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Service Category: Engine/Hybrid System		Section: Engine Control
Model Year: 2008	Model: ES350	Doc ID: RM000001MTC01IX
Title: 2GR-FE ENGINE CONTROL SYSTEM: SFI SYSTEM: VC Output Circuit (2008 ES350)		

VC Output Circuit

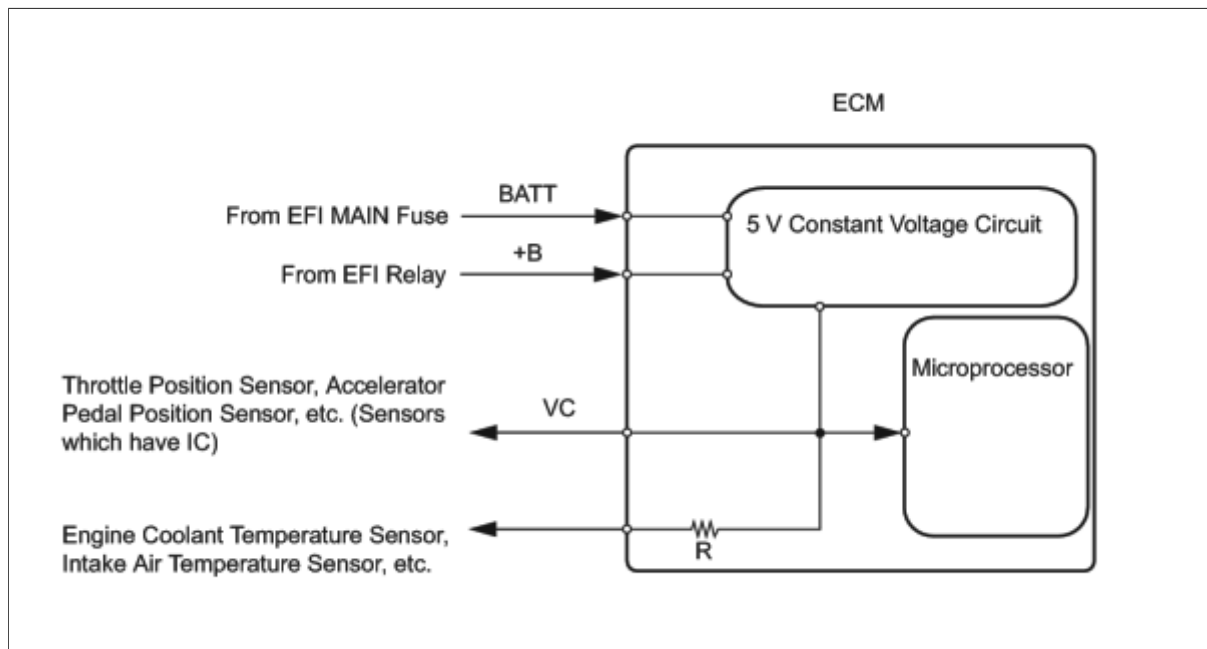
DESCRIPTION

The ECM constantly uses 5 V from the battery voltages supplied to the +B (BATT) terminal to operate the microprocessor. The ECM also provides this power to the sensors through the VC output circuit.

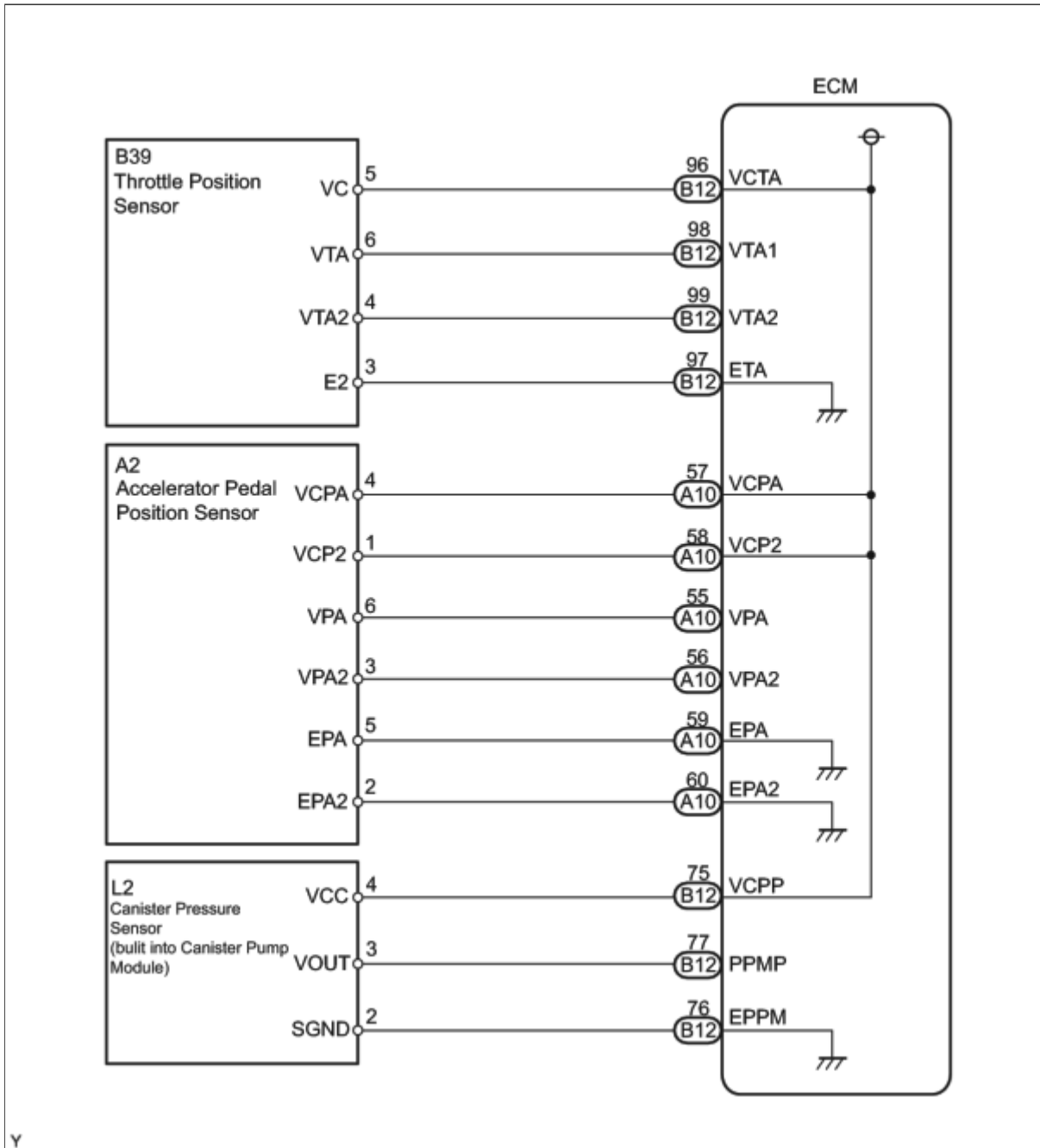
When the VC circuit is short-circuited, the microprocessor in the ECM and sensors that are supplied power through the VC circuit are inactivated because the power is not supplied from the VC circuit. Under this condition, the system does not start up and the MIL does not illuminate even if the system malfunctions.

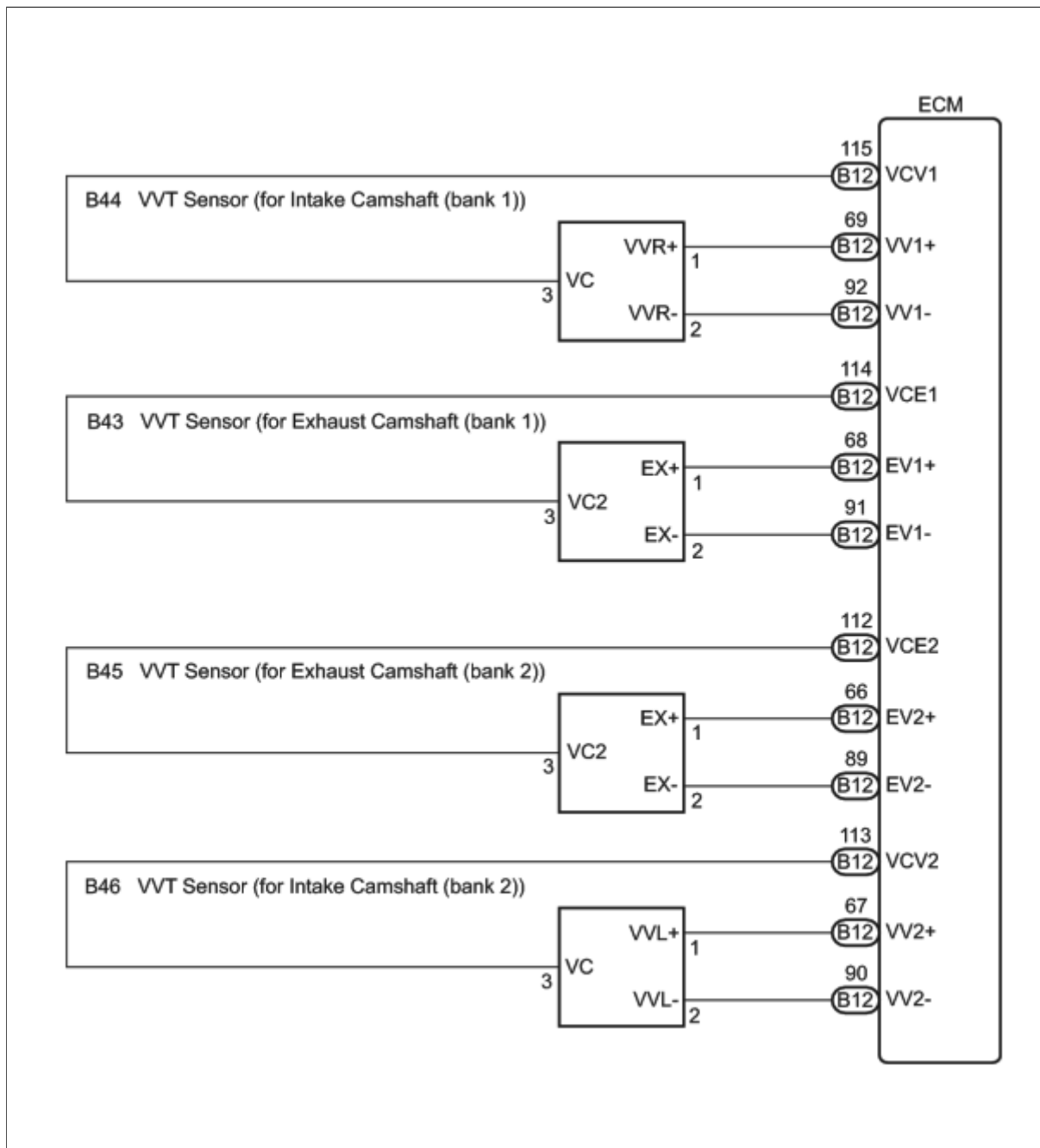
HINT:

Under normal conditions, the MIL is illuminated for several seconds when the engine switch is first turned on (IG). The MIL goes off when the engine is started.



WIRING DIAGRAM





INSPECTION PROCEDURE

PROCEDURE

1. CHECK MIL

(a) Check that Malfunction Indicator Lamp (MIL) lights up when turning the engine switch on (IG).

OK:

MIL lights up.

OK ► GO TO MIL CIRCUIT

NG



2.	CHECK CONNECTION BETWEEN TECHSTREAM AND ECM
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- (a) Connect Techstream to the DLC3.
- (b) Turn the engine switch on (IG) and turn the tester on.
- (c) Check the communication between the tester and ECM.

Result:

RESULT	PROCEED TO
Communication is possible	A
Communication is not possible	B

A ► **GO TO MIL CIRCUIT**

B



3.	CHECK THROTTLE BODY ASSEMBLY (CHECK MIL ILLUMINATED)
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- (a) Disconnect the throttle body connector.
- (b) Turn the engine switch on (IG).
- (c) Check the MIL.

Result:

RESULT	PROCEED TO
MIL illuminates	A
MIL does not illuminate	B

- (d) Reconnect the throttle body connector.

A ► **REPLACE THROTTLE BODY ASSEMBLY**

B



4.	CHECK ACCELERATOR PEDAL ASSEMBLY (CHECK MIL ILLUMINATED)
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- (a) Disconnect the accelerator pedal position sensor connector.
- (b) Turn the engine switch on (IG).
- (c) Check the MIL.

Result:

RESULT	PROCEED TO
MIL illuminates	A
MIL does not illuminate	B

(d) Reconnect the accelerator pedal position sensor connector.

A ► **REPLACE ACCELERATOR PEDAL ASSEMBLY**

B
▼

5. CHECK VVT SENSOR FOR INTAKE CAMSHAFT BANK 1 (CHECK MIL ILLUMINATED)

(a) Disconnect the VVT sensor for intake camshaft bank 1 connector.

(b) Turn the engine switch on (IG).

(c) Check the MIL.

Result:

RESULT	PROCEED TO
MIL illuminates	A
MIL does not illuminate	B

(d) Reconnect the VVT sensor for intake camshaft bank 1 connector.

A ► **REPLACE VVT SENSOR FOR INTAKE CAMSHAFT BANK 1**

B
▼

6. CHECK VVT SENSOR FOR EXHAUST CAMSHAFT BANK 1 (CHECK MIL ILLUMINATED)

(a) Disconnect the VVT sensor for exhaust camshaft bank 1 connector.

(b) Turn the engine switch on (IG).

(c) Check the MIL.

Result:

RESULT	PROCEED TO
MIL illuminates	A
MIL does not illuminate	B

(d) Reconnect the VVT sensor for exhaust camshaft bank 1 connector.

A ▶ REPLACE VVT SENSOR FOR EXHAUST CAMSHAFT BANK 1**B****7. CHECK VVT SENSOR FOR INTAKE CAMSHAFT BANK 2 (CHECK MIL ILLUMINATED)**

- (a) Disconnect the VVT sensor for intake camshaft bank 2 connector.
- (b) Turn the engine switch on (IG).
- (c) Check the MIL.

Result:

RESULT	PROCEED TO
MIL illuminates	A
MIL does not illuminate	B

- (d) Reconnect the VVT sensor for intake camshaft bank 2 connector.

A ▶ REPLACE VVT SENSOR FOR INTAKE CAMSHAFT BANK 2**B****8. CHECK VVT SENSOR FOR EXHAUST CAMSHAFT BANK 2 (CHECK MIL ILLUMINATED)**

- (a) Disconnect the VVT sensor for exhaust camshaft bank 2 connector.
- (b) Turn the engine switch on (IG).
- (c) Check the MIL.

Result:

RESULT	PROCEED TO
MIL illuminates	A
MIL does not illuminate	B

- (d) Reconnect the VVT sensor for exhaust camshaft bank 2 connector.

A ▶ REPLACE VVT SENSOR FOR EXHAUST CAMSHAFT BANK 2**B**

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9. CHECK CHARCOAL CANISTER ASSEMBLY (CHECK MIL ILLUMINATED)

- (a) Disconnect the canister pump module connector.
- (b) Turn the engine switch on (IG).
- (c) Check the MIL.

Result:

RESULT	PROCEED TO
MIL illuminates	A
MIL does not illuminate	B

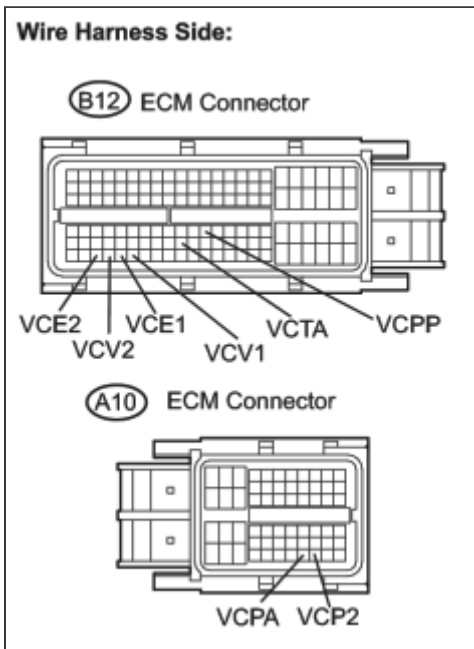
- (d) Reconnect the canister pump module connector.

A ► REPLACE CHARCOAL CANISTER ASSEMBLY

B



10. CHECK HARNESS AND CONNECTOR



- (a) Disconnect the throttle body connector.

- (b) Disconnect the accelerator pedal position sensor connector.
- (c) Disconnect the VVT sensor for intake camshaft bank 1 connector.
- (d) Disconnect the VVT sensor for exhaust camshaft bank 1 connector.
- (e) Disconnect the VVT sensor for intake camshaft bank 2 connector.

(f) Disconnect the VVT sensor for exhaust camshaft bank 2 connector.

(g) Disconnect the canister pump module connector.

(h) Disconnect the B12 and A10 ECM connectors.

(i) Measure the resistance according to the value(s) in the table below.

Standard resistance (Check for short):

TESTER CONNECTION	SPECIFIED CONDITION
VCTA (B12-96) - Body ground	10 k Ω or higher
VCV1 (B12-115) - Body ground	10 k Ω or higher
VCV2 (B12-113) - Body ground	10 k Ω or higher
VCE1 (B12-114) - Body ground	10 k Ω or higher
VCE2 (B12-112) - Body ground	10 k Ω or higher
VCPA (A10-57) - Body ground	10 k Ω or higher
VCP2 (A10-58) - Body ground	10 k Ω or higher
VCPP (B12-75) - Body ground	10 k Ω or higher

(j) Reconnect the ECM connectors.

(k) Reconnect the canister pump module connector.

(l) Reconnect the VVT sensor for exhaust camshaft bank 2 connector.

(m) Reconnect the VVT sensor for intake camshaft bank 2 connector.

(n) Reconnect the VVT sensor for exhaust camshaft bank 1 connector.

(o) Reconnect the VVT sensor for intake camshaft bank 1 connector.

(p) Reconnect the accelerator pedal position sensor connector.

(q) Reconnect the throttle body connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE ECM

