

# Bearings Bearings Bearings !



3/1/07

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- Posts: 354

some of you i know have seen some of my posts on other boards. distance casting is something i've only heard of, but have never tried myself. some of this might be helpful to you, much of it not. either way, i look forward to your input and your point of view. the last time i had to deal with a distance caster, i was in my boat, trolling just outside the breakers, and the guys on the beach were trying to hit me!😏

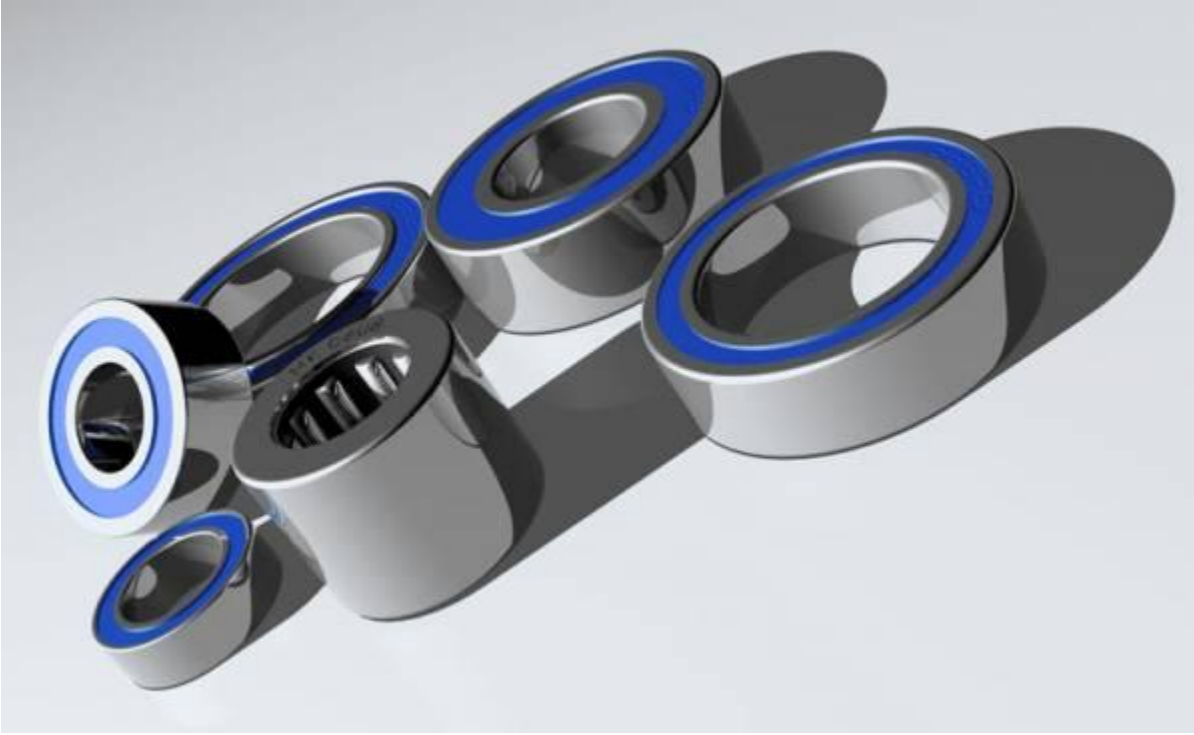
in many past reel repair posts, you've seen me open up bearings to clean them, but i've never had a complete discussion of one this topic before. i'd like to do this now. it's a post that is long overdue. for many reels, bearings are the weak link. they are often the first things that will fail. i will start out by saying that shimano recognized this and was the first company to actually do something about it. as of yet, no other major reel manufacturers have followed suit. i hope that will change.

basic fishing reel bearing design is fairly simple. you've got an outer race, and inner race, the balls themselves and a cage. the material almost always stainless steel.

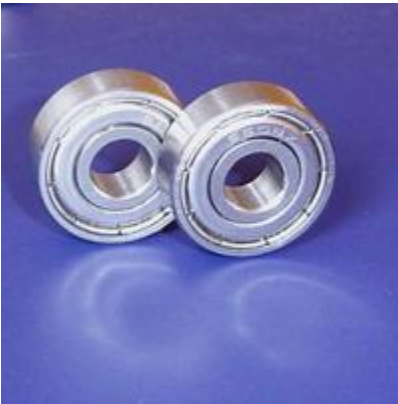


the biggest difference between bearings is the "side plate." avet and accurate bearings are sealed. the seal itself is often blue or black, and is made up of a phosphor bronze and plastic

laminate that is simply pressed in.



the majority of reel manufacturers use bearings with one of two types of metal shields. the first is a pressed in metal shield.



the second type of metal shield is held in by a retaining ring. when you see a bearing with a metal shield, it's a 50:50 chance of seeing one or the other.



and then there are shimano's open bearings. they are touted as having more chromium for greater corrosion resistance and are packed with a thin grease.



so there you have it, your four types of bearings; plastic seal, pressed in metal shield, retaining ring with metal shield, and open.

when servicing a bearing, the first thing you have to do is PULL IT OUT!!!!!! trust me on this one. there is nothing more frustating than having to pull a rusted bearing out of a rusted bearing cap. to this end, i made a couple of bearing pullers. the small one can be made from coat hanger material or staines steel welding rod. one end is hammered flat, then bent to a 90 degree angle, and then shaped on a small bench grinder. it works pretty darned good!



the other is made from a penn handle nut wrench. yeah, don't throw these away anymore!



shape it the same way.



the other problem situation is specifically with some of the shimano reels. here is an old calcutta 400 spool. note that the bearing (well, bushing, in this case) is held in by a cross pin.



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3/1/07 at 3:05am  
Thread Starter



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we're going to remove the cross pin with a special tool. it's a ratty old pair of vise grips with a slot cut in one side.



oh, c'mon, stop laughing! it's all i had laying around and i'm on a budget! anyway, i cut a slot in the side with a bench grinder. if i had to do it over again, i'd use the cut off wheel from my dremmel.



**you just press the pin out half way, the pull it out the rest of the way and be careful not to mangle it up. remember, you need that pin!**







see, nice and clean! now find a bearing with the same dimensions as this old bushing, say



3x8x3mm, press the pin back in and you're in business!





nice, huh!

ok, back to business. let's all agree for the moment that we are going to clean out the bearing and we're going to do it my way. well, that means removing the seal or shield. we need a few more specialized tools. our first bearing is sealed. this one is either a piece of cake, or next to impossible. most are easy. you simply take a small scalpel (hey, one of the advantages of working in a hospital), slide the blade carefully underneath the shield, twist the blade just a little and the seal will pop out cleanly. so cleanly, in fact, that you should be able to pop it back in and it should still work perfectly. if you gouge the cage underneath you will have to replace the bearing, so be careful.





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3/1/07 at 3:06am

Thread Starter



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this is actually a bearing from the drive shaft of the smaller avet reels. newer bearings are easy to service. THE SEALS FROM BEARINGS AROUND THE DRIVE SHAFTS OF OLDER AVET REELS ARE NEARLY IMPOSSIBLE TO REMOVE. you will know quickly if you have old bearings or new ones.

to remove a metal shield that is pressed into the bearing, you need another specialized tool. this is an old screwdriver that i've ground to a nice long point. drive the point in between the shield and the inner race, the pry up the shield. it will be mangled at this point and will have to be discarded. this takes a light touch. drive the point in to far and you will mangle the cage and ruin the bearings. i tried using the point of a small swiss army knife for a bunch of small boca bearings and ruined the entire lot, about \$100's worth. be careful!







the last type is a bearing with a metal shield held in by a retaining ring. you need a small fish hook. see the end of the retaining ring? lift it up with the point of the fishhook right there. if you have trouble catching the end of the ring, get a sharper hook.





sometimes it will go flying, so hang on to it if you want to see it again.



lift up the shield with the scalpel and don't gouge anything inside.



want to reinstall the shield? simply put it back in place, then hold the retaining ring at the bottom, then push in the the right side, then the left side of the retaining ring and you're done.







now all the bearings are open. let's clean them up. first is the hemostat. this is the easiest way to hold a bearing.





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3/1/07 at 3:07am

Thread Starter



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now, to clean these things. i've tried a ton of different products. here's the short answer. it's crc carb cleaner. of all the products i've used, this carb cleaner has the most pressure, and pressure is everything. nothing else i've used works as well.



now, i've talked about "carb cleaner and compressed air" before and several guys jumped in and said "no compressed air." i want to know that i took what you said to heart. since finding the crc product, using lots of compressed air has not been necessary. so i now use

the crc carb cleaner to clean the bearing, and only a gentle stream of compressed air to remove the carb cleaner.



now we get to lube them up. i was fiddling around with my "secret sauce" mix of corrosion x and shimano drag grease and it seems to stick fairly well. good protection, lousy freespool. typically i use corrosion x alone, um, in a reel x bottle. and for the bass guys, i have quantum's hot sauce, met-ol from smoothdrag.com and rocket fuel. lots of freespool, lousy protection.





to get the maximum amount of protection, i always go back to yamaha outboard engine grease.



i like to hand pack the bearings and replace the shields. it's the best way to avoid this.....





it's not necessary for any of you to maintain this type of inventory, but it might be a good idea to keep a couple of bearings as back up. it is very easy to damage a bearing while you're trying to pull the shield off. you do need to be careful.



i order all of my bearings from [bocabearings.com](http://bocabearings.com), and i order them all "open and dry." unfortunately, i still pay retail so you're looking \$1-1.5k in bearings in the photo above. after dealing with bearing issues for all these years, i've come to a couple of conclusions. for lever drag reels, i like spool bearings that are open and lubed with corrosion x. same with star drag reels. for side plate bearings and drive shaft bearings, i like them packed with yamaha engine grease. if the shields or seals can be replace, all the better.

what i don't like is a bearing that has a seal or shield with only a light lube. once water gets inside, the bearing is toast. a shimano tld 15 has four bearings that cost \$10-12 each. i've had reels that required replacements of all four. the avet sx, mx, jx and lx reels also have bearing issues. there are six and they are all sealed. i like to open up the two spool bearings, clean them out and lube them with corrosion x. the other four are opened, packed with yamaha engine grease, the seals are pressed back into place and the bearings are re-installed. i've even seen corroded bearings in accurate reels. the procedure is the same as avet and i think it would greatly improve the reliability of the reel. yeah, working on lever drag reels is alot of work.

ok, guys, that's it. hope this clears some things up. alan