

# INSTALLATION INSTRUCTIONS

## DIRECT FIT FOR FAT BOB DASH - TACH/SPEEDO COMBO

2650-1189-00



### Wiring 95-03 Road King / Dyna Wide Glide 96-03 Soft Tail

Year/Model	12 Volts (12V)	Ground (GND)	Tach Signal (Tach)	Speed Signal (SPD)	Turn Signal Cancel (VSS)	Speed Sensor +	Speed Sensor -	Odo/ Trip (SW)	Odo/ Trip (SW RTN)	Oil Light (OIL)	Neutral Light (NEUT)	High Beam (High)	Left Turn (Left)	Right Turn (Right)
1995 - 2003 Road King	or/wht	bk	pnk	wht	wht/gn	rd	bk	bk	bk	gn/ye	tn	wht	pur	dk br
95 - 03 Dyna Wide Glide 96 - 03 Soft Tail	or/wht	bk	pnk	wht	wht/gn	rd	bk	gry	gry	gn/ye	tn	wht	pur	dk br

**NOTE:**

Pink tach signal wire may be located at different areas of wiring harness.  
May be under console or at ignition coil.

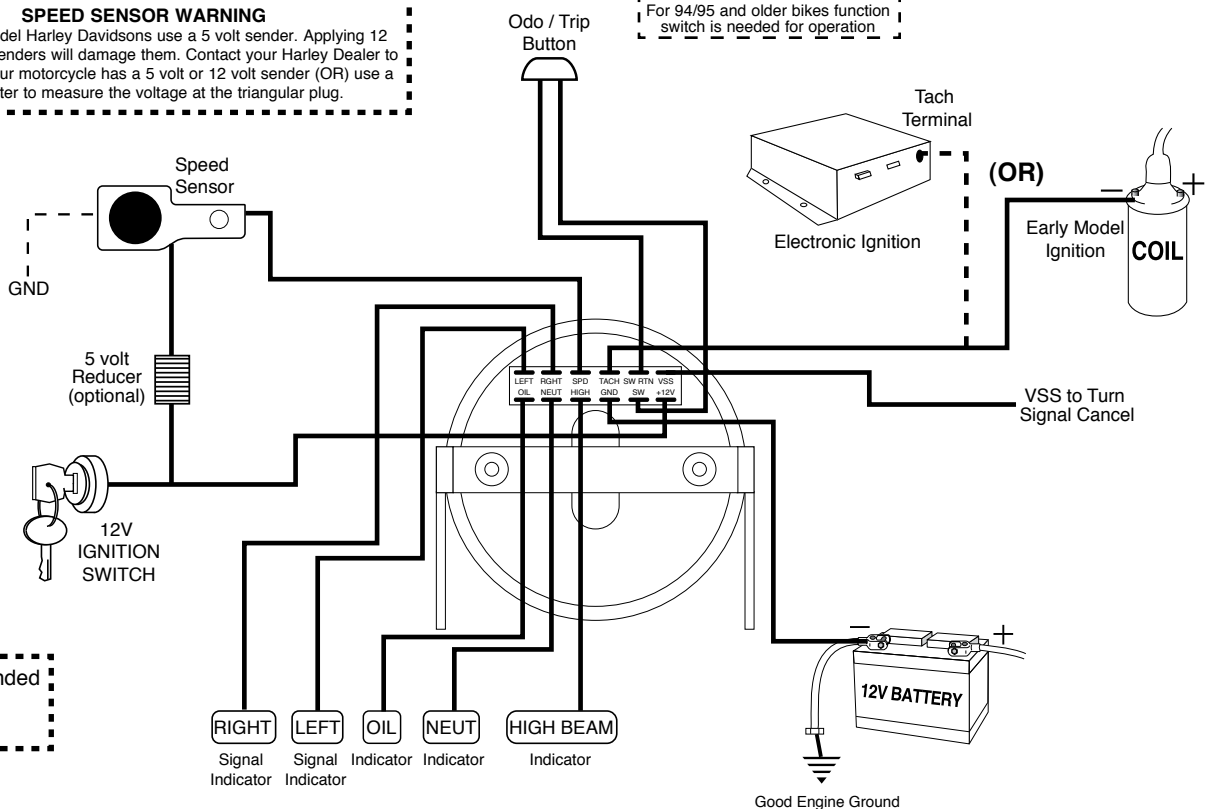
- rd = red
- bk = black
- bl = blue
- ye = yellow
- gry = gray
- slv = silver
- wht = white
- pur = purple
- dk br = dark brown
- tn = tan
- gn = green

### Universal Wiring

**CAUTION!**  
As a safety precaution, the power wire to this product should be fused before connecting it to the positive (+) side of the 12 VDC battery. We recommend using a 1 Amp fuse.

**SPEED SENSOR WARNING**  
Some late model Harley Davidsons use a 5 volt sender. Applying 12 volts to these senders will damage them. Contact your Harley Dealer to determine if your motorcycle has a 5 volt or 12 volt sender (OR) use a multimeter to measure the voltage at the triangular plug.

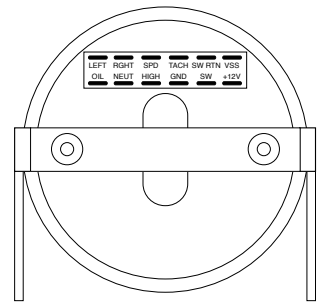
For 94/95 and older bikes function switch is needed for operation



Use 20 AWG stranded or heavier wire for hook-up

# Mounting

1. Remove dash from tank
2. Remove stock speedo from dash. (retain rubber gasket)
3. Insert Auto Meter tach/speedo in hole, using stock rubber gasket. (may have to lubricate gasket)
4. Connect tach/speedo wiring as shown in wiring section.
5. Secure tach/speedo to dash using provided bracket and hardware.
6. Secure dash on bike.



## General Information

The electronic speedometer in this instrument utilizes a single LCD to display odometer and two trip odometer mileages. Press the Odo/Trip button to cycle between odometer, Trip 1, and Trip 2 displays on the LCD. Pressing and holding the Odo/Trip button for more than 2 seconds while viewing either Trip display will reset the trip currently being displayed. The odometer cannot be reset.

**NOTE:** The odometer on the speedometer portion of this instrument will show some mileage (less than 5 miles / 8km). This is a result of factory testing to ensure optimum quality.

**TIP:** Auto Meter always recommends performing the calibration process for best speedometer accuracy.

### Speedometer Senders:

The electronic speedometer in this instrument is designed to operate with an electrical speed sender. The speed sender signal range must be between 500 and 400,000 pulses/mile (310 and 248,500 pulses/km). Any speed sender or electronic module that meets the following two conditions can be used:

1. Pulse rate generated is proportional to vehicle speed.
2. Output voltage within the ranges listed below:
  - a. Hall effect sender, 3 wire (5 to 16V)
  - b. Sine wave generator, 2-wire (1.4 VAC min.)
  - c. 5v Square Wave (CMOS)

## Operation

When power is first applied to the gauge, the odometer will display the current, PPM calibration(80,000 PPM), then the current, PPR calibration(1.0 PPR). Then it enters normal operation mode and displays the odometer or trip miles, depending on the state of the odometer (total miles or trip) when it was last turned off.

## Testing

Once the instrument is mounted and wired into the vehicle (see preceding page), the instrument should be tested to verify that the electrical connections are working properly. First, watch the instrument's pointers as power is applied with the key in the accessory position. The pointers should first move to a midrange position, then down to the zero position on the dial. This action verifies that power is properly connected to the instrument. Start engine. Tach should show idle RPM. The vehicle should be driven some distance to verify the Vehicle's Speed Sender (VSS) is connected properly and that the pointer moves. If the pointer does not move out of the zero position, verify that the VSS is connected properly and that calibration has been performed

## Trouble Shooting

If your tach/speedo does not function properly after installation check the following:

1. Are all electrical connections correct and tight?
2. If neither the tach/speedo nor dial light work, check ground and 12V power connections.
3. With power off, the tach/speedo pointer may not always rest at zero. This is normal. When power is applied, the pointer will return to zero.
4. Ignition manufacturers recommend that the ignition and coil be matched according to criteria which they establish (often that the ignition and coil be products of the same company). If they are mismatched, minor malfunctions may occur, showing as erratic readings on the tach. Mismatching coil and ignition types are often the cause of incorrect tach performance.
5. Lights work, but no tach or speedo - check tach and speedo input
6. Speedo works but tach does not - check tach input
7. Tach works but speedo does not - Check VSS sender, power and Ground (**OR**) Check VSS signal wire
8. Tach works but reads 1/2 or 2X RPM - Check tach calibration
9. PPM cal didn't work - Check pulse count while driving (**OR**) Make sure you are not in PPR mode
10. Turn signals won't cancel - Check VSS output is wired correctly.

# Speedometer Pulse Per Mile (PPM) Calibration

**NOTE: Calibrated out of the box for 80,000 PPM. This is a common Harley calibration setting.**

To calibrate your electronic speedometer:

- 1) With the power off, push and hold the trip/reset button. While holding the button, start the vehicle and continue to hold the button until the pointer sweeps to full scale and stays at full scale. You may now release the button.
- 2) Drive to the beginning of a pre-marked 2 mile distance and come to a stop. It does not matter how far away it is to get to this pre-marked 2 mile distance. DO NOT SHUT THE ENGINE OFF. Push and release the button. The pointer will drop to half scale.
- 3) Drive the 2 mile distance. The pointer will remain at the half scale mark no matter what speed you drive. The odometer will display the number of pulses as the speedometer is counting. If you have to stop during the calibration, that is o.k. The speedometer will simply stop counting pulses during this time.  
**NOTE: If the odometer does not show pulses being counted, the speedometer is not receiving an input signal. Check VSS connectors and power.**
- 4) At the end of the 2 mile distance, come to a complete stop and push and release the button. The pointer will drop to 0 and the calibration is stored. You are now finished. Remember the accuracy of your 2 mile distance will directly affect the accuracy of your speedometer.

The following list contains factors that can affect speedometer accuracy and how to minimize them during calibration.

1. Tire diameter increases slightly as vehicle speed increases. To minimize this error drive at an average speed of 45 MPH (175 KPH) during calibration.
2. Tire diameter increases slightly as tire air pressure increases. To minimize this error, check the vehicle's tires to ensure correct air pressure.
3. Tire diameter changes with vehicle load. Minimize this error by having an average load in the vehicle during calibration.
4. Minimize tire slippage error by not breaking traction during calibration.

**NOTE: Always recalibrate your speedometer after any tire size, sprocket or gearing change.**

---

# Pulse Per Revolution (PPR) Calibration

**NOTE: Calibrated out of the box for 1 pulse per revolution (PPR). This is a common Harley calibration setting.**

With the power off, push and hold Odo/Trip button

While holding the button, turn power on to instrument by turning the ignition switch to the accessory position, and continue to hold trip button in while pointer moves to 1/2 scale. Release the trip button once the pointer reaches 1/2 scale. The Odometer will show 0.5

**NOTE:** If the Trip button is held for 2 seconds or more, the gauge will enter PPM(speedometer calibration) set mode. If this happens, press and release the Trip button. The pointer will move to 1/2 scale. Press and release the Trip button again. The pointer will move to the zero position. Turn off the power to the gauge and repeat the PPR set procedure from the beginning.

The Odometer display will change, every 1.25 seconds to 1.0, then 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, and back to 0.5. It will continue to cycle in this manner until the Trip button is pressed for 1 second and released. This enters the displayed PPR value and exits field cal mode.