



**HANELINE SERIES 3 3/8 & 2 1/8
120/140 mph ELECTRIC SPEEDOMETER
LCD Read Out**

Speedometer Pulse Signal Generator

Ford Installations

C4 & C6 Transmissions - requires a hard coupler adapter to be used in the speedometers tail shaft. The plastic gear and the spring steel retainer clip from your original speedometer cable must be used. Check to make sure that the drive tang engages both the sensor and the drive gear when installed. (If not, no signal will be generated and the speedometer will not work).

Early Ford Transmissions - the pulse signal generator will thread directly to 32-48 torque tube type enclosed drive lines.

Computer Transmissions - signal obtained from computer systems. Refer to factory diagrams.

GM Installations

The pulse signal generator fluid - 350/400 trans - If fluid appears to be leaking from inside the pulse generator, the seal inside the tail shaft drive gear housing is either broken or missing. Seal can be purchased from auto parts store or GM dealer. (GM #1240382)

Leaking does not indicate defective signal generator.

GM Computer Controlled Transmissions - Late 700R4, 4L60E, 4L80E consult factory manual or a wiring harness manufacturer for a location of signal source. A signal translator is required. Consult Haneline.



Speedometer - continued

Speedometer Sensor Signal Wires - From transmission mounted pulse generator to speedometer.

Route these wires separately. Twist together a black and white wire to reduce outside interference. Do not tie wrap these wires to other wiring. Signal interference will result. Connecting wires - use 16 gauge wire.

B+	Ignition switched 12 V power also power connection for pulse generator.
Ground	Ground - Use a separate wire for electrical ground and for pulse generator ground to chassis.
Signal	Speed sensor signal - from pulse generator.
123	Trip Switch
2 Black Wires	Dash Lights. One black to Ground, One black to Light Switch

Trip Switch Instructions

Locate the small reset switch, some place on or under your dash. Using a wire, connect one side of the switch to terminal #123 and the other side of the switch to terminal B+. This completes your trip circuit. Holding the button down for three to four seconds will move the LCD reading from trip to mileage , or vice versa.



Speedometer - continued

Calibration Installations

Tire and rim size, rear end gearing, tire inflation pressure, all affect the calibration of your programmable electric speedometer. You must determine the exact error in your present speed reading, so calibration adjustment can be made.

Step 1: Check your speedometers present reading at a “True” road speed of 60 MPH by pacing with another vehicle that is traveling at 60 MPH. (True Road Speed)

Important: There are (12) rocker adjustment switches located in a rectangular opening on the rear of the speedometer housing. Switches are to be tipped ...up and...in...to be in the “on” position.

The correct factory starting calibration position setting 1,2,3,4,9,10,11,12 switches tipped up to the “on” position. All other switches must be in the “off” position...tipped down at the bottom.

Step 2: Drive a true road speed of 60 MPH with a pace vehicle and read the indicated speed reading on your speedometer.

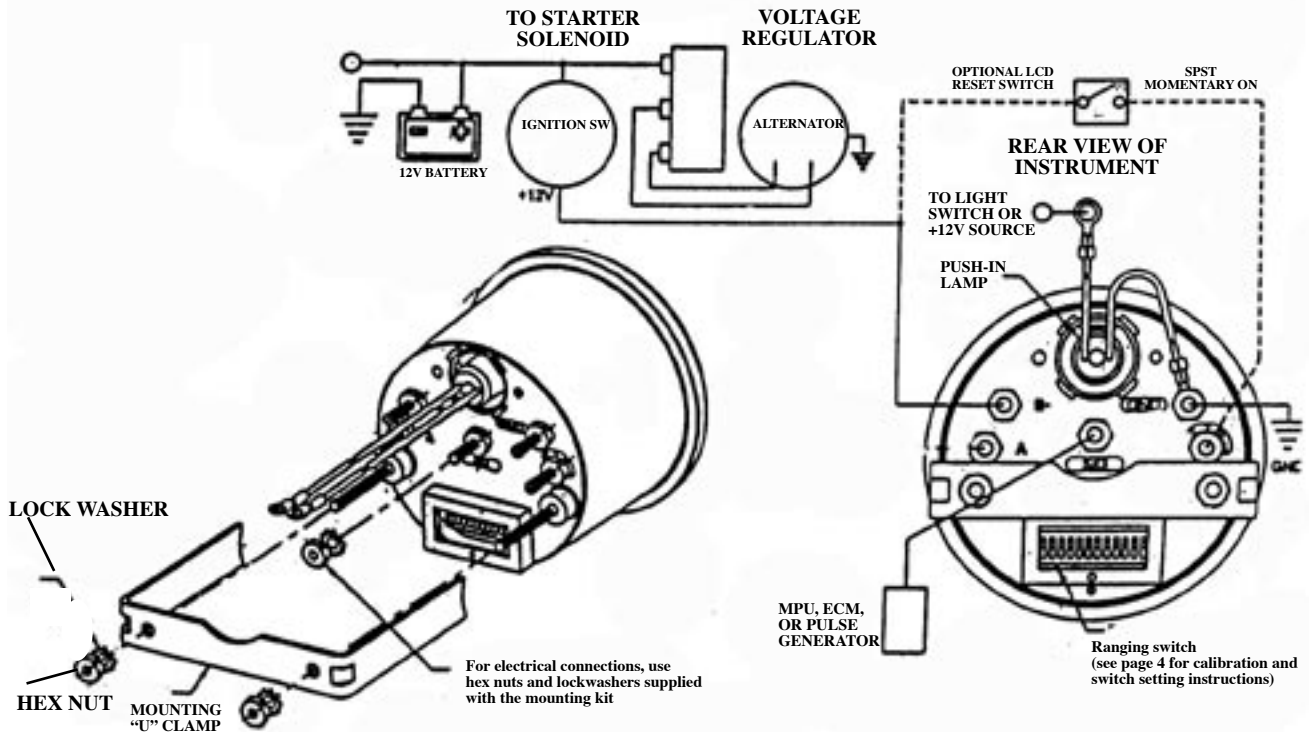
Step 3: Using the calibration chart find the MPH reading indicated on your speedometer when driving with the pace vehicle at a true 60 MPH speed.

Step 4: Referring to the calibration table find the indicated road speed and set your switches as indicated by the table (Table on page 6). Numbers indicated are switches that must be in the “on” position...all others are in “off” position.

Note: When changing Dip Switch settings, make sure power to speedometer is OFF. Failure to turn off power when changing settings will result in no change taking place.



Speedometer Installation Instructions



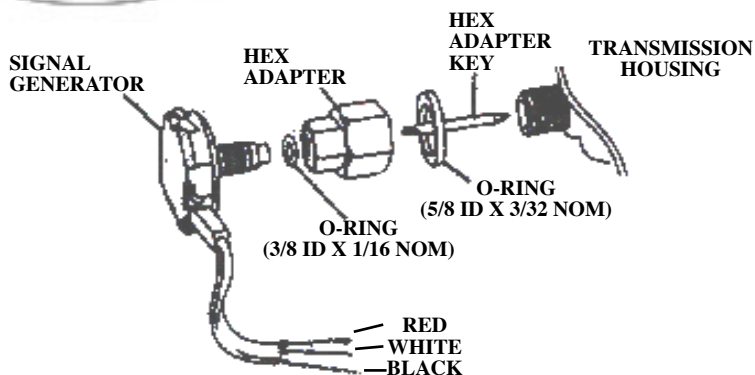
Trip Switch Instructions

Locate the small reset switch, some place on or under your dash. Using a wire, connect one side of the switch to terminal 1,2,3,4 and the other side of the switch to terminal B +. This completes your trip circuit. Holding the button down for three to four seconds will move the LCD reading from trip to mileage , or vice versa.



SPEEDOMETER SENSOR INSTRUCTIONS

HL-146



GM CABLE TAKE-OFF INSTALLATIONS: Our Pulse Signal Sensor has been furnished with a 7/8"-18 threaded Hard-Coupler attached which threads directly onto the cable take-off of most GM Powerglide, Turbo 350/400 and some 700-R transmissions. Note: This same threaded Hard-Coupler will fit many early Fords (1932-48) having an enclosed torque-tube drive-line and most Chryslers transmissions.

GM ELECTRIC OVER-DRIVE TRANSMISSIONS: Refer to the specific instruction sheet packaged with the correct Translator Box if you are attempting to use our speedometer with a stock GM speed sensor that has been factory-installed on the transmission by GM.

INSTRUCTIONS:

Step 1: Using Red 16 gauge wire, attach to the red lead on the pulse generator, and run to the terminal post on the speedometer marked 12 volts or B +

Step 2: Twist the White & Black Leads, one around the other to make a 'twisted pair' for their entire length to the speedometer. Braiding or twisting these two insulated wires (one twist each 3/4") eliminates most outside interference that could cause the speedometer to read incorrectly.

Step 3: Route these Twin-Wire Leads separate and apart from the rest of your wiring harness to the back of the speedometer case. **DO NOT** tie-wrap or run these Twin-Wire Leads parallel or with another wiring harness.

Step 4: Connect the White Lead of your Twin-Wire Leads to the terminal post on the Speedometer marked "SIG."

Step 5: Connect the Black Lead of the Twin-Wire Lead pair to the terminal post on the speedometer marked "GND."

Step 6: Connect another Black Wire 16 gauge to the terminal post of the speedometer marked 'GND' (same post you connected to in Step 5) and connect the other end to the chassis.

IMPORTANT: DO NOT connect this second wire to any other gauge or to a common ground connection behind the dash!



**Speedometer - continued
12 Pin Instructions**

INDICATED ROAD TEST MPH	SWITCHES TO BE SET "ON" (Closed)	INDICATED ROAD TEST MPH	SWITCHES TO BE SET "ON" (Closed)
41 MPH	1,2,3,4,5,6,8,9,11	61 MPH	1,2,3,5,6,7,8,9,11
42 MPH	1,2,3,4,5,6,9,10,11,12	62 MPH	1,2,3,5,6,7,9,10,11,12
43 MPH	1,2,3,4,5,6,10,12	63 MPH	1,2,3,5,6,7,10
44 MPH	1,2,3,4,5,7,8,9,11	64 MPH	1,2,3,5,6,8,9,11
45 MPH	1,2,3,4,5,7,9,10,11,12	65 MPH	1,2,3,5,6,9,10,11,12
46 MPH	1,2,3,4,5,7,10,12	66 MPH	1,2,3,5,6,10
47 MPH	1,2,3,4,5,8,9,11	67 MPH	1,2,3,5,7,8,9,11
48 MPH	1,2,3,4,5,9,10,11,12	68 MPH	1,2,3,5,7,9,10,11,12
49 MPH	1,2,3,4,5,10	69 MPH	1,2,3,5,7,10
50 MPH	1,2,3,4,6,7,8,9,11	70 MPH	1,2,3,5,8,9,11
51 MPH	1,2,3,4,6,7,9,10,11,12	71 MPH	1,2,3,5,9,10,11,12
52 MPH	1,2,3,4,6,7,10	72 MPH	1,2,3,5,10
53 MPH	1,2,3,4,6,8,9,11	73 MPH	1,2,3,6,7,8,9,12
54 MPH	1,2,3,4,6,9,10,11,12	74 MPH	1,2,3,6,7,9,10,11,12
55 MPH	1,2,3,4,6,10	75 MPH	1,2,3,6,7,10
56 MPH	1,2,3,4,7,8,9,11	76 MPH	1,2,3,6,8,9,12
57 MPH	1,2,3,4,7,9,10,11,12	77 MPH	1,2,3,6,9,10,11,12
58 MPH	1,2,3,4,7,10	78 MPH	1,2,3,6,10
59 MPH	1,2,3,4,8,9,11	79 MPH	1,2,3,7,8,9,12
60 MPH	1,2,3,4,9,10,11,12		

Step 6: Retain this instruction and calibration chart. Each time changes are made to the drive line, tire size, axle ratio, or transmission you must perform a new road test and adjust your speedometer again. Before starting calibration procedure, reset speedometer rocker switches (1,2,3,4,9,10,11,12) to the "on" (closed) position.



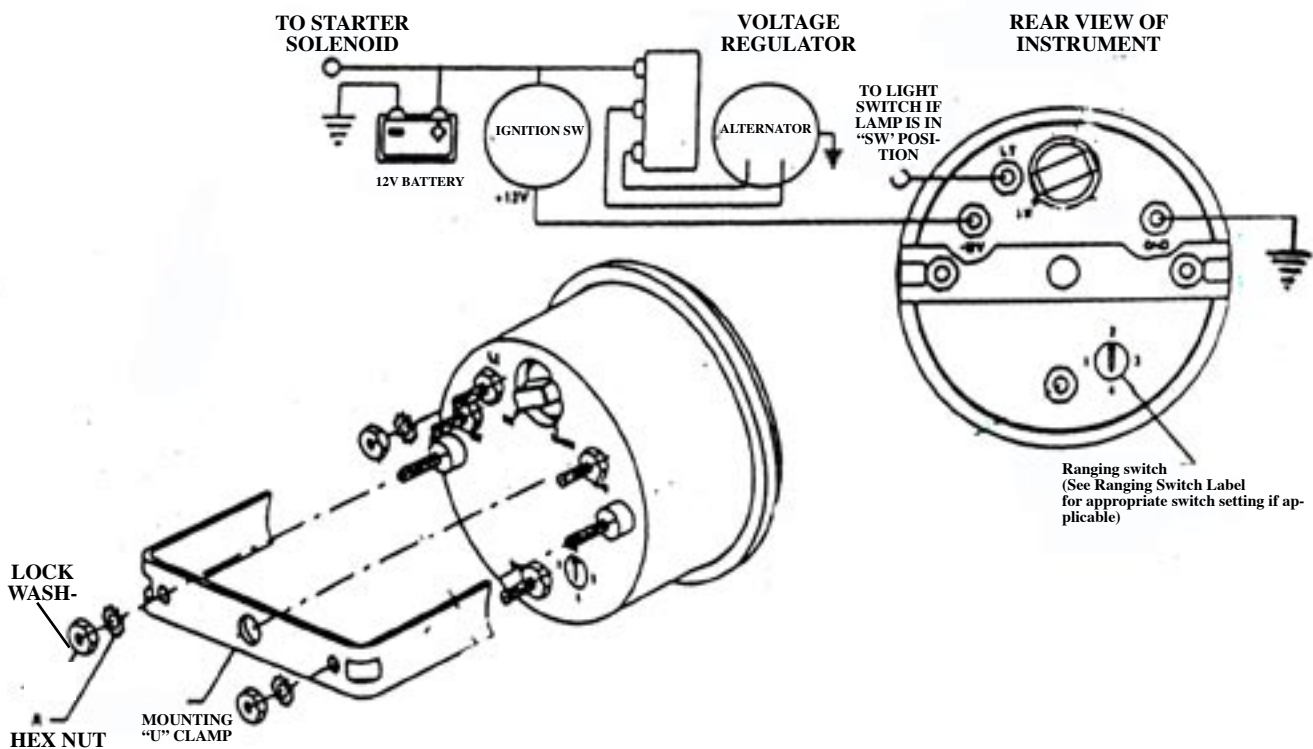
TACHOMETER INSTRUCTIONS

Connections for various systems types:

- Standard points and condenser...red wire to distributor side of coil marked (-)
 - GM HEI - Red wire to (tach) terminal on coil side of distributor cap
 - MSD - Red wire to (-) post on coil. If function is not correct, switch to tach output connection on MSD box. If correct function cannot be obtained, translator box may be required.
 - Vertex Magneto - Red wire to "kill" terminal post on side of magneto body.
 - Accel Ignition Coils - Red wire to distributor side of ignition coil Read Accel instructions before connecting.
 - Mallory Ignition - Red wire to the distributor side of the ignition coil. Usually the coil terminal marked with the (-).
- NOTE: Some Mallory systems may require switching to the 4 cylinder setting, rather than the 8 cylinder before tach will read correctly.
- Computer Engine Management Systems - consult factory manuals or your wiring harness manufacture for wire attachment location.

Number of Cylinders - Refer to Label on Gauge to Set Number of Cylinders

3" Model 3-12 Tachometer Installation Instructions





OIL PRESSURE SENDER

Ford engines: Pressure sender is installed between the fuel pump assembly and the stock motor mount and requires a pressure sender extension. Extensions are available from your Ford dealer or local auto part stores.

GM engines: The best location is at the rear of the engine under the distributor housing, sender is best mounted at 45 degree angle. If your engine has a computer engine management system, the stock sender must be left in place, to maintain proper sender calibration signals.

GM Alternate Location: Sender can be mounted in the opening located just above the oil filter.

FUEL TANK SENDER

Install fuel sender in tank. This gauge uses a 240-33 OHM tank sender. Some tanks may require a modification to use this sender.

WATER TEMPERATURE SENDER

Install sender in the intake manifold near the thermostat housing. Use opening that has pipe threads to match those on the sender. Inspect opening to make sure it is clean.

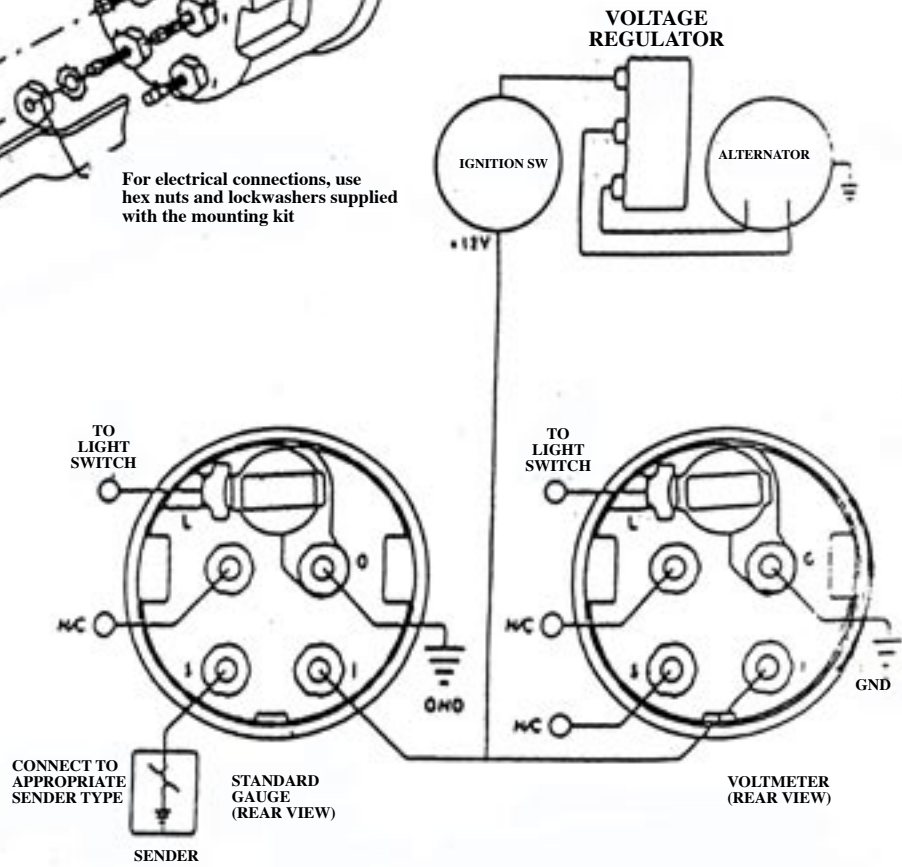
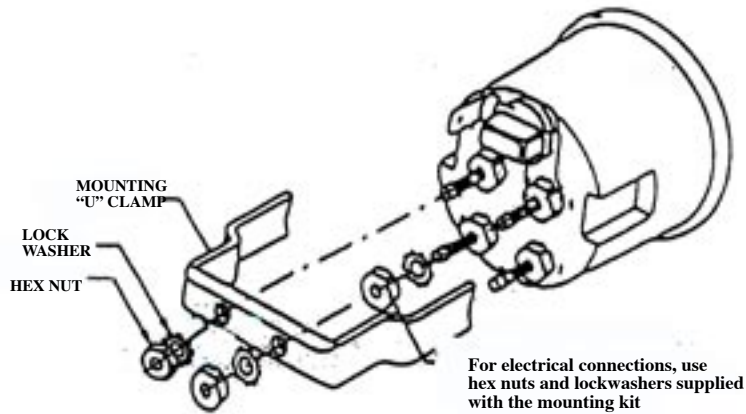
Do not use Teflon sealing tape or gasket seal on the threads. These materials interfere with the sender readings and electrical contact. **Do not over tighten sender.** Tighten only enough to seal the threads and prevent leaking.

Engines equipped with computer engine management systems require installation of the gauge temp sender in an alternate location. Sender for the engine management system must be left in the stock location to maintain proper calibration for the system.

Locate gauge temp sender in the intake manifold, if possible. On late model GM heads (90's and later) there is a removable plug between the center cylinders in the heads. This can be used for locating the gauge temp sender.



2" Series 2000 Air-Core Gauge Installation Instructions



N/C = NO CONNECTION



QUAD FUNCTION ACCESSORY GAUGE

Connect the wires as follows:

Terminal #1	Oil Pressure Sender
Terminal #2	Fuel
Terminal #3	Water Temp
Terminal #4	Lamp
Terminal #G	Ground
Terminal #B+	12 Volts

DUAL FUNCTION (Water Temp/Volts)

Terminal #1	N.A.
Terminal #2	Water Temp
Terminal #3	N.A.
Terminal #4	Lamp
Terminal #G	Ground
Terminal #B+	12 Volts

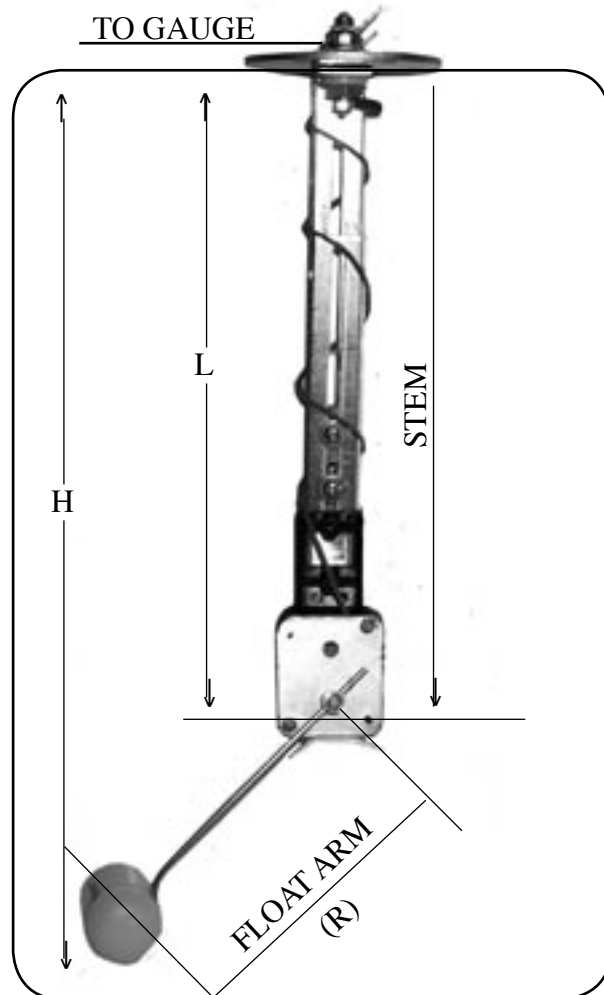
DUAL FUNCTION (Fuel/Oil Pressure)

Terminal #1	Oil Pressure Sender
Terminal #2	N.A.
Terminal #3	Fuel Sender
Terminal #4	Lamp
Terminal #G	Ground
Terminal #B+	12 Volts



CONNECTION DIAGRAM OF TANK UNIT

Depth of Tank	Length of Stem	Float Length
6"	3"	4"
8"	4"	5 3/8"
10"	5"	6 5/8"
12"	6"	8"
14"	7"	9 3/8"
16"	8"	10 5/8"
18"	9"	12"
20"	10"	13 3/8"
22"	16"	14 5/8"
24"	12"	16"



FUEL LEVEL SENDER

Cut a 2-5/16" hole in tank.

Make sure float movement will not be obstructed.

Remove all metal burrs.

Adjust sender length (L) and float radius (R):

$$L = 1/2 H$$

$$R = 2/3 H$$