

# Classic Instruments

# **3200** ***Cluster***

Installation Manual

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## **Welcome from the Team at Classic Instruments!**

Our congratulations and appreciation for your purchase of one of the finest quality sets of specialty instruments ever produced! Your instrument set has been conceived, designed, and manufactured by Classic Instruments, Inc. in the U.S.A. Each instrument has been tested and certified for accuracy and quality before packaging and shipping.

For trouble-free installation and operation follow the instructions exactly as outlined. Your instruments were assembled to precise specifications and although each has a seven (7) year warranty covering defective parts and workmanship – this warranty will not cover instruments or sender units which have been installed incorrectly.

Follow our recommended procedures for installation and proper hookup to maintain the value and appearance of your instrument set during many future years of accurate and dependable service!

### **LIMITED WARRANTY**

Classic Instruments, Inc. (CI) warrants to the original purchaser that any CI product manufactured or supplied by CI will be free from defects in material and workmanship under normal use and service for a period of seven (7) years from date of purchase.

Improper installation, use of sending units other than CI's or attempted repair or adjustments by other than CI shall void this warranty. Disassembly of any instruments or senders for whatever reason shall specifically void this warranty.

It's always easy to look to a part for an issue with your set. Before you conclude that a part may be bad, thoroughly check your work. Today's semiconductors and passive components have reached incredibly high reliability levels, but there is still room for error in our human construction skills. However, on rare occasions a sour part can slip through. Please be aware that testing can usually determine if the part was truly defective or damaged by assembly or usage. Don't be afraid of telling us that you "blew it", we're all human and in most cases, replacement parts are very reasonably priced.

Purchaser requesting a product to be repaired or replaced under warranty must first call CI at 1-800-575-0461 before the return of defective part. Send defective part to 826 Moll Drive, Boyne City, MI 49712, USA. Include a written description of the failure with defective part.

Purchaser agrees and accepts that under no circumstances will a warranty replacement be furnished until CI has first received, inspected, and tested the returned part.

All other warranties expressed or implied are hereby excluded including any implied warranty of merchandise and implied warranty of fitness for a particular purpose. The sole and exclusive remedy for breach of this warranty is limited to the replacement set forth above.

It is expressly agreed that there shall be no further remedy for consequential or other type of damage, including any claim for loss of profit, engine damage or injury.

### **TECHNICAL ASSISTANCE**

**1-800-575-0461**

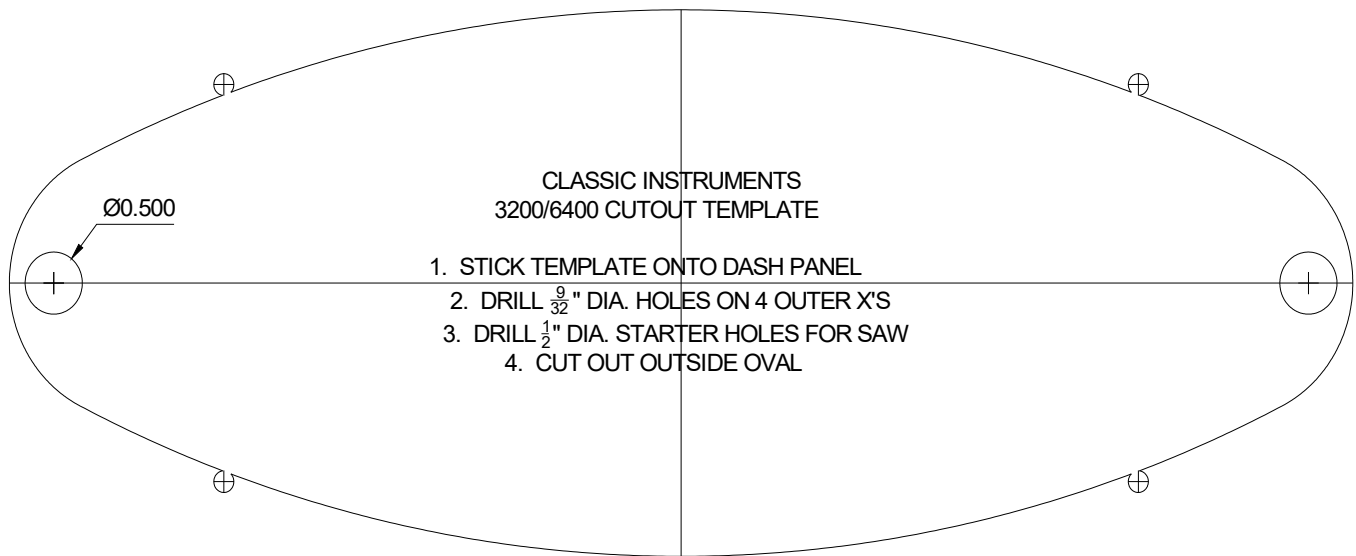
**OR**

**Visit our website for the latest in gauge design and updates to our installation manual**

**[www.classicinstruments.com](http://www.classicinstruments.com)**

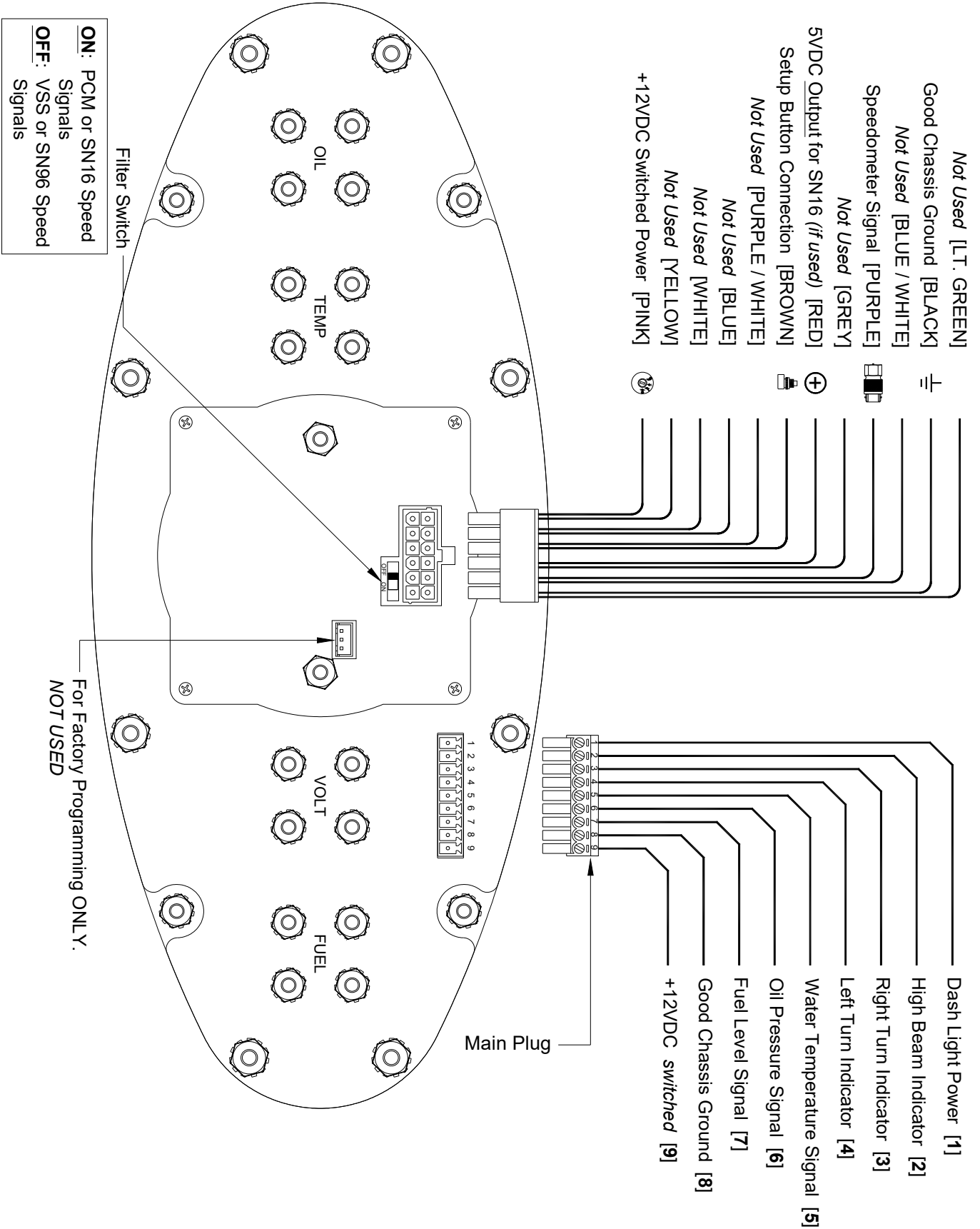
## Mounting Your New Gauge Cluster

- 1) Cut your dash according to the template included with the gauge cluster.



- 2) Temporarily remove the bezel and glass from the rest of the cluster by removing the 4 nuts from the bezel studs.
- 3) Insert the instrument cluster (minus the glass and bezel) into the opening cut in the dash from the back side of the dash.
- 4) Insert the glass into the cluster opening.
- 5) Mount the bezel to the dash by aligning the 4 studs in the bezel with the 4  $\frac{9}{32}$ " diameter holes cut in the dash (from the template).
- 6) If using a metal dash, install the O-ring around the perimeter of the cluster. The O-ring should go on the outside of the bezel studs.
- 7) Tighten the bezel to the cluster using the 4 nuts removed from step 2. This will pinch the dash between the bezel and the cluster.

# Instrument Cluster Wiring Diagram

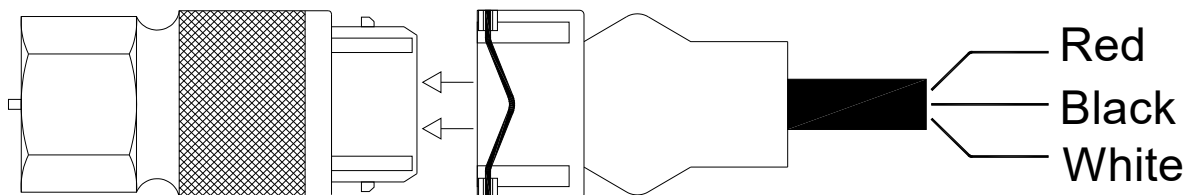


## Speedometer Wiring

- 1) Always disconnect the ground lead from the vehicle battery before wiring any gauge.
- 2) Connect a good chassis ground to the **Black** wire of the gauge harness.
- 3) Connect switched +12VDC power to the **Pink** wire of the gauge harness.
- 4) Connect a speed signal to the **Purple** wire of the gauge harness:
  - a. White wire from a pulse signal generator [SN16]
    - i. *Connect the Red wire of the SN16 to the **Red** wire of the gauge harness.*
    - ii. *Connect the Black wire of the SN16 to a good chassis ground.*
  - [OR]
  - b. One wire (either) of an electronic transmission 2-wire vehicle speed sensor (VSS).
    - i. *Connect the other wire of the VSS to the same point as the **Black** wire of the gauge harness.*
  - [OR]
  - c. Speedometer signal wire of the vehicle computer (PCM).
    - i. Also set the filter switch on the back of the speedometer to ON.
- 5) Connect one of the setup button's wires to the **Brown** wire of the gauge harness.
  - a. *Connect the other setup button wire to a good ground.*
- 6) The **Lt. Green, Purple / White, Blue / White, Grey, Blue, White** and **Yellow** wires of the gauge harness are NOT USED.

### Optional Pulse Signal Generator [SN16] Wiring

Attach the signal generator to the transmission speedometer gear housing (where the speedometer cable originally connected). Do not use excessive force to tighten. These signal generators produce approximately 16,000 pulses per mile (PPM).



**Red:** ----- Power (To **Red** wire of gauge)

**Black:** ----- Ground (To good chassis ground)

**White:** ----- Signal (To **Purple** wire of gauge)

## Dash Light Dimmer

This gauge cluster is equipped with LED lighting. High brightness and low current draw are advantages of LED illumination, however if the brightness is too much for your liking your standard dash light dimmer will not reduce it. If you would like to be able to change the gauge illumination, a separate LED dimmer module is available. The led dimmer can be wired in-line with the dash light power coming from the light switch and includes a knob that will allow you to remotely adjust the gauge illumination. The part number for this module is LEDDIM and is available directly from Classic Instruments or from a Classic Instruments dealer.

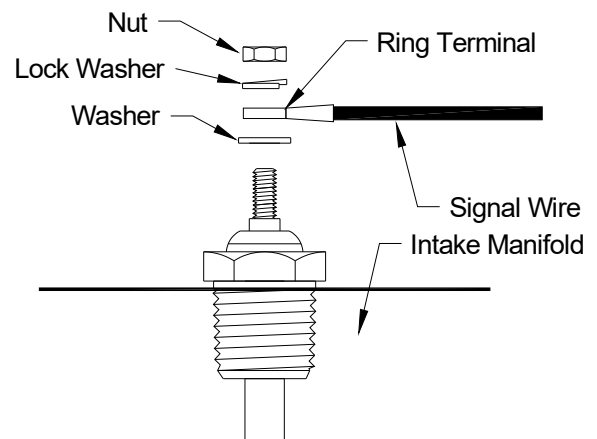
## Main Connector Wiring

- 1) Always disconnect the vehicle battery before wiring any gauge.
- 2) Connect dash light power (*use of an LED dimmer is recommended*) to position **1** of the Main plug.
- 3) Connect high beam indicator power to position **2** of the Main plug.
- 4) Connect right turn indicator power to position **3** of the Main plug.
- 5) Connect left turn indicator power to position **4** of the Main plug.
- 6) Connect a Classic Instruments temperature sender to position **5** of the Main plug.
- 7) Connect a Classic Instruments oil pressure sender to position **6** of the Main plug.
- 8) Connect a fuel level sender to position **7** of the Main plug.
- 9) Connect a good chassis ground to position **8** of the Main plug.
- 10) Connect a good +12VDC switched power source to position **9** of the Main plug.

## Temperature Sender Installation

(Part No. SN12MM, SN22, SN23, SN24 & SN25)

- 1) Disconnect battery before making any connections.
- 2) Install the Classic Instrument's temperature sending unit only when the engine is COLD!
- 3) DO NOT use Teflon tape on the threads. These threads are slightly tapered and designed to be self-sealing. The sender uses the threads for its ground connection and sealant may cause a poor ground causing inaccurate readings
- 4) Install the temperature sender into the intake manifold of your engine as possible. Installing the sender in the engine cylinder head may cause inaccurate temperature readings.
  - a. On GM "LS" engines, the temperature sender mounts on the passenger side of the engine under the rear cylinder. A 12mm thread sender is available to fit this location.
- 5) Connect a wire from the top terminal of the temperature sender to position **5** of the Main plug.
- 6) Tighten until snug. DO NOT OVER TIGHTEN!

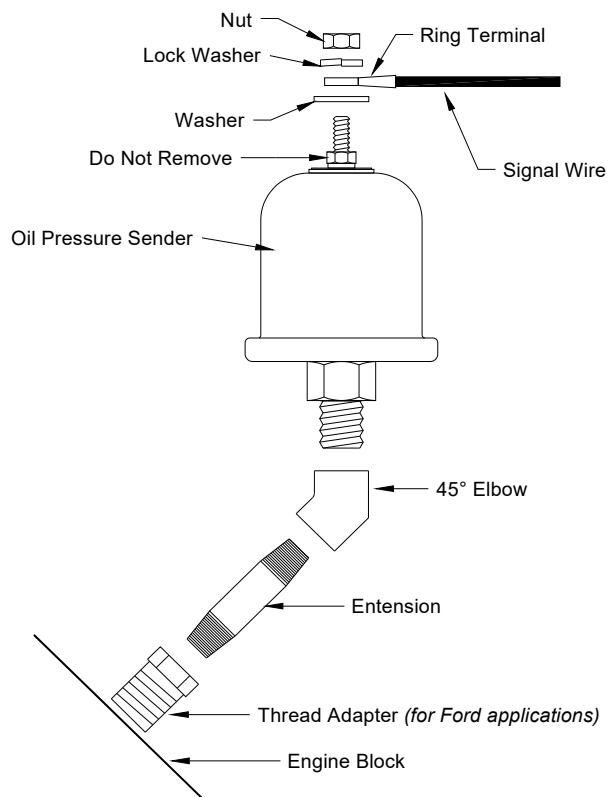


**Notice:** Avoid installing the temperature sender into the head of a late-model GMC engine. Even though the stock GMC sender may have been installed there, this opening is too close to the exhaust header and will most likely cause an improper reading.

# Oil Pressure Sender Installation

(Part No. SN52)

- 1) Disconnect battery before installation.
- 2) Only install Classic Instruments sending units when the engine is COLD.
- 3) DO NOT use Teflon tape on the threads. These threads are slightly tapered and designed to be self-sealing. The sender uses the threads for its ground connection and sealant may cause a poor ground causing inaccurate readings. If supplemental sealant is needed, we recommend using Loctite C5-A anti-seize. This is a copper based anti-seize which will allow a good electrical connection for the sender ground.
- 4) Connect a wire from the top terminal of the oil pressure sender to position **6** of the Main plug.



**GM Installation:** The correct location on most GM V8-engines to install the oil pressure sender is under the distributor housing at the rear of the block.

Use the 2 piece bushing kit provided to allow the sender to be mounted at a 45-degree angle pointing towards the driver's knees. This allows the sender to clear the back of the intake manifold, the underside of the distributor housing and also the firewall.

**GM Installation – Big Block Engines:** We do NOT recommend installing Classic Instrument's oil pressure sender in the opening located just above the oil filter on some big block GM engines. This location may not be a full-pressure passage but instead a "by-pass" oil passageway. Installing our pressure sender at this location may result in some strange low-pressure readings under certain driving conditions. This does not indicate a defective instrument or sender! It simply means you need to move the sender to the correct location.

**GM Installation – LS Engines:** Install the sender in the oil bypass housing located just above the oil filter. The housing will need to be drilled and tapped to 1/8" NPT.



LS1 Oil Bypass Housing



# Speedometer Calibration

Note: Before performing speedometer calibration, insure you have a good speed signal. Take a test drive and make sure the speedometer shows a speed (even though it may not be correct)! If the speedometer doesn't show a speed, troubleshoot the speed signal before attempting to calibrate the speedometer.

Only one calibration method is necessary to perform to calibrate the speedometer. Pick the method that works best for you.

- The “Instant” calibration method requires a GPS reference speed signal (or pace car). You will need to drive at 30mph. This method is convenient if the speedometer is more than 10mph off at a known 60mph.
- The “Real-time” calibration method requires a GPS reference speed signal (or pace car). This method allows you to drive at any known speed and make changes to the speedometer reading as you go. This method is best used if the speedometer calibration is less than 10mph off at a known 60mph.
- The “Measured Mile” calibration method requires you to drive a known mile. This is convenient when a GPS is not available to use as a reference and also if the calibration is off more than 10mph at a known 60mph. The speed at which you drive the known mile can be varied, a GPS reference or pace car is not necessary.

Calibration Modes	
Speedometer Indication	Calibration Mode
50 MPH	Speedometer “Instant” Calibration
60 MPH	Speedometer “Real-time” Calibration
70 MPH	Speedometer “Measured Mile” Calibration
80 MPH	Factory Defaults Reset Mode
90 MPH	Exit calibration Mode

## ***Entering Calibration Mode:***

- 1) Start with power to the gauge OFF.
  - 2) Press and HOLD the calibration pushbutton.
  - 3) Start engine.
  - 4) Release the pushbutton after the engine is started. The speedometer will indicate 50MPH.
-

## **Speedometer “Instant” Calibration:**

*(steps 1-4 may be skipped if the gauge is already in calibration mode)*

- 1) Start with power to the gauge OFF.
- 2) Press and HOLD the calibration pushbutton.
- 3) Start engine.
- 4) Release the pushbutton after the engine is started. The speedometer will indicate 50MPH.
- 5) With the speedometer indicating 50MPH, press and hold the calibration pushbutton until the speedometer changes to 0 MPH. *If the speedometer pointer is not at 50MPH, tap the button to cycle the pointer through the calibration modes until it comes back to 50MPH.*
- 6) Drive the vehicle at exactly 30MPH using a GPS or pace car as a reference. Press and hold the pushbutton while traveling 30MPH for approximately 4 seconds until the speedometer moves up to 30MPH. The speedometer will now track your speed. Verify that the speedometer is now reading accurately.
- 7) If you are satisfied with the speedometer calibration, tap the pushbutton to get back to the calibration mode options. If you would like to re-do the calibration, press and hold the pushbutton to restart the Instant Calibration process.
- 8) When you are finished, tap the pushbutton (as many times as needed) to move the speedometer pointer through the calibration modes to get to the 90MPH (Exit Calibration Mode) option. With the pointer at 90MPH, press and hold the button for about 6 seconds until the speedometer moves down and starts indicating your actual speed. The speedometer calibration is now saved.

## **Speedometer “Real-Time” Calibration:**

*(steps 1-4 may be skipped if the gauge is already in calibration mode)*

- 1) Start with power to the gauge OFF.
- 2) Press and HOLD the calibration pushbutton.
- 3) Start engine.
- 4) Release the pushbutton after the engine is started. The speedometer will indicate 50MPH.
- 5) Tap the calibration pushbutton once to move the speedometer pointer up to 60MPH. *If you missed stopping the pointer at 60MPH, continue to tap the button to cycle the pointer through the calibration modes until it comes back to 60MPH.*
- 6) With the speedometer indicating 60MPH, press and hold the calibration pushbutton until the speedometer changes to 0 MPH.
- 7) Begin driving a known speed using a GPS or pace vehicle as a reference.
- 8) Press and hold the pushbutton to slowly change the indicated speed. The first time the button is pressed will increase the speedometer reading. The next time the button is pressed will decrease the speedometer reading. The speedometer will alternate between increasing and decreasing speed each time the button is pressed and held.
- 9) Continue to press and hold the pushbutton until the speedometer is indicating the correct speed.
- 10) Once the correct speed is dialed in on the speedometer, wait 8 seconds without pressing the pushbutton to have the current calibration saved. *If you still need to adjust the speed after this 8 second timeout, press and hold the button to re-enter the “Real Time” calibration mode again.*
- 11) If you are satisfied with the speedometer calibration, tap the pushbutton (as many times as needed) to move the speedometer pointer through the calibration modes to get to the 90MPH (Exit Calibration Mode) option. With the pointer at 90MPH, press and hold the button for about 6 seconds until the speedometer moves down and starts indicating your actual speed. The speedometer calibration is now saved.

## **Speedometer “Measured Mile” Calibration:**

*(steps 1-4 may be skipped if the gauge is already in calibration mode)*

- 1) Start with power to the gauge OFF.
- 2) Press and HOLD the calibration pushbutton.
- 3) Start engine.
- 4) Release the pushbutton after the engine is started. The speedometer will indicate 50MPH.
- 5) Tap the calibration pushbutton twice to move the speedometer pointer up to 70MPH. *If you missed stopping the pointer at 70MPH, continue to tap the button to cycle the pointer through the calibration modes until it comes back to 70MPH.*
- 6) With the speedometer indicating 70MPH, press and hold the calibration pushbutton until the speedometer changes to 30 MPH.
- 7) Begin driving a known measured mile. *The speed at which you drive the mile does not matter.*
- 8) At the end of the mile, press and hold the pushbutton until the speedometer moves from 30MPH back up to 70MPH. *To get a more accurate calibration, stop at the end of the mile.*
- 9) If you are satisfied with the speedometer calibration, tap the pushbutton (as many times as needed) to move the speedometer pointer through the calibration modes to get to the 90MPH (Exit Calibration Mode) option. With the pointer at 90MPH, press and hold the button for about 6 seconds until the speedometer moves down and starts indicating your actual speed. The speedometer calibration is now saved.

## **Reset Gauge Calibration to Factory Defaults:**

*(steps 1-4 may be skipped if the gauge is already in calibration mode)*

- 1) Start with power to the gauge OFF.
- 2) Press and HOLD the calibration pushbutton.
- 3) Start engine *(or just turn the key ON)*.
- 4) Release the pushbutton after the engine is started *(or the key has been turned ON)*. The speedometer will indicate 50MPH.
- 5) Tap the calibration pushbutton three times to move the speedometer pointer up to 80MPH. *If you missed stopping the pointer at 80MPH, continue to tap the button to cycle the pointer through the calibration modes until it comes back to 80MPH.*
- 6) With the speedometer indicating 80MPH, press and hold the calibration pushbutton until the speedometer changes to 90 MPH. The factory speedometer calibration is now set.
- 7) With the speedometer pointer at 90MPH, press and hold the button for about 6 seconds until the speedometer pointer moves down to zero.