DTC	P0045/34	TURBO/SUPER CHARGER BOOST CONTROL SOLENOID CIRCUIT / OPEN

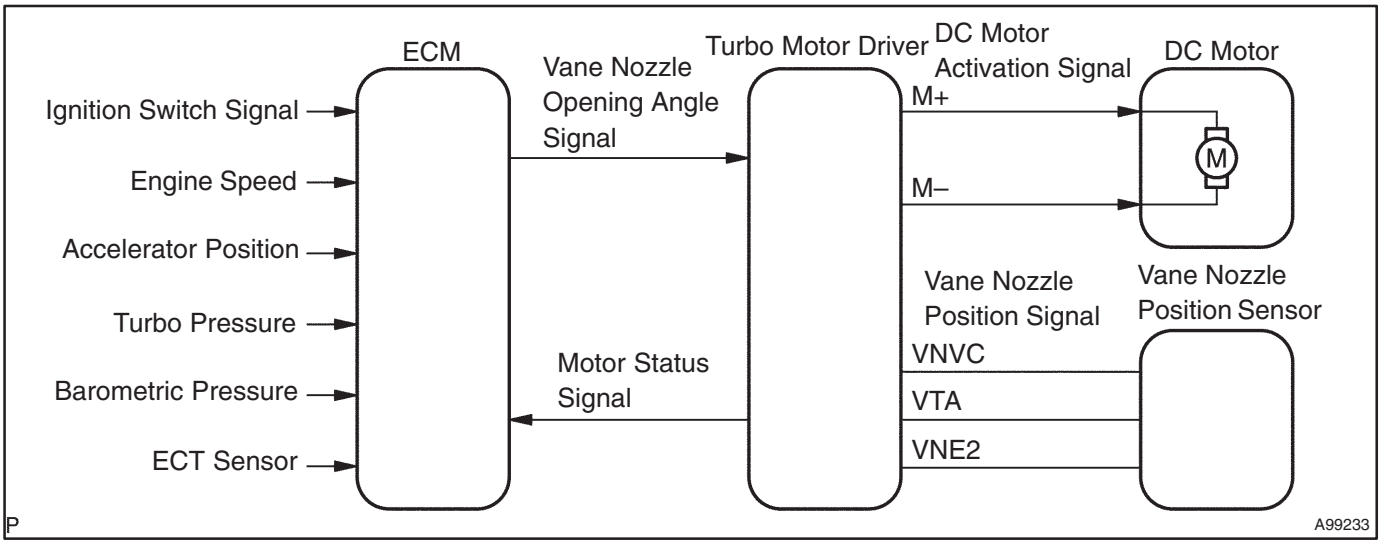
CIRCUIT DESCRIPTION

The turbocharger system is comprised of the Variable Nozzle (VN) type turbocharger, the turbo motor drover and ECM.

The turbocharger has nozzle vane which opens and closes to control the volume of the exhaust gas flowing into the turbine. This, in turn, controls the boost pressure, When the nozzle vane moves towards the closing direction, the pressure increases. When the vane moves towards the opening direction, the pressure decreases.

The turbocharger actuator built on the turbine side activates the nozzle vane. The nozzle vane position sensor built on the actuator detects the opening angle of nozzle vane. The nozzle vane position sensor signal is sent via the turbo motor driver to the ECM. Then, based on the signal, the ECM actuates the actuator.

The ECM sends a target nozzle vane position signal to the turbo motor driver to obtain the nozzle vane position for the optimal boost pressure in accordance with the driving conditions.

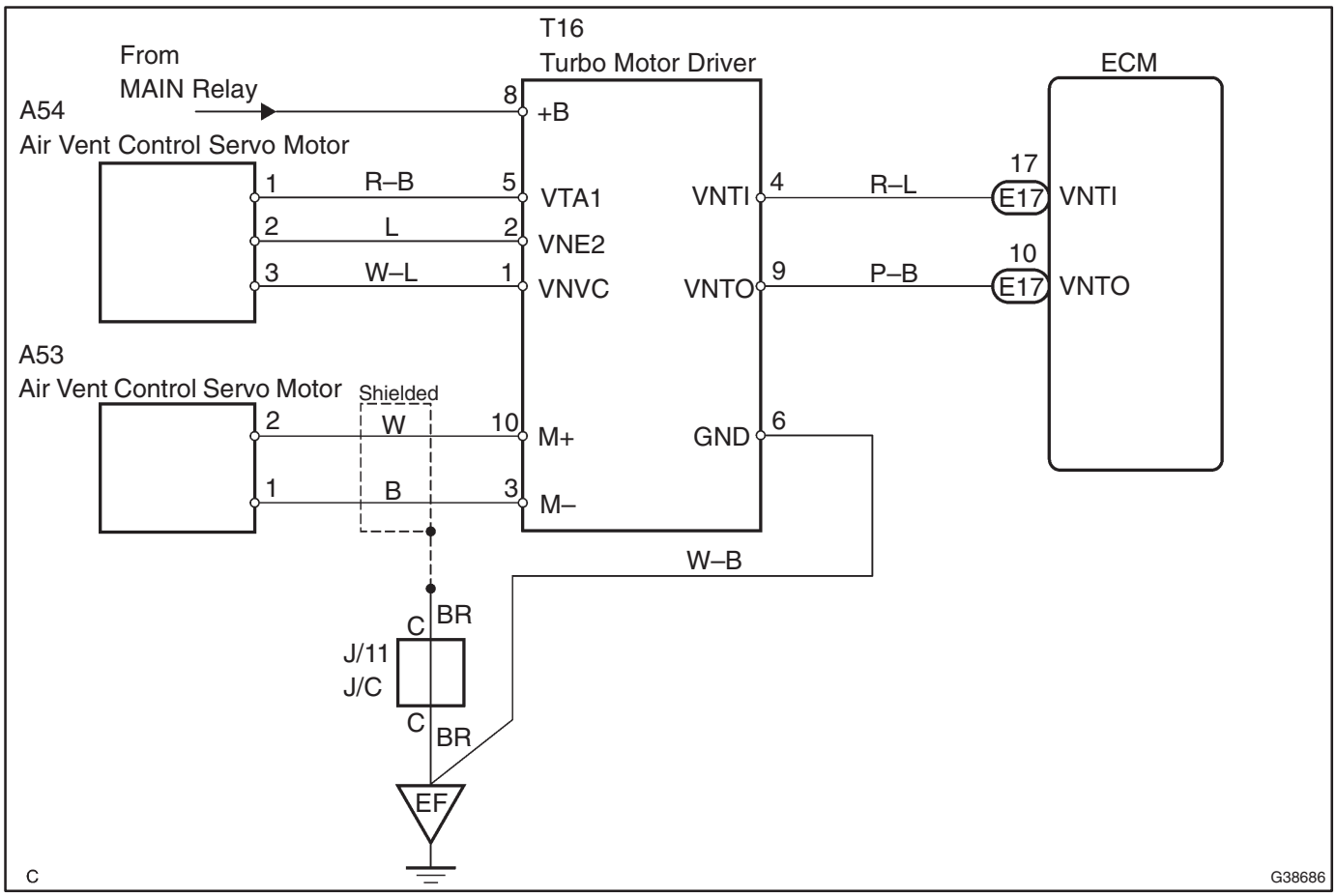


DTC No.	DTC Detection Condition	Trouble Area
P0045/34	• Open or short in turbo motor driver circuit continues for 0.5 seconds or more • When communication error occurs between turbo motor and ECM (1 trip detection logic)	• Turbo motor driver • Open or short in turbo motor driver circuit • Turbocharger sub–Assy • ECM

MONITOR DESCRIPTION

This DTC is detected 5 seconds after the ignition switch is turned ON.

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.

1	INSPECT TURBOCHARGER SUB–ASSY (DC MOTOR) (See page 13–1)

NG → REPLACE TURBOCHARGER SUB–ASSY (See page 13–10)

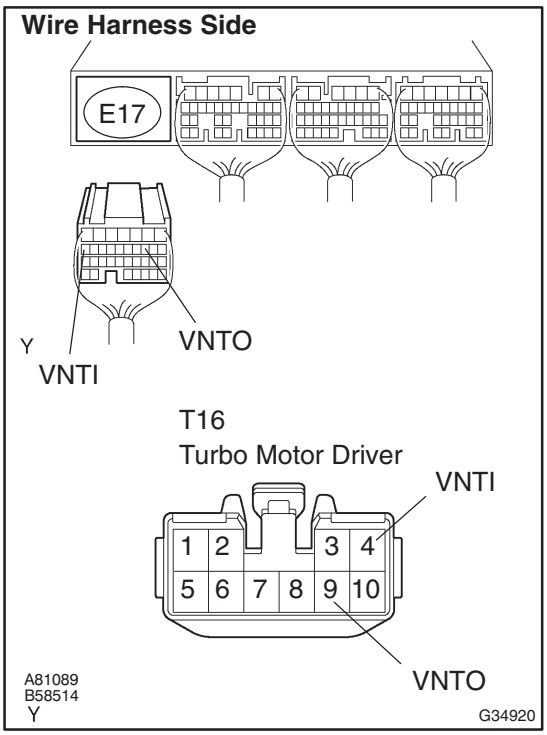
OK

2	INSPECT TURBO MOTOR DRIVER (See page 13–1)

NG → REPLACE TURBO MOTOR DRIVER

OK

3	CHECK WIRE HARNESS (TURBO MOTOR DRIVER – ECM)



(a) Disconnect the E17 ECM connector.
(b) Disconnect the T16 turbo motor driver connector.
(c) Measure the resistance of the wire harness side connectors.

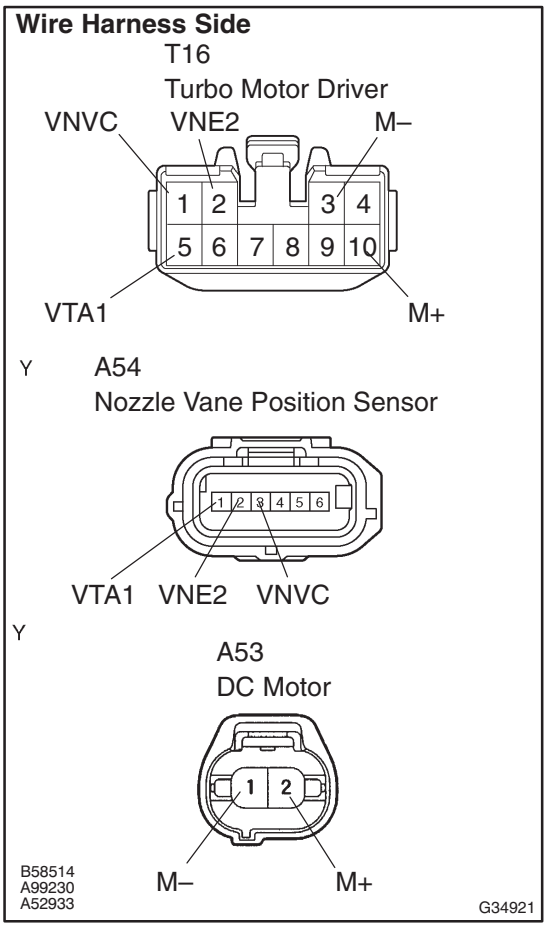
Standard:

Tester Connection	Specified Condition
E17–10 (VNTO) – T16–9 (VNTO) E17–17 (VNTI) – T16–4 (VNTI)	Below 1 Ω
E17–10 (VNTO) or T16–9 (VNTO) – Body ground E17–17 (VNTI) or T16–4 (VNTI) – Body ground	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4	CHECK WIRE HARNESS (TURBO MOTOR DRIVE – NOZZLE VANE POSITION SENSOR, TURBO MOTOR DRIVE – DC MOTOR)



(a) Disconnect the T16 turbo motor drive connector.
(b) Disconnect the A54 nozzle vane position sensor connector.
(c) Disconnect the A53 DC motor connector.
(d) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
T16–1 (VNVC) – A54–3 (VNVC) T16–5 (VTA1) – A54–1 (VTA1) T16–2 (VNE2) – A54–2 (VNE2) T16–10 (M+) – A53–2 (M+) T16–3 (M–) – A53–1 (M–)	Below 1 Ω
T16–1 (VNVC) or A54–3 (VNVC) – Body ground T16–5 (VTA1) or A54–1 (VTA1) – Body ground T16–2 (VNE2) or A54–2 (VNE2) – Body ground T16–10 (M+) or A53–2 (M+) – Body ground T16–3 (M–) or A53–1 (M–) – 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.