

*A brief look at what it took me to build a Wakeboard tower*



I would like to build a wakeboard tower for our '98 Ski Nautique.  
I am following the general shape of an existing design used by Correct Craft for their Air Nautique. But I like the angled top tubes of another tower design I've seen, so it isn't a direct copy.

[Flight Control Tower 1](#)

[Flight Control Tower 2](#)

[Flight Control Tower 3](#)

I have selected 1.75"OD x .125" wall Aluminum Tube. 6061 T-6. Size was selected because of the bender dies. Alloy was selected because that is just about all that I could find/afford.

A good supplier for materials is:

<http://web.archive.org/web/20040605075114/http://www.onlinemetals.com/> To help with bending I'll pre-heat the bend zones with a propane torch (turns out it wasn't necessary).

For modeling the tower I needed to get the boats basic shape into the computer. I did this by taking a top picture of the boat off of CorrectCraft.com and scaling it to the right size. I guessed on what the actual lower hull looks like and it has no interior features. For this project I was only interested in the top deck and windshield location and shape. You can play and/or look at the file for yourself:

SolidWorks 2001+: [nautique.sldprt](#)

Iges file: [nautique.igs](#)

STL file: [nautique.stl](#)

SAT file: [nautique.sat](#)

Pro/Engineer file: [nautique.prt.1](#)

Step version 203: [NAUTIQUE 203.STEP](#)

Step version 214: [NAUTIQUE 214.STEP](#)

Some views of the proposed Tower:



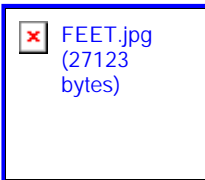
[Iso View](#), [Side View](#), [Front View](#), [Folded view](#)

The design drawings for the Tower:

[Front hoop](#), [Lower hoop](#), [Rear Hoop](#), [Front pivot B](#), [Front pivot](#), [Front Plates](#), [Rear Plate L](#), [Rear Plate R](#),

[Elevation view](#), [Top View](#), [Tow Point](#), [Rear mounts](#), [top tubes \(3\)](#), [Side Elevation](#)

For mounting the tower to the boat there are plates on the top side of the boat (4 top plates). Each top plate has four flat head socket screws going thru the top plate, boat hull, bottom plate, washers, nylock



nuts.

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Bent the tubes over the weekend! [Eric and Mike](#) bending a tube. The [bent tubes](#). Picture of the [Bender](#) used. No heat was needed to bend the tubes, but was necessary to form the tubes by hand to 'fine tune' the tube shape. Using the cool temperature crayons we were able to control how hot we got the tubes.  
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Built a [fixture](#) for the tubes, cut all tubes to the correct length. It [looks good](#) on the boat, even with all the 2x4's and unpainted. Best of all it all fits in the garage still  
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Cut the top oval tubes (3" wide x 1.25" diameter, .140" wall) fitted to the two upper hoops and tacked into place.

I did this by [laying the top oval tubes down flat](#) on a welding table then attaching the two hoops at the

needed angle. I hope it all turns out o.k. because something is not quite perfect in measuring it all. I'm not too worried about the small measurement problems because the ends of the legs flex quite a bit because of the missing side tubes. The side tubes should pull all the ends in just where they need to go. It now looks [like a real tower](#), or at least real tower pieces.

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 Clamped the tubes together [on the boat](#) to get a feeling on how it would look. Keep in mind that the driveway and the boat are tilted down, so the tower looks like it is [tilting down some](#). The tow point will be about 6' 8" above the floor. Also clamped it in the [folded position \(another view\)](#) to see if I could still back it into a garage. It fits by about 3/4". I need to cut some more off the back tubes to give it more clearance.

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 Welded the whole thing together. This project has definitely worn me down. About 6 hours design time. About 8 hours on lathe and Mill. About 8 hours TIG welding Aluminum. I'm still not done.

Cost so far:

\$180 for 5x12' 1.75od tube,

\$160 for 20' of oval tube,

\$30 in Stainless Steel hardware,

\$40 in silicon rubber, and about

\$50 in misc. material.

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 Latest [picture of tower](#). Mounted it all onto the boat, going to weld the last two tubes and the tow point on tonight. The final part to get machined was the [tow point](#).

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 Its been almost two months of work.

Once again rolled the [boat out](#) of the garage to fit the bimini. Plan from the beginning was to save some money, and one of the ways of doing that was to re-use the existing bimini. The tower needs a narrower bimini so, I cut about 8" from the center of the bimini frame then re-joined them with .75" brass water pipe coupler that fit just right. As you can tell by the pictures the [bimini looks quite loose](#) on the frame. [Another view](#). The bimini fabric is being taken in 8" this week, by a sail maker. Cost to sail maker... two cases of Corona Beer due at delivery. Folded [down view 1](#), [down view](#), still fits in the garage! Work that still needs to be done: Make and weld on bimini mounts, weld on wake board/ski racks, finish welding the side tubes and tow point, weld on flag holders(?), make and weld on brackets for speaker/light bar, remove tower then powder coat, and finally, re-install

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 Ordered the wake board rack and ski rack from

<http://web.archive.org/web/20040605075114/http://www.wakedesigns.com/>

Part Numbers: WBR-NUB (Wake board rack in white) qty: 1

WSR-NUB (ski rack in white) qty: 1

WM (nubs that will be welded on frame) qty: 4

Total cost with Shipping: about \$414.00

Total: \$~1050 (with racks, painted, everything!)

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 Got all the Wakedesigns stuff in the mail (finally, as they were backordered on the ski rack). Very disappointed in the design and fit of this product. Maybe next season I'll have my own design.? Picture of the boat and tower with all the trimmings at Lake Powell:



***Newest pictures!!!***

painted 1.jpg (49632 bytes)	painted 2.jpg (48195 bytes)	painted 3.jpg (38417 bytes)	painted 4.jpg (29962 bytes)	painted 5.jpg (36261 bytes)	painted 6.jpg (82153 bytes)
painted 8.jpg (20757 bytes)	hard holes to drill.jpg (23983 bytes)				

It is now painted!!! (\$230 in powder coating)

The above pictures show things like the underside of the hull and what the plates look like.

The bimini mounts, I welded on a small block of aluminum, and tapped it.

The backing plates use a closed cell foam that helps contour to the underside of the hull.

4/2004 Changes/Modifications:

The welded on locations for the Wakeboard racks and ski racks have been inconvenient. They are too high and too far forward; it was too hard to use them. So I made some new brackets for them that let me mount them lower and farther back on a different tube. I'll have more pictures soon...



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If anyone has questions regarding building a tower for their boat, send an e-mail to [matteo92117@hotmail.com](mailto:matteo92117@hotmail.com).

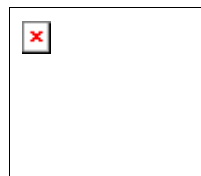
Here are some of the [e-mails](#) that I have received over the past two years. (updated 04/2004)



I can provide all detailed drawings, of any tower shape, and force analysis on the boat. I can't build it for you or tell you where to have it built. I can only help you with the design/plans, and maybe advise.

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To checkout the computer analysis of this tower and others:



[Tower analysis page](#)

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[Frequently Asked Questions](#)

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[LINKS](#)

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[CAD Files and Viewer software](#)

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[Bayliner tower project](#) -- another tower design

[2001 Ski Nautique Tower project](#)

[A tower for Mark](#)



[Designing and prototyping a new WakeBoard Rack!!](#)

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Check this site out:

<http://web.archive.org/web/20040605075114/http://www.inboardtalk.com/>

Post your comments.

Do you have a boat? Take pride in it? Post a picture it on [InboardTalk.com!](http://www.inboardtalk.com/)

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[The final issue;](#)

### Should I keep this site up?

The bill for the Web server came due today (8/7/03) and I am questioning whether to keep it up another year or not. The yearly cost is \$90/year. I think this is fairly cheap server and is usually reliable. I have been trying to keep this site updated and answer all the questions that have been e-mailed to me. I've been doing it for two years now and I'm wondering if I should be the sole supporter of this project.

I looked into different options and am going to go with a "donate" button from [www.Paypal.com](http://www.Paypal.com). If this covers the cost then I will keep the site up. If not then this will be the last year this site (and the Inboardtalk.com Forums) is up. I will update this web page to show what money has come in and what the balance is. I am not trying to make money on this, just cover my expenses.

#### [BALANCE WEB PAGE](#)

If anyone else has any ideas, let me know.

Thanks for your time,  
--Matt

[Make a Donation](#)

