Alphabetical & P No. Index for DTC

NDEC0001

ALPHABETICAL INDEX FOR DTC

NDEC0001S01

Items (CONSULT-II screen terms)	DTC*1	Reference page
Unable to access ECM	—	EC-103
ABSL PRES SEN/CIRC	P0105	EC-143
AIR TEMP SEN/CIRC	P0110	EC-154
A/T 1ST GR FNCTN	P0731	***AT-127***
A/T 2ND GR FNCTN	P0732	***AT-133***
A/T 3RD GR FNCTN	P0733	***AT-139***
A/T 4TH GR FNCTN	P0734	***AT-145***
A/T COMM LINE	P0600*2	EC-377
A/T DIAG COMM LINE	P1605	EC-474
ATF TEMP SEN/CIRC	P0710	***AT-110***
A/T TCC S/V FNCTN	P0744	***AT-159***
CLOSED LOOP-B1	P1148	EC-396
CLOSED TP SW/CIRC	P0510	EC-369
CMP SEN/CIRCUIT	P0340	EC-302
COOLANT T SEN/CIRC*3	P0115	EC-160
*COOLANT T SEN/CIRC	P0125	EC-177
CKP SENSOR COG	P1336	EC-421
CKP SEN/CIRCUIT	P0335	EC-296
CYL 1 MISFIRE	P0301	EC-285
CYL 2 MISFIRE	P0302	EC-285
CYL 3 MISFIRE	P0303	EC-285
CYL 4 MISFIRE	P0304	EC-285
CYL 5 MISFIRE	P0305	EC-285
CYL 6 MISFIRE	P0306	EC-285
ECM	P0605	EC-382
ENGINE SPEED SIG	P0725	***AT-123***
ENG OVER TEMP	P1217	EC-398
EVAP GROSS LEAK	P0455	EC-348
EVAP PURG FLOW/MON	P1447	EC-444
EVAP SMALL LEAK	P0440	EC-315
EVAP SMALL LEAK	P1440	EC-427
EVAP SYS PRES SEN	P0450	EC-340
FUEL SYS-LEAN/BK1	P0171	EC-265
FUEL SYS-RICH/BK1	P0172	EC-273
FUEL TEMP SEN/CIRC	P0180	EC-280

Fuel Cut Control (at no load & high engine speed)

DESCRIPTION

NDEC0017

Input/Output Signal Chart

NDEC0017S01

Sensor	Input Signal to ECM	ECM function	Actuator
Vehicle speed sensor	Vehicle speed	Fuel cut control	Injectors
Park/Neutral position switch	Neutral position		
Throttle position sensor	Throttle position		
Engine coolant temperature sensor	Engine coolant temperature		
Camshaft position sensor	Engine speed		

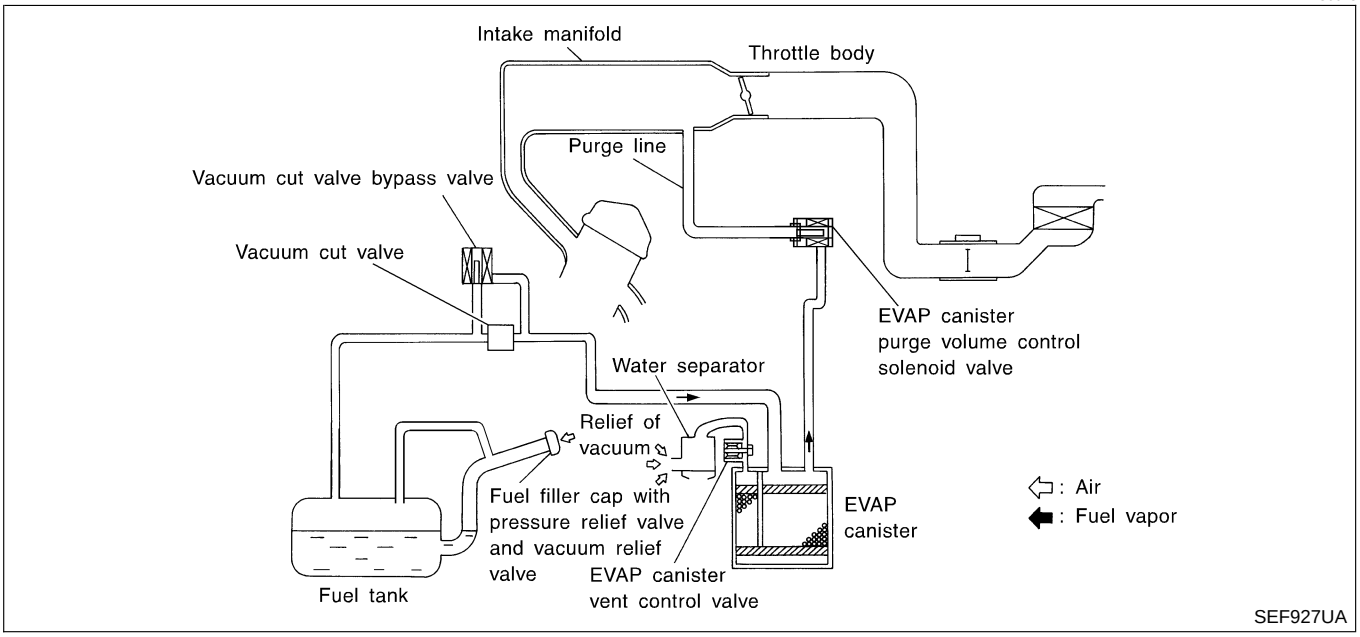
If the engine speed is above 2,500 rpm with no load (for example, in neutral and engine speed over 2,500 rpm) fuel will be cut off after some time. The exact time when the fuel is cut off varies based on engine speed. Fuel cut will operate until the engine speed reaches 2,000 rpm, then fuel cut is cancelled.

NOTE:
This function is different from deceleration control listed under “Multiport Fuel Injection (MFI) System”, EC-24.

Evaporative Emission System

DESCRIPTION

NDEC0018



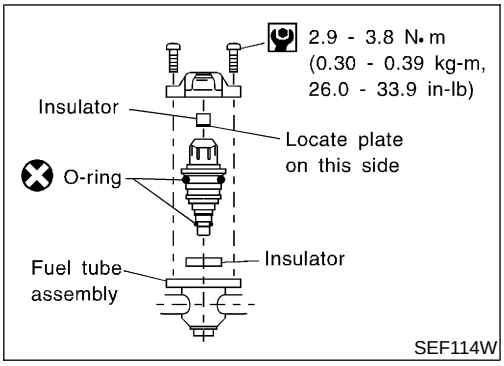
The evaporative emission system is used to reduce hydrocarbons emitted into the atmosphere from the fuel system. This reduction of hydrocarbons is accomplished by activated charcoals in the EVAP canister.
The fuel vapor in the sealed fuel tank is led into the EVAP canister which contains activated carbon and the vapor is stored there when the engine is not operating or when refueling to the fuel tank.
The vapor in the EVAP canister is purged by the air through the purge line to the intake manifold when the engine is operating. EVAP canister purge volume control solenoid valve is controlled by ECM. When the engine operates, the flow rate of vapor controlled by EVAP canister purge volume control solenoid valve is proportionally regulated as the air flow increases.
EVAP canister purge volume control solenoid valve also shuts off the vapor purge line during decelerating and idling.

- IACV-AAC valve

e. Water hoses for
- Throttle body
- Air relief plug

f. EVAP canister purge hose

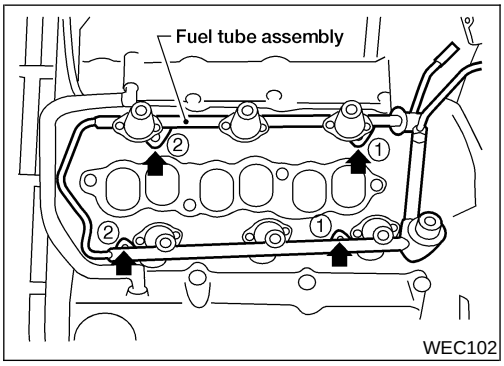
5. Remove injector fuel tube assembly.
   The following parts should be disconnected or removed.
- Vacuum hose for fuel pressure regulator
- Fuel feed and return hose
- All injectors harness connectors
- **Push injector tail piece.**
- **Do not pull on connector.**
- **Do not extract injector by pinching.**



SEF114W

6. Push out any malfunctioning injector from injector fuel tube.
7. Replace or clean injector as necessary.
- **Always replace O-rings with new ones.**
- **Lubricate O-rings with engine oil.**

8. Install injector to injector fuel tube assembly.



WEC102

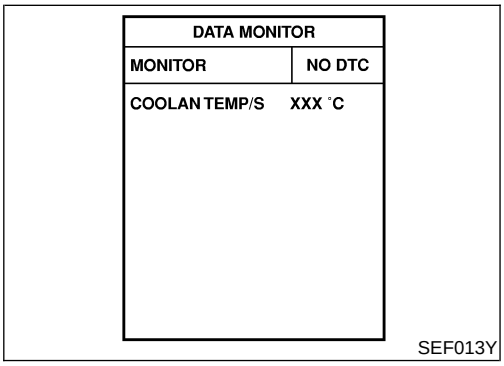
9. Install injectors with fuel tube assembly to intake manifold.
   Tighten in numerical order shown in the figure.

a. First, tighten all bolts to 4.9 to 6.0 N·m (0.5 to 0.61 kg-m, 3.6 to 4.4 ft-lb).

b. Then, tighten all bolts to 10.8 to 14.7 N·m (1.1 to 1.5 kg-m, 8 to 11 ft-lb).

10. Reinstall any part removed in reverse order of removal.

CAUTION:
After properly connecting fuel hose to injector and fuel tube, check connection for fuel leakage.



SEF013Y

Fast Idle Cam (FIC)

INSPECTION AND ADJUSTMENT

NDEC0026

With CONSULT-II

NDEC0026S01

1. Turn ignition switch "ON".
2. See "COOLAN TEMP/S" in "DATA MONITOR" mode with CONSULT-II.

10	CHECK HEATED OXYGEN SENSOR 1 (FRONT) SIGNAL

With CONSULT-II

1. Start engine and warm it up to normal operating temperature.
2. Run engine at about 2,000 rpm for about 2 minutes under no-load.
3. See "HO2S1 MNTR (B1)" in "DATA MONITOR" mode.
4. Running engine at 2,000 rpm under no-load , check that the monitor fluctuates between "LEAN" and "RICH" more than 5 times during 10 seconds.
   1 time: RICH → LEAN → RICH
   2 times: RICH → LEAN → RICH → LEAN → RICH

Without CONSULT-II

1. Start engine and warm it up to normal operating temperature.
2. Run engine at approx. 2,000 rpm for approx. 2 minutes under no-load.
3. Set voltmeter probe between ECM terminal 50 and ground.
4. Make sure that the voltage fluctuates between 0 - 0.3V and 0.6 - 1.0V more than 5 times during 10 seconds at 2,000 rpm.
   1 time: 0 - 0.3V → 0.6 - 1.0V → 0 - 0.3V
   2 times: 0 - 0.3V → 0.6 - 1.0V → 0 - 0.3V → 0.6 - 1.0V → 0 - 0.3V

OK or NG

OK	▶	**INSPECTION END**
NG	▶	GO TO 11.

11	CHECK HEATED OXYGEN SENSOR 1 (FRONT) HARNESS

1. Turn off engine and disconnect battery ground cable.
2. Disconnect ECM harness connector.
3. Disconnect heated oxygen sensor 1 (front) harness connector.
4. Check harness continuity between ECM terminal 50 and heated oxygen sensor 1 (front) harness connector. Refer to Wiring Diagram, EC-186.
   Continuity should exist.

OK or NG

OK	▶	1. Connect ECM harness connector. 2. GO TO 13.
NG	▶	GO TO 12.

12	FIX THE MALFUNCTION

1. Repair or replace harness between ECM and heated oxygen sensor 1 (front).
2. Connect ECM harness connector.
3. Disconnect throttle position sensor harness connector.
4. Start engine.

	▶	GO TO 5.

Description

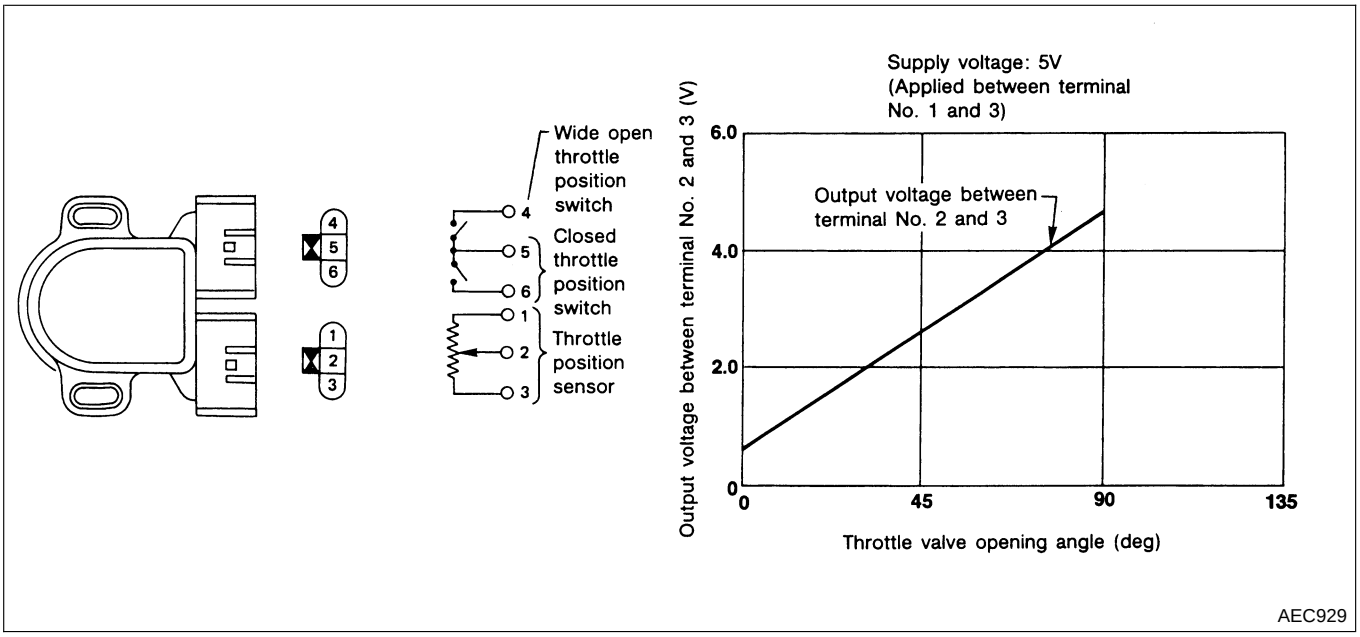
NDEC0073

NOTE:
If DTC P0120 is displayed with DTC P0510, first perform the trouble diagnosis for DTC P0510, refer to EC-369.

COMPONENT DESCRIPTION

NDEC0073S01

The throttle position sensor responds to the accelerator pedal movement. This sensor is a kind of potentiometer which transforms the throttle position into output voltage, and emits the voltage signal to the ECM. In addition, the sensor detects the opening and closing speed of the throttle valve and feeds the voltage signal to the ECM.
Idle position of the throttle valve is determined by the ECM receiving the signal from the throttle position sensor. This sensor controls engine operation such as fuel cut. On the other hand, the “Wide open and closed throttle position switch”, which is built into the throttle position sensor unit, is not used for engine control.



AEC929

CONSULT-II Reference Value in Data Monitor Mode

NDEC0074

Specification data are reference values.

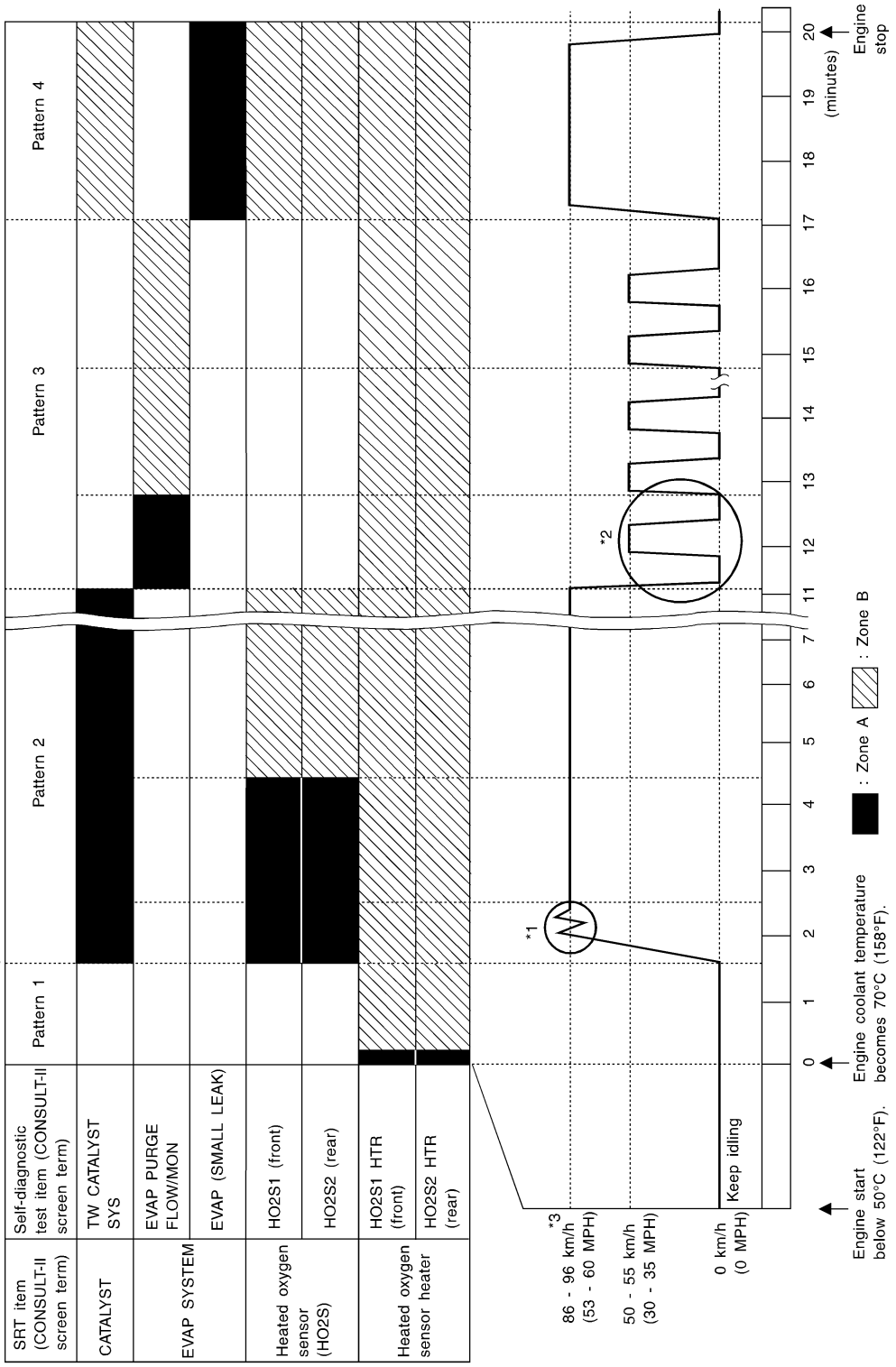
MONITOR ITEM	CONDITION		SPECIFICATION
THRTL POS SEN	• Engine: After warming up • Ignition switch: ON (Engine stopped)	Throttle valve: fully closed	0.15 - 0.85V
		Throttle valve: fully opened	Approx. 3.5 − 4.7V
ABSOL TH·P/S	• Engine: After warming up • Ignition switch: ON (Engine stopped)	Throttle valve: fully closed	0.0%
		Throttle valve: fully opened	Approx. 80%

Driving Pattern

NDEC0030S0303

Driving pattern

Note: Always drive vehicle in safe manner according to traffic conditions and obey all traffic laws.
Refer to next page for more information and explanation of chart.



SEF947Y

maximum or minimum value and is compared with the test value being monitored.
Items for which these data (test value and test limit) are displayed are the same as SRT code items (30 test items).
These data (test value and test limit) are specified by Test ID (TID) and Component ID (CID) and can be displayed on the GST screen.

X: Applicable —: Not applicable

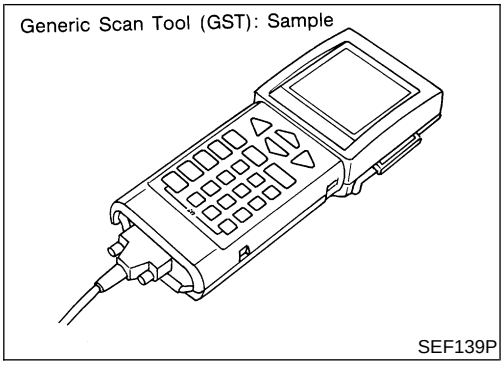
SRT item	Self-diagnostic test item	Test value (GST display)		Test limit	Application
		TID	CID		
CATALYST	Three way catalyst function	01H	01H	Max.	X
		02H	81H	Min.	X
EVAP SYSTEM	EVAP control system (Small leak)	05H	03H	Max.	X
	EVAP control system purge flow monitoring	06H	83H	Min.	X
O2 SENSOR	Heated oxygen sensor 1 (front)	09H	04H	Max.	X
		0AH	84H	Min.	X
		0BH	04H	Max.	X
		0CH	04H	Max.	X
		0DH	04H	Max.	X
	Heated oxygen sensor 2 (rear)	19H	86H	Min.	X
		1AH	86H	Min.	X
		1BH	06H	Max.	X
		1CH	06H	Max.	X
O2 SENSOR HEATER	Heated oxygen sensor 1 heater (front)	29H	08H	Max.	X
		2AH	88H	Min.	X
	Heated oxygen sensor 2 heater (rear)	2DH	0AH	Max.	X
		2EH	8AH	Min.	X

EMISSION-RELATED DIAGNOSTIC INFORMATION ITEMS

NDEC0030S05

X: Applicable —: Not applicable

Items (CONSULT-II screen terms)	DTC*1	SRT code	Test value/ Test limit (GST only)	1st trip DTC*1	Reference page
NO SELF DIAGNOSTIC FAILURE INDICATED	**P0000**	—	—	—	—
MAF SEN/CIRCUIT	P0100	—	—	X	EC-134
ABSL PRES SEN/CIRC	P0105	—	—	X	EC-143
AIR TEMP SEN/CIRC	P0110	—	—	X	EC-154
COOLANT T SEN/CIRC	P0115	—	—	X	EC-160
THRTL POS SEN/CIRC	P0120	—	—	X	EC-166
*COOLAN T SEN/CIRC	P0125	—	—	X	EC-177
HO2S1 (B1)	P0130	X	X	X*2	EC-183
HO2S1 (B1)	P0131	X	X	X*2	EC-191
HO2S1 (B1)	P0132	X	X	X*2	EC-197



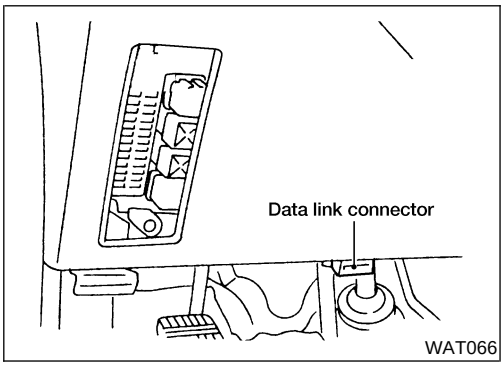
Generic Scan Tool (GST)

=NDEC0034

DESCRIPTION

NDEC0034S01

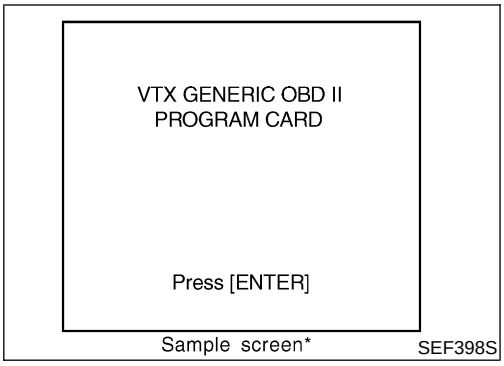
Generic Scan Tool (OBDII scan tool) complying with SAE J1978 has 8 different functions explained on the next page.
ISO9141 is used as the protocol.
The name “GST” or “Generic Scan Tool” is used in this service manual.



GST INSPECTION PROCEDURE

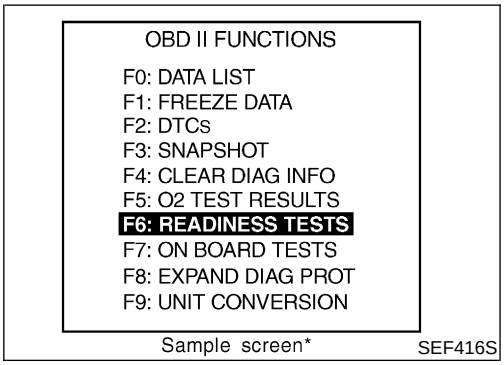
NDEC0034S02

1. Turn ignition switch OFF.
2. Connect “GST” to data link connector for GST. (Data link connector for GST is located under LH dash panel near the fuse box cover.)



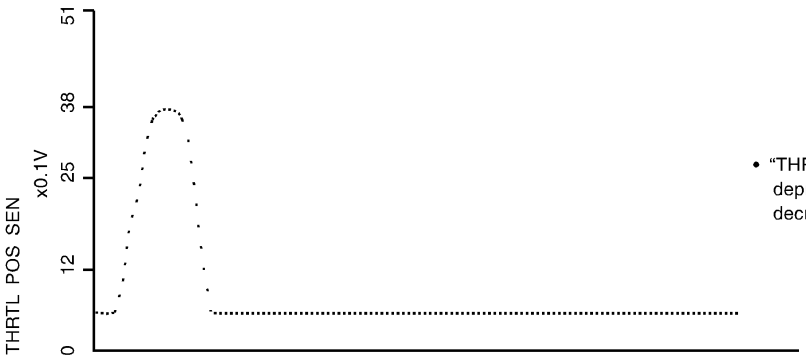
3. Turn ignition switch ON.
4. Enter the program according to instruction on the screen or in the operation manual.

(*: Regarding GST screens in this section, sample screens are shown.)

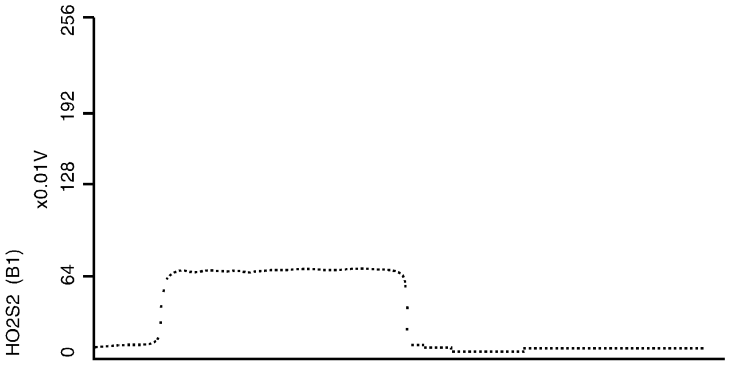


5. Perform each diagnostic mode according to each service procedure.

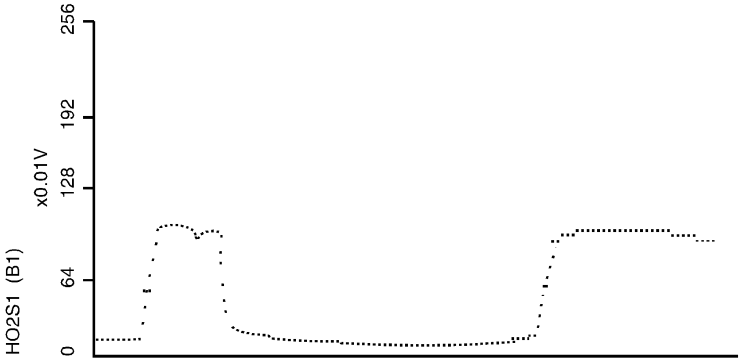
For further information, see the GST Operation Manual of the tool maker.



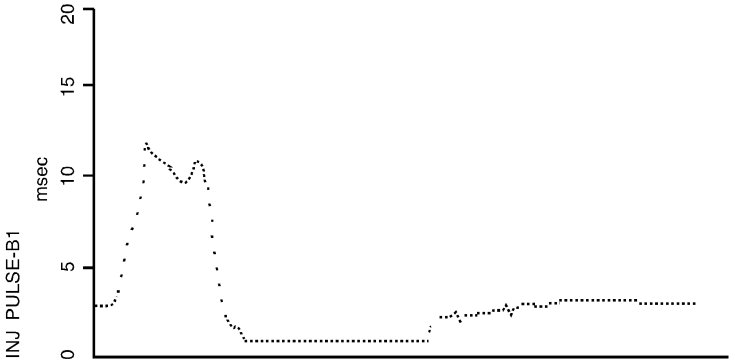
- "THRTL POS SEN" should increase while depressing the accelerator pedal and should decrease while releasing it.



- "HO2S2 (B1)" may increase immediately after depressing the accelerator pedal and may decrease after releasing the pedal.



- "HO2S1 (B1)" may increase immediately after depressing the accelerator pedal and may decrease after releasing the pedal.

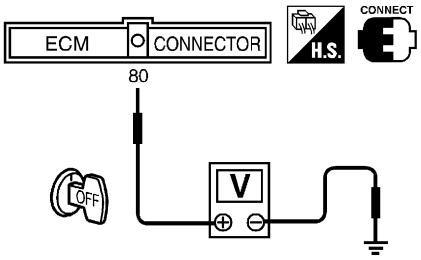


- "INJ PULSE-B1" should increase when depressing the accelerator pedal and should decrease when the pedal is released.

SEF242YA

6	CHECK POWER SUPPLY-II

1. Stop engine.
2. Check voltage between ECM terminal 80 and ground with CONSULT-II or tester.



SEF678U

Voltage: Battery voltage

OK or NG

OK	▶	GO TO 8.
NG	▶	GO TO 7.

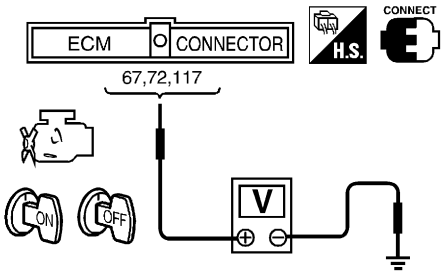
7	DETECT MALFUNCTIONING PART

Check the following.
- Harness connectors E53, F2
- 10A fuse
- Harness for open or short between ECM and fuse

	▶	Repair harness or connectors.

8	CHECK POWER SUPPLY-III

1. Turn ignition switch "ON" and then "OFF".
2. Check voltage between ECM terminals 67, 72, 117 and ground with CONSULT-II or tester.



SEF679U

Voltage:
After turning ignition switch "OFF", battery voltage will exist for a few seconds, then drop to approximately 0V.

OK or NG

OK	▶	GO TO 14.
NG (Battery voltage does not exist.)	▶	GO TO 9.
NG (Battery voltage exists for more than a few seconds.)	▶	GO TO 13.

DTC Confirmation Procedure

=NDEC0057

Perform “PROCEDURE FOR MALFUNCTION A” first. If the 1st trip DTC cannot be confirmed, perform “PROCEDURE FOR MALFUNCTION B”.
If the 1st trip DTC is not confirmed on “PROCEDURE FOR MALFUNCTION B”, perform “PROCEDURE FOR MALFUNCTION C”.

NOTE:
If “DTC Confirmation Procedure” has been previously conducted, always turn ignition switch “OFF” and wait at least 5 seconds before conducting the next test.

3

DATA MONITOR	
MONITOR	NO DTC
ENG SPEED	XXX rpm

SEF058Y

PROCEDURE FOR MALFUNCTION A

NDEC0057S01

With CONSULT-II

1) Turn ignition switch “ON”.
2) Select “DATA MONITOR” mode with CONSULT-II.
3) Wait at least 6 seconds.
4) If 1st trip DTC is detected, go to “Diagnostic Procedure”, EC-147.

With GST

- Follow the procedure “With CONSULT-II”.

4

DATA MONITOR	
MONITOR	NO DTC
ENG SPEED	XXX rpm
COOLAN TEMP/S	XXX °C

SEF174Y

PROCEDURE FOR MALFUNCTION B

NDEC0057S02

With CONSULT-II

1) Start engine and warm it up to normal operating temperature.
2) Turn ignition switch “OFF” and wait at least 5 seconds.
3) Turn ignition switch “ON” and select “DATA MONITOR” mode with CONSULT-II.
4) Start engine and let it idle.
5) Wait at least 15 seconds.
6) If 1st trip DTC is detected, go to “Diagnostic Procedure”, EC-147.

With GST

- Follow the procedure “With CONSULT-II”.

7

DATA MONITOR	
MONITOR	NO DTC
ENG SPEED	XXX rpm
VHCL SPEED SE	XXX km/h
B/FUEL SCHDL	XXX msec
ABSOL PRES/SE	XXX V

SEF936Z

PROCEDURE FOR MALFUNCTION C

NDEC0057S03

CAUTION:
Always drive vehicle at a safe speed.

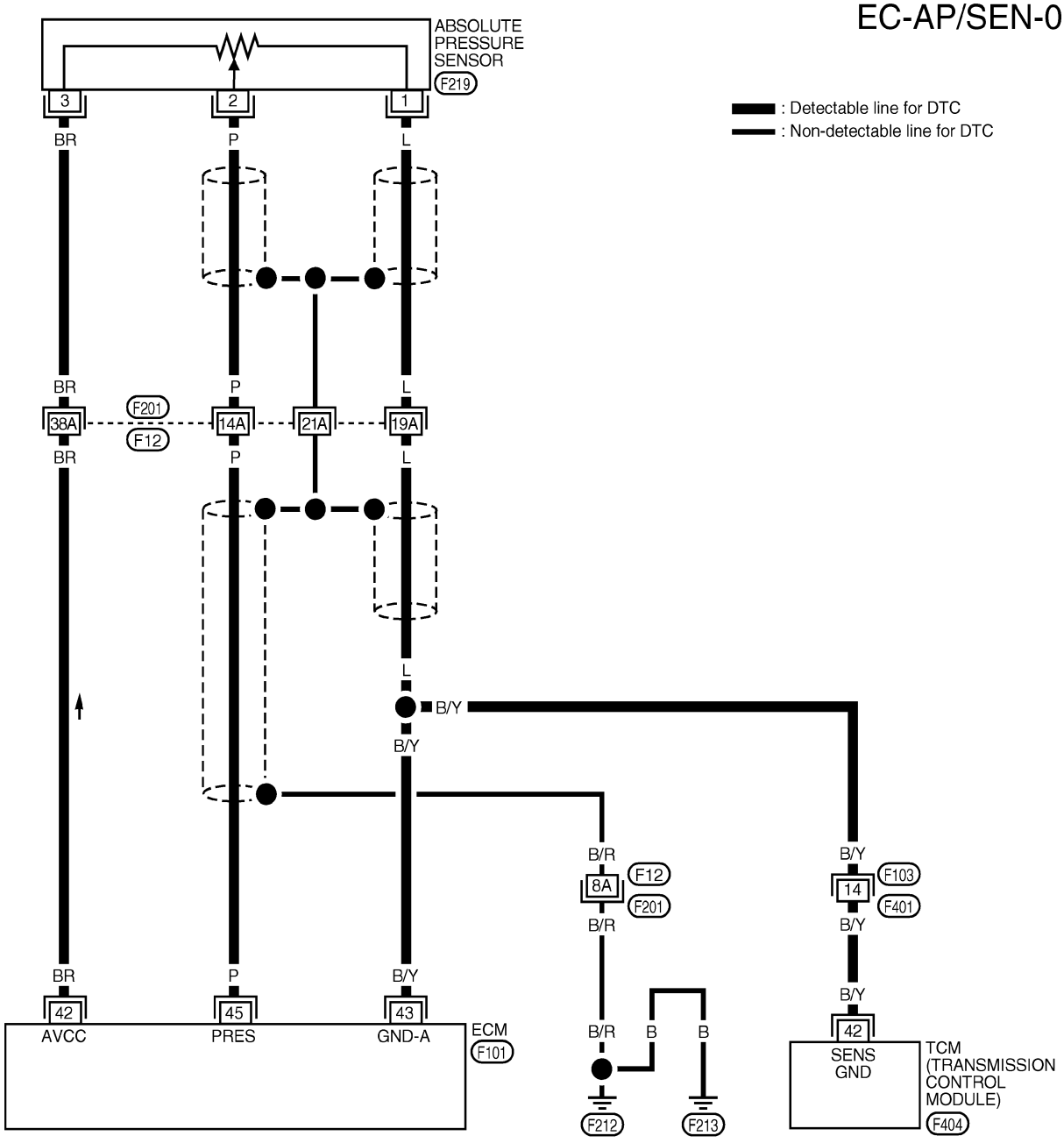
With CONSULT-II

1) Turn ignition switch “ON”.
2) Select “DATA MONITOR” mode with CONSULT-II.
   The voltage of “ABSOL PRES/SE” should be more than 1.74 [V].
   If the check result is NG, go to “Diagnostic Procedure”, EC-147.
   If the check result is OK, go to following step.

Wiring Diagram

NDEC0058

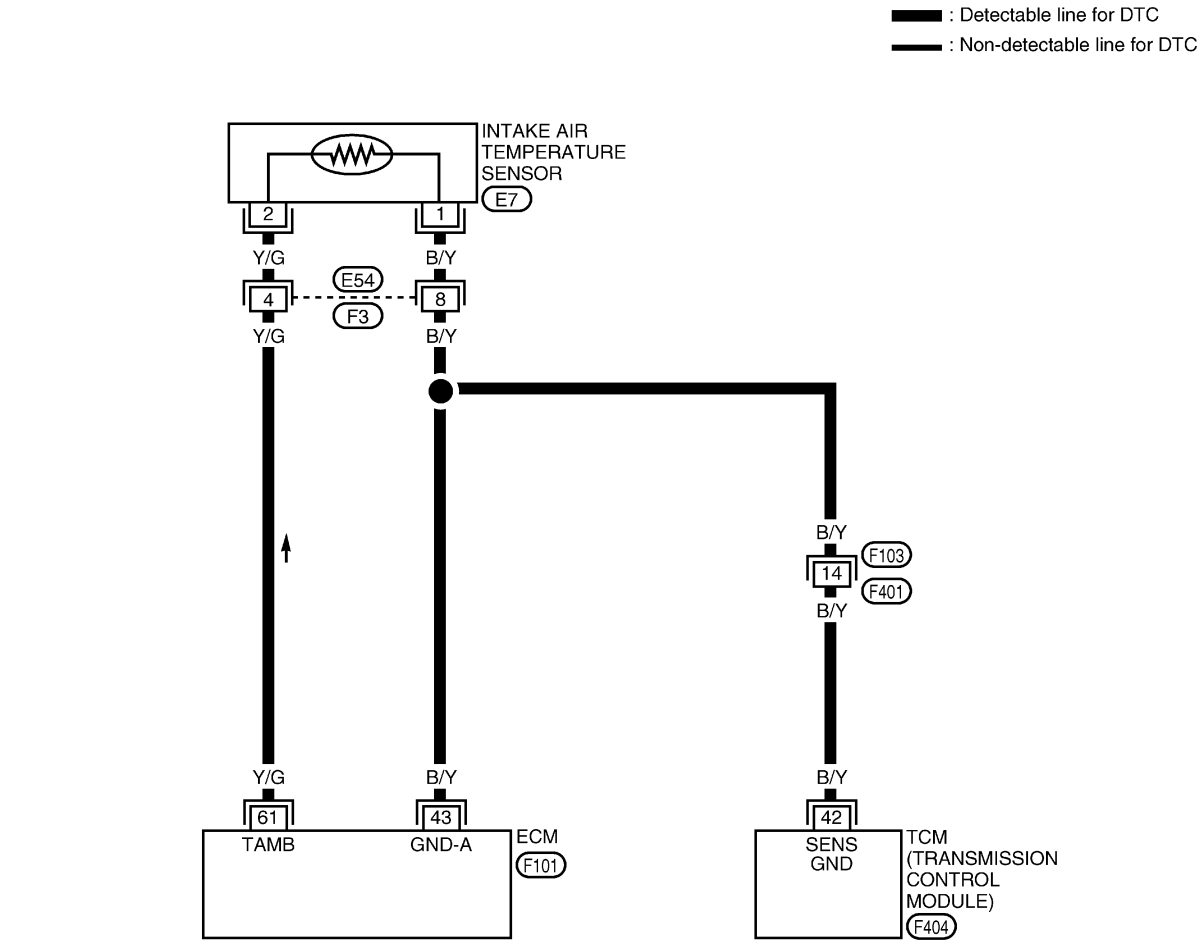
EC-AP/SEN-01

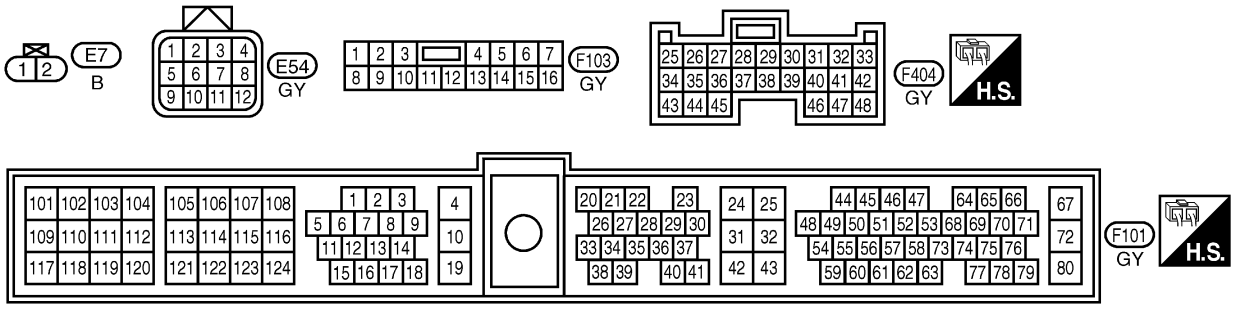


Wiring Diagram

NDEC0064

EC-IATS-01





AEC602A

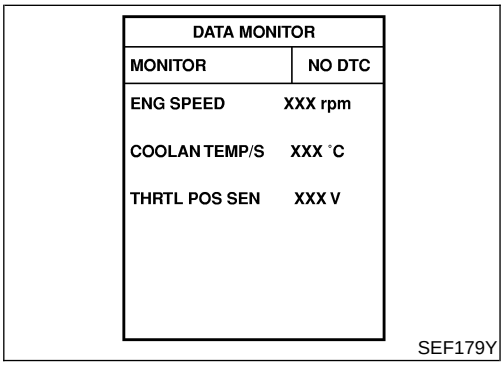
13	CHECK CAMSHAFT POSITION SENSOR	
Refer to "Component Inspection", EC-308.		
OK or NG		
OK	▶	GO TO 14.
NG	▶	Replace camshaft position sensor.

14	CHECK FUEL INJECTOR	
Refer to "Component Inspection", EC-489.		
OK or NG		
OK	▶	GO TO 15.
NG	▶	Replace fuel injector.

15	CHECK SHIELD CIRCUIT	
1. Disconnect harness connectors F12, F201. 2. Check harness continuity between harness connector F201 and engine ground. **Continuity should exist.** 3. Also check harness for short to power.		
OK or NG		
OK	▶	GO TO 17.
NG	▶	GO TO 16.

16	DETECT MALFUNCTIONING PART	
Check the following. ● Harness connectors F12, F201 ● Harness for open or short between harness connector F12 and engine ground		
	▶	Repair open circuit or short to power in harness or connectors.

17	CHECK INTERMITTENT INCIDENT	
Refer to "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT", EC-126.		
	▶	**INSPECTION END**



Component Inspection

NDEC0080

THROTTLE POSITION SENSOR

NDEC0080S01

With CONSULT-II

1) Start engine and warm it up to normal operating temperature.
2) Stop engine and turn ignition switch "ON".
3) Select "DATA MONITOR" mode with CONSULT-II.
4) Check voltage of "THRTL POS SEN".
   Voltage measurement must be made with throttle position sensor installed in vehicle

Fuel Pressure Regulator

NDEC0371

Condition	Fuel pressure at idling kPa (kg/cm^2, psi)
Vacuum hose is connected	Approximately 235 (2.4, 34)
Vacuum hose is disconnected	Approximately 294 (3.0, 43)

Idle Speed and Ignition Timing

NDEC0372

Base idle speed*1 rpm	No-load*4 (in “P” or “N” position)	700±50
Target idle speed*2 rpm	No-load*4 (in “P” or “N” position)	750±50
Air conditioner: ON rpm	In “P” or “N” position	800 or more
Ignition timing*3	In “P” or “N” position	15°±2° BTDC
Throttle position sensor idle position V		0.15 - 0.85

*1: Throttle position sensor harness connector disconnected or using CONSULT-II “WORK SUPPORT” mode
*2: Throttle position sensor harness connector connected
*3: Throttle position sensor harness connector disconnected
*4: Under the following conditions:

- Air conditioner switch: OFF
- Electrical load: OFF (Lights, heater fan & rear window defogger)
- Steering wheel: Kept in straight-ahead position

Ignition Coil

NDEC0373

Primary voltage	12V
Primary resistance [at 20°C (68°F)]	Approximately 0.49 - 0.59Ω
Secondary resistance [at 20°C (68°F)]	Approximately 10 kΩ

Mass Air Flow Sensor

NDEC0374

Supply voltage	Battery voltage (11 - 14)V
Output voltage at idle	1.0 - 1.7*V
Mass air flow (Using CONSULT or GST)	3.3 - 4.8 g·m/sec at idle* 12.0 - 14.9 g·m/sec at 2,500 rpm*

*: Engine is warmed up sufficiently and running under no-load.

Engine Coolant Temperature Sensor

NDEC0375

Temperature °C (°F)	Resistance kΩ
20 (68)	2.1 - 2.9
50 (122)	0.68 - 1.00
90 (194)	0.236 - 0.260

Heated Oxygen Sensor 1 Heater (Front)

NDEC0377

Resistance [at 25°C (77°F)]	2.3 - 4.3Ω

Fuel Pump

NDEC0378

Resistance [at 25°C (77°F)]	0.2 - 5.0Ω

IACV-AAC Valve

NDEC0379

Resistance [at 20°C (68°F)]	Approximately 10.0Ω