

Alinco EMR-400 Rotator Refurb – G1KOT

When I first started in Amateur radio back in the late 80's, I had the luxury of living at home and being able to afford some of the essential kit needed to run a station, these being a decent power supply (Zegati 13.5v 40amp) and an (Alinco) rotator, now I still have these and to this day still rely on my power supply every day running my Icom 746, plus all the adjacent kit.

The same goes for my rotator, this has been outside in all conditions most of it's life, except for maybe a couple of years when I moved abroad and it was stored in a container and shipped to the other side of the world where it didn't see any daylight until it was shipped back again. Apart from that time this has been the mainstay of many types of antenna I have used from a 14 Element Parabeam made by Jaybeam, a 3 Element 10m Beam, even a couple of phased 8 Element 2m Quad beams, and lately it's be hosting my 2m collinear and MQ26 and has worked faultlessly, but on deciding to re-arrange my aerial mast a few months back, into a system that I could raise and lower, rather than being static on the side of the house and with all the issues that entails with maintenance, I decided that over 20years service is enough and time to have a look inside and give it a bit of TLC.

So on removal of all my antennas from the old location, not an easy task, and one the main reasons for the tilt over solution, I eventually managed to remove the rotator from its lofty perch.

Once on the ground and not without trepidation I decided to remove all the 4 retaining bolt s underneath, and I was expecting a numerous amount of ball bearings and cogs to fall in my lap. But luckily and by design the top came away easily, revealing the internals, which looked surprising clean, (at first glance). Review Pic 1



Pic 1

On the Alinco EMR-400 rotator, a cog ring sits freely on top of the first set of ball bearings, and the 4 notches represent the direction of the rotator, one of the notches is larger than the others and the top housing holds a groove that sit's in this location only. This ensures that the stop leaver is also activated a the max south west and south east directions.. I found out by putting it all back together in the wrong order and only having a small amount of rotation being allowed!!...

Once I have removed the cog ring and the top layer of ball bearings, I could see that rust was present at the underneath, looking for another means that the base was fixed proved false avenue, since a small amount of pressure caused the bottom section to fall away from the rest of the unit, a small rubber O-ring seems to provide this holding pressure.

The ball bearings in this section looked pretty poor by comparison to the others, and were completely rusty - review pic 2 & pic 3



Pic 2



Pic 3

Here you can see some of the removed ball bearings and the condition. Not a pretty sight. And the bottom housing that held these ball bearings in place, also coated in rust.

All the cogs inside and the top housing really surprised me on the good condition they where still in, so I set around cleaning all the lower ball bearings and housing with wet and dry paper and grease them all back up with some packing grease.

After about 2 hours work and very sore finger tips, luckily I do not have to use any fingerprint readers I managed to get the rusty ball bearings looking in a fairly decent condition, all 94 of them. See pic 4,



Although they still show some darkened colouring the hard rust was all removed and they were cleaned, a few times with wet and dry over the bottom mounting also made the ball bearing tracks a lot smoother.

Once they were all dried with paper towel it was time to repack all the ball bearings back into the lower mount. With care and plenty of grease I still managed to drop a ball bearing into the bottom of the rotator case, but with slight of hand and a handy old tooth brush, this was fished out and placed back into position. I also noticed that the rubber seal had some wear and cracking, so this was also liberally greased, with the idea of a possible replacement at some other future date. I must admit I took care when placing the lower mount into position; I really didn't want to break this seal.

Once the bottom mount was being held in place by this rubber seal, all the cogs were given a once over with grease with the toothbrush, then the top bearings were also added and packed with grease with the top cog ring also greased up, this was mounted in the correct north position with the stop lever in the middle, at this point it was time to mount the top case back onto the unit and bolt it all back together, now with a quick spray of silver paint. And all new bolt and washers on the upper and lower clamps the final result



Powering up the unit provides a success, a smooth running unit giving full rotation and hopefully another 20 years plus of non-interrupted service..

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