

**CONNECTING THE INDICATOR LIGHT
(WIDE SWEEP TACHOMETER MODELS ONLY)**

The Black Tachometer light wire must be connected to a ground in the boat's electrical system. Attach the gray light wire to the "ON" terminal of your light switch so that it goes on and off with the running lights.

Your tachometer is now ready for use.

**USING THE DIAL POINTER
(WIDE SWEEP TACHOMETER MODELS ONLY)**

The dial pointer on Airguide wide-sweep tachometers can be used either as a "Redline" or as a tuneup and propeller selection guide. By aiming the pointer at the maximum safe RPM rate for your motor (check your owners manual or with your dealer), you can have a fixed reference which will indicate the safe upper operating limit of your engine. By setting the dial pointer at the maximum engine speed at a given throttle setting, it can easily be seen whether changes in engine tune, boat trim or propeller selection are benefiting your performance.

GUARANTEE

WE GUARANTEE THIS AIRGUIDE INSTRUMENT TO BE FREE FROM DEFECTS OF WORKMANSHIP OR MATERIAL AND TO REMAIN ACCURATE IN NORMAL USE. IF WITHIN ONE YEAR OF PURCHASE DATE THIS INSTRUMENT FAILS TO GIVE SATISFACTORY SERVICE, IT WILL BE REPAIRED OR REPLACED WITHOUT CHARGE. THIS GUARANTEE DOES NOT COVER BREAKAGE THROUGH ACCIDENT OR MISUSE. REPLACEMENT WILL BE MADE IF THIS INSTRUMENT IS RETURNED POSTPAID TO

AIRGUIDE INSTRUMENT COMPANY, CHICAGO, ILL. 60647

Airguide

**MULTI-CIRCUIT MARINE TACHOMETERS
Models 690-A, 690-AA, 690-B and 690-BB
Sea Speed® Series
Models 691-A, 691-AA, 691-B and 691-BB
Stainless Steel Series
INSTRUCTIONS**

This tachometer model is designed to fit almost all inboard, outboard and outdrive engines, with the exception of Mercurys with capacitor discharge or energizer ignition. See the Application Folder included with the instrument for exact information.

Installation of this tachometer is very simple, but there are a few key points which must be followed if the tach is to give satisfactory service. Please read these instructions carefully and follow them exactly.

USEFUL ACCESSORY FOR PLEASURE AND PERFORMANCE

Many benefits are gained by the use of an accurate tachometer with your inboard or outboard marine engine. Increased economy, performance and longer engine life can be obtained by operating your motor within the RPM ranges suggested by the manufacturer. Improvements in propeller selection, motor positioning, boat trim and engine tune are immediately apparent. Airguide marine tachometers are ruggedly designed to give long and accurate service, and to add to your boating pleasure.

LOCATION OF THE METER

Your tachometer should, of course, be located where you can easily read it when the boat is in operation. About the only restriction on the location of the tachometer is that it should not be within 8 inches of your compass. Otherwise, the electronic action of the tachometer may affect the compass accuracy. Remember to check the area behind the mounting position to be sure that it is accessible for the attachment of wires. In the case of flush mounting models, allow sufficient clearance for the case back which extends approximately 1" behind the instrument bezel ring.

The tachometer and the wires connecting the tachometer to the engine

DIRECT ENGINE CONNECTIONS FOR MAGNETO IGNITION MOTORS (See Fig. 2)

Remove the engine shroud so that the magneto is exposed. At a convenient point, connect the Yellow Tachometer Lead to the magneto primary (low voltage) circuit. The primary terminal on the magneto is a good place for the connection. This is the terminal to which the "kill switch" wire is connected. On flywheel magneto systems, it may be necessary to remove the flywheel and make the wire connection directly to the wire leading from the magneto coil to the ignition points. On engines with a key or push-button stop switch, this primary magneto connection can be made at the "hot" lead at the switch.

The Black Tachometer Lead should be connected to a good ground on the engine. This can be connected directly to the engine frame or to the ground terminal of the remote stop switch.

DIRECT ENGINE CONNECTIONS FOR BATTERY AND COIL IGNITION MOTORS (See Fig. 3)

Route the tachometer leads to the engine, extending them as necessary with insulated wire. Locate the ignition coil.

Connect the Yellow Tachometer Lead to the Positive (+) low voltage terminal of the coil.

Connect the Black Tachometer Lead to the Negative (-) low voltage terminal of the ignition coil.

Most coils have (+) and (-) marked on them. If no markings are found, locate the small low voltage wire from the coil to the distributor. If your motor has a negative ground on the battery, the distributor wire will lead to the negative coil terminal. If the battery has its positive pole grounded, the wire between the distributor and the coil will lead to the positive terminal of the coil.

Do not attempt to make tachometer connections at the engine on engines equipped with capacitor discharge ignition. On these motors, make connections only to the tachometer leads in the wiring loom.

Check to make sure that all connections are secure and that the wiring is routed so that it cannot chafe or rub when the engine is turned or tilted.

should be kept away from a radio transmitter and its associated wiring to prevent tachometer error or damage when the radio is in use. Consideration should also be given to the possibility of the addition of other matching Airguide marine instruments such as a speedometer, clock, barometer etc.

CIRCUIT CONNECTIONS TO MAKE THE TACHOMETER SUIT YOUR ENGINE

You will note a terminal board with four numbered terminals on the back of the tachometer case. By connecting the terminals in various sequences, you change the electronic circuitry of the instrument to suit different engines. Two pieces of jumper wire are supplied for this purpose.

The Application Folder enclosed shows the Meter Wiring Method used for most popular engines. Find your engine in the engine listings and note the Motor Wiring Method Code . . . A, B, C, etc. Turn to the back page of the Application Folder where you'll see detailed pictures of the wiring method each code represents.

The terminal boards are shown full size to help you select the correct wire lengths to connect the appropriate terminals. Hold the wires against the illustrations to trim them to length and form the proper "U" loop on each end of the wire. Loosen the screws and slip the jumper wire into position. Tighten the screws securely.

NOTE: Be sure the jumper wire lies completely within the terminal board recess on surface mount models. Otherwise, mounting the instrument may pinch the insulation on the jumper wire between the case back and dash, shorting the wire.

INSTALLING THE METER

Mark the location of the necessary mounting and access holes, using the template provided. Drill or cut holes indicated and secure the instrument with the screws provided.

CONNECTING THE TACHOMETER TO THE ENGINE ELECTRICAL SYSTEM

There are several different ways in which this tachometer can be attached to your motor, depending on its type of ignition and model. The easiest and most common way is:

CONNECTING THE TACHOMETER LEADS DIRECTLY TO THE WIRING HARNESS (See Fig. 1)

Depending on the brand of motor, and/or year of manufacture, the tachometer connection can be made to either the remote throttle and shift control box, or to the dash-mount instrument panel. In either case a lead in the wiring harness will be found marked "TACH LEAD" and another similar wire marked "TACH GND." Your dealer will identify these connection points for you if in doubt. If there are metal connectors on these wires, remove them. Strip about 1/4" of insulation off each lead.

Attach the Yellow wire coming out of the tachometer case securely to the tachometer connection point marked "TACH LEAD." Use one of the plastic wire connectors to make this connection.

Connect the Black Wire coming out of the tachometer case to the tachometer connection point marked "TACH GND." using another plastic wire connector. If there is a "TACH LEAD" wire, but none marked "TACH GND." (as may be the case where the connection is made to a remote control box installation) attach the Black Tachometer Wire to a good ground in the remote control box.

NOTE: The wire leads coming out of the tachometer case are of sufficient length for connection to a dash panel connection point. Installation to a connection point at the throttle control box, however will require extending the length of these leads. An extra 3 foot length of both Yellow and Black Wire and two additional plastic wire connectors are provided to facilitate this type of installation.

CONNECTING TACHOMETER TO ENGINES WITHOUT TACHOMETER LEADS OR WIRING HARNESS

This Airguide Tachometer may also be used on engines which do not have wiring harnesses to remote controls, or when there are no tachometer leads in the harness, by connecting the tachometer leads directly to the ignition system of the engine. Use regular plastic covered two conductor wire to extend the leads from the tachometer mounting position to the engine ignition system. Determine exactly what type of ignition system your engine has; i.e. whether it is a battery and coil ignition system or a magneto ignition system. Ask your dealer or a knowledgeable outboard motor mechanic if you are not familiar with this.

WIRING DIAGRAMS

Connecting Tachometer to Engine Electrical System.
See APPLICATION FOLDER for Case Back Wiring Methods.

Connecting Tach to Engine Wiring Harness

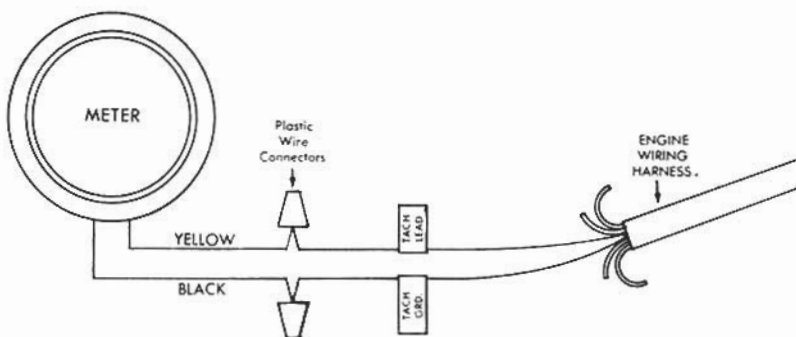


Figure 1

Connecting Tach Directly to Magneto Ignition Engine

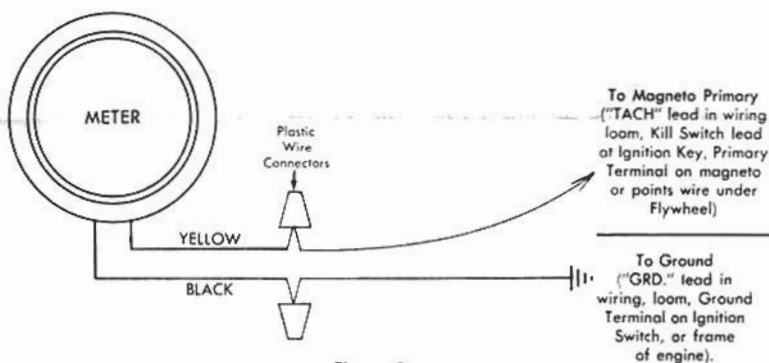


Figure 2

Connecting Tach Directly to 12V. Battery and Coil Ignition Engine

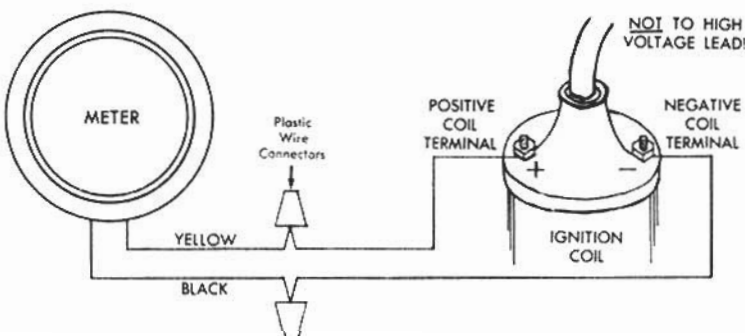


Figure 3