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INFINITI®

G35 Coupe

MODEL V35 SERIES

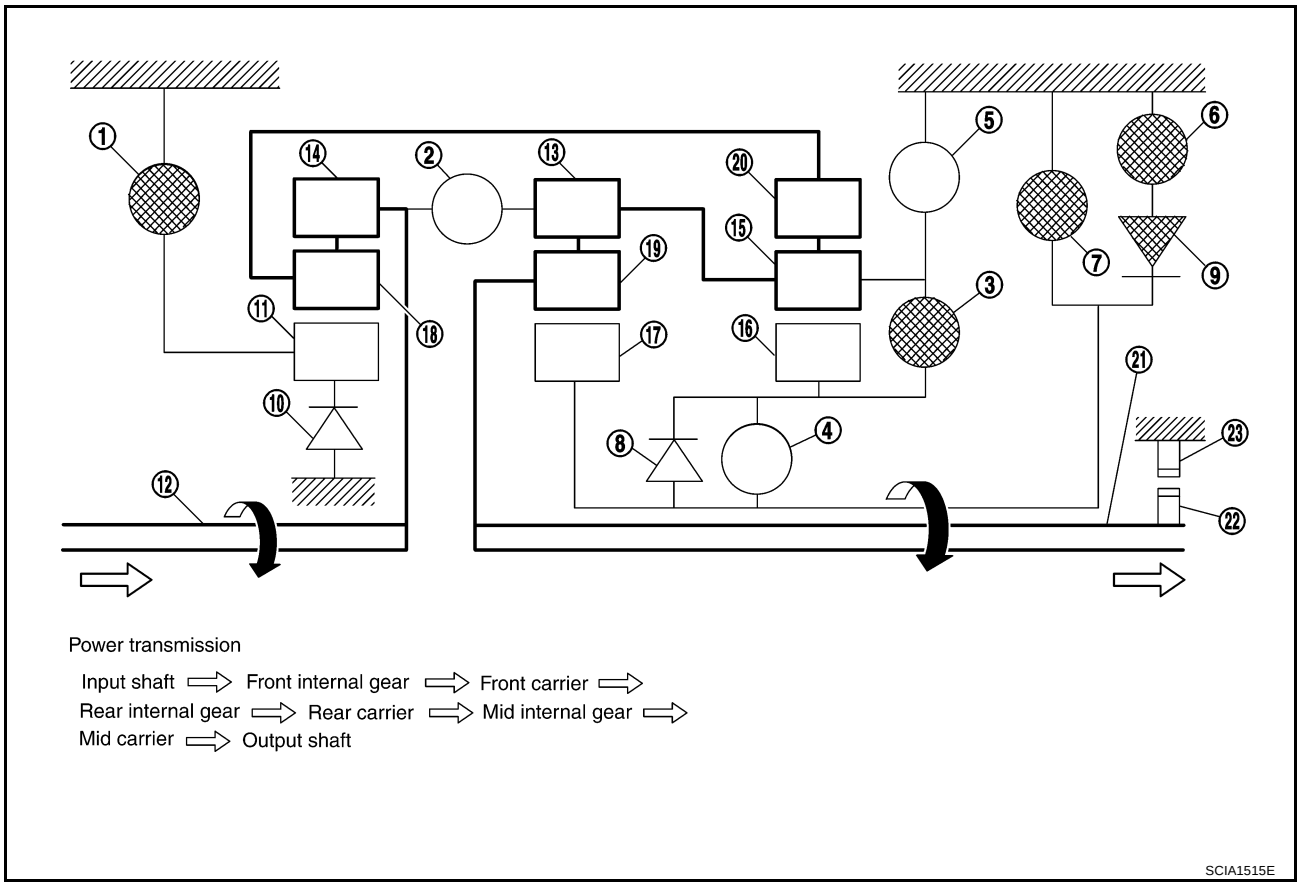
QUICK REFERENCE INDEX

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

INFINITI®

“M2” position

- The front brake fastens the front sun gear.
- The forward brake and the forward one-way clutch regulate reverse rotation of the mid sun gear.
- The direct clutch is coupled, and the rear carrier and rear sun gear are connected.
- The low coast brake fastens the mid sun gear.
- During deceleration, the low coast brake regulates forward rotation of the mid sun gear and the engine brake functions.



1. Front brake
2. Input clutch
3. Direct clutch
4. High and low reverse clutch
5. Reverse brake
6. Forward brake
7. Low coast brake
8. 1st one-way clutch
9. Forward one-way clutch
10. 3rd one-way clutch
11. Front sun gear
12. Input shaft
13. Mid internal gear
14. Front internal gear
15. Rear carrier
16. Rear sun gear
17. Mid sun gear
18. Front carrier
19. Mid carrier
20. Rear internal gear
21. Output shaft
22. Parking gear
23. Parking pawl

5. CHECK SHIFT UP D4 → D5

Press down the accelerator pedal about half-way and inspect if the vehicle shifts up (D4 → D5) at the appropriate speed. Refer to AT-60, "Vehicle Speed at Which Gear Shifting Occurs" .

With CONSULT-II

Read the gear position, throttle degree of opening, and vehicle speed. Refer to AT-90, "DATA MONITOR MODE" .

Does the A/T shift up D4 → D5 at the correct speed?

YES >> GO TO 6.

NO >> Enter a check mark at “A/T Does Not Shift: D4 → D5” on the AT-46, "DIAGNOSTIC WORKSHEET" , then continue the road test.

6. CHECK LOCK-UP

When releasing accelerator pedal (closed throttle position signal: OFF) from D5, check lock-up from D5 to L/U. Refer to AT-60, "Vehicle Speed at Which Gear Shifting Occurs" .

With CONSULT-II

Select “TCC SOLENOID” with the “MAIN SIGNALS” mode for “A/T”. Refer to AT-85, "CONSULT-II REFERENCE VALUE" .

Does it lock-up?

YES >> GO TO 7.

NO >> Enter a check mark at “A/T Does Not Lock-up” on the AT-46, "DIAGNOSTIC WORKSHEET" , then continue the road test.

7. CHECK LOCK-UP HOLD

Check hold lock-up.

With CONSULT-II

Select “TCC SOLENOID” with the “MAIN SIGNALS” mode for “A/T”. Refer to AT-85, "CONSULT-II REFERENCE VALUE"

Does it maintain lock-up status?

YES >> GO TO 8.

NO >> Enter a check mark at “A/T Does Not Hold Lock-up Condition” on the AT-46, "DIAGNOSTIC WORKSHEET" , then continue the road test.

8. CHECK LOCK-UP RELEASE

Check lock-up cancellation by depressing brake pedal lightly to decelerate.

With CONSULT-II

Select “TCC SOLENOID” with the “MAIN SIGNALS” mode for “A/T”. Refer to AT-85, "CONSULT-II REFERENCE VALUE"

Does lock-up cancel?

YES >> GO TO 9.

NO >> Enter a check mark at “Lock-up Is Not Released” on the AT-46, "DIAGNOSTIC WORKSHEET" , then continue the road test.

9. CHECK SHIFT DOWN D5 → D4

Decelerate by pressing lightly on the brake pedal.

With CONSULT-II

Read the gear position and engine speed. Refer to AT-90, "DATA MONITOR MODE" .

When the A/T shift down D5 → D4, does the engine speed drop smoothly back to idle?

YES >> 1. Stop the vehicle.
2. Go to AT-59, "Cruise Test - Part 2" .

NO >> Enter a check mark at “Engine Speed Does Not Return to Idle” on the AT-46, "DIAGNOSTIC WORKSHEET" , then continue the road test. Go to AT-59, "Cruise Test - Part 2" .

Monitored item (Unit)	Monitor Item Selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
SFT UP ST SW (ON/OFF)	—	—	▼	Not mounted but displayed.
SFT DWN ST SW (ON/OFF)	—	—	▼	
ASCD-OD CUT (ON/OFF)	—	—	▼	
ASCD-CRUISE (ON/OFF)	—	—	▼	
ABS SIGNAL (ON/OFF)	—	—	▼	
ACC OD CUT (ON/OFF)	—	—	▼	Not mounted but displayed.
ACC SIGNAL (ON/OFF)	—	—	▼	
TCS GR/P KEEP (ON/OFF)	—	—	▼	
TCS SIGNAL 2 (ON/OFF)	—	—	▼	
TCS SIGNAL 1 (ON/OFF)	—	—	▼	
TCC SOLENOID (A)	—	X	▼	
LINE PRES SOL (A)	—	X	▼	
I/C SOLENOID (A)	—	X	▼	
FR/B SOLENOID (A)	—	X	▼	
D/C SOLENOID (A)	—	X	▼	
HLR/C SOL (A)	—	X	▼	
ON OFF SOL (ON/OFF)	—	—	▼	LC/B solenoid
TCC SOL MON (A)	—	—	▼	
L/P SOL MON (A)	—	—	▼	
I/C SOL MON (A)	—	—	▼	
FR/B SOL MON (A)	—	—	▼	
D/C SOL MON (A)	—	—	▼	
HLR/C SOL MON (A)	—	—	▼	
ON OFF SOL MON (ON/OFF)	—	—	▼	LC/B solenoid
P POSI IND (ON/OFF)	—	—	▼	
R POSI IND (ON/OFF)	—	—	▼	
N POSI IND (ON/OFF)	—	—	▼	
D POSI IND (ON/OFF)	—	—	▼	
4TH POSI IND (ON/OFF)	—	—	▼	
3RD POSI IND (ON/OFF)	—	—	▼	
2ND POSI IND (ON/OFF)	—	—	▼	
1ST POSI IND (ON/OFF)	—	—	▼	
MANU MODE IND (ON/OFF)	—	—	▼	
POWER M LAMP (ON/OFF)	—	—	▼	
F-SAFE IND/L (ON/OFF)	—	—	▼	

DTC P1705 THROTTLE POSITION SENSOR

PFP:22620

Description

NCS000E2

Electric throttle control actuator consists of throttle control motor, accelerator pedal position sensor, throttle position sensor, etc. The actuator sends a signal to the ECM, and ECM sends signals to TCM with CAN communication.

CONSULT-II Reference Value

NCS000E3

Item name	Condition	Display value
ACCELE POSI	Released accelerator pedal	0.0/8
	Fully depressed accelerator pedal	8.0/ 8

On Board Diagnosis Logic

NCS000E4

- This is an OBD-II self-diagnostic item.
- Diagnostic trouble code “P1705 TP SEN/CIRC A/T” with CONSULT-II or 15th judgement flicker without CONSULT-II is detected when TCM does not receive the proper accelerator pedal position signals (input by CAN communication) from ECM.

Possible Cause

NCS000E5

Harness or connectors.
(Sensor circuit is open or shorted.)

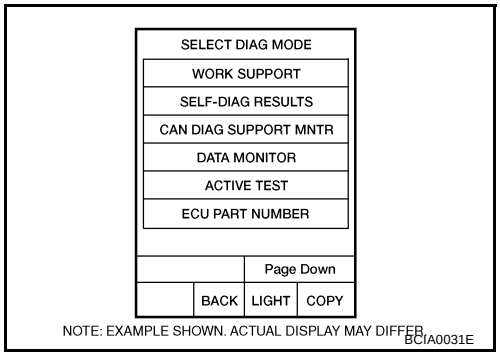
DTC Confirmation Procedure

NCS000E6

NOTE:
If “DTC Confirmation Procedure” has been previously performed, always turn ignition switch OFF and wait at least 10 seconds before performing the next test.
After the repair, perform the following procedure to confirm the malfunction is eliminated.

WITH CONSULT-II

1. Turn ignition switch ON. (Do not start engine.)
2. Select “ECU INPUT SIGNALS” in “DATA MONITOR” mode for “A/T” with CONSULT-II.
3. Touch “START”.
4. Start engine and let it idle for 1 second.
5. If DTC is detected, go to AT-127, "Diagnostic Procedure" .



NOTE: EXAMPLE SHOWN. ACTUAL DISPLAY MAY DIFFER.
BCIA0031E

WITH GST

Follow the procedure “WITH CONSULT-II”.

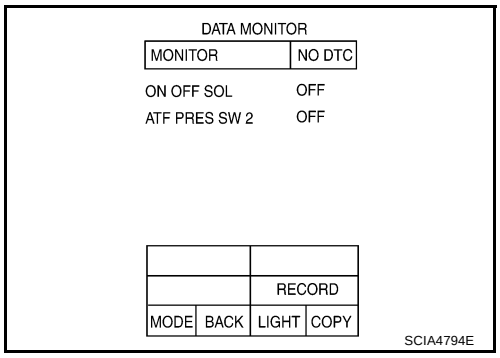
Diagnostic Procedure

NCS000GR

1. CHECK INPUT SIGNALS

With CONSULT-II

1. Start the engine.
2. Select “SELECTION FROM MENU” in “DATA MONITOR” mode for “A/T” with CONSULT-II.
3. Drive vehicle in the manual mode (1st or 2nd gear), and confirm the ON/OFF actuation of the “ATF PRES SW 2” and “ON OFF SOL”.



Item name	Condition	Display value
ON OFF SOL	Low coast brake engaged. Refer to AT-19 .	ON
	Low coast brake disengaged. Refer to AT-19 .	OFF
ATF PRES SW 2	Low coast brake engaged. Refer to AT-19 .	ON
	Low coast brake disengaged. Refer to AT-19 .	OFF

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-173, "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.

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

OK or NG

OK >> Replace control valve with TCM. Refer to AT-226, "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-159, "DTC Confirmation Procedure" .

OK or NG

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

6. DETECT MALFUNCTIONING ITEM

1. Check control valve with TCM. Refer to AT-226, "Control Valve with TCM and A/T Fluid Temperature Sensor 2" .
2. Disassemble A/T. Refer to AT-265, "DISASSEMBLY" .
3. Check the following.

- Oil pump assembly. Refer to AT-282, "Oil Pump" .
- Power train system. Refer to AT-265, "DISASSEMBLY" .
- Transmission case. Refer to AT-265, "DISASSEMBLY" .

OK or NG

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

7. CHECK A/T FLUID CONDITION

1. Remove oil pan. Refer to AT-226, "Control Valve with TCM and A/T Fluid Temperature Sensor 2" .
2. Check A/T fluid condition. Refer to AT-51, "A/T Fluid Condition Check" .

OK or NG

OK >> GO TO 8.
NG >> GO TO 11.

8. DETECT MALFUNCTIONING ITEM

Check the malfunction items. If any items are damaged, repair or replace damaged parts. Refer to AT-61, "Symptom Chart" (Symptom No.10).

OK or NG

OK >> GO TO 9.
NG >> Repair or replace damaged parts.

9. CHECK SYMPTOM

Check again. Refer to AT-57, "Cruise Test - Part 1" , AT-59, "Cruise Test - Part 2" .

OK or NG

OK >> **INSPECTION END**
NG >> GO TO 10.

10. CHECK TCM

1. Check TCM input/output signals. Refer to AT-84, "TCM Input/Output Signal Reference Values" .
2. If NG, recheck A/T assembly harness connector terminals for damage or loose connection with harness connector.

OK or NG

OK >> **INSPECTION END**
NG >> Repair or replace damaged parts.

11. DETECT MALFUNCTIONING ITEM

Check the malfunction items. If any items are damaged, repair or replace damaged parts. Refer to AT-61, "Symptom Chart" (Symptom No.10).

OK or NG

OK >> GO TO 9.
NG >> Repair or replace damaged parts.

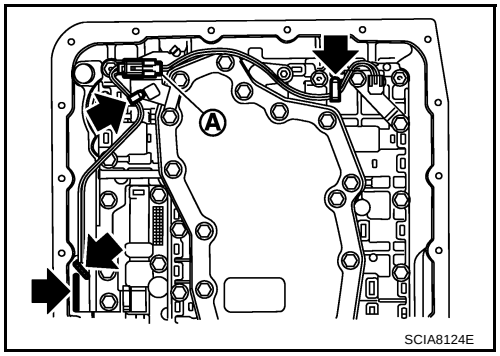
10. Disconnect A/T fluid temperature sensor 2 connector according to the following procedure.

a. **Four terminal clips**

i. Straighten terminal clip (⬅) to free terminal cord assembly and A/T fluid temperature sensor 2 harness.

ii. Disconnect A/T fluid temperature sensor 2 connector (A).

CAUTION:
Be careful not to damage connector.

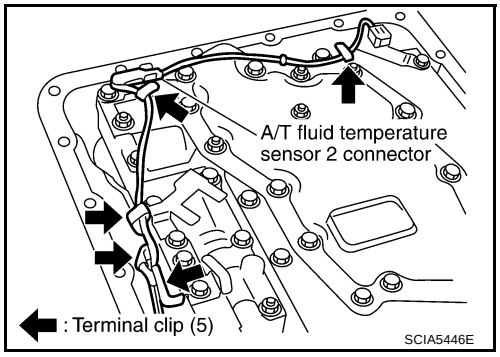


b. **Five terminal clips**

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

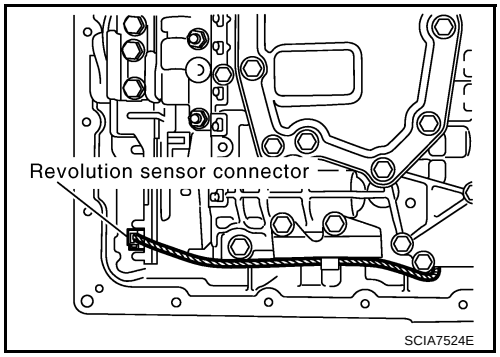
ii. Disconnect A/T fluid temperature sensor 2 connector.

CAUTION:
Be careful not to damage connector.

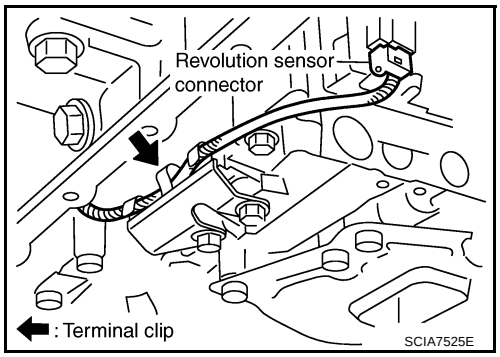


11. Disconnect revolution sensor connector.

CAUTION:
Be careful not to damage connector.



12. Straighten terminal clip to free revolution sensor harness.



10.	Revolution sensor	11.	Parking gear	12.	Output shaft
13.	Bearing race	14.	Needle bearing	15.	Manual plate
16.	Parking rod	17.	Manual shaft oil seal	18.	Manual shaft
19.	O-ring	20.	Band servo anchor end pin	21.	Detent spring
22.	Spacer	23.	Seal ring	24.	Snap ring
25.	Return spring	26.	O-ring	27.	Servo assembly
28.	Snap ring	29.	Sub-harness	30.	Control valve with TCM
31.	Bracket	32.	A/T fluid temperature sensor 2	33.	Oil pan
34.	Magnet	35.	Drain plug	36.	Drain plug gasket
37.	Oil pan mounting bolt	38.	Oil pan gasket	39.	Terminal cord assembly
40.	O-ring	41.	Retaining pin	42.	Transmission case

Refer to GI section to make sure icons (symbol marks) in the figure. Refer to GI-10, "Components" .

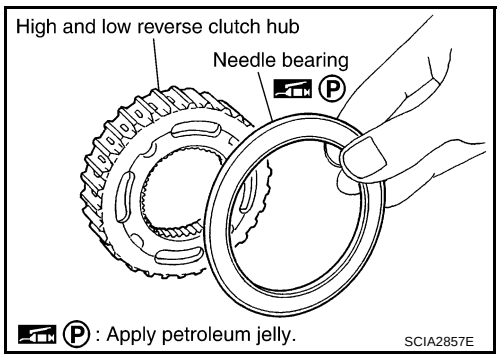
However, refer to the following symbols for others.

: Apply Genuine Anaerobic Liquid Gasket or equivalent. Refer to GI-47, "Recommended Chemical Products and Sealants" .

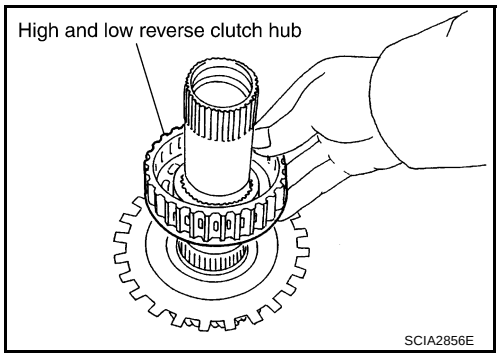
5. Install needle bearing to high and low reverse clutch hub.

CAUTION:

- **Take care with the direction of needle bearing. Refer to AT-264, "Locations of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings" .**
- **Apply petroleum jelly to needle bearing.**



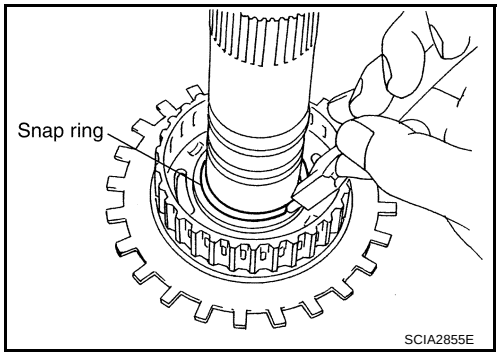
6. Install high and low reverse clutch hub to mid sun gear assembly.



7. Using pair of snap ring pliers, install snap ring to mid sun gear assembly.

CAUTION:

Do not expand snap ring excessively.



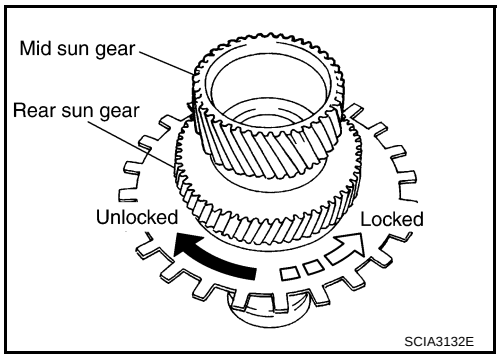
8. Check operation of 1st one-way clutch.

a. Hold mid sun gear and turn rear sun gear.

b. Check 1st one-way clutch for correct locking and unlocking directions.

CAUTION:

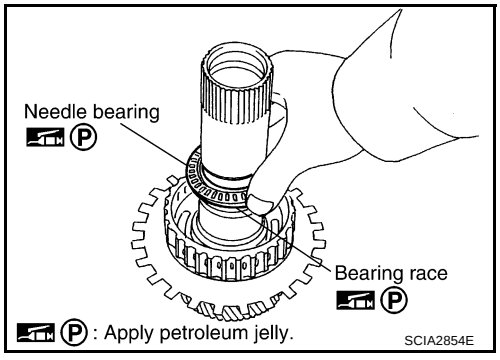
If not as shown in the figure, check installation direction of 1st one-way clutch.



9. Install needle bearing and bearing race to high and low reverse clutch hub.

CAUTION:

- **Take care with the direction of needle bearing. Refer to AT-264, "Locations of Adjusting Shims, Needle Bearings, Thrust Washers and Snap Rings" .**
- **Apply petroleum jelly to needle bearing and bearing race.**



CONTAMINATED REFRIGERANT

If a refrigerant other than pure HFC-134a (R-134a) is identified in a vehicle, take appropriate steps shown below:

- Explain to the customer that environmental regulations prohibit the release of contaminated refrigerant into the atmosphere.
- Explain that recovery of the contaminated refrigerant could damage service equipment and refrigerant supply.
- Suggest the customer return the vehicle to the location of previous service where the contamination may have occurred.
- In case of repairing, recover the refrigerant using only **dedicated equipment and containers. Never recover contaminated refrigerant into the existing service equipment.** If the facility does not have dedicated recovery equipment, contact a local refrigerant product retailer for available service. This refrigerant must be disposed of in accordance with all federal and local regulations. In addition, replacement of all refrigerant system components on the vehicle is recommended.
- If the vehicle is within the warranty period, the air conditioner warranty is void. Please contact Nissan Customer Affairs for further assistance.

General Refrigerant Precautions

NJS0002I

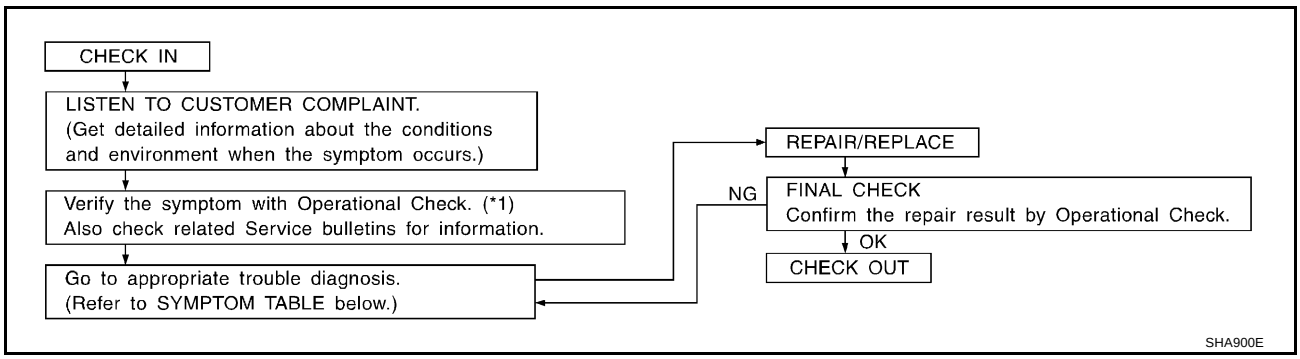
WARNING:

- **Avoid breathing A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. Remove HFC-134a (R-134a) from the A/C system, using certified service equipment meeting requirements of SAE J-2210 [HFC-134a (R-134a) recycling equipment], or J-2209 [HFC-134a (R-134a) recovery equipment]. If accidental system discharge occurs, ventilate work area before resuming service. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.**
- **Never release refrigerant into the air. Use approved recovery/recycling equipment to capture the refrigerant every time an air conditioning system is discharged.**
- **Always wear eye and hand protection (goggles and gloves) when working with any refrigerant or air conditioning system.**
- **Never store or heat refrigerant containers above 52°C (126°F).**
- **Never heat a refrigerant container with an open flame; if container warming is required, place the bottom of the container in a warm pail of water.**
- **Never intentionally drop, puncture, or incinerate refrigerant containers.**
- **Keep refrigerant away from open flames: poisonous gas will be produced if refrigerant burns.**
- **Refrigerant will displace oxygen, therefore be certain to work in well ventilated areas to prevent suffocation.**
- **Never pressure test or leak test HFC-134a (R-134a) service equipment and/or vehicle air conditioning systems with compressed air during repair. Some mixtures of air and HFC-134a (R-134a) have been shown to be combustible at elevated pressures. These mixtures, if ignited, may cause injury or property damage. Additional health and safety information may be obtained from refrigerant manufacturers.**

How to Perform Trouble Diagnosis for Quick and Accurate Repair

NJS00036

WORK FLOW



*1 ATC-61, "Operational Check"

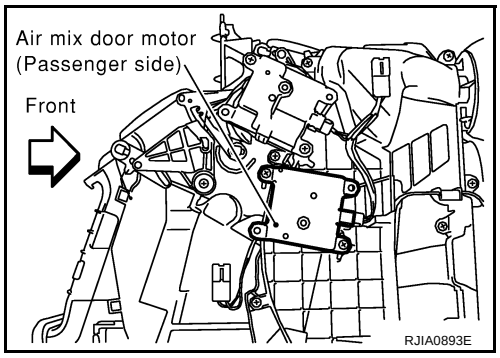
SYMPTOM TABLE

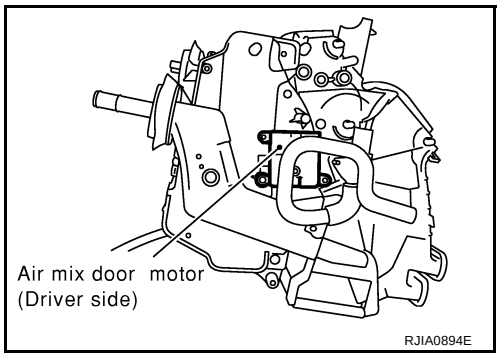
Symptom	Reference Page	
A/C system does not come on.	Go to Trouble Diagnosis Procedure for A/C System.	ATC-62, "Power Supply and Ground Circuit for Auto Amp."
A/C system cannot be controlled.	Go to Trouble Diagnosis Procedure for Multiplex Communication Circuit.	ATC-112, "Multiplex Communication Circuit"
Air outlet does not change.	Go to Trouble Diagnosis Procedure for Mode Door Motor. (LAN)	ATC-69, "Mode Door Motor Circuit"
Mode door motor does not operate normally.		
Discharge air temperature does not change.	Go to Trouble Diagnosis Procedure for Air Mix Door Motor. (LAN)	ATC-72, "Air Mix Door Motor Circuit"
Air mix door motor does not operate normally.		
Intake door does not change.	Go to Trouble Diagnosis Procedure for Intake Door Motor. (LAN)	ATC-75, "Intake Door Motor Circuit"
Intake door motor does not operate normally.		
Blower motor operation is malfunctioning.	Go to Trouble Diagnosis Procedure for Blower Motor.	ATC-78, "Blower Motor Circuit"
Magnet clutch does not engage.	Go to Trouble Diagnosis Procedure for Magnet Clutch.	ATC-83, "Magnet Clutch Circuit"
Insufficient cooling	Go to Trouble Diagnosis Procedure for Insufficient Cooling.	ATC-90, "Insufficient Cooling"
	Go to Diagnosis Procedure for Insufficient Cooling.	ATC-96, "DIAGNOSIS PROCEDURE FOR INSUFFICIENT COOLING"
Insufficient heating	Go to Trouble Diagnosis Procedure for Insufficient Heating.	ATC-98, "Insufficient Heating"
Noise	Go to Trouble Diagnosis Procedure for Noise.	ATC-99, "Noise"
Self-diagnosis cannot be performed.	Go to Trouble Diagnosis Procedure for Self-diagnosis.	ATC-100, "Self-diagnosis"
Memory function does not operate.	Go to Trouble Diagnosis Procedure for Memory Function.	ATC-101, "Memory Function"

COMPONENT DESCRIPTION

Air Mix Door Motor

The air mix door motors are attached to the heater & cooling unit assembly. It rotates so that the air mix door is opened or closed to a position set by the display and A/C auto amp. Motor rotation is then sent conveyed through a shaft and the air mix door position feedback is then sent to the display and A/C auto amp. by PBR built-in air mix door motor.





DIAGNOSIS PROCEDURE FOR AIR MIX DOOR

SYMPTOM: Discharge air temperature does not change.
Perform diagnosis procedure. Refer to ATC-65, "DIAGNOSIS PROCEDURE FOR LAN CIRCUIT" .

Air Mix Door Motor PBR Circuit

NJS0003H

SYMPTOM

- Discharge air temperature does not change.
- PBR circuit is open or shorted.

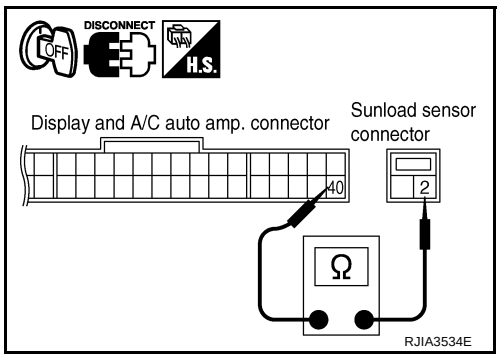
DIAGNOSIS PROCEDURE FOR AIR MIX DOOR MOTOR PBR

Perform diagnosis procedure. Refer to ATC-65, "DIAGNOSIS PROCEDURE FOR LAN CIRCUIT" .

2. CHECK CIRCUIT CONTINUITY BETWEEN SUNLOAD SENSOR AND DISPLAY AND A/C AUTO AMP.

1. Turn ignition switch OFF.
2. Disconnect display and A/C auto amp. connector.
3. Check continuity between sunload sensor harness connector M18 terminal 2 and display and A/C auto amp. harness connector M31 terminal 40.

2 – 40 : Continuity should exist.



OK or NG

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

3. CHECK SUNLOAD SENSOR

1. Reconnect sunload sensor connector and display and A/C auto amp. connector.
2. Refer to ATC-107, "Sunload Sensor" .

OK or NG

OK >> 1. Replace display and A/C auto amp.
2. Go to self-diagnosis ATC-53, "FUNCTION CONFIRMATION PROCEDURE" and perform self-diagnosis STEP-2. Confirm that code No. 20 is displayed.

NG >> 1. Replace sunload sensor.
2. Go to self-diagnosis ATC-53, "FUNCTION CONFIRMATION PROCEDURE" and perform self-diagnosis STEP-2. Confirm that code No. 20 is displayed.

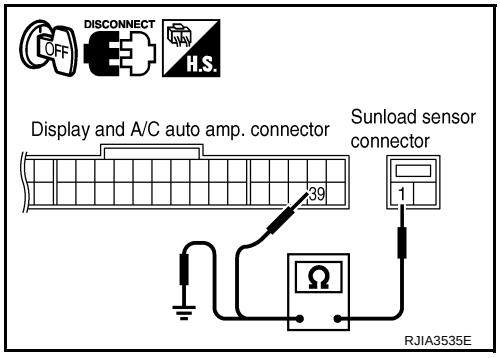
4. CHECK CIRCUIT CONTINUITY BETWEEN SUNLOAD SENSOR AND DISPLAY AND A/C AUTO AMP.

1. Turn ignition switch OFF.
2. Disconnect display and A/C auto amp. connector.
3. Check continuity between sunload sensor harness connector M18 terminal 1 and display and A/C auto amp. harness connector M31 terminal 39.

1 – 39 : Continuity should exist.

4. Check continuity between sunload sensor harness connector M18 terminal 1 and ground.

1 – Ground : Continuity should not exist.



OK or NG

OK >> 1. Replace display and A/C auto amp.
2. Go to self-diagnosis ATC-53, "FUNCTION CONFIRMATION PROCEDURE" and perform self-diagnosis STEP-2. Confirm that code No. 20 is displayed.

NG >> Repair harness or connector.

5. Disconnect one-touch joint between low-pressure flexible hose and low-pressure pipe 1.

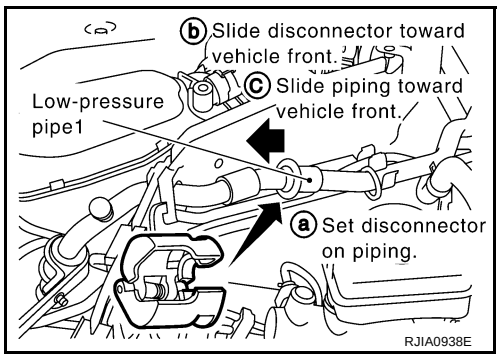
a. Set a disconnector (SST: 9253089916) on A/C piping.

b. Slide a disconnector toward vehicle front until it clicks.

c. Slide A/C piping toward vehicle front and disconnect it.

CAUTION:

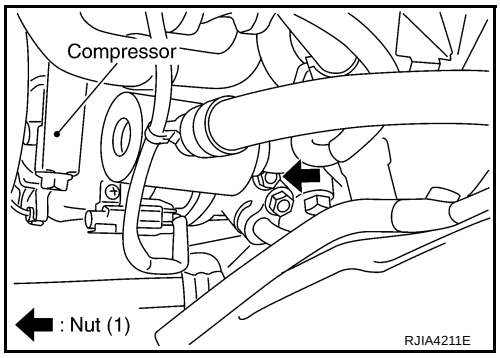
Cap or wrap the joint of low-pressure flexible hose and low-pressure pipe 1 with suitable material such as vinyl tape to avoid the entry of air.



6. Remove mounting nut, and then remove low-pressure flexible hose.

CAUTION:

Cap or wrap the joint of compressor and low-pressure flexible hose with suitable material such as vinyl tape to avoid the entry of air.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- **Replace O-rings of low-pressure flexible hose with new ones, and then apply compressor oil to it when installing it.**
- **Female-side piping connection is thin and easy to deform. Slowly insert the male-side piping straight in axial direction.**
- **Insert piping securely until a click is heard.**
- **After piping connection is completed, pull male-side piping by hand to make sure that connection does not come loose.**
- **When recharging refrigerant, check for leaks.**

Low-pressure flexible hose bracket mounting bolt

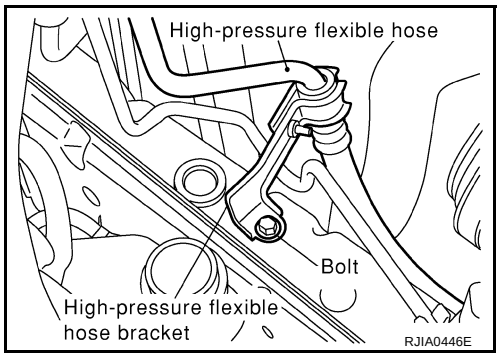
: 4.2 N·m (0.43 kg-m, 37 in-lb)

Removal and Installation of High-pressure Flexible Hose

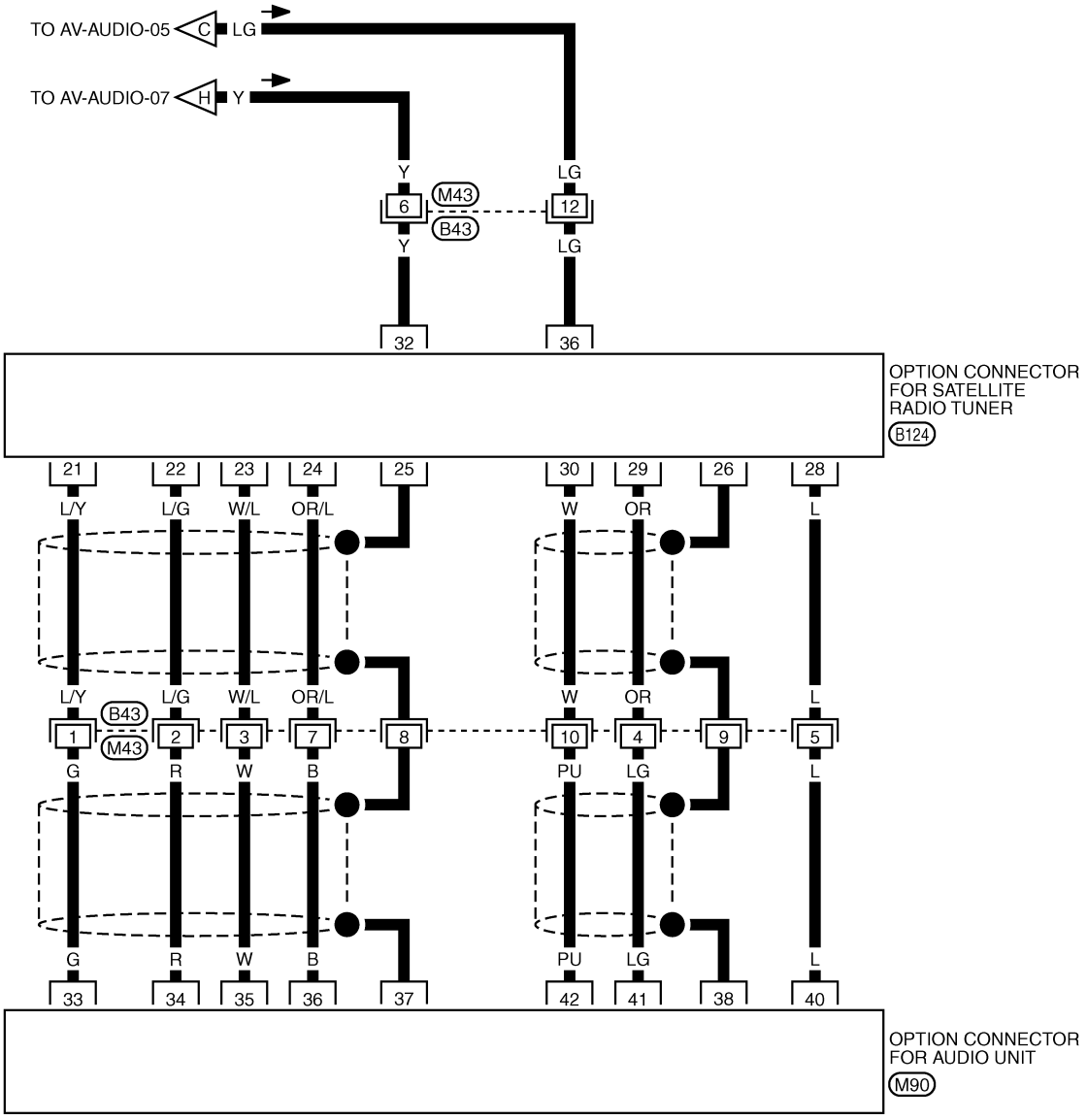
NJS0004H

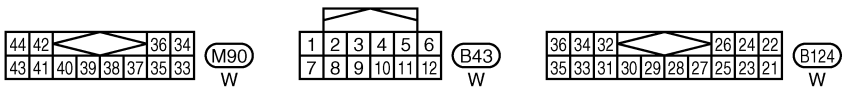
REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove engine cover, using power tools. Refer to EM-18, "INTAKE MANIFOLD COLLECTOR" .
3. Remove air cleaner assembly, air hose and air duct. Refer to EM-16, "AIR CLEANER AND AIR DUCT" .
4. Remove mounting bolt from high-pressure flexible hose bracket.

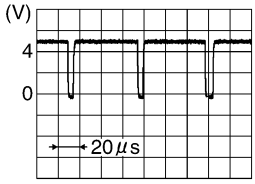
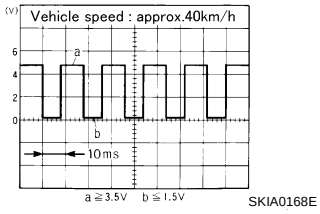
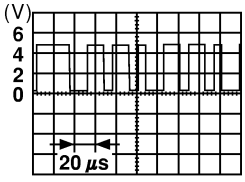
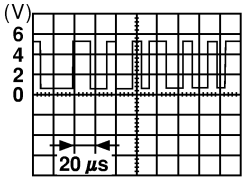
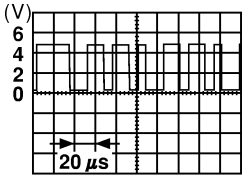


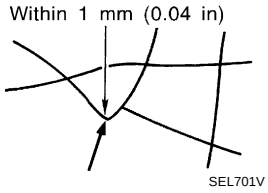
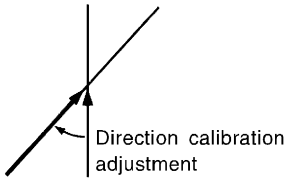
AV-AUDIO-10





TKWM3506E

Terminal (Wire color)		Item	Signal Input/ output	Condition		Reference value
+	–			Ignition switch	Operation	
48 (P)	Ground	RGB synchronizing signal	Output	ON	—	 SKIB3603E
49	—	Shield	—	—	—	—
50 (L)	Ground	RGB area (YS) signal	Output	ON	When inputting RGB image.	Approx. 5 V
61 (R/L)	Ground	Illumination signal	Input	OFF	Lighting switch position 1st or 2nd	Approx. 12 V
					Lighting switch position OFF	Approx. 0 V
63 (Y/G)	Ground	Ignition signal	Input	ON	—	Battery voltage
65 (OR)	Ground	Reverse signal	Input	ON	Select lever in R position.	Approx. 12 V
					Other than selector lever in R position.	Approx. 0 V
66 (W/G)	Ground	Vehicle speed signal (2-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH).	 SKIA0168E
68	—	Shield	—	—	—	—
69 (W)	Ground	Communication signal (+)	Input/ Output	ON	Press the “BACK” switch.	 SKIA0175E
70 (B)	Ground	Communication signal (–)	Input/ Output	ON	Press the “BACK” switch.	 SKIA0176E
71 (PU)	Ground	Communication signal (+)	Input/ Output	ON	—	 SKIA0175E

Cause (condition) : While driving		Driving condition	Remarks (correction, etc.)
Precautions for driving	Just after the engine is started	If the vehicle is driven off just after the engine is started when the gyroscope (angular speed sensor) correction is not completed, the vehicle can lose its direction and may have deviated from the correct location.	Wait for a short while before driving after starting the engine.
	Continuous driving without stopping	When driving long distances without stopping, direction errors may accumulate, and the current-location mark may deviate from the correct road.	Stop and adjust the orientation.
	Abusive driving	Spinning the wheels or engaging in other kinds of abusive driving may result in the system being unable perform correct detection, and may cause the vehicle mark to deviate from the correct road.	If after traveling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
How to correct location	Position correction accuracy  SEL701V	If the accuracy of location settings is poor, accuracy may be reduced when the correct road cannot be found, particularly in places where there are many roads.	Enter in the road displayed on the screen with an accuracy of approx. 1 mm. Caution: Whenever possible, use detailed map for the correction.
	Direction when location is corrected  SEL702V	If the accuracy of location settings during correction is poor, accuracy may be reduced afterwards.	Perform direction correction.

THE CURRENT POSITION MARK SHOWS A POSITION WHICH IS COMPLETELY WRONG

In the following cases, the current-location mark may appear on completely different position in the map depending on the GPS satellite signal receiving conditions. In this case, perform location correction and direction correction.

- When location correction has not been done
  - If the receiving conditions of the GPS satellite signal is poor, if the current-location mark becomes out of place, it may move to a completely different location and not come back if location correction is not done. The position will be corrected if the GPS signal can be received.
- When the vehicle has traveled by ferry, or when the vehicle has been being towed
  - Because calculation of the current location cannot be done when traveling with the ignition OFF, for example when traveling by ferry or when being towed, the location before travel is displayed. If the precise location can be detected with GPS, the location will be corrected.

THE CURRENT POSITION MARK JUMPS

In the following cases, the current-location mark may appear to jump as a result of automatic correction of the current location.

- When map-matching has been done
  - If the current location and the current-location mark are different when map-matching is done, the current-location mark may seem to jump. At this time, the location may be “corrected” to the wrong road or to a location which is not on a road.
- When GPS location correction has been done
  - If the current location and the current-location mark are different when the location is corrected using GPS measurements, the current-location mark may seem to jump. At this time, the location may be “corrected” to a location which is not on a road.

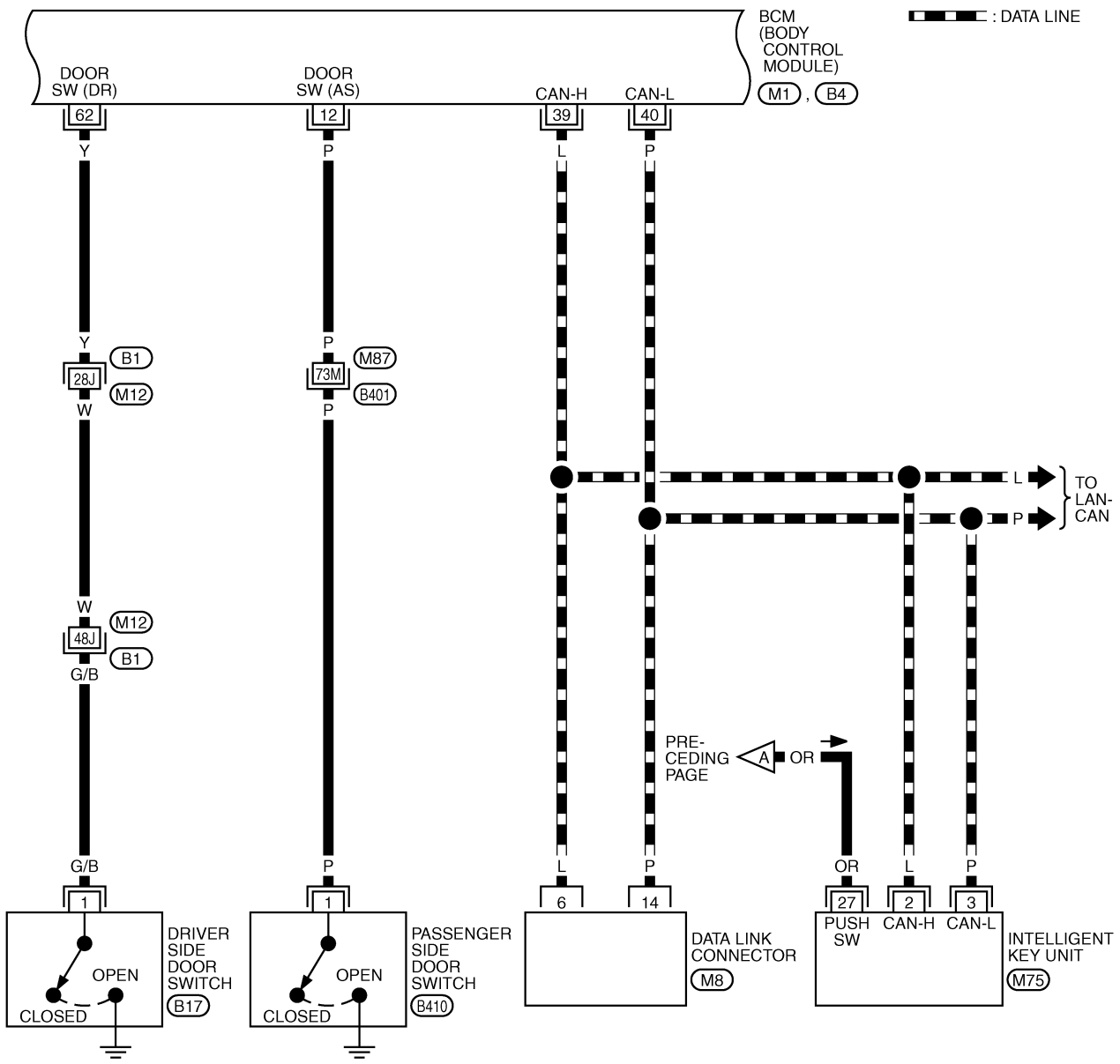
System	Input	Output
Rear window defogger	● Rear window defogger switch ● Ignition switch	IPDM E/R
● A/C switch signal ● Blower fan switch signal	Display and A/C auto amp.	ECM
Low tire pressure warning system	Remote keyless entry receiver	Combination meter

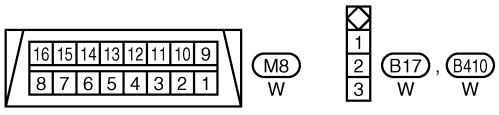
CAN Communication Unit

NKS000N0

Refer to LAN-26, "CAN Communication Unit" .

BL-D/LOCK-02

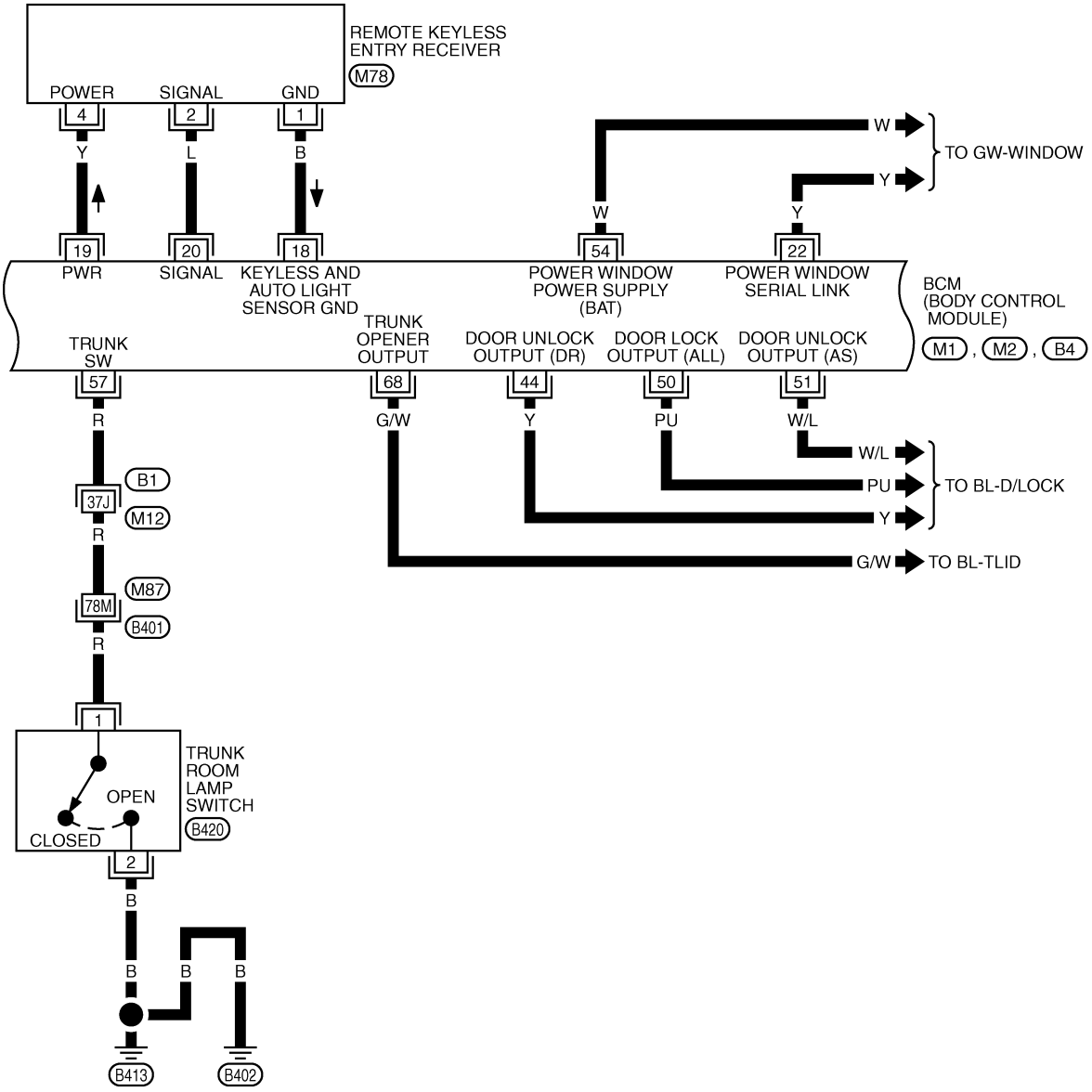


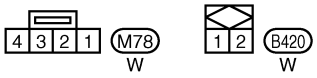


REFER TO THE FOLLOWING.
B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M75 , B4 -ELECTRICAL UNITS

TIWM1460E

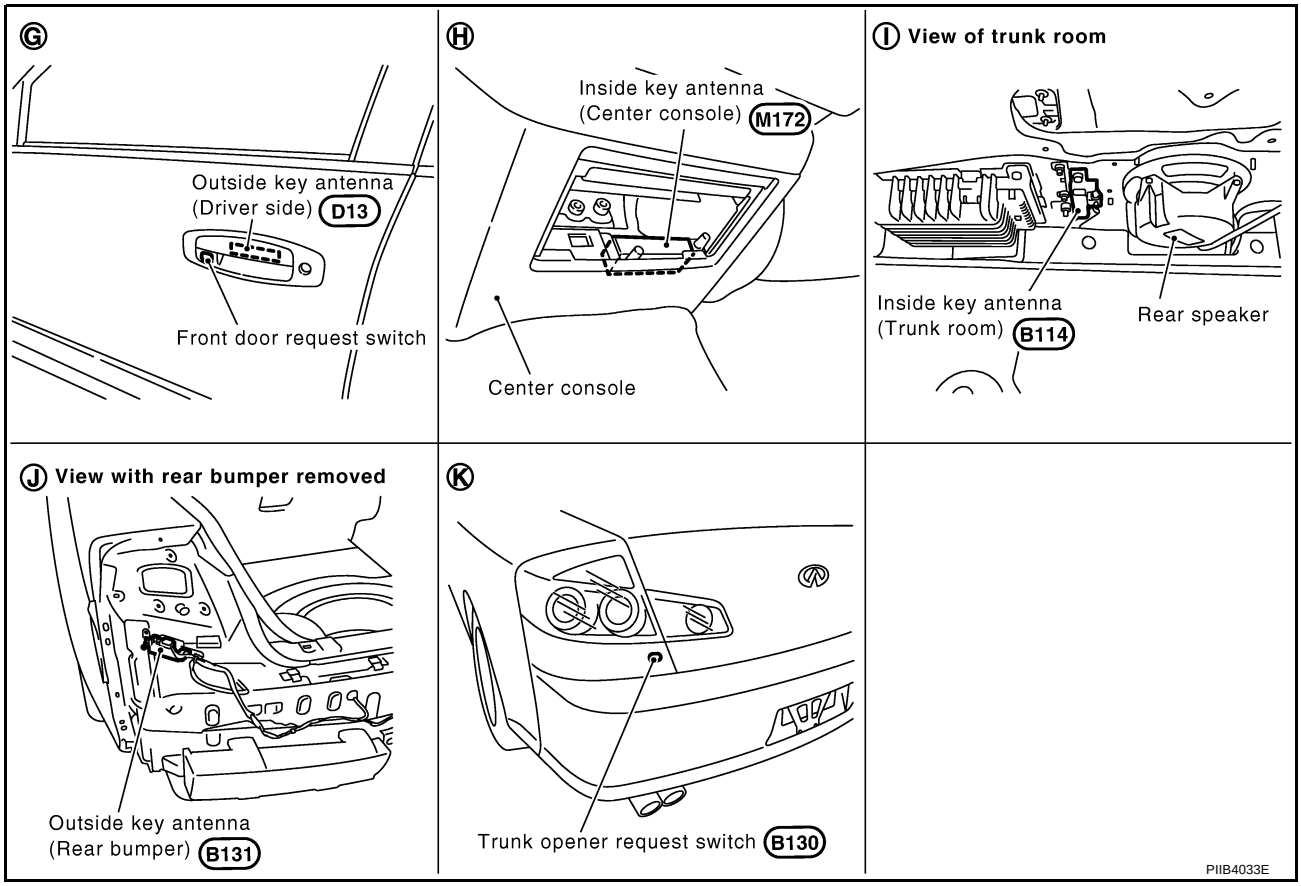
BL-KEYLES-02





REFER TO THE FOLLOWING.
B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M2 , B4 -ELECTRICAL UNITS

TIWM1466E



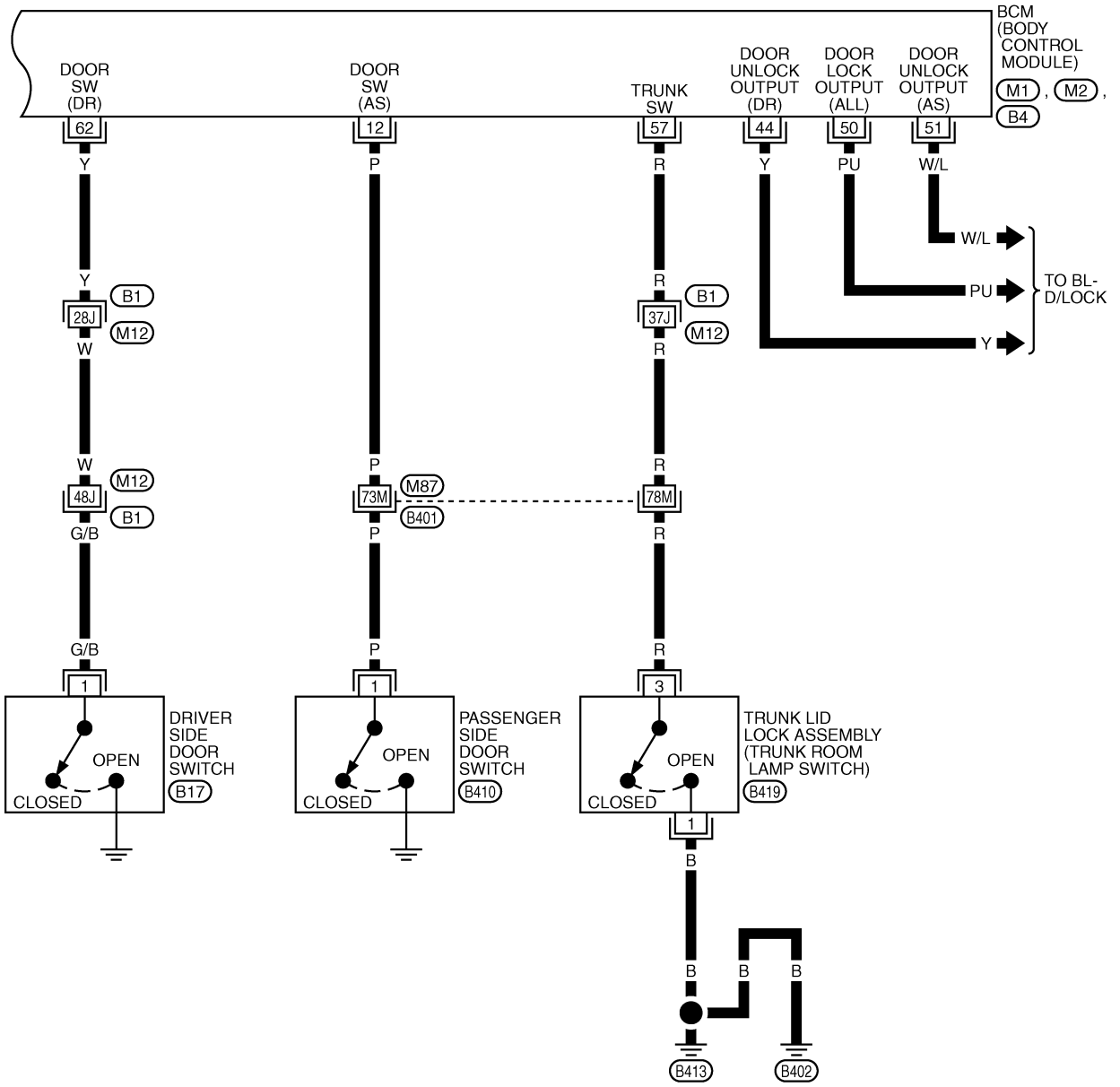
System Description

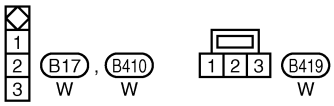
NIS001JG

- The Intelligent Key system is a system that makes it possible to lock and unlock the door locks (door lock/unlock function), open the trunk (trunk open function), and start the engine (engine start function) by carrying around the Intelligent Key (without some key operation), which operates based on the results of electronic ID verification using two-way communications between the Intelligent Key and the vehicle (Intelligent Key unit).

  CAUTION:
  The driver should always carry the Intelligent Key
- Operation of the remote controller buttons on the Intelligent Key also provides the same functions as the remote controller entry system. (Remote keyless entry functions)
- If an action that does not meet the operating conditions of the Intelligent Key system is taken, the buzzer goes off to inform the driver. (Warning chime functions)
- When a door lock is locked or unlocked with request switch or remote controller button operation, the hazard lamps flash and the buzzer (outside vehicle) sounds (Hazard and horn reminder function).
- Even if the Intelligent Key battery is completely discharged, the door locks can be locked and unlocked and the engine started with the mechanical key built into the Intelligent Key.
- The settings for each function can be changed with the CONSULT-II.
- If an Intelligent Key is lost, a new Intelligent Key can be registered. A maximum of 4 Intelligent Keys can be registered.
- It has been made possible to diagnose the system and register an Intelligent Key with the CONSULT-II.

BL-I/KEY-08





REFER TO THE FOLLOWING.
B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M2 , B4
-ELECTRICAL UNITS

TIWB1311E

Check Door Request Switch

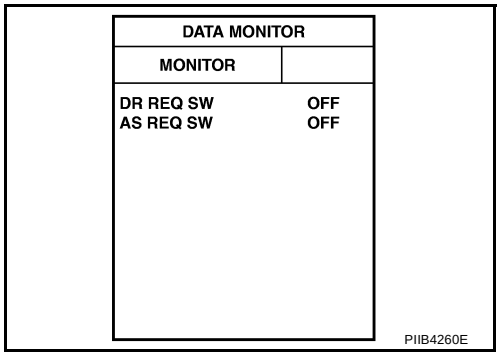
NIS001K1

1. CHECK DOOR REQUEST SWITCH

With CONSULT-II

Check door request switch (“DR REQ SW” or “AS REQ SW”) in “DATA MONITOR” mode.

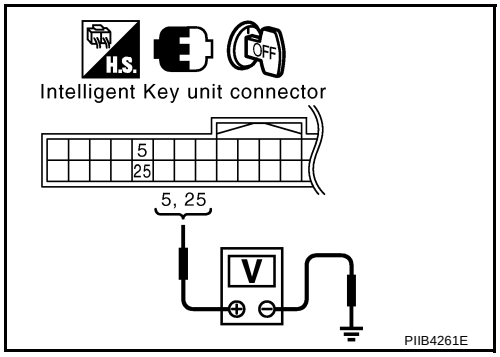
Monitor item	Condition
DR REQ SW AS REQ SW	Door request switch is pressed: ON
	Door request switch is released: OFF



Without CONSULT-II

1. Turn ignition switch OFF.
2. Check voltage between Intelligent Key unit harness connector and ground.

Connector	Item	Terminal (Wire color) (+)	Terminal (Wire color) (–)	Condition	Voltage (V) (Approx.)
M75	Door request switch (driver side)	5 (W)	Ground	Door request switch is pressed ↓ Door request switch is released	0 ↓ Battery voltage
	Door request switch (passenger side)	25 (P)			



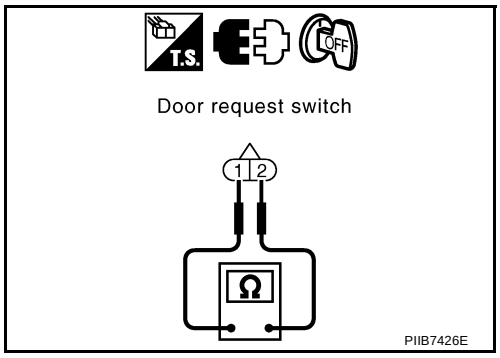
OK or NG

OK >> Door request switch is OK.
NG >> GO TO 2.

2. CHECK DOOR REQUEST SWITCH OPERATION

1. Turn ignition switch OFF.
2. Disconnect door request switch connector.
3. Check continuity between door request switch harness connector D16 (driver door), D45 (passenger door) terminals 1 and 2.

Item	Connector	Terminal (wire color) (+)	Terminal (wire color) (-)	Condition	Continuity
Driver side	D16	1	2	Door request switch is pressed	Yes
Passenger side	D45			Door request switch is released	No



OK or NG

OK >> GO TO 3.
NG >> Replace door request switch.

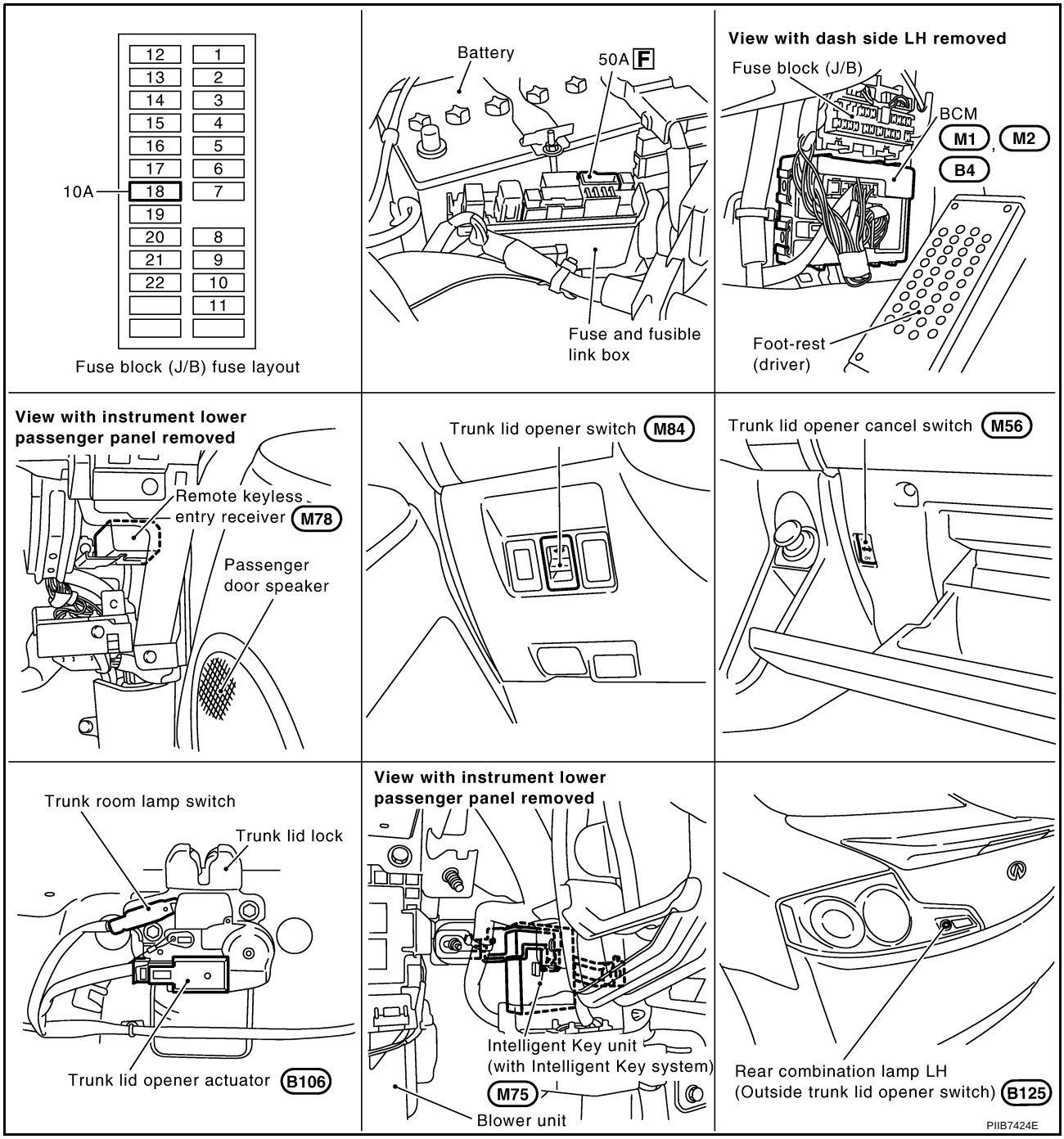
TRUNK LID OPENER

PFP:84640

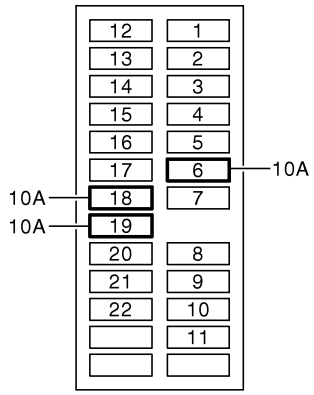
Component Parts and Harness Connector Location

NIS001J8

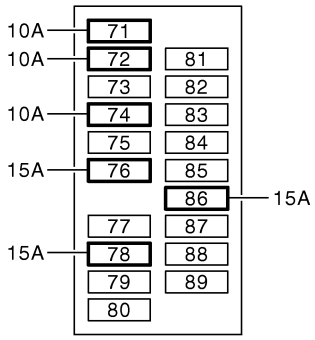
Up to Vehicle Identification Number JNKCV54E26M 712739



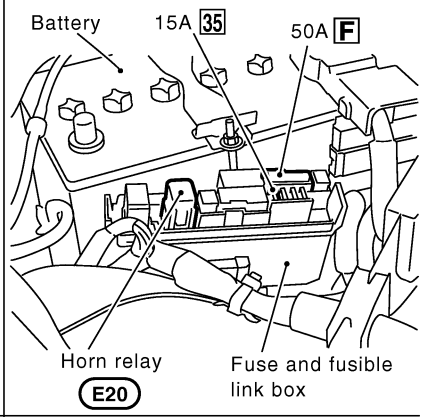
From Vehicle Identification JNKCV54E26M 712740



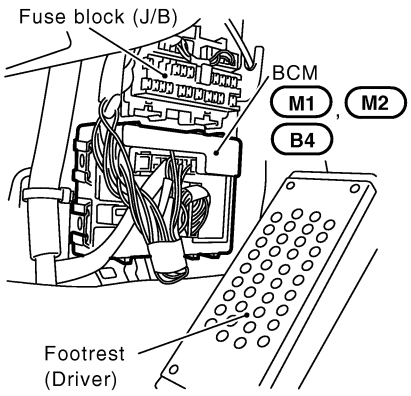
Fuse block (J/B) fuse layout



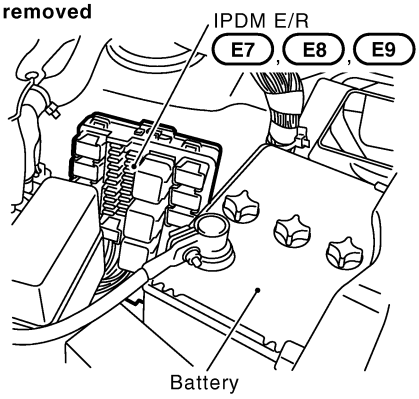
IPDM E/R fuse layout

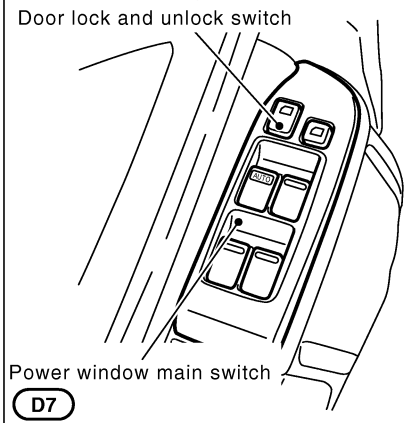


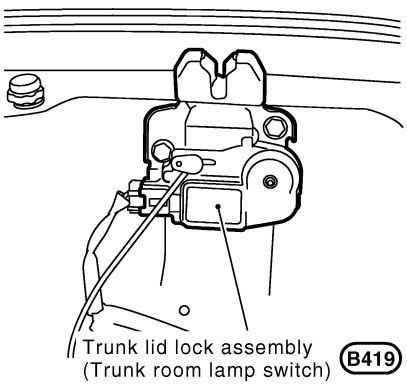
View with dash side LH removed

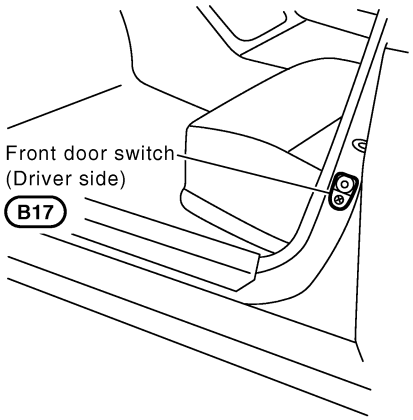


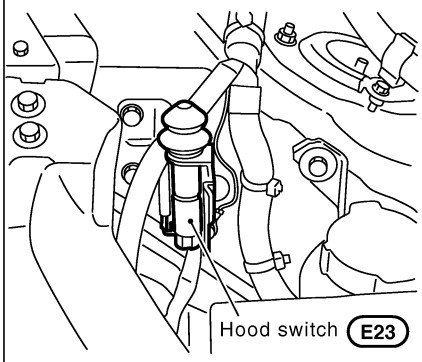
View with cowl top cover (right) removed



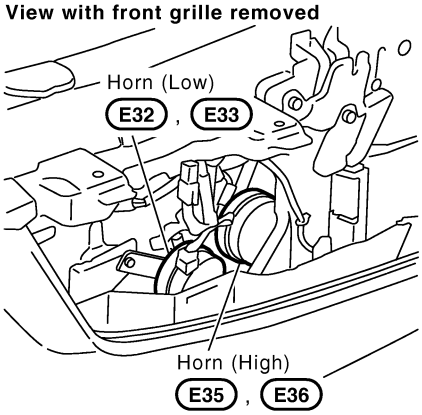


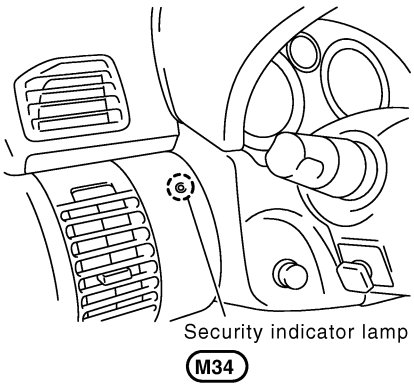






View with front grille removed





PIIB9151E

Diagnostic Procedure 5

NIS001J4

CHECK VEHICLE SECURITY HEADLAMP ALARM

1. CHECK HEADLAMP OPERATION

Check if headlamp operate by lighting switch.

Does headlamp come on when turning switch “ON”?

YES >> Headlamp circuit is OK.
NO >> Check headlamp system. Refer to LT-5, "HEADLAMP - XENON TYPE -" or LT-36, "DAYTIME LIGHT SYSTEM" .

Diagnostic Procedure 6

NIS001J5

CHECK DOOR LOCK AND UNLOCK SWITCH

1. CHECK DOOR LOCK AND UNLOCK SWITCH INPUT SIGNAL

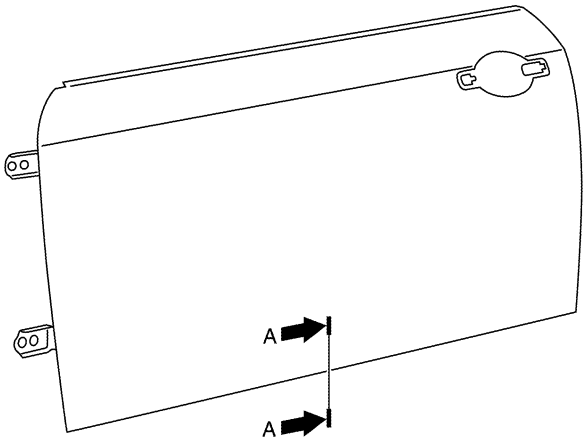
Check if power door lock operated by door lock and unlock switch.

Do doors lock / unlock when using each door lock and unlock switches?

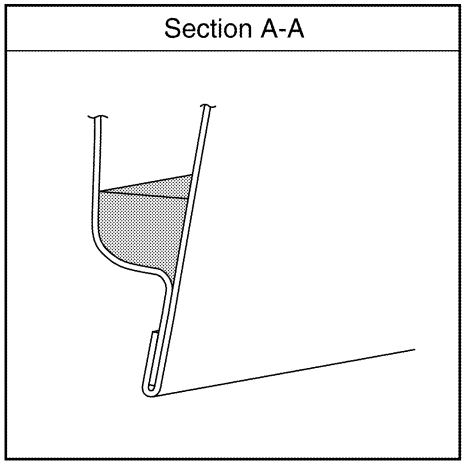
YES >> Door lock and unlock switch is OK.
NO >> Check door lock and unlock switch. Refer to BL-264, "CHECK DOOR LOCK AND UNLOCK SWITCH"

ANTI-CORROSIVE WAX

To improve corrosion resistance, anti-corrosive wax is applied inside the body sill and inside other closed sections. Accordingly, when replacing these parts, be sure to apply anti-corrosive wax to the appropriate areas of the new parts. Select an excellent anti-corrosive wax which will penetrate after application and has a long shelf life.



: Indicates anti-corrosive wax coated portions.



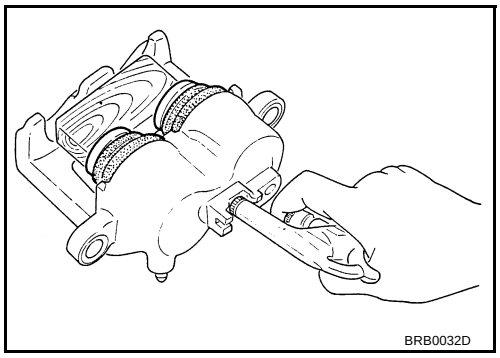
SIIA2131E

Change parts

- Outer sill reinforcement assembly (LH)

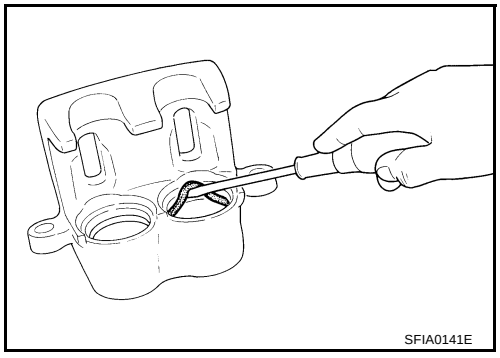
3. Remove sliding pins and sliding pin boots from torque member.
4. Place a wooden block as shown in the figure, and blow air from union bolt mounting hole to remove pistons and piston boots.

   CAUTION:
   Do not get fingers caught in the pistons.


BRB0032D

5. Using a flat-bladed screwdriver, remove piston seals from cylinder body.

   CAUTION:
   Be careful not to damage the inner wall of cylinder.


SFIA0141E

INSPECTION AFTER DISASSEMBLY

Cylinder Body

CAUTION:
Use new brake fluid to clean. Do not use mineral oils such as gasoline or kerosene.

- Check the inner wall of cylinder for corrosion, wear, and damage. If a malfunction is detected, replace cylinder body.
- Minor flaws caused by corrosion or a foreign material can be removed by polishing a surface of the inner wall with a fine sandpaper. Replace cylinder body, if a malfunction is detected.

Torque Member

Check for wear, cracks, and damage. If a malfunction is detected, replace applicable part.

Piston

CAUTION:
The piston sliding surface is plated. Do not polish with sandpaper.
Check piston surface for corrosion, wear, and damage. If a malfunction is detected, replace applicable part.

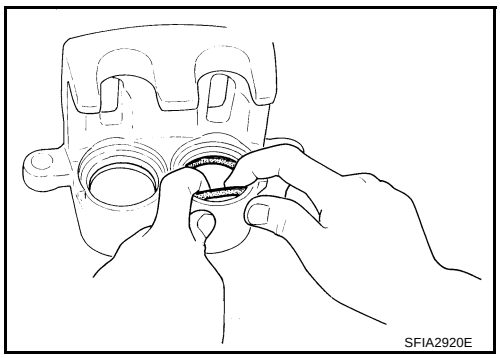
Sliding Pin, Sliding Pin Bolt, and Sliding Pin Boot

Check sliding pins and sliding pin boots for wear, damage, and cracks. If a malfunction is detected, replace applicable part.

ASSEMBLY

1. Apply polyglycol ether based lubricant to the piston seal, and install them to the cylinder body.

   CAUTION:
   Do not reuse piston seal.


SFIA2920E

Monitor item	Contents	DATA MONITOR		Check item
		Condition	Reference value in normal operation	
FLUID LEV SW	ON/OFF condition of brake fluid level switch	When brake fluid level switch ON	ON	BRC-50, "Brake Fluid Level Switch System"
		When brake fluid level switch OFF	OFF	
FAIL SIGNAL	Fail signal condition	VDC fail TCS fail ABS fail EBD fail	OFF	VDC system TCS system ABS system EBD system

Note 1: Confirm tire pressure is normal.
Note 2: ON/OFF timing of warning lamp and indicator lamp. Refer to BRC-35, "INSPECTION OF ABS WARNING LAMP, VDC OFF INDICATOR LAMP AND SLIP INDICATOR LAMP" .

CONSULT-II Functions (VDC/TCS/ABS)

NFS0006Y

CONSULT-II MAIN FUNCTION

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

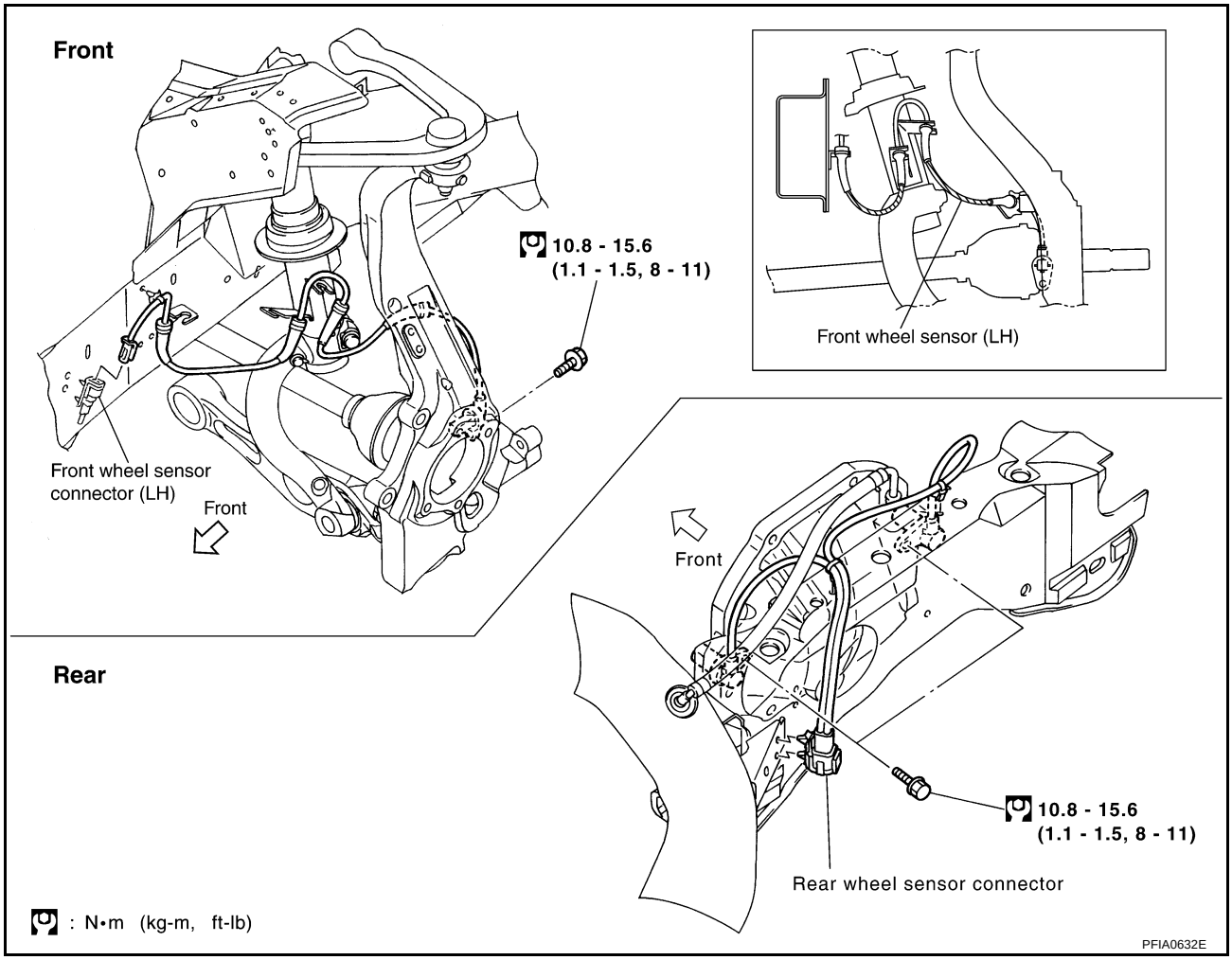
Diagnostic test mode	Function	Reference
WORK SUPPORT	This mode enables a technician to adjust some devices faster and more accurately by following the indications on CONSULT-II.	BRC-6, "Adjustment of Steering Angle Sensor Neutral Position"
SELF-DIAG RESULTS	Self-diagnostic results can be read and erased quickly.	BRC-26, "Self-Diagnosis"
DATA MONITOR	Input/Output data in the VDC/TCS/ABS control unit can be read.	BRC-29, "Data Monitor"
CAN DIAG SUPPORT MNTR	The results of transmit/receive diagnosis of communication can be read.	LAN-15, "CAN Diagnostic Support Monitor"
ACTIVE TEST	Diagnostic Test Mode in which CONSULT-II drives some actuators apart from the VDC/TCS/ABS control unit and also shifts some parameters in a specified range.	BRC-31, "Active Test"
FUNCTION TEST	Performed by CONSULT-II instead of a technician to determine whether each system is “OK” or “NG”.	Separate volume ″CONSULT-II OPERATION MANUAL (FUNCTION TEST)″
ECU PART NUMBER	VDC/TCS/ABS control unit part number can be read.	—

WHEEL SENSOR

PFP:47910

Removal and Installation

NFS0007P



REMOVAL

Pay attention to the following when removing sensor.

CAUTION:

- **As much as possible, twisting sensor harness when removing it. Pull sensors out without pulling on sensor harness.**
- **Take care to avoid damaging sensor edges or rotor teeth. Remove wheel sensor first before removing front or rear wheel hub. This is to avoid damage to sensor wiring and loss of sensor function.**

INSTALLATION

Pay attention to the following when installing wheel sensor. Tighten installation bolts to specified torques.

- When installing, make sure there is no foreign material such as iron chips on pick-up and mounting hole of sensor. Make sure no foreign material has been caught in sensor rotor motor. Remove any foreign material and clean mount.
- When installing front wheel sensor, be sure to press rubber grommets in until they are held at the three locations shown in the figure (2 at shock absorbers and 1 at body panel). When installed, harness must not be twisted. White line on harness (shaded part) must be visible from front.

ENGINE COOLANT

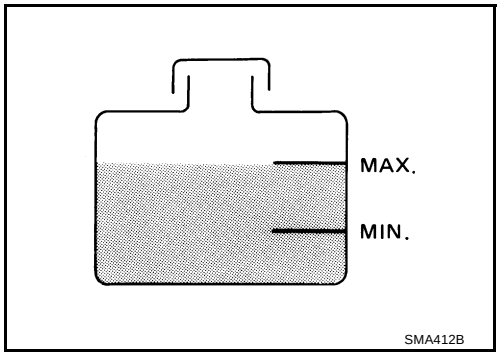
PFP:KQ100

Inspection

NBS000LL

LEVEL CHECK

- Check if the reservoir tank engine coolant level is within the “MIN” to “MAX” range when the engine is cool.
- Adjust the engine coolant level as necessary.



LEAK CHECK

- To check for leaks, apply pressure to the cooling system with radiator cap tester (commercial service tool) and radiator cap tester adapter (SST).

  Testing pressure

  : 157 kPa (1.6 kg/cm^2 , 23 psi)

  WARNING:

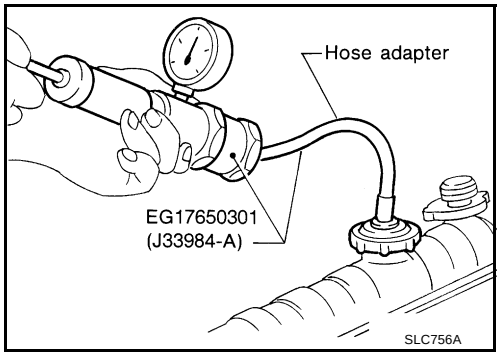
  Do not remove radiator cap when engine is hot. Serious burns could occur from high-pressure engine coolant escaping from radiator.

  CAUTION:

  Higher test pressure than specified may cause radiator damage.

  NOTE:

  In a case that engine coolant decreases, replenish radiator with engine coolant.



- If anything is found, repair or replace damaged parts.

Changing Engine Coolant

NBS000LM

WARNING:

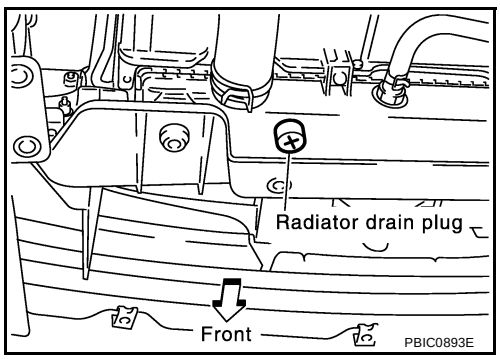
- **To avoid being scalded, do not change engine coolant when engine is hot.**
- **Wrap a thick cloth around radiator cap and carefully remove radiator cap. First, turn cap a quarter of a turn to release built-up pressure. Then turn radiator cap all the way.**

CAUTION:

Be careful not to allow engine coolant to contact drive belts.

DRAINING ENGINE COOLANT

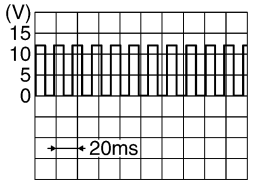
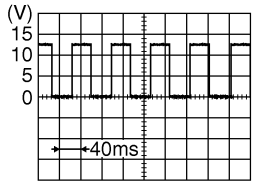
1. Remove undercover with power tool.
2. Open radiator drain plug at the bottom of radiator, and then remove radiator cap.



When drain all of engine coolant in the system, open drain plugs on engine cylinder block. Refer to EM-138, "DISASSEMBLY" .

Terminals and Reference Value for Combination Meter

NKS000KI

Terminal	Wire color	Item	Condition		Reference value
			Ignition switch	Operation or condition	
1	B	Ground	ON	—	Approx. 0 V
4	L	CAN H	—	—	—
5	P	CAN L	—	—	—
7	W/B	Fuel level sensor signal	—	—	Refer to DI-19, "FUEL LEVEL SENSOR UNIT" .
13	W/G	Vehicle speed signal (8-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	**NOTE:** Maximum voltage may be 5 V due to specifications (connected units).  PKIA1935E
14	W/G	Vehicle speed signal (2-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	**NOTE:** Maximum voltage may be 5 V due to specifications (connected units).  SKIB3867E
18	LG	ACC power supply	ACC	—	Battery voltage
21	R/W	Battery power supply	OFF	—	Battery voltage
22	G/Y	Ignition power supply	ON	—	Battery voltage
23					
24	B	Ground	ON	—	Approx. 0 V
25					

Self-Diagnosis Mode of Combination Meter

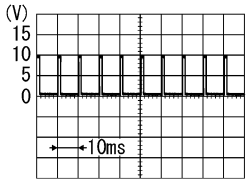
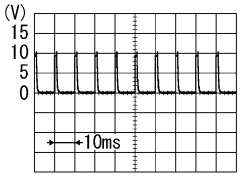
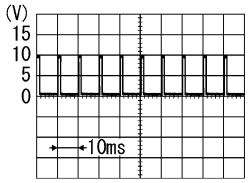
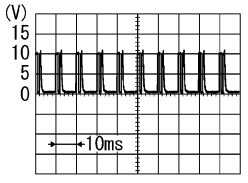
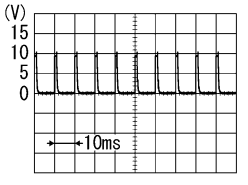
NKS000KJ

SELF-DIAGNOSIS FUNCTION

- Odo/trip meter and A/T indicator segments operation can be checked in self-diagnosis mode.
- Meters/gauges can be checked in self-diagnosis mode.

OPERATION PROCEDURE

1. Turn ignition switch ON, and switch the odo/trip meter to “trip A” or “trip B”.
   NOTE:
   If the self-diagnosis function is activated with the “trip A” displayed, only “trip A” display is reset.
2. Turn ignition switch OFF.
3. While pushing the odo/trip meter switch, turn ignition switch ON again.
4. Make sure that the trip meter displays “0000.0”.
5. Push the odo/trip meter switch at least 3 times (within 7 seconds after the ignition switch is turned ON).

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	Approx. 0 V
					Any of the conditions below ● Front washer switch ● Rear washer switch ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 5 ● Wiper intermittent dial position 6	 PKIB4959J Approx. 1.0 V
					Rear wiper switch ON (Wiper intermittent dial position 4)	 PKIB4955J Approx. 0.8 v
6	W/R	Combination switch input 1	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	Approx. 0 V
					Any of the conditions below ● Front wiper switch HI ● Rear wiper switch INT ● Wiper intermittent dial position 3	 PKIB4959J Approx. 1.0 V
					Any of the conditions below ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 2	 PKIB4952J Approx. 1.7 V
					Any of the conditions below ● Wiper intermittent dial position 6 ● Wiper intermittent dial position 7	 PKIB4955J Approx. 0.8 V

INDEX FOR DTC

DTC*1		Items (CONSULT-II screen terms)	Reference page
CONSULT-II GST*2	ECM*3		
P0448	0448	VENT CONTROL VALVE	EC-435
P0451	0451	EVAP SYS PRES SEN	EC-442
P0452	0452	EVAP SYS PRES SEN	EC-445
P0453	0453	EVAP SYS PRES SEN	EC-451
P0455	0455	EVAP GROSS LEAK	EC-459
P0456	0456	EVAP VERY SML LEAK	EC-467
P0460	0460	FUEL LEV SEN SLOSH	EC-476
P0461	0461	FUEL LEVEL SENSOR	EC-478
P0462	0462	FUEL LEVL SEN/CIRC	EC-480
P0463	0463	FUEL LEVL SEN/CIRC	EC-480
P0500	0500	VEH SPEED SEN/CIRC*5	EC-482
P0506	0506	ISC SYSTEM	EC-485
P0507	0507	ISC SYSTEM	EC-487
P0550	0550	PW ST P SEN/CIRC	EC-489
P0603	0603	ECM BACK UP/CIRCUIT	EC-494
P0605	0605	ECM	EC-498
P0643	0643	SENSOR POWER/CIRC	EC-501
P0700	0700	TCM	AT-106
P0705	0705	PNP SW/CIRC	AT-107
P0710	0710	ATF TEMP SEN/CIRC	AT-129
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P0740	0740	TCC SOLENOID/CIRC	AT-120
P0744	0744	A/T TCC S/V FNCTN	AT-122
P0745	0745	L/PRESS SOL/CIRC	AT-124
P0850	0850	P-N POS SW/CIRCUIT	EC-506
P1078	1078	EXH TIM SEN/CIR-B1*6	EC-514
P1084	1084	EXH TIM SEN/CIR-B2*6	EC-514
P1148	1148	CLOSED LOOP-B1	EC-522
P1168	1168	CLOSED LOOP-B2	EC-522
P1211	1211	TCS C/U FUNCTN	EC-523
P1212	1212	TCS/CIRC	EC-524
P1217	1217	ENG OVER TEMP	EC-525
P1225	1225	CTP LEARNING	EC-537
P1226	1226	CTP LEARNING	EC-539
P1564	1564	ASCD SW	EC-541
P1572	1572	ASCD BRAKE SW	EC-549
P1574	1574	ASCD VHL SPD SEN	EC-565
P1610 - P1615	1610 - 1615	NATS MALFUNCTION	EC-46
P1715	1715	IN PULY SPEED	EC-567
P1730	1730	A/T INTERLOCK	AT-136
P1752	1752	I/C SOLENOID/CIRC	AT-141

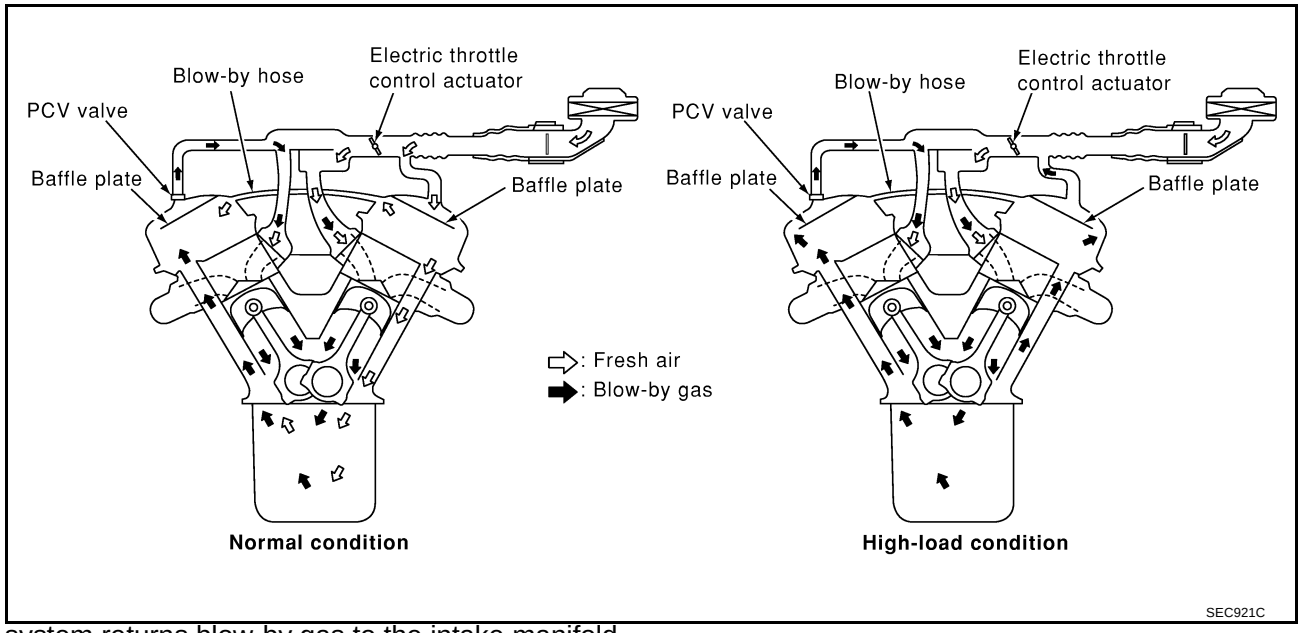
POSITIVE CRANKCASE VENTILATION

PFP:11810

Description

NBS000MT

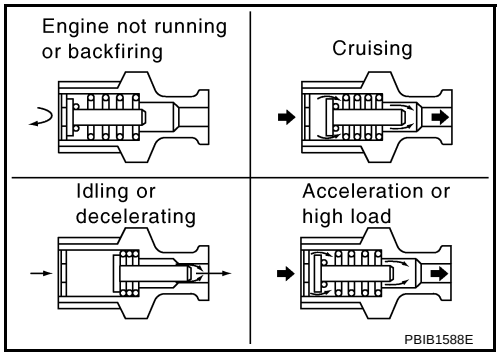
SYSTEM DESCRIPTION



This system returns blow-by gas to the intake manifold.

The positive crankcase ventilation (PCV) valve is provided to conduct crankcase blow-by gas to the intake manifold. During partial throttle operation of the engine, the intake manifold sucks the blow-by gas through the PCV valve. Normally, the capacity of the valve is sufficient to handle any blow-by and a small amount of ventilating air. The ventilating air is then drawn from the air inlet tubes into the crankcase. In this process the air passes through the hose connecting air inlet tubes to rocker cover. Under full-throttle condition, the manifold vacuum is insufficient to draw the blow-by flow through the valve. The flow goes through the hose connection in the reverse direction.

On vehicles with an excessively high blow-by, the valve does not meet the requirement. This is because some of the flow will go through the hose connection to the air inlet tubes under all conditions.

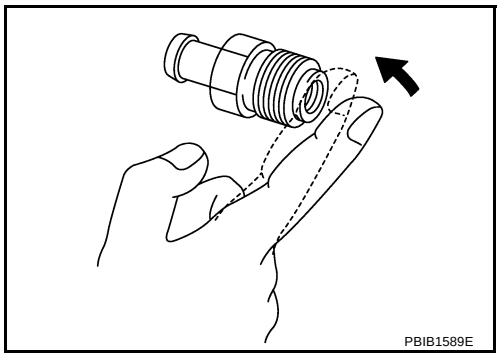


Component Inspection

NBS000MU

PCV (POSITIVE CRANKCASE VENTILATION) VALVE

With engine running at idle, remove PCV valve from rocker cover. A properly working valve makes a hissing noise as air passes through it. A strong vacuum should be felt immediately when a finger is placed over valve inlet.



Exhaust Valve Timing Control Learning (M/T models)

NBS000N5

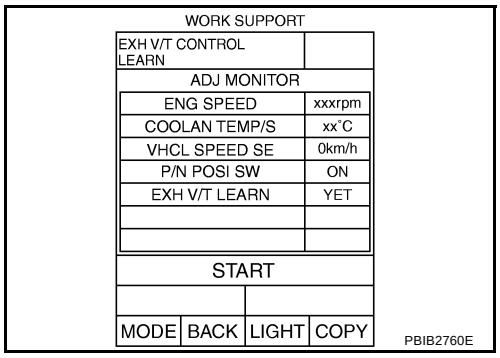
DESCRIPTION

Exhaust Valve Timing Control Learning is an operation to learn the characteristic of exhaust valve timing control magnet retarder by comparing the target angle of exhaust camshaft with the actual retarded angle of exhaust camshaft. It must be performed each time exhaust valve timing control magnet retarder is disconnected or replaced, or ECM is replaced.

OPERATION PROCEDURE

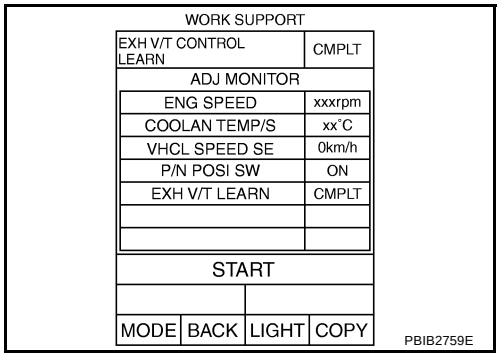
With CONSULT-II

1. Start engine and warm it up to normal operation temperature.
2. Set shift lever in neutral position and confirm that following electrical or mechanical loads are not applied.
   - Headlamp switch is OFF
   - Air conditioner switch is OFF
   - Rear defogger switch is OFF
   - Steering wheel is in the straight-ahead position, etc
3. Keep the engine speed between 1,800 and 2,000 rpm.
4. Select “EXH V/T CONTROL LEARN” in “WORK SUPPORT” mode with CONSULT-II.



5. Touch “START” and wait 20 seconds.
6. Make sure that “CMPLT” is displayed on CONSULT-II screen.

Learning completed : CMPLT
Learning not yet : YET



Without CONSULT-II

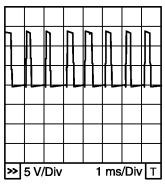
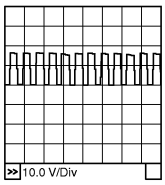
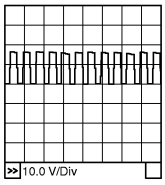
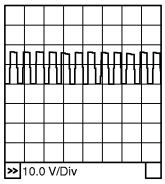
1. Start engine and warm it up to normal operation temperature.
2. Set shift lever in neutral position and confirm that following electrical or mechanical loads are not applied.
   - Headlamp switch is OFF
   - Air conditioner switch is OFF
   - Rear defogger switch is OFF
   - Steering wheel is in the straight-ahead position, etc
3. Keep the engine speed between 1,800 and 2,000 rpm at 20 seconds.

Accelerator Pedal Released Position Learning

NBS000N6

DESCRIPTION

Accelerator Pedal Released Position Learning is an operation to learn the fully released position of the accelerator pedal by monitoring the accelerator pedal position sensor output signal. It must be performed each time harness connector of accelerator pedal position sensor or ECM is disconnected.

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
5	G	Throttle control motor (Open)	**[Ignition switch: ON]** ● Engine stopped ● Shift lever: D (A/T) or 1st (M/T) ● Accelerator pedal: Fully depressed	0 - 14V★  PBIB1105E
6	BR/W	Heated oxygen sensor 2 heater (bank 2)	**[Engine is running]** ● Engine speed is below 3,600 rpm after the following conditions are met. – Engine: After warming up – Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load.	0 - 1.0V
			[Ignition switch: ON] ● Engine stopped **[Engine is running]** ● Engine speed: Above 3,600 rpm	BATTERY VOLTAGE (11 - 14V)
8*	R/W	Exhaust valve timing control magnet retarder (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	BATTERY VOLTAGE (11 - 14V)
			[Engine is running] ● **Warm-up condition** ● Engine speed: Above 1,500 rpm	7 - 12V★  PBIB1790E
9*	P	Exhaust valve timing control magnet retarder (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	BATTERY VOLTAGE (11 - 14V)
			[Engine is running] ● **Warm-up condition** ● Engine speed: Above 1,500 rpm	7 - 12V★  PBIB1790E
10	W/G	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** ● When revving engine up to 2,000 rpm quickly	7 - 12V★  PBIB1790E

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-81, "Fuel Pressure Check" .)

OK or NG

OK >> GO TO 9.
NG (Fuel pressure is too high)>>Replace fuel pressure regulator, refer to EC-81, "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-659, "FUEL PUMP" .)

2. If NG, repair or replace the malfunctioning part. (Refer to EC-81, "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

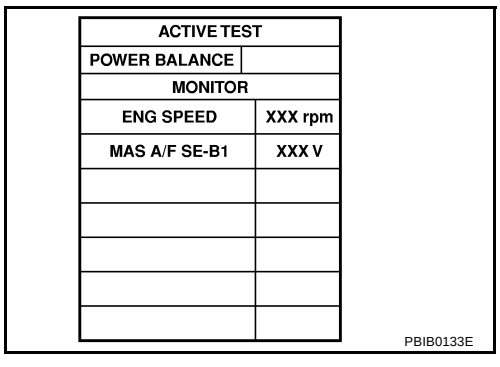
OK >> **INSPECTION END**
NG >> GO TO 9.

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.

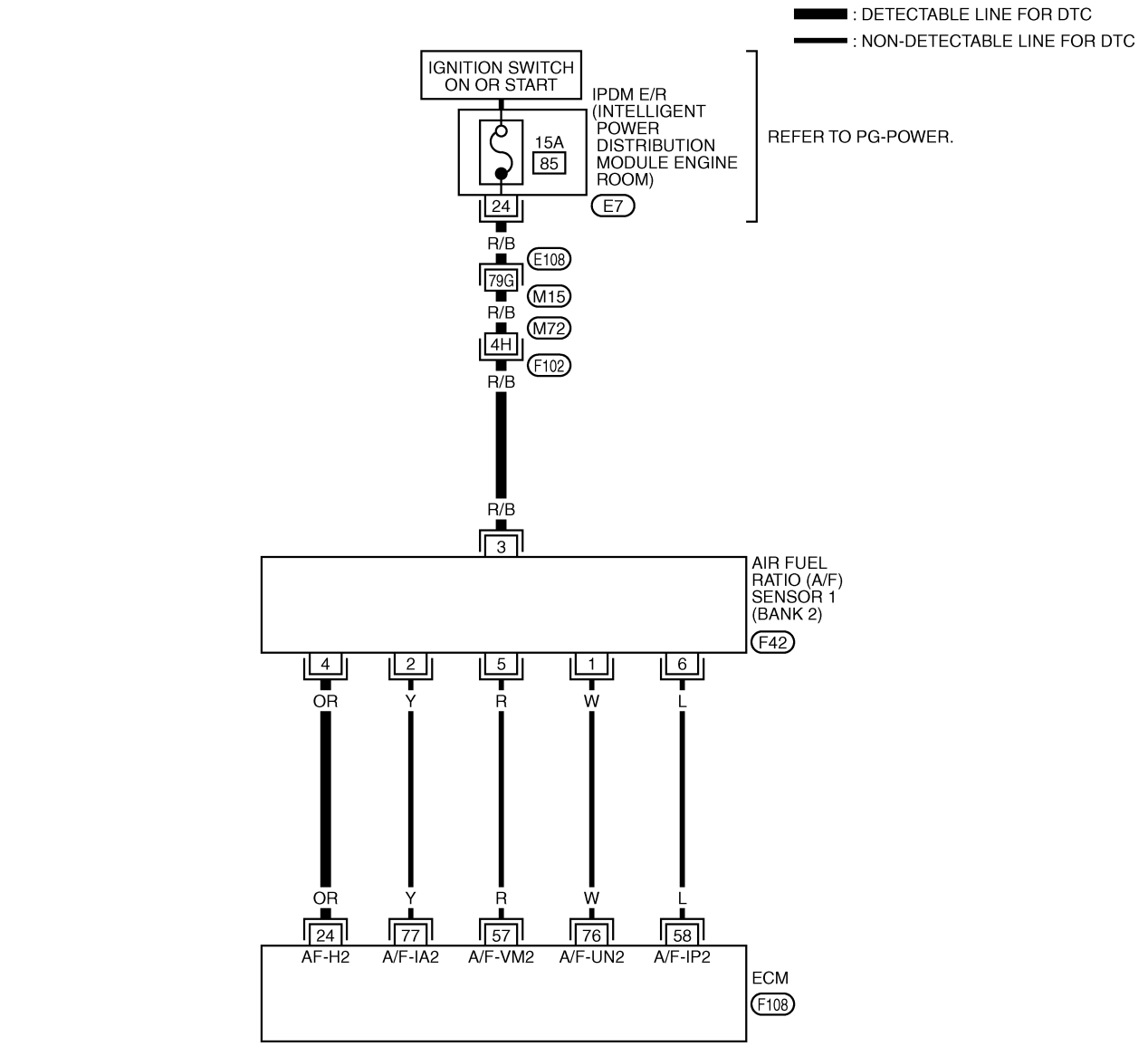
OK or NG

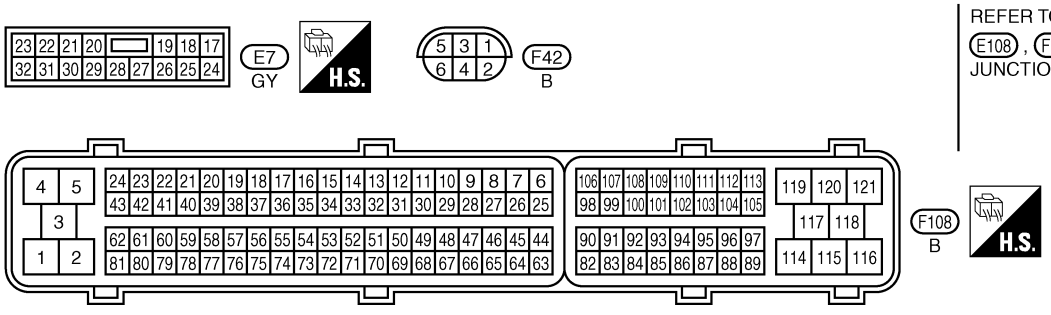
OK >> GO TO 12.
NG >> GO TO 10.



BANK 2

EC-AF1HB2-01





TBWM0817E

6. CHECK MAF SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check harness continuity between MAF sensor terminal 3 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 >> Repair open circuit or short to ground or short to power in harness or connectors.

7. CHECK MAF SENSOR INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Check harness continuity between MAF sensor terminal 4 and ECM terminal 51.
   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 8.
NG >> Repair open circuit or short to ground or short to power in harness or connectors.

8. CHECK INTAKE AIR TEMPERATURE SENSOR

Refer to EC-227, "Component Inspection" .

OK or NG

OK >> GO TO 9.
NG >> Replace intake air temperature sensor.

9. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Refer to EC-444, "Component Inspection" .

OK or NG

OK >> GO TO 10.
NG >> Replace EVAP control system pressure sensor.

10. CHECK MASS AIR FLOW SENSOR

Refer to EC-214, "Component Inspection" .

OK or NG

OK >> GO TO 11.
NG >> Replace MAF sensor.

11. CHECK INTERMITTENT INCIDENT

Refer to EC-152, "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT" .

>> **INSPECTION END**

Component Inspection

NBS000P3

MASS AIR FLOW SENSOR

With CONSULT-II

1. Reconnect all harness connectors disconnected.
2. Start engine and warm it up to normal operating temperature.
3. Connect CONSULT-II and select “DATA MONITOR” mode.

DTC P0130, P0150 A/F SENSOR 1

PFP:22693

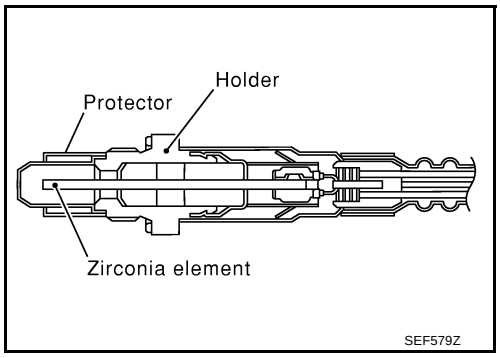
Component Description

NBS000YP

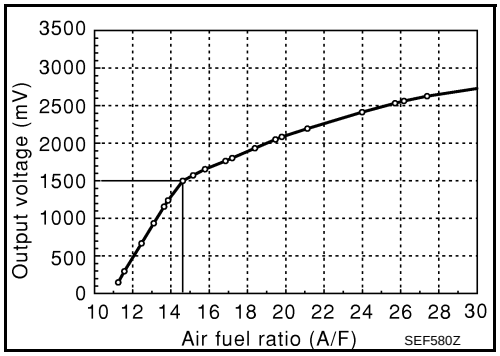
The air fuel ratio (A/F) sensor 1 is a planar dual-cell limit current sensor. The sensor element of the A/F sensor 1 is the combination of a Nernst concentration cell (sensor cell) with an oxygen-pump cell, which transports ions. It has a heater in the element.

The sensor is capable of precise measurement $\lambda = 1$, but also in the lean and rich range. Together with its control electronics, the sensor outputs a clear, continuous signal throughout a wide λ range ($0.7 < \lambda <$ air).

The exhaust gas components diffuse through the diffusion gap at the electrode of the oxygen pump and Nernst concentration cell, where they are brought to thermodynamic balance.



An electronic circuit controls the pump current through the oxygen-pump cell so that the composition of the exhaust gas in the diffusion gap remains constant at $\lambda = 1$. Therefore, the A/F sensor 1 is able to indicate air/fuel ratio by this pumping of current. In addition, a heater is integrated in the sensor to ensure the required operating temperature of 700 - 800°C (1,292 - 1,472°F).



CONSULT-II Reference Value in Data Monitor Mode

NBS000YQ

Specification data are reference values.

MONITOR ITEM	CONDITION		SPECIFICATION
A/F SEN1 (B1) A/F SEN1 (B2)	● Engine: After warming up	Maintaining engine speed at 2,000 rpm	Fluctuates around 1.5V

On Board Diagnosis Logic

NBS000YR

To judge the malfunction, the diagnosis checks that the A/F signal computed by ECM from the A/F sensor 1 signal fluctuates according to fuel feedback control.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible Cause
P0130 0130 (Bank 1)	Air fuel ratio (A/F) sensor 1 circuit	● The A/F signal computed by ECM from the A/F sensor 1 signal is constantly approx. 1.5V.	● Harness or connectors (The A/F sensor 1 circuit is open or shorted.) ● Air fuel ratio (A/F) sensor 1
P0150 0150 (Bank 2)			

DTC Confirmation Procedure

NBS000YS

CAUTION:

Always drive vehicle at a safe speed.

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 11V at idle.

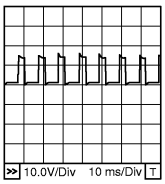
WITH CONSULT-II

1. Start engine and warm it up to normal operating temperature.
2. Select “A/F SEN1 (B1)” or “A/F SEN1 (B2)” in “DATA MONITOR” mode with CONSULT-II.
3. Check “A/F SEN1 (B1)” or “A/F SEN1 (B2)” indication.

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)
24	OR	A/F sensor 1 heater (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 5V★  PBIB1584E
57	R	A/F sensor 1 (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 2.6V
58	L			Approximately 2.3V
76	W			Approximately 3.1V
77	Y			Approximately 2.3V

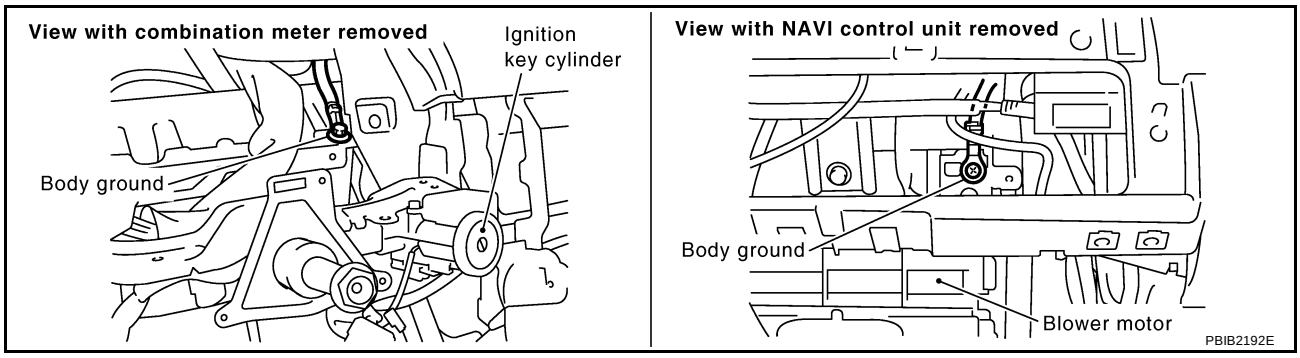
★: Average voltage for pulse signal (Actual pulse signal can be confirmed by oscilloscope.)

Diagnostic Procedure

NBS000Z2

1. CHECK GROUND CONNECTIONS

1. Turn ignition switch OFF.
2. Loosen and retighten two ground screws on the body. Refer to EC-160, "Ground Inspection" .



OK or NG

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

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)
25	P/B	Heated oxygen sensor 2 heater (bank 1)	**[Engine is running]** ● Engine speed: Below 3,600 rpm after the following conditions are met. – Engine: After warming up – Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load.	0 - 1.0V
			[Ignition switch: ON] ● Engine stopped **[Engine is running]** ● Engine speed: Above 3,600 rpm	BATTERY VOLTAGE (11 - 14V)
74	L/B	Heated oxygen sensor 2 (bank 1)	**[Engine is running]** ● Revving engine from idle to 3,000 rpm quickly after the following conditions are met. – Engine: After warming up – 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/Y	Sensor ground (Heated oxygen sensor)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 0V

4. CHECK FUEL TANK TEMPERATURE SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Check harness continuity between “fuel level sensor unit and fuel pump” terminal 5 and ground. Refer to Wiring Diagram.

Continuity should exist.

3. Also check harness for short to power.

OK or NG

OK >> GO TO 6.
NG >> GO TO 5.

5. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors B1, M12
- Harness for open or short between “fuel level sensor unit and fuel pump” and ground.

>> Repair open circuit or short to power in harness or connector.

6. CHECK FUEL TANK TEMPERATURE SENSOR

Refer to EC-350, "Component Inspection" .

OK or NG

OK >> GO TO 7.
NG >> Replace fuel level sensor unit.

7. CHECK INTERMITTENT INCIDENT

Refer to EC-152, "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT" .

>> **INSPECTION END**

Component Inspection

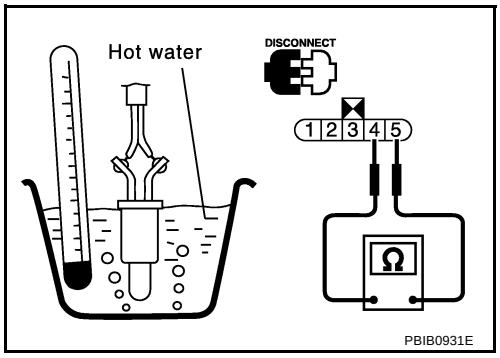
NBS000RA

FUEL TANK TEMPERATURE SENSOR

1. Remove fuel level sensor unit.
2. Check resistance between “fuel level sensor unit and fuel pump” terminals 4 and 5 by heating with hot water as shown in the figure.

Temperature °C (°F)	Resistance kΩ
20 (68)	2.3 - 2.7
50 (122)	0.79 - 0.90

If NG, replace fuel level sensor unit.



Removal and Installation

NBS000RB

FUEL TANK TEMPERATURE SENSOR

Refer to FL-5, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" .

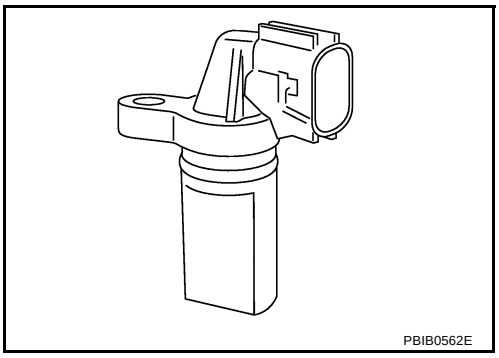
DTC P0340, P0345 CMP SENSOR (PHASE)

PFP:23731

Component Description

NBS000S9

The camshaft position sensor (PHASE) senses the retraction of camshaft (INT) to identify a particular cylinder. The camshaft position sensor (PHASE) senses the piston position.
When the crankshaft position sensor (POS) system becomes inoperative, the camshaft position sensor (PHASE) provides various controls of engine parts instead, utilizing timing of cylinder identification signals.
The sensor consists of a permanent magnet and Hall IC.
When engine is running, the high and low parts of the teeth cause the gap with the sensor to change.
The changing gap causes the magnetic field near the sensor to change.
Due to the changing magnetic field, the voltage from the sensor changes.
ECM receives the signals as shown in the figure.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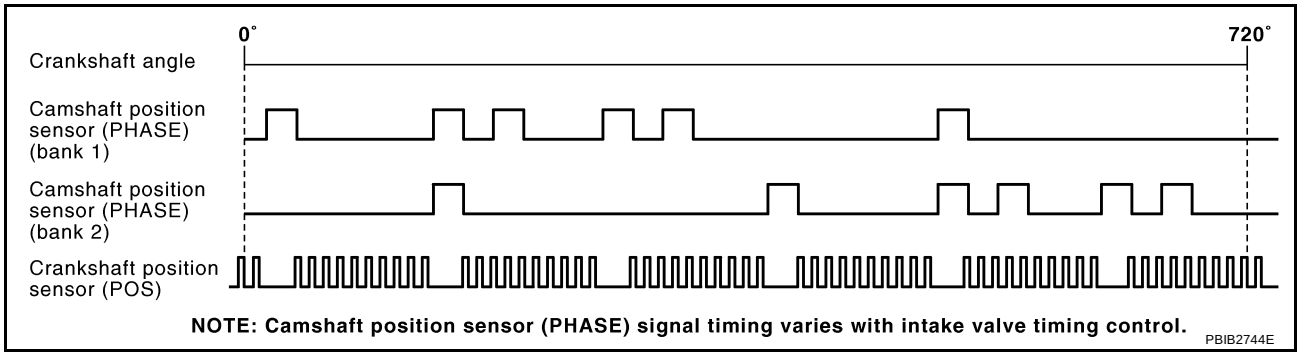


CONSULT-II Reference Value in Data Monitor Mode

NBS000SA

Specification data are reference values.

MONITOR ITEM	CONDITION	SPECIFICATION
ENG SPEED	● Run engine and compare CONSULT-II value with the tachometer indication.	Almost the same speed as the tachometer indication.

On Board Diagnosis Logic

NBS000SB

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P0340 0340 (Bank 1)	Camshaft position sensor (PHASE) circuit	● The cylinder No. signal is not sent to ECM for the first few seconds during engine cranking. ● The cylinder No. signal is not sent to ECM during engine running. ● The cylinder No. signal is not in the normal pattern during engine running.	● Harness or connectors (The sensor circuit is open or shorted) ● Camshaft position sensor (PHASE) ● Camshaft (INT) ● Starter motor (Refer to SC-10, "STARTING SYSTEM" .) ● Starting system circuit (Refer to SC-10, "STARTING SYSTEM" .) ● Dead (Weak) battery
P0345 0345 (Bank 2)			

4. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR CONNECTOR

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-450, "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.

OK or NG

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

ACTIVE TEST	
PURG VOL CONT/V	XXX %
MONITOR	
ENG SPEED	XXX rpm
A/F ALPHA-B1	XX %
A/F ALPHA-B2	XX %

PBIB1678E

7. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

Refer to EC-419, "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-433, "Component Inspection" .

OK or NG

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

DTC Confirmation Procedure

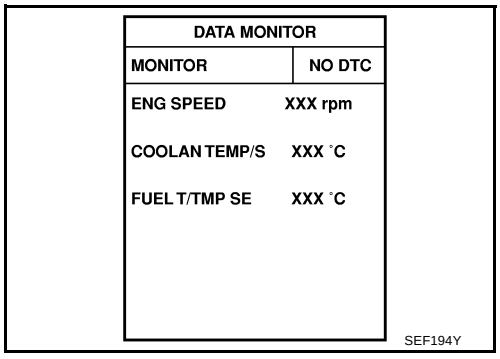
NBS000TO

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:
Always perform test at a temperature of 5°C (41°F) or more.

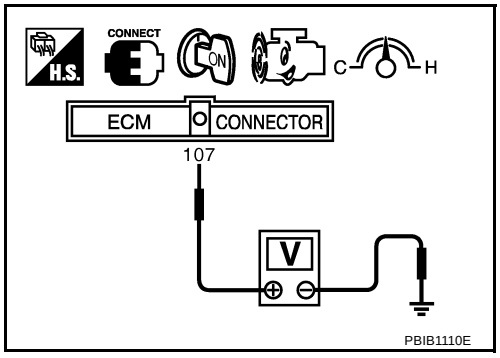
WITH CONSULT-II

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Select “DATA MONITOR” mode with CONSULT-II.
5. Make sure that “FUEL T/TEMP SE” is more than 0°C (32°F).
6. Start engine and wait at least 20 seconds.
7. If 1st trip DTC is detected, go to EC-454, "Diagnostic Procedure"
.



WITH GST

1. Start engine and warm it up to normal operating temperature.
2. Check that voltage between ECM terminal 107 (Fuel tank temperature sensor signal) and ground is less than 4.2V.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and wait at least 20 seconds.
5. Select Service $07 with GST.
   If 1st trip DTC is detected, go to EC-454, "Diagnostic Procedure"
.



Diagnostic Procedure

NBS000UM

1. CHECK INTAKE AIR LEAK

1. Start engine and let it idle.
2. Listen for an intake air leak after the mass air flow sensor.

OK or NG

OK >> GO TO 2.
NG >> Discover air leak location and repair.

2. REPLACE ECM

1. Stop engine.
2. Replace ECM.
3. Perform initialization of IVIS (NATS) system and registration of all IVIS (NATS) ignition key IDs. Refer to BL-268, "ECM Re-Communicating Function" .
4. Perform EC-77, "VIN Registration" .
5. Perform EC-78, "Exhaust Valve Timing Control Learning (M/T models)" .
6. Perform EC-78, "Accelerator Pedal Released Position Learning" .
7. Perform EC-79, "Throttle Valve Closed Position Learning" .
8. Perform EC-79, "Idle Air Volume Learning" .

>> **INSPECTION END**

6. CHECK EXHAUST VALVE TIMING CONTROL POSITION SENSOR INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Disconnect ECM harness connector.
2. Check harness continuity between ECM terminal 53 (bank 1) or 72 (bank 2) and exhaust valve timing control position sensor terminal 2.
   Refer to Wiring Diagram.

   Continuity should exist.

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

OK or NG

OK >> GO TO 7.
NG >> Repair open circuit or short to ground or short to power in harness or connectors.

7. CHECK EXHAUST VALVE TIMING CONTROL POSITION SENSOR

Refer to EC-521, "Component Inspection" .

OK or NG

OK >> GO TO 8.
NG >> Replace malfunctioning exhaust valve timing control position sensor.

8. CHECK CRANKSHAFT POSITION SENSOR (POS)

Refer to EC-383, "Component Inspection" .

OK or NG

OK >> GO TO 9.
NG >> Replace crankshaft position sensor (POS).

9. CHECK CAMSHAFT POSITION SENSOR (PHASE)

Refer to EC-393, "Component Inspection" .

OK or NG

OK >> GO TO 10.
NG >> Replace malfunctioning camshaft position sensor (PHASE).

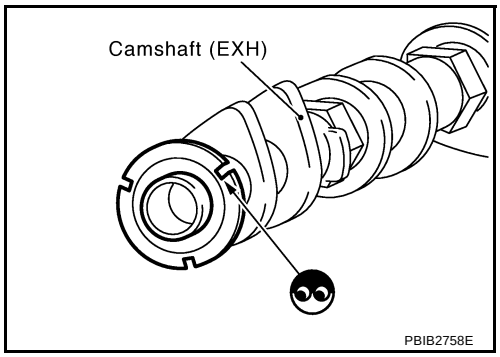
10. CHECK CAMSHAFT (EXH)

Check the following;

- Accumulation of debris to the signal plate of camshaft rear end
- Chipping signal plate of camshaft rear end

OK or NG

OK >> GO TO 11.
NG >> Remove debris and clean the signal plate of camshaft rear end or replace camshaft.



11. CHECK INTERMITTENT INCIDENT

Refer to EC-152, "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT" .

>> **INSPECTION END**

Diagnostic Procedure

NBS00102

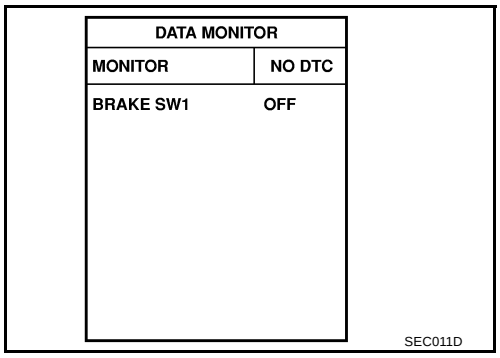
A/T MODELS

1. CHECK OVERALL FUNCTION-I

With CONSULT-II

1. Turn ignition switch ON.
2. Select “BRAKE SW1” in “DATA MONITOR” mode with CONSULT-II.
3. Check “BRAKE SW1” indication under the following conditions.

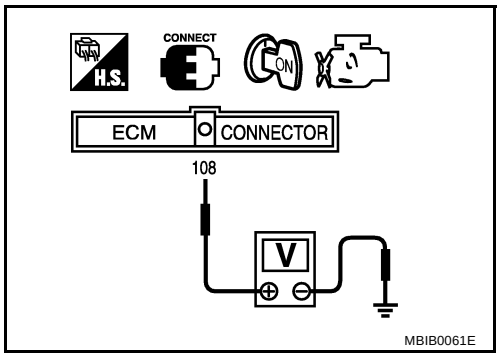
CONDITION	INDICATION
Brake pedal: Slightly depressed	OFF
Brake pedal: Fully released	ON



Without CONSULT-II

1. Turn ignition switch ON.
2. Check voltage between ECM terminal 108 and ground under the following conditions.

CONDITION	VOLTAGE
Brake pedal: Slightly depressed	Approximately 0V
Brake pedal: Fully released	Battery voltage

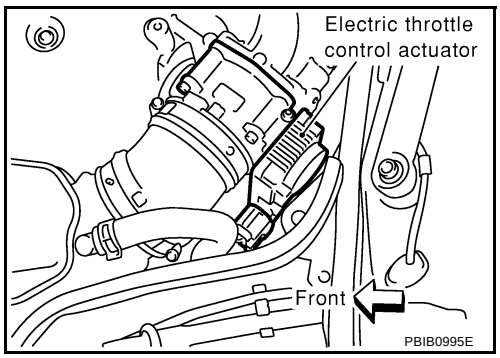


OK or NG

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

2. CHECK THROTTLE CONTROL MOTOR OUTPUT SIGNAL CIRCUIT FOR OPEN OR SHORT

1. Disconnect electric throttle control actuator harness connector.
2. Disconnect ECM harness connector.
3. Check harness continuity between the following terminals. Refer to Wiring Diagram.



Electric throttle control actuator terminal	ECM terminal	Continuity
3	5	Should not exist
	4	Should exist
6	5	Should exist
	4	Should not exist

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

OK or NG

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

3. CHECK THROTTLE CONTROL MOTOR

Refer to EC-588, "Component Inspection" .

OK or NG

OK >> GO TO 4.
NG >> GO TO 5.

4. CHECK INTERMITTENT INCIDENT

Refer to EC-152, "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT" .

OK or NG

OK >> GO TO 5.
NG >> Repair or replace harness or connectors.

5. REPLACE ELECTRIC THROTTLE CONTROL ACTUATOR

1. Replace the electric throttle control actuator.
2. Perform EC-79, "Throttle Valve Closed Position Learning" .
3. Perform EC-79, "Idle Air Volume Learning" .

>> **INSPECTION END**

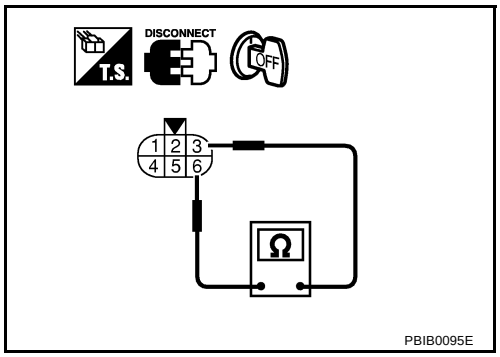
Component Inspection

NBS000WI

THROTTLE CONTROL MOTOR

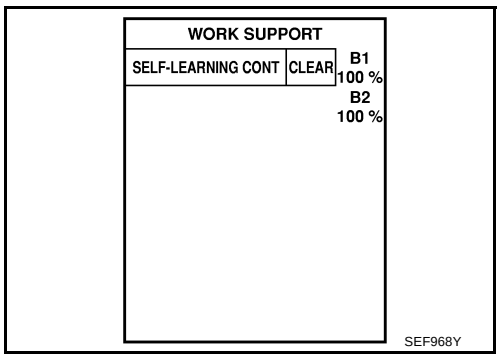
1. Disconnect electric throttle control actuator harness connector.
2. Check resistance between terminals 3 and 6.

Resistance: Approximately 1 - 15 Ω [at 25 °C (77°F)]



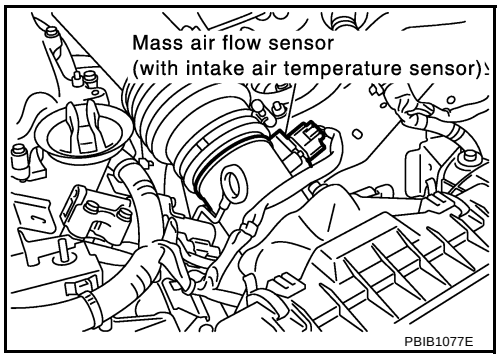
3. If NG, replace electric throttle control actuator and go to next step.
4. Perform EC-79, "Throttle Valve Closed Position Learning" .
5. Perform EC-79, "Idle Air Volume Learning" .

4. Clear the self-learning coefficient by touching “CLEAR”.
5. Turn ignition switch OFF and wait at least 10 seconds.
6. Start engine and keep the engine speed between 3,500 and 4,000 rpm for 1 minute under no load.
7. Let engine idle for 1 minute.
8. Keep engine speed between 2,500 and 3,000 rpm for 20 minutes.
9. If 1st trip DTC is detected, go to EC-626, "Diagnostic Procedure" .



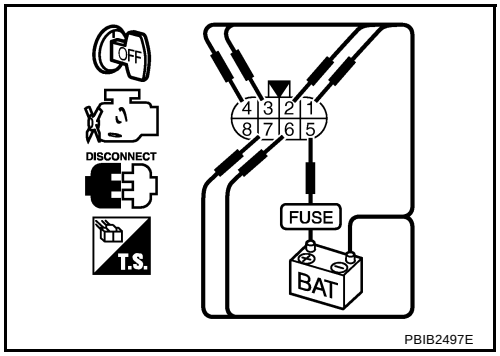
WITH GST

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Disconnect mass air flow sensor harness connector.
4. Start engine and let it idle for at least 5 seconds.
5. Stop engine and reconnect mass air flow sensor harness connector.
6. Select Service $03 with GST and make sure that DTC P0102 is detected.
7. Select Service $04 with GST and erase the DTC P0102.
8. Start engine and keep the engine speed between 3,500 and 4,000 rpm for 1 minute under no load.
9. Let engine idle for 1 minute.
10. Keep engine speed between 2,500 and 3,000 rpm for 20 minutes.
11. Select Service $07 with GST.
    If 1st trip DTC is detected, go to EC-626, "Diagnostic Procedure" .



5. CHECK FUNCTION OF FUEL INJECTOR-II

Provide battery voltage between harness connector F221 as follows and then interrupt it. Listen to each fuel injector operating sound.



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

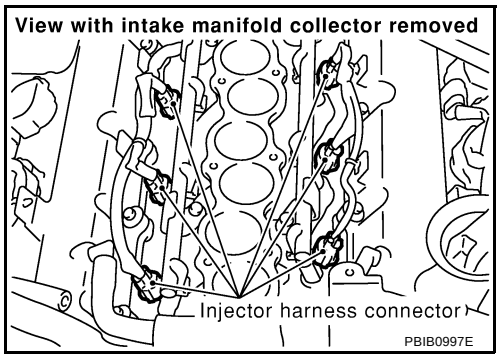
Operating sound should exist.

OK or NG

OK >> **INSPECTION END**
NG >> GO TO 6.

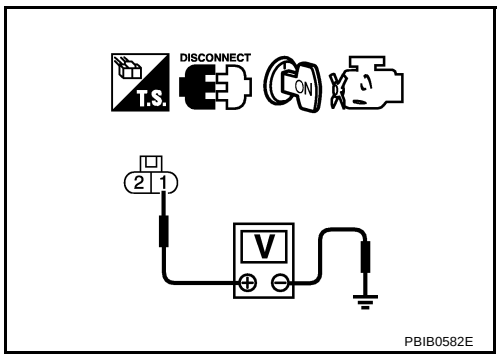
6. CHECK FUEL INJECTOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect fuel injector harness connector.



3. Turn ignition switch ON.
4. Check voltage between fuel injector terminal 1 and ground with CONSULT-II or tester.

Voltage: Battery voltage



OK or NG

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

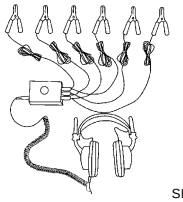
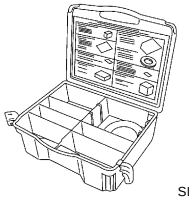
PREPARATION

PFP:00002

Special Service Tools

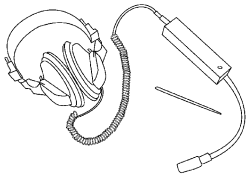
NIS000GG

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
(J-39570) Chassis ear  SIIA0993E	Locationg the noise
(J-43980) NISSAN Squeak and Rattle Kit  SIIA0994E	Repairing the cause of noise

Commercial Service Tools

NIS000GH

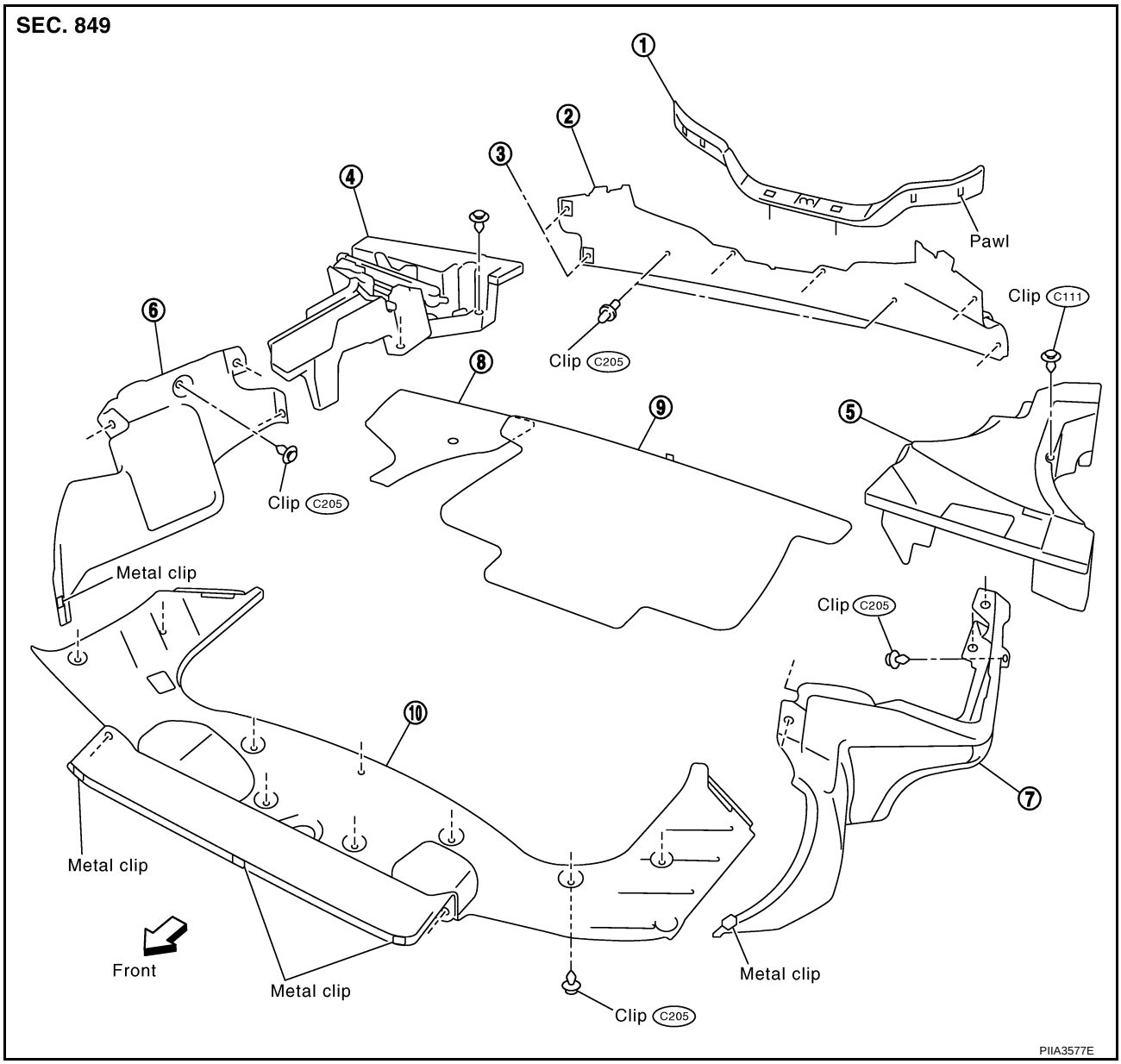
Tool name	Description
Engine ear  SIIA0995E	Locationg the noise

TRUNK ROOM TRIM & TRUNK LID FINISHER

PFP:84920

Removal and Installation for Trunk Room Trim

NIS000H3



1. Trunk rear plate
2. Trunk Rear finisher (end)
3. Net hook
4. Trunk floor spacer (right)
5. Trunk floor spacer (left)
6. Rear wheelhouse finisher (right)
7. Rear wheelhouse finisher (left)
8. Trunk floor board (right)
9. Trunk floor board (center)
10. Trunk rear finisher (upper)

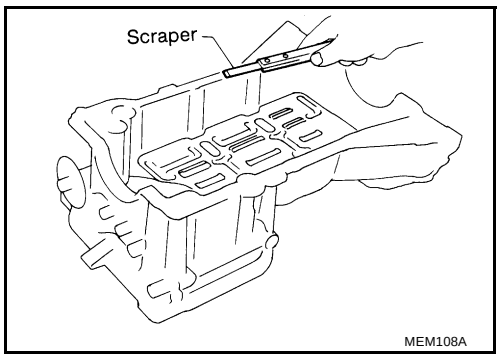
TRUNK ROOM TRIM

Removal

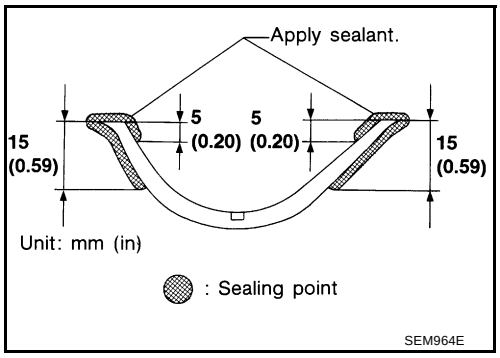
1. Remove trunk floor board.
2. Remove trunk rear plate.
3. Remove trunk rear finisher (end).
4. Remove trunk rear finisher welt.
5. Remove rear seat back lever finisher.
6. Remove trunk rear finisher (upper).
7. Remove rear wheelhouse finisher (left/right).

a. Use scraper to remove old liquid gasket from mating surfaces.
- Also remove the old liquid gasket from mating surface of cylinder block.
- Remove old liquid gasket from the bolt holes and threads.

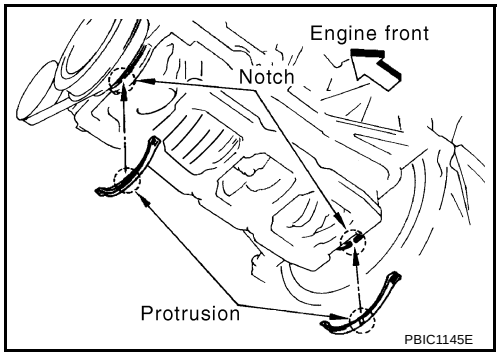
CAUTION:
Do not scratch or damage the mating surfaces when cleaning off old liquid gasket.



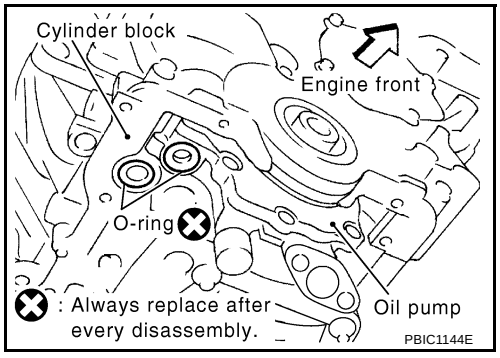
b. Apply liquid gasket to oil pan gaskets as shown in the figure.
Use Genuine RTV Silicone Sealant or equivalent. Refer to GI-47, "RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS" .



- To install, align protrusion of oil pan gasket with notches of front timing chain case and rear oil seal retainer.
- Install oil pan gasket with smaller arc to front timing chain case side.

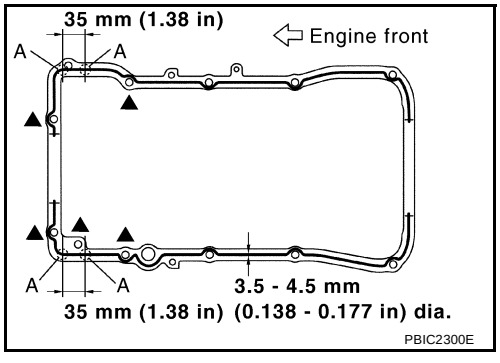


c. Install new O-rings on the cylinder block and oil pump side.



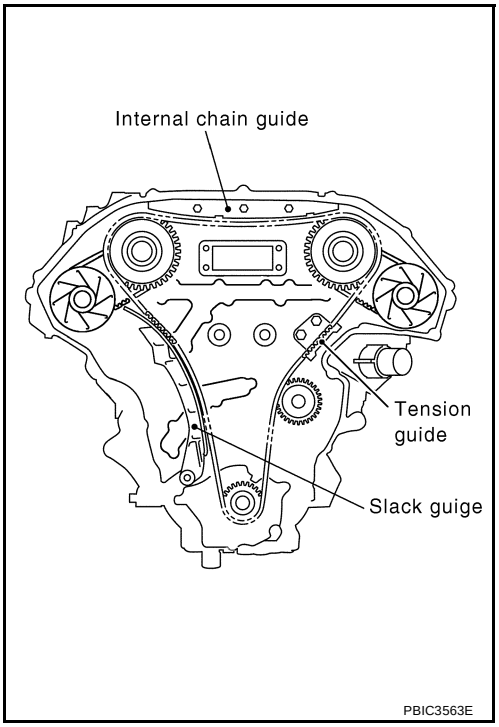
d. Apply a continuous bead of liquid gasket with tube presser [SST: WS39930000 (—)] to the cylinder block mating surface of oil pan (upper) to a limited portion as shown in the figure.
Use Genuine RTV Silicone Sealant or equivalent. Refer to GI-47, "RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS" .

CAUTION:
- **For bolt holes with ▲ marks (five locations), apply liquid gasket outside the holes.**
- **Apply a bead of 4.5 to 5.5 mm (0.177 to 0.217 in) in diameter to area “A”.**



27. Remove internal chain guide, tension guide and slack guide.

NOTE:
Tension guide can be removed after removing timing chain (primary).



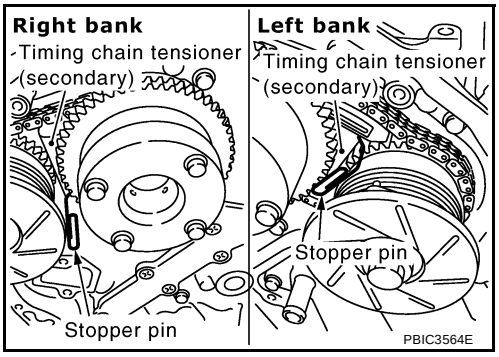
28. Remove timing chain (primary) and crankshaft sprocket.

CAUTION:
After removing timing chain (primary), do not turn crankshaft and camshaft separately, or valves will strike the piston heads.

29. Remove timing chain (secondary) and camshaft sprockets as follows:

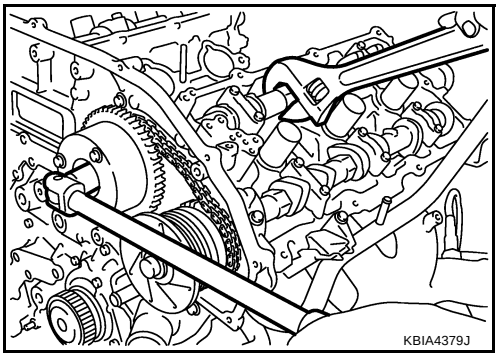
a. Attach suitable stopper pin to the right and left timing chain tensioners (secondary).

NOTE:
- Use approximately 0.5 mm (0.02 in) dia. hard metal pin as a stopper pin.
- For removal of timing chain tensioner (secondary), refer to EM-100, "CAMSHAFT" . [Removing camshaft bracket (No. 1) is required.]



b. Remove intake and exhaust camshaft sprocket bolts.
- Secure the hexagonal portion of camshaft using wrench to loosen mounting bolts.

CAUTION:
Do not loosen mounting bolts with securing anything other than the camshaft hexagonal portion or with tensioning the timing chain.



c. Remove timing chain (secondary) together with camshaft sprockets.

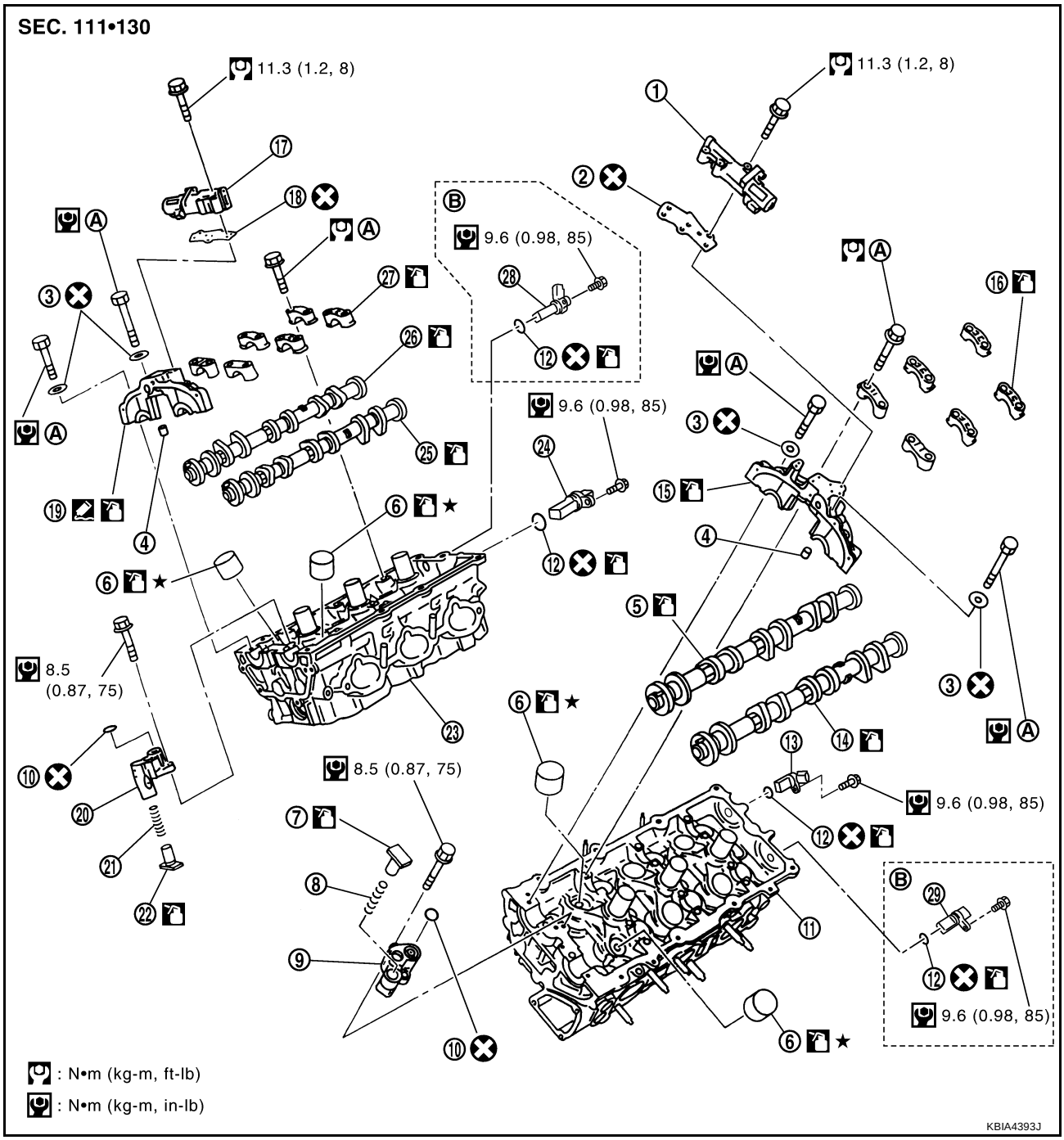
CAUTION:
- **Handle carefully to avoid any shock to camshaft sprocket.**

CAMSHAFT

PFP:13001

Components

NBS002UR



1.	Intake valve timing control solenoid valve	2.	Gasket	3.	Seal washer
4.	Dowel pin	5.	Camshaft (INT)	6.	Valve lifter
7.	Plunger	8.	Spring	9.	Timing chain tensioner (Secondary)
10.	O-ring	11.	Cylinder head (left bank)	12.	O-ring
13.	Camshaft position sensor (PHASE) (left bank)	14.	Camshaft (EXH)	15.	Camshaft bracket (No. 1)
16.	Camshaft bracket (No. 2 to 4)	17.	Intake valve timing control solenoid valve	18.	Gasket
19.	Camshaft bracket (No. 1)	20.	Timing chain tensioner (Secondary)	21.	Spring
22.	Plunger	23.	Cylinder head (right bank)	24.	Camshaft position sensor (PHASE) (right bank)

2. Remove rear engine mounting member bolts.
3. Remove suspension member mounting bolts and nuts. Refer to FSU-19, "FRONT SUSPENSION MEMBER" .
4. Carefully lower jack, or raise lift to remove engine, transmission and suspension member assembly. When performing work, observe the following caution.

CAUTION:

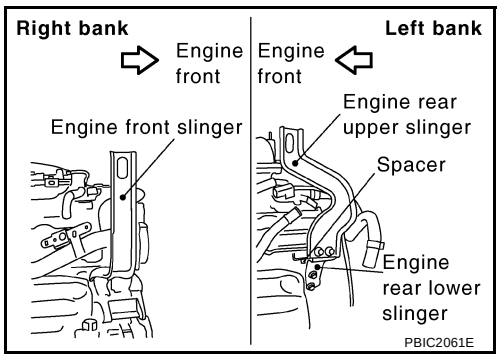
- **Confirm there is no interference with vehicle.**
- **Make sure that all connection points have been disconnected.**
- **Keep in mind the center of vehicle gravity changes. If necessary, use jack(s) to support vehicle at rear jacking point(s) to prevent it from falling it off the lift.**

Separation Work

1. Install engine slingers into front of right bank cylinder head and rear of left bank cylinder head.

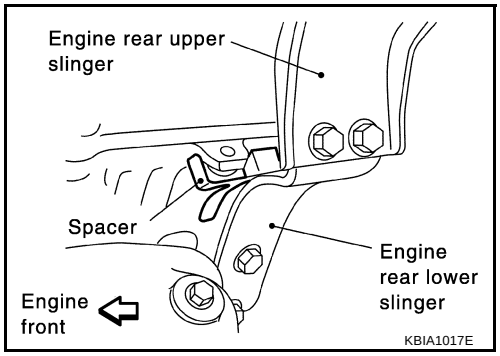
Slinger bolts:

: 24.5 - 31.4 N·m (2.5 - 3.2 kg-m, 18 - 23 ft-lb)



- To protect rocker cover against damage caused by tilting of engine slinger, insert spacer between cylinder head and engine rear lower slinger, in direction shown in the figure.

NOTE:
Spacer is a component part of engine rear upper slinger assembly.



2. Remove power steering oil pump from engine side. Refer to PS-31, "POWER STEERING OIL PUMP" .
3. Remove engine mounting insulators (RH and LH) under side nut.
4. Lift with hoist and separate engine and transmission assembly from suspension member.

CAUTION:

- **Before and during this lifting, always check if any harnesses are left connected.**
- **Avoid damage to and oil/grease smearing or spills onto engine mounting insulator.**

5. Remove alternator. Refer to SC-21, "CHARGING SYSTEM" .
6. Remove starter motor. Refer to SC-10, "STARTING SYSTEM" .
7. Separate engine from transmission. Refer to MT-18, "TRANSMISSION ASSEMBLY" (M/T models) or AT-253, "TRANSMISSION ASSEMBLY" (A/T models).
8. Remove engine mounting insulators (RH and LH) and brackets (RH and LH) from engine.
9. Remove engine mounting insulator (rear) and bracket (rear) from transmission.

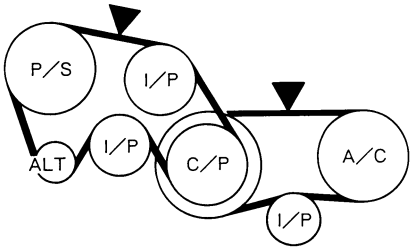
INSTALLATION

Note the following, and install in the reverse order of removal.

DRIVE BELT

	Deflection adjustment		Unit: mm (in)	Tension adjustment*		Unit: N (kg, lb)
	Used belt		New belt	Used belt		New belt
	Limit	After adjustment		Limit	After adjustment	
Alternator and power steering oil pump belt	7 (0.28)	4 - 5 (0.16 - 0.20)	3.5 - 4.5 (0.138 - 0.177)	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)	838 - 926 (85.5 - 94.5, 188 - 208)
A/C compressor belt	12 (0.47)	9 - 10 (0.35 - 0.39)	8 - 9 (0.31- 0.35)	196 (20, 44)	348 - 436 (35.5 - 44.5, 78 - 98)	470 - 559 (48 - 57, 106 - 126)
Applied pushing force	98 N (10 kg, 22 lb)			—		

SEC.117



KBIA1731J

* : If belt tension gauge cannot be installed at check points shown, check drive belt tension at different location on the belt.

INTAKE MANIFOLD COLLECTOR, INTAKE MANIFOLD AND EXHAUST MANIFOLD

Unit: mm (in)

Items		Limit
Surface distortion	Intake manifold collector (upper)	0.1 (0.004)
	Intake manifold collector (lower)	0.1 (0.004)
	Intake manifold	0.1 (0.004)
	Exhaust manifold	0.3 (0.012)

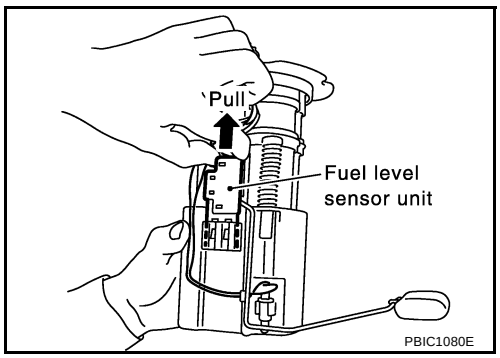
SPARK PLUG

Unit: mm (in)

Make	NGK
Standard type	PLFR5A-11
Hot type	PLFR4A-11
Cold type	PLFR6A-11
Gap (Nominal)	1.1 (0.043)

3. After fixing tabs are disengaged, slide fuel level sensor unit out in direction shown by the arrow.

   CAUTION:
   Do not disassemble fuel filter and fuel pump assembly.



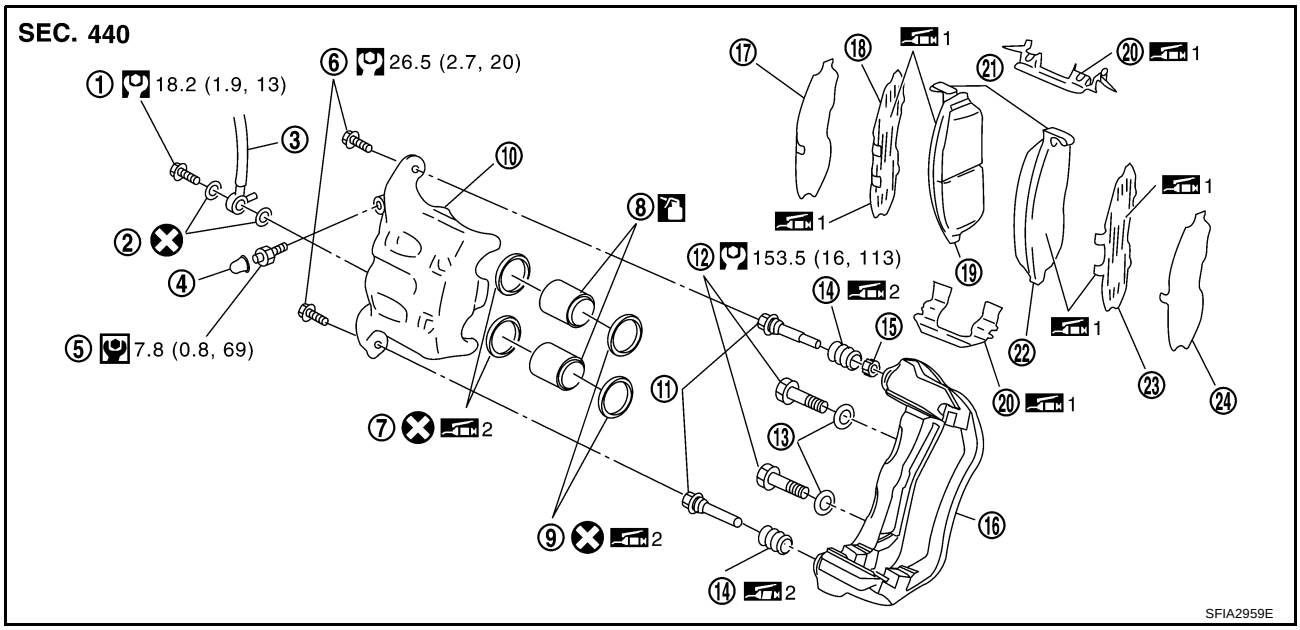
ASSEMBLY

1. Check for damage of fuel level sensor unit installation position on the side of fuel filter and fuel pump assembly.
2. Slide fuel level sensor unit until it aligns to installation groove, then insert it until stop.
   - After inserting, apply force in reverse direction (removal direction) to ensure it cannot be pulled out.
3. Connect harness connector.
   - Securely insert harness connector until it stops.

Components

NAS0001N

- **THE LARGE ILLUSTRATIONS** are exploded views (see the following) and contain tightening torques, lubrication points, section number of the **PARTS CATALOG** (e.g. SEC. 440) and other information necessary to perform repairs.
  The illustrations should be used in reference to service matters only. When ordering parts, refer to the appropriate **PARTS CATALOG** .
  Components shown in an illustration may be identified by a circled number. When this style of illustration is used, the text description of the components will follow the illustration.



1. Union bolt
2. Copper washer
3. Brake hose
4. Cap
5. Bleed valve
6. Sliding pin bolt
7. Piston seal
8. Piston
9. Piston boot
10. Cylinder body
11. Sliding pin
12. Torque member mounting bolt
13. Washer
14. Sliding pin boot
15. Bushing
16. Torque member
17. Inner shim cover
18. Inner shim
19. Inner pad
20. Pad retainer
21. Pad wear sensor
22. Outer pad
23. Outer shim
24. Outer shim cover

1: PBC (Poly Butyl Cuprysil) grease or silicone-based grease
2: Rubber grease
: Brake fluid

Refer to GI section for additional symbol definitions.

SYMBOLS

SYMBOL	DESCRIPTION		SYMBOL	DESCRIPTION
	Tightening torque The tightening torque specifications of bolts and nuts may be presented as either a range or a standard tightening torque.	: N•m (kg-m, ft-lb)		Always replace after every disassembly.
		: N•m (kg-m, in-lb)	Ⓟ	Apply petroleum jelly.
	Should be lubricated with grease. Unless otherwise indicated, use recommended multi-purpose grease.		Ⓜ	Apply molybdenum added petroleum jelly.
	Should be lubricated with oil.		ATF	Apply ATF.
	Sealing point		★	Select with proper thickness.
Ⓛ	Sealing point with locking sealant.		☆	Adjustment is required.
	Checking point			

SAIA0749E

TOW TRUCK TOWING

PFP:00000

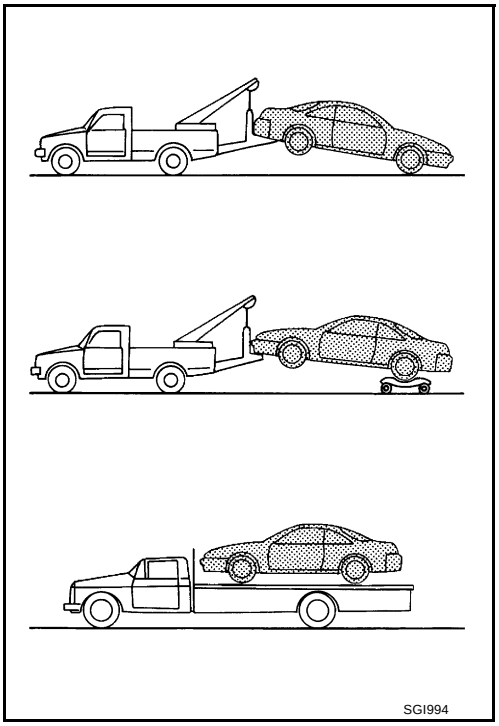
Tow Truck Towing

NAS00024

CAUTION:

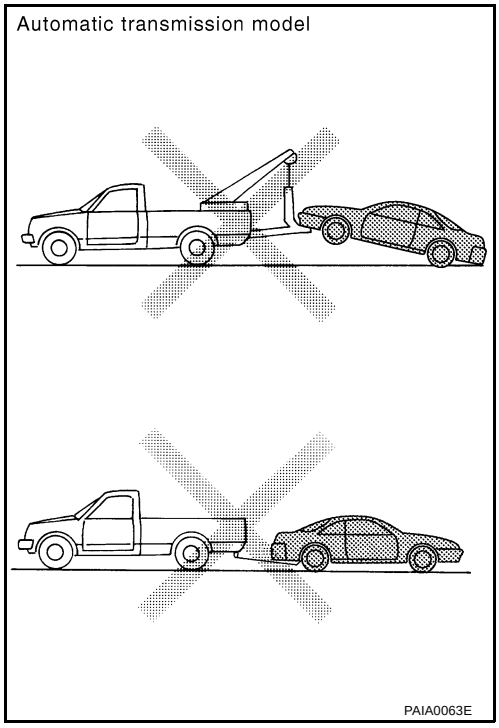
- **All applicable state or Provincial (in Canada) laws and local laws regarding the towing operation must be obeyed.**
- **It is necessary to use proper towing equipment to avoid possible damage to the vehicle during towing operation. Towing is in accordance with Towing Procedure Manual at dealer.**
- **Always attach safety chains before towing.**
- **When towing, make sure that the transmission, steering system and power train are in good order. If any unit is damaged, dollies must be used.**
- **Never tow an automatic transmission model from the rear (that is backward) with four wheels on the ground. This may cause serious and expensive damage to the transmission.**

NISSAN / INFINITI recommends that the vehicle be towed with the driving (rear) wheels off the ground as illustrated.



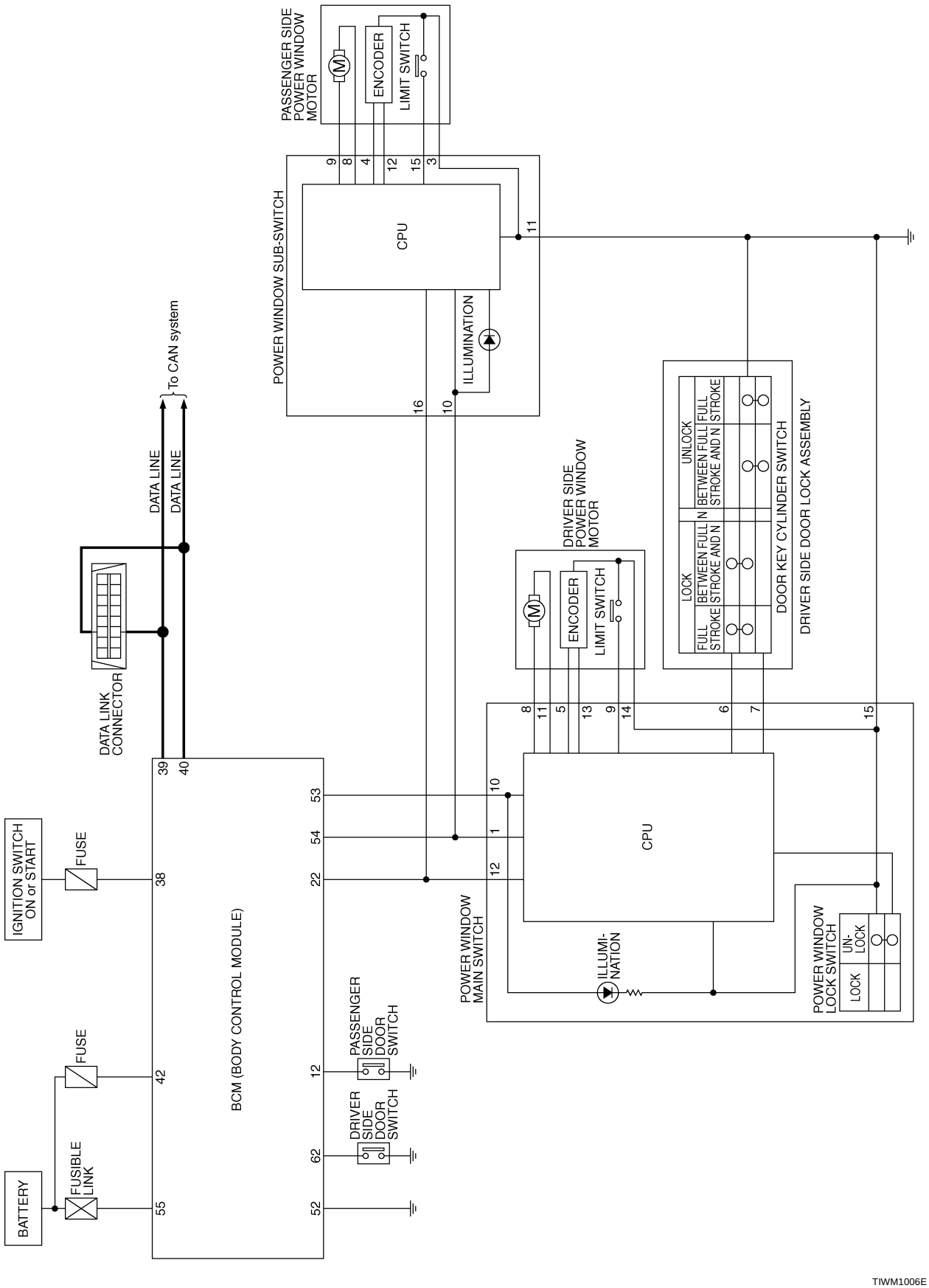
CAUTION:

When towing with the front wheels on the ground (if a towing dollies does not be used), turn the ignition key to the OFF position, and secure the steering wheel in the straight-ahead position with a rope or similar device. Never place the ignition key in the LOCK position. This will result in damage to the steering lock mechanism.



Schematic

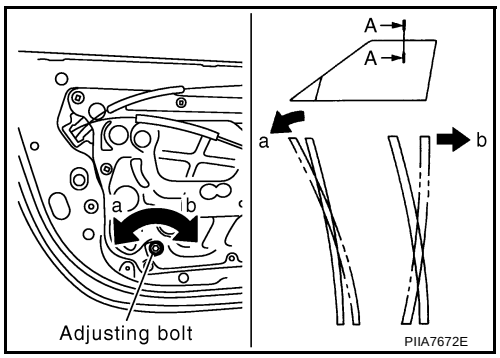
NIS000EB



TIWM1006E

- Raise the glass fully and adjust the glass top end and body side welt fitting with the adjusting bolt at the lower of the regulator rear rail.

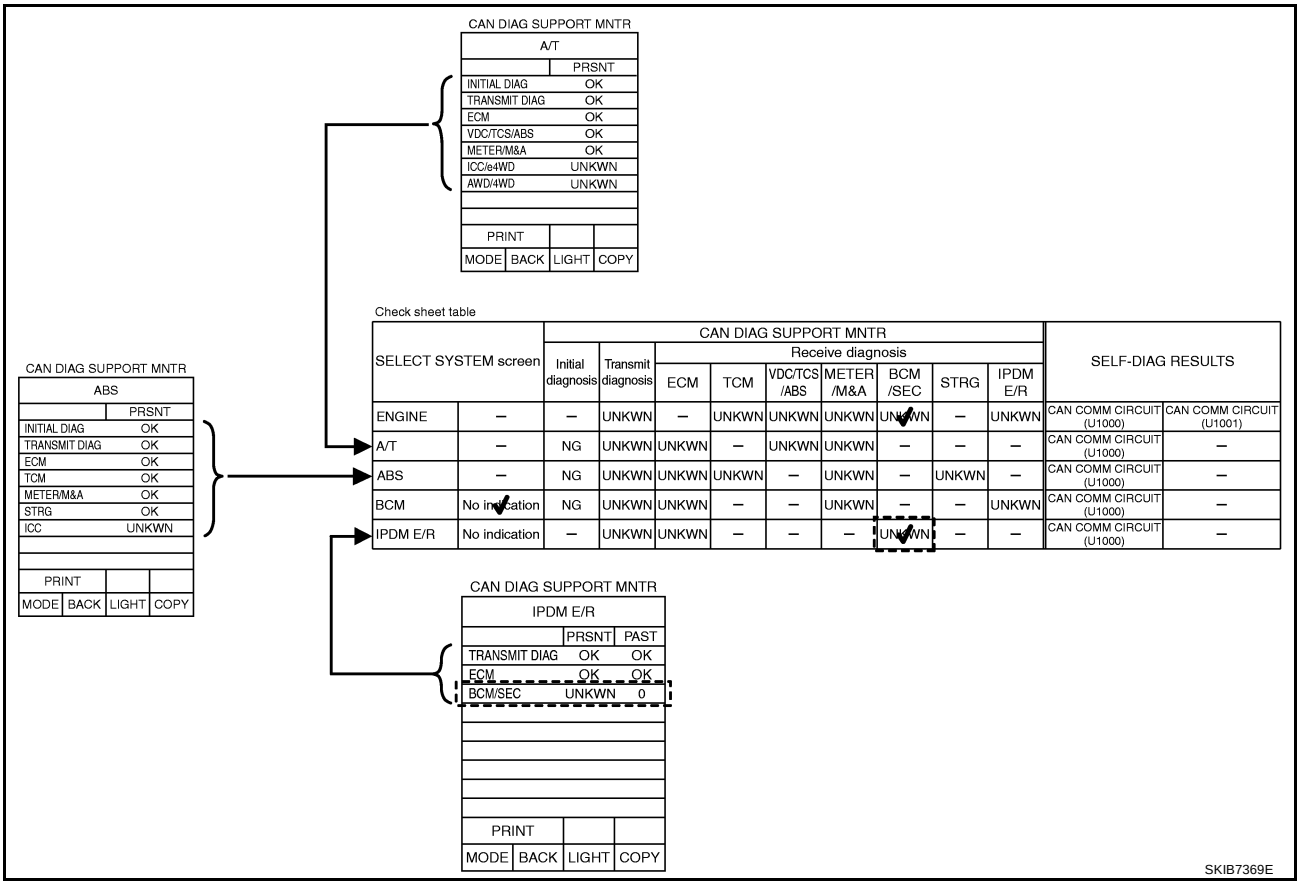
  NOTE:
  - Turn the adjusting bolt clockwise to move the door glass upper end outward.
  - Turn the adjusting bolt counterclockwise to move the door glass upper end inward.



R

S

T



3. Confirm the unit name that “UNKWN” is displayed on the copy of “CAN DIAG SUPPORT MNTR” screen of “A/T”, “ABS” and “IPDM E/R” as well as “ENGINE”. And then, put a check mark to the check sheet table.

NOTE:

- For “A/T”, “UNKWN” is displayed on “ICC/e4WD” and “AWD/4WD”. But, do not put a check mark to their columns of reception diagnosis of the check sheet table because “UNKWN” is not listed.
- For “ABS”, “UNKWN” is displayed on “ICC”. But, do not put a check mark to their columns of reception diagnosis of the check sheet table because "UNKWN" is not listed.
- For “IPDM E/R”, “UNKWN” is displayed on “BCM/SEC”. Put a check mark to it.

CAN SYSTEM (TYPE 2)

PFP:23710

Component Parts and Harness Connector Location

NKS0026P

Refer to LAN-21, "Component Parts and Harness Connector Location" .

Schematic

NKS0026Q

Refer to LAN-22, "Schematic" .

Wiring Diagram — CAN —

NKS0026R

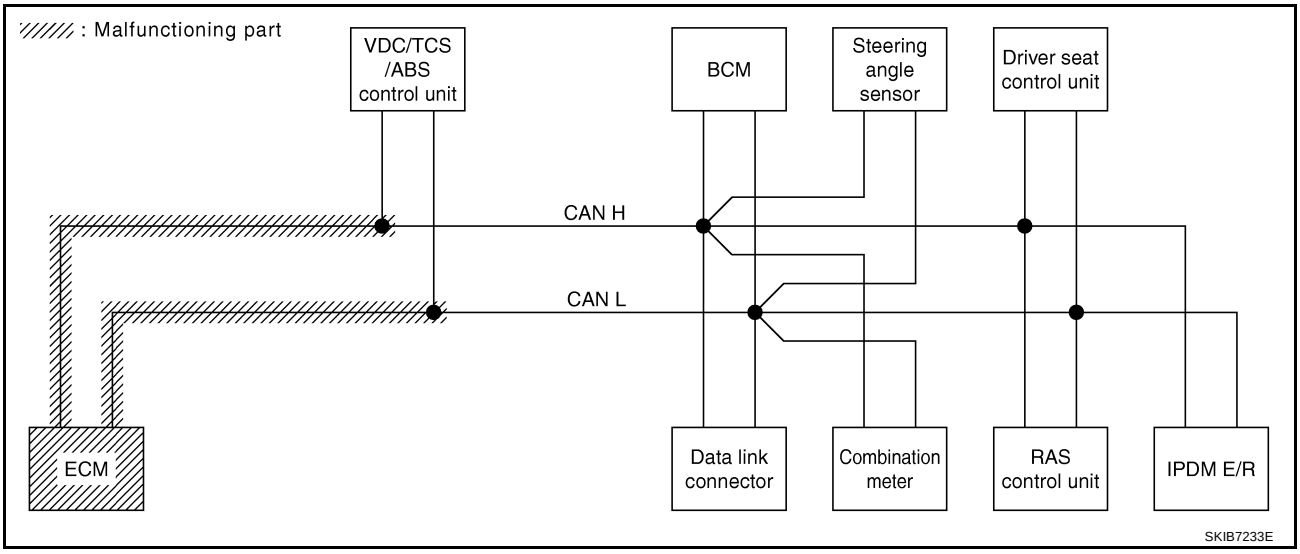
Refer to LAN-23, "Wiring Diagram — CAN —" .

Case 3

Check ECM circuit. Refer to LAN-160, "ECM Circuit Inspection" .

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

SKIB7219E

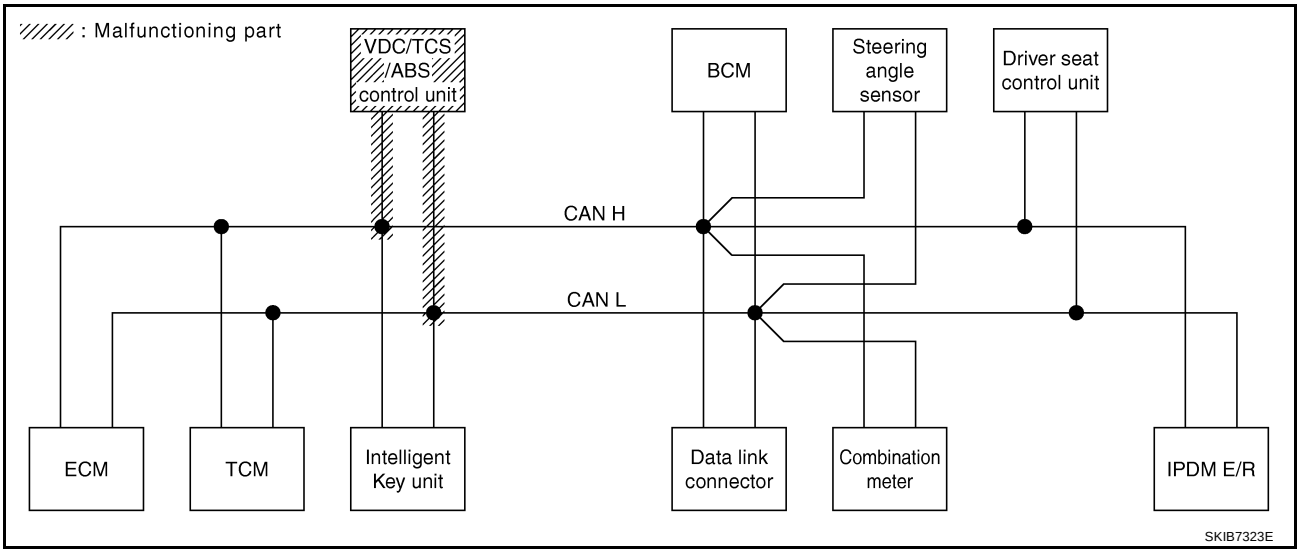


Case 7

Check VDC/TCS/ABS control unit circuit. Refer to LAN-162, "VDC/TCS/ABS Control Unit Circuit Inspection" .

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

PKIC4317E



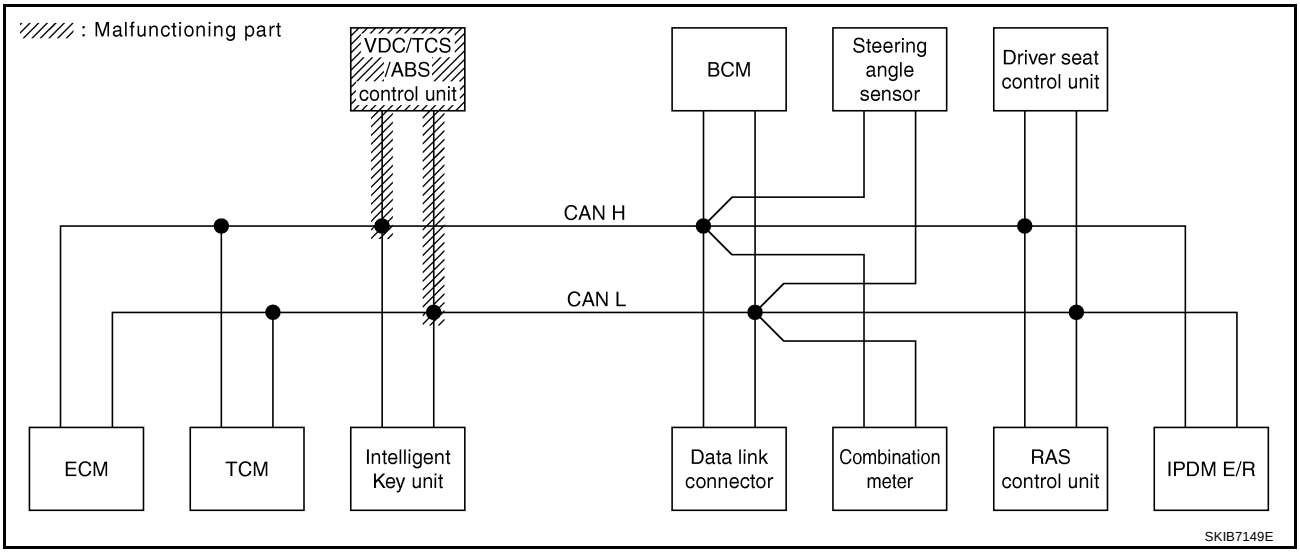
SKIB7323E

Case 7

Check VDC/TCS/ABS control unit circuit. Refer to LAN-162, "VDC/TCS/ABS Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	RAS	IPDM E/R		
ENGINE	—	—	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)	—
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
RAS/HICAS	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
AUTO DRIVE POS.	No indication	—	—	—	UNKWN	—	—	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

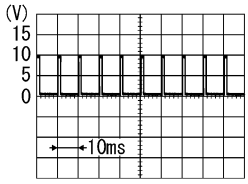
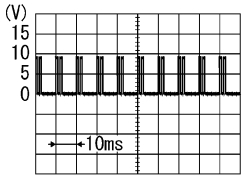
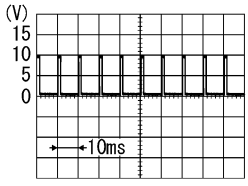
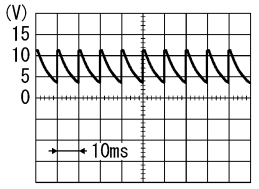
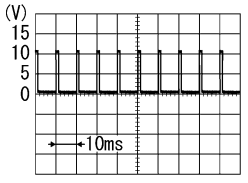
SKIB7132E



SKIB7149E

Terminals and Reference Values for BCM

NKS002NJ

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Lighting switch HIGH beam (Operates only HIGH beam switch)	 PKIB4959J Approx. 1.0 V
					Lighting switch 2ND	 PKIB4953J Approx. 2.0 V
3	G	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch)	 PKIB4959J Approx. 1.0 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage
34	PU	Combination switch output 3	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch HI beam (Operates only HI beam switch)	 PKIB4958J Approx. 1.2 V

Preliminary Check

NKS0027P

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	88

Refer to LT-40, "Wiring Diagram — DTRL —" .

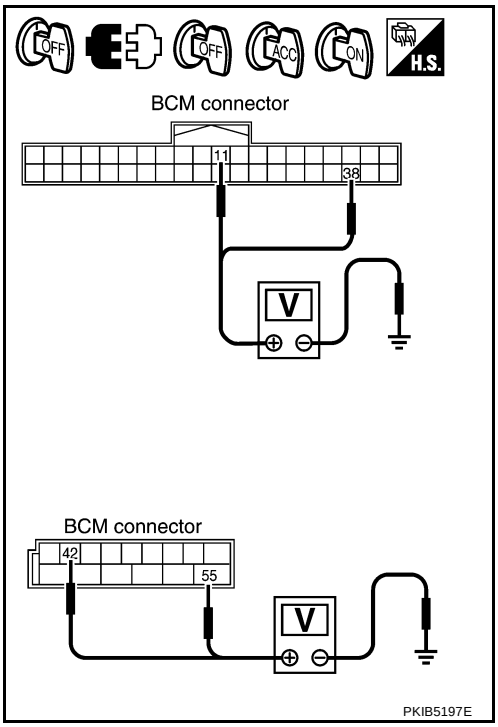
OK or NG

OK >> GO TO 2.
NG >> If fuse or fusible link is blown, be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to PG-3, "POWER SUPPLY ROUTING CIRCUIT" .

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

(+)		(–)	Ignition switch position		
BCM connector	Terminal		OFF	ACC	ON
M1	11	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M2	42		Battery voltage	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage	Battery voltage



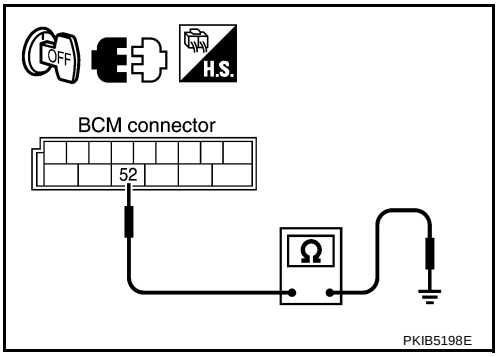
OK or NG

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

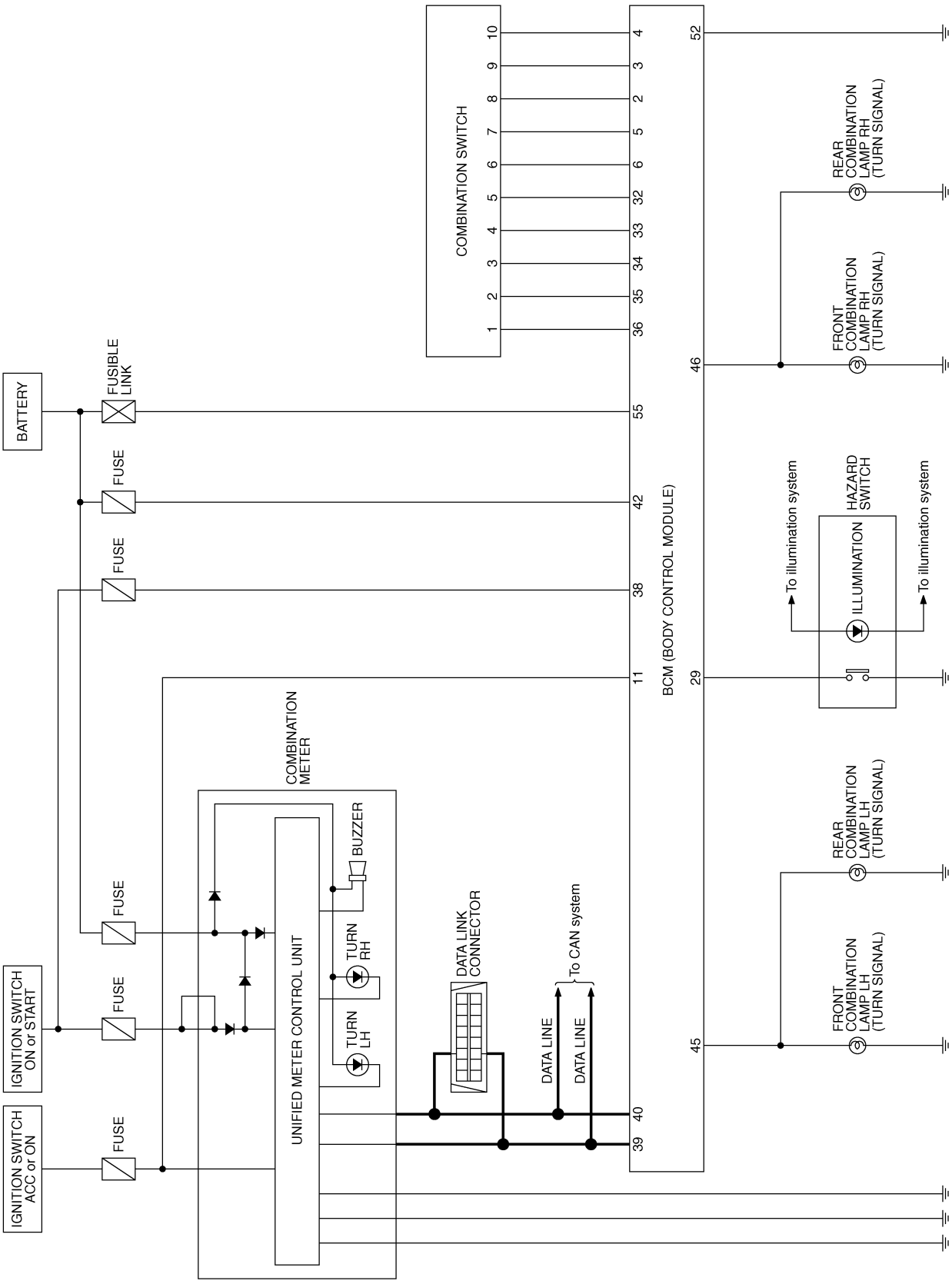


OK or NG

OK >> INSPECTION END
NG >> Repair harness or connector.

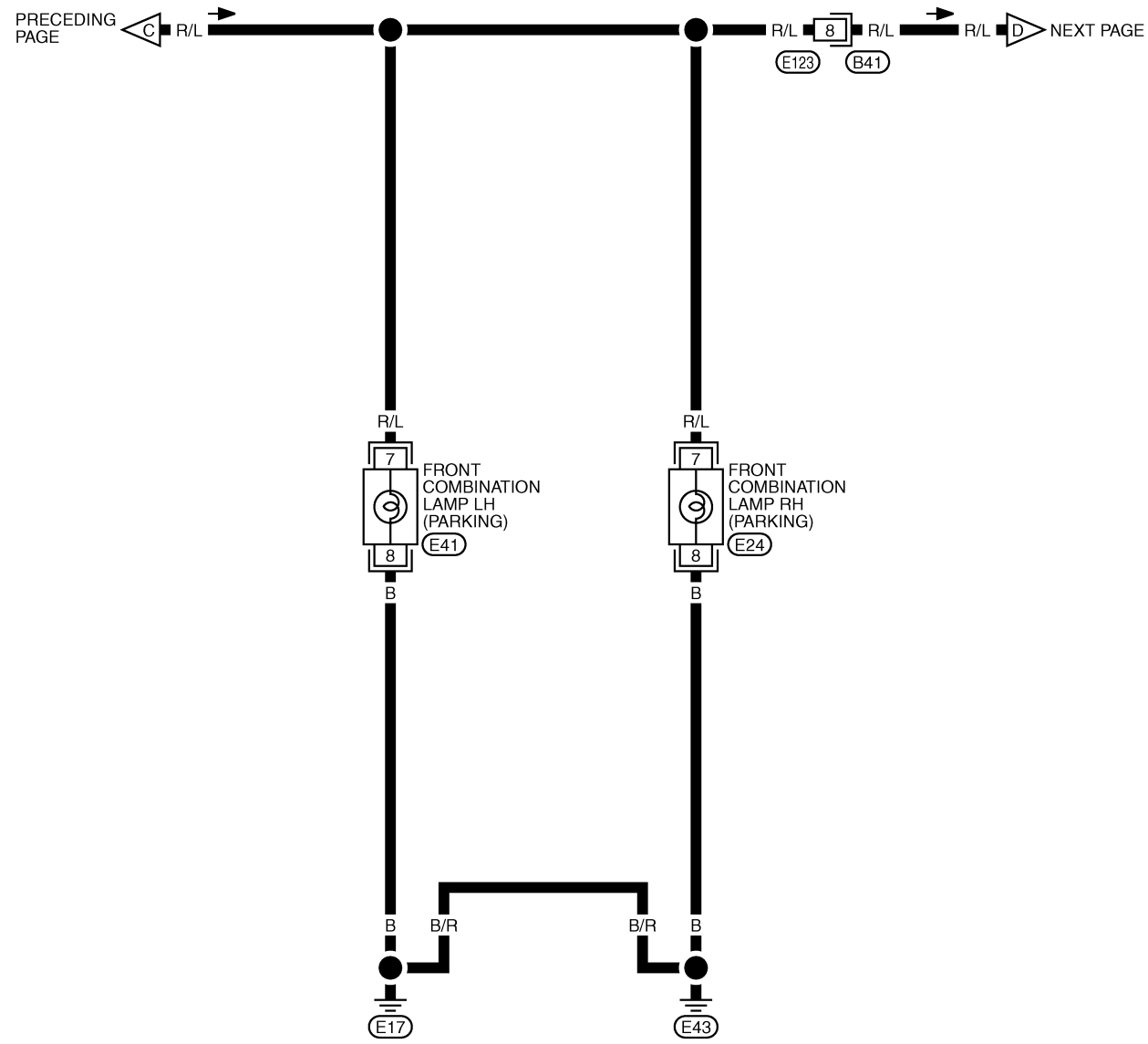
Schematic

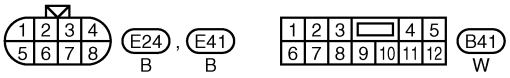
NKS002OQ



TKWM4099E

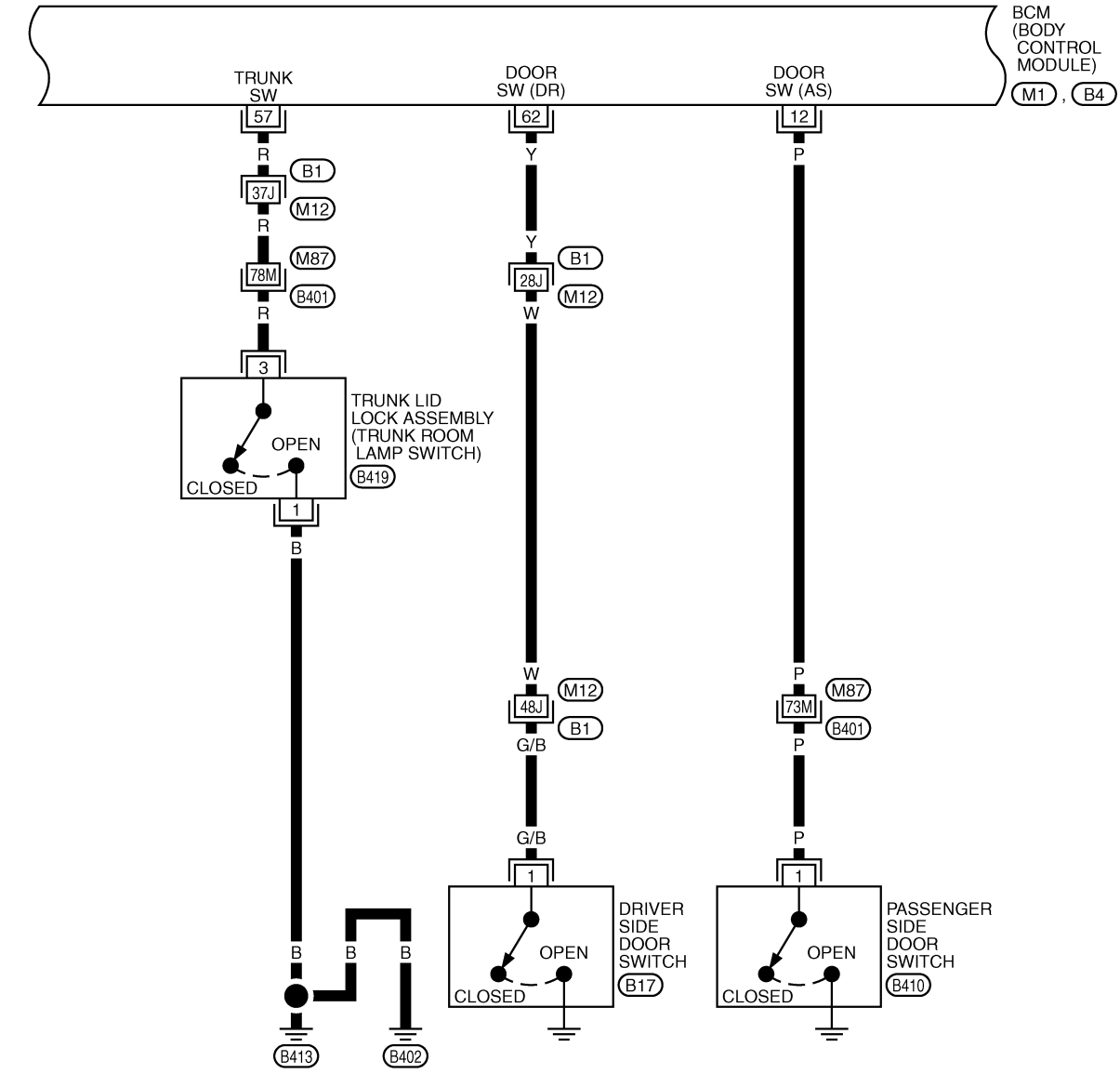
LT-TAIL/L-03

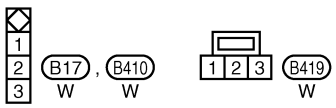




TKWM4011E

LT-ROOM/L-05

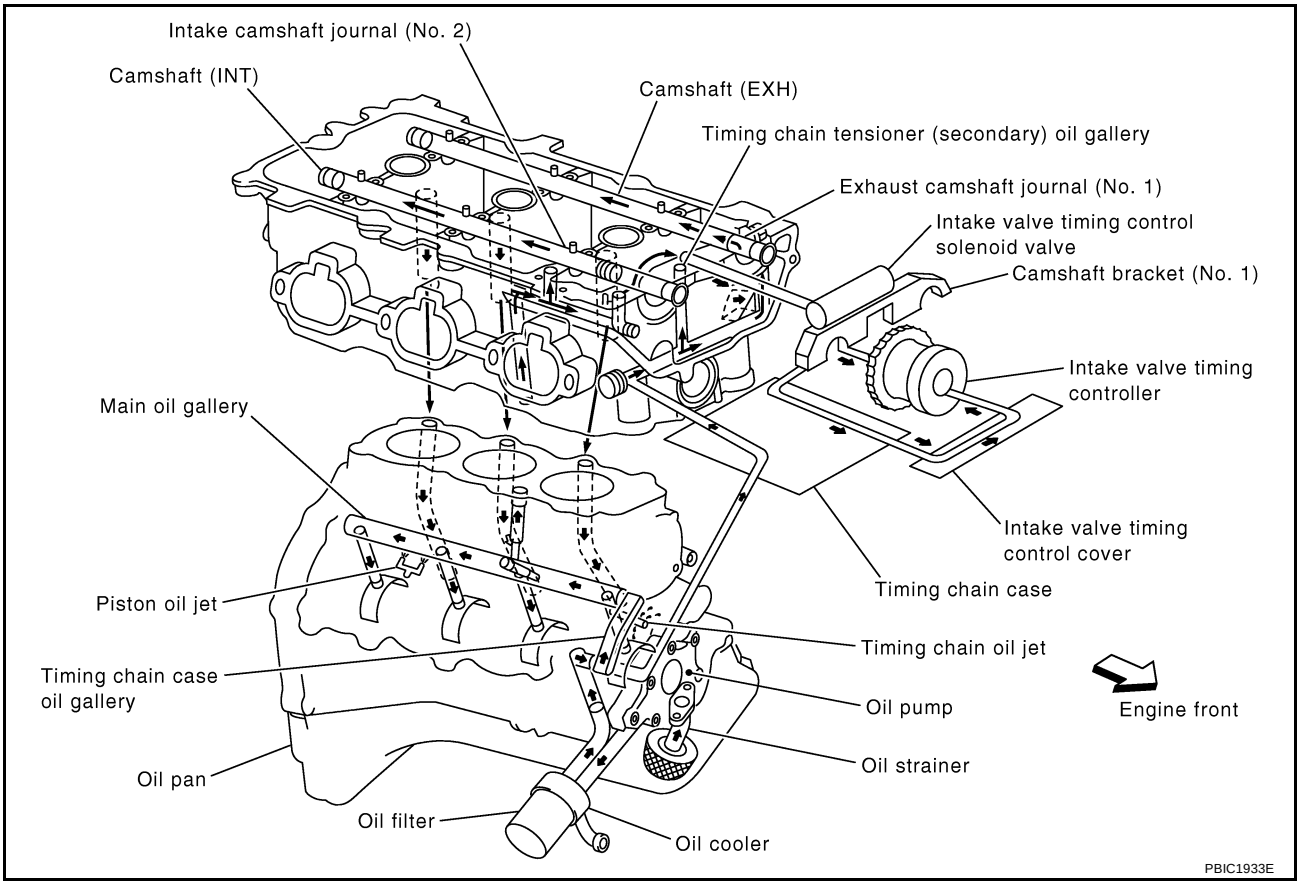




REFER TO THE FOLLOWING.
B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

TKWB4338E

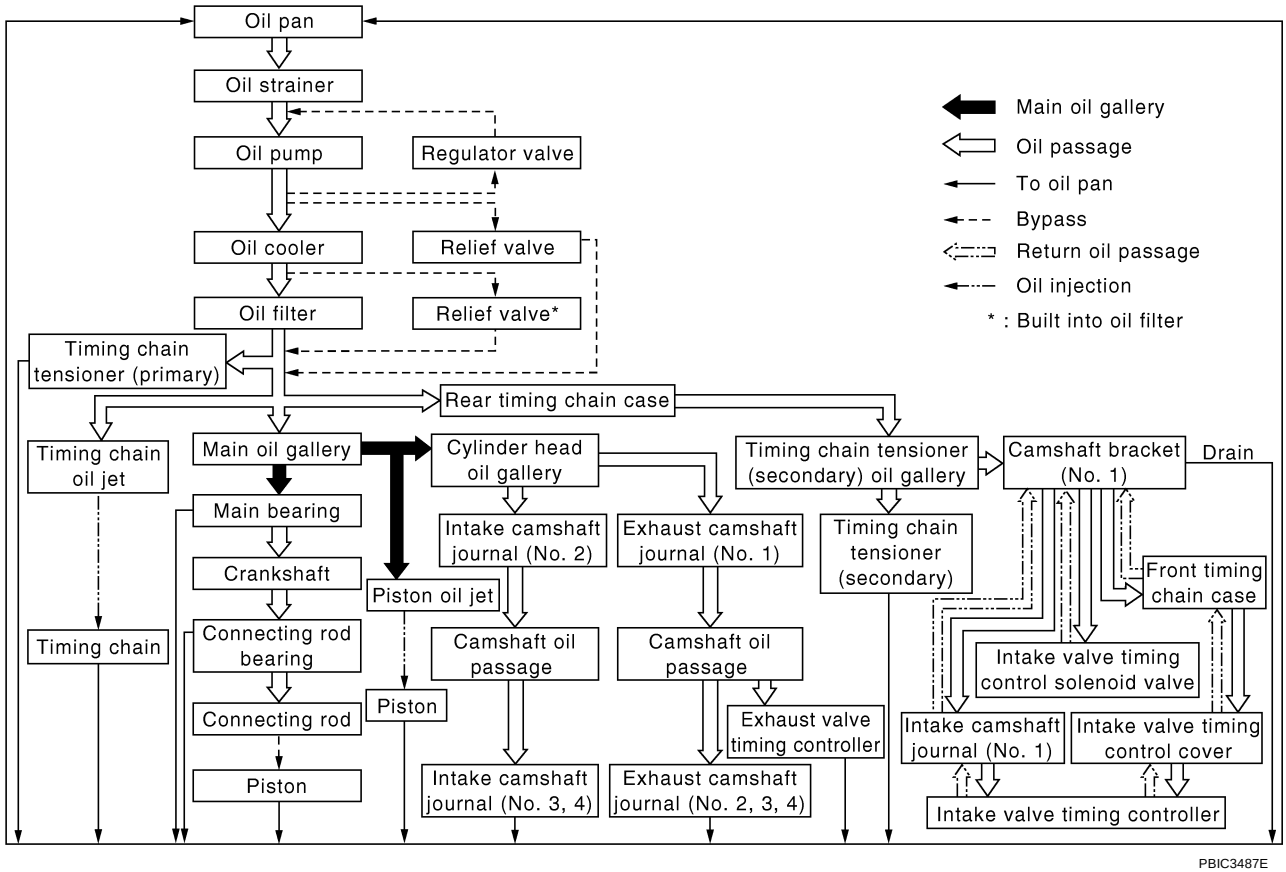
A/T Models



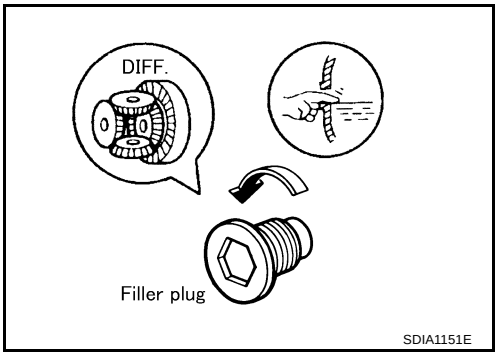
System Chart

NBS000L3

M/T Models



2. Check oil level.



Oil grad and Viscosity:

Refer to MA-10, "RECOMMENDED FLUIDS AND LUBRICANTS" .

Capacity:

R200, R200V

1.4 ℓ (3 US pt, 2 - 1/2 Imp pt)

Filler plug:

: 34.5 N·m (3.5 kg-m, 25 ft-lb)

Drain plug:

: 34.5 N·m (3.5 kg-m, 25 ft-lb)

CAUTION:

Gaskets are not reusable. Never reuse them.

Balancing Wheels (Bonding Weight Type)

NLS0001X

REMOVAL

1. Remove inner and outer balance weights from the road wheel.

CAUTION:

Be careful not to scratch the road wheel during removal.

2. Using releasing agent, remove double-faced adhesive tape from the road wheel.

CAUTION:

- **Be careful not to scratch the road wheel during removal.**
- **After removing double-faced adhesive tape, wipe clean traces of releasing agent from the road wheel.**

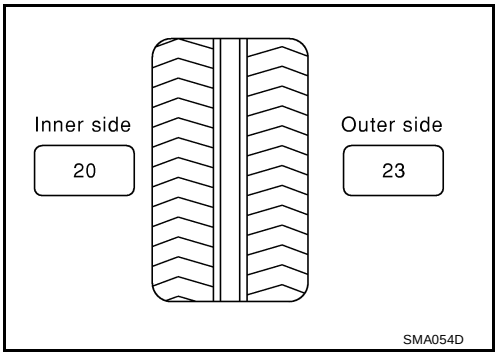
WHEEL BALANCE ADJUSTMENT

- If a tire balance machine has adhesion balance weight mode settings and drive-in weight mode setting, select and adjust a drive-in weight mode suitable for road wheels.

1. Set road wheel on wheel balancer using the center hole as a guide. Start the tire balance machine.
2. When inner and outer unbalance values are shown on the wheel balancer indicator, multiply outer unbalance value by 5/3 to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install it to the designated outer position of, or at the designated angle in relation to the road wheel.

CAUTION:

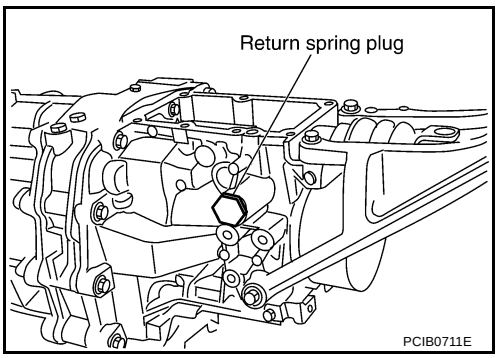
- **Do not install the inner balance weight before installing the outer balance weight.**
- **Before installing the balance weight, be sure to clean the mating surface of the road wheel.**



Indicated unbalance value × 5/3 = balance weight to be installed
Calculation example:
23 g (0.81 oz) × 5/3 = 38.33 g (1.35 oz) = 40 g (1.41 oz) balance weight (closer to calculated balance weight value)
Note that balance weight value must be closer to the calculated balance weight value.
Example:
37.4 = 35 g (1.23 oz)
37.5 = 40 g (1.41 oz)

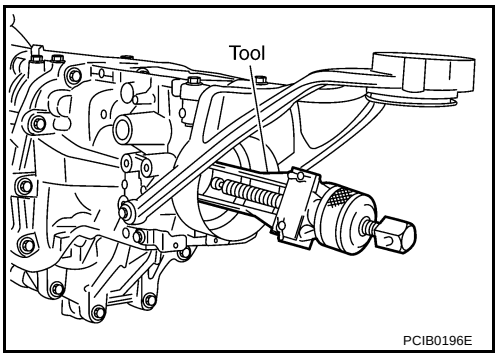
6. Remove right and left return spring plugs. Then remove return spring and return spring plunger from rear extension.

CAUTION:
Return springs and return spring plungers have different lengths for right and left sides. Identify right and left side and then store.



7. Remove rear oil seal from rear extension using the oil seal puller.

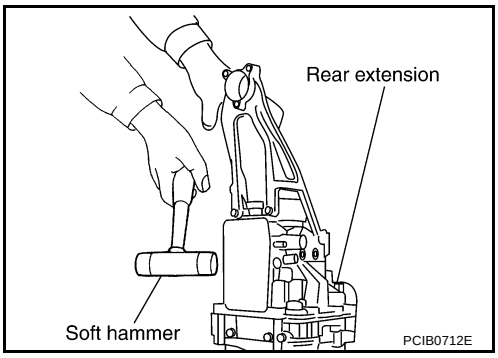
Tool number : KV381054S0 (—)



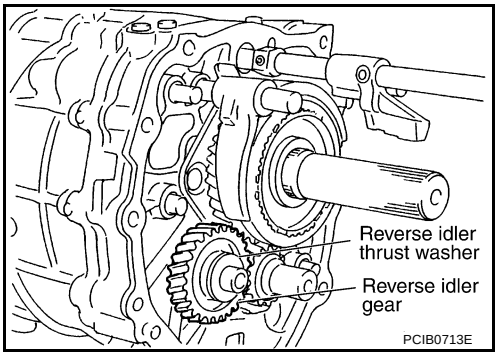
8. Remove rear extension mounting bolts. Using a soft hammer, tap rear extension assembly to remove.

CAUTION:
Do not hold control lever housing to prevent bushing of control lever housing from deformation when moving transmission assembly.

9. Remove control lever housing mounting bolts and control lever housing from rear extension.
10. Remove striking rod oil seal from rear extension. Refer to MT-21, "Case Components" .
11. Remove rear extension oil gutter mounting bolt and rear extension oil gutter from rear extension. Refer to MT-21, "Case Components" .



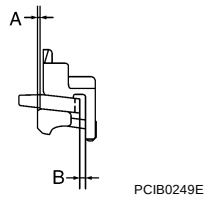
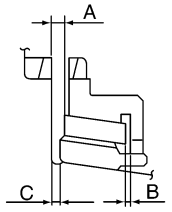
12. Remove reverse idler thrust washer, reverse idler gear and reverse idler needle bearing from reverse idler shaft.
13. Remove reverse idler shaft from adapter plate.



Baulk Ring Clearance

NCS000AY

Unit: mm (in)

Measurement point		Standard	Limit value
4th (Double-cone synchronizer)  PCIB0249E	● Clearance between synchronizer cone and inner baulk ring end face “A”	A: 0.50 - 0.70 (0.020 - 0.028)	0.3 (0.012)
	● Clearance between outer baulk ring pawl and synchronizer cone “B”	B: 0.85 - 1.35 (0.033 -0.053)	0.7 (0.028)
1st, 2nd and 3rd (Triple-cone synchronizer)  PCIB0772E	● Clearance between synchronizer cone and clutch gear end face “A”	A(1st): 0.65 - 1.25 (0.026 - 0.049) A(2nd, 3rd): 0.60 - 1.30 (0.024 - 0.051)	0.3 (0.012) 0.3 (0.012)
	● Clearance between outer baulk ring pawl and synchronizer cone “B”	B: 0.85 - 1.35 (0.033 - 0.053)	0.7 (0.028)
	● Clearance between inner baulk ring and clutch gear end face “C”	C(1st): 0.80 - 1.2 (0.031 - 0.047) C(2nd, 3rd): 0.75 - 1.25 (0.030 - 0.049)	0.3 (0.012) 0.3 (0.012)
5th and 6th		0.70 - 1.35 (0.028 - 0.053)	0.5 (0.020)
Reverse		0.75 - 1.20 (0.030 - 0.047)	0.5 (0.020)

ACTIVE TEST

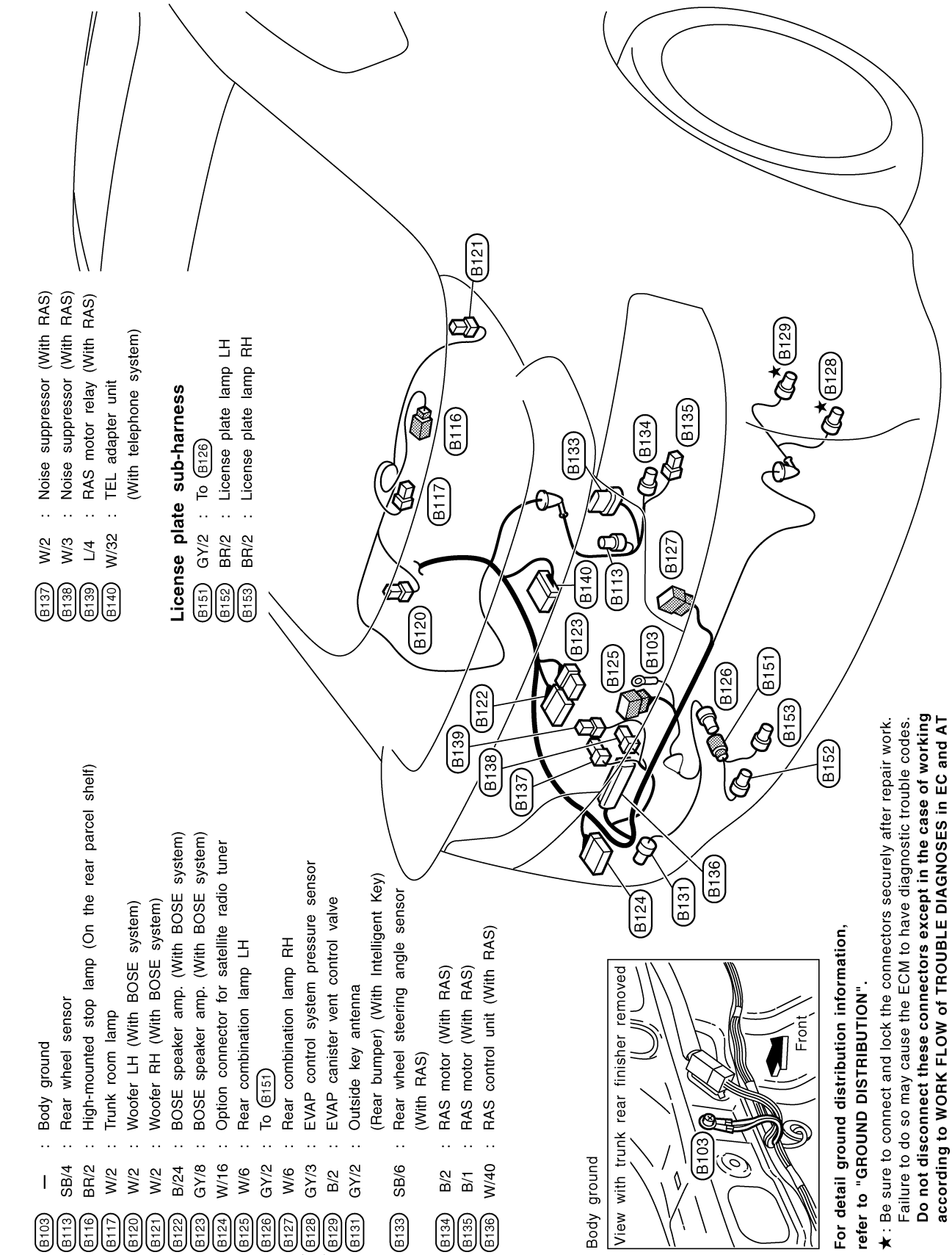
Operation Procedure

1. Touch “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Touch item to be tested.
3. Touch “START”, and confirm its operation.
4. Touch “STOP” while testing to stop the operation.

Test item	CONSULT-II screen display	Description
Tail lamp operation	TAIL LAMP	With a certain ON-OFF operation, the tail lamp relay can be operated.
Rear window defogger operation	REAR DEFOGGER	With a certain ON-OFF operation, the rear window defogger relay can be operated.
Front wiper (HI, LO) operation	FRONT WIPER	With a certain operation (OFF, HI ON, LO ON), the front wiper relay (Lo, Hi) can be operated.
Cooling fan operation	MOTOR FAN	With a certain operation (1, 2, 3, 4), the cooling fan can be operated.
Headlamp washer operation	HEAD LAMP WASHER[NOTE]	—
Lamp (HI, LO, FOG) operation	LAMPS	With a certain operation (OFF, HI ON, LO ON, FOG ON), the lamp relay (Lo, Hi, Fog) can be operated.
Horn operation	HORN	Push “ON” button, horn relay operates 20ms.

NOTE:
This item is displayed, but cannot be tested.

Trunk Room


B103 : Body ground
B113 : Rear wheel sensor
B116 : High-mounted stop lamp (On the rear parcel shelf)
B117 : Trunk room lamp
B120 : Woofer LH (With BOSE system)
B121 : Woofer RH (With BOSE system)
B122 : BOSE speaker amp. (With BOSE system)
B123 : BOSE speaker amp. (With BOSE system)
B124 : Option connector for satellite radio tuner
B125 : Rear combination lamp LH
B126 : To B151
B127 : Rear combination lamp RH
★ B128 : EVAP control system pressure sensor
★ B129 : EVAP canister vent control valve
B131 : Outside key antenna (Rear bumper) (With Intelligent Key)
B133 : Rear wheel steering angle sensor (With RAS)
B134 : RAS motor (With RAS)
B135 : RAS motor (With RAS)
B136 : RAS control unit (With RAS)
B137 : W/2 : Noise suppressor (With RAS)
B138 : W/3 : Noise suppressor (With RAS)
B139 : L/4 : RAS motor relay (With RAS)
B140 : W/32 : TEL adapter unit (With telephone system)
License plate sub-harness
B151 : GY/2 : To B126
B152 : BR/2 : License plate lamp LH
B153 : BR/2 : License plate lamp RH
Body ground
View with trunk rear finisher removed
Front
For detail ground distribution information, refer to "GROUND DISTRIBUTION".
★: 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 and AT sections.
TKIM0505E

SECTION PS
POWER STEERING SYSTEM

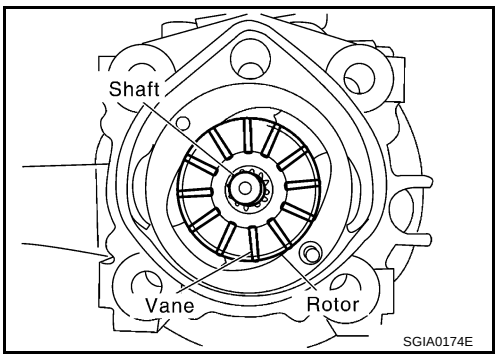
CONTENTS

6. Install rotor to shaft of shaft kit (rotor direction is the same regardless of the front and back).
7. Install vane to rotor (vane direction is the same regardless of inside and outside).
8. Install rotor snap ring to shaft of shaft kit.

   NOTE:
   Do not reuse rotor snap ring.

   CAUTION:
   Be careful not to damage rotor and pulley shaft.
9. Apply a coat of NISSAN PSF or equivalent to O-ring A, then install O-ring A to body assembly.

   NOTE:
   Do not reuse O-ring A.



10. Attach cover assembly to body assembly and tighten fixing bolts diagonally at the specified torque.
11. Install flow control valve assembly, relief valve assembly and flow control valve spring to body assembly.
12. Apply a coat of NISSAN PSF or equivalent to O-ring D and install to plug, then tighten plug at the specified torque.

    NOTE:
    Do not reuse O-ring D.
13. Apply a coat of NISSAN PSF or equivalent to O-ring E and install O-ring E to suction connector assembly, then install suction connector to body assembly.

    NOTE:
    Do not reuse O-ring E.
14. Install bracket to body assembly, and tighten mounting bolts at the specified torque.

Work Flow

NIS000G2

1. Check the symptom and customer's requests.
2. Understand the outline of system. Refer to RF-10, "System Description" .
3. According to the trouble diagnosis chart, repair or replace the cause of the malfunction. Refer to RF-17, "Trouble Diagnosis Chart by Symptom" .
4. Does sunroof system operate normally? If Yes, GO TO 5. If No, GO TO 3.
5. INSPECTION END.

CONSULT-II Function (BCM)

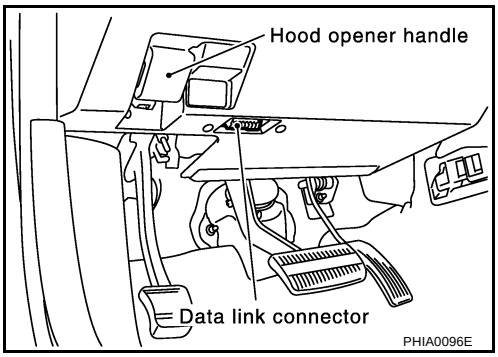
NIS000G3

CAUTION:

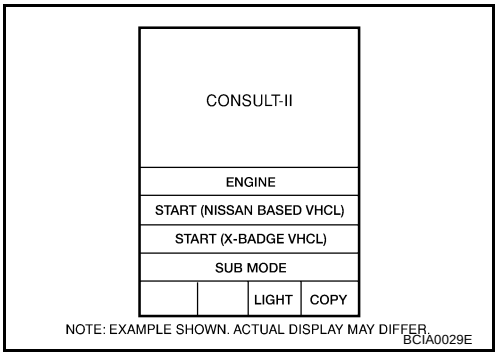
If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

“RETAINED PWR”

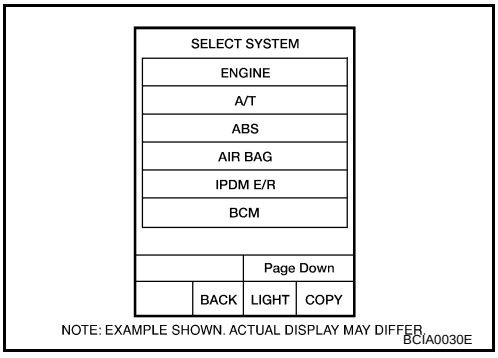
1. Turn ignition switch OFF.
2. Connect “CONSULT-II and CONSULT-II CONVERTER” to the data link connector.



3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



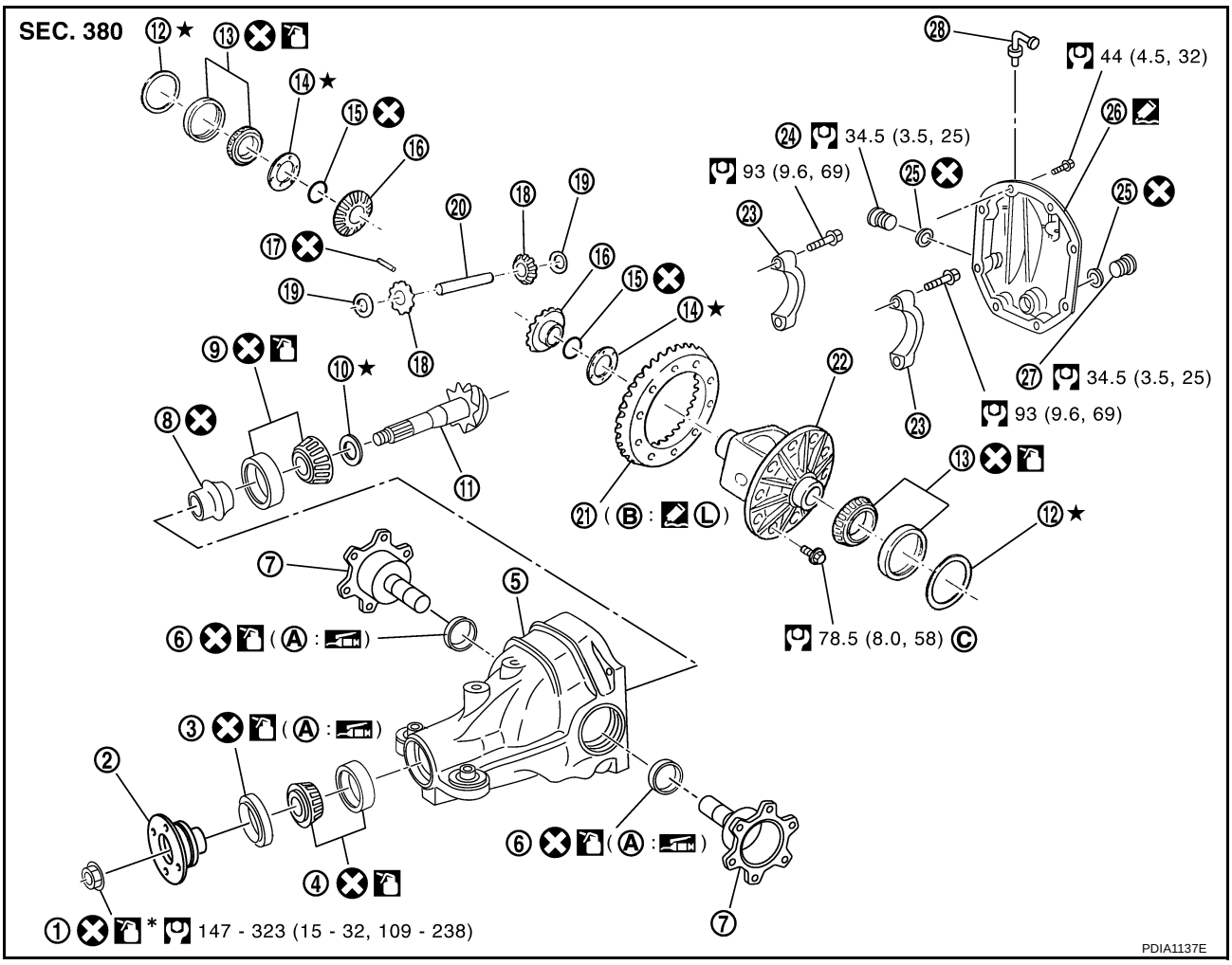
5. Touch “BCM”.
   If “BCM” is not indicated, go to GI-39, "CONSULT-II Data Link Connector (DLC) Circuit" .



Disassembly and Assembly (R200 2-Pinion)

NDS0001P

COMPONENTS



1. Drive pinion lock nut
2. Companion flange
3. Front oil seal
4. Pinion front bearing
5. Gear carrier
6. Side oil seal
7. Side flange
8. Collapsible spacer
9. Pinion rear bearing
10. Pinion height adjusting washer
11. Drive pinion
12. Side bearing adjusting washer
13. Side bearing
14. Side gear thrust washer
15. Circular clip
16. Side gear
17. Lock pin
18. Pinion mate gear
19. Pinion mate thrust washer
20. Pinion mate shaft
21. Drive gear
22. Differential case
23. Bearing cap
24. Filler plug
25. Gasket
26. Rear cover
27. Drain plug
28. Breather connector

A: Oil seal lip

B: Screw hole

C: After tightening the bolts to the specified torque, tighten the bolts additionally by turning the bolts 31 to 36 degrees.

Refer to GI-10, "Components" and the followings for the symbols in the figure.

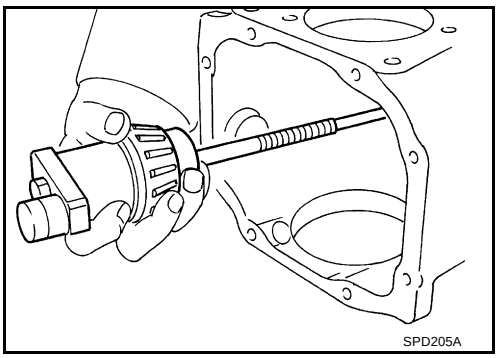
: Apply gear oil.

*: Apply anti-corrosion oil.

: Apply Genuine Silicone RTV or equivalent. Refer to GI-47, "Recommended Chemical Products and Sealants" .

L: Apply Genuine High Strength Thread Locking Sealant or equivalent. Refer to GI-47, "Recommended Chemical Products and Sealants" .

13. Remove the J-34309 differential shim selector tool from the final drive housing. Then disassemble to retrieve the pinion bearings.



ASSEMBLY

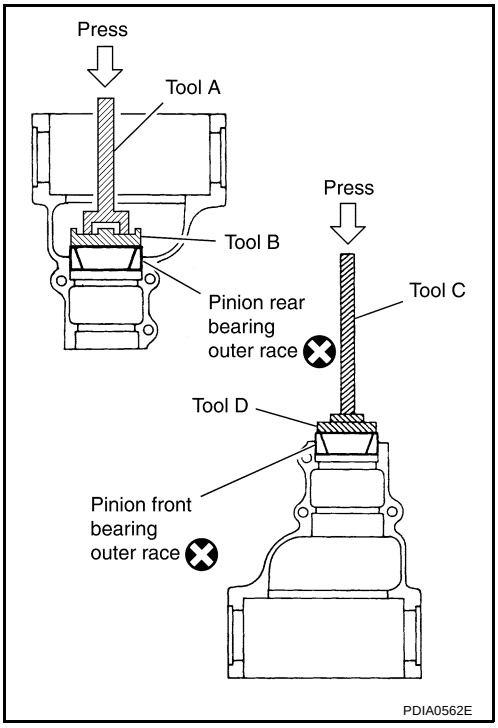
Drive Pinion Assembly

1. Install front and rear bearing outer races using drifts.

Tool number **A: ST30720000 (J-25405)**
B: KV40105230 (—)
C: ST30611000 (J-25742-1)
D: ST30613000 (J-25742-3)

CAUTION:
- **At first, using a hammer, tap bearing outer race until it becomes flat to gear carrier.**
- **Do not reuse pinion front and rear bearing outer race.**

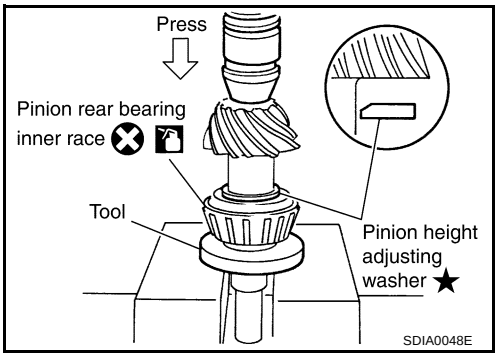
2. Select drive pinion height adjusting washer. Refer to RFD-50, "Pinion Gear Height" .



3. Install selected drive pinion height adjusting washer to drive pinion. Press pinion rear bearing inner race to it, using drift.

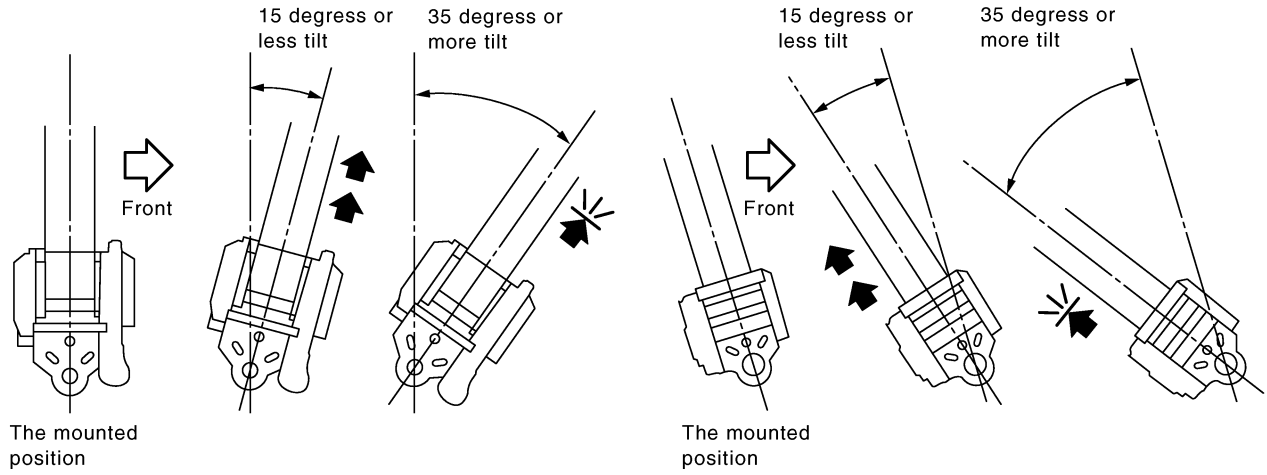
Tool number **: ST30901000 (J-26010-01)**

CAUTION:
- **Pay attention to the direction of pinion height adjusting washer. (Assemble as shown in the figure.)**
- **Do not reuse pinion rear bearing inner race.**



SEAT BELT RETRACTOR OFF-VEHICLE CHECK

1. Remove the seat belt retractor assembly.
2. Slowly pull out webbing while tilting the retractor assembly forward from the mounted position without twisting the retractor assembly as shown in the illustration.

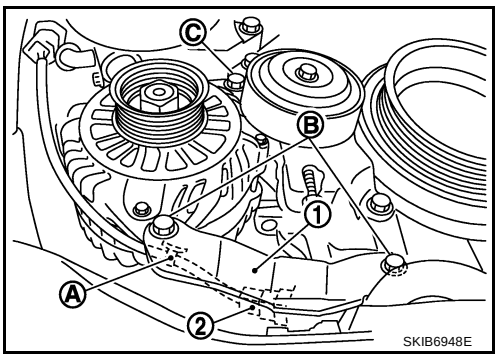


15 degrees or less tilt : Webbing can be pulled out.

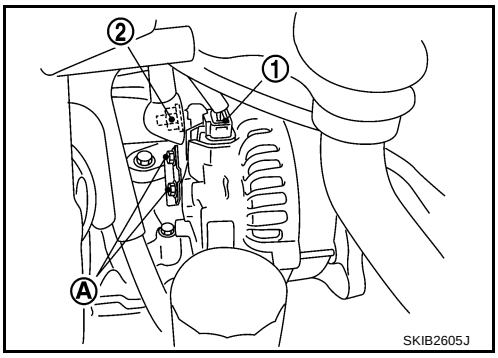
35 degrees or more tilt : Webbing locks and cannot be pulled out.

If NG, replace the retractor assembly.

9. Remove oil pressure switch harness clip (A) from alternator stay (1).
10. Disconnect oil pressure switch connector (2).
11. Remove alternator stay mounting bolts (B) and alternator stay (1), using power tools.
12. Remove alternator mounting bolt (C), using power tools.



13. Disconnect alternator connector (1).
14. Remove “B” terminal nut (2).
15. Remove harness clip and water hose bracket bolts (A) from alternator.
16. Remove alternator assembly downward.



ALTERNATOR PULLEY INSPECTION

Perform the following.

- Make sure that alternator pulley does not rattle.
- Make sure that alternator pulley nut is tight.

Alternator pulley nut:

: 118 N·m (12.0 kg-m, 87 ft-lb)

INSTALLATION

Installation is the reverse order of removal.

- Install alternator, and check tension of belt. Refer to EM-14, "Tension Adjustment" .

CAUTION:

Be sure to tighten “B” terminal nut carefully.

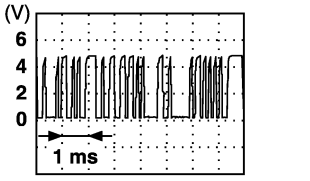
TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) (Approx.)
33	W/L	Sensor power supply	Tilt or telescopic switch operated	5
			Other than above	0
34	GY*1 Y/R*2	Power source (Fuse)	—	Battery voltage
35	G/Y	Tilt motor UPWARD signal	Tilt switch turned to upward	Battery voltage
			Other than above	0
36	R	Telescopic motor FORWARD signal	Telescopic switch turned to forward	Battery voltage
			Other than above	0
39	W	Battery power supply	—	Battery voltage
40	B	Ground (signal)	—	0
41	Y	Sensor ground	—	0
42	G/W	Tilt motor DOWNWARD signal	Tilt switch turned to downward	Battery voltage
			Other than above	0
44	G	Telescopic motor BACKWARD signal	Telescopic switch turned to backward	Battery voltage
			Other than above	0
48	B	Ground (power)	—	0

*1 : With A/T

*2 : With M/T

Terminals and Reference Values for Driver Seat Control Unit

NIS001HH

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) (Approx.)
1	L/W	UART LINE (RX)	Memory switch 1 or 2 switch operated	 PIIA4813E
2	LG/B	Seat memory switch indicator 1 signal	Memory switch 1: ON	1
			Memory switch 2: OFF	Battery voltage
3	W	CAN-H	—	—
4	OR	Sliding limit switch forward signal	Seat slide front most part	0
			Other than above	5
5	LG	Seat belt buckle switch signal	Seat belt is fastened	5
			Other than above	0
6	Y/R	Ignition switch (START)	Ignition switch (START position)	Battery voltage
7	R/B	Seat memory switch 1 signal	Memory switch 1: ON	0
			Memory switch 1: OFF	5
8*1	L/Y	Parking brake switch signal	When applied the parking brake	0
			Other than above	5

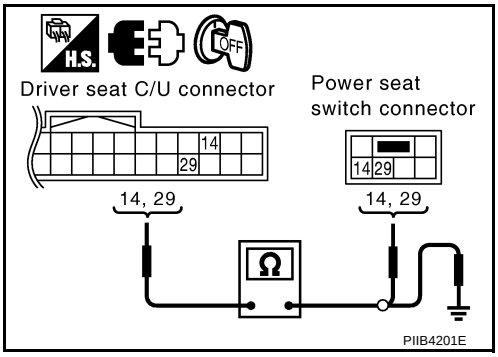
2. CHECK REAR LIFTING SWITCH HARNESS CONTINUITY

1. Disconnect driver seat control unit connector and power seat switch connector.
2. Check continuity between driver seat control unit connector B352 terminals 14, 29 and power seat switch connector B356 terminals 14, 29.

14 (G/B) – 14 (G/B) : Continuity should exist.
29 (P/L) – 29 (P/L) : Continuity should exist.

3. Check continuity between driver seat control unit connector B352 terminals 14, 29 and ground.

14 (G/B) – Ground : Continuity should not exist.
29 (P/L) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness between driver seat control unit and driver power seat switch.

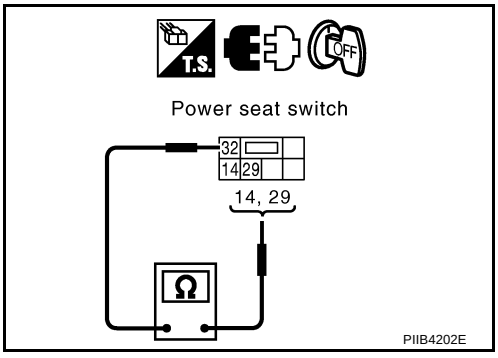
3. CHECK REAR LIFTING SWITCH

Check continuity between power seat switch as follows.

Terminal		Rear lifting switch condition	Continuity
29	32	UP	Yes
		Other than above	No
14		DOWN	Yes
		Other than above	No

OK or NG

OK >> Check the condition of the harness and connector.
NG >> Replace power seat switch.



Check Sliding and Reclining Switch Ground Circuit

NIS001I5

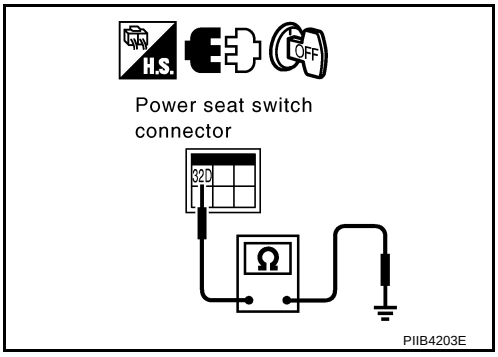
1. CHECK POWER SEAT SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect power seat switch connector.
3. Check continuity between power seat switch connector B355 terminal 32D and ground.

32D(B) – Ground : Continuity should exist.

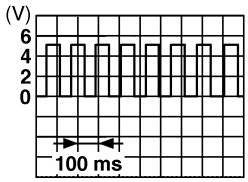
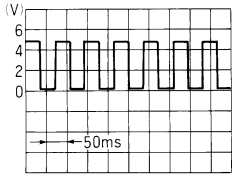
OK or NG

OK >> Check the condition of the harness and connector.
NG >> Repair or replace harness between power seat switch and ground.



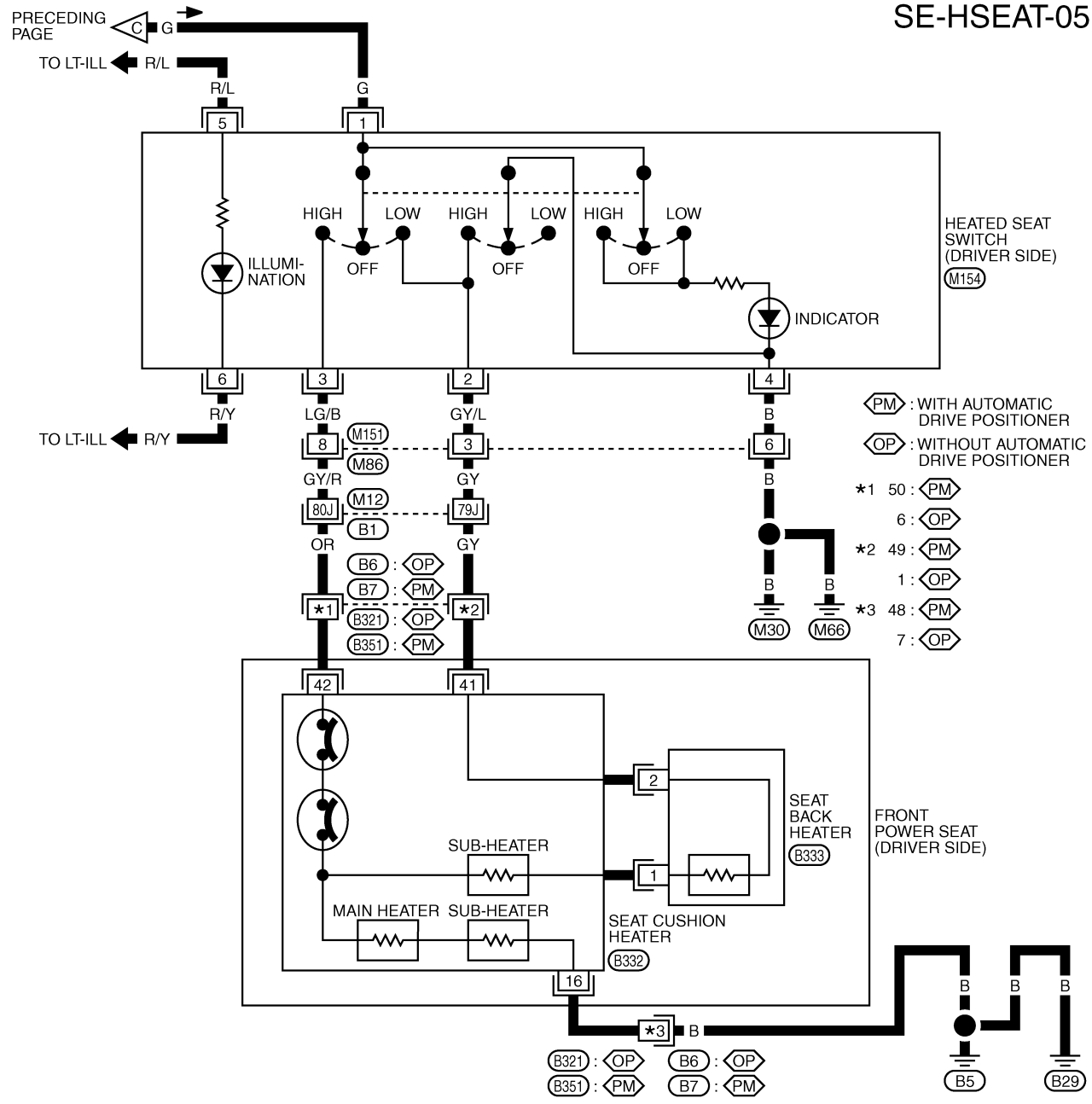
Terminal and Reference Value for Driver Side Seat Control Unit

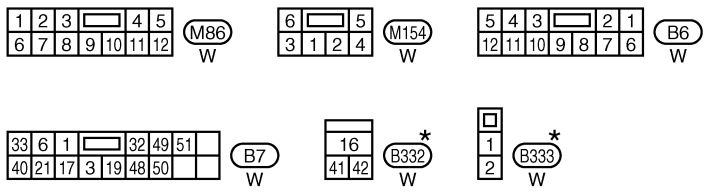
NIS000HV

TER-MINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) (Approx.)
1	R	BAT power supply	—	Battery voltage
2*	L	Seatback switch signal	When seatback switch forward	0
			Other than above	5
3*	R	Sliding sensor signal	When sliding motor operates	 PIIA4079E
4	G	Power walk-in switch signal	When power walk-in switch: ON	0
			Other than above	5
5	L/Y	A/T shift liver P position signal (with A/T models)	When shift lever P position	0
			Other than above	5
		Parking brake signal (with M/T models)	When pull the parking brake	0
			Other than above	5
6	B	Ground	–	0
7	Y	Forward sliding switch signal	Forward sliding switch: ON	0
			Other than above	Battery voltage
8	R/W	BAT power supply	–	Battery voltage
9	BR	Backward sliding switch signal	Backward sliding switch: ON	0
			Other than above	Battery voltage
10	W	Sliding motor forward signal	When sliding motor forward operates	Battery voltage
			Other than above	0
11	L	Sliding motor backward signal	When sliding motor backward operates	Battery voltage
			Other than above	0
13*	OR	Limit switch (forward)	The seat slide front most part	0
			Other than above	5
14	GY	Sliding sensor ground	—	0
15*	B/R	Vehicle speed signal (2-pulse)	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	 ELF1080D
16	G/W	Door switch and seat belt switch signal	When seat belt is unfastened and door is open	0
			Other than above	Battery voltage

*: When operation condition is satisfied.

SE-HSEAT-05





REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

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

TIWM1509E

Diagnostic item	Explanation	Repair order "Recheck SRS at each replacement"
CURTAIN MODULE LH [OPEN] [B1150]	● 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] [B1151]	● LH side curtain air bag module circuit is shorted to a power supply circuit.	
CURTAIN MODULE LH [GND-SHORT] [B1152]	● LH side curtain air bag module circuit is shorted to ground.	
CURTAIN MODULE LH [SHORT] [B1153]	● LH side curtain air bag module circuit is shorted between lines.	
CURTAIN MODULE RH [OPEN] [B1145]	● 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] [B1146]	● RH side curtain air bag module circuit is shorted to a power supply circuit.	
CURTAIN MODULE RH [GND-SHORT] [B1147]	● RH side curtain air bag module circuit is shorted to ground.	
CURTAIN MODULE RH [SHORT] [B1148]	● RH side curtain air bag module circuit is shorted between lines.	
CONTROL UNIT [B1001-B1015] [B1026-B1031] [B1042-B1047] [B1058-B1063] [B1074-B1079] [B1106-B1111] [B1122-B1127] [B1138-B1143] [B1202-B1207]	● Diagnosis sensor unit is malfunctioning.	1. Visually check the wiring harness connection. 2. Replace the diagnosis sensor unit.
PASS A/B INDCTR CKT [B1023]	● Cutoff telltale circuit is open or shorted to grand or the circuits are shorted each other.	1. Visually check the wiring harness connection. 2. Replace the harness if it has visible damage. 3. Replace cut off telltale indicator. 4. Replace the diagnosis sensor unit.
OCCUPANT SENS C/U [UNIT FAIL] [B1017] [B1020] [B1021]	● Trouble occurs in Occupant Classification System-CU.	● Replace passenger side seat cushion assembly.
OCCUPANT SENS [UNIT FAIL] [B1018]	● Trouble occurs in Occupant Classification System-SENS.	● Replace passenger side seat cushion assembly.
BELT TENSION SENS [UNIT FAIL] [B1019]	● Trouble occurs in belt tension sensor (BTS), circuit of BTS—Occupant Classification System-CU, or Occupant Classification System-CU.	1. Visually check the wiring harness connection. 2. Replace the harness if it has visible damage. 3. Replace passenger side seat belt assembly. 4. Replace the diagnosis sensor unit.

SECTION STC
STEERING CONTROL SYSTEM

CONTENTS

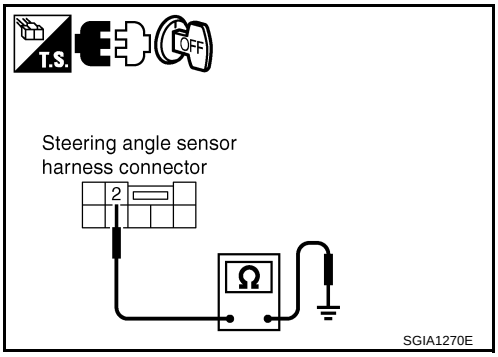
EPS

RAS

3. CHECK STEERING ANGLE SENSOR POWER SUPPLY AND GROUND CIRCUIT

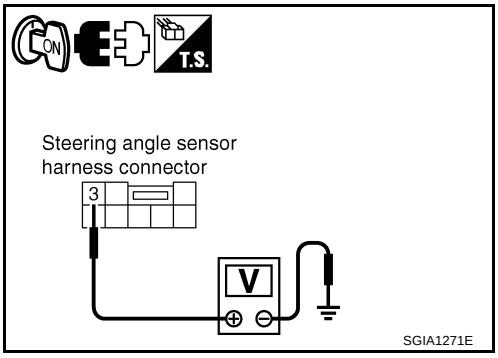
1. Turn ignition switch OFF, and disconnect steering angle sensor harness connector M22.
2. Check continuity steering angle sensor harness connector M22 and ground.

Steering angle sensor	Ground	Continuity
Terminal 2	—	Yes



3. Turn ignition switch ON, and then check voltage steering angle sensor harness connector M22 and ground.

Steering angle sensor	Ground	Continuity
Terminal 3	—	Battery voltage (approx. 12V)



OK or NG

OK >> GO TO 4.
NG >> Steering angle sensor power supply and ground circuit open or shorted. Repair or replace the applicable malfunctioning circuit.

4. DATA MONITOR

1. Connect steering angle sensor harness connector.
2. Select ”DATA MONITOR“ on “STEERING ANG” mode, and then check the steering angle.

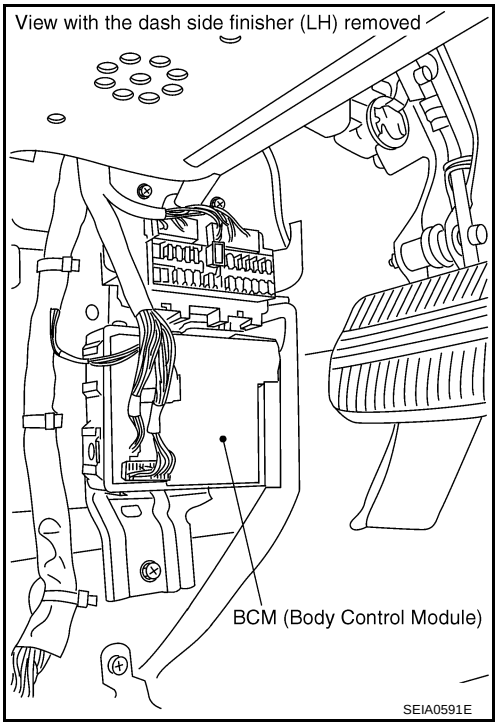
Steering condition	DATA MONITOR
Straight-ahead position	– 3.5 - +3.5°
Turn wheel to the right by 90°	Approx. R 90°
Turn wheel to the left by 90°	Approx. R 90°

OK or NG

OK >> RAS control unit malfunction. Replace RAS control unit.
NG >> Replace steering angle sensor and adjust neutral position of steering angle sensor. Refer to BRC-6, "Adjustment of Steering Angle Sensor Neutral Position" .

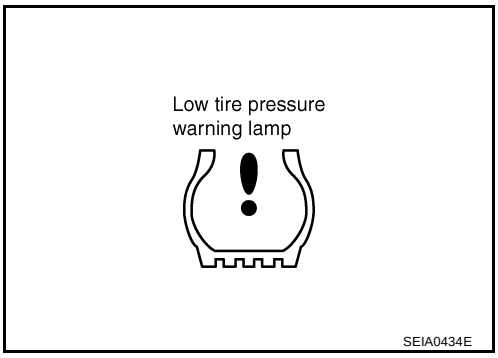
BCM (BODY CONTROL MODULE)

The BCM reads the air pressure signal received by the remote keyless entry receiver, and controls the low tire pressure warning lamp r operations. It also has a judgement function to detect a system malfunction.



LOW TIRE PRESSURE WARNING LAMP

The combination meter receives tire pressure status from the BCM using CAN communication. When a low tire pressure condition is sensed by the BCM, the combination meter low tire pressure warning lamp and buzzer are activated.



Low tire pressure warning lamp indication

Condition	Low tire pressure warning lamp
Less than 171 kPa (1.71 kg/cm^2 , 25 psi) [Note 1]	ON
Less than 194 kPa (1.94 kg/cm^2 , 28 psi) [Note 2]	
Low tire pressure warning system malfunction [Other diagnostic item]	Warning lamp flashes 1 min, then turns ON.

Note 1: Standard air pressure is for 210 kpa (2.1 kg/cm^2 , 30 psi) vehicles.

Note 2: Standard air pressure is for 240 kpa (2.4 kg/cm^2 , 35 psi) vehicles.

Can Communication

NES000BN

SYSTEM DESCRIPTION

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error 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. Refer to LAN-21, "CAN COMMUNICATION" .

For additional information about wiper operation under this condition, refer to WW-5, "LOW SPEED WIPER OPERATION" .
If switch is held in mist position, low speed operation continues.

FAIL-SAFE FUNCTION

If an abnormality occurs in CAN communications, IPDM E/R holds the condition just before fail-safe status is initiated until ignition switch is turned OFF. (If wipers were operating in LO just before the initiation of fail-safe status, they continue to operate in LO until ignition switch is turned OFF.)

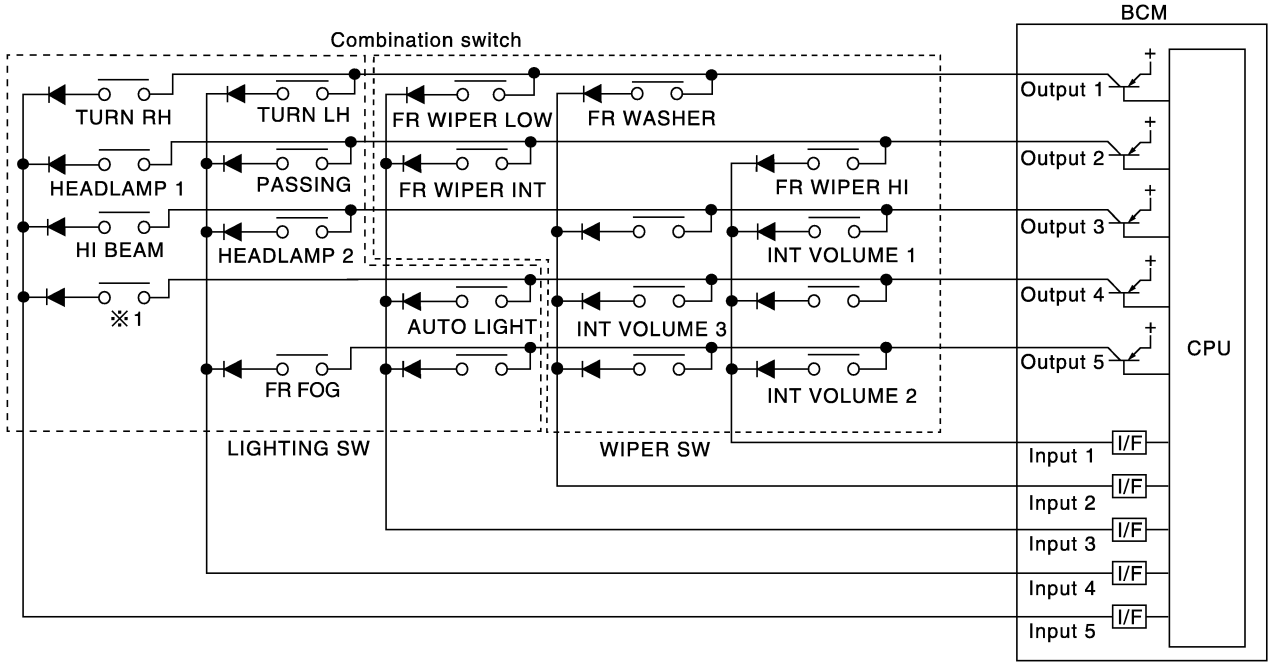
COMBINATION SWITCH READING FUNCTION

Description

- BCM reads combination switch (wiper) status, and controls related systems such as headlamps and wipers, according to the results.
- BCM reads information of a maximum of 20 switches by combining five output terminals (OUTPUT 1-5) and five input terminals (INPUT 1-5).

Operation Description

- BCM activates transistors of output terminals (OUTPUT 1-5) periodically, and allows current to flow in turn.
- If any (1 or more) switches are turned ON, circuit of output terminals (OUTPUT 1-5) and input terminals (INPUT 1-5) becomes active.
- At this time, transistors of output terminals (OUTPUT 1-5) are activated to allow current to flow. When voltage of input terminals (INPUT 1-5) corresponding to that switch changes, interface in BCM detects voltage change, and BCM determines that switch is ON.



※1 : LIGHTING SWITCH 1ST POSITION

PKIC6010E