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WATTS

03-2013

Year 83 + 3m

Monthly newsletter of the Pretoria Amateur Radio Club
 Maandelikse nuusbrief van die Pretoria Amateur Radio Klub.



PARC, PO Box 73696, Lynnwood Ridge 0040, RSA



<http://www.parc.org.za> mail: zs6pta@zs6pta.org.za



Bulletins: 145,725 MHz 08:45 Sundays/Sondae

Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz
 Activated frequencies are announced prior to bulletins

Swapshop: 2m and 7.066 MHz Live on-air after bulletins

Bulletin repeats Mondays | herhalings : Maandae 2m 19:45

ZS6PTA at SARL Field Day 16-17 Feb.



In this issue

- Member news and activities | Lede-nuus en Aktiwiteite
- Technical | Field day | Rotator repair | Tegnies
 Vehicle mounting a R6 vertical
- Page eight | -- | Bladsy agt

In hierdie uitgawe

Next club events

Fleamarkets at PMC

Wed 1 May (public holiday)

Sat 10 Aug Sat 7 Dec

Club social at U.P.

Thursday 5 Mar 7pm

Club committee meeting

Thursday 19 Mar 7pm

PARC Management team / Bestuurspan Aug. 2012 – Aug. 2013

Committee members

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Field Day 16-17 February.

The photo shows all the hardware with- and without wheels that Pierre ZS6PJH brought along and with the help of several members was set up once again on the property of Fritz ZS6SF.

Several regular contesters were not available for this weekend but the remaining volunteers and several visitors were able to make a success of setting up the station and antennas in time for the start of the contest on Saturday 12 pm.

Pierre's effort and organization to once again get ZS6PTA on the air is much appreciated! More on p4.



Birthdays Verjaarsdae

Mar.



- 01 Francois, seun van Karin en Sarel ZS6EK
- 02 Jozua, seun van Erna en Whitey ZS6JJJ
- 07 Marilize, lv van Rudi ZR6RVD
- 13 Rudi ZR6RVD
- 17 Gerda, sw of Roger ZS6RJ
- 21 Frances ZR6AUT
- 21 Martie, lv van "JB" ZR6YV
- 22 Julian ZS6AOU
- 22 Ivan ZS6CCW

Mrt. Anniversaries Herdenkings

None - geen

- 25 Doreen ZR6DDB, lv van Johan ZS6JHB
- 27 Sarel ZS6EK
- 28 Le Clue, seun van Elma en Gawie ZS6GJJ
- 28 Liezl, dogter van Elma en Gawie ZS6GJJ

Lief en Leed | Joys and Sorrows

OM **Bill ZS6KO** is still not well and cared for at home
Andre ZS6GCA is going in for an operation

Diary | Dagboek (UTC times)

Mar

- 02-03 ARRL International DX contest SSB 00:00-23:59
- 03 DARC 10m Digital Contest 11:00-17:00
- 03 Hamnet simulated 40m emergency contest 12:00-14:00
- 09-10 RSGB Commonwealth Contest 10:00-10:00
- 11 Hamnet logs deadline to contest@peham@.co.za
- 16-17 Russian DX Contest 12:00-12:00
- 20 Moon Contest 19:00-21:00
- 30-31 CQWW WPX Contest 00:00-23:59

Hier is 'n rympie uit die Tagtigs:

O woe is me, my sad refrain
So many countries still remain
Unheard, unworked and unconfirmed
And yet the world seems unconcerned..

73

Tjerk ZS6P

Current RAE classes

Classes every Tuesday evening 19:00-21:00

Handbooks can be downloaded from SARM website.

Contact Vincent or Fritz
(see p.2 for contact details)

Nuwe lid

Welkom aan Jaques Swanepoel
ZS6WDL

Snippets | Brokkies

Our 439.025 MHz link is active again – thanks **Craig ZS6RH**

Ed ZS6UT has made a loop antenna around his property and also has his R6000 up. We can hear him on 2m as well.

Amateur Radio today can now also be heard on 145.725 MHz at 10:00 Sunday mornings courtesy ZS6ARA.

RADIO AMATEURS CELEBRATE A CENTURY OF DISASTER COMMUNICATIONS - Radio Amateur worldwide will be dedicating this year's World Amateur Radio Day on 18 April to disaster communication with the theme "Amateur Radio – entering its second century of disaster communications" **Read the media release issued by the SARM.**

THE TEP SEASON HAS STARTED – Ian, ZS6BTE, informed SARM that the TEP season is here when he heard the TV carrier from Iran on 48,239 MHz. Pierre, ZS6A, reported that Paul, ZS6NK, worked a few stations via TEP in Southern Europe on 50 MHz.

ITALIAN AMATEURS BACK ON 70 MHz – Italian amateurs have regained access to 70MHz until 31 December 2013. All Italian stations are authorized to use 70MHz, unless they are within 30km of the Italian border with Austria, Switzerland or France. Frequencies in use are 70.100, 70.200 and 70.300MHz, with 25 kHz of bandwidth. All modes are permitted with a maximum power of 50 watts ERP.

Plenty RF at the Field Day...



Roger ZS6RJ has a solution to field days and holidays:



Simple hinge mount does the job...

Repairing a CDE / Hy-Gain Rotator

Published with permission from K5LAD

Few things are more frustrating to a ham than an antenna rotator which fails. It might be a failure to turn (either partially or completely), a failure to indicate the (correct) direction, or an intermittent turning or indicating. There are several companies that are set up to repair or recondition rotators. I prefer, however, to attempt my own repairs.

If you, like me, want to tackle an errant CDE rotator, I've tried to describe the steps which I took to accomplish this. Hopefully, it will make enough sense that others can follow these steps and have the same success. I use the term CDE rotator since that was the original manufacturer back in the 70s when I had a ham store and sold them. CDE later sold their rotator operation to HyGain who made them for many years and then sold to MFJ Enterprises. Many parts, if not all, for the CDE are still available from MFJ.

To begin all CDE rotator repairs:

1. If possible, turn the rotor facing North or center scale on the indicator meter.
2. It helps to have a device with at least a 1 1/2 inch pipe standing securely upright for mounting the rotor upside down upon. Mine uses a floor flange with a 4 inch 1 1/2 inch pipe mounted on a small piece of 2 x 6 lumber. I'd like to tell you that my rotor repair mount was carefully designed and built, just for this purpose. The truth is, I built it to use with my travel trailer to act as a base for a mast holding a TV antenna. The beveled edges of the one 2 x 6 fit between the two wheels on one side of the trailer.



3. With a magic marker, make a matching mark that lines up on both pieces of the rotor shell. This is the top shell piece and the shell piece with the inside grooves used with the brake wedge. **This action and that in step 4 below will save you MUCH time and frustration when it comes time to reassemble your rotator.**

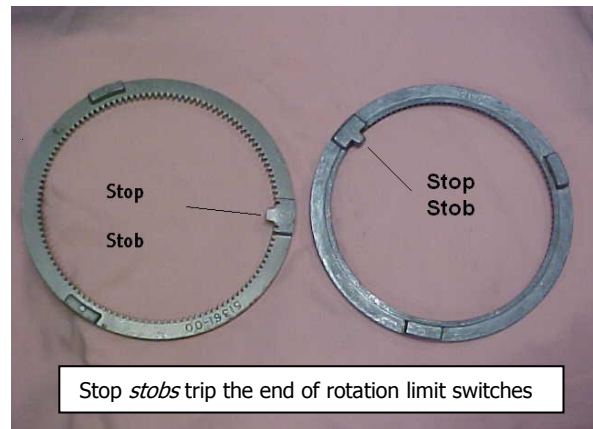


4. With a magic marker, make a matching mark that lines up on the smaller shell piece (with the inside brake grooves) with the bottom plate of the rotator. This bottom plate is how the rotator mounts to the tower or mast.

5. When the screws are removed, make sure you can capture all the ball bearings, because they WILL fall out and try to cover your table and floor. Be ye forewarned. I received a note from George - WA2VNV with the additional suggestion: One of the simple tricks is to use an additional box top (approx 12 x 12 x 6 in (L,W,H)) with a round hole cut in the bottom sized so that it just fits over the pipe & flange that holds the rotor in place during disassembly. It will contain any/all parts and balls that fall out and also keep them clean. Then you can carefully transfer them to the other box top for inspection, cleaning, etc.

NOTE: The bearing holders are plastic pieces which hold the individual ball bearings. These plastic pieces DO NOT fit either way. When disassembling your rotor, take careful note of the way they are mounted. If you think you might not remember the proper way they sit inside the rotator, take a digital picture of the bearings and races while they are still inside the rotator. This action, alone, can save you much time and rustration. Whether you finish this activity with all of your hair may depend on you carefully following this noted paragraph.

6. Have a container (top of large box) handy to place the ball bearing races and bearings in a flat condition. There are typically two sets of ball bearings (three for the Tail-Twister rotor). Some of the rotors have a single ball in every bearing space in the race while some of the lesser expensive models only place a ball in every other space. If you are buying new bearings to replace the originals, I would personally buy enough ball bearings to place one in every space in the race.
7. When the bottom outer shell is removed, take careful note of the way the bearing races are positioned and placed.
8. When lifting out the motor assembly, if the ring gear is still one piece, take note of where the end-stop stop is in relation to

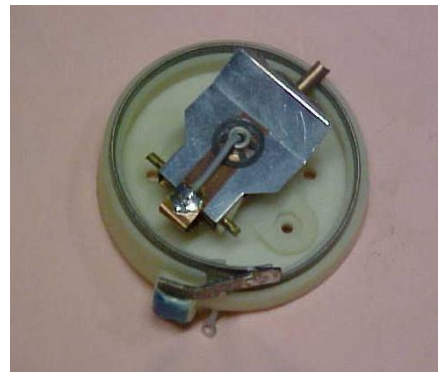


the potentiometer and the rest of the inner assembly. NOTE: Often with cast aluminum ring gears, which were standard with the Ham M – Ham IV series, the cause of a rotor failure is a broken ring gear. It is usually broken into several pieces. The cast aluminum ring gear can be directly replaced with the stainless steel gear that was standard in the Tail-Twister rotor.

9. The bearing races and ball bearings can be thoroughly washed out with gasoline but this must be done CAREFULLY and in an open, outside area.
10. Big chunks of hardened grease should be removed from the inside of the rotator as well as all pieces of the broken ring gear if it was broken.
11. Clean all of the inner gears with a cloth soaked in gasoline. Clean all of the inner parts of the rotor.

NOTE: I do NOT recommend the use of gasoline as a cleaner since there are other products as good or better and less volatile. I used gasoline because I was in a hurry, I didn't have the proper cleaning product available, and I'm not very smart

12. If the indicator potentiometer is intermittent, it may be dirty so that should be cleaned. If the rotor was subjected to abuse or if it failed due to a nearby lightning strike, part of the potentiometer may be burned away leaving an open circuit. I never had much luck repairing a break in the resistance wire on the pot since this type of wire is not generally solderable.



Since it lives in a pretty inaccessible area on the top of the tower, I prefer to replace the whole pot unit. They are also available from MFJ. They are not cheap but I believe it's worth removing a problem that might soon appear worse. If you think the cost is excessive, just bite the bullet and buy it anyway.

There is no competition for this priority piece and it's not something you can duplicate in your home workshop. A good and clean indicating potentiometer inside your rotator and atop your tower or mast will help to assure that you can continue using your rotator to turn that beam to seek out that choice DX.

13. While the rotator unit is opened up, and cleaned up, this is a good time to look over the wires and soldered connections on the motor and the end-stop switches. Again, any problem you find is much easier fixed now than during the next contest.
14. Look over the ball bearings carefully. If you see any rust on a ball bearing it's time to replace it/them and if one needs replacement, I'd replace all of them. At one time I looked in the yellow pages to find a bearing seller and replacement bearings for my whole Tail-Twister were quite inexpensive. MFJ also sells a packet of these ball bearings but my experience has been these from MFJ are two to three times the cost of bearings purchased from a local company that deals in bearings. I'd check the yellow pages for companies selling them, they should not be a difficult local item to find.
15. When it is time to re-grease the rotor, I used a grease suitable for both both cold and hot temperature operation. This grease is the typical greenish-brown color.
16. Once greased up good, and with all of the necessary parts repaired or replaced, it's time to re-assemble the unit. Again, the top rotor shell should be clamped to the bench pipe and placed with the inside center potentiometer moving molded piece forward.
17. The ring gear should be placed with the end-stop stob to the assembler's left or to match the direction it was when the rotator was first opened in Step 8.



On the left is a cast aluminum ring gear. On the right is the stainless steel ring gear. The two are interchangeable but the stainless steel gear is about triple the price of the other.

18. Note also that the bearing races are placed in the groove in the same direction that they were in Step 7. For my rotator, it placed the smooth side of the plastic race up toward the inside of the rotator.

19. Load one bearing race onto the machined groove around and near the top of the rotator shell. The race should have all of the bearings, whether new or old, installed and gooey with grease. Usually if you continue to hold the race in its natural circle, the bearings will stay in. If the re-assembler gets too careless and lets the ends of the race come apart very much, some (or all) of the bearings will come out and let gravity determine their fate.

Remember that they are now gooey with grease and they will land where they can do the most damage or where they can pick up the maximum amount of dirt and dust bunnies on the floor. Extra care during this operation will be worthwhile and make you much happier during the coming hour(s).

20. Place the potentiometer to the center of its range. Carefully lower the motor assembly so that the potentiometer copper spring engages the molded piece located on the inside top of the larger rotor shell. It is very important that this piece be placed properly since, if it does not, the meter will probably indicate movement in one direction but not the other and will stay where it ended up on the first turn. Like the old carpenter's axiom, "Measure Twice, Cut Once" it is important to spend some time to do this operation very carefully. NOTE: The newer potentiometers don't seem to have a copper spring but it now is a silver metal piece as shown in the "Indicator potentiometer" picture above.

21. If everything is seated correctly, the inner gears will be engaged in the ring gear, the potentiometer will be properly engaged in the piece in the top of the shell, and the motor assembly will be centered within the shell. You're looking at the rotator's 8-pin terminal strip which is now on top. You should be able to see equal spacing around the motor assembly piece as it is now resting on the inner ball bearings. If you are able to easily attach the rotor (seated upside down on the pipe) and the control box via a piece of 8-wire cable, it would be a good idea to try out the box.

If all is OK, the rotor will turn a full 360 degrees and should automatically stop at the extreme ends of its travel. If this does not happen, the problem MUST be corrected at this time. Do not go ahead and reassemble the two shells, HOPING that it will somehow fix itself and all will be OK..... it won't! Guaranteed, it won't!

22. If, however, you see it turn a full 360 degrees and see it stop at each end of travel, sit down for a minute and congratulate yourself on your deed. You've accomplished the most difficult part.

23. Ah, but now, back to work. The final bearing race, full of gooey greasy bearings, is ready to be placed in the groove atop the piece on which the motor is attached. The same caution as noted in Step 19 should be noted here too. The only difference here is, since you're almost finished with the job, any ball bearings dropped now will disappear completely... never to be found again. Please don't ask me how I know this, just take my word for it.

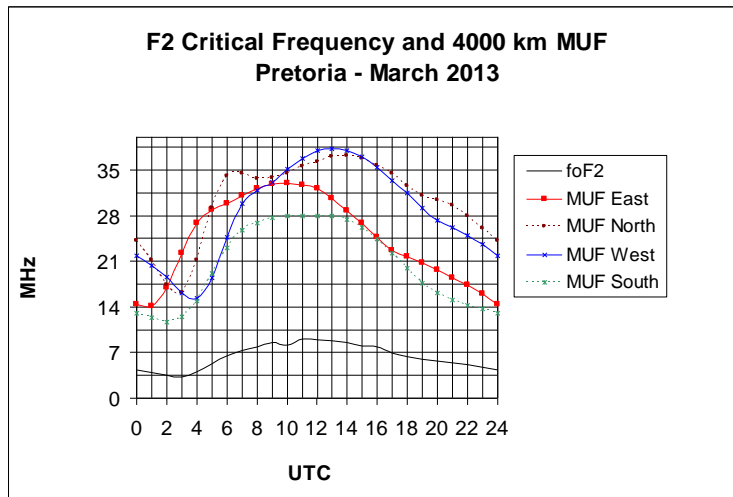
The bearing race should be placed in the groove in the same direction that they were in Step 7. For my rotator, it placed the smooth side of the plastic race down toward the inside of the rotator. The ball bearing races in my rotator go with the flat part of the plastic toward the center, i.e., when fully assembled, the two bearing races flat pieces face each other to the inside.

NOTE: At one point I was having difficulty in reassembling my rotator. It was just a small amount too thick and when the final screws were tightened, the motor stalled and refused to turn. The problem was a failure to get the ball bearing races in properly. That's why I reiterate that you should check which way these races originally were installed as you took it apart.

24. Now it's time to place the bottom piece back on the top shell. If you marked the two pieces correctly back in Step 3 they should match up perfectly.

25. Find where you put the screws removed from the case and tighten them down securely. Remember that this rotor will be where you can't get to it very easily so give that wrench just one more little tightening on each screw.

26. You, sir or madam, are now finished. Your rotor should be ready to reinstall on your mast or tower or whatever and be good for another 20,000 miles..... or perhaps 20,000 contacts.



Long Term HF Propagation Prediction for March 2013

Courtesy ZS6BTY

(see also our website propagation tab)

DX Operating

The graph shows the 4000 km maximum useable frequency (MUF) to the East, North, West and South from Pretoria for the first hop using the F2 layer.

Local Operating

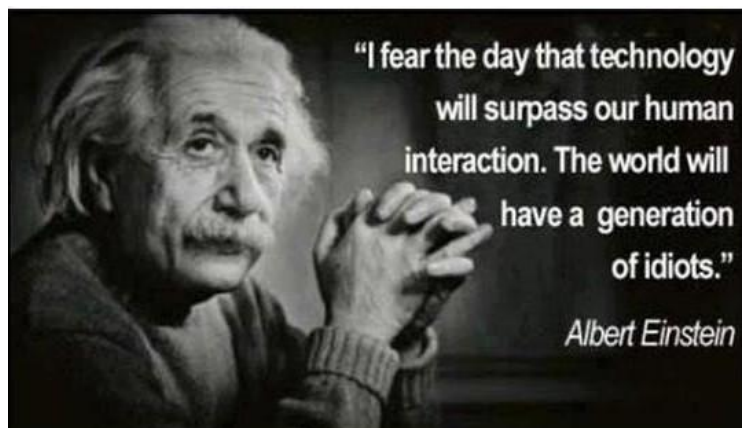
The F2 critical frequency (foF2) is the maximum frequency that will reflect when you transmit straight up. E-layer reflection is not shown.

I'm not a paranoid, deranged millionaire.
Dammit, I'm a billionaire.
~ Howard Hughes

After the game, the King and the pawn go
into the same box.
~ Italian proverb

Men are like linoleum floors. Lay 'em right
and you can walk all over them for 30 years.
~ Betsy Salkind

The only reason they say 'Women and
children first' is to test the strength of the
lifeboats.
~ Jean Kerr



When Insults Had Class

These are from an era before the English language got boiled down to 4-letter words:

The exchange between Churchill & Lady Astor:
She said, "If you were my husband I'd poison your tea."
He said, "If you were my wife, I'd drink it."

A member of Parliament to Disraeli:
"Sir, you will either die on the gallows or of some unspeakable disease."
"That depends, Sir," said Disraeli, "whether I embrace your policies or your mistress."

"I am enclosing two tickets to the first night of my new play; bring a friend.... if you have one." - George Bernard Shaw to Winston Churchill.
"Cannot possibly attend first night, will attend second, if there is one." - Winston Churchill, in response.

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