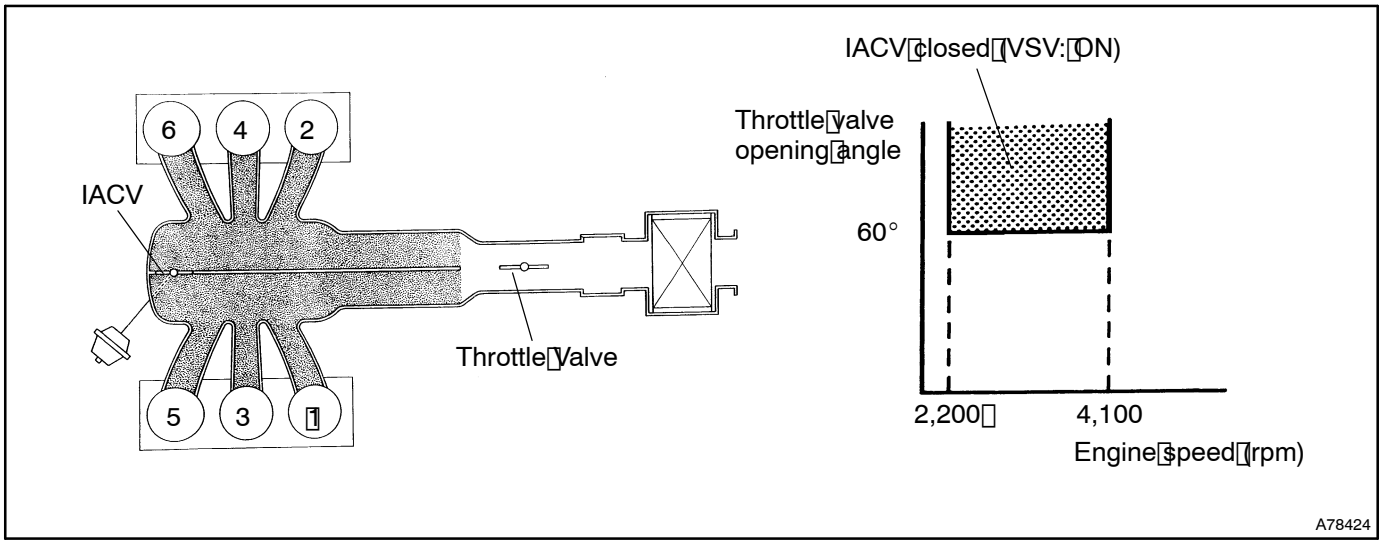
ACIS CONTROL CIRCUIT

CIRCUIT DESCRIPTION

The acoustic control induction system (ACIS) has been adopted for obtaining high power torque in all engine speed range from low to high. This circuit is used to open and close the intake air control valve (IACV) in response to an engine load and helps that increasing the intake air efficiency inside the intake manifold. When the engine speed is between 2,200 and 4,100 rpm and an opening angle of the throttle valve is 60° or more, the ECM supplies current to the VSV to close the IACV (The VSV is ON). Other than this, the IACV is usually open and the VSV is off.



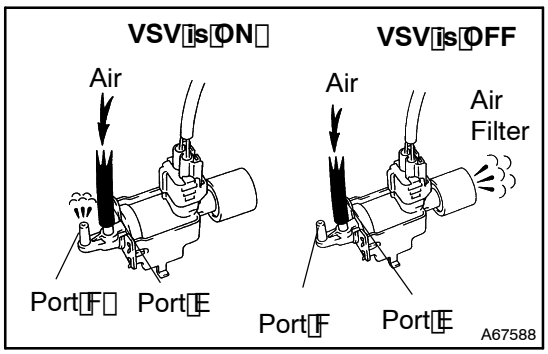
WIRING DIAGRAM

Refer to DTC P0660 on page 05–157.

INSPECTION PROCEDURE

When using hand–held tester:

1	PERFORM ACTIVE TEST BY HAND–HELD TESTER(OPERATE VSV FOR ACIS)



(a) Disconnect the vacuum hose.
(b) Connect the hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.
(d) Select the item "DIAGNOSIS / OBD/MOBD / ACTIVE TEST / INTAKE CTL VSV1" and operate the VSV for AICS.
(e) Select the ACTIVE TEST mode on the hand–held tester.
(f) Check the VSV operation when it is operated by the hand–held tester.

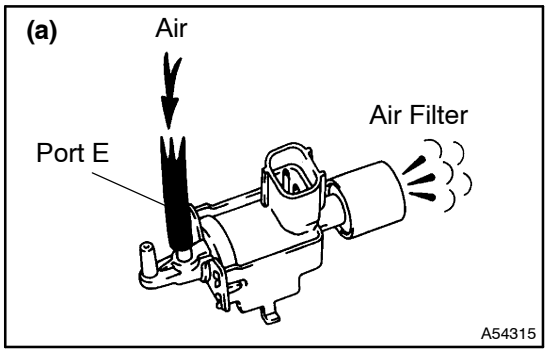
Standard:

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

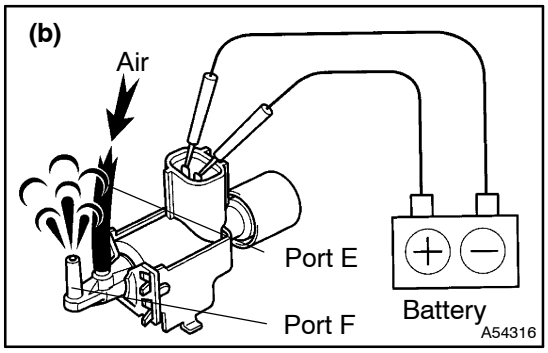
OK	Go to step 4

NG

2	CHECK VSV FOR ACIS(OPERATION)



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

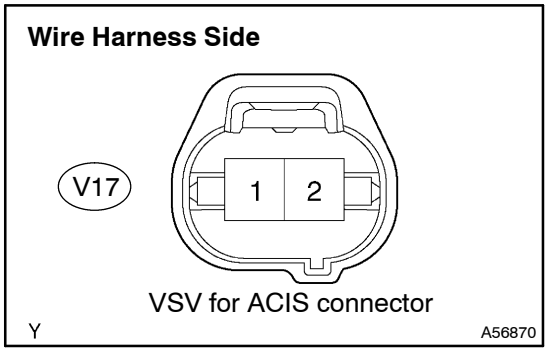


(b) Apply battery positive voltage across the terminals.
(c) Check that air flows from port E to port F.

NG → REPLACE VSV FOR ACIS

OK

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



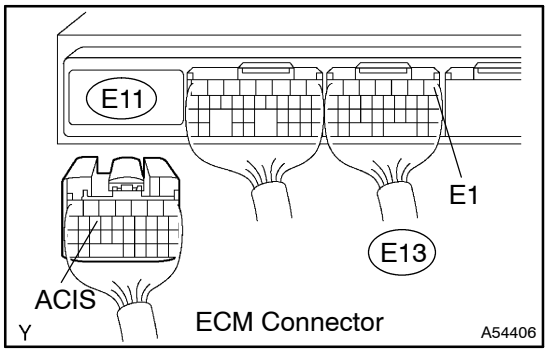
(a) Check the wire harness between the VSV for ACIS and connector the ECM connector.
  (1) Disconnect the VSV for ACIS connector.
  (2) Disconnect the E11 ECM connector.
  (3) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
VSV for ACIS (V17–2) – ACIS (E11–15)	Continuity

Standard (Check for short):

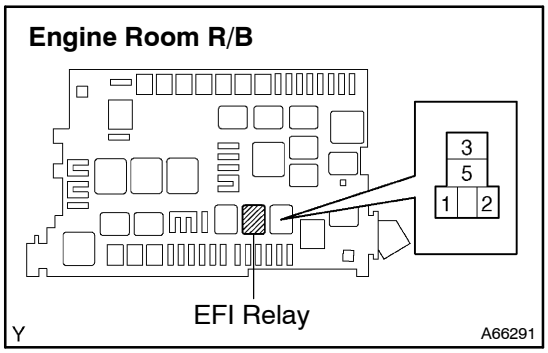
Symbols (Terminal No.)	Specified condition
VSV for ACIS (V17–2) or ACIS (E11–15) – E1 (E13–1)	No continuity



(b) Check the wire harness between the VSV for ACIS connector and the EFI relay.
  (1) Disconnect the VSV for ACIS connector.
  (2) Remove the EFI relay from the engine room R/B.
  (3) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
VSV for ACIS (V17–1) – EFI relay terminal 3 of R/B	Continuity



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

OK

4 CHECK VACUUM HOSE(INTAKE MANIFOLD – INTAKE AIR CONTROL VALVE, INTAKE AIR CONTROL VALVE – VSV FOR ACIS)

(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 and damage.

NG → **REPAIR OR REPLACE VACUUM HOSE**

OK

5	INSPECT INTAKE AIR CONTROL VALVE (INTAKE AIR SURGE TANK) (See page 13–2)

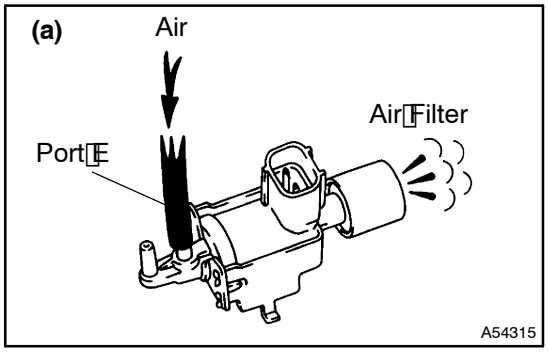
NG → REPLACE INTAKE AIR CONTROL VALVE (INTAKE AIR SURGE TANK) (See page 14–89)

OK

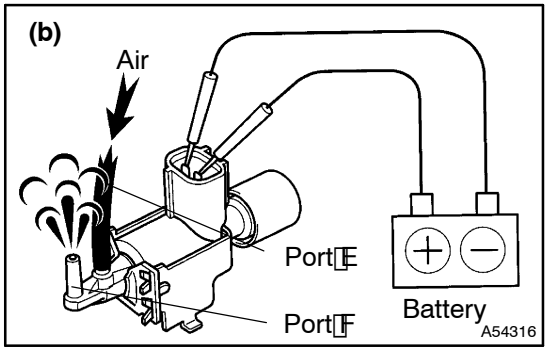
CHECK AND REPLACE ECM (See page 01–35)

When not using hand–held tester:

1	INSPECT VSV FOR ACIS (OPRATION)



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

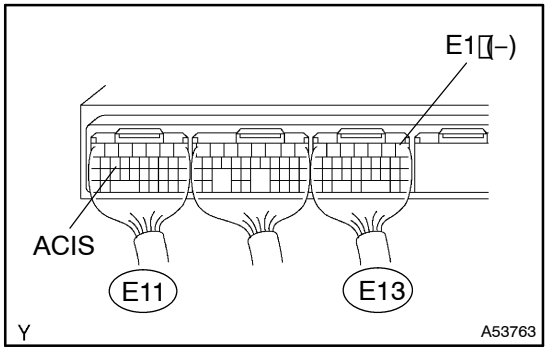


(b) Apply battery positive voltage across the terminals.
(c) Check that air flows from port E to port F.

NG → REPLACE VSV FOR ACIS

OK

2	CHECK ECM (ACIS VOLTAGE)



(a) Start the engine.
(b) Measure the voltage between the terminals of the E11 and E13 ECM connectors.

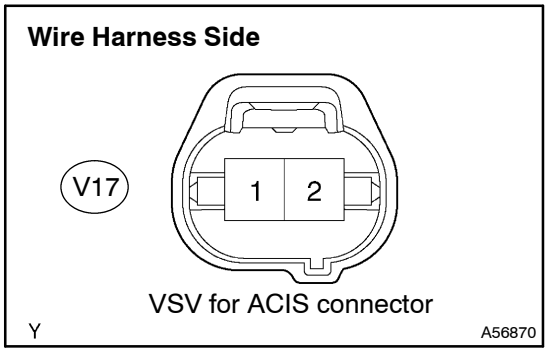
Standard:

Symbols (Terminal No.)	Condition	Specified condition
ACIS (E11–15) – E1 (E13–1)	• Engine speed is between 2,200 rpm and 4,100 rpm. • Throttle valve opening angle is 60° or more	0 V
	• Idling	9 to 14 V

OK	Go to step 4

NG

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



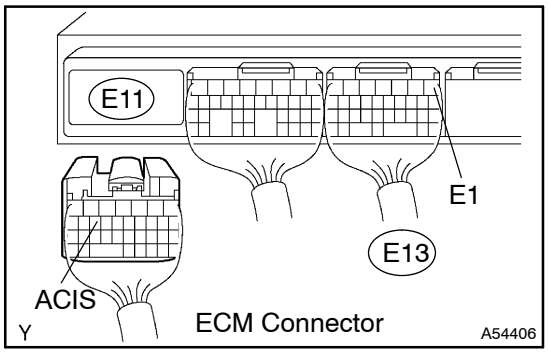
(a) Check the wire harness between the VSV for ACIS connector and the ECM connector.
  (1) Disconnect the VSV for ACIS connector.
  (2) Disconnect the E11 ECM connector.
  (3) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
VSV for ACIS (V17–2) – ACIS (E11–15)	Continuity

Standard (Check for short):

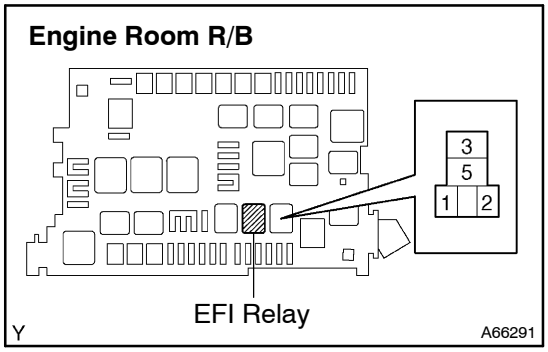
Symbols (Terminal No.)	Specified condition
VSV for ACIS (V17–2) or ACIS (E11–15) – E1 (E13–1)	No continuity



(b) Check the wire harness between the VSV for ACIS connector and the EFI relay.
  (1) Disconnect the VSV for ACIS connector.
  (2) Remove the EFI relay from the engine room R/B.
  (3) Check for continuity between the wire harness side connectors.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
VSV for ACIS (V17–1) – EFI relay terminal 3 of R/B	Continuity



NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4 CHECK VACUUM HOSE(INTAKE MANIFOLD – INTAKE AIR CONTROL VALVE, INTAKE AIR CONTROL VALVE – VSV FOR ACIV)

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

NG	REPAIR OR REPLACE VACUUM HOSE

OK

5	INSPECT INTAKE AIR CONTROL VALVE (INTAKE AIR SURGE TANK) (See page 13–2)

NG → REPLACE INTAKE AIR CONTROL VALVE (INTAKE AIR SURGE TANK) (See page 14–89)

OK

CHECK AND REPLACE ECM (See page 01–35)