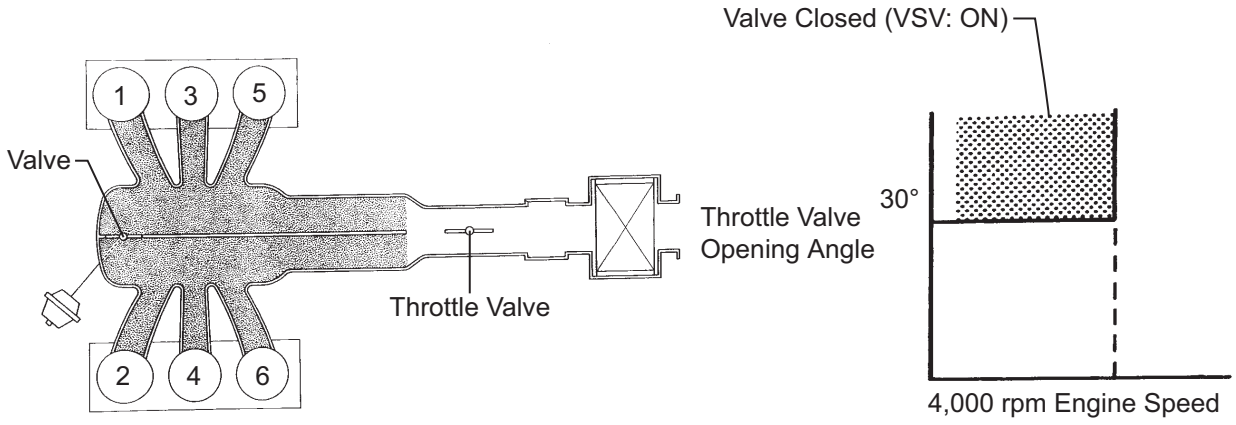
ACIS Control Circuit

DESCRIPTION

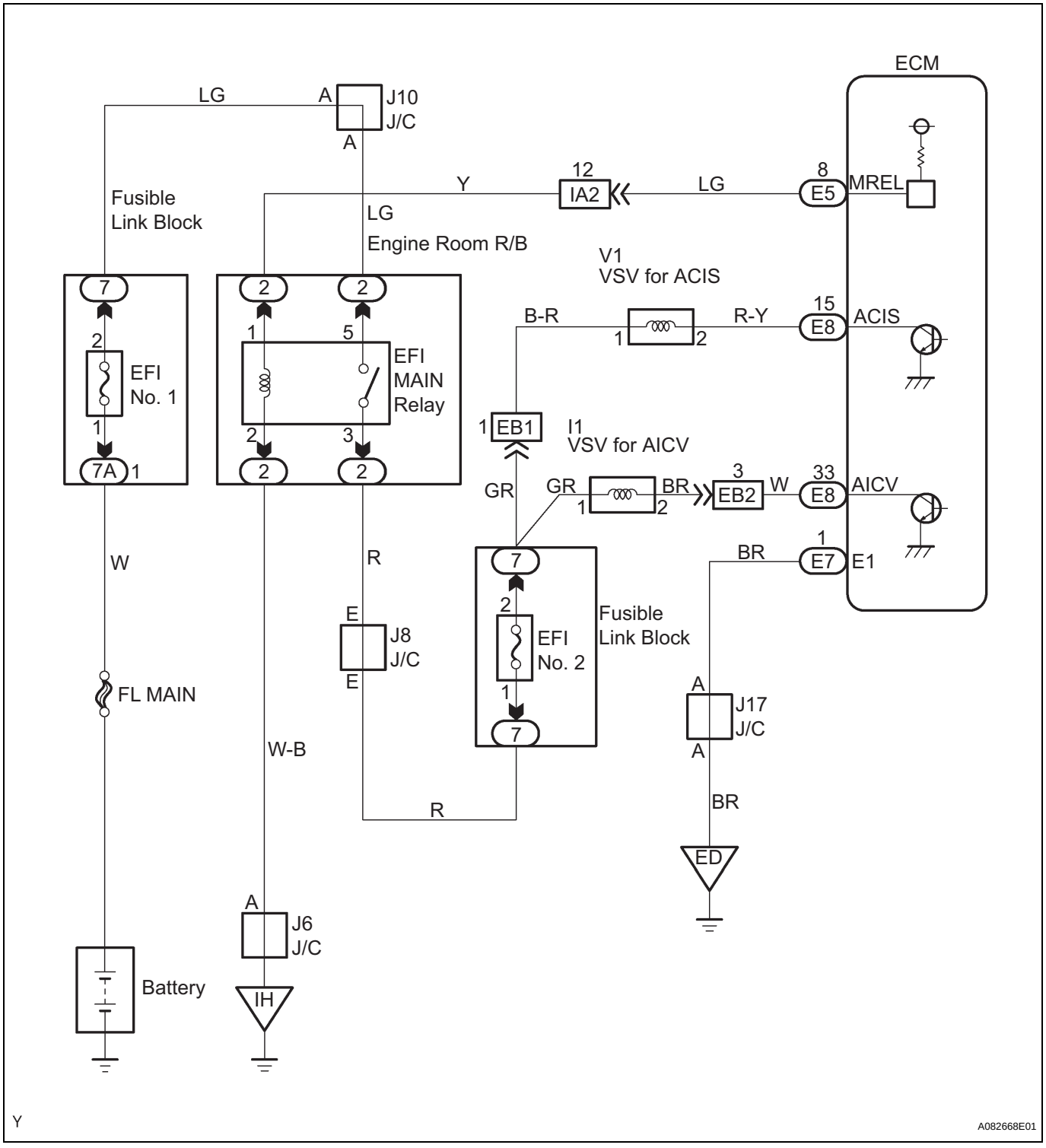
HINT:

ACIS stands for "Acoustic Control Induction System".

The ECM opens and closes the Intake Air Control (IAC) valve No.2 in response to engine speed (RPM/NE). This system improves intake manifold tuning for better efficiency at low and high engine rpm. When the engine speed is 4,000 rpm or less and the throttle valve opening angle is 30° or more, the ECM turns the VSV ON to operate the IAC valve.

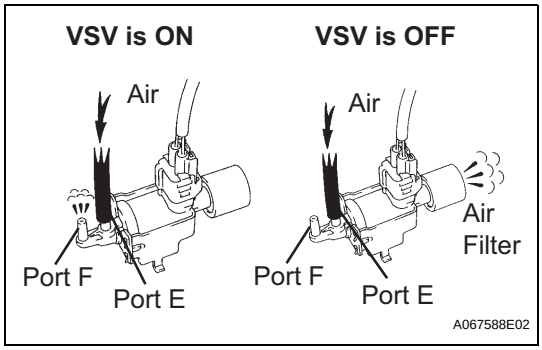


WIRING DIAGRAM



ES

1	PERFORM ACTIVE TEST BY INTELLIGENT TESTER (OPERATE VSV FOR ACIS)



(a) Disconnect the vacuum hose.
(b) Connect the intelligent tester to the DLC3.
(c) Turn the ignition switch ON and push the intelligent tester main switch ON.
(d) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST / INTAKE CTL VSV1. Operate the VSV.
(e) Check the VSV operation when it is operated by the intelligent tester.

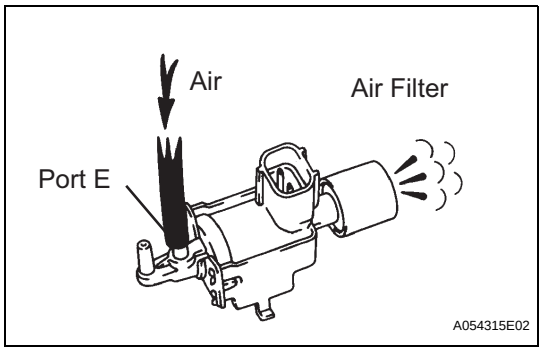
Standard

Tester Operation	Specified Condition
VSV is ON	Air from port E flows out through port F
VSV is OFF	Air from port E flows out through the air filter

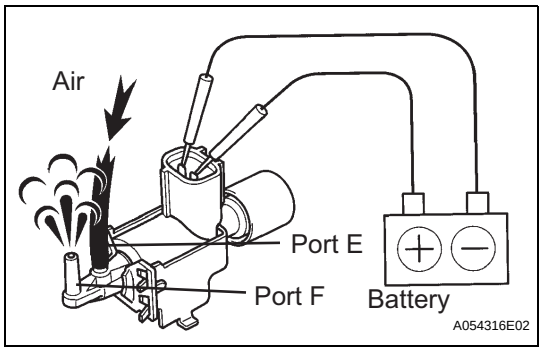
OK → **Go to step 4**

NG

2	CHECK VSV FOR ACIS (OPERATION)



(a) Check that air flows from port E to the air filter.

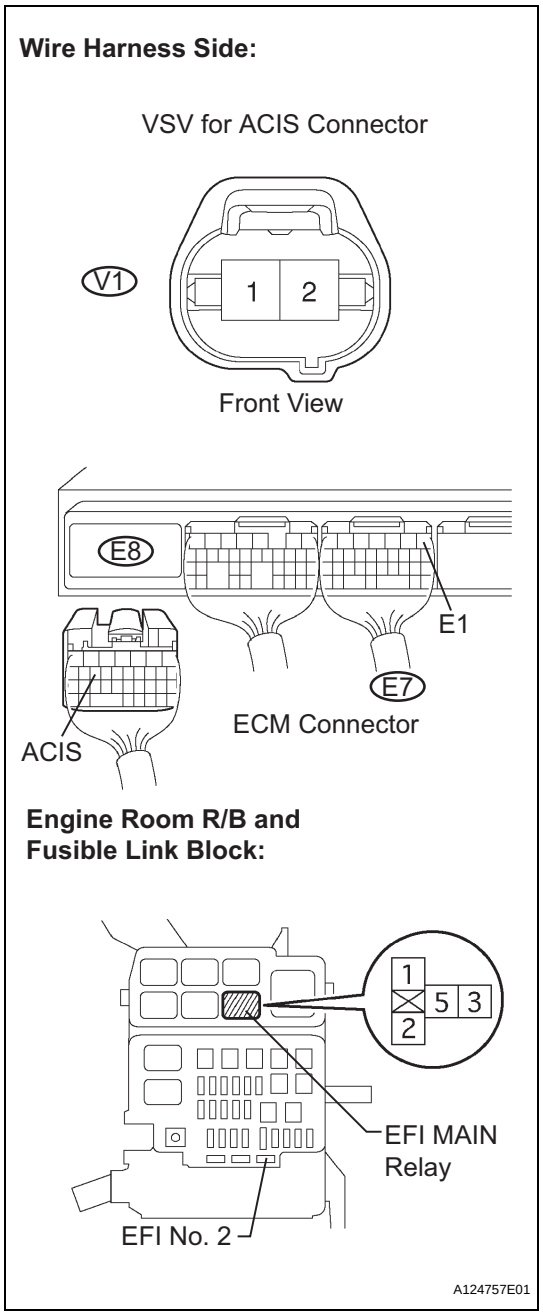


(b) Apply battery positive voltage across the terminals.
(c) Check that air flows from port E to port F.

NG → **REPLACE VSV FOR ACIS**

OK

3	CHECK HARNESS AND CONNECTOR (VSV FOR ACIS - ECM, VSV FOR ACIS - EFI MAIN RELAY)



(a) Check the wire harness between the VSV and the ECM.
(1) Disconnect the V1 VSV connector.
(2) Disconnect the E8 ECM connector.
(3) Measure the resistance of the wire harness side connectors.
Standard resistance

Tester Connection	Specified Condition
V1-2 - E8-15 (ACIS)	Below 1 Ω
V1-2 or E8-15 (ACIS) - Body ground	10 kΩ or higher

(b) Check the wire harness between the VSV and EFI MAIN relay.
(1) Check the EFI No. 2 fuse.
- Remove the EFI No. 2 fuse from the fusible link block.
- Measure the resistance of the EFI No. 2 fuse.

Standard resistance:
Below 1 Ω
- Reinstall the EFI No. 2 fuse.

(2) Disconnect the V2 VSV connector.
(3) Remove the EFI MAIN relay from the engine room R/B.
(4) Measure the resistance of the wire harness side connectors.
Standard resistance

Tester Connection	Specified Condition
V1-1 - EFI MAIN relay terminal 3	Below 1 Ω

(c) Install the EFI MAIN relay.
(d) Reconnect the VSV connector and ECM connector.

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

OK

4	CHECK VACUUM HOSES (INTAKE MANIFOLD - INTAKE AIR CONTROL VALVE)

Check that the vacuum hoses are:
- Connected correctly.
- Are not loose or disconnected.
- Do not have cracks, holes or damage.

NG → **REPAIR OR REPLACE VACUUM HOSES**

ES

OK

5	INSPECT INTAKE AIR CONTROL VALVE

(a) Inspect the intake air control valve. (See page IT-2)

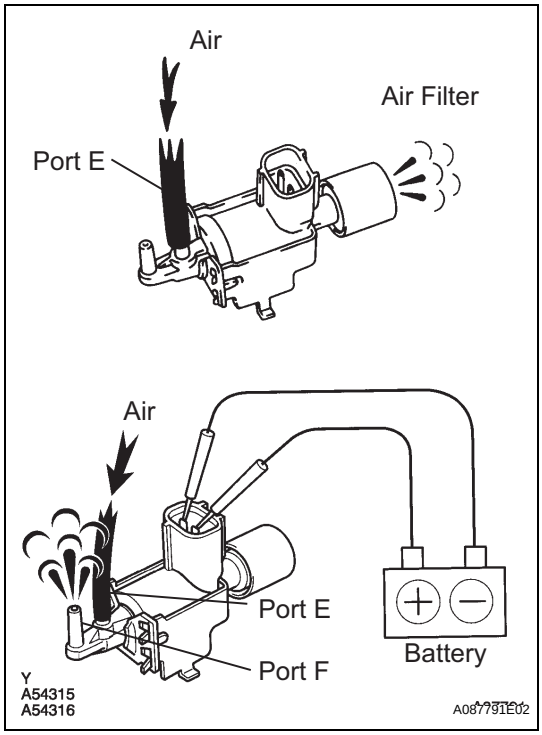
NG → REPLACE INTAKE AIR CONTROL VALVE

OK

REPLACE ECM

ES

1	INSPECT VSV FOR ACIS (OPERATION)

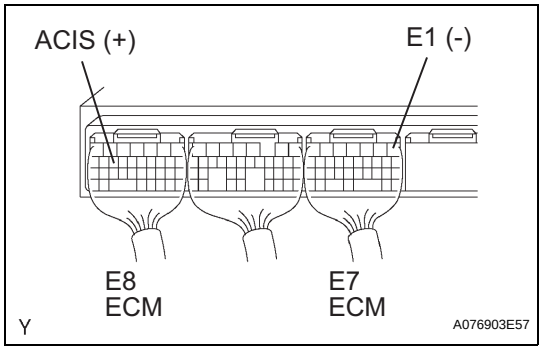


(a) Disconnect the VSV for ACIS connector.
(b) Check operation of the VSV for ACIS when battery positive voltage is applied to the terminals of the VSV for ACIS.
Standard:
Battery positive voltage is not applied:
Air from port E flows out through the air filter.
Battery positive voltage is applied:
Air from port E flows out through port F.

NG → REPLACE VSV FOR ACIS

OK

2	INSPECT ECM (ACIS VOLTAGE)



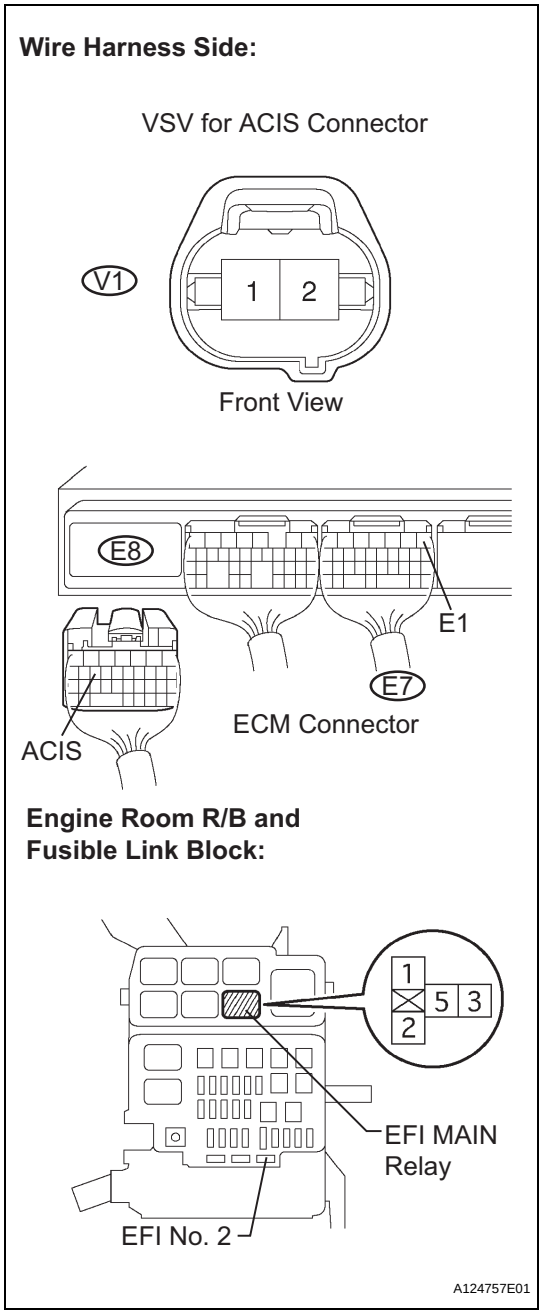
(a) Start the engine.
(b) Measure the voltage of the ECM connectors.
Standard voltage

Tester Connection	Condition	Specified Condition
E8-15 (ACIS) - E7-1 (E1)	• Engine speed is 4,000 rpm or less • Throttle valve opening angle is 30° or more	9 to 14 V

OK → Go to step 4

NG

3	CHECK HARNESS AND CONNECTOR (VSV FOR ACIS - ECM, VSV FOR ACIS - EFI MAIN RELAY)



(a) Check the wire harness between the VSV for ACIS and the ECM.
  (1) Disconnect the V1 VSV for ACIS connector.
  (2) Disconnect the E8 ECM connector.
  (3) Measure the resistance of the wire harness side connectors.
  Standard resistance

Tester Connection	Specified Condition
V1-2 - E8-15 (ACIS)	Below 1 Ω
V1-2 or E8-15 (ACIS) - Body ground	10 kΩ or higher

(b) Check the wire harness between the VSV and EFI MAIN relay.
  (1) Check the EFI No. 2 fuse.
    • Remove the EFI No. 2 fuse from the fusible link block.
    • Measure the resistance of the EFI No. 2 fuse.
  Standard resistance:
  Below 1 Ω
    • Reinstall the EFI No. 2 fuse.
  (2) Disconnect the V1 VSV connector.
  (3) Remove the EFI MAIN relay from the engine room R/B.
  (4) Measure the resistance OF the wire harness side connectors.
  Standard resistance

Tester Connection	Specified Condition
V1-1 (VSV for ACIS) - EFI MAIN relay terminal 3	Below 1 Ω

(c) Install the EFI MAIN relay.
(d) Reconnect the VSV connector and ECM connector.

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

OK

4	CHECK VACUUM HOSES (INTAKE MANIFOLD - INTAKE AIR CONTROL VALVE)

Check that the vacuum hoses are:
- Connected correctly.
- Are not loose or disconnected.
- Do not have cracks, holes or damage.

ES

NG → REPAIR OR REPLACE VACUUM HOSES

OK

5	INSPECT INTAKE AIR CONTROL VALVE

(a) Inspect the intake air control valve. (See page IT-2)

NG → REPLACE INTAKE AIR CONTROL VALVE

OK

ES

REPLACE ECM