

Read this section in its entirety **TWICE** and be sure you understand it before proceeding with the final assembly and indexing of the potentiometer.

When you have completed the rotator rebuild, but have not placed the main cap back on the rotator body, rotate the pot to electrical center by using a 12V gel cell battery (or other 12VDC source) across pins 4 & 5, stopping from time to time being careful to measure the resistance across pins 1 & 2 and 2 & 3 as you go until the readings are approximately equal (approx 250 ohm); i.e - center of potentiometer rotation. **Do not over accidentally rotate the pot past its physical end stop, as this will destroy it! Go slowly and do not rush at this point!** Invert the upper housing on your work surface, grease the bearing race and place 49 ball bearings in the race. Insert the rebuilt rotator lower body into the upper body so that the index mark on the upper body is as close to 180 degrees away from the electrical connector and index mark on the lower body as you can get it. Flip the rotator over so it is sitting on the bottom of the lower housing. Leave the lower bearing ring housing off at this point. Using your 12V battery, apply power across pins 4 & 5 and rotate in either direction until the index marks on the cap and body are exactly aligned. Take a reading of the resistance across pins 1 & 2 and 3 & 2 and record. Rotate in the opposite direction until the index marks are again aligned and re-record your readings. The readings should be within +/- 15 ohm of each other on pins 1 & 2 and 3 & 2, but reversed in each direction of rotation. The resistance measurements should typically be around 435 ohm and 65 ohm, +/- 15 ohm on pins 1 & 2 and 3 & 2, assuming a perfect 500 ohm total reading on the pot (pins 1 & 3), but will vary from this as the pots are never perfectly 500 ohm. If the readings in both rotation directions show more that a +/- 15 ohm difference when the index marks are aligned, turn the rotator over, make sure you have tilted the rotator so the switch arm falls against the stop switch to get it out of the way, then carefully lift the bottom housing slightly up from the top cap just until the gears are disengaged and then index the body one tooth in one direction or the other to and reengage the race and gears. **BE CAREFUL** so as to not dislodge any ball bearings in the process. You will need to repeat this procedure until you are happy with the potentiometer readings. **NOTE** - It is not likely that you will need to re-index the top housing gears **IF** you have taken care with electrically centering the pot and making sure you index the top housing correctly 180 from the index mark on the lower housing when you assemble, as 13.5 degrees of pot rotation is quite a bit of room for error. Flip the rotator back over and realign the index marks on both housings using the battery and check resistance again. Once the resistance is approximately equal in both directions as indicated above, continue rotation to a mechanical stop and you should end up with about 475 ohms and 25 ohms +/- 15 ohms of resistance when you reach the hard stop across the same pins. I suggest making multiple stops as you approach a hard stop checking resistance several times just to make sure you don't over rotate the potentiometer. This indicates that there is about 13.5 degrees of rotation left on the pot if you happen to hit those resistance values spot on. It is not critical that you are perfectly equal in your resistance readings at both hard stops. As long as you are not at zero ohm at either hard stop, you have done it correctly. Once this is complete, flip the rotator upside down again, grease the bottom bearing race in the assembled unit, insert 49 ball bearings, attached your lower retainer ring race making sure its index mark is aligned with the lower housing's index mark and tighten the 4 screws. I suggest using blue thread lock on the 4 screws, even though Yaesu does not use it, but this is your call. I suggest rotating the unit again with the battery to each hard stop to make sure it sounds right and to recheck the potentiometer readings.