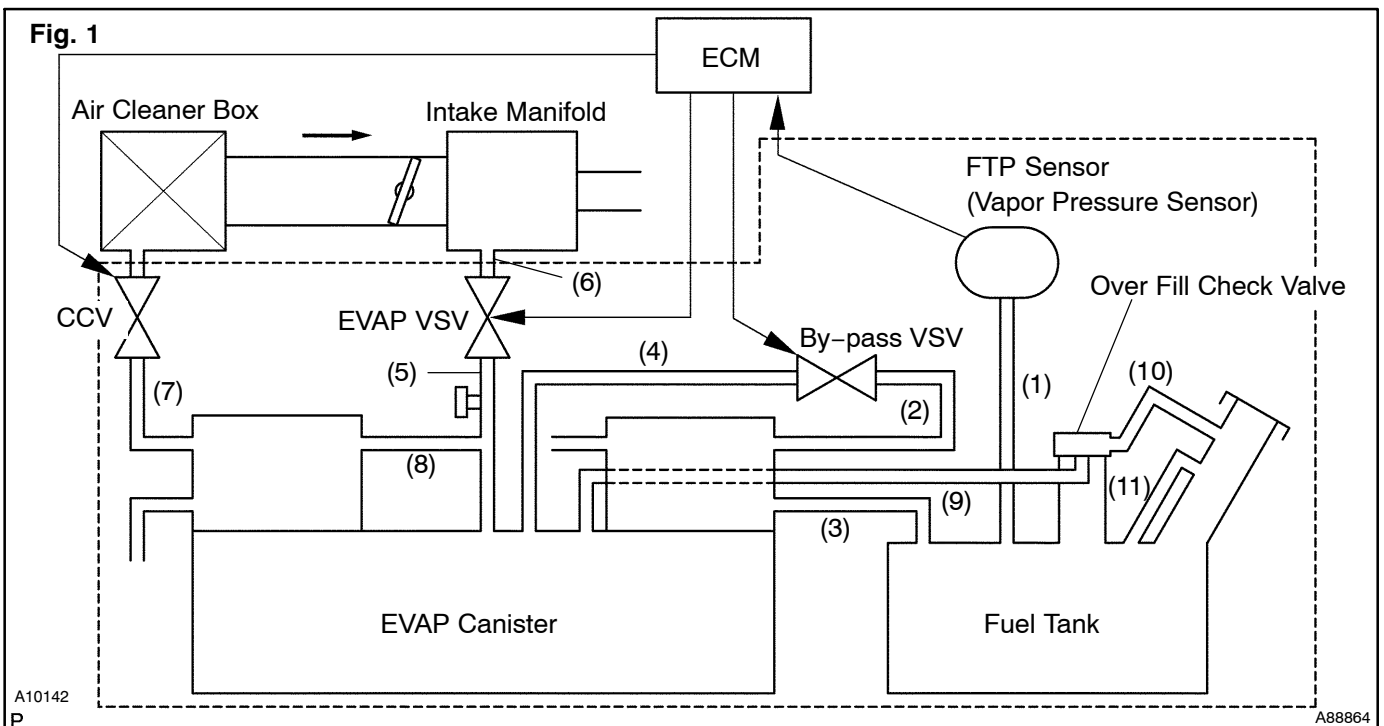


DTC	P0441	EVAPORATIVE EMISSION CONTROL SYSTEM INCORRECT PURGE FLOW
DTC	P0442	EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (SMALL LEAK)
DTC	P0446	EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT
DTC	P0455	EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (GROSS LEAK)
DTC	P0456	EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (VERY SMALL LEAK)
DTC	P2418	EVAPORATIVE EMISSION SYSTEM VALVE CONTROL CIRCUIT/OPEN

CIRCUIT DESCRIPTION



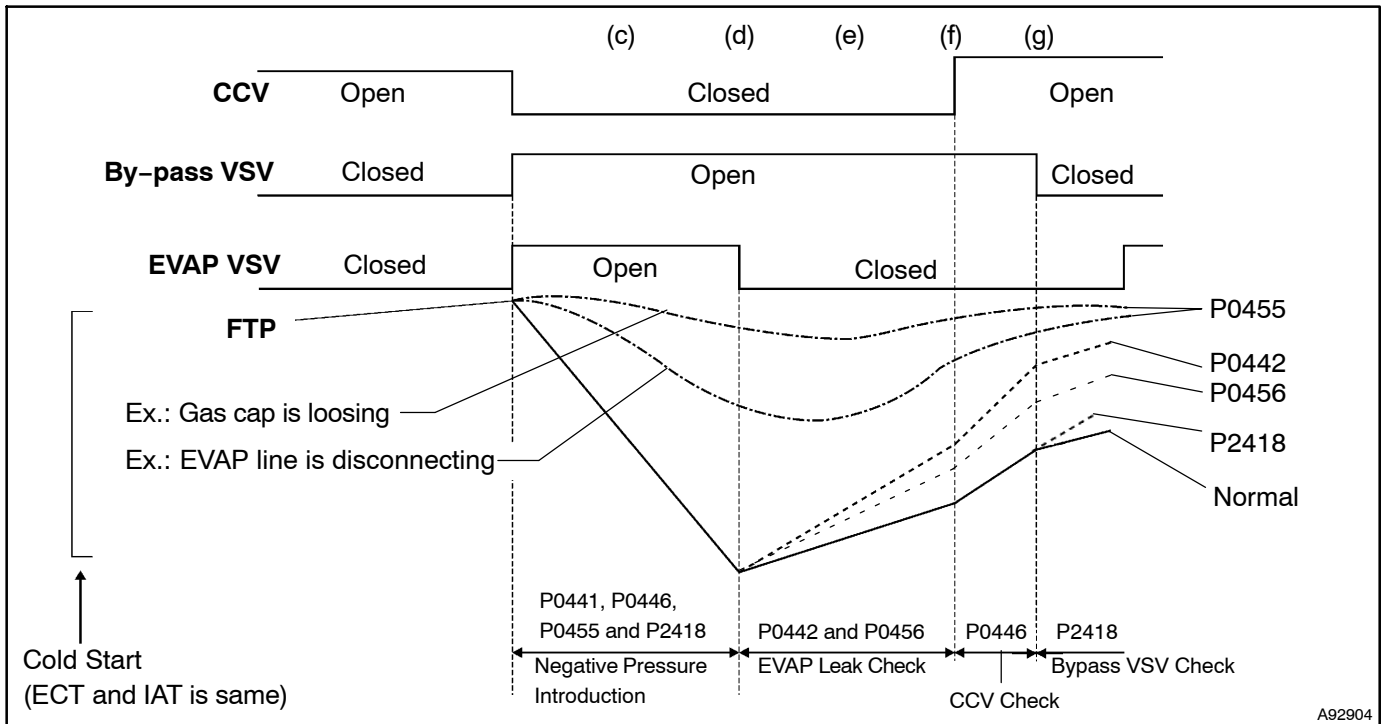
The Evaporative emissions (EVAP) system is equipped to reduce EVAP in the fuel tank.

The EVAP system contains the following:

- Canister: Stores EVAP that is created in the fuel tank.
- Fuel Tank Pressure (FTP) sensor: Measures the FTP.
- EVAP VSV: Opens and purges EVAP in the EVAP canister into the intake manifold.
ON: open OFF: closed
- Canister Closed Valve (CCV): Introduces atmosphere to the EVAP canister when it opens. The CCV opens under the normal condition.
ON: closed OFF: open
- By-pass VSV: Connects the fuel tank and EVAP canister.

DTC No.	DTC detection Condition	Trouble Area
P0441	EVAP VSV stuck closed: FTP does not change during creation of vacuum (negative pressure) (2 trip detection logic)	<ul style="list-style-type: none"> • EVAP VSV • Fuel cap incorrectly installed • Gross leak in EVAP system • ECM
P0441	EVAP VSV stuck open: 14 seconds after leak check, FTP is extremely low (2 trip detection logic)	<ul style="list-style-type: none"> • EVAP VSV • CCV • ECM
P0442	EVAP leak (0.04 inch): FTP increase after creation of vacuum (negative pressure) is larger than EVAP leak (0.02 inch) (2 trip detection logic)	<ul style="list-style-type: none"> • Fuel cap incorrectly installed • Small leak in EVAP system • EVAP VSV • CCV
P0446	CCV stuck close: FTP does not change when CCV is commanded to open after leak check (2 trip detection logic)	<ul style="list-style-type: none"> • CCV • ECM
P0446	CCV stuck open: "EVAP VSV stuck closed" is detected (2 trip detection logic)	<ul style="list-style-type: none"> • Fuel cap incorrectly installed • CCV • EVAP VSV • EVAP gross leak • ECM
P0455	EVAP gross leak: FTP does not drop to -18 mmHg (-2.4 kPa) when creation of vacuum (negative pressure) is finished (2 trip detection logic)	<ul style="list-style-type: none"> • Fuel cap incorrectly installed • Gross leak in EVAP system • EVAP VSV • CCV
P0456	EVAP leak (0.02 inch): FTP increase after creation of vacuum (negative pressure) is large (2 trip detection logic)	<ul style="list-style-type: none"> • Fuel cap incorrectly installed • Very small leak in EVAP system
P2418	Bypass VSV malfunction: FTP does not change when by-pass VSV is commanded to close after leak check (2 trip detection logic)	<ul style="list-style-type: none"> • By-pass VSV • Fuel cap incorrectly installed • CCV • EVAP VSV • EVAP gross leak • ECM

MONITOR DESCRIPTION



A92904

The ECM monitors EVAP leak and the components on the EVAP system using a continuous test called the EVAP System Test. The EVAP System Test is done according to the following procedures:

- The ECM starts the EVAP System Test when the following conditions are met.
 - The Engine Coolant Temperature (ECT) and the Intake Air Temperature (IAT) are 10 to 35°C (50 to 95°F) when the engine is started (P0455, P0456).
The ECT and IAT is 10 to 32°C (50 to 90°F) when the engine was started (P0442).
 - The difference of the ECT and IAT is -7 to 11°C (-12.6 to 20°F) when the engine was started.
 - FTP is stabilized.
- The ECM measures the increase in EVAP (increase in FTP).
- The ECM closes the CCV to shut out the atmosphere and opens the by-pass VSV to connect the EVAP canister and the fuel tank. Then the ECM opens the EVAP VSV to use the intake manifold's pressure to create a vacuum (negative pressure) in the EVAP canister and fuel tank.
- If the FTP does not decrease while a vacuum was being introduced (step (C)), the ECM determines that the EVAP VSV is stuck closed. The ECM illuminates the MIL (2 trip detection logic) and sets DTC P0441.
- The ECM closes the EVAP VSV to seal the EVAP system. The ECM then performs an EVAP leak check by monitoring FTP increase for 5 seconds.

If the FTP increase is larger than the specified value, the ECM interprets this as an EVAP 0.02 inch leak. The ECM illuminates the MIL (2 trip detection logic) and sets DTC P0456.

If the FTP increase is larger than an EVAP 0.02 inch leak, the ECM interprets this as an EVAP 0.04 inch leak. The ECM illuminates the MIL (2 trip detection logic) and sets DTC P0442.

If the FTP does not drop to -2.4 kPa (-18 mmHg) when creation of vacuum (negative pressure) is finished, the ECM interprets this as an EVAP gross leak. The ECM illuminates the MIL (2 trip detection logic) and sets DTC P0455.

(f) The ECM opens the CCV to check CCV operation.

If the FTP increase is smaller than the specified value, the ECM determines that the CCV is stuck closed. The ECM illuminates the MIL (2 trip detection logic) and sets DTC P0446.

(g) The ECM closes the by-pass VSV to check by-pass VSV operation.

If the FTP increase is larger than the specified value, the ECM interprets this as a by-pass VSV malfunction. The ECM illuminates the MIL (2 trip detection logic) and sets DTC P2418.

If the FTP is less than the specified value, the ECM determines that the EVAP VSV is stuck open or the CCV is stuck closed. The ECM illuminates the MIL (2 trip detection logic) and sets DTCs P0441 and P0446.

MONITOR STRATEGY

Related DTCs	P0441: EVAP VSV stuck open P0441: EVAP VSV stuck close P0442: EVAP 0.04 inch leak P0446: CCV stuck open P0446: CCV stuck close P0455: EVAP gross leak P0456: EVAP 0.02 inch leak P2418: Bypass VSV malfunction
Required Sensors/Components (Main)	Fuel cap, fuel tank, canister, EVAP hose, EVAP VSV, CCV, by-pass VSV
Required Sensors/Components (Related)	FTP sensor, ECT sensor, IAT sensor, MAF meter, Vehicle speed sensor
Frequency of Operation	Once per driving cycles
Duration	90 seconds
MIL Operation	2 driving cycles
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

All:

Monitor will run whenever these DTCs are not present	See page 05-19
--	----------------

P0442, P0455, P0456:

Altitude	Less than 2,400 m (7,874 ft.)
Battery voltage	11 V or more
Throttle position learning	Completed
FTP sensor malfunction	No detected
IAT at engine start - ECT at engine start	-7 to 11.1°C (-12.6 to 20°F)
EVAP VSV, CCV, bypass VSV	Not operated by scan tool

P0456 (0.02 inch leak):

IAT at engine start	10 to 35°C (50 to 95°F)
ECT at engine start	10 to 35°C (50 to 95°F)
IAT	10°C (50°F) or more
Vehicle speed change	Vehicle is driven by steady speed
Either of the following conditions 1 or 2 is met	
1 Purge duty cycle	15% or more when intake air amount is 12 g/sec or more
2 Purge concentration for 30 seconds	-5%/ or more when vehicle speed is less than 10 km/h (6mph)
Fuel slosh	No sloshing (i.e fairly smooth road)
Time after engine start	Within 30 minutes
FTP change before vacuum introduction	Minimum change
Fuel level	Less than 90%
0.04 inch leak	Not detected
CCV malfunction and bypass VSV malfunction	Not detected
Vehicle speed	Less than 130 km/h (81.25 mph)
Purge VSV malfunction	Not detected

P0442 and P0455 (0.04 inch leak and gross leak):

IAT at engine start	10 to 35°C (50 to 95°F)
ECT at engine start	10 to 35°C (50 to 95°F)
IAT	10°C (50°F) or more
Vehicle speed change	Vehicle is driven by steady speed
Either of the following conditions 1 or 2 is met	
1 Purge duty cycle	15% or more when intake air amount is 12 g/sec or more
2 Purge concentration for 30 seconds	-5%/ or more when vehicle speed is less than 10 km/h (6mph)
Fuel slosh	No sloshing (i.e fairly smooth road)
Time after engine start	Within 30 minutes
FTP change before vacuum introduction	Minimum change
Fuel level	Less than 90%
Purge VSV malfunction	Not detected

P0441 (Purge VSV):

Same as P0442 (EVAP 0.04 inch leak)

P0446 (CCV):

Same as P0442 (EVAP 0.04 inch leak)

P2418 (bypass VSV malfunction):

Same as P0442 (EVAP 0.04 inch leak)

TYPICAL MALFUNCTION THRESHOLDS**P0456 (0.02 inch leak):**

Both of the following conditions A and B are met	
A. FTP change for 5 seconds when FTP is -15 mmHg	0.067 kPa (0.5 mmHg) or more
B. FTP change for 5 seconds when FTP is -20 mmHg	0.067 kPa (0.5 mmHg) or more

P0442 (0.04 inch leak):

Both of the following conditions A and B and C are met	
A. FTP change for 5 seconds when FTP is -15 mmHg	0.2 kPa (1.5 mmHg) or more
B. FTP change for 5 seconds when FTP is -20 mmHg	0.2 kPa (1.5 mmHg) or more
C. Minimum FTP at vacuum introduction	Less than -2.4 kPa (-18 mmHg)

P0455 (gross leak):

Both of the following conditions A and B are met	
A. FTP change for 5 seconds when FTP is -15 mmHg	0.2 kPa (1.5 mmHg) or more
B. Minimum FTP at vacuum introduction	-2.4 kPa (-18 mmHg) or more

P0441 (Purge VSV stuck close):

FTP change during vacuum introduction	Less than 0.933 kPa (7 mmHg)
---------------------------------------	------------------------------

P0441 (Purge VSV stuck open):

Either of the following conditions 1 or 2 is met	
1. (Minimum FTP before leak check) – (FTP when 14 seconds after leak check)	0.467 kPa (3.5 mmHg)
2. FTP when 14 seconds after leak check	Less than -3.7 kPa (-27.8 mmHg)

P0446 (CCV stuck open):

Purge VSV stuck closed	Detected
------------------------	----------

P0446 (CCV stuck close):

FTP change when CCV is opened	Not change
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P2418 (bypass VSV malfunction):

Either of the following conditions 1 or 2 is met	
Purge VSV stuck closed	Detected
FTP change when bypass VSV is switched	Not changing

MONITOR RESULT

Refer to page [05-25](#) for detailed information.

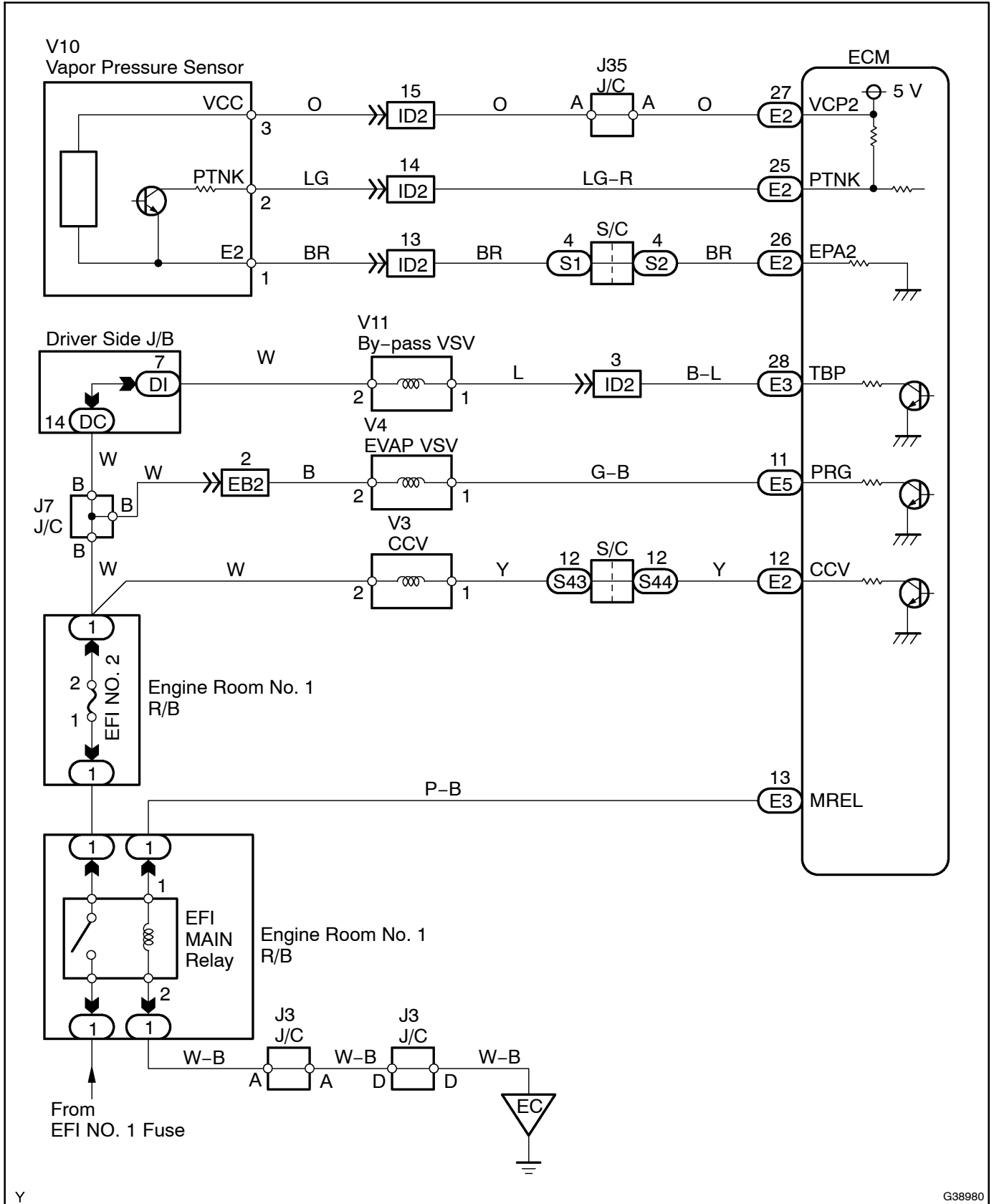
The test value and test limit information are described as shown in the following table. Check the monitor result and test values after performing the monitor drive pattern (refer to "Confirmation Monitor").

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

EVAP – Vacuum monitor

MID	TID	Scaling	Description of Test Value	Minimum Test Limit	Maximum Test Limit
\$3B	\$C1	Multiply by 0.01 [kPa]	Test value of 0.02 inch leak: Determined by fuel tank pressure change at 0.02 inch leak check	Minimum test limit for 0.02 inch leak	Maximum test limit for 0.02 inch leak
\$3C	\$C2	Multiply by 0.01 [kPa]	Test value of 0.04 inch leak: Determined by fuel tank pressure change at 0.04 inch leak check	Minimum test limit for 0.04 inch leak	Maximum test limit for 0.04 inch leak
\$3D	\$C6	Multiply by 0.001 [kPa]	Test value of purge VSV: Determined by fuel tank pressure change during vacuum introduction	Minimum test limit for purge VSV	Maximum test limit for purge VSV
\$3D	\$C7	Multiply by 0.001 [kPa]	Test value of Canister Closed Valve (CCV): Determined by fuel tank pressure change at switching over CCV	Minimum test limit for CCV	Maximum test limit for CCV
\$3D	\$C8	Multiply by 0.001 [kPa]	Test value of by-pass VSV: Determined by fuel tank pressure change at switching over by-pass VSV	Minimum test limit for by-pass VSV	Maximum test limit for by-pass VSV

WIRING DIAGRAM



Y

G38980

CONFIRMATION READINESS TEST

READINESS TESTS	
MISFIRE MON	AVAIL
FUEL SYS MON	AVAIL
COMP MON	AVAIL
CAT EVAL	INCMPL
HTD CAT EVAL	N/A
EVAP EVAL	INCMPL
2nd AIR EVAL	N/A
A/C EVAL	N/A
O2S EVAL	INCMPL
O2S HTR EVAL	INCMPL
EGR EVAL	N/A

A15402 A73621

READINESS TESTS	
MISFIRE MON	AVAIL
FUEL SYS MON	AVAIL
COMP MON	AVAIL
CAT EVAL	COMPL
HTD CAT EVAL	N/A
EVAP EVAL	COMPL
2nd AIR EVAL	N/A
A/C EVAL	N/A
O2S EVAL	COMPL
O2S HTR EVAL	COMPL
EGR EVAL	N/A

A15403 A73622

NON-CONTINUOUS TESTS	
Time\$01 CID\$01	Pass
Time\$01 CID\$02	Pass
Time\$02 CID\$01	Pass
Time\$02 CID\$02	Pass
Time\$02 CID\$03	Pass
Time\$02 CID\$04	Pass
Time\$04 CID\$01	Pass
Time\$04 CID\$02	Pass
Time\$04 CID\$10	Pass
Time\$04 CID\$20	Pass
Time\$08 CID\$01	Pass

A15404 A73623

READINESS TESTS	
MISFIRE MON	AVAIL
FUEL SYS MON	AVAIL
COMP MON	AVAIL
CAT EVAL	COMPL
HTD CAT EVAL	N/A
EVAP EVAL	INCMPL
2nd AIR EVAL	N/A
A/C EVAL	N/A
O2S EVAL	COMPL
O2S HTR EVAL	COMPL
EGR EVAL	N/A

A73624

First Trip Procedure

- (a) The vehicle must be cold and the ambient temperature must be between 10 to 35°C (50 to 95°F).
- (b) The IAT and the ECT have almost the same values.
- (c) Clear the DTCs (see page 05-43).
Enter the following menus: ADVANCED OBD II / ON-BOARD TEST / READINESS TESTS.
Then the READINESS TEST will show INCMPL (incomplete).
- (d) Drive the vehicle according to the LA#4 driving cycle. Note the state of the READINESS TEST. They will change to COMPL (complete) as the EVAP evaluation monitors (EVAP EVAL) operate and if the system passes. This procedure may take 20 minutes or more.

NOTICE:

Do not shut off the engine - the results will be invalid.

Pass Condition or No Problem Found by the ECM

If EVAP EVAL shows COMPL, go to the NON-CONTINUOUS TEST screen.

Enter the following menus: ADVANCED OBD II / ONBOARD TEST / NON-CONTINUOUS TESTS.

NOTICE:

Do not shut off the engine or the results will be invalid.

If all of the tests in the time \$02 category show "Pass", EVAP EVAL detected no problems.

Fail Condition - Problem Detected by the ECM

If EVAP EVAL shows INCMPL, go to the NON-CONTINUOUS TEST screen.

Enter the following menus: ADVANCED OBD II / ONBOARD TEST / NON-CONTINUOUS TESTS.

NON-CONTINUOUS TESTS		
Time\$01	CID\$01	Pass
Time\$01	CID\$02	Pass
Time\$02	CID\$01	Pass
Time\$02	CID\$02	Pass
Time\$02	CID\$03	Pass
Time\$02	CID\$04	Pass
Time\$04	CID\$01	Pass
Time\$04	CID\$02	Pass
Time\$04	CID\$10	Pass
Time\$04	CID\$20	Pass
Time\$08	CID\$01	Pass

A15404 A73623

- (1) If all tests show "Pass", the following may have occurred.
 - EVAP EVAL did not operate.
 - EVAP EVAL did not finish.
 - The ECM withheld judgement.
- (2) If one or more of the tests in the time \$02 category show "Fail", EVAP EVAL did operate and the ECM detected a problem.

CONTINUOUS TESTS	
ECU: \$10 (Engine)	
Number of Tsts: 3	
P0441	
EVAP Control System Incorrect Purge Flow	
P0442	
EVAP Emission Control System Leak Detected	
P0446	
EVAP Control System Vent Control Malfunction	

A71014

- (3) Go to the CONTINUOUS TESTS screen. This is the only place DTC's are listed for the first trip. Enter the following menus: ADVANCED OBD II/ ONBOARD TEST/ CONTINUOUS TESTS.

NOTICE:

The DTC listed may not be valid. A second trip is needed to confirm the DTC.

READINESS TESTS	
MISFIRE MON	AVAIL
FUEL SYS MON	AVAIL
COMP MON	AVAIL
CAT EVAL	COMPL
HTD CAT EVAL	N/A
EVAP EVAL	INCMPL
2nd AIR EVAL	N/A
A/C EVAL	N/A
O2S EVAL	COMPL
O2S HTR EVAL	COMPL
EGR EVAL	N/A

A73624

Second Trip Procedure

- (a) Vehicle must be cold and the ambient temperature must be between 10 to 35°C (50 to 95°F).
- (b) Go to the READINESS TESTS screen.
- (c) Drive the vehicle according to the LA#4 drive cycle. Note the state of EVAP EVAL. This procedure may take approximately 20 minutes or more.

NOTICE:

Do not shut off the engine or the results will be invalid.

CONTINUOUS TESTS	
ECU: \$10 (Engine)	
Number of Tsts: 3	
P0441	
EVAP Control System Incorrect Purge Flow	
P0442	
EVAP Emission Control System Leak Detected	
P0446	
EVAP Control System Vent Control Malfunction	

A71014

- (d) If the READINESS TEST changes to COMPL, the EVAP EVAL has operated. Check for any stored DTC's.
 - If a DTC has been stored, a problem has been detected and confirmed by the ECM.
 - If no DTC was stored, the EVAP monitor operated but no problem was detected.

INSPECTION PROCEDURE

HINT:

- If DTC P0441 (purge flow), P0446, P2418 (CCV or by-pass VSV), P0451, P0452 or P0453 (evaporative pressure sensor) is output with DTC P0442, P0455 or P0456, first troubleshoot DTC P0441, P0446, P2418, P0451, P0452 or P0453. If no malfunction is detected, troubleshoot DTC P0442 or P0456 next.
- Ask the customer if, after the MIL illuminated, the customer found the fuel tank cap was loose and tightened it. Also ask the customer if the fuel tank cap was loose when refuelling. If the fuel tank cap was loose, it was the cause of the DTC. If the fuel tank cap was not loose or if the customer was not sure if that was loose, troubleshoot according to the following procedure.
- Read freeze frame data using the hand-held tester. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, if the air-fuel ratio was LEAN or RICH, and other data from the time the malfunction occurred.
- When the ENGINE RUN TIME in the freeze frame data is less than 200 seconds, carefully check the FTP sensor.

1 CHECK FUEL TANK CAP ASSY

OK: The fuel cap meets OEM specifications.

NG

REPLACE WITH A CAP THAT MEETS OEM SPECIFICATIONS

OK

2 CHECK THAT FUEL TANK CAP IS CORRECTLY INSTALLED

OK: The fuel cap is tightened securely.

NG

CORRECTLY INSTALL FUEL TANK CAP

OK

3 INSPECT FUEL TANK CAP ASSY (See page 12-4)

NG

REPLACE FUEL TANK CAP ASSY

OK

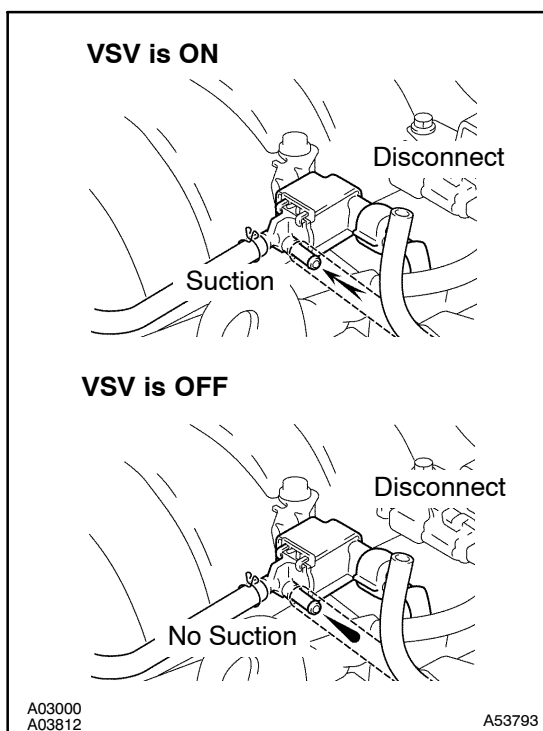
4 CHECK FILLER NECK FOR DAMAGE

- Remove the fuel tank cap.
- Visually inspect the filler neck for damage.

NG

REPLACE FUEL TANK INLET PIPE SUB-ASSY

OK

5 PERFORM ACTIVE TEST (EVAP VSV)

- Enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST.
- Disconnect the vacuum hose of the EVAP VSV from the EVAP canister.
- Start the engine.
- Select the item EVAP VSV (ALON) / ALL in the ACTIVE TEST and operate the EVAP VSV (press the right or left button).
- When the EVAP VSV is operated by the hand-held tester, check whether the disconnected hose applies suction to your finger.

OK:

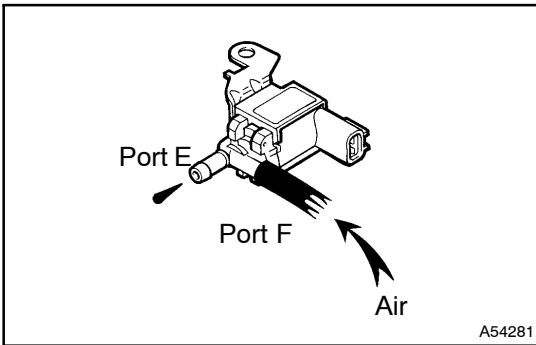
Tester Condition	Specified Condition
VSV is ON	Disconnected hose applies suction to your finger
VSV is OFF	Disconnected hose applies no suction to your finger

OK**Go to step 9****NG****6 CHECK VACUUM HOSES (INTAKE MANIFOLD - EVAP VSV - CANISTER)**

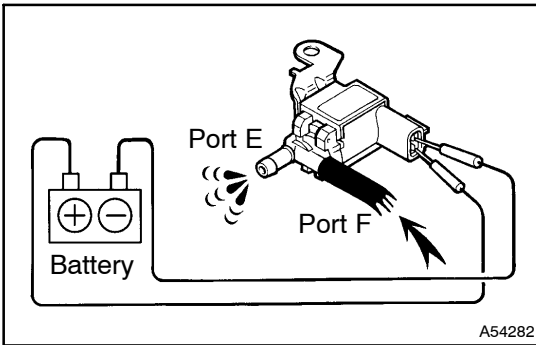
- Check that the vacuum hose is connected correctly.
- Check the vacuum hose for looseness and disconnection.
- Check the vacuum hose for cracks, holes, damage and blockage.

NG**REPAIR OR REPLACE VACUUM HOSES****OK**

7	INSPECT EVAP VSV (OPERATION)
----------	-------------------------------------



- (a) Check that air flows with difficulty from ports F to E.
OK: Air flows with difficulty from ports F to E.



- (b) Apply battery voltage across the terminals.
 (c) Check that air flows without resistance from ports F to E.
OK: Air flows without resistance from ports F to E

NG →

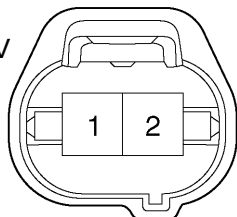
REPLACE EVAP VSV

OK

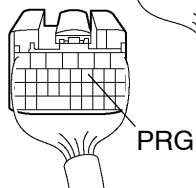
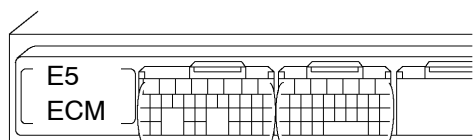
8 CHECK WIRE HARNESS (EVAP VSV - ECM - EFI MAIN RELAY)

Wire Harness Side

V4
EVAP VSV



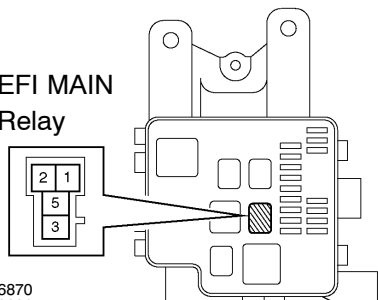
Y



Y

Engine Room No. 1 R/B

EFI MAIN
Relay



A56870
A92891
A87368

G38971

- Disconnect the V4 EVAP VSV connector.
- Disconnect the E5 ECM connector.
- Remove the EFI MAIN relay from the engine room No. 1 R/B.
- Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
V4-1 - E5-11 (PRG)	Below 1 Ω
V4-1 or E5-11 (PRG) - Body ground	10 k Ω or higher
V4-2 - R/B EFI MAIN relay terminal 3	Below 1 Ω
V4-2 or R/B EFI MAIN relay terminal 3 - Body ground	10 k Ω or higher

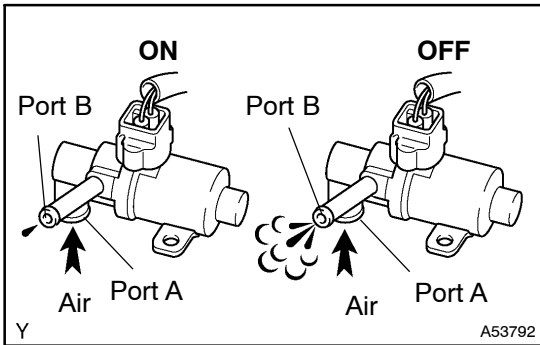
NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE ECM (See page 10-20)

9 PERFORM ACTIVE TEST (CCV)



- (a) Disconnect the vacuum hose of the CCV from the charcoal canister.
- (b) Start the engine.
- (c) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST / CAN CTRL VSV.
- (d) Operate the CCV with the hand-held tester and check air flow of the CCV .

OK:

Tester Condition	Specified Condition
CCV is ON	Air does not flow from ports A to B
CCV is OFF	Air from port E flows out through port B

OK → **Go to step 13**

NG

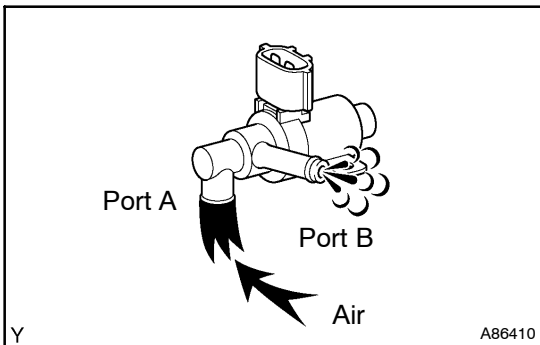
10 CHECK VACUUM HOSES (CCV - CANISTER)

- (a) Check that the vacuum hose is connected correctly.
- (b) Check the vacuum hose for looseness and disconnection.
- (c) Check the vacuum hose for cracks, hole damage and blockage.

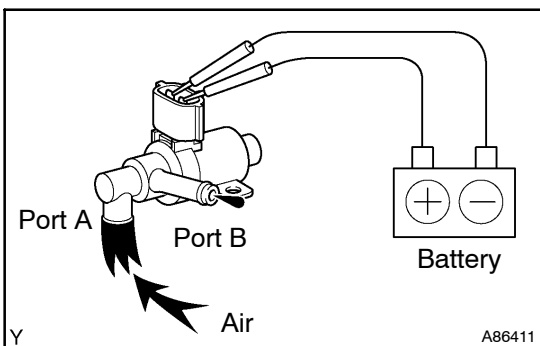
NG → **REPAIR OR REPLACE VACUUM HOSES**

OK

11 INSPECT CCV (OPERATION)



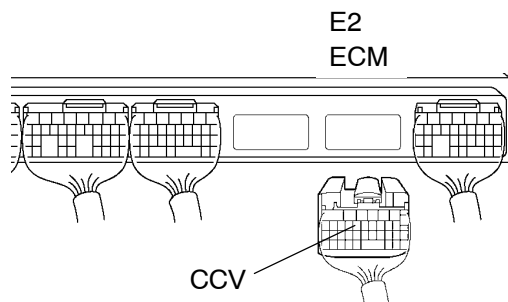
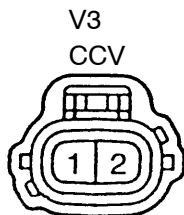
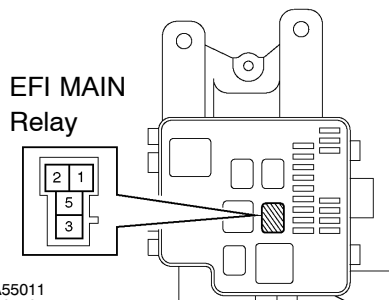
- (a) Check that the air flows from ports A to B.
- OK: Air flows from ports A to B**



- (b) Apply battery voltage across the terminals.
 - (c) Check that the air does not flow from ports A to B.
- OK: Air does not flow from ports A to B**

NG → **REPLACE CCV**

OK

12 CHECK WIRE HARNESS (ECM - CCV - EFI MAIN RELAY)
Wire Harness Side

Engine Room No. 1 R/B


A55011
A67404
A87368

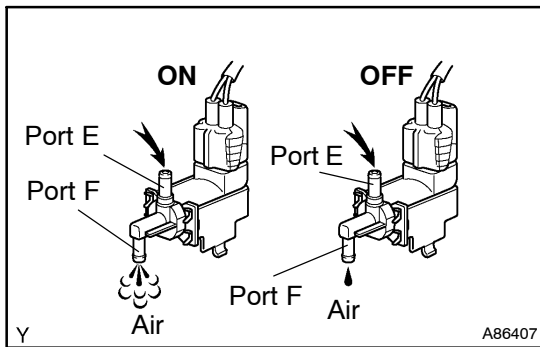
G38972

- (a) Disconnect the V3 CCV connector.
- (b) Disconnect the E2 ECM connector.
- (c) Remove the EFI MAIN relay from the engine room No. 1 R/B.
- (d) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
V3-1 - E2-12 CCV	Below 1 Ω
V3-1 or E2-12 (CCV) - Body ground	10 k Ω or higher
V3-2 - R/B EFI MAIN relay terminal 3	Below 1 Ω
V3-2 or R/B EFI MAIN relay terminal 3 - Body ground	10 k Ω or higher

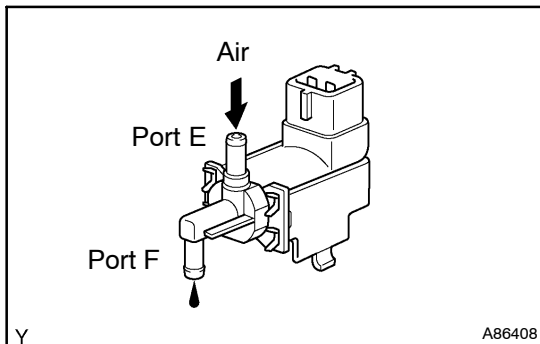
NG
REPAIR OR REPLACE HARNESS AND CONNECTOR
OK
REPLACE ECM (See page 10-20)

13 PERFORM ACTIVE TEST (BY-PASS VSV)

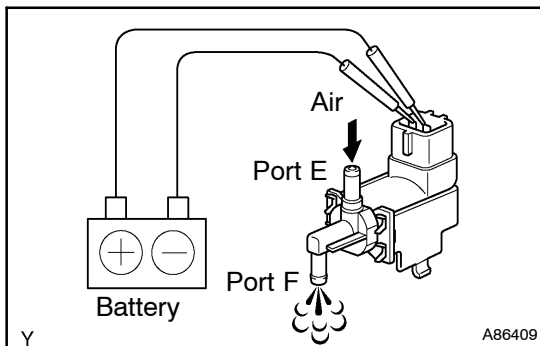
- Enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST / TANK BYPASS VSV.
- Press the right or left button, operate the by-pass VSV.
- Check air flow when operating the by-pass VSV.

Standard:

Tester Condition	Specified Condition
VSV is ON	Air from port E flows out through port F
VSV is OFF	Air does not flow from ports E to F

OK**Go to step 16****NG****14 INSPECT BY-PASS VSV (OPERATION)**

- Check that the air flows with difficulty from ports E to F.
OK: Air flows with difficulty from ports E to F



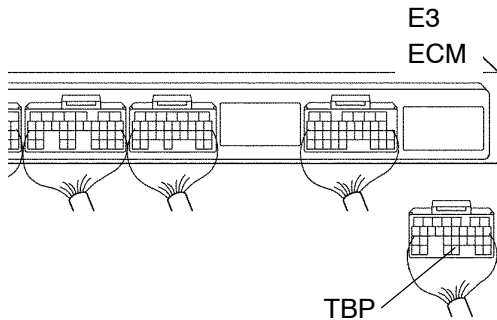
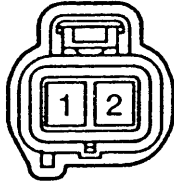
- Apply battery voltage across the terminals.
- Check that the air flows from ports E to F.
OK: Air flows from ports E to F

NG**REPLACE BY-PASS VSV****OK**

15 CHECK WIRE HARNESS (EFI MAIN RELAY - BY-PASS VSV - ECM)

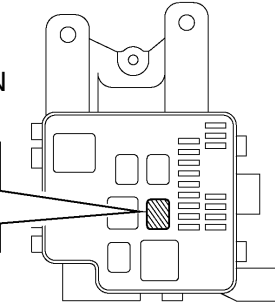
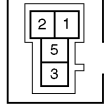
Wire Harness Side

V12
By-pass VSV



Engine Room No. 1 R/B

EFI MAIN
Relay



A55012
A67445
Y A87368

G38973

- (a) Disconnect the V11 by-pass VSV connector.
- (b) Disconnect the E3 ECM connector.
- (c) Remove the EFI MAIN relay from the engine room No. 1 R/B.
- (d) Measure the resistance of the wire harness side connectors.

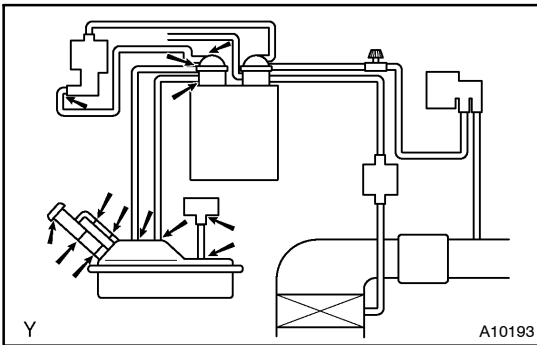
Standard:

Tester Connection	Specified Condition
V11-1 - E3-28 (TBP)	Below 1 Ω
V11-1 or E3-28 (TBP) - Body ground	10 kΩ or higher
V11-2 - R/B EFI relay terminal 3	Below 1 Ω
V11-2 or R/B EFI relay terminal 3 - Body ground	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE ECM (See page 10-20)

16 CHECK FOR EVAP LEAK (NEAR FUEL TANK)

(a) Check whether hoses close to the fuel tank have been modified, and check whether there are signs of any damage near the fuel tank or the charcoal canister.

- (1) Check for cracks, deformation or loose connection of the following parts:
- Fuel tank
 - EVAP canister
 - Fuel tank filler pipe
 - Hoses and tubes around fuel tank and charcoal canister

NG

REPAIR OR REPLACE EVAP LEAK PART

OK

17 CHECK HOSE AND TUBE

- (a) Check the connection between the fuel tank and fuel EVAP pipe, the fuel EVAP pipe and under-floor fuel tube, and the under-floor fuel tube and EVAP canister.
- (b) Check the hose and the tube for cracks, holes and damage.

NG

REPLACE HOSE AND TUBE

OK

18 CHECK EVAP CANISTER) (FOR CRACKS, HOLE AND DAMAGE)

NG

REPLACE EVAP CANISTER

OK

19 INSPECT FUEL TANK

NG

REPLACE ECM (See page 10-20)

OK

REPLACE FUEL TANK ASSY (See page 11-25)