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### Trailer Bearing Replacement - Here's How

Posted by: NautiqueJeff



**Thanks to PlanetNautique member M3Fan, we have an outstanding write-up of how to replace wheel bearings on our trailers. This article is very informative, and I am sure lots of us will put this to great use. Check it out!**

I thought I would document the last bearing change I did on my trailer in hopes that it would help somebody else down the road. Changing bearings on trailers is not something to be taken lightly- a neglected or improperly installed 20.00 bearing could cause major damage to your 50,000 boat and/or a massive accident on the highway. This DIY is to be performed at your own risk and if you decide to do it yourself, any negative results are nobody's fault but your own.

#### Supplies Needed:

- Bearing set including inner and outer bearings and races. These can be found at a trailer store in your area or at your dealer. There are also several internet sites such as championtrailers.com that sell these kits. Be sure to get the right size for your trailer. If you have any doubt as to what size to get, you can always bring in your hub or old bearings and have the store match them up for you.
- Some rubber gloves of some sort, unless you don't mind getting grease all over your hands. Latex exam gloves work fine.
- Plenty of bearing grease. I used a marine grease made by LubriMatic. Be sure to select a grease which is also available in cartridge form so you can use it in a grease gun.
- A heavy duty degreaser- I use gasoline because it is readily available and does a fine job dissolving grease. Besides making your hands smell like gas for a day, it is hard to beat.
- A rear bearing seal. For marine applications you want to try to find the double-lip variety to keep water out of the bearing. Most auto parts stores will only have the single-lip variety but a specialty trailer store should have it. This needs to fit your hub and axle exactly, so just like the bearings, get help finding out the right size to buy.
- A new cotter pin for your castle nut
- Plenty of rags
- A hammer
- A screwdriver that you don't want anymore
- A floor jack
- A new bearing buddy or dust cap for the front of the hub
- A pair of Channellock slip-joint pliers or other large-opening pliers
- A pair of needle-nose pliers
- Some old cardboard to cover the ground around your work area. Trust me, you'll need it. This is a messy job.

Click [here](#) for the rest of the article.

This article can be discussed [here](#) in the Maintenance forum.

Note 1: I'll mention here that I was able to get the cotter pin, bearings, and seal in a kit at the local trailer store for around 20.00. This might be an option to consider if it is available.



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First, a shot of our venerable test subject, my old 1990 Ski Nautique (since sold to another PN member). The trailer is a tandem axle type with the smaller Ford 5-bolt hubs. The inner and outer bearings are of differing diameters, as most heavier-load bearing hubs will have.



For this bearing, the culprit was a bad rear seal. The bearing never failed, but you can see from the picture below that grease is obviously leaking out of the seal and flinging around the inside of the rim and tire. Water is also allowed to enter the hub with a bad seal, turning the grease a whiteish color. Not only is the grease's lubrication capacity compromised when this happens, but the water can freeze in the hub over the winter. Not good.



While the trailer is still on the ground, loosen the lug nuts on the hub in question. You don't want to jack up the trailer and then try breaking the bolts loose with the wheel off the ground.

Next, jack up the trailer. I prefer to put a floor jack under the axle itself right below where it connects to the leaf spring. This way the upward pressure of the jack is applied to the trailer as if it were just sitting on the ground normally. I only jack the trailer up enough to give about 1 inch of clearance under the tire. Be sure to block the other wheels of the trailer so it doesn't go rolling down the driveway half way through the job. I'm sure it's happened to somebody. Be careful, and use common sense.

Finish spinning off the lug nuts and remove the wheel. Set it aside.

Next, we need to remove the bearing buddy if you have one. In its place you may just have a dust cap or some brand-x bearing-buddy style end cap. Regardless, the removal goes the same way- with a hammer. I usually get the hub spinning by hand at a low RPM and tap down on the bearing buddy as the hub rotates. It should just wiggle out as you tap on it, as it is only held in by pressure (much like everything else in the hub, as you'll see). When it comes out, set it aside on your cardboard mat. You can clean it up with gas and rags and use it again, or take this time to replace it with a new one (recommended). Clearly this one has had its day. It is made by Fulton and is garbage compared to the real bearing buddy brand. Don't buy the Fulton bearing-buddy wanna-be's.



Now that we have the bearing buddy off, we can see the castle nut and cotter pin. On some trailers, it may be a regular nut with a castle-style retaining washer on top. Either way, use your needle nosed pliers to straighten out the pin and pull it out. Throw it away- we won't be re-using this guy either.



Once the cotter pin is out, remove the castle nut and place it in your degreaser for later. In my case, this is a tupperware container with a

couple ounces of gasoline. Now, pull the hub towards you. It should slide right off. The front bearing and washer MAY fall right out when you do this, so pay attention. We'll need the washer for later. Once you pull off the hub, you'll see the spindle of the axle. Take a rag and clean it off thoroughly. Then give it a wipe down with your degreaser-soaked (gasoline-soaked) rag to remove all the residual grease. It should look something like this:



Now we'll remove the front bearing if it hasn't fallen out already. Throw it away- we'll be replacing it anyway. As I mentioned before, there is a washer that goes in front of the bearing between the bearing and the castle nut- on this trailer it was specific to the axle so I put it in my gasoline bin to de-grease it for later. Try not to lose it. So at this point we should have 1 castle nut (or 1 regular nut and 1 castle-style retainer) and 1 washer in the gasoline bin, soaking.



Next we'll want to flip the hub over and remove the rear seal. The rear seal is made of thin metal and will bend easily. I use a pair of Channellocks and mercilessly rip out the seal. Like everything in the hub, it is pressure-fit. Clearly we won't need it again, so go to town.



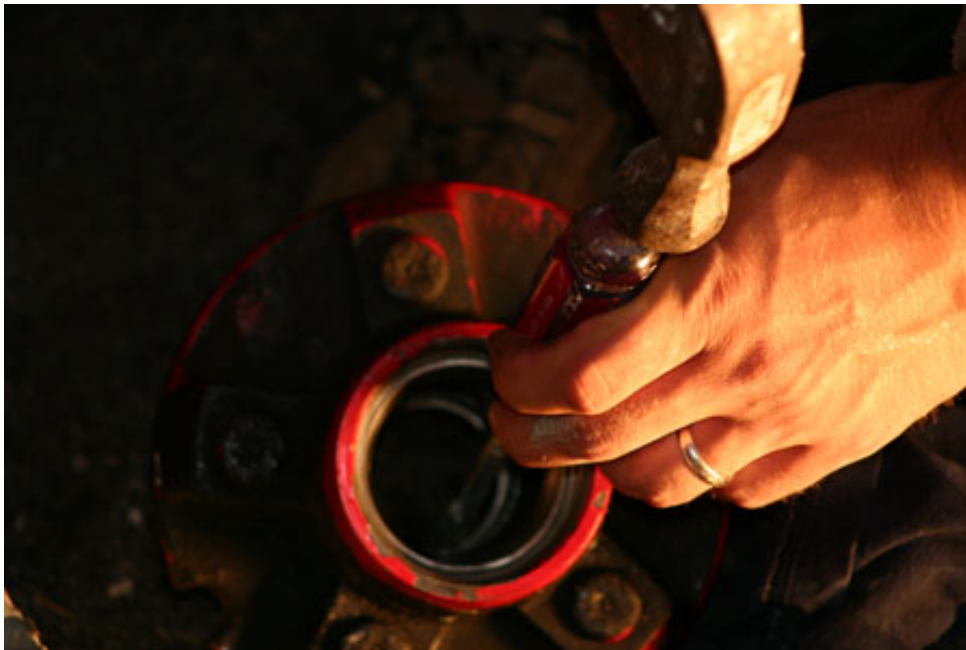
Now that the seal is gone, the rear bearing should fall right out. Throw it away, as we are replacing it.



Now all of the internal pieces are out of the hub. If you waited too long to change your bearings, the above steps might have gone more easily because everything was shattered and destroyed! Now, the only thing left in the hub are the front and rear races. These are the smooth, tapered running surfaces that our bearings roll around on. They are hardened metal, and are held in to the hub by pressure. In order to do the job right, they must be removed and replaced. Removing the races SUCKS. I don't know how else to describe it. We'll get to that later. For the moment, just clean all the grease out of the center of the hub and use a degreaser/gas-rag to get all the residual grease and dirt out of the hub. It should look something like this:



Now we will remove the front race. In order to do this, I use an old screwdriver and tap it out from behind. I vary the hitting location all around the rear surface of the race and patiently tap it out. You must be careful not to mar the interior of the hub with the screwdriver when you do this. To put it mildly, it takes a long time to tap it out and it is extremely frustrating. There are two alternatives to tapping it out: 1. Have a shop press out the old races and press in the new ones with a press, and 2. buy new hubs with races already pre-installed. I like doing it myself, so I tap away for at least 20 minutes to get each race out:





Here, you can see the front race emerging from the front of the hub. At this point the neighbors have heard tap-tip-tapping interrupted by loud, creatively obscene cursing for at least 20 minutes:



Now we do the same with the rear race. Just tip-tap it out with the screwdriver and hammer on the rear surface of the race, steady as she goes.



This might be a good point to crack open a drink and chill for a couple minutes. Both races are out, the hub is empty and clean. Now we need to reverse the process by tapping in the new races where the old ones were. I like to do the front race first since it has the longest distance to travel. Start by setting the race onto the front of the hub. It is pressure-fit, so it should not go in without a good amount of force. Be sure to have the taper facing OUT. You don't want to tap it all the way in, only to find that it is backwards.



We don't want to damage the race or the inner hub when pressing the new race in. I get it started with a 2x4 to spread out the blows from

the hammer.



Once you get the race flush with the front of the hub, you can use the old race to tap it in further. Don't go too far with the old race or you won't be able to get it out! Just go SLOW and STEADY.



The rest of the distance the race must travel is covered by tapping it with the screwdriver, the same technique we used to remove the old one. This is delicate business because you don't want to damage the face of the race or gouge the interior of the hub. The race is made of VERY hard metal so it is not easy to damage it, but still use caution. **BE SURE TO TAP THE RACE ALL THE WAY FLUSH TO ITS SEATING SURFACE.** If you look at the rear of the race, it should sit completely flush to the seating surface (a lip around the interior of the hub that stops the race from going down any further) before you are done tapping. The bearings will not ride properly if the race is not tapped all the way in. This is crucial.



Now we do the same with the new rear race. Insert it:



And tap away. Again, remember to drive it all the way to its final resting position against its seating surface. You can look at the back of the race to eyeball whether it is flush against the lip or not. Again, this is absolutely crucial.



Once both races are seated properly, it's time to pack the new bearings with grease. They have a tool out there for packing the grease, but nothing that a gloved hand can't do. Liberally roll the bearings around in your hand with grease to force grease into the bearings. Once they

are packed, set them aside on a clean, dry surface, or just leave them in your grease bin.



Now we must fill the rear seal with grease. Just pack it in the back of the seal. Then, flip the hub over and set the rear bearing into its tapered race (IMPORTANT: don't forget to put the rear bearing in before the seal, or you'll have to re-do this process). Put a good glob of grease down on top of the bearing and set the rear seal down on top. The rear seal now has to be tapped into place, since it is held in only by pressure.



The rear seal is delicate. Banging on it too hard will warp it or dent it, and it will no longer stay in place to serve its function properly. Be very careful tapping it in. Take your time. Make sure that it goes in nice and straight. You might have a spare seal or two on hand until you get the hang of this. Again, I use the 2x4:



When the rear seal is in, it should look like this (note how full the hub is with new grease already- you don't want any air pockets in the hub so when in doubt, add grease by the handful):



Now we're really rolling. Now that we have the rear seal and rear bearing installed, fill the interior cavity of the hub with grease. Then CAREFULLY slide the hub back on to the spindle. Excess grease should emerge from the front of the hub as you do this. Be very careful not to damage the rubber lip of your new rear seal on the spindle threads. Slide it as far as it will go. This may take some jiggling back and forth and some gentle manual persuasion. You'll know it's all the way there by looking at the back of the hub and noticing where the lip of the seal is making contact with the axle. Notice that I pre-greased the spindle to make it slide on easier.





Now slide your front bearing into the hub. Make sure you put the tapered end in first to match up with the outer race.



Take the washer out of the degreaser bin and wipe it off with a clean rag. It should look like new by now. Slide it over the spindle on top of

the front bearing.



Now spin the castle nut back on by hand. Get it as tight as you can by hand.



The next step is slightly tricky, but not that bad. Take your chanellock pliers and gently tighten the nut while simultaneously rotating the hub with your other hand. You want to tighten it until you start feeling that the hub is getting slightly harder to turn. Once that happens, stop tightening. What you're doing here is "setting" the bearings into their races and snugging everything up. Back the nut off a half turn or so and install your new cotter pin through the nut. Use your needle nose pliers to bend the ends of the cotter pin back around the nut. The hub should spin easily with no front-to-back wiggle.



Now put the wheel back onto the hub and spin on the lug nuts. Get the lug nuts snug while it is still jacked up off the ground. Now, with the wheel on the hub, you have much more leverage to wiggle the wheel forward and back and spin it. There should be little to no forward-back play and the wheel should spin on its own for a good amount of time if you give it a spin by hand. If not, take this opportunity to tighten or loosen the castle nut while the wheel is still off the ground. Once you are satisfied with the tightness, lower the jack.



With the wheel on the ground, take this opportunity to crank down on the lug nuts and get them tight. At this point, you may want to take the trailer around the neighborhood and then jack it up again. Spin the wheel and check for play. Once you are completely satisfied with the tightness, grab your new bearing buddy or dust cap and fill it with grease. This is a pressure-fit item, so it must be hammered in. I grab my trusty 2x4 and have at it with a hammer. Once it is in, grab your grease gun and top it off.



Reinstall the bearing-buddy "bra" and sit back and admire your work. You just saved yourself some big money, and now you know how to fix your trailer if you lose a bearing on the road. On the next few trips to the lake, check your hubs for heat and play in the bearings.

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