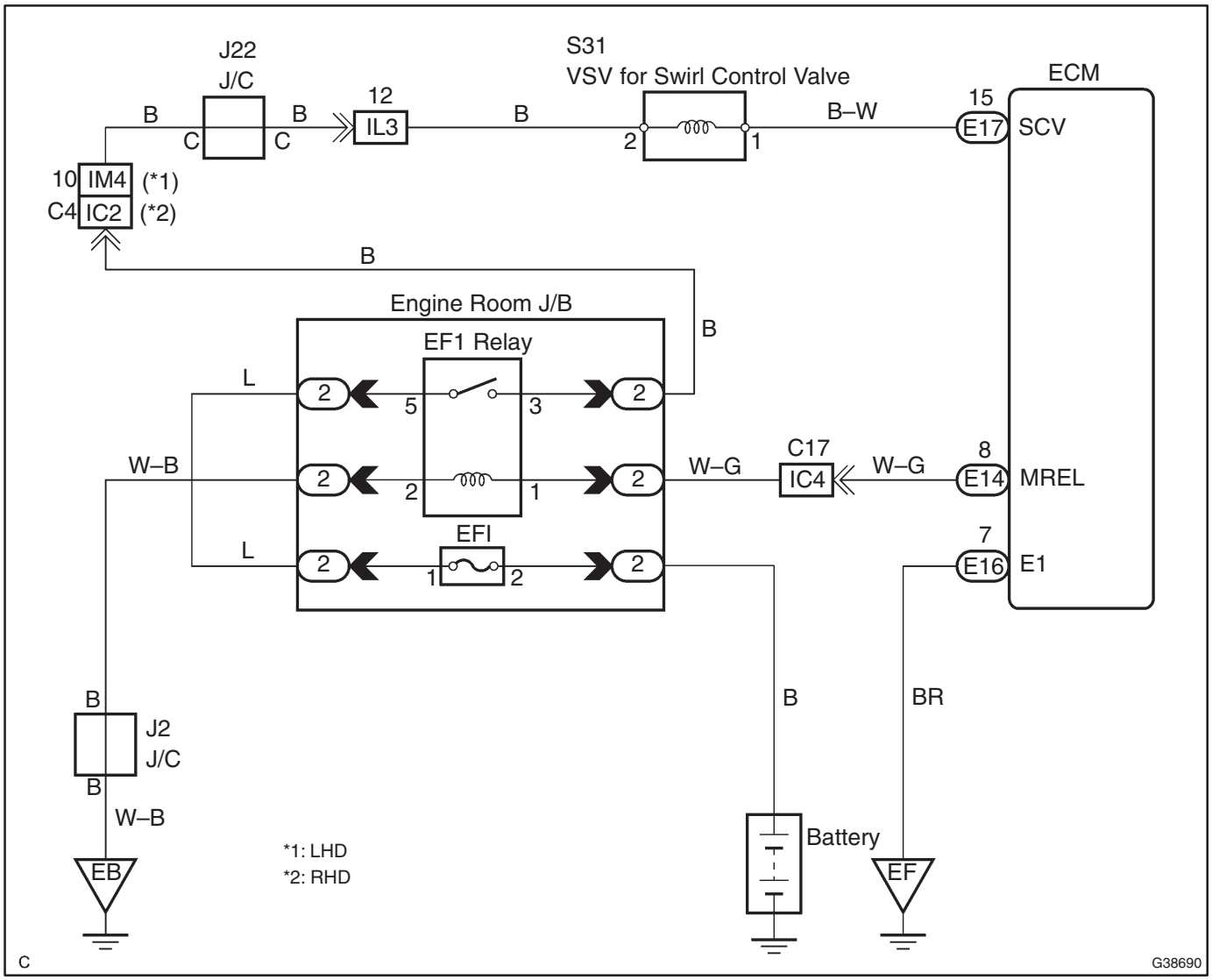
DTC	P2008/58	INTAKE MANIFOLD RUNNER CONTROL CIRCUIT / OPEN (BANK 1)

CIRCUIT DESCRIPTION

The swirl control valve is mounted on the intake manifold. The Vacuum Switching Valve (VSV) for swirl control valve changes the vacuum to actuate the actuator.
The ECM determines the opening angle of the swirl control valve, and uses the VSV for swirl control valve to change the vacuum applied to the actuator's diaphragm to open and close the swirl control valve.

DTC No.	DTC Detection Condition	Trouble Area
P2008/58	When actual intake air volume detected by MAF meter continues to be smaller than volume estimated from boost pressure and intake air temperature sensor, ECM determines that swirl control valve is stuck closed. (1 trip detection logic)	• VSV for swirl control valve • Open or short in VSV for swirl control valve circuit • Intake manifold (swirl control valve) • EGR valve assy • MAF meter • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the intelligent tester II. 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, and other data from the time the malfunction occurred.

When using intelligent tester II:

1 CHECK OTHER DTC OUTPUT (IN ADDITION TO DTC P2008/58)

(a) Connect the intelligent tester II to the DLC3.
(b) Turn the ignition switch ON and turn the intelligent tester II ON.
(c) Enter the following menus: Powertrain / Engine / DTC.
(d) Read the DTCs.

Result:

Display (DTC Output)	Proceed to
P2008/58	A
P2008/58 and other DTCs	B

B → **Go to RELEVANT DTC CHART (See page 05–477)**

A

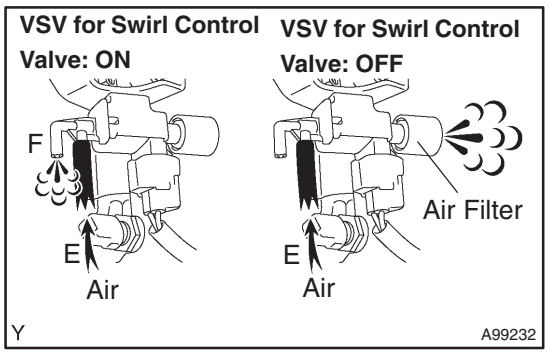
2 CHECK CONNECTION OF VACUUM HOSE

(a) Check the vacuum hose connection of swirl control valve system.

NG → **REPAIR OR REPLACE VACUUM HOSE**

OK

3 PERFORM ACTIVE TEST (VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE)



(a) Disconnect the vacuum hoses from the VSV for swirl control valve.
(b) Connect the intelligent tester II to the DLC3.
(c) Turn the ignition switch ON and turn the intelligent tester II ON.
(d) Enter the following menus: Powertrain / Engine / Active Test / Intake Air Control VSV.
(e) Check the operation

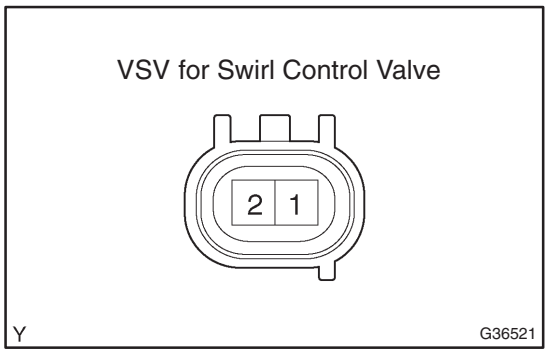
OK:

When VSV for swirl control valve is ON, air from port E flows out through port F.
When VSV for swirl control valve is OFF, air from port E flows out through air filter.

OK → **Go to step 7**

NG

4	INSPECT VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE (RESISTANCE)



(a) Disconnect the S31 VSV connector.
(b) Measure the resistance of the VSV.

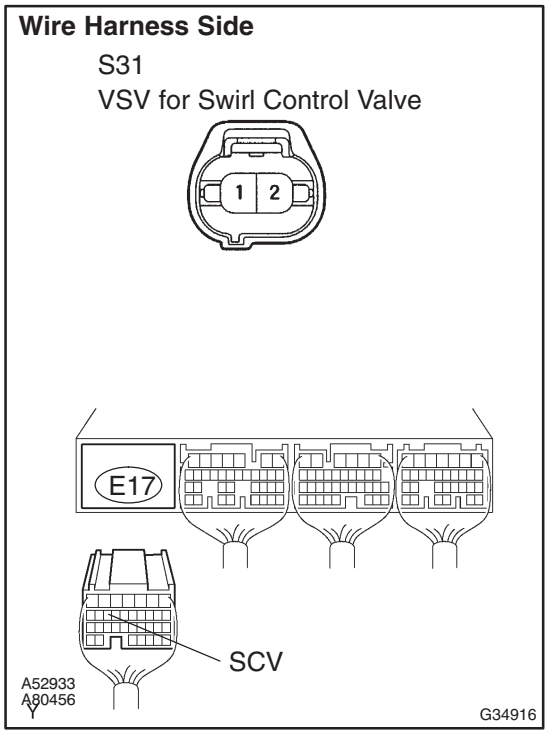
Standard:

Tester Connection	Condition	Specified Condition
1 – 2	20°C (68°F)	37 to 44 Ω

NG → **REPLACE VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE**

OK

5	CHECK WIRE HARNESS (VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE – ECM)



(a) Disconnect the S31 VSV connector.
(b) Disconnect the E17 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

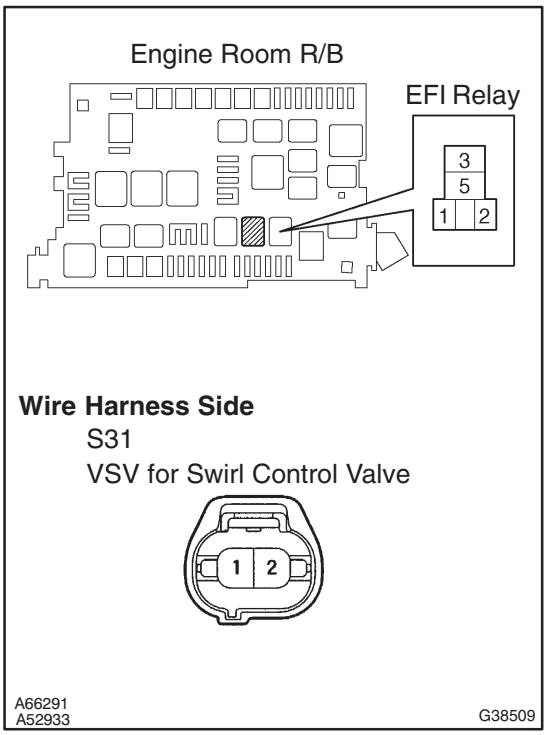
Standard:

Tester Connection	Specified Condition
S31–1 – E17–15 (SCV)	Below 1 Ω
S31–1 or E17–15 (SCV) – Body ground	10 kΩ or higher

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

OK

6	CHECK WIRE HARNESS (VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE – EFI RELAY)



(a) Remove the EFI relay from the engine room R/B.
(b) Disconnect the S31 VSV connector.
(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
EFI relay (3) – S31–2	Below 1 Ω
EFI relay (3) or S31–2 – Body ground	10 kΩ or higher

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

OK

REPLACE ECM (See Pub. No. RM990E, page 10–34)

NOTICE:
After replacing the ECM, allow for ECM learning start the engine and idle it until it is fully warmed up.

7	INSPECT INTAKE MANIFOLD (SWIRL CONTROL VALVE OPERATION) (See page 13–21)

NG → **REPLACE INTAKE MANIFOLD**

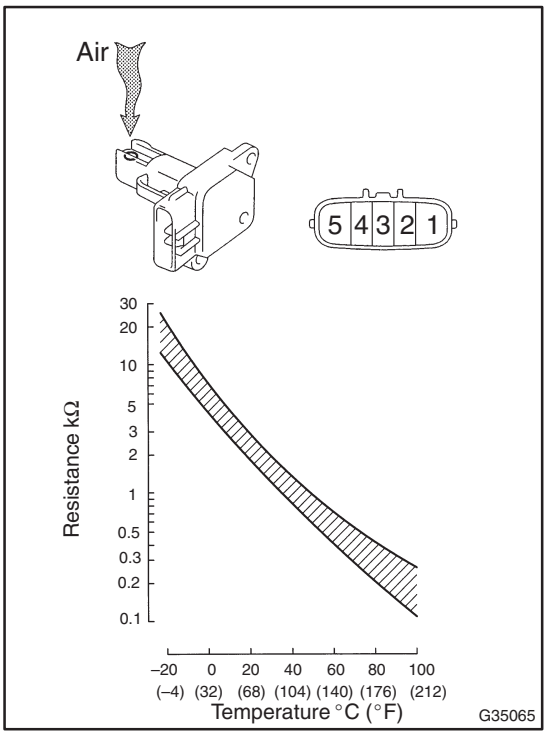
OK

8	CHECK EGR VALVE ASSY (See page 12–20)

NG → **REPLACE EGR VALVE ASSY (See page 10–20)**

OK

9 INSPECT INTAKE AIR TEMPERATURE SENSOR



(a) Remove the MAF meter.
(b) Measure the resistance of the IAT sensor.
Standard:

Tester Connection	Condition	Specified Condition
4 – 5	–20°C (–4°F)	13.6 to 18.4 kΩ
4 – 5	20°C (68°F)	2.21 to 2.69 kΩ
4 – 5	60°C (140°F)	0.49 to 0.67 kΩ

NG → **REPLACE MASS AIR FLOW METER**

OK

10 CHECK OTHER DTC OUTPUT (IN ADDITION TO DTC P2008/58)

(a) Connect the intelligent tester II to the DLC3.
(b) Turn the ignition switch ON and turn the intelligent tester II ON.
(c) Enter the following menus: Powertrain / Engine / DTC.
(d) Read the DTCs.
Result:

Display (DTC Output)	Proceed to
P2008/58	A
No DTC	B

B → **SYSTEM OK**

A

REPLACE ECM (See Pub. No. RM990E, page 10–34)

NOTICE:
After replacing the ECM, allow for ECM learning start the engine and idle it until it is fully warmed up.

When not using intelligent tester II:

1	CHECK OTHER DTC OUTPUT (IN ADDITION TO DTC P2008/58)

(a) Turn the ignition switch ON.
(b) Read the DTCs (see page 05–466).
Result:

Display (DTC Output)	Proceed to
P2008/58	A
P2008/58 and other DTCs	B

B → **SYSTEM OK**

A

2	CHECK CONNECTION OF VACUUM HOSE

(a) Check the vacuum hose connection of swirl control valve system.

NG → **REPAIR OR REPLACE VACUUM HOSE**

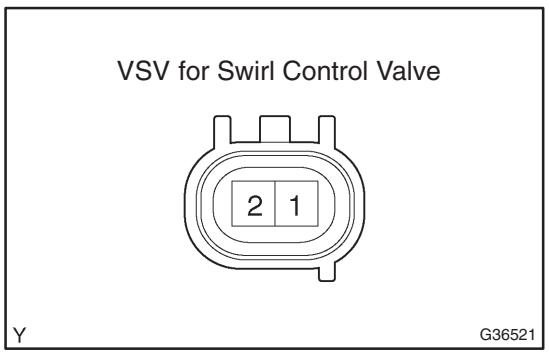
OK

3	INSPECT VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE (OPERATION) (See page 13–22)

NG → **REPLACE VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE**

OK

4	INSPECT VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE (RESISTANCE)



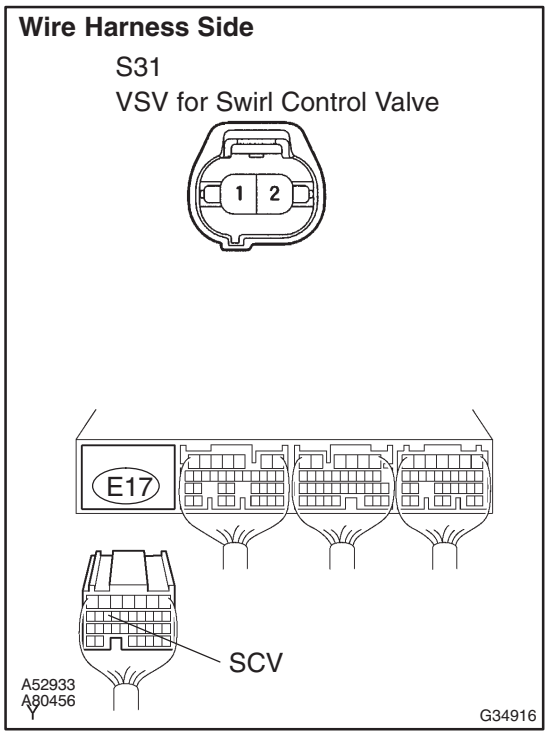
(a) Disconnect the S31 VSV connector.
(b) Measure the resistance of the VSV.
Standard:

Tester Connection	Condition	Specified Condition
1 – 2	20°C (68°F)	37 to 44 Ω

NG → **REPLACE VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE**

OK

5 CHECK WIRE HARNESS (VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE – ECM)



(a) Disconnect the S31 VSV connector.
(b) Disconnect the E17 ECM connector.
(c) Measure the resistance of the wire harness side connectors.

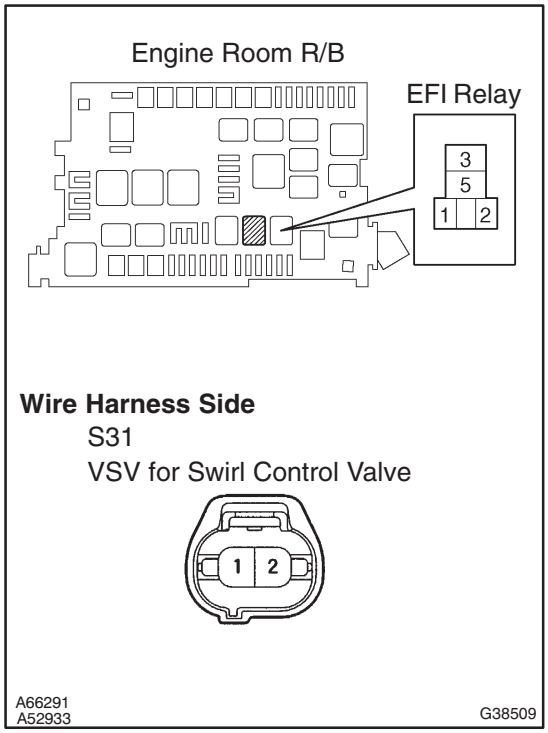
Standard:

Tester Connection	Specified Condition
S31–1 – E17–15 (SCV)	Below 1 Ω
S31–1 or E17–15 (SCV) – Body ground	10 kΩ or higher

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

OK

6 CHECK WIRE HARNESS (VACUUM SWITCHING VALVE FOR SWIRL CONTROL VALVE – EFI RELAY)



(a) Remove the EFI relay from the engine room R/B.
(b) Disconnect the S31 VSV connector.
(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
EFI relay (3) – S31–2	Below 1 Ω
EFI relay (3) or S31–2 – Body ground	10 kΩ or higher

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

OK

7	INSPECT INTAKE MANIFOLD (SWIRL CONTROL VALVE OPERATION) (See page 13–21)

NG → REPLACE INTAKE MANIFOLD

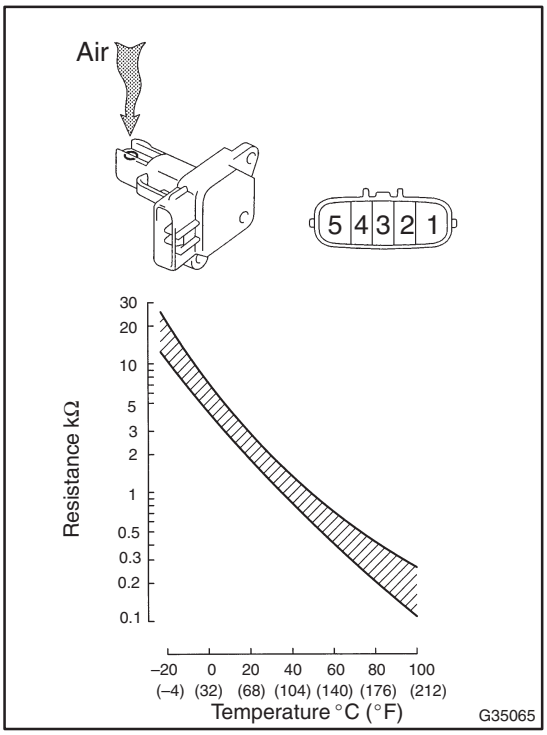
OK

8	CHECK EGR VALVE ASSY (See page 12–20)

NG → REPLACE EGR VALVE ASSY (See page 10–20)

OK

9	INSPECT INTAKE AIR TEMPERATURE SENSOR



(a) Remove the MAF meter.

(b) Measure the resistance of the IAT sensor.

Standard:

Tester Connection	Condition	Specified Condition
4 – 5	–20°C (–4°F)	13.6 to 18.4 kΩ
4 – 5	20°C (68°F)	2.21 to 2.69 kΩ
4 – 5	60°C (140°F)	0.49 to 0.67 kΩ

NG → REPLACE MASS AIR FLOW METER

OK

10	CHECK OTHER DTC OUTPUT (IN ADDITION TO DTC P2008/58)

(a) Turn the ignition switch ON.
(b) Read the DTCs (see page 05–466).

Result:

Display (DTC Output)	Proceed to
P2008/58	A
No DTC	B

B → **SYSTEM OK**

A

REPLACE ECM (See Pub. No. RM990E, page 10–34)

NOTICE:
After replacing the ECM, allow for ECM learning start the engine and idle it until it is fully warmed up.