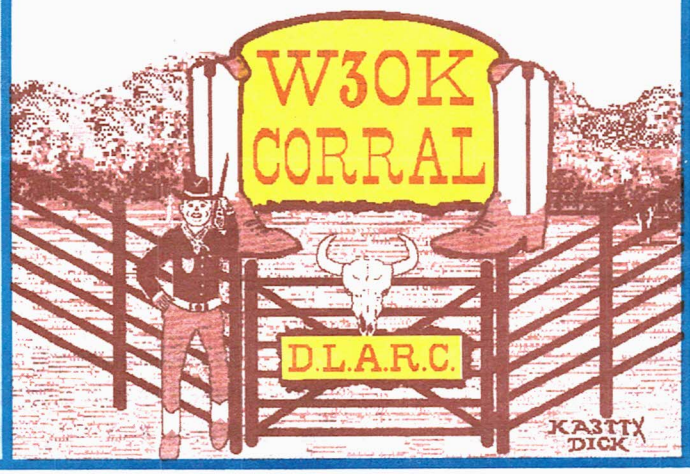
DELAWARE · LEHIGH AMATEUR RADIO CLUB, INC. W3OK

August 1993



SPECIAL SERVICE CLUB
ARRL Affiliated Club

DLARC HAMFEST AUGUST 15th

GET READY

by Bill, K3ANS, HAMFEST CHAIRMAN

It is here! The long awaited BIG DLARC hamfest at Career Institute of Technology, Easton. Read again the enclosed bright green flyer. How can you miss it? Tell your friends. Volunteer your help, even for just a little effort. Particularly talk to N3IYX leader of the parking team. Ken needs your help. Take a short shift for just an hour. Help Dave N3JGX set up the tailgaters. Talk to Tom N3LLL to help set up the inside vendors. See Carl N3GRK to help in security. Norm, N3GXW could use your help in ticket control. Dennis, N3JNV is handling talk in and the demo station. Pitch in.

Enough pleading. If you do not help, the DLARC dues must go up to sustain all our activities and services. The hamfest is our biggest fund raiser. The hamfest is also our biggest FUN raiser.

Why did you become a ham? To stay home? To avoid talking on the radio? To miss DLARC meetings? What turns you on? Whatever it is in ham radio, you should find at our hamfest. The more we share the work, the more we can share the profits.

Did you see all the hands up to suggest how to spend DLARC money? Did you see all the hands down to volunteer to raise the DLARC money?

Hamfest starts at 6 AM. Be there early. Some vendors are arriving Saturday night to set up in advance. Join them.....they are hams too.

Stay for the forums and CIT open house. Maybe you will meet an prospective employer, employee, friend, vendor, customer, or teacher

Buy your tickets early from N3GXW. $1.00 off for advance purchases. de ***Bill, K3ANS***

FLYING ON 6 METERS?

by Darrel, N3NNI

Joe Brue, N3MKZ, Past President of the West End Wings of Effort Pa will speak at the August 3rd meeting of DLARC. This will give everyone an opportunity to see a Radio Controlled Aircraft, which is 1/3 scale and how the radio transmitter operates the control surfaces on 6 meters.

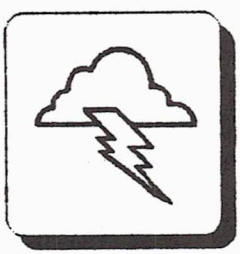
Joe will be bring two airplanes to demonstrate,, one a float plane and one is 1/3 LASER. There will also be videos of the models in flight.

Joe has been flying for about 6 years and is a very capable pilot. Although it may seem strange, but many who fly these models took their original NO-Code licenses in order to use the 6 meter band for control.

Among our other members who fly these airplanes are: N3NNI, N3NNH, N3MLA and KD3UN.

THE MEETING WILL BE HELD IN KIVA HALL AT NCCAC. MEETING AT 7:30pm. Talk in on 146.70 if needed.

WATCH THOSE CLOUDS!



This issue carries two stories by two of our members on how to handle things in your shack when the "Weather Alert" is up on 146.70 or when you see a storm coming.

One story from K3OO. Rick is very important, and the other by Bob, KW3W is very much in a complete coverage of the problems. ***de Clarence, W3PYF, editor***

** CONTEST CALENDAR **

by Barry, KU3X, contest editor

Aug 4 West Coast Qualifying Run 10-35 WPM

Aug 7-8 W1AW Qualifying Run 10-40 WPM
ARRL UHF Contest
North American QSO Party, CW
YO DX Contest

Aug 14-15 European DX Contest, CW
Maryland-DC QSO Party

Aug 21-23 ARRL 10 GHZ Cumulative Contest
North American QSO Party
Seanet Contest
Sartg worldwide RTTY Contest
New Jersey QSO Party

Aug 25 W1AW Qualifying Run 10-35 WPM

CONTEST TIP #15

Beverage Antennas: A good low noise receiving antenna is always good to have for 80 and 160 meters. They are also used in 40 meters depending on the band conditions. Loop antennas have normally low noise characteristics. If you have a Delta loop antenna up for 40 meters, you may find that it makes a great receive antenna for 160 meters. Check some of the antenna publications and you will get some very good ideas for low noise receive antennas.

de Barry KU3X

EASTON HOSPITAL RUN

Sunday August 1st



Once again we have been asked by the Easton Hospital to furnish the safety communications for the Walk-Run on August 1st in Easton.

We will need from 8 to 10 communicators to handle the watch and to help coordinate the safety of the walkers and runners in case of spills or trips. Contact Dick, KA3MOU or Clarence, W3PYF if you can help.

Tee-Shirts for those who volunteer will be there.

de Clarence W3PYF

CLUB PICNIC AUGUST 22nd

HACKETT PARK EASTON

by George, N3OWG, chairman

This years picnic is gearing up to be the BEST one yet!



In addition to the usually tasty covered dishes supplied by the members and the delicious grilled goodies supplied by DLARC. We will be having some special events too!

This years picnic Chairman N3OWG newcomer George Cook is a big advocate of sharing our hobbies and lives with the family and kids so he has planned some fun events for them too! Bean Bag tosses, water balloon fights, egg rolling and sack races will be on the fare for the day too!

And while those youngsters are working hard at winning a ribbon for their room those smoky old Hams will have some competition of there own!

The Fastest Gun in the East contest will be run. You'll be given 20 minutes at a 5 watt 40 meter station to make as many contacts as you can! Every one can compete as we'll be restricting it to 7100 - 7150.

As always we encourage ALL to bring covered dishes to the picnic. Salads, cakes, fruit, pies, baked beans and any other types of dishes. The club of course will be supplying the liquid refreshments, hot-dogs and hamburger patties.. If you don't get a chance to let George know what you'll be bringing at the August meeting please call him at 215-588-4729, or grab him on 70 or 7110 MHz. John, N3IGA reports that there were over 90 at last years picnic, lets make 190 this year. We would hate to have 65 different Jell-O Molds this year!

Plan on being there and bring the kids and Grand kids! A guaranteed good time to be had by all.

de George, N3OWG

Why Johnny can't read? Here's a clue!

supplied by Dave, WD5BRP

These excuses were written by "Moms" and "Dads" to teachers.



1. Dear school: Please excuse John of being absent on January 28, 29, 30, 31, 32, and also 33.

2. My son is under the doctor's care and should not take fisicaled. Please execute him.

3. Ralph was absent yesterday because of a sore trout.

4. My daughter was absent yesterday because she was tired. She spent the weekend with the Marine's.

5. Please execute Jimmy for being. It was his father's fault.

6. Please excuse Joyce from (gym) for a few days. Yesterday she fell out of a tree and misplaced her hip.

7. Excuse Gloria. She has been under the doctor.

8. Carlos was absent yesterday because he was playing football. He was hurt in the growing part.

9. Please excuse Ray Friday from school. He has very lose vowels.

10. Please execute Wayne for being out yesterday, because he had the fuel.

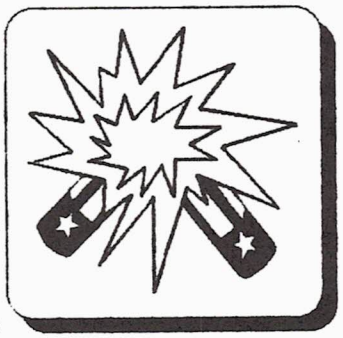
11. Please excuse Sarah for being absent. She was sick and I had her shot.

12. Maryann was absent December 11-16 because she had a fever, sore throat, headache, and upset stomach. Her sister was also sick with fever and sore throat, and her brother had a low grade fever and ached all over. I wasn't the best either, sore throat and fever. There must be the flu going around school.; her father even got hot last night.

The Big Hit!!!!

by Rick, K3OO

On Fathers Day evening a very large thunderstorm rolled past my QTH. As usual for this time of year I had all of my antennas unplugged, as well as the power cords pulled from the wall sockets in the shack.



All of a sudden it sounded like the Fourth of July in my shack. I lost a lot of equipment as a result of that. What appeared to have happened was the lightning strike came through the ac power line into the house. The surge then went to the path of least resistance which was the 24 hour clock (sittting on top of a BRAND NEW TS-950SDX) back out the ground system. The 24 hour clock was the only thing still plugged in. The ground system was still connected to all my equipment.

I believe that was the reason for all the damage. It may be a good idea to completely isolate your equipment by not only unplugging EVERYTHING, but also removing the ground system from the equipment as well.

After surveying the damage it appears to be a loss of around $8000. Some of the equipment lost was a three week old TS950dx,two computers,two television sets,keyer,remote relay box,etc. .

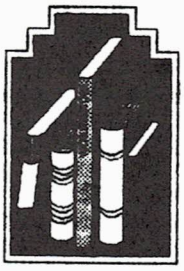
The next time a big thunderstorm comes past your QTH are you ready ? It might be a good time to evaluate the lightning protection in your shack.

de Rick, K3OO

Coming events:

August 1st Easton Hospital Run
August 5th Club Meeting
August 6th VE Testing, Greystone Building
August 8th Mid Atlantic ARC Hamfest, Warington, PA
August 15th DLARC HAMFEST, CIT, Easton, PA
August 22nd DLARC PICNIC, Hacketts Park, Easton

JUST THE MINUTES
by John, N3IGA, Secretary



The July meeting was called to order at 7:30 pm by Robin, WA3T. More than 80 friends and members attended the meeting held in KIVA Hall on the NCCC campus.

The minutes of the June DLARC meeting were approved as printed in the W3OK Corral.

Dick, KA3MOU, presented the treasurer's report and stated an ending balance as of June 30 to be $4799.65.

The DLARC would like to welcome the following new members:

Neil Resnick, WB3KIL
Glade Schoeter, WA3MVQ
Irvin Ball, KB2PUQ
William Lagler Call pending
James Havassy, Call pending

Bill, K3ANS, gave the members present an update on the Hamfest. Every- thing is running smoothly, but volunteers are still needed. Ray, W3TDF, is asking for volunteers for ticket sellers who will be also helping with parking. If you can spend just 2 hours helping with selling and parking, please contact Ken, N3IYX, or Ray, W3TDF.

Clarence, W3PYF, made the announcement about the Derriere in the Delaware and the Lehigh River Run which will be held on July 25th. 30-35 Hams are needed for the events. Volunteers can work one or both events. Adrienne, KA3YEB, is the person to contact for the River Run. Dick, KA3MOU, is in charge of communications for the Delaware. It's a lot of fun and good experience for emergency communications. Please help out for a good cause.

Bob, KU3K, gave the run down on Field Day. There were problems with the 80-15 meter station and 20-meter station disks which lost around 2000 points.
The Novice station did a great job with 156 QSO's. Bob thanked Barry, KU3X for the great job Barry and his wife did with the food.

Robin, WA3T, told members present about the Executive Committee decision to set-up a $100 a year fund for funding our educational program. This will help buy teaching aids for the Novice Classes and General Classes.

Robin asked for some opinions or thoughts on linking .70 to 147.045 in Bangor. This would provide better coverage to Northeast Northampton Co. 147.045 has good coverage in the Poconos. There was no decision made because there were a lot of questions that needed to be answered.

Bill, K3ANS, informed members of upcoming programs. August will be on Remote Control Airplanes with some of our own Hams. September's meeting will be on Contesting, especially the PA QSO Party, with Ray, W3TDF. We want to keep the Trophy, so don't miss this program.

Featured program was John Dancey, N3NUE, who gave an excellent program on electronic surveillance history and our constitutional rights as far as electronic surveillance. The information surprised a lot of members. John also showed some of the equipment used.

de John, N3IGA

TATAMY CENTENIAL BIG SUCESS
by Chuck, N3LAI

The Tatamy Centennial Celebration Special Event Station went off without a hitch at about 1425Z on Sunday July 11, 1993. The Special Event Station was to commemorate the 100th Anniversary of the borough of Tatamy. As we neared our scheduled ending time we realized we had 82 contacts and thought it would be nice to make 100 HF contacts for the Centennial Celebration. At 2236Z we accomplished our goal with a station in Denmark. Other DX contacts were Italy, Slovenia, France, England, Puerto Rico, and an aeronautical mobile flying into Bermuda.



Thanks to John, N3IGA and Bill, K3ANS for announcing where we were on 70 and the DX Packet Cluster. Also thanks to the other many local hams who helped us to attain our goal by giving us HF contacts.

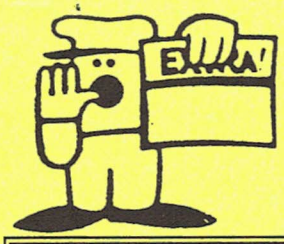
Barry, N3NVA headed up our 2 meter station with 53 contacts from local, and not so local hams. Barry religiously operated the entire time, except for food and drink breaks.

A good time, and good food, was had by all. Thanks to Bill's XYL who provided us with food and drinks the entire day.

Stations operating:

Bill	**KA3OEG**
Tim	**KC3QO**
Chuck	**N3LAI**
Brad	**KA1RAH**
Barry	**N3NVA**

Our thanks to Ray, W3TDF for supplying the tower and beam. Without it, we would have been in big trouble.. ***de Chuck, N3LAI***



The Delaware-Lehigh Amateur Radio Club, Inc.

HAMFEST & COMPUTERS

Sunday, August 15, 1993

Career Institute of Technology, Easton, Pa.

Vendor Set-up at 6 a.m. Open to Public at 8 a.m.

ADMISSION: $3.00 Advance $4.00 at the Door

Spouse admitted free

Tailgaters: $7.00 ($6.00 Advance) $15.00 Inside Vendors

(Includes Admission)

FOOD, TABLE RENTALS, AND ELECTRIC AVAILABLE INSIDE

SPECIAL SERVICE CLUB

MANY DOOR PRIZES!

Rain or Shine!
Plenty of Indoor Space

Handicap Accessible

Forums & Activities

- American Radio Relay League
- Contesting - PA QSO Party
- Computers & Packet
- Introduction To Ham Radio
- VE Examinations
- Demo Ham Station
- Electronics Test Bench
- DXCC Field Checking

For more information please call Bill Goodman, K3ANS - Hamfest Chairman
Office (215) 253-2745 or Home (215) 258-5063
Also call DLARC Answering Service at (215) 820-9110

(over) **Talk-in 146.70 W3OK Repeater** (over)

Name_____ Call_____ Date_____

Address_____ Number of advance admission tickets @ $3.00_____

City_____ State_____ Zip_____ Number of advance tailgate tickets @ $6.00 _____

Telephone ( ) _____ - _____ Number of Inside vendor tickets @ $15.00_____

TOTAL AMOUNT ENCLOSED $_____

Make checks payable to Delaware-Lehigh ARC, Inc.

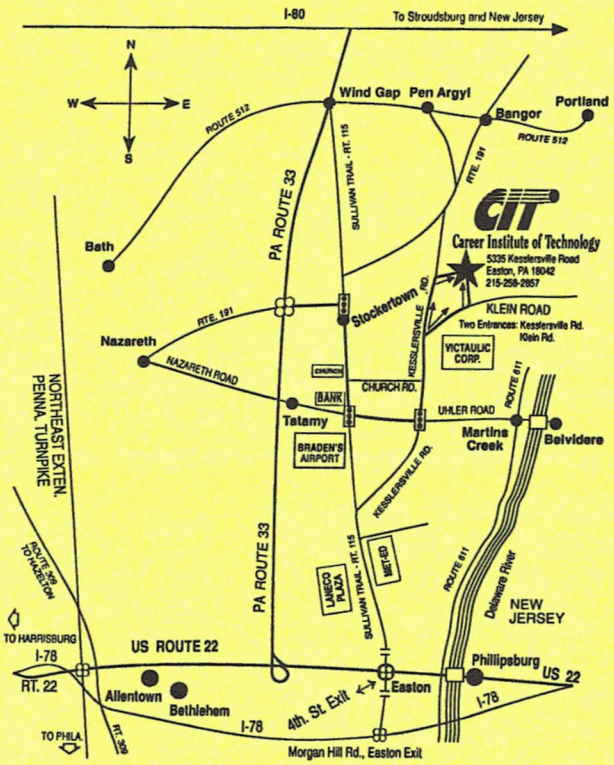
Mail To: The Delaware-Lehigh ARC, Inc.
RR 4 Greystone Building
Nazareth, PA 18064-9211

Career Institute of Technology

Formerly The
Vocational-Technical School
Eastern Northampton County
5335 Kesslersville Road, Easton, PA 18042
Phone (215) 258-2857 Fax (215) 258-0805

CIT OPEN HOUSE

Student Clubs will rent tables and sell food & groceries. (There is a ShopRite store inside). Starting at 1 p.m. CIT will have its technical shops open for visiting with the instructors. These will include Electronics, Machine Tool Technology, Plumbing, Heating, Ventilation, & Refrigeration, Printing & Graphic Arts, Information Systems Technology, Welding, Automotive, Building Trades, Allied Health Science, Carpentry & Cabinetmaking, Computer Application & Computer Aided Design Technology, Electrical Construction & Maintenance, Auto Body Repair, etc. In addition, Technical Businesses are invited to set up displays.



NEW LOCATION

DIRECTIONS TO CAREER INSTITUTE OF TECHNOLOGY

FROM HARRISBURG:
Take I-78 East. Where I-78 and US 22 split, bear right after the Fogelsville Exit onto US 22 East towards Whitehall and the ABE Airport. Follow US 22 East to PA 33. Take PA 33 north to Stockertown Exit (Route 191). At end of exit ramp turn right. Follow Route 191 North for 150 yards to traffic light. Turn right onto Sullivan Trail. Follow Sullivan Trail south for 1.5 miles to traffic light(Merchants Bank is on right corner). Turn left at traffic light onto Uhler Road. Follow Uhler Road for 1 mile to traffic light. Turn left at light onto Kesslersville Road. School is located 1 mile north on Kesslersville Road on the right side.

FROM NORTHEAST EXTENSION OF PA TURNPIKE:
North from Philadelphia or South from Wilkes Barre-Scranton.
Exit Northeast Extension of PA Turnpike at Lehigh Valley exit onto US Route 22 East. Follow directions above from US 22 East..

FROM NEW JERSEY:
Take Interstate 78 West. Exit onto US 22 West at Phillipsburg, NJ. Follow US 22 West through Phillipsburg, NJ, cross over Delaware River Toll Bridge, continue on US 22 West (past Easton, PA 25th. St. exit) and continue to PA Route 33. Take PA Route 33 North and follow directions above.

The Delaware-Lehigh ARC, Inc.
RR 4 Greystone Building
Nazareth, PA 18064-9211

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1993 HAMFEST ANNOUNCEMENT

Ima Lidd

by Van, K3CP

Ground mounted 1/4 wave Vertical Antennas



Ima Lidd wants to put up a ground mounted quarter wave antenna for 20 meters. He had picked up some information listening on the bands, but he thought he would do some reading and consult with his Elmer before proceeding. He had read ads for verticals claiming that no radials were required. His Elmer told him to read about the efficiency of verticals and then decide for himself whether or not radials were needed

Ima went to the book and began to read about vertical antennas. He really opened his eyes when he read that the efficiency of verticals was less than 100 percent. But when he stopped and thought about it, he realized that this was true because he never heard of a quarter wave vertical having any gain. What really surprised him was that the efficiency could be as low as 20 percent with three six foot ground rods. This means that if his transmitter puts out 100 watts to the antenna system, he is losing 80 watts. Where, he wondered are the 80 watts going?

Reading the book he learned that they were being lost in the earth. The 1/4 wave antenna relies on the ground for the other quarter wave and the RF actually flows through the ground with the current concentrated near the base of the antenna. He found the formula for calculating the efficiency of his vertical antenna. It stated simply that the efficiency was equal to (R rad) divided by the (R ant) plus (R gnd) plus (R rad) where:

(R rad) = Radiation resistance of antenna.
(R ant) = D. C. Resistance of antenna and feed line.
(R gnd) = Resistance of the earth.

The formula looks like this:

$$\text{Efficiency} = \frac{\text{(R rad)}}{\text{(R ant)} + \text{(R gnd)} + \text{(R rad)}}$$

Example calculations -
First case:- 3 six foot ground rods at base

R rad = 36 ohms. (Half that of a 1/2 wave.)
R ant = 1 ohm. (Feed line, connectors and antenna.)
R gnd = 100 ohms.(IR losses in the earth.)

Solving the formula we get an efficiency of .26 or 26 percent which means 100 watts to the antenna, 26 watts radiated and 74 watts IR losses in the earth and the antenna system.

Second case:- Added 6 radials to system

The R rad and R ant remain the same but the R gnd comes down to approximately 40 ohms.

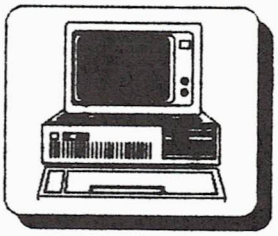
Solving the formula now yields 47 percent. Now we are radiating 53 watts. Still not great but twice as much as before. It would take 120 radials to get the ground losses down to around 5 ohms. This would result in an efficiency of 85 percent or so. These figures are fairly typical of our type of earth. Variations will occur for different locations. Remember these values represent a quarter wave ground mounted vertical antenna. Although many radials result in higher efficiency there is one disadvantage. The Q of the antenna gets better and better as radials are added (a good thing), but the band width is reduced. But them a dummy load has a very nice band width.

The purpose of the radials is to reduce ground losses. In the absence of radials, antenna currents flow through the earth. Ima now knew that the best place for radials would be above the ground because the more current they intercepted the less that would get to earth. A good installation would find the radials at about 10 feet off the ground. The next best place would be on the surface. Burying them in the ground would be the least desirable place as the currents would then have to go through the ground to get to them.

Ima Lidd now knew what his Elmer meant when he told Ima to do the efficiency calculations and then make up his mind whether or not his vertical antenna would need a radial system. He remembered hearing someone saying that a vertical antenna radiates equally poorly in all directions. He asked Elmer why use a vertical at all. Elmer told him that they have a lower angle of radiation which helps work dx on certain paths and that they don't take up much real estate.

de Van, K3CP

PIPING & REDIRECTION
Revisited
by Paul, N0KIA



Last article we looked at logical files and redirection. Let's move on to our next topic - piping. Similar to redirection, piping is the concept of sending the output from one command to additional commands instead of to files. An example here is worth a thousand bytes. Type the following command line:

DIR | SORT | MORE

and then launch it with a carriage return. The computer will sit there for a second or two, depending on your system's chip and clock, and then present you with a sorted file list of your current directory. If you're running DOS 5.0 you can achieve the same result with DIR/O:N/P, but we're trying to demonstrate piping here, something that you could have done with older versions of DOS.

What did the "pipe" symbol (|) do in the above command line? It acted as a pipeline, taking the output from the DIR command and sending it to the SORT command, then taking SORT's output and sending it to the MORE command. It was functionally equivalent to typing the following commands:

```
DIR  >TEMPFILE.1
SORT <TEMPFILE.1 >TEMPFILE.2
MORE <TEMPFILE.2
DEL  TEMPFILE.?
```

Indeed, DOS uses temporary files to hold the output from intermediate commands while piping. More advanced systems use data buffers to accomplish the same task quicker, but DOS's method works just fine and gets the job done with only a sacrifice in speed. Now, did you catch that third line above?

We normally "pipe" data to MORE, such as:

TYPE SOMEFILE.DOC | MORE

But we can just as easily "redirect" data to it. Try this:

MORE <MYTEST.SRT

and notice how MORE accepts its input from your test file. Piping and redirection are related concepts used to perform similar tasks with processes' input and output. With piping, we're pumping the output from one command into the input of the next command. With redirection we pump the output of a command into a file, or pump a file into a command as input. Both are based on standard input and output. Now, if you've been paying attention, you'll have no trouble telling the difference between the following two command lines:

```
DEBUG SOMEFILE.TXT
DEBUG <SOMEFILE.TXT
```

The first runs the DEBUG program on the file SOMEFILE.TXT. That's the way we normally run DEBUG. However, we can also send a "canned" set of commands to the DEBUG program, and that's exactly what we're doing in the second command line. If SOMEFILE.TXT contained the following lines:

```
NTESTFILE.COM
L
U 100,200
Q
```

it could be used to automate the way we run DEBUG just as a .BAT batch file can automate the way we run DOS. Then typing command line two above would cause debug to place the name TESTFILE.COM in its file buffer. Load the file, disassemble the first 100h bytes of the program, and then quit the DEBUGer. A more useful way to use SOMEFILE.TXT would be to type:

DEBUG <SOMEFILE.TXT >LPT1:

which would send the output to the printer instead of the screen. So that's how they do it! Really, today's hacker would rarely use DEBUG to crack open code, but the above example shows the use of redirection to ship commands into an application program such as DEBUG. If you were interested in finding the occurrances of hex A3 in your TESTFILE.COM program, you could have used piping instead with the following format:

DEBUG <SOMEFILE.TXT | FIND "A3"

See how it all fits together? The command line says, "Run DEBUG, getting your commands from the text file SOMEFILE.TXT, then send the output to the FIND command and locate all the disassembled lines with A3 in them.". DOS can do great things, you just have to know how to "talk" to it! Okay, that's enough for one month. Next time we'll look at the "environment".

73, Paul, N0KIA



RELIEF SOUGHT FROM MUNICIPAL SCANNER LAWS

The ARRL has asked the FCC's Private Radio Bureau (PRB) for help in relief from "scanner laws" which continue to plague Amateur Radio operators and has provided to the FCC, at their request, recent examples of such laws and their effects.

The League in a recent letter told the PRB that it continues to address "serious legal problems of its members" resulting from municipal scanner ordinances, i.e., county and city ordinances which prohibit the possession and/or use within the jurisdiction of the municipality of radio receivers capable of reception of police or other public safety radio services.

The League said that because Amateur Radio transceivers are routinely capable of such reception as an incident of their design, amateurs are the unintended victims of these ordinances. Police often stop radio amateurs and cite them, or seize their equipment, based on these ordinances.

In February 1991 the FCC issued a Notice of Inquiry on the subject, based on a League request for a declaratory ruling filed November 1989. Since then, all 50 state "scanner laws" have been modified to either exempt licensed amateurs or at least to prohibit not the possession of the device in a motor vehicle or otherwise, but rather to prohibit the use of them in the commission of a crime.

So while the state statutes are no longer a problem, the League said, the ordinances are, both because they are often unknown to the traveling public and because they seek to punish perfectly innocent acts by FCC-licensed amateurs.

"Use of Amateur Radio in public service or emergency communications should not subject the licensee to violation of criminal or quasicriminal ordinances and penalties, but that is what is occurring," the League said, citing examples in Chicago and elsewhere.

The League said that some municipal ordinances require payment of a fee to own and use a mobile Amateur Radio transceiver. "This is, in the opinion of the League, an unlawful exercise of the police power jurisdiction of the municipalities, as it constitutes a licensing function reserved with respect to Amateur Radio operation to the Federal Communications Commission," the League told the Private Radio Bureau.

"The Commission has specifically held," the League said, "that municipalities cannot prohibit Amateur Radio operation in their jurisdictions, but rather must make reasonable accommodation for such operation. These ordinances fly directly in the face of express Commission policy, just as if the municipality had prohibited Amateur Radio operation entirely, or prohibited antennas entirely."

From The ARRL Letter, Volume 12, No. 12, June 28, 1993.

WHAT'S GOING ON?

by Robin, WA3T

Here are some items of general interest from the June Executive Committee meeting...

Bill, K3ANS reviewed the status of the hamfest, and our good relationship with the township of Plainfield. Ray, W3TDF reviewed our arrangements with neighboring companies for contingent parking, and requested that copies of our insurance certificate be made available to those concerned.

Robin, WA3T read correspondence received from the MidAtlantic Amateur Radio Club concerning the "Ham-Show" the week following our hamfest. This commercial event has caused bad feelings in clubs over a wide area, because of the negative financial effect it will have on traditional club hamfests run by and for hams. The ARRL does not support this "HamShow".

(The promoters of the "HamShow" want it to be manned by volunteers from the local clubs. It's one thing to volunteer time for a club hamfest, to help keep the dues down. It's something else to be expected to give free time to a commercial profit-making organization!)

Clarence, W3PYF mentioned that Dick, WA3MDP, owner of the 147.045 machine, was open to the possibility of linking it to our 146.700 repeater. Chris, NU3L moved, and Ray, W3TDF seconded, that a meeting be held between WA3MDP, the DLARC Executive Committee and the DLARC Technical Committee to explore the possibilities. The motion passed. Clarence, W3PYF offered to arrange this meeting.

John, N3IGA moved and Ray seconded that the club buy two coolers for use at the upcoming Field Day and future outdoor events. The motion passed.

Chris, NU3L motioned and Ray, W3TDF seconded that a budget of $100 per year be assigned for purchase of instructional materials such as video tapes. (This budget is separate from the temporary funds required for the purchase of textbooks for resale at cost to students at our classes.) The motion carried... **de Robin, WA3T**

ABOUT REPEATERS

by Robin, WA3T, President DLARC



The DLARC is not a repeater club; we're a full service club designed to meet the needs of hams with a wide variety of interests.

At the same time, it must be recognized that our repeaters are an important social force; providing day by day contact between us - binding us together as a group. Our repeaters are crucial to the quality of our ongong life as a club.

As we grow, we have the resources to be able to more completely meet the needs of our members.

Many of our members, particularly those to the north, have difficulty reaching our 146.700 repeater, and cannot reach the 145.110 or 444.900 machines. They deserve better.

Several solutions have been proposed. Possibilities include remote receivers on 146.100, and linking to the 147.045 machine. Linking '70 to a northern machine would clearly meet the needs of our members in that area.

As a full service club, and particularly as an ARRL-designated Special Service Club, we also offer a range of services to the public, particularly emergency communication. Linkage to the north, where we presently have poor coverage, would reinforce and extend our emergency communication ability. This proposal therefore deserves very serious consideration even if it offered no other advantages.

There are similar factors at work on the 444.900 side of our main repeater. Many of our members do not have 440 capability. But on the other hand, many do, and the majority of our more recent members actively use 70cm. At the June meeting, at least half the members present indicated that they were equipped for 440.

Increasing the range of our 444.9 repeater, and making it capable of independent operation, would substantially increase the reliability of our ability to deliver emergency communications for our community, with continued full coverage during failure of one of our repeaters. At the same time, updating the 444.9 repeater would provide an additional service for our members.

We have the resources to make these improvements, and the need is there. Before September, there will be more discussions oon the subjects of upgrading the 444.900 repeater and linking the 146.700 repeater. At our September meeting, these issues will be brought formally before the club for decisions.

73 de Robin, WA3T

ATLANTIC DIVISION HAMFEST SCHEDULE

Month of August 1993

+ denotes ARRL Hamfest
+AUG 8 Mid-Atlantic ARC - Warrington, PA
+AUG 15 Delaware-Lehigh ARC - Easton, PA
+AUG 15 Delmarva - Georgetown, DE
AUG 21 Fingerlakes / Tompkins Co. ARC - Ithaca
AUG 28 PROS - NY
Hugh Turnbull, W3ABC, Director Atlantic Division ,Kay Craigie, WT3P, Vice Director Atlantic Division

JULY, 1993 VE SESSION

At the July VE session, 4 candidates took a total of 9 elements. There was one upgrade, and one new license...

Robert E. Milburn, KA3WJF upgraded to General
Chester J. Blaszcak new Advanced

VEs in attendance at this session were John, WX3C; Glade, WA3MVQ; Bill, NS3J; Jeff, AI7D; and Robin, WA3T.

The next session is on August 5th. Team 4 will be in attendance.

Members of Team 4 are Ed, W3APE; Bob, W3CCE; and Ray, W3TDF.

73 de Robin, WA3T, Team Liason Alternate.

Digital Communication

by Joel, K9TBD

PACKET - Frequently Asked Questions

The following are extracts from an Internet News server: details are in the credits. The complete text may be found on my TCP/IP station.

2.4.3 LAN Gateways (Packet wormholes via Internet)

Currently a group of amateurs are experimenting with connecting packet LANs together via Internet IP inside IP Encapsulation. Some of the gateways only accept TCP/IP packets, others AX.25 packets. These gateways uses the Internet as a transport medium, thus it is impossible to access the packet radio network from Internet. For more information, join the Gateways mailing list by sending mail to "gateways-request@uhm.ampr.org".

3.1 Are there any other protocols in use other than AX.25?

AX.25 is considered the defacto standard protocol for amateur radio use and is even recognized by many countries as a legal operation mode. However, there are other standards. TCP/IP is used in some areas for amateur radio. Also, some networking protocols use other packet formats than AX.25.
Often, special packet radio protocols are encapsulated within AX.25 packet frames. This is done to insure compliance with regulations requiring packet radio transmissions to be in the form of AX.25. However, details of AX.25 encapsulation rules vary from country to country.

3.2 What is TCP/IP?

TCP/IP stands for Transmission Control Protocol/Internet Protocol. This is commonly used over the Internet wired computer network. The TCP/IP suite contains different transmission facilities such as FTP (File Transfer Protocol), SMTP (Simple Mail Transport Protocol), Telnet (Remote terminal protocol), and NNTP (Net News Transfer Protocol)

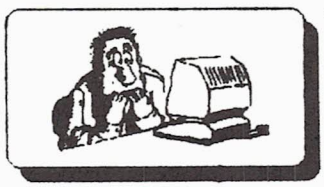
TCP/IP doesn't use all of the AX.25 protocol. Instead, it uses special AX.25 packets called Unnumbered Information (UI) packets and then puts its own special protocol (called IP) on top of AX.25. This is used to increase efficiency of its transmissions, since IP does not require packets to be "reliable", that is to say, guaranteed delivered error-free. TCP handles the retransmission of lost and garbled packets in its own way, at a higher level. Therefore the extra information in an AX.25 "VC" (virtual circuit) frame is not useful, and thus consuming needed bandwidth.

The KA9Q NOS program (also called NET) is the most commonly used version of TCP/IP in packet radio. NOS originally was written for the PC compatible. However, NOS has been ported to many different computers such as the Amiga, Macintosh, Unix, and others. Smaller computers like the Commodore 64 and the Timex-Sinclar do not currently have version of NOS available.

3.3 Networking Schemes

What are some of those other networking schemes?

During the early days of amateur packet radio, it became apparent that a packet network was needed. To this end, the following packet network schemes where created.



Digipeaters

The first networking scheme with packet radio was Digipeaters. Digipeaters would simply look at a packet, and if its call was in the digipeater field, would resend the packet. Digipeaters allow the extension of range of a transmitter by retransmitting any packets addressed to the digipeater.

This scheme worked well with only a few people on the radio channel. However, as packet became more popular, digipeaters soon were clogging up the airwaves with traffic being repeated over long distances. Also, if a packet got lost by one of the digipeaters, the originator station would have to retransmit the packet again, forcing every digipeater to transmit again and causing more congestion.

NET/ROM

NET/ROM was one of the first networking schemes to try to address the problems with digipeaters. A user connects to a NET/ROM station as if connecting to any other packet station. From there, he can issue commands to instruct the station to connect to another user locally or connect to another NET/ROM station. This connect, then connect again, means that to a user's TNC, you are connected to a local station only and its transmissions do not have to be digipeated over the entire network and risk loosing packets. This local connection proved to be more reliable.

NET/ROM is a commercial firmware (software put on a chip) program that is used as a replacement ROM in TAPR type TNC's. Other programs are available to emulate NET/ROM. Among them are TheNet, G8BPQ node switch, MSYS, and some versions of NET.

NET/ROM nodes, at regular intervals, transmit to other nodes their current list of known nodes. This is good because as new nodes come on-line, they are automatically integrated in the network. However, if band conditions such as ducting occur, ordinarily unreachable nodes can be entered into node lists. This causes the NET/ROM routing software to choose routes to distant nodes that are impossible. This problem requires users to develop a route to a distant node manually defining each hop instead of using the automatic routing feature.

ROSE

ROSE is another networking protocol derived from X.25. Each ROSE node has a static list of the nodes it can reach. For a user to use a ROSE switch, he issues a connect with the destination station and in the digipeater field places the call of the local rose switch and the distant rose switch the destination station can hear. Other then that, the network is completely transparent to the user.

ROSE's use of static routing tables ensures that ROSE nodes don't attempt to route packets through links that aren't reliably reachable, as NET/ROM nodes often do. However, ROSE suffers from the inability to automatically update its routing tables as new nodes come online. The operators must manually update the routing tables, which is why ROSE networks require more maintainance.

73 Joel. K9TBD

:credits: Reply-To: packet-faq@wattres.SJ.CA.US (Packet Radio FAQ Coordinators) The current version of packet-faq is available via anonymous FTP at ftp.cs.buffalo.edu.

Electrical Storms - What to do ?

by Bob, KW3W



Every year during the late spring and early summer, the sky lights up with lightning flashes and the sound of thunder can be heard in the distance. But what happens when the flash and the boom occur at the same time. Well usually some poor hams station is rocked by damage caused by MOTHER NATURES' form of ESD or sometimes called IMP. The latter is mostly thought of in conjunction with Nuclear Events, however, the fields generated during lightning storms can be very formidable. Now as a refresher, let's remember some basic physics. Any good conductor moving through, i.e.. cutting lines of flux in an electromagnetic field will have a current flow induced in the conductor. Similarly, a conductor which is within an electromagnetic field whose flux is changing, will also have a current flow induced in the conductor

What happens during an electrical storm, prior to lightning actually taking place is that a very strong electrical field builds until it cannot be sustained. At that point, the lightning occurs and the electrical field collapses. It is the near instantaneous collapse of that field, which causes currents to flow in conductors which are near and in the collapsing field. This same phenomenon causes what some may call ST. ELMOS FIRE on un-grounded radio towers.

Well now, what's this all leading up to you might ask. How about a list of sure fire common sense preventive measures that you can take to prevent popping the tops off the IC's in your equipment.

1. During the storm season, don't leave any equipment in your SHACK plugged into the wall outlets. A localized hit of the local power companies distribution system can follow right up the service lines to your expensive equipment. KU3X lost the finals in one of his amplifiers like this.

2. If you have a tower, DON'T connect your station ground to your tower ground rods. This would provide a DC path right to your station. I don't have to tell what would happen to your equipment, not to mention the part of the house where that equipment is if your tower took a hit.

3. Grounds, what constitutes a good ground ?

a. (2) 8 ft. copper clad or galvanized steel rods driven into the ground at the base of your tower and connected to the tower approx. 2 ft. above ground level. Driven in means completely, no more than 2 ins. exposed.

b. 2 or more, more is better, similar ground rods should be used for your station ground. The spacing between the rods should be 15 to 20 ft. One of them should be as close to the radio as is possible, a couple of feet would be great. Use a large diameter cable, 1/4 " copper tubing to connect the ground rods together and to connect the to your equipment grounds

c. **NEVER NEVER NEVER** connect the station ground to the cold water pipes in your house. I know that many hams use this practice, don't do it. The power,TV cable, and phone companies do this and that's OK for them, you don't want to connect any ground currents from your station directly to them. Interference comes from strange places, besides its a REALLY lousy ground anyway.

NOTE: The above short discussion about grounds is presented to clarify some common misconceptions, not to improve your protection from lighting damage. It is just good operating technique.

4. Now what should you do with that station ground during periods of non operating or the storm season, you guessed it, **DISCONNECT** it from your RIG and any other equipment normally connected to the station ground.

5. **DISCONNECT** all coax coming into the shack from your antennas, **BUT DON'T GROUND THEM**. Instead, short the center conductor to the shield and dress the coax as far away from the operating area as possible. A suitable method for shorting your coax can be accomplished by using a PL 259 chassis connector, and shorting the center terminal to the connector body.

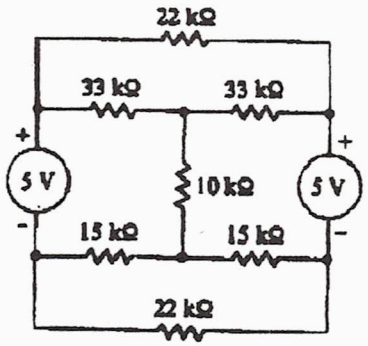
6. Lastly, disconnect any and all control cables such as those coming from the rotator for your beam if you have one. There have been cases where during a tower hit, the currents have followed down the control cable, blown out the controller and fried other equipment plugged into the same outlet or power strip with the controller. Just ask K3NZ.

I hope that these suggestions will help keep you on the air during the up coming storm season instead of crying in your beer. I have used these practices for many years successfully. Remember MURPHY'S LAW, "If it can happen it will", and convers ly, if it can't it won't. Prevention and good common sense will save a lot of valuable equipment.

de 'Gunke' KW3W.

ANOTHER BRAIN TEASER

from Paul, KA3MTY



Determine the current through the 10K ohm resistor.
Answer next month...

The Travel Log

from N2ESQ:

Hello my fellow hams. I hope everyone is having a good summer so far. Summer seems to be a bad time for hams with all the honey-do jobs that have to be done around the house. I, may have a suggestion for the summer time blues!

There are a lot of things a ham can do in the summer but to no avail there is always something that seems to get in the way. Here's one for the record why don't we all get together and go on a charter boat fishing trip?

Now you may say that you don't fish. Well, I, never said we would use a pole and bait! We could go on a sort of dx fishing trip in a boat! Where would we get a boat to do this in you ask? Well just so happens that there are two ways to do it.

The first is that we use my friends 45 foot shrimp trawler at Barnegat Light New Jersey, or there are special event charters available to us, yes us, from the Circle Line Cruise co. of N.Y.N.Y. .Well you will have to tell me what you think and get back to me on packet or by phone. If you have any fun travel and short get away ideas please feel free to join in the party thanks and happy hamming.

from N2ESQ, Tim

NOVICE EXAMS COME UNDER VEC SYSTEM

The FCC has announced that effective July 1, 1993, all Novice testing comes under the VEC system. The old two-examiner system must not be used after June 30! Generals are now permitted to become VEs and will be allowed to give Technician tests (with or without code), as well as Novice exams. All Generals are cordially invited to become ARRL VEs. For information, contact ARRL/VEC.

LETTERS TO WASHINGTON NEEDED NOW

Thanks to efforts by the League, resolutions supporting Amateur Radio have been introduced in both Houses of Congress. S.J. Res. 90 and identically-worded H.J. Res. 199 declare that "reasonable accommodation should be made for the effective operation of amateur radio from residences, private vehicles and public areas, and that regulation at all levels of government should facilitate and encourage amateur radio operation as a public benefit."

CHECK YOU LICENSES!

Amateur licenses begin to expire again in late 1993, when the first ten-year tickets reach their time limits. Because our licenses last so long, it is easy to forget when they expire. We all need to get back in the habit of checking the date once in a while.

FOR SALE

Hustler Model G6-144 two meter vertical antenna. $45. 00. If interested, please call me, Barry, KU3X at 215 691-8888.. Do not call after 9 PM.

IC-W21AT ICOM 2M/440HT
IC-CP 13 ICOM PLUG AND FILTER IC-W2A/2
IC-CP 132 ICOM 12V 600 MA BATTERY ICW21AT
Asking $525.00 for the package. In excellent condition. de Dick , KA3MOU Please call 215 837-1585



All Amateur Radio Operators are invited to
Participate to the DLARC. RACES & ARES nets
on 146.70 W3OK/RPT with an alternate of 145.11
The Nets are held on Sundays at 9:30 AM and Wednesdays at 7:00PM

DLARC INFORMATION LINE 820-9110

The W3OK CORRAL is published monthly and is the Official Publication of the Delaware-Lehigh Amateur Radio Club Inc.

1992-1993
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CLUB MEETINGS

All regular meetings of the D.L.A.R.C. are held on the first Thursday of each month at 7:30 PM at Northampton County Community College
TALK IN ON 146.70

Any comments or articles contributed to this newsletter should be addressed to Clarence Snyder, W3PYF, Editor..717 Porter Street, Easton, PA 18042

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