

Subject: Troubleshooting Guide for 500, 700, and 900 Series Tachometers	Initial Release Date: 02/16/99	Revision Date:	Revision:
	Product Group: Heavy Duty Instruments		

1. Required Materials and Tools

You will need an inexpensive volt-ohmmeter that can measure from 0 to 35 volts DC.

Note - *The calibration references in this document reflect the most common sensor arrangements. If you have other applications, the troubleshooting steps still apply; call our Service Department for calibration information.*

2. Procedure

Symptom	Action to Take
Nothing in the tachometer unit works.	Go to Section 2.1.
Tachometer okay, hourmeter is dead.	Replace the tachometer.
Tachometer is inaccurate.	Magnetic sensor-driven units: Go to Section 2.2. Sender generator-driven units: Go to Section 2.3. ECU-driven units: Go to Section 2.4.
Tachometer is erratic or displays higher than normal.	See Product Information Note 072-40282, <i>Reducing Electrical Noise</i> .

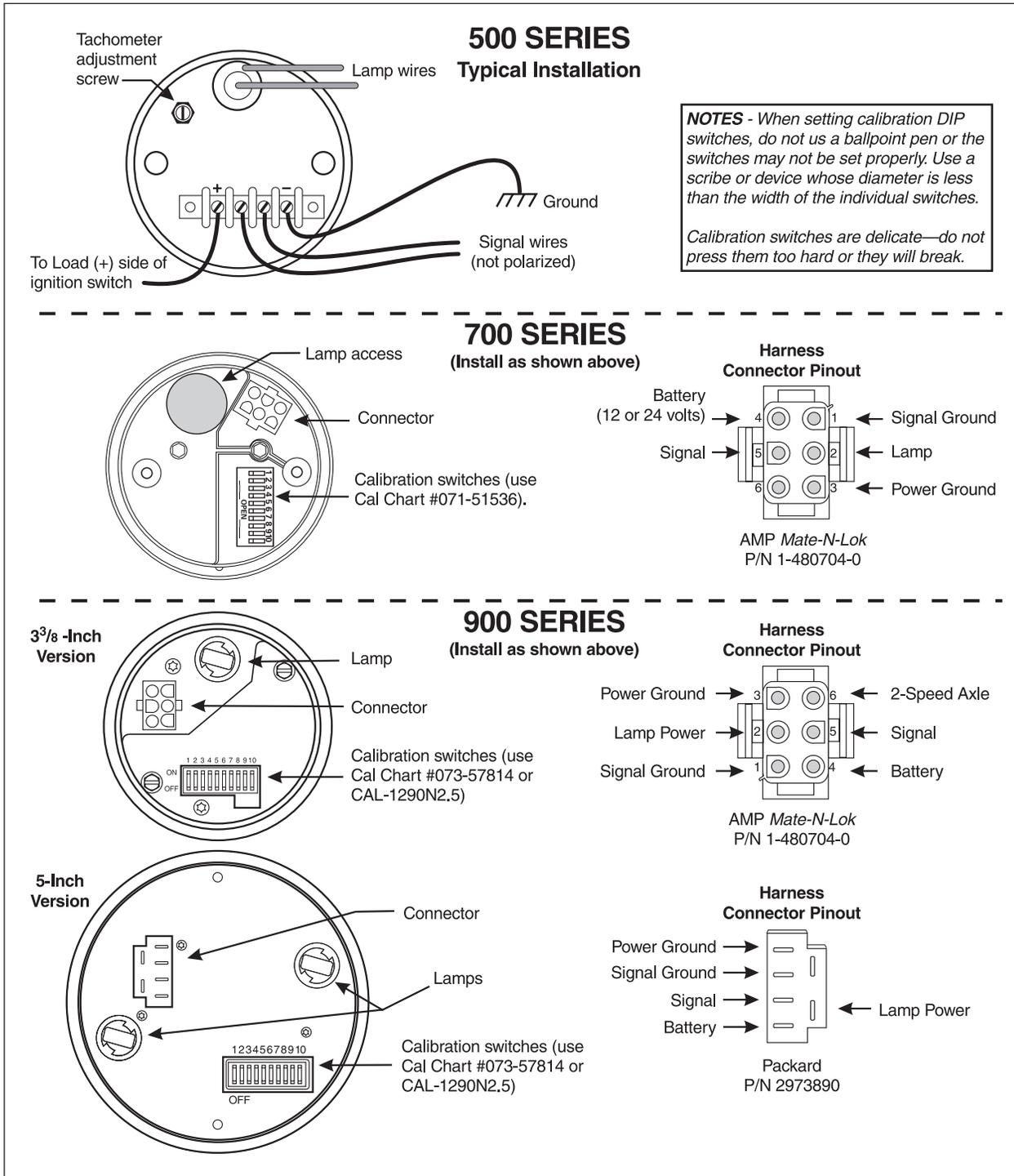
2.1 Checking Power and Ground

Note - *Correctly installed 500 Series units may indicate a momentary needle jump each time power is applied. This is normal and not a defect.*

1. Unplug the connector from the rear of the tachometer, turn the ignition on and measure the voltage between the harness connector's Battery and Ground pins.
2. You should measure between 11 and 14 volts (22 and 27 volts on 24-volt systems).
 - a. If no voltage is present, check for broken or shorted harness wires.
 - b. If voltage is present, check for proper calibration using the calibration charts noted in the illustration on page 2.

2.2 Magnetic Sensor-Driven Tachometer Check

1. Unplug the connector from the rear of the tachometer and measure the resistance between the harness Signal and Signal Ground pins.
 - a. If you measure between 99 and 4000 ohms, the sensor and wiring are probably good; go to Step 2.
 - b. If you do not measure between 99 ohms and 4000 ohms, unplug the wires from the sensor and measure the resistance between the sensor terminals.



4. If the wiring, sensor, and calibration are good, replace the tachometer.

2.3 Sender Generator-Driven Tachometer Check

1. Unplug the connector from the rear of the tachometer and measure the resistance between the harness Signal and Signal Ground pins.
 - a. If you measure between 99 and 231 ohms, the sender and wiring are probably good; go to Step 2.
 - b. If you do not measure between 99 ohms and 231 ohms, unplug the wires from the sender and measure the resistance between the sender terminals.
 - c. If you still do not measure between 99 ohms and 231 ohms at the sender, replace it. If you *do* measure between 99 and 231 ohms, look for an open or shorted signal or signal ground wire between the tachometer connector and the sender. PIN 072-40289 provides additional troubleshooting information about sender generators.
2. Check for proper calibration using the calibration charts noted in the illustration.
3. If the wiring, sender, and calibration are good, replace the tachometer.

2.4 ECU-Driven Tachometer Check

Note - *Engine calibration and programming may affect the tachometer's accuracy. Consult a properly trained mechanic or the engine manufacturer for additional information.*

1. Check the signal wire between the Engine ECU and the tachometer for opens and shorts.
2. Check for proper calibration using the calibration charts noted in the illustration.
3. If the Engine ECU, wiring, and calibration is correct, replace the tachometer.

3. For Additional Support

Troubleshooting assistance is available from our Service Department Monday through Thursday from 7 a.m. to 5:30 p.m. MT, and Friday from 7 a.m. to 3:30 p.m. MT, at (970) 244-1243 or (970) 244-1259. You may also leave a detailed message at service@ametekdixson.com.