

Roswell Wake-Air Tower Installation Guidelines

Thank you for purchasing the best wakeboard tower in the world. We at Roswell started a revolution in the wakeboard industry back in 1998 and continue to push known boundaries today. We are fully committed to pushing the envelope beyond industry expectations everyday to make your wakeboarding experience more enjoyable. With the input of our team riders our goal remains redefining the wakeboard industry day in and day out. We will not be confined to our desk; we are out on the water testing our full line of products to take any unnecessary hassle out of your wake experience. Thanks again for choosing Roswell and keep an eye out for more dominating technology throughout the season...

Sincerely,

Robert Oswell
Owner, Designer, Wakeboarder

Note- We suggest reading through installation procedures in their entirety before beginning the actual installation.



Installation:

- This process will require a minimum of two helpers. The tower needs to be lifted on to the boat to measure placement so 3-4 helpers make the job go well and protect your boats finish.
- Throughout the instructions you will see the need for permanent strength lock-tite (red). IT IS EXTREMELY IMPORTANT THAT THESE STEPS BE FOLLOWED.

SETUP

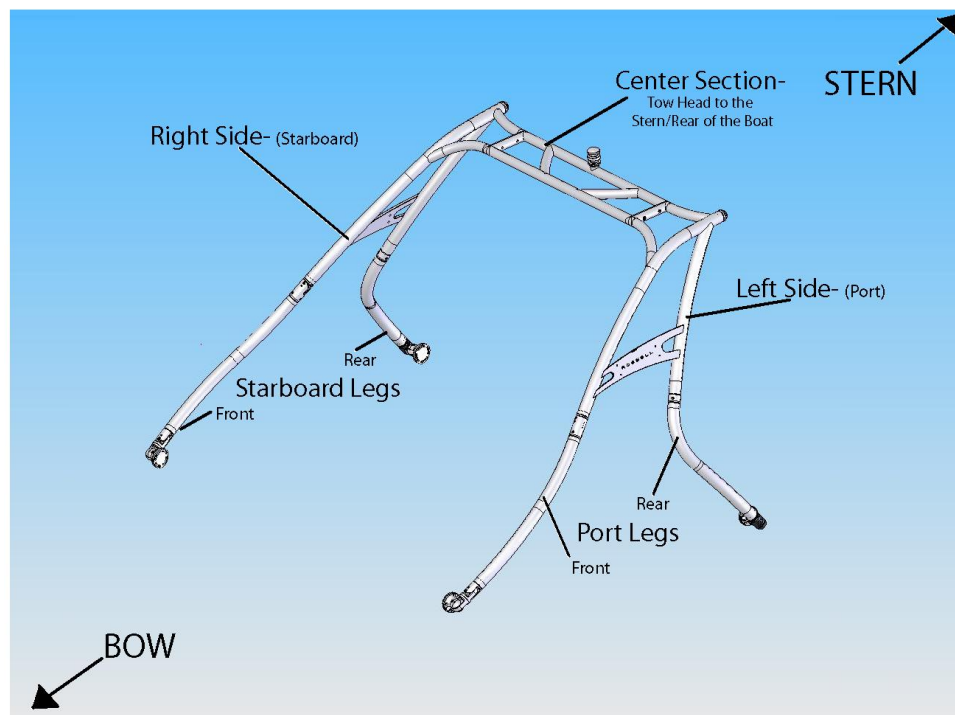
1. Prepare your work space to begin. We will be assembling the tower before setting it on the boat to make measurements so you will want an area near the boat that is clean and has an

unobstructed path to the boat. We suggest throwing down a drop cloth or an old sheet to protect the tower from getting scratched and or damaged.

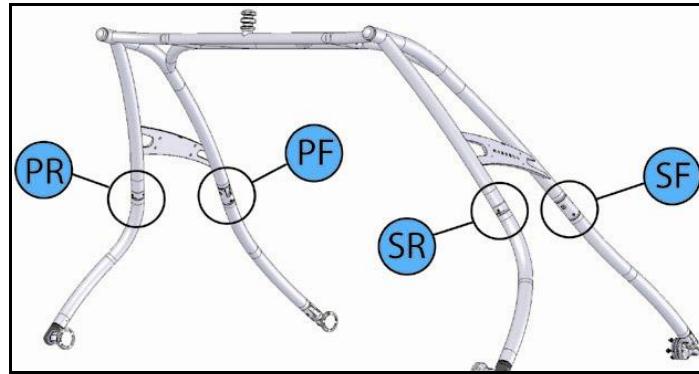
2. Next check the area you have chosen to work in and make sure placing the tower up on the boat will not be interfered with (rafters, garage door, etc.) The tower will fold down after proper installation but check to make sure (in the case of working in a garage) that the boat with tower folded has clearance to make it out of the area.
3. Now we are ready to unpack the tower. Be careful to avoid marking or scratching when removing the tower from its packaging.
4. Lay out all your parts and familiarize yourself with the pieces. This will make the installation go much more easily. There are seven main pieces besides the mounts that are fairly easy to identify. (see step 7 for specific markings)

- Center Tower Section (includes tow head)
- Port Side (Left)
- Starboard Side (Right)
- Starboard Front Leg
- Port Front Leg
- Starboard Rear Leg
- Port Rear Leg

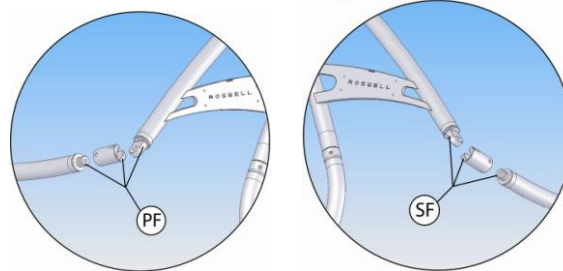
Note- All hardware (Bolts, Set Screws, Shims) have been placed in their proper position. You will need to remove the hardware to assemble the tower but suggest doing it along with assembly so as not to confuse or lose hardware. An exploded view of the tower and hardware are attached to these instructions in case you lose the place of any hardware.



5. Start by assembling the center section to the port and starboard side sections. The tow head should be on the topside of the rear crossbar. Remove the bolts from the center section and insert them through the side sections back into the center. RED LOCKTITE MUST BE USED.
6. You can now lay the tower on its back (tow head down) and attach each leg one at a time.
7. To identify the legs we have stamped 2 letters on each fitting outlined in the diagram below. The legs and fittings are marked P for Port, S for Starboard, R for Rear and F for Front.



These markings can be found on the end of the legs and fittings (see below)



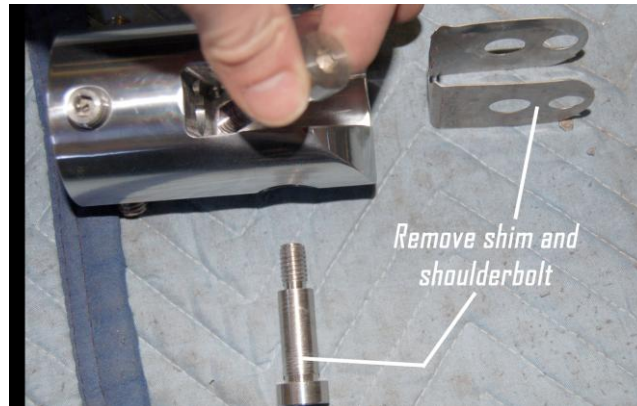
ASSEMBLY

1. **FRONT LEGS-** Before connecting the front legs to the tower the female folding fittings must be installed. These fittings are labelled PF and SF and correspond with the fittings on each side section. The female folding fitting will be mounted with a shim inside the fitting. This shim allows the tower legs to pivot inwards without galling the aluminium.

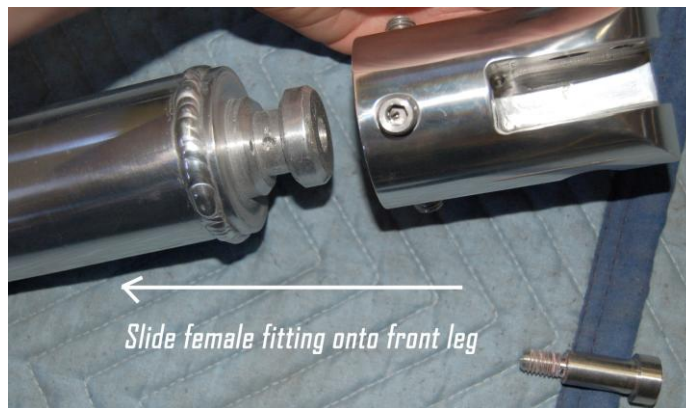
Female front folding fitting



2. Remove both the shoulder bolt and shim to access the center shoulder bolt.

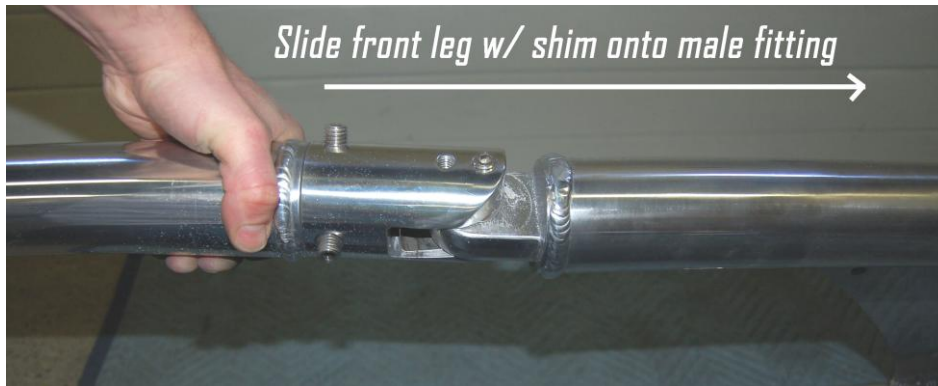


3. Slide the fitting onto the front leg and tighten (use red lock tite). RED LOCK TITE MUST BE USED

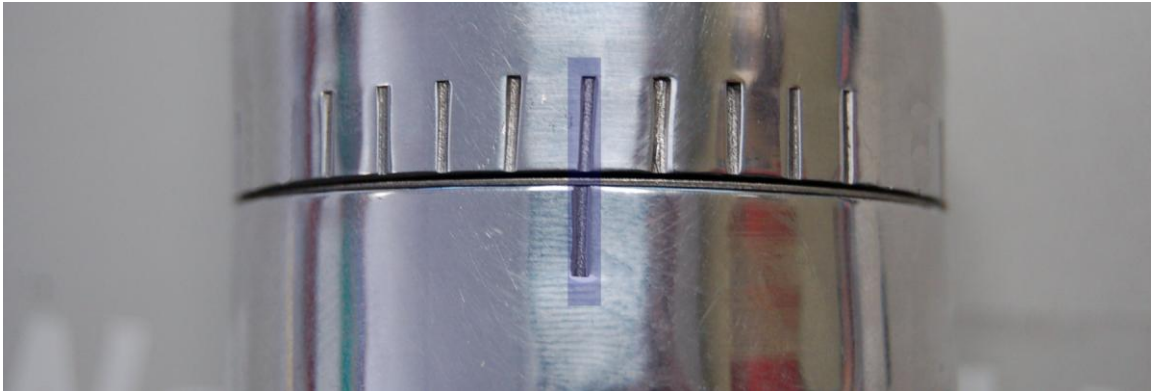


4. The fitting should still be able to rotate when the bolt is fully tightened. If it does not loosen by approx. 1/8 of a turn.

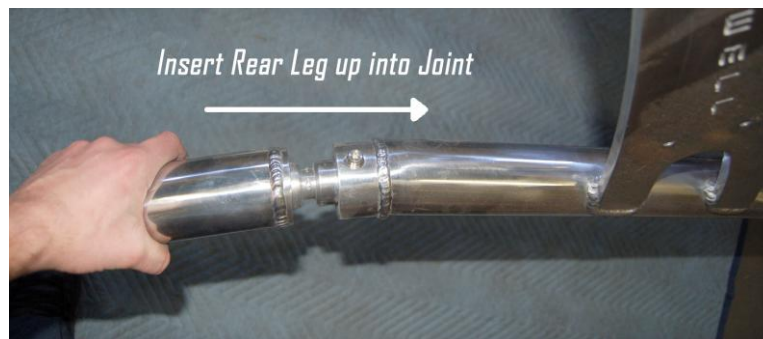
5. With both female folding fittings installed you can now slide the front legs onto the male fitting with shim.



6. You will find markings on both the fitting and the leg which allow you to set up both legs with the same degree of rotation. Start with both legs centered on these markings and hand tighten the 3 set screws to hold the leg in place. This will allow the tower to stand without falling over when you move it off its back.



7. REAR LEGS- The Rear legs attach much like the front legs and are marked to identify port and starboard. Again you will find linear markings to match the positioning of the rear legs. Start with both legs in the center of these markings and hand tighten the three set screws on each leg.



8. We now want to attach the rear legs to the rear mounts. The mounts and their components are pre-assembled- All you need to do is thread the tie-rod end up into the tower leg.

Note- Should you take apart this assembly and need to put it back together that the spacer on the tie-rod end goes on the inside (closest to the mount)



9. Similarly we will attach the front mounts to the legs. Attach front mount and link to leg and hand tighten the shoulder bolt.



10. At this point your tower should have four legs. The front and rear legs should both have mounts attached to them. Stand your tower up on the drop cloth and take a moment to imagine how sweet your boat is about to look once that tower in front of you is fully installed.

BOAT PREPERATION

1. You will want to prepare the boat for installation at this point. Begin by selecting your front mount positions. A good position is usually found in front of the windshield on the flat surface of the deck. It is important to make sure the mounts will be clear of the edge, cleats, vents, windshield etc. by **at least ¾ of an inch**. Also make sure to check the inside of the hull with a flashlight for any unexpected wiring harnesses, venting etc... A wiring harness can be moved temporarily by unfastening it for the time of the install.
2. A secondary mounting point for the front feet that may be considered is a side mount. We include curved mounting sub-plates for this reason. You can hold the curved plate up to the side of the boat (above the rub rail) in front of the windshield and check the fit. You can also grind this plate to match the curvature of the deck perfectly. The advantage for some consumers to this mounting position is the increased ability to open the windscreen without the tower interfering. Either position is acceptable and is your choice based on what will work best with your boat.
3. Next we will locate the rear mounting positions. These will be approximately 70" behind the front mounts (center to center) and should be on the side of the gunnel.

4. At this time you should tape off the desired mounting locations. Remember tape is cheap - gel coat repair tends not to be. Tape off sections around each mounting location that allow for some adjustments and provide a good protective barrier.
5. A beam width measurement is now required for both front and rear mounts. Using a tape measure find the distance between the two rear mounting surfaces. Write this down and do the same for the front mounts.
6. With your tower standing upright transfer these two distances to your tower. This is accomplished by rotating the legs in or out. Loosen the three set screws per leg, one leg at a time. Note the linear markings for reference and adjust all four legs to the beam measurements.



You can place a tape measure down like the picture shows and transfer the distances accordingly. See the next photo for joint rotation.



This rotation in all four legs allows the tower to adjust to varying beam widths.

NOTE

- ❖ If you are doing a side mount install on the front mounts you will need to adjust the fittings on the front so that the bottom of the mounts are facing in towards each other. The distance between these two faces should reflect the beam measurement you took for the front mounts. You can tape the curved sub plate to the mount at the approximate angle of the curvature if a curved sub plate is needed.
- ❖ On the rear mount you will find two bolts. The larger bolt in the center allows the mount to turn around this axis, the other smaller shoulder bolt locks in the position of the cradle. This

bolt should be removed to allow the mount to conform to the angle of the deck. Again you can tape the curved sub plate to the mount at the approximate angle of the curvature if a curved sub plate is needed.

It is incredibly important at this point to ensure you have the tower lined up correctly. Because we designed this tower to universally fit many different boats and all four legs have virtually unlimited adjustment, it is imperative to triple check that corresponding front and rear legs are rotated to the same positions. Use a plumb line/string, a square and or a second opinion to ensure your tower is a reflection of each other from side to side before drilling holes. Failure to do so may result in a crooked install and harassment from your peers.

Install- Rear Mounts

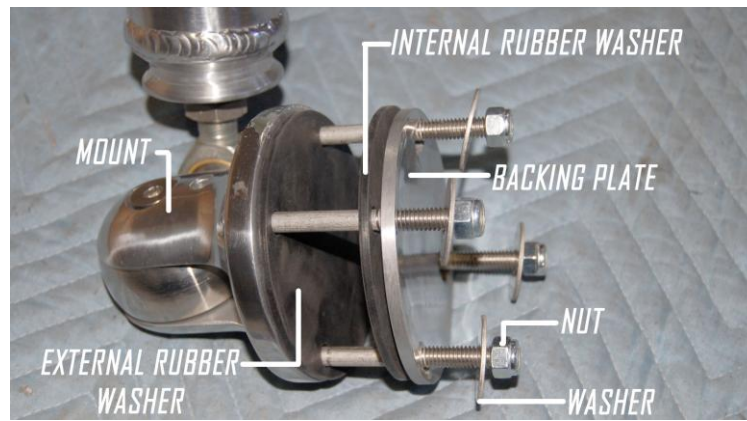
*Note- In the case of our scalloped sub plates. If the curvature is too much the plate can be modified using an aluminium flapper wheel to reduce the curve of the mount.

* Note- Tower legs should be snug (set screws) before lifting onto boat or the legs will flop around and make positioning the tower accurately very difficult.

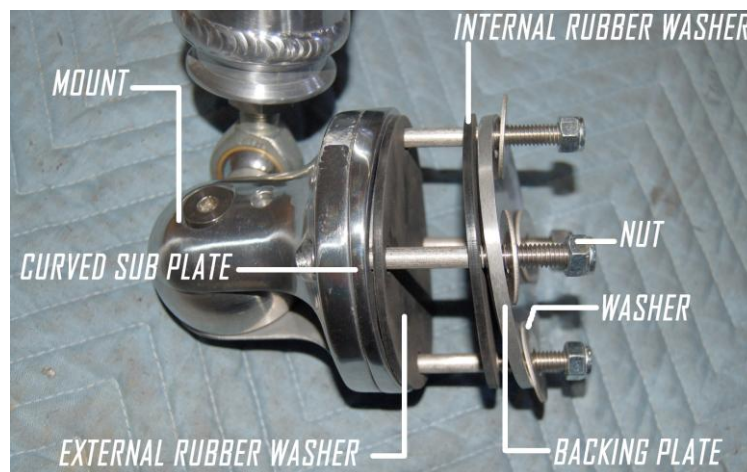
1. Have the two strongest installers grab the rear legs and have two other people on the front legs. It is often a good idea to have one person inside the boat to line everyone up and be ready with tools to adjust the legs if needed.
2. Position the tower on the boat. It is important to make sure both the front and rear mounts are clear of the edge, cleats, vents, windshield, rub rail etc. by **at least** $\frac{3}{4}$ of an inch. If not, adjust the legs (inwards or outwards) and or move the whole tower front or back to find a best fit position.
3. Once this best fit position is determined ensuring the front and rear mounts are lined up inversely to each other you can tighten all the legs and mark the position of the tower.
4. Trace the exact position of both rear mounts (outline with pen/marker onto tape) with the front legs in position. You must also lightly mark out the front mounts as well- These will change slightly but you need a reference point to check for obstructions on the inside the deck. With good markings, take the tower back off of the boat.
5. Detach the rear mounts from legs. Take the rear mount assembly to the boat and line up with the outline you just made. At this point you can make it fit best with the lines of the boat, curvature of the deck etc. Mark all four bolt holes onto the tape.

6. Stop and double check that the rear mounts are in the same position on either side of the hull by using more than one reference point. Reference points can be difficult to find on handmade boats- Often times windscreens, cleats, rub rails etc. are not perfectly symmetrical as such you will need to determine the best fit and symmetry on a boat to boat basis.
7. With your mounting places determined ensure that the inside of the hull is clear for mounting in all four positions. From boat to boat this may require creating access points behind cushions, storage areas or side panelling.
8. Drill the 4 holes per side for your rear mounts and use a countersink to *help* prevent gel-coat cracks. After your holes are countersunk remove the tape from each side.
9. Pick the helper you like the least and have them get inside the boat with the interior hardware. (rubber gasket, backing plate, 4 washers and 4 nylon locking nuts) This is the order they will go on: Boat- Rubber Gasket- Backing Plate- Washer- Nut.

The boats deck will be between the two rubber washers



FLAT INSTALL



INSTALL WITH CURVED SUB PLATE

10. Start by attaching the mount with two bolts opposite to each other on the diagonal. Another rubber gasket will go between the mount and the boat. Tighten well.
11. Take your drill and run through the two remaining holes. When complete insert and tighten the remaining two bolts and interior hardware.
12. Repeat on the other side and your rear mounts are installed!
13. You will need to remove the tie rod end assembly from the mount in order to put the tower back on the boat. Note the positioning of the spacers when removing the shoulder bolt that goes through the tie rod. Take both tie rods and insert them back into the legs of the tower.
14. It is now time to lift the tower back onto the boat. Have the helpers grab a leg each (if one or more front legs are not held they have a tendency to swing a bit and may scratch the boat...) and position the tower back onto the boat. Re-attach the rear legs to the rear mounts with the shoulder bolt and spacers you just removed.
15. After the tower is on the boat adjust the cradle in the rear mount and line up the holes allowing the thru bolt to be inserted and tightened. This up and down cradle adjustment will let you adjust the angle of the tower.



16. Now your tower should sit on the boat by itself but be cautious of the front mounts- especially if you are doing a side mount- You don't want to scratch the boat at this point.. Make sure the rear legs are both adjusted evenly so everything is square and move on to the front mounts.

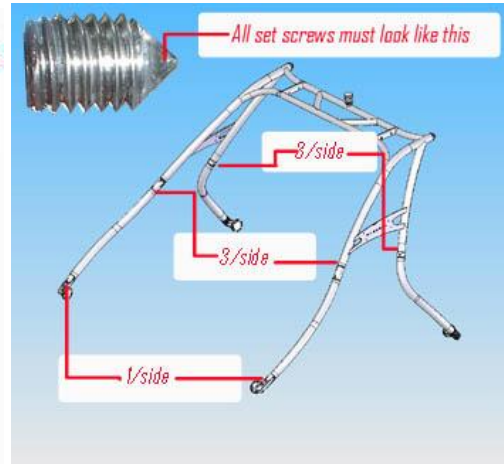
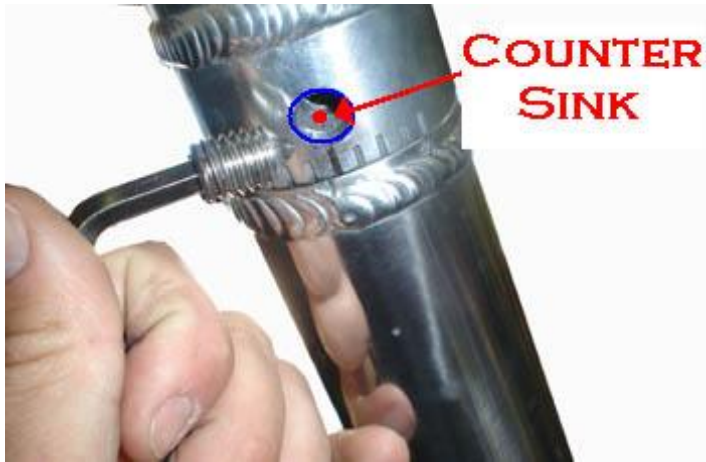
Install Front Mounts

1. You're close so it's safe to think about going riding now. Only two more mounts and eight more holes... With the tower positioned upright, the front legs should be close to the position you traced lightly earlier.

2. With everything lined up we suggest pulling the front mounts forward about ½ inch each side. This will help reduce any vibration and pre-tension the tower making it more solid. Trace out the mount and mark only the two front holes (closest to bow)
3. Remove the tri-lever hand bolt holding the front mount to the link and line up the mount with the markings you just made. Mark the rear holes and proceed to drill all four holes and countersink them like the rear mounts. Remove the tape.
4. Re-attach the front mount and leg. Set the front mount on the boat with a rubber gasket between the mount and the deck. Push two mounting bolts through the front holes. Have your helper hop in the boat and, like the rear mounts, place a rubber gasket, backing plate, washers and nuts on these two bolts. Tighten the mount while it is attached to the leg. This will prevent the mount from twisting.
5. Remove the leg from mount and run the drill through the rear holes to clean them out. Slide the other two bolts into the holes tighten and reattach leg. Repeat these steps for the other leg.

Tighten all bolts-

1. Your tower is now installed but we now want to square up the tower and make sure it is aligned in a best fit position, and do a final tighten of all the bolts. This includes tightening the large nut on the rear mounts tie-rod ends.
2. Step back from the boat and check the tower for alignment from all 4 sides. You can adjust the tower through the following positions:
 - a. Tie Rod end length
 - b. Cradle positioning in rear mount
 - c. Rotation in all four leg-side section joints
3. With your tower positioned how you want it, remove each set screw one at a time- **IT IS EXTREMELY IMPORTANT TO FOLLOW THIS NEXT STEP:**
4. **All ½” set screws should** be removed and a 3/16” drill bit must be used to countersink the hole in the fitting.
5. Be careful not to drill the edge of the threads- Line up the drill bit with the divot the set screw has made and drill approximately 1/8”.



6. **Do this one at a time and when you re-insert the set screw you MUST use RED LOCK TITE** and tighten each one down. These should never be touched again other than to tighten the tower so ensure all 14 are engaged.
7. Use the provided black rubber booties to cover the rear tie rod ends and attach with the tie-wraps.

Collar Installation- NEXT PAGE



1. Carefully place one half of the collar over the rear joint making sure that the welds on both fittings are centered in the collars channels.



2. Place the second half of the collar on the tower, lining the six holes up together.

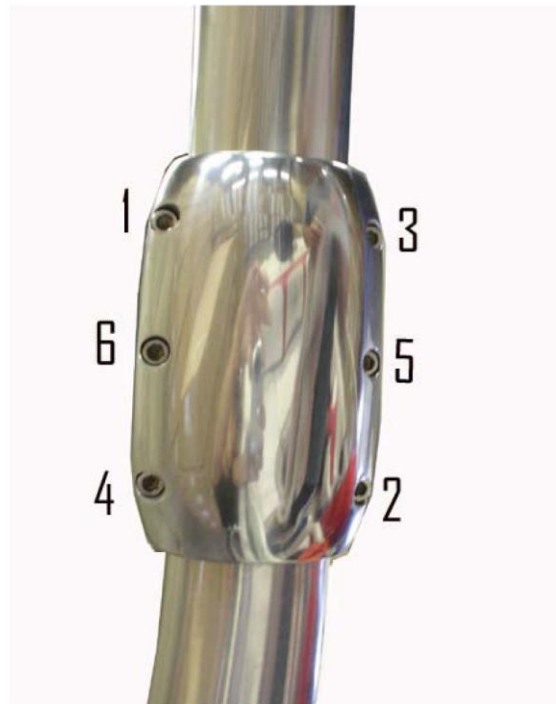


3. Using red (High Strength) Loctite Threadlocker, insert the six bolts and lightly hand tighten. *Note- Loctite Threadlocker must be applied to both the threads on the bolt and the tapped holes.

4. Visually check the gap on both sides and make sure they are the same.



5. Once you have the gaps even use your Allan wrench and tighten the bolts down using the following pattern.



6. Go back over all 6 bolts and ensure they are all tight. Repeat steps for opposite side and the tower is ready for use.

FINISHING STEPS

1. At this point you are technically done the installation... Give yourself a pat on the back but **before you go anywhere** or go riding check and tighten **ALL** bolts, screws, etc. Especially all of the set screws!!!!

It is imperative to check the tightness of these assorted fasteners each time the tower is used for safety's sake.

Thanks again for choosing Roswell Wake-Air. We appreciate your business and should you have any concerns please contact a Roswell representative at (780) 490-7908

Warning and Disclaimer

- **This product is to be used for the sole purpose of wakeboarding, airchairing, and kneeboarding.**
- **Ensure that all set screws, nuts and bolts are in place and secure prior to using your product.**
- **Check the tightness of all bolts/screws/nuts periodically. Even with lock-tite they may loosen over time.**
- **Never travel at high speeds (ie. Towing the boat on a trailer) with wakeboards/skis in the racks. If you own quick release racks or speakers we suggest sliding them off during travel and stowing them safely in the boat or vehicle.**
- **Be cautious when driving your boat on the water or on a trailer if you have board racks. They may narrow your clearance into a garage or slip.**
- **Please feel free to contact us with any questions regarding your new product. A Roswell representative can be reached at (780) 962-0868 or by e-mail at info@roswellwakeair.com**