Installation Instructions for The *Illuminator*™ by DIXSON®, INC.

Congratulations!! As you will soon discover, you have just purchased the most exciting and innovative tachometer on the market, the Illuminator™. The Illuminator™ tachometer is totally unique in that it reads RPM with a smooth moving arc of light which means you will never miss a shift.

Before installing your new Dixco Illuminator™, we ask that you read and follow the instructions completely. This will assure the full enjoyment and benefit of this quality instrument.

We at Dixson thank you for choosing our instrument and we hope to serve you again in the future.

A WORD ABOUT TACHOMETERS

Today's concern with engine performance reflects a growing awareness of operating efficiency and emphasizes "getting the mostest for the leastest." Performance oriented drivers have long known the value of the tachometer for indicating correct engine revolutions per minute (RPM) at which gear changes should be made to obtain the best performance as measured by elapsed times (ET) or speed attained in the ¼ mile. Recreational vehicle (RV) drivers have benefited from the use of tachometers to maintain engine RPM in the peak torque range under varying load conditions. And now, every driver can improve his vehicle's operating efficiency in the same manner to achieve lower operating costs and more satisfying performance from today's smaller engines.

The usefulness of the tachometer is equally applicable to manual and automatic transmissions, both in normal driving and as an indicator of clutch (or transmission) slippage or wheel spin. Over-or-under revving the engine is costly in terms of both operating and maintenance expense.

PLEASE READ THE FOLLOWING DESCRIPTION OF THE DIXCO MODEL 1097 "ILLUMINATOR™" TACHOMETER BEFORE GOING TO STEP-BY-STEP INSTALLATION PROCEDURE.

The tachometer you have chosen embodies the most up-to-date electronic technology together with a unique presentation for the very latest in distinctive styling and progressive design.

CONTENTS

Included in the package with the tachometer you will find the following:

a. Mounting foot
b. Mounting foot screws (3)
c. Mounting foot attaching screw (1)
d. Mounting foot attaching nut (1)
e. Wire lead sleeve

Your tachometer is packaged with the mounting foot removed to facilitate installation by using the foot as a template.

APPLICATION

The tachometer is designed for operation on 12 volt negative ground systems in conjunction with all conventional (standard points and condenser) and all Factory electronic ignition systems and most add-on electronic ignition systems which provide a positive non-multiple output pulse.

DIMMING FEATURE (OPTIONAL)

If desired, a night-time dimming feature can be incorporated. (See Dimming Option in hook-up instructions.)

MOUNTING LOCATION

The rear housing can be rotated through 360° by loosening the attachment screw on the rear a turn or two. This will enable you to orient the display when choosing a mounting location.

You may wish to assemble the mounting foot to the housing temporarily, using the attaching screw furnished, in order to find out if the tachometer can be adjusted to the proper viewing angle in the location chosen.

HOUSING REMOVAL

The rear housing can be removed from the tachometer to gain access to the replaceable light bulbs and to change the **8 cylinder circuitry as furnished** for either 4 or 6 cylinder applications. With the rear housing removed, the lead wires can be rerouted through any one of the 8 holes in the back which best suits the chosen mounting location.

BULB REPLACEMENT

Bulbs (GE 194 or equivalent, 12 volt 2 candle power) are replaced by removing the receptacle.

CYLINDER SELECTION

Changing from 8 cylinder to 6 or 4 cylinder engine applications is accomplished by clipping one resistor for 6 cylinders or two resistors for 4 cylinders as shown in the illustration, Figure 1, and indicated on the circuit board.

After cutting the resistor lead(s) to match the number of cylinders in your engine, bend the resistor(s) up slightly to prevent making accidental contact with other leads. Should you wish to later install the tachometer on another vehicle having a different number of cylinders, rejoin the resistor lead(s) to the original terminal(s) with a drop of solder.

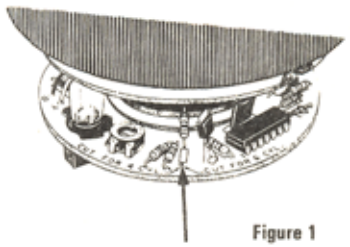

Figure 1

WIRING CODE

You will note that there are four lead wires, each having a different color. They are identified as follows:

Black - Ground Lead
Red - Tach Circuit Power Lead
Yellow - Illumination Power Lead
Green - Tach Signal Lead

Lead wire connections are described in detail in the Installation Section of these instructions.

WIRE SLEEVE

A lead wire sleeve is included to contain the leads from the tachometer to an inconspicuous area under the dash where connections will be made. The sleeve should be slipped over the leads and inserted into the lead wire hole in the back of the housing before final wire connections are made.

SET POINTER

The tachometer features a moveable set pointer, which can readily be positioned at the desired RPM shift point or maximum RPM not to be exceeded. Slight finger pressure on the side of the set pointer is all that is required to rotate the pointer from one position to another on the face of the tachometer. Care should be exercised to avoid undue pressure which could cause breakage of the set pointer.

STEP-BY-STEP INSTALLATION PROCEDURE

1. Select a location for the tachometer on or under the dash, on the center console or on the steering column which affords the greatest visibility with the least distraction or interference with driving. The tachometer mounting foot (packed separately) is designed with slots to accomodate a hose clamp (not furnished) of an appropriate size to mount on the steering column as well as three screw holes (screws furnished) to attach to the dash or console. When drilling the 3/32" holes for the self-tapping screws, make certain that neither the drill bit nor the screws will interfere with anything on the opposite side of the dash or console panel. Install the mounting foot in the desired location and proceed to Step 2.

2. Your tachometer, as previously noted, is calibrated for operation on 8 cylinder engines. If the installation is to be made on a vehicle with a 6 cylinder or 4 cylinder engine, remove the rear housing and make the necessary change as described in the illustration, Figure 1; install the sleeve on the lead wires and carefully work the end next to the housing through the lead wire hole. This can be simplified by cutting one end of the sleeve on an angle of approximately 45° as illustrated in Figure 2 before installing sleeve on lead wires. Then proceed to Step 3.

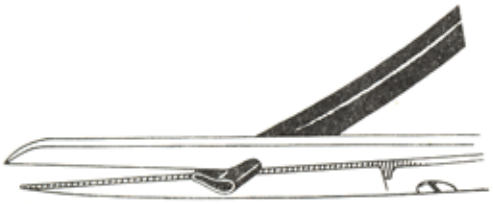

Figure 2

3. Reinstall the rear housing on the tachometer and assemble the unit to the mounting foot using the machine screw and nut furnished.

A) Your tachometer is designed to operate on all 12 volt negative ground automotive electrical systems, including both conventional points and condenser ignition systems as well as O.E.M. electronic ignition systems. Before making any connections, check to see that the negative battery terminal on your vehicle is the ground terminal. It is advisable to disconnect the battery ground cable during tachometer installation to avoid accidental shorting. Electrical connections are made as follows:

B) **GREEN WIRE:** Route through the firewall and connect to the negative (–) coil terminal on all conventional ignition systems and all American Motors (through 1977) and Chrysler electronic ignition systems. (See Fig. 3). On early Ford electronic ignition systems, remove the slip-on connector from the negative (–) coil terminal, wrap the exposed end of the GREEN wire around the terminal and reinstall the slip-on connector. (See Fig. 4). On recent Ford electronic ignition systems, a special coil connector is used. Remove the connector from the coil and insert the exposed end of the GREEN wire securely into the terminal connection of the wire leading to the "DEC" terminal of the control module. Replace the connector on the coil. (See Fig 5). On early General Motors electronic systems, the GREEN wire is connected to the negative (–) coil terminal as in Figure 3. On the more recent HEI electronic systems, locate the coil "TACH" terminal. (The coil may be on top of the distributor or on the firewall.) Make the GREEN wire connection to this terminal using a spade clip available at your local auto supply store. (See Fig. 6).

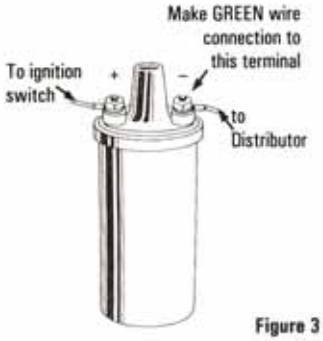

Figure 3

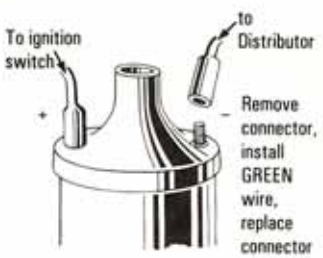

Figure 4

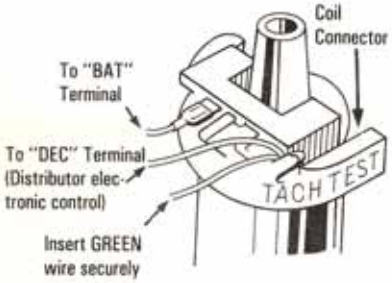

Figure 5

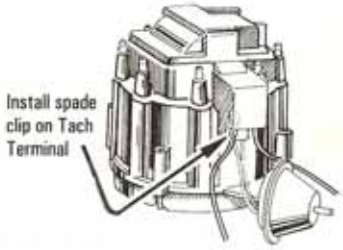

Figure 6

C) **BLACK WIRE:** Connect to a convenient screw under the dash panel that provides metal-to-metal contact with the vehicle chassis.

D) **SPECIAL APPLICATION:** Your tachometer has been designed to operate with the accuracy established as the industry standard on all conventional points and condenser ignition systems and the four original equipment systems listed above. If you are planning to install your tachometer on an imported automobile or a system other than the ones mentioned we suggest that you obtain specific information from either the vehicle manufacturer or the manufacturer of the add-on system regarding the proper "TACH" connection for the GREEN (signal input) lead wire.

E) **RED WIRE AND YELLOW WIRE:** The red and yellow wires are both connected to a terminal on the fuse panel (or on the ignition switch, if accessible) which is energized only when the ignition switch is in the "ON" position. It is not desirable to make this connection to a terminal which is energized when the ignition switch is in the "ACC" position since the engine is not running under this condition. It is suggested that the tachometer be wired in this fashion initially without including the dimming feature as described next.

4. Dimming Option

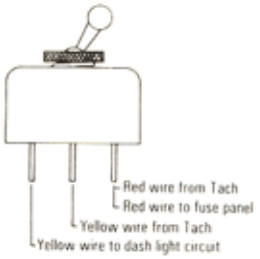

Figure 7

A) If experience indicates that the dimming feature is desirable because of tachometer location, a single pole double throw switch with a rating of 1 amp or more at 12 volts DC, wired as illustrated in Figure 7, can be incorporated.

Suggested sources for a suitable switch are:
Radio Shack (P/N 275-603, P/N 275-654 or P/N 275-662)
NAPA (Balkamp) (P/N TG-6141)
J.C. Whitney (catalog) (P/N 89-1334W)

These switches can be mounted by drilling a 7/16" dia. hole in the desired location on or under the dash panel, or as otherwise indicated on the instructions accompanying the switch. If you prefer, a switch mounting panel can be obtained from the above or similar sources. A switch and panel kit is available from Automotive Service Dept., Dixson Inc., P.O. Box 1449, Grand Junction, Colorado, 81502 by ordering kit #101 and enclosing check or money order in the amount of $5.00.

B) For daytime use, the switch can be placed in the position which makes direct connection to the fuse terminal which is energized only when the ignition switch is "ON". By switching to the other position when the headlights are on, the illumination circuit will be controlled by the dash light dimmer switch.

OTHER QUALITY PRODUCTS FROM DIXSON

ACCESSORY INSTRUMENTS

600 SERIES GAUGES

An exciting line of 250° wide-sweep precision gauges. Installation is a "snap" with new snap rings. Gauge "snaps" into panel, then panel is easily mounted on dash. New swivel-mount for maximum readability. Contemporary cockpit panel. Internal illumination. Triple, dual and single panel-mounted sets and bare gauges all come with senders where needed and full instructions included.

MINI GAUGE SET

Good things do come in small packages. The new 533 Mini Gauge Set has been designed to be small enough to fit anywhere, easy to install since all gauges are electrical, and yet to give the same accuracy and dependability found in the traditional full size gauge sets. Let the Mini Gauge Set warn you before big trouble arises.

TESTING EQUIPMENT

1403 PRO-TESTER 10 DIAGNOSTIC ANALYZER

Highest quality tester on the market. The 1403 Pro-Tester 10 Diagnostic Analyzer, like all of Dixson's quality line of testers and analyzers, is designed with the professional or experienced mechanic in mind. The 1403 provides all required tune-up and trouble-shooting measurements for all standard and OEM electronic ignition systems plus add-on units. This instrument is a must for any auto enthusiast.

418 D.C. POWERED CLIP-ON TIMING LIGHT

The 418 D.C. Power Timing Light with capacitive pickup. Quick, easy and accurate timing is the only way to describe the 418 Timing Light. There is no need to stop the engine and remove the spark plug wire with the shock resistant pick-up clip. There are no springs or wires to slow you down.

See these parts as well as the full line of quality Dixco instruments at your local Parts Store or Parts Department.