

# K7LED

# RELAY

AN  
ARRL  
AFFILIATED  
CLUB

Club Radio Officer: Ken Rau K7YR

NEAR SEATTLE, WASHINGTON

VOLUME 11

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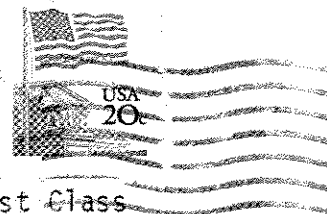
### CLUB OFFICERS

President	Deborah de Jong	N7AVO	Trustee No. 1	Mike Cross	WB7AYU
Vice President	Chuck Grazier	WA7RJT	Trustee No. 2	Jack Burrell	KB7ZS
Secretary	Diana Becker		Trustee No. 3	George Boross	N7BT
Treasurer	Dick Lundstrom	WA7UEW	Trustee No. 4	Hal Goodell	N7NW
Activity Mgr	Gene Jacobson	WA7TAI	Trustee No. 5	Ray Leslie	WA7EKH

The K7LED RELAY is the official publication of the MIKE and KEY AMATEUR RADIO CLUB, 23206 SE 53rd, Issaquah, WA. 98027. The Club meets the third Saturday of each month at 10 a.m. at "The Good Neighbor Center", 305 S 43rd St. Renton, WA. All "Hams" invited.

The Mike and Key net meets each Sunday morning at 10 a.m. on 3930 kHz with Novice and CW check-in on 3730 kHz and VHF on 146.58 MHz and K7LED/R 52.37-53.37 MHz.

K7LED RELAY EDITOR  
13517 117th Ave NE  
Kirkland, WA. 98033



First Class

## AUCTION

**McMICKEN HEIGHTS**

**IMPROVEMENT**

**CLUB**

**OCT 29, 1983**

K7W7G  
PETE HEDBERG  
28964 NE 77TH ST  
REDMOND WA

98052

STS 9 -- LET'S SHOW THE PUBLIC WHAT A HAM IS!!!

On the weekends of Oct 28-29 and Nov 5-6 there will be an amateur radio station set up at the Pacific Science Center to co-inside with the Space Shuttle flight with OWEN GARRIALT on board. A number of our members have signed up to help operate the station and talk to the public about what amateur radio is. This is an excellent opportunity to demonstrate and, hopefully, attract new members to our "hobby". Many have signed up, but there is room for more, if you want to put in an hour call Gib, W7JIE, at 226,4222. The major local radio clubs are participating in this and we hope we can get enough interest from you and all other local hams to do a similar demonstration at Christmas time during the Science Circus. You never know, we may get a permanent station at the Science Center where all hams can meet. There is a conflict since our Auction is on the 29th, but hopefully it will all work out. Give Gib a call today if you want to be at the STS 9 demonstration.

\*\*\*\*\*  
Auction: OCT 29th at McMicken Heights Improvement Club.  
Breakfast: 5AM Omni Restaurant  
Set-Up: 6AM Doors Open: 7AM Registration  
Auction begins: 9AM

\*\*\*\*\*  
The following will be headed-up by:  
Kitchen - N7NW  
Registration - WA7RJT  
Movers 7 Shakers - K7PFR  
Talk-in - K7QMI  
Computers - WB7AYU  
Chairperson - N7AMX  
Country Store - WA7HQG

Do you have something to donate to the Club for the Country Store? Call AMX or HQG, maybe they could even pick it up!! -- Get your name on a volunteer list to help!!!

+++++			+	+++++		
HAPPY BIRTHDAY	HAPPY BIRTHDAY	HAPPY BIRTHDAY	+	CALENDAR		
OCTOBER		NOVEMBER	+	Oct 15	- Club meeting with unpublished photos of Helen blowing her top!!	
10-Joe Fannin KB7R		4-Ken Rau K7YR	+	Oct 19	- Flea Market Meeting, Becker's 7PM	
16-Deborah de Jong N7AVO		7-Diana Becker	+	Oct 29	- Auction--Breakfast at 5AM	
22-Ralph Cornell WA7GHZ		10 Mary Lewis W7QGP	+	Nov 9	- Board Meeting - de Jong's 7PM	
+++++	+++++	+++++	+	Nov 19-20	- Fun Stuff '83	
AWARDS BANQUET CHAIRPERSON		Pati, WB7VJA,	=	Dec 3	- Christmas Party.	
she needs some help, let's get some volunteers		to help - you may be appointed!!!!	=	=====		

December the 3rd is the date selected for the CHRISTMAS PARTY which will be held at the FOREST RIDGE SCHOOL. There has to be a decide if you want Turkey or Ham, a \$300 band or canned music? Will you or who is going to help with the decorations? We would like some guidance on these questions. Diana and Sandy are working on decorations and need some help. Diana will organize food, do you want to gobble or just ham it up?? Come to the Club Meeting and talk to us about this.

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FLEA MARKET - - - The meeting was well attended and some very good brainstorming happened. First order of business is a new location; the Puyallup Fair Grounds, schools, ?? are all in the running. Hal, N7NW, accepted the chairpersonship. We are looking at having a one day event. The cost for sellers would go down from past years and the admission go up, possibly. There will be one price for sellers and no "percentage" arrangements available. If you know of a new location possibility, with at least 10,000 square feet, let Hal know.

\*\*\*\*\*

Board Meeting Aug 30 - In attendance: John and Diana Becker, Karl and Deborah de Jong, Ray Leslie, Chuck Grazier, Jack Burrell, Dick Lundstrom, Bob Rulifson, Gene Jacobson, Mike Cross, George Boross and Hal Goodel. Discussed plans ahead for all events and have in Relay; Auction; Phone Sweepstakes; Christmas Party; Flea Market; Banquet and Field Day. Auction 11th Annual at McMicken Heights, Donation - 50¢ - Raffell; Post bulletin, Mike Cross, Dick Lundstrom-Computer, Cashier; Hal - Kitchen; Chuck Grazier - Registration; John Rehnstrom - Country Store; PA system needs work.

August Board Meeting Cont'd --

Sept business meeting - satellite demonstration. October business meeting - Speaker on and pictures of Mt St. Helen. Possible free advertising for Club in Georgetown. Under Special Service - Possible novice training class for 10 weeks start late March and end before Field day, Advertise in January, possible fee for books.

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BUSINESS MEETING SEPT 17 --

N7AVO presiding -- Introductions and asked the question "What is your antenna and high is it?"  
ARRL - Announcements - Gib W7Jie; Examiners and Volunteer Monitoring - Regional Monitoring Station (RMS). FCC & ARRL approval. More info to follow in Relay.  
Chuck WA7EBH reported on Issawuah Salmon Days Parade Oct 5th. Treasurer Report.  
Auction - PA system in the works; Christmas party Dec 3rd, Sandy Bucher and Diana Becker decorations, Diana Becker Food. Flea Market: Can no longer get Longacres. Other possibilities - Seattle Center, Monroe Fair Buldg.  
New business - Han Radio on the Road-Pick up New Hams (kids) Richard S Moseson N2BFG. Have approval for radio in Pacific Science Center during the time of Space Shuttle's 31st orbit. (Gib, W7Jie) needs volunteers for weekends of Oct 29-30 and Nov 5-6. Set up Oct 21-22-23 and tear down Nov 7th. Oscar-2meters 2-20 meters-high frequency.  
Special Service Club- Hal Goodell. Novice Class to start with Video Tapes and demo discussion  
Satellite - Oscar Ten; Range-center 435.1; 435.0 - 435.1; 146.00 - 145.9; center 145.9; Beacon-145.810-Morse code or askii, Preamp and right handed circular antenna polarized.  
For more info contact AMSAT.

THE WASHINGTON MOTORIST

AAA

September, 1983

## How To "Go On The Air"

The good news in mobile communications is that the choice to pay for the use of your air time — or to pay nothing at all — is yours.

For example, if you invest in a MOBILE TELEPHONE you've agreed to pay "ma bell", or another telephone company, for your use of air time, which runs about 35 to 50 cents a minute.

But, first, you must pay about \$1700 to \$4000 (plus installation) for the equipment itself.

"Basically, an outlay of this kind has to pay for itself in the 'time' it will save the user in business," said John Hartnett, president of a Seattle communication's outlet, Somerset Electronics. Other uses include relaying information regarding highway safety, as well as having immediate access to the "911" Emergency number, Hartnett said.

The mobile telephone operates similarly to your home phone: you enter the calling number via a touch pad and await the caller's answer — the dial pad on some mobile phones are located on the backside of the phone for dialing out having to lift the phone from its cradle while driving.

Generally, mobile phones can reach any phone where land-line

communication is linked via the network of Radio Common Carriers (RCC). (RCC installations are offered by most telephone companies.)

One of the nice things about mobile telephones, as well as TWO-WAY and CB, is you can get into it without special licenses or permits — the AMATEUR RADIO ('ham') operator needs to take a special amateur radio test administered by the Federal Communications (FCC) Commission.

But, where does the AMATEUR operator fit into the mobile communications picture?

"A lot of people may think that the 'ham' (amateur radio) operators spend their time talking to remote locales like Latvia. But today's 'ham' operator can use a miniature (walkie-talkie size) unit in the car to duplicate all the functions of the owner's amateur radio home unit," said Hartnett.

AMATEUR RADIO is for fun or emergency use only, not for business. You'll pay from \$300 to \$800 for a system with the capability to call, say, from Chehalis to Vancouver, British Columbia, or Seattle to Spokane without air-time charges.

Also, the "ham" units have an

"AUTOPATCH" feature, which allows the amateur user to "dial" a phone and talk up to 2 1/2 minutes free.

Often, when we think of vehicle-to-vehicle communications, CITIZENS BAND (AM) radio comes to mind. The "CBer's" range is only good for two or three miles in mountain or hilly areas — five to 10 miles on flat stretches. CB'ers pay less than \$100 to several hundred dollars for their systems.

"Business TWO-WAY radio is similar to CB in size. The difference is that two-way can take advantage of the use of repeaters (antennas on hilltops and building tops which collect two-way signals and rebroadcasts them).

"The communications range is good up to a 100 mile radius," said Hartnett. Prices range from \$400 to \$1,200 per unit, and are designed for business use.

SUMMARY: While mobile phones can experience so-called "dead spots" in any given geographic area — plus require a sizeable investment and air-time charges — the system's main advantage is that it is an extension of your office telephone.

Two-way communicators are not restricted just to business useages if the choice is a General Mobile Radio (GMR) system; however, the commercial user finds the system invaluable for monitoring safety conditions around field sites, as well as keeping in touch with delivery route drivers.

CB'ers abound, which makes for excellent highway safety information networks, particularly when it comes to using the citizen's band emergency channel 9.

And amateur radio operators? "Quite frankly, if it hadn't been for the 'ham' operator during the Mt. St. Helens episode, the communications network could have been much worse," noted Hartnett.



COOK UP THESE  
HALLOWEEN PUMPKINS!  
Cut in half and bake at  
350 for one hour.  
Just like anyother Squash  
and chop up in blender.  
Freeze for pumpkin bread  
or pies etc.

Chili-Stuffed Squash (Pumpkin)

- 1 1/4 ground beef
  - 1 cup onion (chopped)
  - 1 green pepper (coarsely chopped)
  - 2 cloves garlic, pressed
  - 1/2 Teas. crushed hot red pepper
  - 1 Tbs. chili powder
  - 1 Teas. ground cumin
  - 1/4 Teas. oregano
  - 1 1/4 Teas. salt
  - 1 can (1 lb.) red kidney beans, undrained)
  - 1 can (1 lb.) whole tomatoes, undrained
  - 1 pk. (10 oz.) frozen whole-kernel corn
  - 1 can (8 oz.) tomato sauce
  - 1 squash (about 3 lbs.)
1. saute ground beef-Pour off fat. 2. Add onion, G. pepper  
garlic, r. pepper, chili powder, cumin, oregano & salt-cook  
until onion & G. pepper are tender. 3. Add beans, tomatoes,  
corn & tomato sauce-break tomatoes with fork. Simmer covered  
45 mins. 4. Cut top off squash-remove seeds & fibers from  
center. Remove any pulp attached to top. Preheat oven to  
350. 5. Place squash on a rimmed cookie sheet or shallow  
pan. Fill squash with chili, replace lid. Brush surface of  
squash with oil. Bake 70 mins. Spoon chili into soup plates.  
Scoop out meat of squash and mound some in center of each  
serving. 6 servings.

✓ The ARRL has filed with the FCC a Reply to NCTA's Opposition to the League's Motion for Expedited Action on RM-4040 (the League's petition to preclude cable use of amateur frequencies, see Vol. 2, No. 17).

In its Opposition, the NCTA pointed to its "comprehensive efforts to cooperate with ARRL and its members to identify and resolve cable/amateur interference problems." It also submitted evidence purportedly demonstrating that the cable TV industry was solving CATVI problems on a voluntary basis.

ARRL Hq. wrote approximately 100 CATVI complainants to determine, from the amateurs' viewpoint, the present status of past-reported CATVI problems. Of the 43 responses received in only a two-week period, 33 reported that cable leakage is still present at levels sufficient to disrupt or interfere with Amateur Radio communications. All indicated that the cable company was notified of the problem. Eleven responses indicated that actions

✓ Robert Foosaner, new Chief of the Private Radio Bureau, gave an interview to ARRL Membership Services Assistant Carol Smith, AJ2I and ARRL Washington Area Coordinator Perry Williams, WIUED, on September 14. Foosaner stressed that he wanted to be open and communicative to the amateur community. He also submitted that drastic changes from the previous few years in FCC policy and administration were not in the wings. The interview will appear in an upcoming issue of QST.

✓ Jon J. Gallo, KB6WT, has petitioned the FCC to establish a procedure to identify and limit the eligibility for an Amateur Radio license of applicants whose prior operator license has been revoked or suspended by the Commission for a violation(s) of its Rules. This petition is an outgrowth of the jammers and gutter-mouths who, having had their licenses revoked, are now in the process of retesting for ham licenses. Currently, anyone whose license has been revoked may retest after the expiration date of the revoked license. We'll give you more information on this as it becomes available.

taken by the cable company were sufficient to remedy the problem, but of those 11 cases, eight systems chose to vacate Channel E as a means of dealing with the interference problem, precisely the action the ARRL is requesting in RM-4040.

It is clear that there is a difference of perception between what hams consider "solved" and what the cable industry considers "solved." This simply points out the necessity of maintaining channels of communications between amateurs and the cable TV industry. A properly operating cable TV system is actually a boon to amateurs because the net result can be fewer TVI complaints. Moreover, it is true that NCTA's publications and seminars have focused on the CATV interference problem and for this the League is very much appreciative. The CATV industry has become more aware of the interference problem than it was before. The publicity NCTA and others have given to the problem has enhanced this awareness.

Mode L on AMSAT OSCAR 10 was to have been turned on for the first time on September 21. The beacon was heard loud and clear at W1AW but no indication of activity in the transponder passband was observed. AMSAT believes that there may be two explanations for the disappointing performance. First, the antenna relay that selects between the 24-cm helix and the 24-cm turnstile may be malfunctioning; or the antenna transmission line may have been damaged because of mechanical stress. The AMSAT technical crew is studying the problem. The current Mode L schedule (1269.05-1269.85 MHz up, 436.95-436.15 MHz down) is apogee plus or minus one hour every UTC Wednesday.

The OSCAR 10 transponders will continue to be turned off during each orbit from 40 counts (mean anomaly) before perigee to 40 counts after perigee. Technical arguments for leaving the transponder on during these times should be addressed to AMSAT, P.O. Box 27, Washington, DC 20044.

QRP operation on OSCAR 10 (Vol. 2, No. 18) is becoming more popular. "QRP Day" is Mondays UTC. Recommended power level is 50 to 100 watts eirp.

✓ The FCC Office of Plans and Policy released a staff report entitled "A Framework for a Decentralized Radio Service," by Alex Felker and Kenneth Gordon. Here are some excerpts from a Commission news release dated September 27:

"This report recommends that the FCC establish a new radio service without any technical or operational restrictions beyond those necessary to control interference. Licensees in such a service would be free to offer entertainment programming, land mobile services, or other services."

"Spectrum allocated to the service could be tailored by individual licensees to each area's needs without FCC involvement....Changes in usage, when appropriate, could occur without the need for a cumbersome hearing or rulemaking."

"A method of controlling interference is suggested that builds upon existing FCC assignment procedures....the authors recognize the interference potential of mobiles is different from fixed transmitters, they believe problems arising from this fact can be successfully controlled....It is tentatively recommended to introduce the service in the existing UHF-TV band."

Copies of the report may be purchased from International Transcription Services, Inc., telephone (202) 293-7322.

✓ The World Amateur Radio International Conference (see last issue) was held in Tokyo, between September 19 and 22. The conference was hosted by the President of the Japan Amateur Radio League, Shozo Hara, JA1AN. Conference chairman was Victor C. Clark, W4KFC, President of the ARRL. Makoto Inami, JA3XZW, JARL Vice President, served as Vice Chairman. Also present were, among others, Richard Baldwin, W1RU, International Amateur Radio Union President.

✓ The League will publish a special Antenna Compendium in May 1984. Potential contributors of unpublished papers on any aspect of Amateur Radio antennas are invited to send a one-page, double-spaced abstract describing the paper to Paul Rinaldo, W4RI, at Hq. Authors will be notified of acceptance and provided preparation guidance. Deadlines are December 2, 1983 for abstracts, March 15, 1984 for manuscripts.

✓ California hams with 6-land call signs will have a chance to commemorate the 23rd Olympiad in 1984. Responding to a petition from Richard Jay Ward, NG6O, the Chief of the Private Radio Bureau, Bob Foosaner, has waived FCC's prohibition against special call signs. For the months of July and August, 1984, the FCC will permit amateurs in California who have the numeral 6 in their call signs to substitute either "23" (as in 23rd Olympic Games) or "84" on a voluntary, basis.

✓ Work proceeds on the preparation of the UoSAT-B spacecraft for a launch scheduled sometime in early 1984. The structural design has been completed. The satellite interface fitting and the launch vehicle attach fitting have been completed and are now ready to be shipped to a launch site. Solar arrays and batteries need to be obtained, and other hardware items need to be built and tested.

✓ The International Amateur Radio Club (IARC) will celebrate World Communication Year by sponsoring "International Amateur Radio Day," on October 23. Two principal activities are planned:

The ITU amateur station, 4U1TU, will be made available for operation by any visiting amateur, and a special certificate or QSL card will be available for contacting 4U1TU on October 23 between 0000 and 2400 UTC. Operation will be on 80 through 10-meters (phone, cw and RTTY) including 144, 432 MHz and satellite modes A and B.

✓ Cushcraft has come forward to offer a "store bought" turnstile antenna for the STS-9. The ATS-1 is an "all-aluminum" antenna rated at 100 watts. Reflector elements replace the screen to simplify construction and mounting. List price is \$39.95. Glen Whitehouse of Cushcraft expects to be shipping the antennas to dealers very early in October; so if you are interested, contact a Cushcraft dealer now and place your order.



✓ Barry Goldwater, K7UGA, was the principal speaker on the Teleconference Radio Net September 1. Questions covered a wide range of diverse topics, including funding for the FCC, FCC monitoring, cable television interference, public service work of amateurs, intentional interference, MARS, local regulation of antenna/tower heights, and the proposal of the U.S. to construct Radio Marti, a medium wave station intended to transmit news and information to Cuba.

Barry was asked if he had received a response from FCC Chairman Fowler to his letter in opposition to the no-code license. While no response has been received, Barry feels that Fowler understands communications and the importance of the Amateur Radio Service to communications. He said, "My hunch is, and it's only a hunch, we're not going to have no-code licensing."

Roy Neal, K6DUE, NBC Science Editor, gave a bulletin of updated news on STS-9. (Details elsewhere in this issue.)

The terrestrial portion of the net consisted of 161 stations, mostly repeaters, in 41 states and two Canadian provinces. Hemispheric coverage was provided via an Oscar 10 downlink on 145.957 MHz.

This particular T.R.N. was not without its glitches, though. The landline linking Minneapolis and Chicago evidently malfunctioned, causing two thirds of the linked locations to lose contact (The OSCAR 10 link remained operational). In spite of this problem, feedback indicates the net was a huge success and the concept is a popular one.

✓ A Wisconsin amateur was shocked this week when the local police showed up at his door ordering him to stop operating. The local enforcement officers also threatened to confiscate the amateur's radio equipment. The cause -- RFI/TVI. He lives in an apartment complex with a centralized TV antenna system with very poor shielding. The amateur's comment -- this is really a lot of trouble for a hobby! ARRL Hq. has referred him to a participating Volunteer Counsel.

✓ Two Amateur Radio organizations have awarded scholarships to deserving students. The Foundation For Amateur Radio awarded all fourteen scholarships which it administers.

More information on these scholarships is available for an s.a.s.e. from Hugh Turnbull, W3ABC, 6903 Rhode Island Ave., College Park, MD 20740.

The Dayton Amateur Radio Association awarded two \$1,000.00 scholarships to graduating high school students. For further information, contact Robert McKay, N8ADA, P.O. Box 44, Dayton, OH 45401.

✓ TVQ/Movie Systems, Inc. has agreed to drop lawsuits naming amateurs in Milwaukee as defendants in pay-TV pirating if the hams sign a notarized affidavit. This document states: "I am an Amateur Radio operator duly licensed by the FCC [attached is a copy of my current Amateur Radio license] . . . I do not now, nor have I ever, used the antenna in my possession for the interception, reception, use or viewing of Movie Systems, Inc.'s HBO programming." Affidavits have been proposed by radio amateurs to other MDS operators as terms of settlement, but so far only TVQ's Milwaukee Company has accepted this solution.

Some MDS companies are starting massive legal campaigns to stop "pirating" of their signals. Many hams who own dish antennas are suspect and are being sued.

✓ The summer months have seen fewer reported problems with antenna zoning ordinances around the country. Hot issues, though, increasingly involve satellite dish antennas. (Hq. is ready, willing and able to provide you with public relations materials for any anticipated zoning problems.)

The heat may have been a contributory factor in an explosive antenna incident in New Jersey. A ham, having RFI problems with his neighbors (in fact, he is in litigation with one of them) got on the air after hearing about a rare DX station that was operating. He called two of his neighbors, who said to go ahead and operate for a while. The ham couldn't, however, reach the third neighbor. Soon the irate neighbor appeared at the ham's QTH, armed with a gun and threatening to kill the ham if he didn't get off the air. The police were called, and the situation cooled off -- for the time being. The ham is still jittery, though perhaps with good reason!

# ARRL SAFETY CODE

1. KILL ALL POWER CIRCUITS COMPLETELY BEFORE TOUCHING ANYTHING BEHIND THE PANEL OR INSIDE THE CHASSIS OR THE ENCLOSURE.

2. Never allow anyone else to switch the power on and off for you while you're working on equipment.

3. Don't shoot trouble in a transmitter when you're tired or sleepy.

4. Never adjust variable links by hand. Use special care when checking energized tank circuits with absorption-type wavemeters.

5. Avoid bodily contact with grounded metal (racks, radiators) or damp floors when working on the transmitter.

6. Never wear phones while working on gear.

7. Follow the rule of keeping one hand in your pocket.

8. Instruct members of your household HOW to turn the power off, and HOW to apply artificial respiration. Instruction sheets on the latest approved method of resuscitation can be obtained from your local Red Cross office.

9. Develop your own safety technique. TAKE TIME TO BE CAREFUL. DEATH IS PERMANENT.

## RULES FOR EQUIPMENT DESIGN AND CONSTRUCTION

### ONE DISCONNECT SWITCH

A single plainly-labeled main switch should be provided to cut off all power from the equipment.

### POWER SUPPLIES

All power supplies should be so enclosed or constructed that accidental bodily contact with power circuits is impossible.

All negative plate-supply and positive bias-supply terminals should be connected to the chassis and the chassis connected to a water pipe or other good ground connection.

Every power supply should use a conservatively-rated bleeder resistor. If it is placed on top of the chassis for ventilation, cover it with screening or perforated metal. When using shield wire for external power cabling, make sure the shielding is grounded to protect you in case of insulation breakdown.

### PANEL CONTROLS AND METERING

Every control shaft extending through the front of the panel should be at ground potential. The frames of key or metering jacks should be fastened to the grounded panel. Meters, unless connected in the cathode or centertap, should be recessed to avoid danger of contact with the adjusting screw.

### AUDIO EQUIPMENT

In addition to the construction rules set forth for power supplies, the following rule should be followed for speech equipment. The microphone stand and the enclosure should always be connected to the microphone-cable shield which, in turn, should be grounded to the chassis.

### LIGHTNING PROTECTION

Merely "grounding everything" is not adequate protection from direct lightning strikes or static build-up. Lightning has devious methods of going where it isn't supposed to. There is only one way to protect your radio from lightning, and that is to disconnect everything completely and then ground all the disconnected lines. This applies to incoming power circuits, also; "pulling the big switch" is an old adage which makes sense. Finally, pay special attention to rotor control boxes; a lightning strike can come into the box via the control cable, go through the control box, out the power cord, and through your "cube-tap" (or whatever) and thence up the power cord of your radio, even though all power cords have been disconnected from the wall socket! Please, HANDLE EVERY CIRCUIT WITH CARE. The lowly 110-115 volts has caused more electrocutions than any other.

**SWITCH  
TO SAFETY!**

