P0480 PWM Electric Fan Malfunction (Open circuit)
P0483 Fan PWM motor out have short to GND
P0484 Fan PWM Stall motor
P0485 Fan PWM motor have over load
P0691 PWM Electric Fan Malfunction (Short to GND)
P0692 PWM Electric Fan Malfunction(Short to B+)

1. DETECTION CONDITION

P0480 PWM COOLING FAN DRIVE FAULT (OPEN)

If the PWM fan drive circuit is opened, this diagnostic trouble code (DTC) is set.

P0483 PWM COOLING FAN MODULE ERROR (SC TO GND)

If the fan module is shorted to ground, this diagnostic trouble code (DTC) is set.

P0484 PWM COOLING FAN MODULE ERROR (STOP)

If any speed loss occurs in the fan module, this diagnostic trouble code (DTC) is set.

P0485 PWM COOLING FAN MODULE ERROR (OVERLOAD)

If the fan module is overloaded, this diagnostic trouble code (DTC) is set.

P0691 PWM COOLING FAN DRIVE FAULT (SC TO GND)

If the PWM fan drive circuit is shorted to ground, this diagnostic trouble code (DTC) is set.

P0692 PWM COOLING FAN DRIVE FAULT (SC TO VBATT)

If the PWM fan drive circuit is shorted to battery, this diagnostic trouble code (DTC) is set.

Modification basis	
Application basis	
Affected VIN	

2. COMPONENTS

2.1 Mounting Location

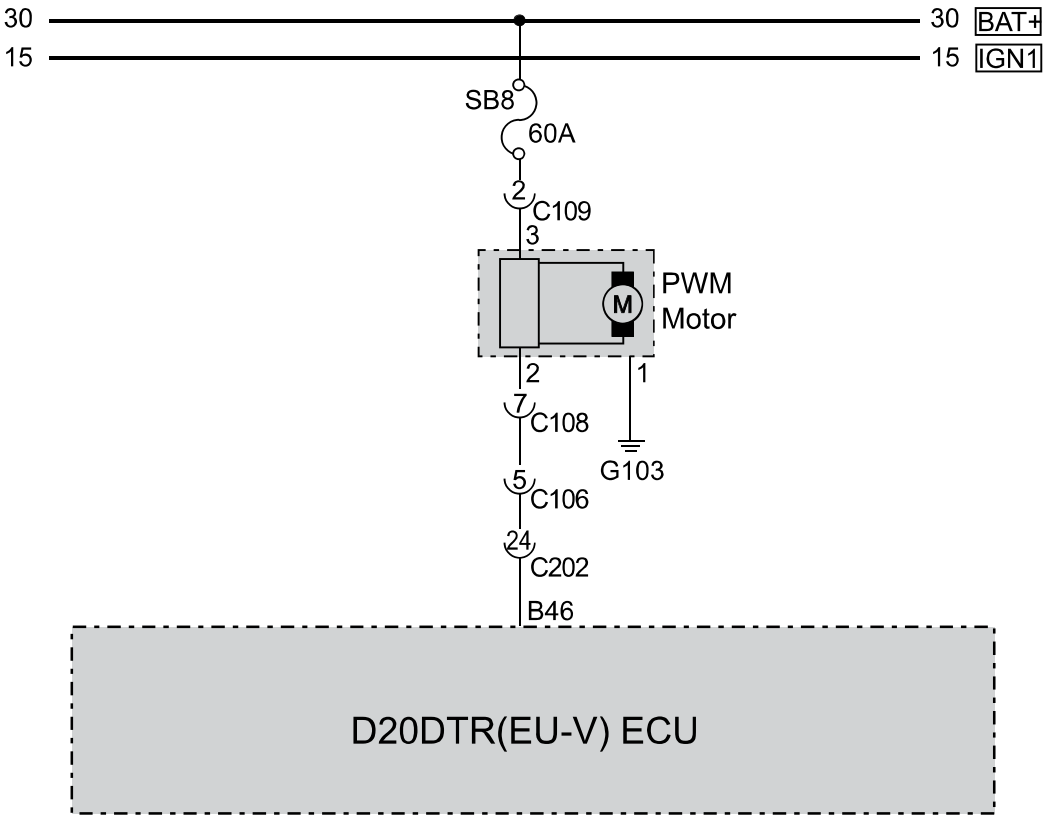
2.2 Description

The PWM (Pulse Width Modulation) electronic fan is installed on the rear of the radiator. As it is equipped with the PWM electronic fan unit, the ECU adjust the output voltage time to control the speed of the fan motor. The PWM unit shuts off power to the motor in case of overcurrent, prevents inverse voltage, prevents motor lock, monitors temperature and progressively increases the motor rotating speed at the initial operation. Since the PWM electronic fan drives the fan only when required, it can prevent loss of engine power and control vibration and noise.

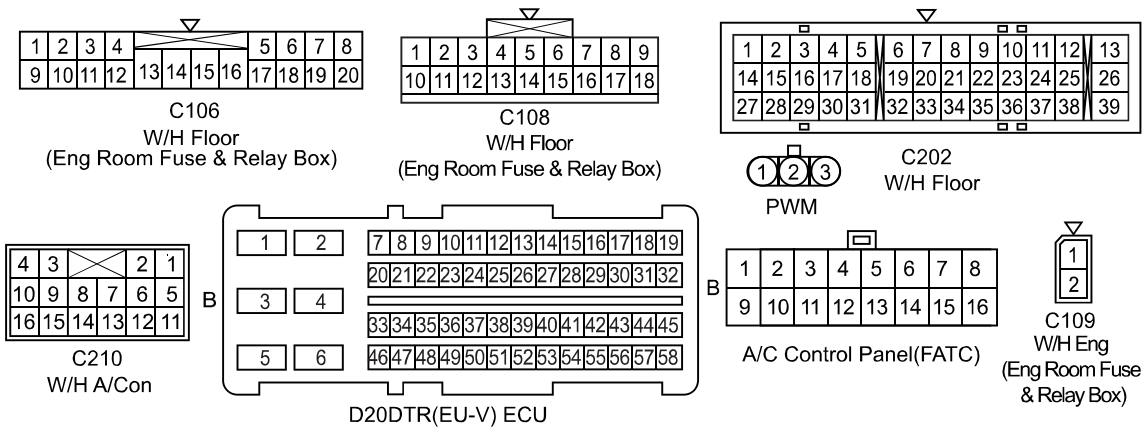
Rated voltage	DC 12.5 V	Operating temperature	-40 ~ 107ЎЙ
Max. driving power	400 W (12.5 V)	Operating voltage	DC 9 ~ 16 V
Input signal frequency	140 Hz	Motor driving frequency	20 kHz

3. PARTIAL CIRCUIT DIAGRAM

3.1 Partial Circuit Diagram



3.2 Connector Appearance



Modification basis	
Application basis	
Affected VIN	

4. SCAN DIAGNOSIS

NOTE

If malfunction displayed on the diagnostic device was occurred in the past and the sensor output is correct
after checking diagnostic trouble codes (DTCs) with diagnostic device, primarily check the wiring connector for poor contact.
If malfunction displayed on the diagnostic device is present and the sensor output is incorrect,
perform the procedures described in the section "Forced operation of actuator" and check the wiring and component by steps.

4.1 DTC Check

a Connect the diagnostic device to the self-diagnosis connector.

b Turn the ignition switch to the "ON" position.

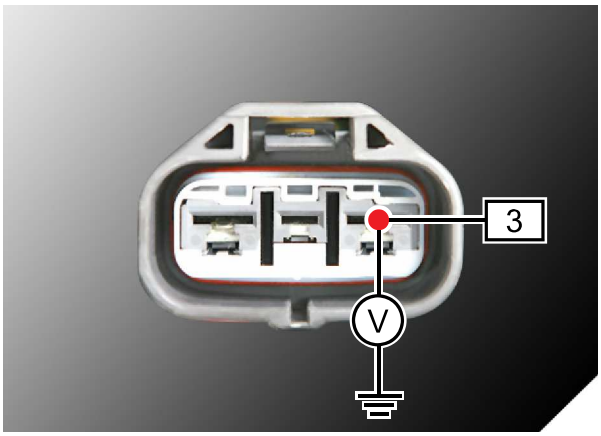
c Erase the memory after self-diagnosis and check if the same DTC occurs again.

d If the DTC occurs persistently, refer to the procedure described in the section "Check method".

5. CHECK METHOD

NOTE

* Check each component connector for looseness, poor contact, corrosion, contamination, deformation and damage.
* Make sure to perform the procedures described in the section "Final service check" after checking by procedures in order to determine if the DTC occurs again.



5.1 Power Wire Check

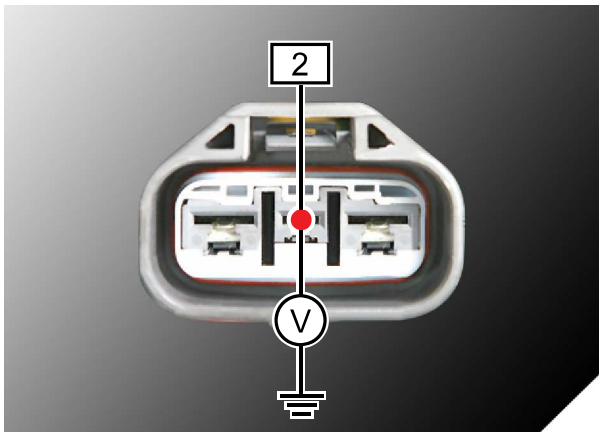
a. Turn the ignition switch to the "OFF" position.
b. Disconnect the PWM electronic fan wiring connector.
c. Turn the ignition switch to the "ON" position.
d. Measure the voltage between the power wire terminal No. 3 of the PWM electronic fan wiring connector and body ground.

Measuring voltage	
Specified value	Approx. 5 V

NG Check the electric fan fuse and wiring for open, and power wiring for open or short circuit to ground, then repair it.

Modification basis	
Application basis	
Affected VIN	

5. CHECK METHOD



5.2 Control Wire Voltage Check

a Turn the ignition switch to the "OFF" position.

b Disconnect the PWM electronic fan wiring connector.

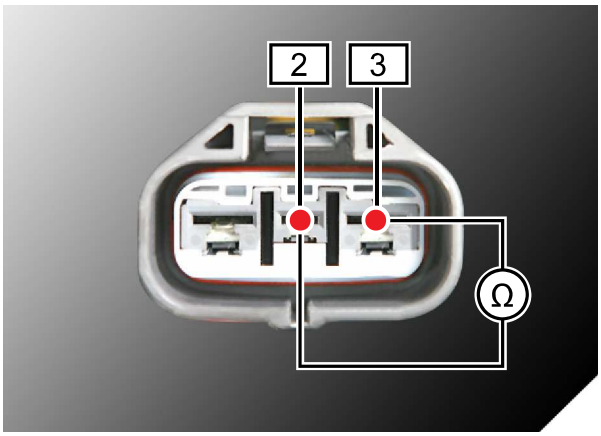
c Turn the ignition switch to the "ON" position.

d Measure the voltage between the control wire terminal No. 2 of the PWM electronic fan wiring connector and body ground.

Measuring voltage	
Specified value	Approx. 2.7 V

NG Check the PWM electric fan control wiring for open and short circuit, and repair it.

5. CHECK METHOD



5.3 Control Wire Check (Short)

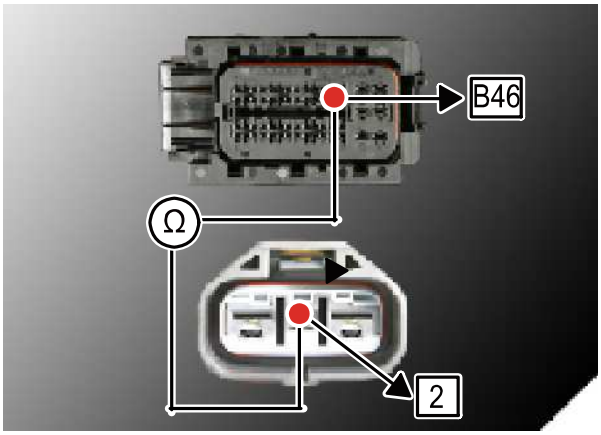
a Turn the ignition switch to the "OFF" position.

b Disconnect the PWM electronic fan wiring connector and the ECU connector.

c Measure the resistance value between the power wire terminal No. 3 and control wire terminal No. 2 of the PWM electronic fan wiring connector.

Measuring resistance	
Specified value	Infinite §Щ

NG Repair or replace the PWM electronic fan control wire that has a short circuit to battery.



5.4 Control Wire Check

a Turn the ignition switch to the "OFF" position.

b Disconnect the PWM module connector and the ECU connector B.

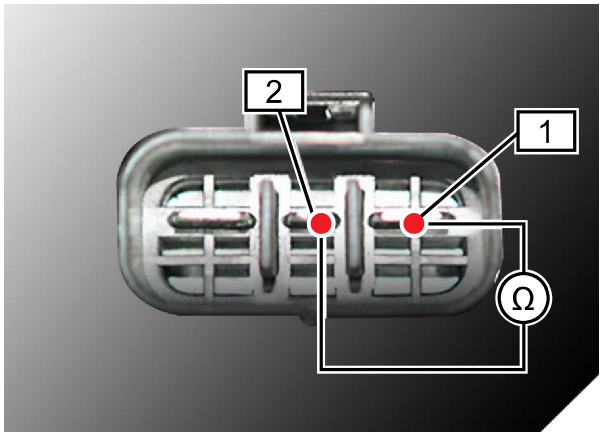
c Measure the resistance between the control wire terminal No. 2 of the PWM module connector and the ECU connector terminal No. B46.

Measuring resistance	
Specified value	Approx. 0 §Щ

NG Repair the PWM module control wire that has an open or short circuit.

Modification basis	
Application basis	
Affected VIN	

5. CHECK METHOD



5.5 Component Check

a Turn the ignition switch to the "OFF" position.

b Disconnect the PWM electric fan wiring connector.

c Measure the resistance between the power wire terminal No. 3 and control wire terminal No. 2 of the PWM electric fan wiring connector.

Measuring resistance

Specified value	Approx. 1.58 kΩ

NG Replace the PWM electric fan.

NOTE

If the poor contact occurs persistently, apply the anti-contact resistance grease.

5.6 Final Service Check

- This is to check the serviced item again for the last time after the service is completed.
- Erase DTC(s) again on the diagnostic device.
- Test drive the vehicle and check the vehicle has recovered its normal condition.

NG Perform the inspection procedures again after replacing the ECU.

OK Service completed (System normal)