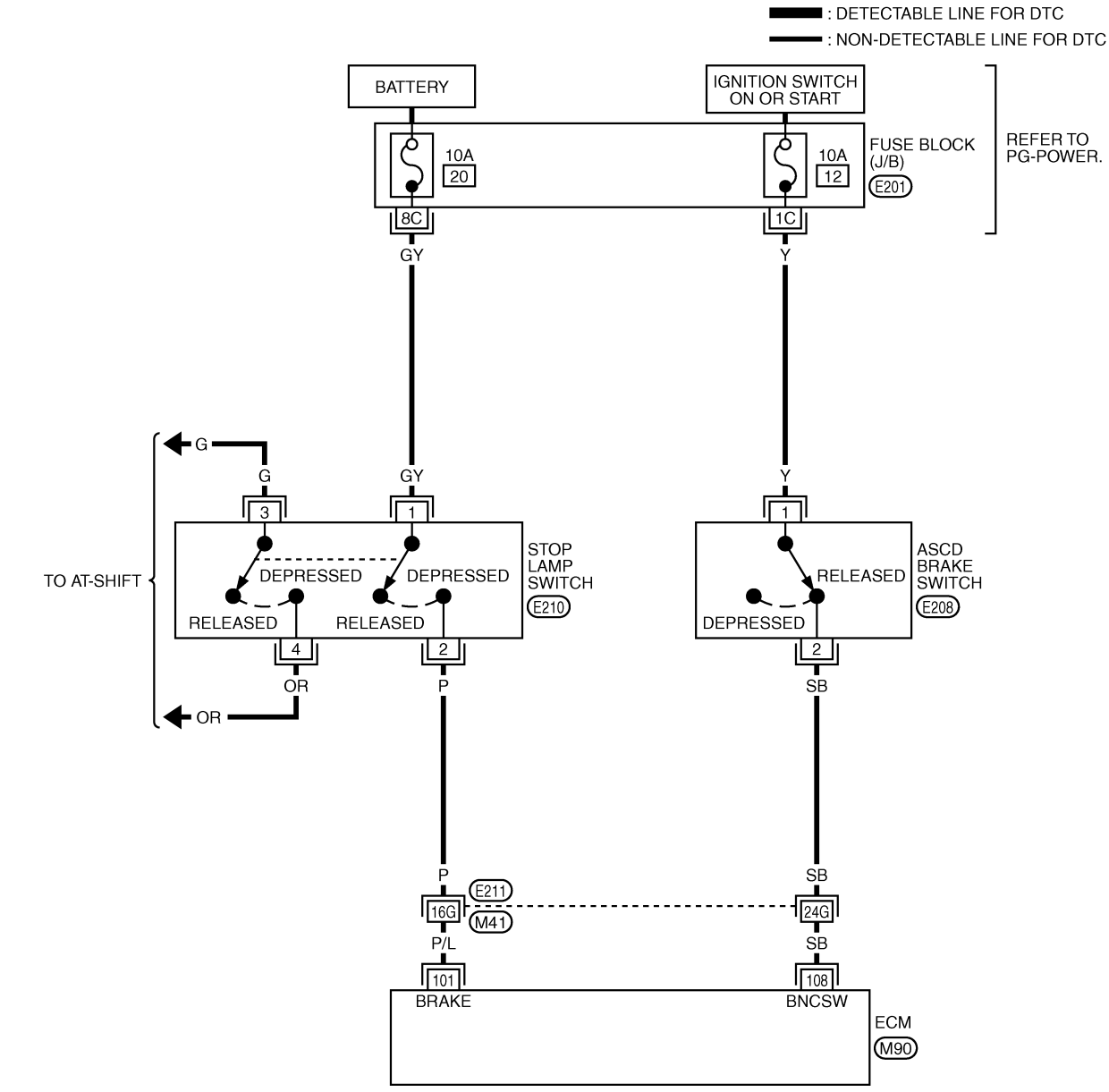
ABS007WL

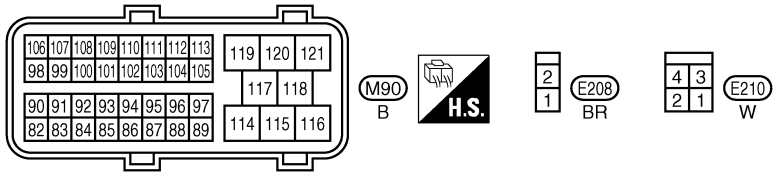
MONITOR ITEM	CONDITION		SPECIFICATION
VIAS S/V	● Engine speed: Idle	Selector lever: P or N and/or Engine speed: More than 5,000 rpm	ON
		Except above	OFF

Wiring Diagram

ABS007XL

EC-ASCBOF-01





REFER TO THE FOLLOWING.

E211 -SUPER MULTIPLE JUNCTION (SMJ)

E201 -FUSE BLOCK-JUNCTION BOX (J/B)

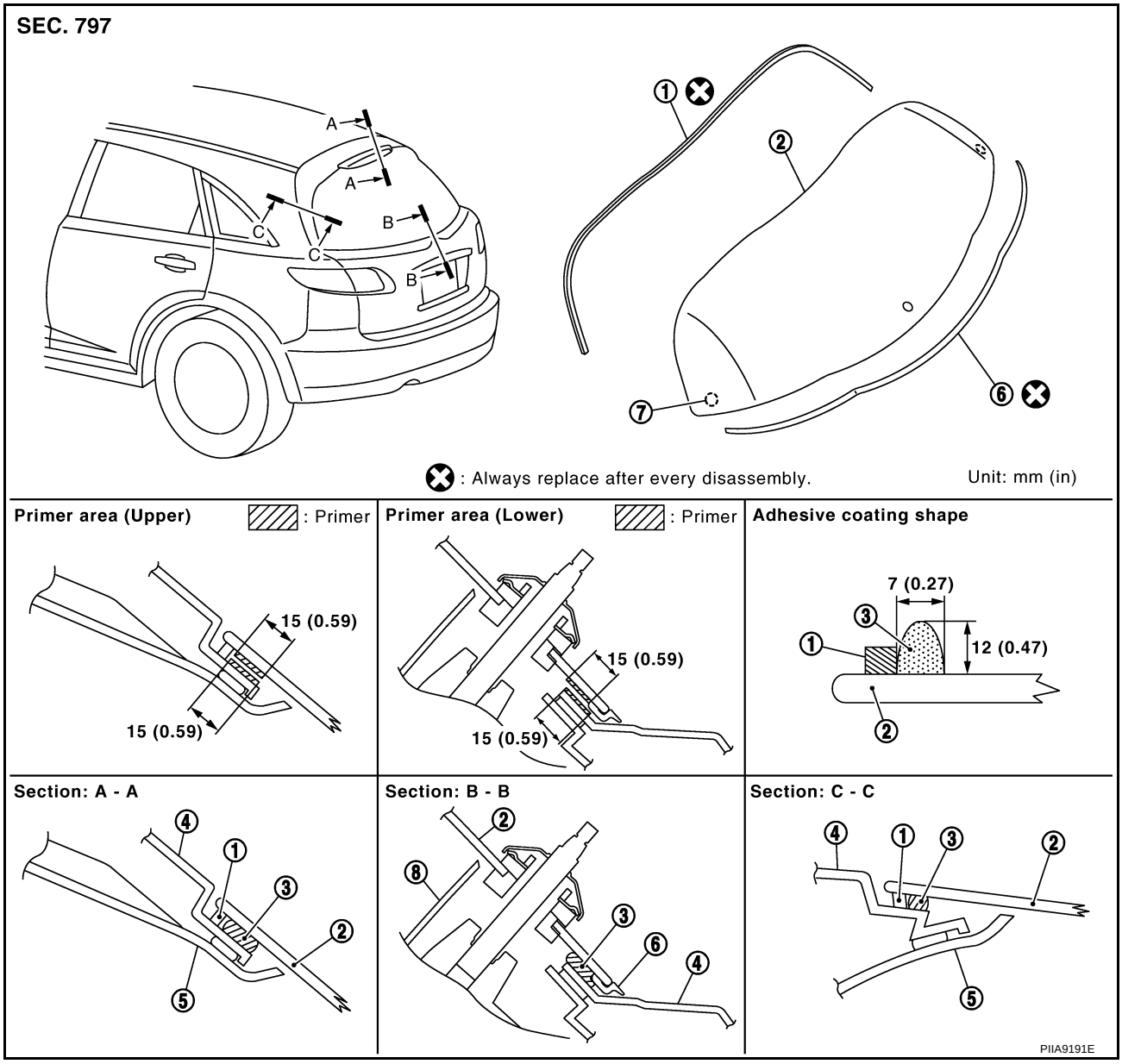
TBWM0426E

BACK DOOR WINDOW MOLDING

PFP:90352

Removal and Installation

AIS003C0



1. Dam rubber
2. Back door window glass
3. Bond
4. Back door outer panel
5. Back door inner panel
6. Back door window molding
7. Clip
8. Back door panel

REMOVAL

Remove back door window molding. Refer to GW-13, "REMOVAL" .

NOTE:

Apply a strip of protective tape along the contour of back door window glass (molding) to prevent paint surface from being damaged.

INSTALLATION

Install back door window molding. Refer to GW-14, "INSTALLATION" .

NOTE:

- Clean adhesive portion of back door window glass and around circumference with white gasoline.
- Apply dam rubber to upper and side surfaces of glass.
- Attach back door window molding to side face of glass.

- **Do not spill engine oil on drive belts.**

6. Drain engine coolant. Refer to CO-11, "Changing Engine Coolant" .

CAUTION:
- **Perform this step when the engine is cold.**
- **Do not spill engine coolant on drive belts.**

7. Remove engine cover with power tool. Refer to EM-19, "INTAKE MANIFOLD COLLECTOR" .
8. Remove air hose from air duct to mass air flow sensor side and electric throttle control actuator side. Refer to EM-17, "AIR CLEANER AND AIR DUCT" .
9. Removal engine rear lower slinger, and install engine rear slinger [SST: 10006 31U00 (—)] to sling engine assembly for positioning. Refer to EM-8, "Special Service Tools" .

Slinger bolts:

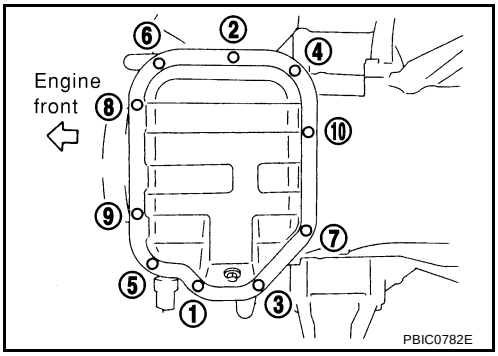
: 28.0 N·m (2.9 kg-m, 21 ft-lb)

10. Remove front suspension member. Refer to FSU-17, "FRONT SUSPENSION MEMBER" .
11. Remove drive belts. Refer to EM-15, "DRIVE BELTS" .
12. Remove alternator stay. Refer to SC-23, "CHARGING SYSTEM" .
13. Remove starter motor. Refer to SC-10, "STARTING SYSTEM" .
14. Remove idler pulley and bracket assembly. Refer to EM-64, "TIMING CHAIN" .
15. Disconnect oil cooler water hoses, and remove oil cooler water pipe mounting bolt. Refer to LU-14, "OIL COOLER" .
16. Disconnect A/T fluid cooler hoses, and remove A/T fluid cooler tube. Refer to AT-270, "TRANSMISSION ASSEMBLY" .
17. Remove crankshaft position sensor (POS).

CAUTION:
- **Handle carefully to avoid dropping and shocks.**
- **Do not disassemble.**
- **Do not allow metal powder to adhere to magnetic part at sensor tip.**
- **Do not place sensors in a location where they are exposed to magnetism.**

18. Remove oil filter, as necessary. Refer to LU-10, "OIL FILTER" .
19. Remove oil cooler, as necessary. Refer to LU-14, "OIL COOLER" .
20. Remove oil pan (lower) as follows:

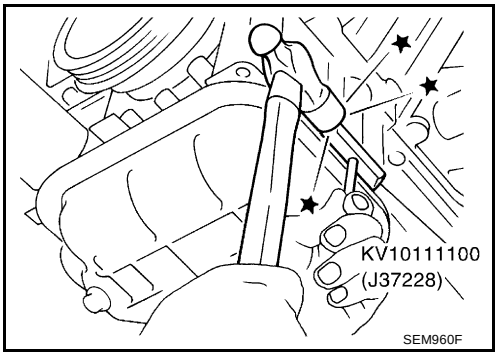
a. Loosen mounting bolts in reverse order as shown in the figure to remove.



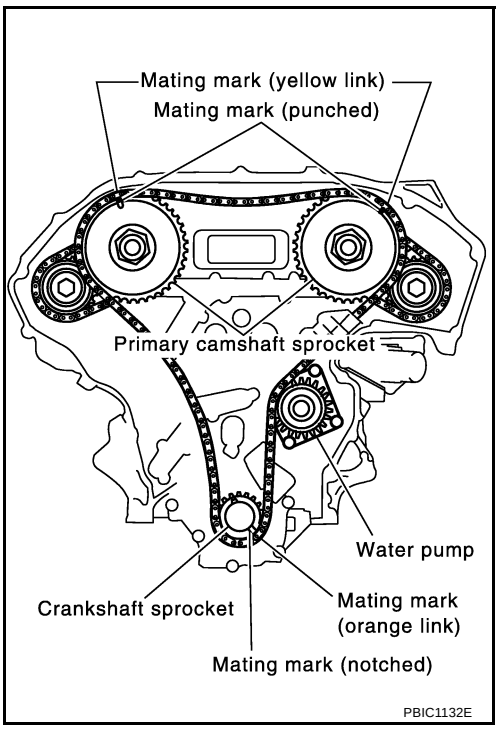
b. Insert the seal cutter [SST] between oil pan (upper) and oil pan (lower).

CAUTION:
- **Be careful not to damage the mating surfaces.**
- **Do not insert a screwdriver, this will damage the mating surfaces.**

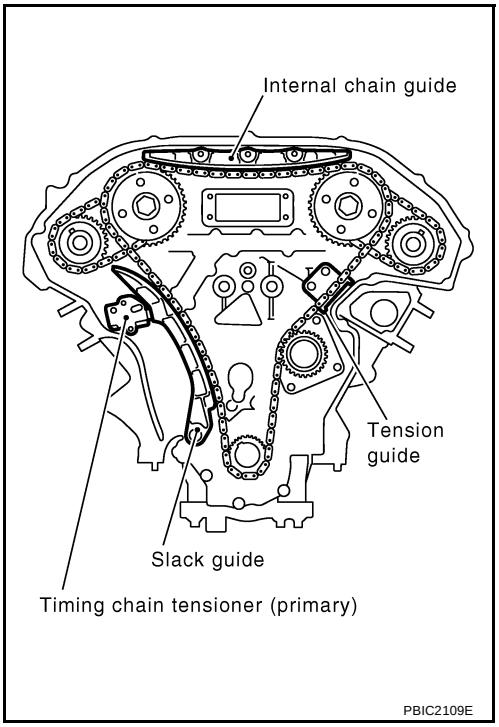
c. Slide the seal cutter by tapping on the side of tool with a hammer. Remove oil pan (lower).



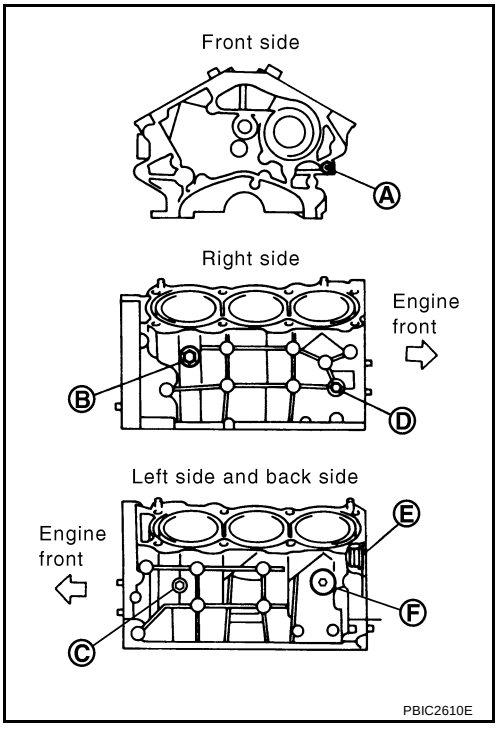
- Install timing chain (primary) so the mating mark (punched) on camshaft sprocket is aligned with the yellow link on timing chain, while the mating mark (notched) on crankshaft sprocket is aligned with the orange one on timing chain, as shown in the figure.
- When it is difficult to align mating marks of timing chain (primary) with each sprocket, gradually turn camshaft using wrench on the hexagonal portion to align it with the mating marks.
- During alignment, be careful to prevent dislocation of mating mark alignments of timing chains (secondary).



8. Install internal chain guide, slack guide and timing chain tensioner (primary).

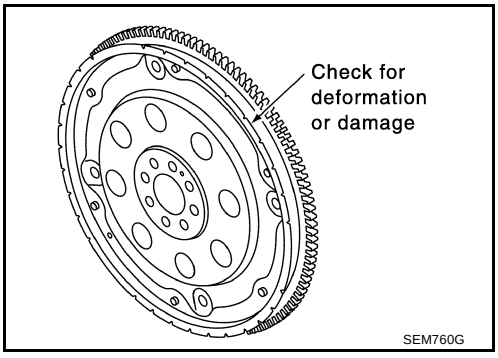


6. Drain engine coolant by removing water drain plugs from cylinder block both sides at “B” and “C” and cylinder block front side at “A” as shown in the figure.



7. Remove drive plate with power tool. Fix crankshaft with a ring gear stopper [SST: KV1011770 (J44716)], and remove mounting bolts.
   - Loosen mounting bolts in diagonal order.

   CAUTION:
   - **Do not disassemble drive plate.**
   - **Never place drive plate with signal plate facing down.**
   - **When handling signal plate, take care not to damage or scratch it.**
   - **Handle signal plate in a manner that prevents it from becoming magnetized.**



8. Remove the following parts:
   - Intake manifold collector; Refer to EM-19, "INTAKE MANIFOLD COLLECTOR" .
   - Intake manifold; Refer to EM-24, "INTAKE MANIFOLD" .
   - Oil pans (lower and upper); Refer to EM-30, "OIL PAN AND OIL STRAINER" .
   - Front and rear timing chain case; Refer to EM-64, "TIMING CHAIN" .
   - Cylinder head; Refer to EM-100, "CYLINDER HEAD" .
9. Remove knock sensor.

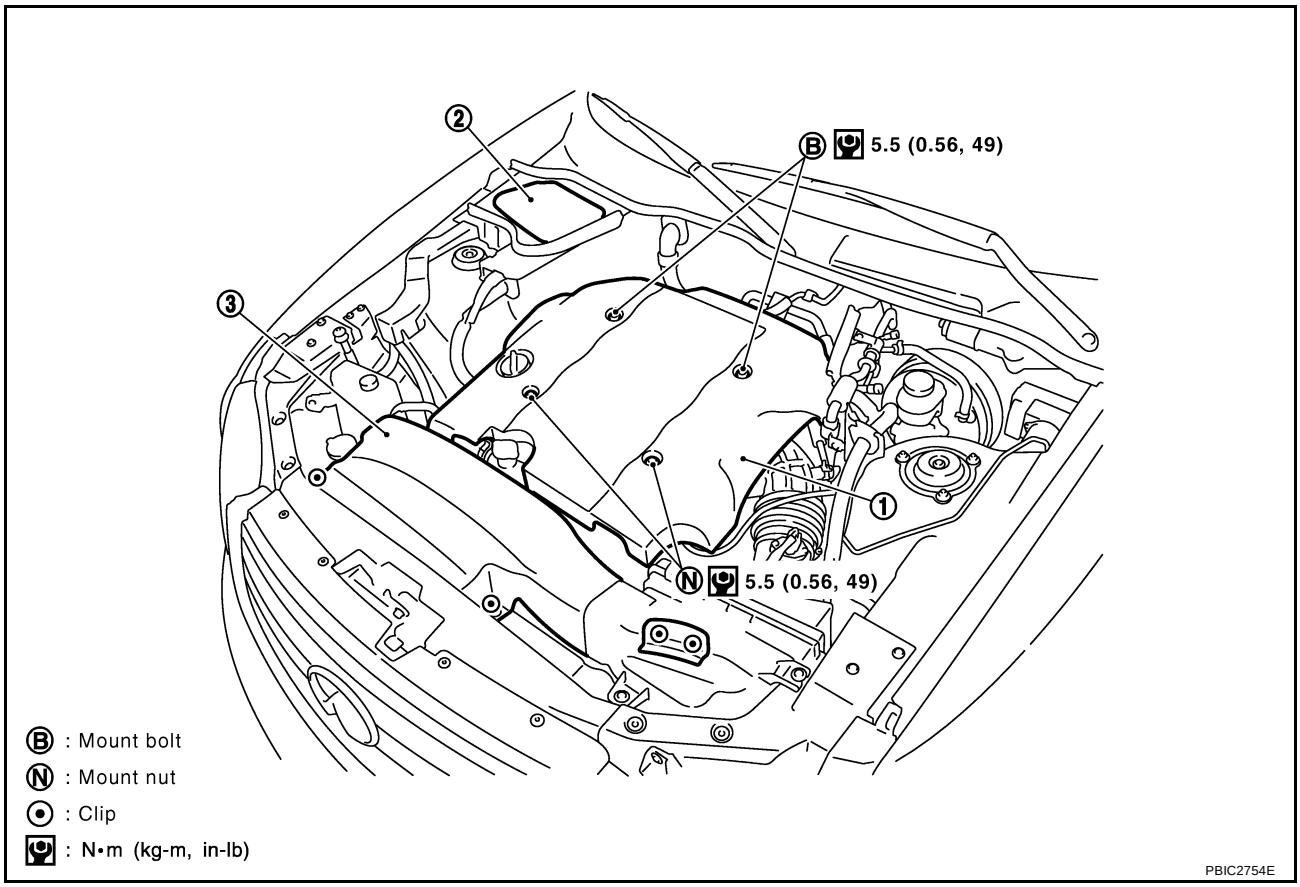
   CAUTION:
   Carefully handle sensor avoiding shocks.

ENGINE ROOM COVER

PFP:14049

Components

ABS00DFK



1. Engine cover
2. Battery cover
3. Air duct (inlet)

Removal and Installation

ABS006I6

REMOVAL

CAUTION:

Do not damage or scratch cover when installing or removing.

- Major parts and inspection points under each cover are as follows; (numbered as in the figure)

1 : Upper side of engine assembly and power steering reservoir tank

2 : Relay and battery

3 : Engine assembly front side, drive belts and cooling fan

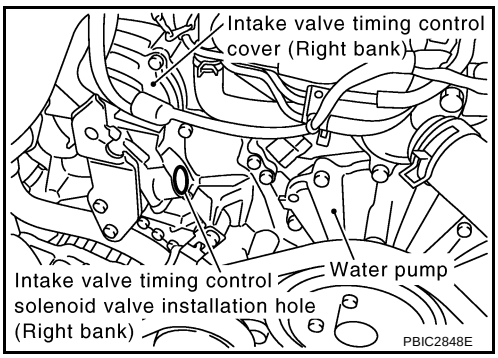
INSTALLATION

Install in the reverse order of removal.

4. Crank the engine, and then make sure that engine oil comes out from intake valve timing control cover oil hole. End crank after checking.

WARNING:
Be careful not to touch rotating parts (drive belt, idler pulley, and crankshaft pulley, etc.).

CAUTION:
Engine oil may squirt from intake valve timing control solenoid valve installation hole during cranking. Use a shop cloth to prevent the engine components and the vehicle. Do not allow engine oil to get on rubber components such as drive belt or engine mount insulators. Immediately wipe off any splashed engine oil.



- Clean oil groove between oil strainer and intake valve timing control solenoid valve if engine oil does not come out from intake valve timing control cover oil hole. Refer to LU-23, "LUBRICATION SYSTEM" .

5. Remove components between intake valve timing control solenoid valve and camshaft sprocket (INT), and then check each oil groove for clogging.
   - Clean oil groove if necessary. Refer to LU-23, "LUBRICATION SYSTEM" .
6. After inspection, install removed parts.

Valve Clearance

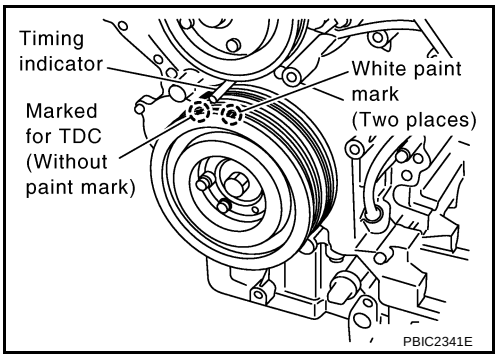
ABS006IL

INSPECTION

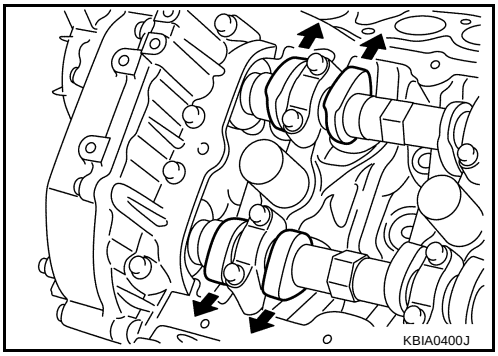
In cases of removing/installing or replacing camshaft and valve-related parts, or of unusual engine conditions due to changes in valve clearance (found malfunctions during starting, idling or causing noise), perform inspection as follows:

1. Remove rocker covers (right and left bank). Refer to EM-197, "ROCKER COVER" .
2. Measure the valve clearance as follows:

a. Set No. 1 cylinder at TDC of its compression stroke.
   - Rotate crankshaft pulley in clockwise to align TDC identification notch (without paint mark) with timing indicator on front cover.



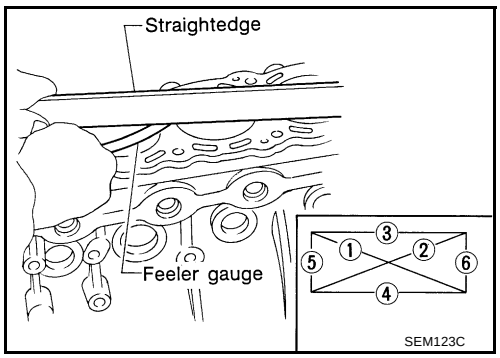
   - Make sure that both intake and exhaust cam noses of No. 1 cylinder (engine front side of left bank) are located as shown in the figure.
   - If not, turn crankshaft one revolution (360 degrees) and align as shown in the figure.



- Measure the distortion on the cylinder block upper face at some different points in six directions with straightedge and feeler gauge.

  Limit : 0.1 mm (0.004 in)

- If it exceeds the limit, replace cylinder block.



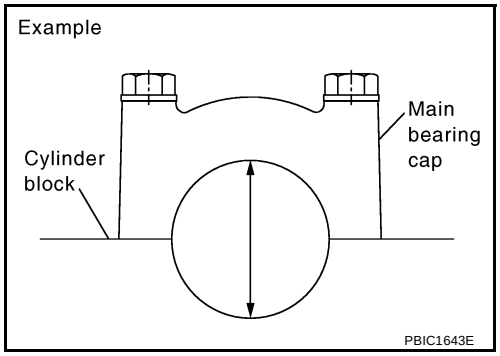
MAIN BEARING HOUSING INNER DIAMETER

- Install main bearing caps and main bearing without installing main bearings, and tighten main bearing cap bolts to the specified torque. Refer to EM-249, "ASSEMBLY" for the tightening procedure.
- Measure the inner diameter of main bearing housing with bore gauge.

  Standard : 68.944 - 68.968 mm (2.7143 - 2.7153 in)

- If out of the standard, replace cylinder block and main bearing caps as assembly.

  NOTE:
  Cylinder block cannot be replaced as a single part, because it is machined together with main bearing caps.

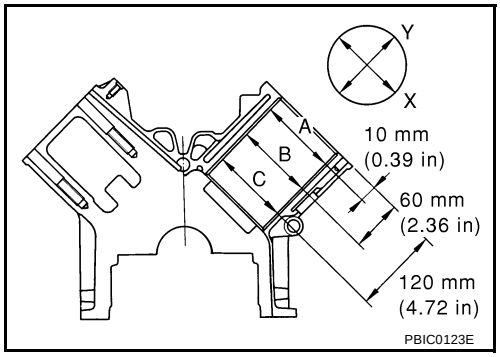


PISTON TO CYLINDER BORE CLEARANCE

Cylinder Bore Inner Diameter

- Using bore gauge, measure cylinder bore for wear, out-of-round and taper at six different points on each cylinder. (“X” and “Y” directions at “A”, “B” and “C”) (“Y” is in longitudinal direction of engine)

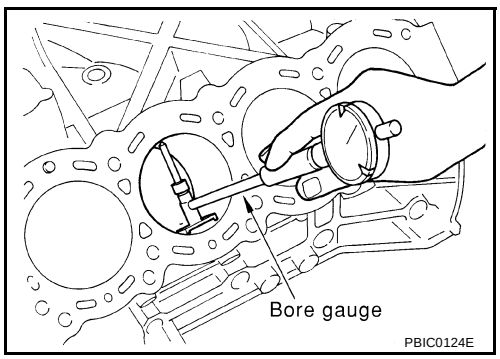
  Standard inner diameter:
  93.000 - 93.030 mm (3.6614 - 3.6626 in)
  Wear limit:
  0.2 mm (0.008 in)
  Out-of-round (Difference between “X” and “Y”):
  0.015 mm (0.0006 in)
  Taper limit (Difference between “A” and “C”):
  0.01 mm (0.0004 in)



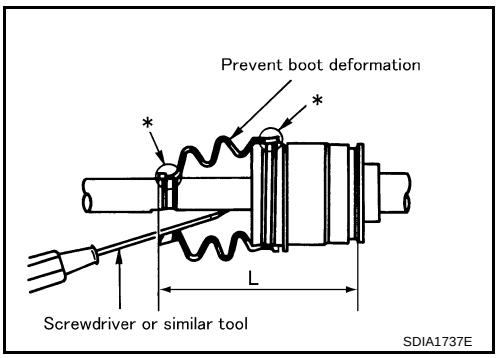
- If the measured value exceeds the limit, or if there are scratches and/or seizure on the cylinder inner wall, hone or re-bore the inner wall.
- Oversize piston is provided. When using oversize piston, re-bore cylinder so that the clearance of the piston-to-cylinder bore satisfies the standard.

  CAUTION:
  When using oversize piston, use oversize pistons for all cylinders with oversize piston rings.

  Oversize (OS) : 0.2 mm (0.008 in)



7. Install boot securely into grooves (indicated by * marks) shown in the figure.



CAUTION:

If there is grease on boot mounting surfaces (indicated by* marks) of shaft and housing, boot may come off. Remove all grease from surfaces.

8. Make sure boot installation length “L” is the length indicated below. Insert a flat-bladed screwdriver or similar tool into smaller side of boot. Bleed air from boot to prevent boot deformation.

Boot installation Length “L ”:

157.8 – 159.8 mm (6.21 – 6.29 in)

CAUTION:

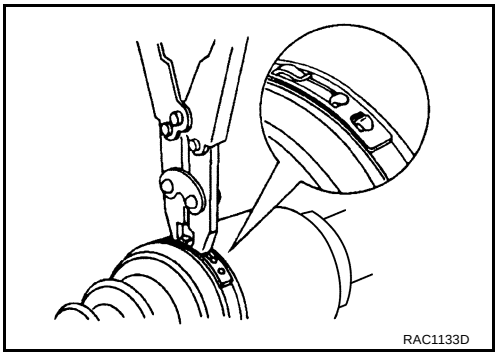
- **Boot may break if boot installation length is less than standard value.**
- **Take care not to touch the tip of screwdriver to inside surface of boot.**

9. Install new larger and smaller boot bands securely.

a. For one-touch clamp band:

NOTE:

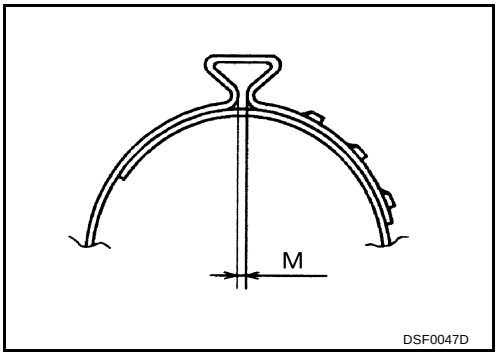
- Discard old boot bands; replace with new ones with a suitable tool.



- Secure boot band so that dimension “M” shown bellow right satisfies the following:

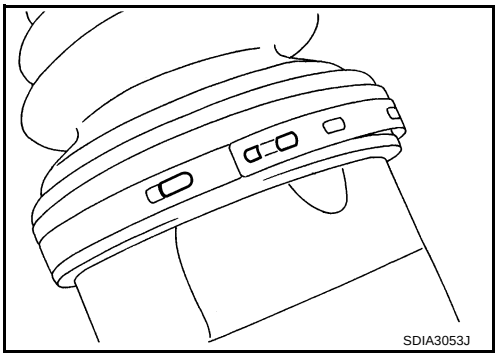
Large diameter side : 3.0 mm (0.118 in)

Small diameter side : 2.0 mm (0.079 in)



b. For low profile type band:

i. Set boot band in the specified grooves. Fit band's pawl to the grooves and tack them.

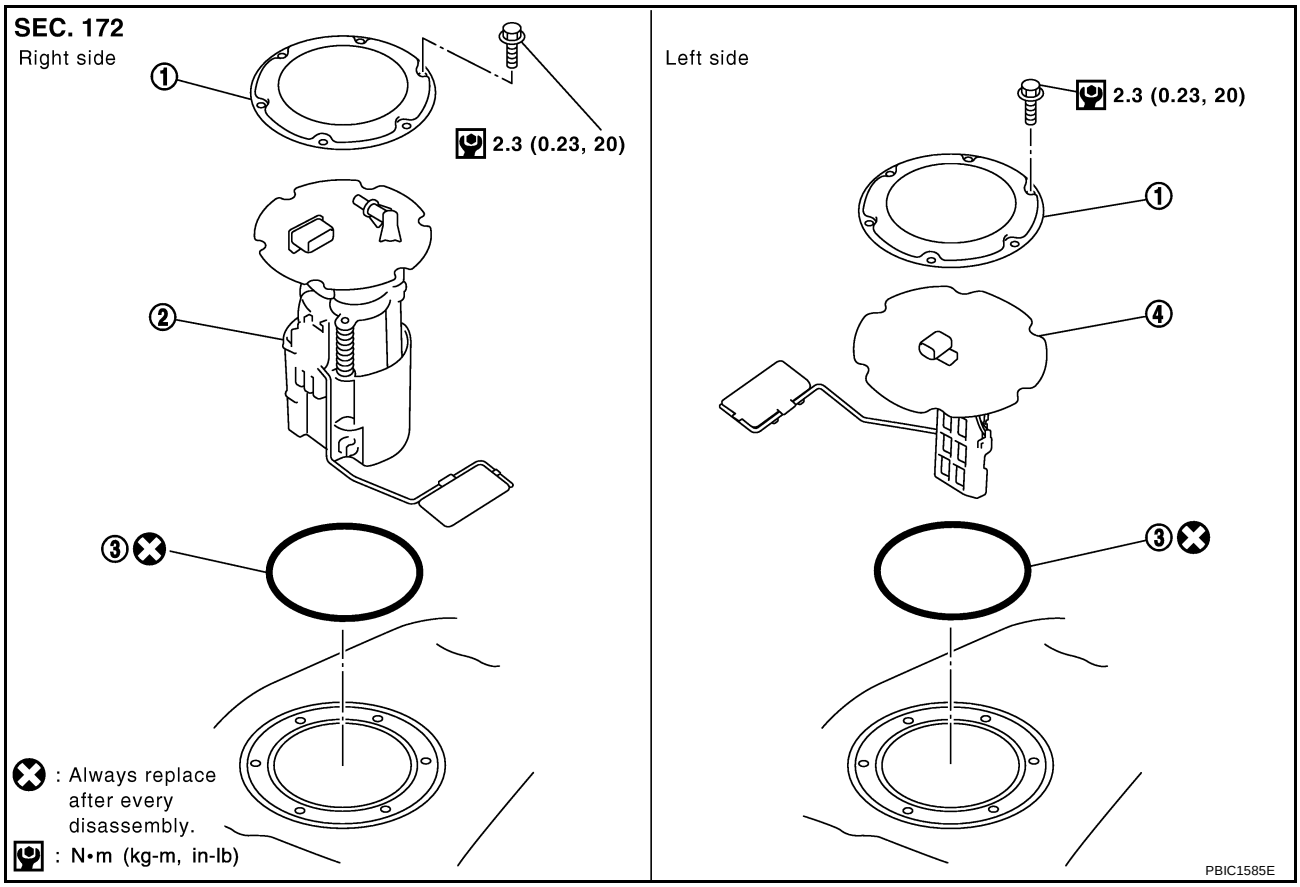


FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

PFP:17042

Removal and Installation

ABS005YZ



1. Retainer
2. Main fuel level sensor unit, fuel filter and fuel pump assembly
3. O-ring
4. Sub fuel level sensor unit

REMOVAL

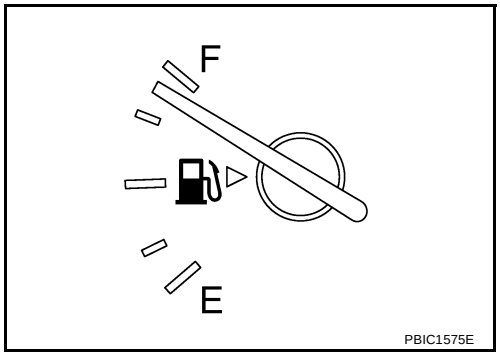
WARNING:

Read “General Precautions” when working on the fuel system. Refer to FL-3, "General Precautions" .

1. Check fuel level on fuel gauge. If fuel gauge indicates more than the level as shown in the figure (full or almost full), drain fuel from fuel tank until fuel gauge indicates level as shown in the figure or below.

   NOTE:
   Because fuel will be spilled when removing main and sub fuel level sensor units for the top of the fuel is above the main and sub fuel level sensor units installation surface.

   - As a guide, fuel level becomes the position as shown in the figure or below when approximately 20 ℓ (5-1/4 US gal, 4-3/8 Imp gal) of fuel are drained from fuel tank.
   - In a case that fuel pump does not operate, perform the following procedure.



a. Insert hose of less than 25 mm (0.98 in) in diameter into fuel filler tube through fuel filler opening to draw fuel from fuel filler tube.
b. Disconnect fuel filler hose from fuel filler tube. Refer to FL-10, "FUEL TANK" .
c. Insert fuel tube into fuel tank through fuel filler hose to draw fuel from fuel tank.
2. Release the fuel pressure from the fuel lines. Refer to EC-99, "FUEL PRESSURE RELEASE" (VQ35DE) or EC-789, "FUEL PRESSURE RELEASE" (VK45DE).
3. Open fuel filler lid.

Multiple Switch

The continuity of multiple switch is described in two ways as shown below.

- The switch chart is used in schematic diagrams.
- The switch diagram is used in wiring diagrams.

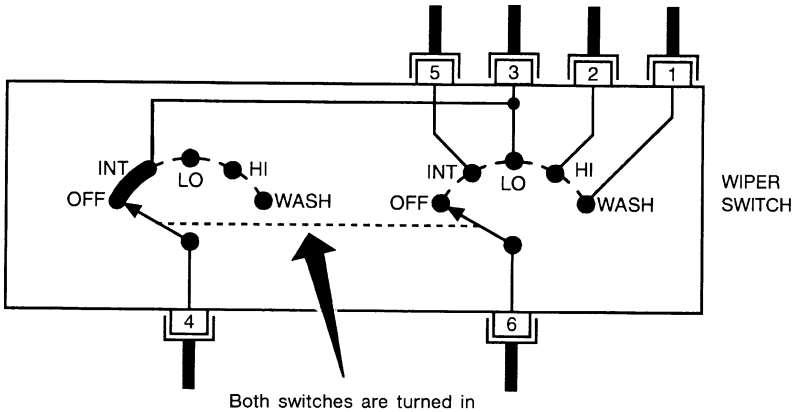
Example

(SWITCH CHART)

WIPER SWITCH

	OFF	INT	LO	HI	WASH
1					○
2				○	
3	○	○	○		
4	○	○			
5		○			
6		○	○	○	○

(SWITCH DIAGRAM)



Both switches are turned in combination.

Continuity circuit of wiper switch

SWITCH POSITION	CONTINUITY CIRCUIT
OFF	3 - 4
INT	3 - 4, 5 - 6
LO	3 - 6
HI	2 - 6
WASH	1 - 6

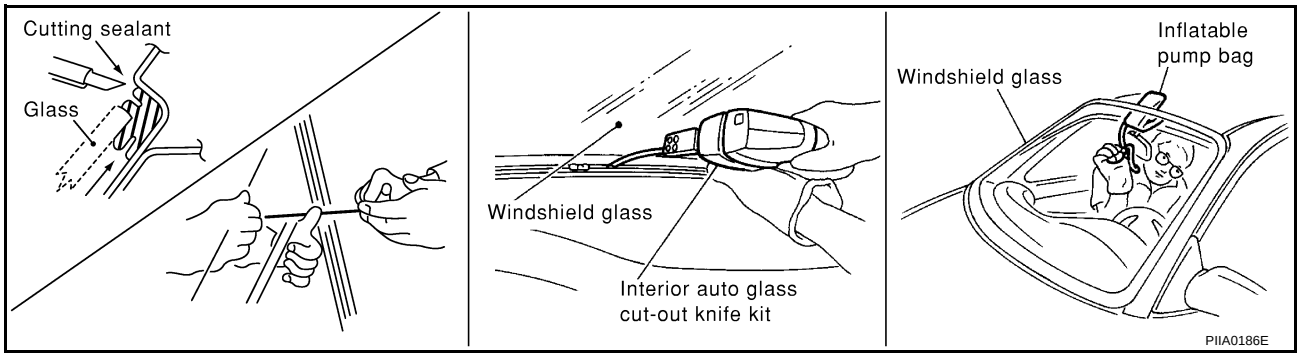
SGI875

WARNING:

When cutting the glass from the vehicle, always wear safety glasses and heavy gloves to help prevent glass splinters from entering your eyes or cutting your hands.

CAUTION:

- **When a windshield glass is to be reused, do not use a cutting knife or power cutting tool.**
- **Be careful not to scratch the glass when removing.**
- **Do not set or stand the glass on its edge. Small chips may develop into cracks.**



7. Remove the windshield glass, using suction.

INSTALLATION

- Use a genuine Nissan Urethane Adhesive Kit (if available) or equivalent and follow the instructions furnished with it.
- While the urethane adhesive is curing, open a door window. This will prevent the glass from being forced out by passenger room air pressure when a door is closed.
- The molding must be installed securely so that it is in position and leaves no gap.
- Inform the customer that the vehicle should remain stationary until the urethane adhesive has completely cured (preferably 24 hours). Curing time varies with temperature and humidity.

WARNING:

- **Keep heat and open flames away as primers and adhesive are flammable.**
- **The materials contained in the kit are harmful if swallowed, and may irritate skin and eyes. Avoid contact with the skin and eyes.**
- **Use in an open, well ventilated location. Avoid breathing the vapors. They can be harmful if inhaled. If affected by vapor inhalation, immediately move to an area with fresh air.**
- **Driving the vehicle before the urethane adhesive has completely cured may affect the performance of the windshield in case of an accident.**

CAUTION:

- **Do not use an adhesive which is past its usable term. Shelf life of this product is limited to six months after the date of manufacture. Carefully adhere to the expiration or manufacture date printed on the box.**
- **Keep primers and adhesive in a cool, dry place. Ideally, they should be stored in a refrigerator.**
- **Do not leave primers or adhesive cartridge unattended with their caps open or off.**
- **The vehicle should not be driven for at least 24 hours or until the urethane adhesive has completely cured. Curing time varies depending on temperature and humidities. The curing time will increase under lower temperature and lower humidity.**

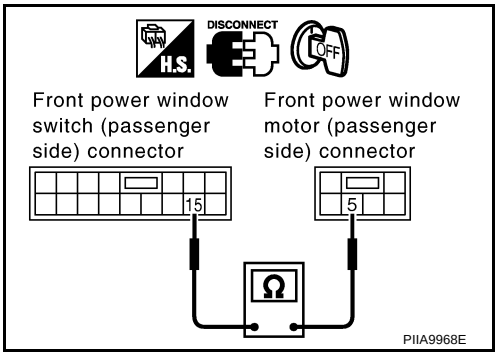
Repairing Water Leaks for Windshield

Leaks can be repaired without removing and reinstalling glass.
If water is leaking between the urethane adhesive material and body or glass, determine the extent of leakage. This can be done by applying water to the windshield area while pushing glass outward.
To stop the leak, apply primer (if necessary) and then urethane adhesive to the leak point.

5. CHECK HARNESS CONTINUITY 2

1. Turn ignition switch OFF.
2. Disconnect front power window switch (passenger side) connector.
3. Check continuity between front power window switch (passenger side) connector D36 terminal 15 and front power window motor (passenger side) connector D38 terminal 5.

15 (GY) – 5 (GY) **: Continuity should exist.**



OK or NG

OK >> Replace front power window motor (passenger side).
NG >> Repair or replace harness.

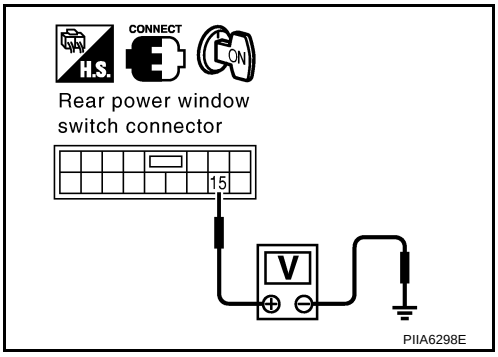
Limit Switch Circuit Check (Rear LH or RH) / With Front and Rear Anti-Pinch System

AIS004QP

1. CHECK REAR POWER WINDOW SWITCH LIMIT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between rear power window switch (LH or RH) connector and ground.

Connector	Terminals (Wire color)		Condition	Voltage [V] (Approx.)
	(+)	(-)		
D58 (LH) D78 (RH)	15 (R)	Ground	Rear (LH or RH) side door window is between fully-open and just before fully-closed position (ON)	0
			Rear (LH or RH) side door window is between just before fully-closed position and fully-closed position (OFF)	5



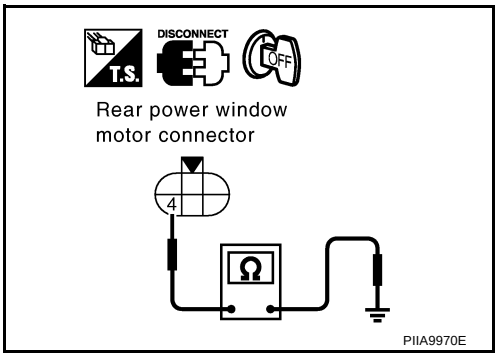
OK or NG

OK >> Limit switch circuit is OK.
NG >> GO TO 2.

2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear power window motor (LH or RH) connector.
3. Check continuity between rear power window motor (LH or RH) connector D59 (LH), D79 (RH) terminal 4 and ground.

4 (OR) – Ground **: Continuity should exist.**



OK or NG

OK >> GO TO 4.
NG >> GO TO 3.

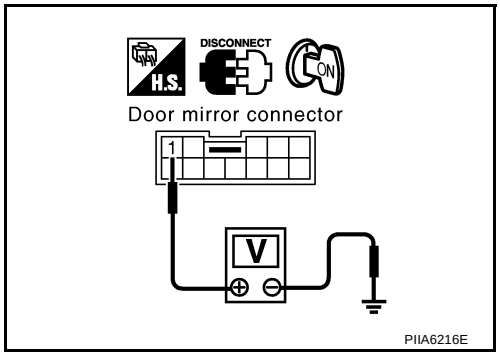
Passenger Side Door Mirror Defogger Circuit Check

AIS004RF

1. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door mirror (passenger side) connector.
3. Turn ignition switch ON.
4. Check voltage between door mirror (passenger side) connector and ground.

Connector	Terminal (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(–)		
D32	1 (L)	Ground	Rear window defogger switch ON	Battery voltage
			Rear window defogger switch OFF	0



OK or NG

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

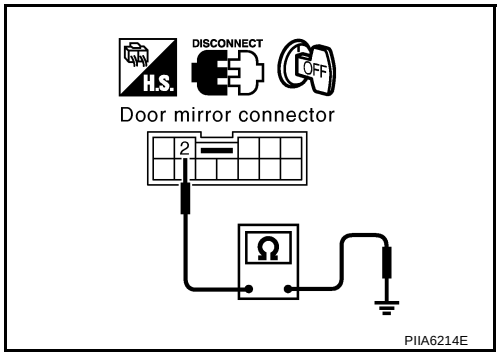
2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between door mirror (passenger side) connector D32 terminal 2 and ground.

2 (B) – Ground : Continuity should exist.

OK or NG

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



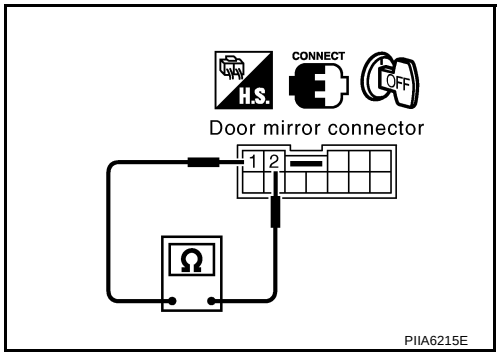
3. CHECK DOOR MIRROR DEFOGGER

1. Connector door mirror connector.
2. Check continuity between each door mirror connector D32 (passenger side) terminals 1 and 2.

1 (L) – 2 (B) : Continuity should exist.

OK or NG

OK >> Check condition of harness and connector.
NG >> Replace door mirror (passenger side).



Rear Window Defogger Signal Check

AIS004RG

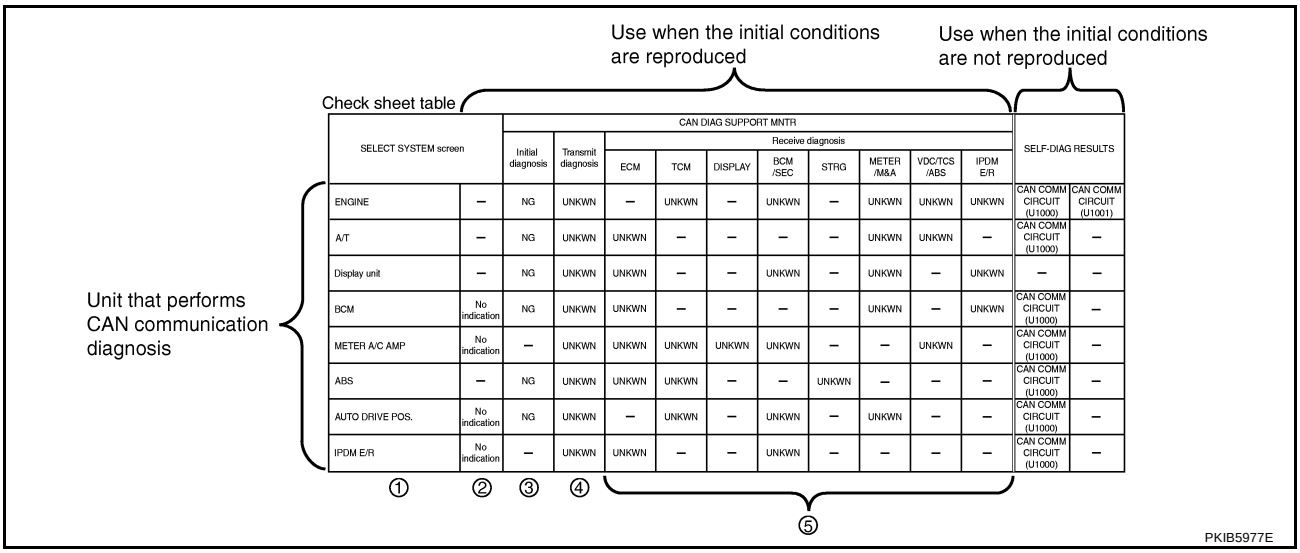
1. CHECK REAR WINDOW DEFOGGER SWITCH LAMP

A/C and AV switch self-diagnosis is performed. Refer to AV-37, "A/C and AV Switch Self-Diagnosis Function"

Does rear window defogger switch light?

YES >> GO TO 2.
NO >> Replace A/C and AV switch.

HOW TO USE CHECK SHEET TABLE



1. Unit names displayed on CONSULT-II
2. “No indication”: Put a check mark to it if the unit name described in step 1 is not displayed on “SELECT SYSTEM” screen of CONSULT-II. (Unit communicating with CONSULT-II via CAN communication line)
   “–”: Column not used (Unit communicating with CONSULT-II excluding CAN communication line)
3. “NG”: Display “NG” when malfunction is detected in the initial diagnosis of the diagnosed unit. Replace the unit if “NG” is displayed.
   “–”: Column not used (Initial diagnosis is not performed.)
4. “UNKWN”: Display “UNKWN” when the diagnosed unit does not transmit the data normally. Put a check mark to it if “UNKWN” is displayed on CONSULT-II.
5. “UNKWN”: Display “UNKWN” when the diagnosed unit does not receive the data normally. Put a check mark to it if “UNKWN” is displayed on CONSULT-II.
   “–”: Column not used (It is not necessary for CAN communication trouble diagnosis.)

NOTE:
CAN communication diagnosis checks if CAN communication works normally. (Contents of data are not diagnosed.)

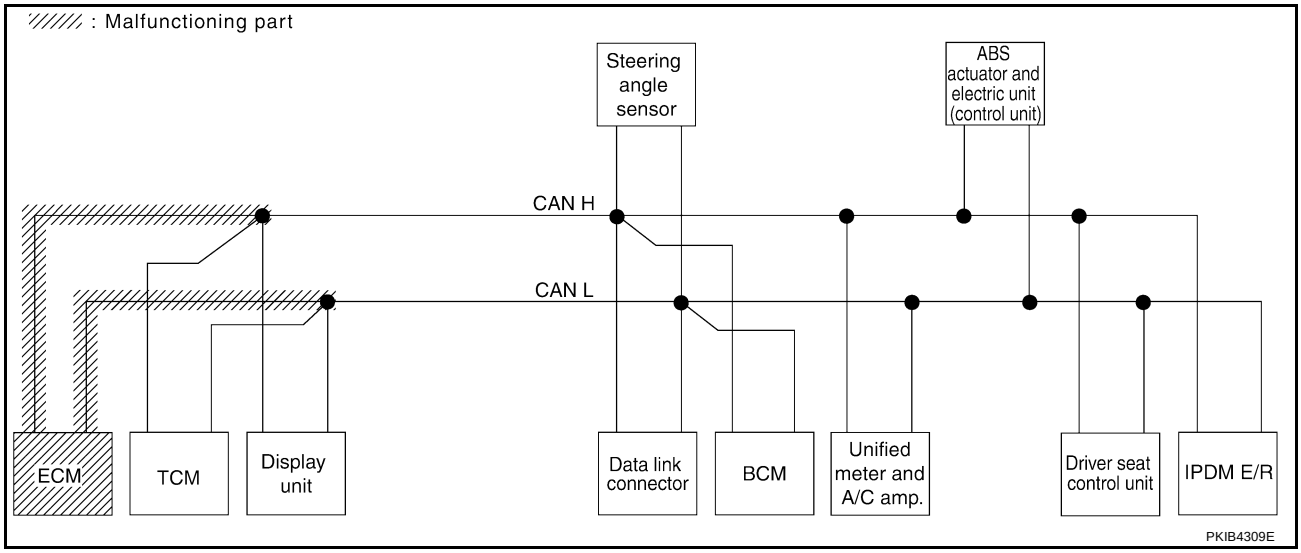
- When the initial conditions are reproduced. Refer to LAN-12, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced" .
- When the initial conditions are not reproduced. Refer to LAN-16, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

Case 5

Check ECM circuit. Refer to LAN-73, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DISPLAY	BCM /SEC	STRG	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
Display unit	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	UNKWN	—	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER A/C AMP	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB4445E



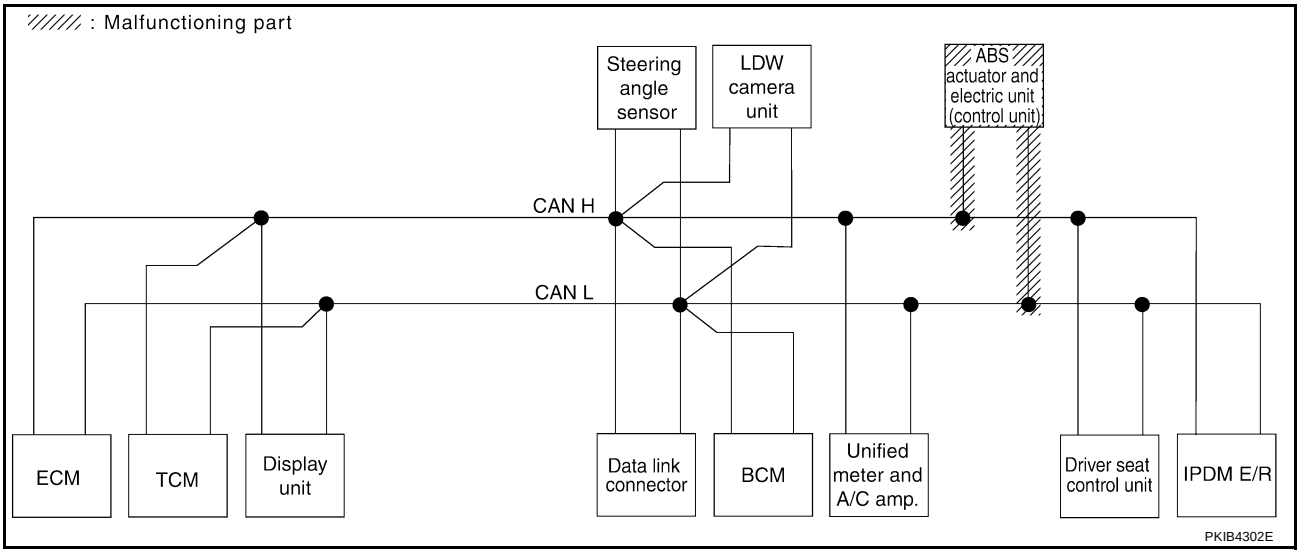
PKIB4309E

Case 13

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-117, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DISPLAY	BCM /SEC	STRG	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
Display unit	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	UNKWN	—	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
LDW	No indication	—	—	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
METER A/C AMP	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB4435E



Case 18

Check CAN communication circuit. Refer to LAN-164, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR													SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis												
				ECM	TCM	DISPLAY	ICC /e4WD	I-KEY	BCM /SEC	STRG	METER /M&A	ICC SENSOR	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
Display control unit	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	UNKWN	—	—	UNKWN	—	—
ICC	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	—	—	—	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER A/C AMP	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	—	—	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB4420E

Case 20

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-218, "IPDM E/R Ignition Relay Circuit Inspection" .

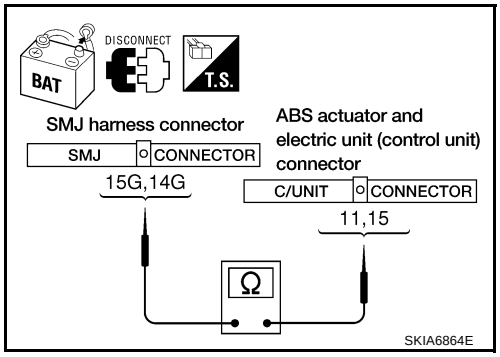
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR													SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis												
				ECM	TCM	DISPLAY	ICC /e4WD	I-KEY	BCM /SEC	STRG	METER /M&A	ICC SENSOR	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
Display control unit	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	UNKWN	—	—	UNKWN	—	—
ICC	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	—	—	—	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
LDW	No indication	—	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
METER A/C AMP	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	—	—	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB4400E

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E211 terminals 15G (L), 14G (R) and ABS actuator and electric unit (control unit) harness connector E56 terminals 11 (L), 15 (R).

15G (L) - 11 (L) : Continuity should exist.
14G (R) - 15 (R) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

Inspection Between ABS Actuator and Electric Unit (Control Unit) and Driver Seat Control Unit Circuit

AKS00CD8

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).

- Harness connector E205
- Harness connector B5

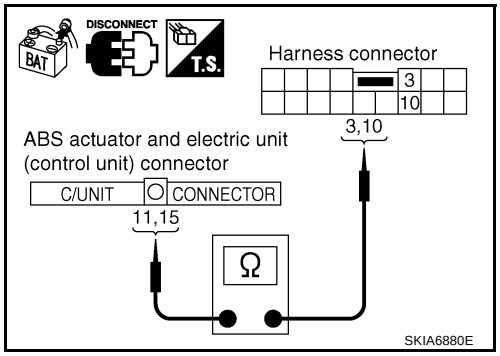
OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E205.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E56 terminals 11 (L), 15 (R) and harness connector E205 terminals 3 (L), 10 (R).

11 (L) - 3 (L) : Continuity should exist.
15 (R) - 10 (R) : Continuity should exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness.

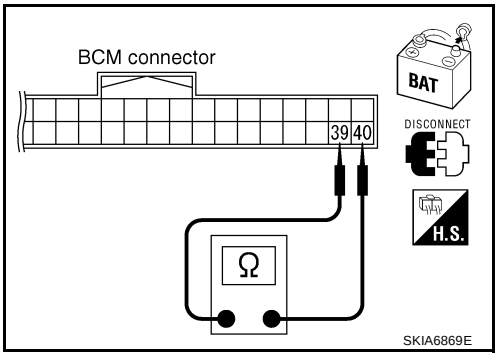
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M3 terminals 39 (L) and 40 (R).

39 (L) - 40 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .
NG >> Repair harness between BCM and data link connector.



Steering Angle Sensor Circuit Inspection

AKS00CCT

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor side and harness side).

OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

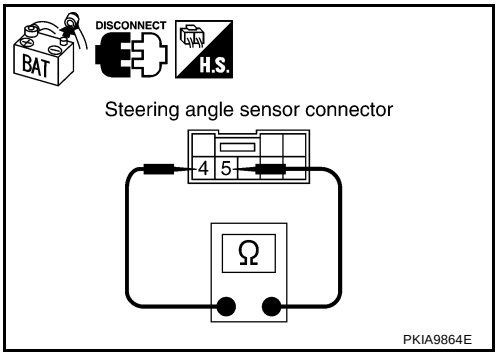
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M14 terminals 4 (L) and 5 (R).

4 (L) - 5 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace steering angle sensor.
NG >> Repair harness between steering angle sensor and data link connector.



LDW Camera Unit Circuit Inspection

AKS00CCU

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (unit side and harness side).

- LDW camera unit connector
- Harness connector R1
- Harness connector M31

OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

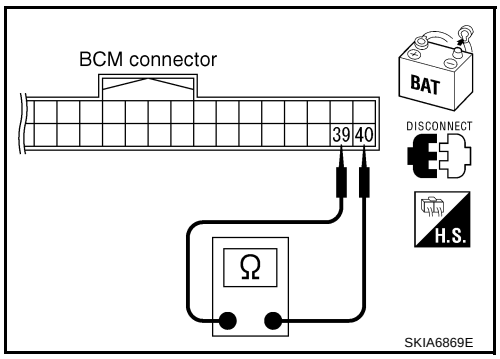
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M3 terminals 39 (L) and 40 (R).

39 (L) - 40 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .
NG >> Repair harness between BCM and data link connector.



Steering Angle Sensor Circuit Inspection

AKS00CC6

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor side and harness side).

OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

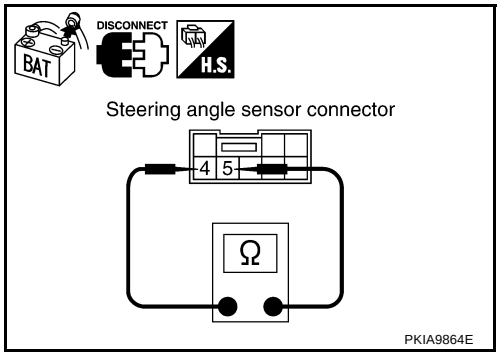
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M14 terminals 4 (L) and 5 (R).

4 (L) - 5 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace steering angle sensor.
NG >> Repair harness between steering angle sensor and data link connector.



Unified Meter and A/C Amp. Circuit Inspection

AKS00CC8

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of unified meter and A/C amp. for damage, bend and loose connection (meter side and harness side).

OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

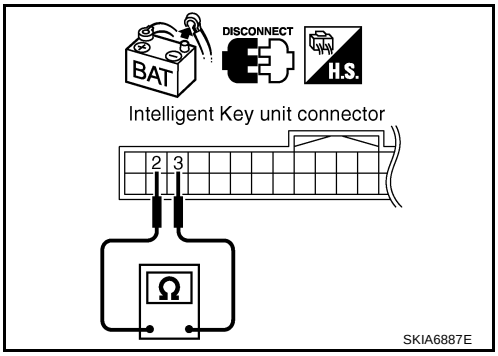
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Check resistance between Intelligent Key unit harness connector M34 terminals 2 (L) and 3 (R).

2 (L) - 3 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace Intelligent Key unit.
NG >> Repair harness between Intelligent Key unit and data link connector.



Data Link Connector Circuit Inspection

AKS00CB7

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

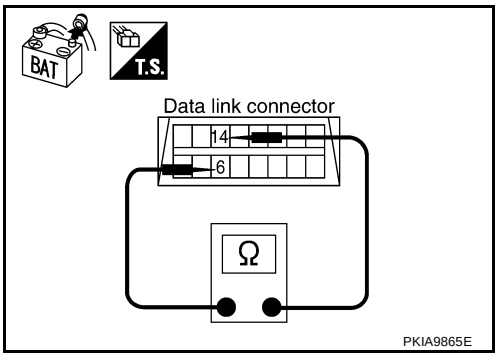
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M5 terminals 6 (L) and 14 (R).

6 (L) - 14 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.



BCM Circuit Inspection

AKS00CB8

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of BCM for damage, bend and loose connection (control module side and harness side).

OK or NG

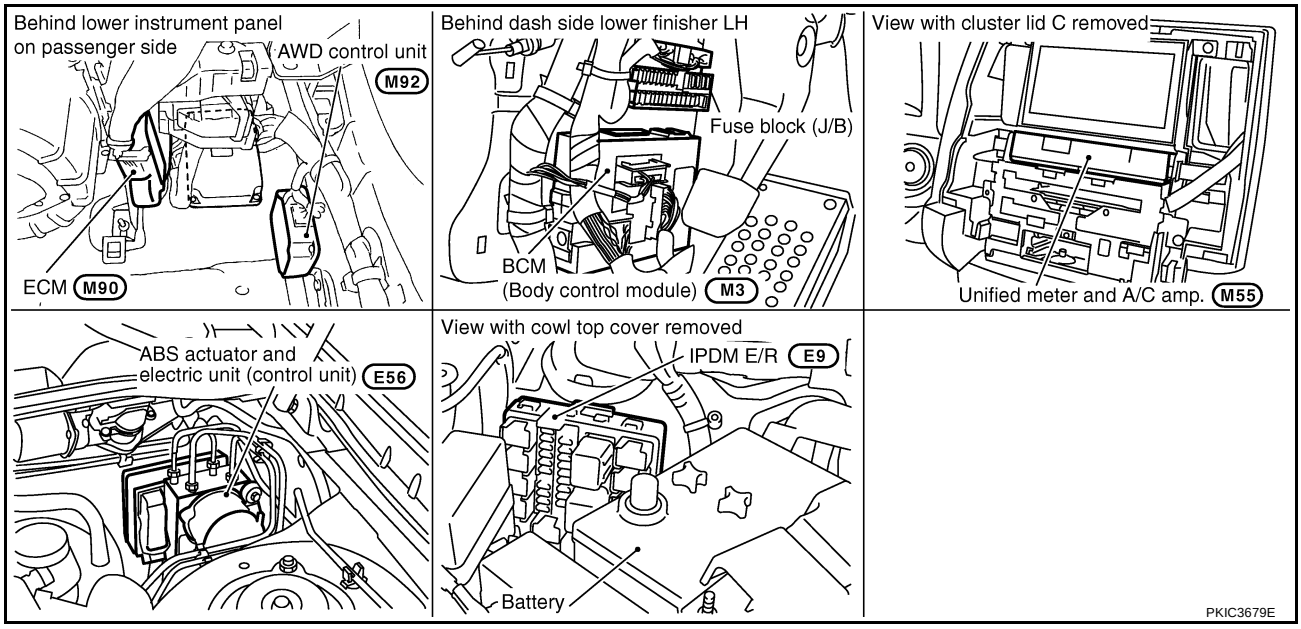
OK >> GO TO 2.
NG >> Repair terminal or connector.

CAN SYSTEM (TYPE 10)

PFP:23710

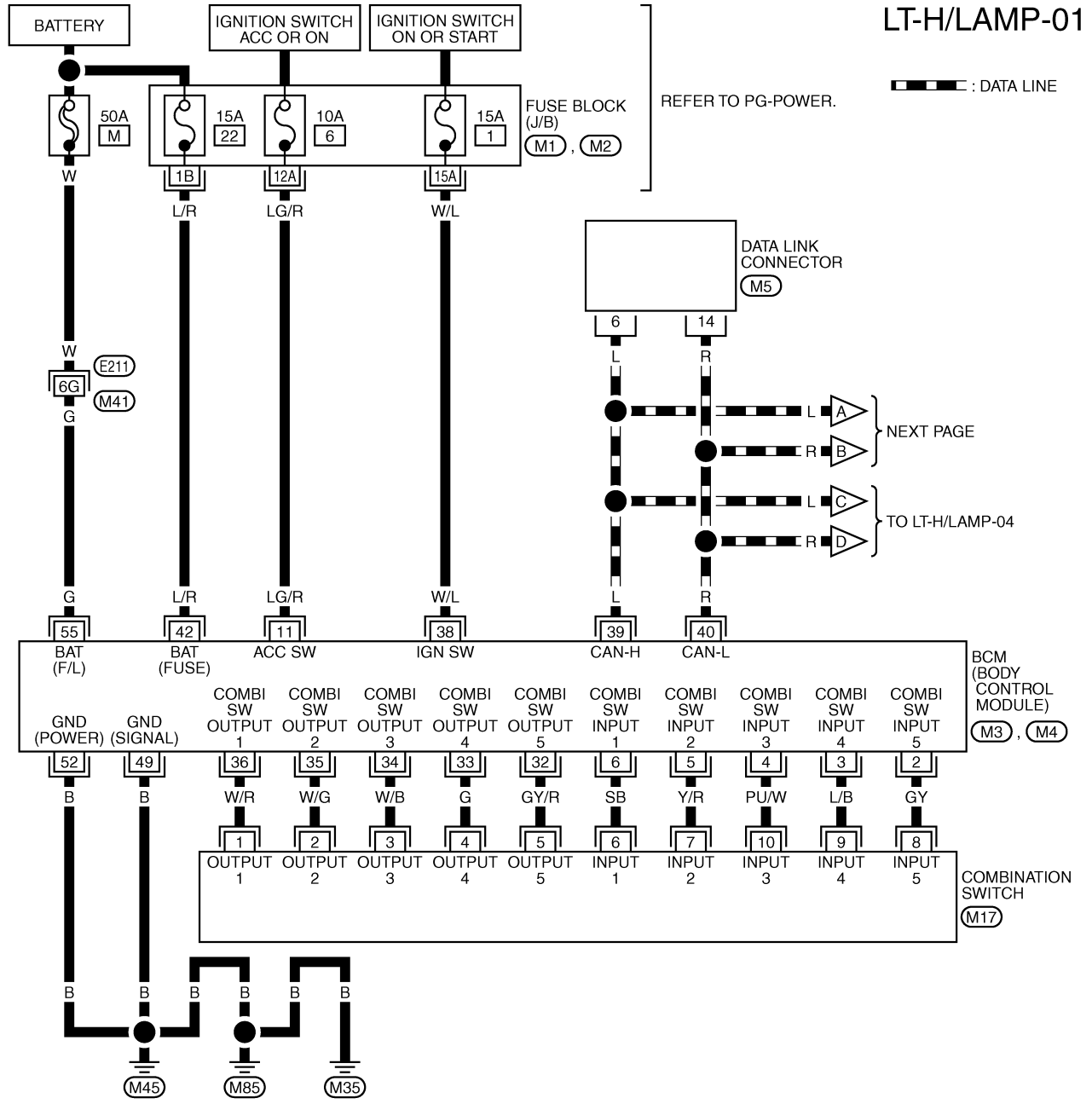
Component Parts and Harness Connector Location

AKS00FDU



Wiring Diagram — H/LAMP —

AKS007ME



REFER TO THE FOLLOWING.

E211 -SUPER MULTIPLE JUNCTION (SMJ)

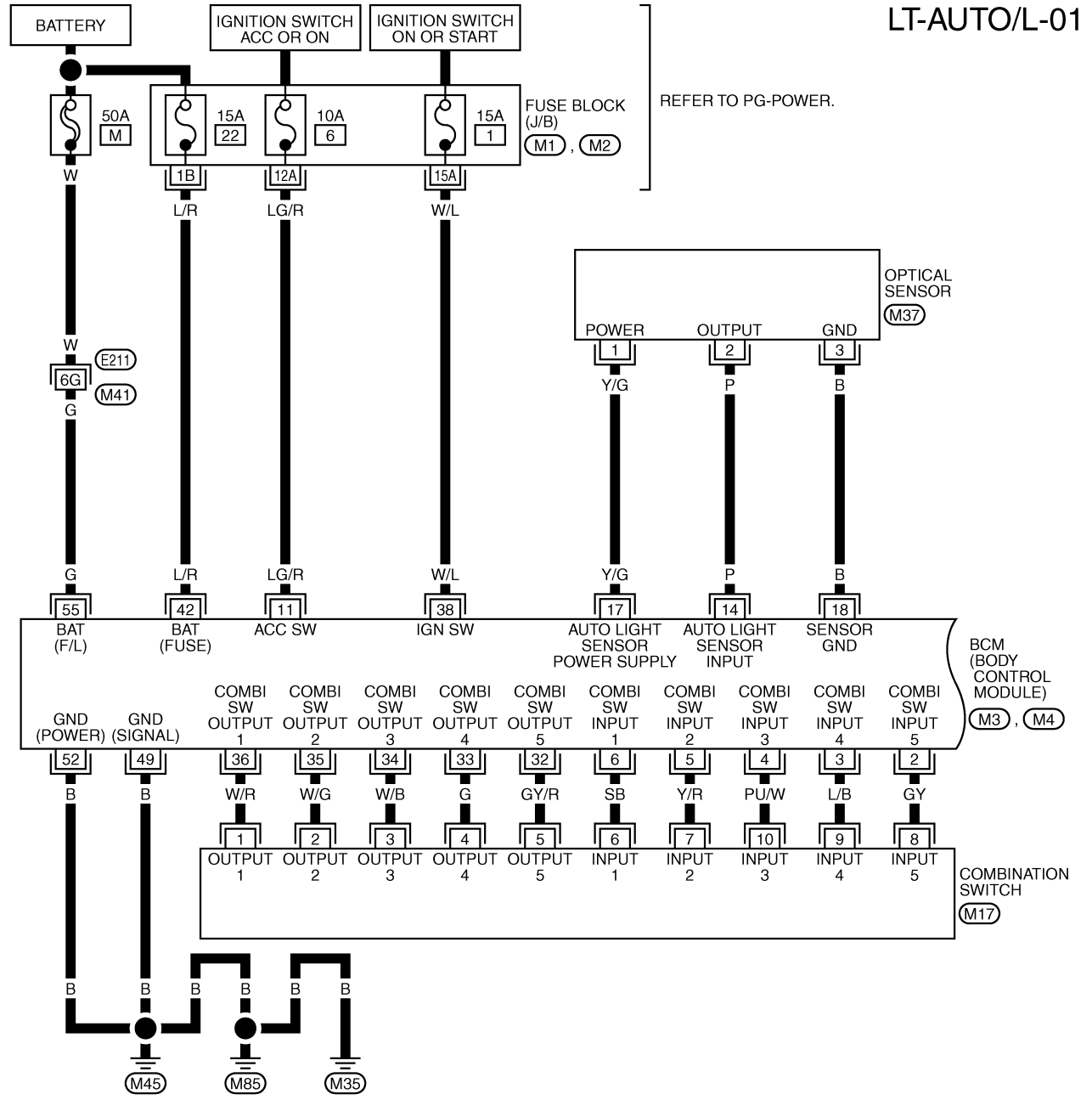
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

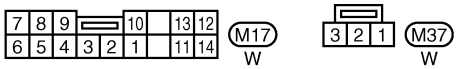
M3 , M4 -ELECTRICAL UNITS

TKWM0815E

Wiring Diagram — AUTO/L —

AKS007EX





REFER TO THE FOLLOWING.

E211 -SUPER MULTIPLE JUNCTION (SMJ)

M1, M2 -FUSE BLOCK-JUNCTION BOX (J/B)

M3, M4 -ELECTRICAL UNITS

TKWM0817E

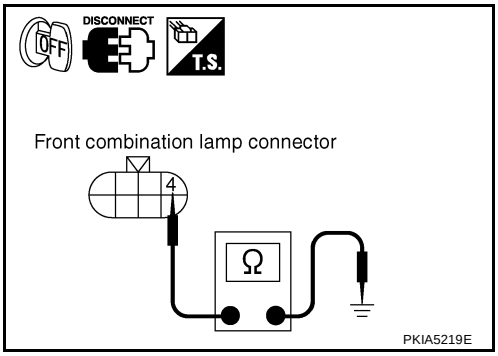
5. CHECK TURN SIGNAL LAMPS SHORT CIRCUIT

1. Disconnect rear combination lamp unit connector.
2. Check continuity (short circuit) between front combination lamp LH harness connector E44 terminal 4 (G) and ground.

4 (G) – Ground : Continuity should not exist.

3. Check continuity (short circuit) between front combination lamp RH harness connector E24 terminal 4 (PU) and ground.

4 (PU) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 6.
NG >> Repair harness or connector.

6. CHECK BULB

Check bulb standard of each turn signal lamp is correct.

OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .
NG >> Replace turn signal lamp bulb.

Rear Turn Signal Lamp Does Not Operate

AKS007IF

1. CHECK TAIL LAMPS AND STOP LAMPS

Make sure tail lamps and stop lamps is illuminated.

OK or NG

OK >> GO TO 2.
NG >> GO TO 3.

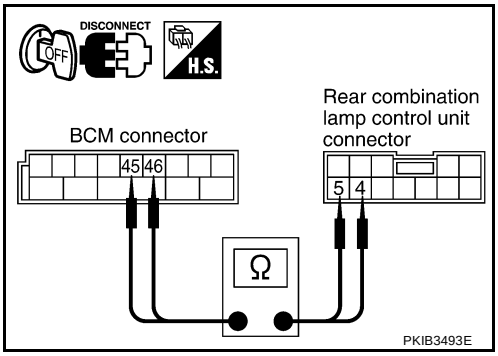
2. CHECK TURN SIGNAL LAMPS CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector M4 terminal 45 (G/W) and rear combination lamp control unit harness connector B65 terminal 4 (OR).

45 (G/W) – 4 (OR) : Continuity should exist.

3. Check continuity between BCM harness connector M4 terminal 46 (BR/W) and rear combination lamp control unit harness connector B65 terminal 5 (PU).

46 (BR/W) – 5 (PU) : Continuity should exist.



OK or NG

OK >> Replace rear combination lamp control unit.
NG >> Repair harness or connector.

MAP LAMP

PFP:26430

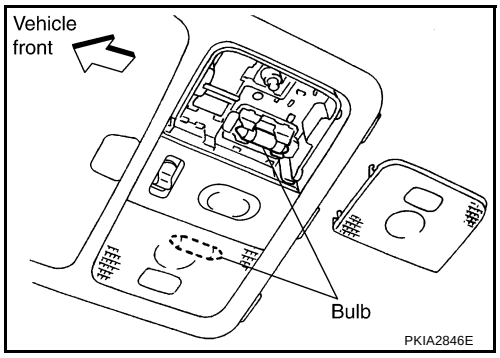
Bulb Replacement

AKS007ED

1. Remove lens using clip driver or suitable tool.
2. Remove bulb.

Map lamp : 12V - 8 W

3. Installation is the reverse order of removal.

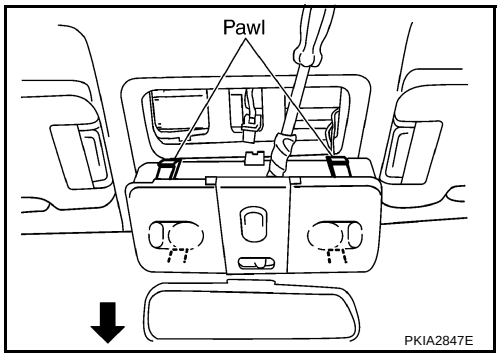


Removal and Installation

AKS007EE

REMOVAL

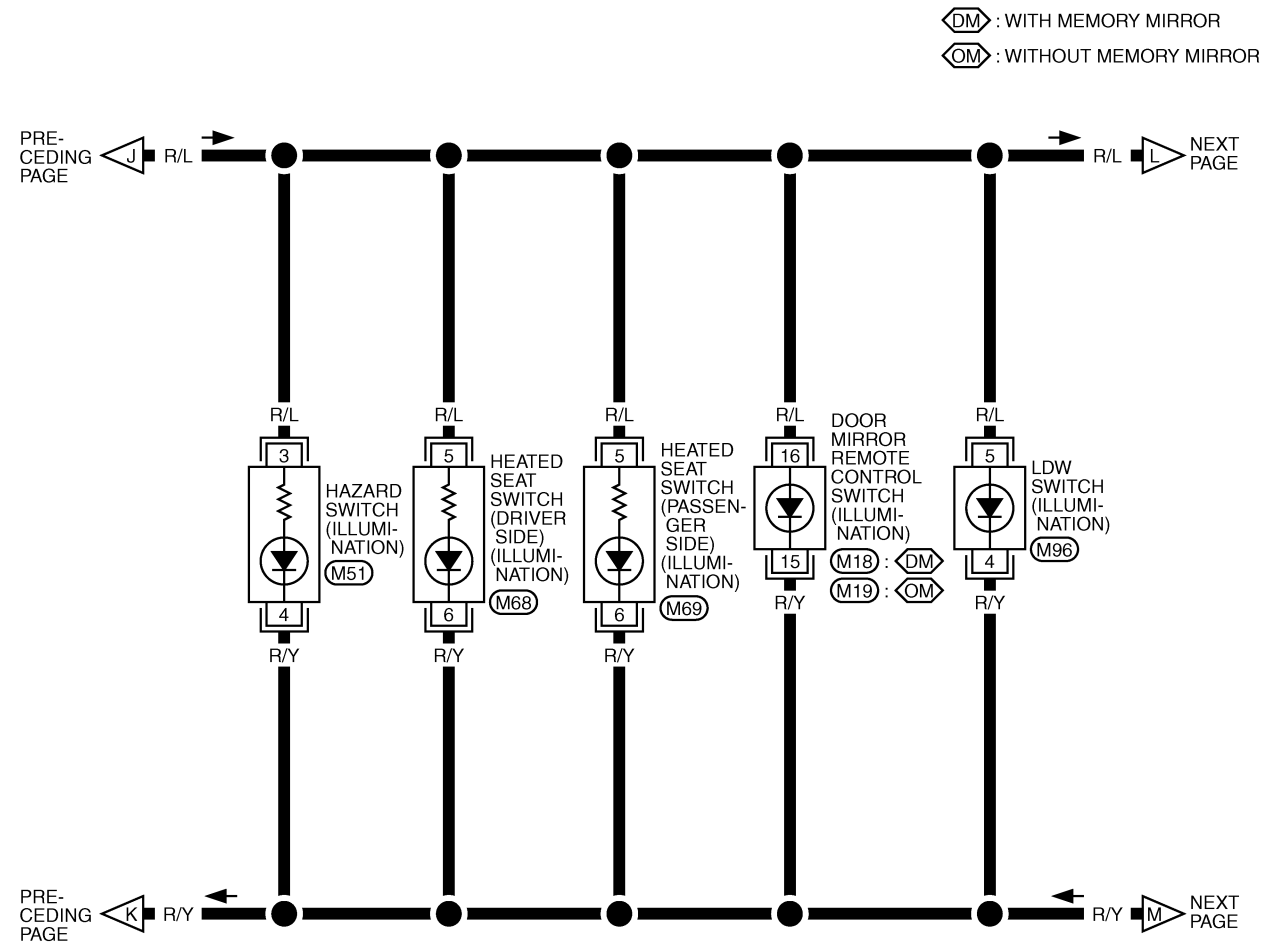
1. Insert a clip driver or suitable tool back of map lamp and pull down it to disengage pawl.
2. Pull down map lamp in direction shown by the arrow in the figure.
3. Disconnect map lamp connector and remove map lamp.

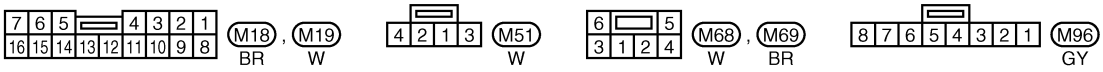


INSTALLATION

Installation is the reverse order of removal.

LT-ILL-06





TKWM2052E

Schedule 1

ALS000G6

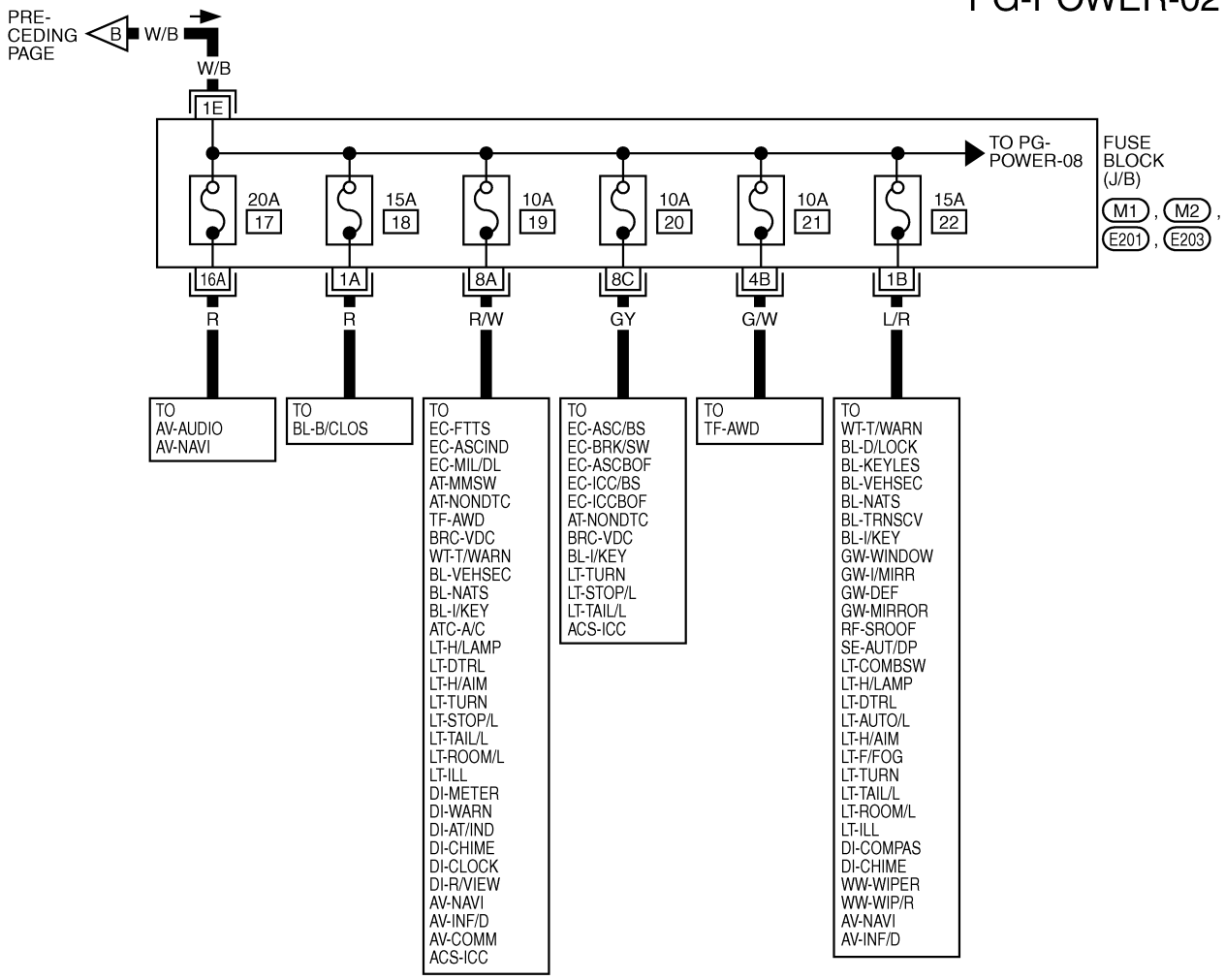
EMISSION CONTROL SYSTEM MAINTENANCE

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary. [ ]: At the mileage intervals only

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	3.75 (6) 3	7.50 (12) 6	11.25 (18) 9	15 (24) 12	18.75 (30) 15	22.5 (36) 18	26.25 (42) 21	30 (48) 24	
Drive belts	NOTE (1)									MA-14, MA-22
Air cleaner filter	NOTE (2)								[R]	MA-18, MA-25
EVAP vapor lines									I*	MA-21, MA-28
Fuel lines									I*	MA-17, MA-25
Fuel filter	NOTE (3)									-
Engine coolant	NOTE (4)									MA-15, MA-22
Engine oil		R	R	R	R	R	R	R	R	MA-18, MA-25
Engine oil filter [Use part No. 15208 31U00 (for VK45DE), 15208 65F00 (for VQ35DE) or equivalent.]		R	R	R	R	R	R	R	R	MA-19, MA-26
Spark plugs (PLATINUM-TIPPED type)		Replace every 105,000 miles (169,000 km).								MA-20, MA-27
Intake & exhaust valve clearance*	NOTE (5)									EM-93, "Valve Clearance", EM-219, "Valve Clearance"

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54) 27	37.5 (60) 30	41.25 (66) 33	45 (72) 36	48.75 (78) 39	52.5 (84) 42	56.25 (90) 45	60 (96) 48	
Drive belts	NOTE (1)								I*	MA-14, MA-22
Air cleaner filter	NOTE (2)								[R]	MA-18, MA-25
EVAP vapor lines									I*	MA-21, MA-28
Fuel lines									I*	MA-17, MA-25
Fuel filter	NOTE (3)									-
Engine coolant	NOTE (4)								R*	MA-15, MA-22
Engine oil		R	R	R	R	R	R	R	R	MA-18, MA-25
Engine oil filter [Use part No. 15208 31U00 (for VK45DE), 15208 65F00 (for VQ35DE) or equivalent.]		R	R	R	R	R	R	R	R	MA-19, MA-26

PG-POWER-02



REFER TO THE FOLLOWING.

M1, M2, E201, E203
-FUSE BLOCK-JUNCTION BOX (J/B)

1	2	3	4	5	6	7		8	9	10	11
12	13	14	15	16	17	18	19	20	21	22	

TKWM1306E

Engine room harness

C2	E1	B/2	:	Fusible link holder
C2	E2	GY/2	:	Fusible link holder
C1	E3	B/2	:	IPDM E/R (Intelligent power distribution module engine room)
C1 ★	E4	W/4	:	IPDM E/R (Intelligent power distribution module engine room)
B1 ★	E5	B/4	:	IPDM E/R (Intelligent power distribution module engine room)
D2 ★	E6	W/6	:	IPDM E/R (Intelligent power distribution module engine room)
C1 ★	E7	GY/16	:	IPDM E/R (Intelligent power distribution module engine room)
C1 ★	E8	W/12	:	IPDM E/R (Intelligent power distribution module engine room)
D2 ★	E9	W/16	:	IPDM E/R (Intelligent power distribution module engine room)
F1 ★	E10	—	:	Fuse and fusible link block
C2	E11	—	:	Fuse, fusible link and relay box
F1	E12	L/4	:	Accessory relay-2
B1	E13	BR/6	:	Rear window defogger relay
B1 ★	E14	GY/6	:	ICC brake hold relay
A1	E15	L/4	:	Daytime light relay
B1	E16	—	:	Relay box
D1 ★	E17	GY/6	:	To F47 (With VK engine)
D1 ★	E18	GY/9	:	To F48 (With VQ engine)
D1 ★	E19	B/8	:	To F49
B1	E20	GY/2	:	Hood switch
B2 ★	E21	—	:	Body ground
A2	E22	B/2	:	Front side marker lamp RH
A2	E23	GY/3	:	Clearance lamp RH
A1	E24	B/8	:	Front combination lamp RH
A3	E25	B/2	:	To E101
A3	E26	GY/2	:	Washer level sensor
A3	E27	BR/2	:	Rear washer motor
A3	E28	GY/2	:	Front washer motor
C2 ★	E29	B/8	:	To E121 (With VQ engine)
C2	E30	GY/1	:	To E303
C2	E31	—	:	Body ground
A2	E32	B/3	:	Refrigerant pressure sensor
A2	E33	GY/2	:	Front wheel sensor RH
B3	E34	B/2	:	Ambient sensor
C3	E35	B/1	:	Horn low
C3	E36	B/1	:	Horn low
C4	E37	B/1	:	Horn high
C4	E38	B/1	:	Horn high
B4	E39	GY/6	:	ICC sensor
B4	E40	Y/2	:	Crash zone sensor
C4 ★	E41	GY/4	:	Cooling fan motor (With VK engine)
E3	E42	B/2	:	Front side marker lamp LH
D3	E43	GY/3	:	Clearance lamp LH
E3	E44	B/8	:	Front combination lamp LH
D5	E45	BR/2	:	Front fog lamp LH
E4	E46	GY/2	:	Front wheel sensor LH
D3	E49	—	:	Body ground
E3 ★	E50	—	:	Body ground
D3 ★	E51	—	:	Body ground
E1	E52	GY/2	:	Brake fluid level switch
E3	E53	B/3	:	Pressure sensor
E2	E54	GY/6	:	Brake booster
D2	E55	BR/3	:	To E141
F2	E56	SMJ	:	ABS actuator and electric unit (Control unit)
F2	E57	GY/5	:	Front wiper motor

Front fog lamp RH sub-harness

A4	E101	B/2	:	To E25
A4	E102	BR/2	:	Front fog lamp RH

Cooling fan sub-harness (With VQ engine)

C3 ★	E121	DGY/8	:	To E29
B3 ★	E122	GY/4	:	Cooling fan motor-1
C3 ★	E123	GY/4	:	Cooling fan motor-2

ICC sub-harness

D2	E141	BR/3	:	To E55
E3	E142	B/3	:	Brake pressure sensor

★: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC section.**

TKIH0005E

SECTION PS
POWER STEERING SYSTEM

CONTENTS

SECTION RFD
REAR FINAL DRIVE

CONTENTS

INSPECTION AFTER DISASSEMBLY

Bound Bumper and Bushing

Check bound bumper and bushing for cracks, deformation or other damage. Replace if necessary.

ASSEMBLY

- Refer to RSU-7, "Components" for tightening torque. Assembly in the reverse order of disassembly.

  NOTE:
  - Refer to component parts location and do not reuse non-reusable parts.
  - Make sure piston rod on shock absorber is not damaged when attaching components to shock absorber.

PRELIMINARY INSPECTION

1. CHECK BATTERY TERMINALS CONNECTION

Check if battery terminals are clean and tight.

OK or NG

OK >> GO TO 2.
NG >> Repair battery terminals connection.

2. CHECK FUSE AND FUSIBLE LINK

Check for blown alternator and combination meter fuses.

Unit	Power source (Power supply terminals)	Fuse No.
Alternator	Battery (“S” terminal)	33
Combination meter	Ignition switch ON (“L” terminal)	14

OK or NG

OK >> GO TO 3.
NG >> If fuse is blown, be sure eliminate cause of malfunction before installing new fuse.

3. CHECK “E” TERMINAL CONNECTION

Check if “E” terminal is clean and tight.

OK or NG

OK >> GO TO 4.
NG >> Repair “E” terminal connection.

4. CHECK ALTERNATOR DRIVE BELT TENSION

Check alternator drive belt tension. Refer to EM-173, "Checking Drive Belts" (VK45DE) or EM-15, "Checking Drive Belts" (VQ35DE).

OK or NG

OK >> INSPECTION END
NG >> Repair as needed.

8. CHECK GROUND CIRCUIT (AUTOMATIC DRIVE POSITIONER CONTROL UNIT)

Check continuity between the automatic drive positioner control unit connector M50 terminal 40, 48 and ground.

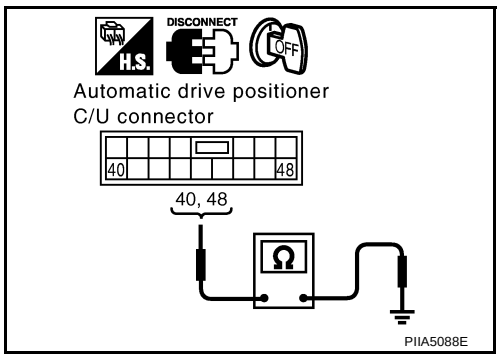
40 (B) – Ground : Continuity should exist.

48 (B) – Ground : Continuity should exist.

OK or NG

OK >> Driver seat control unit circuit is OK.

NG >> Repair or replace harness between automatic drive positioner control unit and ground.



CONSULT-II Function (AUTO DRIVE POS.)

AIS002YF

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

CONSULT-II diagnosis items	Inspection item, self-diagnosis mode		Content
AUTO DRIVE POSITIONER	WORK SUPPORT*1		Changes the setting for each function.
	SELF–DIG RESULTS		Check the self-diagnosis results.
	DATA MONITOR	Selection from menu	Displays the input data to driver seat control unit and automatic driving positioned control unit on real-time basis.
	CAN DIAGNOSTIC SUPPORT MONITOR		The results of transmit / receive diagnosis of CAN communication can be read
	ACTIVE TEST*3		Gives a drive signal to a load to check the operation.
	DRIVER SEAT CONTROL UNIT PART NUMBER		Displays driver seat control unit part No.
BCM*2	DATA MONITOR	Selection from menu	Displays the input data to BCM on real-time basis

*1: For setting automatic drive positioner functions only.

*2: Refer to BL-38, "Data Monitor" .

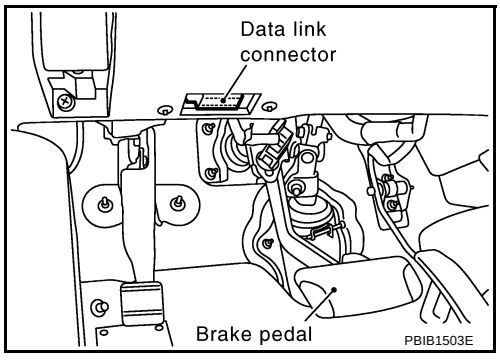
*3: During vehicle driving, do not perform active test.

CONSULT-II INSPECTION PROCEDURE

CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” and “CONSULT-II CONVERTER” to the data link connector.



3. Turn ignition switch “ON”.

Key Switch Circuit Check (Without Intelligent Key)

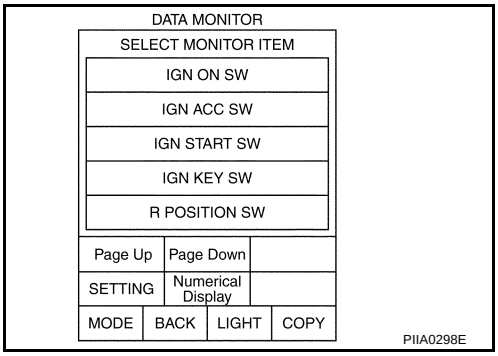
AIS003G1

1. CHECK KEY SWITCH

With CONSULT-II

Touch “BCM”. With “IGN KEY SW” on the DATA MONITOR, Check ON/OFF operation.
*: Refer to BL-38, "Data Monitor"

Monitor item [OPERATION or UNIT]		Contents
IGN KEY SW*	“ON/ OFF”	Key inserted (ON)/key removed (OFF) status judged from the key-in detection switch is displayed.



Without CONSULT-II

GO TO 2.

OK or NG

OK >> Key switch circuit is OK.
NG >> GO TO 2.

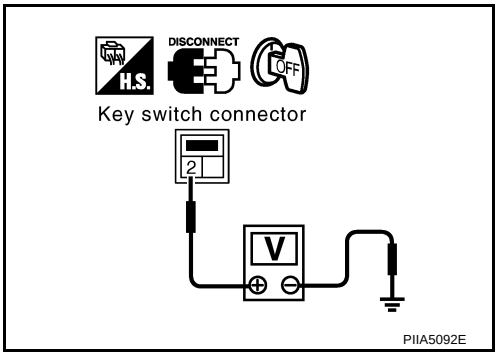
2. CHECK KEY SWITCH AND KEY LOCK SOLENOID POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect key switch connector.
3. Check voltage between key switch connector M23 terminal 2 and ground.

2 (L/R) – Ground : Battery voltage.

OK or NG

OK >> GO TO 3.
NG >> Check harness between key switch and fuse.



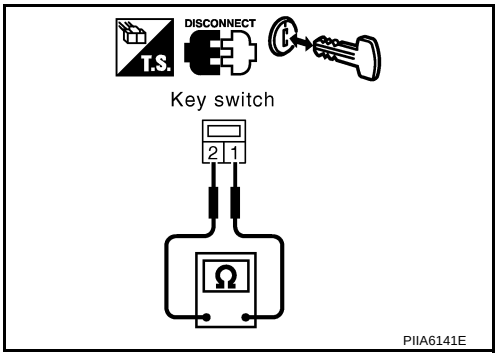
3. CHECK KEY SWITCH

Check continuity between key switch connector M23 terminal 1 and 2.

Con-nector	Terminal		Condition	Continuity
M23	1	2	Key is inserted in ignition key cylinder.	Yes
			Key is removed from ignition key cylinder.	No

OK or NG

OK >> GO TO 4.
NG >> Replace key switch.

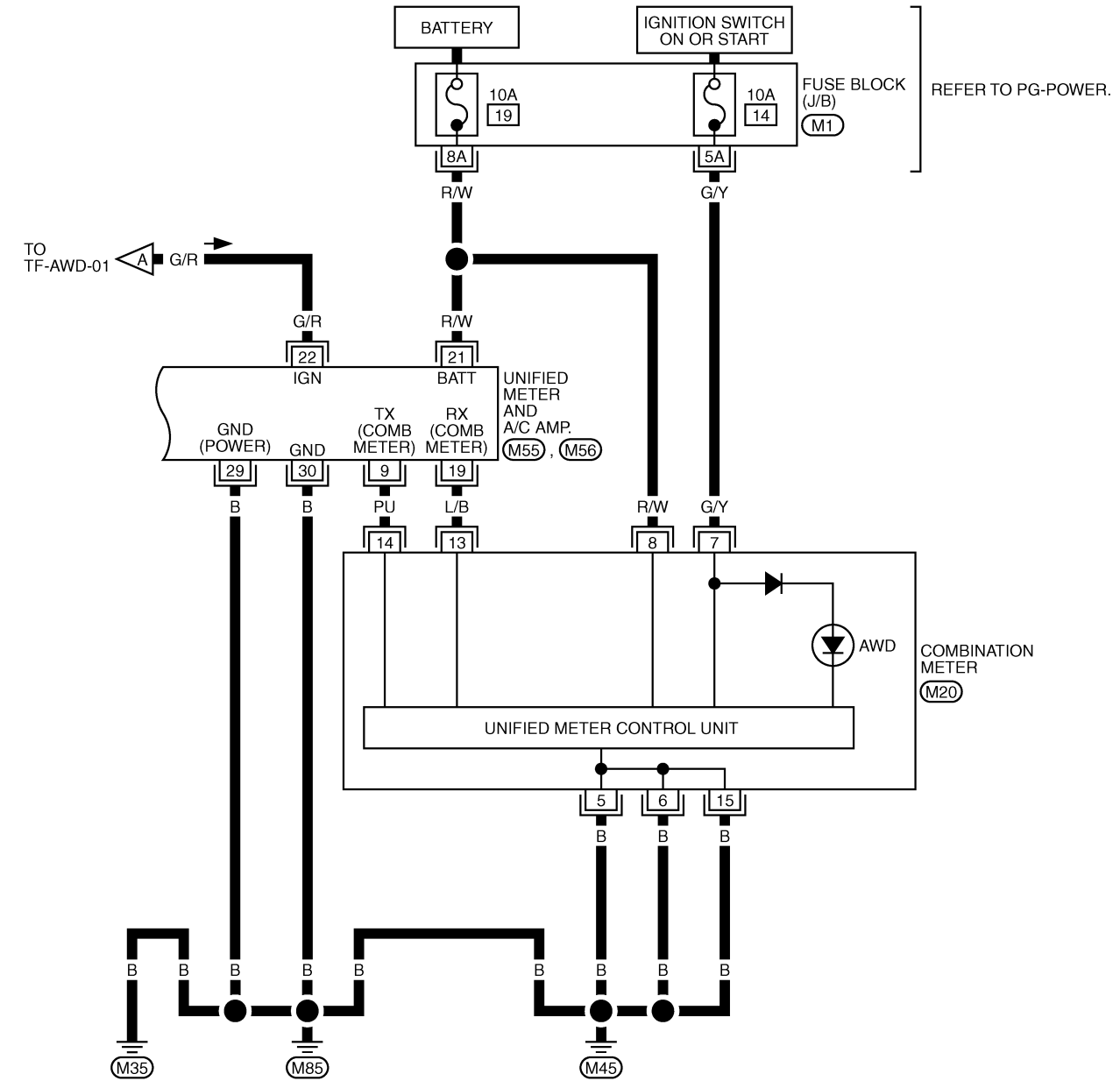


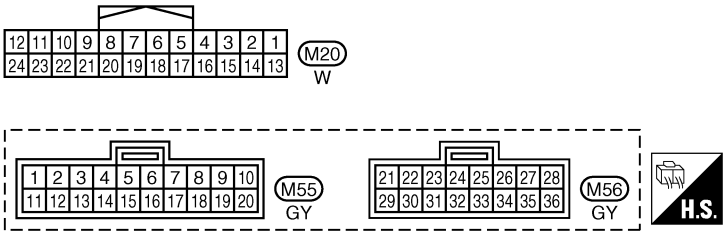
Diagnostic item	Explanation	Repair order “Recheck SRS at each replacement”
PRE-TEN FRONT RH [OPEN]	● Front RH pre-tensioner circuit is open.	1. Visually check the wiring harness connections. 2. Replace the harness if it has visible damage. 3. Replace the front RH seat belt. 4. Replace the diagnosis sensor unit. 5. Replace the related harness.
PRE-TEN FRONT RH [VB-SHORT]	● Front RH pre-tensioner circuit is shorted to a power supply circuit.	
PRE-TEN FRONT RH [GND-SHORT]	● Front RH pre-tensioner circuit is shorted to ground.	
PRE-TEN FRONT RH [SHORT]	● Front RH pre-tensioner circuit is shorted between lines.	
CURTAIN MODULE LH [OPEN]	● LH side curtain air bag module circuit is open.	1. Visually check the wiring harness connection. 2. Replace the harness if it has visible damage. 3. Replace the LH side curtain air bag module. 4. Replace the diagnosis sensor unit. 5. Replace the related harness.
CURTAIN MODULE LH [VB-SHORT]	● LH side curtain air bag module circuit is shorted to a power supply circuit.	
CURTAIN MODULE LH [GND-SHORT]	● LH side curtain air bag module circuit is shorted to ground.	
CURTAIN MODULE LH [SHORT]	● LH side curtain air bag module circuit is shorted between lines.	
CURTAIN MODULE RH [OPEN]	● RH side curtain air bag module circuit is open.	1. Visually check the wiring harness connection. 2. Replace the harness if it has visible damage. 3. Replace the RH side curtain air bag module. 4. Replace the diagnosis sensor unit. 5. Replace the related harness.
CURTAIN MODULE RH [VB-SHORT]	● RH side curtain air bag module circuit is shorted to a power supply circuit.	
CURTAIN MODULE RH [GND-SHORT]	● RH side curtain air bag module circuit is shorted to ground.	
CURTAIN MODULE RH [SHORT]	● RH side curtain air bag module circuit is shorted between lines.	
CONTROL UNIT	● Diagnosis sensor unit is malfunctioning.	1. Visually check the wiring harness connection. 2. Replace the diagnosis sensor unit.

NOTE:

- Follow the procedures in numerical order when repairing malfunctioning parts. Confirm whether malfunction is eliminated using air bag warning lamp or CONSULT-II each time repair is finished. If malfunction is still observed, proceed to the next step. When malfunction is eliminated, further repair work is not required.

TF-AWD-03





REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TDWM0035E