

**AL: Tachometer**← [AL: Introduction](#)**AL1 TACHOMETER INOPERATIVE: CHECK FUSE 17**

- Check Fuse 17 in IP fuse panel for open.

**Is fuse blown?**

Yes	No
REPAIR short to ground in Circuit 640 (R/Y). REPLACE fuse.	GO to <a href="#">AL2</a> .

**AL2 CHECK GROUND TO TACHOMETER**

- Key off.
- Disconnect instrument cluster and inspect for damaged pins.
- Measure resistance between ground Circuit 57 (BK), Pin 3 of the black instrument cluster connector and ground.

**Is resistance less than 5 ohms?**

Yes	No
GO to <a href="#">AL3</a> .	REPAIR open in ground Circuit 57 (BK).

**AL3 CHECK POWER TO TACHOMETER**

- Key on/engine off.
- Measure voltage between power Circuit 640 (R/LG), Pin 13 of the black instrument cluster connector and ground.

**Is battery voltage present?**

Yes	No
GO to <a href="#">AL4</a> .	REPAIR open in Circuit 640 (R/LG).

**AL4 CHECK SIGNAL CIRCUIT OUTPUT**

- Use the NGS Tester plugged into the data link connector (DLC) and two jumpers, one plugged between the COM port of the NGS Tester to Pin 3 (ground) of the black instrument cluster connector and the other jumper plugged between the SIG port of the NGS Tester to Pin 9 (tach signal) of the black instrument cluster connector.
- Key on, engine running.
  - With NGS Tester, select VEHICLE and ENGINE.
  - Select DIGITAL MEASUREMENT SYSTEM.
  - Select FREQUENCY METER.
  - Change level to 4 VOLT DC.
  - Press the LINK button to choose a pid.
  - Select PID/DATA MONITOR.

- Select the RPM PID.
- Press start.
- Take three readings at 650 rpm, 1500 rpm and 3000 rpm.

Do readings match the table listed below?

Step No.	Step 1	Step 2	Step 3
rpm	650 rpm	1500 rpm	3000 rpm
Frequency	129 ± 10 Hz	300 ± 10 Hz	600 ± 10 Hz

Yes	No
INSPECT printed circuit board for damaged or open circuits. If OK, REPLACE tachometer.	GO to <a href="#">AL5</a> .

### AL5 CHECK FOR OPEN IN TACH SIGNAL CIRCUIT

- Key off.
- Disconnect PCM and inspect for damaged pins. Service as necessary.
- Install breakout box. Leave PCM disconnected.
- Measure resistance on Circuit 648 (W/PK) between Pin 9 of the black instrument cluster connector and Pin 50 (49 State except Econoline) or Pin 19 (California and all Econoline) on the breakout box.

Is resistance less than 5 ohms?

Yes	No
GO to <a href="#">AL6</a> .	REPAIR open in Circuit 648 (W/PK).

### AL6 CHECK FOR SHORT TO GROUND IN TACH SIGNAL CIRCUIT

- Key off.
- Measure resistance between Circuit 648 (W/PK) Test Pin 50 (49 State except Econoline) or Pin 19 (California and all Econoline) on the breakout box and ground.

Is resistance greater than 10,000 ohms?

Yes	No
GO to <a href="#">AL7</a> .	REPAIR short to ground in Circuit 648 (W/PK).

### AL7 CHECK FOR SHORT TO POWER IN TACH SIGNAL CIRCUIT

- Key on/engine off.
- Measure voltage between Circuit 648 (W/PK) Test Pin 50 on the breakout box and ground.

Is voltage present?

Yes	No
REPAIR short to power on Circuit 648 (W/PK).	REPLACE PCM.

