

Airguide Marine Speedometer

INSTALLATION INSTRUCTIONS SINGLE TUBE THRU-HULL PICK-UP UNITS

The thru-hull pick-up system available for use with Airguide 30, 50 and 75 MPH Marine Speedometers uses a pressure stabilizer in the line for increased accuracy of readings.

SELECTING THE LOCATION

Great care should be exercised in selecting the location of the pitot tube, stabilizer, and connecting tubing. There are three major considerations in choosing the pick-up location.

1. The pick-up should be placed on the hull at a point where it will not be entering disturbed water when the boat is normally loaded and underway at normal operating speeds. It should, therefore, be kept a minimum of 4 inches from keel or skeg and any projection on the bottom that may cause turbulence.

On large boats that cruise at speeds less than 25 MPH and have considerable drag, the pick-up must be placed

close to the bow to minimize the drag effect on speedometer readings. When placing the pitot near the bow care must be taken to find a location that does not come out of the water under ordinary conditions of sea and speed.

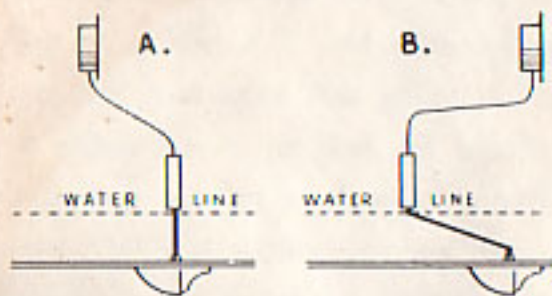
The pick-up connections inside the hull should also be given consideration as the assembly of the unit requires use of a wrench when tightening the nuts on the pick-up stud and copper tubing.

2. When choosing the location for the pressure stabilizer seek a place near the center of gravity of the boat where the bottom of the stabilizer will be at the loaded water line and as close as possible to the center line. Placing the stabilizer to one side of the center line will cause speedometer fluctuations at low speed when the boat is heeling.

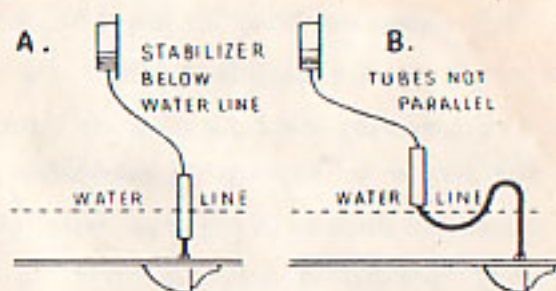
This effect is minimized in small boats but the stabilizer should be mounted near the center line wherever possible.

When the stabilizer is located forward of the center of gravity, its position relative to the water level on the hull will change as the boat gets underway. This will cause low readings of the speedometer and erratic readings will result as the boat encounters head or quartering seas.

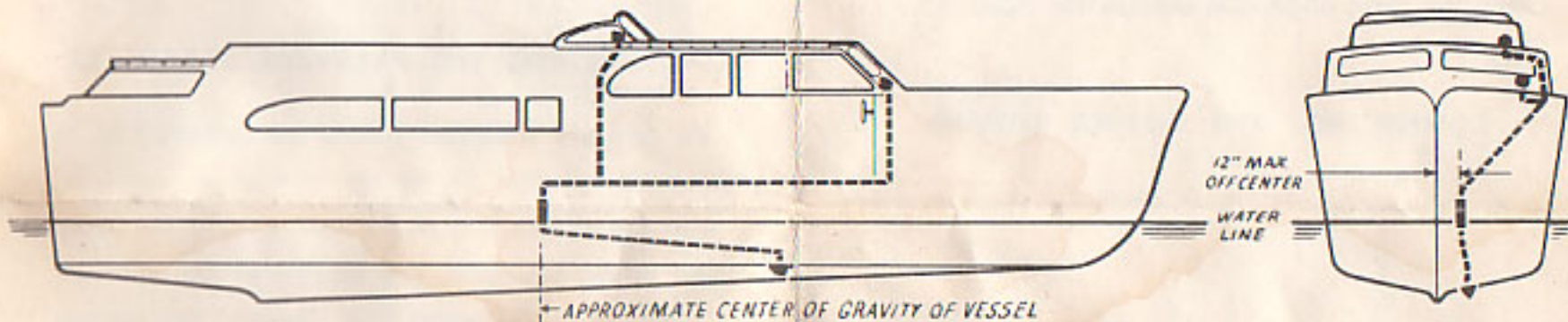
The following sketches illustrate suitable types of installation and also installations to be avoided.



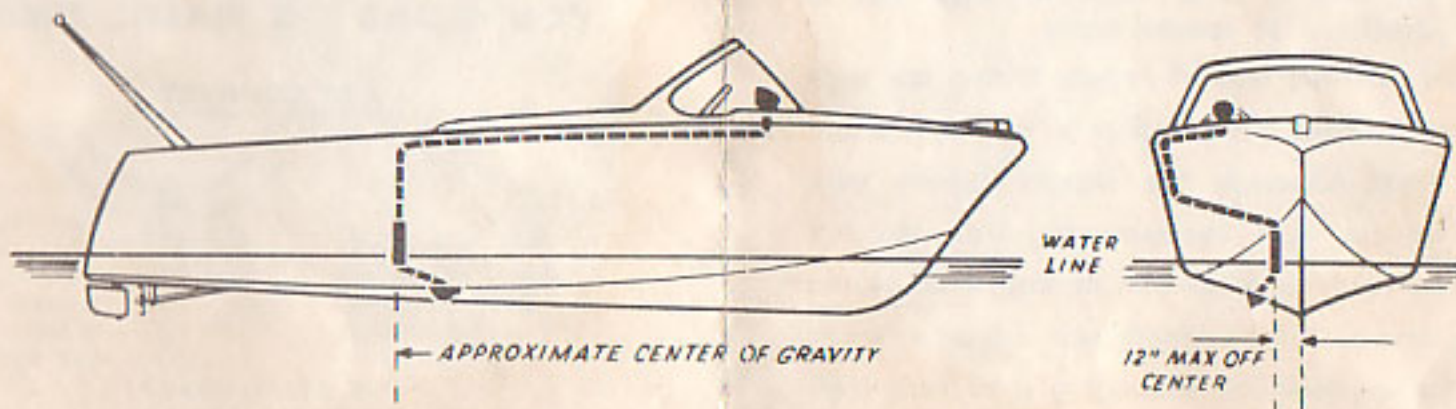
Suitable Installations for system with stabilizer



Installations to be AVOIDED for system with stabilizer



Typical cruiser installation for either one or two heads

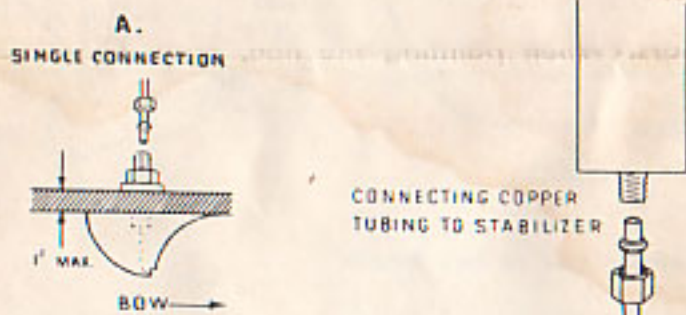


Typical runabout installation

INSTALLING THE PITOT TUBE PICK-UP

After having selected the best possible location, drill a $\frac{1}{2}$ inch diameter hole in the hull, at a 90 degree angle to the outside surface, for the pitot stud. Avoid drilling the hole near or through a part of the frame or supporting members. Install the pitot as shown in figures with pitot opening facing forward in a line parallel to the keel. The use of a sealer around the stud is recommended. Place the neoprene washer around the stud and against the hull. Then add the brass washer and nut. Tighten the nut to make a water-tight seal. Before and after tightening the nut, check the pitot alignment outside the hull.

CONNECTING THE COPPER TUBING



NOTE: For hulls 1" to 2" thick, a longer stud is available on special order.

Two and one-half feet of copper tubing are supplied to provide a rigid line to or beyond the water line. Although the copper tubing may easily be cut, it is recommended that the full length be used, together with at least 4' of plastic tubing. Shorter tubing length may cause water to enter the speedometer damaging it at very high speed.

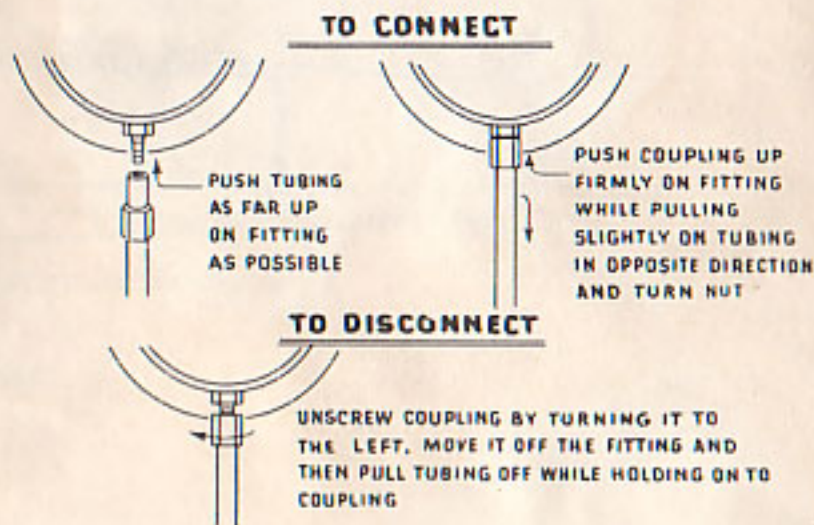
To connect the copper tubing to the threaded pitot stud, place the nut and collar on the copper

tubing, then insert the tubing into the stud, slide collar and nut down to stud and firmly tighten. A small quantity of non-hardening compound, such as Permatex No. 3, wiped onto the lower inch of the tubing will help seal the joint. The tubing should be held in place within the hull where it cannot be damaged by moving objects. Sharp bends, kinks or pinches should be avoided. Great care should be taken when bending the tubing near the connection to the pick-up so that the seal will not be disturbed. The tubing should be positioned so that it rises as nearly vertical as possible as high as the water line and then inclined in the direction of the speedometer.

CONNECTING THE PRESSURE STABILIZER

The pressure stabilizer should be fastened in its selected location as nearly vertical as possible, near the center line of the boat, using the strap and screws provided. The bottom of the reservoir should be at the water line. Connect the copper tubing to the stabilizer in same manner as at the pick-up by as direct a route as possible. The tubing may be cut to desired length.

CONNECTING THE PLASTIC TUBING



Connect one end of the plastic tubing to the stabilizer top after having slipped the coupling nut over the tubing. Note: Threaded end of coupling nut should be towards open end of tubing. Secure the tubing by pushing the nut over the tubing as far as possible and turning nut in right hand direction while holding tubing from twisting.

A trace of a non-hardening compound, such as Permatex No. 3, may be used on the fittings before pressing on the tubing. Run the tubing to the speedometer which has been installed in accordance with the instructions supplied with that instrument. Be sure to avoid sharp bends, kinks or pinching. The tubing can be held in place by staples or screw eyes if desired, and should avoid cut backs which might trap water within the tubing. Eight feet of tubing is supplied with unit and if more tubing is required, your dealer has Extension Kit No. 16 which contains 8 feet of plastic tubing and a special connector to add it to the standard length tubing. The tubing can be cut to the required length, leaving sufficient tubing to allow a connection without sharp bends. However, plastic tube should not be less than 4 feet long in any installation. If necessary, coil the excess tubing well above the water line. Connection should be made to the speedometer using the method illustrated for plastic tubing. After the boat is launched and before getting underway, the line must be bled. (See Bleeding instructions in the Airguide Speedometer Instruction Sheet.) The Airguide Bleeder Valve is available as an accessory to simplify this operation.

MAINTENANCE

All connections should be checked occasionally

to be sure they are tight, as a small leak in the lines above the water line will seriously affect the performance of the speedometer. Should the speedometer read low or cease to function, look for a loose connection or a clogged or pinched tube. The copper tubing or pitot can be cleaned with a flexible wire, disconnecting at the most convenient connection ABOVE the water line. GREAT CARE SHOULD BE TAKEN TO SEE THAT WATER NEVER ENTERS THE SPEEDOMETER MECHANISM. THIS MAY HAPPEN IF THERE SHOULD BE A LOOSE OR LEAKY CONNECTION AT GAGE OR STABILIZER OR IF TUBING IS DISCONNECTED AND RECONNECTED WHILE BOAT IS IN MOTION.

When boat is stored for the winter, be sure all water is drained or blown from the pick-up unit. The speedometer may be removed and stored indoors. When painting the hull, carefully protect the pick-up openings from the entry of paint.

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