

DRIVE TRAIN INSTALLATION

RUDDER TUBE, STRUT, DRIVE SHAFT HOLE, MOTOR MOUNT, THRUST BEARING, IDLER SPROCKET, SHAFT LOG, STUFFING BOX AND ALLIGNMENT

Installation Instructions: (Make a center-line on the bottom from stern to bow and on the inside from the stern to the bulkhead, a chalk line works good)

- 1. Rudder tube** (need drill & bit, Philips head driver, Philips head screws, marine glue)

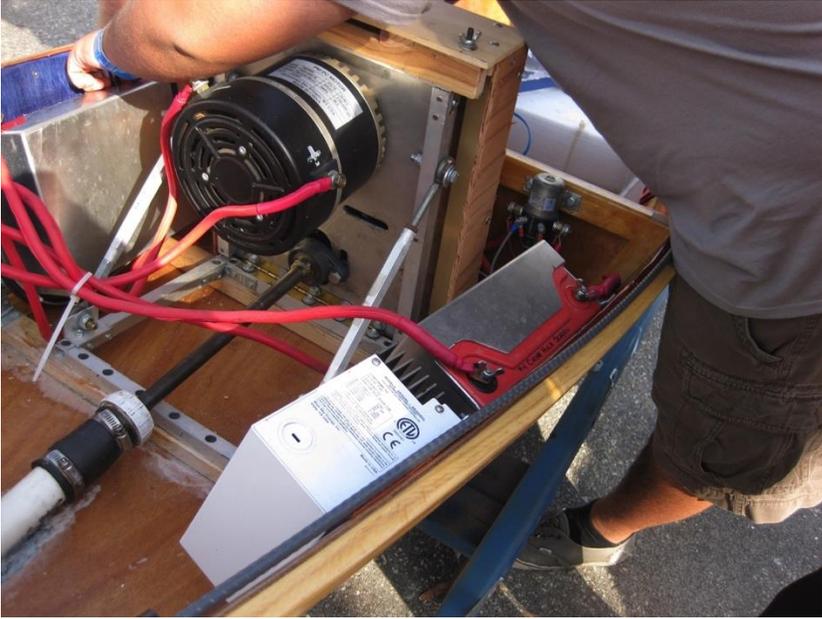
Get a drill bit that matches the diameter of the rudder tube and drill half way through the ¼" floor in the corner where the chines meet in the stern. Turn the boat over and drill from the bottom using the hole you made from the top and drill the rest of the way through. Turn the boat back over right side up and check the fit with the rudder tube. Position the top rudder brace over the tube and on the gunwall so the tube is perpendicular to the floor. Screw to the gunwall. Glue to the floor with the tube flush with the bottom. Apply glue inside around the tube on the floor. Use wax paper on the bottom to prevent gluing to the table. Apply glue around the tube on top of the gunwall brace. Let it sit overnight. (3M 5200 Marine glue works good)
- 2. Strut** (need saw horses, tape measure, straight ruler, pencil, drill bits, bevel head bolts, socket wrench set, Philips head driver)

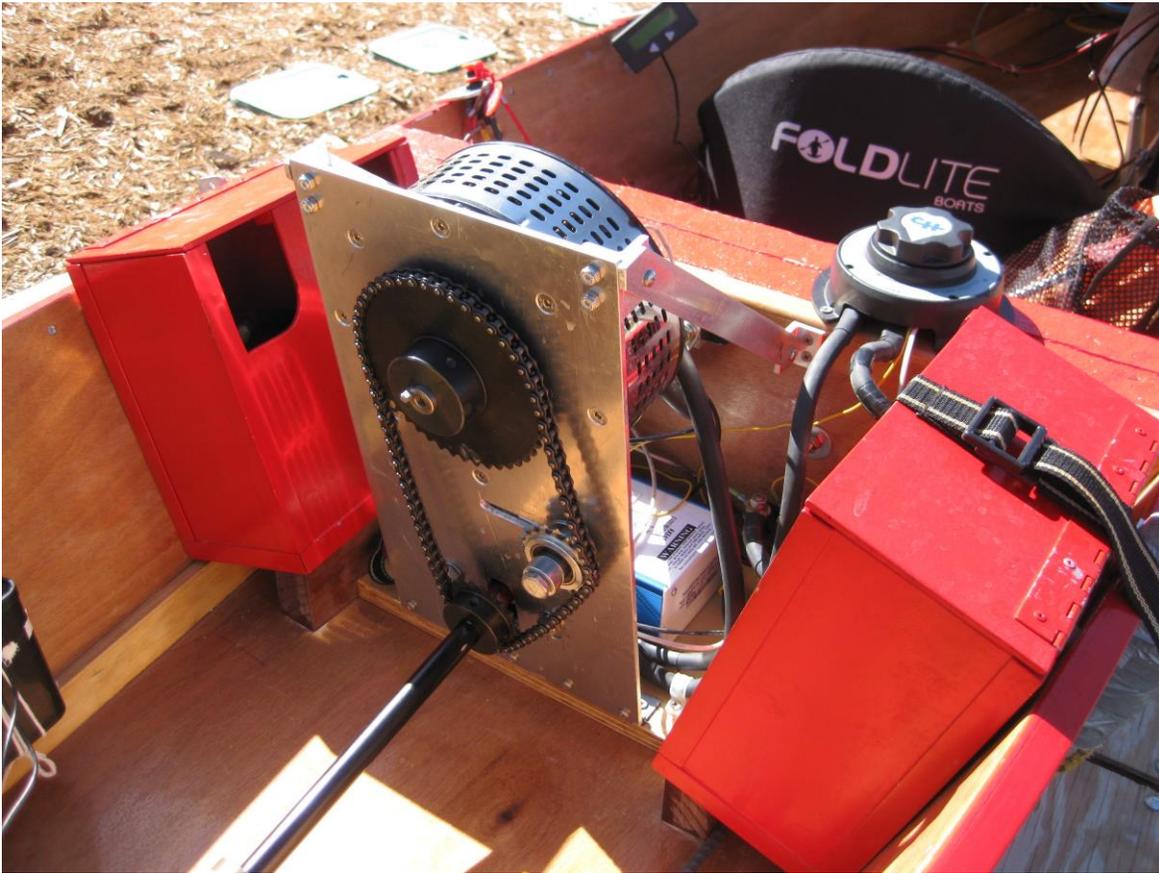
Turn the boat upside down on saw horses and put the rudder through the bottom hole and tube brace. Measure about 10" to 12" from the rudder and make a mark on the center-line. This will be the starting point for the strut. Place the strut on the center-line with the posterior on that mark. Make sure the strut is slanting down toward the bow. Center the strut and draw the bolt holes on the bottom of the boat. Pick a drill bit slightly larger than the bolts and carefully drill the bolt holes in the bottom. Loosely bolt the strut to the bottom with the reinforcing plate on the top and the beveled bolts on the bottom. **Do not glue or seal the strut yet.** With the boat upside down align the strut, hold in place and tighten the bolts.
- 3. Drive Shaft Hole** (Saber saw, straight ruler, pencil, drill bits, drill; ½ round file)

Still upside down, insert the drive shaft through the strut until it hits the bottom of the boat on the center line. With a pencil mark that spot. Hold a ruler on the shaft until it reaches and touches the bottom of the boat forward of the first mark. Mark that spot on the center-line. Remove the shaft. Move both marks forward and back 1/8". Use a ruler to draw a pencil line along the chalk line between these two marks. Draw two 1" diameter circles (a quarter will work) centered on the ends of the line. The ends of the line should touch the outer edge of the circles. Draw tangent lines on the outside edges of both circles. This will form a rectangle with circular ends that you will cut out for the driveshaft. Prepare a saber saw with a fine metal blade. Drill a start hole on the inside edge of the curved end of the drive shaft hole with a 1/2 " drill bit (large enough for the saber saw blade to fit through. Carefully cut out the marked floor piece.

Reinsert the drive shaft through the strut and now through the shaft hole you just cut. There should be a 1/8" gap on the sides of the shaft as it passes through the bottom of the boat. If the shaft rubs against the curved edges of the hole you will need to sand or file the hole on a slant to accommodate the shaft with about a 1/8" gap.

- 4. **Motor Mount** Discuss options and choose a motor mount design:
- 1.





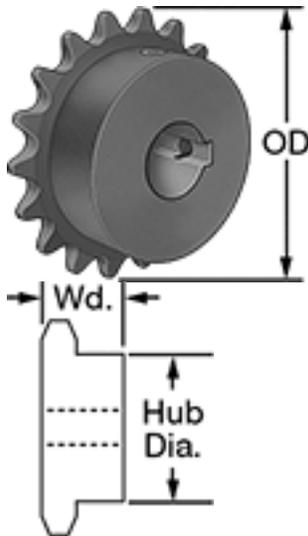
Notes: The master switch must be in attached in front for easy access, not behind as shown.

The motor can be put on the backside of the motor plate if desired.

The chain can run inside of the idler sprocket for better stability.

TRANSMISSION (parts from McMaster-Carr)

Finished-Bore Sprockets for ANSI Roller Chain



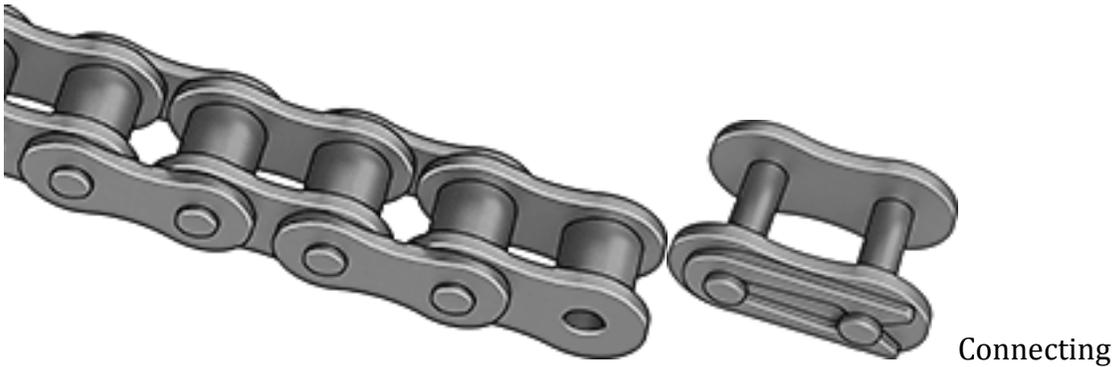
No machining necessary—these steel sprockets are ready for mounting on your shaft. They have two set screws and a standard ANSI keyway.

For ANSI No. 35 Chain (3/8" Pitch)

No. of Teeth	Bore Size	OD	Wd	Hub Dia.	Standard Teeth	Each
40	7/8"	4.99"	1"	2 1/4"	6236K25	\$41.2

Finished-Bore Sprocket for ANSI Roller Chain for #35 Chain, 3/8" Pitch, 40 Teeth, 7/8" Bore

ANSI Roller chain #35, steel, inch, 3/8" pitch McMaster #6261K172, \$3.90/foot



link

Connecting links

#35, McMaster-Carr #6261K191, 3/8" pitch \$0.82 each



Brass Key stock: 3/16" X 12" \$3.03 McM #98500A117

Roller chain breaker (wrench drive) McMaster-Carr \$39



Motor



ME 909 evdrives.com

Brush-type Permanent Magnet DC motor

Very high efficiency. Capable of 4.8 KW continuous and 15 KW for 30 seconds.
For voltages from 12 to 48 VDC input and 100 amps continuous (300 amps for 30 seconds)

Shaft	7/8"x 1-5/8", 3/16" key Timed for counter-clockwise rotation (can be changed to clockwise)
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Weight: 24.1 lbs

Speed: 84 rpm per volt

See Motenergy ME0909 Performance Data doc. @ evdrives

Price: \$374