1953 – 1955
Ford F100

Installation Manual

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Welcome from the Team at Classic Instruments!

Our congratulations and appreciation for your purchase of one of the finest quality sets of specialty instruments ever produced! Your instrument set has been conceived, designed, and manufactured by Classic Instruments, Inc. in the U.S.A. Each instrument has been tested and certified for accuracy and quality before packaging and shipping.

For trouble-free installation and operation follow the instructions exactly as outlined. Your instruments were assembled to precise specifications and although each has a five (5) year warranty covering defective parts and workmanship – this warranty will not cover instruments or sender units which have been installed incorrectly.

Follow our recommended procedures for installation and proper hookup to maintain the value and appearance of your instrument set during many future years of accurate and dependable service!

LIMITED WARRANTY

Classic Instruments, Inc. (CI) warrants to the original purchaser that any CI product manufactured or supplied by CI will be free from defects in material and workmanship under normal use and service for a period of five (5) years from date of purchase.

Improper installation, use of sending units other than CI's or attempted repair or adjustments by other than CI shall void this warranty. Disassembly of any instruments or senders for whatever reason shall specifically void this warranty.

It's always easy to look to a part for an issue with your set. Before you conclude that a part may be bad, thoroughly check your work. Today's semiconductors and passive components have reached incredibly high reliability levels, but there is still room for error in our human construction skills. However, on rare occasions a sour part can slip through. Please be aware that testing can usually determine if the part was truly defective or damaged by assembly or usage. Don't be afraid of telling us that you "blew it", we're all human and in most cases, replacement parts are very reasonably priced.

Purchaser requesting a product to be repaired or replaced under warranty must first call CI at 1-800-575-0461 before the return of defective part. Send defective part either to 826 Moll Drive, through UPS, or to P.O. Box 411 through U.S. Mail, Boyne City, MI 49712, USA. Include a written description of the failure with defective part.

Purchaser agrees and accepts that under no circumstances will a warranty replacement be furnished until CI has first received, inspected, and tested the returned part.

All other warranties expressed or implied are hereby excluded including any implied warranty of merchandise and implied warranty of fitness for a particular purpose. The sole and exclusive remedy for breach of this warranty is limited to the replacement set forth above.

It is expressly agreed that there shall be no further remedy for consequential or other type of damage, including any claim for loss of profit, engine damage or injury.

TECHNICAL ASSISTANCE
1-800-575-0461
OR
Visit our website for the latest in gauge design and updates to our installation manual

www.classicinstruments.com

Mount New Gauge Cluster

1)   Remove old gauge cluster from dash.
2)   Install new gauge cluster from the back of the dash. It is secured to the dash using four bolts and one clamp.
3)   Insert a bolt through the front of the dash to the left and right of the gauge cluster.

Picture showing left front mounting bolt

4)   Install the mounting bracket on the back, bottom side of the gauge cluster. Align the two holds in the bracket with the two bottom mounting holes of the dash.

Picture showing bracket placement at bottom rear of gauge cluster
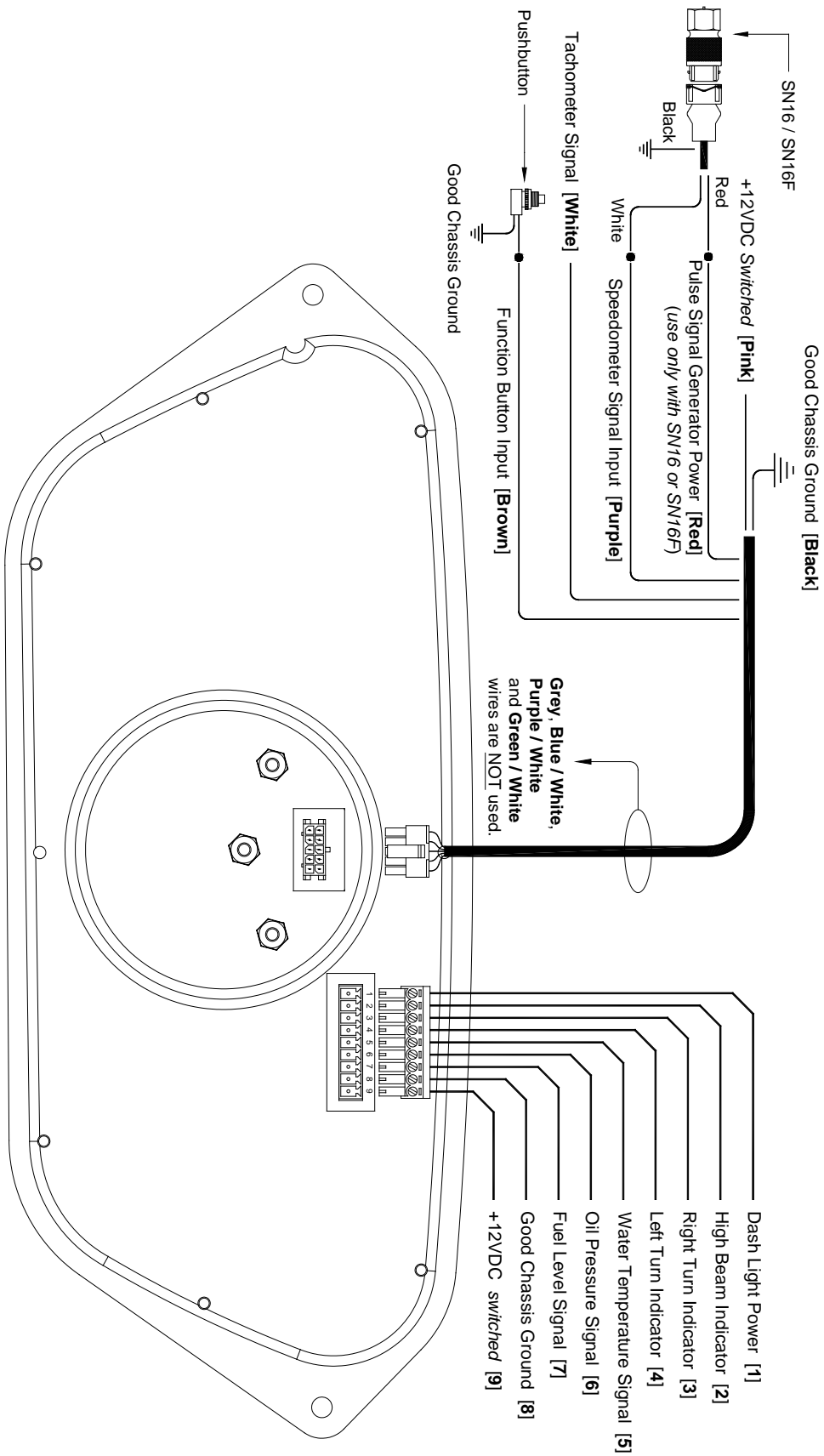
5)   Insert two bolts through the front of the dash at the bottom of the gauge cluster and through the bracket in the back of the gauge.

Picture showing bottom left mounting bolt

Wiring Diagrams

SN16 or SN16F Speedometer Signal

SN16 / SN16F

Black

Pushbutton

Tachometer Signal [**White**]

Good Chassis Ground

+12VDC *Switched* [**Pink**]

Red

Pulse Signal Generator Power [**Red**]
(use only with SN16 or SN16F)

White

Speedometer Signal Input [**Purple**]

Function Button Input [**Brown**]

Good Chassis Ground [**Black**]

Grey, Blue / White,
Purple / White
and **Green / White**
wires are NOT used.

1 2 3 4 5 6 7 8 9

Dash Light Power [**1**]

High Beam Indicator [**2**]

Right Turn Indicator [**3**]

Left Turn Indicator [**4**]

Water Temperature Signal [**5**]

Oil Pressure Signal [**6**]

Fuel Level Signal [**7**]

Good Chassis Ground [**8**]

+12VDC *switched* [**9**]

ECM / PCM Speedometer Signal

ECM / PCM

Not Used
Insulate
exposed
wire

Pushbutton

Pulse Signal Generator Power [**Red**]
(*use only with SN16 or SN16F*)

Tachometer Signal [**White**]

Speed Signal   Speedometer Signal Input [**Purple**]

Good Chassis Ground [**Black**]

Good Chassis Ground

Function Button Input [**Brown**]

**Grey, Blue / White,
Purple / White**
and **Green / White**
wires are NOT used.

Dash Light Power [**1**]

High Beam Indicator [**2**]

Right Turn Indicator [**3**]

Left Turn Indicator [**4**]

Water Temperature Signal [**5**]

Oil Pressure Signal [**6**]

Fuel Level Signal [**7**]

Good Chassis Ground [**8**]

+12VDC *switched* [**9**]

1 2 3 4 5 6 7 8 9

Vehicle Speed Sensor Speedometer Signal

Transmission

Not Used
Insulate
exposed
wire

× Pulse Signal Generator Power [**Red**]
(use only with SN16 or SN16F)

Good Chassis Ground [**Black**]

Pushbutton

Ground
(same place as black wire)

Speedometer Signal Input [**Purple**]

Tachometer Signal [**White**]

Good Chassis Ground

Function Button Input [**Brown**]

Grey, **Blue / White**,
Purple / White
and **Green / White**
wires are NOT used.

Dash Light Power [**1**]

High Beam Indicator [**2**]

Right Turn Indicator [**3**]

Left Turn Indicator [**4**]

Water Temperature Signal [**5**]

Oil Pressure Signal [**6**]

Fuel Level Signal [**7**]

Good Chassis Ground [**8**]

+12VDC *switched* [**9**]

Wiring the Instrument Cluster

Speedometer & Tachometer Wiring

1) Always disconnect the vehicle battery before wiring any gauge.
2) Connect a +12VDC switched power source to the **Pink** wire of the speedo / tach harness.
3) Connect a good chassis ground to the **Black** wire of the speedo / tach harness.
4) Connect the speed signal to the **purple** wire of the speedo / tach harness.
   a. SN16 & SN16F pulse signal generator signal
      i. Connect the **white** wire to the speedo / tach harness purple wire.
      ii. Connect the **black** wire to a good chassis ground
      iii. Connect the **red** wire to speedo / tach harness red wire.
   b. Transmission vehicle speed sensor signal *(2-wire)*
      i. Connect one of the vehicle speed sensor wires to the speedo / tach harness purple wire.
      ii. Connect the remaining vehicle speed sensor wire to the same ground as the speedo / tach harness black wire.
      iii. The vehicle speed sensor wires are interchangeable, it doesn't matter which one is connected to the black or purple speedo / tach harness wires.
      iv. Insulate any exposed wire on the red wire of the speedo / tach harness. This wire is not used with this speed signal.
   c. PCM / ECM speed signal *(computers)*
      i. Connect the speed signal wire to the speedo / tach harness purple wire.
      ii. A signal filter (part number SN79) is sometimes needed in cases where the signal has picked up interference.
      iii. Insulate any exposed wire on the red wire of the speedo / tach harness. This wire is not used with this speed signal.
5) Connect the tachometer signal to the **white** wire of the speedo / tach harness. *(see table 2: tachometer signal sources)*
6) Connect one wire (*either*) of the pushbutton to the brown wire of the speedo / tach harness.
   a. Connect the other wire of the pushbutton to a good chassis ground.
7) The **grey**, **blue / white**, **purple / white** and **green / white** wires of the speedo / tach harness are not used in this application.

Ignition System	Tachometer Signal Source
Standard Points & Condenser System	Negative side of coil (usually marked "-")
GM – HEI (High Energy Ignition) System	Terminal marked "TACH" on coil side of distributor cap.
MSD (Multiple Spark Discharge) System	TACH post on MSD box. If there isn't a box, signal comes from negative side of coil. If tachometer doesn't respond correctly, your MSD system may require a MSD TACH adapter part #8910 or #8920. Contact MSD for the correct adapter for your application.
Vertex Magneto System	"KILL" terminal on side of Vertex magneto body. An external adapter such as a MSD Pro Mag Tach Converter #8132 may be required.
Mallory Ignition System	Negative side of coil (usually marked "-") **Important!** Some Mallory ignition systems require the tachometer to be set at the 4-cylinder setting.
ECM (computer) Tachometer Signal	Signal comes from the computer. You may need to set the tachometer to the 4-cylinder setting. The tachometer should also be set for 5V signals.
All Other Ignition Systems	Please look at the owner's manual for the location of the tachometer signal.

Table 2: Tachometer Signal Sources

Circuit Board Connector Wiring

1)   Always disconnect the vehicle battery before wiring any gauge.
2)   Connect <u>dash light power</u> (*use of an LED dimmer is recommended*) to position **1** of the circuit board connector plug.
3)   Connect the <u>high beam</u> indicator power to position **2** of the circuit board connector plug.
4)   Connect the <u>right turn</u> indicator power from the vehicle's turn signal switch to position **3** of the circuit board connector plug.
5)   Connect the <u>left turn</u> indicator power from the vehicle's turn signal switch to position **4** of the circuit board connector plug.
6)   Connect the <u>water temperature signal</u> wire to position **5** of the circuit board connector plug. (*see figure 2*)
7)   Connect the <u>oil pressure signal</u> wire to position **6** of the circuit board connector plug. *(see figure 1)*
8)   Connect the <u>fuel level signal</u> wire to position **7** of the circuit board connector plug.
9)   Connect a <u>good chassis ground</u> to position **8** of the circuit board connector plug.
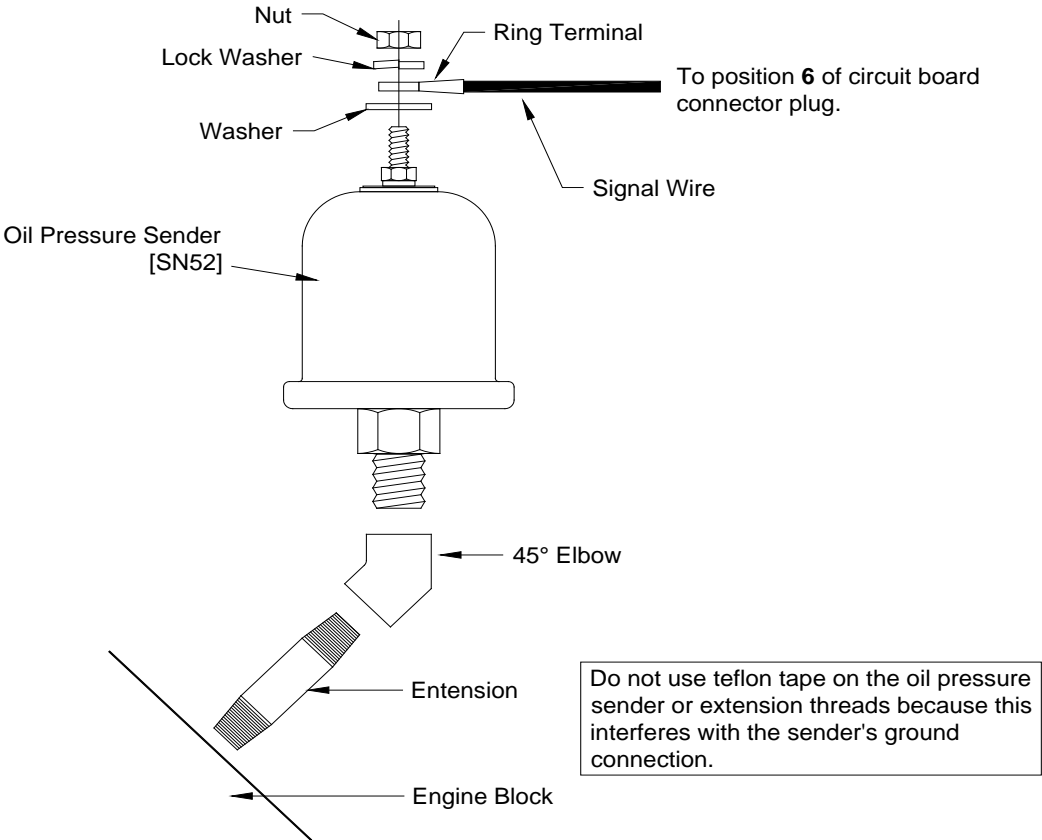10)   Connect a good <u>+12VDC switched power source</u> to position **9** of the circuit board connector plug.
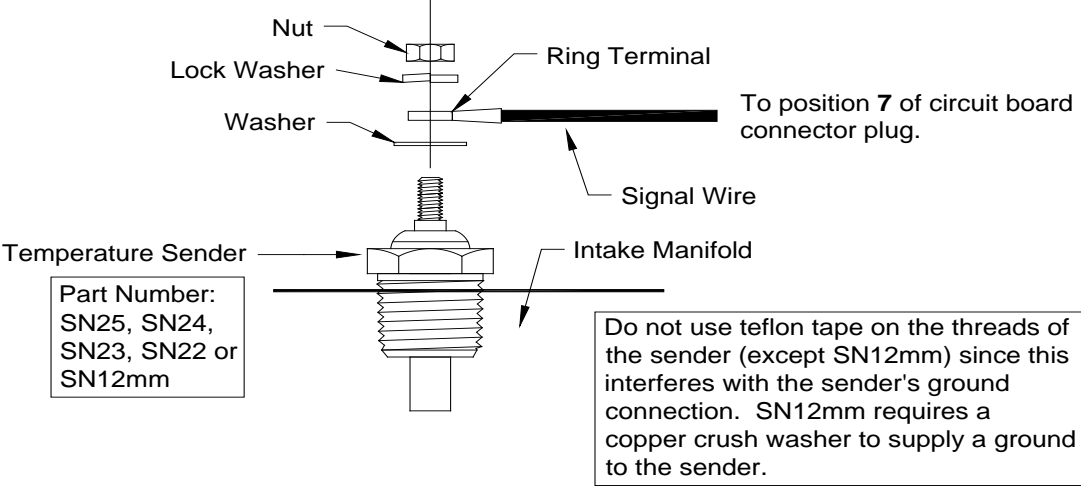
Nut

Lock Washer

Ring Terminal

Washer

To position **6** of circuit board connector plug.

Signal Wire

Oil Pressure Sender [SN52]

45° Elbow

Entension

Do not use teflon tape on the oil pressure sender or extension threads because this interferes with the sender's ground connection.

Engine Block

Figure 1: Oil Pressure Sender Wiring

Nut

Lock Washer

Ring Terminal

Washer

To position **7** of circuit board connector plug.

Signal Wire

Temperature Sender

Intake Manifold

Part Number: SN25, SN24, SN23, SN22 or SN12mm

Do not use teflon tape on the threads of the sender (except SN12mm) since this interferes with the sender's ground connection. SN12mm requires a copper crush washer to supply a ground to the sender.

Figure 2: Temperature Sender Wiring

Fuel Level Sender Installation

ADJUSTABLE FUEL LEVEL SENDER KIT
SN35 *(240Ω-33Ω),* **SN36** *(0Ω -30Ω),* **SN38** *(0Ω -90Ω),* **SN39** *(75Ω -10Ω)* & **SN40** *(10Ω -180Ω)*

A = Tank Depth , B = Float Pivot Depth , C = Float Arm Length (Dimensions in Inches)								
A	B	C	A	B	C	A	B	C
6.0	3.0	3.5	12.0	6.0	7.8	18.0	9.0	12.0
6.5	3.25	3.8	12.5	6.25	8.1	18.5	9.25	12.3
7.0	3.5	4.2	13.0	6.5	8.5	19.0	9.5	12.6
7.5	3.75	4.5	13.5	6.75	8.9	19.5	9.75	12.9
8.0	4.0	4.9	14.0	7.0	9.3	20.0	10.0	13.4
8.5	4.25	5.3	14.5	7.25	9.6	20.5	10.25	13.8
9.0	4.5	5.6	15.0	7.5	10.0	21.0	10.5	14.2
9.5	4.75	6.0	15.5	7.75	10.4			
10.0	5.0	6.4	16.0	8.0	10.7			
10.5	5.25	6.7	16.5	8.25	11.0			
11.0	5.5	7.1	17.0	8.5	11.4			
11.5	5.75	7.4	17.5	8.75	11.8			

TABLE 1
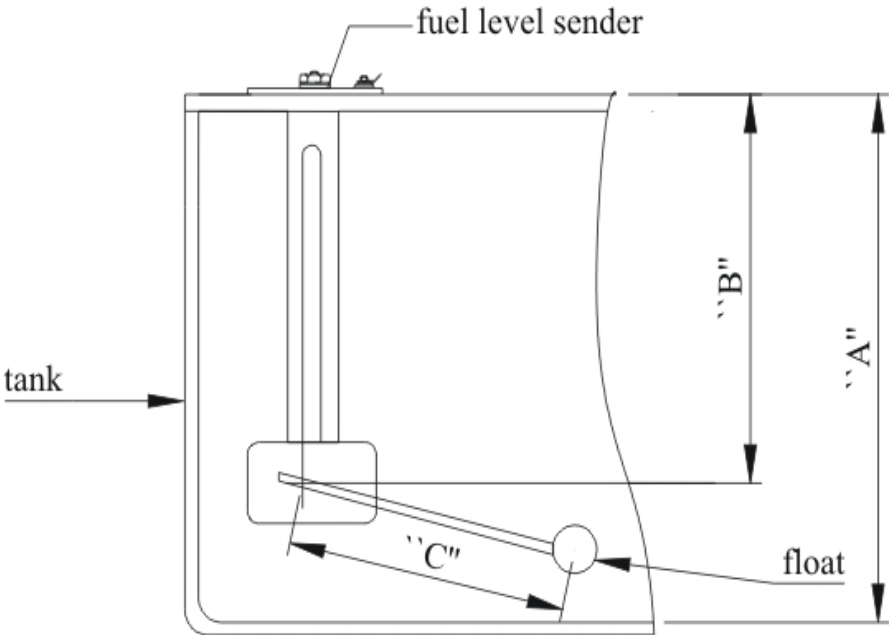
I. Measure depth of the fuel tank. Locate this dimension in Column "A" of Table 1. Column "B" shows the length from the underside of the sender flange to the center of the float pivot. Column "C" shows distance from the center of the float pivot to the center of the float. For example, a tank 12" deep would need a measurement of 6" from the flange to the pivot and 7.8" from the pivot to the float.

II. For tank depths 6" to 15-1/2", it will be necessary to eliminate a part of the assembly. (See Fig.1) proceed as follows:

1. Remove two screws "d" and discard.
2. Remove two screws "e" from the plastic housing and reserve for later us.
3. Carefully remove bracket "f " from the plastic housing and discard. Replace with bracket "g" in the housing and loosely re-install the two screws "e" into housing.
4. Slide housing up or down until the proper dimension from Table 1 is reached, then tighten screws securely.

CAUTION: Do not over tighten hardware to avoid damage to the threads.

Fig.1
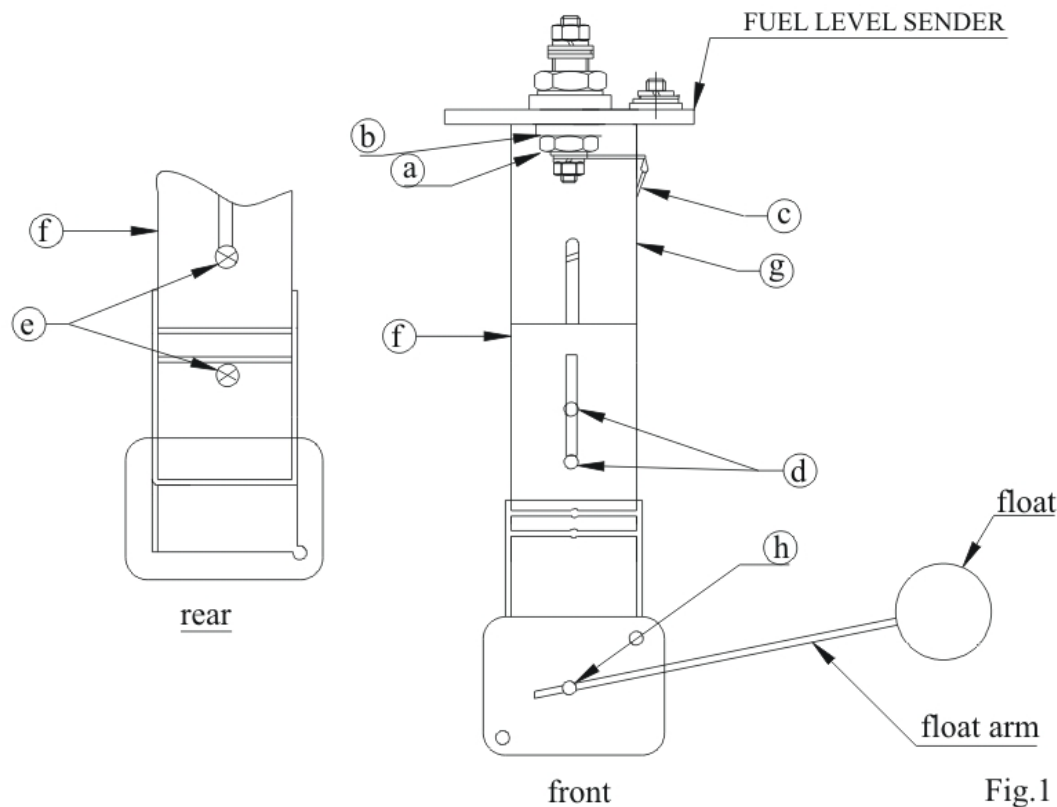
III. For tank depths of 16'' to 21'' no disassembly of the sender bracket is necessary.
1. Loosen two screws "d" and adjust the plastic housing up or down until the proper dimension from Table 1 is obtained, then retighten screws securely.

IV. To install the float assembly, loosen screw "h", remove the short piece of rod, and discard. Insert the float rod until the proper length "c" from Table 1 is met, and then tighten the screw securely. Carefully cut off any excess rod with bolt cutter or similar tool, taking care not to damage the assembly.

NOTE: Make sure the float is installed as shown in Fig.1. If installed backwards, the fuel gauge will indicate "full" when the tank is empty, and "empty" when the tank is full.

1. Cut the sender bracket so it doesn't extend lower than the black rheostat assembly. The rheostat should be the lowest point of the fuel sender.
2. With the gasket in place below the flange, carefully feed the float arm and sender body into the 1.697'' (43mm) hole in the tank. Make certain the float arm has free motion within the tank. Using the sender flange as a template, locate the position of the five mounting holes. Use the supplied screws to mount into the tank with threaded inserts in place.
3. Insert fuel sender assembly into tank, align holes and thread in mounting screws. Check that all screws are secure to complete assembly.
4. Connect the center terminal of the sender to your fuel gauge's signal terminal. Connect the off-center terminal to a good chassis ground.

AVOID OVERTIGHTENING.

FIG-3
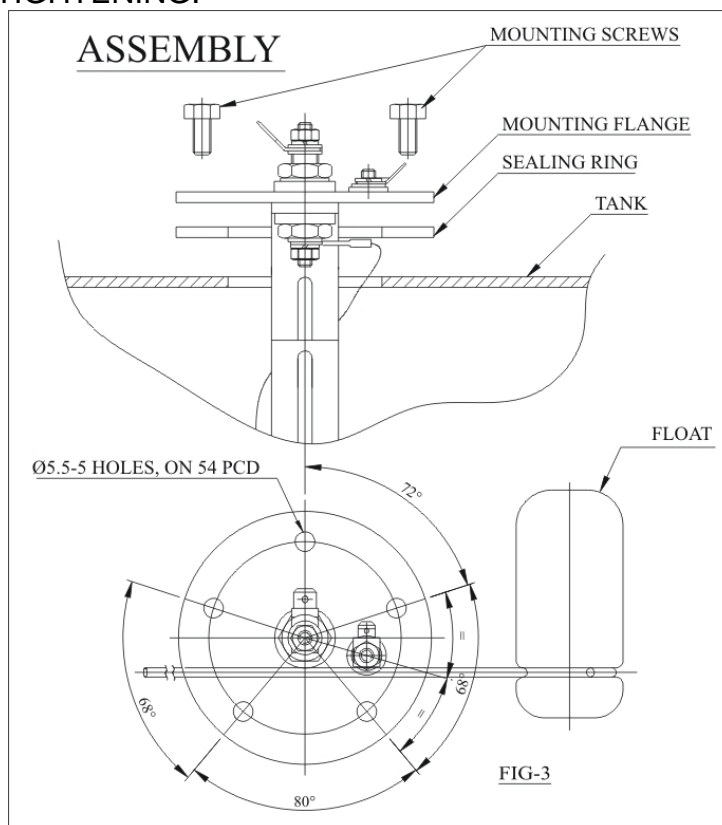
Calibrate the Speedometer & Tachometer

Speedometer / Tachometer Setup Option Menu		
Tach Pointer Location	**Setup Option**	**Description**
1000 RPM	Tachometer Cylinder Setup	Sets number of cylinders.
2000 RPM	Tachometer Signal Type	Selects between 5V and 12V tachometer signal.
3000 RPM	Speed Auto Calibrate	Calibrates speed using an exact marked mile.
4000 RPM	Real-Time Speed Adjust	Manually increase or decrease speed.
8000 RPM	Exit	Exit setup

Entering Setup Mode:

1) Start with the power off. While pressing the pushbutton, start the vehicle's engine. Release the pushbutton when the engine is running and the speedometer pointer is at 70MPH.

2) The tachometer will point to 1000 RPM and the speedometer will point at 70MPH once you have successfully entered the setup mode. **Fig. 1**
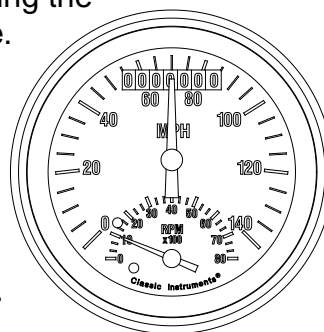
FIG. 1

3) <u>Tapping</u> the pushbutton will cycle through the setup options.

4) Pressing and <u>holding</u> (approx. 4 seconds) the pushbutton will select the current setup option that the tachometer is indicating.

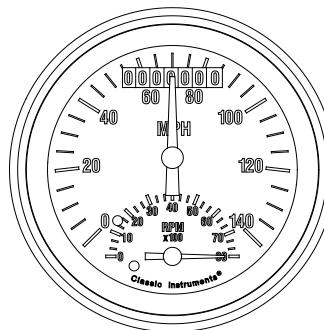5) When setup is complete, select the exit option (8000 RPM) then press and hold the pushbutton. **Fig. 2**

FIG. 2

Tachometer Setup:

Cylinder Select:

FIG. 3

1) <u>Tap</u> the pushbutton until the tachometer points to 1000 RPM (tachometer cylinder setup option). **Fig. 3**
2) Press and <u>hold</u> (*4 seconds*) the pushbutton to enter the tachometer cylinder setup mode. The speedometer will point to the current cylinder number setting (40 MPH for 4 cylinders, 60 MPH for 6 cylinders, etc…).
3) Tap the pushbutton until the correct setting is selected.
4) Press and hold the pushbutton to save the setting. The speedometer pointer will again indicate 70 MPH and the tachometer will point to 8000 RPM (exit). Tachometer cylinder selection is now set.
5) If you are finished making setup changes, press and hold the pushbutton with the tachometer pointing to 8000 RPM to exit setup mode. **Fig. 4**
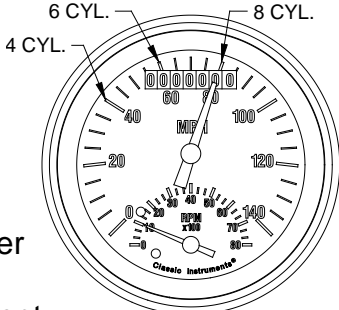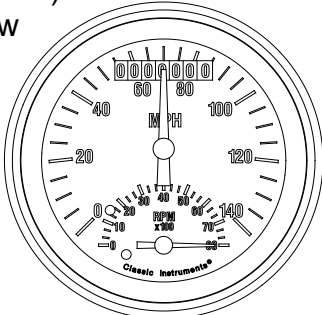

FIG. 4

Tachometer Signal Type:

1) <u>Tap</u> the pushbutton until the tachometer points to 2000 RPM (tachometer signal type option). **Fig. 5**

2) Press and <u>hold</u> (*4 seconds*) the pushbutton to enter the tachometer signal type mode. The speedometer will point to the current setting (50 MPH for 5V signal or 120 MPH for 12V signal). *Note: Use 5V setting if tachometer signal comes from a computer. For any other signal use 12V.*

3) Tap the pushbutton until the correct tachometer signal type setting is selected.

4) Press and hold the pushbutton to save the setting. The speedometer pointer will again indicate 70 MPH and the tachometer will point to 8000 RPM (exit). Tachometer signal type is now set.

5) If you are finished making setup changes, press and hold the pushbutton with the tachometer pointing to 8000 RPM to exit setup mode. **Fig. 6**
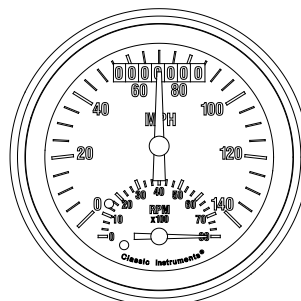

FIG. 6

Speedometer Setup:

There are two ways to calibrate the speedometer. Speed auto calibrate (using an exact marked mile) and real-time speed adjust (manually adjust speed up or down). It is recommended you use the speed auto calibrate option first and then make any fine tune adjustments using the real-time speed adjust option.

Speed Auto Calibrate:

1) <u>Tap</u> the pushbutton until the tachometer points to 3000 RPM (speed auto calibrate option). **Fig.**

2) Press and <u>hold</u> (*4 seconds*) the pushbutton to enter the speed auto calibrate mode. The speedometer will point to 30 MPH indicating you are in speed auto calibrate mode.

3) Begin driving the measured mile. The tachometer will operate as normal but the odometer will not move. When a speed signal is detected, the speedometer will point to 45 MPH. If a speed signal is NOT detected, the speedometer will continue to point at 30 MPH.

4) At the end of the measured mile, press and hold the pushbutton. The speedometer will again point up and the tachometer will point to 8000 RPM (exit). The speedometer is now calibrated.

5) If you are finished making setup changes, press and hold the pushbutton with the tachometer pointing to 8000 RPM to exit setup mode. **Fig. 8**

Signal Detected

No Signal
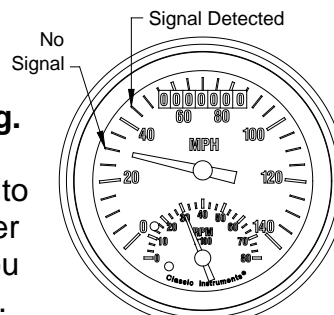
FIG. 7
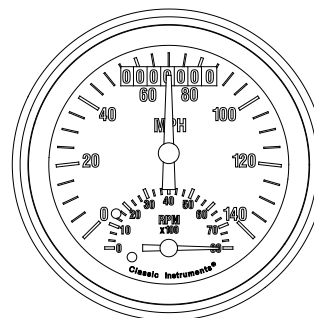
FIG. 8

Real-Time Speed Adjust:

1) <u>Tap</u> the pushbutton until the tachometer points to 4000 RPM (real-time speed adjust option). **Fig. 9**

2) Press and <u>hold</u> (*4 seconds*) the pushbutton to enter the real-time speed adjust mode.

3) Begin driving the vehicle at a steady known speed (using a GPS or pacing another vehicle). The tachometer will remain at 4000 RPM to indicate the gauge is in real-time speed adjust mode.

4) Pressing the pushbutton will begin to increase the speed reading until the button is released.

5) The next time the pushbutton is pressed the speed reading will decrease until the button is released.

6) Continue adjusting the speedometer reading until the correct speed is achieved.

7) If no adjustments are made for 8 seconds, the current calibration setting will be saved. The speed setting may still be adjusted after this until the key is turned off and will be saved again after 8 seconds of pushbutton inactivity. When finished adjusting the speed, bring the vehicle to a stop and turn the key off to exit the setup mode.

Happy Hot Rodding!