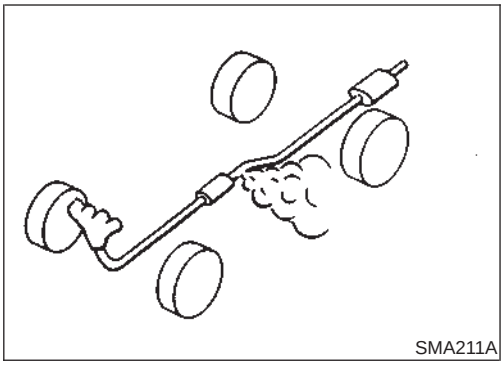
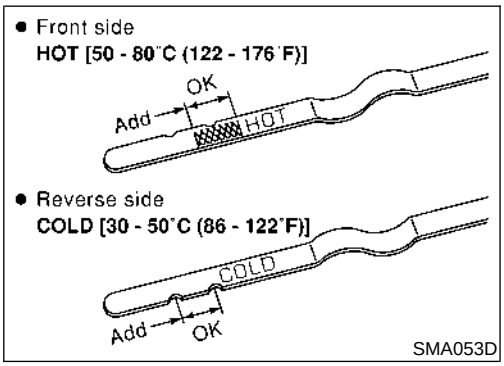

SMA211A

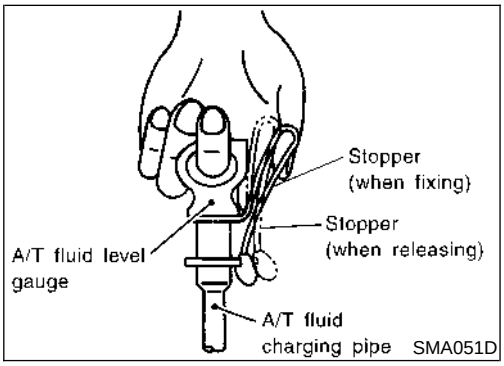
Checking Exhaust System

NHMA0016

Check exhaust pipes, muffler and mounting for improper attachment, leaks, cracks, damage, chafing or deterioration.



SMA053D



SMA051D

Checking A/T Fluid

NHMA0020

1. Warm up engine.
2. Check for fluid leakage.
3. Before driving, fluid level can be checked at fluid temperatures of 30 to 50°C (86 to 122°F) using “COLD” range on A/T fluid level gauge.

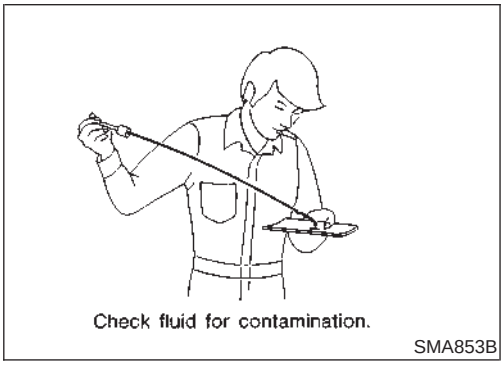
a. Park vehicle on level surface and set parking brake.
b. Start engine and move selector lever through each gear position. Leave selector lever in “P” position.
c. Check fluid level with engine idling.
d. Remove A/T fluid level gauge and wipe clean with lint-free paper.
e. Re-insert A/T fluid level gauge into charging pipe as far as it will go.
f. Remove A/T fluid level gauge and note reading. If reading is at low side of range, add fluid to the charging pipe.

Do not overfill.

4. Drive vehicle for approximately 5 minutes in urban areas.
5. Re-check fluid level at fluid temperatures of 50 to 80°C (122 to 176°F) using “HOT” range on A/T fluid level gauge.

CAUTION:

Firmly fix the A/T fluid level gauge to the A/T fluid charging pipe using a stopper attached.



SMA853B

6. Check fluid condition.

- If fluid is very dark or smells burned, refer to AT section for checking operation of A/T. Flush cooling system after repair of A/T.
- If A/T fluid contains frictional material (clutches, bands, etc.), replace radiator and flush cooler line using cleaning solvent and compressed air after repair of A/T. Refer to LC-21, “Radiator”.

Engine Fuel & Emission Control System

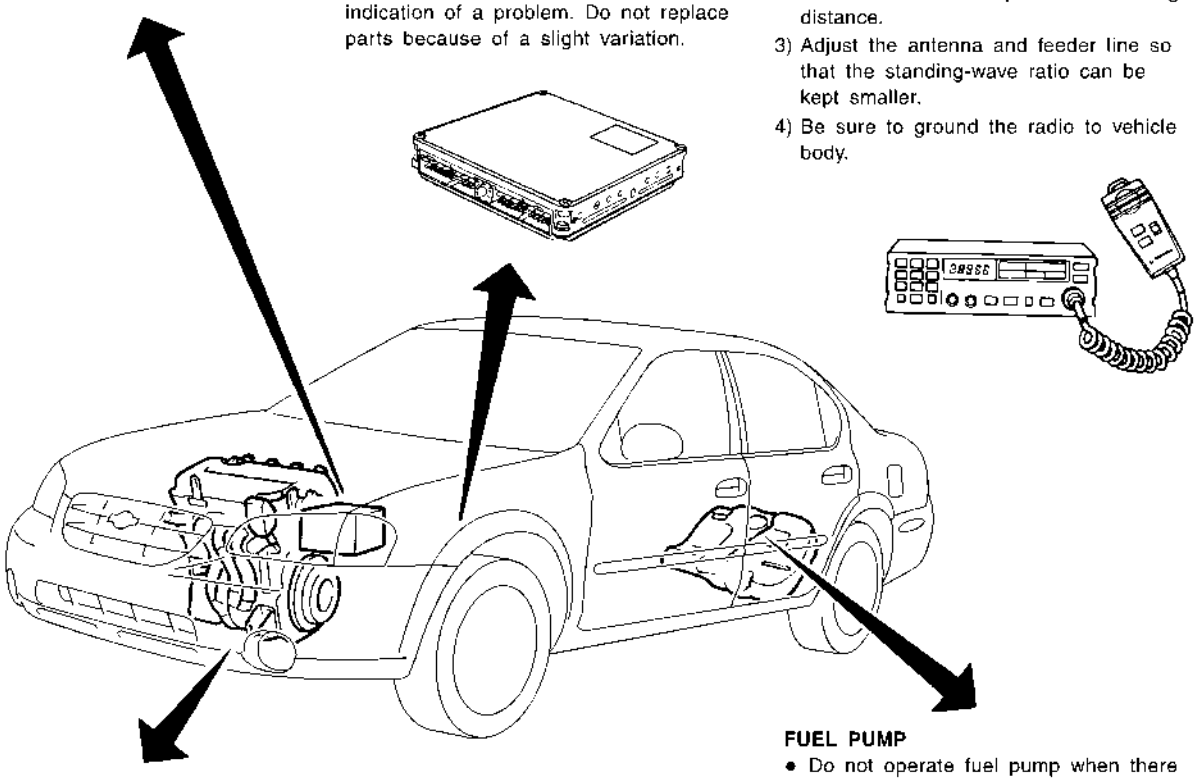
NHEC0004

BATTERY
- Always use a 12 volt battery as power source.
- Do not attempt to disconnect battery cables while engine is running.

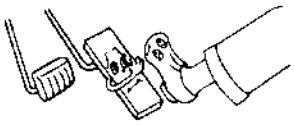
ECM
- Do not disassemble ECM.
- Do not turn dignosis mode selector forcibly.
- If a battery terminal is disconnected, the memory will return to the ECM value.
  The ECM will now start to self-control at its initial value. Engine operation can vary slightly when the terminal is disconnected. However, this is not an indication of a problem. Do not replace parts because of a slight variation.

WIRELESS EQUIPMENT
- When installing C.B. ham radio or a mobile phone, be sure to observe the following as it may adversely affect electronic control systems depending on its installation location.

1) Keep the antenna as far away as possible from the ECM.
2) Keep the antenna feeder line more than 20 cm (7.9 in) away from the harness of electronic controls.
   Do not let them run parallel for a long distance.
3) Adjust the antenna and feeder line so that the standing-wave ratio can be kept smaller.
4) Be sure to ground the radio to vehicle body.



ENGINE CONTROL PARTS HANDLING
- Handle mass air flow sensor carefully to avoid damage.
- Do not disassemble mass air flow sensor.
- Do not clean mass air flow sensor with any type of detergent.
- Even a slight leak in the air intake system can cause serious problems.
- Do not shock or jar the camshaft position sensor or crankshaft position sensor.



WHEN STARTING
- Do not depress accelerator pedal when starting.
- Immediately after starting, do not rev up engine unnecessarily.
- Do not rev up engine just prior to shutdown.

FUEL PUMP
- Do not operate fuel pump when there is no fuel in lines.
- Tighten fuel hose clamps to the specified torque.

ECM HARNESS HANDLING
- Securely connect ECM harness connectors.
  A poor connection can cause an extremely high (surge) voltage to develop in coil and condenser, thus resulting in damage to ICs.
- Keep engine control system harness at least 10 cm (3.9 in) away from adjacent harnesses to prevent an engine control system malfunction due to receiving external noise, degraded operation of ICs, etc.
- Keep engine control system parts and harnesses dry.
- Before removing parts, turn off ignition switch and then disconnect battery ground cable.

SEF242XD

Diagnostic Procedure (Cont'd)

2	CHECK HO2S2 INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Check harness continuity between ECM terminal and HO2S2 terminal as follows. Refer to Wiring Diagram.

DTC	Terminals		Bank
	ECM	Sensor	
P0138	88	1	Bank 1
P0158	90	1	Bank 2

MTBL1150

Continuity should exist.

2. Check harness continuity between ECM terminal or HO2S2 terminal and ground as follows. Refer to Wiring Diagram.

DTC	Terminals		Bank
	ECM or Sensor	Ground	
P0138	88 or 1	Ground	Bank 1
P0158	90 or 1	Ground	Bank 2

MTBL1151

Continuity should not exist.

3. Also check harness for short to power.

OK or NG

OK	▶	GO TO 3.
NG	▶	Repair open circuit or short to ground or short to power in harness or connectors.

3	CHECK HO2S2 GROUND CIRCUIT FOR OPEN AND SHORT

1. Check harness continuity between HO2S2 terminal 4 and engine ground. Refer to Wiring Diagram.
   Continuity should exist.
2. Also check harness for short to power.

OK or NG

OK	▶	GO TO 5.
NG	▶	GO TO 4.

4	DETECT MALFUNCTIONING PART

Check the following.
- Joint connector-18
- Harness for open and short between HO2S2 and engine ground

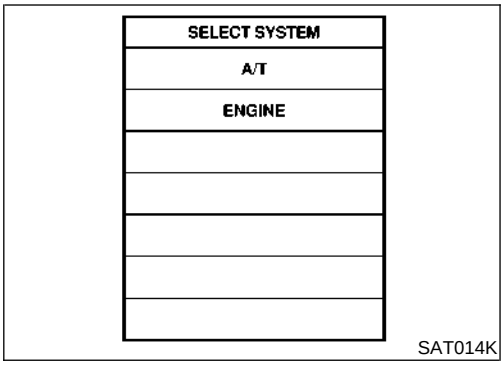
	▶	Repair open circuit or short to power in harness or connectors.

5	CHECK HO2S2 CONNECTORS FOR WATER

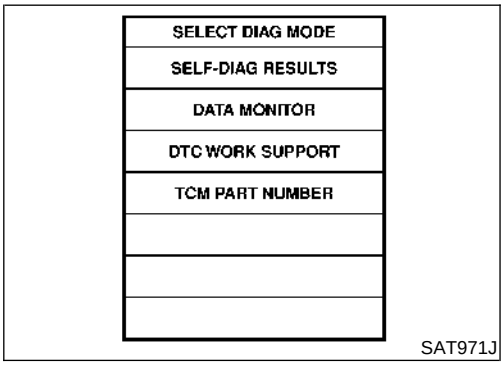
Check heated oxygen sensor connector 2 and harness connector for water.
Water should not exist.

OK or NG

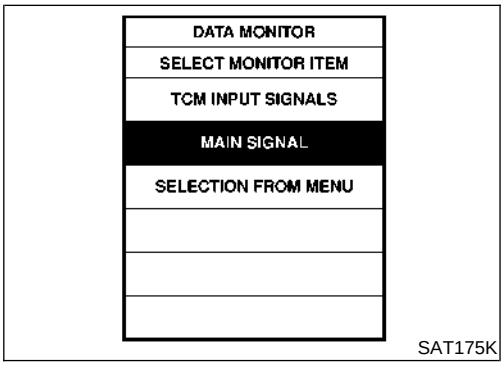
OK (With CONSULT-II)	▶	GO TO 6.
OK (Without CONSULT-II)	▶	GO TO 7.
NG	▶	Repair or replace harness or connectors.



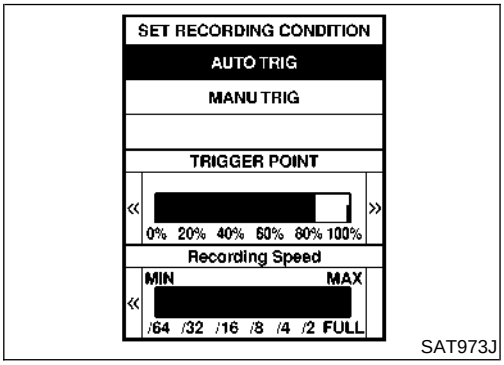
5. Touch "A/T".



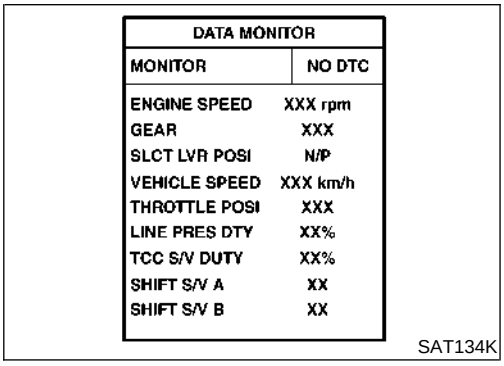
6. Touch "DATA MONITOR".



7. Touch "MAIN SIGNALS" or "TCM INPUT SIGNALS".
8. See "Numerical Display", "Barchart Display" or "Line Graph Display".



9. Touch "SETTING" to set recording condition ("AUTO TRIG" or "MANU TRIG") and touch "BACK".
10. Touch "Start".

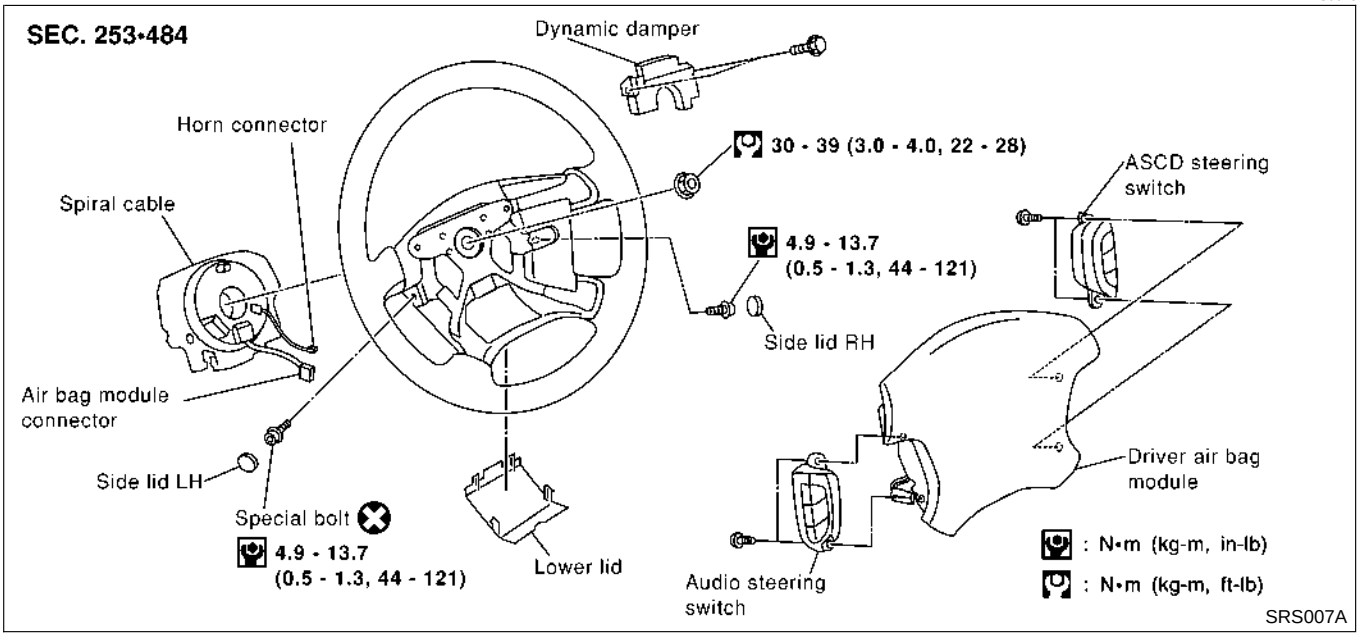


11. When performing cruise test, touch "RECORD".

Driver Air Bag Module and Spiral Cable

REMOVAL AND INSTALLATION

NHRS0015

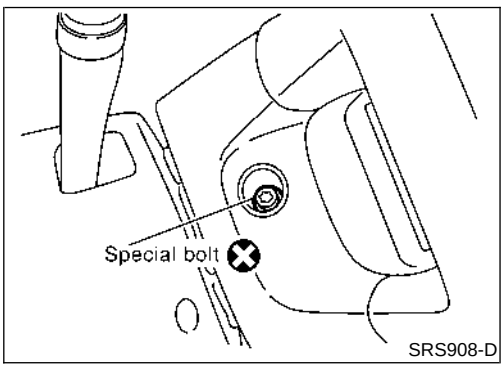


REMOVAL

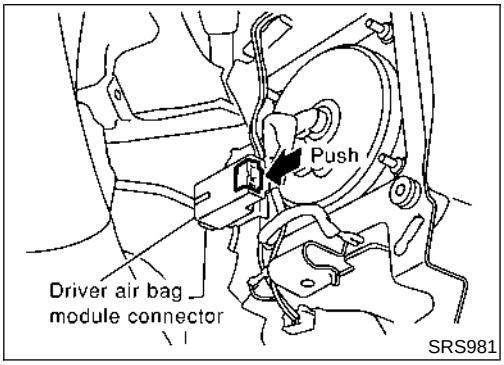
NHRS0016

CAUTION:

- **Before servicing SRS, turn the ignition switch off, disconnect both battery cables and wait at least 3 minutes.**
- **Always work from the side of air bag module.**



1. Remove side lids. Using the TAMPER RESISTANT TORX (Size T30), remove left and right special bolts.



2. Remove lower lid from steering wheel, and disconnect air bag module connector. Air bag module can then be removed.

GENERAL MAINTENANCE

General maintenance includes those items which should be checked during the normal day-to-day operation of the vehicle. They are essential if the vehicle is to continue operating properly. The owners can perform checks and inspections themselves or have their INFINITI dealers do them.

OUTSIDE THE VEHICLE

The maintenance items listed here should be performed from time to time, unless otherwise specified.

Item		Reference page
Tires	Check the pressure with a gauge, including the spare, at least once a month and always prior to a long distance trips. Adjust to the specified pressure if necessary. Check carefully for damage, cuts or excessive wear.	—
Wheel nuts	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	—
Windshield	Clean the windshield on a regular basis. Check the windshield at least every six months for cracks or other damage. Repair as necessary.	—
Tire rotation	Tires should be rotated every 12,000 km (7,500 miles).	MA-23
Wheel alignment and balance	If the vehicle pulls to either side while driving on a straight and level road, or if you detect uneven or abnormal tire wear, there may be a need for wheel alignment. If the steering wheel or seat vibrates at normal highway speeds, wheel balancing may be needed.	MA-21, SU-7, “Preliminary Inspection” SU-19, “Preliminary Inspection”
Windshield wiper blades	Check for cracks or wear if they do not wipe properly.	—
Doors and engine hood	Check that all doors and the engine hood operate smoothly as well as the trunk lid and back hatch. Also make sure that all latches lock securely. Lubricate if necessary. Make sure that the secondary latch keeps the hood from opening when the primary latch is released. When driving in areas using road salt or other corrosive materials, check lubrication frequently.	MA-25
Lamps	Make sure that the headlamps, stop lamps, tail lamps, turn signal lamps, and other lamps are all operating properly and installed securely. Also check headlamp aim.	—

INSIDE THE VEHICLE

The maintenance items listed here should be checked on a regular basis, such as when performing periodic maintenance, cleaning the vehicle, etc.

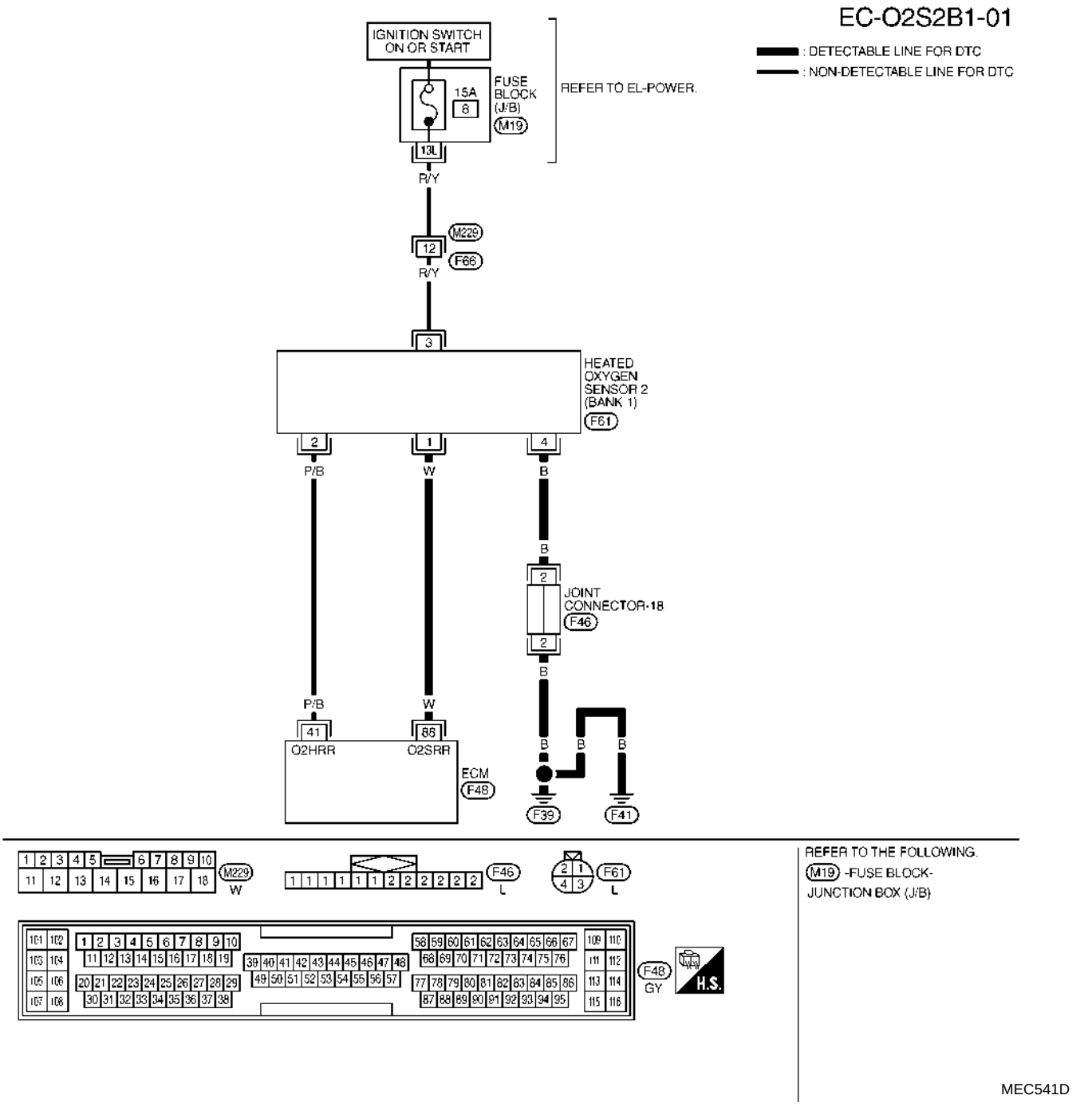
Item		Reference page
Warning lamps and chimes	Make sure that all warning lamps and chimes are operating properly.	—
Windshield wiper and washer	Check that the wipers and washer operate properly and that the wipers do not streak.	—
Windshield defroster	Check that the air comes out of the defroster outlets properly and in sufficient quantity when operating the heater or air conditioner.	—
Steering wheel	Check that it has the specified play. Be sure to check for changes in the steering condition, such as excessive play, hard steering or strange noises. **Free play: Less than 35 mm (1.38 in)**	—
Seats	Check seat position controls such as seat adjusters, seatback recliner, etc. to make sure they operate smoothly and that all latches lock securely in every position. Check that the head restrains move up and down smoothly and that the locks (if equipped) hold securely in all latched positions. Check that the latches lock securely for folding-down rear seatbacks.	—
Seat belts	Check that all parts of the seat belt system (e.g. buckles, anchors, adjusters and retractors) operate properly and smoothly and are installed securely. Check the belt webbing for cuts, fraying, wear or damage.	MA-26, RS-9, “Seat Belt Inspection”

Wiring Diagram

=NHEC0910

BANK 1

NHEC0910S01



MEC541D

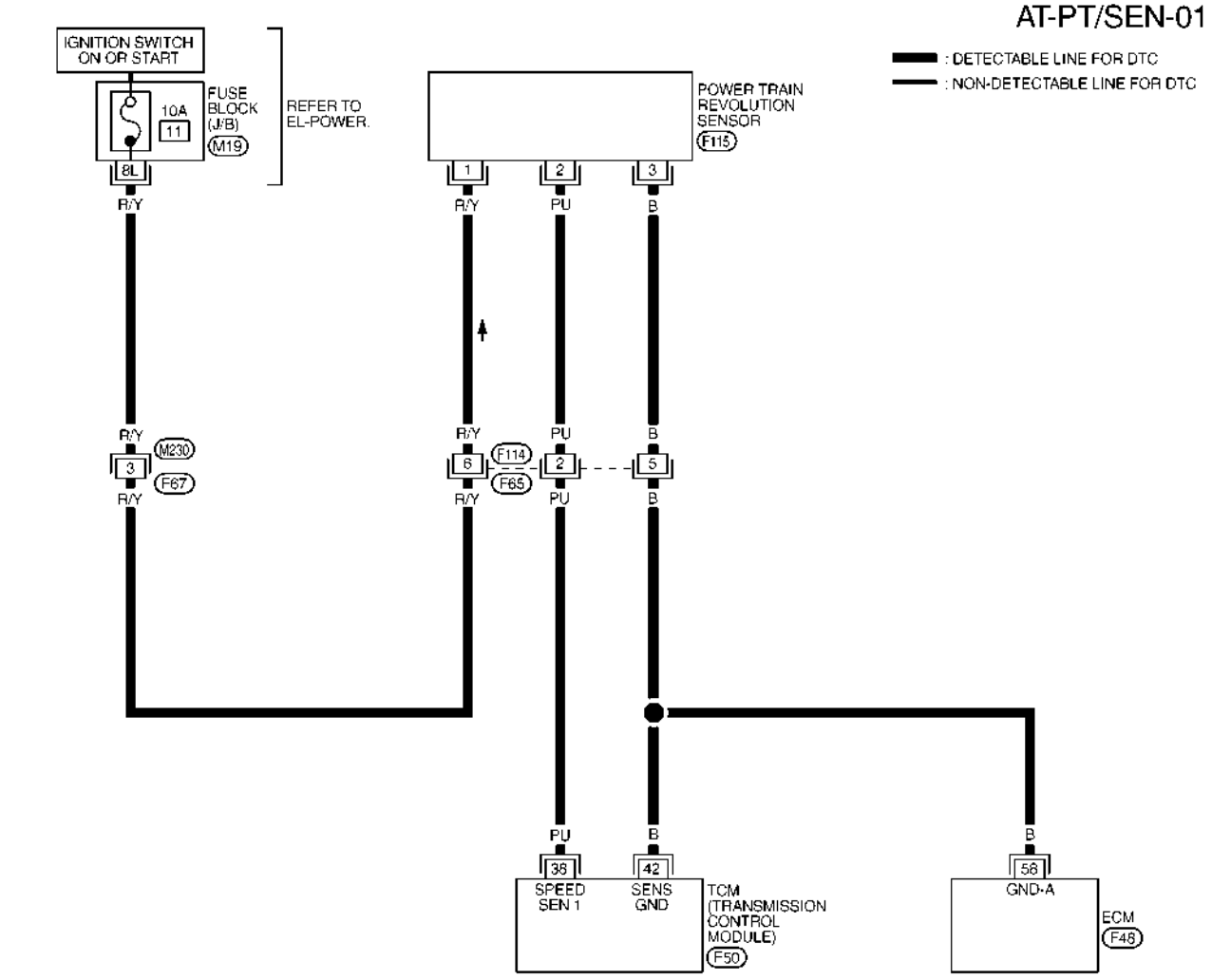
ECM TERMINALS AND REFERENCE VALUE MEASURED BETWEEN EACH TERMINAL AND GROUND.
CAUTION:
DO NOT USE ECM GROUND TERMINALS WHEN MEASURING INPUT/OUTPUT VOLTAGE. DOING SO MAY RESULT IN DAMAGE TO THE ECM'S TRANSISTOR. USE A GROUND OTHER THAN ECM TERMINALS, SUCH AS THE GROUND.

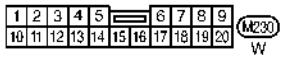
TERMINAL	WIRE COLOR	ITEM	CONDITION	DATA (DC)
88	W	HEATED OXYGEN SENSOR 2 (BANK 1)	**[ENGINE IS RUNNING]** **• WARM-UP CONDITION** • REVVING ENGINE FROM IDLE UP TO 3,000 RPM QUICKLY AFTER THE FOLLOWING CONDITIONS ARE MET. • AFTER KEEPING ENGINE SPEED BETWEEN 3,500 AND 4,000 RPM FOR ONE MINUTE AND AT IDLE FOR ONE MINUTE UNDER NO LOAD	0 - APPROX. 1.0V

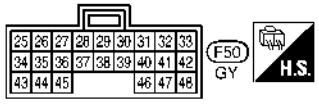
SEC661D

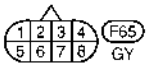
Wiring Diagram — AT — P/T SEN-01

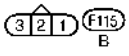
NHAT0276











REFER TO THE FOLLOWING.
M19 - FUSE BLOCK - JUNCTION BOX (J/B)
F48 - ELECTRICAL UNITS

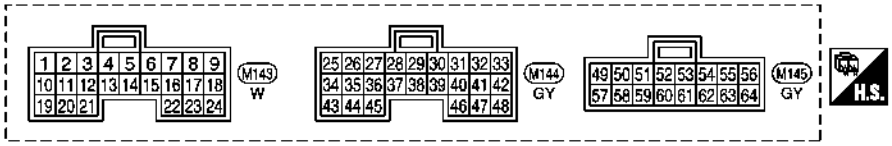
MAT091B

TCM TERMINALS AND REFERENCE VALUE (MEASURED BETWEEN EACH TERMINAL AND 25 (B) OR 48 (B) (TCM GROUND)

TERMINAL	WIRE COLOR	ITEM	CONDITION	DATA (DC)(Approx.)
38	PU	POWER TRAIN REVOLUTION SENSOR	WHEN MOVING AT 20 km/h (12 MPH), USE THE CONSULT-II PULSE FREQUENCY MEASURING FUNCTION. *1 CAUTION: CONNECT THE DIAGNOSIS DATA LINK CABLE TO THE VEHICLE DIAGNOSIS CONNECTOR. *1: A CIRCUIT TESTER CANNOT BE USED TO TEST THIS ITEM.	240 Hz
			WHEN VEHICLE PARKS.	UNDER 1.3V OR OVER 4.5V
42	B	SENSOR GROUND	—	0V

SAT595KA

SMART ENTRANCE CONTROL UNIT CONNECTOR



SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND

TERMINAL	WIRE COLOR	ITEM	CONDITION			DATA (DC)
1	LG	DRIVER DOOR SWITCH	OFF (CLOSED) → ON (OPEN)			12V → 0V
2	R/L	PASSENGER DOOR SWITCH	OFF (CLOSED) → ON (OPEN)			5V → 0V
3	R/W	REAR DOOR SWITCH	OFF (CLOSED) → ON (OPEN)			5V → 0V
7	W/R	AUTO LIGHT SENSOR (SIGNAL)	IGNITION SWITCH "ON" POSITION	LIGHT IS APPLIED TO AUTO LIGHT SENSOR		1 TO 5V
				LIGHT IS NOT APPLIED TO AUTO LIGHT SENSOR		LESS THAN 1V
8	P/B	AUTO LIGHT SENSOR (GND)	–			–
9	R	AUTO LIGHT SENSOR (POWER)	IGNITION SWITCH (OFF → ON)			0V → 5V
20	SB	TAIL LAMP SWITCH	LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION)			12V → 0V
21	OR	HEADLAMP LH RELAY	IGNITION SWITCH (WITH LIGHTING SWITCH 2ND)	ON OR START → OFF	MORE THAN 5 MINUTES	12V
					WITHIN 5 MINUTES	0V
				ON OR START		0V
			HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL			0V
22	L/OR	HEADLAMP SWITCH	LIGHTING SWITCH	EXCEPT PASS OR 2ND POSITION		12V
				PASS OR 2ND POSITION		0V
			HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE)			10V → 12V
23	L/Y	HEADLAMP SWITCH	IGNITION SWITCH "ON" POSITION	LIGHTING SWITCH (EXCEPT AUTO → AUTO POSITION)		12V → 0V
26	PU	IGNITION SWITCH (ACC)	"ACC" POSITION			12V
27	G	IGNITION SWITCH (ON)	IGNITION SWITCH IS IN "ON" POSITION			12V
43	B	GROUND	–			–
49	R/B	POWER SOURCE (FUSE)	–			12V
58	SB	TAIL LAMP SWITCH	LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION)			12V → 0V
59	P	HEADLAMP RH RELAY	IGNITION SWITCH (WITH LIGHTING SWITCH 2ND)	ON OR START → OFF	MORE THAN 5 MINUTES	12V
					WITHIN 5 MINUTES	0V
				ON OR START		0V
			HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE)			LESS THAN 1V → 12V
60	LG/R	HEADLAMP SWITCH	LIGHTING SWITCH	EXCEPT PASS OR 2ND POSITION		12V
				PASS OR 2ND POSITION		0V
			HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE)			10V → 12V
64	B	GROUND	–			–

SEL545Y

Diagnostic Procedure (Cont'd)

5	CHECK INJECTOR OUTPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch "OFF".
2. Disconnect ECM harness connector.
3. Check harness continuity between injector terminal 2 and ECM terminals 2, 11, 13, harness connector F56 terminals 6, 2, 1 and ECM terminals 1, 3, 12. Refer to Wiring Diagram.
   Continuity should exist.
4. Also check harness for short to ground and short to power.

OK or NG

OK	▶	GO TO 7.
NG	▶	GO TO 6.

6	DETECT MALFUNCTIONING PART

Check the following.
- Harness connectors F56, F197
- Harness for open or short between harness connector F56 and ECM
- Harness for open or short between ECM and injector

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

7	CHECK SUB-HARNESS CIRCUIT FOR OPEN AND SHORT (BANK 1)

1. Remove intake manifold collector.
2. Disconnect injector harness connectors (Bank 1).
3. Check harness continuity between the following terminals. Refer to Wiring Diagram.

Harness connector F197	Injector F192, F193, F194
5	1
6, 2, 1	2

MTBL1173

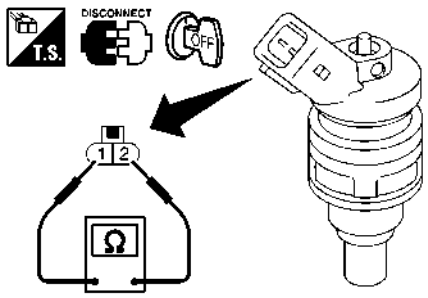
Continuity should exist.

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 INJECTOR

1. Disconnect injector harness connector.
2. Check resistance between terminals as shown in the figure.



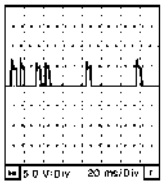
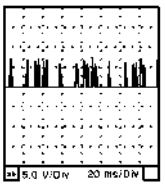
Resistance: 13.5 - 17.5 Ω [at 20°C (68°F)]

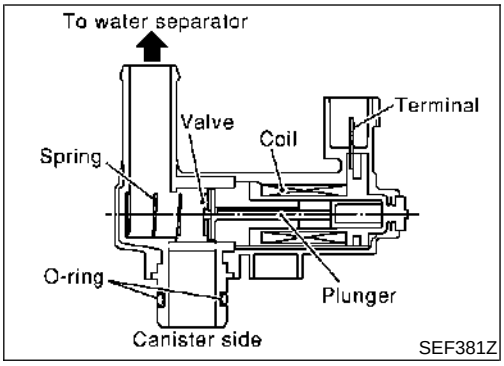
SEF964XA

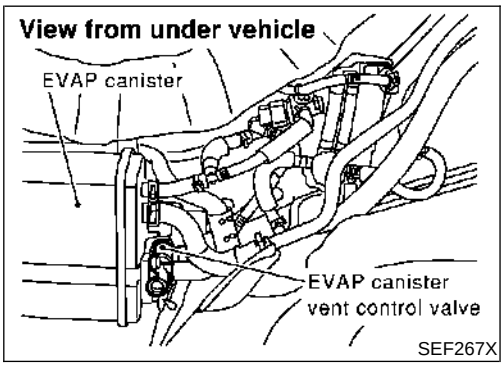
OK or NG

OK	▶	GO TO 9.
NG	▶	Replace injector.

ECM Terminals and Reference Value (Cont'd)

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
59	G/B	ASCD brake switch	**[Ignition switch "ON"]** ● Brake pedal is depressed.	0V
			[Ignition switch "ON"] ● Brake pedal is released.	BATTERY VOLTAGE (11 - 14V)
60	W	EVAP control system pressure sensor	**[Ignition switch "ON"]**	Approximately 3.4V
62	W	Mass air flow sensor	**[Engine is running]** ● **Warm-up condition** ● Idle speed	1.1 - 1.5V
			[Engine is running] ● **Warm-up condition** ● Engine speed is 2,500 rpm.	1.7 - 2.4V
64	OR	Accelerator pedal position sensor 2 power supply	**[Ignition switch "ON"]**	Approximately 2.5V
65	Y	Camshaft position sensor (PHASE) (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle.	1.0 - 4.0V★  SEC033D
			[Engine is running] ● Engine speed is 2,000 rpm.	1.0 - 4.0V★  SEC034D
66	Y/G	Mass air flow sensor (Intake air temperature sensor)	**[Engine is running]**	Approximately 0 - 4.8V Output voltage varies with intake air temperature.
67	W/L	Power supply for ECM (Back-up)	**[Ignition switch "OFF"]**	BATTERY VOLTAGE (11 - 14V)





Component Description

NHEC1096

The EVAP canister vent control valve is located on the EVAP canister and is used to seal the canister vent.

This solenoid valve responds to signals from the ECM. When the ECM sends an ON signal, the coil in the solenoid valve is energized. A plunger will then move to seal the canister vent. The ability to seal the vent is necessary for the on board diagnosis of other evaporative emission control system components.

This solenoid valve is used only for diagnosis, and usually remains opened.

When the vent is closed, under normal purge conditions, the evaporative emission control system is depressurized and allows "EVAP Control System (Small Leak)" diagnosis.

CONSULT-II Reference Value in Data Monitor Mode

NHEC1097

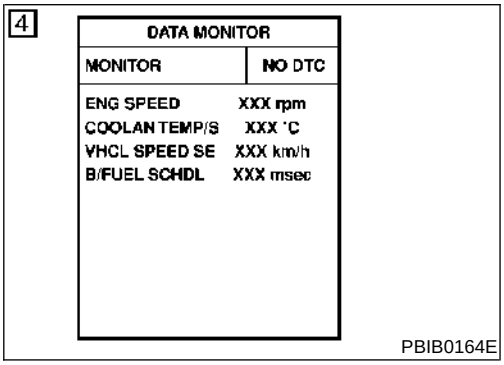
Specification data are reference values.

MONITOR ITEM	CONDITION	SPECIFICATION
VENT CONT/V	• Ignition switch: ON	OFF

On Board Diagnosis Logic

NHEC1099

DTC No.	Trouble diagnosis name	DTC Detecting Condition	Possible Cause
P1446 1446	EVAP canister vent control valve closed	EVAP canister vent control valve remains closed under specified driving conditions.	• EVAP canister vent control valve • EVAP control system pressure sensor and the circuit • Blocked rubber tube to EVAP canister vent control valve • Water separator • EVAP canister is saturated with water.



DTC Confirmation Procedure

NHEC1100

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.

Ⓔ WITH CONSULT-II

NHEC1100S01

1) Turn ignition switch "ON".
2) Select "DATA MONITOR" mode with CONSULT-II.

CONSULT-II Functions

NHBR0151

CONSULT-II MAIN FUNCTION

NHBR0151S01

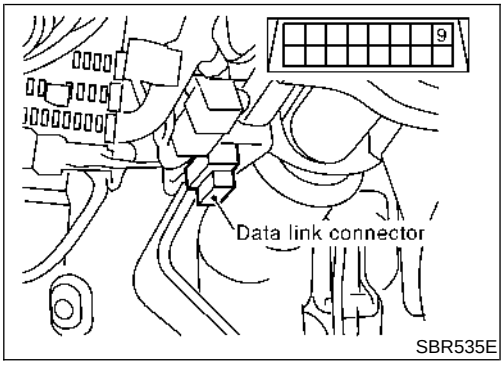
In a diagnosis function (main function), there are “SELF-DIAGNOSTIC RESULTS”, “DATA MONITOR”, “CAN DIAG SUPPORT MNTR”, “ACTIVE TEST”, “FUNCTION TEST”, “ECU PART NUMBER”.

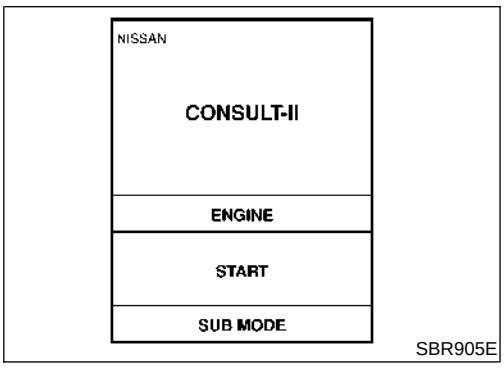
Diagnostic test mode	Function	Reference
SELF-DIAG-NOSTIC RESULTS	Self-diagnostic results can be read and erased quickly.	Refer to BR-46.
DATA MONITOR	Input/Output data in the ABS actuator and electric unit (control unit) can be read.	Refer to BR-49.
CAN DIAG SUP-PORT MNTR	The results of transmit/receive diagnosis of communication can be read.	—
ACTIVE TEST	Diagnostic Test Mode in which CONSULT-II drives some actuators apart from the ABS actuator and electric unit (control unit) and also shifts some parameters in a specified range.	Refer to BR-49.
FUNCTION TEST	Conducted by CONSULT-II instead of a technician to determine whether each system is “OK” or “NG”.	—
ECU PART NUMBER	ABS actuator and electric unit (control unit) part number can be read.	—

ECU (ABS/TCS CONTROL UNIT) PART NUMBER MODE

NHBR0151S02

Ignore the ECU part number displayed in the ECU PART NUMBER MODE. Refer to parts catalog to order the ECU.





CONSULT-II Inspection Procedure

NHBR0152

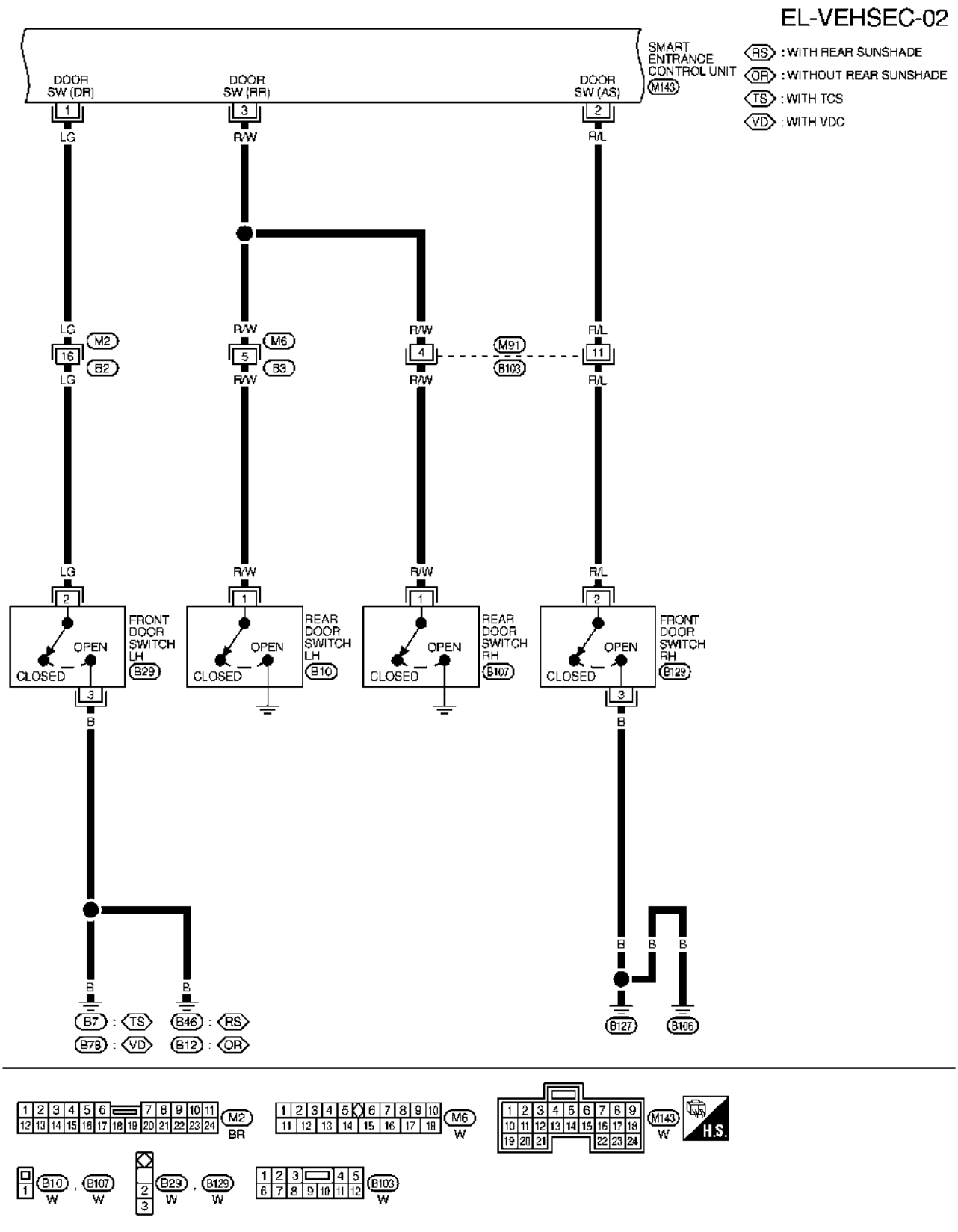
SELF-DIAGNOSIS PROCEDURE

NHBR0152S01

1. Turn ignition switch OFF.
2. Connect CONSULT-II to Data Link Connector.
3. Start engine.
4. Drive vehicle over 30 km/h (19 MPH) for at least one minute.
5. Stop vehicle with engine running and touch “START” on CONSULT-II screen.

FIG. 2

NHEL0122S02



MEL641Q

CONSULT-II Functions (Cont'd)

Data Monitor Item (Unit)	Data Monitor item selection			Remarks
	ECU INPUT SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
CAN COM START (ON/OFF)	—	×	×	Communication status of CAN communication is displayed.
STR ANGLE SIG (deg)	×	×	×	Steering angle detected by the steering angle sensor is displayed.
YAW RATE SEN (d/s)	×	×	×	Yaw rate detected by the yaw rate sensor is displayed.
SIDE G-SENSOR (m/s^2)	×	×	×	Transverse acceleration detected by the side G sensor is displayed.
PRESS SENSOR (bar)	×	×	×	Brake fluid pressure detected by the pressure sensor is displayed.
BATTERY VOLT (V)	×	×	×	Voltage supplied to VDC/TCS/ABS control unit is displayed.
MOTOR RELAY (ON/OFF)	—	×	×	Motor relay signal (ON/OFF) status is displayed.
ACTUATOR RLY (ON/OFF)	—	×	×	Actuator relay signal (ON/OFF) status is displayed.
STOP LAMP SW (ON/OFF)	×	×	×	Stop lamp switch (ON/OFF) status is displayed.
PARK BRAKE SW (ON/OFF)	×	×	×	Parking brake switch (ON/OFF) status is displayed.
OFF SW (ON/OFF)	×	×	×	VDC OFF switch (ON/OFF) status is displayed.
ABS WARN LAMP (ON/OFF)	—	×	×	ABS warning lamp (ON/OFF) status is displayed.
OFF LAMP (ON/OFF)	—	×	×	VDC OFF indicator lamp (ON/OFF) status is displayed.
SLIP LAMP (ON/OFF)	—	×	×	SLIP indicator lamp (ON/OFF) status is displayed.
FR LH IN SOL (ON/OFF)	—	×	×	Front LH inlet solenoid valve (ON/OFF) status is displayed.
FR LH OUT SOL (ON/OFF)	—	×	×	Front LH outlet solenoid valve (ON/OFF) status is displayed.
RR RH IN SOL (ON/OFF)	—	×	×	Rear RH inlet solenoid valve (ON/OFF) status is displayed.
RR RH OUT SOL (ON/OFF)	—	×	×	Rear RH outlet solenoid valve (ON/OFF) status is displayed.
FR RH IN SOL (ON/OFF)	—	×	×	Front RH inlet solenoid valve (ON/OFF) status is displayed.
FR RH OUT SOL (ON/OFF)	—	×	×	Front RH outlet solenoid valve (ON/OFF) status is displayed.
RR LH IN SOL (ON/OFF)	—	×	×	Rear LH inlet solenoid valve (ON/OFF) status is displayed.
RR LH OUT SOL (ON/OFF)	—	×	×	Rear LH outlet solenoid valve (ON/OFF) status is displayed.