

## DTC P0622

### Diagnostic Instructions

- Perform the Diagnostic System Check – Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

### DTC Descriptor

**DTC P0622:** Generator F-Terminal Circuit

### Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	P0622	P0622	—	—
Field Duty Cycle Signal	P0622	P0622	—	—
Turn On Signal	P0621	—	P0621	—

### Typical Scan Tool Data

#### GEN F-Terminal Signal – ECM

Circuit	Short to ground	Open	Short to voltage
<b>Operating Conditions: Engine Running Parameter Normal Range: 5% to 99%</b>			
B+	0%	0%	—
Field Duty Cycle Signal	0%	0%	99%

### Circuit/System Description

The engine control module (ECM) uses the generator field duty cycle signal circuit, or F-terminal circuit, to monitor the duty cycle of the generator. The generator field duty cycle signal circuit connects to high side of the field windings in the generator. A pulse width modulated (PWM) high side driver in the voltage regulator turns the field windings ON and OFF. The ECM uses the PWM signal input to determine the generator load on the engine. This allows

the ECM to adjust the idle speed to compensate for high electrical loads. The ECM monitors the status of the generator field duty cycle signal circuit. When the ignition is ON and the engine is OFF, the ECM should detect a duty cycle near 0 percent. When the engine is running, the duty cycle should be between 5–99 percent.

## Conditions for Running the DTC

- a) The engine is running.
- b) DTC P0621 is not set.

## Conditions for Setting the DTC

The field duty cycle signal is less than 5 percent duty cycle for 30 seconds.

## Action Taken When the DTC Sets

- a) The charge indicator turns ON.
- b) The driver information center (DIC) displays the SERVICE BATTERY CHARGING SYSTEM message.

## Conditions for Clearing the DTC

- a) The DTC passes when condition for setting the DTC is no longer present.
- b) The charge indicator and DIC message turn OFF when the DTC passes.

## Circuit/System Verification

Engine running, observe the scan tool ECM GEN-F Terminal Signal parameter. The reading should be between 5 and 99%.

## Circuit/System Testing

- 1) Verify that a test lamp illuminates between the
- 2) B+ circuit ring terminal 1 X2 and ground.  
If the test lamp does not illuminate, test the B+ circuit for a short to ground

or an open/high resistance.

- 3) Ignition OFF, disconnect the X1 harness connector
- 4) at the generator.
- 5) Ignition ON, verify the scan tool ECM GEN-F Terminal Signal is less than 5%.

If greater than the specified range, test the signal circuit terminal 2 X1 for a short to voltage. If the circuit tests normal, replace the ECM.

- 6) Install a 3 A fused jumper wire between the signal circuit terminal 2 X1 and B+. Verify the scan tool ECM GEN-F Terminal Signal is greater than 95%.

If less than the specified range, test the signal circuit for an open/high resistance. If the circuit tests normal, replace the ECM.

- 7) If all circuits test normal, test or replace the generator.

LAUNCH