DI3UK–01

DTC	71	EGR System Malfunction

CIRCUIT DESCRIPTION

The EGR system recirculates exhaust gas, which is controlled to the proper quantity to suit the driving conditions into the intake air mixture to slow down combustion, reduce the combustion temperature and reduce NOx emissions.

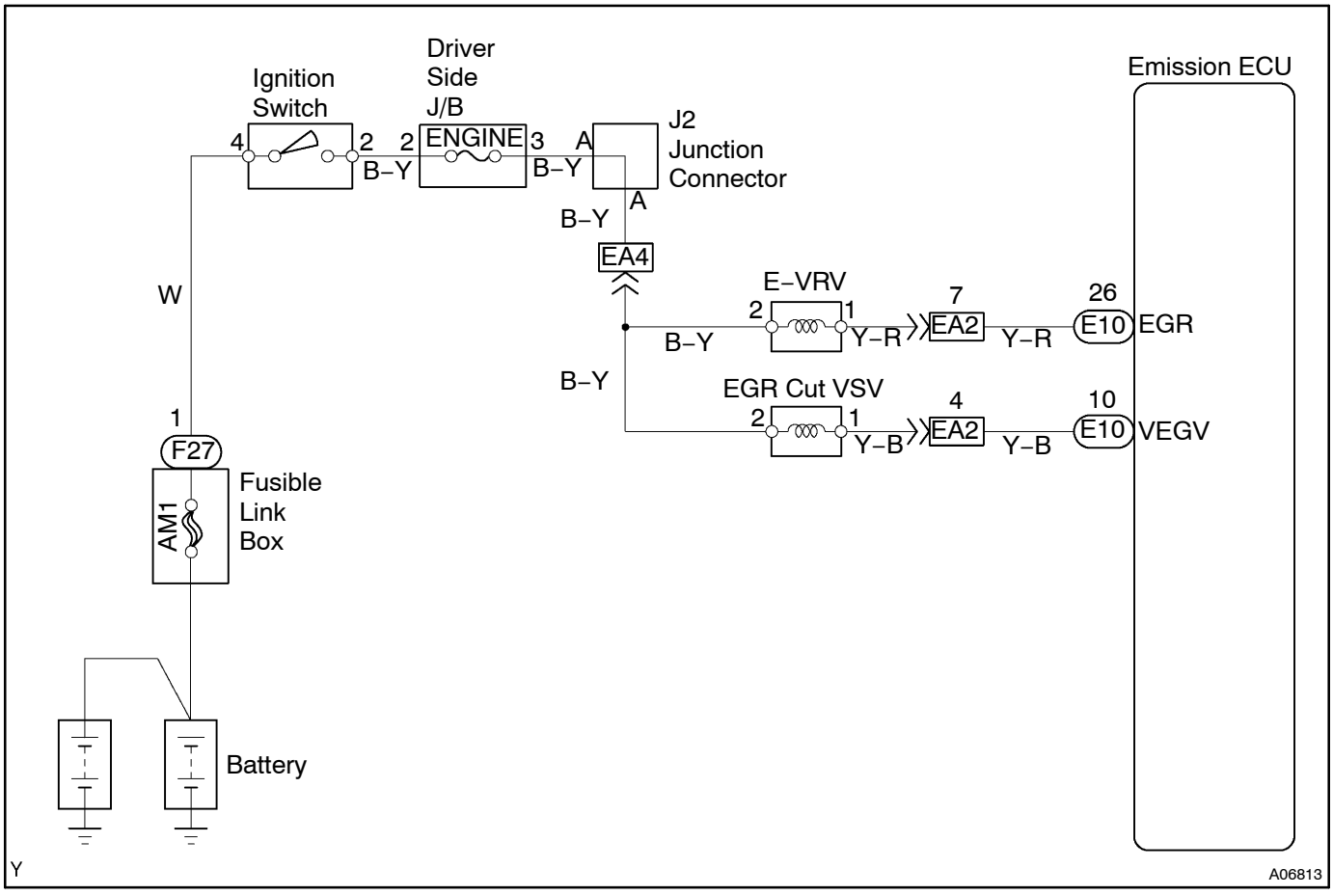
The lift amount of EGR valve is controlled by the vacuum which is regulated by the E–VRV operated by the emission ECU.

Under the following conditions, EGR is cut to maintain driveability.

- Before the engine is warmed up
- During deceleration
- Light engine load (amount of intake air very small)
- Engine speed over 4,000 rpm

DTC No.	DTC Detecting Condition	Trouble Area
71	When abnormal feedback values have been obtained during EGR control operation (2 trip detection)	• Disconnect clogging or damage of sensing pipe • Vacuum sensor • Open or short in E–VRV circuit • E–VRV • Emission ECU

WIRING DIAGRAM



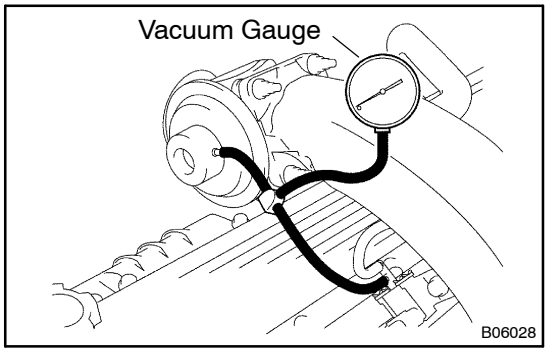
INSPECTION PROCEDURE

1	**Check the connection of vacuum hose.**

NG → **Repair or replace.**

OK

2	**Check the vacuum between EGR valve and EGR cut VSV at 1,500 rpm.**



PREPARATION:

(a) Using 3–way connector, connect a vacuum gauge to the hose between the VSV and EGR valve.

(b) Warm up the engine to above 80˚C (176˚F).

CHECK:

Check the vacuum at 1,500 rpm.

RESULT:

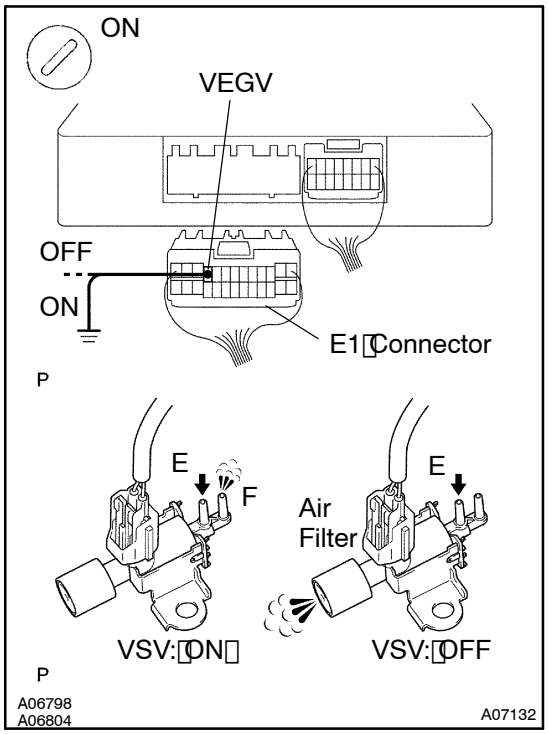
Type	Vacuum
I	0 kPa (0 mmHg, 0 in.Hg)
II	0 kPa (0 mmHg, 0 in.Hg) – 28 kPa (210 mmHg, 8.3 in.Hg)
III	Above 28 kPa (210 mmHg, 8.3 in.Hg)

Type I → **Go to step 7.**

Type II → **Go to step 10.**

Type III

3	Check the VSV circuit for EGR.



PREPARATION:

(a) Disconnect the emission ECU from the body panel. (See page EC–10)

(b) Disconnect the "E1" connector of emission ECU.

(c) Turn the ignition switch ON.

CHECK:

Check the VSV operation.

(1) Connect between terminal VEGV of emission ECU connector and body ground (ON).

(2) Disconnect between terminal VEGV of emission ECU connector and body ground (OFF).

OK:

VSV ON:
Air from pipe E is flowing out through pipe F.
VSV OFF:
Air from pipe E is flowing out through air filter.

OK	Check the connection, damage and blockage of vacuum hose.

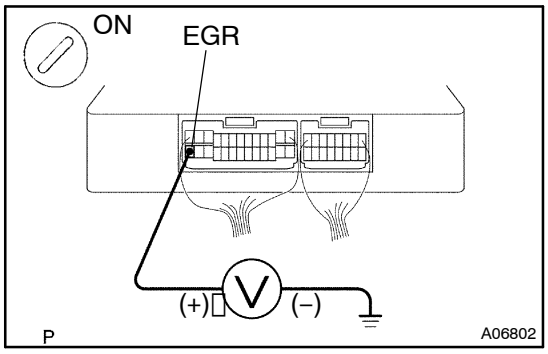
NG

4	Check the EGR cut VSV. (See page EC–10)

NG	Replace EGR cut VSV.

OK

5	Check voltage between terminal EGR of emission ECU and body ground.



PREPARATION:

(a) Disconnect the emission ECU from body panel.
(See page EC–10)

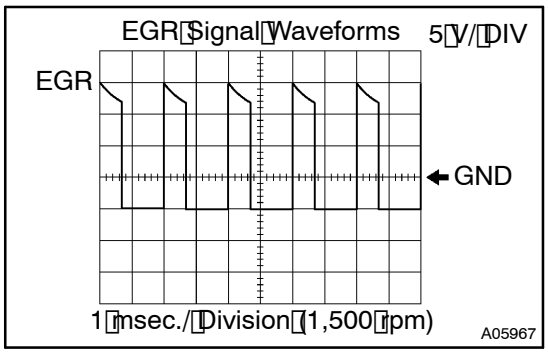
(b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminal EGR of emission ECU and body ground.

OK:

Voltage: 18 – 28 V



Reference: INSPECTION USING OSCILLOSCOPE

During EGR system is ON (engine speed 1,500 rpm), check waveform between terminals EGR and E1 of emission ECU.

HINT:

The correct waveform is as shown.

NG	Check and replace emission ECU. (See page IN–19)

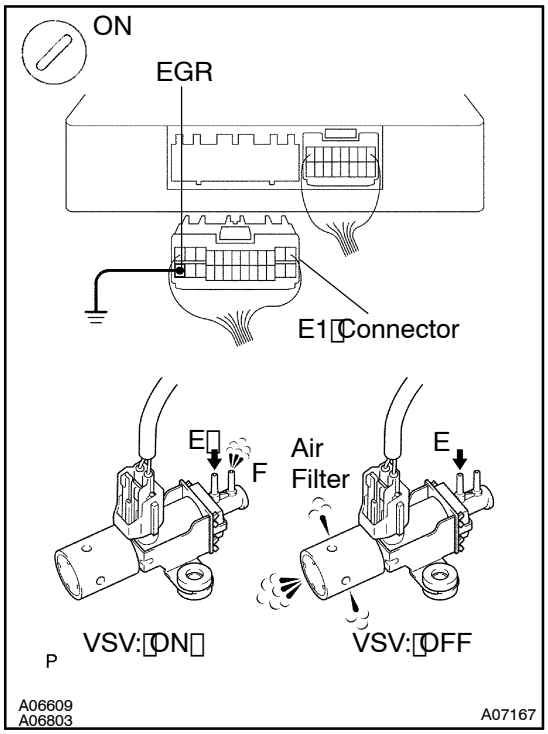
OK

6	Check for open and short in harness and connector between EGR cut VSV and emission ECU. (See page IN–19)

NG	Repair or replace harness connector.

OK

7	Check operation of E-VRV for EGR.



PREPARATION:

(a) Disconnect the emission ECU from the body panel. (See page EC–10)

(b) Disconnect the "E1" connector of emission ECU.

(c) Turn the ignition switch ON.

CHECK:

Check E-VRV operation.

(1) Connect between terminal EGR of emission ECU connector and body ground (ON).

(2) Disconnect between terminal EGR of emission ECU connector and body ground (OFF).

OK:

E-VRV ON:
Air from pipe E is flow out through pipe F.
E-VRV OFF:
Air from pipe E is Flowing out through air filter.

OK	Go to step 9.

NG

8	Check E-VRV for EGR. (See page EC–10)

NG	Replace the E-VRV for EGR.

OK

9	Check for open and short in harness and connector between E–VRV for EGR and emission ECU. (See page IN–19)

NG → Repair or replace harness or connector.

OK

Check and replace emission ECU. (See page EC–10)

10	Check EGR valve. (See page EC–10)

NG → Replace the EGR valve.

OK

11	Check EGR system. (See page EC–10)

NG → Repair or replace.

OK

Proceed to next circuit inspection shown on problem symptoms table. (See page DI–12)