

# Penn 704Z: Service Tutorial

By "johndtuttle"« on: April 11, 2013, 09:19:07 PM »

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Well boyos, Penn has lit the forums on fire with the reintroduction of the 704/706Z thrilling old school fans of ultimate reliability and generating naysayers both. Some are looking for an "updated" version from Penn or a variety of modifications that the community has produced over the years.

To be honest I had never used a 704/6Z despite its fame for decades of reliable use in the harshest of fishing reel environments, the surf...so when I get curious I want to tear one down and see what all the "hub-bub" is about. Off I went to the flea-bay to get a beater which usually exposes the flaws in the reel and can serve as an example of what we can expect over time.

Disclaimer: Needless to say, I cannot comment from years of experience servicing this reel to really know it's service idiosyncrasies from decades of use in the surf like some. So, please take with a grain of salt any prognostications I may have and apply your better judgment (and maybe share with us your wisdom) if I lead the gentle reader astray 😊.

The one I found I got for about \$50 and to be honest, it looked better in the photos the seller had posted! I will not offer much of a guess as to how old this model is and I am no expert on the 704Z lineage to sleuth out its age, but it certainly was well used:







😊So, as you can see this one was no display case queen 😊.

But what immediately impressed me was how smooth it remained with no roughness in the gears or wobble in the spool. The patient looked a little the worse for wear but a strong heart remained 😊.

Like most reels it breaks down into 3 or more parts for working on in turn so we'll start by pulling off the spool so that we can get to the Spool Shaft (39) which is the key to removing the Rotor Cup (27) from the Housing with Bushing (1).



Hmm, looking good...but to remove the Spool Shaft we have to crack the body via the Housing Plate (45) and it's 3 Housing Plate Screws (46):



Inside we see a familiar appearance if you have ever opened up an old reel: old grease and Stainless and Marine Bronze/Hardened Brass in a bit of a messy state:



Then, the Spool Shaft disconnects from the Crosswind Arm (43) via the Crosswind Arm Screw (44):



Letting us slip out the Spool Shaft:



Which gives us access to the Rotor Cup Nut (38) with the Rotor Cup Washer (37) underneath:



And we now have our 3 separate components that we will work on in turn:



Let's start with the Rotor Cup. Needless to say this is an older design that predates carbon fiber rotors and skirted spools. We can start with the Bail Assembly by servicing the Bail Arm (34) by removing the Bail Arm Screw (31):



Finding the Bail Spring (32) below. Usually you will find that the Spring will come off with the Arm and with one of its ends in the tiny hole in the Arm, but I show the Spring in its proper position for your reference:



The slot for the spring seems to be a good schmutz collector so I'll clean it out:



Beneath the foam “q-tip” is the Bumper (33) and its cup. If yours is beat up it simply pokes out from the other side with a probe then can be replaced (this one I did):



The Line Roller (35) is simplicity itself, removed via the Bail Lock Nut (36) finding the tiny Roller Sleeve (35A) inside:







I go into gory detail here as line rollers are such a common problem area. This is a VERY simple design and regular, liberal use of Corrosion-X on all surfaces will keep it free spinning:



The other end of the Bail Arm is straightforward and similar to replace. Both have to have their springs compressed to allow replacement of their Bail Arm Screw. It's really the only "fiddly" bit on the whole reel. I found it slightly easier if you remove the Bail Release Arm (28) first and the whole removed assembly is shown for your reference. The Arm itself sits in the Bail Release Saddle (28A), pivoting on the Bail Release Pin (29) with the action provided by the Bail Release Spring (30):



Once you remove the Release Arm you'll find a natural spot to collect dirt and sand. Note the little post in the Rotor Cup that supports the Bail Release Spring when you re-assemble:



A thumb is handy to press it against the Spring when it's time to go back after cleaning and lube:



Ok, that's it for the Rotor Cup, let's tear into the Housing 😊.

With the Rotor Cup removed we see that this one has been neglected. The rubber Rotor Brake (21B) comes up (gently so you don't tear it):



Revealing the pinion Bearing Retainer (21A):



And a very rusty Pinion Bearing (20) 😞:



A washer for the 3/8" diameter pinion and replacing the Rotor Cup Nut helped me get a grip on it as it was frozen in its receptacle:



The inner race was frozen and the bearing destroyed, but I was curious so I pulled the shield:



**This image is after attempts at reconditioning it. No go for sure, frozen with rust. It is worth noting that the pinion itself still turned smoothly with the bearing acting more like a bushing:**



Ok, what to do...what to do? Surfed over to Boca Bearings looking for a 0.3750 x 0.8750 x 0.2812 inch bearing and found a Ceramic one on sale for \$11.95 shipped (SR6C-2YS/C3 NB2). A previous user left a review that it worked great in his 704Z so I ordered one.

It came “greased” which means it was incompletely greased on one side and dry on the other 😞😞:



So I repacked it properly. Ceramic balls will not rust, but we want to protect the stainless races/cage and not create a path for saltwater to flow into the body.

Popped it into the cup and got a perfect fit 😊:



Then replaced the Retainer and Brake. This did not photograph well with a flash but the retainer is well cleaned up with Brasso and a tooth brush and very superficial tarnish remains. It was all replaced well greased:





On the other side We can easily pull out the Main Gear 😊, Ratchet (10) and Main Gear Thrust Washer:



Which after removing the old grease did not show the slightest sign of wear after who knows how long without a single service:



This is the Housing with the old grease cleaned out showing the Eccentric (21) assembly. It was in perfect working condition so did not remove it and all it got was a scrubbing with a toothbrush saturated with Corrosion-X. This image is all you should need for assembly. From L to R we have the Eccentric Spring (6D) in proper position leading to the Eccentric (21) with its Eccentric Liner (6D, underneath), the Eccentric acts on the Dog (4) which rests on its Dog Spring (5):



To the right of all of that above is one of the brass Bushings (2) that support the handle shaft which had not the slightest wear. I believe these are pressed in the Housing and should rarely need anything more than lube.

Ok, let's put it together starting with a nice coat of grease on the Crosswind Arm (43) making sure to get some on the (rails) that ride against the Housing Plate (45).



The Central Groove fits over the Crosswind Roller (14):



Like so, all lubed up and ready to close:



It really is a marvel of simplicity and gets my vote as the “Penn Senator of Spinning Reels” 😊. Other than the Eccentric assembly and some pressed in bushings there are only 6 parts. 😊

On the outside we have the Eccentric Lever (21) and Eccentric Screw (22) which just gets a cleaning and lube as needed (best to disassemble with the Housing Plate off, complete removal not shown).



The grease fitting on the handle stem. Firmly depress the "stopper" and give a little squirt. I prefer a light oil.



The handle needs a little (very little) attention. Just make sure that the Handle Washer (17) and threads on the end of the shaft connecting to the Main Gear get some marine grease, the threads and articulating surfaces of the Handle (14) get Corrosion-X.





And there is a grease fitting on the knob too:



Lastly, we have the Spool (47) with the drag stack removed. This was cleaned then re-lubed with Cal's Drag Grease:



Underneath, the Click Tongue (48) and the rest of its assembly, cleaned and lubed as needed:





Nothing to take apart in this older style knob. A touch of oil for corrosion resistance is all that is needed. I believe that the newest style has increased water resistance to keep the stack dry:



**And that's it!**

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**Ok, I have to admit that the Penn Senator is what first got me into servicing my own reels and an appreciation for simple ruggedness and ease of maintenance has persisted.**

**The Penn 704Z is the embodiment of the Senator in a Spinning Reel.**

**This is both good and bad 😊.**

**It is not the fastest, lightest or most powerful. The 704Z probably makes ~12lbs of drag hammered down (tests tomorrow) just like an un-modded Senator does. Go much higher than that and you probably run into trouble with the Housing plate (plastic) flexing when you try and crank against too much load just like a Senator frame flexes under higher drag causing binding and wear.**

**So this will never be the reel for duking it out with real big 'uns offshore or in the tropics.**

**But what it is, is an indestructible tank when fished within its limits or one very economical to keep alive over time.**

**The current "game" when engineering virtually every other reel these days seems to be "planned failure" where cheaper parts last only as long as it takes for the consumer to get bored and want to go shopping again. A 704/706Z is built to last a lifetime at it's modest drag settings with a top quality stainless and marine bronze drivetrain that simply refuses to wear out.**

**If your drag needs (~12lbs max) are met by this reel it remains the toughest spinning reel made for the surf or kayak use and will last in those environments longer than anything else for the dollar.**

**What would I change in the reel (this topic has been hotly discussed given the upcoming re-introduction)? Virtually nothing with a couple of exceptions. Penn has said that there are no planned changes so that there will be complete interchangeability with previous versions. That still gives us some (small) latitude.**

**1. Drill the Rotor Cup to allow drainage. It lightens something that is quite beefy and let's air dry inevitable collection of water and sand in those pie slices.**

2. Seal for the Pinion Bearing. The Pinion is perfectly round here and 1/16" seal could really add protection just put it under the Pinion Retainer, either that or make the bearing a sealed ceramic bearing standard. Or all you have to do is offer one or the other as an accessory (they will not be \$11.95 forever at Boca Bearings, word to the wise).

3. OK, ready for pie in the sky dreaming 😊? There have been numerous calls for IAR. Well, that would require significant modification...Or would it? What Penn could do (and this really is a revolutionary idea 😊), is simply drill out the handle for a larger bushing size. The Housing is sold with the Bushings pressed in. Keep the identical ID so that it is totally compatible with previous versions, but the OD would be one that would easily accept an AR bearing. The modders could then pull the bushing and press in an IAR (or have a shop do it) and everyone would be happy 😊. Not much if any additional cost to Penn, and the most challenging part of the mod (accurate machining for the bearing) is done for anyone that really wants an IAR.

One can dream can't they 😊

best regards