

Installation of the Standard Sabot Leeboard Strut/Clamp Assembly

By Bob Reilly
(with added commentary as noted)

Maria Beamer writes: Boat speed depends on the leeboard installation. It can't be rushed. Measure lots; drill once! Plan a day on the project so that you can get it right. Mounts do go out of alignment, and must be checked twice a year.

1. The first step is to sit the boat in an upright position on an elevated platform blocked firmly in place so that it cannot rock in any direction.
2. The next step is to determine where the assembly is to be located. The Sabot plans indicate the centerline must fall on Station Three. This station is located 35 inches back from the bow of the boat. A tolerance of 1/4 inch (plus/minus) is allowed. The prevailing wisdom is to locate the assembly as far to the rear as is allowed, or 35-1/4 inches back from the bow of the boat.
3. However, it is not the simplest of tasks to determine exactly where "the bow of the boat" is located. Note that the bow of most Sabots at the top of the forward transom is curved and that the middle of this curve actually extends the apparent length of the boat by about 3/8" to 1/2". To determine the actual spot to measure the bow location one must carefully run a straight edge or tape from one side of the boat to the other using the points on either side corresponding to the meeting of the topside and the forward transom. Carefully measure this line and mark the centerline as well as the apparent bow adjustment.
4. Now that the "bow" is determined, the next problem is measuring back the 35-1/4" along a line parallel to the keel of the boat. This is usually done by laying a straight edge across the boat and carefully adjusting it so that either end is equidistant from a right angle line across the bow of the boat. Once you are confident that a true right angle line has been established in the area of station three then the 35-1/4" dimension on the starboard side point can be plotted and marked. Note that the point is to fall on the sheerline of the topside.

Dennis Allison writes: One way to double check the accuracy of the straight edge placement is to measure the distance from the aft transom to the straightedge on both sides of the boat.

5. The next step is to install the black aluminum, right angle bracket on the topside rail so that the center hole of the bracket is on the centerline determined above. I usually position the bracket about 1/8 inch above the rail to avoid later troubles relating to leeboard height. Clamp the bracket in place securely and drill two 1/4 inch holes through from side to side using the holes in the bracket as a guide and being careful to insure that the drill angle produces a hole that passes through the center of the rail. I usually drill in a distance from each side to make sure the hole is properly located.
6. Attach the angle bracket with two 1/4 inch hex head machine screws from the rail in and secured with nylock nuts and washers. I also like to counterbore the outboard end of the hole slightly in order that the washers and nuts sit on a flat surface. It is helpful if the bolt threads do not extend more than 1/8 inch beyond the nuts used.

Rowell Greene writes: When attaching the angle bracket to the rail, I countersink the screw holes on the inside of the angle bracket. I then attach the angle bracket to the rail with flat head screws with locking nuts and washers on the outside of the rail. This leaves the entire area under the angle bracket clear for the vertical bolts and nuts that fasten the leeboard fitting to the angle bracket. I can't tell you how many times the vertical and horizontal pairs of bolts and nuts get in each other's way. Putting the angle bracket-to-rail screws inside-out eliminates this problem, and the nuts on the outside of the rail are located in a safe places beneath the leeboard fitting.

7. I am going to assume here that the boat has been provided with a glassed-in block on the inside chine that will serve as an anchor for the end of the strut part of the assembly. A proper hole to receive the strut must now be bored. First, the hole must be located so that the strut falls straight down from the rail at a 180 degree angle, a fairly simple chore that can be gauged by eyesight.

8. However, not so easy is the location of the hole in such a position so that the finished assembly holds the leeboard at a right angle to the keel of the boat. One solution is to approximate the proper hole location and to drill an oversized hole in the block which will allow the strut tip to be moved laterally to achieve the desired angle. (When the installation is complete the gap in the drilled hole can be filled to hold the strut firmly.)

Slide the strut down through the black angle plate and into the bored hole. The hole must be deep enough so as to allow the flange on the strut to sit flat on the angle plate.

9. Now the flange must be rotated to a position which will have the clamped leeboard in parallel alignment with the keel of the boat. This can be a tedious procedure and requires clamping the strut flange to the angle plate firmly to test the alignment as the installation progresses. I find that clamping pliers such as a "Visegrip" or equal to be helpful here.

10. With the leeboard loosely attached to the assembly swing it up to a position where the trailing edge is approximately at the level of the topside railing and clamp it firmly in place with the leeboard handle nut. Now rotate the flange on the angle bracket so that the leeboard when raised clears the rear topside railing by about 3/4 inch. Clamp the flange and bracket together firmly to hold this initial alignment temporarily.

11. At this point it is necessary to construct a reference line coincident to the keel of the boat. Begin by finding the exact center of the boat on each transom. The bow centerline has already been done at an earlier stage. The stern centerline is simply measured and marked on top of the rear transom. Stretch a cord fore and aft from centerline to centerline, pull taut and clamp firmly in place.

Rowell Greene writes: I use a kite string strung between the centers on each transom to establish the centerline or keel line. I make a small permanent notch in each transom about a sixteenth inch long so that it will be easy to stretch a line and check board alignment in the future.

12. Now carefully measure the distance from the centerline reference cord to the trailing edge of the raised leeboard. That done, loosen the leeboard nut and swing the board 180 degrees and retighten. Again, measure the distance from the cord to the (now) leading edge of the leeboard. When these measurements coincide the board will be in parallel alignment with the keel of the boat.

This procedure may require some adjustment and reclamping at the angle bracket/strut flange intersection to achieve the desired alignment.

Dennis Allison writes: It should be noted at this point that many knowledgeable Sabot skippers prefer the leeboard to have a slight "toe-in" referring to the leading edge's relationship to the keel of the boat, however that adjustment has yet to be clearly demonstrated as being an advantage.

13. When the alignment is considered satisfactory it remains to drill through the leeboard strut bracket holes and through the angle bracket in order to secure the alignment permanently. Again, I recommend 1/4 inch machine screws, but #10 will do as well. Keep both fasteners only as long as necessary to suit the nuts used since the space under the angle bracket becomes rather cramped.

14. Tighten everything down, then recheck the alignments described above.

If the alignment arrived at in step 7 remains true, and this may be rechecked at this time by leveling the boat from side to side and using a torpedo level to assure the correct drop angle of 90 degrees, then fix the strut point in the block permanently by filling any overboring with resin, putty, or similar material.

If the alignment in step 12 remains true, the job may be considered complete. On the other hand, if the final tightening of the installation fasteners causes a misalignment, the easiest way to correct the error is usually by shimming under the angle bracket fore or aft as needed.

15. One last note. If the alignments do not work out favorably despite your best efforts, it is NOT recommended to attempt to bend the leeboard strut to force a better result. The piece is sand cast aluminum and, as such, is prone to fracturing when stressed.