



YARC-MITTER

NEXT MEETING SUNDAY APRIL 14TH.

APRIL 2013

THE OFFICIAL NEWSPAPER OF THE YONKERS AMATEUR RADIO CLUB

THE NOMINATING COMMITTEE MET AND DELIVERED THEIR SLATE FOR 2013 OF OFFICERS AND TRUSTEES WHICH FOLLOW BELOW ,THEY ARE AS FOLLOWS

OFFICERS

President Mitch Holmes KC2PHD
Vice President Mike Piccini KF2FK
Secretary
Nancy Piccini
KC2VGG
Treasurer Dan Calabrese
AA2HX
Membership
Gil Lugo Jr.
K2YNY

Directors

John Costa
WB2AUL
Paul Maytan AC2T
Aron Tekulsky
WA2RTV
Efrem Acosta W2CZ
John Nance
KC2EXA
Dave Landstein
N2EHG
Bill Hall AB2HZ
Gabe DiGuglielmo KB2MAR

WE WISH ALL OF THE NEW CANDIDATES GOOD LUCK IN THE NEW UPCOMING YEAR .

.PLEASE USE THE 31/91 RPT. 114,8. TILL THE YARC MACHINES RETURN,

TIME TO BUILD OR FIX



JOIN RENEW THE ARRL THRU THE YARC, THE CLUB GETS \$2.00 FOR EVERY RENEWAL AND \$15.00 FOR EVERY NEW MEMBERSHIP FOR DETAILS CONTACT WB2AUL



NEED HELP, HELP STUDY ING FOR UP- GRADE. GET IN TOUCH JOHN, WB2AUL,HE MIGHT BE ABLE TO HELP YOU

STUDY AND PASS YOUR EXAM. 914-969-6548

**FOX HUNTERS RETURN TO THE FIELDS
ON APRIL 21ST, TIBBETTS BROOK
PARK, YONKERS NY. REGISTRATION 830
AM, FOX RELEASED AT 900 AM. FOR
FURTHER INFORMATION, CONTACT MIKE
KF2FK@KF2FK@AOL.COM.**

GOOD HUNTING!!!!



WELL ARRANGED MOBILE---YEAH



WHEN ENTERING THE POLICE STATION
FOR A MEETING OR VE TESTING ,PLEASE
TELL THE DESK SERGEANT THAT YOU ARE
THERE FOR A MEETING OR VE TEST
SESSION AND IF HE WOULD LIKE YOU TO
SIGN IN. THANK YOU



APRIL 7TH

**NEXT VE TESTING WILL BE HELD ON MAR 3RD
AT 830AM . PLEASE BRING TWO FORMS
OF ID. ONE ID MUST BE A PICTURE ID.
TESTING IS HELD AT THE 1ST PRECINCT
ON EAST GRASSY SPRAIN ROAD IN
YONKERS NY. FOR FURTHER INFO
CONTACT AA2HX,914-667-0587 IF YOU CAN
HELP AS A VE ON SUNDAY, PLEASE CALL DAN**

**THE NEXT MEETING OF THE RETIRED
GUYS/GALS WILL BE HELD ON MAR.,18TH.
THURSDAY AT MONT OLYMPOS
RESTAURANT IN YONKERS THE TIME IS
1200 PM NOON, YOU DO NOT HAVE TO BE
RETIRED TO JOIN US EVERYONE IS
WELCOME MEMBER OR NON MEMBER
ALIKE IS INVITED. FURTHER INFO
CONTACT WB2AUL @9 1 4-969-6548**

**ARTICLES OR PICTURE
IF YOU HAVE ANY ARTICLES OR
PICTURES FOR THE YARC-MITTER
PLEASE SEND THEM IN AND THEY
WILL BE PRINTED. WB2AUL@YARC.ORG**

JUST CHECKING THE B+



IF YOU WANT YOUR OWN CLUB EMAIL ADDRESS AND STILL RETAIN YOUR OTHER ADDRESSES, GET IN TOUCH WITH MIKE KF2FK AND HE WILL TAKE CARE OF IT RIGHT AWAY KF2FK@YARC.ORG

ITS THAT TIME OF YEAR

AGAIN, DUES IS DUE AGAIN. IF YOU GET A CHANCE REMEMBER THAT THE YEARLY DUES ARE DUE. PLEASE SEND YOUR CHECKS OR GIVE YOUR DUES IN AT THE CLUB MEETINGS.

**SEND TO, YONKERS AMATEUR RADIO CLUB
PO BOX 378
CENTUCK STATION
YONKERS, NY 10710**

OR

**GILBERT LUGO JR.
33 TYNDALE PLACE
YONKERS, NY 10701**

DONT BE EXPUNGED

SWAP MEET

1 ALINCO 220 MOBILE RADIO—WB2AUL
1-HEATHKIT 2040 ANTENNA TUNNER/ROLLERINDUCTOR
1-HEATHKIT 2060 ANTENNA TUNNER FULL LIMIT
1-RohAN 25 TILIT OVER MOUNT NEW
6-SECTION ROHAN 25 TOWER
2- 220 HT 5 WATTS

CALL WB2AUL/914-969-6548 FOR ABOVE

MONDAY—730PM—

INFORMATION

NET

K2JJ MODERATOR—146.865—

PL110.9

WEDNESDAY—800PM—

TECHNICAL NET

WB2AUL MODERATOR---

146.865—

PL110.9

THURSDAY—800PM—JUNIOR

OPS

NET

KF2FK MODERATOR—

146.865—

PL110.9

SUNDAY---700PM—10 METER

NET—28.456MHZ—USB—

WB2AUL

MODERATOR

SNOW APRIL 3RD 2013, BIALYSTOK POLAND, DON'T COMPLAIN ABOUT OUR WEATHER HERE ,IT COULD BE WORST,THEY HAD SNOW AND ICE AND 20 DEGREE TEMPERATURES ALL WINTER. SINCE OCTOBER 2012



REMEMBER FIELD DAY IS COMING QUICKLY,THE CLUB WILL NEED YOUR HELP,WELL ALSO NEED RADIOS,POWER SUPPLIES,CHAIRS,TUNERS ,CABLE ETC. PLEASE CONTACT MITCH OS EFFREM TO SEE WHAT YOU CAN BRING, MOST INPORTANT BRING YOURSELF.

Rebuilding NiCd Battery Packs, and Memory

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This is being written to shed some light on two very common misconceptions about NiCd battery packs.

The first is the misconception of "**memory**." I don't know how many times I've read or been told that NiCds can develop a memory if I'm not careful to recharge them at different points in their discharge cycle. Let me point out that the manufacturers tried for a long time to duplicate the problem seen on one or two satellites when they were told of the problem, as observed by NASA. When they managed to do it, they found that it took computer accuracy in timing the discharge/recharge cycles and even then it was difficult to duplicate. Bottom line? Don't worry about it. Use the radio and recharge it when you will.

The second misconception is that you can rebuild a NiCd battery pack with off-the-shelf cells and get as good results as buying a pack from a distributor. Sounds good, saves money, is fun to do, and think of the operating fun you'll have telling everyone you rebuilt the pack "from scratch!" Why is this a misconception? It's because those battery packs you buy from an insert provider are pre-selected so that the discharge and recharge characteristics of each cell are within a given tolerance.

I know of three places where NiCd battery packs have been used and are still being used. You may also know that there are now farad capacitors and that these are making headway in replacing NiCds in some places. They are light weight but have a "short" shelf life, not good for stand-by radios, but electric hobby cars/planes might be a good use for them. The three areas I will use for my discussion are these: radio (ham, business, police, etc), hobby radio-controlled electric cars and planes, and satellites. A typical pack for an HT costs about \$40; for a hobby car/plane, about \$100+; for a satellite, in the \$1000s. If they are the same beast, why the difference in cost? If I can build the same thing with off-the-shelf cells again, why the difference in cost?

The reason is **PRE-SELECTION**. What is pre-selection and why does it cost so much? Pre-selection is when the battery company pre-selects cells of similar charge/discharge characteristics for inclusion in a battery pack. For amateur radios, the tolerances are for packs that will last for a few hundred discharge/recharge cycles, for the hobby car/plane people this would not be worth it since they commonly charge their units 10 to 20 times a day. Having to buy a new pack every 10 to 20 days of use would quickly kill the industry! A satellite discharges and recharges once every 24 hours every day it's in orbit. If it only lasted 200 to 400 cycles, it would be dead in about a year. Doesn't sound cost effective to me! Satellites need about five to ten years of minimum life from the battery packs, or from 2000 to 4000 cycles. If a radio-controlled electric car/plane hobbyist goes out 25 weekends a year and wants at least two years of enjoyment, we're talking about 1000 to 2000 discharge/recharge cycles.

Bottom line, we pay for what we get. If we pay \$40, we get about 200 recharge cycles for our radios. If we pay \$24 or less for the cells off the shelf, we get no guaranty of cell characteristics matching, and in all probability we'll get far fewer recharge cycles out of the pack than we had hoped.

So what is it that kills a battery pack? One problem is something called **reverse charge**. This is when a weaker cell has depleted its charge and the stronger cells still have some charge left. As you continue to use the device, the stronger cells reverse charge the weaker cell(s). After awhile, the weaker cell can never be properly recharged and you'll notice that the pack is down from 7.2 volts to about 6 volts, if only one cell goes bad.

Another method of death for a battery pack is called **over-charge**. Let's say that the battery pack has a built-in shutdown when the voltage drops too low. This is designed to protect the weaker cell(s). If this continues to happen, the time to shut down will get shorter and shorter as the weaker cell(s) never gets a full charge, or the strong cells get over-charged and they start venting. Venting is when the cell gets too hot and pressure builds up to the point that it vents the hot gasses, thus losing some electrolyte and capacity. Last, if the pack has under-voltage and over-charge temperature protection, we get to the point that the weak cell(s) is never getting fully charged no matter how long we try. It is protecting the weak cell by shutting down before it gets reverse-charged, and the temperature protection protects us from over-charging the stronger cells. Thus the weaker cell(s) will never get fully charged and we will think we have a MEMORY condition! (So here's one place where people are sure their battery pack has a memory. Another is when the cells vent and lose capacity. This also looks like the memory problem because the cells say they're fully charged but they don't last as long as they should.)

What to do? I have a suggestion that has worked for me on some battery packs I've been using since 1992. This method will work great for when the weaker cell is not being fully charged. I have two battery packs I can open. Every year I do so to recharge each cell individually once or twice. So far this has kept the weaker cells from being reversed charged by the stronger cells and kept the pack alive now since 1992 and counting.

The manufacturers seem to be going more and more to the sealed battery packs. I have two packs for a newer Yaesu HT. These are of the newer sealed design. They cannot be opened and the smaller pack died after only three years. If I could have gotten into the pack, I could have kept it alive much longer. Another example: My friend Joe/WA3OHI has an older Kenwood 2-meter HT. It has one of the best battery pack designs I've ever seen. Push the two voltmeter probes down two holes and the battery pack pops open. One Sunday in July of 2000 I did this to see what was going on. There are seven cells in this pack, PB-26 @ 8.4V, and they are tied together in three sets of two, plus the leftover cell. One set of two was measuring 0.00V, another set was at 1.11V, the third set was at 1.25V, and the last lone cell was at 1.22V. I charged these cells in their sets and brought the pack back to its nominal voltage, but after 24 hours, the pack was down by over 1.25 volts. It turned out that one cell in the 1.11 volt pair was down to 0.00 volts. I removed enough of the shrink-wrap so I could recharge the 0.00 volt cell. After 8 hours that cell was still over 1.30 volts. It looks like we have saved this pack for a few more years but we'll have to check it from time to time just to be sure. This pack is only about seven years old and we let it get a bit too far this time, but so far it seems that the pack is fine. We were lucky the weakest cells were not at negative voltages, which would mean we'd definitely have to buy a new battery insert.

Bottom line, if you can get a pack you can open, or one of the empty cell packs for alkaline batteries, get them! With an empty pack you can buy off the shelf cells, put them together in a pack, recharge them individually, and get far more recharge cycles out of them than from a standard sealed battery pack. We can estimate that if satellite NiCd packs can last for 2000 to 4000 cycles, we should be able to get even more than that if we charge each cell individually.

The downside of using off-the-shelf cells is that you'll probably need to charge them every time, individually, for best results. I strongly recommend buying a battery pack insert, but if you are determined to try making one from individual cells then I recommend checking a rebuilt pack after every recharge cycle to see how the weaker cells are doing. See how long it takes for the weakest to be only minimally charged before the charger cuts out. There will be weaker cells just as there are weaker links in a chain. The object here is to catch them at the point of being not fully charged, and charge them individually before they get reverse-charged during normal operation. In this way you will be able to extend the life of the battery pack.

Good luck, and I hope I've dispelled some of the myths surrounding NiCd battery packs and that you understand how to keep that rebuilt or new battery pack alive longer than you would otherwise.