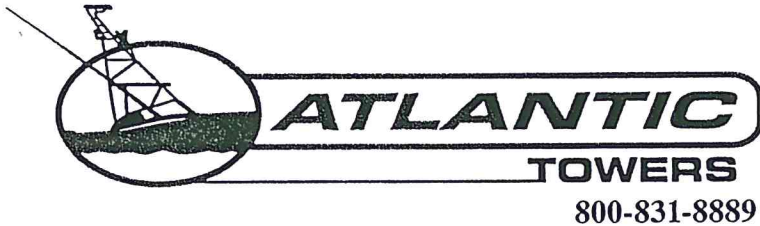




HALF TOWER/ HARDTOP INSTALLATION INSTRUCTIONS

- 1) Locate structure in approximate position over boat. Use temporary support stands as needed and tie off structure to prevent movement from sudden wind gusts or shifts in weight.
- 2) Re-install any legs that may have been spliced for shipping. Use locking compound such as "Loctite #262" on threaded fasteners. Be careful to maintain proper orientation of legs (i.e., port/starboard).
- 3) Center structure over boat using a plumb-bob. Locate fore/aft as per drawing. NOTE: Dimensions shown here are approximate: use a tolerance of $\pm 2"$ - $3"$.
- 4) Structure must now be leveled. First check side to side by taking measurements from sunshade down to bridge sole. Next, structure must be leveled fore and aft. At this point the installer has some leeway. It is recommended that the structure not be raked forward, but rather be parallel with the water line or raked aft just slightly 1° - 2° to match the pitch of the bridge deck or a prominent feature line. (See Figure 1)
- 5) Check height of structure. See drawing first for any special notes. As a general rule of thumb, if the structure has an overhead electronics box the bottom of the box should be between 68" and 70" from the bridge sole.
- 6) Having set the height, steps 3- 5 should be checked once more. If any trimming of legs is required, remove pin from leg, cut squarely as needed and reinsert pin.
- 7) Using self-tapping fasteners, lock in position- one or two fasteners in each pad of the main legs will be fine.
- 8) Locate positions of sway brace pads using drawing as a guide. Again, use a \pm tolerance of 2" - 3". Trim pipe as needed, reinsert pins and secure pads with 1 or 2 self-tapping fasteners.
- 9) Follow Figure 2 in permanently installing all pinned connections. Use a permanent thread locking compound on these fasteners (Loctite #262)
- 10) Using spacer blocks as needed and back up plates, permanently install main legs with pads to boat (Figure 3). Use same procedure to install all sway braces.
NOTE: Extra length and pins may have been added to main legs for shipping purposes. Bear this in mind when fitting tower, or consult drawing for specific details. Extra pins for actual installation have been included in a separate kit.



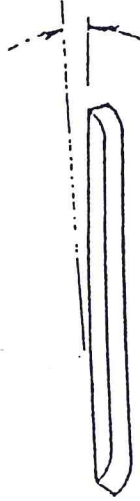
LACING ON FABRIC TOPS OF HALF TOWERS

While almost any lacing pattern is fine, as long as you can pull it tight, the one we prefer is the traditional awning lacing.

Find the middle of the lacing line and begin at the forward center of the top. This way you can work 1/2 way around the top, and be pulling the minimum amount of the line at each grommet.

From the inside, put the line through the center grommet and pull until 1/2 the line is through, take the free end and pass it to the right of the standing line and put it through the next grommet to the left from the inside. Repeat the process until you have worked around to the center of the aft edge of the top. Go back to the front and now work around to the right.

GOOD



GOOD



NO GOOD

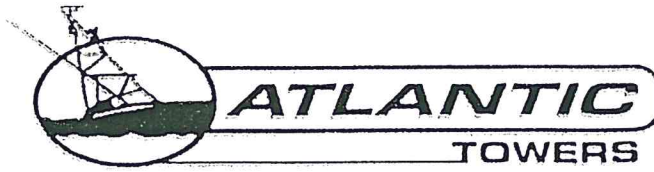


42

42

FIGURE 1

②



INSTALLATION OF M100, WB009 & OTHER ATLANTIC TOWER FITTINGS INTO SCHEDULE 40 ALUMINUM PIPE

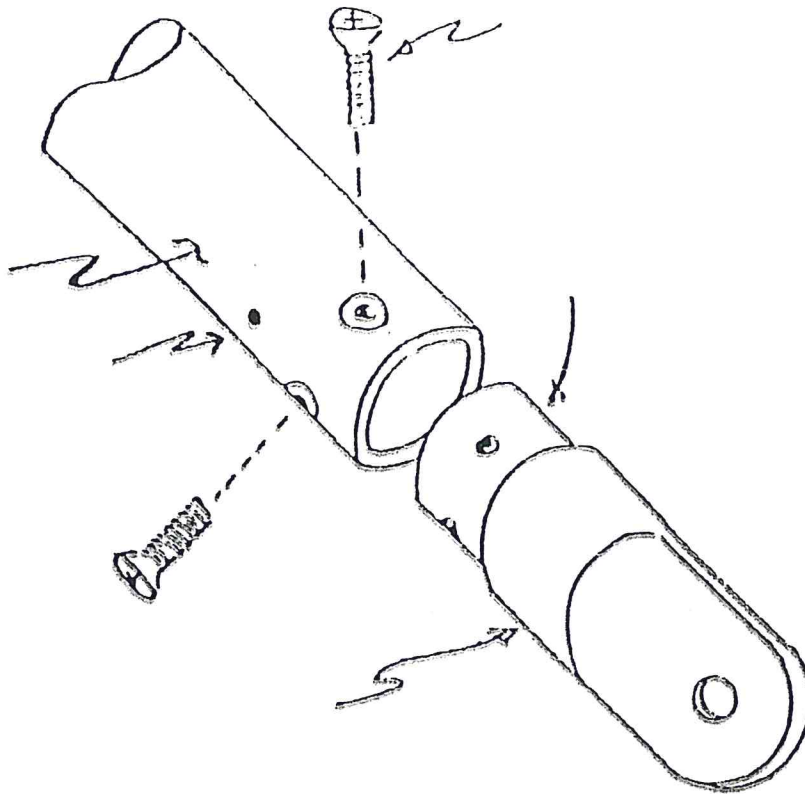


Fig. 2

- 1) DRILL & TAP AT 90 DEGREES FOR 1/4-20 MACHINE SCREW
 - 2) COAT END OF SOLID FITTING WITH 2 PART EPOXY
 - 3) INSTALL 1/4-20 MACHINE SCREWS WITH LOCTITE OR OTHER THREAD LOCKER (OR DIP THEM IN EPOXY)
 - 4) CLEAN EXCESS EPOXY QUICKLY
 - 5) DRILL 1/8" WEEP HOLE 1-1/2" ABOVE END OF PIPE
- *** IF YOU DO NOT WANT TO TAP HOLES, IT IS OK TO DRILL ALL THE WAY THRU THE PIPE AND FITTING AND INSTALL A 1/4-20 X 2-1/2" BOLT ALL THE WAY THRU

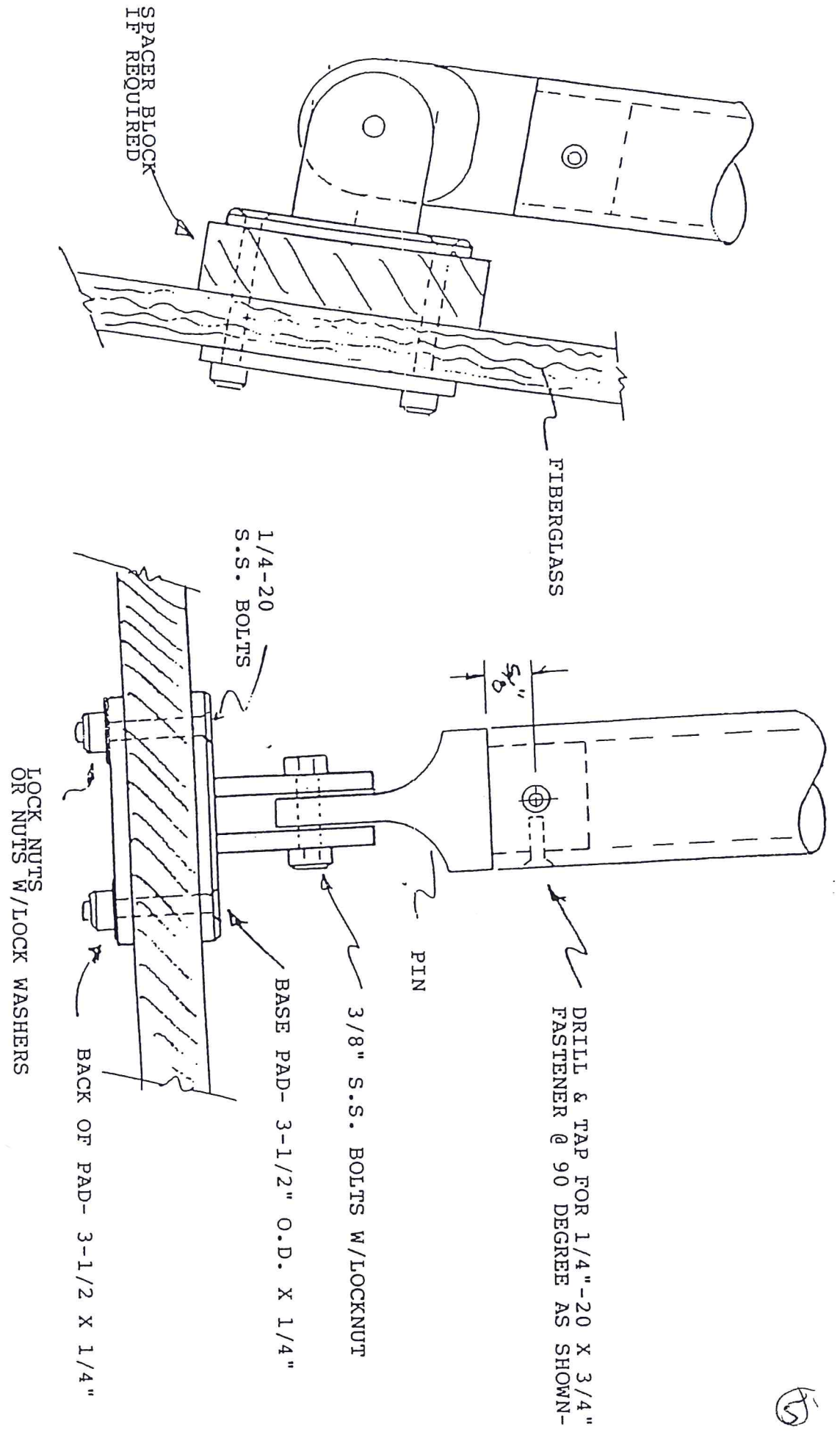
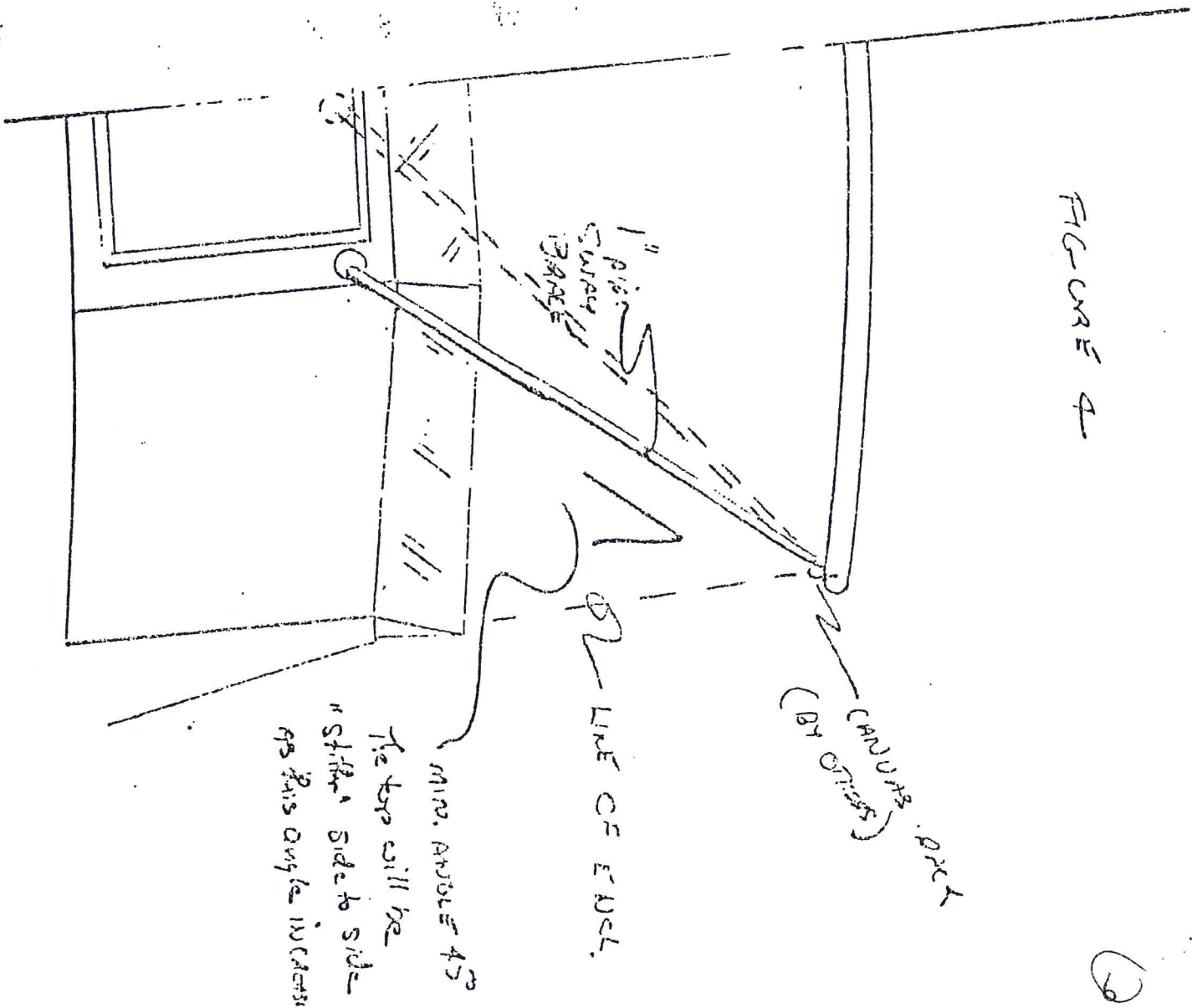


FIGURE 3

TS

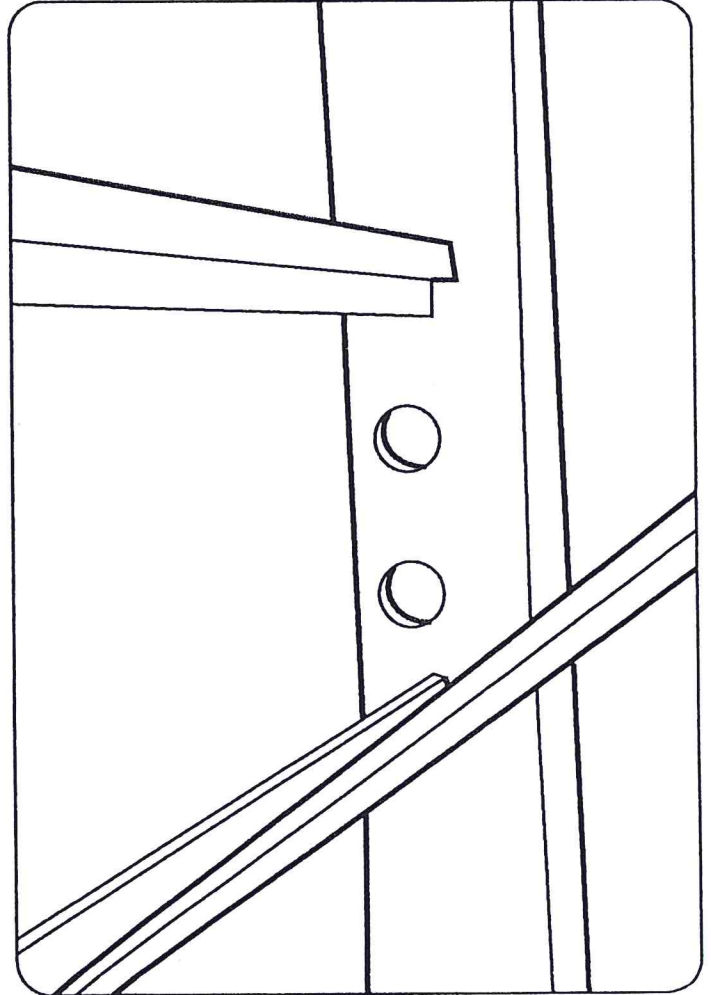
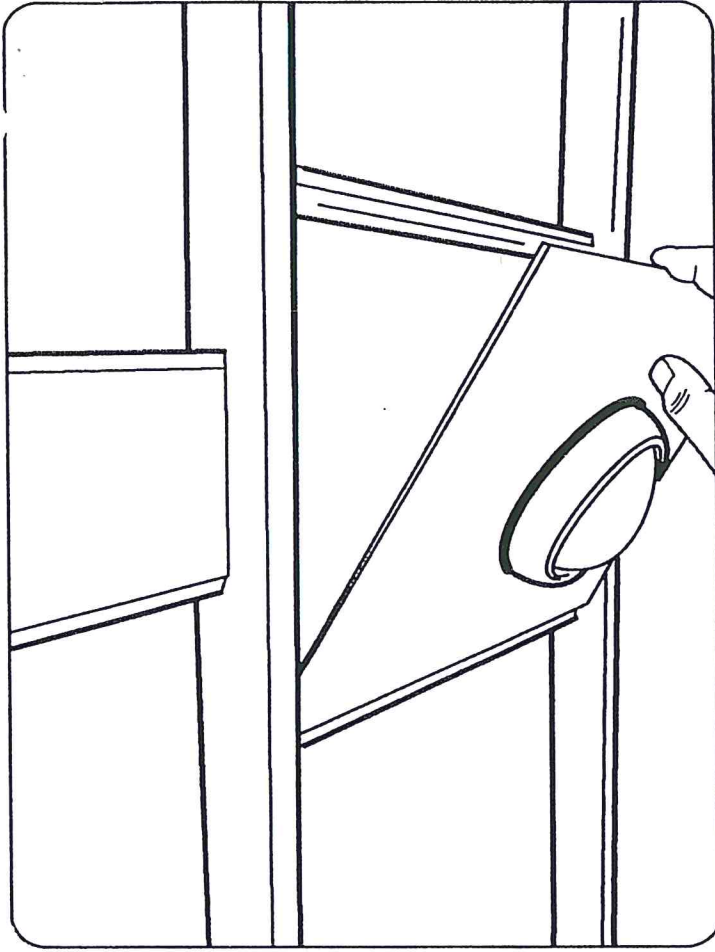
FIGURE 4



ATLANTIC TOWERS

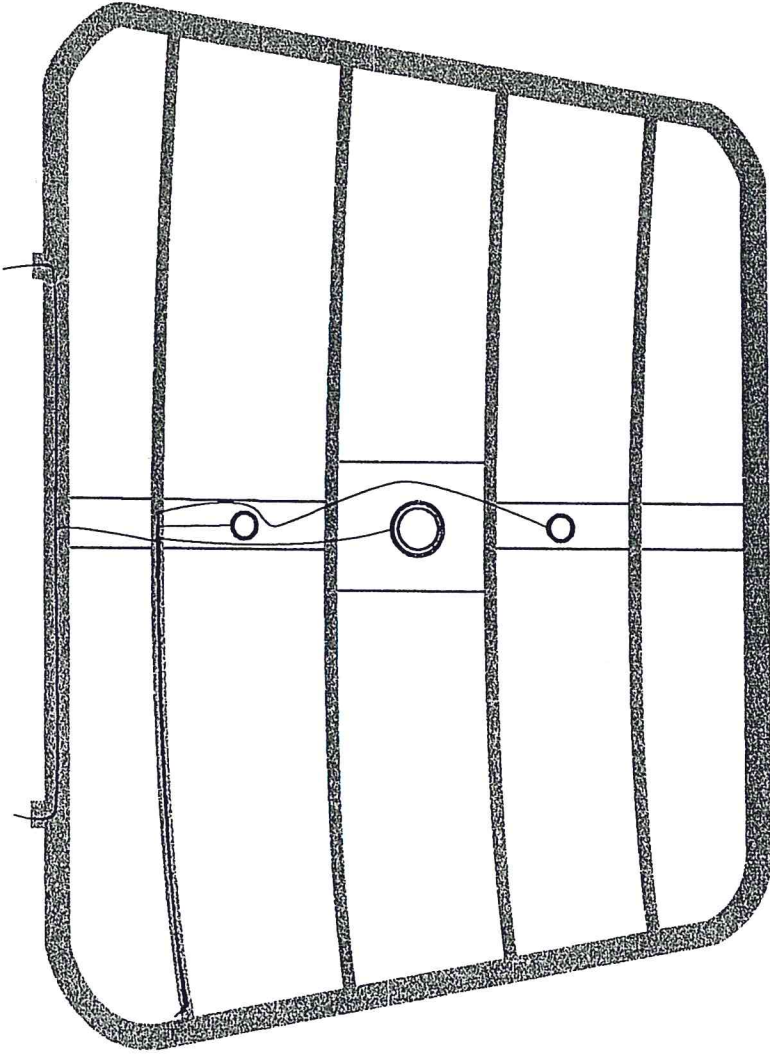
WIRING INSTRUCTIONS

- Remove white cover panels.
- Drill holes through carlin that are no more than $3/4$ " in diameter and a distance of 1" apart.
- Drill through carlins until you reach the rear carlin.

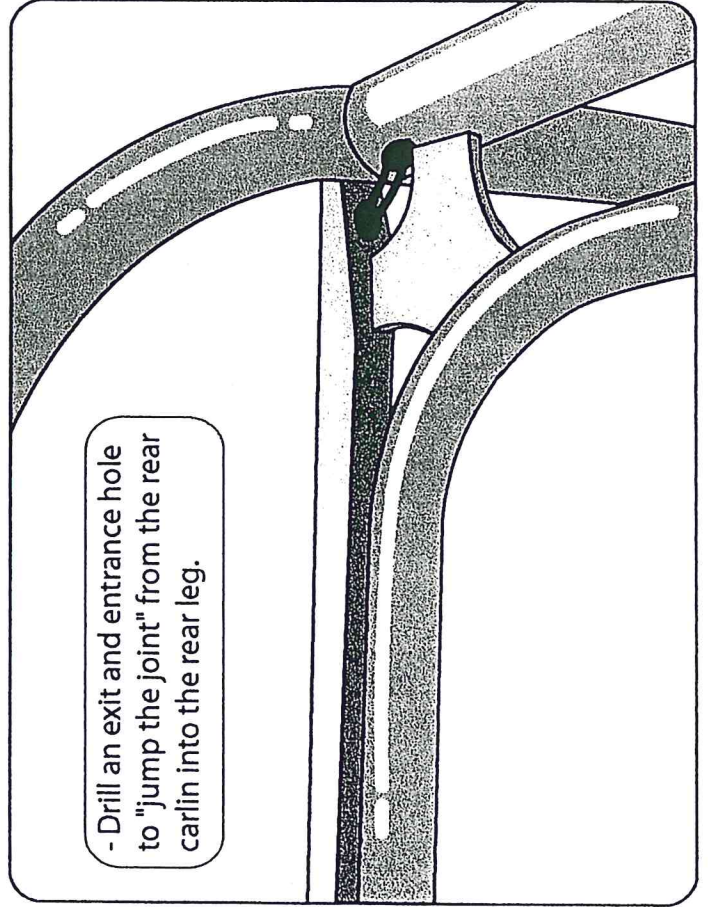
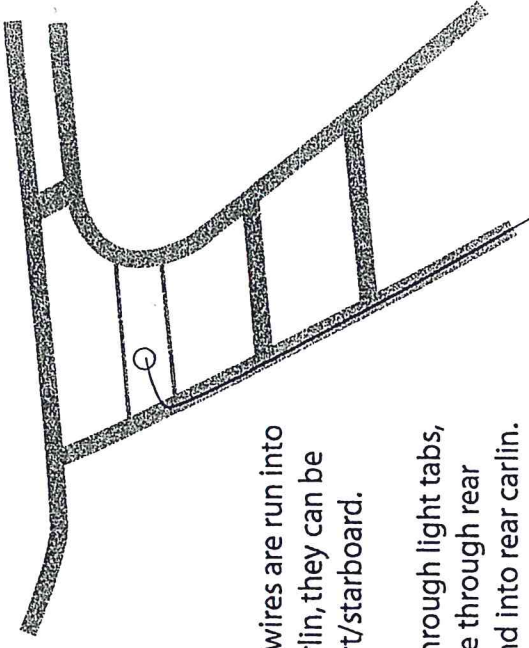


NOTES

- > There is no need to use grommets; they will most likely fall out over time.
- > Use a de-burring tool on holes, use of electrical tape helps wires pass through holes.
- > Always pull a "messenger" line through with your wires or cables. That way it will be much easier to pull additional cable, a day or a year later.



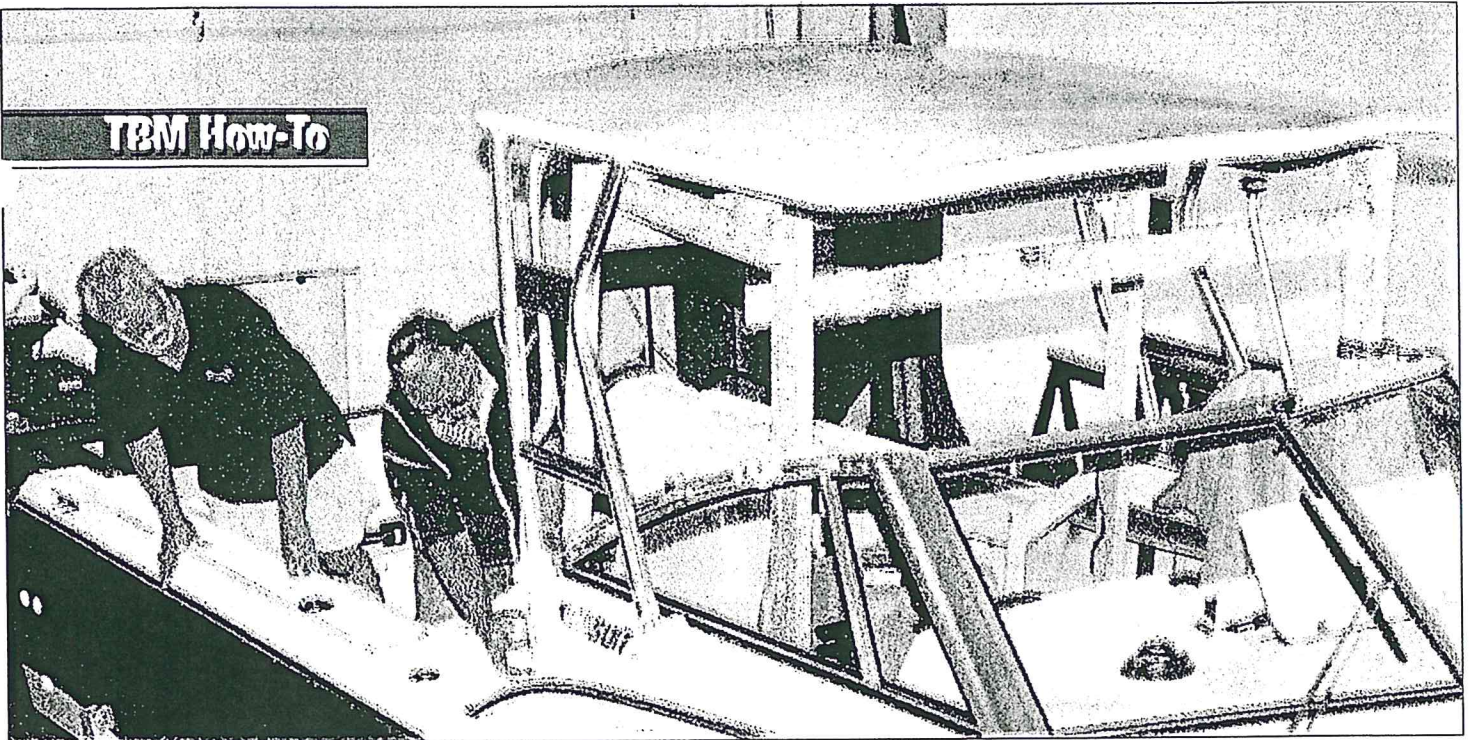
- Once wires are run into rear carlin, they can be run port/starboard.
- Drill through light tabs, run wire through rear pipe, and into rear carlin.
- Remove cover panel on legs and run wire down leg.



- Drill an exit and entrance hole to "jump the joint" from the rear carlin into the rear leg.

NOTES

- > Drill up to a 1" exit hole to your boat at 1.5" above mounting foot.
- > Bring wire out of leg and make a loop [so water runs off] then run wire into boat. Use a stainless clamshell vent to cover hole.
- > Leave excess wire coiled in wall of boat in case you want to remove the structure without cutting the wire.
- > Use heat shrinkable butt connectors.
- > For arches drill holes on the underside of the arch under equipment. Follow above notes.



Hard Body

We install a cool-looking hardtop on our new Pursuit 2460 Denali project boat

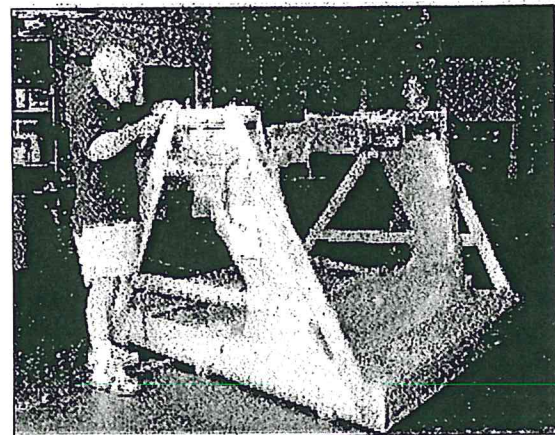
Story and Photos by Jim Hendricks

Among the most basic human needs is shelter. On a boat, there are two basic ways of fulfilling this need — hard shelters such as cabins, and soft shelters such as Bimini tops with canvas and isinglass enclosures.

You can also combine hard and soft elements, and that's what we decided to do on our new project boat — a 2002 Pursuit 2460 Denali. Our first addition to this boat was a hardtop from Atlantic Towers in Barnegat, New Jersey (800/361-8200; atlantictowers.com).

The 2460 has a nice cuddy cabin, but we wanted some weather protection for the helm, and a hardtop offers a number of advantages over a canvas enclosure. For one, a hardtop is sturdier than a Bimini. What's more, its husky metal supports and fiberglass top offer places to mount accessories such as spreader lights, speakers, antennas and electronics. It also gives you a place to hang a canvas-and-isinglass enclosure — a project we are planning for early next year.

One of the downsides of a hardtop is that it is heavier than a Bimini, and that's why some boaters go with half-towers that feature hardtop-like frames, but with lightweight canvas tops.



This minimizes mass, but also negates many hardtop advantages.

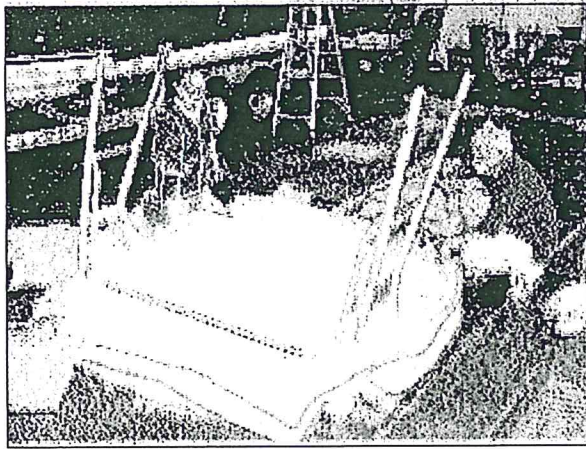
Atlantic Towers has resolved the weight issue by creating lightweight fiberglass canopies for its Special Hardtops line.

President Steve Tull claims that this saves 33 to 50 percent in weight over fully molded fiberglass hardtops. To create the look of a molded top, the upper aluminum structure is powder coated to match the boat's ivory gelcoat, while the uprights are brightly anodized.

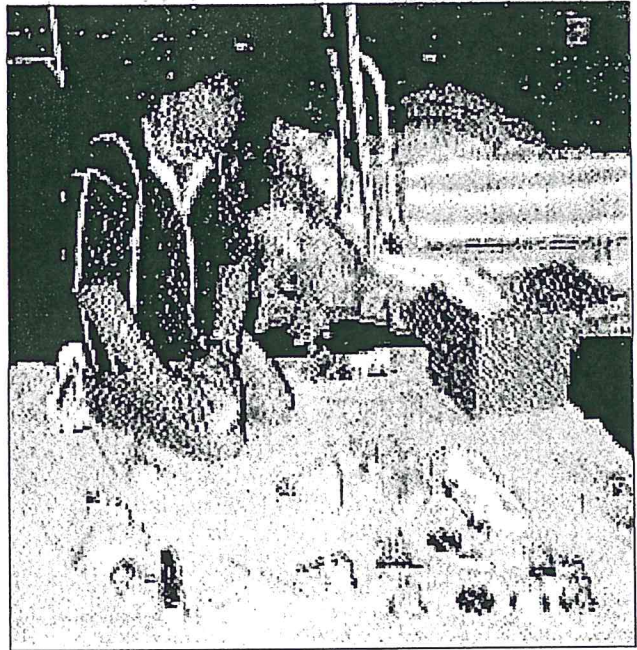
Atlantic is one of the few companies that specialize in shipping ready-to-install hardtops, T-tops, radar arches, half-towers and wakeboard towers to do-it-yourselfers. So we asked them to send us a hardtop, then show us how to install it. The company supplies full instructions with each structure, but here's our 22-step version...

■ STEP 1: Editor Jim Hendricks and Atlantic Towers' Steve Tull unbolt and unpack the hardtop from its shipping frame. Tops are delivered via common carrier, and you may need a neighbor or two to help you move it around — shipping weight is 300 pounds.



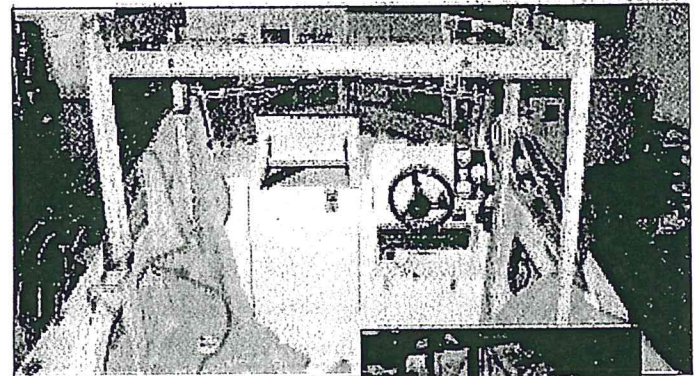
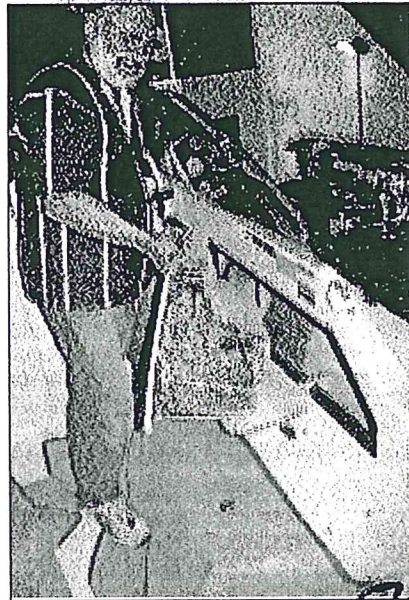


■ **STEP 2:** After lifting the top from its shipping frame (a two-man job), we carefully cut away the protective shrink-wrap. We saved the shipping blankets. These came in handy later.

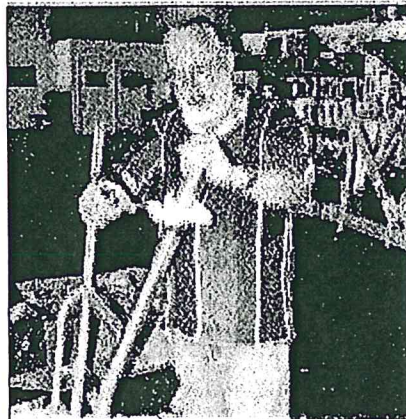


■ **STEP 3:** Universal mounts (lower right foreground) are included with the hardtop — but not mounting bolts, nuts and washers. We also ordered some accessories, such as rod holders and spreader lights.

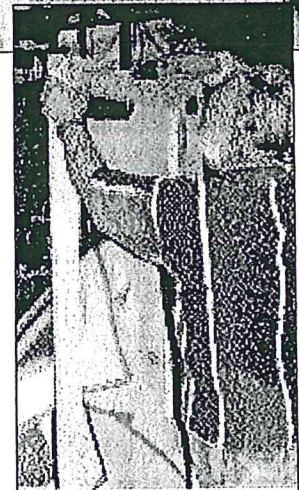
■ **STEP 4:** To gain access for through-bolting the hardtop mounts, we removed the side panels of the 2460 Denali. To prevent accidentally tearing the seats, we also removed most of the upholstery, then put down the shipping blankets to protect the rest of the interior.



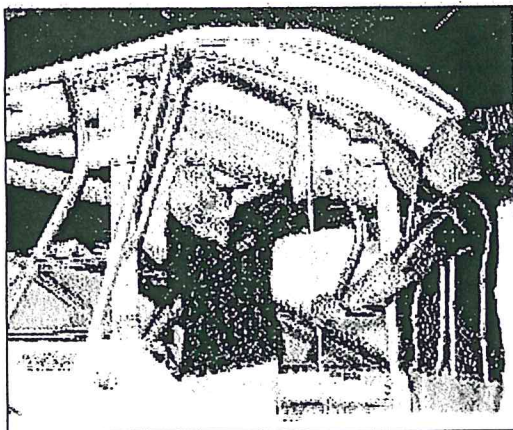
■ **STEP 5:** Using 2x4-inch pine studs, we built a frame to support the hardtop so that the lowest aluminum crossmember was 75 inches above the deck to accommodate our tallest staff member. We used dock lines to lash the frame securely to the boat.



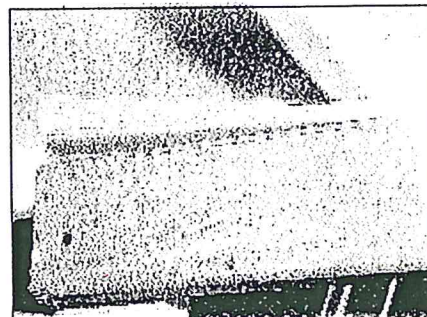
■ **STEP 6:** Using a pipe cutter, we removed 4 to 6 inches of excess length (used to bolt the top to the shipping frame) from each of the four legs. ▶



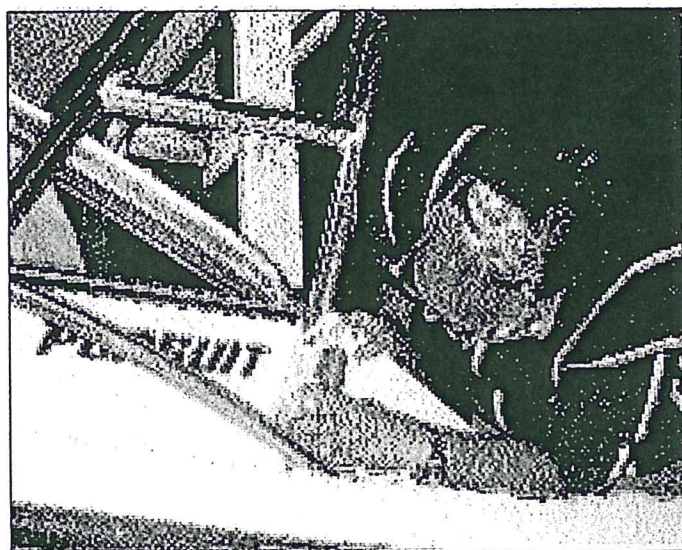
Hard Body



■ **STEP 7:** We lifted the top onto the wood frame to make the final measurements. Hoisting up the hardtop can be done with two people, but four makes it easier. Note that we wrapped the ends of the legs with shrink-wrap to prevent scratching the gelcoat.



■ **STEP 8:** To make fine adjustments to the height of the hardtop, we cut wedges from scrap wood and gently tapped them into place to square everything up.



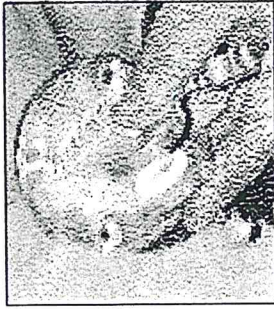
■ **STEP 9:** Once we were happy with the position, we held up the universal mounts to determine where to make the final cuts in the legs.



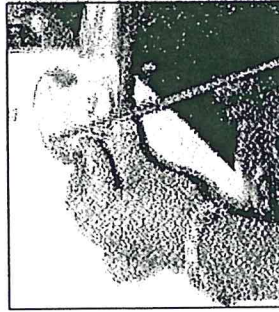
■ **STEP 10:** To trim the legs, we tilted the hardtop back, scored each with the pipe cutter (protecting the upper section with masking tape), then cut straight through with a sharp hacksaw.



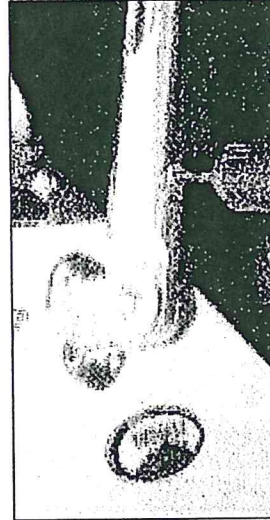
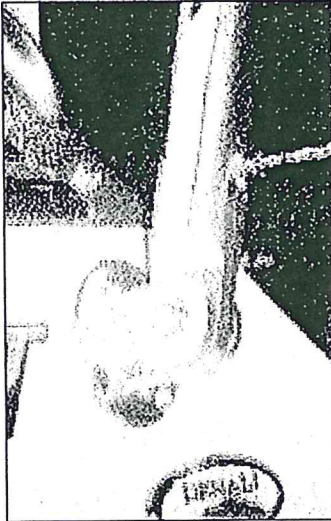
■ **STEP 11:** We used a de-burring tool to clean up the final cuts.



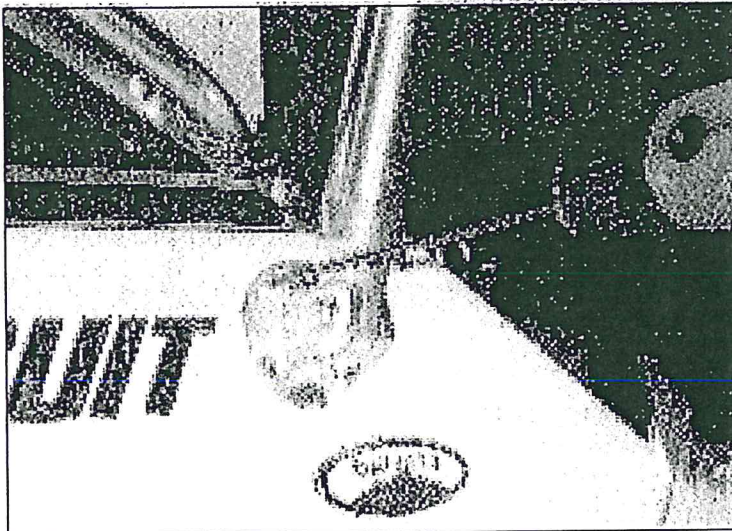
■ **STEP 12:** We assembled all of the universal mounts, using the supplied nylon washers to keep the pin and pads from galling.



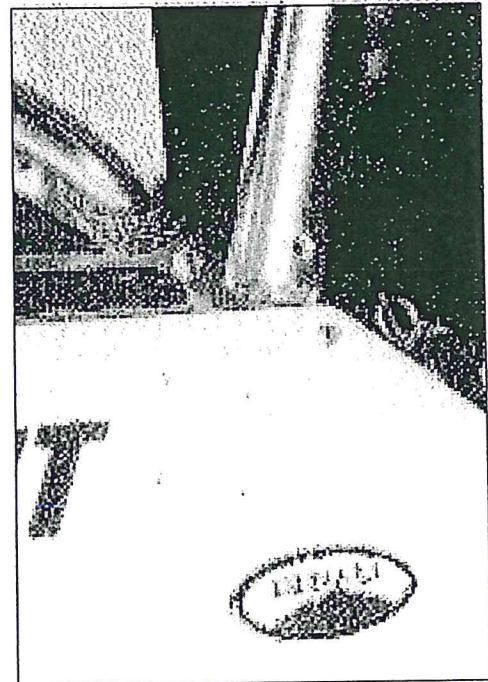
■ **STEP 13:** With the hardtop repositioned on the wood frame, we dry-fitted the port-aft leg (the first one we installed) with a universal mount. Then we drilled two of the four mounting holes for 1/4-inch-diameter mounting bolts. We used a 12-inch-long drill bit to prevent the chuck from marring the mount assembly.



■ **STEP 14:** With two mounting bolts in place, we drilled, then countersunk and tapped two 1/4-20 holes (90 degrees from each other) through the leg and into the pin of the universal mount.



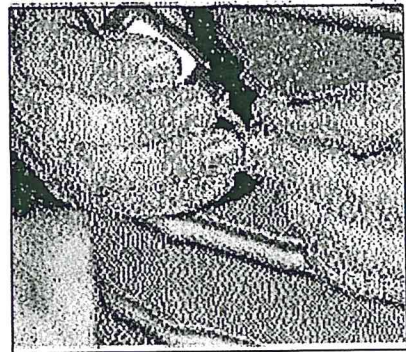
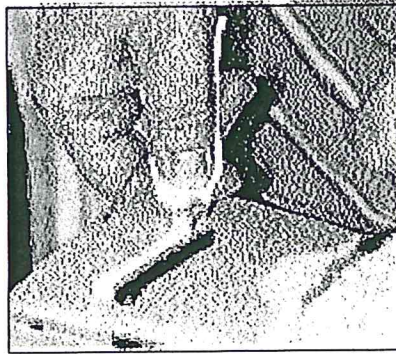
■ **STEP 15:** We drove in the two set screws to attach the leg to the pin, then drilled holes for the other two mounting bolts. We dry fitted everything in preparation for the final installation.



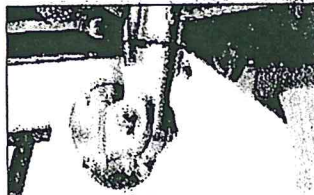
■ **STEP 16:** We disassembled everything, vacuumed up the aluminum and fiberglass shavings, and cleaned all surfaces with denatured alcohol. ►

Hard Body

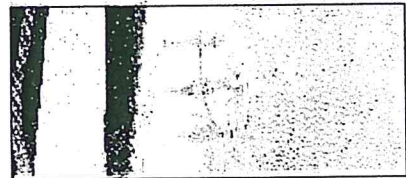
■ **STEP 17:** To permanently attach the mounting pins to each leg, we mixed up a batch of Marine-Tex Rapid Set epoxy. We also used Loctite to help secure the set screws.



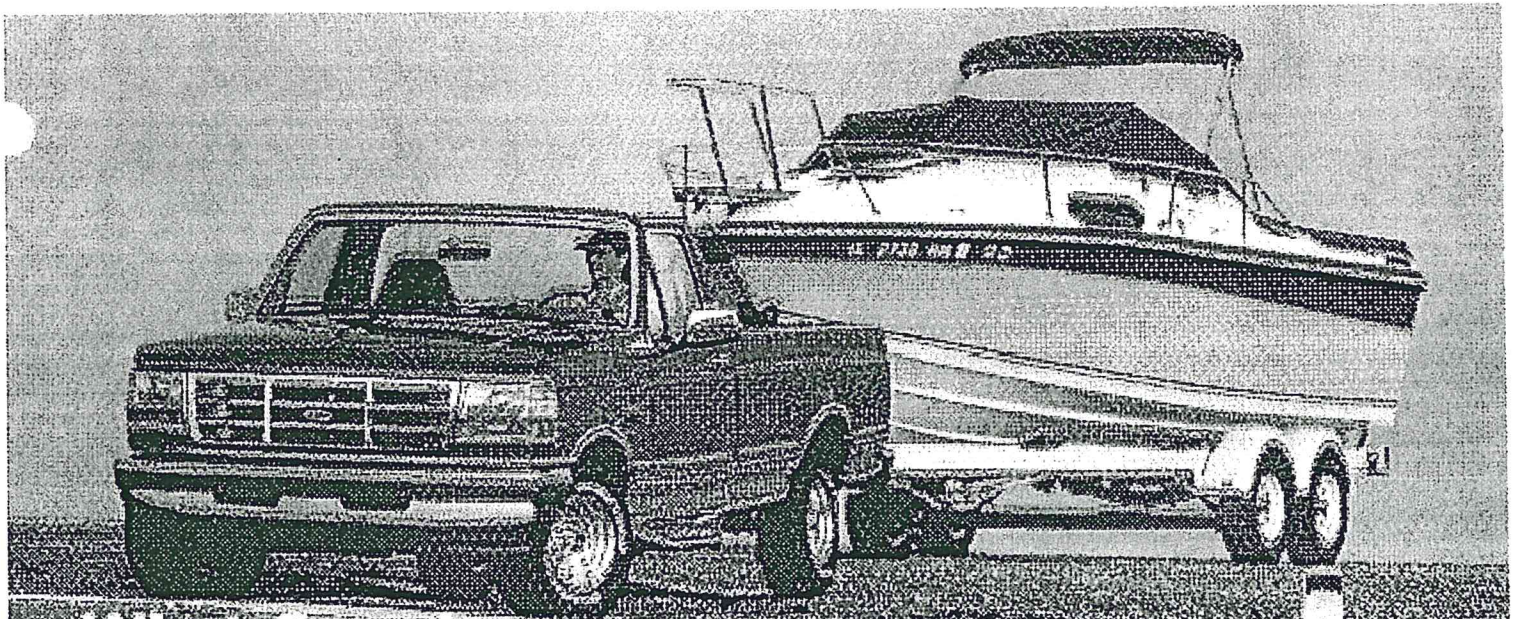
■ **STEP 18:** To create a watertight seal for each mounting pad, we applied BoatLife clear silicone sealant.



■ **STEP 19:** We fitted the pins to each leg and reinstalled the set screws. Note the excess epoxy, which we cleaned up before it set.



■ **STEP 20:** Using the supplied backing plates (seen here from inside the hull), we installed the oval-head 1/2-20x3-inch mounting bolts, washers and locknuts. This is a two-man job.

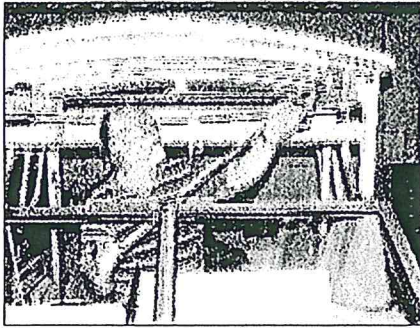


What Goes In When the Boat Comes Out.

Boats and trailers are made of metal, and metal is made of steel. Steel is made of iron and carbon, and it's a very strong material. But steel is also very heavy, and it can rust. That's why you need a good paint job to protect your boat and trailer from the elements. STANL's Rust-Preventer is the best way to keep your steel from rusting. It's a liquid that you can spray or brush on to your steel, and it will form a protective layer that will keep the rust off. It's easy to use, and it lasts a long time. So when you're out on the water, you can be sure your boat and trailer are in good shape. That's the STANL difference.



CIRCLE NO. 6 ON READER SERVICE CARD



■ **STEP 21:** Once the port-aft leg was secure, we moved progressively to the starboard-aft, port-forward and starboard-forward legs, rechecking measurements before each installation.



TIME AND MONEY

So, what did it cost and how long did it take to install our hardtop? Here's a cost breakdown:

Atlantic Towers Special Hardtop	\$2380
Radar Antenna Mounting Plate	\$75
Powder-coated Top Frame	\$150
Shipping (New Jersey to California)	\$816
Stainless Mounting Bolts, Washers and Locknuts	\$12
Marine-Tex Rapid Set Epoxy	\$10
Loc-Tite Blue Thread-Locking Compound	\$5
BoatLife Silicone Sealant	\$10
Ten 8-foot 2x4-inch Studs	\$25
Drywall Screws for Assembling Studs	\$3
TOTAL	\$3486

To install the hardtop using standard tools took two men 12 hours, which included stopping to shoot photos and take notes. If you are contemplating this do-it-yourself project, count on devoting a full weekend.

■ **STEP 22:** With all of the legs secure, we carefully dismantled and removed the wood frame. Now we're ready to get a canvas-and-isinglass enclosure. ♣




PROVIDES PEAK ENGINE PERFORMANCE.
 PROMOTES LONGER ENGINE LIFE.
 PREVENTS ENGINE
 OWNER MELTDOWNS.

From our Ficht® Ram Injection Oil featuring CarbX™ to our XD-25 blend, we make the oil and engine care products to help your engine run better, start easier, burn cleaner and last longer. Don't risk your outboard — or your temper — with anything less. Visit your dealer or call 866.EVINRUDE for our catalog. Evinrude/Johnson Genlyne Parts. Performance by design.™



CIRCLE NO. 66 ON READER SERVICE CARD

14