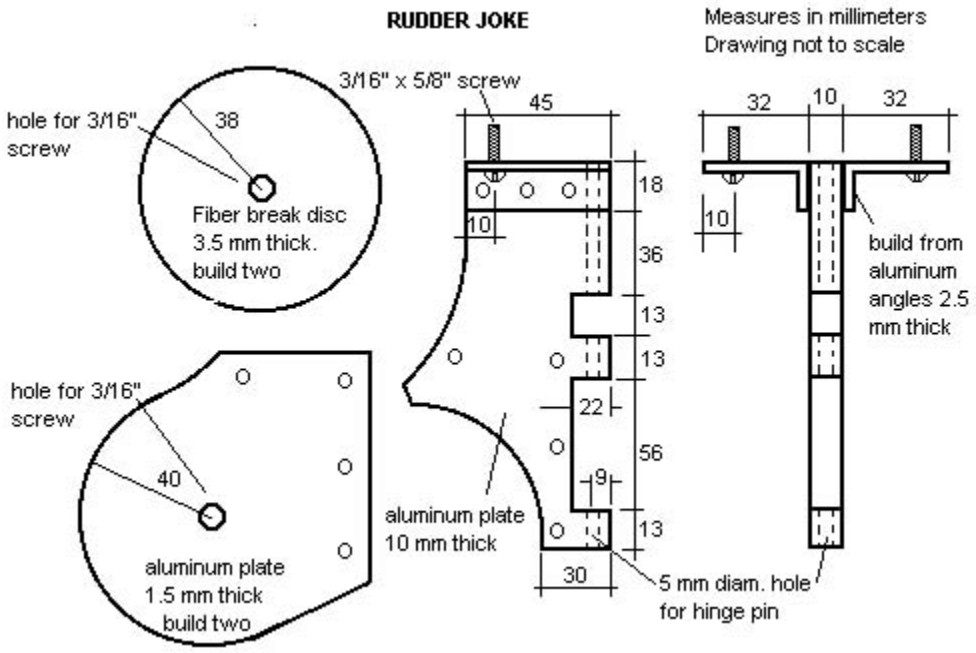
Rudder building

Rudder Joke

Build rudder joke from a 160 x 90 x 10 mm aluminum plate. Use the “RUDDER JOKE” drawing as guide of main dimensions. Hinge pin hole requires to use a 5 mm diameter long drill bit. It is the most delicate procedure because a slight deviation may cause the hole stay out of center of the piece. I did the work with a hand drill, attaching the piece in a bench vice, starting the hole with a 3 mm bit, one half hole from each extreme, then the complete hole is finished with the 5 mm bit.



The two angles which serve as support for the rudder horn, are riveted to the joke with 3 aluminum rivets. The two plates which acts like support for the rudder plate also are riveted to the rudder joke with 4 aluminum rivets. Use for it 3 mm diameter rivets.

Rudder horn

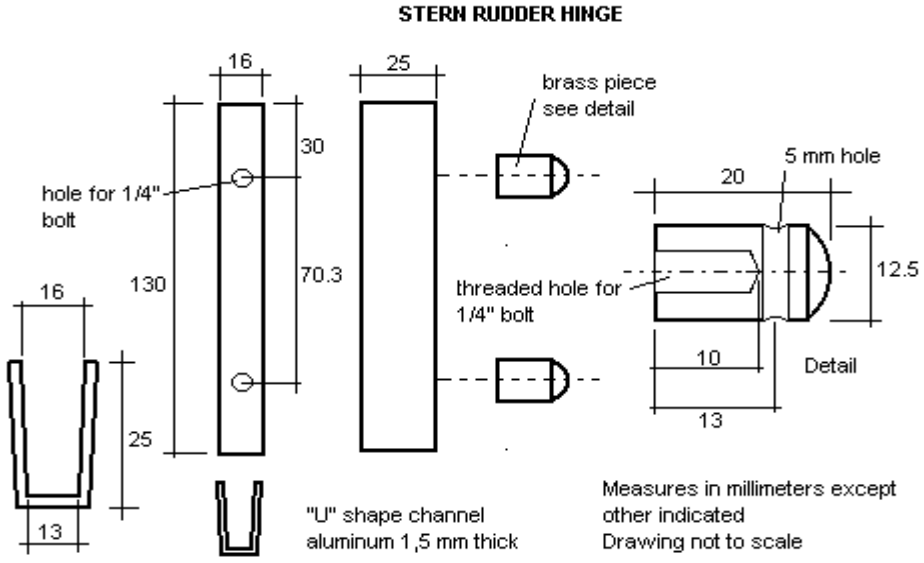
The rudder horn is fixed to these angles with two 3/16” screws and butterfly nuts to ease the assembly. Both screws are screwed to angles in threaded holes. To avoid the screws becoming loose, put a drop of “Loctite 290” nut fixer in the thread before screw its.

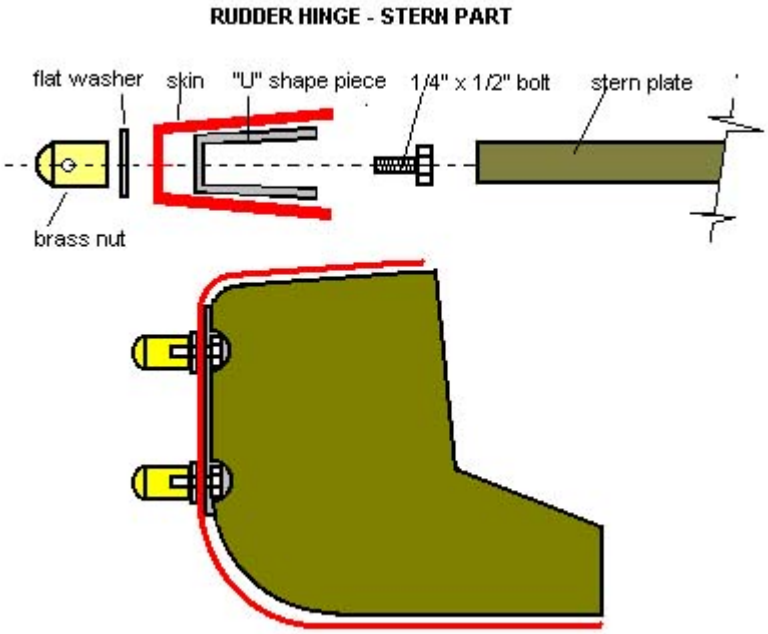
Rudder plate

The rudder plate is fixed to the joke with a 3/16” screw, which acts like pivot, two flat washers and locking nut.
Between the rudder plate and joke plates there are two “brake discs” built with phenolic fiber. These discs have the mission of permit to slide smoothly the rudder plate and avoid it fall abruptly when the lift cord is loosened. Adjust the brake action by the adjust of the 3/16” screw and locking nut.
The rudder plate is made from a 3 mm aluminum sheet. The shape may vary. Use the drawing as approximate guide. The total rudder surface is about 0.088 square meters.

Rudder hinge

Rudder pin acts like hinge axis. It has a ring in one tip, which is welded in place with silver weld. It acts like guide for the rudder lift cord. To take out the rudder when the boat is disassembled, just take out the pin, then take out the rudder.
The fix part of rudder hinge is in the stern. See the following drawing. This piece is fixed to the skin. The “U” shape piece goes in the inner part of skin, fixed in place with 2 ¼” x ½” bolts and flat washers. The brass pieces acts like nut and the hinge pin passes through its.
When the skin is installed, the stern plate wedges in the “U” piece and support the complete rudder. The bolt’s heads wedges in the semicircular slots in the stern plate. See the following drawings.





A thinner and lighter rudder plate may be build using 2 mm thick (0.0787”) 5052 alloy to replace the 3 mm thick aluminum indicated in drawings.

