Roller Furler Design

by Paul Pilon

Introduction:

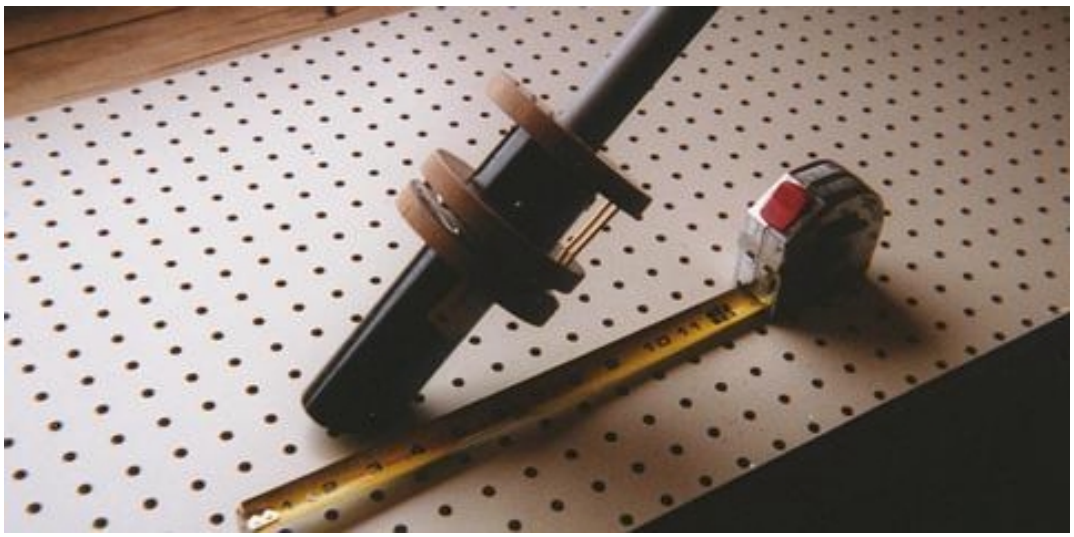
This is a homemade roller furler designed and built by Paul Pilon in 2001. It was designed for the Siren 17, a small 17 foot sloop rigged sailboat manufactured in the 1980's in Canada.

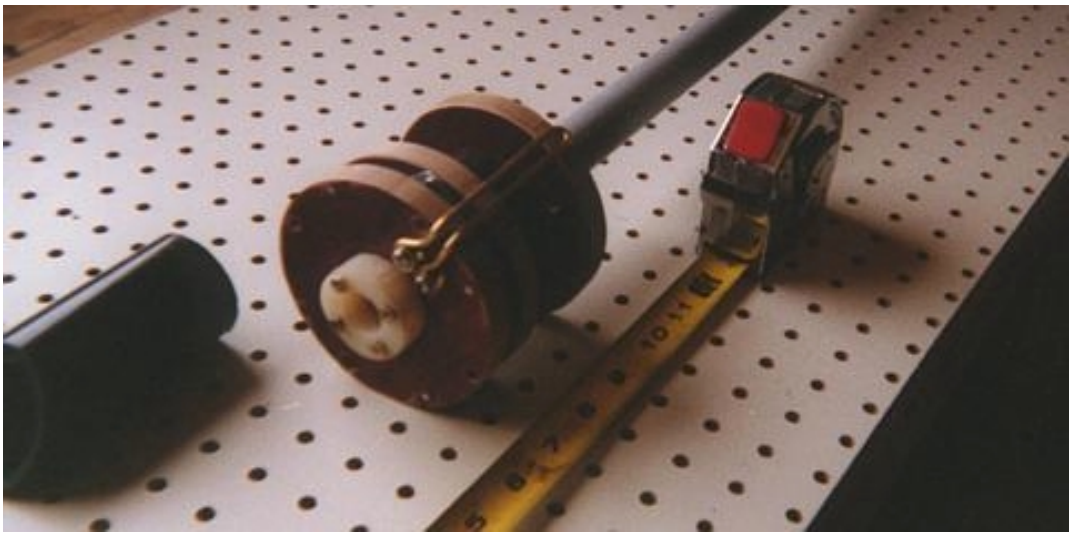
The Siren was unique for many reasons, not the least of which was its use of a stock furler on such a small, affordable trailer-sailer.

Paul's design is a successful attempt to bring a designed furler system into the realm of home-built projects.

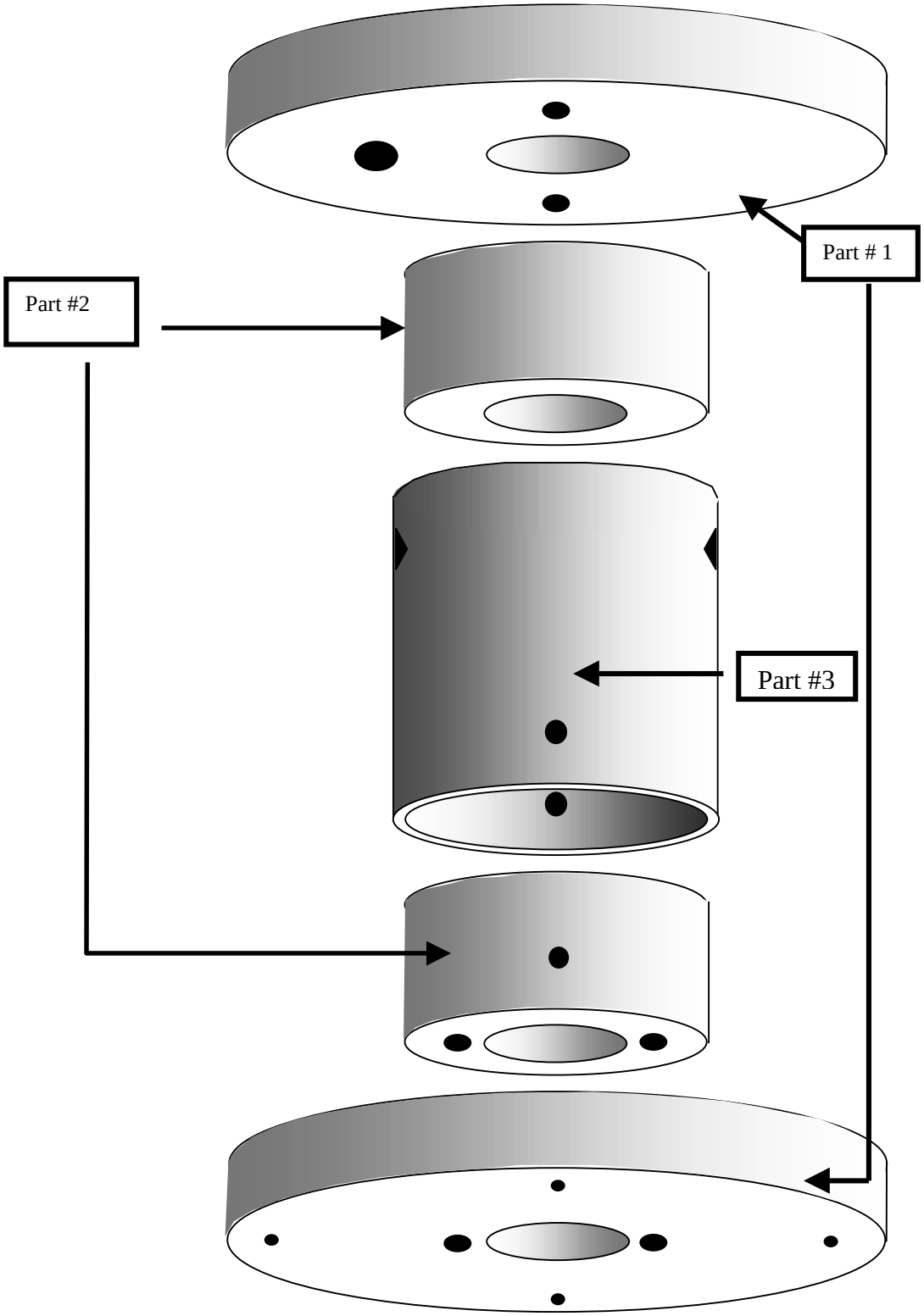
Notice: No claim of suitability for any boat is made or implied. These drawings are provided with the permission of Paul for the general dissemination of ideas. Paul retains all rights and copyrights to this material.
For comments to the designer, email him at paul_pilon@hotmail.com

Tom Stockwell

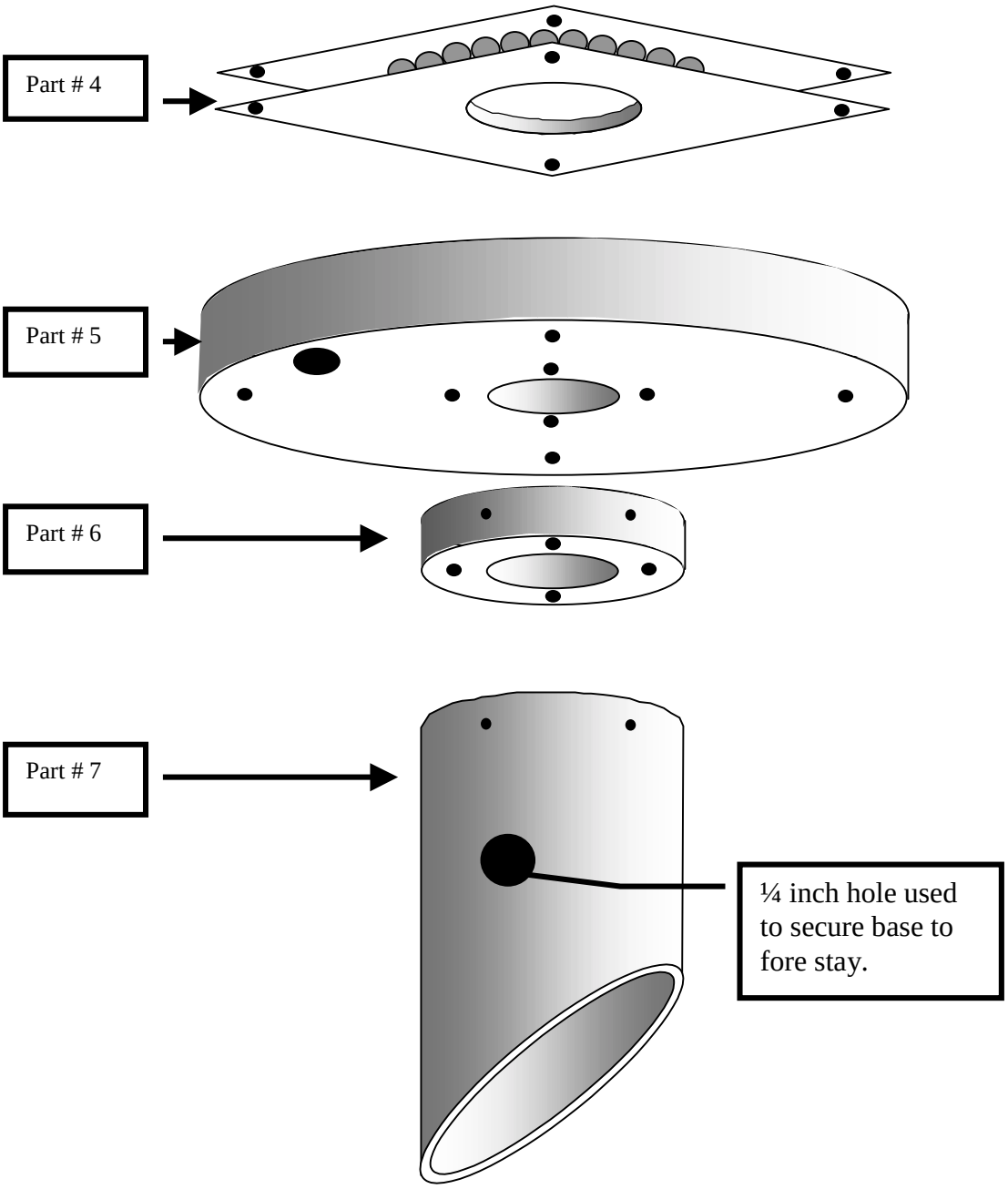




Assembly 1: Parts for drum, and pilot holes for screws.



Assembly 2: Parts for base, and pilot holes for screws.



Part Descriptions

Part 1:

Description:	4-inch disk on drum
Material:	Resin material. Wood is acceptable if well treated for outdoor conditions.
Quantity:	2
Dimensions:	Outer Diameter = 4 inches Inner Diameter approximately 1 inch. Use the 3/4 inch ABS conduite as a guide. Conduit must fit snuggly inside disk. Width of disk = 1/2 inch

Part 2:

Description:	Disks inside drum
Material:	Wood
Quantity:	2
Dimensions:	Outer Diameter approximately 1.5 inches. Use the 1.5 inch ABS joint as a guide. Disks must fit snuggly inside joint. Inner Diameter approximately 1 inch. Use the 3/4 inch ABS conduit as a guide. Conduit must fit snuggly inside disk. Width of disk approximately 1 inch. When inside 1.5 inch ABS joint, wooden disk must be flush with surface. Sand down any excess material.

Part 3:

Description:	1.5 inch ABS Joint (normally used to connect two 1.5 ABS pipes together).
Material:	ABS
Quantity:	1
Dimensions:	Outer Diameter approximately 13/4 inches. Inner Diameter approximately 1.5 inches. Width of disk approximately 2 inches (1.5 inch ABS joint comes in a set size. There is no need to cut it.

Part 4:

Description:	3 inch "Lazy Susan" bearing with a hole in the center.

Part 5:

Description:	4-inch disk on base
Material:	Resin material. Wood is acceptable if well treated for outdoor conditions.
Quantity:	1
Dimensions:	Outer Diameter = 4 inches Inner Diameter approximately 3/4 inch. This hole needs to be big enough to allow the fore stay to go through.

Width of disk = 1/2 inch

Part 6:

Description: 1.5-inch disk on base
Material: Teflon. Wood is acceptable if well treated for outdoor conditions.
Quantity: 1
Dimensions: Outer Diameter = 1.5 inches
Inner Diameter approximately 3/4 inch.
Width of disk = 1 inch

Part 7:

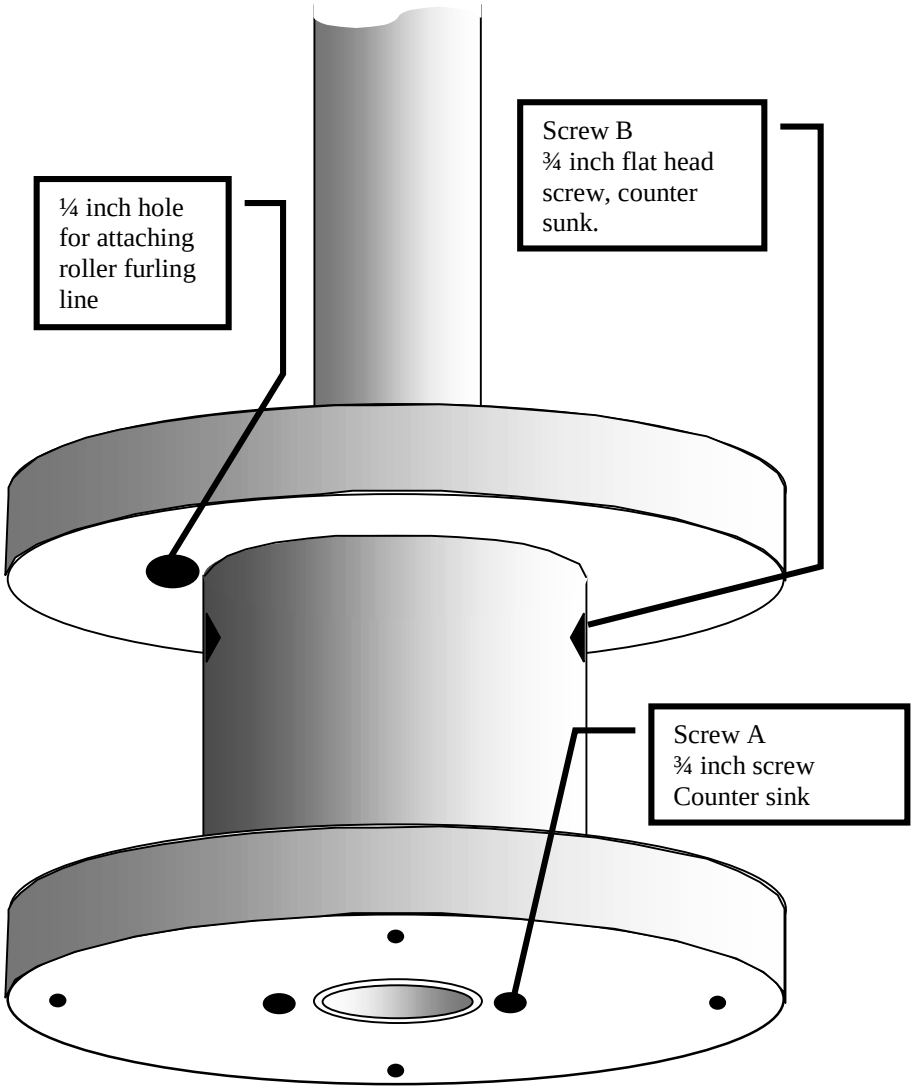
Description: 1.5 inch ABS pipe cut squart at one end and cut at approzimately 77 degrees at the other end (the angle of the fore stay at the bow is approximately 77 degrees). The length of this pipe depends on how high you want the roller furling off the surface of the bow. A 1/4 inch hole is drilled through the pipe to allow for a bolt to pass through it and the loop at the end of the fore stay. The exact position of the hole will not be known until the roller furling is actually installed.

Assembly Instructions

Step One: Drum Assembly.

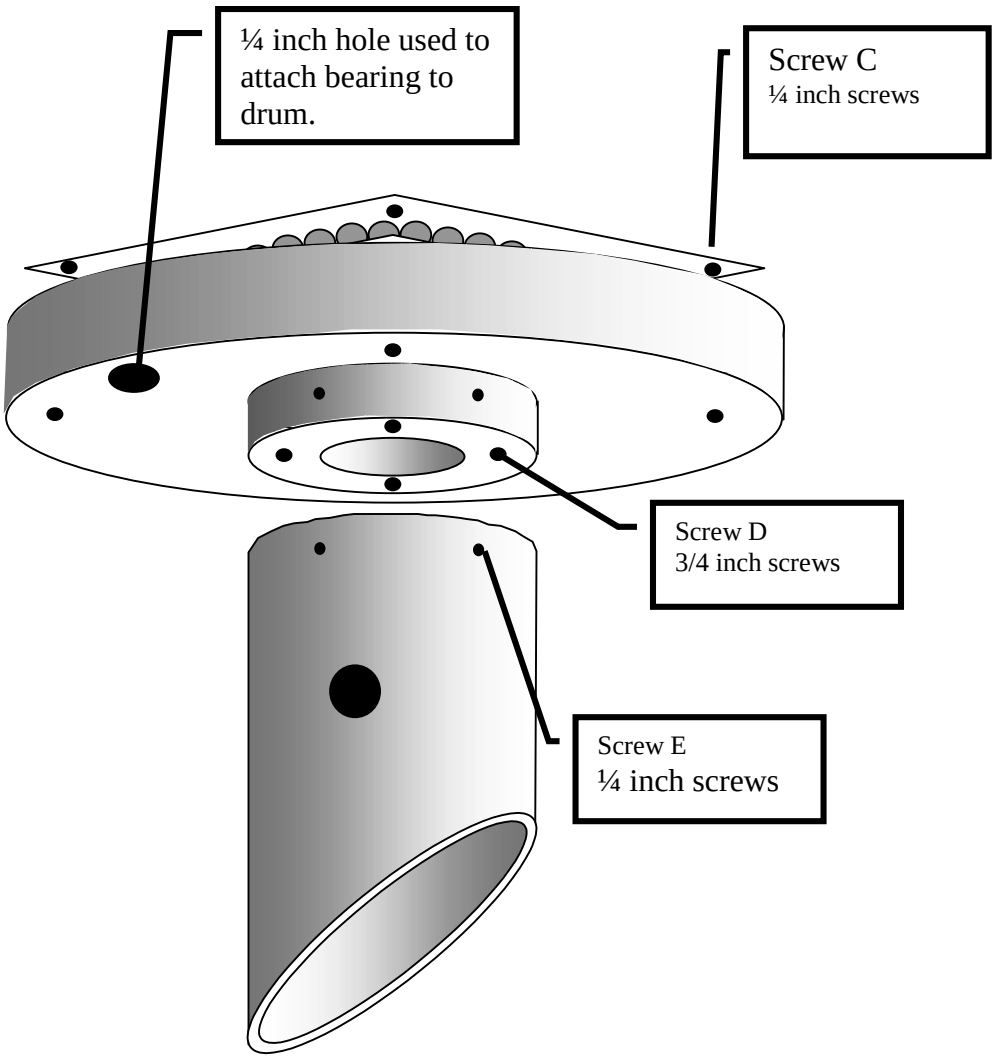
A. Asemble drum on end of ABS conduit (conduit needs to be longer than luff of sail. If necessary cement two 10 foot pieces and cut to size).
B. Secure 4 inch disks onto wooden disks inside the drum using ¾ inch screws (Screws A).
C. Secure Conduit to drum using ¾ inch screws (Screw B).

Note: Ensure that the screw penitrates into the conduit, then file down the excess so that the inside of the conduit is flush. Otherwise, the tips of the screws will rub against your fore stay.



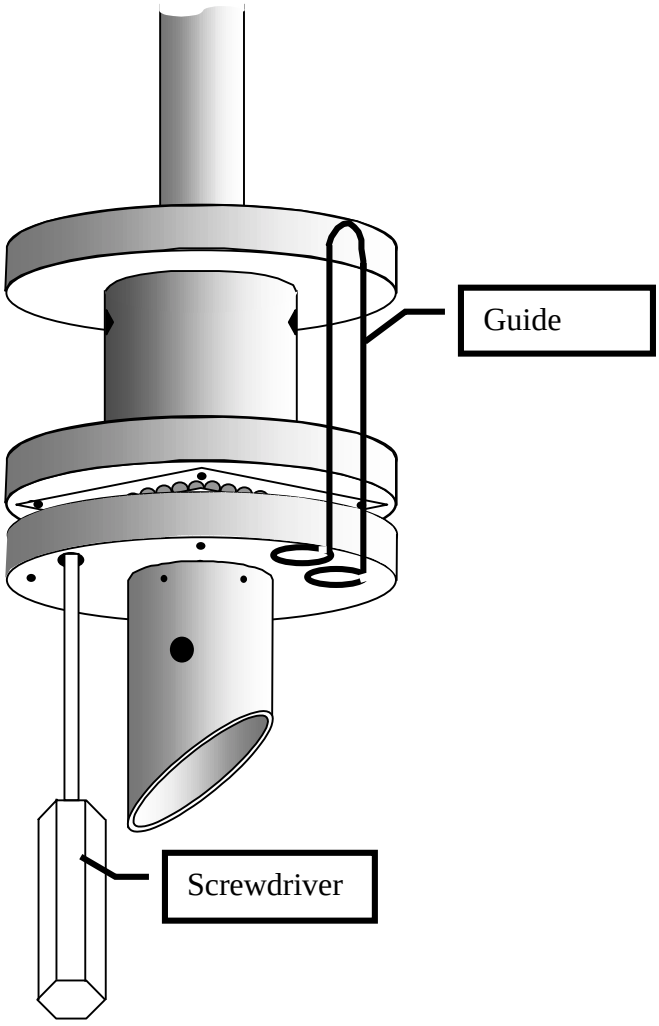
Step Two: Base Assembly.

A. Attach "Lazy Susan" Bearing to 4 inch disk (screws C).
B. Attach 1½ inch disk to 4 inch disk (screws D).
C. Attach ABS pipe to 1½ inch disk (screws E). Be certain that screws do not penetrate past the inner diameter. If so, file down the excess.



Step Three: Complete Roller Furling.

A. Attach base of roller furling to drum. Use the hole in the base to attach the "Lazy Susan" bearing to the drum. Only one hole is necessary. Simply rotate the base in order to place each screw in the bearing.
B. Bend a brass rod into the shape of a guide and secure to base using washers and screws.
C. To protect bearings from rusting, it would be useful to coat it with wheel bearing grease, and perhaps fashion a cover attached to the drum that would prevent dirt and water from entering, and the grease from exiting.



Step Four: Installation.

A. Attach the luff of the foresail to the ABS conduit. I intend to use thin line wrapped several times around conduit and through the grommet, and then cinch the loop. This offers no sharp edges to damage the sail.
B. Thread the fore stay through the conduit (remove the shackle if necessary).
C. Secure the forestay to the bow of the boat (the mast needs to be raised either before or during the installment of the roller furling).
D. Thread a bolt through the 1½ inch pipe at the base of the roller furling, and thread the bolt through the loop at the end of the fore stay. This will secure the base to the bow of the boat.