Strut plate with rudder

Installation instructions

**Identify the center line**

1. Draw a centerline on the bottom and top of the boat in the aft section. The line should go from the center of the bulk head to the center of the aft point.
2. Using a ¾ inch wood Bit, drill the ¼ inch floor of the boat as close to the aft end as possible on the center line.
3. Disassemble the rudder and strut assemblies from the plate.
4. Place the plate in the aft end with the short end of the rudder shaft support tube in the ¾ inch hole. Center the plate centerline to the line you drew on the top side aft section.
5. Hold the centerline alignment and mark the 4 strut holes.
6. Remove the plate and drill the strut holes with a 5/16 drill. The 5/16 holes allow for small movement of the strut plate assembly during alignment of the propeller shaft.
7. Re install the strut plate and bolt up the strut to the bottom with bolts going through the strut plate. The bolts should be snug but not tight.
8. Check the centerline alignment on the top and bottom.
9. Place the boat bottom side up

Rudder shaft locater block

10. Once the plate is located the rudder shaft tube support block can be installed
    a. center the block over the rudder support tube.
    b. locate the block vertically on the gunwales so that it is perpendicular to the rudder support tube and the fasteners engage the gunwales material
    c. Once adjusted attach the block to the boat hull using the screws.

See the next page for example pictures
Cutting the shaft hull penetration

(11) Slide the propeller shaft through the strut until it contacts the bottom of the boat. Verify the center line alignment. Move strut plate around until satisfied with alignment.

(12) Mark the points on the centerline where the shaft will go through.
   a. Mark both the shaft top and bottom hull penetration points using a ruler layed flat against the ¾ inch diameter section of the shaft. The marks should be around 4 to 5 inches apart
   b. Mark drill centers ½ inch inside the shaft penetration marks

(13) Take a look at the shaft on the boat. You will be making the hole in the boat that the shaft will go through.

Remove the shaft

(14) Drill two 1 inch holes (they should be around 4 inches apart) with the furthest edge of the two holes on the marks you made with the shaft. Use a saw and cut out a straight section between the two holes leaving an oblong hole 1 inch wide.
Interfacing the shaft to the motor mount or bearing support

(15) Flip the boat over.
   a. Make sure the boat supports do not interfere with the shaft or strut.
   b. Reinsert the shaft thought the strut and the hole you made in the hull

(16) a. You will need to have a motor mount to attach the 5/8” bearing to.
    A design of your choice.
   b. Insert the shaft into the bearing on your motor mount

(17) Align shaft to Motor mount or bearing support
   a. Using a square adjust the mount 90 degrees (perpendicular) to the shaft in both x and y planes
   b. Install the bearing
   c. Make sure that the drive shaft and the motor shafts are parallel with each other and perpendicular to the motor mount

Adjust strut and mount for minimum shaft rotational friction

The strut was left loose to allow for adjustment. At this point the objective is to finalize the placement of the strut and mount for the smoothest shaft rotation.
Rudder control cable and linkage

(18) The rudder is provided with a steel collar pivot arm. This pivot arm needs to be drilled to allow for a control cable linkage.

(19) The rudder shaft needs to be drilled so that the pivot arm is perpendicular to the rudder on the desired side of the boat.
   a. Select the right height for the pivot arm then mark the rudder shaft with a marker where the bolt is perpendicular to the rudder.
   b. Use a thin measuring scale to center the drill perpendicular to the shaft. At center the scale will be level as shown in the picture.
   c. With a 9/32" drill a dimple in to the rudder shaft so the set screw can hold.

Do not drill the hole completely through the rudder shaft

(20) The control cable mount like the one shown is an easy method of holding the control cable sheath.
**Final assembly**

Mark the locations of the parts by tracing their perimeters or any method of your choice. Once the adjustment is finalized disassemble the assembly and prepare to fix the parts with epoxy.

The Interface to be fixed with epoxy is the bottom of the rear plate and the rear of the boat. Rough up and clean both surfaces toughly.

**Use the same procedure to assemble and adjust the parts as before.**

Note: Grease the bolts that go through the plate and the strut support angles. Otherwise they will be glued in place.

The epoxy provided by the MWD has a relatively long cure time. This allows for enough time to fine tune the location of the plate and the strut to reduce the friction on the drive line.

![Epoxy Image](image1.png)

The rudder support tube block can be glued in place with Epoxy putty. Commonly found at a hardware store. The putty is packed into the gap between the rudder shaft support tube and the rudder support tube block so that it provides support.

![Epoxy Putty Image](image2.png)

Once the instillation of the kit is final you will need to:

- Select a propeller
- Locate where the propeller needs to be located on the shaft.
- Mark the drive shaft with a piece of tape past the strut and where you want the propeller
- Return the drive shaft to be completed

Contact me at donovanbrothers@gmail.com or (714) 504-8631
**Log / shaft seal installation**

After the parts adjusted, spin freely and are glued in place.

Slide the the drive shaft out enough to add the Log and the Shaft seal assemblies.

Wipe the shaft with a little grease so the seal slides freely. Slide the log and seal assembly onto the shaft enough to allow the shaft to be inserted back into the bearing.

Reinsert the shaft into the bearing.

Slide the log down the shaft until it meets the hull. Do not apply major force to make it fit, The shaft may be bent if to much force is applied.

Check for shaft hole alignment with the log and gaps in the log to hull interface.

Minor gaps can be filled with the epoxy.

Major gaps may require addition of material or modification to the log or hull.

After the fit is good Apply Plastic welder/ plastic repair epoxy ( Ace hardware or Devcon brand) to the hull and log . (Plastic welder is a methyl methaclyate epoxy it bonds to PVC)

Coat the side of of the PVC log with plastic welder to allow next step to bond to the PVC. Allow the Plastic welder to set. (1 hour)

After the Plastic welder is hard and the alignments all still look good make a large fillet of PC7 epoxy paste. This step adds rigidity. Make sure you have filled all the gaps and the complete edge of the log is covered by the fillet.

When the PC7 has set (24 hours) a final coat of west system epoxy over a sheet of fiber glass cloth will ensure that this log will not come free even if the shaft hits an obstruction.
## Invoice

### Client Information

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### Description of Goods

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**Total** $412.00

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PayPal transactions only
add 3% for PayPal transaction

Prices subject to change

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Office Use Only