



## Mounting Instruction Manual

Staun USA Inc

PO Box 12137 • Costa Mesa, CA 92627 • Phone (949) 645 7733 • Fax (949) 645 7738  
[www.staunproducts.com](http://www.staunproducts.com) • Email [harry@staunproducts.com](mailto:harry@staunproducts.com)

# DISCLAIMER

- For Off Highway Use Only!
- May not be legal in all states.
- Staun USA Inc and Staun Pty. Ltd. (hereinafter, *Staun* throughout) cannot be held liable for Staun Internal Bead Locks incorrectly installed and/or misused in a manner for which they were not intended.
- Vehicles driven with low tire pressures may result in less predictable handling on or off highway, so drive accordingly.
- Installation can be dangerous.
- Staun does not accept responsibility or liability for misdrilled rims and inner tubes pinched or damaged during installation.

# SAFETY

- Read completely through this instruction manual before starting.
- Safety is paramount! Think and practice safety from start to finish of the installation process.
- Use common sense and good safe work practices throughout the entire installation process.
- Wear gloves and safety glasses.
- Be cautious with compressed air.
- Use tire chocks before jacking the vehicle up and safety stands after it is up.
- Work sober!
- Keep these instructions in the vehicle for future reference. Others may need them to repair your tire.

Copyright, Staun USA Inc, 2005

# Staun Internal Dual Bead Lock Mounting Instructions



## THEORY OF OPERATION

Your Staun Internal Dual Bead Lock divides a tire's air chamber into two compartments. The bead lock Cap (pictured above) contains an inner tube inflated to 48 PSI (331 kPa) within the bead lock Cap. The Cap Inner and Outer Beads force the tire beads against the rim's bead seating area and tightly hold the two together. Through the special valve stem, and via the Air Channel, the balance of the tire can be inflated or deflated to any pressure less than 46 PSI (317 kPa). See more on pressure below.

## SAFETY

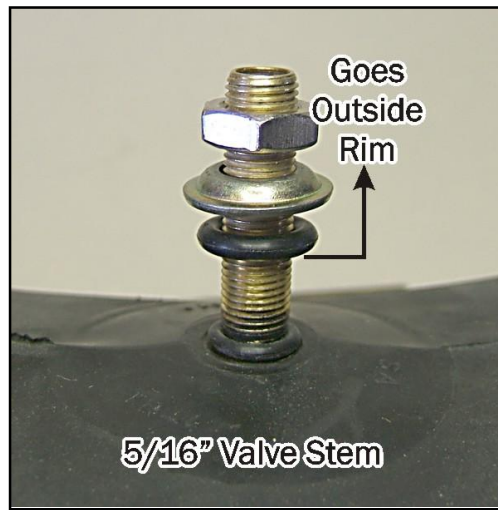
Read entirely through the instructions before starting. Safety is paramount! Use common sense and good, safe work practices throughout the entire installation process. Wear gloves and safety glasses. Be cautious with compressed air. Use tire chocks before jacking the vehicle up and safety stands after it is up. Work sober! Keep these instructions in the vehicle for future reference. Others may need them to repair your tire.

## REQUIRED TOOLS

You must have: 1) all of the necessary tools to break the tire beads and to remove and remount the tire; 2) a drill motor to drill (5/16"/8mm bit) and deburr the new valve stem hole; 3) wrenches to tighten the valve stem nuts.

## MOUNTING SUMMARY

The only modification required to install the Staun Bead Lock is to drill one hole in your rim (wheel) for the bead lock inner tube, but it must be done correctly. Staun is not responsible for misdrilled rims for any reason. The balance of the installation process involves mounting and centering the inner tube within the bead lock Cap on the rim, locating the tire chamber Air Channel directly over the special valve stem, and then setting the bead lock and tire beads on the rim.



We offer simple, straightforward instructions that we are sure most of you would know anyway, but we feel an obligation to be complete to ensure that you will do a perfect job. It is not difficult to mount your Staun bead lock, it just requires patience and attention to detail. Read entirely through this manual to get the “big picture” of how to install your bead lock *before* you start.

## DRILL AREA PREPARATION

Carefully measure twice before you drill once! Again, Staun Products is not responsible for misdrilled rims for any reason. The bead lock inner tube valve stem hole should be located about 6 to 8” (15 to 20cm) circumferentially from the standard valve stem hole. Although directly across from the standard valve stem hole seems proper, with this, it is more difficult to mount the final outside tire bead. Remember, drill the second valve stem hole within 6 to 8” (15-20cm) of the original valve hole.

Check exactly where you plan to drill your second valve stem hole for: 1) a flat spot to receive the O-ring, and 2) for rim thickness. The 5/16” (8mm) valve stem will accommodate any thickness of rim up to 1/2” (13mm) and requires a 5/8” (16mm) diameter flat surface to receive the O-ring, washer and nut.

The hole may be drilled on the outside (normal valve stem side) or inside (brake side) of the rim. When drilling on the inside, carefully check to ensure that the mounted valve stem will not interfere or otherwise come close to the brake drum, rotor, caliper, hydraulic line, emergency brake cable or other parts normally located within and near the rim’s inside cavity. Don’t let the new valve stem hit or rub on

anything. We recommend 1/4" (6mm) or more of valve stem-to-inside-rim clearance and more may be required to use your style air pressure gauge. With most rims, this is easily determined by looking at the rim as normally mounted on the lugs. Again, check twice and drill once!

And to ensure that you do not violate a U. S. Department of Transportation (DOT) requirement, do not destroy the stamped or cast size information on the rim. This information is required by the DOT.

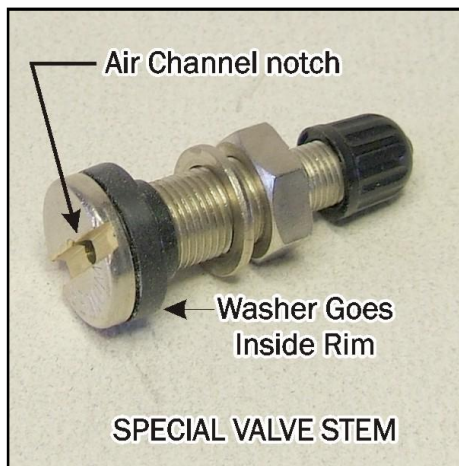
### **DRILLING PROCEDURE**

Center punch and drill the hole at a right angle to the center-punched surface. Deburr both the outside and inside of the hole. Remove all chips from within the tire if you drill with the tire half on the rim. Do *not* use compressed air to blow the chips out, but rather vacuum or wipe them out. Left inside the tire, these chips can eventually chafe and wear through the bead lock Cap, inner tube or both. Staun is not responsible for this type of failure or product replacement. Keep everything very clean and smooth.

### **RIM PREPARATION**

Remove all dirt, flaking paint, rust and corrosion from the entire inside surface of the rim. Pay particular attention to the tire-bead-seating surface. The condition of this surface sets the air seal integrity and rim-to-tire anti-spin adhesion. We recommend wire brushing this entire surface along with the rim's bead bumps.

Next, remove the standard valve stem and replace with the special, notched valve stem. Align the Air Channel notch to run parallel with the rim (openings pointing at the Air Channel Walls). Mark or remember this stem is for the "TIRE."

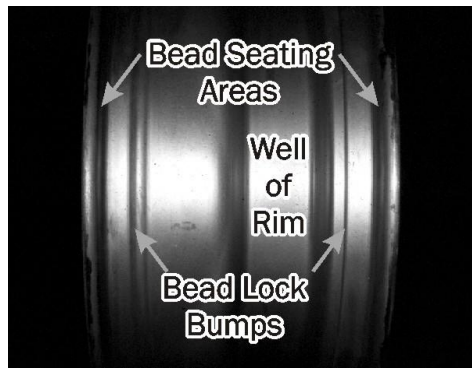


### **BEAD LOCK PREPARATION**

Using the powder supplied, generously "lubricate" 100% of the tube, inside the Cap and the inside of the rim. Both the inside and outside of each bead lock BEAD must be dusted completely. Some rims have tiny, thread-like ripples that can easily drag and trap the bead lock BEAD and lead to tube pinch. This can also occur on powder coated rims since the bead lock BEAD's "toothy" surface can bite into the powder coating and prevent proper migration to the correct position. The lubricating powder makes it easier to move the tube within the Cap, position the Air Channel over the special valve stem, and for the BEADS to migrate to the correct position when finally inflated.

## TIRE PREPARATION

Nothing special needs to be done to the tire, but this is a perfect time to carefully check the entire inside surface for "intruders." And remember, these guys can draw blood if you are not careful. Gloves or a rag over your fingers go a long way toward saving your skin from any sharp objects imbedded in the tire.



## MOUNT THE TIRE BEAD

Mount the inside tire bead on the rim, but do NOT set this bead. If you don't know the trick to make this easy, use the rim "Well" as follows. Place the first part of the bead in the rim Well, allowing the opposite side of the bead to more easily slip over the final part of the rim. Now, elevate the tire with an improvised hoist or blocks beneath. You want to create a working space between the outside tire bead and rim: Fist to mid forearm size is best. Your objective is to make it easy to move your hand around inside the tire to properly align and check the dusted tube and Cap for proper position. There is no need to draw blood or break your back positioning the bead lock. Use a hoist or blocks.



For sake of illustration, picture that the Cap is just like another tire, only it's inflated by an inner tube. It has Inside and Outside Beads, Sidewalls (the light material) and Tread, the big, flat webbing between the Sidewalls. The mounting process is identical to mounting a tire, only this "tire" is a little easier to work with. Definition: The *outside* of the Cap is the side with the Air Channel Walls facing out.

## MOUNT THE BEAD LOCK CAP AND TUBE

First, ensuring that all bead lock components are well lubricated with the powder *before* you start, mount the Cap's *Inside* bead on the rim. Roughly position the Air Channel near the original hole and new valve stem. As with a tire bead, this is most easily done by taking advantage of the rim's Well.

Now, gently force the tube over the rim so it nests *within* the Cap. Put the tube valve stem through the newly drilled hole, install the O-ring and washer, snug the tube up against the rim, then finger tighten the nut.

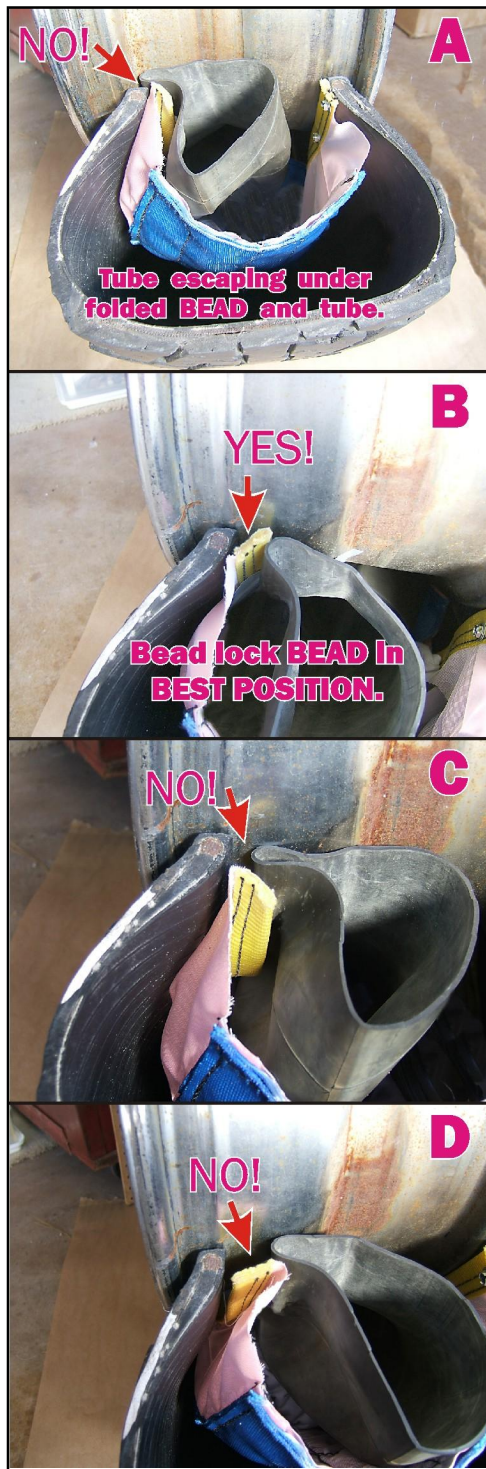
Next, put the Cap's *Outside* bead over the rim.

## CAREFULLY POSITION THE BEAD LOCK & TUBE !

This is the step that makes your installation perfect. You must ensure that both the Inside and Outside *bead lock* Beads are properly positioned and the tube is neither pinched nor in a position that it will become pinched when fully inflated.

Since you cannot see the inside Bead, think like a raccoon. Patiently use your fingers to "take a look." Your objective is to ensure that the Air Channel Walls and Floor are under the tube, and that the tube is not outside either the bead lock Cap or the tire as shown in A. This is most likely to occur on the outside of the rim since the rim Well is very close to the rim's bead bump making a large gap possible. The bead lock Beads must be properly positioned as shown in B. The bead lock Beads must not be folded up against the bead lock Sidewall in either direction as shown in C and D.

To make the bead lock mounting process easier, gently inflate the tube to 1 or 2 PSI (7 to 14kPa) and position the Air Channel so it is centered on the new valve stem remembering that the replacement valve stem notch must point at the Air Channel Walls. Finally, with your hand, patiently, carefully and meticulously feel 100% of both the Inside and Outside bead lock Beads to ensure that they are positioned as shown in B and that the tube is centrally located and is not pinched, trapped outside the CAP or in a position to become trapped.



Once you are satisfied that the bead lock assembly is properly positioned, deflate the tube to "limp." Give it a little body, but not so much as to interfere with mounting the outside tire bead which may force a fully inflated tube outside the CAP in an unseen area within the tire. That will undesirably pinch the tube! You are now ready to mount the outside tire bead; however, note that popping the tire beads (below) requires a completely flat tube.

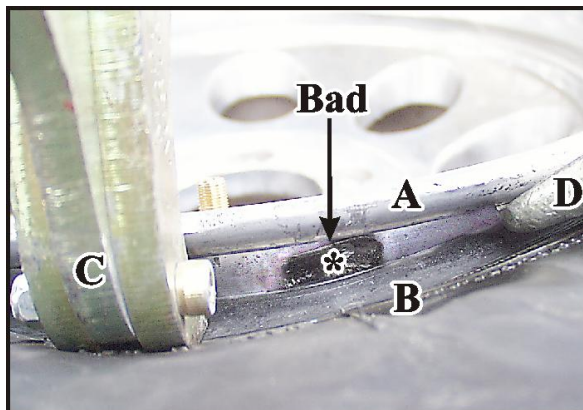
### HAND MOUNT OUTSIDE TIRE BEAD

For hand tools, start mounting the outside tire bead directly across from the valve stems. Continue mounting the bead, in both directions, toward the valve stems. Finish mounting the outside bead *at* the valve stems.

### MACHINE MOUNT OUTSIDE TIRE BEAD

Know how your tire mounting machine mounts the outside bead. Some move the tire and rim, others move the bead tool. In either case, ensure that the tire does not rotate on the rim. Now think about the finger crushing, bone breaking, massive force your machine is capable of generating. *Your absolute objective is to keep all of the parts that you have spent so much of your important time meticulously arranging in place! Independent movement of anything may/will break the tube valve stem and this is not covered by our warranty.* Regardless of method (machine or hand), this is the time to pay particular attention so you don't pinch the Cap or tube.

In either case, if you drill the tube valve stem hole very close to the rim's outside bead area, it may be necessary to loosen (undo nut) this stem to allow the final tire bead over the final part of the rim. The thickness of the tube around the valve stem may interfere with mounting the tire bead. Temporarily move it aside.



This is also a good time to ensure that the Air Channel Walls are not trapped between the tire and rim as pictured. This is easily checked by slightly depressing the tire bead at the Air Channel. No Air Channel Walls should be visible when the tire bead is slightly separated from the rim.

## POP THE TIRE BEADS

We recommend using nothing other than water for a bead lubricant, and only if absolutely necessary. We suspect that soapy lubricants may again become wet and thus slippery, allowing the tire to spin on the rim under extreme conditions. The use of gasoline, oil, grease or similar products of any sort is foolhardy.

Remove the bead lock tube's valve core. A flat tube keeps the tube from being forced outside the CAP (tube pinch) in the tire bead popping process.

Using the notched replacement valve stem, safely use the tire to pop the tire beads back on the rim. *Do not* exceed the tire manufacturer's MAXIMUM LOAD rated pressure. Remember to keep all body parts (primarily fingers) out of the bead area.

Using the tire's concentricity rings, ensure that the tire is centered on the rim. An improperly centered tire most likely indicates that an Air Channel Wall (\*) is trapped between the tire (B) and the rim (A) as pictured (C, tyrepliers and D, tire spoon, previous picture). This is unacceptable. To remedy, break the tire bead at the misalignment and free/reposition the Air Channel Walls. When remedied, start again at the "POP THE TIRE BEADS" paragraph above. After the beads are properly seated, deflate the tire completely.

Next, reinstall the bead lock valve core and inflate the bead lock inner tube slowly. Inflate a little (up to 3 PSI/21 kPa), then, with your ear right on the tire, carefully listen for an internal hiss. If OK, inflate a little more, then listen again. We have learned that if you hear what appears to be a "leak" inside the tire, it is actually a pinched tube slowly passing air from the bulk of the tube to the pinched portion. *IF YOU HEAR AIR*, immediately deflate and check for a pinched tube. It is absolutely necessary to remedy this, otherwise, it will blow the tube. Now, start again at the first of this paragraph. Do not exceed 48 PSI (331 kPa) in the bead lock tube.

Now, inflate the tire to your desired pressure. Remember to keep the bead lock pressure at least 2 PSI (14 kPa) higher than the tire chamber pressure.



Finally, check Air Channel alignment by deflating the tire. If it deflates, the Air Channel is positioned properly. If not, deflate the tire and bead lock, break the outer tire bead, then, with tire irons, push the tire bead away from the rim at the Air Channel and reposition, remembering again that the Air Channel Floor must be completely under the replacement valve stem, and the Air Channel Walls must be on opposite sides of this valve stem.

With the bead lock *fully* inflated, securely tighten the tube valve stem nut, then check/tighten the tire valve stem nut. You want to compress the gasket/O-ring, but not damage it.

### **FINAL BEAD LOCK POSITIONING**

To completely ensure that the bead lock is properly positioned within the tire, deflate the tire, then deflate the bead lock. Now, completely reinflate the bead lock listening for a pinch, and when fully inflated, reinflate the tire. This finalizes the bead lock position within the tire.

### **RECHECK AIR CHANNEL ALIGNMENT**

Fully inflate the bead lock tube, then the tire. Depress the tire valve core to ensure that the tire will deflate. If the leak rate is very slow or not at all, the Air Channel must be repositioned.

Deflate the tire, then the bead lock tube in that order. Break the tire bead at the tire valve stem and see if you can reposition the Air Channel. If not, the outside tire bead must be removed from the rim, then the Air Channel repositioned.

The proper position of the Air Channel has the Air Channel Floor between the tire valve stem and the tube, and the Air Channel Walls must centrally straddle the tire valve stem.

### **CHECK FOR LEAKS**

Check for air leaks at both tire beads and both valve stems. A dilute solution of dish soap and water (1/2tsp/2ml soap per cup/240ml of water) will reveal even the slightest leak by building a "nest" of tiny bubbles. Leaks must be remedied. When satisfied there are no leaks, rinse the soap.

### **BEAD LOCK PRESSURE**

The bead lock pressure range is 34 to 48 PSI (234~331 kPa) and should always be at least 2 PSI (14 kPa) higher than the tire pressure. We recommend that you run the bead lock at 48 PSI (331 kPa) all the time.

### **TECHNICAL ASSISTANCE**

For clarification of these instructions or installation assistance, call (949-645-7733) or email ([harry@staunproducts.com](mailto:harry@staunproducts.com)).

## DISCLAIMER

For Off Highway Use Only! May not be legal in all states. Staun USA Inc and Staun Products Pty. Ltd. (Staun throughout) cannot be held liable for Staun Internal Bead Locks incorrectly installed and/or misused in a manner for which they were not intended. Vehicles driven with low tire pressures may result in less predictable handling on or off highway, so drive accordingly. Installation can be dangerous. Staun does not accept responsibility or liability for misdrilled rims and inner tubes pinched or damaged during installation.

## OTHER QUALITY STAUN PRODUCTS

### *Automatic tire deflators*

They ~~won't~~<sup>will</sup> let you down!

[www.staunproducts.com/benefits.php](http://www.staunproducts.com/benefits.php)

### *Massojet Under Body Buddy*

The easy way to clean under your 4X.

[www.staunproducts.com/bodybuddy.php](http://www.staunproducts.com/bodybuddy.php)

### *Massojet Air and Water Gun*

The powerful way to clean your 4X.

[www.staunproducts.com/masso\\_air.php](http://www.staunproducts.com/masso_air.php)

### *Staun 329 Corrosion Inhibitor*

Stops corrosion in its tracks.

[www.staunproducts.com/masso\\_329.php](http://www.staunproducts.com/masso_329.php)

### *Massowash*

Provides long lasting protection for your 4X.

[www.staunproducts.com/massowash.php](http://www.staunproducts.com/massowash.php)

### *Salt Assault*

Removes damaging salt from your 4X.

[www.staunproducts.com/saltassault.php](http://www.staunproducts.com/saltassault.php)

## Staun USA Inc

PO Box 12137 • Costa Mesa, CA 92627

Phone (949) 645 7733 • Fax (949) 645 7738

[www.staunproducts.com](http://www.staunproducts.com)

Email [harry@staunproducts.com](mailto:harry@staunproducts.com)