Kenyon Marine

OPERATING MANUAL
AND
INSTALLATION INSTRUCTIONS

MODEL KS-100
SPEEDOMETER

PLEASE KEEP THIS MANUAL ABOARD YOUR BOAT

Table of Contents

Operating Instructions

Installation Instructions

KENYON MARINE

Division Outdoor Sports Industries, Inc.

Guilford, Connecticut 06437

203=453-4374

INTRODUCTION

The Kenyon KS-100 Speedometer is a sophisticated electronic speed measuring system for sailboats that provides outstanding accuracy. It has, as standard equipment, a dual-range dial (0 to 10 knots and 0 to 5 knots), and may readily be recalibrated to read in statute miles.

The KS-100 has two primary components: (1) Indicating Unit, and (2) Transducer. In addition, a bronze thru-hull and a threaded screw-on cap are provided.

The KS-100 is designed to operate on your boat's 12-volt battery. If your boat does not have an electrical system, a 12-volt dry cell battery of the "Hotshot" type may be used. The useful life of a "Hotshot" battery should be about one season. Use of the lights will necessarily shorten battery life.

Seventeen feet of No. RG-59/U coaxial cable is supplied to connect the Transducer to the Indicating Unit and is permanently attached to the Transducer. Any excess cable should be coiled in an out-of-the-way place.

Power consumption, KS-100 alone:	.125 amps.
Power consumption, KS-100 with lights (max.):	.300 amps.

CALIBRATION OF KS-100 SPEEDOMETER

Each KS-100 is calibrated prior to shipment. If the word KNOTS appears on the dial, the instrument has been calibrated for speed in knots. If MPH is on the dial, the instrument has been calibrated to give speed in statute miles per hour. When installed in a boat, variations may be caused by different hull configurations and location of the underwater unit. See also "TRANSDUCER" on page 2. When accurately calibrated in a hull, the KSI is a precision navigational instrument. The following procedure is recommended for calibrating:

1. Locate an accurately known distance over which you can make runs. (Remember, buoys are not always in their charted positions.) It is preferable that the calibration procedure be conducted in flat water under zero wind conditions. In tidal waters, runs should preferably be made at slack water. If such is not possible, two runs should be made - one with and the other against the current. Determine the speed on each run, then average the two speeds to eliminate the effect of the tidal current.

2. When the desired course has been selected, runs should be made under power at a speed of approximately 5 knots. The range

switch on the rear cover should be in the 5-knot position. A stop watch should be utilized to record accurately the time required to travel over the known distance. Boat speed should be stabilized prior to starting the timed run.

3. Upon completion of the timed runs, and while maintaining the same power setting used during the runs, calculate the average speed traveled through the water. Loosen the lock nut on the Calibrate Adjustment marked "SPD" on the back of the Indicating Unit. Turn the Calibrate Adjustment clockwise to increase, or counterclockwise to decrease, the reading, adjusting the Speedometer to the calculated speed. Then tighten the lock nut.

4. If the KS-100 was factory calibrated in knots and you have calibrated your instrument in statute miles per hour, the MPH sticker shipped with the KS-100 may easily be placed on the dial of the instrument.

   a. Remove the three 2-56NF screws on the back cover. When this has been done, carefully remove the back cover. The entire internal mechanism is mounted on this back cover, so that you simply slide it out of the barrel.

   b. Remove the covering from the back of the pressure-sensitive MPH sticker and carefully place the sticker over the word KNOTS.

As a word of caution, checking speed against engine RPM's can be very deceptive. Engine RPM does not necessarily give a true indication of boat speed through the water.

TRANSDUCER

Orientation for paddle wheel Transducer is correct when the wire handle is approximately fore and aft. When calibrating Speedometer, rotate Transducer 10° to 15° port and starboard of centerline until highest speed reading is obtained. This is the optimum position as water flow is then perpendicular to the paddle wheel shaft.

CARE AND MAINTENANCE

All components of the KS-100 Speedometer are designed to give years of dependable operation.

Once installed, the Transducer can be removed easily for inspection while afloat. Just unscrew the Transducer gland nut and remove the Transducer from the hull fitting, then screw the threaded cap onto the thru-hull fitting.

NOTE: Some water will enter the boat until cap is installed. To minimize water, hold cap in hand and screw in place quickly.

The rotor in the Transducer should be inspected from time to time to be sure it is clean, so that accurate operation of the instrument is ensured. Remove the Transducer from the hull fitting and screw the cap on the thru-hull. It may be necessary to remove the rotor from the Transducer frame either to clean it, or to replace it. The shaft upon which the rotor is mounted is pressed into the Transducer frame.

The lens in the Indicating Unit is sealed with silicone adhesive. If the lens should ever be loosened by an impact, or if moisture should appear on the inside, the lens should be resealed. Salt air or moisture may damage the electronic components. Follow the procedure for removing the back cover of the Indicating Unit as described in paragraph 4 on page 2.

Should malfunctioning of the instrument occur, first refer to the "TROUBLESHOOTING" information which follows. If the malfunction cannot be corrected, it is recommended that you contact your local dealer for additional information.

TROUBLESHOOTING

If it is suspected that the KS-100 is not functioning properly, the following checks should be made to locate the source of trouble.

1. If the instrument does not function and the lights do not work, inspect the 3AG 1/2 amp fuse wired externally at the rear of the Indicating Unit to determine whether it has blown.

2. If the lights work but the instrument does not, check the polarity of the input power.

3. If, when the paddlewheel is spun by hand, the instrument does not indicate approximately 3 to 5 knots, check the resistance of the pick-up coil in the Transducer. You should measure approximately 127 ohms + or - 10% at the end of the Transducer cable.

4. If it is ever suspected that the KS-100 is reading low, there is a possibility that grass or weed may have become wrapped around the paddlewheel shaft. Barnacles or other growth may influence the correct speedometer operation. The paddlewheel should be clean and free of slime or growth at all times.

KS-100 components are easy to install if these step-by-step instructions are followed. To install the thru-hull fitting for the Transducer, the boat must be out of the water.

CAUTION: YOUR KS-100 IS A PRECISION INSTRUMENT AND SHOULD BE HANDLED WITH EXTREME CARE DURING INSTALLATION.

WHERE TO LOCATE YOUR THRU-HULL

The thru-hull fitting should be located in an area of undisturbed water, as the instrument requires a smooth flow of water past the paddlewheel within the Transducer. Be sure there is room for removal of the Transducer - 6 inches from the hull is adequate to allow for removal while under way should it be necessary to inspect the paddlewheel. Do not locate under the engine, water tanks, battery, or in other inaccessible spaces.

Recommendation for location in the hull is as follows:

> 30 per cent of the waterline length, measured aft from the forward end of the waterline, and as deep in the hull as possible. This will provide nearly identical readings on both tacks. If the interior arrangement is such that this is not possible, then it is recommended that the hull fitting be located forward of the point of maximum beam and as deep in the hull as possible.

The thru-hull fitting may be installed in hulls up to 1 inch thick. There must be sufficient thread showing after installation and the flange nut has been tightened to allow the threaded cap to be screwed on tightly. Length of the thru-hull fitting must not be altered.

After determining location, cut a 1-5/8-inch diameter hole to accommodate threaded portion of the fitting, and countersink the hole. Use adequate quantities of bedding compound to make a watertight installation.

In aluminum and steel hulls, it may be desirable to insulate the hull fitting from the metal hull. The method of doing this should be the same as that used for insulating other thru-hull fittings in the hull.

PREVENTION OF ELECTROLYSIS

In Wood and Fiberglas Hulls: The thru-hull fitting of the KS-100 may be subject to electrolysis or galvanic corrosion if improperly installed. When properly installed, the KS-100 will not be subject to, or cause, any electrolysis problems on the yacht. The

proper installation consists of grounding the hull fitting to the yacht's ground system and insulating the rest of the KS-100 from any other ground. It is very important to prevent any inadvertent short circuit of the yacht's battery to the KS-100 on the back of the indicating dial case. The thru-hull fitting should be connected to the yacht's common ground bus and radio ground plate with a short, heavy, copper strap in accordance with the best recommended techniques for the prevention of electrolysis.

The flange nut may now be reinstalled and tightened. This holds the outside of the hull fitting tightly against the hull surface. With the hull fitting installed, cap may now be screwed in place.

INSTALLATION OF INDICATING UNIT

Although ruggedly built, the KS-100 Indicating Unit contains a precision electrical meter movement and should be handled with care.

1. Select the mounting location. Consideration should be given to having the back of the instrument accessible so that the Calibrate Adjustment, Range Switch and Dial Light Dimmer may be reached. Mounting surface should be flat and preferably as nearly vertical as possible. The indicator can be installed on an angle, but not closer than 20° to the horizontal, because of mechanical pointer balancing.

2. The meter movement contains a small magnet. If the location selected for installation of the Indicating Unit is 6 inches (edge of KS-100 bezel to edge of compass) from the magnetic compass, the compass will not be affected. If the desired location is closer than 6 inches, the effect will depend on the distance from the compass and the location of the Indicating Unit with relation to the plane of the compass card. If the location selected is such that there is an effect on the compass, after installation the compass should be adjusted by a professional compass adjuster.

3. A good bedding compound is recommended to provide a watertight seal when the Indicating Unit is installed. The back of the instrument projects inside the boat. Do not use a compound (such as silicone rubber or epoxy) that will permanently cement the unit in place. Tighten the screws in the mounting collar to hold the Indicating Unit in place.

ELECTRICAL CONNECTIONS FOR KS-100

1. Refer to diagram on page 6.

2. The 17-foot coaxial cable and the wiring from ship's power may now be connected on the back of the Indicating Unit. The

800 225-5464
203 442 5522
LAD

coaxial cable shield lug is attached to terminal marked "SH." The inner conductor is attached to terminal marked "CT."

3. The wire from negative ship's power is attached to the negative (-) terminal on the terminal strip. The fuse supplied with the instrument is connected between the positive (+) terminal on the terminal strip and the wire from positive ship's power.

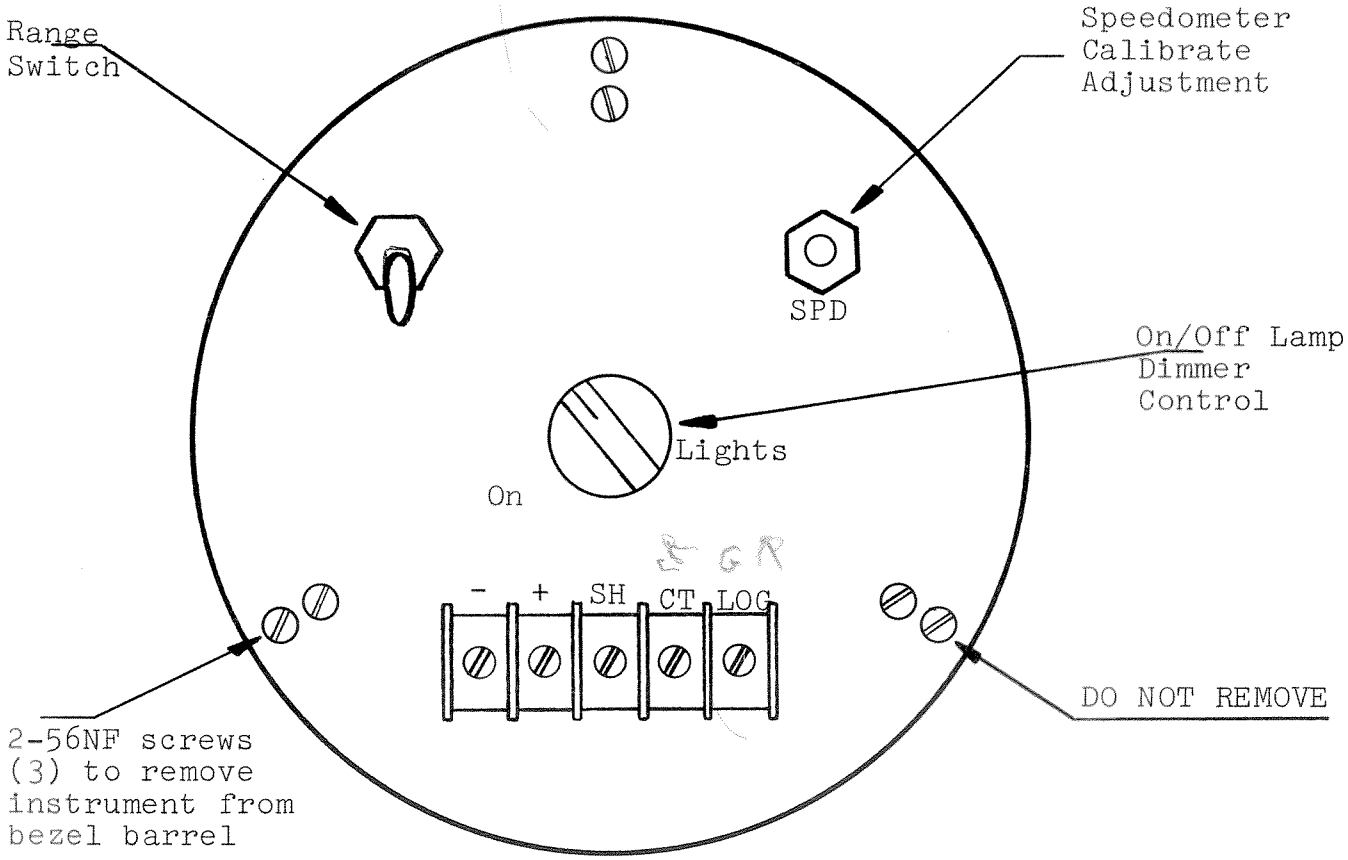
4. The terminal marked LOG is used only when installing a KL-100 Distance Recording Log.

5. Dress the 17-foot coaxial cable from the Transducer to the location of the Indicating Unit.

6. All cables can now be fastened to your boat's interior. Any excess cable should be coiled and stowed in an out-of-the-way place.

632
462

Indicating Unit - Back View



THE HOLE CUTOUT FOR MOUNTING INDICATOR IS 4-3/8 INCHES