



OMEGA

3-IN-1 AND 4-IN-1 GAUGES

Sensitivity:

A feature of the Omega speedometer is to adjust the sensitivity of the speedometer speed sensor input signal.

In most applications the speedometer will operate best in the normal mode.

In certain situations the speedometer may be exhibiting erratic operation. This may be due to the unit being overly sensitive to outside Electromagnetic Interference (EMI). This can result in the speedometer needle fluctuating either while driving or setting still with the engine running.

In a situation of EMI occurring the sensitivity of the speedometer can be reduced by switching to the "L" (low sensitivity) mode.

In another situation the speedometer may exhibit erratic operation because the signal coming from the signal generator is of a low intensity. In this case the sensitivity can be changed to the "H" (high sensitivity) mode.

See individual speedometer set-up information for details.

Speedometer Calibration:

Read the instructions through at least one time so that you are familiar with what to do during the procedure. Waiting too long between steps will cause the speedometer to automatically time out and go into a mode that you may not want, or discontinue the calibration procedure. Typically a pause of 4 seconds will cause the program to switch to the next mode and a pause of 32 seconds will cause the program to terminate the Boot Menu and restart to normal speedometer operation.

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Three-In-One Speedometer



If the back of your speedometer looks like the picture above, use one of the following procedures.

Functions available:

1. Odometer Display.
2. Pulses Per Mile (PPM) input or change.
 - A. PPM is done automatically by the microprocessor.
 - B. PPM can be manually entered using the program button.
 - C. All features are available for both the high speed and the low speed axle.

Wire Connections:

Left 6-Pin Connector (Viewed from Rear):

- Terminal 1/A – Blue Wire = Back Lights
- Terminal 2/B – Yellow Wire = External Push-Button (2nd Button Wire goes to Ground)
- Terminal 3/C – Green Wire = Speed Sensor Input
- Terminal 4/D – White Wire = Not Used
- Terminal 5/E – Black Wire = Ground/Negative Potential
- Terminal 6/F – Red Wire = 12 Volt Ignition Input

Right 6-Pin Connector (Viewed from Rear):

- Terminal 1/A – Gray Wire = Not Used
- Terminal 2/B – Tan Wire = Temperature Sensor Input
- Terminal 3/C – Pink Wire = Oil Sensor Input
- Terminal 4/D – Brown Wire = Not Used
- Terminal 5/E – Tan/White Wire = Not Used
- Terminal 6/F – Tan/Black Wire = Not Used

Auto Calibration (Calibrate Drive a Mile):

To begin, the speedometer must not be powered on (Ignition Off).

1. Hold the programming button down while powering up the speedometer (turning the ignition on) until **SEELUP** is displayed on the odometer, then release the button.
2. Momentarily push the button (3 times) until calibrate drive a mile is **CLdRnn** displayed.
3. While calibrate drive a mile **CLdRnn** is still displayed push and hold the button until numbers appear in the odometer. The number or numbers will begin flashing. (The number displayed will be the current PPM that the speedometer is currently programmed to.)
4. Momentarily press the button and the number will stop flashing and switch to "0". The speedometer is ready to be programmed.

NOTE: For the next step, time is not an element! Only Distance!

5. Drive the vehicle the exact measured mile. (During this time you may notice the odometer numbers increasing and the speedometer needle indicating a gradually reducing speed. This is normal.)
6. Stop at the end of the exact measured mile.
7. Momentarily press the button to complete the programming sequence.
8. The odometer will display calibrate drive a mile **CLdRnn** or the numbers will begin flashing.
 - *If the display switches to a single "0", turn the ignition off and start over at step 1. When you reach step 6, stop at the end of the measure mile and go directly to step 9.*
9. Turn the ignition "OFF", wait ten seconds and then turn it "ON" again.

Ready to go!

Manual Calibration:

To begin, the speedometer must not be powered on (Ignition Off).

1. Hold the programming button down while powering up the speedometer (turning the ignition on) until **SEtUP** is displayed on the odometer, then release the button.
2. While in the **SEtUP** mode momentarily push the program one time to display calibrate
3. While **CR L** is displayed, push and hold the program button until **SEt** is displayed.
 - *Wait for the display to change to numbers.*
 - *After 2-3 seconds the display will switch to the current PPM value and the first number on the left will begin to flash.*
4. *When the digit that you wish to change is flashing, momentarily pushing the program button will increase the numeric value of that digit.*
 - *When you reach the desired value, pause and wait for the next digit to begin flashing.*
 - *Each digit can be changed the same as the first. The exception is the far left digit. It has only three values 0, 1 and 2.*
 - *Once you have the complete desired value displayed on the odometer, wait for the next digit to begin flashing.*
5. Once the next digit begins flashing, push and hold the program button until calibrate **CR L** is displayed.
6. Release the program button.
7. Push the Program button momentarily one time for **SI 9nRL** to display.
8. Push the program button momentarily three times until **SEtUP** is displayed.
9. Turn the ignition to OFF and the calibration will be complete.

Ready to go!

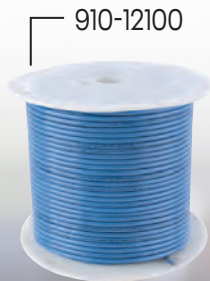
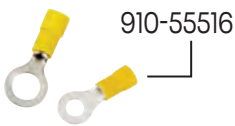
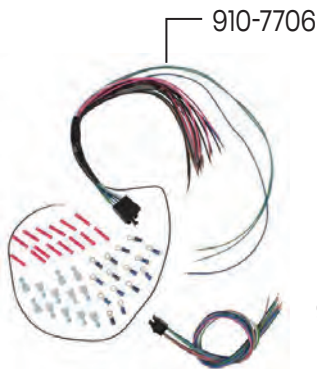
Sensitivity:

To change the speedometer signal input sensitivity follow the directions below:

1. To set or reset the sensitivity press and hold the speedometer program button down while turning the ignition ON.
2. When the display shows **SETUP**, release the program button.
3. Tap the program button two times and **S: 9nR** will be displayed.
4. When **S: 9nR** is displayed push and hold the program button until the odometer displays the current sensitivity mode.
 - **L0R** indicates low sensitivity.
 - **N** indicates normal sensitivity.
 - **H: 9H** indicates high sensitivity.
5. With short taps of the program button, switch to the mode you that you wish to set the speedometer mode to.
6. While the sensitivity you wish to select is displayed push and hold the program button until **S: 9nR** is displayed.
7. Turn the ignition "OFF".

Sensitivity set is complete!

We have the wiring tools you need!



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READ. LEARN. BUILD.



Three-In-One Tachometer



If the back of your tachometer looks like the picture above, make the following connections.

Wire Connections:

Left 6 Pin Connector (Viewed from Rear):

- Terminal 1/A – Blue Wire = Back Lights
- Terminal 2/B – Yellow Wire = Not Used
- Terminal 3/C – Green Wire = Not Used
- Terminal 4/D – White Wire = Tachometer Input From Ignition System
- Terminal 5/E – Black Wire = Ground/Negative Potential
- Terminal 6/F – Red Wire = 12 Volt Ignition Input

Right 6-Pin Connector (Viewed from Rear):

- Terminal 1/A – Gray Wire = Common for cylinder select
- Terminal 2/B – Tan Wire = Not Used
- Terminal 3/C – Pink Wire = Fuel Level Sensor Input
- Terminal 4/D – Brown Wire = Connect to 1/A Common for 4 cyl
- Terminal 5/E – Tan/White Wire = Connect to 1/A Common for 6 cyl
- Terminal 6/F – Tan/Black Wire = Connect to 1/A Common for 8 cyl

Engine Monitoring Sensors:

It is recommended that insulated wire terminals, preferably ring type be used on all connections. Soldering the terminal to the wire is preferred. Light assembly connections require 6 mm (.25 in) female blade terminal.

Oil Pressure Dash Unit Electrical Connections:

Do not use sealing tape when installing the sending unit into the engine as the tape can provide un-wanted resistance in the circuit.

There are Two Styles of Oil Pressure Units Available:

One has a pressure sending circuit only. This unit has a resistance that varies proportionally with the engine oil pressure. Disconnecting the wire coming from the dash unit and connecting an ohmmeter between the electrical terminal and a ground will allow for an evaluation of the sending unit. The resistance should decrease as the pressure increases. At "0" PSI the resistance should be approximately 240 Ω . The resistance should decrease proportionally as the oil pressure increases continuing up to 80 PSI where the resistance should be approximately 33.5 Ω .

The other has a sending circuit and a switch circuit. There is a terminal labeled "G" for the dash unit gauge and a terminal labeled "WK" that is used to supply a ground for a light or warning device indicating possible engine damage. The "WK" terminal can also be used as a control for the hour meter that allows time to accumulate only when the engine is running. In this unit the "G" terminal resistance is controlled by an electronic circuit that is built into the sending unit to indicate oil pressure. This one does not allow for testing with an ohmmeter. The sending unit must have voltage applied to it in order for it to function. **DO NOT APPLY DIRECT VOLTAGE TO THIS SENDING UNIT.** The applied voltage must come from the dash unit sensing circuit. To test this sending unit measure the voltage at the sending unit with the circuit intact and powered up. The voltage should be at an approximate value at the indicated pressure of:

0 psi = 7.32 volts

75 psi = 5.35 volts

25 psi = 6.83 volts

100 + psi = 4.00 volts

50 psi = 6.15 volts

Making the electrical connections:

- "I" terminal connects to ignition voltage
- "GND" terminal connects to Ground/Negative Potential
- "S" terminal connects to the Oil Pressure sensor. Connect to terminal "G" of a two terminal sender
- The Blade terminal is connected to the instrumentation light input

Temperature Dash Unit Electrical Connections:

Do not use sealing tape when installing the sending unit into the engine as the tape can provide un-wanted resistance in the circuit.

The temperature sending unit is a one wire connection that attaches by wire to the "S" terminal of the dash unit.

The sending unit circuit requires a perfect ground connection. The resistance of the sending unit should be approximately 760 Ω at 70^o decreasing proportionally to approximately 30 Ω at 250^o.

Making the electrical connections:

- "I" terminal connects to ignition voltage
- "GND" terminal connects to Ground/Negative Potential
- "S" terminal connects to the Temperature sensor
- The Blade terminal is connected to the instrumentation light input

Voltmeter Dash Unit Electrical Connections:

Making the electrical connections:

- "+" terminal connects to Ignition Voltage
- "GND" terminal connects to Ground/Negative Potential
- The Blade terminal is connected to the instrumentation light input

4-in-1 Dash Unit Connections:**Making the electrical connections:**

1. Terminal " 1 " to ground
2. Terminal " 2 " is not used
3. Terminal " 3 " to instrumentation light terminal
4. Terminal " 4 " to fuel gauge tank unit
5. Terminal " 5 " to temperature sending unit
6. Terminal " 6 " to oil pressure sending unit
7. Terminal " 7 " to ignition voltage

Fuel Level Gauge Installation:

- Read all instructions thoroughly "BEFORE" beginning the installation.
- Any type of work involving fuel tank repair or modification should be performed with extreme care.
- If you are not experienced in working with fuel tanks, seek professional assistance.
- Due to the possibility of igniting fuel fumes, the tank should be empty, dry, and purged of fumes.
- Work "MUST" be performed in a well ventilated area.
- Only tools that will not create possible fuel ignition sparks should be used.
- Disconnect battery "BEFORE" proceeding!
- Failure to comply with installation instructions may result in unsatisfactory instrument performance.
- Improper installation or use of the product for an application other than its intended use will void your warranty and could result in serious personal injury.

Adapting the Sending Unit to Fit your Tank:

When the assembly is complete the sending unit float (Not the sending unit) should be located as close to the center of the tank as possible.

1. Measure the depth of your tank from the Sending Unit mounting hole to the bottom of the Tank.
2. Position the Resistor Block/Sensing Unit on the Vertical Beam so as to place it one half the distance between the top and bottom of the tank.
3. Install the Float Rod into the Resistor Lever in a location that will allow the float to rotate the Sensing Unit Arm in a full sweep, from $\frac{1}{4}$ inch from the bottom of the Tank to $\frac{1}{4}$ inch from the top of the tank.
 - It may be necessary to trim some excess length off of the rod for proper operation.
4. Position the gasket on the tank sending unit.
 - Rotate the gasket to align the holes in the gasket and the sending unit flange.
5. Insert the float and float arm assembly into the tank hole, and lower the sender until the mounting flange makes contact with the top of the tank.
 - Make sure the flange is positioned flat against the tank.
 - The Float should hang freely and not contact the bottom of the tank.
 - If the float contacts the bottom or the top of the tank, adjust the Float rod and or the location of the Sensor on the vertical beam to achieve the correct sweep of the float.
6. Connect a ground/negative potential wire from one of the mounting screws to a good clean surface on the metal body of frame of the vehicle
7. Gently turn all the screws or nuts down equally until they just contact the mounting flange.
8. Snug the screws or nuts in opposite sequence as is done when mounting a wheel on a hub.
 - If you do this in several stages it will ensure that the mounting flange evenly compresses the gasket.
 - Do not overtighten as you may strip out threads in tank top.
9. Connect the wire that comes from the fuel gauge dash unit to the terminal of the tank unit.