Cleaning and Lubing Anti Reverse Bearings and ARB Performance

June 27, 2016

This morning I did a little testing on the anti reverse bearing in my Shimano Trinidad TN 40. I will post my findings at the bottom so as not to farther interfere with the main topic of this post.

josa1

Just returned from the Red Rooster III June Heat 2016 extravaganza, had a great time, 3rd place jackpot tie with Michael Gooing at 201 pounds. Had a great trip and loads of fun..

Now.....down to the serious stuff. I plan on servicing my Trinidad 40s which performed very well as usual, and as you might imagine, I will include the anti reverse bearings.

When I'm finished with the service I plan to leave out the anti reverse dog 😮. I then plan to run some tests on the reel without the dog in place.

What I plan to do is mount the reel on the normal rod I use, CalStar 700H, hook the line to my scale and FIND OUT JUST WHERE IN THE HECK THE ANTI REVERSE BEARING FAILS TO FUNCTION AS DESIGNED!!!!!

I would like to include anything you would like me to check in this very serious scientific endeavor 😁. 🤓 Let me know and, if possible I'll do it. It should be great fun for us all!

josa1

July 2014 Update.....I am in the process of servicing three Shimano Trinidad reels and found that I could adequately service these bearings by just removing the cage from the bearing housing while leaving the housing in the reel sideplate. This saves a lot of time, and as mentioned below it is sometimes difficult to remove the bearing housing from the sideplate.

The process was the same, just pushed the bearing cage out of the housing by reaching thru the drive shaft hole in the right side plate with my removal tool. The cages came out easily. I suppose the only time you'd have to remove the housing if you are concerned about rust or corrosion on the outside.

josa1

I just returned from a long range trip on the RRIII and have been cleaning my fishing reels. As I was working on a Shimano Trinidad 40 the thought occurred to me that I should clean and lube the anti reverse bearing. In doing so, I thought I might as well try my first post on this site.

Alan has a nice tutorial on how to service this reel so I will only address the process I use to clean and re-lube these bearings.

Here is the right side plate that has been removed from the reel. The shaft sleeve is still inside the bearing.

DSCN0255

DSCN0289

With the sleeve removed you can see that the bearing is pretty dirty but doesn't appear to be damaged. Notice the two cuts in the plastic bearing cage. I use these cuts as a means to be sure I get the bearing back together properly. There are no cuts on the back side of the cage that is installed into the bearing housing. Note that I have made small marks on the side plate to indicate where the cuts are aligned.

DSCN0288

Here are the things I'll use to remove, clean and relube the bearing. Note that the degreaser I used is Paint Clean-Up by Kleen Strip. This cleaner is no longer available, which is a sad thing because it did such a great degreasing job.

DSCN0259

I use a 10 mm socket to remove the bearing from the side plate as recommended by Alan's tutorial. This bearing was the "tightest" that I've removed. When a couple of solid taps didn't remove the bearing I took the side plate to the kitchen sink and ran hot water over it for a couple of minutes. After the plate was pretty warm the bearing came out pretty easily. Remember, sometimes it's not always the best idea to get a bigger hammer!

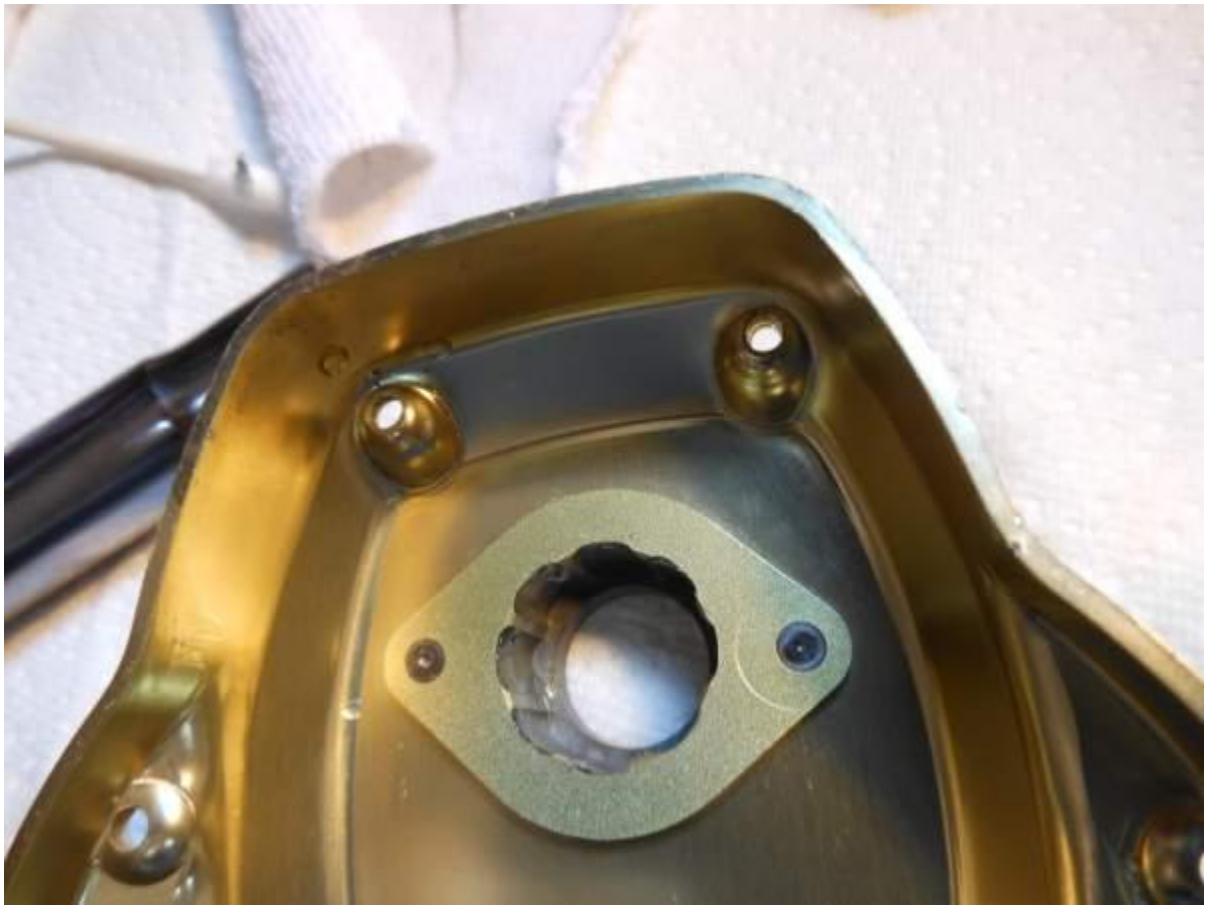
DSCN0262

In this photo you can see the bearing is almost all the way out of the plate.

DSCN0263

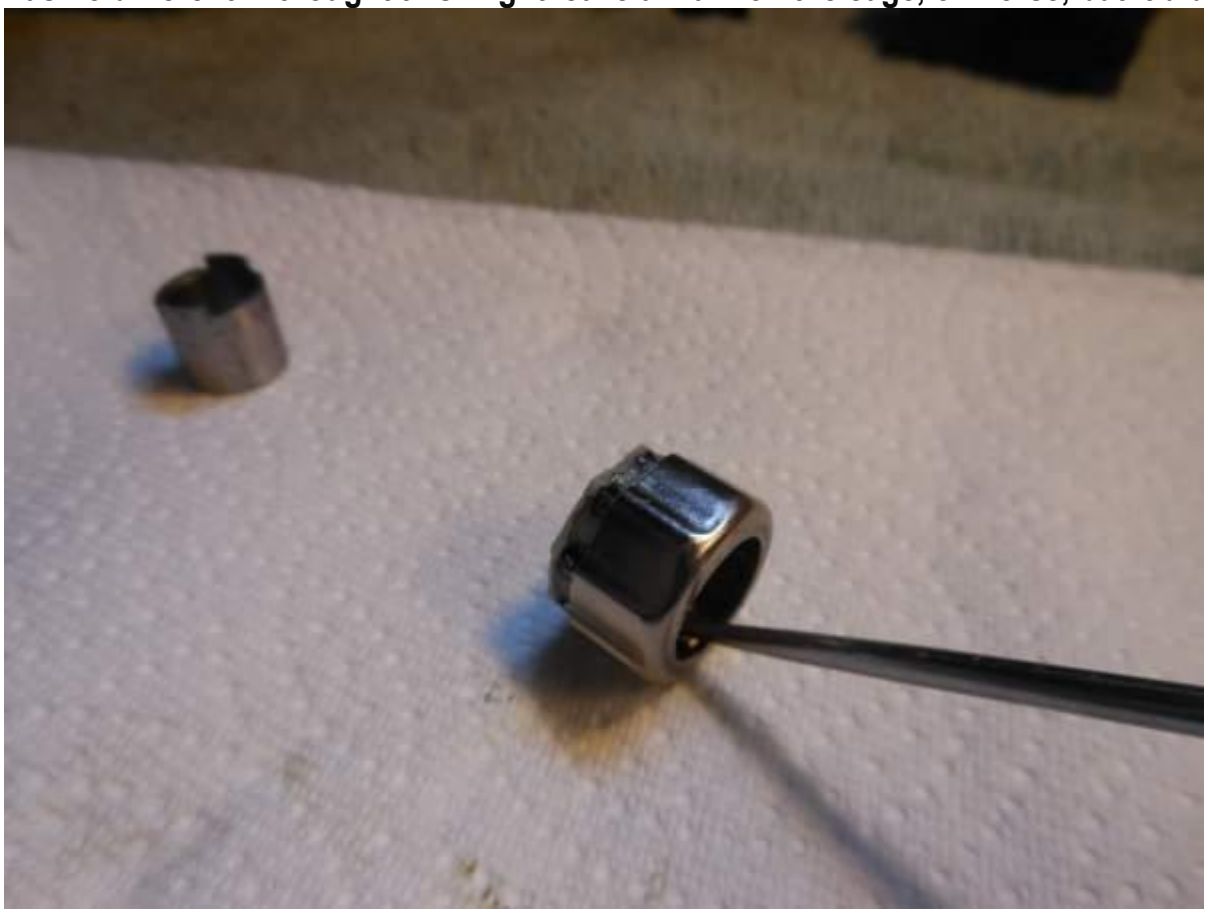
The side plate recess is fairly clean, I'll clean it farther before I reinstall the bearing.

DSCN0265



DSCN0267

In this photo I'm removing the bearing cage from the bearing housing. I use a sharp pointed awl to just catch the edge of the cage on the back side. The cage usually comes out easily. This one was no different. I thought this might leave a mark on the cage, or worse, but it didn't.



DSCN0268

The bearing housing, bearing cage and bearing rollers are dirty but, as a good thing, there is no corrosion or rust. The lubrication residue is very sticky, I believe from the incursion of grease into the bearing. It is my belief that grease along with water and salt is what causes the bearing to fail to operate properly.

DSCN0269

DSCN0270

The roller bearings will typically fall right out of the cage. Because of the stickiness of the lube, I had to push these out.

DSCN0271

Further indication the service was required, a lot of dirt. Note that there are 8 rollers. If you come up with 7 when it comes time for reassembly there will be a problem!

DSCN0273

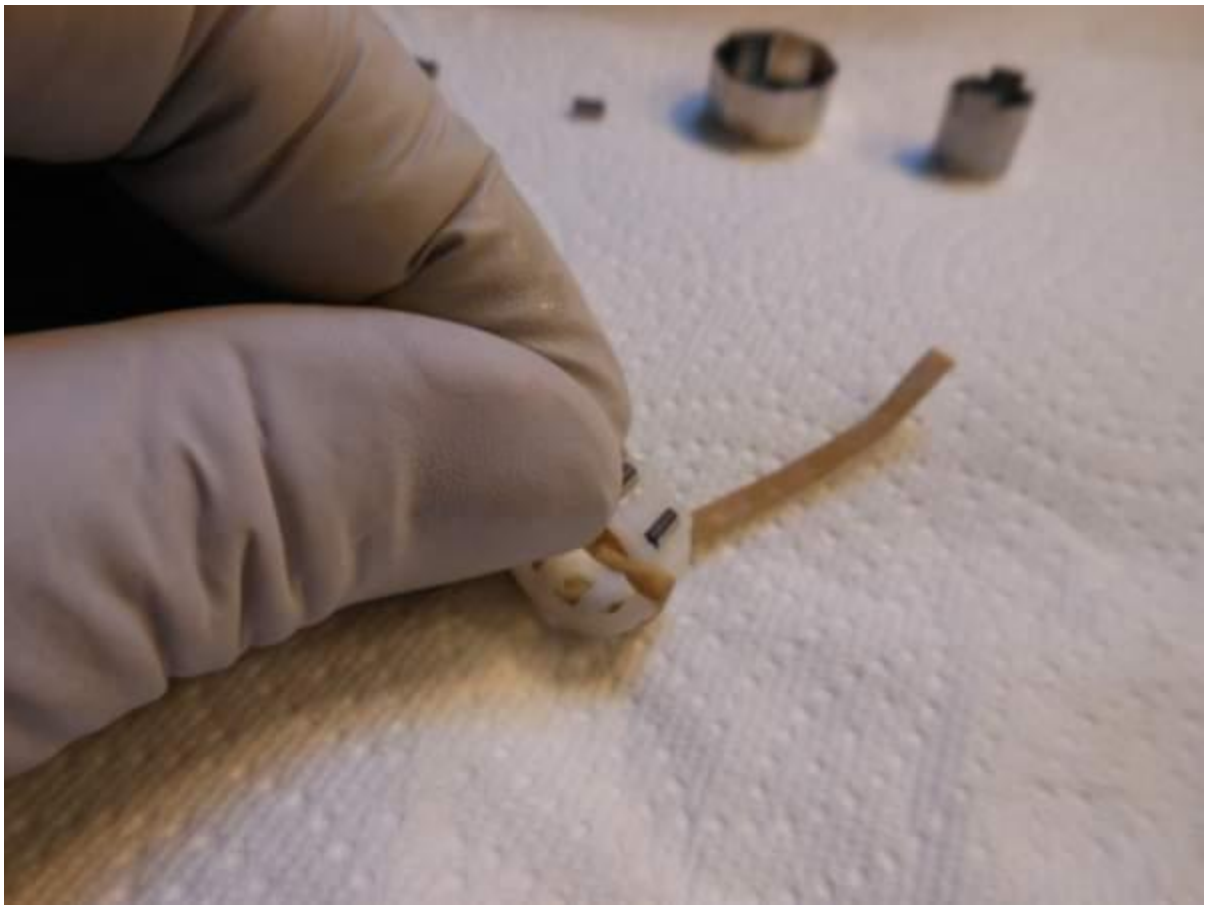
Add some cleaner to the bowl, I like a small glass bowl for these operations. The cleaner I used to use for this is no longer available so I've deleted the reference to it here. I brushed thoroughly with the solution, removing all contamination from the bearing components. I ended up using a flux brush because it seemed to get into the nooks and crannies of the bearing cage better than the tooth brush.

DSCN0275

Here the bearing components have been thoroughly cleaned and blown dry. You can see they are pretty spotless. And let me see, YES!, I still have 8 rollers!

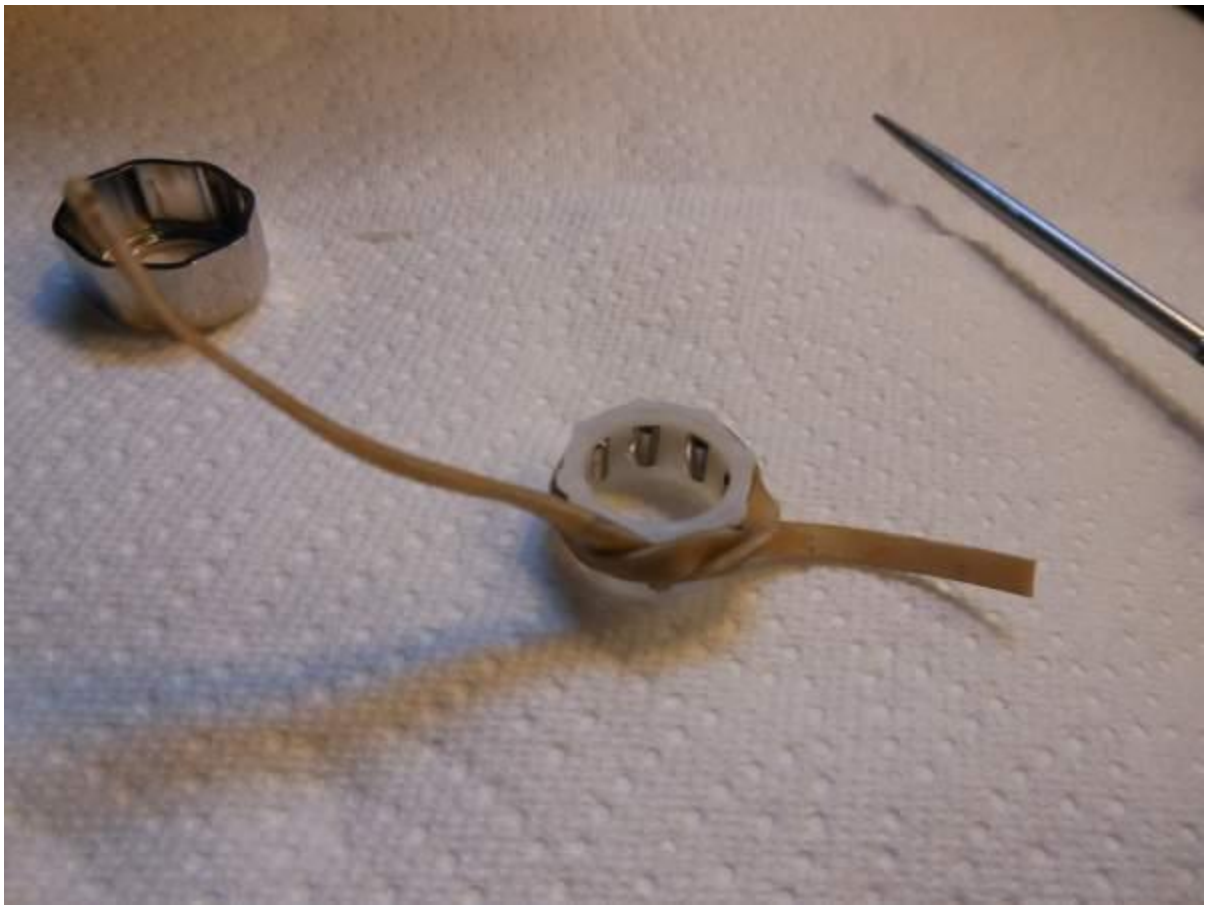
DSCN0276

Here, I'm putting the rollers back into the cage. The best thing I've found so far to hold the rollers in the cage is a rubber band with a loose overhand knot tied in it. It is better to use a thin, light weight band unlike the one I have here. Also, you have to be able to move the rubber band easily to insert the rollers so you can't tighten it too much. When I'm having a lot of problems getting the rollers to stay in place I put the sleeve back into the bearing to provide inside support, The rollers will go all of the way through the cage. In this case, I didn't seem to have any problem.



DSCN0277

Here all the rollers are reinstalled into the cage.



DSCN0278

I lube the inside of the bearing housing with ReelX.

DSCN0279

Start the bearing cage back into the housing with the rubber band still in place.

DSCN0280

The rubber band pops off..

DSCN0281

You can then push the cage back into the housing. It snaps into a place with a satisfying click! Barely visible are the cut marks that I mentioned earlier, the cage is back in its original position. In this photo you can see the plastic preload springs that I believe push the bearings into the normal from the backspin lock position.

DSCN0282

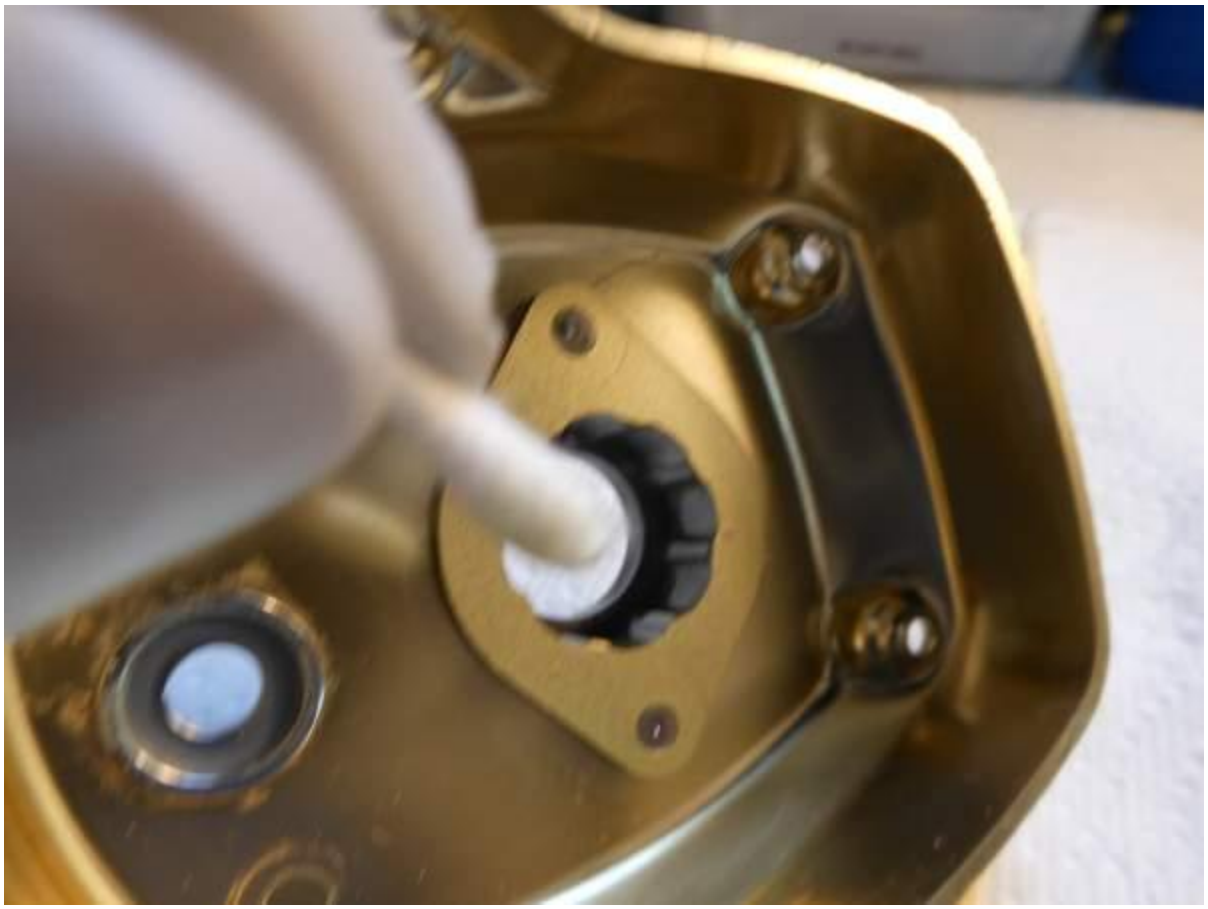
After lubing with Reelx, I install the shaft sleeve and turn it to see that the bearing is working correctly. In this case it was working smoothly so we can reinstall it in the side plate.

DSCN0283

I clean the side plate thoroughly.

DSCN0284

Lube with ReelX.....



DSCN0285

.....and reinstall the bearing.

DSCN0286

And just to be sure...Install the sleeve and check for proper operation. At this point I also add another couple of drops of Reelx.

DSCN0289

Finished! This process took about 30 minutes but would have taken much less time if I hadn't been taking the pictures, adjusting lighting, etc. I now have confidence that the bearing will work correctly on my next trip.

June, 2015

Here are a couple of new pictures I took of an anti reverse bearing that I couldn't save. I did the service noted in the post, but the interior of the outer bearing race was badly corroded where the rollers were setting. I actually used the Torium 30 reel that these pictures came from to catch a couple of nice wahoo on a recent trip after I had cleaned and reassembled it. However, I found out that under heavy drag loads that the reel anti reverse would transfer to the dog with an audible "clack". Now, I'll have to replace this one but I really don't feel too badly, as the old saying goes, "nothing ventured, nothing gained".

The reel came to me in a sack that a local repair shop said had too many problems to repair. I found that I could save all but the anti reverse bearing and one broken drag washer. To be fair, I put in a lot of time cleaning, polishing etc, that a local shop would have not time for.

Sorry, I couldn't get the pictures to appear with this text, my puzzlement over computer things continues!

josa1

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June 27, 2016

This morning I did a little testing on the anti reverse bearing which is in my Shimano Trinidad TN40. I used this reel on a recent trip to catch 3 wahoo and it functioned perfectly.

The purpose of the test was to find out exactly where the anti reverse bearing stopped functioning. There was some speculation that the manual dogs actually do all the anti reverse duty and I just wanted to find out if that was true. Bear in mind these are not scientific data, just my personal findings about my 14 year old reel.

The pictures below show this reel, Manufacturing Date AD, i.e. April 2002 I believe. Line was removed from the reel and the spectra was cleaned. The reel was then completely dismantled, cleaned and reassembled. During the reassembly both of the anti reverse dogs were left out. The servicing included the anti reverse bearing, but it was very clean and didn't actually require service.

I then reinstalled the line and tied a loop in the end and connected it to my scale. This is what I found.

1) Initial drag set at 7.5 pounds, cycled the pressure on the bearing 15 times from 0 to 7.5 pounds. The anti reverse bearing held firm with no backwards turning of the star which would indicate that

the tube inside the anti reverse bearing was turning.

2) Performed the same test as above at 10, 12.5, 15, 17.5, 20, 22.5, 25 pound drag settings with absolutely no backwards movement of the mechanical apparatus controlled by the anti reverse bearing.

3) When I attempted to set 27.5 pounds setting of drag pressure on the anti reverse bearing, I noticed that just as I was reaching 27 pounds on the scale the star started to slowly rotate backwards. It wasn't a dramatic move, it made no noise, it didn't "jump" when it reached it's maximum pressure, it just started to slowly attempt to release that pressure. I think the movement was the tube that is inside the bearing was rotating. My belief is that the rollers weren't turning backwards but I don't know how to test this so I'm absolutely not sure this is true.

I note that this 27 pounds is approximately 10-12 pounds more pressure than I would fish the reel for wahoo with 50 pound test line. I would probably set my drag at a maximum of 18-20 pounds. Here are some pictures...You can click on the image for slightly larger view.

Picture 1: Reel dismantled and all parts cleaned. Note no line on spool, and greased carbon fiber drag washers.

Picture 2: Reel partially reassembled, no mechanical dogs on the dog posts.

Picture 3: Reel connected to the scale for the test described above.

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