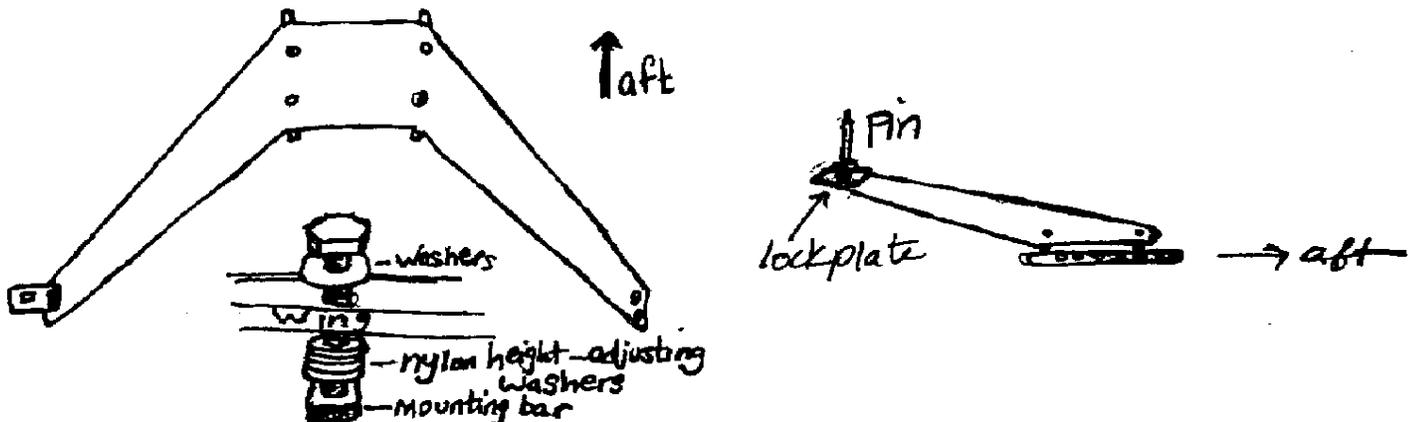


# COMPOSITE ENGINEERING

## Wing Rigger Assembly And Adjustment (estimated time: 2 hours +/- 1/4 hour.)

**Starboard and port mounting bars:** For the starboard mounting bar, put the thick 1/2-inch o. d. washers on the 1/4-20 x 2 1/2 inch bolts, the bolts through the starboard mounting holes, four 1/8-inch thick nylon washers on each bolt, and the bolts through the mounting bar's middle holes—with the longer end of the mounting bar aft. Attach the port mounting bar in the same fashion with three 1/8-inch nylon washers on 1/4-20 x 2 1/4 inch bolts. Put the rigger in place on the boat. (Adjust the forward mounting block set screws if needed.)



**Lockplates:** Attach the lockplates with 1/4-20 x 1 1/2 inch bolts and stainless steel nylock nuts. Use thick 1/2 inch o. d. washers under the nuts. The bolts go down through the lockplates. The square hole for the pin should be off set aft.

**Pins and locks:** Use the large washers under the nuts when attaching the pins tightly. Put six oarlock height adjusting washers (1/10 inch thick x 13 m.m. i. d.) on each pin. Put the oarlocks in place (with bushings appropriate for your pitch). Measure the height of each oarlock above the seat.

**Height:** Adjust the height by changing the number and thickness of the washers on the mounting bar bolts. Always change two at a time, by equal amounts (i.e. add one 1/32-inch thick washer on each starboard bolt, or add on 1/10 inch thick washer on each forward bolt).

**Pitch:** Remove the oarlocks and washers from the pins. With the boat level side-to-side, check the outward pitch. (It will probably be 0.9 degrees out on starboard and 2.3 degrees out on port.) Check the fore-and-aft pitch now: remember to reference off the washbox flange as the track deck is sloped aft. Standard outward pitch is 1.5 degrees, and fore-and-aft is 0 degrees. To change the pitch of the pin, fit a close-fitting pipe (9/16 inch i.d. or less) fully onto the pin, put a pipe wrench on the lockplate, and bend the base of the pin.

### SOME GENERAL VAN DUSEN MEASUREMENTS

- The heels of the shoes are set about 6 3/4 inches (17.2 cm) below the height of the seat, varying somewhat with shoe size.
- Rigger height is set at 15 cm and 13 cm unless otherwise requested.
- Pins are set at 1 2/3 degrees outward pitch.
- Tracks are set about one inch (2.5 cm) through the pin.

Here is a common range of rigging observed in Elite rower's singles (listed in centimeters). If you use these guidelines, remember that they are from Elite rowers, generally competing in the Nationals or Trials.

	<u>Oar Length</u>	<u>Inboard</u>	<u>Spread</u>
Elite Women	296	85 - 88	158-162
	298	87 - 88	160-163
Elite Lightweight Men	298	86 - 87	160-163
Elite Heavyweight Men	298	84 - 88	157-160
	300 (rare)	88 - 88	159-160

### SUGGESTED TOOL KITS FOR VAN DUSENS

The minimum to de-rig your boat and put it back together:

5/32 allen wrench..... rigger bolts and lockplate bolts  
 7/16 open end wrench..... lockplate nuts  
 adjustable wrench..... pin top nuts

If you would like to be prepared for nearly anything:

carpenter's level ..... pitching boat  
 protractor level ..... pitching boat  
 pitchmeter ..... another way to pitch the boat  
 measuring tape..... rigging height, spread, and inboard  
 (inches and centimeters)  
 electrician's tape..... waterproof tape for quick repair of small  
 holes, cracks or pitch change  
 small knife ..... cutting tape, spreading epoxy, fixing  
 lunch, whatever.  
 epoxy kit..... Just in case (note: not polyester!)