

INSTALLATION INSTRUCTIONS PERFORMANCE TACHOMETER

1 PREPARATION BEFORE INSTALLATION

This section contains important preliminary information. Read this section **FIRST** before proceeding with installation.

Safety Precautions

To prevent personal injury, damage to the vehicle and/or the tachometer, read these instructions completely and observe the following safety precautions:

- Always consult the vehicle's service manual and follow its safety precautions before installing this gauge.
 - To prevent burns, install the tachometer only when the engine is cool.
 - The vehicle's exhaust is very toxic, to prevent serious injury or death always run the vehicle in a well ventilated area.
 - When an engine is running, cooling fans, pulleys, belts, etc. rotate at a very high rate of speed. **ALWAYS** be aware of moving/rotating parts, and keep a safe distance away from these items.
 - Disconnect the negative (-) battery cable before installing and/or making tachometer connections.
- NOTE:** It may be necessary to reprogram your radio, clock, etc. after reconnecting the battery.
- **ALWAYS** insulate wire splices with shrink tubing to prevent shorting.

2 MOUNTING THE TACHOMETER

Determine a mounting location for the tachometer. **Choose a location that does not impair visibility, or interfere with driving.** Check behind the mounting location for any wiring or components before drilling. Ensure that all the tachometer wires can be routed properly to their specific locations from the mounting location chosen.

On-Dash or Under-Dash Mounting

1. Install the base mount and secure with screws, washers and nuts provided.
2. Install the ring clamp type mount to the tachometer body.
3. Using the spacer and bolts provided, secure the tachometer and ring clamp type mount assembly to the base bracket. SEE FIGURE 1.
4. Proceed to section 3 for tachometer connection.

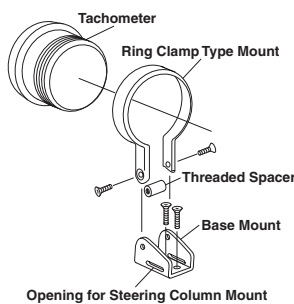


Figure 1

3 TACHOMETER CONNECTIONS

Power and Ground Connections (Figure 3)

1. Plug the 3-pin power connector (RED, BLACK and WHITE wires) into the #2 connector on back of the tachometer.
2. Connect the tachometer's power (RED) wire to a switched +12 volt circuit at fuse box, or splice into a vehicle harness wire that has voltage **ONLY** when the ignition key is turned to the "ON" (RUN) position.
3. Crimp or solder a terminal lug on the ground (BLACK) wire, and connect to a clean, bare spot on the vehicle's metal frame.
4. Connect the tachometer's lighting (WHITE) wire to the instrument panel light circuit (consult vehicle's repair manual for wiring diagrams). Proceed to tachometer signal hookup.

NOTE: To install the light bulbs, use needle nose pliers to insert the bulb in the bulb receptacle on back of gauge, then twist clockwise ¼ turn to lock into place. Gauge backlighting color may be changed to RED, GREEN or BLUE by installing the desired color filter over the bulb (not available for all gauge kits).

Tachometer Signal Hookup

This Performance Tachometer lets you use one of three options (described below) to pick up a tachometer signal from the vehicle's ignition system. Choose the option best suited for your vehicle/system and proceed to the appropriate "Connection Instructions".

NOTE: Due to the various ways the tachometer signal on this type of system is processed; this tachometer is compatible with some but not all "Coil On Plug" systems.

1. **OPTION #1 - Direct Hookup with GREEN Wire** - the GREEN tachometer wire is connected directly to the vehicle's "Ignition System Tachometer Signal Port".
 - Use this option on any vehicle/ignition system where a **suitable tachometer port is available** (including Conventional, Distributorless, and Coil-on-Plug ignition systems).
2. **OPTION #2- Inductive Pick-Up on Ignition Coil Wire** - the Inductive Pick-Up is clamped around the "Ignition Coil Wire" to pickup a tachometer signal inductively.
 - Use this option on any vehicle with a **Conventional** (distributor-equipped) ignition system with an exposed coil wire where a suitable tachometer signal port is not available or not easily accessible.
3. **OPTION #3- Inductive Pick-Up on Spark Plug Wire** - the Inductive Pick-Up is clamped around one of the "Spark Plug Wires" to pickup a tachometer signal inductively.
 - Use this option on vehicles with Conventional (distributor equipped) or Distributorless Ignition Systems-DIS where the Direct Hookup Option cannot be used because a suitable tachometer signal port is not available or not easily accessible.

Connection Instructions for OPTION #1 - Direct Hookup with GREEN Wire

1. Connect the GREEN wire to the **negative side** of the ignition coil, or to a suitable tachometer **signal port** as follows (see Figure 3):
 - A. Plug the tachometer signal GREEN wire 4-pin female connector into the 4-pin connector #1 on back of tachometer.

Applications

This tachometer is compatible with 12 volt negative (-) ground systems **ONLY**, and will work on most of the following ignition systems:

- **DISTRIBUTOR EQUIPPED** - 4 cycle ignition systems
- **DISTRIBUTORLESS (DIS) and other 2 cycle Ignition Systems** - these type of systems are no longer equipped with distributors.

NOTE: This tachometer may not work on some vehicles with the following ignition systems:

- **Multiple Spark Ignition Systems:** Consult manufacturer and/or instructions on how to connect a tachometer to these systems.
- **Direct (coil on plug) Ignition Systems:** Consult the vehicle's service manual to determine if an adequate tachometer signal connector is available for connecting an aftermarket tachometer.

IMPORTANT!

An inductive pickup IS **NOT** provided with all tachometer kits. In such cases, the tachometer IS **NOT** compatible with the inductive pickup.

If an inductive pickup IS **NOT** provided, use **OPTION #1 - Direct Hookup with GREEN Wire** under **TACHOMETER CONNECTIONS** when installing the tachometer.

In-Dash Mounting

1. Determine a location on the dashboard that can be cut out without striking any objects behind the dash.
2. Using a hole template, cut out a 1-1/2" (3,8 cm), 2" (5,1 cm) or 2-5/8"(6,7 cm) hole, as necessary, through the dashboard.
3. Using a round file, smooth out the rough edges around the drilled hole.
4. Insert gauge through in dashboard.
5. Hold gauge case and rotate gauge, as needed, until gauge dial face is properly positioned in front of dashboard.
6. Tighten locking ring on gauge in clockwise direction until gauge is tight against dashboard. Tighten locking ring **HAND TIGHT ONLY**. SEE FIGURE 2.

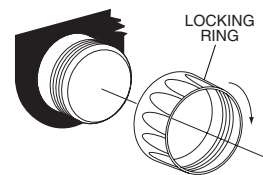


Figure 2

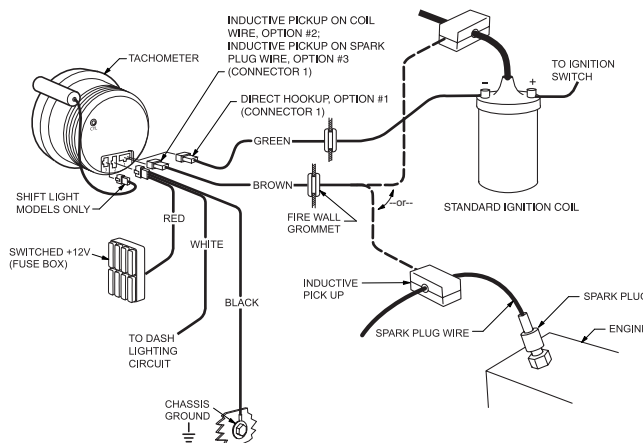


Figure 3

- B. Use an existing firewall grommet, or drill a 3/8-inch (9,5 mm) hole through firewall. Install a grommet in hole and route the GREEN lead wire from the tachometer through grommet and into the engine compartment.
 - C. For conventional 4-cycle and Coil on Plug ignition systems, connect the GREEN wire to the **negative side of the ignition coil** (on Coil-On-Plug Systems, make the connection to the negative side of **one** of the coils only).
 - D. For Distributorless ignition systems make the connection to a **suitable tachometer signal port**.
2. Proceed to the "**CYLINDER SETTING INSTRUCTIONS**" section to adjust the tachometer to the proper Cylinder/RPM setting for the "Direct Hookup with GREEN Wire" option.

Connection Instructions for OPTION #2 - Inductive Pick-Up on Ignition Coil Wire

1. Connect the Inductive Pick-Up to the Ignition Coil Wire as follows (see Figure 3):
 - A. Use an existing firewall grommet, or drill a 3/8-inch (9,5 mm) hole through firewall. Install a grommet in hole and route the Inductive Pick-Up 4-pin female connector from the engine compartment side through grommet and to the tachometer.

NOTE: The Inductive Pick-Up lead wire is a special shielded wire. **DO NOT** cut the wire.
 - B. Plug the 4-pin Inductive Pick-Up connector into the 4-pin connector #1 on back of tachometer.
 - C. Remove the screw and nut from the Inductive Pick-Up Clamp.
 - D. Find the Ignition coil wire, and clamp the Inductive Pick-Up around the wire. Make sure that the arrow stamped on the Inductive Pick-Up clamp points toward the distributor.
 - E. Re-install the screw and nut to secure the inductive pick up clamp on to the ignition coil wire.
2. Proceed to the "**CYLINDER SETTING INSTRUCTIONS**" section to adjust the tachometer to the proper Cylinder/RPM setting for the "Inductive Pick-Up on Ignition Coil Wire" option.

3 TACHOMETER CONNECTIONS (Cont)

Connection Instructions for OPTION #3 - Inductive Pick-Up on Spark Plug Wire

1. Connect the Inductive Pick-Up to a spark plug wire as follows (see Figure 3):
 - A. Use an existing firewall grommet, or drill a 3/8-inch (9,5 mm) hole through firewall. Install a grommet in hole and route the Inductive Pick-Up 4-pin female connector from the engine compartment side through grommet and to the tachometer gauge.

NOTE: The Inductive Pick-Up lead wire is a special shielded wire. DO NOT cut the wire.

- B. Plug the 4-pin Inductive Pick-Up connector into the 4-pin connector #1 on back of tachometer.
 - C. Remove the screw and nut from the Inductive Pick-Up Clamp.
 - D. Find a spark plug wire, and clamp the Inductive Pick-Up around the wire. Make sure that the arrow stamped on the Inductive Pick-Up clamp points toward the spark plug.
 - E. Re-install the screw and nut to secure the inductive pick up clamp on to the spark plug wire.
2. Proceed to the "**CYLINDER SETTING INSTRUCTIONS**" section to adjust the tachometer to the proper Cylinder/RPM setting for the "Inductive Pick-Up on Spark Plug Wire" option.

4 CYLINDER SETTING INSTRUCTIONS

The tachometer's CYL setting must be adjusted to match the tachometer's internal settings to the RPM signal received from the vehicle's ignition system. Adjust the settings as follows:

1. Make sure the tachometer power and ground wires are connected to the vehicle, and the 3-pin connector is plugged into the #2 connector on back of the tachometer.
2. Remove power from the tachometer (turn ignition switch off). Press and hold the **CYL** button (small RED button on rear of tachometer, see Figure 4), then apply power to the tachometer (turn ignition switch on).
3. Press and release the **CYL** button as many times as required until the tachometer's needle points to the correct RPM for the signal hookup option used.
 - Use the settings in Table 1 if "**OPTION #1- Direct Hook Up with GREEN Wire**" or "**OPTION #2 -Inductive Pick-Up on Coil Wire**" is being used.

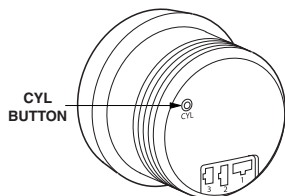


Figure 4

- Use the settings in Table 2 if "**OPTION #3 - Inductive Pickup on Spark Plug Wire**" is being used.

Table 2. Tachometer Cylinder Setting Table (OPTION #3)

Ignition Type	No. of Cylinders on vehicle	Set tachometer needle to read (RPM)
Conventional	All	500
DIS	All	1000

4. When the correct cylinder setting is obtained, turn the ignition off. The cylinder setting is now saved in the tachometer's memory, and will remain until changed. To change the setting, repeat steps A through D.
5. Proceed to "**Tachometer Operational Checkout**" to finish installation.

Tachometer Operational Checkout

1. Turn on ignition. DO NOT START ENGINE. Tachometer pointer should rotate to "0" when ignition is turned on.

NOTE: This tachometer utilizes an "Air Core Movement". With this type of movement, the needle will remain (point) at whatever position it was in (not necessarily zero) at the time the power to the tachometer was removed. This behavior is normal for this type of needle movement. The needle should return to zero when power is reapplied to the tachometer.
2. Start and run engine. Rev engine several times and verify tachometer indication changes as RPM increases and decreases. If tachometer fails to operate, or operates erratically, consult the **Troubleshooting** section for troubleshooting details.

Table 1. Tachometer Cylinder Setting Table (OPTION #1 and #2)

No. of Cylinders on vehicle	Set tachometer needle to read (RPM)	No. of Cylinders on vehicle	Set tachometer needle to read (RPM)
1	500	6	3000
2	1000	8	4000
3	1500	10	5000
4	2000	12	6000
5	2500	Coil on Plug	500

5 SHIFT LIGHT/RPM RECALL OPERATION (For Shift Light/RPM Recall Tachometers Only)

Shift Light Operation and Setting

The shift light can be used to provide a visual indication of engine "Red Line" (maximum safe engine speed) or optimum gear shifting engine speed (to improve vehicle performance when shifting gears). See Figure 5.

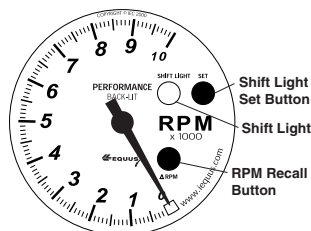


Figure 5

Setting Shift RPM

1. With the ignition key in the "ON" position and the engine "OFF" (not running), press and hold down the shift light set button. After about 4~5 seconds, the needle will start moving up the display. Continue holding the shift button down and proceed to step 2.
2. When the tachometer's needle indicates the desired "shift RPM speed" on the display, release the shift light set button. The "shift RPM" is now set in the tachometer's memory, and the shift light will illuminate every time the needle reaches or exceeds the set "shift RPM".
3. After the "shift RPM" is set, press and release the shift light set button to return to the normal tachometer operating mode.
4. To check the shift light RPM setting, press and release the shift light set button. Press and release again to return to normal tachometer operation. If the "shift RPM setting" needs to be changed, repeat steps 1~3.

Peak RPM Recall Function

This function saves the highest (peak) RPM that was achieved during a trip in the tachometer's memory and gives the operator the ability to recall this information at any time.

To view the peak RPM value stored in recall memory, press and release the RPM recall button. Press and release again to return to normal operation.

NOTE: The Peak (highest) RPM achieved during a trip will remain in the tachometer's memory until overwritten by a higher RPM value, or until the memory is cleared by the operator.

Clearing Peak RPM from Tachometer's Memory

1. Press and release the RPM recall button to place the tachometer in RPM recall mode. The needle should rise and remain at whatever value is in Recall Memory.
2. While tachometer is in RPM Recall mode, press and hold the RPM Recall button. Within 3 ~ 4 seconds, the tachometer's needle will begin to move down. Wait until the needle reaches zero, then release the RPM Recall button. The RPM Recall memory is now cleared, and the tachometer will begin saving the highest (peak) RPM reached during the next trip.

6 TROUBLESHOOTING

If the tachometer does not function, or functions erratically, perform the following:

- Ensure that the ignition system is in good working order in accordance with the vehicle manufacturer's specifications. If the ignition system is in good working order but you still experience erratic readings, the tachometer may be picking up Electromagnetic Interference (EMI). Try re-routing the Inductive Pick-Up lead wire or the GREEN tachometer signal wire (whichever is applicable) away from all other spark plug wires, ignition coils and the alternator.

- If the Inductive Pick-Up option is being used, reverse the direction of the Inductive Pick-Up clamp on the spark plug wire so the arrow points **away** from the spark plug. If this is unsuccessful, try moving the Inductive Pick-Up clamp to a different location on the spark plug wire, or to a different spark plug wire.