Bearing Replacement

Removing and reseating the bearings on your Trikke wheels

October 2007

www.TrikkeTampaStore.com
1-877-2TRIKKE

Bearing Removal & Replacement

Disclaimer

This document was written by Trikke Tampa. It's of our own opinion and example. This is not an official Trikke Tech, Inc document but is only a guide to be used as a reference.

This document is written with the novice mechanic in mind and/or a person who does not have all the necessary tools to remove and replace bearings. However, we are showing a way that is most feasible to the average Trikke owner. For the more mechanically inclined or persons that have the more correct tools available then please use them.

Trikke Tampa is not responsible for the consumers use of this document. Trikke Tampa will not be held responsible for any damages or injuries that may have resulted in the use of this document. It is to be used at your own risk and responsibility.

If you have any questions or need clarification on any of these instructions please feel free to call us at 813-319-3735 during business hours. You may also email us at andy@trikketampa.com

October 2007

Symptoms of a misaligned wheel bearing

NOTE: The below mentioned symptoms assume you do NOT have a brake dragging or anything else hindering the wheel from spinning. Always eliminate the obvious first.

1. If you spin the wheel and it doesn't come to a slow smooth stop.

2. After firmly tightening the wheel axle on your Trikke , verify the brake pads are not rubbing and notice the wheel doesn't spin freely and smoothly to a stop. But, when you slightly loosen the axle it then spins freely.

3. When carving you hear a "clicking" coming from the wheel. Make sure it's not a cable or valve cap hitting the frame when the wheel is turning before assuming it's a bearing problem.

4. If you hear a rattle in the rear wheel of the T12 Roadster while carving it is most likely the inner brake pad that is lose and NOT the bearing spacer. Simply follow the brake adjustment procedure using a 2.5mm hex wrench to tighten the inner brake pad set screw.

October 2007

What causes a misaligned wheel bearing

1. If the wheel bearing is not “squarely” seated in the bearing recess of the wheel hub and then the wheel axle is installed and tightened it causes the inner race of the bearing to “bind” or be at an angle, instead of perfectly parallel, to the axle. Therefore, not allowing the bearing to turn truly.

2. If the bearing is not seated squarely into the recess it could be because of debris between the bearing and the base of the recess in the hub. This can be caused from the bearing not being properly lubricated on the outside race and on the bearing recess before being pressed into the recess. By not properly lubricating the outside of the bearing and the recess it will “shave” aluminum from the hub of the wheel and get underneath the bearing which causes it to seat at an angle. It only takes less than .0001” of debris to cause a misaligned bearing.

3. Another cause would simply be from not installing the bearing properly. You must ensure when installing a bearing that you drive the bearing in squarely. On a Trikke hub the bearing does not require a press but gently tapping. As long as the bearing is aligned “squarely” it will move down with gentle taps of a hammer or bearing knock. If you’re tapping on the bearing fairly briskly and the bearing isn’t moving then look at the hub and bearing from the side to see if the bearing is properly “squared” with the hub of the wheel.

October 2007

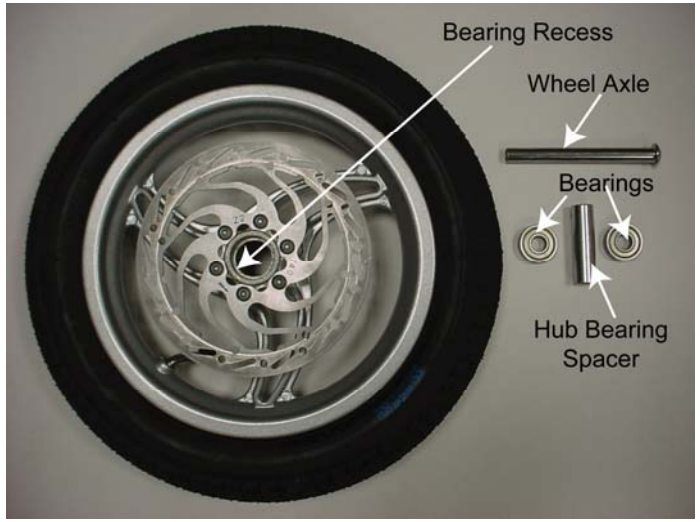
Tools Needed and Explanation of Task

- **Tools Required**
- Hammer
- Small screwdriver or scribe
- Light grease or lubricating oil
- Towel or rag
- **Optional Tools:**
  - Bearing Knock
  - Deep socket (do not use too small or too big of a socket or damage could result to the bearing)

- **Explanation of Task**

- This task is for replacing or re-seating the bearings on any of the Trikke model wheels. The aluminum alloy rims tend to be the wheels that require re-seating or periodically replacement of the bearings. This document explains in a step-by-step procedure on how to accomplish bearing removal and installation.
- Care should be used in all steps of this task so not to damage the wheel, bearings, axle, hub spacer or bearing recess.
- Bearings are a consumable part on the Trikke. However, if properly installed, maintained and not subject to extreme conditions a bearing should last for 1000's of miles. Of course this is not always the case and bearings may fail sooner.

Figure 1



October 2007

Overview

- Step 1 – Work Area
- Step 2 – Remove bearing on first side
- Step 3 - Remove bearing on second side
- Step 4 – Clean bearing and recesses
- Step 5 – Lubricate bearing and recess
- Step 6 - Re-Install first bearing
- Step 7 – Re-Install spacer and second bearing
- Step 8 – Re-install wheel on Trikke and Test

Step 1

- **Work Area – This step is only an explanation of tasks and work area. Do not accomplish any work until fully reading these instructions.**
- You can use 2 pieces of wood and work on the floor (Figure 1.1), use a work bench or wherever is most appropriate for your situation and the work surface is hard. In figure 1.1 the 2 wood pieces are used to raise the wheel above the floor high enough to where the bearing that is facing down has clearance to be tapped out of the wheel. This configuration also gives you clearance of the brake disc on a T12 wheel.
- You must use a hard base like a floor because of the tapping on the bearings to remove and install.
- In this illustration we will use 2 sawhorses as our platform for removing and installing the bearings.
- You'll also notice that we're using a bearing knock for re-seating the bearings. A hammer and a socket can be used (Figure 1.2) but it's imperative that you tap the bearing squarely into the bearing recess of the hub.
- When using a socket be sure the outside diameter of the socket is just barely smaller that the outside diameter of the bearing. This will ensure you're putting all the tapping force on the outside race of the bearing. It also lets the bearing be seated all the way into the recess if it goes below the level of the wheel hub.

Figure 1.1

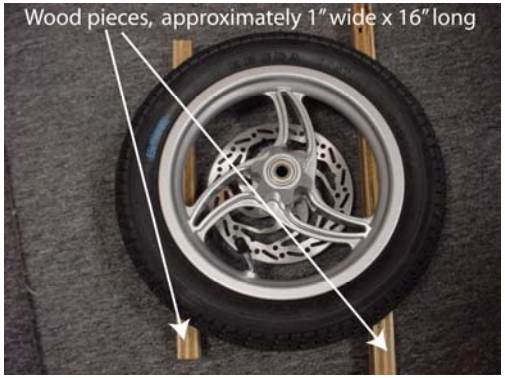


Figure 1.2

Step 2

- **Remove bearing on first side**
- NOTE: Please read this entire step prior to proceeding to ensure you have a complete understanding of what the task is asking you to do.

1. Inside the hub of the wheel is a bearing spacer. This spacer is a fraction of an inch longer that the actual distance from one bearing to the other on the inside of the hub. This is by design so do not modify the spacer in any way by shortening it.
2. Place the wheel on your raised work surface, as shown in figure 1.1 of Step 1, that gives clearance to knock out the first bearing.
3. We're going to use the wheel axle and the bearing spacer to tap the first bearing out of the hub. Extra care needs to be taken when using the axle so that you don't damage the axle or the spacer.
4. Ensure the bearing spacer is "off-center" (see Figure 2.1) of the bearing. If it's not then tap the wheel on the ground to cause the spacer to go off-center. If tapping the wheel on the ground doesn't cause the spacer to come off center then you can use a hex wrench or screwdriver and put in the bearing hole and force the spacer off-center.
5. Once the spacer is off-center then insert the axle into the bearing and just on top of the edge of the spacer. See figure 2.3
6. Tap the top of the axle with a hammer to force the opposite bearing out of the wheel. If the spacer goes off-center before the bearing is tapped out then follow step 4 again to get it off-center.
7. When the bearing comes out the spacer will too. Put the bearing and spacer in a safe place for use later in this procedure.

Figure 2.1

Figure 2.2

Figure 2.3

Step 3

- **Remove bearing on second side**

NOTE: Be careful during this procedure that you keep the wheel axle end on the inner race and outer race of the bearing. If you do not then damage could occur to the soft metal casing between the inner and outer race's thereby damaging the bearing beyond use. Also be sure to keep the axle against the inside wall of the wheel hub. This will keep the axle perfectly flat against the bearing when tapping and will not damage the casing of the bearing.

1. Put the wheel face up exposing the hub/bearing recess that is empty onto the raised work surface so we can tap out the opposite bearing. See figure 3.1.
2. Using the wheel axle insert it through the hub of the wheel. Ensure it's flush on the inner and outer race and against the side wall of the wheel hub and then onto the bearing below.
3. With the wheel axle squarely on the bearing then gently tap the bearing until it comes out. Be sure to move the axle around the edge of the hub after each tap so you are knocking it out evenly. If you don't then the bearing will be at an angle and could become difficult or impossible to get it out all the way and could result in damage. See figure 3.2
4. Another tip would be to use the head of the wheel axle and place it on the inner race. It's concaved shape will seat into the inner race of the bearing. You'll then gently tap on the threaded end of the axle. Be sure to protect the end of the axle by putting a scrap piece of wood between the axle and hammer so not to damage the end of the axle.

Figure 3.1

Figure 3.2

Step 4

Figure 4.1

- **Cleaning the bearing and recess**

1. As you can see in figure 4.1 there are shavings of aluminum in this example. Using your scribe or small screwdriver carefully scrap out any debris. Do this on each bearing recess and DO NOT use solvent.
2. See figure 4.2. Use a rag on the end of a screwdriver to get the stubborn debris removed. Accomplish on each bearing recess.
3. See figure 4.3. Using just a rag then clean the bearing recess on each side of the wheel.
4. See figure 4.4. Only using a rag clean the bearings and spacers and make sure there isn't any foreign debris.

Figure 4.2

Figure 4.3

Figure 4.4

October 2007

Figure 5.1

Step 5

- **Lubricate outside bearing race and bearing recess in wheel**

NOTE: We're using a white lithium grade grease available at most hardware stores. You can use what is available to you as long as you're adding some type of lubrication.

1. First add grease to the bearing, figure 5.1 & 5.2
2. Add grease to the bearing recess as shown in figures 5.3 & 5.4

Figure 5.2

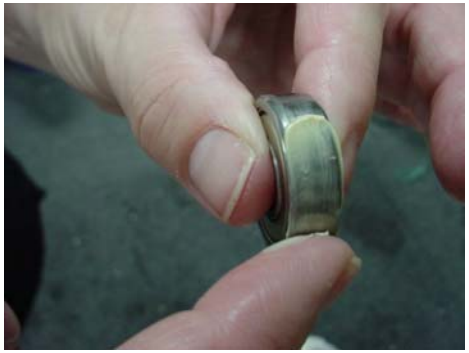


Figure 5.3

Figure 5.4

October 2007

Step 6

Re-Install first bearing

NOTE: Use caution when installing the bearings into a T12 rear wheel so not to cause the brake disc to get bent. This will prevent you from re-accomplishing a complete brake adjustment. Also, the same procedure for tapping in a wheel bearing is the same no matter which side of the wheel you're working from. Just remember to put the bearing spacer in place before installing the second bearing.

- With your wheel laying flat and securely on your work surface place a greased bearing squarely onto the bearing recess of the hub. The illustrations in the figures are the same for each side of the wheel.
- Using a bearing knock and hammer, see figure 6.1, or a socket and hammer as shown in figure 6.2 you will then gently tap the bearing into the wheel bearing recess.
- Be sure to tap gently but hard enough to make the bearing move. If the bearing doesn't seem to be moving into the recess while tapping then be sure the bearing is squarely entering the recess by looking at the wheel and bearing from the side. If the bearing is not square then tap the "high" side to bring it square with the wheel hub.
- Continue tapping the bearing until firmly and squarely seated in the recess.

Figure 6.1

Figure 6.2

October 2007

Step 7

- **Re-Install spacer and second bearing**

- Turn the wheel over to expose the opposite empty wheel hub.
- Put the bearing spacer into the wheel hub. As mentioned earlier the bearing spacer is slightly longer than the distance between the 2 bearings in the hub. Don't let anyone tell you it isn't!
- With your wheel laying flat and securely on your work surface place a greased bearing squarely onto the bearing recess of the hub.
- Using a bearing knock and hammer, see figure 7.1, or a socket and hammer, as shown in figure 7.2, you will then gently tap the bearing into the wheel bearing recess.
- Be sure to tap gently but hard enough to make the bearing move. If the bearing doesn't seem to be moving into the recess while tapping then be sure the bearing is squarely entering the recess by looking at the wheel and bearing from the side. If the bearing is not square then tap the "high" side to bring it square with the wheel hub.
- Continue tapping the bearing until firmly and squarely seated in the recess.

Figure 7.1

Figure 7.2

Step 8

Re-Install the wheel onto the Trikke and Test

- Re-Install the wheel according to the instructions in your owners manual.
- Make sure the brake pads are not rubbing against the brake discs and spin the wheel. Your wheel should now spin freely and come to a gentle stop.
- If necessary, accomplish a brake adjustment per your owners manual. If you don't have your brake adjustment procedures you can download and print the latest document on our maintenance link at: http://www.trikketampastore.com/maintenance.php

- Remove all tools and inspect your work.

If you have any questions or need clarification on any of these instructions please feel free to call us at 813-319-3735 during business hours. You may also email us at andy@trikketampa.com