AARC OVER

Bulletin of Austin Amateur Radio Clubs

Austin Amateur Radio Club

Austin Amateur Television Club

Austin Repeater Organization

April 1993

ISSN 1067-0262

Club Meetings

Austin Repeater Organization

meets on Tuesday, April 6, 7:30 to 8:30 PM, at Luby's Cafeteria on North Loop, one block west of Burnet Rd. Everyone is encouraged to come early and have supper together.

Austin Amateur Radio Club

will meet on Tuesday, April 13, 7:30 to 8:30 PM, at Luby's on North Loop. Program:

Austin Amateur Television Club

meets on Tuesday, April 20, 1993, 7:30 to 8:30 PM, at Luby's.

Austin QCWA

will meet on Saturday, April 17, 1993, at 11:30 AM, at Wyatts Cafeteria. Wyatts is located at Hancock Center.

Update: Florida Hams Ordered to Remove Tower...

David K. (WA4NST) and Sharon T. (N4XLF) Brower recently lost a two-year legal battle over their 68-foot antenna tower. In his final judgement for the plaintiffs (7 households), Judge Charles E. Smith for the 19th Judicial Circuit in and for Indian River county, FL, found the radio transmissions to be a noxious and offensive activity, and the appearance of the tower and antennas an annoyance and nuisance to the neighborhood. "This large, tall tower and antenna sticks out like an eyesore to this subdivision and neighborhood." Smith also ruled that the tower is a "building" which exceeds the two-story building limit in the deed restrictions, although the deed restrictions are silent about antenna support structures.

Pending appeal, the Bowers have been enjoined from making ANY radio transmissions from their home!!!

Their is a fear that if the Bowers' appeal is unsuccessful, it will set a dangerous precedent for any ham whose neighbors don't like the way their antennas look and complain about interference to consumer electronics. Like the Browers, the hams could be ordered to remove

(Cont'd on Pg. 14)

MONITOR
AUSTIN REPEATER ORGANIZATION

PO Box 4763, Austin, Texas 78765

Operator of Voice Repeaters on 146.28/88Mhz., 146.34/94Mhz., 223.20/224.80 Mhz. and 449.1/444.1Mhz.
Packet Digital Repeater 145.01Mhz.
Sponsor of Central Texas Weather Net, ARO Transmitter Hunt and Swapnet

Notes for QRP Kit Builder's Class

By
Gene Preston, K5GP

Bruce, WA6IVC, has a terrific little QRP rig he calls the Super Simple Rx/Tx. My daughters and I put the 40 Meter transceiver together recently in the kit building class organized by Mike, KB5RBW. The receiver worked very well, and so did the transmitter; however, they didn't work as well together as I wanted them to. The transmitter overloaded the receiver and was too loud to comfortably listen to. The receiver frequency shifted on transmit by about one kiloHertz, so it was not possible to tell when a station being received was on the 7040 kHz transmitter frequency. Also, I wanted to be able to sniff the XTAL frequency and zero beat another station that might be calling CQ. Over the past month these problems have been resolved, and other features have been added. I thought everyone might be interested in the details of these enhancements which are described below.

1. Transmitter frequency shift is best accomplished with capacitance, inductance, and XTAL in series. The XTAL frequency will drop about 1 kHz for each 1.5 microhenries of series inductance added. You can

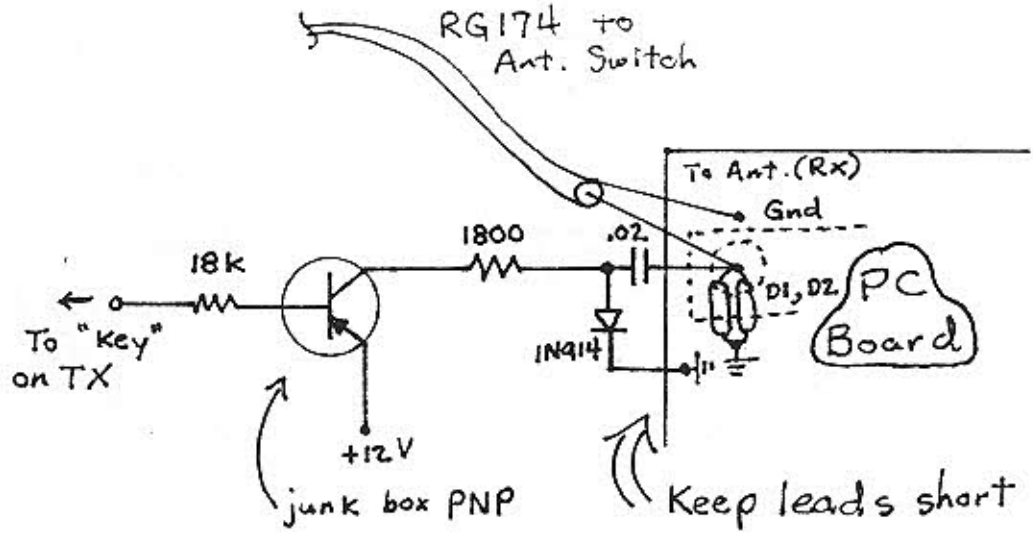
use a fixed inductance or a slug tuned coil. After the frequency is pulled down about 4 kHz, the oscillator will get too soft to go further. A series capacitance will shift the frequency up. You can pull the oscillator frequency up a maximum of about 3 kHz by using a small variable capacitor of approximately 50 to 100 pf maximum in series with the XTAL. I put a six position rotorary switch from Radio Shack on my rig, and use 3 XTAL's plus a variable capacitor and a slug tuned coil to get a total frequency range of about 18 kHz.

2. The frequency shift of the receiver on transmit was greatly reduced by adding a fifth grounding stud in the middle of the board. The stud should contact the ground part of the foil between the output RF power transistor and the 455kHz local oscillator, U3 and T4. Be sure not to short out anything with the new stud. I also had to build some shielding over the receiver section and over the variable tuning capacitor. All this together reduced the frequency shift to about 100 Hz total. You can tell if the receiver is shifting frequency on transmit by listening to the local oscillator frequencies of 455 kHz and 7495 kHz on another receiver. You may have to put this other receiver antenna close to the Super Simple rig in order to hear these oscillators. Key the transmitter on and off while listening to each, to see if either frequency shifts. If either does, then you need to make changes to remove this shift. I found the 455 kHz oscillator shift to be the biggest problem.

3. The transmitter output power can be increased by 50% by using 12 turns on L1 instead of 14 and increasing C8 from 470 pf to 535 pf. I tacked on some extra capacitors across C8 under the board to get close to the 535 pf. My Bird wattmeter indicates the output power went from 2 watts to 3 watts at 12 volts. In the car, the output increased to 5 watts. This modification may cause instability. I've noticed that a really bad SWR allows the whole tranmitter to oscillate

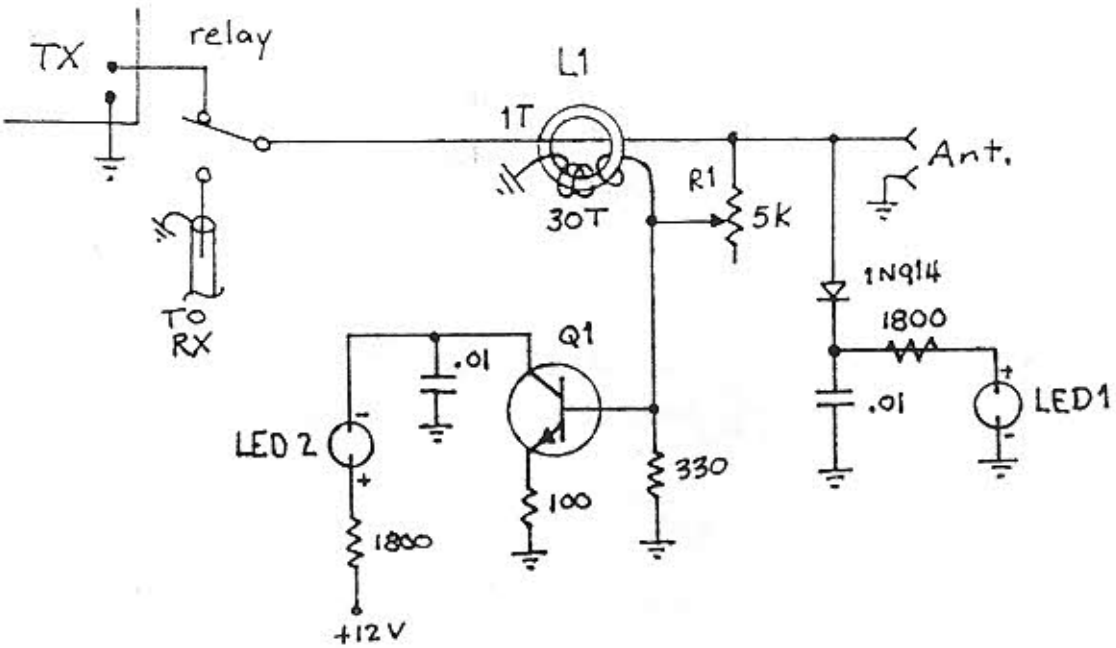
Note that the transmitter +12 v is left on all the time. The small time delays Bruce has designed into the keying circuit allow the antenna contacts to be closed before the transmitter turns on. The diode across the relay also keeps the relay closed until after the transmitter quits transmitting when the key is opened. Full QSK is a really nice feature not usually found on more expensive rigs. I think Bruce has a new completely solid state way of getting QSK. Maybe he can tell us how it works.

6. The output volume of the transmitter (when listening on the receiver) is reduced by using the "mute" circuit on the transceiver board, by additional shielding as described in #2, and by adding a new circuit to short out the RF signal right at the receiver antenna terminals on the PC board. The circuit is shown in the figure below.



The 1800 ohm resistor can be decreased or increased to reduce or increase the volume of the received transmitted signal. If you use a lower resistance, more current will flow through the 1N914 diode, which will further reduce the AC resistance of the diode. The 1N914 diode and .02 (or greater) capacitor must be mounted right at the antenna terminals on the PC board to be effective.

7. I have put an SWR meter in my rig so I don't need to carry around a separate meter. Two small 10 mA LED's from Radio Shack are mounted on the front panel. LED 1 is used to observe FR voltage being present. LED 2 indicates SWR. When the SWR is below 1.3 to 1, LED 2 is not lit. Above 2 to 1, it is fully lit. L 1 uses the same type of RED toroid supplied by Bruce in the Tx kit. he sells extras at $1 apiece plus postage. The schematic is shown below.



R1 is adjusted (calibrated) to provide a "null" when a 50 ohm dummy load is present (LED 2 goes off). Q1 is a high frequency NPN silicon transistor such as a 2N2222. L1, R1, Q1, the 1N914, etc., should all be located near the antenna connector. Only the LED leads should be run to the front panel. All of this circuitry will use about 1/4 watt of RF power. but it's worth it to be able to tune a transmatch quickly looking at LED 2 and to see RF power going out at all times by seeing LED 1 lit.

8. For a 12 volt power supply in the house, I am using a PS70 power supply from ICOM. It supplies 2 amperes current at 12 volts. Amateur Supply in Cameron Village has them for $20.

My experience with this little rig has been delightful. For QSO's in Texas during daylight hours, RST's of 589 and 599 are normal. My best DX to date is Cuba, Hawaii, and Japan; All on 40 M CW running 3 watts! Call me at 892-3621 if you would like help with your rig. Bruce can be reached at (512) 237-3906.
73 and best QRPing to you.
de. K5GP

Minutes of the Austin Repeater Organization Meeting March 2, 1993

The meeting was called to order by Vice President Jeff Schmidt (N5MNW) at 7:32 pm at Luby's North Loop Cafeteria. There were 72 people in attendance.
Guests and visitors were introduced.
The minutes as published in the March 1993 "Bulletin of Austin Amateur Radio Clubs"(AARC\OVER)/(ARO MONITOR) were approved as written.

The Treasurer, Tenia Kinney (KA5TXK), reported a checking account balance of $6,445.98.
The engineers reported all equipment was operating o.k., except the digipeter.
Activities Report and Announcements included:

Manchaca Swapfest, April 10. Steve Sparks (KB5RSY) called for volunteers to contact him.
Skywarn U93; at 3-M on March 6.
Capitol 10K footrace. Paul Kitching (KB5UXX) requested volunteers to contact him.
Charlie Eichenbaum (WB5HOI) announced that he had a pickup load of antennas in the parking lot available on a first come basis.
General Class License Course to start April 17. Tom Rhorer (AB5FH) is the coordinator.
Illegal use of repeaters has been detected and is being investigated. Everyone was urged to give their call sign whenever using the autopatches.
Interested members were asked to add their names to the Elmer list maintained by Keith Watson (WB9KHL).

Hams who were first licensed 25 years ago, or more, were encouraged to actively participate in the Quarter Century Wireless Association.

Unfinished business--There was no unfinished business.

New Business--John Dahm (WB5PCV) made a motion that the remaining inventory of pagers be put up for sale. The motion was seconded and passed.

Meeting adjourned at 7:56 pm.

Submitted by Paul Parker (N5ZLX), Secretary.

THAT'S THE SNAP-OFF CONTROL PANEL—YOU GET THE REST OF THE RADIO WHEN YOU'VE MADE A FEW PAYMENTS.

AUSTIN AMATEUR RADIO CLUB MEETING

Jim Neely, WA5LHS, President, brought the meeting to order on March 9, 1993, at 7:30pm at Luby's cafeteria on North Loop.

VISITORS; Our visitors included Lisa, KD5WZU; John, N5IJO: Frank Townsend awaiting call; Lou, W5IFQ; Steve, N0BTH, introduced his father; Phillip, KB5YAA; and Henry, W5QDP.

MINUTES: The minutes of the February 9, 1993, meeting and the December 8, 1992, meeting were approved as printed in the AARC/OVER.

OFFICER REPORTS: Dave Marschall, KG5ND, Treasurer, reported that the checking account balance was $2727.28 plus a postal account balance of about $225.00. Due to the absence of the Technical Committee Chairman, President Neely gave the report on the status of the club's 146.78 repeater and he said the machine is fine. Steve Sparks, KB5RSY, Activities Chairman, announced that the.Manchaca Swapmeet would start at 8AM Saturday, April 10, 1993. He said the club was serious about eliminating early starts. He warned about parking at McCoy's and along the street. He called for volunteers to serve in all capacities, especially parking guides, collectors, gate watchers, and cleanup crew. Tailgaters will be charged $4.00 and tables will cost $5.00. Steve also announced that Field Day will be June 26 and 27 at Doss Elementary School where it has been held the last several years. Steve called for volunteers for this event and received several responses.

NEW MEMBERS: Bob Basinger, KB5WSL, and Bob Kunesh, KB5SJO, were approved as new members.

OLD BUSINESS.: None.

NEW BUSINESS: None.

ANNOUNCEMENTS: Tom Rohrer, AB5FH, announced the formation of a General Class training course along with code lessons. Interested persons should contact Tom.

Louis Pecenka, N5ORG, checked into the reason for the new style license plates' being illegible. The State Legislature decreed that special plates be produced that way. Louis has started a campaign to remedy this.

Joe Fisher, K5EJL, Travis County Emergency Coodinator, announced that the next quarterly meeting of ARES (Amateur Radio Emergency Service) would be Tuesday, March 30, 1993, at Luby's on North Loop at 7:30 pm.

Keith Watson, WB9THL, is preparing a list of elmers. You don't have to be an expert on everything in ham radio to be an elmer. Contact Keith if you want to be an elmer or if you need an elmer.

(Cont'd on Pg. 15)

Huck's Country Store

Ham Radio Equipment and Hi-Fi Audio

How would you like to have a piece of Amateur Radio Equipment with some real high fidelity audio? Real power, and a big beautiful speaker!

What a dream; but it can never come true! Our allocated bandpass will not permit reproduction of audio frequencies higher than about 5 KHz. Therefore an audio system that can really be called "Hi-Fi" is of no advantage. And further, we only need enough audio for sucessful communication. How about some "larger and better" speakers! These new rigs have a little toy-size speaker. Can we improve on that?

Our SSB bandpass of around 3 KHz is all we have available; and most of us have additional filters to cut this to 2 KHz or less. CW operators long for filters in the 1.0, 0.5 and 0.25 KHz range. Now what good is Hi-Fi audio systems where our audio is no greater than a 3 KHz maximum?

So what is wrong with an audio system that has a 20 KHz range? Plenty! That extra range brings through noise and adjacent signal interference that is difficult to cope with. Can this be true?

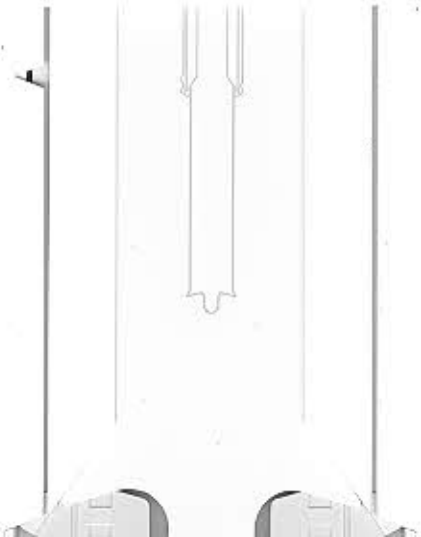
Try this experiment: Plug a good Hi-Fi pair of earphones into your rig and tune around a congested band area. Now plug a pair of antique steel diaphram earphones. You will think there is an additional stage of filtering in the rig!

Most of the old earphones have an acoustic resonant frequency in the 800-1500 Hz range. They indeed are a filter that cuts out frequencies above our useful range.

The little toy-size speakers: Yes, to some extent they also cut off many of the fequencies commonly called Hi-Fi. In fact, the audio systems in modern equipment may not sound like a concert music hall, but are best for our use.

In congested band conditions you can hardly beat the older earphones. On the other hand, it is easy to become actively displeased with a Hi-Fi Headset under similar conditions. Try a variety of speakers and headphones on your rig. You will be amazed how different they perform. You will like your "new discovery!

de "Old Huck" AA5BU



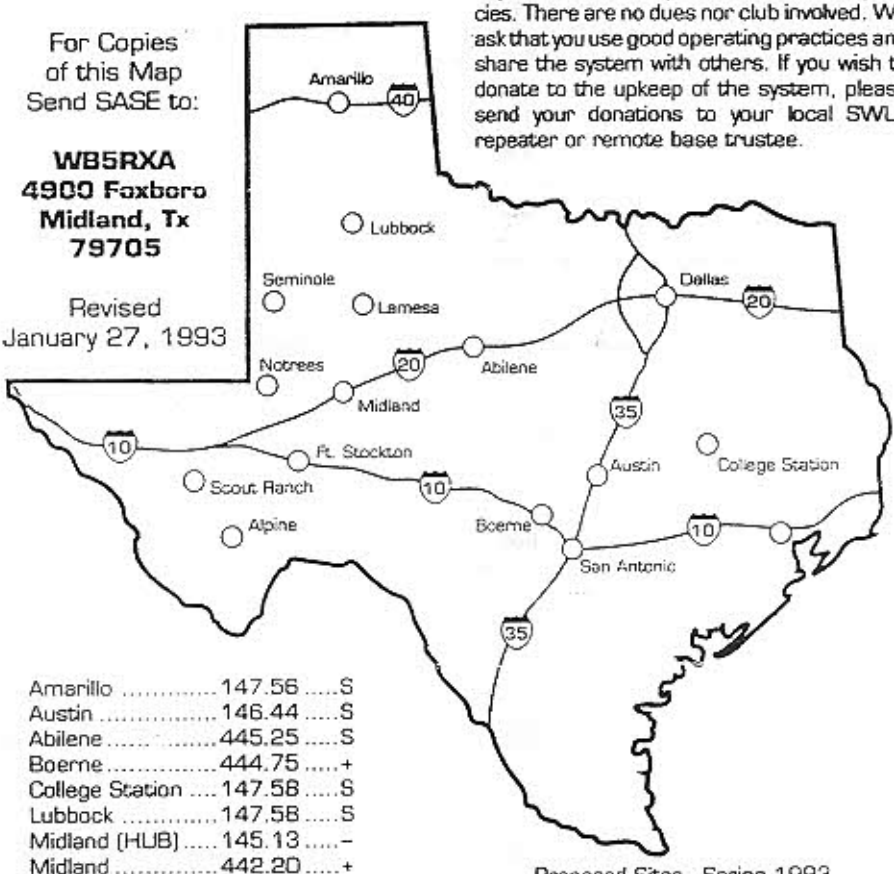
SOUTHWEST LYNX SYSTEM

The SOUTHWEST LYNX SYSTEM is a privately owned and funded system. It is open to anyone licensed to operate on these frequencies. There are no dues nor club involved. We ask that you use good operating practices and share the system with others. If you wish to donate to the upkeep of the system, please send your donations to your local SWLS repeater or remote base trustee.

For Copies of this Map Send SASE to:

WB5RXA
4900 Foxboro
Midland, Tx
79705

Revised January 27, 1993



Amarillo	147.56	S
Austin	146.44	S
Abilene	445.25	S
Boerne	444.75	+
College Station	147.58	S
Lubbock	147.58	S
Midland (HUB)	145.13	–
Midland	442.20	+
Notrees	147.02	–
Notrees	444.675	+
San Antonio	145.79	S

NOTICE

All inputs require these CTCSS tones:
2-Meter = 88.5 tone
440 = 162.2 tone

Proposed Sites - Spring 1993

Alpine	146.58	S
Dallas		
Garden City	442.90	+
Ft. Stockton	442.80	+
Lamesa	442.70	+
Scout Ranch	442.40	+
Seminole	443.20	+

Southwest Lynx System
User Guidelines

1. **Please enjoy using the Southwest Lynx System,** but at all times keep in mind that the system covers over 100,00 square miles. **Others may be waiting for you to finish so they can make a contact, so make sure to either leave time in your conversation or ocassionaly ask if anyone else needs the use of the system.**

2. **If you find that your QSO can be moved to a local repeater or simplex, then please do so. Please do not use the entire system to talk to a local station.**

3. Follow the FCC requirements and identify your station every ten minutes, and at the end of your QSO.

4. Please do not put tones into the system!! Only **Control Operators** have the authority to do this to keep the system operational.

5. Please do not test, remote any unathorized bases, linking of any type... without the express permission of the **Southwest Lynx** System Management.

6. Please give mobiles priority during prime commuter traffic hours.

7. Please stand by when a **SKYWARN** weather net is in progress unless you are called or are in the area of severe weather and are a trained **SKYWARN** spotter.

8. **Do not reprimand users for not following these guidelines. If a reprimand is necessary, one of the control operators will speak to them, usually off the air.**

9. **Use common sense and be courteous. This parctice will prevent many problems if all operators would comply.**

*** DON'T BE AFRAID TO USE THE **SOUTHWEST LYNX SYSTEM**. IT IS HERE FOR YOUR USE AND ENJOYMENT. DURING SLACK HOURS FEEL FREE TO TALK AT LENGTH WHILE OBSERVING THESE GUIDELINES.

Digitally Speaking:

An Amateur Packet Radio Overview

by

Rich Bono (NM1D) *(Cont'd from March '93)*

Be aware that most packet radio operation at this time is at 1200 baud. This will seem slow when compared to what it happening on networks, and on telephone BBSs.... but what is gained is world-wide access, for NO COST. Once you have your equipment, and your license, there are no fees (except for the electricity that your computer and other equipment use). There are a growing number of amateurs who are experimenting with 2400 and even 9600 (or higher) baud operation, so it shouldn't be too long before these faster rates become very popular!

What kind of equipment do I need, and how do I use it with my PC?

Since you own a PC, you already own the most expensive part of an amateur packet radio station. The other piece of equipment that you need is the TNC (terminal node controller). The TNC contains all the software and special hardware that you need. It actually contains the modem (to interface with your radio) and (usually) a microprocessor with the packet software contained in EPROM. You interface your PC (or even a simple dumb ASCII terminal) with the TNC via serial RS-232. Use your favorite terminal emulation software on your PC (the same software that you use with your telephone modem will probably work fine). This is just as easy as connecting your computer to a modem. If you don't want to use the serial port of your computer, there are TNCs available that will plug directly into the bus.

If you don't have a PC (personal computer), then almost any RS-232 ASCII terminal will work with most of todays TNCs.

The most popular packet frequencies in the USA are in the two-meter band (144-148 MHz). Check out the following frequencies (they may be different in your area; ask a local amateur if you don't hear anything). Even the typical 'police scanner' can be used to listen to these frequencies:

145.01, 145.03, 145.05, 145.07, 145.09 MHz

If the above are busy, many areas also use:

144.91, 144.93, 144.95, 144.97, 144.99 MHz

Yes, this is with an average FM transceiver set for SIMPLEX operation (transmitting and receiving on the same frequency).

(Cont'd next month...)

AARC Information

Austin Amateur Radio Club, Inc.

Officers

Jim Neely, WA5LHS, President 442-4812
Rod Moag, W0NDS, Vice Pres. 467-6825
Dave Marschall, KG5ND, Treasurer .. 834-1779
John Weber, KF5OY, Secretary 280-1082
Steve Sparks, KB5RSY, Activity Mgr... 251-7791

Commitees & Positions

Ed Golla, K3AHS, Technical 255-4818
Joe Fisher, K5EJL, ARES Coord. 926-4689
Steve Means, N5PSW, A/Over Ed. 452-7240
Hal Henegar, W5MDL, P.I.O. 836-2012

The Austin Amateur Radio Club, Inc., maintains a repeater with open autopatch and emergency power on 146.78 MHz, and an emergecy HF / VHF station at the American Red Cross Building. Membership dues are $6 per calendar year ($10 for a family). Please contact an officer if you would like to join the club, and come on down to the next meeting.

Florida Hams *(Cont'd from Pg. 1)*

their antennas and cease all radio transmissions.

A fund has been established to assist with the legal costs associated with this case. Contact: The Bower Legal Defense Trust, James H. Laseter, N4ZYX, Trustee, 2716 Robin St., Ft. Pierce, FL 34982

Sharon, KC1YR via N5KOB and Internet

AARC/Over Information

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Viewpoints expressed in The AARC/Over do not necessarily reflect those of any club or its members, directors or officers.

Members are encouraged to submit material for publication... mail to the Editor at 4800 Caswell, Austin 78751, or upload to Balcones Fault Line BBS at 452-2135. Submissions may be edited for format, style and suitability. Deadline for the next issue is the 14th of this month. Late material will be saved for later months. Permission granted to reprint AARC/ Over.

Please Remember....

We, all at times, forget to renew our club memberships. If you have forgotten to renew, its not too late. Check with a club officer at the next meeting, as they will be glad to help you renew your club membership.

AARC Meeting Minutes (Cont'd from Pg. 9)

Al Henegar, W5MDL, from the QCWA, (Quarter Century Wireless Association or Quality Comes With Age) announced that the group meets regularly on the third Saturday of the month at 11:30 am at Wyatt's Cafeteria in Hancock Center.

Paul Kitchens announced that the Capitol 10K will be March 28, 1993. Contact Paul if you want to serve in ham radio communications for this event.

It was moved and seconded to adjourn. The motion carried and President Neely adjourned the meeting shortly before 8 pm.

PROGRAM: after adjourning, Rod Moag, W0NDS, Vide-President, introduced a person who needs no introduction, Nick Broline, W5FUA, a long-time ham and member of the AARC. Nick has many accomplishments in radio and is currently a systems analyst at Tracor. Nick explained how lightning threatens and damages amateur radio towers and transcievers. He showed several shematics for installing antennas and transcievers which minimized or eliminated the threat and damage from lightning. Nick stressed the importance of grounding towers, antennas and transcievers, but he also warned that if grounding is not done properly, the risk of lightning doing damage is heightened.

Respectfully submitted,

John Weber, KF5OY
AARC Secretary

Calendar

Apr 3... Ham exams, 8:30 AM, Murchison
Apr 5... 144 MHz Sprint
Apr 6... Austin Rptr. Organization meets
Apr. 10... Manchaca
Apr. 10... South Austin W5YI Exams
Apr. 13... Austin ARC Meeting, Luby's
Apr. 13... 220 MHz Sprint
Apr. 17... North TX Balloon Launch
Apr. 17... QCWA, 11:30, Wyatt's
Apr. 20... Austin Am. TV Club
Apr. 21... 432 MHz Sprint
Apr. 22-25... Robot Olympics, Toronto
Apr. 23-25... Dayton Hamvention
Apr. 27... ACC ARC meets (495-7186)
May 1... Ham exams, 8:30 AM, Murchison
May 1... 902-2304 MHz Sprint
May 4... Austin Rptr. Organization Meets

Weekly Events

ARES Net... Sundays, 6:30 PM, 146.94 MHz
ARES Net... Sundays, 8:30 PM, 146.78 MHz
SwapNet, NewsLine... Sun., 9 PM, 146.94
Lunch... Thursdays @ Holiday House #4
U.T. Net... Thursdays, 7 PM, 145.21 MHz
QCWA Net... Thursdays, 8:15 PM, 147.18
Breakfast... Saturdays, Simon David Deli
521 Trade/Tech Net... Sat., 9 PM, 145.21
WeatherNet... as needed, 146.94 MHz