

THE CENTERBOARD TRUNK [From The Day Sailer No. 124, Spring 1992]

Grant & Marta Day, Fleet 110

We just received our copy of the Winter 1991 Day Sailer. It brought back memories of the NACs this past summer in Maine. What a tremendous week! Thompson Lake is located approximately 20 miles inland from Portland, Maine. It was a beautiful scene right out of the picture books of New England. When Hurricane Bob was at its peak we had plenty of wind, about 75 miles per hour. The Hurricane Party was a highlight of the week. When the chips are down, the Day Sailers work together. Hurricane Bob left variable wind conditions and no power until 9 P.M. Thursday night. It was amazing how the mood of the week changed when the power was restored. We wish to thank everyone at Thompson Lake, Maine, for an outstanding week of sailing and fun.

It's been a mild winter here in Connecticut: we have about 2 inches of snow on the ground but that is not expected to last. What a perfect time to think about working on your boat.

It was interesting to read the specifications of the boats that raced in 1981 as compared to 1991. It was also interesting to see the dimensions for the width of the centerboard trunks. Especially since three boats were illegal by the published measurements. It was either a misprint or maybe they were grand-fathered when the rules were written. To set the record straight Rule 4.41 states:

- 4.41 The centerboard trunk may be built up inside, providing that the width of the resulting trunk opening in the bottom of the boat is not less than 1 3/8 inches for at least 90 percent of its length. Any configuration of centerboard trunk and centerboard which results in a jibing board is prohibited. Any form of gasket in the trunk opening is prohibited.

Now that we have set this straight, why is this important? If you are not racing your boat it isn't. However, if you plan to race, the centerboard trunk can be a pretty good size brake in the water. How much of a brake? The next time that you go sailing, just place your hand in the water and see how much pressure is against your hand. This will give you an idea of how much pressure is being placed against the trailing edge of the centerboard trunk. If we can make the trunk as narrow as the rule permits, we will decrease this resistance to a minimum.

Here are the materials that you will need to complete this project.

1. A ruler or tape measure
2. Sand paper of various grits from 120-600 grit
3. WEST Epoxy, the 1 QT size will be more than enough
4. 2 yds. of 8 oz. fiberglass cloth
5. 1 bag of silica filler for epoxy
6. Rubber gloves
7. Paper mixing bowls, mixing sticks, disposable brushes
8. a roll of duct tape
9. 3 pieces of string 8 feet long
10. BONDO body filler for Final faring of the hull
11. 1/2 pint of gel coat and hardener

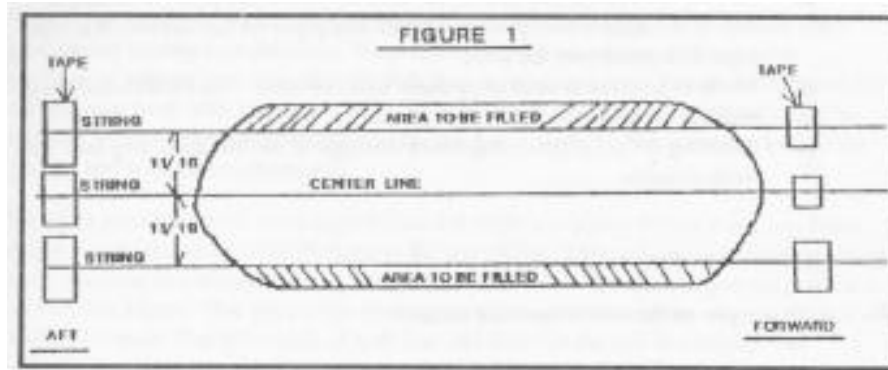
The first step is to remove your centerboard. For the Day Sailer I, this is quite simple. Have someone under the boat to catch the centerboard before you remove the centerboard lever. Then remove the three bolts on the centerboard lever. Sometimes you may have to lift the boat so the centerboard can clear the trailer. It is also much easier if you can take the boat off its trailer and rest the boat on its side or upside down. The Day Sailer II is a little more difficult because of the pulley system for lifting the board.

Measure the thickness of the board. The thicker the board is, the more water you have to push out of the way. The Lindsey boards that have become so popular are 1 inch thick. The board should not be more than 1 3/8 inch thick so it can slide back into the trunk after we make our modifications. This means the head of the board cannot be built up thicker than 1 3/8 inches to eliminate movement of the board in the trunk. Any extra shimming must be done to the inside of the trunk walls.

While the board is out of your boat, weigh it. Rule 4.42 of the class rules states "The weight of the board, including any fillings permanently attached, shall not exceed 25 pounds."

With the board out of the way, it is easier to make the measurements. On the centerline of the hull both fore and aft of the centerboard trunk there is a ridge formed where the two sides of the hull come together. Using the duct tape, secure the string along the top of the ridge forward of the trunk. Stretch the remaining string across the centerboard trunk and secure it to the top of the ridge aft of the trunk. This will give us a reference point for measurement that is on the centerline of the hull.

To determine the proper location of the modifications, first divide $1 \frac{3}{8}$ inches by 2. This equals $1 \frac{1}{16}$ inches. Measure $1 \frac{1}{16}$ inches from the string that is attached to the centerline, and make a mark: on the leading and trailing surfaces of the trunk. Place marks on both sides of the centerline. This gives us the minimum dimension for the trunk opening. It also lines up the opening with the centerline of the hull. Using the other 2 pieces of string, attach them between the marks on either side of the centerline and parallel to the centerline. (See figure 1.)



Now that the strings are in place we can see how much area must be filled in. There are several ways to fill in this space depending on how large it is. The leading 15 - 18 inches of the trunk should be about 2 inches thick because this is a major stress-bearing surface of the centerboard. Using the manufacturers recommended ratios for mixing the resin, we can build layers of fiberglass and resin until we have sufficient thickness. The epoxy resin requires about 24 hours to cure before you can sand or shape the materials. An alternative method is to build slabs that are layers of fiberglass and resin two inches wide and the length of the inside of the centerboard trunk and of sufficient thickness. The thickness is determined by measuring from the outer strings to the wall of the trunk. If you build these layers on wax paper, be sure to sand the surfaces next to the paper before trying to bond to these surfaces. After the layers of fiberglass have cured, they can be bonded to the walls of the inside of the trunk using a mixture of resin and silica filler. Be sure to sand the inside surfaces of the centerboard trunk. To minimize the finishing time, be sure to smooth the uncured resin using one of the wooden mixing sticks. After the resin has cured, you can sand and smooth the surfaces. To fill any surface imperfections, BONDO, an auto body filling compound is the fastest method. You can start sanding BONDO after about an hour.

Once the major repair is completed, sand the surfaces starting with the larger grit sandpaper (150) then decrease the size to a smaller grit (400). Clean the surface with acetone. Finally, mix and apply a thin layer of gel coat to protect the repair. After the gel coat has cured completely, about one week, it can be sanded with 600 grit sandpaper to get a smooth surface. Depending upon your philosophy of hull preparation, a thin coat of wax can be applied.

NOTES:

- o A small belt sander will greatly speed the finishing process.
- o Be sure not to overbuild the additions so you don't have to sand them to fit the board. Be sure to keep the surfaces that will be next to the centerboard as smooth as glass.
- o As you work on the modifications, slide the board into place to be sure it fits. If the resin is wet, place a layer of wax paper on the surfaces that will come in contact with the resin.
- o We have Lindsey Boards (they came with the boat). Our centerboard trunk width is $1 \frac{1}{2}$ inches.
- o Allowing for all of the curing times, this type of modification may take one week or more.

Have a great time working on your boat!

We hope to see you on the race course this summer.