

TIDE CLOCK INSTRUCTIONS

Starting Your Clock:

Obtain a local Tide Table and a calendar that shows the days of the full moon, new moon, etc. Some newspapers publish these items, often near the weather report.

On the day of a full moon, insert your battery precisely at the time of high tide according to local tide tables. If the Tide Clock is set correctly on the day of the full moon, it will display the minimum "error" throughout the entire month. Usually, the discrepancy will be less than 30 minutes and, therefore, will be unnoticeable. Typically, only four or five days each month will have a difference as great as an hour.

A Discussion of Tides:

To make the best of your SBCD Tide Clock, you should understand a little about what causes the high and low tides. The moon is the major cause of the tides. The "lunar day" (the time it takes for the moon to reappear at the same place in the sky) is 24 hours and 50 minutes. Most places have two high tides and two low tides each day. Therefore, we have designed the SBCD Tide Clock so that its hand rotates once every 12 hours and 25 minutes (twice each lunar day). Your Tide Clock always stays in exact step with the moon. But, there are many other factors that can make the day-to-day tides a little earlier or later than the Tide Clock shows. It is the user's responsibility to determine these conditions for his own locality and to take them into account. The sun also affects the tides, but has less than half the influence of the moon. When the sun, moon and earth are lined up, as they are at time of the new moon and full moon, their influences combine and high tide is higher than normal and low tide is lower than normal. When the sun and the moon are at right angles, as they are at the first quarter and last quarter of the moon, the sun cancels some of the moon's effect and the range of tide is smaller than normal. Also, at these times, the sun will make the tides somewhat earlier or later than average. This is why it is so important to first set your Tide Clock on the day of a full moon, as the moon has the dominating effect with the tides.

Additional Information:

There are actually two tidal cycles: a twice-daily cycle and a once daily cycle. On a tide when the two cycles help each other, high tides will be higher and low tides lower. On the next tide, when they conflict, the tidal range will be smaller. The relative strength of these two cycles varies from week to week, and also varies from one place to another. In the United States, along the Atlantic Coast, the two daily tides have a similar range, but on the northern Pacific Coast there tends to be a large difference between the two daily tides. Farther south and in the Gulf of Mexico, the difference is so great, there often appears to be just one high tide and one low tide per day. Abnormal atmospheric pressure can temporarily affect the time and height of tides. A difference of one inch in barometric pressure will cause about one foot difference in sea level. Strong on-shore winds will also cause a temporary increase in sea level. Both these effects will change the times of low and high tides as well. The changing volume of the river flow will affect tides in the lower portions of rivers.

For further information, we recommend the excellent discussion of tides in **Chapman Piloting, Seamanship and Small Boat Handling**, published by Hearst Marine Books, New York. This book is widely owned by boatmen and should be available in any library or bookstore near the coasts. It also contains information about obtaining various government publications such as tide and current tables.