The Official Publication of the Greensboro Amateur Radio Association

Feed Line

Volume 14, No 8 | Web Site: www.w4gso.org | August, 2005

Editor: Tom Forrest, N4GVK | E-mail: info@w4gso.org

Paul Shepherd, WA4LGX, Dies in Accident

By Tom Forrest, N4GVK
Feed Line Editor

Paul Shepherd, WA4LGX, GARA member, became a slient key Tuesday, August 2 after an accident at his home in Julian.

Paul Shepherd, WA4LGX

According to reports, Paul was installing an antenna when he apparently lost his balance on a metal ladder, falling. The antenna he was holding came in contact with a high voltage wire. He was reported to have died instantly. He was 60.

The visitation line at the Loflin Funeral Home in Liberty, stretched almost around the building Saturday night August 6. Paul was well-liked in the community and very active in many civic groups, including GARA where he served at the circulation manager for the club's news letter, *"Feed Line."* A law enforcement Honor Guard stood near the casket during the visitation. Photos of Paul and memorbilia of his career were scattered about the room.

Paul attended Nathaniel Greene School, graduated from Southeast High School, was a sergeant in the U.S. Air Force during the Vietnam War, and retired from the Liberty Police Department, where he served as police chief.

He was currently employed at the Julian Post Office and Ray's Auction, a member of Mt. Hope UCC. and a member of the American Legion Post 81. He was also very active in the Julian Fire Department.

He is survived by his wife, Helen Coble Shepherd; sons, Tony and wife Tina Shepherd, Randy and wife Trisha Shepherd, all of Julian; brother the Rev. Banks Shepherd and wife Eulene of Lexington; sisters, Frances Matkins and husband Harlin of Springfield, Va., Betty J. Clary and husband Glenn of Wendell; several nieces and nephews, and four grandchildren.

Memorials may be made to Julian Volunteer Fire Department, 7517 Old Second St., Julian, NC 27283 and Boy Scout Troop 301, c/o Coble Lutheran Church, 5200 Coble Church Road, Julian, NC 27283.

Our thoughts and prayers are with the Shepherd family during this tragic time.

Engineering Report

By Arch, KT4AT,
Engineering Chairman

Phelps-Dodge duplexer: Exploration of the intermodulation distortion problem on the VHF Phelps-Dodge duplexer has been completed. The four specialty filters required to do the measurements were built and tuned. Extensive testing of the six cavities, and duplexer assembly took place. The measurement setup works extremely well, and it became a breeze to identify the root causes of the intermod mix, which come from two different sources:

1)- There is mixing occurring in the metal frame assembly holding the cavities. This is due to external surface RF currents leaking from the cavities, and flowing and mixing somewhere in the metal frame (many screws and metal to metal joints give mixing opportunities). This is best demonstrated by running the duplexer just with the cavities, without the frame assembly: the mixes go down by 20 to 30 dB. This is a problem which had been seen before on a different brand of duplexers: Wacom. In those, the mixing took place between the hose clamps squeezing the cavities and the cavities themselves, through the paint. The fix for those was to insert an adhesive and insulating mylar film between hose clamp and cavity. On the Phelps-Dodge, the cavities are assembled on non-removable corner metal plates. We will use reinforced nylon hardware instead of simple screws, very much like a power transistor is held and isolated from a heatsink.

2)- The SO-239 socket connectors: Those are 28 years old, and the center receptacle is no longer acting as a spring. This results in a loose center pin contact with the mating PL-259. This can be demonstrated by pushing on those connections: the mix goes up and down. Also, two sockets on the TX side presented evidence of arcing on the center receptacle. We will replace all those sockets (and the jumpers) by brand new N type ones. This is a lot of work, but is worth it, as it will keep that duplexer operational for longer (and save the Club $1500 for a new one).

3)- The center resonator fingerstock slide contact, which is inaccessible inside the welded cavity, does NOT seem to be involved. Turning the tuning rod has zero effect on the mix, on

Please turn to page 2

Engineering Report
From page 1

all cavities. Nevertheless, we will "flip" the duplexer tuning, that is RX cavities will become TX ones, and vice-versa. This will result in a new resting place for the fingerstock, which may be cleaner than the old one. We will also spray clean that fingerstock from the outside by drilling a small hole in the tuning well, and use a capillary to spray the inside of the resonator. We will use one of the best cleaning spray on the market, known as G3 from Techspray in TX. This thing is a simple mix of transdichloroethylene pentafluoropropane tetrafluoroethane in suspension in a solution of ethyl hydroxy propionate and carbon dioxide (HiHi). It applies as a pressure spray, cleans well, completely sublimates with no residue left behind. It does not attack the ozone layer, and therefore is available without license. It is not cheap though, $18 a small can. But, neat stuff...

VHF Reverse Patch: A unanimous decision has been made during the Board Meeting on August 8th to stop providing the reverse patch function on 145.15. It applies only to the reverse patch, and of course the outgoing autopatch and autodial are unaffected and continue to be available. This is motivated by the following reasons:

1)- This function is borderline legal. Although an incoming telephone call is submitted first to over-the-air paging, nevertheless this incoming call, potentially placed by an unlicensed individual may cause an amateur machine to transmit. This is in violation of the "control operator at all times" requirements of Part 97.

2)- The same phone line and phone number is shared with controller programming over the telephone. Although protected by password, there are obvious security issues there, as extensive calls can occur in the background without anybody knowing. There is also no way to track those calls which are placed on telephones with caller ID disabled.

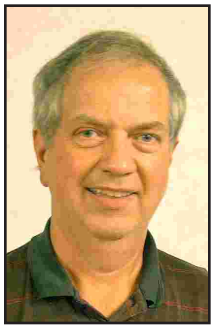
3)- This function, which was originally designed to permit access to the machine to out-of-town Club Members has become obsolete. Cell phones are more flexible and more private. We should focus on new modes of access like Echolink, or IRLP which provide better functionality, better screening and security of incoming traffic, without the cost of a long-distance telephone call, without tying the machine telephone port, and with no access or conflict with controller remote programming.

4)- Furthermore, the autopatch is not used much, but still fulfills a need, both for casual calls and 911 emergencies. The reverse patch function has been used even less: there has been NO observed instance of usage of this function for the past 3 to 4 years.

From now on, the telephone number of the VHF controller will be made known only to Trustee and Control Operators for machine control and programming only.

UHF machine: UHF Machine 1 continues to perform well. Thanks to KI4BMS and KG4HOM, and N4BYU contacts, the cabinet from Guilford College has arrived safely at the repeater site. Assembly of the two UHF machines in this cabinet can proceed.

Member of the Month Roger Stout, N4RWS



Roger Stout, N4RWS

GARA member Roger Stout, N4RWS, is a regional native from Ramseur over in Randolph County. He first became licensed in 1991 with the call KC4YLQ. Licensed for 14 years, his interest in Ham radio actually started in his student days at Randolph Technical Institute back in the mid 60's, when a classmate involved in the hobby introduced him to some Hammerlund and Hallicrafters gear.

Roger's main rig is a Yaesu FT-847 he uses for HF and satellite work. He also enjoys an old Icom 260 multimode 2-meter rig paired with a homemade 75-watt amplifier, and Icom 706 and some Alinco VHF/UHF rigs. While his present HF antenna is a Carolina Windom, Roger really enjoys experimenting with homemade antennas. A lot of his VHF/UHF contacts are made using his own antennas.

As a Ham, Roger says he gets his best pleasure out of building, or "tinkering" as he calls it. He's entered several of his projects in the homebrew contest at the Raleigh Hamfest over the past 8 years, and he usually manages to win enough of a prize to cover his expenses for the day. His Ham interests include DXing, WAS, APRS, Skywarn, MARS and ARES. He also enjoys the various programs presented at the GARA meetings.

After graduating from Randolph Tech, Roger spent 9 years with Bell Telephone Laboratories in Whippany, NJ, gradually migrating south with that company, and eventually settling in Greensboro. He has 29-years-and-counting at Gilbarco, where recently, he has been working with RFID technology for the gas pump business, developing antennas for the 900 MHz, 13 MHz and 134 KHz frequency ranges, that are small enough to fit in small, predefined spaces. Roger says, "I feel blessed that I have a job where I can actually get paid for doing what I enjoy as a hobby!"

Continued on Page 5

GARA Meeting Minutes

REGULAR MEETING
July 25, 2005

The regular monthly meeting of the Greensboro Amateur Radio Association was held at the Golden Corral Restaurant Monday evening July 25 at 7:15 PM with 26 members present and two visitors. The two visitors were Rudy Langley, KG4HCT and Bill Glaze, KI4JQW.

The meeting was called to order by Vice-President John Doggett, KI4BMS, President Lee Wimbs,W1MBS was not present. The minutes of the previous meeting were approved as printed in the "Feed Line."

There was no old business reported. Committee reports were presented. Vice-President Doggett reminded everyone once again about the picnic September 17 and make plans for the Mt. Mitchell trip in October 8th.

Treasurer Ernie Wall, NC4EW, reported all was fine. Al Allred, K4ZKQ, reported on the financial status, saying all was OK. Secretary Tom Forrest, N4GVK, reported that a new section had been designed for the web site: "Would you like to be a Ham?" This is a special page for potential hams providing study information and testing schedules.

Engineering Committee report was given by Arch, KT4AT. Arch said work was continuing on the duplexers and he had parts ordered. He stated the intermod was possibly coming from the way the duplexers were attached to the frame. He was going to isolate them and hopefully this would cure some of the intermod. Since they are old, the connectors would be replaced. He said he was still testing his newly designed filters and they were working great. He added, we are still getting some "kerchunking" from an unknown source on the repeater. This was being tracked as to the source as it was possibly deliberate interference. Arch also asked the club to think about what features we wanted to add to the 440 repeater system, possibly EchoLink.

Operations Chairman and Repeater Trustee Roy Smith, N4BYU, had no report. Allen Bradley, KD4IUN, said he needed operators for soccer tournaments on September 3-4 and November 19-20. If interested, you can e-mail Allen at kd4iun@arrl.net. The Triad Highland Games August 19-20 at Bryan Park will need radio operators. Contact Jon at ke4iam@bellsouth.net if you can help. Net control operators were needed for the Sunday night News Net on the 15 repeater. See Roy Smith, N4BYU, if you're interested.

The program for the evening was given by Dub Bridges, KG4UFB, of the North Carolina Highway Patrol, Technical Services Department, on the new VIPER (Voice Interoperability Plan for Emergency Responders). Dub explained that after the events of September 11th, the National Task Force on Interoperability defined interoperability as...the ability of public safety agencies to talk to one another via radio communication systems. He said the new VIPER 800 Mhz system would enhance the communications across the state allowing agencies to communicate with one another, no matter where they were in North Carolina. Dub explained that the new VIPER system is similar to cell phones, but with more coverage and reliability. He made a demonstration with his hand-held and talked with a department in eastern North Carolina. After the talk a brief question/answer session was held.

There being no further business the meeting was closed at 8:20 pm

Respectfully submitted by Tom Forrest, N4GVK, Secretary

BOARD MEETING
August 8, 2005

The regular monthly board meeting of the Greensboro Amateur Radio Association was Monday evening, August 8, 2005, at 7:30 PM.

Those present were Lee Wimbs, W1MBS, president; John Doggett, KI4BMS, vice president; Tom Forrest, N4GVK, secretary; Ernie Wall, NC4EW, treasurer; Al Allred, K4ZKQ, financial; Arch, KT4AT, engineering chairman; Roy Smith, N4BYU, operations chairman/repeater trustee; and Clark Doggett, member-at-large. Not present was Mark Robertson, KG4STP, member-at-large.

Officer reports:

President Lee Wimbs, W1MBS, welcomed the members to the meeting, noting the loss of Paul shepherd, WA4LGX.

Vice President John Doggett, KI4BMS, stated he had only a very few club members respond to the club picnic for September 17. Need more to determine amount of food needed. Will try and publicize it on the web and the news letter.

Operations Chairman Roy Smith, N4BYU, had no report

Member at Large, Clark Doggett, reported the cabinet had been retrieved from the old Guilford College site and delivered to Arch for the installation of both UHF repeaters.

Secretary Tom Forrest, N4GVK reported Roy, N4BYU would be taking Paul Shepherd's place for the mailing of the news letter for now. Tom made a motion that the news letter be e-mailed via PDF file to those who have said they would like to receive it by electronic means. Those still requesting a "hard copy" would continue to have one mailed. This will cut down on postage and printing cost for the Feed Line. Clark second on the motion. No discussion, motion carried. Roy smith will handle the e-mail list for now. Tom also said he was having good results from a new link on the web site for "would-be-hams" There have been e-mails requesting information. Tom also said there was one secretarial correspondence for the month.

Financial Chairman, Al Alred, K4ZKQ reported all was fine in the overall plan. Al questioned the board about an amount of money that was approved for engineering some time ago. The amount

from Lee Wimbs, W1MBS, GARA President

A Note from the President

Lee, W1MBS

Look, Think& Plan

In the television industry, we use ENG trucks for reporting local news. An ENG, electronic news gathering vehicle, has a system that raises a mast high in the air to provide the required height for a transmitted signal to reach the broadcast receive site. This is accomplished by an air compressor raising a hydraulic mast up to 75 feet in the air. The height of the mast and antenna system varies from vehicle to vehicle.

One of the first items the photographer and reporter will do is to pick the location for the vehicle. An item to consider is a clear signal path to the receive antenna. Another item is how close the vehicle is located to the story that is being reported. But the most important item in locating an ENG vehicle is what is above the transmitting mast. Is this vehicle parked under a power line?

A few months ago, at our sister television station in Atlanta, WXIA, a photographer was raising the mast on his ENG vehicle and it came in contact with a high tension line. He had parked directly below the power line. Neither he nor the reporter were injured when the antenna came in contact with the line, but the truck was totally destroyed.

When a new photographer is hired at WFMY one of the processes in training is to watch a video tape on what has happened to reporters, photographers, and their equipment when contact is made to a power line. To watch an event on tape has a greater impact that can be put into words.

We, WFMY, have a system installed on our trucks that detects the presence of an electrical field. This unit is mounted on top of the mast, and will sound an alarm when it enters an electrical field such as one radiated by a local power line. Each vehicle is equipped with spot lights to assist the operator at night when raising an antenna.

Our operators are all trained to look first at what is above their vehicle. They know that the device installed, a D-TECH, should alert when there is a danger from electrical power above their antenna. But do we all put total faith in our equipment? How many of us throw away the warranty card the moment we make a purchase because our equipment will never fail? Do we still kerchunk our handhelds just to make sure they work?

Being a ham each one of us has been involved with either electrical wiring or putting up an antenna. And I have to admit there were a few occasions I did not follow all the known guide lines during this process. OSHA regulations require a minimum clearance of ten feet from all overhead power lines. How many of us carry a copy of OSHA electrical safety requirements 29 C.F.R., part 10, with us while we do our electrical modifications?

What happened to Paul Shepherd, WA4LGX, should not have happened. Each one of us should realize it only takes one brief moment to have a serious accident. The next time you are working around an electrical circuit, plan what you are going to do. Re-think what you are doing. And then do it carefully. When you are on a ladder, or on a side of a tower, think about what you are doing. Plan each step. And any height when there is potential voltage makes the working conditions an even greater hazard. Use caution.

...Board Meeting from page 3

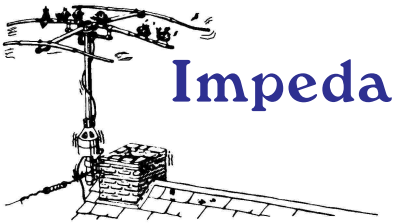
of $3,000 was approved in approximately 2002 for upgrade. The money line had been consumed and we possibly needed to act for additional funds. A motion was made by Roy to allot $2,200 to the engineering committee, to help complete the installation of the UHF repeaters and upgrades to the VHF duplexer. Al seconded the motion, No discussion, motion carried.

Treasurer Ernie Wall, NC4EW reported we were not doing to badly for the year so far.

Engineering Chairman Arch, KT4AT, said he was working on the duplexer and had received parts for make the overhaul and should be completed shortly. He was working on the UHF repeaters installing them in the six foot cabinet. Arch presented the board with an invoice for parts on the work he had done so far on the audio boards and connector conversion. Arch made a motion that the reverse auto patch be removed from the user function list. Since it has not been used in many months, it raises legal issues as to its use. He stated that it could be a control operator's nightmare. After some discussion, the motion seconded by Roy. Motion carried. Additionally Arch made a motion to ask the board to change the phone number of the repeater for security purposes. Second by Al. After discussion, it was said it could be changed if it did not exceed $40. Motion carried. Roy will look into this. Arch said he was also finishing up his pre-amp design for VHF. He also noted there was still a lot of kerchunking on the repeaters and that this appeared to be intentional interference. It was also on the 145.25 repeater and also on the club's 442.875 repeater. He also had heard it on other repeaters in the area. Most of the repeater use a tone. Arch also concluded with a motion to make a donation of $100 to Amateur Radio News Line for the Sunday night news feed. Roy seconded. Motion carried. Enhancement for the UHF repeater were also discussed. No action was take on this item.

President Wimbs made a final comment about possibly having a program on electrical safety sometime in the future. John will look into this.

There being no further business, a motion was made to adjourn the meeting at 8:35 pm



Impedance One of the Most Confusing

By Vito Chiarappa (W6TH)
Via EHam

There are many tricks to the ham radio game you can play with and this is one you can try and grin with excitement.

I have a vertical antenna designed for the 20-meter band; 16.6 feet height, with just 12 radials, not buried, same length of 16.6 feet, but placed upon the ground. I use this antenna on the following bands: 20, 17, 15, 12 and the 10-meter bands with just one single coax line.

All that is needed is a matchbox to match the impedance from your transmitter to the impedance of the antenna. The one I use is the MFJ 941B for less than 100 watts. For higher power I use my MFJ 962 or my MFJ 961, which is modified for 3 KW

Should you want to go for the lower bands as well, make your vertical at 25 feet and you will be able to work the 80 through the 10-meter bands with the same 20-meter length radials.

Now for the tuning of such for each band:

You must place the matchbox at the base of the antenna, therefore; you will not need to have the matchbox indoors, as the coax will run from your transmitter to the matchbox outdoors.

You will have to run your transmitter with a series of dots at 5 or so watts and then run out doors and match the antenna for the lowest VSWR, or use the AM at lower power to do the same.

Make note of the numerals on the matchbox for each band and the capacitor settings, which will be used for future band changing. If you decide to leave the matchbox outdoors permanently, then build a waterproof box and place the matchbox within.

This set up will compete with Butternut and Cushcraft at much less cost. It has been tried and proven to work by yours truly, but at times I have to let my secrets out of the bag.

3rd Amateur Radio station to be installed on the ISS

The Europe Space Agency has given the go-ahead to put an Amateur Radio station on board the Columbus module. This is the International Space Station research lab presently under construction.

The Columbus module will be located a considerable distance from the other two ARISS stations, allowing for parallel operations on the new bands at the same time as existing operations.

The availability of the new frequencies will permit wide band modes and video operation for the first time. This includes ATV facilities for school contacts and, additionally, continuous transponder operation. Antennas for UHF, L-band and S-band are being developed to permit ARISS operations on these bands. The new ARISS antennas will be installed this fall. The European Space Agency has agreed to cover the entire cost of installation of the station, but some funds do need to be raised to cover the cost of development and manufacture of the antennas. Details can be found at www.ariss-eu.org/columbus.htm
— GB2RS, Newsline

Scott Redd, KØDQ, to head National Counter-Terrorism Center

John S. Redd, KØDQ, of Kennesaw, Georgia has been tapped by the White House to direct the nation's new National Counter-Terrorism Center. Known as Scott Redd on the Ham bands, KØDQ is a retired Navy career officer and a former commander of U.S. Naval Forces in the Middle East. A well-known contester and DXer, Redd was honored by the ARRL two years ago at a reception in Dayton, Ohio, for his years of service in protecting the nation.
— LYRA, Newsline

Ham Happenings
NEWS briefs

Lannie Pridemore, K4DHW, SK

Our prayers and sympathy go out to the family of Lannie Pridemore, K4DHW, who became a silent key on August 2. Lannie, 85, of Berryman Street, Greensboro, passed away at Moses Cone Hospital after being in declining health for two years.

Mark Robertson. KG4STP, OOPS!

Mark Robertson, KG4STP, is at home recovering from a fall in which he broke both arms. Mark says he was working on wiring at a job site, on a very hot July afternoon and apparently was overcome by heat, falling off the ladder. He can still use the push-to-talk button, so give him a call!

....Meet the Member from page 2

Roger's wife of 24 years is Jo-An, who is licensed as a general class operator, KD4VGP. The two of them have dual memberships, both in GARA and in the Randolph ARC. They both enjoy the many friendships they've made through the hobby.

GARA Picnic, Slated for Sept. 17

A great evening of fun and fellowship is planned for september 17. the picnic will b eheld at the Doggett farm near Summerfield. Please e-mail John, KI4BMS and let him know how many will be in your party. This a free event.
ki4bms@arrl.net

Area Activities

FOURTH MONDAY – at 6:30 PM, the **Greensboro Amateur Radio Association** has their regular monthly meeting at the Golden Corral on Landview Dr., off W. Wendover Ave. Please plan to gather at 6:30 PM for dinner. The meeting is scheduled to start at 7:15 PM

CLUB NETS:

SUNDAYS – weekly at 9 PM, the **GARA News and Information Net.** This net features NewsLine and is on the 145.150, W4GSO repeater. Roy Smith, N4BYU is always looking for net controls. Contact him if you would like to help.

THURSDAYS – The **Guilford County ARES Net** meets on the 145.150 repeater (100 Hz. tone) at 9 PM.

TUESDAYS – at 8 PM, the **2 Meter SSB Net** meets on 144.225 Mhz. USB. Chris Thompson, K4HC is the net control station.

WEDNESDAYS – **The Guilford Amateur Society** holds their weekly net on the 145.250, W4GG repeater with an 88.5 Hz. tone. Jim Hightower, W4JLH is the net control.

TUESDAYS – at 8:30 PM **The Triad SkyWarn Net** meets on the 147.225, K4ITL repeater, no tone required.

OTHER ACTIVITIES :

FIRST MONDAY – **The Guilford County A.R.E.S.** monthly meeting is held at 1002 Meadowood St. off W. Wendover Ave, in the EMS building, beginning at 7 PM.

THIRD MONDAY – at 6 PM **The Guilford Amateur Society** holds their monthly meeting at the Golden Corral on Landview Dr., off W. Wendover Ave. Dinner at 6:30 PM and the business meeting is slated to begin and 7 PM.

SATURDAYS – at the K&W Cafeteria on Big Tree Way, hams get together for **Saturday Breakfast** at 7:30 AM. Talk-in is on the 145.150, W4GSO repeater, with 100 Hz. tone.

MONDAYS & FRIDAYS – at 11 AM, Greensboro Hams get together for lunch. On Monday they meet at various locations and on Friday lunch is at the K&W Cafeteria off South Holden Road. Talk-in is on the 145. 150, W4GSO repeater with a 100 Hz. tone. On Mondays, give a call to see where everyone is meeting.

EVERY FRIDAY – at 8 PM (approximately) Greensboro Hams get together for coffee at Starbucks on Battleground Ave. (summer location till Daylight Savings time changes)

Greensboro Amateur Radio Association
P.O. Box 7054
Greensboro, NC 27417

Web:
www.w4gso.org

FIRST CLASS MAIL