

Fix your bike. Grease your bearings and change your freewheel.

by [MarshW](#) on July 7, 2008

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intro: Fix your bike. Grease your bearings and change your freewheel.

Most people don't realize this, but your bike needs maintenance. Your axle bearings needs to be cleaned and repacked with grease every 500 miles (100 on a mountain bike).

This instructable shows how to repack your axle bearings and install a new freewheel body (if you need one).



step 1: Remove the wheel from your bike.

If you don't know how to do this much already, this may be too big a job for you at this point.



step 2: Remove the quick release skewer.

Remove the quick-release skewer from the axle. Take care not to lose those tiny springs.



step 3: Remove the cassette

You'll need a special tool to remove the cassette from the hub. \$6 at a bike shop. You'll also need a wrench to turn the tool.



step 4: Remove the cassette...cont.

Finally you'll need a chain whip or cog holder to hold the sprockets in place while you unscrew the cassette retaining nut. Once removed, the cog stack will slide off the freewheel body effortlessly.



step 5: Remove the axle

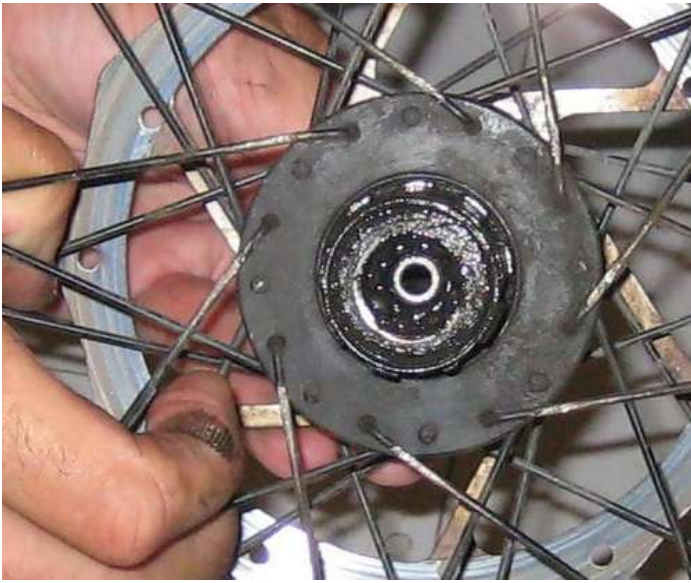
Here is the freewheel body and axle in place.

First remove the jam-nut and washer from the axle then remove the bearing cone nut. This holds the bearings in place.



step 6: Remove the bearings

See the bearings within. Remove the bearings and clean everything till it is absolutely spotless. Aerosol brake parts cleaner works very well for this and only costs \$1.99 at your local auto parts store.



step 7: Remove old freewheel body

If you're just greasing your bearings, SKIP THIS STEP!

Insert appropriate sized allen wrench into freewheel body and unscrew. Set aside the old freewheel body and place the retaining bolt with all the other stuff you need to clean.





step 8: Clean everything.

Clean the cogs, axle, cone nuts, washers, jam-nuts and especially the interior of the bearing cups in the hub. If you see any residue of any kind, you need to clean some more.



step 9: Replace freewheel body...cont.

Unwrap the new part. View the instructions and take whatever action you see fit. Personally, I found the instructions insulting. They essentially said: "Be sure to install the part correctly." in 8 different languages, but didn't say exactly HOW to do it.



step 10: Installing the new freewheel body.

I recommend Marine Axle Bearing Grease for your bearings. It's for boat trailers and is available cheap at your local auto parts store.

Apply a generous coating of grease to all the mating surfaces like the steel washer between the freewheel body and the hub and the freewheel locking bolt. Replace the freewheel body and tighten the locking bolt.

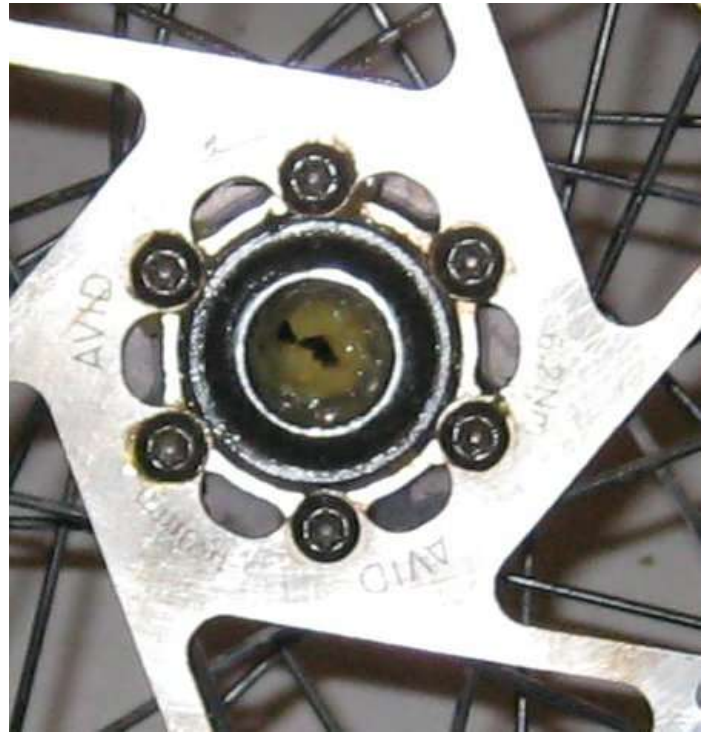




step 11: Re-installing the axle.

Load up the bearing races with generous helpings of marine axle grease. Load both sides with grease before you replace the bearings. The grease will hold the bearings in place.





step 12: Insert the axle.

Load the bearings into the brake side first and insert the axle. The axle will help hold the bearings in place. On the opposite side, place the axle part way into the hub and load the bearings into the cup area. Once all the bearings are in, push the axle the rest of the way in. Next replace the cone nut that holds the bearings in place. Finally, tighten the cone nut until you feel some binding then back off the tension until the wheel spins freely with no binding or rough feeling. Finally add the washer and jam-nut and tighten it all down. If it starts binding, loosen it up a little.







step 13: Replace the cog stack.

Notice there is one small groove on the freewheel body. There is a corresponding slot in the cog stack. This ensures that the cog stack can only go on one way. Replace the cog locking nut.





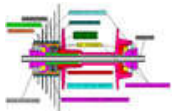
step 14: Re-install the wheel.

Replace the quick release skewer. Note that the springs are cone-shaped. The big end faces away from the hub. You're now ready to replace the wheel on the bike.





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Comments

17 comments

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beekervdejazz.com says:

will white lithium grease is what I used on my bike is that ok?

Mar 28, 2009. 1:52 PM [REPLY](#)



pjax says:

greasy hands on the brake discs. ouch!

Feb 12, 2009. 11:03 PM [REPLY](#)



MarshW says:

Ok, we've seen your admonition. What's your resolution? Mine is to clean the rotor (that's what that disc is called) off before putting the wheel back on, but I really want to hear your take on it.

Feb 13, 2009. 4:40 AM [REPLY](#)




pjax says:


oh yeah. rotors. the name slipped my mind


yes, one should definitely clean the rotors if you get grease on it (i was hoping you'd mention that on your post.. :D constructive criticism)


my take? don't get grease on it on the first place! clean your hands/avoid touching the rotors

Feb 15, 2009. 5:06 AM [REPLY](#)

 **double ott** says: Aug 17, 2008. 9:37 AM [REPLY](#)
is there any way to improvise with the cog holder? I am taking apart my old bike, and I want the gears and I dont really care if anything gets damaged in the process. I have the freewheel tool but I dont really want to spend money on this cog holder if there is a free way out of it


 **MarshW** says: Aug 17, 2008. 7:17 PM [REPLY](#)
This procedure is for a cassette hub. If you have a freewheel, you don't need to hold the cogs.

 **double ott** says: Aug 17, 2008. 9:24 PM [REPLY](#)
oh, so I turn to the right not the left? and how far should I stick in the freewheel tool? thanks btw


 **adrenalynn** says: Dec 31, 2008. 7:24 PM [REPLY](#)
Double Ott - I'm sure you already figured everything out, but since I didn't see your question get answered...
If you have an older freewheel (like my Campagnolo Super Record hub and Regina freewheel), you get a splined freewheel removal tool (FR-4 for my Regina), and put it in the freewheel. Then put your skewer back in to hold it in place. Clamp the tool in the vice, wheel up, and the grab the wheel however you'll have good "traction" and rotate the whole wheel counter-clockwise. Only do less than one turn before you then remove the skewer, or you'll break the skewer! (blush for ancient history's sake, been a long time since I've made that mistake...) Clamp it again in the vice and continue to rotate the wheel and the freewheel will separate from the hub body where it's threaded.
Mine's apart right now, maybe I'll shoot some pictures...


 **adrenalynn** says: Dec 31, 2008. 7:25 PM [REPLY](#)
Eek! Make that "traction". Sigh. No edit button...


 **benthekahn** says: Nov 14, 2008. 6:33 AM [REPLY](#)
Make sure you don't get any grease on any surface used for braking.

 **Bearclaw_Michael** says: Jul 11, 2008. 3:38 PM [REPLY](#)
I put grease fittings on my wheels a few years ago.
I found it makes a huge difference, it keeps my bike roling smooth and quiet by keeping it properly lubricated.
(Cell Phone Pic in Poor Lighting) But I'm sure you get the idea.



 **tyler_durden** says: Jul 9, 2008. 10:59 AM [REPLY](#)
I recommend wearing gloves whenever working with tools. They will protect your skin from scrapes and cuts, and keep your hands a lot cleaner. Wear mechanic's gloves hwile taking things apart, and nitrile (grease/oil destroys latex) gloves when handling the bearings and other greasy bits. You never know what you might want to do with your fingers later on...

 **Bran** says: Jul 7, 2008. 11:11 AM [REPLY](#)
Cool, I'm sure I'll need this eventually.
Now you say that you should do this every 100 miles on a mountain bike, but does that only mean if you drive it like a MTB? I drive my MTB on the road, hardly ever going on singletrack.

 **picman101** says: Jul 8, 2008. 5:12 PM [REPLY](#)
Always use new ball bearings whenever you take apart an axle. Due to wear the old balls are no longer perfectly round. They will not roll smoothly and will destroy themselves and damage the cone and cup.



MarshW says:

Jul 9, 2008. 5:06 AM [REPLY](#)

You can let things go for thousands of miles if you choose. Most people do. Open your bearings up after 500 miles and see if you think they need service. It's a choice. I recently found out my MTB bearings need repacking about every two weeks. It sucks, but it's still a fact. With the kind of mileage you're putting on, I would clean and lube my chain after every ride. What a hassle, eh? Get yourself a chain wear indicator and see how often you SHOULD be changing chains. Most of us let this stuff go way too long.



n4zou says:

Jul 8, 2008. 7:17 AM [REPLY](#)

Every 500 miles for a road bike? Where did you come up with that number? I do 40 round trip miles commuting 6 days a week. If I did it every 500 miles I would be doing that every two weeks! I do a complete service once a year and that's been good enough the last 3 years on my commuter.



mastershake916 says:

Jul 8, 2008. 3:41 AM [REPLY](#)

But you did forget one part, which is one of the most important, adjusting the cones once you get the axle back on. Plus things like making sure that there's no degreaser (cleaner) left inside that will break down the grease that you're about to put in. Not putting your effort down, but it can be frustrating going into a repair without all of the information that you need. Really you can't go wrong with the Park Tools website, they're pros and will explain everything. Here's this one for example.