DTC	P1441	Stuck Open in Secondary Air Injection Vacuum Switching Valve Bank 1

DTC	P1444	Stuck Open in Secondary Air Injection Vacuum Switching Valve Bank 2

DTC	P2440	Secondary Air Injection System Switching Valve Stuck Open Bank1

DESCRIPTION

Refer to DTC P0412 (See page ES-208).

ES

DTC No.	DTC Detection Condition	Trouble Area
P1441	No. 2 air switching valve (bank 1) stuck open: The pressure sensor detects exhaust pulsation, when both of No. 2 air switching valve OFF (and air switching valve ON). (2 trip detection logic)	• VSV for air injection system circuit (bank 1) • No. 2 air switching valve (bank 1) • VSV for air injection system (bank 1) • ECM
P1444	No. 2 air switching valve (bank 2) stuck open: The pressure sensor detects exhaust pulsation, when both of No. 2 air switching valve OFF (and air switching valve ON). (2 trip detection logic)	• VSV for air injection system circuit (bank 2) • No. 2 air switching valve (bank 2) • VSV for air injection system (bank 2) • ECM
P2440	No. 2 air switching valve stuck open: The pressure sensor detects exhaust pulsation when the system is not operating (both of No. 2 air switching valve OFF, and air switching valve OFF and air pump OFF). This DTC means air switching valve and "No. 2 air switching valve bank 1 or bank 2" are stuck open. (1 trip detection logic)	• Air switching valve (ASV) • No. 2 air switching valve (Bank 1 and/or 2) • VSV for air injection system (bank 1 and/or 2) • Air injection control driver (AID) • Air injection control driver circuit • ECM

MONITOR DESCRIPTION

The ECM detects pressure change with the pressure sensor to determine malfunctioning parts in the system, and stores the DTCs. The ECM measures pressure and/or exhaust pulsation of the system at 6 points, A to F, when the air injection system is in operation or when not in operation. When the pressure is high, the ECM determines that the pump operates. When exhaust pulsation is detected, the ECM determines that the Air Switching Valve (ASV) is open. The ECM determines malfunction parts based on the measured value, and stores the DTCs.

Points A and B:

ECM detects pressure changes (decrease), and determines that the No. 2 Air Switching Valve (No. 2 ASV) is open.

Points C and F:

ECM detects pressure and exhaust pulsation, and determines the pressure pattern of the system.

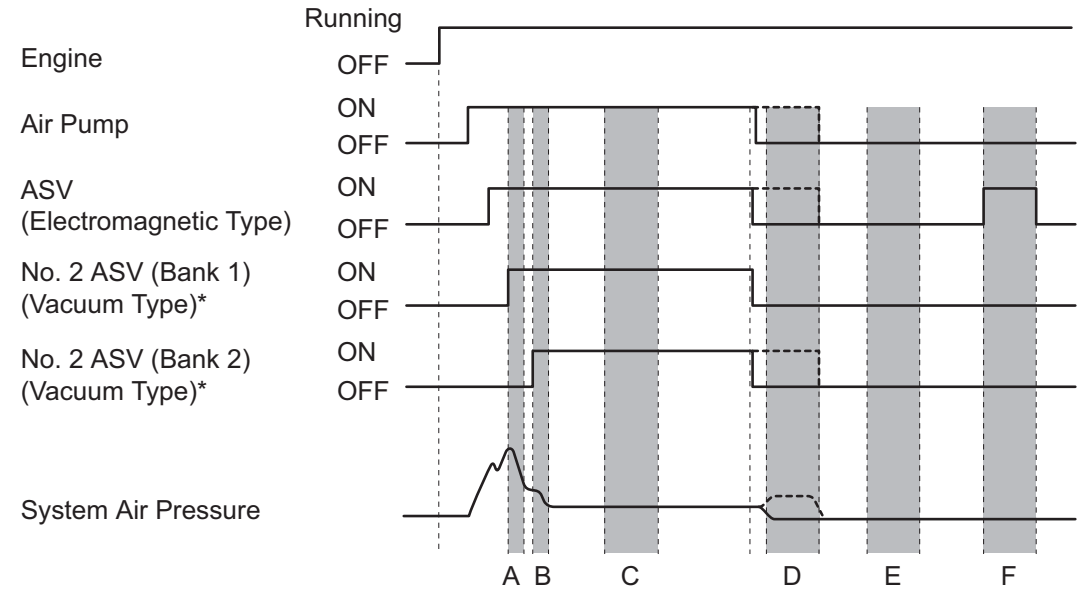
Point D:

ECM operates the system, as indicated by the dashed lines, to determine which of the No. 2 ASV is malfunctioning only when pressure changes cannot be detected at point A or B.

Point E:

ECM detects exhaust pulsation to determine the condition of the system.

Monitor Operation Outline



*: No. 2 ASV opens alternately per trip.

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Pressure condition in Secondary Air Injection System (Point C and F)

Pattern 1:

Air Pump	ON
Air Switching Valve and No. 2 Air Switching Valve	Open
Pressure	1 kPa or more
Pulsation detection	Exhaust gas pulsation detected

Pattern 2:

Air Pump	OFF
Air Switching Valve and No. 2 Air Switching Valve	Open
Pressure	Less than 5 kPa
Pulsation detection	Exhaust gas pulsation detected

Pattern 3:

Air Pump	ON
Air Switching Valve and No. 2 Air Switching Valve	Closed
Pressure	1 kPa or more
Pulsation detection	Slight pulsation detected

Pattern 4:

Air Pump	OFF
Air Switching Valve and No. 2 Air Switching Valve	Closed
Pressure	Less than 5 kPa
Pulsation detection	Not detected

Judgment and decision of failure mode:

Monitor						Judgment
C	F	A	B	D	E	DTCs that may be set
Pattern 1	Pattern 1	Pressure changed	Pressure changed	-	No pulsation detected	P2444, P1441 and P1444
Pattern 1	Pattern 1	No pressure changed	Pressure changed	-	No pulsation detected	P2444 and "P1441 or P1444"
Pattern 1	Pattern 1	Pressure changed	No pressure changed	Pulsation detected	No pulsation detected	P2444, P1441 and P1444
Pattern 1	Pattern 1	No pressure changed	No pressure changed	Pulsation detected	No pulsation detected	P2444, P1441 and P1444
Pattern 1	Pattern 2	Pressure changed	Pressure changed	-	No pulsation detected	P1441 and P1444
Pattern 1	Pattern 2	No pressure changed	Pressure changed	-	No pulsation detected	P1441 or P1444
Pattern 1	Pattern 2	Pressure changed	No pressure changed	Pulsation detected	No pulsation detected	P1441 and P1444
Pattern 1	Pattern 2	No pressure changed	No pressure changed	Pulsation detected	No pulsation detected	P1441 and P1444
Pattern 1	Pattern 3	Pressure changed	Pressure changed	-	No pulsation detected	P2444
Pattern 1	Pattern 3	No pressure changed	Pressure changed	-	No pulsation detected	P2444 and "P1442 or P1445"
Pattern 1	Pattern 3	Pressure changed	No pressure changed	No pulsation detected	No pulsation detected	P2444 and "P1442 or P1445"
Pattern 1	Pattern 3	No pressure changed	No pressure changed	No pulsation detected	No pulsation detected	P2444, P1442 and P1444
Pattern 1	Pattern 4	Pressure changed	Pressure changed	-	No pulsation detected	Normal
Pattern 1	Pattern 4	Pressure changed	No pressure changed	Pulsation detected	No pulsation detected	Normal
Pattern 1	Pattern 4	Pressure changed	No pressure changed	No pulsation detected	No pulsation detected	P1442 or P1445
Pattern 1	Pattern 4	No pressure changed	Pressure changed	-	No pulsation detected	P1442 or P1445
Pattern 1	Pattern 4	No pressure changed	No pressure changed	Pulsation detected	No pulsation detected	P1442 or P1445
Pattern 1	Pattern 4	No pressure changed	No pressure changed	No pulsation detected	No pulsation detected	P1442 and P1445
Pattern 2	-	No pressure changed	No pressure changed	-	-	P2445
Pattern 3	Pattern 3	No pressure changed	No pressure changed	No pulsation detected	No pulsation detected	P2441, P2444, P1442 and P1445
Pattern 3	Pattern 4	No pressure changed	No pressure changed	No pulsation detected	No pulsation detected	P2441, P1442 and P1445
Pattern 4	-	No pressure changed	No pressure changed	-	-	P2445
-	-	-	-	-	Pulsation detected	P2440 and "P1441 or P1444"

MONITOR STRATEGY

Related DTCs	(Case 1) P1444 AIR VSV stuck open bank 1 (Case 2) P1444 AIR VSV stuck open bank 2 (Case 3) P1441, P1444 AIR VSVs stuck open (Case 4) P2440 AIR valve stuck open (Case 5) P2440 AIR valve and AIR VSVs stuck open
Required sensors/Components (main)	AIR valve, AIR VSV bank 1, AIR VSV bank 2

Required sensors/Components (sub)	AIR pressure sensor
Frequency of operation	Once per driving cycle
Duration	Within 60 seconds
MIL operation	P1441, P1444: 2 driving cycles P2440: Immediate
Sequence operation	None

TYPICAL ENABLING CONDITIONS

All:

This monitor will run whenever these DTC are not present	P0010 - P0022 (VVT system) P0031 - P0052 (A/F sensor heater) P0100 - P0103 (MAF sensor) P0110 - P0113 (IAT sensor) P0115 - P0118 (ECT sensor) P0120 - P0223, P2135 (TP sensor) P0125 (Closed loop) P0171, P0172 (Fuel trim) P0300 - P0308 (Misfire) P0327 - P0333 (Knock sensor) P0335 (CKP sensor) P0340 - P0346 (VVT sensor) P0351 - P0358 (Ignitor) P0455, P0456 (EVAP system) P0450, P0453 (EVAP press sensor) P0500 (VSS) P2196, P2198 (A/F sensor - rationality) P2430 - P2433 (AIR pressure sensor) P2A00, P2A03 (A/F sensor - slow response)

Conditions for case 1, case 2 and case 4:

Atmospheric pressure	45 kPa (338 mmHg) or more
Battery voltage	11.5 V or higher
Monitor Sequence 1	
AIR pump	ON
AIR valve	ON
Either of following conditions is met	Condition 1 or 2
1. Both of the following conditions are met	Condition (a) and (b)
(a) AIR valve bank 1 (vacuum type)	ON
(b) AIR valve bank 2 (vacuum type)	OFF
2. Both of the following conditions are met	Condition (c) and (d)
(c) AIR valve bank 1 (vacuum type)	OFF
(d) AIR valve bank 2 (vacuum type)	ON
Monitor Sequence 2	
Idle	ON
AIR valve (electric type)	ON
AIR valve bank 1(vacuum type)	ON
AIR valve bank 2 (vacuum type)	ON
Monitor Sequence 3	
Engine RPM	Less than 3,750 rpm
AIR pump	ON
AIR valve (electric type)	ON
AIR valve bank 1 (vacuum type)	ON
AIR valve bank 2 (vacuum type)	ON
Monitor Sequence 4 Runs when AIR pressure did not change at monitor	
Engine RPM	Less than 3,750 rpm

AIR	OFF
AIR pump	ON
AIR valve (electric type)	ON
Either of following conditions is met	Condition 1 or 2
1. Both of the following conditions are met	Condition (a) and (b)
(a) AIR valve bank 1 (vacuum type)	ON
(b) AIR valve bank 2 (vacuum type)	OFF
2. Both of the following conditions are met	Condition (c) and (d)
(c) AIR valve bank 1 (vacuum type)	OFF
(d) AIR valve bank 2 (vacuum type)	ON
Monitor Sequence 4	
Engine RPM	Less than 3,750 rpm
AIR	Not operating
AIR pump	OFF
AIR valve (electric type)	OFF
AIR valve bank 1 (vacuum type)	OFF
AIR valve bank 2 (vacuum type)	OFF
Monitor Sequence 5	
Engine RPM	Less than 3,750 rpm
AIR	Not operating
AIR pump	OFF
AIR valve (electric type)	OFF
AIR valve bank 1 (vacuum type)	OFF
AIR valve bank 2 (vacuum type)	OFF
Monitor sequence 6	
AIR status	Not operating
AIR pump	OFF
AIR valve (electric type)	ON
AIR valve (vacuum type) bank 1	OFF
AIR valve (vacuum type) bank 2	OFF
Engine RPM	Less than 3,750 rpm

Conditions for case 3:

Atmospheric pressure	45 kPa (338 mmHg) or more
Battery voltage	11.5 V or more
AIR pump	OFF
Time after engine start	10 seconds or more
AIR VSV bank 1	OFF
AIR VSV bank 2	OFF
AIR status	OFF
Engine load	0 % or more
Intake air amount	40 g/sec. or more
IAT at engine start	-15°C (5°F) or more
ECT at engine start	Less than 5°C (41°F)
AIR valve (electric type)	ON
Engine RPM	Less than 3,750 rpm

Conditions for case 5:

Cumulative intake air amount	172 g/sec. or more
AIR pump	OFF
AIR valve	OFF
AIR VSV bank 1	OFF

AIR VSV bank 2	OFF
Engine RPM	Less than 3,750 rpm
AIR pressure sensor malfunction (open circuit, out of range)	Not detected
AIR status	OFF

TYPICAL MALFUNCTION THRESHOLDS

Case 1:

Both of the following conditions are met:	Condition 1 and 2
1. One of the following conditions is met:	Condition (a), (b) or (c)
(a) Both of the following conditions are met:	-
AIR pressure during monitor sequence 3	1 kPa (7.5 mmHg) or more and pulse is operated
AIR pressure during monitor sequence 6	Less than 5 kPa (37.5 mmHg) and pulse is operated
(b) Both of the following conditions are met:	-
AIR pressure during monitor sequence 3	1 kPa (7.5 mmHg) or more and pulse is operated
AIR pressure during monitor sequence 6	5 kPa (37.5 mmHg) or more and pulse is operated
(c) Both of the following conditions are met:	-
AIR pressure during monitor sequence 3	Less than 1 kPa (7.5 mmHg) and pulse is operated
AIR pressure during monitor sequence 6	Less than 5 kPa (37.5 mmHg) and pulse is operated
2. One of the following conditions is met:	Condition (d), (e) or (f)
(d) Both of the following conditions are met:	-
AIR pressure during monitor sequence 1	Change
AIR pressure during monitor sequence 2	Change
(e) AIR pressure during monitor sequence 1 (When AIR VSV bank 1 is open)	No change
(f) AIR pressure during monitor sequence 2 (When AIR VSV bank 1 is open)	No change

Case 2:

Both of the following conditions are met:	Condition 1 and 2
1. One of the following conditions is met:	Condition (a), (b) or (c)
(a) Both of the following conditions are met:	-
AIR pressure during monitor sequence 3	1 kPa (7.5 mmHg) or more and pulse is operated
AIR pressure during monitor sequence 6	Less than 5 kPa (37.5 mmHg) and pulse is operated
(b) Both of the following conditions are met:	-
AIR pressure during monitor sequence 3	1 kPa (7.5 mmHg) or more and pulse is operated
AIR pressure during monitor sequence 6	5 kPa (37.5 mmHg) or more and pulse is operated
(c) Both of the following conditions are met:	-
AIR pressure during monitor sequence 3	Less than 1 kPa (7.5 mmHg) and pulse is operated
AIR pressure during monitor sequence 6	Less than 5 kPa (37.5 mmHg) and pulse is operated
2. One of the following conditions is met:	Condition (d), (e) or (f)
(d) Both of the following conditions are met:	-
AIR pressure during monitor sequence 1	Change
AIR pressure during monitor sequence 2	Change
(e) AIR pressure during monitor sequence 1 (When AIR VSV bank 2 is open)	No change
(f) AIR pressure during monitor sequence 2 (When AIR VSV bank 2 is open)	No change

Case 3:

AIR pressure	Pulse is generated

Case 4:

Both of the following conditions are met:	-

AIR pressure during monitor sequence 3	Less than 1 kPa (7.5 mmHg) and pulse is operated
AIR pressure during monitor sequence 5	No pulse is generated

Case 5:

AIR pressure	Pulse is operated

MONITOR RESULT

Refer to Checking Monitor Status (See page ES-19).

The test value and test limit information are described as shown in the following table. Check the monitor result and test values after performing the monitor drive pattern (refer to "Confirmation Monitor").

- MID (Monitor Identification Data) is assigned to each emissions-related component.
- TID (Test Identification Data) is assigned to each test value.
- Scaling is used to calculate the test value indicated on generic OBD II scan tools.

Secondary air injection (AIR) system

MID	TID	Scaling	Description of Test Value	Minimum Test Limit	Maximum Test Limit
$71	$E1	Multiply by 0.01 (g/s)	Test value of AIR amount insufficient	Minimum test limit	Maximum test limit
$71	$E2	Multiply by 0.01 (kPa)	Test value of AIR pump stuck ON	Minimum test limit	Maximum test limit
$71	$E3	Multiply by 0.01 (kPa)	Test value of AIR pump stuck OFF	Minimum test limit	Maximum test limit
$71	$E9	Multiply by 0.01 (kPa)	Test value of AIR control valve ON	Minimum test limit	Maximum test limit
$71	$E5	Multiply by 0.01 (kPa)	Test value of AIR control valve OFF	Minimum test limit	Maximum test limit
$71	$E6	Multiply by 0.01 (kPa)	Test value of AIR pressure change for AIR valve	Minimum test limit	Maximum test limit
$71	$E7	Multiply by 0.01 (kPa)	Test value of AIR pressure change for AIR VSV bank 1	Minimum test limit	Maximum test limit
$71	$E5	Multiply by 0.01 (kPa)	Test value of AIR pressure change for AIR VSV bank 2	Minimum test limit	Maximum test limit
$71	$E9	Multiply by 0.01 (kPa)	Test value of AIR pressure pulsation for AIR VSV when AIR pressure is low	Minimum test limit	Maximum test limit

WIRING DIAGRAM

Refer to DTC P0412 (See page ES-211).

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the intelligent tester. The ECM records vehicle and driving condition information as freeze frame data the moment a DTC is stored. When troubleshooting, freeze frame data can be helpful in determining whether the vehicle was running or stopped, whether the engine was warmed up or not, whether the air/fuel ratio was lean or rich, as well as other data recorded at the time of a malfunction.

1	**CHECK ANY OTHER DTCS OUTPUT (IN ADDITION TO SECONDARY AIR INJECTION SYSTEM DTCS)**

(a) Connect the intelligent tester to the DLC3 with CAN VIM.
(b) Turn the ignition switch ON and turn the tester ON.

(c) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
(d) Read DTCs.

Result

Display (DTC Output)	Proceed To
"P1441 and/or P1444" and P2440	A
P1441 and/or P1444	B
"P1441 and/or P1444 and/or P2440" and other DTCs	C

HINT:
If any DTCs other than P1441, P1444 or P2440 are output, troubleshoot those DTCs first.

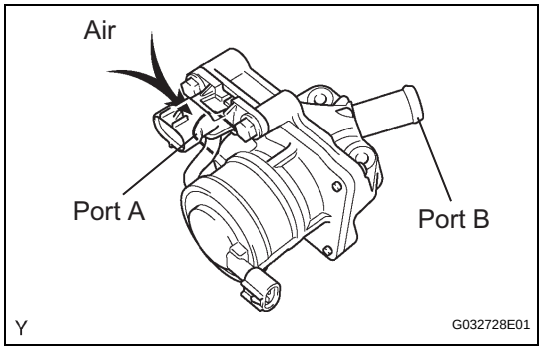
B → **Go to step 7**

C → **GO TO DTC CHART**

ES

A

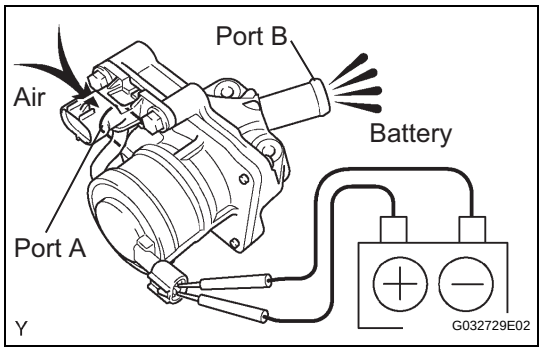
2 CHECK AIR SWITCHING VALVE (OPERATION)



(a) Remove the intake manifold (See page ES-498).
(b) Remove the Air Switching Valve (ASV).
(c) Blow air into port A and check that air is not discharged from port B.

OK:

Not discharged



(d) Apply battery positive voltage across the terminals.
(e) Blow air into port A and check that air is discharged from port B.

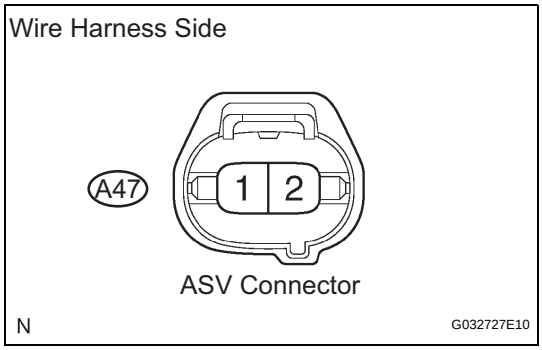
OK:

Discharged

NG → **REPLACE AIR SWITCHING VALVE**

OK

3	CHECK AIR SWITCHING VALVE (VOLTAGE)



(a) Remove the intake manifold (See page ES-498).
(b) Disconnect the A47 ASV connector.
(c) Turn the ignition switch ON.
(d) Measure the voltage between terminal 1 of the air switching valve connector and body ground.

Standard voltage

Tester Connection	Specified Condition
A47-1 - Body ground	Below 1.0 V

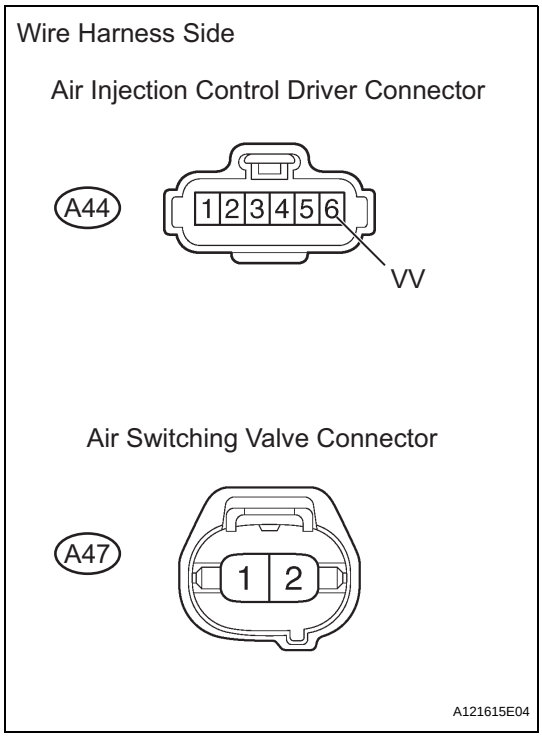
(e) Reconnect the ASV connector.

NG → **Go to step 4**

OK

CHECK FOR INTERMITTENT PROBLEMS

4	CHECK HARNESS AND CONNECTOR (AIR INJECTION CONTROL DRIVER - AIR SWITCHING VALVE)



(a) Remove the intake manifold (See page ES-498).
(b) Disconnect the A44 air injection driver connector.
(c) Disconnect the A47 air switching valve connector.
(d) Disconnect the battery positive terminal cable.
(e) Measure the resistance between the wire harness side connectors.

Standard resistance

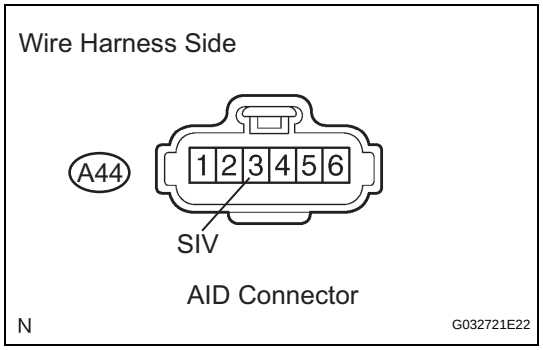
Tester Connection	Specified Condition
VV (A44-6) - A47-1	Below 1 Ω
VV (A44-6) or A47-1 - Battery positive terminal cable	10 kΩ or higher

(f) Reconnect the air injection driver connector.
(g) Reconnect the ASV connector.

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

5 CHECK AIR INJECTION CONTROL DRIVER (VOLTAGE)



(a) Disconnect the A44 Air Injection Control Driver (AID) connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminal 3 (SIV) of the AID connector and body ground.
Standard voltage

Tester Connection	Specified Condition
SIV (A41-3) - Body ground	10 V or more

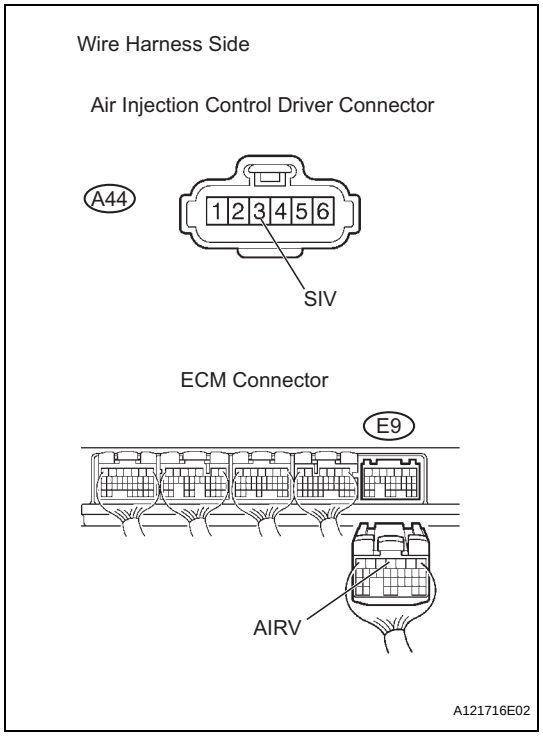
(d) Reconnect the AID connector.

NG → **Go to step 6**

OK

REPLACE AIR INJECTION CONTROL DRIVER

6 CHECK HARNESS AND CONNECTOR (AIR INJECTION CONTROL DRIVER - ECM)



(a) Disconnect the air injection driver connector.
(b) Disconnect the E9 ECM connector.
(c) Measure the resistance between the wire harness side connectors.
Standard resistance

Tester Connection	Specified Condition
SIV (A44-3) - AIRV (E9-4)	Below 1 Ω
SIV (A44-3) or AIRV (E9-4) - Body ground	10 kΩ or higher

(d) Reconnect the air injection driver connector.
(e) Reconnect the ECM connector.

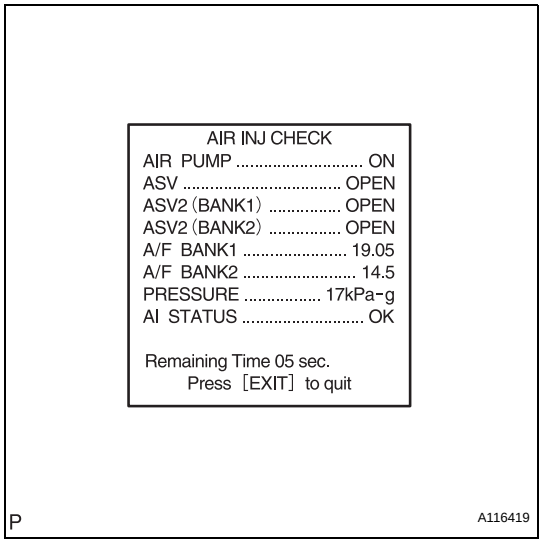
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE ECM

ES

7	CHECK NO. 2 AIR SWITCHING VALVE (OPERATION)



(a) Start the engine and warm it up.
(b) Turn the ignition switch OFF.
(c) Connect the intelligent tester to the DLC3 with CAN VIM.
(d) Start the engine and push the the intelligent tester main switch ON.
(e) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / SYSTEM CHECK / AIR INJ CHECK / MANUAL / OPERATION 5 and 6.
HINT:
OPERATION 5: AP: ON; EASV: OPEN; ASV1: OPEN; ASV2: CLOSE
OPERATION 6: AP: ON; EASV: OPEN; ASV1: CLOSE; ASV2: OPEN
NOTICE:
- **This test only allows technicians to operate the AIR system for 5 seconds. Furthermore, the test can be performed 4 times a trip. If the test is repeated, intervals of at least 30 seconds are required between tests.**
  While the AIR system operation using the the intelligent tester is prohibited, the tester displays the prohibition (WAIT or ERROR). If ERROR (AI STATUS NG) is displayed on the tester, stop the engine for 10 minutes and then try again.
- **When performing the AIR INJ CHECK operation after the battery cable has been reconnected, wait for 7 minutes with the ignition switch turned ON or the engine running.**
- **Turn the ignition switch OFF when the AIR INJ CHECK operation finishes.**

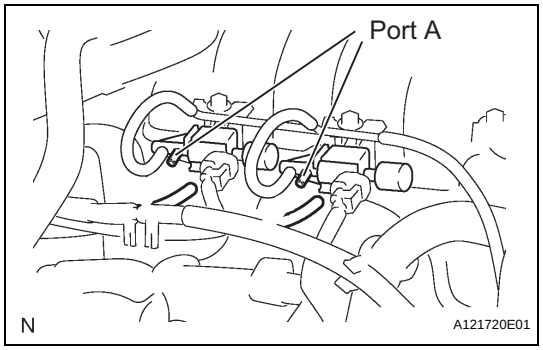
(f) Read values of the A/F BANK1 and BANK2 on the the intelligent tester.
Result

Air switching valve No. 2 operation	Air fuel ratio
Open	18 or more
Closed	Approximately 14.5

HINT:
- When the No. 2 ASV operates normally, the A/F value is 18 or more when the valve is open, and approximately 14.5 when the valve is closed.
- Perform the following procedures only on the bank of which the valve is not closed.

NEXT

8 CHECK VSV (FOR AIR INJECTION SYSTEM)



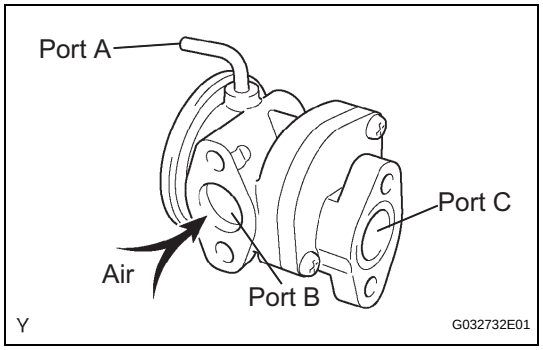
(a) Turn the ignition switch OFF.
(b) Disconnect the vacuum hose from the VSV for air injection system.
(c) Connect the intelligent tester to the DLC3 with CAN VIM.
(d) Start the engine and turn the tester ON.
(e) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / SYSTEM CHECK / AIR INJ CHECK / MANUAL / OPERATION 1.
(f) At this time, check that no negative pressure generates at port A of the VSV.
HINT:
OPERATION 1: AP: OFF; EASV: CLOSE; ASV1: CLOSE; ASV2: CLOSE
NOTICE:
- **This test only allows technicians to operate the AIR system for 5 seconds. Furthermore, the test can be performed 4 times a trip. If the test is repeated, intervals of at least 30 seconds are required between tests.**
  While the AIR system operation using the the intelligent tester is prohibited, the tester displays the prohibition (WAIT or ERROR). If ERROR (AI STATUS NG) is displayed on the tester, stop the engine for 10 minutes and then try again.
- **When performing the AIR INJ CHECK operation after the battery cable has been reconnected, wait for 7 minutes with the ignition switch turned ON or the engine running.**
- **Turn the ignition switch to OFF when the AIR INJ CHECK operation finishes.**

OK:
No negative pressure is generated.
(g) Reconnect the vacuum hose.

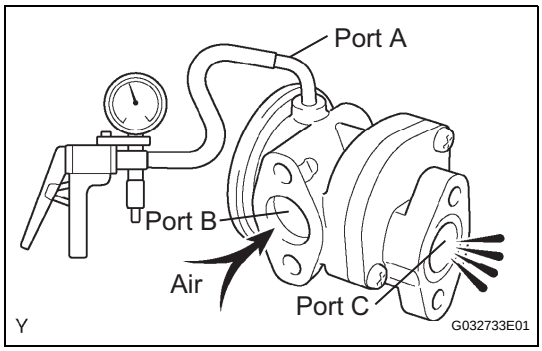
NG → **Go to step 10**

OK

9 CHECK NO. 2 AIR SWITCHING VALVE (OPERATION)



(a) Remove the No. 2 air switching valve.
(b) Blow air into port B and check that air is not discharged from port C.
OK:
Not discharged from port C



(c) Apply vacuum 30 kPa (225 mmHg) to port A, blow air into port B and check that air is discharged from port C.
OK:
Discharged from port C

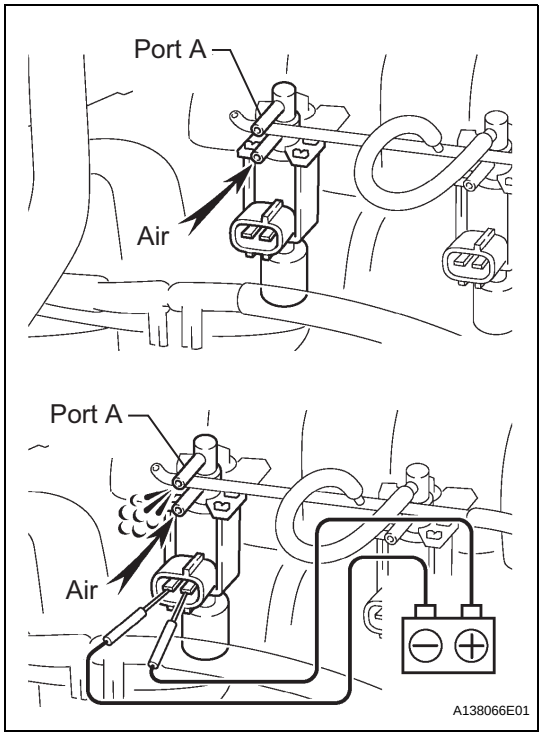
NG → **REPLACE NO. 2 AIR SWITCHING VALVE**

OK

ES

CHECK FOR INTERMITTENT PROBLEMS

10 **CHECK VSV (FOR AIR INJECTION SYSTEM)**

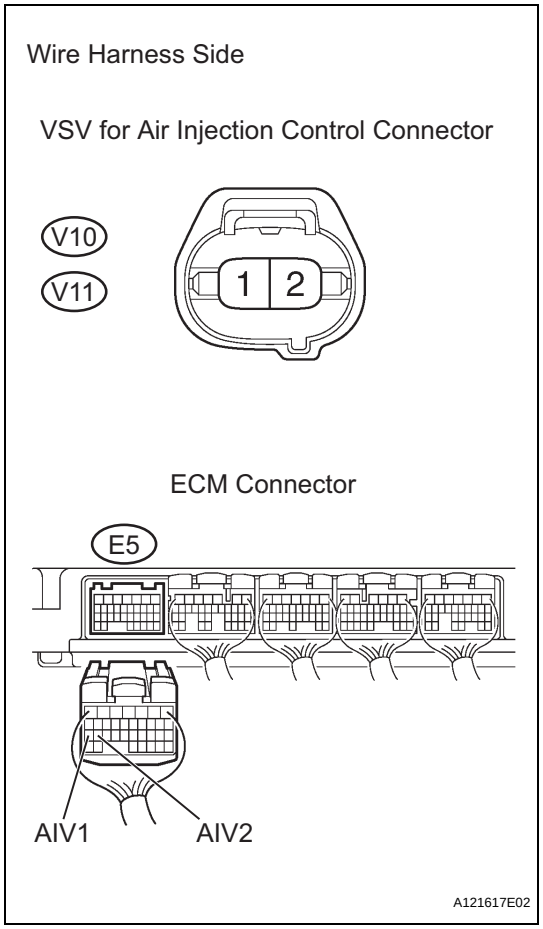


(a) Disconnect the 2 vacuum hoses.
(b) Disconnect the VSV for air injection system connector.
(c) Blow air into port B and check that air does not flow from port A.
OK:
Air does not flow from port A
(d) Apply battery positive voltage across the terminals. Then blow air into port B and check that air flows from port A.
OK:
Air flows from port A

NG → **REPLACE VSV**

OK

11	CHECK HARNESS AND CONNECTOR (ECM - VSV FOR AIR INJECTION SYSTEM)



(a) Remove the intake manifold (See page ES-498).
(b) Disconnect the E5 ECM connector.
(c) Disconnect the V10 and V11 VSV for air injection system control connector.
(d) Measure the resistance between the VSV connector and ECM.

Standard resistance

Tester connection	Specified condition
AIV1 (E5-27) - V10-2	Below 1 Ω
AIV1 (E5-26) - V11-2	Below 1 Ω

(e) Measure the resistance between the VSV connector and body ground.

Standard resistance

Tester connection	Specified condition
AIV1 (E5-27) or V10-2 - Body ground	10 kΩ or higher
AIV1 (E5-26) or V11-2 - Body ground	10 kΩ or higher

(f) Reconnect the ECM connector.
(g) Reconnect the VSV connector.

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE ECM

ES