



Stern view of lift system with "safeties" in place.

It seemed like such a simple question: How do you lift an old, wood boat? However, when I decided to add a couple of caveats: (1) safely and (2) lifting within an existing residential garage, things became complicated with astonishing speed. This is the story of one man's journey to lift his 1946 Chris-Craft 20-foot Custom Runabout for a routine bottom paint job.

PRELUDE

You may have read my first *Brass Bell* article a few issues in the past. I am the wood boat novice who purchased a 1946 Chris-Craft Custom Runabout two years ago (see Fall 2007 issue). After two seasons of constant use, our boat, *Old Soul*, was in desperate need of a bottom paint job, so, last Fall, I innocently decided to make the job one of my Winter projects. Looking back, it would have been a lot cheaper and easier to hire someone for the task. But—as fellow wood-boat enthusiasts, you can certainly understand that I could not let such a challenge go unmet.

When Bill Baldwin asked me to write this article, I assumed he was kidding. All my other "boat buddies" had taken great glee in poking fun at my boat lift. He was just another *rable-rouser* taking a cheap shot. Turns out Baldwin doesn't take cheap shots when it comes to *The Brass Bell*; he was serious, so that is how I shall start the story.

SAFETY & DESIGN MESSAGE

Lifting your wood boat is a serious matter for a lot of reasons—two of the most important are: *Personal Safety* and *Finance*. First: if you fail to lift your boat properly, it can result in an accident in which you are seriously injured or even killed. Second: should you drop your boat, even from a short height, you will likely cause serious damage to both the outer hull and possibly the internal superstructure. In either or both cases, a little research can save both your life and your money.

I am the President of both a Consulting Engineering Firm and a Design/Build Firm. Unfortunately, I have a great deal of



Bow view of lift system with "safeties" in place.

accident investigation experience. This article is not a "design recommendation." It is simply a feature on how I decided to lift our old wood boat. As a Professional, my suggestion is that you consult with a properly licensed engineer or experienced local contractor before you begin.¹

BOAT BUZZ

Early on in the process, several Club Members (RDC Chapter, Antique and Classic Boat Society, Inc.) suggested that I post a request on the Chris-Craft Antique Boat Club Web site. For those of you unfamiliar with this service, there is a free, online forum called, Boat Buzz. You simply log in to the site, post your question, and wait for a response. You will receive more free advice than you could ever imagine. Here is my original posting from January 1, 2009:

I have a 1946 & a 1948 Chris-Craft Custom Runabout (approximate weight 4,000 lbs.). From time to time it would be nice to lift the boats off of their trailers to work on the bottoms (paint mostly). Can anyone

suggest a gantry crane manufacturer or safe method for lifting the boats within an existing garage? Thank you in advance.-RK-

INSTANT SUPPORT FROM MANY FRIENDS

In little more than an hour, I received an automated response from the site administrator. Help was indeed on the way, for, in the next two months, I received an almost overwhelming amount of quality suggestions and recommendations. For a complete copy of my posting & the responses visit: <http://www.chris-craft.org/discussion/viewtopic.php?t=3162>

BOAT BUZZ SUGGESTIONS

I gleaned a number of suggestions from the Boat Buzz Forum. In general, they fell into the following categories:

- » "Homemade" Gantry Cranes
- » "Professional" Gantry Cranes
- » Modifying Existing Roof Truss Systems
- » Custom-Designed "Built-In" Systems
- » Professional-Grade Manufactured Support Systems



The responses ranged from good-natured “kidding” to serious advice. Many of the responses contained detailed information, included suggested Web sites, and were often accompanied by excellent photographs. If you use this service, be prepared for a considerable amount of banter. It would appear many of the participants know one another and glean a great deal of pleasure in taking “pot-shots” at each other.

Since I was primarily interested in gantry cranes, I’ve included only that information, but believe me, when you tap into Boat Buzz, you learn about everything. A “filtered” version of gantry-crane information from the Forum follows:

Gantry Cranes

When I first heard the term “gantry crane”, my mind conjured up a vision of a medieval war machine. For those of you unfamiliar with the term, these lifting devices are loosely defined as follows:

Gantries are comprised of a horizontal beam supported by columns.

The “thickness” (height & width) of the beam varies with the “span length”. In other words, the longer the span length between the supports, the larger (stronger) the beam must be.

Columns vary from single post to a modified “A”-frame.

“Professional” Gantry Cranes

Most professional gantry crane systems are made of metal. The columns are often an “A”-frame at the base with vertical shaft connecting to the horizontal beam. In some cases, this shaft is adjustable to account for load and ceiling height restrictions. Desirable features include: portability; wheeled bases; light weight; and foldable for easy storage. “Lift” comes from either a chain hoist or electric winch.

Several professional gantry crane systems were suggested by the Boat Buzz forum included the following:



Closeup of aft hoists.



Nylon straps attach chain hoist to stringers.

- » *Vintage Race Boat Shop* has an “A-frame” that breaks down for storage. Information on the lift can be found at their website: www.vintageraceboatshop.com.
- » *Spanco* makes an aluminum adjustable gantry crane. It is “real nice”, but not cheap. They come from 1 to 10 tons. Here is the link from the local rep in Michigan (2-ton shown): www.lgh-usa.com/pdf/LGH/Hoisting_web.pdf
- » *Northern Tool and Equipment* offers a number of portable gantry cranes of varying span and lifting capacity (500-8,000 lb.). These cranes can be located through their website: www.NorthernTool.com
- » *Numerous Other* sites can be found by Googling: Gantry Crane

HAUNTING ADVICE

I don't know Matt Smith, or as we say in North Carolina “I never met thah-man.” But Chris-Craft Antique Boat Club member Matt offered a bit of *haunting advice* during one of our

exchanges. Bill Basler had suggested the rather elaborate (and darned expensive) lift system manufactured by Kundel. Matt's response went something like this:

That's the ticket... The Kundel one is amazing and the way to go... You could also flip your boat ... then open your own restoration shop, need a bigger barn, and cranes ... more boats ... and have to be nice to folks who want their boats fixed in one day ... while you are secretly dreaming of the day that you just pay a guy to do the work....

At first, I thought my plea for help had been answered by a “*madman*.” But ya' know, the more I thought about Matt's comments; it all began to become clear to me. I needed to purchase that lift for the Lake Cottage garage, quit my day job, and open a restoration business. Surely, with the lower stress level I would live longer and make tons of money. I liked the idea and even approached my spouse Cindy about the concept. Her response was most appropriate: “you and your dogs can all move up to the lake cottage and start your little business. The



Nylon straps attach chain hoist to stringers.



Closeup of nylon straps.



Winch system for pulling boat and trailer into garage.



Boat and trailer nearly backed out of garage. Note five-gallon buckets holding chains.

children and I will be here in Raleigh with all of the sane folks.”
Hmmm...Somehow, I did not like the tone of her voice.

WEIGHING THE OPTIONS

Looking back, it really, *really*; would have been much cheaper to have paid someone to paint the bottom of the boat. However, in the end, I decided what was right for me: “build a wooden lift.” For grins, I listed some of my reasons below:

- » I am easily bored and looked forward to a challenging project.
- » While I do not drive fast sports cars or sky dive, something about lifting my classic wooden boat (on a lift that I designed and built) seemed exhilarating. It is no wonder Cindy lets me collect wood boats. On more than one occasion I have heard her tell a Friend: “Look, it is not a strange hobby...he works hard; does not hang out in bars or chase other women; besides, I can always find him, he is in the garage.”
- » I could custom-build the lift to my specifications, dimensions, and allowable space.
- » I could make it portable for transporting between our home and the lake cottage.

TAKING MY OWN ADVICE

In the beginning of this article, I talked about Safety. For a lot of reasons (mostly licensing and legal), I will not get into specific design recommendations.¹ However, I will tell you that I followed my own advice and sought the counsel of both a structural engineer and a construction expert. Running a Design and Build Firm does give some advantages over our average reader. Here are some of the things I learned from these folks:

Always start with a firm foundation. Hmmm...that makes sense. I am six feet, four inches tall, weigh about 260 pounds, and wear a size 15 shoe. God, Mother Nature, or my Mom must have known what they were doing. I used a four-foot, four- by six-inch base and four-foot, four- by six-inch columns

Know your load. One size does not fit all. Each lift must be designed and built for the specific load that is being suspended. Additionally, you must consider not only the “ultimate lifting capacity” (static load), but its “working capacity” (dynamic/live load). In layman’s terms, it is easier to lift a sleeping baby than a screaming; red-faced; devil child.

Load Placement is critical. Where you place the load on the horizontal beam is important. The “worst case” scenario is placing the entire load at the center of the beam. The “best case”, is to divide the load and place one-half on each side of the beam, closer to the column. That is to say: it is easier to break a stick in half by stepping on the middle; than stomping on the ends.”

Horizontal Beam. The longer the span between the columns, the stronger the horizontal beam must be. Common ways to increase “wood” beam strength:

- » Deepen the height of the beam.
- » Lashing multiple members together.

- » Use a “fitch-plate” (plywood, steel, or other) sandwich between lumber
- » Substituting a steel I-beam for the wood member works great also.

Look for the “weak links.” Your lift is no stronger than its weakest member. Some areas to watch out for are:

- » Attachment points between the base and column
- » Attachment points between the column and the horizontal beam
- » Any metal hardware used at lifting points. An example is the attachment point between the horizontal beam and the chain hoist(s). My lift uses an I-bolt. What I found was that my local building supply stores only carried eye-bolts rated to 300 lbs. This is far less than you will need unless you are lifting a small wooden canoe.
- » Ultimately, I obtained some electric transmission line hardware from our “sister” construction company rated at 20,000 lbs! *Aurgh! Aurgh!*


Chain-hoists. Common lifting devices include: coffin-hoist; chain-hoist; and electric winches. Like a lot of wood boat enthusiasts (novice to commercial), I chose a chain-hoist.

- » Remember the old adage: “a chain is only as strong as its weakest link.”

HOW TO ATTACH THE LIFT TO THE BOAT

Late Fall 2008 presented a wonderful boat ride on the Albemarle Sound in eastern North Carolina. Close friend, Lonnie Sieck provided the opportunity in his gorgeous 1940 Chris-Craft 23-foot Custom Runabout *Symmetry*. Bundled-up against the elements, we sped across golden waters shimmering in the late afternoon sun. What a way to live!

It was during this ride, we decided how to attach the boat to the lift system. There were a number of ways, including: cradle, slings, or lifting-eyes. Cradles and slings present a problem since they partially cover the bottom work-area. Using the boat’s built-in lifting eyes is probably the simplest. However, if they are in poor condition, they can fail, leading to structural damage, personal injury, or both.

As Lonnie and I rode along that afternoon, he made a simple but effective suggestion. Take the seats out of the boat; attach a nylon sling around the stringers: one under the front seat, the other behind the transmission; insert a spreader bar between the runners (keeps them from pulling together); attach to slings to the lift; lift the boat. Hmmm...why didn’t I think of that before? 

¹ *Important Note: Shop practices, such as lifting boats can be very dangerous. The method illustrated in this story worked for the author using extreme caution and proper safety precautions. It is the responsibility of each Chris-Craft Antique Boat Club member and/or reader of The Brass Bell to research and devise a method that works safely. The Chris-Craft Antique Boat Club, The Brass Bell, and its contributors cannot review shop practices, workmanship, or safety procedures, and therefore cannot be held liable for any shop practices or accidents that may occur.*