SPECIAL SERVICE CLUB

the RARA RAG

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BOOTLEGGERS AND THE TITANIC

No, the two are not related except that the locale for each is the Atlantic, and club historian Bruce Kelley has an illustrated talk on both.

Amateur radio was used to send code messages on the 40-meter band directing rum-runner boats in the Atlantic. He'll show unusual pictures taken in Long Island mansions of bootleg stations as seized by Federal agents 60 years ago.

The 1912 Titanic disaster has stirred imaginations for years but few are familiar with the ship's radio equipment. Kelley will show pictures of the Titanic's radio room and discuss the equipment used. The AWA Museum has a receiver and transmitter similar to ones used on the ill-fated Titanic.

This month meeting will take place as usual at the 40/8 Club, 933 University Avenue, at 8:00 p.m. Hope to see you on March 5th.

DAD

As you grow older your opinion of dad changes

At 4 years old – Dad can do anything.

At 7 years old – Dad know a whole lot.

At 9 years old – Dad doesn't quite know everything.

At 12 years old – Dad just doesn't understand.

At 14 years old – Dad is old fashioned.

At 21 years old – Dad is out of touch.

At 25 years old – Dad is OK.

At 30 years old – I wonder what Dad thinks about this.

At 35 years old – I must get Dad's input first.

At 50 years old – I wonder what Dad would have thought about this?

At 60 years old – I wish Dad were here to talk it over.

Short Skip Gary IN. via Ham News Oultet

FREEBANDERS CITED

For what seems to be the first time ever, the FCC made an organized mass "bust" of so-called "freeband" operators in the 25 and 28 MHz bands. The crackdown netted 144 violators on December 13 and 14, 1990. Personnel from all 35 FCC field offices were involved in the effort. The average fine imposed was $1,000. Several were fined $2,000 for repeat offenses.

Some operators refused to allow the FCC agents to inspect their stations which drew an additional $600 in fine. The total amount of fines levied amounted to a whopping $147,000. Unlike other FCC actions against illegal stations, no U.S. Marshals were involved in the effort and equipment was examined but not seized.

In most cases operators were identified by long-range direction finding, followed by close-in mobile DF by Field Operation Bureau vehicles. Operators included members of organized groups such as World Wide Sideband, Satellite, Alfa, Tango, Whiskey Jack, Unidad, Truckers, Eagles International and Old Timers.

The unlicensed transmissions came from all 50 states, including D.C. and Puerto Rico. The most active states were Florida, California, Michigan, Texas and Arizona. The equipment was typically modified CB or ham gear, often used with home-brew or illegally manufactured linear amplifiers. The most popular piece of equipment was the Uniden 2510 10-meter transceiver running 20-25 watts.

The FCC action targeted the leadership of heretofore mentioned groups. One prominent leader was heard to announce, "on the air", that his organization was closing down. He then asked for donations to help pay for the hefty fine levied by the friendly candy company (FCC).

Tnx The Readout

• The 80-meter Novice band was moved on March 16, to 3675-3725 KHz (*The ARRL Letter,* January 16). Higher-class licensees should remember that their power limit in this range is also 200 watt output.

ROCHESTER HAMFEST

MAY 17, 18, 19, 1991

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P.O. Box 93333, Rochester, NY 14692-8333

Co-Editors ..... **Neal Eckhardt, WB2EKP**
80 Authors Avenue, Henrietta, NY 14467 (716-359-2672)

..... **John J. ("Jack") Dempsey, KA2PJN**
357 West Squire Drive, Apt #1, Rochester, NY 14623
(716-424-1637)

Managing Editor ..... **Dick Goslee, K2VCZ**
24 Elaine Drive, Rochester, NY 14623 (716-334-1762)

Advertising Manager ..... **Dick Goslee, K2VCZ**
24 Elaine Drive, Rochester, NY 14623 (716-334-1762)

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ARNS
Amateur Radio News Service

SAVING ENERGY

Do you have a particular light in the house that is left on for extended periods? I used to leave the basement light on all year long. A 60 Watt bulb, if left on all the time, would burn almost that long.

I have seen 60 W bulbs on sale for around 30 - 40 cents. I have also purchased a name brand 60 Watter for over a buck. I don't think there is much difference.

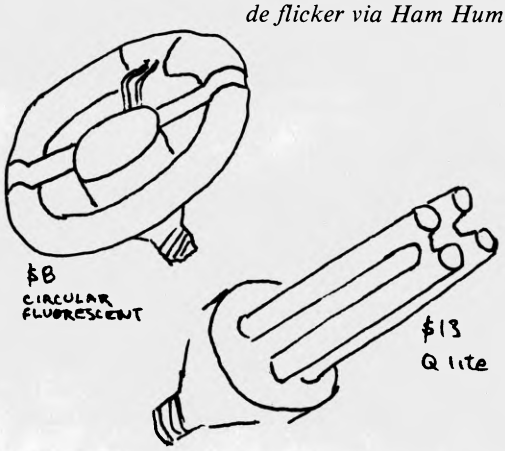
The point is that 60 W times 24 hours times 365 days is 525.6 kilowatt hours of electricity. I pay 10 c. That's over $50. Fluorescent bulbs use around ¼ to ⅓ the electricity for the same amount of light. Also, incandescent bulbs are rated around 1000 hours in intermittent service and fluorescents are rated to last about 10,000 hours.

I have recently purchased two small fluorsecent bulbs. The round one cost $8, runs 22 W, and is in a package that has no removable starter like in the old days. It hesitates a few seconds when you turn it on. If it is cold in the house, it hesitates a LONG time. I hit it with the beam from a flashlight and it turned on normally when it was cold. (So you have to stand there with a flashlight if it's out in the freezing garage?)

The other fluorescent was an 18 W "Q'lite". It is excited by "high frequency electronics" within the socket area. The first thing I did after turning it on was to tune around the bands looking for hash. I found some only when I turned on the dimmer in the other room. (Didn't want to make this $13 investment if I couldn't run it in the shack.)

These two products make it possible to save over $30 each in electricity cost plus a little in air conditioning over a period of several years with an investment of about $10 each. I prefer the "Q'lite" because it comes on quicker and will more often fit the space available. Neither product can be used without ventilation as conventional bulbs sometimes are.

de flicker via Ham Hum



MOVIE PRODUCERS/WRITERS PROTEST MONOCHROMIZATION OF COLOR MOVIES

According to rumors just received in the GEARVAKf News Center, the President of the International Movie Producers and Writers Association, Mr. Samuel W. Mogul, has filed suit against Movie Monochromization, Inc. to prevent that company from converting such color movie classics as "*Gone With the Wind*", "*Snow White and the Seven Dwarfs*", and "*Fantasia*" from full color to black and white. "*It is a travesty*", said Mr. Mogul. "*These film classics were filmed in color and should not be altered. We must stop this usurpation now to protect the integrity of the artistic contributions of movie directors, producers, and writers*". According to Mr. Mogul, Movie Monochromization, Inc. also intends to convert such classic television programs as "*Wheel of Fortune*" and "*Sesame Street*" to black and white. The GEARVAKf Bulletin contact someone who claimed to be Ted Turner, President of Turner Broadcasting and Other Stuff, for a comment, since he has been in the forefront of the effort to colorize black and white movies during the past several years. The alleged Mr. Turner refused to comment, saying, "*I colorized black and white movies and I may be interested in monochromizing color movies. So what? If the movie industry resists me, I'll buy the rest of it*".

-- WB7TGQ via GEARVAKf

NOVICE ENHANCEMENT

"Novice enhancement" should be renamed "Technician Enhancement" based on FCC licensing statistics recently released. "They show that the Technician Class license is the fastest growing of any class in the history of the US Amateur Service. The figures for October 1, 1987 through September 30, 1988 are: Technician + 8.7%, Extra + 6.8%, Advanced + .21%, General − 1.26%, Novice − 3.68%. This provides for an overall growth in the Amateur Service of 1.54% in the past 12 months..."

Tnx Westlink Report, 11/88
via World Radio via The Mike & Key

RaRa APRIL CALENDAR

5 - RaRa Meeting - 8:00 p.m.
40/8 Club, 933 University Avenue

11 - Packet Group Meeting - 7:30 p.m.
111 Westfall Road

12 - VHF Group Meeting - 7:30 p.m.
111 Westfall Road

19 - RRRA Meeting - 8:00 p.m.

PACKET OPERATORS COULD FACE FCC FINES

An amateur packet message addressed to "ALL @ USA" has resulted in three packet operators receiving notices of apparent liability from the Federal Communications Commission, and in notices of apparent violation for several more.

J. J. Freeman, engineer in charge at the FCC's Norfolk Office of the Field Operations Bureau, on January 25 sent the notices of apparent violation to some ten BBS operators. "I have received a report", Freeman wrote, "that indicates you may have operated your amateur radio station ... in violation of Section 97.113(1) of the Commission's Rules.

"It appears (Freeman says) that you used the Amateur Radio Service to facilitate the business activity of The Coalition to Stop U.S. Intervention in the Middle East".

Shortly thereafter, according to Freeman, $300 notices of apparent liability were sent to WA3QNS, the originator of the message, to N3LA, the first bulletin board on which the message allegedly appeared, and to KJ4LQ, operator of the packet BBS from which FCC allegedly obtained the message.

The offending message, originated by WA3QNS and relayed by a number of BBSs in early January, asked recipients to phone a "900" number to "tell Bush 'NO WAR'". The message also gave an address in New York City for the Coalition, as well as a regular phone number and a FAX number.

"A record of each call, by area code and region, will be taken with the petitions to Washington", the message said.

The packet message "was defective on two counts", Executive Vice President Dave Sumner writes in March *QST*. By promoting a "900" number the message facilitates business activities, and having nothing to do with Amateur Radio the message fails to qualify as an information bulletin

– thus making it "broadcasting", Sumner said in an editorial.

BBS operator Tom Clarak, W3IWI, was one of those to receive the Freeman letter. "The implications of the action ... are absolutely appalling", Clark says. "What is implied is that each and every station in a store-and-forward network is responsible for the actual message *content* passing through each node. The BBSs were cited because their calls were in the message header 'audit trail'.

"The FCC's action", says Clark, "states that each BBS SYSOP is personally responsible for the 'correctness' of all messages merely passing through his system".

In his *QST* editorial, Sumner notes the ongoing refinement of guidelines for automatic control of packet radio, and the FCC's apparent "backing away" from a understanding in effect since 1986.

The editorial is firm in its support for "downstream" packet operators; the League's belief is that the Commission does not intend that individual BBS operators "put their licenses on the line for something over which the Commission has acknowledged they have no control".

The editorial does, however, suggest that the packet community "take heed and pay more attention to the appropriateness of 'broadcast' packet traffic".

FCC engineer Freeman's notice of apparent violation orders a written reply, within ten days, to "fully explain the circumstances of this violation", and to "specifically describe the action taken to correct and to prevent recurrence of this violation". *Tnx ARRL Letter*

BOND THAT TRANSMATCH TO YOUR RIG

If you've ever had difficulty, or found it to be impossible to secure a good match with your antenna tuner, especially when using a random length of wire for an antenna, then try bonding the ground lug of your rig directly to that of the tuner with a heavy gauge, separate ground wire. The braid from a bit of discarded piece of RG-8U cable serves very nicely in this application.

Our group learned of the importance of NOT relying upon the interconnecting coax cable for ground during a recent Field Day. The 40 meter Bobtail Antenna we were attempting to use could not be tuned until we "*bonded*" the system this way. *de SPARC GAP via The Groundwave*

SUGAR COATED SWR

by Lee Aurick, W1SE

The first thing one may want to know is "Why does a discussion of SWR have to be sugar coated?"

It's really a very simple matter, but Hams seem to make it more complicated than it is. It's easy to understand enough about SWR to be able to use it. How easy is it? It's a story of reflections. That's all it is; reflections from your antenna, back down your feedline, and how this reflected energy interferes and combines, with the power going up to the antenna.

This first part will be discussion of SWR, and is not.

First, let's really understand what we are talking about. It's really VSWR. Hams have shortened it to just SWR, which is okay as long as we understand that what we really mean is "Voltage Standing Wave Ratio".

A ratio describes how two things, any two things, are related to each other.

If we were talking about two cars with different horse power, we might say that one had a 200 hundred horse engine, while the other had a 100 horse power engine. In this instance, the ratio of horse power, one to the other, would be two to one, written as 2:1. If one had 400 horse power, and the other had 200 horse power, the ratio would still be 2:1. If one had 400 horse power and the other had 100 horse power, the ratio would be 4:1. See the relationship?

In a nutshell, that is what SWR is. The ratio (relationship) of the value of the voltge going up your feedline to your antenna to the value of the voltage coming down the feedline toward the transmitter.

The voltage coming down combines with the voltage going up and creates a STANDING WAVE on the feedline. This standing wave voltage, since it is the sum of "what goes up, and what comes down" is larger than the voltage going up to the antenna. That's why, if there is a STANDING wave on the feedline impedance is exactly matched to the antenna impedance, there is no reflection, and the SWR reading will be 1:1. The 1 always indicates the rf voltage going up to the antenna. The other number is a measure of how much rf voltage is reflected back, combined with the voltage going toward the antenna. Once again, if the feedline impedance exactly matches the impedance at the feed point of the antenna, the SWR meter will indicate a reading of 1:1. If you have followed this so far you're a long way toward understanding SWR, and how to deal with it.

SWR is always referred to as SWR, never SWR's. There can only be one standing wave on a feedline.

A high SWR does not cause TVI, since a high SWR does not cause harmonics, and has absolutely nothing to do with harmonics.

A high SWR could mean great loss to you, if you are using coaxial cable.

Losses introduced by high SWR can be many times greater at 2 meters than the same SWR may cause at 10 meters. Even if the feedline is perfectly matched to the antenna, the loss in the feedlines is about two and a half times at 2 meters than it is at 10 meters.

SWR under 2:1 is of very small concern, when operating below 30 MHz and only purist and "didlers" (like me) would be concerned enough to do something about it. Not so at 2 meters, and above. The losses can begin to go wild, and you may be left wondering why you are always reported as "scratchy" into the repeater. Beyond 3:1 at any frequency, an effort should be made to correct the situation, as the losses are beginning to be unacceptable.

SWR exists ONLY in your feedline between your shack and your antenna. SWR does not exist in your transmitter, and no amount of adjustment of one's transmitter can change the SWR on the feedline.

KEYED UP Sanford, Florida
via Ham News Outlet

LIGHTNING

The energy level of a lightning strike is between 2 and 200 coulombs. The major content is below the standard broadcast bans. The peak current is from 2 to 400 Kiloamperes. 50% of lightning strikes exceed 18,000 amperes. The discharge time of a lightning strike is less than 100 milliseconds. Rise time is less than 10 microseconds. The recharge time between strikes is 40 seconds or greater. The average field strength is approximately 3 to 5 kilovolts per meter. The cloud to earth potential at breakdown is 10^8 volts. Point discharge potential is approximately 10 kilovolts per meter. Propagation speed is 150 kilometers per second. Central chord corona peak is 10.0 MHz.

W7KG, Splatter, Billings, Montana
via Ham News Outlet

THE RaRa RAG 20 YEARS AGO — APRIL 1971

by Ed Gable, K2MP

This issue was complete with Volume 3 of the *Hamfest Times* which proudly announced the new, larger location for the 'fest at the Monroe County Fairgrounds. One driving factor in moving the Hamfest was to make more room for the ever increasing flea market activity. Joe Marsey, W2EMX, took that job to heart and even named the market rows: Bargain Blvd, Transceiver Street, VHF Row, MARS Way, etc. In W2MPM's Repeater column it was reported that Charlie Mills, K2LDU, is looking for another logging tape recorder for the 28/88 repeater. They just keep wearing out!! The Rochester VHF Group came up with 315K points in the January VHF SS contest, good for third place in the nation and just short of the South Jersey gang. The Dinner-Dance was reported to be a great success, well attended and with a surprise guest. Shown pictured is Eddie Dunn, W2ECH, and Cappy Capauldy, K2UXF, who is seated next to none other than Congressman Frank Horton who dropped in to visit his friend at RaRa. From the Want Ads you could buy a complete 75 meter mobile rig, antenna and power from Cliff, K2SKO, for $125.00.

LOOKING AROUND

Art Blick, VE3AHU
via Burington Amateur Radio Club

Recently we took part in an ARES communication exercise to practice the setting up of a network and the passing of formal traffic. The exercise was conducted using handheld two meter transceivers (HTs) on simplex frequencies as all stations were located within sight of each other. All stations, except one, relied on nicad batteries in the HTs with the exception having an AC power supply for the Yaesu FT208R transceiver used.

The exercise lasted for about three and a half hours and brought to everyone's attention that HT battery operated equipment was not the answer for such communications. One station went through three batteries, two others through two, but the AC powered station had no problems and ended the exercise with a fully charged battery.

Several operators did note that AC power might not be available in emergencies so, after some breadboarding of circuits, a 'universal DX converter' was built that could be used with any source of DC power from 12 to 18 volts such as a storage battery, a 2M base power supply (normal-

ly producing 3 amps at 13.5 VDC), power available in an automobile, a boat, an RV, etc.

The circuit shown in Figure 1, is quite simple and will produce a regulated output power, for the HT, up to 500 mAs and adjustable from 7 to 10.5 volts. The circuit shown does not give input, output and charging connectors as these may vary from manufacturer to manfacturer.

In my station, all AC power supplies, for my VHF equipment, are set to produce 13.5 volts and fitted with a Jones, 2-terminal female socket with the positive output going to the broad terminal. All the equipment has a matching male plug on end of the input leads so power supplies and equipment can be quickly interchanged.

My version of the 'universal converter' has such an input and, an my HT is a FT208R, the power output uses a coaxial power plug (RS274-1569) and the charge output a mini phone jack (RS274-290). Note that the 10.5 volt, positive output goes to the outer shell of the coax plug, NOT the inner, and the positive charge current goes to the tip of the phone plug.

The charge circuit can be switched, by S1, from a trickle charge (10-15 mAs) to a full charge (40-45 mAs). The switch can be of any type capable of handling ½ amp of current – slide, toggle, push-button, etc. All resistors in the power circuit may be ¼ watt type, but the 820 ohm and 270 ohm resistors in the charge circuit should be ½ and 1 watt respectively. The Full charge will restore a discharged battery in about 15 hours of charge time; the Trickle charge will keep a charged battery up to dull strength without overcharging.

The components, except for the switch, may be mounted on a small piece of perf board and placed in a small metal, wood or plastic box, say 3½" x 2" x 1" with an input lead and two output leads terminating in jacks that are compatible with your equipment. To make the device 'universal', two extra 2-wire leads can be used, in my case terminating in Jones 2-conductor female sockets with one lead equipped with a cigarette lighter plug and the other in banana plugs with a pair of slip-on alligator clips. Such leads will enable you to get DC power input from virtually any source.

The output power voltage is adjusted by the 500 ohm potentiometer and this can be replaced by a fixed resistor of same value as potentiometer resistance when adjusted (240 ohms works FB for the FT108R).

The power circuit has just under two volts of loss between input and output so voltage produced will drop if a source of less than 12 volts is used. For this reason no protective, series, power diode is in the circuit as the inclusion of such a component will decrease the power output by 0.7 V and make minimum input voltage 12.7 volts. All components can be obtained from electronics suppliers, such as Radio Shack, for a total cost of about $10. A very worthwhile weekend project!

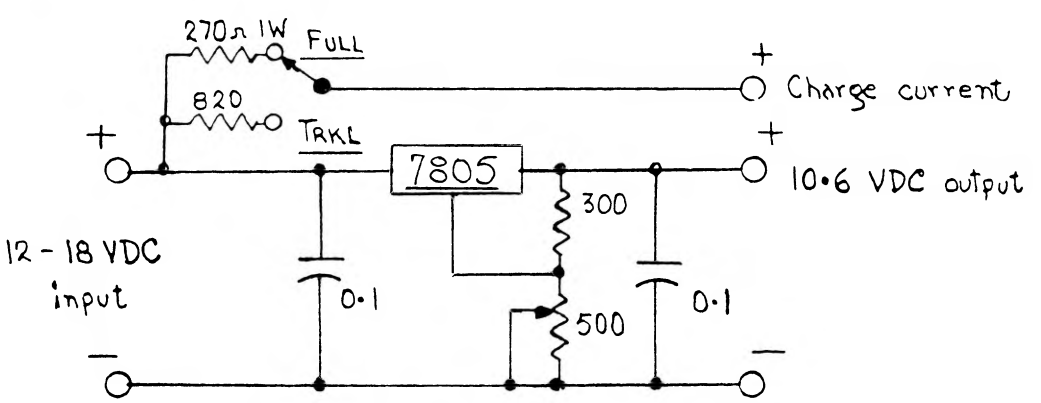


Fig. 1: DC/DC converter for HTs.

CONGRESSMAN SEEKS SUPPORT FOR AMATEUR RADIO BILL

Congressman Jim Cooper (D-Tenn.) has asked fellow representatives to support Amateur Radio bill H.R. 73 (*The ARRL Letter,* January 16), and plans to speak on the bill's behalf on the floor of Congress.

Here is the letter Cooper sent to his fellow House members on January 31:

Dear Colleague:

Imagine the screaming and yelling you would hear if the Federal Communications Commission (FCC) proposed to take away one of your local television's frequencies! But the FCC has done just that to amateur "ham" radio enthusiasts in recent years – and the "hams" are boiling mad!

Over the holiday break, a number of the "ham" radio operators in my district asked me for help with the FCC. They asked me to sponsor a bill to make sure they will not lose any more frequencies – they contend that they've already lost over 100 MHz, the equivalent of over 16 TV channels. So on January 3, 1991, I introduced H.R. 73, a bill to do just that. I'd like to ask for your support.

The "Amateur Radio Spectrum Protection Act of 1991", H.R. 73, would ensure that "ham" operators can continue to use all of the spectrum they now use. If the FCC proposes to use ham radio channels for some other use, the bill would require that ham operations be transferred to equivalent replacement frequencies.

Amateur radio operators are NOT the richest, most powerful Washington lobby – but I bet you'll hear from them. There are over 490,000 ham operators across America who go to work every day in factories, schools, and hospitals, and in their free time they enjoy a ham radio hobby. Yet when tornadoes, hurricanes, and earthquakes knock out telephone service, these "hams" turn into a volunteer network that provides helpful communication services to the public. You may have heard about some of their efforts in providing communications links for forest fire fighters in remote areas.

I've come to believe that amateur radio operators are a valuable national resource, and I plan to do what I can to help them keep their frequencies. I need your help. Pleas consider joining me as a cosponsor by calling Dirk Forrister of my staff.

Sincerely,
/s/ JIM COOPER
Member of Congress

In his "floor" statement to the House, Cooper may note the FCC Authorization Act (passed November 3, 1988), which, in Section 10, provides for "[strong encouragement] and supports the amateur radio service and its emergency communication efforts".

Cooper also is expected to mention the 100-MHz of frequency loss since 1982.

The 100-MHz figure was arrived at as follows:

- Loss of 2310-2390 MHz, withdrawn after Amateur Service to protect aeronautical flight test telemetry from interference (80 MHz);
- Loss of 1215-1240 MHz, withdrawn after WARC-79 to protect NAVSTAR/GPS from interference (25 MHz);
- And loss of 220-222 MHz (to land mobile, 2 MHz).

"Passing H.R. 73", writes ARRL Washington Area Coordinator Perry Williams, W1UED, in March *QST*, "is clearly a top priority for League members". The *QST* articles exhorts League members to write to their Congressional representatives.

"Unless Congress hears from a lot of amateurs, H.R. 73 could die", Williams said.

Tnx ARRL Letter

- How many thousands of check marks have *you* made in Heathkit assembly manuals? Sad to say the end has come, as Heath has left the kit business (their stocks are currently being advertised at reduced prices). Heath will concentrate on home-study courses, home automation equipment, and assembled units, according to sources in the company.

THE MYTHS ABOUT NICADS

Some people believe it is best to let NICad pack run completely down to 0 volts before recharging. This is an acceptable practice with solid plate NICads, but is the quickest way to short out a sintered-plate NICad battery. This is the sealed type used in amateur radio equipment.

According to one NICad supplier (General Electric), a NICad battery should never be discharged below 1.1 volts per cell. Allowing the cell voltage pack to go to zero may also cause one or more of the cells in the pack to reverse polarity in the last few moments of discharge. The normal constant-current charge rate of one-tenth ampere-hour per cell, written as .1 C, isn't usually enough current to reverse the wrong polarity of the cell. This means that one cell will not recharge until it is recharged by a much larger current. A voltage regulated pulse charger can usually supply enough current to reverse a reversed cell. Another myth about NICads batteries is that they have a "MEMORY" which causes them to loose C. I have many NICads that have lost part of their C. This was due to loss of electrolyte caused by overcharging and consequently overheating. New NICads can gain C after a few charge/discharge cycles and this appears to be a normal occurrence with newly manufactured cells. I have never seen the so called "Memory Effect" discussed in any NICad literature.

A final myth is that NICads should be fully discharged and shorted out. This is almost certain to cause an eventual and fatal short circuit. The proper way to store NICads is to charge the battery fully, place it in a plastic container sealed so that it cannot be accidently shorted, and put in a freezer. For cells and or packs in long term storage this should be repeated every two or three years.

R. Mersures, AC6K
from The SBARC SPARK via Ham News Outlet

WWV IN A NUTSHELL

Most radio amateurs pride themselves that their watches keep "*accurate*" time, and get a kick out of explaining to a layman that his or her watch is set from the National Bureau of Standards, WWV broadcast from Fort Collins, Colorado. But how many of us use WWV to obtain invaluable propagation data? In this time of rising sun spots, any ham with even a casual interest in DX should become "*WWV-literate*".

WWV in Colorado, transmits bulletins at 18 minutes past every hour simultaneously on 2.5, 5.0, 10.0, 15.0 and 20.0 MHz. These bulletins (in AM mode) provide data on Solax Flux, A Index, K Index, Solar Activity and the status of the geomagnetic field. Simply stated, the solar flux number is a measure of the sun's radiation. A number of 66 represents "*quiet*" conditions and usually poor HF propagation. When numbers consistently stay over 80, HF conditions begin to get interesting – especially if the flux increases rapidly coupled with low "A" and "K" indices. Sustained periods of flux numbers above 250, particularly in the spring and fall, will being widespread openings up as high as the 6 meter band. The "A" and "K" indices indicate activity of the geometric field. Ten or lower is quiet and represents best propagation conditions on HF. I have found, however, that they are usually around 1, 2 or 3 when HF conditions are best. Interestingly, however, a "K" Index over 5 sometimes tips off VHF openings. K's over 10 usually indicate "*Auroral VHF conditions*".

So give a listen to WWV at 18 after the hour. Keep a record of the index numbers and watch what happens on the bands – you might get hooked.

tnx Marc, WB2PRS,
The Ramapo Mountain Amateur Radio Club
via Metroplex