CROSSTALK

News Bulletin of the TRW Amateur Radio Club

Member, American Radio Relay League

NOVEMBER 1986

** FD'71 ** FD'73 ** FD'75 ** FD'76 ** WAS ** WAC **

Garrett/W6TRW Repeater: 145.32/-.600(2A-PL) -- UHF: 442.000in/447.000out

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CALENDAR FOR NOVEMBER AND DECEMBER

Wednesday	Each Wednesday, noon	Emergency Communications Team Check-in. 145.32 via repeater and simplex.
Friday	Each Friday, 7-8am	Club Breakfast, S Cafeteria, VERY informal, good breakfast for less than $2.00!!
Tuesday	Nov 25, noon	Club Meeting, R4/1041. Vote on a NEW Club Constitution and Nominations for Club officers! Bring your badge for a free doorprize ticket!
Thur/Fri	Nov 28 & 29	Happy Turkey Day. Thanksgiving Company Holiday
Saturday	Nov 29, 8-11am	Swapmeet. Corner of Compton/Marine and Aviation, in Manhattan Beach. Seller's lot is directly behind the Standard Station. Sellers please DO NOT arrive before 0700!
sday	Dec 2, after work	**Early Executive Board Meeting.** All members are welcome! At Shakey's Manhattan Beach, 2000 N. Sepulveda Blvd., just south of Marine Ave.
Tuesday	Dec 16, noon	**Early Club Meeting,** R4/1041. Vote for new Club Officers!
Saturday	Dec 27, 8-11am	Swapmeet.

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IMPORTANT CLUB MEETING — VOTE ON NEW CONSTITUTION

The TRW/ARC General Membership Meeting on November 25, 1986 will review and vote on a new Club Constitution and By-Laws. This constitution will make changes to the number of elected Club Officers and their term of office, the rights and duties of Appointed Club Officers, the classification of the membership, and last but not least, the dues you pay as a Club member.

The majority of changes to the Club Constitution were dictated by the restructuring of SEA to become a non-profit organization. All clubs are required to modify their constitution to be in accordance with the SEA guidelines. We also wish to get our Constitution approved at the November meeting so that the election of the Club Officers may be performed to the new Constitution.

The section of the present Club Constitution that governs the changes or amendments to the Constitution is as follows: (and does not change in the new Constitution)

> "The Constitution may be amended by a two-thirds (2/3) majority of the Full Members present at a Club meeting, provided all members have been notified in writing of the intent to amend the Constitution at a specific meeting."

This is your written notice of the intent to amend the Constitution at the General Meeting on November 25, 1986 to be held at noon in R4/1041. A vote will be held on that date and two-thirds of the members present will determine the rules that will govern the Club into the future. You can either be there or "shine it on."

If you would like an advance copy of the proposed Constitution to review before the meeting, contact any of the Executive Board members listed on the back page.

General Meeting 28 October 1986 — Paul Lukas, N6DMV

President Chris Wachs called the meeting to order. He called attention to the up coming election of officers, President, Vice- President, Treasurer and Secretary. This is your opportunity to come forward and take part in the governing of the TRW/ARC - volunteer for an office. It was emphasized again - no commercial sellers are permitted to operate at the TRW Swap Meet. There are rumors circulating (on the air, too) that you can buy new products in quantity. If any seller is caught in commercial activities, he will be closed down and asked to leave. Repeat offender will be barred from the Swap Meet. Two of our Club members were present at a swap meet when it closed down permanently due to violations of state and city ordinances. The new Club Constitution is in its final clean-up phase and will be finalized at the next Executive Board meeting. Rich Sauer announced that El Segundo was conducting an emergency drill and that the Amateur Radio Club was approached to see if they wanted to participate. TRW/ARC member Glenn Arakaki, KH6UR, was introduced as guest speaker. Glenn gave us an excellent picture show of Christmas Island (T-32) and his Dxpedition there. The interesting and informative presentation was well received by all who attended. Thanks Glenn!! The door prizes included; 2 calculators, 2 screwdriver sets, 2 pliers, 1 30 drawer storage bin, a diskette storage box. 21 persons attended the meeting which was adjourned at 1300 local time.

Running into debt isn't so bad. It's running into creditors that hurts.

TRW SEA · One Space Park · Redondo Beach, CA 90278 · Attn: Amateur Radio Club

How Well is Your Station Grounded

Tony Circo, KI6Z

U.R.A.C. was fortunate to have a representative from the Southern California Edison Company as a guest speaker on the subject of grounding the ham station. I would like to pass on once again their thoughts on a proper grounding system.

In today's fast moving electronic age, it is very important that today's ham radio station be equipped with a dependable grounding system. Tapping on to a cold water pipe, driving a four foot copper rod into the ground, or using one's imagination for grounding are not as effective as they seem to be. However, they are usually better than nothing.

There are several ways to improve on a grounding system. I would like to talk about two ways of improvement. From studies taken, the most effective ground system is a rod thirty-two feet in length which has been driven thirty-four feet into the ground. Soil conditions that allow this procedure, such as sandy loam, have proven to be very effective on cutting down RF harmonics.

How do we do this? One way is to use three-quarter inch copper pipe in ten foot sections with a hose connected to the top, and using water pessure to hydraulic the rod into the ground. There is a second alternative which is also very effective and much more practical. This is the system that you will most likely wamt to use. It is called the "Figure Seven" method.

Four eight foot copperweld ground rods are used and they are configured into a figure "7." Needless to say, driving four rods eight feet into the ground instead of driving a thirty-two foot rod into the ground has to be much easier! The four rods must be positioned so that they are no closer than six feet and no further than ten feet from the next rod. The top of each rod should be approximately twelve inches below the surface. After the rods have been inserted into the ground they must be connected. To do so, use a length of #6 or larger copper wire. Copper ground lugs work very well for connecting the wire to the rods. The wire should not be cut until you have terminated the run in the radio room. The distance between the last electrode and the equipment to be grounded cannot be resonant at 10,15, and 20 meters.

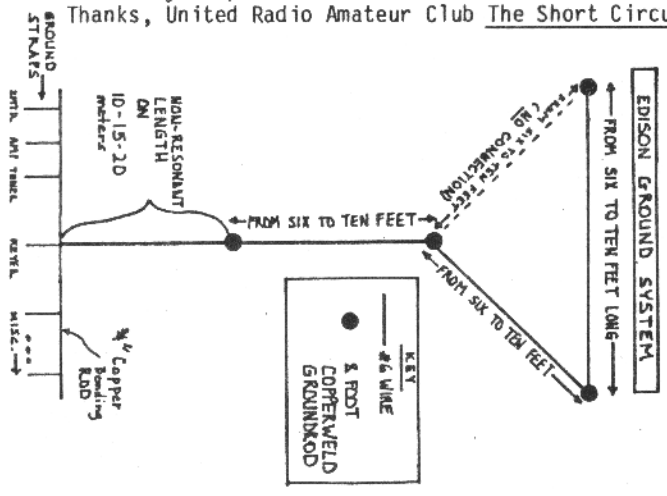
Here are the resonant length NOT to use:

20 meters - 8.25 feet
15 meters - 5.75 feet
10 meters - 4.25 feet

In addition do not use multiples of these lengths.

Now that the ground system is installed, the question arises: How do I connect my gear? You might want to clamp a three foot section of copper tubing to the wall and use electical bonding clamps to connect individual ground straps to your system. A good bonding strap can be made from a piece of RG-8/U coax shielding. Some people have used solid copper flat stock and use screws tapped into the bar. I am sure that you will find a good solution for your particular station.

Thanks, United Radio Amateur Club The Short Circuit.



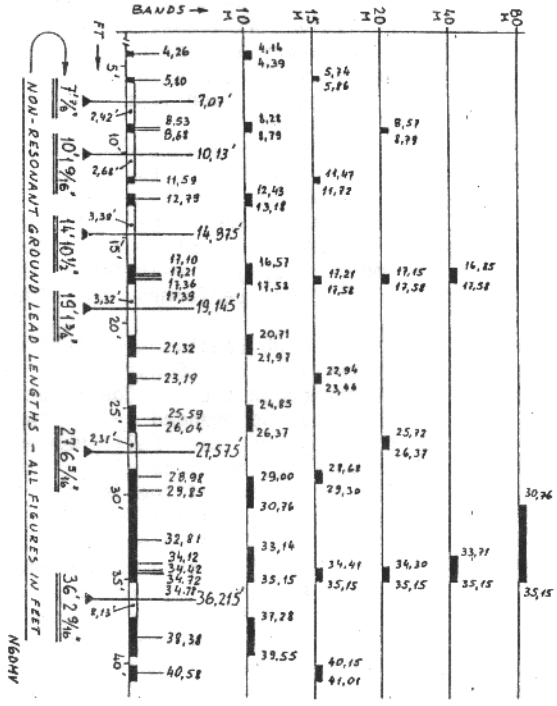
More on Grounding Your Station

Paul Lukas, N6DMV

Unpleasant phenomena, like RFI/TVI, RF in the shack, RF feedback into the mike results in distortion, oscillation, burned fingers by touching the rig while transmitting, etc., most of the time can be traced improper/inadequate grounding. I found the article in the U.R.A.C. publication "Short Circuit" and decided to expand on it for 40 and 80 meters. I computed the resonant frequencies (and the harmonics) their wire lengths across the bands and the non-resonant "gaps", their widths and centers. I compiled the data and graphically illustrated it on a chart. I carried out the calculations for the 10, 15, 20, 40, and 80 meter bands, as shown, and summed up the band contributions on the bottom line. The black "boxes" show the 1/8 lambda band widths, the vertical lines in them the center of the bands, all in feet. The empty boxes signify non-resonant gaps, the numbers pointing to the gaps are the gap widths in feet. You can see that an inch one way or the other does not affect the grounding appreciably. However, upper floor apartment dwellers may be forced to use the longer wires, try to use the shortest ones possible. (in some cases, where no grounding (RF) was possible at all, 1/4 lambda radials spread out in the room under the rug were used with a degree of success. This is an emergency measure, however, and should be avoided. The new WARC bands are not included in the chart, but any non-resonant length can be easily calculated - see below. If you do not use the 10 meter band, the gaps open up considerably, allowing a larger degree of freedom in selecting the proper ground wire length. One way to determine the non-resonant gaps, follow the process:

1) Determine the upper and lower frequency limits (F_U, F_L) of the band in question in MHz.
2) Divide these numbers into 984.3, which yields wavelength in feet.
3) Divide the wavelength by 8 to obtain 1/8 lambda.
4) Multipy the numbers obtained in 3) by 2 (seco harmonic).
5) Add F_U of the lower band to F_L of the higher band.
6) Divide by 2. This is the center frequency of the gap in feet.

If this length is too short, proceed as above, multiplying the numbers by 3, 4, etc. to obtain the gap non-resonant lengths between adjacent harmonic lengths. Note that 1/8 lambda wire lengths can be obtained directly by dividing the frequencies into 123.0375.



VOLMON News Release — From the LAACARC

From: The Los Angeles Section of "The Amateur Radio Auxiliary to the FCC's Field Operations Bureau," also known as the VOLMON (VOLunteer MONitor) program.

Introduction: Public Law 97-259 (Congress), which created the VEC program, also allowed the ARRL to create the VOLMON organization, and allows for cooperation between VOLMON and local FCC offices in matters pertaining to violation of the law. The VOLMON organization is now the first line of defense against law violators, and is backed up by the FCC.

The VOLMON Organization

Official Observers: The OOs monitor for unintentional violations (i.e. operation outside the band, key clicks, harmonics, splatter, etc.) He sends friendly advisory notes and files monthly reports to the ARRL via the OO coordinator. He may monitor particular frequencies looking for flagrant violations (in support of other sections of VOLMON).

Regional Monitoring Station: The RMS coordinates monitoring activities over his area (such as an ARRL Division), works with other RMSs across the country on HF interference, and notifies serious violators.

Local Interference Committee: Skillful in Radio Direction Finding, they locate the source of problem signal and noise, and collect information used in identifying the person or source responsible. The Los Angeles County LIC has a written working relationship with the Long Beach FCC office. Members have received special training approved by that office.

How Does VOLMON Work?

The traditional role of the OOs is maintained.
Once a jammer, bootlegger or noise has been located and the responsible party identified by the LIC, the VOLMON organization will attempt to resolve the issue. If that is not possible, it will turn the information collected over to the FCC for its action. There will be no public disclosure of specific activities of VOLMON, either before, during, or after they occur.

Obtaining VOLMON Assistance

(Other than routine notices, VOLMON cannot initiate a case on its own.) Requests for assistance **must** originate with an organization, such as a radio club or MARS group, and **must** be filed by a member of the group's leadership. (If no organization exists, form one.) The problem **must** be one of **continued violations of the law.** All complaints **must be in writing** (this encourages a rational, well-thought-out complaint more accurate than a verbal one, and can be re-read for verification of understanding). (Don't send complaints to the FCC; this will only delay action, as they wil forward them to VOLMON.) VOLMON will send instructions to the leader. Members can help by following the requests of their leadership, and **not talking on the air** about the efforts to locate the interference source or bootlegger.

HF Problems: Contact your ARRL Division Director (page 8 of any recent QST magazine).

VHF & UHF Problems: Contact your ARRL Section Manager (page 8 of QST).

VOLMON Bulletin

Since 1 Oct 1986 an **automatic harassment box** has been observed periodically on 147.120/Rpt & 145.300/Rpt. For brevity it is refered to as the **Beeper.** It is never identified. Observations indicate the following sequence of events.

1. When the repeater targeted is keyed up by some ligitimate input signal, the Beeper (after a discernable delay) starts transmitting a very weak dead carrier on the repeater input.
2. It stays there as long as the legitimate signal does also.
3. When the legitimate input signal drops, the Beeper waits a short time (about 3/4 second) and then is tone-modulated with a typical repeater BEEP.
4. From the time the ligitimate signal drops until several seconds after the BEEP, the very weak carrier is heard bringing in a lot of noise. Apparently the box detects this noise (on the repeater output) in order to initiate its delay before transmitting the fake BEEP.
5. If the users of the system mistake the BEEP for a normal repeater beep (indicating the machine's time-out timer has been reset), and begin transmitting, the machine, having never seen the absence of carrier, will eventually time-out and go off the air. It is assumed that this is the intent of the device; to cause users to time-out the machine.

It is expected that, over time, this box will be moved from repeater to repeater. If it appears on your machine, please advise VOLMON via the LA Section Manager (see QST, page 8), or by dropping a letter to:

VOLMON
P. O. Box 1244
West Arcadia, CA 91006

Please advise your repeater users on this harassment box, and ask them to listen on the input for it. If it is heard, pass the specifics on to VOLMON.

Executive Board Meeting 11 Nov 1986 — Paul Lukas, N6DMV

Chris Wachs opened the meeting by distributing the latest revision of the TRW/ARC Constitution. We had a guest at this meeting, A. Wachs, N2DPM, Dad (or sub-harmonic) of Chris Wachs, here in Southern California for a visit. Paul Lukas reported that the letter of understanding requested by Jim Cox concerning the arrangement between the Garrett and TRW Amateur Radio Clubs concerning the W6NWP repeater was in work. Jim and Paul are to meet tomorrow to work out the fine details of the document. The next Executive Board Meeting will be held one week earlier, Tuesday, December 2nd, due to the company Christmas shutdown. The December General Meeting will also be one week early, on Tuesday, December 16th, at noon in R4/1041. Bill Daley gave the minutes of the last LAACARC meeting and handouts received at the meeting to John Keller for incorporation into the Crosstalk. There was some bad news for some of the buyers at the last Swap Meet. The Manhattan Beach Police were summoned by TRW Security and cars parked in red zones were ticketed even though the cars were on TRW private property. The point made is that the red No Parking zones are required for emergency vehicle access (read fire trucks) and can be ticketed. Tickets were also written for parking in a handicapped parking place without proper identification. TRW Security indicated that this will be the rule from now on. Remember you are a guest on TRW property and are bound by the rules of the TRW/ARC, TRW and the City of Manhattan Beach. The proposed Constitution was discussed next. Richard Sauer, who provided the board with super looking copies of the Constitution, pointed out the changes that had been made since the previous version. The biggest change was to the dues structure for the different classes of membership. After considerable discussion, Jim Wike proposed a fee schedule that the board members found acceptable. John Keller and Walt Pearson motioned to accept the Constitution as amended, present it to SEA and present it to the membership at the November General meeting for their approval. The motion was accepted unanimously. Paul Wisiolek said there will be an examination session at Hesse Park in Palos Verdes this Saturday (Nov 15th) at 0900. A new examination schedule is being assembled for next year and will be available at the next meeting. Paul also mentioned that there is a movement to allow credit for a partially successful test, either code or theory. Present rules allow credit only for code tests that have been passed. Rich Sauer reported that the emergency drill held by El Segundo was low-key and uneventful and basically a "table-top" exercise. Dave Stockwell gave a report on the Club finances, showing that the Club is in good financial shape for the rest of the year. The meeting was adjourned at 1853 local time.

Tidbits from the Jolly Little S...!

Why am I always the last to know?? Section Manager Bob Poole, AJ6F, put a nice little bit in his report for the Los Angeles Section about the great job that Steve Ng, N6IQA did to organize communications for a bike race held in the LA area. Participating was another TRW/ARC member Randy McKechnie, W6ZWS. How come you guys couldn't put together a little write-up for the Crosstalk?? I love to put that kind of stuff in this rag!! I appeal to all members - if you have a good story - a so so story - anything!! that has something to do with Amateur Radio - drop me some copy and I will put it in the newsletter. Personal anecdotes - what I learned from that - emergency communications or public service - all are greatly appreciated.

Bill Dews tells me that he got some more FCC Form 610's. He should have enough to go around for a while so if you need to renew your license, let Bill know and he will get you the form you need to keep your license current.

Speaking of renewing - on the next to last page of this issue you will find a 1987 Membership Application. Yes! it is time to renew your membership in the TRW/ARC. Yes the dues have changed! Yes we need you to answer all of the questions even if your answers are the same as last year (as if you remember what you said a year ago!!). Yes we need you to write a check to the TRW/ARC and mail it with your application. YES, WE NEED YOU TO DO IT RIGHT NOW BEFORE YOU FORGET!!!

Bob Hoover, KA6HZF, the guy that wrote that article about The Great California Earthquake, has turned out a 12Vdc conversion for his C-64/PK-64 packet radio station in preparation for the "big one." His entire set-up runs on 12 Vdc and includes a 1541 disk drive. Bob has written a detailed set of instructions telling how to accomplish this. He has copies available. Thanks to the SCOPE for this tidbit. I'm sure that if Bob is on packet that you can probably find the instructions on a PBBS.

Heeeeyyyy! Those wild and crazy guys over at the Lockheed Amateur Radio Club are up to their old business again and have produced another outstanding Amateur Radio Wall Calendar for 1987. They cost $4 if you arrange to pick them up at a W6LS club meeting or by calling (818)842-1863 to see if there will be someone there. OR for another dollar (total cost $5) they will mail it to you if you supply a mailing label. Checks should be made out to the Lockheed Amateur Radio Club and mailed with your mailing label to:

Lockheed E. R. C. Amateur Radio Club - W6LS
2814 Empire Avenue
Burbank, CA 91504

Let your friends know they are available! Heeeeyy - LERCARC members - come down to the TRW Swap Meet and I'll bet you'll sell your whole supply in one day!!

Paul Lukas was looking through some of the books in the Club Library (located in the Club Shack in Bldg 65) and came across a gem. If you are into HF DXing and don't have a computer program for pointing the beam in the right direction to get the most signal into that rare Dxpedition, take a look at the book entitled "The Amateur Radio Vertical Antenna Handbook" by Capt. Paul H. Lee, USNR, N6PL. In it there is a chart, that with the addition of a pointer, will give you a good shot at putting the antenna "on the beam." It is a shot of the world flattened out with the center set at San Francisco. LA ain't that far away and what's a couple of hundred miles going to do to your beam heading over a couple of thousand miles anyway. You can get more details by checking out the book or talking to Paul.

New Members - - Old Members

Bill Dews informs me that badges have been ordered and should be available by the next Club meeting: Bill, W6IPM; Ray Rollack, KH6JKY; Leonard, K6LAT; Ron ,K6RQT and Mike, WB2KFU.

From the Library — George Lee, W6IOW

What's new in the November issues of:

QST: Ray Tracing & VHF/UHF Radio Propagation (for DXer's who want better than line of sight propagation).
Product Review: Heath HD-1420 VLF Converter.
Heath HD-1422 Antenna Noise Bridge.
Electromagnetic Pulse & the Radio Amateur (ideas on how to protect your station).

CQ: RTTY/PACKET ISSUE
Radio Packet Primer, Part I
Reviews: Advanced Computer Controls Shackmaster 100
Hal Comm Corp ST-8000 HF Modem
AEA ATV-1000 Advanced Terminal Unit (for Baudot, ASCII RTTY, AMTOR, Packet).
Icom SM-10 Graphic Equalized Compressor Mike (adjustable response).

73: Reviews: 220 MHz power Amp - Mirage C22A and Alinco ELH-220GF.
Dick Smith 100W VHF Amplifier Kit.
Heath IP-2760 Battery Eliminator
A Power Supply Primer, Part I
Commodore's RTTY Riot

HR: RECEIVER ISSUE
Understanding & Handling Noise (circuits to enhance receiver performance).
Receiver Tuning Mechanism
Upgrading the Ten-Tec Argosy(lower noise floor 12dB)
Build a Pocket Portable SSB Receiver (14MHz superhet uses inexpensive IC's).
20 Meter HF Superhet (low cost homebrew project).
VHF/UHF World - Broadband Amp in Rcvr Design.

There are still some old copies of QST. If anyone finds any use for these, please drop a note to the Librarian.

Wanted -- For Sale -- Freebies

For Sale: T-350XM Transmitter, made by Technical Radio; Amphenol Signal Squirter Rotary Beam Antenna; 40 foot tower with rotor; VE4 Model MG6 Emergency Generator - 120V @ 52 Amp or 240V @ 26 Amp (5 KW 1800 rpm 80 hp). Contact John Horvath at (213)542-2976.

Operation Santa Claus — From the LAACARC

OPERATION SANTA CLAUS is a program that combines the best of amateur radio and public service. Ham operators take portable and mobile equipment to hospitals and let the children tell Santa what they would like for Christmas. Santa greets every child via a network of stations set up to accomplish the two-way transmission.

12 volunteers are still needed. Only two things are needed, an amateur license, Technician or higher and a willingness to help sick kids at Chrismas time.

For further information please contact:

Sid (KW6T) or Lila (WB6RSB) Mc Cormick
(714) 526-2827

(ed. If you would like a taste of how well this program works grab the December issue of World Radio and read "North Pole Network.")

Murphy's Law: If anything can go wrong, it will.
Corollaries:
If there is a possibility of several things going wrong the one that will cause the most damage will be the on to go wrong.
If you perceive that there are four possible ways in which a procedure can go wrong, and circumvent these, then a fifth way will promptly develop.
Every solution breeds new problems.