

## A: Vehicle Battery

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### A1 DIAGNOSTIC TROUBLE CODES (DTCs) P0563/P0562/P0560: CHECK BATTERY VOLTAGE

- Key on, engine off.
- Measure voltage across battery terminals.

#### Is voltage greater than 9.5 volts?

**Note:** DTC P0563 may be a temporary condition with a 24-volt jump start. DTC P0562 may be a temporary condition at crank only.

**P0563** — System voltage high

**P0562** — System voltage low

**P0560** — System voltage malfunction, below 11.5 volts during KOER tests

Yes	No
F-Series, GO to <a href="#">A2</a> . Econoline, GO to <a href="#">A12</a> .	SERVICE discharged battery according to service manual direction.

### A2 CHECK VOLTAGE AT MAXI FUSE 9

- Measure voltage between Maxi Fuse 9 at power distribution box and battery negative post.

#### Is battery voltage present?

Yes	No
GO to <a href="#">A3</a> .	REPAIR open in Circuit 37 (Y) between the power distribution box and the starter relay.

### A3 CHECK MAXI FUSE 9

- Check Maxi Fuse 9 power distribution box.

#### Is fuse blown?

Yes	No
REPAIR short to ground and REPLACE Maxi Fuse 9.	GO to <a href="#">A4</a> .

### A4 CHECK CIRCUIT 37 (Y) TO RELAY

- Key off.
- Remove PCM relay.
- Remove Maxi Fuse 9.

- Measure resistance between the nonpower side of the Maxi Fuse 9 and Circuit 37 (Y) of the PCM relay connector.

**Is resistance less than 5 ohms?**

Yes	No
GO to <a href="#">A5</a> .	REPAIR open in Circuit 37 (Y) between fuse and relay connector.

**A5 CHECK IGNITION FEED TO DIODE**

- Remove diode from power distribution box.
- Key on.
- Measure voltage between battery ground and ignition feed side of diode connector.

**Is battery voltage present?**

Yes	No
GO to <a href="#">A6</a> .	REPAIR open in ignition feed Circuit 16 (R/LG) or ignition switch.

**A6 CHECK DIODE**

- Key off.
- Disconnect diode.

**Does diode check OK?**

Yes	No
F-Series, GO to <a href="#">A7</a> . Econoline, GO to <a href="#">A13</a> .	REPLACE diode.

**A7 CHECK CIRCUIT 175 (BK/Y)**

- Measure resistance between nonpower side of diode connector Circuit 175 (BK/Y) and PCM relay connector.

**Is resistance less than 5 ohms?**

Yes	No
GO to <a href="#">A8</a> .	REPAIR open in Circuit 175.

**A8 CHECK GROUND CIRCUIT 57 (BK) AT RELAY**

- Key off.
- Measure resistance between battery ground and Circuit 57 (BK) at PCM relay connector.

**Is resistance less than 5 ohms?**

Yes	No
GO to <a href="#">A9</a> .	REPAIR open in Circuit 57 (BK).

**A9 CHECK CIRCUIT 361 (R) FROM RELAY TO PCM**

- Disconnect PCM and inspect for damaged or pushed-out pins, corrosion and loose wires. Service as necessary.
- Measure resistance between Circuit 361 (R) at PCM relay connector and Test Pins 71 and 97.

Is resistance less than 5 ohms?

Yes	No
GO to <a href="#">A10</a> .	REPAIR open in Circuit 361 (R) between relay and PCM.

**A10 CHECK PWR GND CIRCUIT CONTINUITY**

- Key off.
- Install breakout box. Leave PCM disconnected.
- Inspect for damaged or pushed-out pins.
- Measure resistance between battery negative post and Test Pins 25, 51, 76, 77 and 103 at the breakout box.

Is each resistance less than 5.0 ohms?

Yes	No
F-Series, GO to <a href="#">A11</a> . Econoline, GO to <a href="#">A14</a> .	SERVICE open in PWR GND circuit. REMOVE breakout box. RECONNECT PCM. RERUN Scan Tool Diagnostic Test.

**A11 CHECK PCM RELAY**

- Key off.
- Disconnect Maxi Fuse 9.
- Install PCM relay.
- Breakout box install, PCM disconnected.
- Key on, engine off.
- Measure resistance between nonpower side of Maxi fuse 9 and Test Pins 71 and 97.

Is resistance less than 5 ohms?

Yes	No
If fault is still present, REPLACE PCM.	REPLACE PCM relay.

**A12 CHECK VOLTAGE AT PCM RELAY**

- Key off.
- Remove PCM relay from power distribution box.
- Measure voltage between PCM relay connector Circuit 37 (Y) and battery ground.

Is battery voltage present?

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Yes	No
GO to <a href="#">A5</a> .	REPAIR open in Circuit 37 (Y) between PCM relay and starter relay.

### A13 CHECK CIRCUIT 16

- Key off.
- Measure resistance between nonpower side of diode connector Circuit 16 (R/LG) and PCM relay connector.

Is resistance less than 5 ohms?

Yes	No
GO to <a href="#">A8</a> .	REPAIR open in Circuit 16 (R/LG) between diode and relay.

### A14 CHECK PCM RELAY

- Key off.
- Breakout box installed, PCM disconnected.
- PCM relay installed.
- Key on.
- Measure voltage between battery negative post and Test Pins 71 and 97.

Is battery voltage present?

Yes	No
If fault is still present, REPLACE PCM.	REPLACE PCM relay.