

INSTALLATION INSTRUCTIONS ELITE DIGITAL SPEEDOMETER

2650-1951-77

Models 6789-CB, 6789-PH, 6789-SC, 6789-UL



General Information

This instrument utilizes a single LCD to display odometer and two trip odometer mileages. Press the Trip (Right) button on the dial window to cycle between odometer, Trip 1, and Trip 2 displays on the LCD. Pressing and holding the 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: AutoMeter 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 sensor. The speed sensor signal range must be between 500 and 400,000 pulses/mile (310 and 248,500 pulses/km). Any speed sensor 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)

Recommended – AutoMeter Hall effect speed sensor
#5291 Standard 7/8" – 18 Thread
#5292 Ford, plug in
#5289 GPS Speed Sensor

Installation Tips

1. A 12V power source **MUST** be used to power this speedometer. A 12V motorcycle battery is a good alternative for cars without batteries. A battery with minimum 5 amp hour rating is recommended.
2. Wherever possible, solder wire connections and avoid crimp-type connectors. This will minimize loose connections that could cause problems later.
3. Make sure you have a good ground to engine and battery negative terminal.
4. Wire installations should be neat and tied down to prevent tugging and fraying of wires at connections.

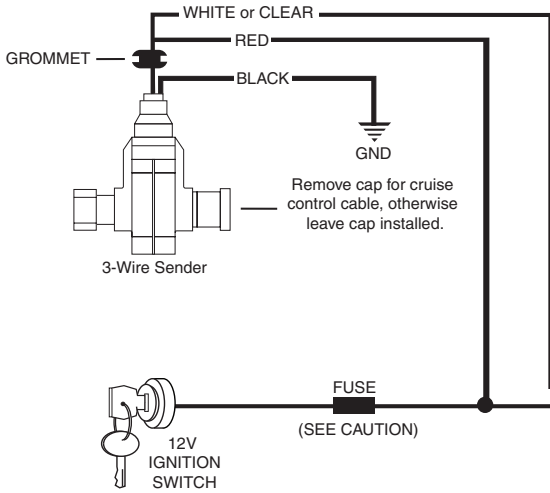
Connections

Red	+12V
Black	Good Engine Ground
White	Dash Lighting
Violet	Speed Sender Input
Orange	Pro Control Out
Gray	Vss Out

Wiring w/ typical aftermarket 3-wire sender

AutoMeter Hall-Effect senders (Square Wave)

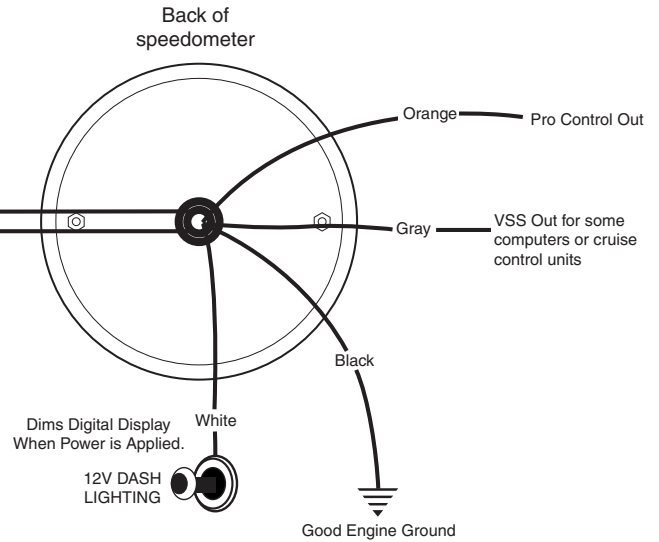
- Models 5291 (standard 7/8-18 thread) & 5292 (Ford Plug in Sensor), 3 wire sender, cruise.



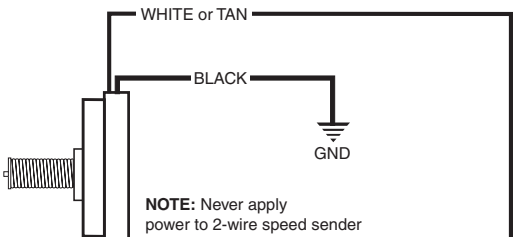
Use 20 AWG stranded or heavier wire for hook-up

NOTE: The speedometer signal output terminal (VSS) produces a +5 volt DC Square wave signal. This signal may be able to be used as a VSS signal with some OEM and aftermarket ECM's and cruise control units.

CAUTION!
As a safety precaution, the red wire of this product should be fused before connecting to the 12V ignition switch. We recommend using a 3 AMP automotive type fuse.



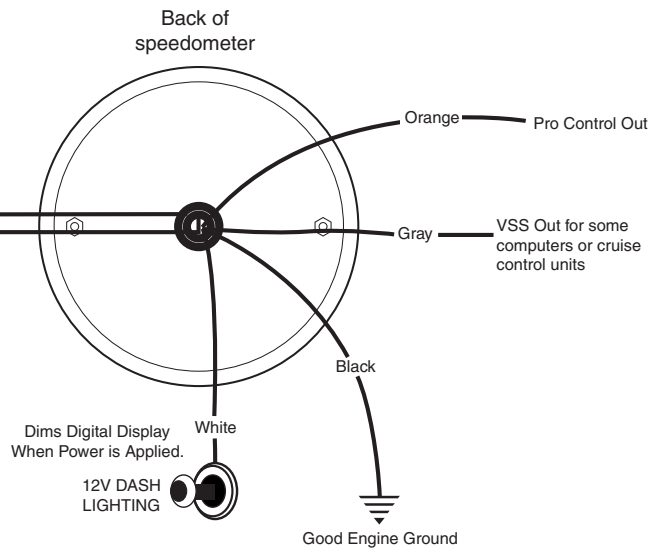
Wiring w/ typical aftermarket 2-wire sender (and no computer)



Use 20 AWG stranded or heavier wire for hook-up

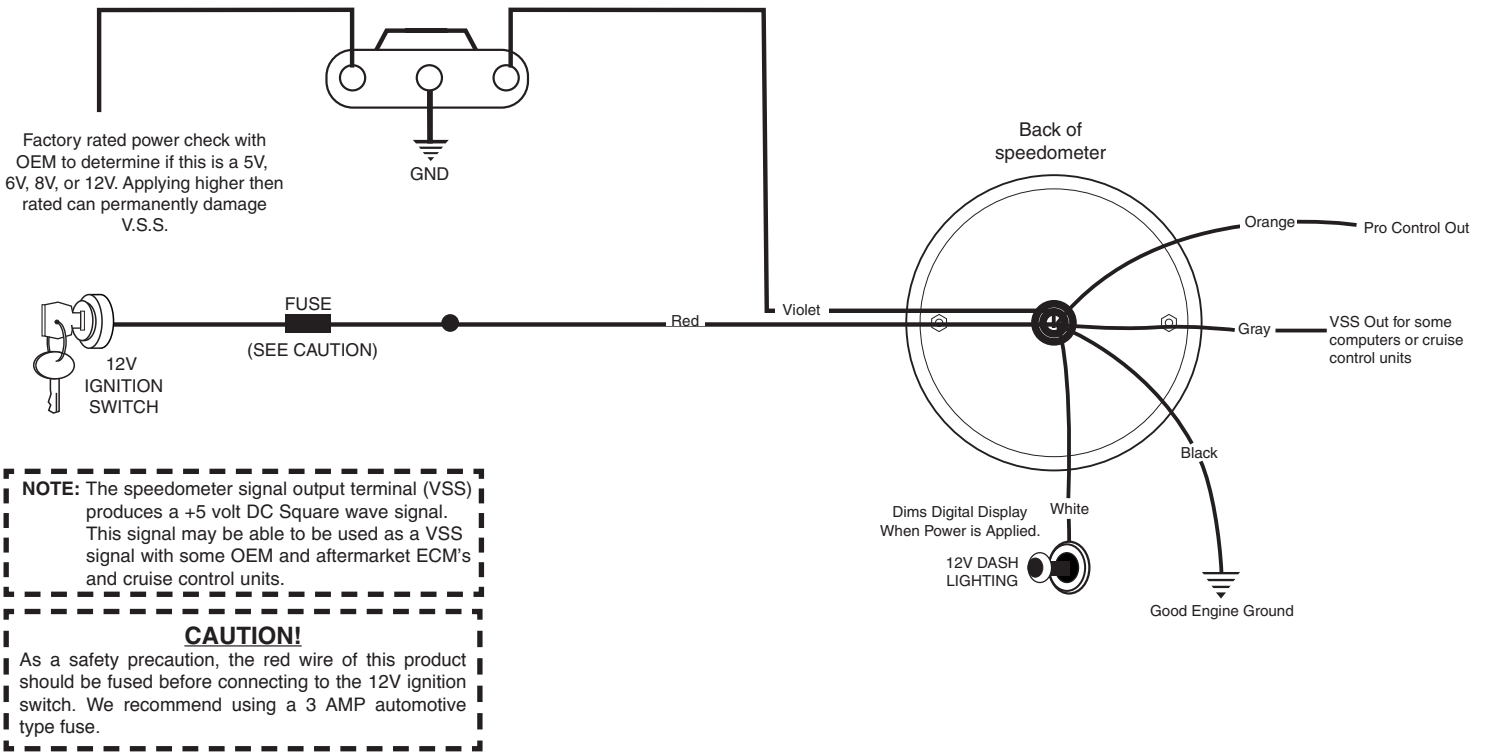
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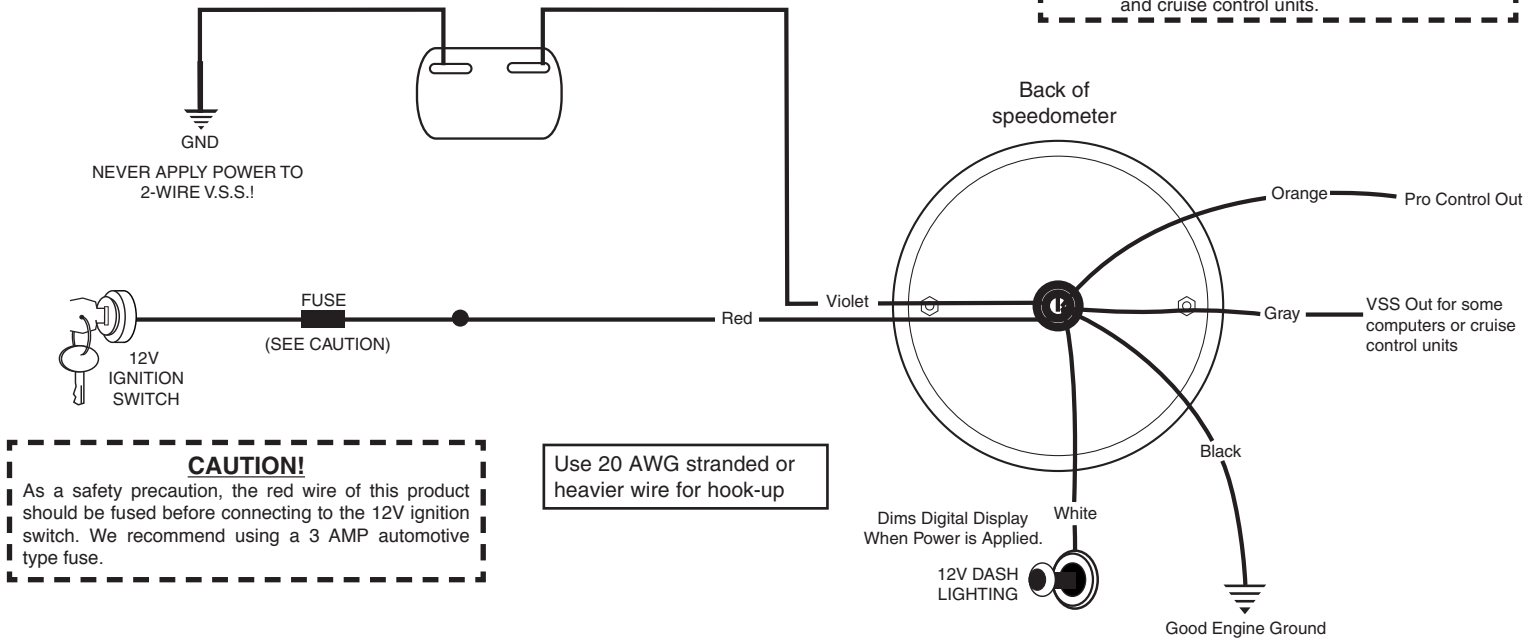
Wiring w/ most OEM 3-wire V.S.S (Vehicle Speed Sensor)

Use 20 AWG stranded or heavier wire for hook-up

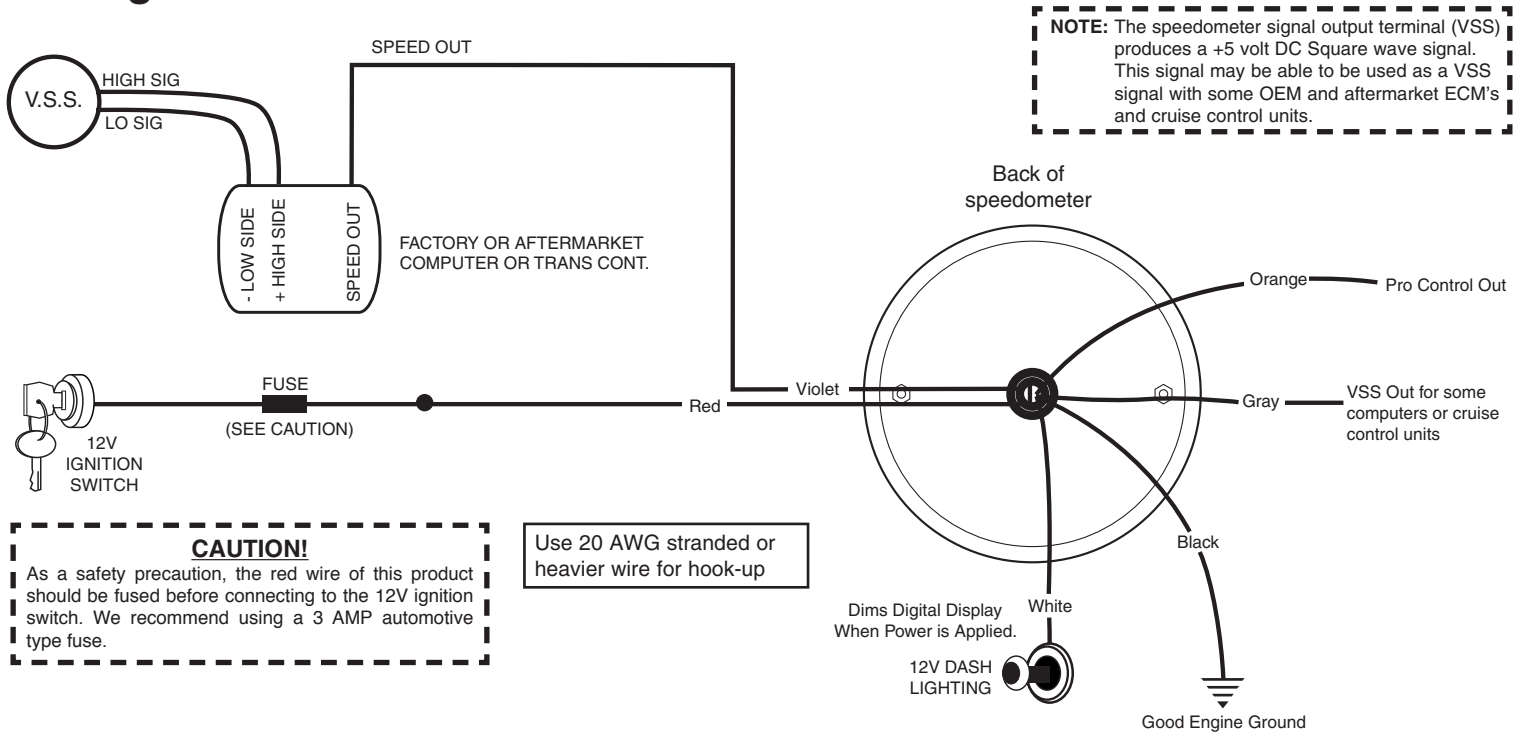


Wiring w/ most OEM 2-wire V.S.S (When no computer involved)

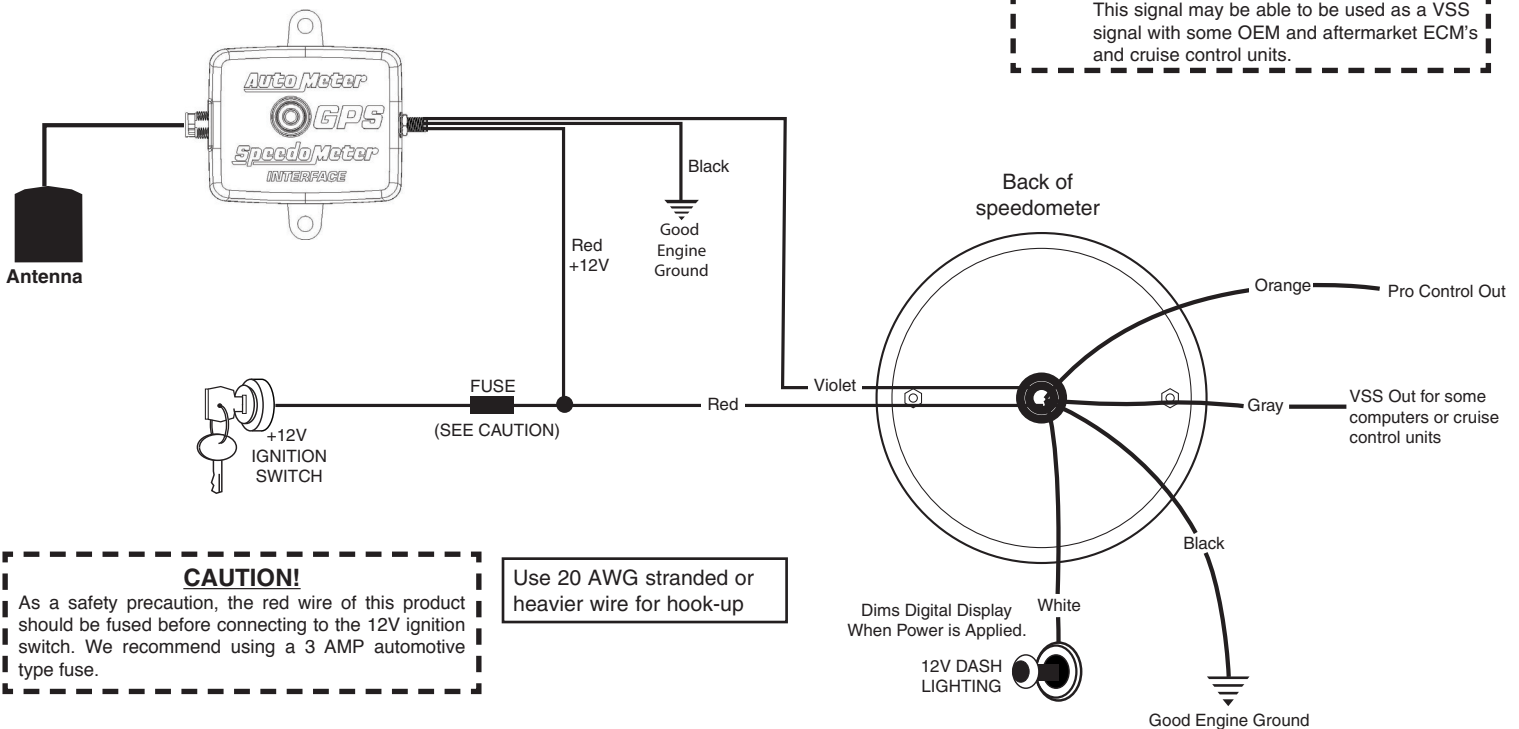
NOTE: The speedometer signal output terminal (VSS) produces a +5 volt DC Square wave signal. This signal may be able to be used as a VSS signal with some OEM and aftermarket ECM's and cruise control units.



Wiring w/ most OEM 2-wire V.S.S. when using computer or trans controller

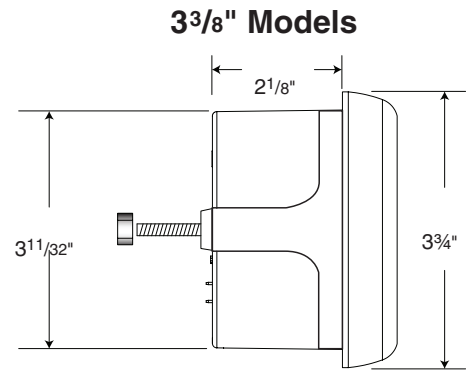


Wiring w/ Auto Meter 5289 GPS Interface



Mounting

1. Mount this instrument in a 3 3/8" dia. hole.
2. Cut a 3/8" dia. hole in the firewall for the speedometer wires. Place a rubber grommet in the hole and route the wires through the grommet to the engine compartment.
3. Connect the speedometer wires as shown in the wiring sections.
4. Secure the speedometer to the dashboard using the provided bracket and hardware.



Operation

When power is first applied to the gauge, the speed display will show "888" and the odometer will display "0". Then it enters normal operation mode, the speed display will show "0" and the odometer will display 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 display as power is applied with the key in the accessory position. The speed display will show "888" then the speed display will show "0" and the odometer will show the current miles. This action verifies that power is properly connected to the instrument. Start engine. The vehicle should be driven some distance to verify the Vehicle's Speed Sender (VSS) is connected properly and that the display indicates speed. If the display does not indicate speed, verify that the VSS is connected properly and that calibration has been performed.

Calibration (Electronic Speedometer calibration made easy)

To calibrate your electronic speedometer:

- 1) With the power off, push and hold the trip (right) button. While holding the button, start the vehicle and continue to hold the button until the display shows "P-E". You may now release the button.
- 2) Drive to the beginning of a pre-marked 2 mile (2 km if in km/h mode) 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 trip button. The display will show "r-d5".
- 3) Drive the 2 mile distance. The display will show "E RL" no matter what speed you drive. It will be normal to see the LCD display counting rapidly as it is receiving a speed signal. If you have to stop during the calibration, that is o.k. The speedometer will simply stop counting pulses during this time.
- 4) At the end of the 2 mile distance, come to a complete stop and push and release the trip button. The display will show "E n d", the odometer will show the calibrated PPM, and the calibration is stored. Then the display will show "0" and the odometer will show miles. 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 (72 Km/h) 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 or differential ratio change.

Menu Options:

There are many features provided by your AutoMeter Elite Digital Speedometer. Use the left button to navigate through the following options in order:

- Peak Recall – Digit display will show "P"
- Acceleration Time Test – Digit display will show "5E"
- Braking Distance Test – Digit display will show "d ,5"
- Pro Control Mode – Digit display will show "P"
- Pro Control Level – Digit display will show "P L"
- Bar Graph Maximum – Digit display will show "b R"
- Select MPH or km/h – Digit display will show "u n"
- Firmware Revision – Digit display will show the firmware revision number.

Peak Recall

To view speed peaks, press the left button. The digit display will show "P". Press the right button. The digit display and bar graph display will show the highest MPH (or Km/h) measured by the speedometer. After 3 seconds the speedometer will return to normal operation. Pressing the right button while the peak is still being shown will clear the peak. The display will show "---", then the speedometer will return to normal operation.

Bar Graph Maximum

To set the speed that will cause all the leds on the bar graph display to light, press the left button until the digit display shows "bPr". Press the right button. Use the right (+) and left (-) buttons until the number shown on the display is the desired speed. When the desired number is shown, wait for the display to flash this number rapidly, then "5 c". It will continue to do this until the left button is pressed to save the setting, or the right button is pressed to cancel the setting. If this speed is exceeded, the bar graph display will flash rapidly.

Pro Control Mode

The Pro Control output wire supplies ground when activated. This can be set to one of two different modes of operation. Alarm mode will activate the Pro Control output when the speed exceeds the Bar Graph maximum setting. On/OFF mode will activate the Pro Control output when the speed exceeds a separate user setting. To set the Pro Control Mode, press the left button until the digit display shows "PCL". Then press the right button. Press the left button until the digit display shows "ON", or "RLR", depending on the desired mode. Press the right button.

Pro Control On Set

The Pro Control Output wire supplies ground when activated. It is recommended to use a relay switch such as the Dedenbear HPR or equivalent. To set the speed that will activate the Pro Control Output, press the left button until the digit display shows "PCL". Press the right button. The digit display will show "ON". Press the right button again. Use the right (+) and left (-) buttons until the number shown on the display is the desired MPH (or K/mh). Wait for the display to flash this number rapidly, then "5 c". It will continue to do this until the left button is pressed to save the setting, or the right button is pressed to cancel the setting.

Pro Control Off Set

If it is desired to have the Pro Control Output deactivate at a lower speed than it activates, press the left button until the digit display shows "PCL". Press the right button. The digit display will show "ON". Press the left button. The digit display will show "OFF". Press the right button again. Use the right (+) and left (-) buttons until the number shown on the display is the desired MPH (or KPH). When the desired number is shown, wait for the display to flash this number rapidly, then "5 c". It will continue to do this until the left button is pressed to save the setting, or the right button is pressed to cancel the setting.

Select MPH or km/h

This will allow the user to view the speed shown on the digit display in miles per hour or kilometers per hour. If miles per hour is selected, the odometer will show an arrow pointing down on the left side of the odometer, and the odometer will display distance in miles. If kilometers per hour is selected, the arrow will be on the right side of the odometer, and the odometer will display distance in kilometers. To change this, press the left button until the digit display shows "u h", then press the right button. The bar graph display is not affected by this

Acceleration Time Test

This will measure the time it takes to accelerate from a dead stop to 60 MPH. If the speedometer is set to kilometers per hour, it measures the time to reach 100 km/h. The vehicle should be at a complete stop. Press the left button until the digit display shows "5EL", then press the right button. The digit display will show "r dY". Start your run. Once the vehicle reaches 60 MPH (or 100 km/h), the digit display will show your time. Press the right button to exit 0 to 60 mode and resume normal operation.

Braking Distance Test

This will measure the distance it takes to brake from 60 MPH to a dead stop. If the speedometer is set to kilometers per hour, it measures the distance it takes to brake from 100 km/h. Press the left button until the digit display shows "d i5", then press the right button. The digit display will show "---". Accelerate to at least 65 MPH (or 105 km/h). The digit display will show "r dY". Start braking. Once the vehicle reaches 60 MPH (or 100 km/h), the digit display will show "r uN", and the speedometer will start to measure distance. When the vehicle comes to a stop, the digit display will show your distance in feet (or kilometers if in km/h). Press the right button to exit 60 to 0 mode and resume normal operation.