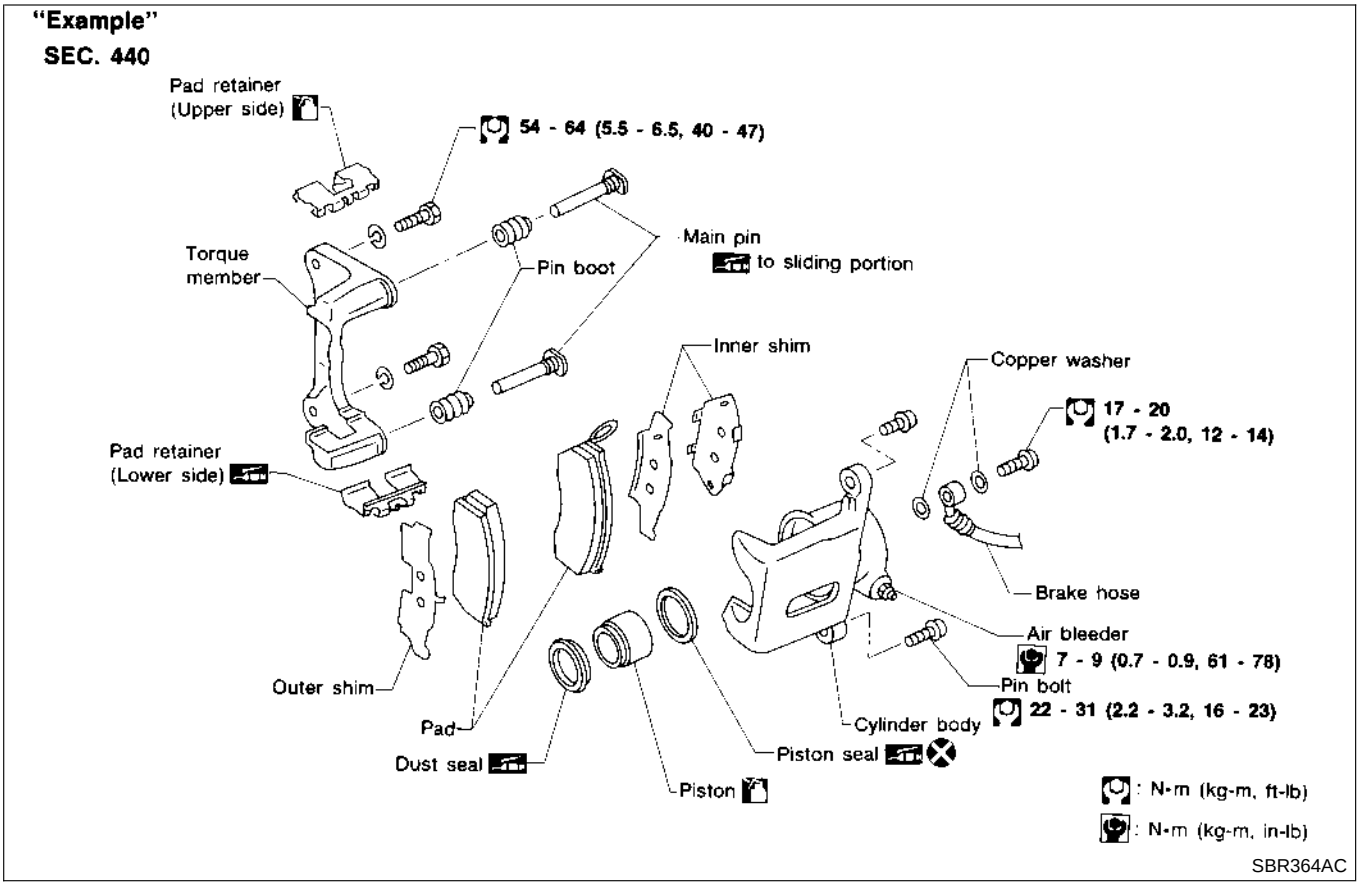
HOW TO USE THIS MANUAL

- **ALPHABETICAL INDEX** is provided at the end of this manual so that you can rapidly find the item and page you are searching for.
- **A QUICK REFERENCE INDEX**, a black tab (e.g. BR) is provided on the first page. You can quickly find the first page of each section by matching it to the section's black tab.
- **THE CONTENTS** are listed on the first page of each section.
- **THE TITLE** is indicated on the upper portion of each page and shows the part or system.
- **THE PAGE NUMBER** of each section consists of two letters which designate the particular section and a number (e.g. "BR-5").
- **THE LARGE ILLUSTRATIONS** are exploded views (See below.) 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**.



- **THE SMALL ILLUSTRATIONS** show the important steps such as inspection, use of special tools, knacks of work and hidden or tricky steps which are not shown in the previous large illustrations.
  Assembly, inspection and adjustment procedures for the complicated units such as the automatic transaxle or transmission, etc. are presented in a step-by-step format where necessary.
- The **UNITS** given in this manual are primarily expressed as the SI UNIT (International System of Unit), and alternatively expressed in the metric system and in the yard/pound system.
  "Example"
  Tightening torque:
  59 - 78 N·m (6.0 - 8.0 kg-m, 43 - 58 ft-lb)
- **TROUBLE DIAGNOSES** are included in sections dealing with complicated components.
- **SERVICE DATA AND SPECIFICATIONS** are contained at the end of each section for quick reference of data.
- The following **SYMBOLS AND ABBREVIATIONS** are used:

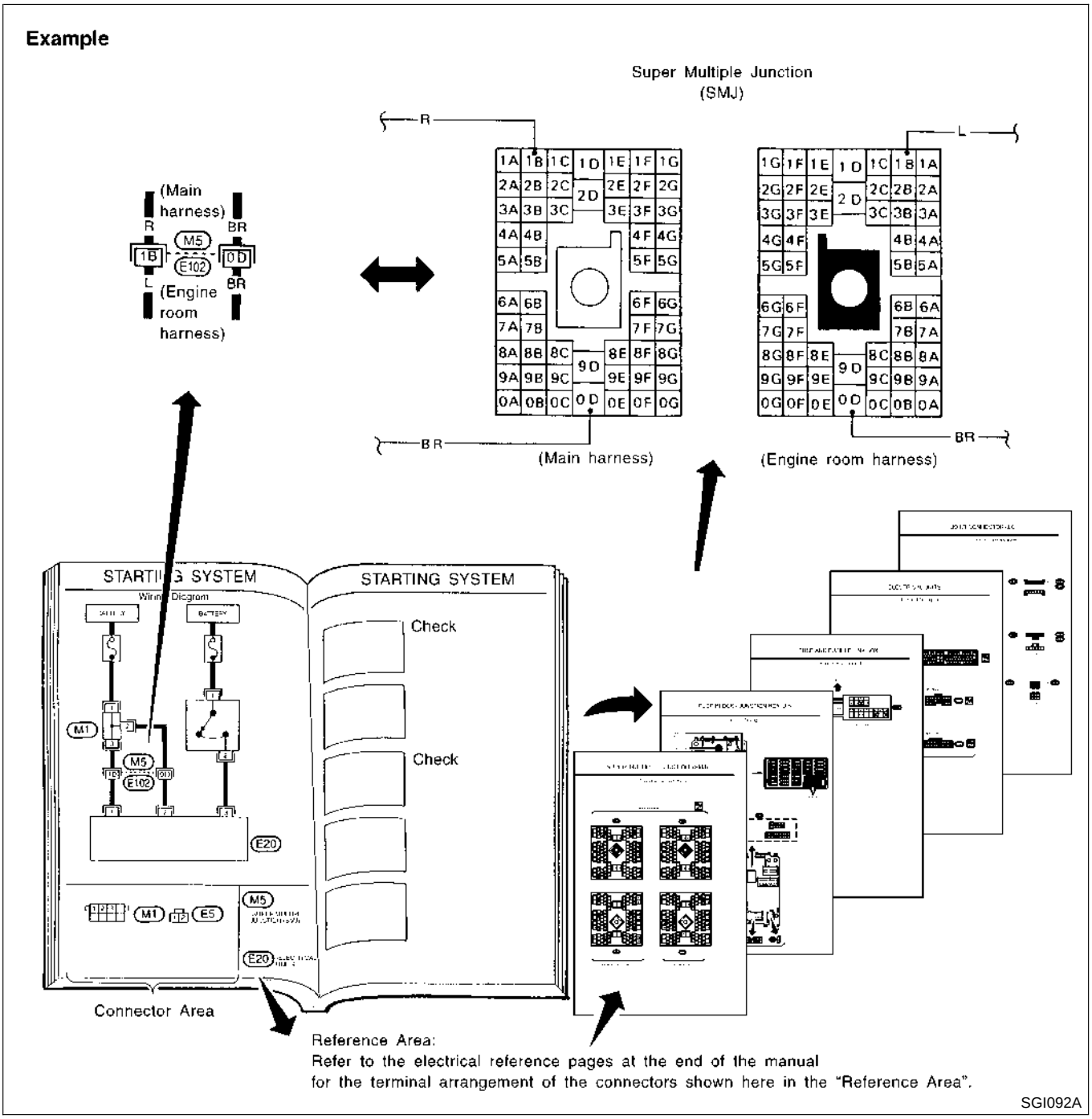
Description (Cont'd)

REFERENCE AREA

=NIGI0003S0207

The Reference Area of the wiring diagram contains references to additional electrical reference pages at the end of the manual. If connector numbers and titles are shown in the Reference Area of the wiring diagram, these connector symbols are not shown in the Connector Area.

Example



Super multiple junction (SMJ)

In a wiring diagram, the SMJ connectors include a letter of the alphabet in the terminal number.

SMJ connector numbers are shown in the Reference Area of the wiring diagram. SMJ terminal arrangement can be found on the electrical reference pages at the end of the manual. For terminal arrangement of these connectors, refer to the "SUPER MULTIPLE JUNCTION (SMJ)" electrical reference page at the end of the

Diagnostic Procedure (Cont'd)

9	CHECK SWIRL CONTROL VALVE CONTROL SOLENOID VALVE

With CONSULT-II

1. Reconnect the disconnected harness connectors.
2. Start engine and let it idle.
3. Remove vacuum hose connected to swirl control valve actuator.
4. Select "SWIRL CONT SOL/V" in "ACTIVE TEST" mode with CONSULT-II.
5. Touch "ON" and "OFF" on CONSULT-II screen.
6. Check vacuum existence and operation delay time under the following conditions.

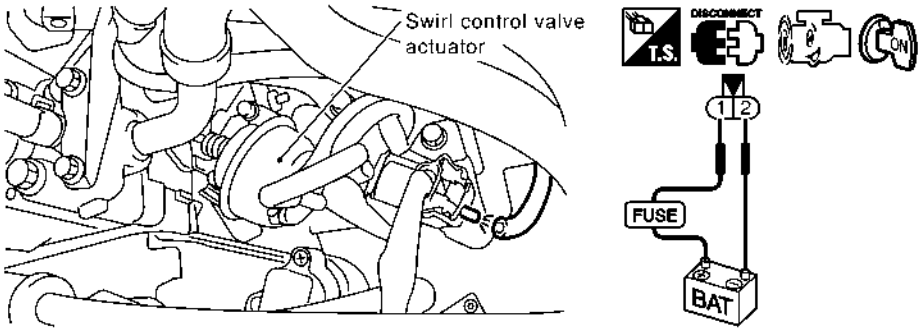
PCM TERMINALS AND REFERENCE VALUE MEASURED BETWEEN EACH TERMINAL AND GROUND.
CAUTION:
DO NOT USE PCM GROUND TERMINALS WHEN MEASURING INPUT/OUTPUT VOLTAGE. DOING SO MAY RESULT IN DAMAGE TO THE PCM'S TRANSISTOR. USE A GROUND OTHER THAN PCM TERMINALS, SUCH AS THE GROUND.

TERMINAL	WIRE COLOR	ITEM	CONDITION	DATA (DC)
59	P/L	SWIRL CONTROL VALVE CONTROL VACUUM CHECK SWITCH	ENGINE RUNNING AT IDLE SPEED WITH ENGINE COOLANT TEMPERATURE BETWEEN 15°C (59°F) AND 50°C (122°F).	APPROX. 5V
			ENGINE RUNNING AT IDLE SPEED WITH ENGINE COOLANT TEMPERATURE ABOVE 55°C (131°F).	0 - 1V

SEF764Y

Without CONSULT-II

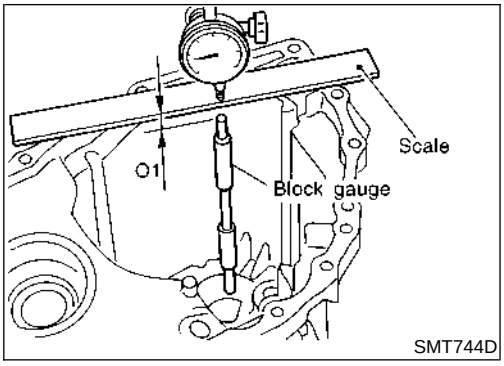
1. Reconnect PCM harness connector.
2. Remove vacuum hose connected to swirl control valve actuator.
3. Start engine and let it idle.
4. Apply 12V of direct current between swirl control valve control solenoid valve terminals 1 and 2.
5. Check vacuum existence and operation delay time under the following conditions.



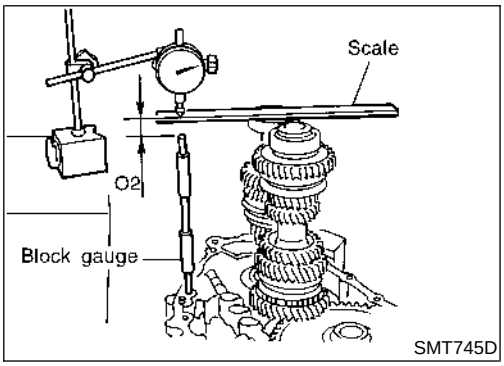
SEF763Y

OK or NG

OK	▶	GO TO 10.
NG	▶	Replace intake manifold collector assembly.

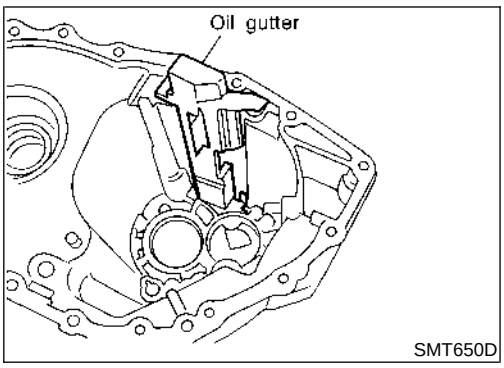


a. Using block gauge, scale, and dial gauge, measure dimension "O1" between transaxle case end face and mounting face of adjusting shim.

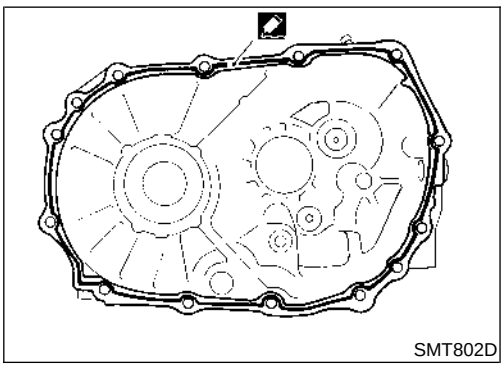


b. Using block gauge, scale, and dial gauge as shown in the figure, measure dimension "O2" between clutch housing case end face and end face of input shaft rear bearing.

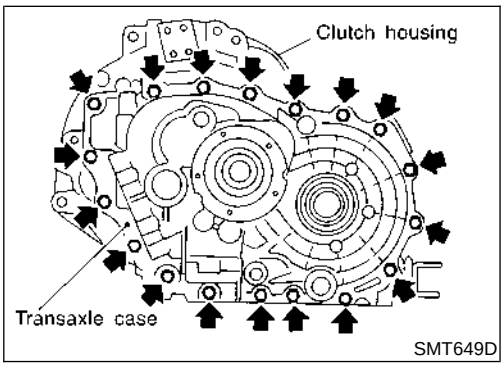
7. Install selected input shaft rear bearing adjusting shim onto input shaft.



8. Install oil gutter into transaxle case.



9. Clean mating surfaces of clutch housing and transaxle case. Check for cracks and damage. Then, apply Three Bond TB1215, Loctite Part No. 51813 or equivalent.



10. Install transaxle case onto clutch housing, and tighten mounting bolts with specified torque.

Tightening torque:

Refer to "Case Components", MT-17.

TRUNK LID KEY CYLINDER SWITCH CHECK

=NIEL0123S08

1 **CHECK TRUNK LID KEY CYLINDER SWITCH INPUT SIGNAL (UNLOCK SIGNAL)**

With CONSULT-II

Check trunk lid key cylinder switch ("TRUNK KEY SW") in "DATA MONITOR" mode with CONSULT-II.

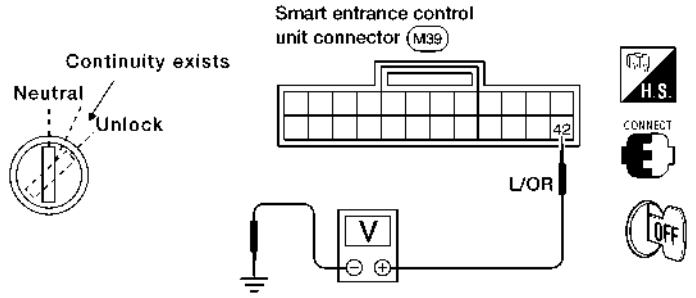
DATA MONITOR	
MONITOR	
TRUNK KEY SW	OFF

When key in key cylinder is at Neutral position:
TRUNK KEY SW OFF
When key in key cylinder is at Unlock position:
TRUNK KEY SW ON

SEL358W

Without CONSULT-II

Check voltage between smart entrance control unit harness connector terminal 42 and ground.



Terminals (+)	Terminals (−)	Key position	Voltage [V]
42	Ground	Neutral	Approx. 5
		Unlock	0

LEL536

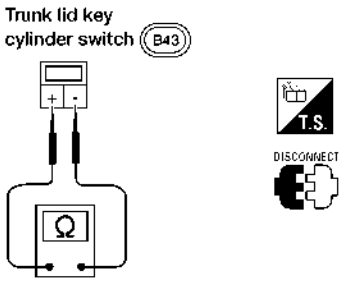
Refer to wiring diagram in EL-266.

OK or NG

OK	▶	Trunk lid key cylinder switch is OK.
NG	▶	GO TO 2.

2 **CHECK TRUNK LID KEY CYLINDER SWITCH**

1. Disconnect trunk lid key cylinder switch connector.
2. Check continuity between trunk lid key cylinder switch terminals.



Key position	Continuity
Neutral	No
Unlock	Yes

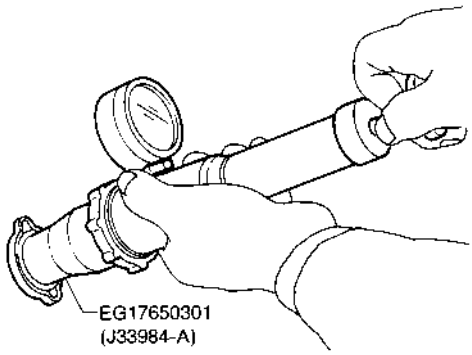
LEL537

OK or NG

OK	▶	**Check the following.** • Trunk lid key cylinder switch ground circuit • Harness for open or short between smart entrance control unit and trunk lid key cylinder switch
NG	▶	Replace trunk lid key cylinder switch.

7	CHECK RADIATOR CAP

Apply pressure to cap with a tester.



SLC755A

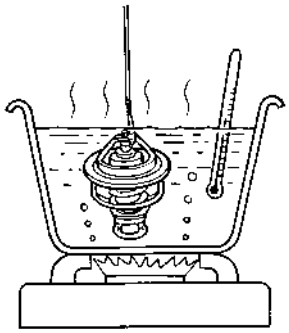
Radiator cap relief pressure:
59 - 98 kPa (0.6 - 1.0 kg/cm^2, 9 - 14 psi)

OK or NG

OK	▶	GO TO 8.
NG	▶	Replace radiator cap.

8	CHECK THERMOSTAT

1. Check valve seating condition at normal room temperatures.
   It should seat tightly.
2. Check valve opening temperature and valve lift.



SLC343

Valve opening temperature:
76.5°C (170°F) [standard]
Valve lift:
More than 9 mm/90°C (0.35 in/194°F)

3. Check if valve is closed at 5°C (9°F) below valve opening temperature.

For details, refer to *LC-13*, "Thermostat".

OK or NG

OK	▶	GO TO 9.
NG	▶	Replace thermostat

9	CHECK ENGINE COOLANT TEMPERATURE SENSOR

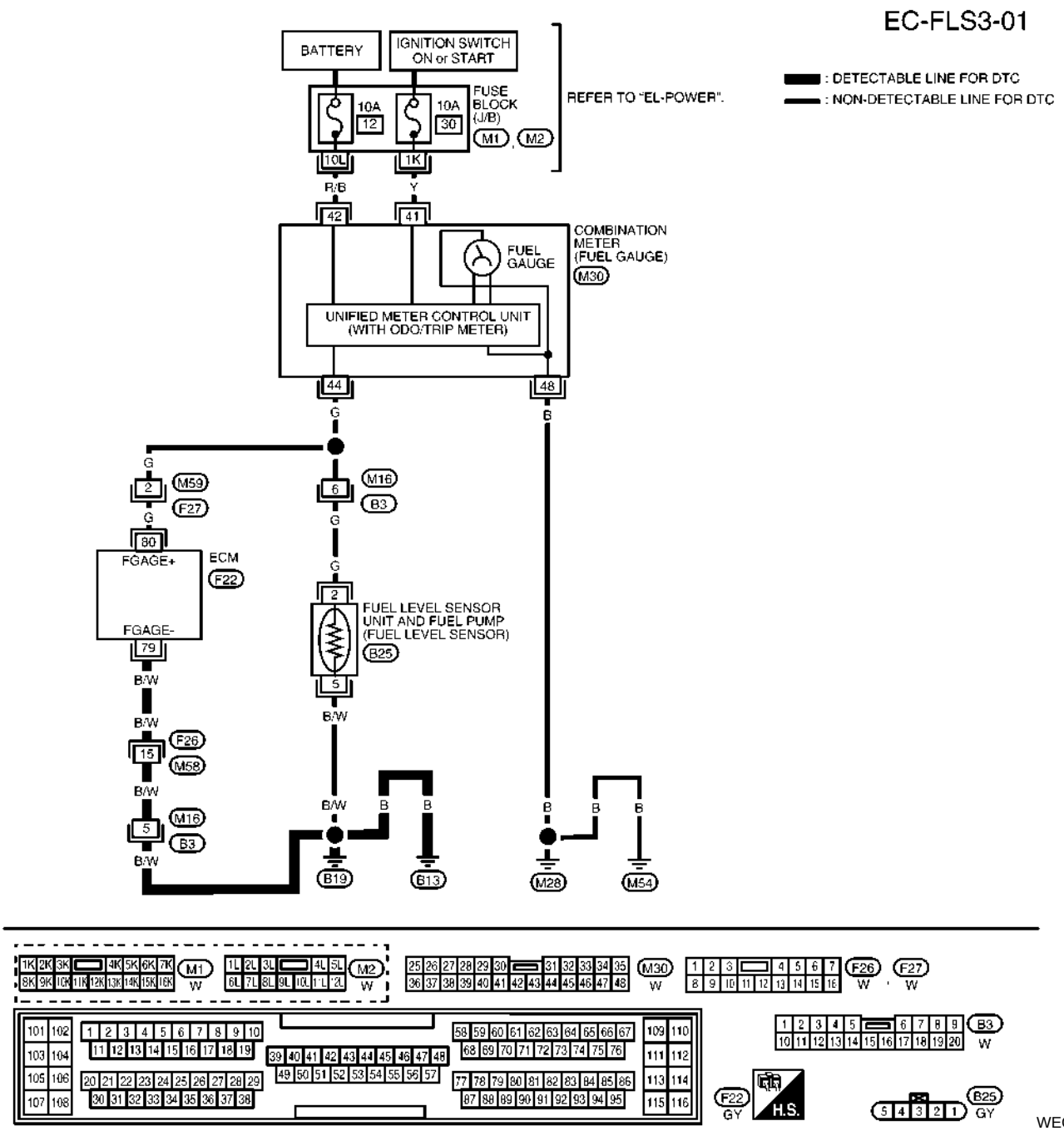
Refer to "COMPONENT INSPECTION", EC-212.

OK or NG

OK	▶	GO TO 10.
NG	▶	Replace engine coolant temperature sensor.

Wiring Diagram

NIEC1660



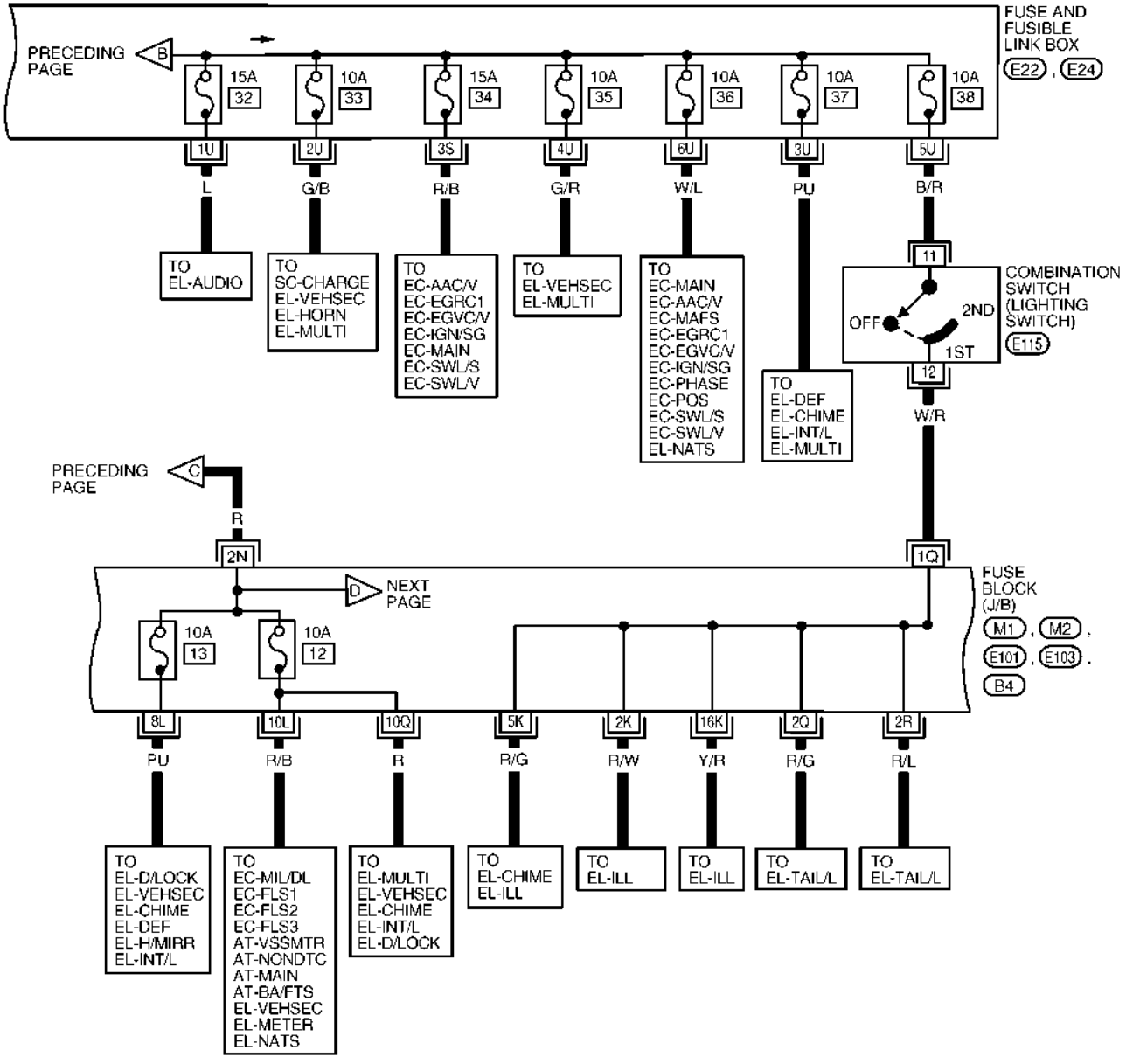
WEC145A

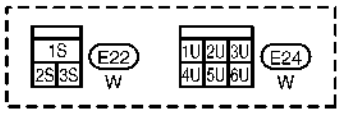
ECM TERMINALS AND REFERENCE VALUE MEASURED BETWEEN EACH TERMINAL AND GROUND.
CAUTION:
DO NOT USE ECM GROUND TERMINALS WHEN MEASURING INPUT/OUTPUT VOLTAGE. DOING SO MAY RESULT IN DAMAGE TO THE ECM'S TRANSISTOR. USE A GROUND OTHER THAN ECM TERMINALS, SUCH AS THE GROUND.

TERMINAL	WIRE COLOR	ITEM	CONDITION	DATA (DC)
80	G	FUEL LEVEL SENSOR	IGN ON	APPROX. 0 - 4.8V
79	B/W	FUEL LEVEL SENSOR GROUND	ENGINE RUNNING AT IDLE SPEED	APPROX. 0V

SEF579YA

EL-POWER-03





REFER TO THE FOLLOWING.

M1, M2, E101, E103, B4 -FUSE BLOCK-JUNCTION BOX (J/B)

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16			17	18	19	20
21	22	23	24	25	26	27	28	29	30	31

WEL077A

13. CHECK MASS AIR FLOW SENSOR

With CONSULT-II

Check “MASS AIR FLOW” in “DATA MONITOR” mode with CONSULT-II.

at idling: 1.4 - 4.0 g·m/sec

at 2,500 rpm: 5.0 - 10.0 g·m/sec

With GST

Check mass air flow sensor signal in MODE 1 with GST.

at idling: 1.4 - 4.0 g·m/sec

at 2,500 rpm: 5.0 - 10.0 g·m/sec

OK or NG

OK >> GO TO 14.

NG >> Check connectors for rusted terminals or loose connections in the mass air flow sensor circuit or engine grounds. Refer to EC-172 .

14. CHECK SYMPTOM MATRIX CHART

Check items on the rough idle symptom in EC-101, "Symptom Matrix Chart" .

OK or NG

OK >> GO TO 15.

NG >> Repair or replace.

15. ERASE THE 1ST TRIP DTC

Some tests may cause a 1st trip DTC to be set.

Erase the 1st trip DTC from the ECM memory after performing the tests. Refer to EC-73, "HOW TO ERASE EMISSION-RELATED DIAGNOSTIC INFORMATION" .

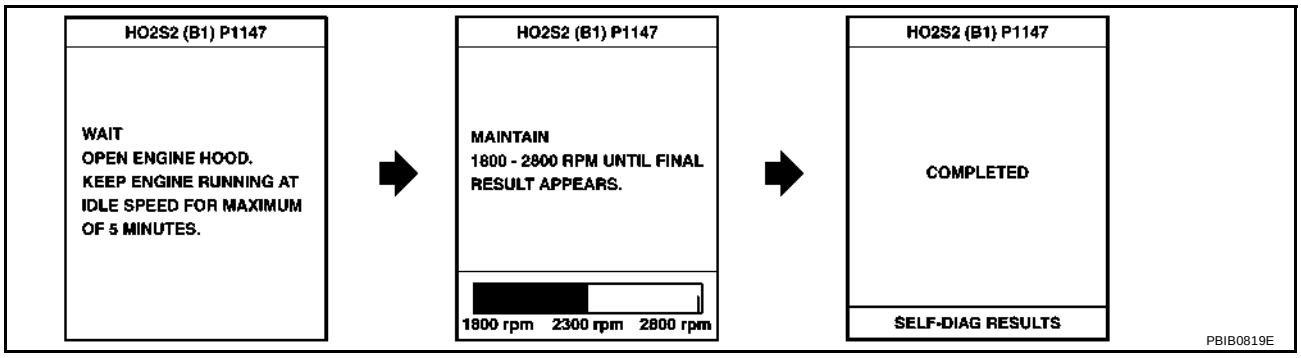
>> GO TO 16.

16. CHECK INTERMITTENT INCIDENT

Perform EC-147, "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT" .

>> **INSPECTION END**

5. Make sure that “COOLAN TEMP/S” indicates more than 70°C (158°F).
6. Select “HO2S2 (B1) P1147” of “HO2S2” in “DTC WORK SUPPORT” mode with CONSULT-II.
7. Start engine and following the instruction of CONSULT-II.



8. Make sure that “OK” is displayed after touching “SELF-DIAG RESULTS”.
   If “NG” is displayed, go to EC-1655, "Diagnostic Procedure" .
   If “CAN NOT BE DIAGNOSED” is displayed, perform the following.

a. Stop engine and cool down until “COOLAN TEMP/S” indicates less than 70°C (158°F).
b. Turn ignition switch “ON”.
c. Select “DATA MONITOR” mode with CONSULT-II.
d. Start engine.
e. Return to step 6 again when the “COOLAN TEMP/S” reaches to 70°C (158°F).

Overall Function Check

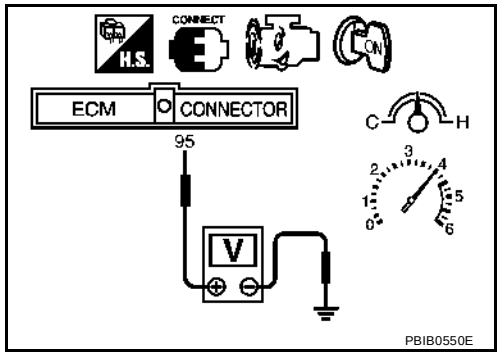
UBS002I8

Use this procedure to check the overall function of the heated oxygen sensor 2 circuit. During this check, a 1st trip DTC might not be confirmed.

CAUTION:
Always drive vehicle at a safe speed.

WITH GST

1. Start engine and drive vehicle at a speed of more than 70 km/h (43 MPH) for 2 consecutive minutes.
2. Stop vehicle with engine running.
3. Set voltmeter probes between ECM terminal 95 [HO2S2 (B1) signal] and engine ground.
4. Check the voltage when revving up to 4,000 rpm under no load at least 10 times.
   (Depress and release accelerator pedal as soon as possible.)
   The voltage should be above 0.63V at least once during this procedure.
   If the voltage can be confirmed in step 4, step 5 is not necessary.



5. Keep vehicle idling for 10 minutes, then check the voltage. Or check the voltage when coasting from 80 km/h (50 MPH) in “D” position with “OD” OFF (A/T), 3rd gear position (M/T).
   The voltage should be above 0.63V at least once during this procedure.
6. If NG, go to EC-1655, "Diagnostic Procedure" .

Wheel turning angle Full turn*2	Inside	Minimum	29° (29.0°)
		Nominal	32° (32.0°)
		Maximum	33° (33.0°)
	Outside	Nominal	27° (27.0°)

*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
*2: On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

Rear Wheel Alignment (Unladen*)

ELS000LJ

Unit: degree minute (decimal degree)

Camber		Minimum	–1°45′ (–1.75°)
		Nominal	–1°00′ (–1.00°)
		Maximum	–0°15′ (–0.25°)
Total toe-in	Distance	Minimum	–3 mm (–0.12 in)
		Nominal	1 mm (0.04 in)
		Maximum	5 mm (0.20 in)
	Angle (left plus right)	Minimum	–16′ (–0.27°)
		Nominal	5′30″ (0.09°)
		Maximum	26′ (0.43°)

*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

Brake

ELS000LK

Unit: mm (in)

Front brake	Brake model	CL25VB	OPB27VA
	Cylinder bore diameter	57.2 (2.252)	38 (1.50) x 2 + 44 (1.73) x 2
	Pad length × width × thickness	125.6 × 46.0 × 11.0 (4.94 × 1.811 × 0.433)	117.1 x 53.3 x 9.3 (4.61 x 2.098 x 0.366)
	Rotor outer diameter × thickness	280 × 22 (11.02 × 0.87)	324 x 30.0 (12.76 x 1.181)
Rear brake	Brake model	CL9HC	
	Cylinder bore diameter/caliper bore diameter	33.96 (1 11/32)	
	Lining length × width × thickness	89.1 × 39.5 × 10 (3.508 × 1.555 × 0.39)	
	Drum inner diameter/Disc diameter × thickness	258 × 9 (10.16 × 0.35)	
Master cylinder	Cylinder bore diameter	23.81 (15/16)	
Control valve	Valve model	Dual proportioning valve	
	Split point	2,942 kPa (30 kg/cm^2, 427 psi)] × 0.2 reducing ratio	
Brake booster	Booster model	M215T	
	Diaphragm diameter	Primary: 230 (9.06) Secondary: 205 (8.07)	
Brake fluid	Recommended brake fluid	Genuine NISSAN Super Heavy Duty Brake Fluid or equivalent DOT 3 (US FMVSS No. 116)	

Disc Brake - Repair Limits

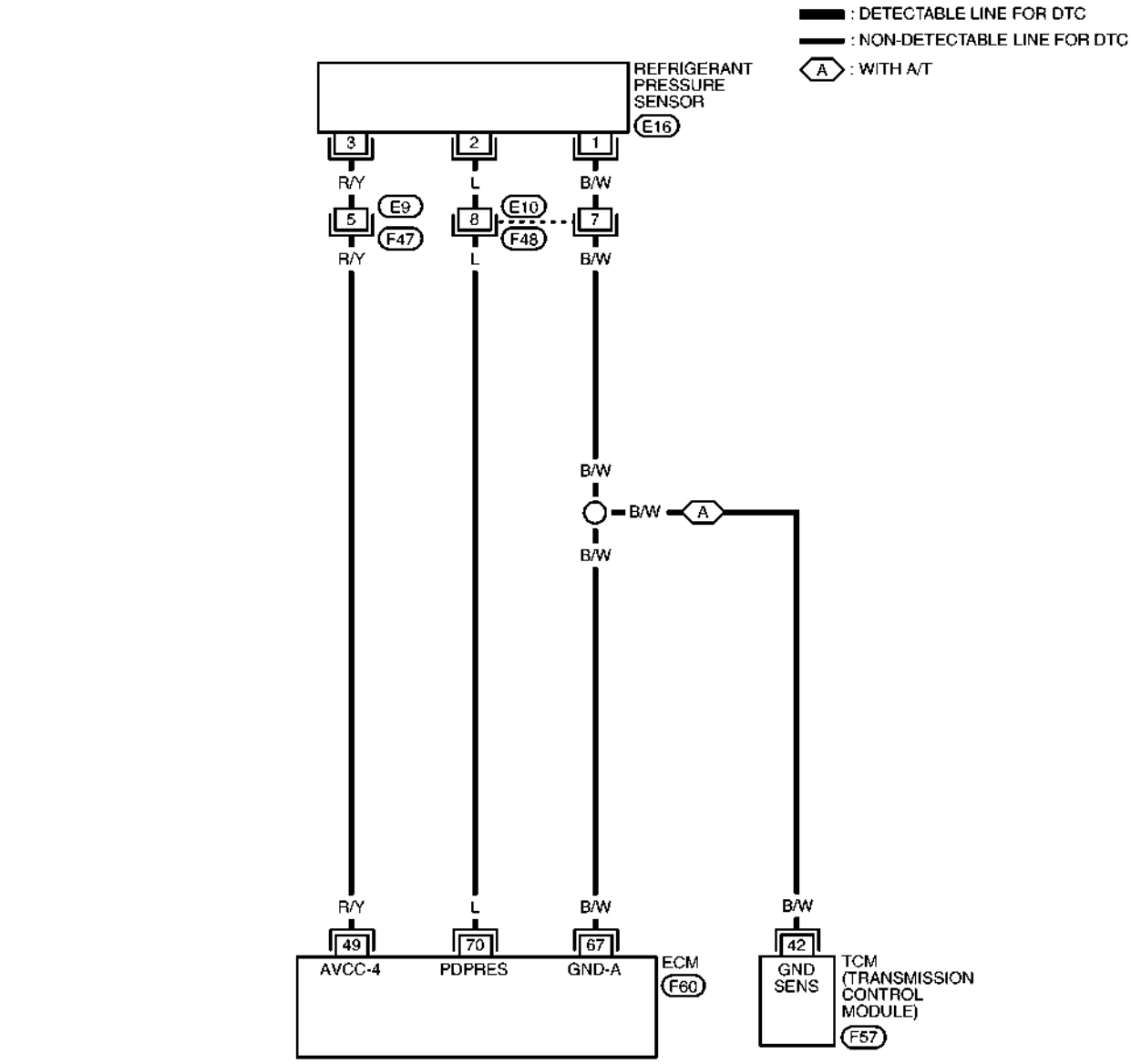
Unit: mm (in)

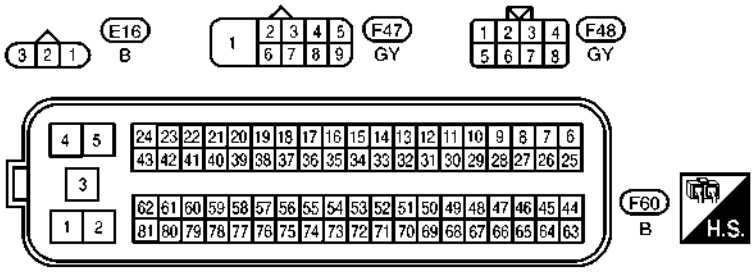
Brake model	CL25VB (Front)	OPB27VA (Front)	CL9HC (Rear)
Pad wear limit Minimum thickness	2.0 (0.079)	2.0 (0.079)	2.0 (0.079)
Rotor repair limit Minimum thickness	20 (0.79)	28.4 (1.118)	8.0 (0.31)

Wiring Diagram

UBS002MP

EC-RP/SEN-01





Refer to the following.
F57 - ELECTRICAL UNITS

BBWA0712E

KEYFOB BATTERY AND FUNCTION CHECK

1. CHECK KEYFOB BATTERY

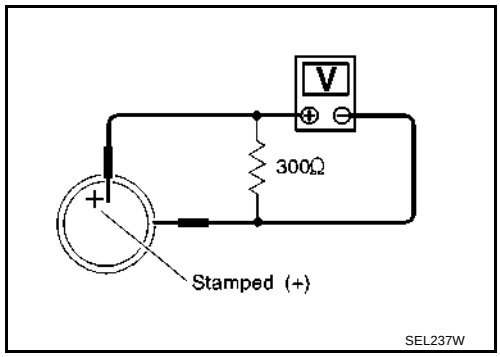
Remove battery (refer to BL-62, "Keyfob Battery Replacement") and measure voltage across battery positive and negative terminals, (+) and (–).

Voltage [V] : 2.5 - 3.0

NOTE:
Keyfob does not function if battery is not set correctly.

OK or NG

OK >> GO TO 2.
NG >> Replace battery.

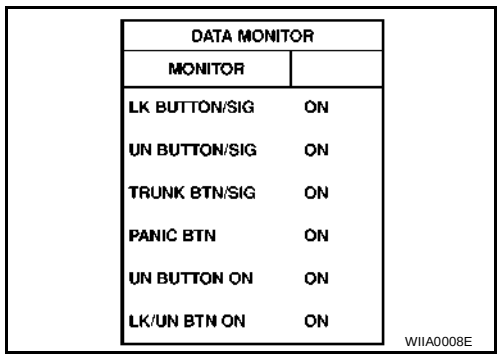


2. CHECK KEYFOB FUNCTION

With CONSULT-II

Check keyfob function (“LK BUTTON/SIG”, “UN BUTTON/SIG”, “TRUNK BTN/SIG”, “PANIC BTN”, “UN BUTTON ON” and “LK/UN BTN ON”) in “DATA MONITOR” mode with CONSULT-II. When pushing each button of keyfob, the corresponding monitor item should be turned as follows.

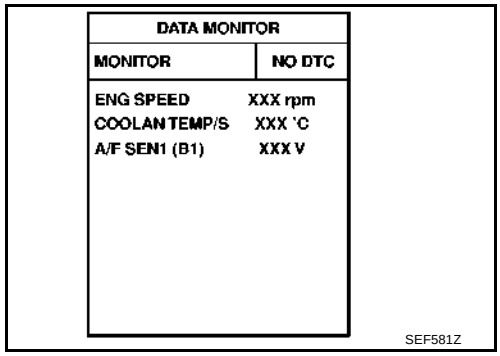
Condition	Monitor item	
Pushing LOCK	LK BUTTON/SIG	ON
Pushing UNLOCK	UN BUTTON/SIG	ON
Pushing TRUNK	TRUNK BTN/SIG	ON
Pushing PANIC	PANIC BTN/SIG	ON
Pushing UNLOCK within 5 seconds after pushing UNLOCK	UN BUTTON ON	ON
Pushing LOCK and UNLOCK at the same time	LK/UN BTN ON	ON



OK or NG

OK >> Keyfob is OK. Further inspection is necessary. Refer to BL-43, "SYMPTOM CHART" .
NG >> Replace keyfob. Refer to BL-59, "ID Code Entry Procedure" .

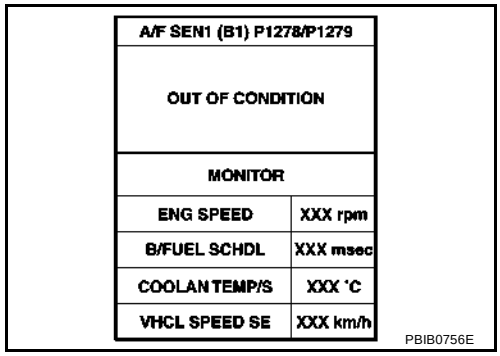
3. Check “A/F SEN1 (B1)” indication.
   If the indication is constantly approx. 4.5V, go to EC-488, "Diagnostic Procedure" .
   If the indication is not constantly approx. 4.5V, go to next step.
4. Select “A/F SEN1 (B1) P1278/P1279” of “A/F SEN1” in “DTC WORK SUPPORT” mode.
5. Touch “START”.



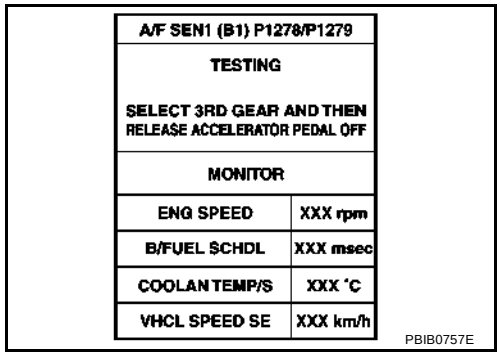
6. When the following conditions are met, “TESTING” will be displayed on the CONSULT-II screen.

ENG SPEED	1,000 - 3,200 rpm
Vehicle speed	More than 40 km/h (25 MPH)
B/FUEL SCHDL	1.5 - 9.0 msec
Selector lever	● D position with “OD” ON (A/T) ● 4th position (M/T)

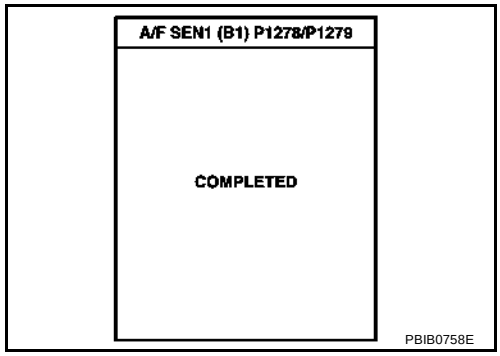
If “TESTING” is not displayed after 20 seconds, retry from step 2.



7. Following the instructions of CONSULT-II screen, set D position with “OD” OFF (A/T) or 3rd position (M/T) and release accelerator pedal fully.



8. Make sure that “TESTING” changes to “COMPLETED”.
   If “TESTING” changed to “OUT OF CONDITION”, retry from step 6.
9. Touch “BACK” and “MODE”, then select “SELF-DIAG RESULT” mode.
   If P1272 is displayed, go to EC-488, "Diagnostic Procedure" .
   If another DTC is displayed, go to the corresponding Diagnostic Procedure.



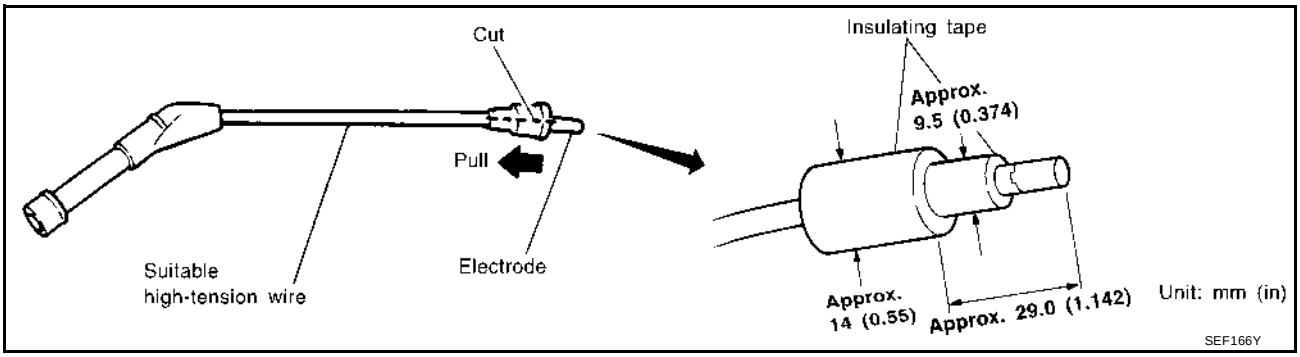
Overall Function Check

UBS00BDL

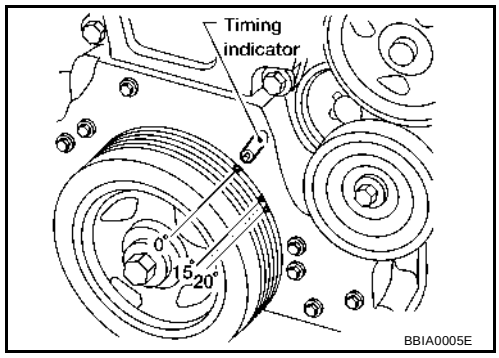
Use this procedure to check the overall function of the A/F sensor 1 circuit. During this check, a 1st trip DTC might not be confirmed.

WITH GST

1. Start engine and warm it up to normal operating temperature.
2. Drive the vehicle at a speed of 80 km/h (50 MPH) for a few minutes in D position with “OD” OFF (A/T) or 3rd position (M/T).



3. Check ignition timing.



VIN Registration

UBS00J9P

DESCRIPTION

VIN Registration is an operation to registering VIN in ECM. It must be performed each time ECM is replaced.

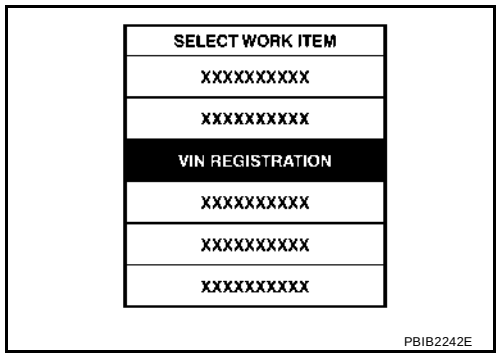
NOTE:

Accurate VIN which is registered in ECM may be required for Inspection & Maintenance (I/M).

OPERATION PROCEDURE

With CONSULT-II

1. Check the VIN of the vehicle and note it. Refer to GI-46, "IDENTIFICATION INFORMATION" .
2. Turn ignition switch ON and engine stopped.
3. Select “VIN REGISTRATION” in “WORK SUPPORT” mode.
4. Follow the instruction of CONSULT-II display.



Accelerator Pedal Released Position Learning

UBS00J9Q

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.

OPERATION PROCEDURE

1. Make sure that accelerator pedal is fully released.
2. Turn ignition switch ON and wait at least 2 seconds.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON and wait at least 2 seconds.
5. Turn ignition switch OFF and wait at least 10 seconds.