AARC/OVER

Bulletin of Austin Amateur Radio Clubs

Austin Amateur Radio Club

Austin Amateur Television Club

Austin Repeater Organization

June 1994

ISSN 1067-0262

DWEEBTECH ELECTRONICS PRESENTS THE NEW SMALL DOPPLER RADIO DIRECTION FINDING SYSTEM

A group of local Toronto hams were approached and asked to design a doppler direction finding system, by a buyer, apparently representing the interests of a large chain of stores specializing in high-tech electronics. Since our local group on the repeater here has become known as the dweebs we decided to call the company DWEEBTECH. Several late nights of work and a considerable outlay of cash later the "buyer" left the company. After about two more months of late nights, considerably more cash, and several design enhancements later our "buyer" was nowhere to be found, presenting us with an intriguing problem, ie; what to do with the product.

So you may ask, "How does this benefit me specifically ?". Since the device was virtually ready to go into production we decided to release the units to the public at manufacturers direct prices. This will be entirely dependent on demand. If no one is interested then we will cancel the project and forget about it, but if there is enough interest we will produce the items as per the following description.

(Continued on Page 4)

WASHINGTON GETS LAW ON TOWERS AND ANTENNAS

Washington State has new legislation to protect amateurs. Washington's governor has signed Senate Bill 5697 into law. The new statute limits the ability of municipalities to enact antenna and tower regulations by pointing out the federal pre-emptions of

(Continued on Page 15)

Club Meetings

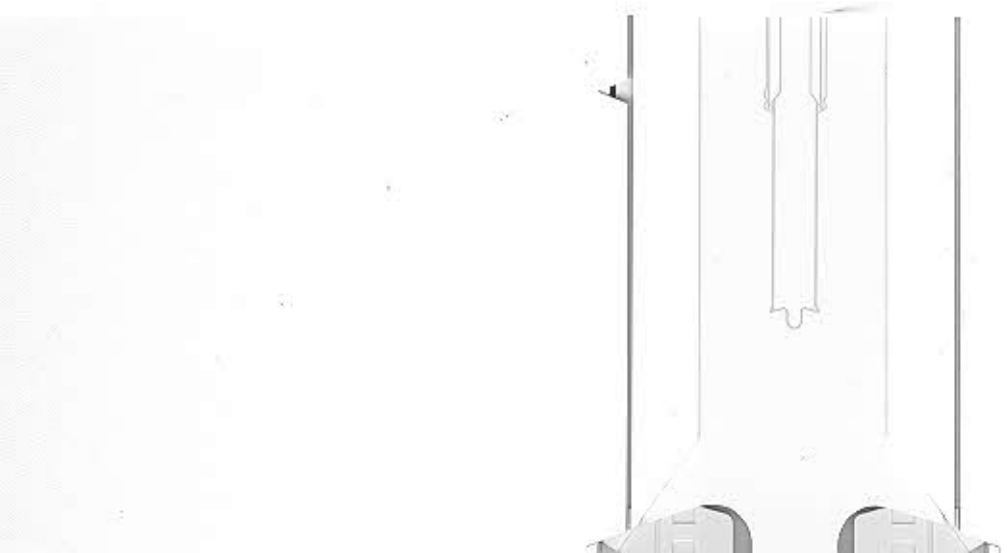
Austin Repeater Organization meets on Tuesday, June 7, 7:30 to 8:30 PM, at Luby's Cafeteria on North Loop, one block west of Burnet Rd. Everyone is encouraged to come early and have supper together.

Austin Amateur Radio Club will meet on Tuesday, June 14, 7:30 to 8:30 PM, at Luby's, North Loop.

Austin Amateur Television Club will meet on Wednesday, June 15, 7:30 to 8:30 PM, at Luby's Cafeteria.

Austin QCWA meets on Saturday, June 18, 12:00 PM, at Luby's Cafeterria. Lou Pecenka will talk about the first one hundred. Come early and have lunch with the group.

The AARC/OVER is published monthly in Austin, Texas



Monitor
Austin Repeater Organization

P.O. Box 4763, Austin, TX 78765

Amateur Radio Club
Operators of Voice Repeaters on
146.28/88, 146.34/94, 223.20/224.80, and 449.1/441.1 Mhz
Packet Digital Repeater 145.01 MHz
Sponsor of Central Texas Weather Net, ARO Transmitter Hunt and Swap Net

CLUB OFFICERS

President	Phil Steinbach	WB5SUR	258-3215
Vice President	Jeff Schmidt	N5MNW	255-6753
Secretary	Paul Parker	N5ZLX	467-7070
Treasurer	Bill Montgomery	AB5HP	322-9035

Minutes of the Austin Repeater Organization Meeting May 3, 1994

The meeting was called to order by President Phil Steinbach [WB5SUR] at 7:28 PM at Luby's North Loop cafeteria. There were approximately 60 people in attendance.

Guests and visitors were introduced.

The minutes of the April regular meeting were unavailable for approval. They will be brought up for approval at the June meeting.

Treasurer's Report:

Unavailable

Engineers Report:

The DXCC cluster is up and running.

Old Business: none

New Business: none

Meeting adjourned at 7:33 PM.

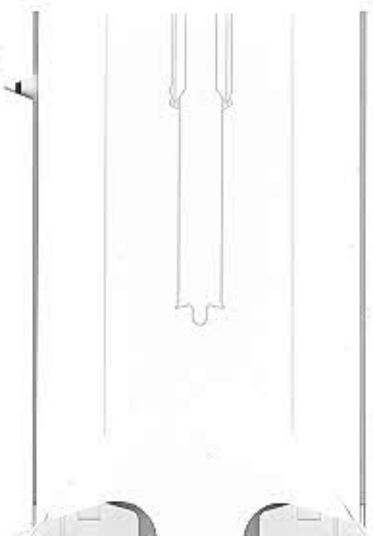
Submitted by Mickey McInnis [KB5YAC] _____ Substitute Secretary

Next ARO Meeting

The next ARO meeting will be Tuesday, June 7, 1994 at 7:30 PM at Luby's Cafeteria at North Loop and Burnet Rd.

Information on ARO's Repeaters

All of ARO's repeaters are open access. Any amateur is invited to use them, except during nets, when a designated net control operator is in charge of repeater usage.



146.88 offset -600 KHz has a phone patch. Use "*" to bring up the patch, and "#" when you have completed the call. You can dial "911" (no star needed) for access to local emergency services. "Speed dial" 3 digit access codes are available to ARO members for frequently dialed numbers.

146.94 offset -600 KHz is used for the weather net at the request of the National Weather Service. It is also used for the Swapnet and Newsline at 9PM Sunday.

224.80 offset -1.6 MHz is available.

444.10 offset -5 MHz is available.

ARO maintains a Packet Digital Repeater on 145.01 MHz.

ARO Monitor

The ARO Monitor is edited by Mickey McInnis | KB5YAC | (339-0344). This is only this two page section of this newsletter. Steve Means edits the AARC/Over , which is the bulk of this newsletter.

Events

October 8, 1994 - Ham expo 94 Belton TX. Indoor table or tailgate spaces. Contact Mike LeFan at 817-773-4768.

June 10-12, 1994 - Dallas Hamcom.

Monthly Events

Austin Repeater Organization, first Tuesday of the month. 7:30 PM Luby's Cafeteria North Loop at Burnet Rd. 5/3, 6/7, 7/5, 8/2, 9/6, 10/4, 11/1, 12/6.

The ARO transmitter hunt occurs on the Saturday following the ARO meeting. The hunt frequency is 146.52, with coordination on 146.94. 6/11, 7/9, 8/6, 9/10, 10/8, 11/5, 12/10.

Ham exams are held on the first Saturday of each month at Murchison Middle School. 6/4, 7/2, 8/6 (at SummerFest), 9/10*, 10/1, 11/5, 12/3 . (* days are not on first Saturday.)

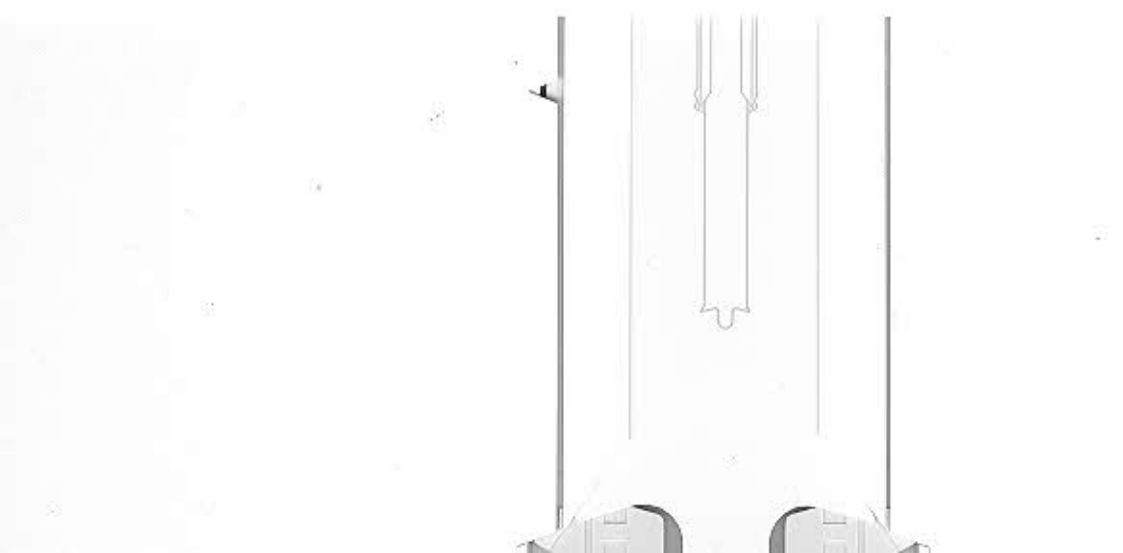
Ham exams will be held at 2 PM in Fleck hall at St. Edward's University on the third Saturday of each month. 5/21, 6/18, 7/15, 8/20, 9/17, 10/15, 11/19, 12/17.

Weekly events

Newsline, an amateur radio news program is transmitted at 9:00 PM Sundays on the 146.94 repeater. The ARO swapnet follows Newsline.

The Travis County ARES (Amateur Radio Emergency Service) net meets every Sunday night at 6:30 PM on the 146.94 repeater and at 8:30 PM on the 146.78 repeater. A packet ARES session is held at 7:30PM on Sunday on 145.78 unconnected. Any amateur interested in emergency communication is invited to join.

The Williamson county ARES net is held Sundays at 8PM on the 147.08 repeater in Georgetown. Participation by Amateurs inside or outside of Williamson county is invited.



New Small Dopler Radio... (Cont'd from Pg. 4)

The unit itself will work with any reasonably good VHF/UHF receiver, transceiver, scanner or similar device and will be available with these features:

Compact size case (4 x 4 x 2 in. approx.)

16 LED display unit

Power on, overload, and low signal indicators

Averaging circuitry to help eliminate random bearing display fluctuations

EXTREMELY high speed microwave switching diodes to reduce switching noise on the received signal

Tape out jack (if enough requests)

Dual switch selected inputs (if enough requests)

Earphone jack with speaker disconnect

Built in monitor speaker with volume control

DESCRIPTION: TARGET PRICE:

Completed units with power cord and other cabling APPROX. $225 US

As above including 4 mag mount antennas APPROX. $300 US

Kit consisting of circuit boards, enclosure, cables, and all parts necessary for completion APPROX. $185 US

As above with 4 mag mount antennas APPROX. $260 US

Partially assembled kit with assembled circuit boards, enclosure, manuals, etc, and all other parts to complete APPROX. $210 US

As above including 4 mag mount antennas APPROX. $285 US

Set of circuit boards including parts list, assembly manuals,circuit diagrams etc. APPROX. $25 US

As above with metal enclosure APPROX. $45 US

If you think we need to add or delete any features we would like to hear from you.

If you would be interested in purchasing one of these units drop your name and callsign to me on packet directly to:

VE3OZL @ VA3BBS.SONT.ON.CA

or MAIL ANY INQUIRIES TO :

CLIVE APPS 23 SHANDON DRIVE SCAR. ONT. CAN. M1R 4M4 or PHONE (416)449-6288 12-9 PM EST ask for CLIVE or leave message with your NAME, NUMBER, AND COMPLETE ADDRESS and I will get back to you as soon as possible.

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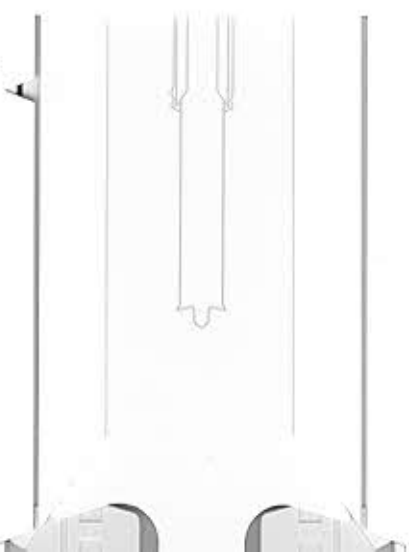


RESULTS OF THE ARRL/ VEC EXAM May 7, 1994 Murchison Middle School

The regular semi-monthly ARRL/VEC test session was held on Saturday, May 7, 1994 at Murchison Middle School. There were a total of 13 candidates taking exams, with 7 upgrading or earning a new license. In addition, there were 4 candidates that passed one or more exam elements toward upgrading their license.

VE EXAMINERS

Joe Makeever W5EBJ Roy Miller W5FOZ Jim Huckabee AA5BU Joe Thiel N5SMN Andy Williams AB5FZ Bob Redouty KF5KF Larry Gunter WB5BEK

THE NEXT ARRL/VEC EXAMS WILL BE HELD AT MURCHISON MIDDLE SCHOOL, 3700 NORTH HILLS DRIVE, AUSTIN, TX ON:

Saturday, July 9, 1994 @ 9:00 am (please arrive by 8:30 am)

If you have any questions regarding the upcoming exams, please contact me at 473-3200 (work) or 345-7281 (home).

Please note that the next W5YI/VEC exams will be given at the same location and time as shown above on June 4, 1994.

If you have any questions about the next W5YI/VEC exams, please contact Mark Johnson, KJ5AN at 335-4327.

Larry Gunter, WB5BEK

Gender Equality Achieved at South Austin Exams

The South Austin W5YI VE team heartily congratulates the equal numbers of YL's and OM's who earned new or upgraded amateur radio licenses at its May 21st session:

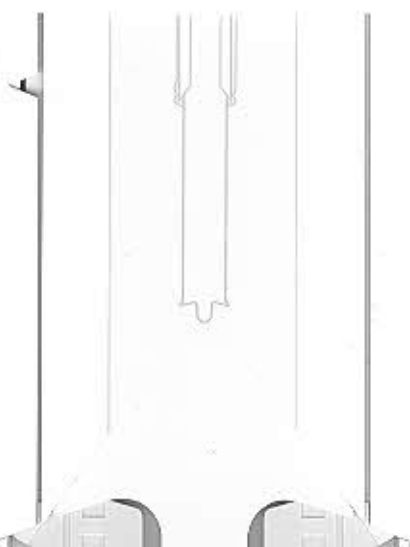
Carol A. Thiel N5TLY Extra Class, June I. Parchman KC5FOV Advanced Class, Kenneth A. Wendland KA5ZDX Advanced, Class Gerald R. Wines KB5VHN Advanced, Class Glen A. Walther -new- General Class, Lary R. Cotten -new- Technician, Barbara S. D'Elia -new- Technician, Teresa M. Duepner -new- Technician, Cynthia M. Sadler -new- Technician, Ben F. Worrell -new- Technician.

Another applicant earned element credit without upgrading.

The administering volunteer examiners who happily endorsed the certificates included: Bob Basinger, AB5OC Hugh Brown, KC5EIY Jim Greenwood, AB5EK Jerry Hooten, KG5RZ Emil Kasprzyk, KC5IZ Scott McCreight, AB5KS Mike Ruiz, WB5WPS

Our next two VE sessions will be on June 18th and July 23rd and will begin at 2:00 PM in room 109 of Fleck Hall on the campus of St. Edward's University. For more information on the South Austin W5YI VE sessions, please call Jim, AB5EK, at 327-6184.

The new GENERAL class written element (3B) question pool exams start on July 1, 1994. Please check the effective date of your study guide, if you plan to take the general class exam after that date.



New Small Dopler Radio... (Cont'd from Pg. 4)

NOTE: WE ARE NOT TAKING ORDERS AT THIS TIME. WE ARE ONLY TRYING TO DETERMINE IF THERE IS ENOUGH INTEREST IN THE DOPPLER UNIT TO CONTINUE WITH THE DEVELOPMENT.

THANK YOU FOR TAKING THE TIME TO HELP OUT.

Reprinted from Ham On Disk, May '94

Syllogisms - Andre Kuhnel VE3DTP

The mystique of amateur radio is a dark curtain few brave souls dare to open. However, once opened, we find the hobby is as interesting and as usefull as could be humanly expected. So why the mystique?

Maybe it's the weird stuff we do. Maybe it's the strange language we use. For instance, what is a syllogism? According to websters dictionary, a syllogism is described as "a deductive scheme of a formal arguement consisting of a major and a minor premise and a conclusion which must be true if the premise is true."

A few that relate to us follow.

* Most radios run on 12 volts. * Cars have a 12 volt system. * Therefore anyone who buys a radio should buy a car (or vice versa).

* His signal is horrible. * He just bought a new radio. * Therefore he should see a throat specialist.

* Talking is part of ham radio. * Code is also part of ham radio. * Therefore politics is what ham radio is all about.

* Most amateur radio operators are men. * Most hams enjoy "Fox Hunts". * Therefore divorce is inevitable.

* A radio uses frequency. * A ham uses a radio. * Therefore hams do it with frequency.

* He is often "On the air". * He always signs as "Mobile". * Therefore he lives in his car.

* He is a club member. * Nobody ever sees him at club meetings. * Therefore we must all be blind.

* Parents are always right. * Parents say "Shut up and listen!" * Therefore all hams are rebels.

* Ham radio equipment costs a lot of money. * Most hams have a lot of gear. * Therefore all hams must be rich.

* I'm a dedicated ARES (RACES) member. * ARES objectives are unquestionably beneficial. * Therefore I should be paid large amounts of money.

* I'm a ham. * Hams talk to people all over the globe. * Therefore I'm famous.

* Hams are up all night. * Hams know all about whips and rubber ducks. * Therefore...

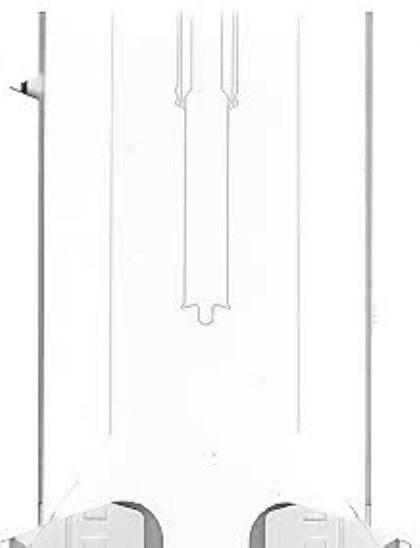
de Ham on Disk, May '94

TVI REVISITED

Joe Valente VE3VDK

This article is a continuation to the previous piece that appeared in Ham On Disk Issue #1. Some people have had complaints that they are receiving interference on their telephones. I have also had a personal experience in this regard. Through my investigation, I found that the phone that I was breaking in on was not a Bell Canada phone, but an after market phone that you can buy for $19.95 at any of the big carry anything stores. I also found that if this

(Continued on Page 15)



AUSTIN AMATEUR RADIO CLUB MEETING

President Jim Neely, WA5LHS, brought the meeting to order at 7:30 pm on May 10, 1994, at Luby's on North Loop.

VISITORS: The following visitors and infrequent attendees were introduced: KF7GV, Les; KC5AAJ, Daniel; W4NQY, Jim; KB5ELV, Buddy; and KB5XVA, Earl.

MINUTES: The minutes of the April 12, 1994, meeting were approved as printed in the AARC/OVER.

OFFICER REPORTS: Dave Marschall, KG5ND, Treasurer, reported that the checking account balance was $2353.72 and the postal account balance was $385.00. Ed Golla, K3AHS, Technical Committee Chairman, reported that the Club's 146.78 MHZ repeater is working , but there has been unauthorized activity. Ed shut down the 911 feature on the autopatch for a while. If you have any information regarding the source of this activity, please contact Ed. Ed also took a few minutes to review the custom hangup feature of the autopatch. Steve Sparks, KB5RSY, Activities Manager, was absent and President Neely knew of no current Club activities; however, the June meeting will be the last meeting before Field Day 1994 and so start thinking how you can participate in the Club's effort this year, e.g. lending equipment, putting up antennas and installing equipment, and spending some time as an operator.

NEW MEMBERS: None.

OLD BUSINESS: None.

NEW BUSINESS: None.

ANNOUNCEMENTS: Rick Herndon, K5FNI, announced that the next meeting of Travis County ARES would be at 7:30 pm on May 31, 1994, at Luby's cafeteria on North Loop.

President Jim Neely reported that Bob Bryant son of John Bryant, K5KJN, had given the club some of his late father's ham gear to sell. If you know of a place to store it until Manchaca in October, please contact Jim.

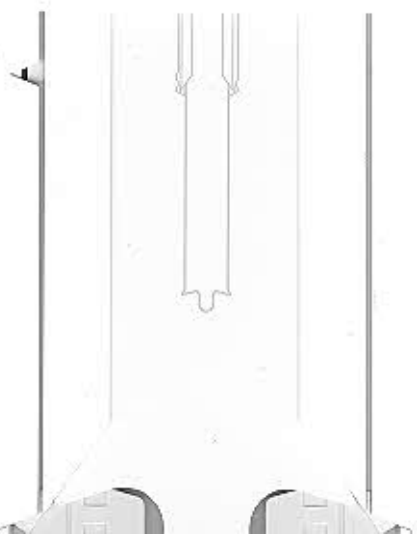
Stu Rohre, K5KVH, announced that he is trying to make an inventory of the Club's equipment scatterred around Austin. If you have such property, please inform Stu.

President Jim Neely announced that there were no applicants for the Club's scholarships and the money is being returned to the fund as additional principle.

Jeff Schmidt, N5MNW, announced he is working with the Cub Scouts at their day camp in Round Rock on June 14, 15, and 16. He needs three or four hams each of these days to assist him with ham radio demos. Please contact Jeff even if you can only help out for one of these days.

It was moved, seconded and passed to adjourn. President Neely adjourned the meeting at 7:52 pm.

PROGRAM: Rod Moag, W0NDS, Vice-President, introduced Chuck Templeman, W2EHE, a retired IBM engineer who now lives near Marble Falls. Chuck described small loop antennas and their good and bad features. He also displayed some loop antennas that he built *(Continued Pg. 15)*



INTRODUCTION TO PACKET RADIO -- Part 12 by Larry Kenney, WB9LOZ

In this article we're going to look at the White Pages. Not your local telephone directory, but the packet radio directory known as "White Pages". You help supply the information for "WP", and you can also use it to find the home BBS, QTH and zip code of your friends on packet.

"White Pages" was initially designed by Eric Williams, WD6CMU, of Richmond, California. It's a database of packet users showing their name, home BBS, QTH and zip code. It's updated and queried by packet message, allowing stations from all over the world to take advantage of it. Hank Oredson, W0RLI, later added a WP feature to his packet bulletin board software. As users enter their name, home BBS, QTH and zip code into the BBS user file, the software automatically assembles a message once a day containing all of the latest user information and sends it to the WD6CMU White Pages. Hank has now expanded the WP feature, and each BBS running the W0RLI software can now elect to operate its own White Pages database. Each BBS, however, continues to send a daily "WP" update of new or changed information to the WD6CMU White Pages. You can easily make use of the packet White Pages information, both at your local BBS and at WD6CMU.

If your BBS is operating with its own WP database, you may make inquiries of it using the "P" command. Simply enter P followed by the callsign you'd like information about. If you wanted information on WB9LOZ, for example, you would enter: P WB9LOZ.

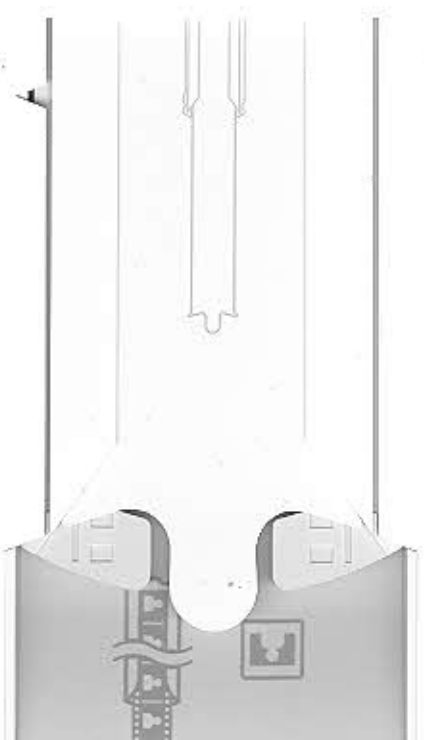
Information from the WD6CMU White Pages is obtained by sending a message to "WP @ WD6CMU". You can also update the database with new information. One message can contain several lines, including a combination of queries and updates. Since the messages are read and answered by the WP software, not a person, each line must have the correct format. One of the following formats must be used: <callsign> QTH? <callsign> @ <BBS> <zip code> <name> <QTH> DE <callsign> @ <BBS> The first form is a query. It will cause a message to be returned to you giving the home BBS, QTH and zip code of the person with the given callsign. If the information is not available from the WP database, the return message will tell you so. The second form adds or changes the entry for the given callsign, and the third form provides a return address for the requested information. Replies will be sent to the originating station at the BBS specified. If the return address line is not given, the WP program will attempt to determine the originating station and BBS from the message headers.

Here are some examples of messages to the WD6CMU White Pages database: Suppose you wanted to know the home BBS of K9AT. You would send a message to WP like this: (Your BBS) W6BBS> SP WP @ WD6CMU Enter title of message: Query Enter text: K9AT QTH? DE N6XYZ @ W6BBS (Control Z) Capital and lower case letters may both be used within the message.

If you wanted to update or add information to the White Pages, you would send a message like this: (Your BBS) W6BBS> SP WP @ WD6CMU Enter title of message: Update Enter text: N6XYZ @ W6BBS 94199 John San Francisco, CA AD6ZZ @ WB6ABC 94015 Anne Daly City, CA DE N6ZYX @ W6BBS (Control Z) When updating or adding an entry to WP, you should make sure that the information is accurate.

Here's an example of a message that has both queries and updates: (Your BBS) W6BBS> SP WP @ WD6CMU Enter title

(Continued on Page 10)



Huck's Country Store
By Huck Huckabee - AA5BU

An Unusual Radio of The Past

When Adolph Hitler gained power in Germany he immediately began to cut off communication with the outside world. "Germany for Germans" was the motto. Printed and radio communications were controlled and confined to the homeland.

A first step was to limit the number of tubes that could be used in a home radio. The original number was four. Later the circuit design was edicted: No more superheterodyne circuits. Then the circuit was defined as TRF (Tuned Radio Frequency) with no regeneration. Radio transmitters were constructed with more power. This kept the German people under control of what Hitler wanted them to hear.

A final step was to confiscate all of the more powerful radios and reduce the technology to a single tube radio. It was a criminal offense to listen to a radio station outside of the country.

In my tenure there, I studied the circuit of many of these "controlled radios." They were indeed interesting; and I wish that one had been saved for a "collectors piece."

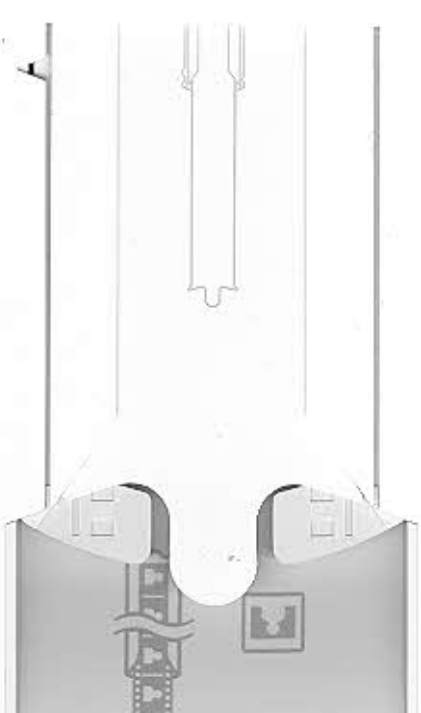
How can a radio be built with a single tube? That tube was about the size of a one pint drinking glass. It had many pins on the base, and a study showed three distinct tube functions within the envelope. One section was used as a rectifier, another as a grid leak detector, and the third as an audio amplifier. This was equal to the three circuit, yet met the one tube rule!

Another interesting aspect of the war years was the wire and joint connections. Copper and tin were in essentially zero supply. The circuit was connected with iron wire and the joints were spot-welded together. Most of this was in small bus-bar form with no insulation. It was strange indeed to look into a radio and find rust all over its circuit wiring!

Another unusual item was the power source used. Power was distributed at 50 Hertz in voltages from around 100 up to 450 volts, with 220 volts being most common. These radios had a tap switch, or terminal board, to accommodate about seven voltages within the 100-450 volt range.

When we look back at the loss of freedom of speech and mind, lets be thankful for the freedom we have in our country.

de The memory file of Master Sergeant J.M. Huckabee D4AER - November 1945



Introduction to Packet Radio... (Cont'd from Pg. 8)

of message: Update/Query Enter text: K9AT QTH? WA6DDM QTH? N6XYZ @ W6BBS 94199 John San Francisco, CA AD6ZZ @ WB6ABC 94015 Anne Daly City, CA DE N6ZYX @ W6BBS (Control Z)

Just like all other packet messages, messages addressed to WP @ WD6CMU are forwarded from BBS to BBS toward their destination. When a message containing new or updated information passes through a BBS operating the W0RLI WP program, he sotarerecognizes the WP format and extracts the information from the message for its database. The W0RLI WP program also collects data from any WP responses it sees and from the message headers of every message that passes through. In addition, if a BBS operating with the W0RLI WP sees a query, it will respond with any pertinent information that it has available. As a result, you might receive more than one response to your WP query.

The information on each call in a W0RLI WP database is usually deleted in 60 to 90 days if it's not updated. This keeps each local database current and at a manageable size. The WD6CMU White Pages directory retains the data for a longer period of time.

It is important to note here that when you check into a new BBS, you should always enter the same information that you have at previous times. Choose ONE BBS as your home BBS, the one where you want all of your messages delivered, and enter that callsign every time you're asked. If you enter two or more different BBS calls at various times, your mail could end up being sent from BBS to BBS.

When a message arrives at the destination given in the "@ BBS" column, the latest software now checks the White Pages information to make sure the message was delivered to the right place. If it finds that you have a different BBS listed as your home BBS, it will insert the new BBS callsign and send the message on its way. You may never get it.

If you move or change your home BBS, you should then make sure that you update the information for your call in the White Pages database. If you use a BBS with W0RLI software, the BBS will send a WP message for you if you use the NH, NQ and NZ commands to update the infor-mation. If these commands aren't available on your BBS to make the changes, you'll have to send a message update yourself to WP @ WD6CMU. Making sure that the information in the White Pages is correct will help to get your messages delivered to the correct BBS.

INTRODUCTION TO PACKET RADIO - PART 13 by Larry Kenney, WB9LOZ

In this article, let's do some reviewing. I'm going to present a short quiz on packet, covering the basics that I've presented in the past 12 columns. Let's see how well you can answer the following questions without looking back at the past articles. In Part 14, I'll discuss each question and give you the correct answers.

1. What are the three TNC modes of communication? a. Connect, Converse, Terminal b. Command, Converse, Terminal c. Command, Converse, Transparent d. Command, Connect, Transparent

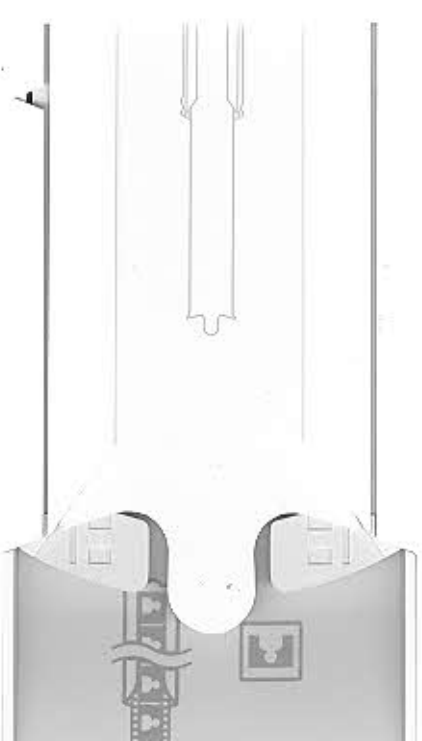
2. What TNC command is used to set the transmit path for beacons and CQs?

3. What is the TNC command CHECK used for?

4. While you're connected to another station, what command is used to monitor other traffic on the frequency?

5. If you saw one of the following lines on

(Continued on Page 11)



Introduction to Packet Radio... (Cont'd from Pg. 10)

your screen when in monitor mode, what would the asterisk indicate? W6ABC-3>N6XYZ,W6PW-1*: Hi Bob W6ABC-3>W6PW-1*>N6XYZ: Hi Bob (Displays vary with various TNCs, so both common types are shown.)

6. Why do the NET/ROM and TheNet nodes improve communications?

7. If you're connected to a station in New Mexico using NET/ROM or TheNet, how do you disconnect?

8. If N6ZYX-2 connected to you via a NET ROM or TheNet node, what would the SSID of the station become at your end of the connection?

9. When you're connected to another station, what are the two most probable causes for packets not to be received by the other station?

10. There are several basic commands used on a packet bulletin board system. Indicate what you would enter to perform the following: a. Receive a list of messages. b. Download a file in the General (ID G) directory called FCCEXAMS.89. c. Enter a private message to Jim, WA6DDM, who uses the W6PW BBS. d. Read message 7134 with complete headers. e. Find out what stations have been heard on port B.

11. To send an NTS message via packet addressed to Tom Smith, 123 Main Street, Keene, NH 03431, telephone (603) 555-4321, what would you enter at the BBS prompt?

12. If a message has a STATUS of BF, what does that indicate?

13. If you received a message from a friend in Chicago that had been forwarded to your home BBS through four other BBSs and the message had a Date/Time of 0316/2245 when you listed it, which of the following is a TRUE statement? a. The message was written at 2:45 pm on March 16. b. The message was entered into the BBS by your friend at 2245 on March 16. c. The message was forwarded by your friend's BBS in Chicago at 2245 on March 16. d. The message was received at your home BBS at 2245 on March 16.

14. If you wanted to send a message to your friend John, W4IP, but you didn't know what the call of his home BBS was, what could you do to try and find out what the call is?

15. BONUS: What is the maximum value for MAXFRAME? If you're working a station on 30 meters and are sending a lot of retries, should you increase or decrease MAXFRAME?

Well, how did you think you did? We'll take a close look at these questions and more in part 14 of this series.

de Ham on Disk - May '94

Apologies in Order

It would be easy to make excuses, but hopefully a simple apology will do. It is never my intention that the AARC/Over is put out late, at any time. I hope all who read and look for each issue will continue to support the effort.

On a brighter note... look for some changes in the coming issues. It has been my pleasure to confer with a very talented individual (she's a ham, too!) on improving the fomat of the AARC/Over. In the same vein, please pass on your comments, suggestions, ARTICLES, and yes, complaints to me.

de Steve N5PSW

Introduction to Amateur Satellites... (Cont'd from May '94 AARC/Over)

These satellites all have a coverage circle about 4000 miles in diameter, so when they're about the horizon, you can use them to work hams anywhere in the continental US, Canada, Alaska, Mexico, Central America, South America down to the Equator, the Caribbean, Greenland, Iceland and parts of Scandinavia. Eastern hams can work Europe and the West can work Hawaii.

All of these satellites are in boxes that are bolted to larger Russian satellites and draw their power from the large satellite's solar cells. They are VERY easy to hear and fairly simple to work.

OSCAR-21

My favourite satellite. This is a German/ Russian radio that uses a Digital Signal Processor (DSP) chip and it is Flexible with a capital "F"! It was launched in January, 1990 configured as a linear translator which received a band of 70 cm CW and SSB signals and relayed them on 2 meters. The bird was, to put it mildly, under-utilized. Then in 1992 the DSP chip was reprogrammed in orbit into a cross band FM repeater! If you've been wondering if DSP is as powerful as you've heard, now you know! In the past year, it's telemetry has been re-programmed from an obscure format to standard 1200 baud packet. WEFAX pictures (which are uploaded by the ground controllers) were added in December 1993. (This is the same format used by many weather sats and short wave weather stations.)

OSCAR-21 has an input frequency of 435.016 MHz, but 435.015 works just fine. It's output frequency is 145.987 MHz, but 145.985 or 145.990 will receive it quite well. It has a strong transmitter and a ground plane antenna and most HTs have no trouble picking its signals up when it passes over. Mobiles and base stations with omni antennas will receive it full quieting. You can get into this bird with 20 watts and a six element beam antenna. I mount my beam on a photo tripod next to my car and run coax to my dual band mobile. You have to point the beam accurately, so I take a list of altitude and azimuth bearing generated by simple tracking software out with me and re-point the beam once a minute. In one summer, I worked the east and west coasts, several Canadians, Texas and Guantanamo Bay, Cuba before fall's cold weather drove me indoors.

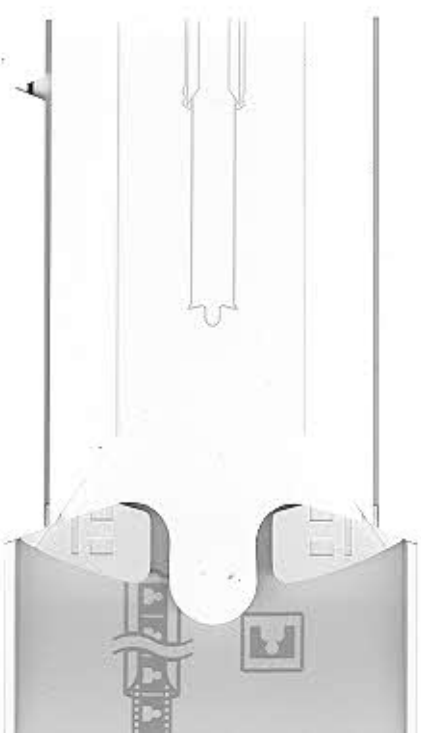
Some OSCAR-21 tips: you can hardly get a word in edgewise during "prime time" opening passes. Try the late night passes instead, they're much less crowded. OSCAR-21's transmit and receive polarity rotate constantly during a pass. Mount your beam so you can easily rotate it for the best signal. Remember, all these ham sats are full duplex, so you can and should monitor your signal on the downlink. (Use headphones.) Turn the beam for minimum noise. You'll probably have to modify your dual band rig to get it to transmit on 435.015. BE CAREFUL because FM is generally NOT appreciated below 440 MHz. Also, the mod may allow you to transmit out of band, which is a real no-no.

OSCAR-21 is also known as RS-14, AO-21 and Rudak-2. It's bolted to a satellite called INFORMATOR-1, which is often abbreviated INFORMTR-1. It's NORAD ID number is 21087. Be careful, the rocket booster that launched the satellite is still up there and it's named INFORMTR-1 R/B in some element sets. Your tracking program may find it instead of the satellite if you're not careful.

RS-10/11

This is probably the easiest satellite to work of them all. It has an incredibly sensitive receiver that can pick up the faintest two

(Cont'd on Pg. 13)



Introduction to Amateur Satellites...(Cont'd from Pg. 12)

meter signal and relay it on ten meters. There are documented examples of people having QSOs on RS-10/11 by clicking Morse on HTs with rubber duck antennas! I guarantee you that your HT can put a useable signal into RS-10/11, I've done it myself. WARNING: if you try this, disable the microphone so you don't transmit any FM sidebands and turn your CTCSS (PL) OFF!

RS-10/11 (Radio Sputnik) is for CW and SSB signals, so an all mode 2 meter rig is ideal for transmitting to this bird. The input bandpass is from 145.860 - 145.900 and the output freqs are from 29.360 - 29.400 MHz. There is also a morse beacon at 29.357 MHz.

RS-12/13

A cousin to RS-10/11, RS-12/13 is also a 40 KHz wide linear transponder. However, this bird is unique because its input frequencies are in the fifteen meter band! This is also the only ham sat in the sky that requires more than a code free technician license to work it, because its input band is from 21.210 - 21.250 MHz. This straddles the Advanced and Extra portions of the 15 meter band. Its output freqs are from 29.410 - 29.450 MHz. Because of skip, this satellite can often be heard and worked when it's below the horizon! At least one person has earned DXCC on this satellite! RS-12/13 is bolted to the ?????? ???? satellite and its NORAD ID is 21089.

DOVE

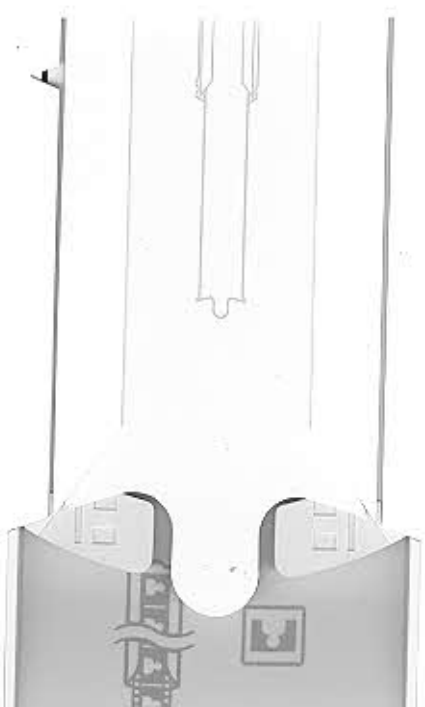
DOVE is a transmit-only hamsat. It has no user accessible receiver. Built in Argentina, DOVE was launched in 1990 as a goodwill satellite. It was originally intended to transmit digitized voice messages that could be picked up by students with simple receivers. Unfortunately, the digital voice hardware and software has been a constant source of problems since launch. Attempts to get DOVE to works properly are proceeding as this is written, so the best bet is to tune your 2-meter rig or scanner to 145.825 MHz and see what the bird is up to currently. Be ready for Morse, standard 1200 baud packet or (with luck) digitized voice messages. The signals are strong enough so that an HT with a rubber duck will hear it when it's overhead, although ground plane antennas will give better coverage when the bird is near the horizon.

ANTENNAS:

For AO-13, the consensus is get to get KLMs, Telex/Hy-Gains, or roll-your own, Nobody liked the Cushcraft satellite antennas - they appear to have problems in wet weather. Bigger is also better, if you have the space. Several people mentioned the KLM 22C and 40CX pair as excellent performers (again - you need the room for those long booms!) KE4ZV stated his pair of KLMs (the big ones!) lets him work AO-13 with 3 to 30 watts (hardline feed and rigorous attention to routing the feedlines and cables properly to maintain the antenna patterns helps, too.). Others mentioned the KLM 14C/18C pair as good performers - but you need more power on the uplink.

Telex/Hy-Gain antennas were recommended by several people as a less expensive alternative to KLMs that work almost as well. There's also M2 (started by an engineer from KLM). While no one who responded uses them, the information I received from a call to their factory in California suggests they are comparable to slightly better than the KLMs in performance, and about the same in cost. Dave, WB6LFC, said homebrewing antennas is also feasible - it takes work, but attention to detail results in top-notch performance for very little money. Finally, Ross, VE6PDQ, reported good results using a pair of Cushcraft 215WBs on receive.

(Cont'd Page 15)



AARC Information

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The Austin Amateur Radio Club, Inc., maintains a repeater with open autopatch and emergency power on 146.78 MHz, and an emergency 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. Come on down to the next meeting!

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

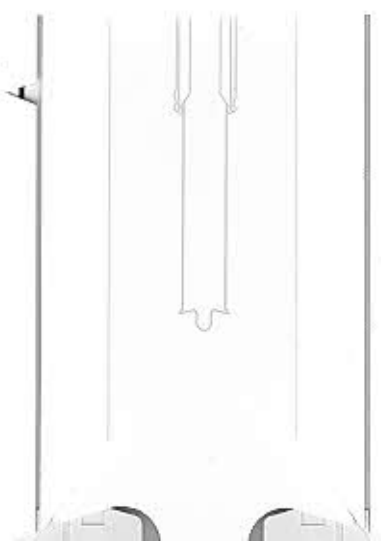
Members are encouraged to submit material for publication... send material to the Editor at 4800 Caswell, Austin 78751, by packet on the N5PSW BBS - 145.09 MHz or by connecting to the Balcones Fault Line BBS (452-2135), or smeans@bga.com. Submissions maybe edited for format, style and suitability. **Deadline for the next issue is the 14th of this month**. Late material will be saved for later months. Permission granted to reprint AARC/Over.

Calendar

June 7... Austin Rptr. Org. meets at Luby's
June 14... Austin ARC Meeting, Luby's
June 15... Austin Amateur TV Club - Luby's
June 18... QCWA meets at Luby's - 12:00

Weekly Events

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



Introduction to Amateur Satellites...(Cont'd from Pg. 13)

Problems encountered with AO-13 antennas include routing cables and feedlines off the back of the antennas (to preserve antenna patterns), use of fibreglass cross booms, mounting preamps as close to the feedpoint as possible, and long antenna booms drooping. (Gary, KE4ZV, recommends using a rope to brace the boom or stiffening booms and fibreglass masts internally with foam-in-a-can insulation.)

On antenna rotators, it appears the Alliance UD-100 is no longer made, though it should still show up at hamfests. People with long-boom antennas report the Alliance rotator is too weak to move a big array anyway, and recommended Yaesu's elevation-only rotator or their Model 5400 azimuth-elevation unit.

Antennas for the low-altitude satellites appear to be much less critical. J-poles were most frequently mentioned (the design from the AMSAT Journal?), but dipoles, groundplanes, and yagis are also in use. Several people work RS-10 quite well with antennas in the attic. Best results are with steerable antennas, but the high operator workload during a pass (unless the satellite is just grazing your access circle) almost demands computer control of the rotators.

More to come soon...

AUSTIN AMATEUR RADIO CLUB MEETING (Cont'd from pg. 7)

and uses. Heinrich Hertz, an early experimenter with electromagnetic radiation, used loop antennas in his work. Loop antennas are induction or magnetic field antennas. Later experimenters used electric field antennas. Loops are relatively immune to the earth beneath them and can operate near the ground. However they should be at least one diameter above the earth. Loops may be circles, octagons or squares and copper is the best material. They have high current and voltage and should be kept away from people, animals, watches, TV's, VCR's, etc. Two or more loops may be stacked or phased in parallel.

Respectfully submitted,

John Weber, KF5OY

AARC Secretary

WASHINGTON GETS LAW ON TOWERS AND ANTENNAS (Cont'd From Page 1)

the FCC's PRB One. ARRL Washington State Government Liaison Frank Price, KD7AC says he credits Dr. Ralph Shumaker, WX7T, and members of the Mike and Key Club of Seattle with promoting this legislation.

de Newsline - May 13, 1994