Gauge Installation Manual

OMEGA KUSTOM INSTRUMENTS

SPEEDWAY MOTORS

Speedometer:

The speedometer can be set up to display MPH or KPH. There is no provision to change from mile to kilometers once the speedometer is programmed with the exception of a complete re-program.

Odometer/Trip Odometer:

The speedometer contains a seven digit display readout that displays the total mileage, the trip mileage, hour-meter or maximum saved speed. The display items are scrolled by pressing and releasing the speedometer programming button.

Odometer:

With the ignition on during normal operation the odometer will display the miles that the vehicle has traveled. This value cannot be changed.

Trip Odometer:

A quick press of the button will switch to the trip odometer. The trip odometer will record the trip miles or kilometers, independent of the total miles odometer. The trip odometer can be reset to "0" at any time by pushing the push-button for 4 seconds while in the trip odometer mode.

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.

3-3/8" and 4-3/8" Speedometer - Version A

If the back of your speedometer looks like the picture above, use the following information. Other models can be found in the following pages.

Functions available:

1. Odometer Display.
2. Trip Odometer Display (resettable).
3. Hour Meter.
4. Service interval for miles (reset, clear, and disable features).
5. Service interval for hours (reset, clear, and disable features).
6. Over-speed indicator (resettable).
7. Two speed axle, selected by input to microprocessor.
8. 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:

6-Pin Connector:

- Terminal A – Purple Wire   = Ignition On Voltage
- Terminal B – Black Wire   = Negative/Ground Potential
- Terminal C – Orange Wire   = Over-speed Indicator *
- Terminal D – White Wire   = External Push-Button (2nd Button Wire goes to Ground)
- Terminal E – Yellow Wire   = Hour-Meter Control **
- Terminal F – Blue Wire   = Two Speed Axle

* The Over Speed indicator will supply a negative/ground potential to either a Bulb or a warning device.

** The Hour-Meter (If Set) is used to register the hours that the engine is in operation. This terminal may be connected to the terminal on the two terminal oil pressure switch that is marked "WK". This will allow the hour meter to accumulate time only when there is oil pressure. If the driver wishes, this function can be disabled entirely by supplying a permanent negative/ground potential to this terminal.

4-Pin Connector:

- Terminal A – Red w White Tracer Wire   = Voltage Supply to Digital Sensor
- Terminal B – Tan w Wht Tracer Wire   = Speed Sensor Signal *
- Terminal C – Brown w Blk Tracer Wire   = Speed Sensor Signal **
- Terminal D – Green Wire   = Dash Lights

When a 2 wire analog sensor is used, connect both wire to terminals B and C. In most cases the polarity is not a concern. If the speedometer is not receiving a signal the installer should try switching the wires.

When a 3 wire digital sensor is used, connect terminal A to the voltage supply for the sender, connect terminal C to the sensor negative/ground wire and to a negative/ground potential and connect terminal B to the sensor signal wire.

The Omega Digital VSS has a Red, a Black and a White wire.
- The red wire, is for the voltage input, either from terminal A of the 4 pin connector (Preferred) or from an ignition switched source.
- The black wire, is a ground/negative potential. The best connection would be to connect to terminal C of the 4-pin connector and to a good ground/negative potential.
- The White wire, connects to terminal B of the 4-pin connector of the speedometer.

Speedometer Calibration:

There are two major speedometer calibrating routines. The "Boot Menu" is different depending on how the installer is going to calibrate the speedometer.

Auto Calibration:

Sometimes referred to as Drive a Mile calibration. This is most commonly used by the installer.

1. Drive vehicle to the start of the measured mile.
2. Start programming with the odometer on the total miles traveled.
3. With the engine running push and hold the program button until `HELLO` is displayed.
4. When Hello displays release the program button and Clear Odometer `CLr OdO` will display.
5. Momentarily push the program button (2 times) until `SELF Hi` is displayed.
6. Wait until `PEnding` is displayed.
7. Push the program button and `SELF Hi` will display.

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

8. Drive the measured mile exactly and stop.
9. Push the program button and Calculating `CALCing` will show momentarily and then `donE` will display.

NOTE: If the odometer does not move past `CALCing` the most likely cause is that the speedometer is not receiving information from the signal generator.

10. Odometer will switch to miles traveled.

Ready to go!

Manual Calibration:

Most typically used in conjunction with a Global Position Sensor (GPS) system or an engine control module generated speedometer signal.

1. To begin the speedometer must not be powered on (Ignition Off).
2. Hold the program button down while powering up the speedometer (turning the ignition on) until `HELLO` is displayed on the odometer, then release the button.
3. The odometer will display service hours `SEr HrS`.
4. Momentarily push the program button (4 times) until program high axle `PP9nH` is displayed.
5. Wait until 6 digits followed by a " P " is displayed. (Example "004600P")
   - *The odometer will be flashing the digit on the far left of the row of 6 digits. The odometer will automatically progress through flashing the next digit until it goes through all the digits or you change the value.*
6. When the digit that you wish to change is flashing, momentarily pushing the button while the digit is flashing will allow you to change the value between 0 and 9.
   - *The software program will automatically adjust the set PPM down by 100. If you wish to select 16,000, set the PPM to 16,100. This will result in a setting of 16,000.*
7. When you get to the value you need for the position you are changing, wait until the odometer automatically switches to the next digit.
8. While this digit is flashing, set the value for the same as was done for the previous.
9. When the desired value is displayed for each of the 6 digits, wait until the odometer switches to the next digit.
10. When the next digit begins flashing, push and hold the button until `donE` is displayed.
11. Release the button. The odometer will show a single 0.

Ready to go!

Sensitivity:

Read the Sensitivity description on page one to determine the necessity of changing this option. 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 HELLO release the button and service hours SEr HrS will be displayed.
3. Tap the button six times until InPuT is displayed.
4. When InPuT is displayed wait four seconds for the odometer to display L n H.
5. L represents low sensitivity.
    n represents normal sensitivity.
    H represents high sensitivity.
6. The L, n and H will each blink for four seconds and rotate to the next.
7. Wait for your selection to begin blinking.
8. Once your selection begins blinking push the program button.
9. The odometer will display donE momentarily and then switch to normal operation by displaying the miles registered on the odometer.

Hourmeter:

The speedometer has an hour-meter function that can be used to record actual engine hours. A quick push of the program button while in the odometer mode will display the trip odometer mode, one more quick push will display the hourmeter. This mode can be recognized by the far right digit displaying a small box that moves up and down.

00000.0□   00000.0▫

The hour-meter will accumulate time when voltage is applied to terminal A and ground is applied to terminal B of the 6 pin connector. The hour-meter cannot be reset. The hour meter function can be disabled by grounding terminal E of the 6 pin connector. A permanent ground can be used for a complete disable or connecting to an oil pressure switch that grounds the circuit without the presence of oil pressure can be used to disable the hour-meter if the ignition is on and the engine is not running. With the use of the oil pressure switch the hour-meter will accumulate time any time the engine is running.

Service Hours Interval:

To program the Service Hours interval notice:

1. With the ignition "OFF" push and hold the program button down while turning the ignition "ON".
   - HELLO will be displayed.
2. Release the button and the first option to be displayed will be service hours SEr HrS .
3. Wait for 4 seconds and the display will change to the service hours value interval setting.
   - *The display will have a six digit number with an " h " at the end.* 000000h
   - *The digits will begin flashing for 4 seconds each and proceed to next digit. During the time that a digit is flashing, the value can be changed by momentarily pushing the program button. When the desired hours interval notice is displayed, wait for the next digit to begin flashing.*
4. While the next or a following unchanged digit is flashing (other than the first two digits on the left) push and hold the program button until donE is displayed.

Service Hours Interval Set:

· Expired Service Intervals will cause the Odometer to display `SEr OdO`

To Reset the Service Hours to Zero:

1. With the Ignition "OFF" hold the program button down and turn the ignition to "ON".
2. When the odometer display switches to `HELLO` release the button.
3. Momentarily push the button 2 times until the display shows clear hours `CLr HrS` .
4. After 4 seconds the time will reset.

Reset done!

Service Distance/Miles Interval:

The speedometer can be set-up to keep track of a desired service interval mileage and give notice to the vehicle operator when the programmed service interval miles have passed. If the service interval has been passed the odometer will display a message at the ignition "ON" cycle for service distance `SEr d.S` .

To Program the Service Hours Interval Notice:

1. With the ignition "OFF", push and hold the program button until `HELLO` is displayed.
2. Release the button and push it once and option displayed will be service distance `SEr d.S` .
   - *Wait for 4 seconds and the display will change to the service distance value interval setting.*
   - *The display will have a six digit number with a " d " at the end* `000000d`
   - *The digits will begin flashing for 4 seconds each and proceed to next digit. During the time that a digit is flashing, the value can be changed by momentarily pushing the program button. When the desired mileage interval notice is displayed, wait for the next digit to begin flashing.*
3. While an unchanged digit is flashing (other than the first two digits on the left) push and hold the program button until `donE` is displayed.

Service Hours Interval Set:

- Expired Service Intervals will cause the Odometer to display `SEr OdO`

To Reset the Service Hours to Zero:

1. With the Ignition "OFF" hold the program button down and turn the ignition to "ON".
2. When the odometer display switches to `HELLO` , release the button.
3. Momentarily push the button 3 times until the display shows clear distance `CLr d.S` .
4. After 4 seconds the time will reset.

Reset done!

Maximum Saved Speed:

The Speedometer will record the maximum speed. The maximum speed will be recorded and increased anytime the recorded maximum speed is exceeded. To display the recorded maximum speed `80` push the program button momentarily 3 times while the accumulated miles are displayed. The maximum speed recorded can be reset by pushing the program button for 4 seconds while the maximum speed is displayed.

Overspeed Condition:

The speedometer can be set-up to activate a warning light or buzzer in the event of a vehicle over-speed condition. When the pre-set speed is exceeded terminal "C" of the 6-pin connector will allow current flow through it to ground activating the desired warning device. The circuit can safely operate a current up to 40 milliamps.

To Set the Over-speed Warning MPH:

1. With the Ignition "ON" push and hold the program button down until `HELLO` is displayed.
2. Release the button. In 4 seconds the first item on the menu will be show Clear Odometer `CLr OdO`.
3. Push the button one time to switch to Set Speed `SEt SPd`.
   - *Wait four seconds and the display will show the 3 digit speed at which the speedometer will activate the warning circuit by supplying a ground to terminal C of the 6 terminal connector.*
   - *The digits will begin flashing for 4 seconds each.*
4. While any one of the digits is flashing push the program button momentarily to advance to the value you wish to have in that position.
5. Once you have the value you wish, wait for the next digit to begin flashing and set that one the same as the first.
6. Now set the last digit as you did the first two.
7. With all the digits set to your over-speed value push and hold the button until `donE` appears.

Ready to go!

3-3/8" and 4-3/8" Speedometer - Version B
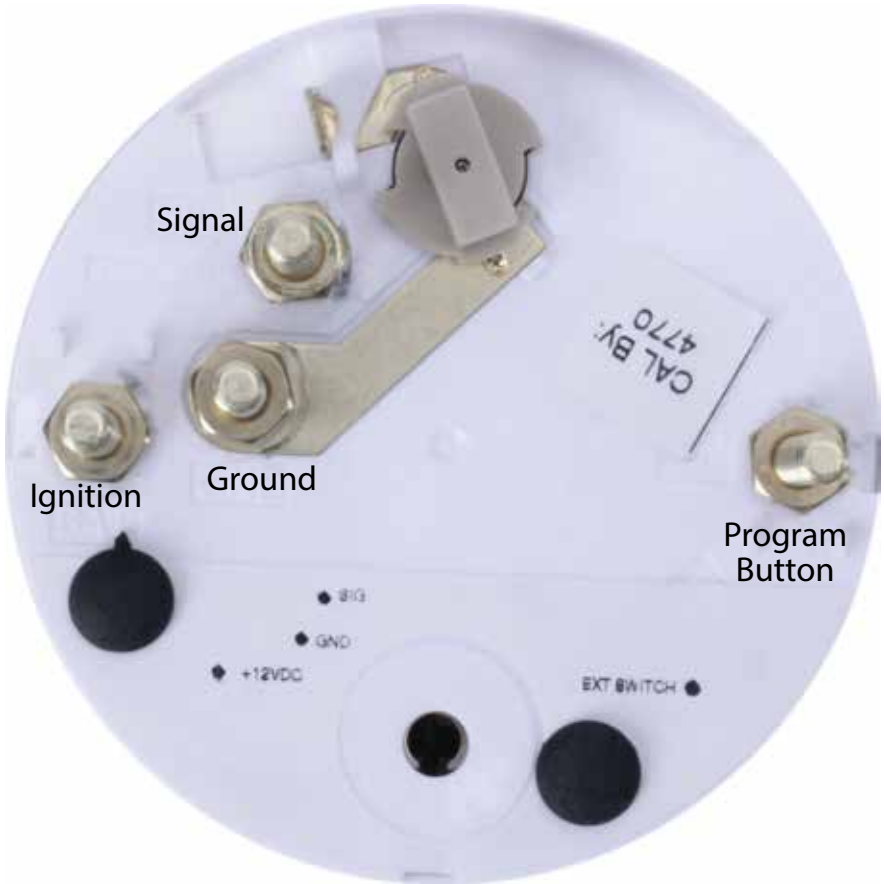
If the back of your speedometer looks like the picture above, use the following procedure. Other models can be found in the following pages.

Functions Available:

1. Odometer Display.
2. Trip Odometer Display (resettable).
3. 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.

Version B

Wire Connections:

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.

Speedometer Electrical Connections:

Omega 3 wire Digital Speed Sensor/Speed Signal Generator

A. The "BAT" terminal should be connected to an ignition switched circuit.
B. The "GND" terminal must be connected to a "Good" ground/negative potential.
C. The "SIG" terminal must be connected to the digital signal circuit (the white wire on the signal generator supplied with the Speedway Motors Omega Gauges).
D. The " SYNC PORT " is to be connected to the " Program Button ". The "Program Button" is then connected to a "Good" ground/negative potential
E. The blade terminal is connected to the instrumentation light input.
F. The Omega Digital VSS has a Red, a Black and a White wire.
G. The red wire, is for the ignition voltage input
H. The black wire, is a ground/negative potential.
I. The white wire, connects to signal terminal "SIG" of the speedometer.

Analog 2 Wire Sensor:

A. The "BAT" terminal should be connected to an ignition switched circuit.

B. The "GND" terminal must be connected to a "Good" ground/negative potential.

C. The "SIG" terminal must be connected to one of the signal generator outputs.

D. The second wire on the signal generator connects to ground/negative potential.

   • *The signal generator wires may need to be reversed if the speedometer will not function.*

E. The "SYNC PORT" is to be connected to the "Program Button".
   The "Program Button" is then connected to a "Good" ground/negative potential.

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 SEtUP is displayed on the odometer, then release the button.

2. Momentarily push the button (3 times) until calibrate drive a mile is CALdAnn displayed.

3. While calibrate drive a mile CALdAnn 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. Turn the ignition "OFF", wait ten seconds and then turn it "ON" again.

Ready to go!

Manual Calibration:

This procedure is typically used when the speedometer is used in conjunction with a GPS or a digital output from a computer module. If a GPS is utilized the best result will be achieved using the fastest PPM/KPM that the GPS is capable of. 16,000 or more.

If the signal from a control module is being used and the PPM output of the module is known, that value can be entered in with this procedure. If the value is not known the best procedure to use would be the Auto Calculation.

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. Momentarily push the programming button (1 time) until **CAL** is displayed.
3. While **CAL** is still displayed push and hold the button until **SEt** is displayed.
4. Momentarily push the programming button and numbers will appear in the odometer. The first number will begin flashing.
    - *The number displayed will be the current PPM that the speedometer is currently programmed to.*
    - *The digit will flash for 2 seconds and switch to the next digit.*
    - *When any digit is flashing, momentarily pressing the program button will advance that digit to the next higher value. You can stop at any value (0 thru 9) you wish to select and wait for the next digit to begin flashing. You can then change the next digit value.*
    - *Once you have the correct numeric value you wish to have for the PPM your vehicle needs, Wait for the next digit to begin flashing.*
5. When the next digit begins flashing press and hold the program button until **CAL** is displayed.
6. Turn the ignition "OFF", wait ten seconds and then turn it "ON" again.

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 SiGnAL will be displayed.
4. When SiGnAL is displayed push and hold the program button until the odometer displays the current sensitivity mode.
   - LO A *indicates low sensitivity.*
   - b *indicates normal sensitivity.*
   - HiGH C *indicates high sensitivity.*
5. With short taps of the program button, switch to the mode you that you wish to set the sensitivity mode to.
6. While the sensitivity you wish to select is displayed push and hold the program button until SiGnAL is displayed.
7. Turn the ignition off. Sensitivity set is complete.

Miles Accumulated/Trip Miles:

To switch from miles accumulated to trip miles:

1. While the odometer is displaying accumulated miles, push the progam button momentarily.
   - The odometer will display trip HriP momentarily and switch to the trip miles display.

To switch from trip miles to miles accumulated:

1. While the odometer is displaying trip miles, push the program buttom momentarily.
   - The odometer will display OdO momentarily and switch to the accumulated miles display.

Reset Hourmeter:

To reset the hour-meter to zero:

1. With the Ignition "ON" and the odometer display showing miles traveled, momentarily push the program button down.
   - *The odometer display will show Hours In Progress Hr I P and switch to the hours accumulated.*
2. Push and hold the program button until the display shows RESEt.
   - *The display will quickly display the accumulated hours and be blinking.*
3. Push and hold the program button until the display shows Hours In Progress Hr I P again.
   - *The display will switch to "0.0".*
4. Momentarily push the program button and the odometer will switch to the "ODO" mode and display miles accumulated.

Reset done!

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

Speedometer

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 `SEtUP` is displayed on the odometer, then release the button.
2. Momentarily push the button (3 times) until calibrate drive a mile is `CALdAnn` displayed.
3. While calibrate drive a mile `CALdAnn` 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 `CALdAnn` 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 `CAL` 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, m*omentarily 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 `CAL` is displayed.
6. Release the program button.
7. Push the Program button momentarily one time for `Si gnAL` 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 ᴿᴱᵗᵁᴾ SETUP , release the program button.
3. Tap the program button two times and ᔓ᷂ SI GnAL will be displayed.
4. When ᔓ᷂ SI GnAL is displayed push and hold the program button until the odometer displays the current sensitivity mode.
   - LO A *indicates low sensitivity.*
   - b *indicates normal sensitivity.*
   - HI GH C *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 SI GnAL is displayed.
7. Turn the ignition "OFF".

Sensitivity set is complete!

We have the wiring tools you need!

910-7706

910-55516

728-45229

910-55666

910-55667

728-11477

910-55672

910-12100

728-11412

910-86500

THE TOOLBOX

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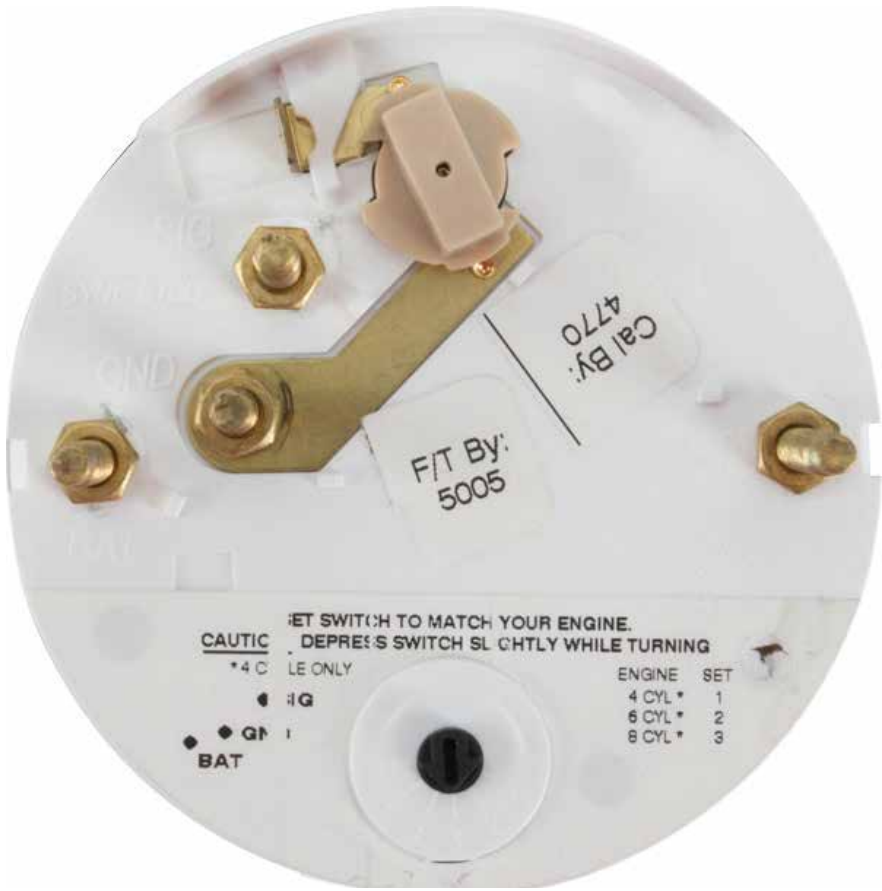
728-11475

READ. LEARN. BUILD.

3-3/8" and 4-3/8" Tachometer

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

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.

Tachometer Electrical Connections:

A.   The "BAT" terminal should be connected to an ignition switched circuit.

B.   The "GND" terminal must be connected to a "Good" ground/negative potential.

C.   The "SIG" terminal must be connected to the tachometer Input From Ignition System

D.   The "SYNC PORT" is not used in this unit.

E.   The Blade terminal is connected to the instrumentation light input.

Tachometer Selector Switch Setting:

1.   Using a small screwdriver, " GENTLY and SLIGHTLY " depress and turn the selector switch on the back of the tachometer to the correct position to match the number of cylinders.

- *Position 1 = 4 cylinder*
  Position 2 = 6 cylinder
  Position 3 = 8 cylinder
- *Depressing the switch too hard may cause damage to the tachometer!*
- *Be sure the selector switch has locked into the correct position by "GENTLY and SLIGHTLY" rotating the switch back and forth with the screwdriver.*

Tachometer

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

Tachometer

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 70^0 decreasing proportionally to approximately 30 Ω at 250^0.

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

Tachometer

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 Dash Unit Electrical Connections:

Making the electrical connections:

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

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 ¼ inch from the bottom of the Tank to ¼ 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.

OMEGA KUSTOM GAUGE SETS – MADE IN THE U.S.A.

OMEGA KUSTOM INSTRUMENTS

- Features stainless steel bezels, glass lens, precision movements and adjustable brackets
- 3-year warranty
- Mechanical or programmable electronic speedometers
- Five gauge sets come with a speedometer of the size listed below and 2⅝" fuel level, volt, oil pressure and water temperature gauges

3⅜" MECHANICAL SPEEDOMETER SET

- Includes 2⅝" elec. oil pressure, water temperature & fuel level gauges, sending units & voltmeter

910-91153	White 5-gauge set
910-92153	Tan 5-gauge set
910-92153R	Tan with red pointer 5-gauge set
910-93153	Black 5-gauge set

3⅜" ELECTRIC SPEEDOMETER SET

- Includes 2⅝" elec. oil pressure, water temperature, fuel level gauges, sending units and voltmeter
- Speedometer sending unit sold separately

910-91253	White 5-gauge set
910-92253	Tan 5-gauge set
910-22053R	Tan with red pointer 5-gauge set
910-93253	Black 5-gauge set
911-40313	Silver 5-gauge set

4⅜" ELECTRIC SPEEDOMETER SET

- Includes 2⅝" oil pressure, water temperature and fuel level sending units, gauges and voltmeter
- Plus a GM style speedometer sending unit

911-12085	White 5-gauge set
911-22085	Tan 5-gauge set
911-22085R	Tan with red pointer 5-guage set
911-32085	Black 5-gauge set
911-40315	Silver 5-guage set
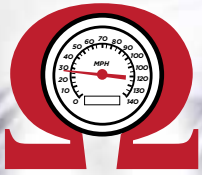
OMEGA KUSTOM
INSTRUMENTS

910-91033

910-92033

910-93033

910-94033

911-40275

911-40310

TACHS

910-91033	White 8000 rpm 3⅜" tach only
911-10235	White 8000 rpm 5" tach only
910-92033	Tan 8000 rpm 3⅜" tach only
911-20235	Tan 8000 rpm 5" tach only
911-40533	Tan with red pointer 8000 rpm 3⅜" tach only
911-40537	Tan with red pointer 8000 rpm 5" tach only
910-93033	Black 8000 rpm 3⅜" tach only
911-30235	Black 8000 rpm 5" tach only
910-94033	Silver 8000 rpm 3⅜" tach only
911-40235	Silver 8000 rpm 5" tach only

3-N-1 GAUGES

- 4⅜" dual gauges, Speedometer features inset oil pressure and water temp
- Speedometer features temp and oil
- Tachometer features inset fuel level and voltmeter
- Like most Omega gauge sets they include the required senders and feature a 3 year warranty

911-40287	Kool white
911-40324	Timeless tan - red needle
911-40275	Black top
911-40310	Billet silver

OMEGA KUSTOM
INSTRUMENTS

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