

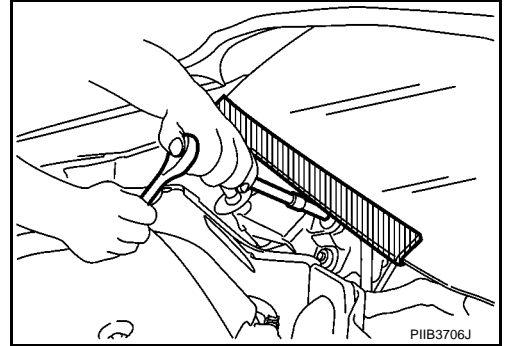
PRECAUTIONS

PFP:00001

Precautions for Procedures without Cowl Top Cover

BBS002NV

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Precautions for Draining Engine Coolant

BBS002NW

Drain engine coolant when engine is cooled.

Precautions for Disconnecting Fuel Piping

BBS002NX

- Before starting work, make sure no fire or spark producing items are in the work area.
- Release fuel pressure before disassembly.
- After disconnecting pipes, plug openings to stop fuel leakage.

Precautions for Removal and Disassembly

BBS002NY

- When instructed to use special service tools, use the specified tools. Always be careful to work safely, avoid forceful or uninstructed operations.
- Exercise maximum care to avoid damage to mating or sliding surfaces.
- Cover openings of engine system with tape or the equivalent, if necessary, to seal out foreign materials.
- Mark and arrange disassembly parts in an organized way for easy troubleshooting and re-assembly.
- When loosening nuts and bolts, as a basic rule, start with the one furthest outside, then the one diagonally opposite, and so on. If the order of loosening is specified, do exactly as specified.

Precautions for Inspection, Repair and Replacement

BBS002NZ

Before repairing or replacing, thoroughly inspect parts. Inspect new replacement parts in the same way, and replace if necessary.

Precautions for Assembly and Installation

BBS002O0

- Use torque wrench to tighten bolts or nuts to specification.
- When tightening nuts and bolts, as a basic rule, equally tighten in several different steps starting with the ones in center, then ones on inside and outside diagonally in this order. If the order of tightening is specified, do exactly as specified.
- Replace with new gasket, packing, oil seal or O-ring.
- Thoroughly wash, clean, and air-blow each part. Carefully check the engine oil and engine coolant passages for any restriction and blockage.
- Avoid damaging the sliding or mating surfaces. Completely remove foreign materials such as cloth lint or dust. Before assembly, oil sliding surfaces well.
- Release air within route when refilling after draining coolant.
- Before starting engine, apply fuel pressure to fuel lines with turning ignition switch ON (with engine stopped). Then make sure there are no leaks at fuel line connections.
- After repairing, start engine and increase engine speed to check engine coolant, fuel, engine oil, and exhaust gas for leakage.

Parts Requiring Angle Tightening

BBS002O1

- Use angle wrench (SST: KV10112100) for the final tightening of the following engine parts.
 - Cylinder head bolts

CYLINDER BLOCK

[HR]

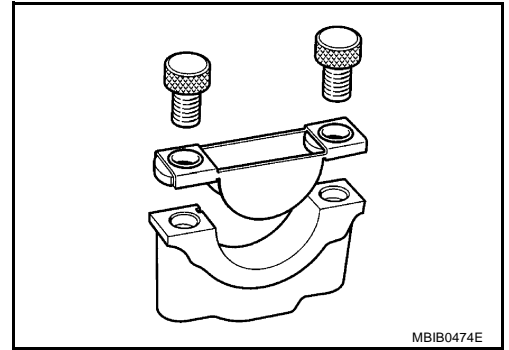
Main Bearing Selection Table

Crankshaft main journal diameter	Cylinder block main bearing housing inner diameter	I.D. mark	Hole diameter Unit: mm (in)																				
			A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	
I.D. mark	Axle diameter Unit mm (in)	Hole diameter Unit: mm (in)																					
A	47.979 - 47.978 (1.8889 - 1.8889)	51.997 - 51.998 (2.0471 - 2.0472)	0	0	0	0	0	0	0	0	01	01	01	1	1	1	12	12	12	2	2	2	23
B	47.978 - 47.977 (1.8889 - 1.8889)	51.998 - 51.999 (2.0472 - 2.0472)	0	0	0	0	0	0	0	01	01	01	1	1	1	12	12	12	2	2	2	23	23
C	47.977 - 47.976 (1.8889 - 1.8888)	51.999 - 52.000 (2.0472 - 2.0472)	0	0	0	0	0	0	01	01	01	1	1	1	12	12	12	2	2	2	23	23	23
D	47.976 - 47.975 (1.8888 - 1.8888)	52.000 - 52.001 (2.0472 - 2.0472)	0	0	0	0	01	01	01	1	1	1	12	12	12	2	2	2	23	23	23	3	3
E	47.975 - 47.974 (1.8888 - 1.8887)	52.001 - 52.002 (2.0473 - 2.0473)	0	0	0	01	01	01	1	1	1	12	12	12	2	2	2	23	23	23	3	3	3
F	47.974 - 47.973 (1.8887 - 1.8887)	52.002 - 52.003 (2.0473 - 2.0473)	0	0	01	01	01	1	1	1	1	12	12	12	2	2	2	23	23	23	3	3	3
G	47.973 - 47.972 (1.8887 - 1.8887)	52.003 - 52.004 (2.0474 - 2.0474)	0	01	01	01	1	1	1	1	12	12	12	2	2	2	23	23	23	3	3	3	34
H	47.972 - 47.971 (1.8887 - 1.8886)	52.004 - 52.005 (2.0474 - 2.0474)	01	01	01	1	1	1	1	12	12	12	2	2	2	23	23	23	3	3	3	34	34
J	47.971 - 47.970 (1.8886 - 1.8886)	52.005 - 52.006 (2.0474 - 2.0474)	01	01	1	1	1	1	12	12	12	2	2	2	23	23	23	3	3	3	34	34	34
K	47.970 - 47.969 (1.8886 - 1.8885)	52.007 - 52.007 (2.0475 - 2.0475)	01	1	1	1	12	12	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4
L	47.969 - 47.968 (1.8885 - 1.8885)	52.008 - 52.009 (2.0476 - 2.0476)	1	1	1	12	12	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4
M	47.968 - 47.967 (1.8885 - 1.8885)	52.009 - 52.010 (2.0476 - 2.0476)	1	1	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4
N	47.967 - 47.966 (1.8885 - 1.8884)	52.010 - 52.011 (2.0476 - 2.0476)	1	12	12	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	45	45
P	47.966 - 47.965 (1.8884 - 1.8884)	52.011 - 52.011 (2.0477 - 2.0477)	12	12	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	45	45	45
R	47.965 - 47.964 (1.8884 - 1.8883)	52.012 - 52.012 (2.0477 - 2.0477)	12	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	45	45	45	45
S	47.964 - 47.963 (1.8883 - 1.8883)	52.013 - 52.013 (2.0477 - 2.0477)	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	45	45	45	45	5
T	47.963 - 47.962 (1.8883 - 1.8883)	52.014 - 52.014 (2.0478 - 2.0478)	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	45	45	45	45	5	5
U	47.962 - 47.961 (1.8883 - 1.8882)	52.015 - 52.015 (2.0478 - 2.0478)	2	2	23	23	23	3	3	3	3	34	34	34	4	4	4	45	45	45	45	5	5
V	47.961 - 47.960 (1.8882 - 1.8882)	52.016 - 52.016 (2.0478 - 2.0478)	2	23	23	23	3	3	3	3	34	34	34	4	4	4	45	45	45	45	5	5	5
W	47.960 - 47.959 (1.8882 - 1.8881)	52.017 - 52.017 (2.0479 - 2.0479)	23	23	23	3	3	3	3	34	34	34	4	4	4	45	45	45	45	5	5	5	5

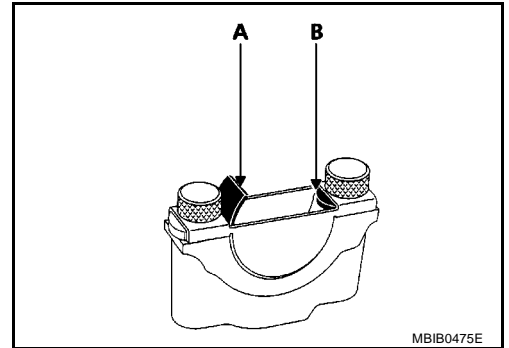
PBIC3759E

ON THE BEARING CAPS

1. Position Tool KV113B0160 (Mot. 1493-01) on the bearing cap.



2. Install the main bearing in Tool KV113B0160 (Mot. 1493-01), then press at (A) until the main bearing is touching at (B) with Tool KV113B0160 (Mot. 1493-01).

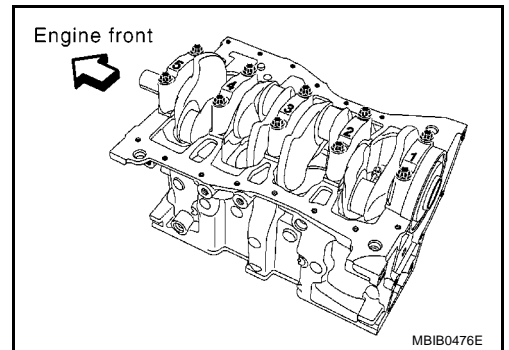


3. Oil the main bearing.

4. Install the crankshaft.

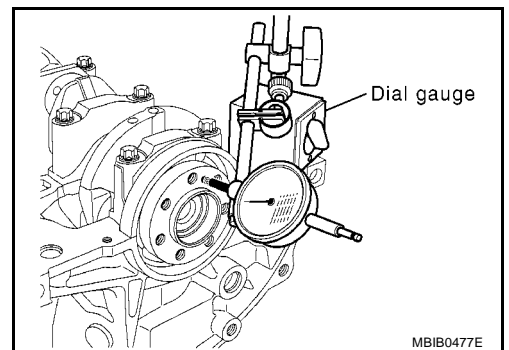
5. Install the lateral shims on bearing No. 3, putting the grooves on the crankshaft side.

6. Install the main bearing caps on bearing cap No. 1 (these are numbered from 1 - 5 and these numbers should be positioned opposite the water pump). Then tighten the bolts to a torque of 27 N·m (2.8 kg·m, 20 ft·lb) plus an angle tightening of $47^{\circ} \pm 5^{\circ}$.



7. Check the lateral clearance of the crankshaft which should be without wear on lateral shims: 0.045 - 0.252 mm (0.0018 - 0.0099 in)

8. Check the lateral clearance of the crankshaft which should be with wear on the lateral shims: 0.045 - 0.852 mm (0.0018 - 0.0335 in)



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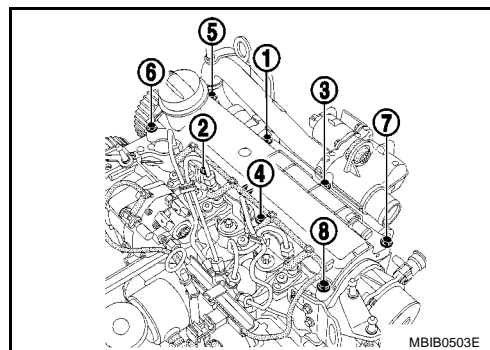
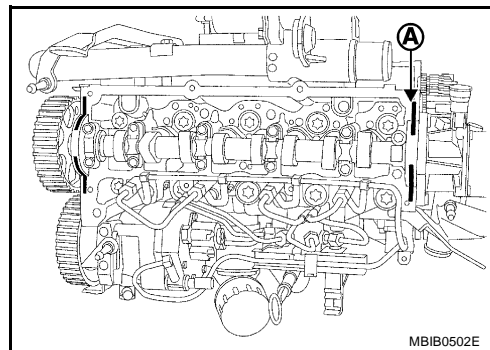
INSTALLATION OF THE CYLINDER HEAD

1. Position the pistons at mid-stroke.
2. Install the cylinder head gasket using the centering dowels of the cylinder block.
3. Tighten the cylinder head, Refer to [EM-293, "ASSEMBLY OF THE CYLINDER HEAD"](#).

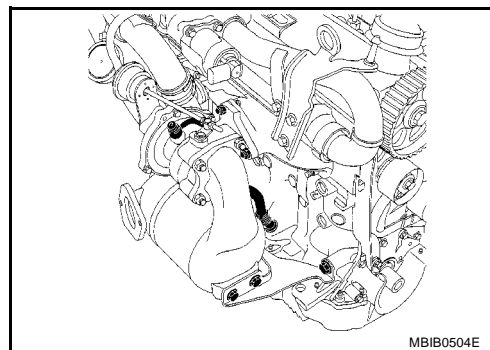
NOTE:

The gasket faces (cylinder head and rocker cover) must be clean, dry and free from grease (in particular, remove finger marks).

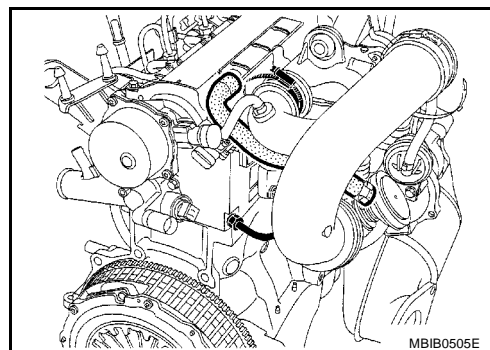
4. Lay four beads (A) of liquid gasket, with a diameter of 2 mm (0.08 in).
 - Use Genuine Liquid Gasket or equivalent.
5. Install the rocker cover, tightening the bolts to a torque of 10 N·m (1.0 kg·m, 7 ft·lb) in the numerical order as shown.



6. Put new seals on the pipe ends and install the turbocharger oil return pipe.
7. Install the turbocharger, tightening the nuts and the torx bolt to a torque of 26 N·m (2.7 kg·m, 19 ft·lb).
8. Install the catalytic converter bracket.
9. Install the turbocharger oil supply pipe.



10. Tighten the bolts of the turbocharger oil return pipe to a torque of 9 N·m (0.9 kg·m, 80 in·lb).
11. Tighten the nut and the bolt of the turbocharger oil supply pipe to a torque of 23 N·m (2.3 kg·m, 17 ft·lb).
12. Install the oil vapor re-breathing pipe.
13. Install the new turbocharger air ducts.



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TROUBLE DIAGNOSIS

[CR (WITH EURO-OBD)]

Fail-Safe Chart

BBS002U3

When the DTC listed below is detected, the ECM enters fail-safe mode and the MI lights up.

DTC No.	Detected items	Engine operating condition in fail-safe mode								
P0117 P0118	Engine coolant temperature sensor circuit	Engine coolant temperature will be determined by ECM based on the time after turning ignition switch ON or START. CONSULT-II displays the engine coolant temperature decided by ECM.								
		<table border="1"> <thead> <tr> <th>Condition</th> <th>Engine coolant temperature decided (CONSULT-II display)</th> </tr> </thead> <tbody> <tr> <td>Just as ignition switch is turned ON or START</td> <td>40°C (104°F)</td> </tr> <tr> <td>More than approx. 4 minutes after ignition ON or START</td> <td>80°C (176°F)</td> </tr> <tr> <td>Except as shown above</td> <td>40 - 80°C (104 - 176°F) (Depends on the time)</td> </tr> </tbody> </table>	Condition	Engine coolant temperature decided (CONSULT-II display)	Just as ignition switch is turned ON or START	40°C (104°F)	More than approx. 4 minutes after ignition ON or START	80°C (176°F)	Except as shown above	40 - 80°C (104 - 176°F) (Depends on the time)
		Condition	Engine coolant temperature decided (CONSULT-II display)							
		Just as ignition switch is turned ON or START	40°C (104°F)							
		More than approx. 4 minutes after ignition ON or START	80°C (176°F)							
Except as shown above	40 - 80°C (104 - 176°F) (Depends on the time)									
When the fail-safe system for engine coolant temperature sensor is activated, the cooling fan operates while engine is running.										
P0122 P0123 P0222 P0223 P2135	Throttle position sensor	The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees. The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.								
P1121	Electric throttle control actuator	(When electric throttle control actuator does not function properly due to the return spring malfunction:) ECM controls the electric throttle control actuator by regulating the throttle opening around the idle position. The engine speed will not rise more than 2,000 rpm.								
		(When throttle valve opening angle in fail-safe mode is not in specified range:) ECM controls the electric throttle control actuator by regulating the throttle opening to 20 degrees or less.								
		(When ECM detects the throttle valve is stuck open:) While the vehicle is driving, it slows down gradually by fuel cut. After the vehicle stops, the engine stalls. The engine can restart in Neutral position, and engine speed will not exceed 1,000 rpm or more.								
P1122	Electric throttle control function	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.								
P1124 P1126	Throttle control motor relay	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.								
P1128	Throttle control motor	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.								
P1171	Intake air system	When accelerator pedal is depressed, engine speed will not rise more than 2,500 rpm due to fuel cut.								
P1229	Sensor power supply	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.								
P2122 P2123 P2127 P2128 P2138	Accelerator pedal position sensor	The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees. The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.								

- When there is an open circuit on MI circuit, the ECM can not warn the driver by lighting up MI when there is a malfunction on engine control system.
Therefore, when electrical controlled throttle and part of ECM related diagnoses is continuously detected as NG for 5 trips, ECM warns the driver that engine control system has a malfunction and MI circuit is open by means of operating fail-safe function.
The fail-safe function also operate when above diagnoses except MI circuit are detected and demands the driver to repair the malfunction.

Engine operating condition in fail-safe mode

Engine speed will not rise more than 2,500 rpm due to the fuel cut

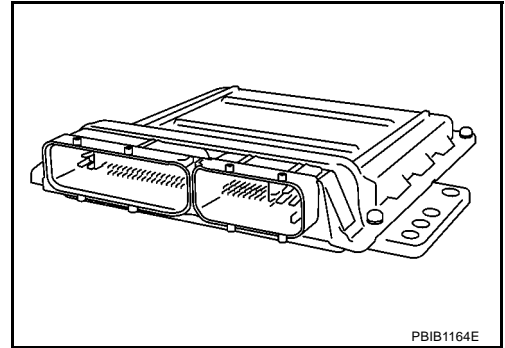
DTC P1065 ECM POWER SUPPLY

PFP:23710

Component Description

BBS002Z5

Battery voltage is supplied to the ECM even when the ignition switch is turned OFF for the ECM memory function of the DTC memory, the air-fuel ratio feedback compensation value memory, the idle air volume learning value memory, etc.



On Board Diagnosis Logic

BBS002Z6

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1065 1065	ECM power supply circuit	ECM back-up RAM system does not function properly.	<ul style="list-style-type: none"> ● Harness or connectors [ECM power supply (back-up) circuit is open or shorted.] ● ECM

DTC Confirmation Procedure

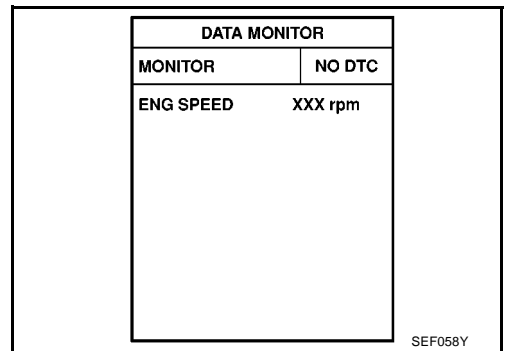
BBS002Z7

NOTE:

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

WITH CONSULT-II

1. Turn ignition switch ON and wait at least 1 second.
2. Select "DATA MONITOR" mode with CONSULT-II.
3. Start engine and let it idle for 1 second.
4. Turn ignition switch OFF, wait at least 10 seconds and then turn ON.
5. Repeat steps 3 and 4 for 4 times.
6. If 1st trip DTC is detected, go to [EC-284, "Diagnostic Procedure"](#)



WITH GST

Follow the procedure "WITH CONSULT-II" above.

DTC P0011 IVT CONTROL

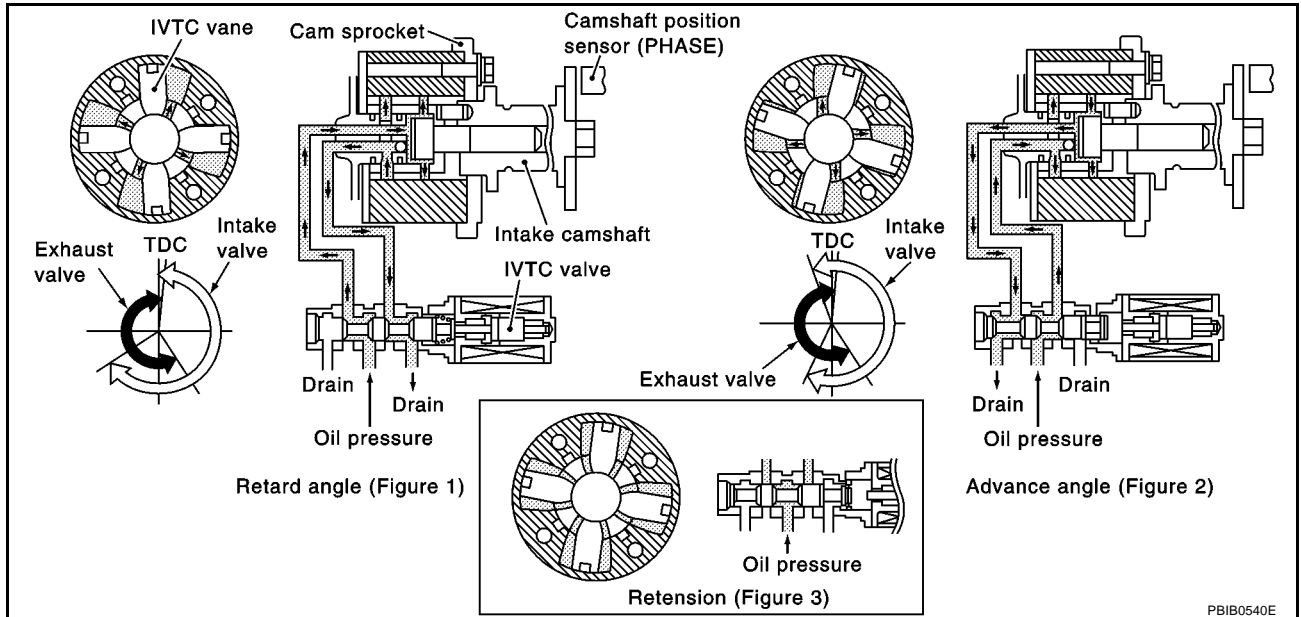
PFP:23796

Description
SYSTEM DESCRIPTION

BBS00361

Sensor	Input Signal to ECM	ECM Function	Actuator
Crankshaft position sensor (POS)	Engine speed and piston position	Intake valve timing control	Intake valve timing control solenoid valve
Camshaft position sensor (PHASE)			
Engine coolant temperature sensor	Engine coolant temperature		
Wheel sensor	Vehicle speed*		

*: This signal is sent to the ECM through CAN communication line.



PBIB0540E

This mechanism hydraulically controls cam phases continuously with the fixed operating angle of the intake valve.

The ECM receives signals such as crankshaft position, camshaft position, engine speed, and engine coolant temperature. Then, the ECM sends ON/OFF pulse duty signals to the intake valve timing control solenoid valve depending on driving status. This makes it possible to control the shut/open timing of the intake valve to increase engine torque in low/mid speed range and output in high-speed range.

CONSULT-II Reference Value in Data Monitor Mode

BBS00362

Specification data are reference values.

MONITOR ITEM	CONDITION	SPECIFICATION
INT/V TIM (B1)	● Engine: After warming up ● Shift lever: Neutral ● Air conditioner switch: OFF ● No load Idle	-5° - 5°CA
	2,000 rpm	Approx. 0° - 20°CA
INT/V SOL (B1)	● Engine: After warming up ● Shift lever: Neutral ● Air conditioner switch: OFF ● No load Idle	0% - 2%
	2,000 rpm	Approx. 0% - 50%

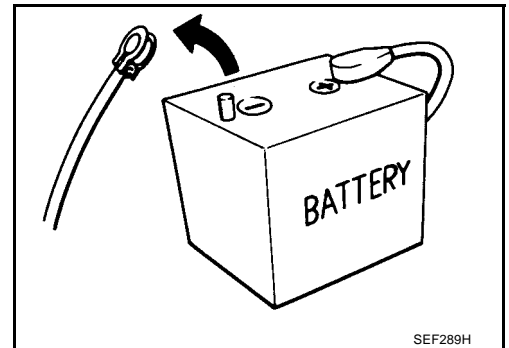
PRECAUTIONS

[HR (WITH EURO-OBD)]

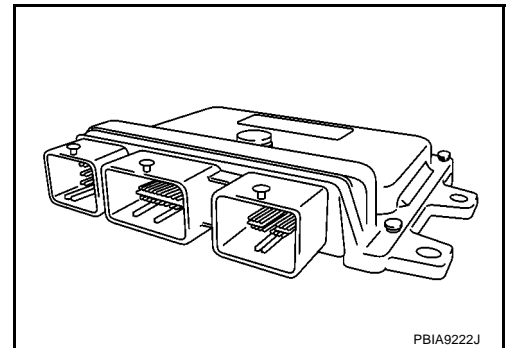
- Be sure to connect and lock the connectors securely after work. A loose (unlocked) connector will cause the MI to light up due to the open circuit. (Be sure the connector is free from water, grease, dirt, bent terminals, etc.)
- Certain systems and components, especially those related to OBD, may use a new style slide-locking type harness connector. For description and how to disconnect, refer to [PG-88, "HARNESS CONNECTOR"](#).
- Be sure to route and secure the harnesses properly after work. The interference of the harness with a bracket, etc. may cause the MI to light up due to the short circuit.
- Be sure to connect rubber tubes properly after work. A misconnected or disconnected rubber tube may cause the MI to light up due to the malfunction of the fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the ECM and TCM (Transmission control module) before returning the vehicle to the customer.

Precaution

- Always use a 12 volt battery as power source.
- Do not attempt to disconnect battery cables while engine is running.
- Before connecting or disconnecting the ECM harness connector, turn ignition switch OFF and disconnect negative battery cable. Failure to do so may damage the ECM because battery voltage is applied to ECM even if ignition switch is turned OFF.
- Before removing parts, turn ignition switch OFF and then disconnect negative battery cable.



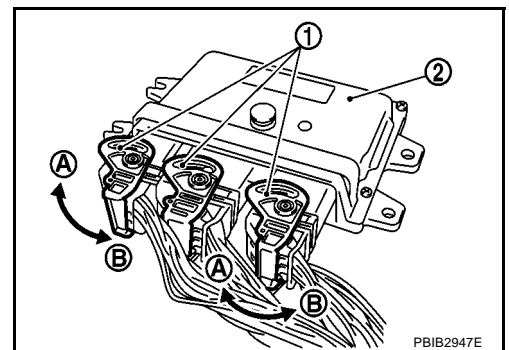
- Do not disassemble ECM.
- If a battery cable is disconnected, the memory will return to the ECM value. The ECM will now start to self-control at its initial value. Engine operation can vary slightly when the terminal is disconnected. However, this is not an indication of a malfunction. Do not replace parts because of a slight variation.
- If the battery is disconnected, the following emission-related diagnostic information will be lost within 24 hours.



- Diagnostic trouble codes
- 1st trip diagnostic trouble codes
- Freeze frame data
- 1st trip freeze frame data
- System readiness test (SRT) codes
- Test values

- When connecting ECM harness connector, fasten (B) it securely with a lever (1) as far as it will go as shown in the figure.

- ECM (2)
- Loosen (A)



DTC P0420 THREE WAY CATALYST FUNCTION

[HR (WITH EURO-OBD)]

DTC P0420 THREE WAY CATALYST FUNCTION

PFP:20905

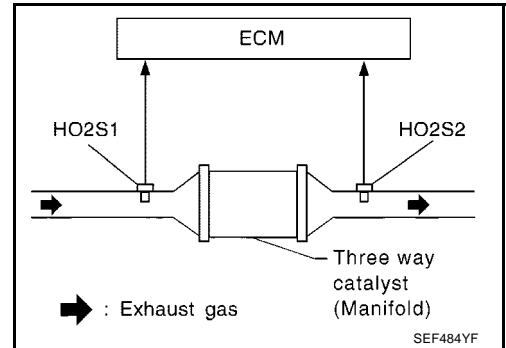
On Board Diagnosis Logic

BBS004E9

The ECM monitors the switching frequency ratio of heated oxygen sensors 1 and 2.

A three way catalyst (manifold) with high oxygen storage capacity will indicate a low switching frequency of heated oxygen sensor 2. As oxygen storage capacity decreases, the heated oxygen sensor 2 switching frequency will increase.

When the frequency ratio of heated oxygen sensors 1 and 2 approaches a specified limit value, the three way catalyst (manifold) malfunction is diagnosed.



DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P0420 0420	Catalyst system efficiency below threshold	<ul style="list-style-type: none"> Three way catalyst (manifold) does not operate properly. Three way catalyst (manifold) does not have enough oxygen storage capacity. 	<ul style="list-style-type: none"> Three way catalyst (manifold) Exhaust tube Intake air leaks Fuel injector Fuel injector leaks Spark plug Improper ignition timing

DTC Confirmation Procedure

BBS004EA

NOTE:

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

WITH CONSULT-II

TESTING CONDITION:

- Open engine hood before conducting the following procedure.
 - Do not hold engine speed for more than the specified minutes below.
- Start engine and warm it up to the normal operating temperature.
 - Turn ignition switch OFF and wait at least 10 seconds.
 - Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
 - Let engine idle for 1 minute.
 - Select "DTC & SRT CONFIRMATION" then "SRT WORK SUPPORT" mode with CONSULT-II.
 - Start engine.
 - Rev engine up to 2,000 to 3,000 rpm and hold it for 3 consecutive minutes then release the accelerator pedal completely. If "INCMP" of "CATALYST" changed to "COMPLT", go to step 10.
 - Wait 5 seconds at idle.

SRT WORK SUPPORT	
CATALYST	INCMP
HO2S HTR	CMPLT
HO2S	INCMP
MONITOR	
ENG SPEED	XXX rpm
B/FUEL SCHDL	XXX msec

PBIB0566E

IGNITION SIGNAL

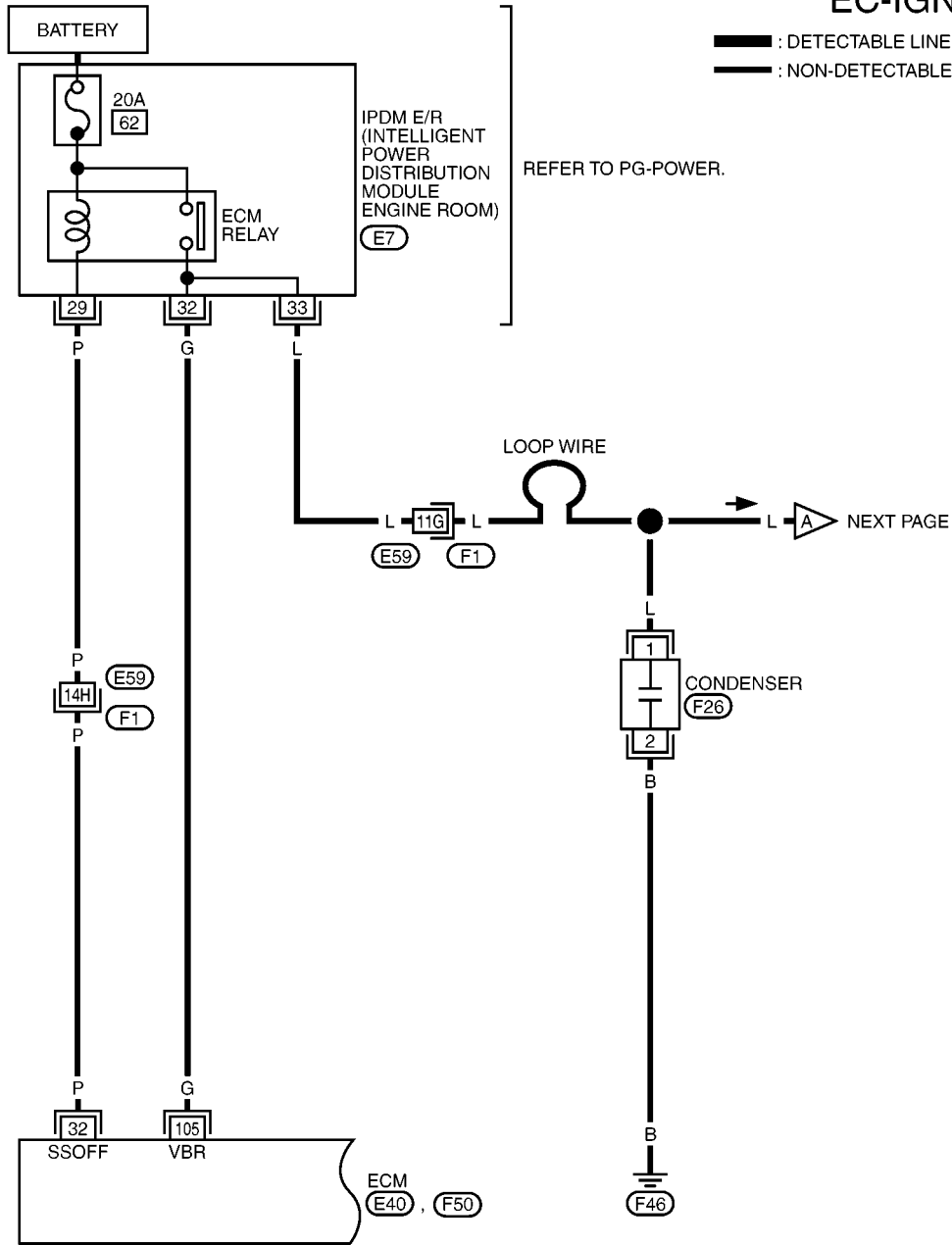
[HR (WITH EURO-OBD)]

BBS004JG

Wiring Diagram

EC-IGNSYS-01

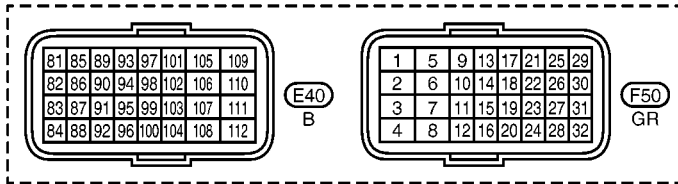
: DETECTABLE LINE FOR DTC
 : NON-DETECTABLE LINE FOR DTC



27	28	29	30	31	32	33
34	35	36	37	38	39	40
41	42					



1	F26
2	GR



F50	GR
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H.S.

REFER TO THE FOLLOWING.

(F1) - SUPER MULTIPLE JUNCTION (SMJ)

DTC P1111 IVT CONTROL SOLENOID VALVE

[HR (WITHOUT EURO-OBD)]

DTC P1111 IVT CONTROL SOLENOID VALVE

PF2:23796

Component Description

BBS0040B

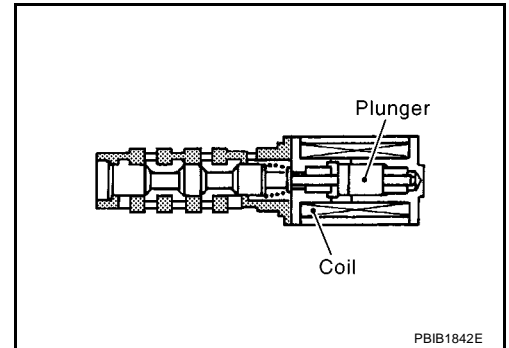
Intake valve timing control solenoid valve is activated by ON/OFF pulse duty (ratio) signals from the ECM.

The intake valve timing control solenoid valve changes the oil amount and direction of flow through intake valve timing control unit or stops oil flow.

The longer pulse width advances valve angle.

The shorter pulse width retards valve angle.

When ON and OFF pulse widths become equal, the solenoid valve stops oil pressure flow to fix the intake valve angle at the control position.



CONSULT-II Reference Value in Data Monitor Mode

BBS0040C

Specification data are reference values.

MONITOR ITEM	CONDITION		SPECIFICATION
INT/V SOL (B1)	<ul style="list-style-type: none"> ● Engine: After warming up ● Air conditioner switch: OFF 	Idle	0% - 2%
	<ul style="list-style-type: none"> ● Shift lever: P or N (A/T), Neutral (M/T) ● No load 	2,500 rpm	Approx. 0% - 90%

On Board Diagnosis Logic

BBS0040D

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1111 1111	Intake valve timing control solenoid valve circuit	An improper voltage is sent to the ECM through intake valve timing control solenoid valve.	<ul style="list-style-type: none"> ● Harness or connectors (Solenoid valve circuit is open or shorted.) ● Intake valve timing control solenoid valve

DTC Confirmation Procedure

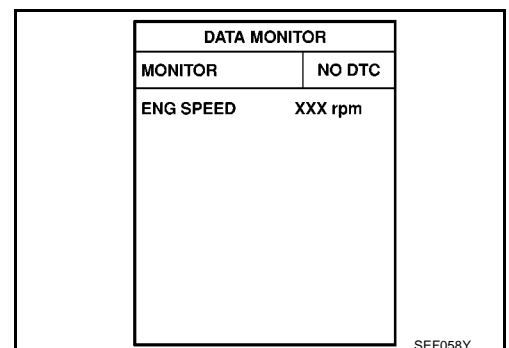
BBS0040E

NOTE:

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

WITH CONSULT-II

1. Turn ignition switch ON.
2. Select "DATA MONITOR" mode with CONSULT-II.
3. Start engine and let it idle for 5 seconds.
4. If 1st trip DTC is detected, go to [EC-1428, "Diagnostic Procedure"](#).



WITHOUT CONSULT-II

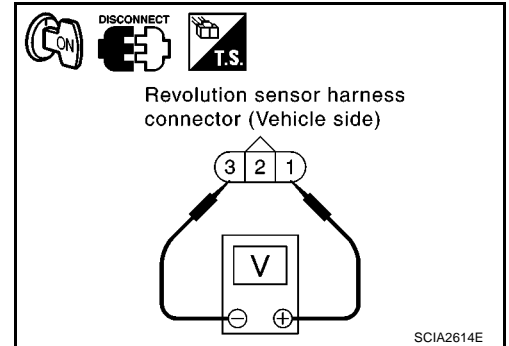
1. Start engine and wait at least 5 seconds.
2. Turn ignition switch OFF, wait at least 10 seconds and then turn ON.
3. Perform Diagnostic Test Mode II (Self-diagnostic results) with ECM.
4. If 1st trip DTC is detected, go to [EC-1428, "Diagnostic Procedure"](#).

VEHICLE SPEED SENSOR-A/T (REVOLUTION SENSOR) [EXC.F/EURO-OBID]

3. CHECK POWER AND SENSOR GROUND

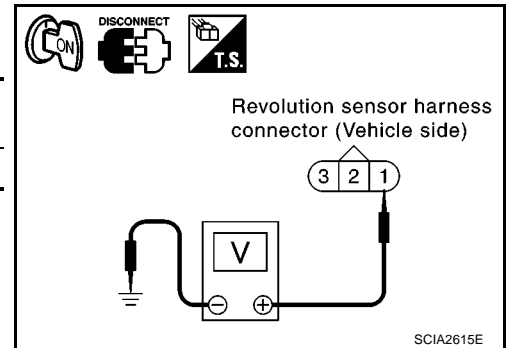
1. Turn ignition switch OFF.
2. Disconnect the revolution sensor harness connector.
3. Turn ignition switch ON. (Do not start engine.)
4. Check voltage between revolution sensor harness connector terminals.

Item	Connector	Terminal	Judgement standard (Approx.)
Revolution sensor	F41	1 - 3	Battery voltage



5. Check voltage between revolution sensor harness connector terminal and ground.

Item	Connector	Terminal	Judgement standard (Approx.)
Revolution sensor	F41	1 - ground	Battery voltage



6. If OK, check harness for short to ground and short to power.
7. Reinstall any part removed.

OK or NG

OK >> GO TO 4.

NG - 1 >> Battery voltage is not supplied between terminals 1 and 3, terminals 1 and ground.:GO TO 6.

NG - 2 >> Battery voltage is not supplied between terminals 1 and 3 only.: GO TO 7.

4. CHECK HARNESS BETWEEN TCM AND REVOLUTION SENSOR

1. Turn ignition switch OFF.
2. Disconnect the TCM connector and revolution sensor harness connector.
3. Check continuity between TCM connector terminal and revolution sensor harness connector terminal.

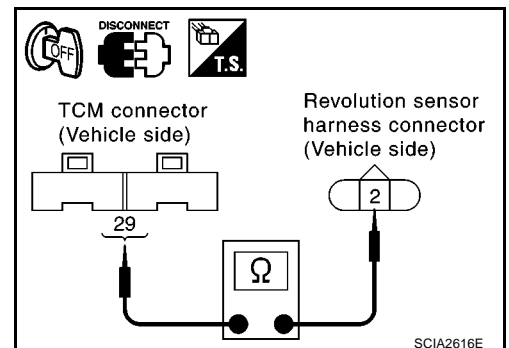
Item	Connector	Terminal	Continuity
TCM	E107	29	Yes
Revolution sensor	F41	2	

4. If OK, check harness for short to ground and short to power.
5. Reinstall any part removed.

OK or NG

OK >> GO TO 5.

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



5. CHECK TCM

1. Check TCM input/output signals. Refer to [AT-80, "TCM Terminals and Reference Value"](#).
2. If NG, re-check TCM pin terminals for damage or loose connection with harness connector.

OK or NG

OK >> GO TO 8.

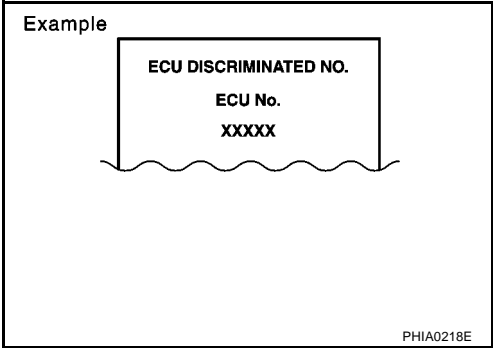
NG >> Repair or replace damaged parts.

TROUBLE DIAGNOSIS

BHS00036

CONSULT-II Function DIAGNOSIS MODE FOR CONSULT-II

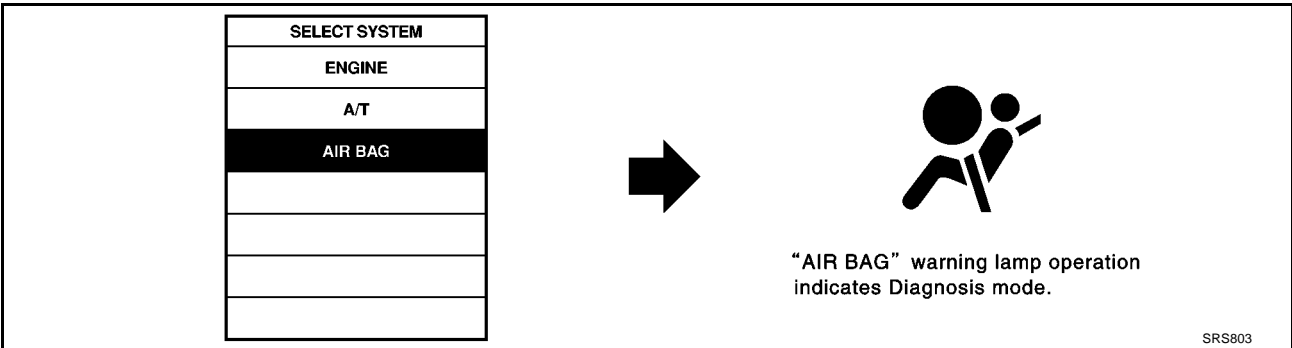
- “SELF-DIAG [CURRENT]”
A current Self-diagnosis result (also indicated by the number of warning lamp flashes in the Diagnosis mode) is displayed on the CONSULT-II screen in real time. This refers to a malfunctioning part requiring repairs.
- “SELF-DIAG [PAST]”
Diagnosis results previously stored in the memory are displayed on the CONSULT-II screen. The stored results are not erased until memory erasing is executed.
- “TROUBLE DIAG RECORD”
With TROUBLE DIAG RECORD, diagnosis results previously erased by a reset operation can be displayed on the CONSULT-II screen.
- “ECU DISCRIMINATED NO.”
The diagnosis sensor unit for each vehicle model is assigned with its own, individual classification number. This number will be displayed on the CONSULT-II screen, as shown. When replacing the diagnosis sensor unit, refer to the part number for the compatibility. After installation, replacement with a correct unit can be checked by confirming this classification number on the CONSULT-II screen.
After repair, make sure the discriminated number of diagnosis sensor unit installed to vehicle are same. Refer to [SRS-48](#), “[ECU DISCRIMINATED NO.](#)” .



Ⓟ HOW TO CHANGE SELF-DIAGNOSIS MODE WITH CONSULT-II

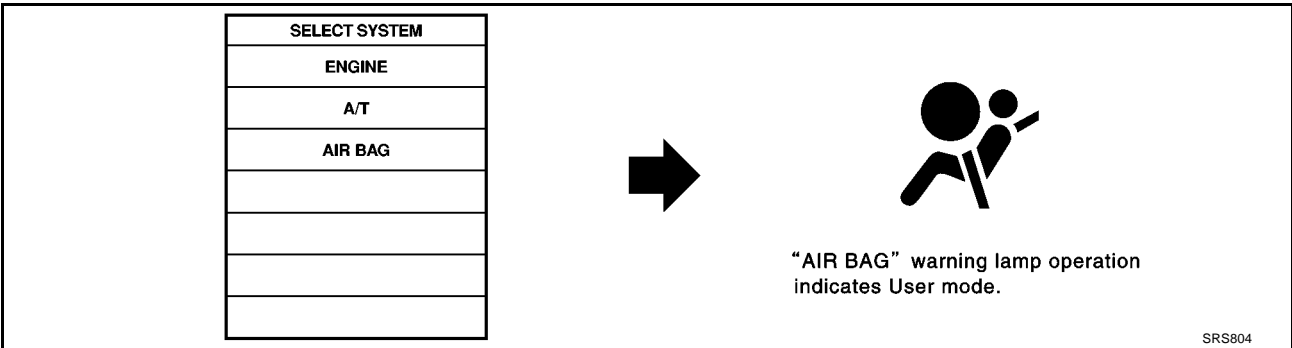
From User Mode to Diagnosis Mode

After selecting “AIR BAG” on the “SELECT SYSTEM” screen, User mode automatically changes to Diagnosis mode.



From Diagnosis Mode to User Mode

To return to User mode from Diagnosis mode, touch “BACK” key of CONSULT-II until “SELECT SYSTEM” appears, Diagnosis mode automatically changes to User mode.



TROUBLE DIAGNOSIS

BJS000BH

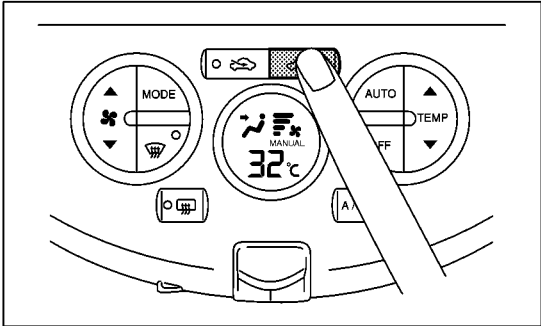
Intake Door Motor Circuit

SYMPTOM:

- Intake door does not change.
- Intake door motor does not operate normally.

INSPECTION FLOW

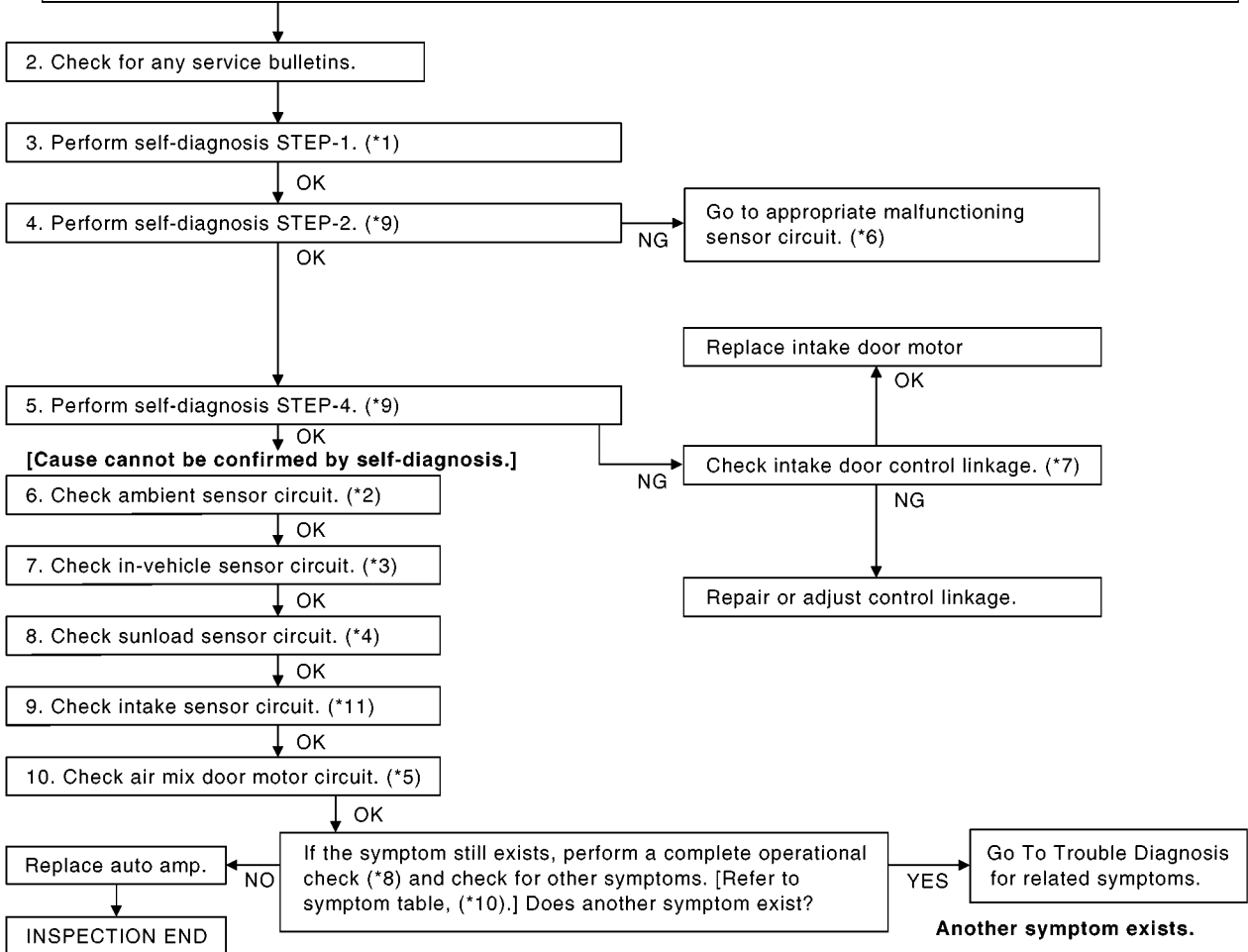
1. Confirm symptom by performing the following operational check.



OPERATIONAL CHECK - Intake door

- Press recirculation (REC) switch one time. Recirculation indicator should illuminate.
- Press fresh (FRE) switch one time. Fresh indicator should illuminate.
- Listen for intake door position change (you should hear blower sound change slightly).

If OK (symptom cannot be duplicated), perform complete operational check (*8).
If NG (symptom is confirmed), continue with STEP-2 following.



*1 [ATC-48, "FUNCTION CONFIRMATION PROCEDURE"](#), see No. 1.

*4 [ATC-105, "Sunload Sensor Circuit"](#)

*7 [ATC-124, "INTAKE DOOR MOTOR"](#)

*10 [ATC-27, "SYMPTOM TABLE"](#)

*2 [ATC-99, "Ambient Sensor Circuit"](#)

*5 [ATC-64, "Air Mix Door Motor Circuit"](#)

*8 [ATC-55, "Operational Check"](#)

*11 [ATC-108, "Intake Sensor Circuit"](#)

*3 [ATC-102, "In-vehicle Sensor Circuit"](#)

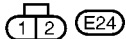
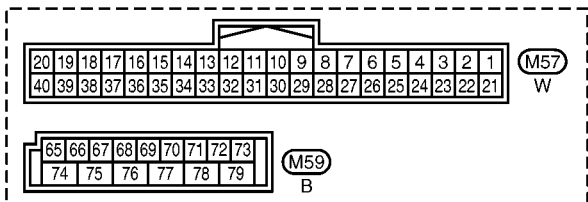
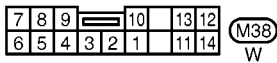
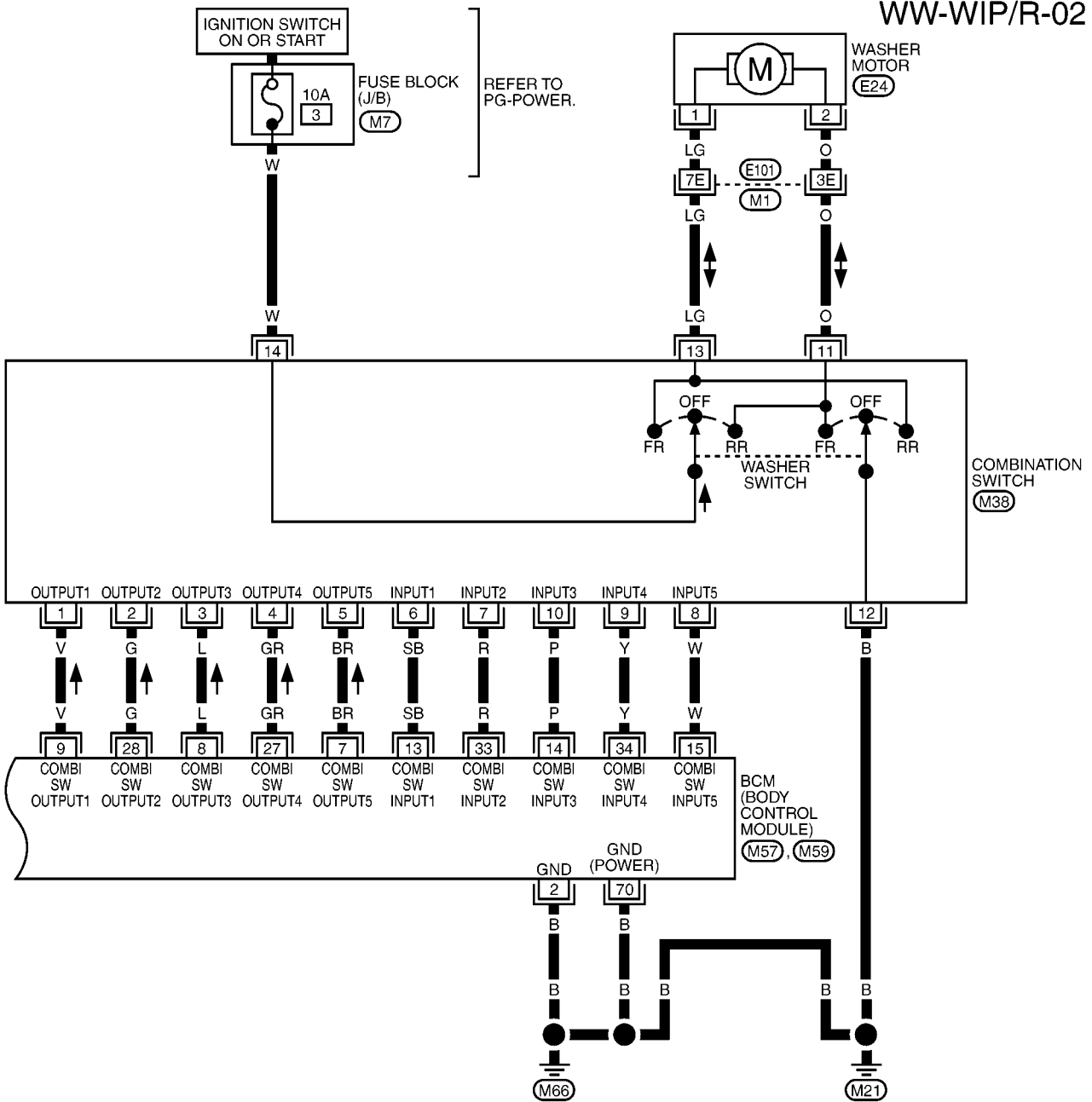
*6 [ATC-48, "FUNCTION CONFIRMATION PROCEDURE"](#), see No. 13.

*9 [ATC-48, "FUNCTION CONFIRMATION PROCEDURE"](#), see No. 5 to 7.

MJIB0391E

REAR WIPER AND WASHER SYSTEM

WW-WIP/R-02



REFER TO THE FOLLOWING.

(M1) - SUPER MULTIPLE JUNCTION (SMJ)

(M7) - FUSE BLOCK - JUNCTION BOX (J/B)