

ARTIFICIAL HORIZON

INSTRUCTIONS

The Davis **Artificial Horizon** is a device for taking sun or moon shots with a sextant without observing the natural or sea horizon. This instrument is particularly useful to students of celestial navigation or experienced navigators who wish to practice taking accurate shots without having to go to a large body of water. Observations can be made inland or through a window of your home. Use for backyard practice, finding exact position when inland, and making exact sextant shot on foggy mornings. The Artificial Horizon is actually more accurate than a natural horizon.

Windproof and corrosion resistant, the reflecting surface is completely enclosed. Comes with two sun shades and a lid.

Compact size: 6 × 4 × 1½" (15 × 10 × 4 cm).

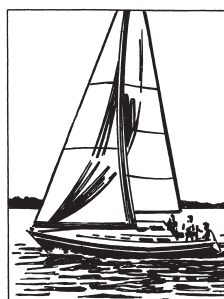
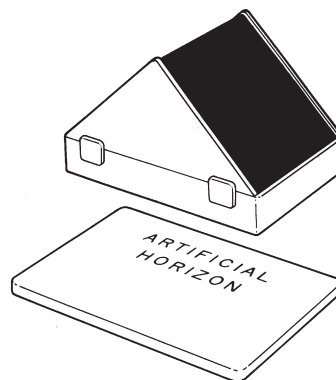
ASSEMBLY

Lift the lid from the horizon bowl and remove the side pieces and horizon shades. Fill the bowl with water or a more viscous liquid. The depth of the liquid is not important to the accuracy of your sextant reading. If the sun is close to the horizon, however, the bowl will need to be nearly filled in order to obtain a reading.

Now erect the side pieces by fitting them onto the sides of the bowl. These hold the horizon shades and also act as a windbreak to prevent ripples on the water surface.

Next choose the horizon shade arrangement to fit your needs. The two plastic shades, when used together, darken the sun's reflection so that the reflection may be observed directly without use of your sextant's horizon shades.* However, if the sun is sufficiently low on the horizon, if you are taking your shots at night, or if you prefer to use your sextant's horizon shades, you may use any combination with the glass windows included.

* CAUTION: Looking at the sun's reflection without sufficiently shading the image can cause eye damage.



Make exact sextant shots on foggy mornings



Take moon shots without observing the natural horizon



Practice making accurate shots without a body of water

USE INSTRUCTIONS

Fill the bowl with water or a more viscous liquid and place it on a table or on the ground so that the sun is directly facing one end. This can be done by moving the Artificial Horizon until it casts a shadow only at the opposite end (the sides and end facing the sun being shadow free).

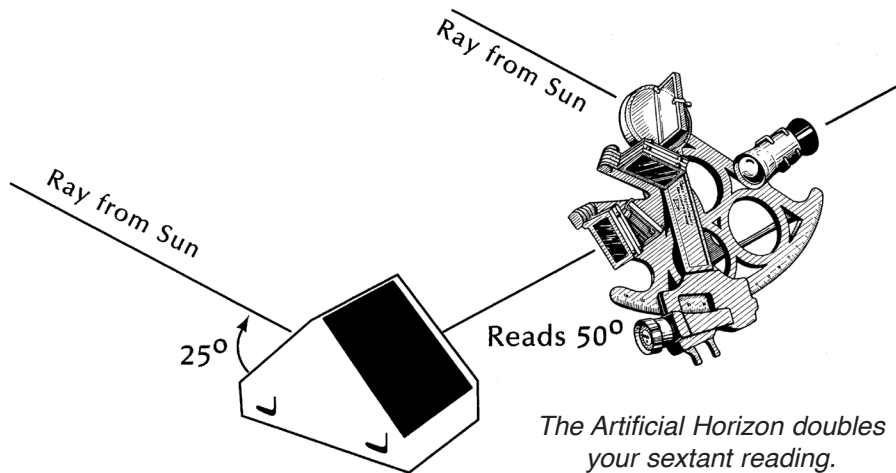
Now stand or sit in such a position that you can see the sun's reflection on the liquid surface. Sight through your sextant until you have placed this reflection where the real horizon would normally appear on your instrument.

Move the index arm of your sextant until the double-reflected image of the sun on the mirrors of your sextant is brought into coincidence with the reflection on the liquid.

In the case of the sun or moon, the bottom of the double-reflected image is brought into coincidence

with the top of the image on the liquid for a lower limb observation. For an upper limb observation, the opposite sides are brought into coincidence. If one image is made to cover the other, the observation is of the center of the body.

When the observation has been made, apply the index correction. Then take half the remaining angle and apply all other corrections except dip (height of eye) correction, since this is not applicable.



Since the Artificial Horizon doubles your sextant reading, the maximum altitude which can be observed is equal to one-half the maximum arc graduation on your sextant. Thus, observations of the sun should normally be planned for morning or evening, as there may be several hours near noon when the sun will be too high.

Davis Instruments

3465 Diablo Ave., Hayward, CA 94545 U.S.A.

Phone (510) 732-9229 • Fax (510) 732-9188

info@davisinstruments.com

www.davisinstruments.com