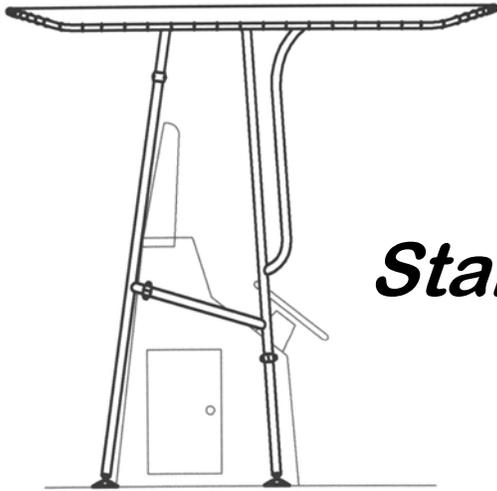
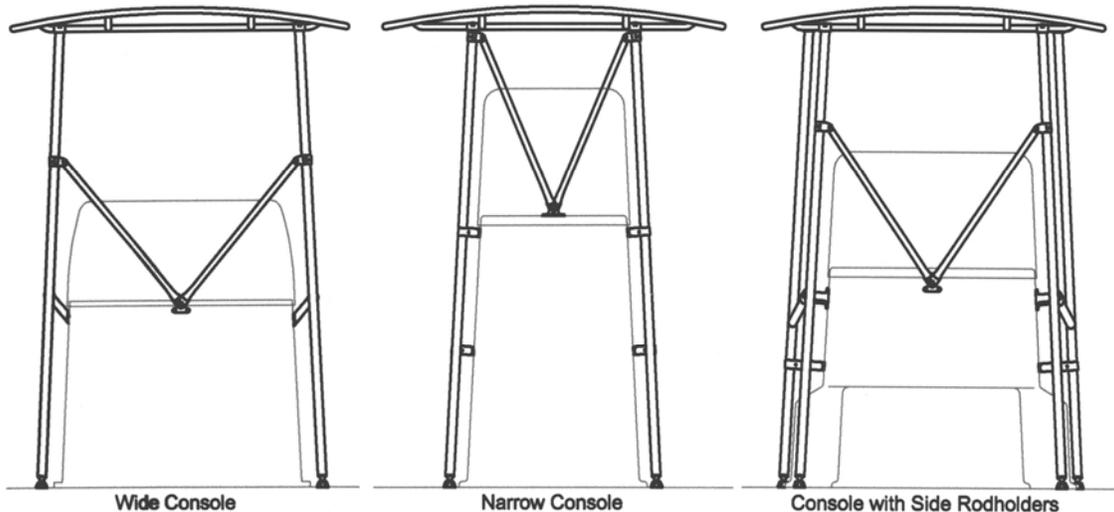


## Installation Instructions SMITH Stainless Steel T-top



# ***SMITH*** ***Stainless Steel T-top***



The **SMITH**™ Ttop provides a bolt together custom fit on virtually any center console boat. Bolt together construction relieves the stresses from engine vibration and wave shock that can crack 100% welded Ttops. Made from 316L stainless steel, your **SMITH**™ Ttop will provide years of service with occasional polishing and hosing off salt spray after use. Your **SMITH**™ Ttop is designed to provide shade to the boater and to support optional accessories such as antennas, rod holders, or electronics box. It is very strong, but not to be used as a pylon for skiing, wake boarding or towing. Its range of adjustment fits a wide variety of console shapes.

There are boats not built strong enough to support a Ttop. Such boats require additional reinforcement to the deck and console in addition to what is provided with this product or discussed in these instructions. It is the responsibility of the purchaser to determine if and when additional reinforcements are needed and to install these reinforcements where needed for the Ttop installation to be strong and safe.

## Components:

- Canopy Frame.
- Left Upright Frame, (*black hole plug for wires in front leg.*)
- Right Upright Frame, (*black hole plug for wires in rear leg.*)
- Pair of front V-Brace Bars.
- 1 V-brace Console Top Mount.
- 1 V-brace Console Front Mount.
- Installation Hardware Kit.

## PARTS to be Purchased Separately:

- Canopy Cover (*purchase the color to compliment your boat.*)
- Standoffs (*4 usually required, lengths to be determined for each boat.*)
- Rod holders
- Electronics box
- Navigation light

## TOOL List:

Your **SMITH™** T-top can be installed using common hand tools. One person can do it alone; however, it is much easier with two people. Customers report install times ranging from 2.5 hours to 8 hours.

**Required Tools:** With these common tools you can install your Ttop.

- |                            |                        |
|----------------------------|------------------------|
| 1. Hand drill              | 8. sharpie marker      |
| 2. sharp 1/4" drill bit    | 9. 3/16" Allen wrench  |
| 3. sharp 3/16" drill bit   | 10. 7/32" Allen wrench |
| 4. 1/2" countersink bit    | 11. 1/8" Allen wrench  |
| 5. #3 Phillips screwdriver | 12. 7/16" end wrench   |
| 6. tape measure            | 13. 9/16" end wrench   |
| 7. pencil                  |                        |

**Recommended Tools:** We recommend you have the tools listed below, *especially the long drill bits and long screwdriver extension* to make the install easier.

- |  |   |
|--|---|
| 1. Cordless variable speed drill with torque control | 7. 9/16" ratcheting box end wrench                            |
| 2. 12" 1/4" drill bit                                | 8. Plastic mallet   |
| 3. 12" 3/16" drill bit                               | 9. large adjustable wrench (if V-brace end bending is needed) |
| 4. #3 Phillips screwdriver tip                       | 10. Dremel® tool (if windshield notching is needed)           |
| 5. 12" drill extension for #3 tip                    |   |
| 6. 7/16" deep socket ratchet                         |   |

## Required Customer Supplied Materials:

1. 3M 5200® or equivalent marine sealant to seal the holes you will drill in your deck and console to prevent water intrusion.
2. A small amount of heavy grease.

## Fitting the Ttop to your Boat:

Fitting the **SMITH™** Ttop to your boat is an easy step by step procedure. Take time to read thru all the steps below. Become familiar with all the decisions you will be making before you get out your drill. Consider asking a friend help you make important choices.

See (figure 1.) and view the T-top pages of our website [www.cesmithco.com](http://www.cesmithco.com) to help you visualize how the Ttop will fit on your boat.

1. Start by parking your boat such that the deck will be level. This will allow you to stand back from the boat and eye the inward lean of your uprights and to admire your progress during the install.
2. Lift your uprights onboard and lean them against your console.
3. Check that you can access all your console openings. (fuel fill cap, access doors, etc.) You may need to shift position to make everything clear.
  - a. Most console access doors will swing clear under the standard angled mid-bar.
4. Next, you will choose standoffs and their mounting locations.
  - a. Take a good look at the different styles and lengths of standoffs available to you. (Figure 3.)
  - b. Standoffs may clamp anywhere on the uprights.
  - c. Choose your locations and standoff styles such that the base of the standoff lands on a good mounting location on your console.
  - d. You may find a combination of standoff styles and lengths works best on your boat.
  - e. We recommend 4 standoffs, one for each corner of the console.
  - f. Choose the shortest standoffs you can, so the room you have to walk around your console is maximized.
  - g. Position your standoffs as high on the console as possible. Higher mounting provides increasingly better support to the Ttop canopy.
  - h. Be sure to leave at least 1-1/4 inches of "hand hold grab-clearance" especially around the front upright tube near the windshield.

5. Position the swivel feet close to the console base, on strong deck that is suitable to carry the stress the Ttop will transfer to the deck when in use. You may angle each swivel foot to best compliment the shape of your console and to fit around any irregularities. (figure #7)
  - a. On most boats, screws must be used to mount the feet to the deck because there is no access to the underside of the deck to allow through bolting. For this reason, quality stainless screws are provided with your Ttop. It is the purchaser's responsibility to determine if the deck is adequately constructed to hold screws.
  - b. For any accessory you attach to your boat, if you have access to the back side of the mounting location it's always best to thru-bolt and back plate anything you attach to your boat for maximum strength.
  - c. Be very cautious when drilling holes in your deck. Especially if you are not absolutely sure how thick the deck is, what structure is under it, do electrical wires run there, fuel lines, and most importantly, don't drill a hole in your fuel tank or anything else under the deck that should not be drilled into.
  - d. That said, on many boats it is difficult to know what's under the deck and there is no access for visual inspection, so drilling must be done "blind". So, drill very slowly and pay close attention to the chips coming out of the hole. If you see color or texture change in the chips or if you feel any change in resistance to drilling, stop, inspect the chips and evaluate if you should proceed. And never push hard on the drill and let the bit bust thru and plunge into the cavity below deck. Don't ever drill deeper than the length of the screw.
6. You may find you need to shift the uprights fore or aft to find the best combination of standoff mounting locations and foot mounting locations.
7. See #8 and #9. Lightly clamp the standoffs onto the upright frames and test your standoff length and style selection.
8. As you do #7, be sure to assemble the standoffs with the removable cap on top. That way if you ever choose to remove your Ttop for storage you can remove the standoff caps and lift the top off without disturbing the standoffs.

9. As you do #7, be sure to turn all 4 swivel feet so the cap is to the outside. That way if you ever choose to remove your Ttop for storage you can remove the caps and lift the top free of the feet.
10. Stand well back from the boat and eye the look of your Ttop uprights making careful note of their inward lean. About 3 degrees of inward lean on each side is a good starting point for good looks and function. You may decide your boat looks best with vertical uprights or perhaps more inward lean than 3°. It's your choice so long as the channel spacing at the top of the uprights stays within range to receive the canopy frame.
11. The mounting bases of the standoffs you select should land squarely on the console.
  - a. On boats with extremely curved consoles it may be necessary to fabricate tapered mounting shims to achieve a flush mounting base fit for your standoffs.
  - b. Starboard® is an excellent material to use for this purpose.
12. Fit your front V-braces. (V-braces are an important part of your T-top's structure and are not optional)
  - a. Take out your front V-brace bars and two console mount castings.
  - b. Remove the clamp caps from the brace bar end clamps.
  - c. Hold the clamp up high against an upright tube and hold the flattened end near the centerline of the console.
    - i. Look at the clearance between your windshield and the brace bar.
    - ii. You may need to move the uprights fore or aft to get the best windshield clearance for the V-braces.
    - iii. Note you are free to mount your V-brace clamps on the front or rear tubes of the uprights.

- d. Your windshield's angle and console thickness will determine if you should mount your V-braces behind the windshield or in front of the windshield.
  - i. If you use the console front casting, choose a location as high as possible on the front of the console.
    - 1. On some boats there is not enough room to mount the console front casting between the seat cushion and the windshield. A good solution is to use a Dremel® tool sanding drum to fashion a notch in the bottom edge of the windshield to open up some space for the casting to mount.
      - a. To do this, put masking tape on the windshield and trace the casting onto the masking tape. Use the Dremel® tool drum sander to shape a notch in the bottom edge of the windshield. This yields a very custom looking installation.
- e. For best appearance, your V-brace center casting must be mounted *at the center of the Ttop, as measured between the uprights*. Mount the casting at Ttop center, which is not necessarily the console's center.
  - i. Find the true center by assembling the V-brace bars to the console casting and checking that both bar end clamps are the same distance down from the Ttop canopy. Locate your console casting accordingly.
- f. Mounting the V-brace bars to one center casting is best, but space limitations may dictate that each V-brace bar land to its own casting. Extra castings can be ordered from the factory.
- g. You may need to bend the flat end of the brace bar slightly to align with the console mounting casting on your console. A large adjustable wrench is a great tool to do this.

13. OK you are almost ready to start mounting. Stand back and make a triple check of overall fit, and triple check the location of all holes to be drilled.
- a. Check for back side access and working clearance behind each standoff.
    - i. Don't forget to account for the thickness of the console at corners. The front and back of the console each have thickness. For example, if your console is 3/4" thick, you can drill a hole no closer than 1-1/2" from the front edge and still get a nut on the back side.
  - b. Measure the distance between the top channels fore and aft to be sure they are somewhere between 28" and 45" apart else your canopy will not fit on top of the uprights.
  - c. Take out your canopy, loosen all four; 1/8" Allen key setscrews in the slide bar ends. Slide the canopy slide bars to the same width as your upright channels. Centered the bars to the canopy midline.

### **Installing the Canopy Cover:**

The first step in assembling your Ttop is to lace on the cover made from Sunbrella® fabric (purchased separately in the color of your choice).

1. It is easiest to lace the canopy with the frame on a table at a comfortable working height. This process will take about 45 minutes.
2. Figure # 4 shows how to center the canopy on the frame using the 8 ties supplied. Orient the cover with the SMITH label down and aft. (the navigation light bracket on the frame is located toward front.)
3. Figure # 5 shows how to run the lacing. Begin lacing from any eyelet and just lightly snug the cord as you go so as to keep the canopy centered on the frame.
4. Lace only one grommet at the time. Pull all the cord thru each grommet before moving to the next grommet. As you lace to a grommet with a tie, remove the tie and discard it. (Don't try to lace several eyelets and then pull the cord thru them all at once. If you do, the cord will kink and make you cuss.)
5. Figure #5 shows the best way to tie off the lacing with the least visible knots.
6. Figure #6 shows what the finished lacing should look like after you tighten the lacing and work the two knots (one on top and one on the bottom) snug to the lace start/stop grommet.
7. When finished, clip the cord close to the knots and flame melt a nice ball of nylon to prevent un-raveling and to set the knot.
8. The nylon cord and the Sunbrella® fabric will stretch and you will need to re-tighten the cord to take a foot or two of cord out in a few days.

## **Navigation light:**

A navigation light is optional and is only required if you are on the water (lake or ocean) between dusk and dawn. Your canopy frame has a small flange on top with holes ready to accept virtually any navigation light on the market. The US Coast Guard requires that from dusk until dawn, all boats display a white light from the highest point on the boat, visible 360 degrees around the boat, in addition to a red / green bow light. So for dusk to dawn operation, a navigation light tall enough to be visible 360 degrees around must be deployed on top of the Ttop.

If you choose to add a navigation light, it is easiest to install while the laced canopy frame is on the table before it's mounted on the uprights. It's also easier to mount your navigation light before mounting an electronics box. Of course you can add any accessory to your Ttop at anytime in the future if the need arises.

Before mounting a navigation light, make sure your canopy cover is perfectly centered on the frame and laced tightly before making holes in your cover.

### *Making holes in the Sunbrella® fabric canopy cover.*

- Methods of making required holes or slits thru Sunbrella® fabric include: an awl, a case cutter, or even drilling.
- No special precautions are needed to prevent unraveling because Sunbrella® fabric is made with a special weave that will not run or unravel.
- You may elect to apply a very small amount of sealant to water seal the holes.

## **Now Its Time We Really Get Started!!**

### **Drilling and Installation:**

1. The hard part is behind you and its time to get out your tools.
2. Be very careful not to disturb the feet as you move from foot to foot using the Sharpie® to mark all 16 foot screw holes.
3. You will use the feet as drill guides to avoid drill bit walking. ( a big problem on textured decks)
4. ***Put your drill in reverse.*** (drilling in reverse will wear into gel coat, and in reverse there is no risk of the bit accidentally catching and biting into your boat deeper than you intended.)

5. Using the long 1/4" drill bit; and while holding the foot firmly to the deck and with the drill in reverse, drill 4 shallow hole center indentions into your deck into each Sharpie® mark.
6. When all 16 hole center indentions have been made set the uprights off to the side of the boat.

(Note on Drilling into Fiberglass: DON'T PUSH !!!!!)

- Take your time and let the drill bit gradually cut thru the fiberglass. If you push on the drill it is likely the bit will hang and plunge into the deck taking the drill away from you. Be ready to hold back if the bit hangs so when the bit hits a soft place or goes thru the deck you are prepared to control how deep the bit plunges.)
  - As you drill, pay attention to how thick your deck is, how many layers of glass you go thru. Is it a good solid deck or did it seem paper thin? This attention to detail will give you a sense of how well your deck will hold screws or if you may be well advised to thru-bolt for acceptable results.
- a. If at this point you have chosen to thru bolt the feet:
    - i. Drill holes using the 1/4" drill bit or other appropriate size for the fastening system you have chosen, being very careful not to let the drill bit run thru the deck where it could damage something hidden underneath.
  - b. If at this point you are using the screws supplied with the kit to mount the feet:
    - i. Drill holes using the 3/16" drill bit and carefully drill the 16 screw holes being very careful not to let the drill bit run thru the deck where it could damage something hidden underneath.
7. Very carefully, use the countersink bit to shave off only the deck gel coat around all 16 deck holes being careful not to cut into the fiberglass underneath. You need all of it for strength. (This shave prevents the screw from pressing out directly against the gel coat which if allowed to happen will cause future spider cracking to occur around the screw holes.)

8. For deck mounting using the supplied screws, (from this step down, complete one Upright install at a time.)
  - c. Pump all 8 deck holes full of sealant. Don't be stingy; but don't pile sealant on the deck either. Fill each hole thru and out the bottom.
  - d. You may find it easier to mount the feet if they are detached from the uprights and individually installed. Be very careful handling and placing each foot so not to smear sealant out on the deck. The feet are concave underneath so excess sealant should disperse into the cavity and not squish out beyond the foot.
  - e. One by one, coat each screw's threads lightly but completely with sealant. I like to screw the screw directly down into the top of the sealant tube to coat it, then pull it out. Run all 4 screws 90% in, then go back and with a low torque setting finish tightening the 4 screws taking care not to over tighten and strip out the holes. (You can always go back and tighten them more before the sealant sets after all the screws are in place.) And you got a feel when drilling the holes just how solid your deck is so you can anticipate how well the screws will bite.
  - f. Now that you have the feet attached to the deck, re-connect the upright to the feet and turn attention to the standoffs.
    - i. Check the standoff locations one last time.
    - ii. Press the upright to the console and hold the standoff mounting flange firmly and squarely as possible against the console. Use the long 1/4" drill bit to drill thru the standoff screw flange holes straight through the console.
    - iii. If you have a sizable gap under the flange due to the curvature of your console, fashion a tapered shim from a material like Starboard® to level the flange. If the mounting location is a slightly flexible place on the console, a small gap will close when the bolts are tightened. A small gap is OK and can be dressed up with marine sealant. Don't try to tighten closed a gap on a stiff section of the console as you will likely crack the gel coat.
    - iv. (If you discover you are drilling into wood reinforcing inside the side of the console, coat the inside of the hole with sealant to prevent water intrusion and rot before final tightening.)

- v. Install the screws, backing plate and nuts and tighten down the standoffs.)
9. Repeat the process on the other side.
10. With both uprights now fastened solidly, mount the front V brace casting as planned earlier in fitting step #12.
11. Lift and place the canopy into the upright channels.
12. Coat the first ½” of the threads of the canopy bolts with a small amount of heavy grease to prevent the large nuts from possibly seizing on the large bolts. Loosely install all 4 bolts up thru from the bottom with the nut on top. You need only snug the bolts, don't over tighten.
13. Check that the canopy slide castings are centered and then tighten the slide casting setscrews using your 1/8” Allen key.

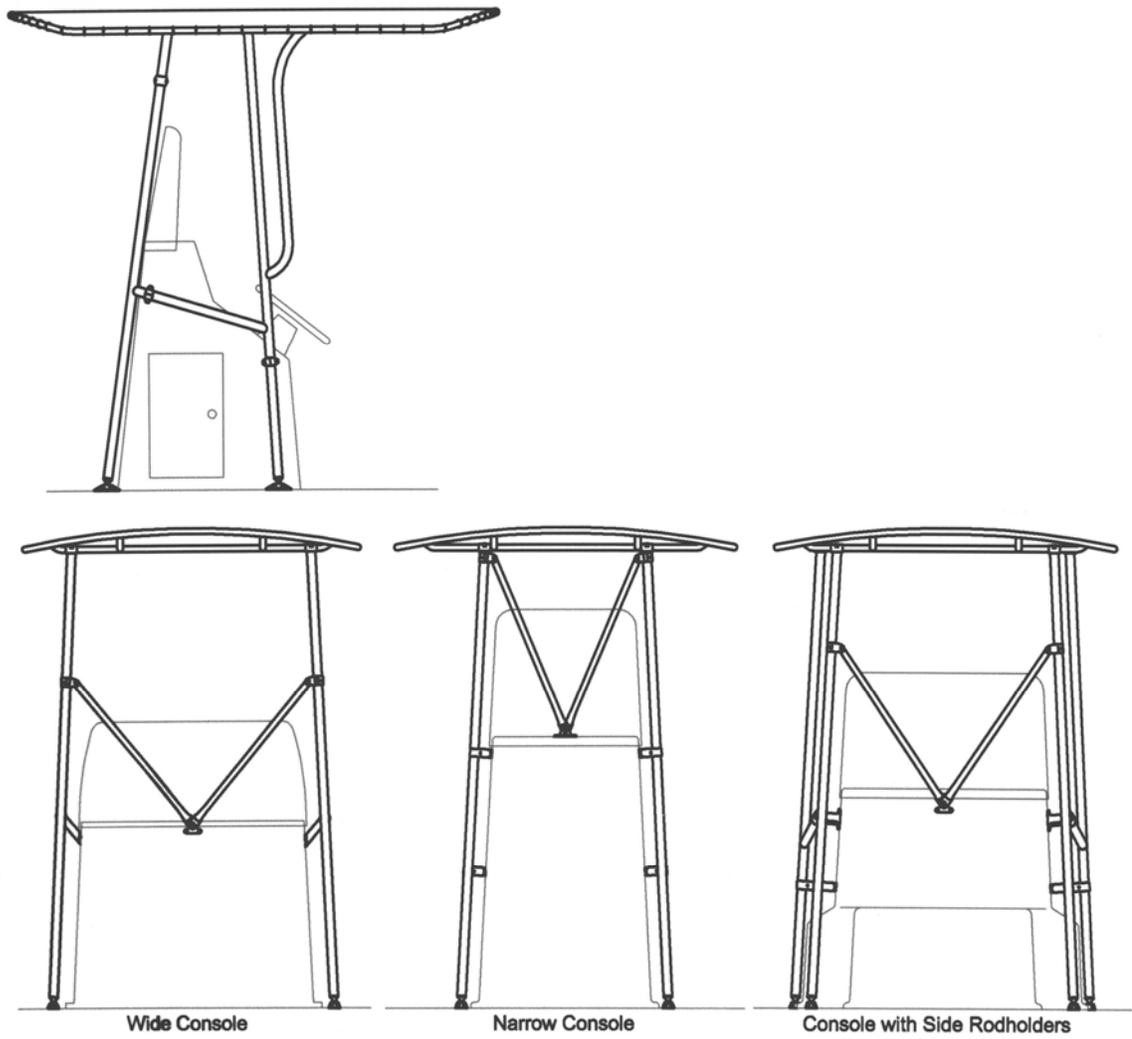
Congratulations on your new Ttop!

*Please, at any time, today or in the future, we would greatly appreciate hearing your comments and suggestions about the product and installation.*

Contact us at:  
tech@cesmithco.com

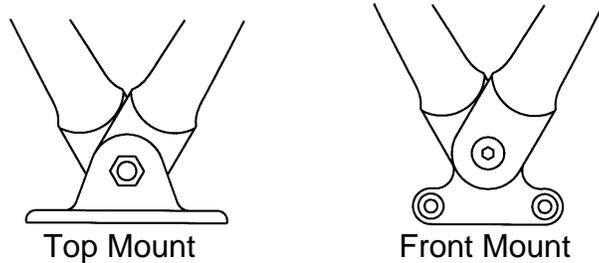
***And, e-mail us your Smith Ttop and Smith boating and fishing accessories photos so we can add you to our website!! On the water fishing action photos are especially appreciated.***

Thanks for choosing **SMITH™!**



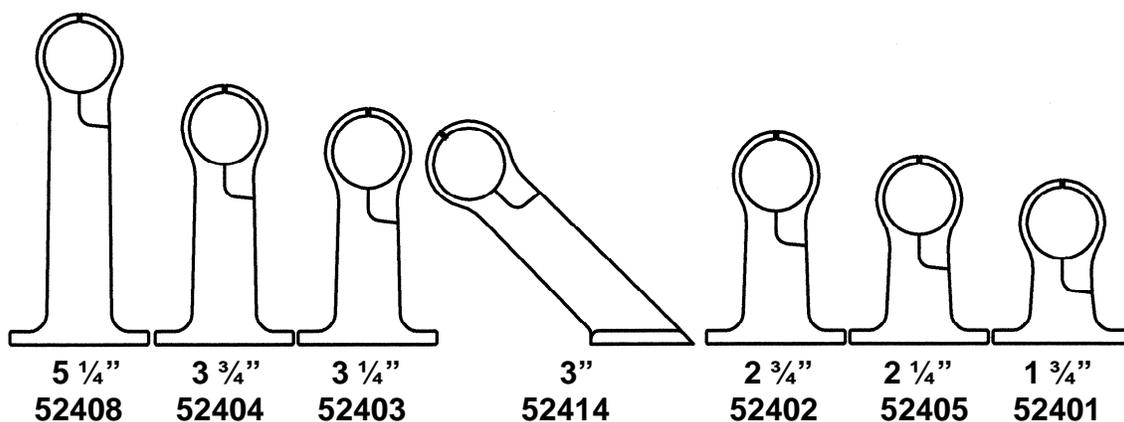
The above examples are all just different arrangements of the same T-top. Each shows how it might be setup for different shaped consoles.

figure 1.



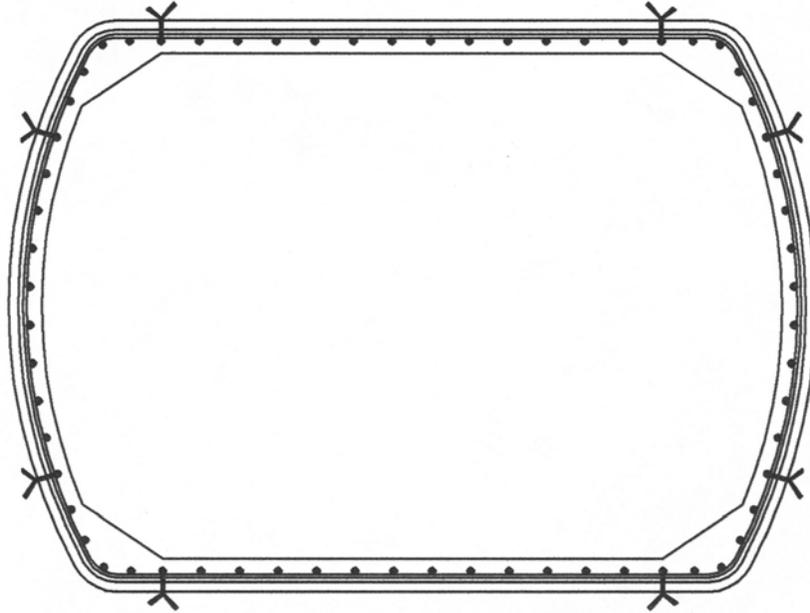
**V-brace mount:** *Top Mount*, if you choose to land your V-brace behind your windshield on top of your console. *Front Mount* if you choose to land your V-brace in front of the windshield on the front of the console.

figure 2.



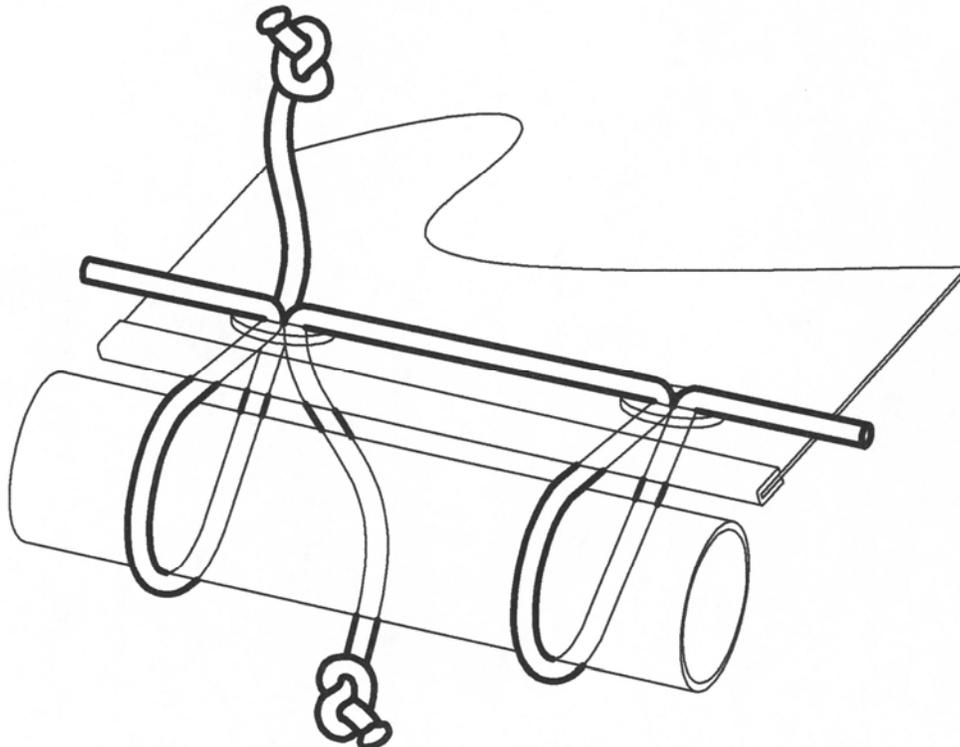
**Standoffs:** Standoffs stiffen the Ttop and reduce canopy twist caused by the motion of the boat by moving the point of support up higher off the deck. Longer standoffs allow the Uprights to standoff more from the console allowing room for wide windshield rails or built-in rod holders in the console sides. The special 45° 52414 provides reach (down and or in) if the console is shorter than the mid-bar or less thick than the distance between the legs.  
Always choose the shortest standoff that will do the job.

figure 3.



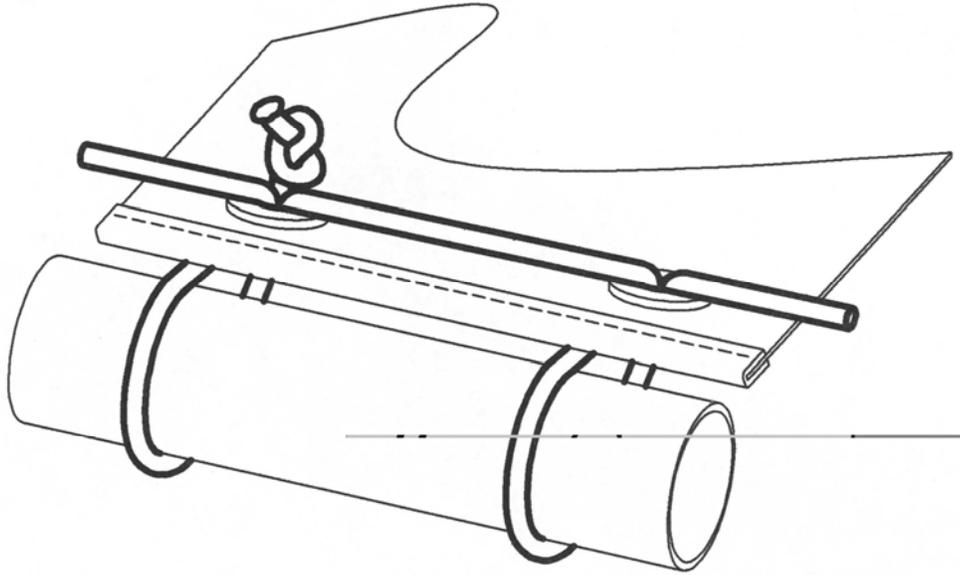
**Canopy Cover Tie Locations:** Use ties included with each cover to center your canopy cover on the frame as shown.

figure # 4



**Canopy Lacing and Knotting:** Lace one grommet only at the time pulling all cord thru before lacing the next grommet.

figure # 5



**Completed Canopy Lacing and Knotting:** When finished your lacing and knotting should look like this.  
figure # 6



**Swivel Feet:** Swivel feet can pitch match the crown in your deck. They also turn to any angle, as shown above, to best fit close to your console. And they allow removal of the Ttop from the boat for storage without disturbing the actual deck mounting fasteners. Note the cap is to the outside.

figure #7

## C.E. Smith Company Limited Warranty

C.E. Smith Company, Inc., (SMITH) warrants all stainless steel components of this product to be free from defects in material and workmanship for a period of two (2) years, One (1) year for the Sunbrella® fabric canopy cover, from the date of original purchase when properly installed, used and maintained. A proper installation requires the V-braces to be installed.

This warranty does not apply to damage or loss caused by any or all of the following circumstances or conditions:

- Damage caused during installation.
- Misapplication, misuse and failure to follow the directions or observe cautions and warnings on installation and application.
- Use of the product for any application other than those described in SMITH product information materials.
- Damage resulting from customization.

If any SMITH products are found upon inspection by SMITH or its duly appointed representative to have been defective when supplied, SMITH will at its sole discretion repair or replace the defective product(s). SMITH will not pay for expenses incurred in returning the product for inspection without written permission from SMITH. In any case, SMITH will not be liable for any other expenses the purchaser incurs to remedy any defect.

Limitation of Liability: It is expressly agreed that the liability of SMITH is limited and SMITH does not function as an insurer. The remedies set forth in this warranty shall constitute the exclusive remedies available to the purchaser or user and are in lieu of all other remedies, express or implied. The liability of SMITH shall not exceed the purchase price of the product manufactured, sold or supplied by SMITH.

This warranty excludes all implied warranties or merchantability or fitness for a particular purpose of any purpose.

This warranty does not cover nor extend to incidental or consequential damage. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

No representative has authority to make any representation, promise or agreement except as stated in this Limited Warranty. There are no warranties which extend beyond those described above. Effective March 2006 this warranty supersedes all prior warranties, written or implied.