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Classic Instruments

1955 & 1956

Chevy

Original Belera Instructions
REV 04-19-19

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

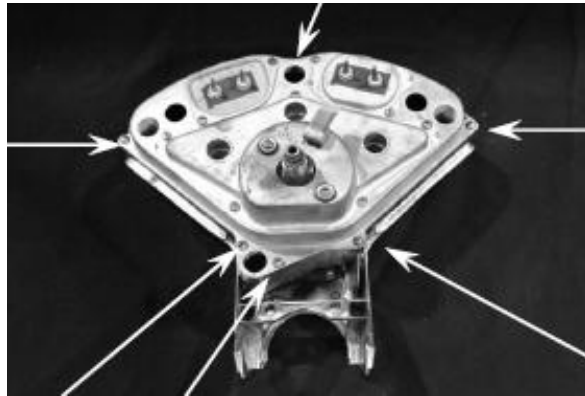
OR

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

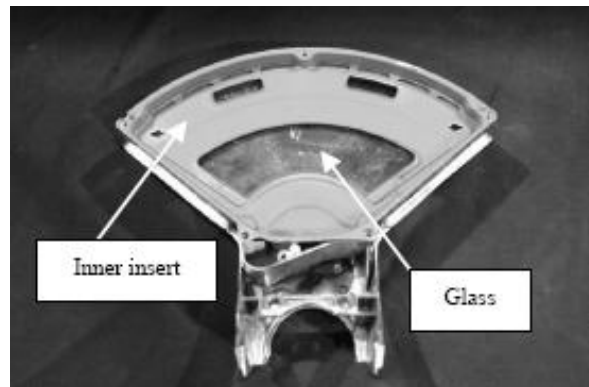
www.classicinstruments.com

Disassemble Original Gauge

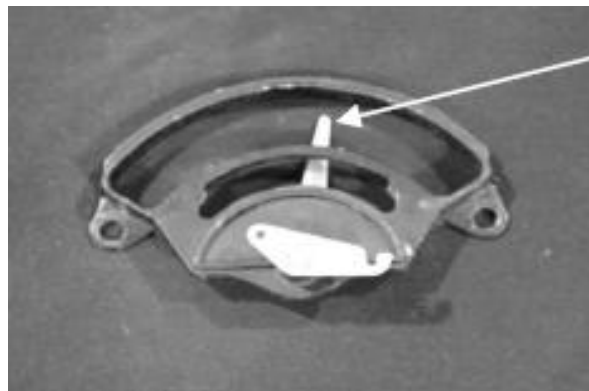
- 1) Remove the original gauge cluster from the stock bezel by removing the six screws that hold the gauge cluster in the bezel. The screws are located around the perimeter of the bezel.



- 2) Remove the gauge cluster from the bezel.
- 3) Remove the inner insert and lens from the bezel.



- 4) Remove the gear selector bracket (2 screws) and disengage spring [if applicable].
- 5) Remove the gear selector lens and stock gear selector pointer [if applicable].

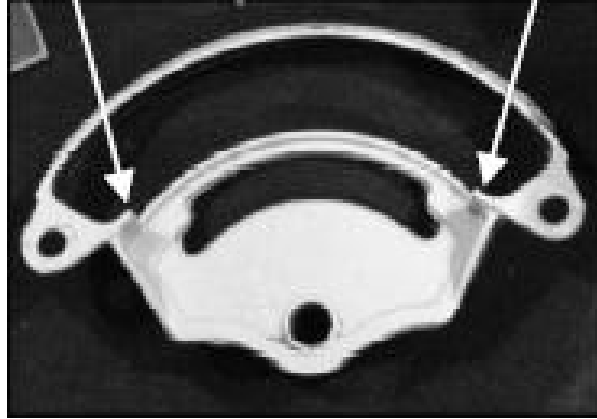


Assemble New Gauge Cluster

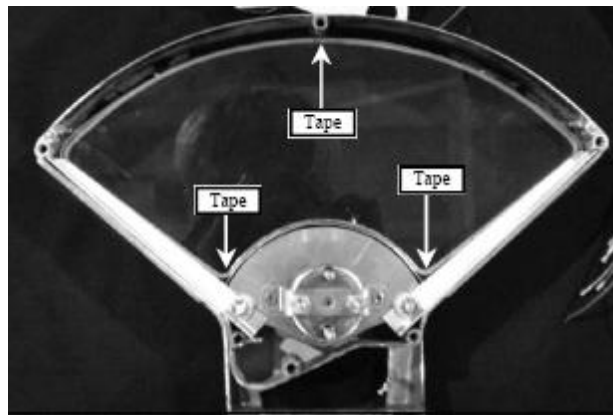
Note: Assembling using after-market bezel may require enlargements of mounting holes.

Skip steps 1 – 4 & 6 if not installing optional gear selector gauge

- 1) Place the furnished gear selector glass (small) over the gear selector window.
- 2) Before placing the gear selector bracket over the glass, file the corners about 1/8" on the back side.

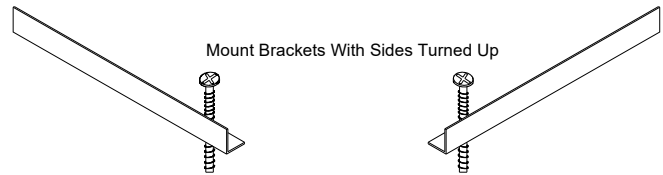
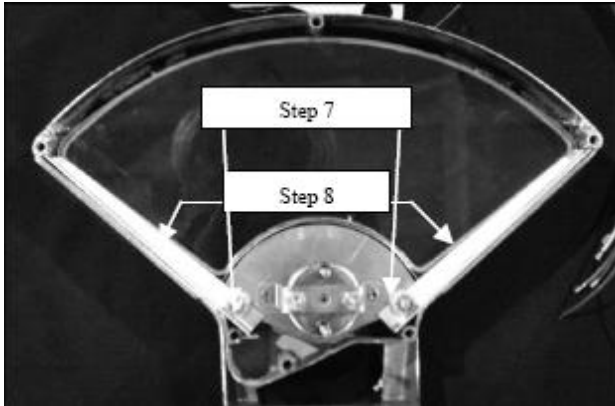


- 3) Use a very small amount of trim tape on the back of the gear selector bracket to adhere glass.
Note: Make sure that the tape is not visible from the front.
- 4) Place the gear selector bracket over the glass in the gear selector window.
- 5) Place a very small amount of trim tape around the perimeter of the large opening in the bezel, then place the large glass into the housing. The trim tape helps to cushion the glass and prevent the glass from rattling.

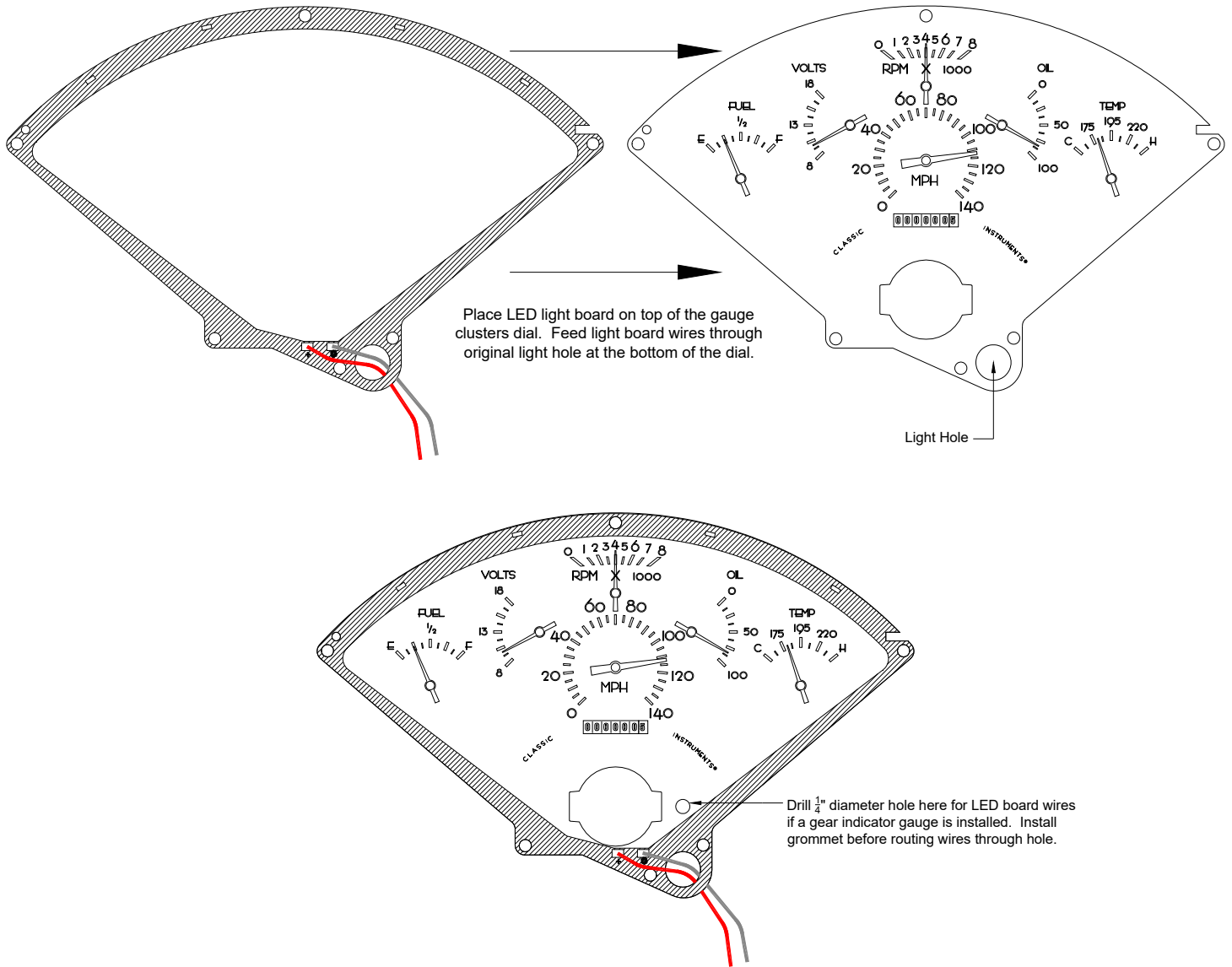


- 6) Place the gear selector gauge over the gear selector bracket.

- 7) Stack nylon washers over the mounting holes of the gear selector bracket to make them the flush with the level of the large glass.
 - 8) Place the glass brackets on each side of the bezel, making sure to push them into the corners completely and secure with two 8-32 x 1/2" screws.
- Note:** Make sure the screw ends of the brackets are level with the glass.



9) Install the LED lighting circuit board.



Wire Color	Connection
RED	+12VDC Dash Light Power
BLACK	Ground

- 10) Place the Classic Instruments gauge cluster onto the bezel.
- 11) Use the six furnished screws to secure the gauge cluster to the bezel.

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.

Speedo, Tach, Volt and Oil Pressure Gauge Wiring

- 1) Always disconnect the vehicle battery before wiring any gauge.
- 2) Connect a switched +12VDC power source to the **PINK** wire of the gauge cluster wire harness. *We recommend using a dedicated power source to avoid possible problems caused by bad “noisy” power.*
- 3) Connect a good chassis ground to the **BLACK** wire of the gauge cluster wire harness. *We recommend using a dedicated chassis ground (not stacked with other ground wires) to avoid possible problems caused by a bad ground.*
- 4) Connect a speed signal from one of the following sources to the **PURPLE** wire of the gauge cluster wire harness:
 - a. White signal wire from a pulse signal generator [SN16]
 - i. See “Pulse Signal Generator Wiring” section for complete SN16 wiring instructions.
 - [OR]
 - b. One wire (either one will work) from an electronic vehicle speed sensor (VSS) that is NOT going to be connected to the vehicle computer. (*This is the option for many Tremec and 700R4 transmissions.*)
 - i. Connect the other wire of the VSS to the same ground point as the BLACK wire from step 3.
 - [OR]
 - c. Speed signal wire from the vehicle computer. (*This is usually a green wire in GM LS engine harnesses.*)
- 5) Connect the **RED** wire of the gauge cluster wire harness to the Red wire of a SN16 pulse signal generator. **DO NOT USE** the Red wire if a SN16 is not being used. (*it does not require power*)
- 6) Connect a tachometer signal to the **WHITE** wire of the gauge cluster wire harness.
 - a. **STANDARD POINTS & CONDENSER SYSTEM**
 - i. Connect to the negative side of the coil (usually marked as “-”).
 - b. **GMC – HEI (High Energy Ignition System)**
 - i. Connect to the “TACH” terminal on coil side of distributor cap.
 - c. **MSD (Multiple Spark Discharge System)**
 - i. Connect to the TACH signal from the MSD box.
 - d. **VERTEX MAGNETO SYSTEM**
 - i. Connect to the “KILL” terminal on the side of a Vertex magneto body. An external adapter such as an MSD “Pro Mag Tach Converter” #8132 may be required.
 - e. **ACCEL IGNITION COILS**
 - i. Connect to the negative side of the coil. CAUTION! Some Accel ignition coils require the tach signal wire to be connected to the “+” terminal on the coil! PLEASE carefully read Accel’s instructions before connecting ignition coil.
 - f. **MALLORY IGNITION**
 - i. Connect to the negative terminal side of coil (usually marked as “-”).
 - g. **PCM TACHOMETER SIGNAL**
 - i. Connect to the signal from the computer. The tachometer typically needs to be set on 4 cylinder setting.
 - h. **MULTIPLE COIL IGNITION SYSTEMS**
 - i. A tach adapter may be required for these ignition systems. A tach signal driver such as the MSD #8913, which produces a 12V square wave signal, is recommended. Please check with manufacturer for your specific application.
 - i. **NOTICE!** For all other ignition systems please look at the owner’s manual for that system.

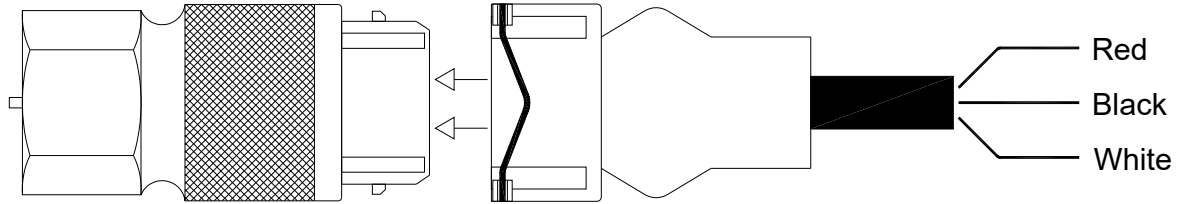
- 7) Connect the oil pressure sender to the **BLUE** wire of the gauge cluster wire harness.
- 8) Connect high beam indicator power to the **GREEN** wire of the gauge cluster wire harness.
- 9) Connect either wire of the momentary contact setup pushbutton to the **BROWN** wire of the gauge cluster wire harness.
 - a. Connect the other wire of the pushbutton to ground.
- 10) Connect left turn indicator power to the **BLUE / WHITE** wire of the gauge cluster wire harness.
- 11) Connect right turn indicator power to the **PURPLE / WHITE** wire of the gauge cluster wire harness.
- 12) The **YELLOW** and **GREY** wires of the gauge cluster wire harness is NOT USED.
- 13) Connect dash light power to the **Red** wire of the LED light board.
 - a. Connect the black wire of the LED light board to ground.

Fuel, Temperature and optional Gear Selector Gauge Wiring

- 1) Always disconnect the vehicle battery before wiring any gauge.
- 2) Connect a switched +12VDC power source to the **PINK** [position A] wire of the fuel / temp wire harness.
- 3) Connect a good chassis ground to the **BLACK** [position C] wire of the fuel / temp wire harness.
- 4) Connect the fuel sender to the **TAN** [position B] wire of the fuel / temp wire harness. (*The fuel gauge requires a 0-30 ohm sender unless special ordered.*)
- 5) Connect the temperature sender to the **DK. GREEN** [position D] wire of the fuel / temp wire harness.
- 6) **Optional:** Connect a switched +12VDC power source to the **ORANGE** [position F] wire of the fuel / temp wire harness. (*This is the gear selector gauge power.*)
- 7) **Optional:** Connect the "To Gauge" from the SN46 gear selector decoder to the **WHITE** [position E] wire of the fuel / temp wire harness.
- 8) **Optional:** Connect the orange wire's ring terminal to the gear selector gauge post with the RED tip.
- 9) **Optional:** Connect the white wire's ring terminal to the gear selector gauge post with the WHITE tip.
- 10) **Optional:** Connect the black wire's ring terminal to the gear selector gauge post with the BLACK tip.

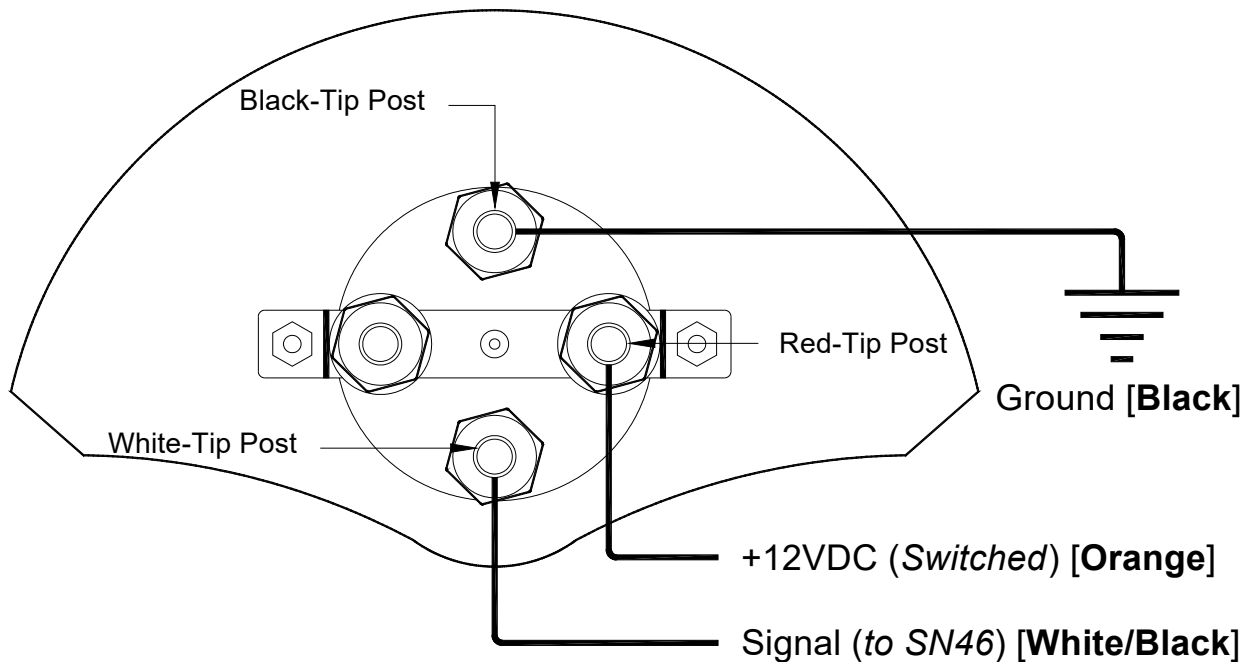
Optional Pulse Signal Generator [SN16] Wiring

Attach the signal generator to the transmission speedometer gear housing (where the speedometer cable originally connected). Do not use excessive force to tighten.

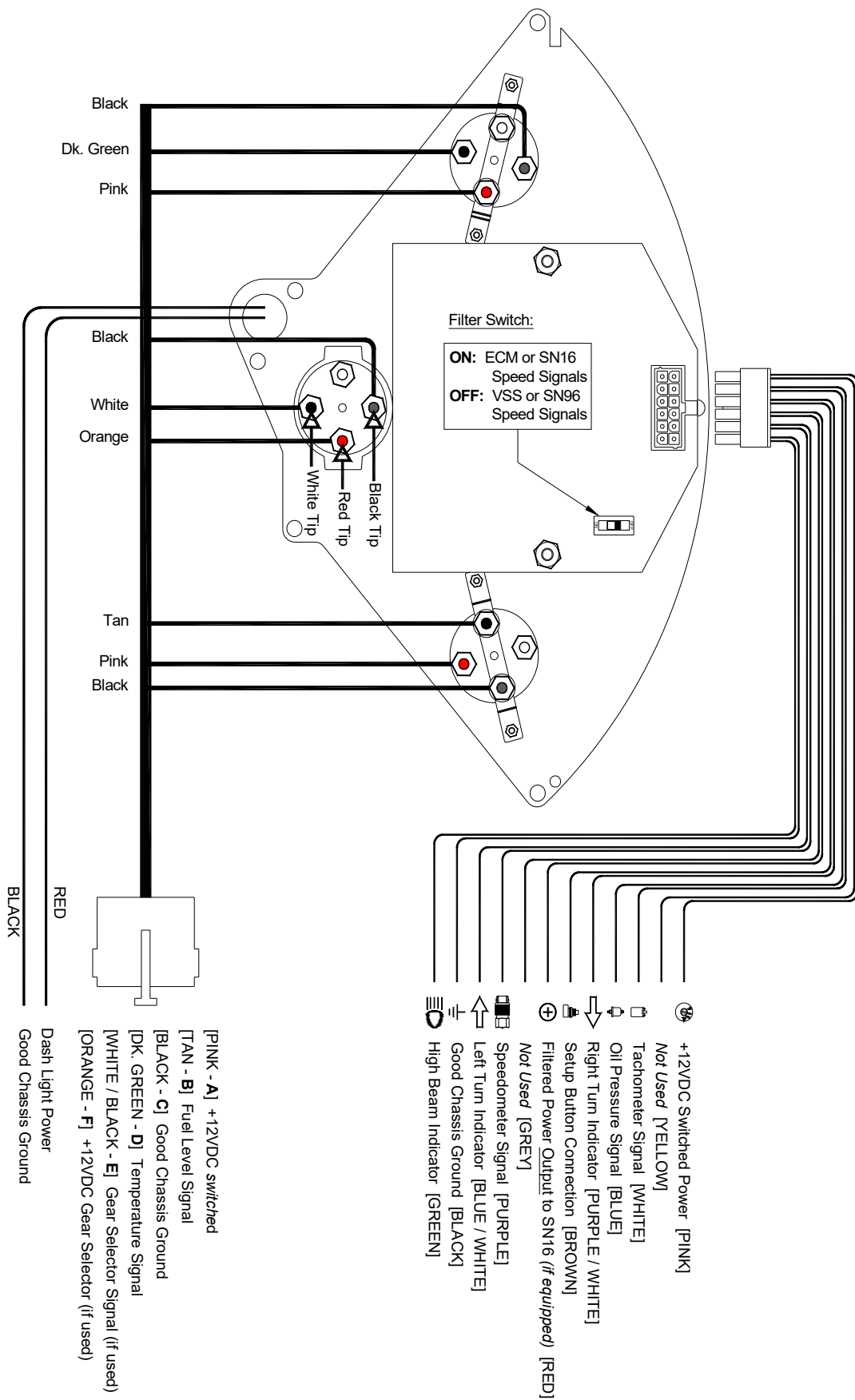


Red: ----- Power (to *Red* wire of gauge harness)
Black: ----- Ground
White: ----- Signal (to *Purple* wire of gauge harness)

Optional Gear Selector Wiring Diagram



Gauge Cluster Wiring Diagram



Oil Pressure Sender Installation

(Part No. SN52)

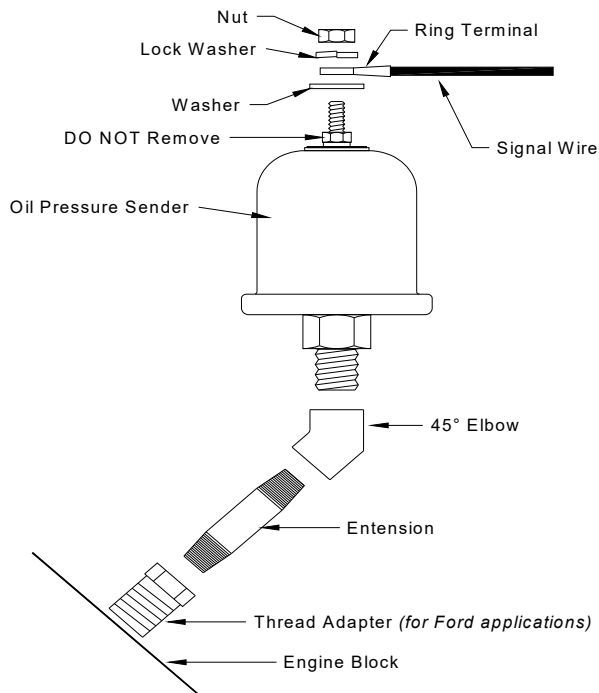
- 1) Disconnect battery before installation.
- 2) Only install Classic Instruments sending units when the engine is COLD.
- 3) DO NOT use Teflon tape on the threads. These threads are slightly tapered and designed to be self-sealing. The sender uses the threads for its ground connection and sealant may cause a poor ground causing inaccurate readings

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.

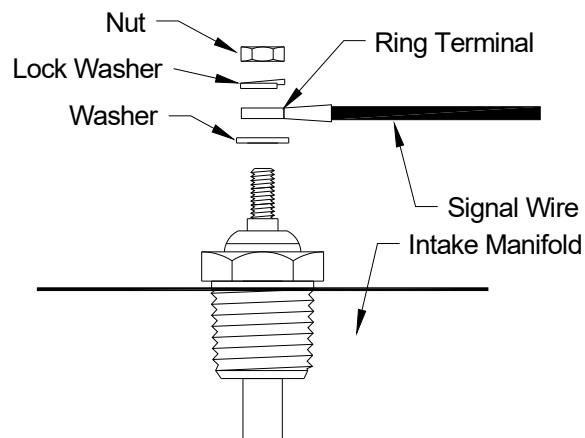


LS1 Oil Bypass Housing

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 [Part # SN12mm] is available to fit this location.
- 5) Connect a wire from the top terminal of the temperature sender to the indicated signal/sensor post on the back of the temperature gauge.
- 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.

Speedometer & Tachometer 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	
Tachometer Indication	Calibration Mode
1000 RPM	Tachometer Cylinder Setup
2000 RPM	Tachometer Signal Type Setup
3000 RPM	Speedometer “Instant” Calibration
4000 RPM	Speedometer “Real-time” Calibration
5000 RPM	Speedometer “Measured Mile” Calibration
6000 RPM	Shift Indicator Setup <i>(if equipped)</i>
7000 RPM	Factory Defaults Reset Mode
8000 RPM	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 gauge will indicate 70MPH and 1000RPM.
-

Tachometer Cylinder Setup: (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 gauge will indicate 70MPH and 1000RPM.
- 5) If necessary, tap the calibration pushbutton to index the tachometer pointer until the tachometer indicates 1000RPM.
- 6) With the tachometer indicating 1000RPM, press and hold the calibration pushbutton for 6 seconds. The speedometer pointer will move to indicate the current cylinder setting. (10MPH=1cylinder, 20MPH=2cylinder, 30MPH=3cylinder, 40MPH=4cylinder, 50MPH=5cylinder, 60MPH=6cylinder, 80MPH=8cylinder, 100MPH=10cylinder and 120MPH=12cylinder)
- 7) Tap the pushbutton to change the cylinder setting. The speedometer will cycle through the available settings each time the pushbutton is tapped.
- 8) With the speedometer indicating the desired cylinder setting, press and hold the pushbutton for 6 seconds. The gauge will indicate 70MPH and 8000RPM.
- 9) If you are finished calibrating the gauge, press and hold the pushbutton while the tachometer is indicating 8000RPM for 6 seconds. This will exit the calibration mode. If you want to calibrate another function of the gauge, tap the pushbutton to index the tachometer to the desired calibration mode.

Tachometer Signal Type Setup: (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 gauge will indicate 70MPH and 1000RPM.
- 5) Tap the calibration pushbutton to index the tachometer pointer until the tachometer indicates 2000RPM.
- 6) With the tachometer indicating 2000RPM, press and hold the calibration pushbutton for 6 seconds. The speedometer pointer will move to indicate the current signal type setting.
- 7) Tap the pushbutton to change the signal type setting. The speedometer will cycle between the two options each time the pushbutton is tapped. (50MPH=5V Signal, 120MPH=12V Signal)
- 8) Set the signal type to 5V if using a computer generated tachometer signal. Set the signal type to 12V for all other tachometer signals.
- 9) With the speedometer indicating the desired signal type setting, press and hold the pushbutton for 6 seconds. The gauge will indicate 70MPH and 8000RPM.
- 10) If you are finished calibrating the gauge, press and hold the pushbutton while the tachometer is indicating 8000RPM for 6 seconds. This will exit the calibration mode. If you want to calibrate another function of the gauge, tap the pushbutton to index the tachometer to the desired calibration mode.

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 gauge will indicate 70MPH and 1000RPM. The tenths position of the odometer will be also be lit red to indicate that the gauge is in calibration mode.
- 5) Tap the calibration pushbutton to index the tachometer pointer until the tachometer indicates 3000RPM.
- 6) With the tachometer indicating 3000RPM, press and hold the calibration pushbutton for 6 seconds. The speedometer pointer will move to 0MPH.
- 7) Drive the vehicle at exactly 30MPH. Press and hold the pushbutton while traveling 30MPH. When the calibration is completed, the speedometer will move to indicate 30MPH at which point the pushbutton may be released.
- 8) If you are satisfied with the speedometer calibration, tap the pushbutton once to get back into the main gauge calibration mode. The gauge will indicate 70MPH and 8000RPM. If you would like to re-do the calibration, simply press and hold the pushbutton while traveling 30MPH and hold the pushbutton until the speedometer indicates 30MPH at which point the pushbutton may be released.
- 9) When you are finished calibrating the gauge, tap the pushbutton and the gauge will indicate 70MPH and 8000RPM. Then, Press and old the pushbutton for 6 seconds. This will exit the calibration mode. If you want to calibrate another function of the gauge, tap the pushbutton to index the tachometer to the desired calibration mode.

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 gauge will indicate 70MPH and 1000RPM.
- 5) Tap the calibration pushbutton to index the tachometer pointer until the tachometer indicates 4000RPM.
- 6) With the tachometer indicating 4000RPM, press and hold the calibration pushbutton for 6 seconds. The speedometer pointer will move to indicate the speed with the current calibration (which you will need to adjust to make correct).
- 7) Press and hold the pushbutton to increase the indicated speed. Release the pushbutton to stop increasing the speed.
- 8) If necessary, press and hold the pushbutton again to decrease the indicated speed. Release the pushbutton to stop decreasing.
- 9) Press and hold the pushbutton once more to increase the indicated speed. Etc...
- 10) Once the correct speed is dialed in on the speedometer, wait 10 seconds and then tap the pushbutton. The gauge will indicate 70MPH and 8000RPM.
- 11) If you are finished calibrating the gauge, press and hold the pushbutton while the tachometer is indicating 8000RPM for 6 seconds. This will exit the calibration mode. If you want to calibrate another function of the gauge, tap the pushbutton to index the tachometer to the desired calibration mode.

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 gauge will indicate 70MPH and 1000RPM.
- 5) Tap the calibration pushbutton to index the tachometer pointer until the tachometer indicates 5000RPM.
- 6) With the tachometer indicating 5000RPM, press and hold the pushbutton for 6 seconds. The speedometer pointer will move to 30MPH.
- 7) Begin driving a measured mile.
- 8) At the end of your measured mile, press and hold the pushbutton for another 6 seconds. The gauge will indicate 70MPH and 8000RPM.
- 9) If you are finished calibrating the gauge, press and hold the pushbutton while the tachometer is indicating 8000RPM for 6 seconds. This will exit the calibration mode. If you want to calibrate another function of the gauge, tap the pushbutton to index the tachometer to the desired calibration mode.

Optional Shift Indicator Setup: *(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 gauge will indicate 70MPH and 1000RPM.
- 5) Tap the calibration pushbutton to index the tachometer pointer until the tachometer indicates 6000RPM.
- 6) With the tachometer indicating 6000RPM, press and hold the pushbutton for 6 seconds. The tachometer pointer will move to 0RPM. The shift light trigger RPM can now be set.
- 7) Press and hold the pushbutton to increase the tachometer reading. Release the pushbutton to stop increasing the tachometer reading.
- 8) If necessary, push and hold the pushbutton again to decrease the tachometer reading. Release the pushbutton to stop decreasing the tachometer reading.
- 9) Press and hold the pushbutton once more to increase the tachometer reading. Etc...
- 10) When the desired shift light trigger RPM is indicated on the tachometer, release the pushbutton and wait 10 seconds. After 10 seconds of no pushbutton activity, the trigger point will be stored; the tachometer will indicate 8000RPM.
- 11) If you are finished calibrating the gauge, press and hold the pushbutton while the tachometer is indicating 8000RPM for 6 seconds. This will exit the calibration mode. If you want to calibrate another function of the gauge, tap the pushbutton to index the tachometer to the desired calibration mode.

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.
- 4) Release the pushbutton after the engine is started. The gauge will indicate 70MPH and 1000RPM.
- 5) Tap the calibration pushbutton to index the tachometer pointer until the tachometer indicates 7000RPM.
- 6) With the tachometer indicating 7000RPM, press and hold the pushbutton for 6 seconds. The tachometer will move to 8000RPM.
- 7) If you are finished calibrating the gauge, press and hold the pushbutton while the tachometer is indicating 8000RPM for 6 seconds. This will exit the calibration mode. If you want to calibrate another function of the gauge, tap the pushbutton to index the tachometer to the desired calibration mode.