

QUICK SHORT TOPICS

BIRTHDAYS: AUGUST

Brian	KF4FRP	3
Don	KA4MCA	4
Al	KD4NRE	6
John	W6UZ	7
Pete	K4MW	13
Brian	W1FOX	15
Shawn	KD4WXY	15
Jessie	KE4OID	16
Dave	K4DND	17
John	N3GLZ	18
Henry	KD4CQX	23
Ann	W0ANN	26
Jerry	WD4CEN	28

NEW HAM:

Steven Traylor, KF4ZGD, Troy, VA address, lives just inside Albemarle County

MEETINGS:

1st Tuesday - AARC Board
2nd Tuesday - AARC Regular

LOCAL NETS: (146.760 repeater)

Monday night:

Information Net (each Monday) 7 PM
YL Net (1st Monday of month) 8:30 PM

Thursday night:

Northern Piedmont Emergency Net & Swap Net & Technical Session (each Thursday) 8 PM

LUNCHEON:

Wednesday:

Area Hams gather at the Old Country Buffet (OCB) next to TOYS R US on North 11 AM - 1 PM

A LOOK AHEAD:

September: Nomination Committee appointed

October: Annual Meeting. Elections are conducted and written Committee Reports are due. (Please consider e-mailing a copy to Secretary.)

January: Winter Dinne

NOVICE - TECHNICIAN CLASS

Begins September 2
Wednesday nights 6:30 - 9:00 PM
Ten (10) weeks
CATEC on East Rio Road

Contact: Ann Condrey, W0ANN
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AARC BULLETIN

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for the members of the
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AUGUST CLUB MEETING
Tuesday August 11, 1998
begin arriving about 6:00 p.m.

SUMMER PICNIC

& SWAP SESSION

McIntire Park Shelter #1

(the first shelter on the left at top of the hill)

Summertime is a time to enjoy a picnic. This month (August) the AARC steps away from a regular meeting format to schedule an opportunity for the membership to gather in a more informal setting. This allows an opportunity to meet more of the extended Ham community. The non-Ham family members are encouraged to attend. The atmosphere is relaxed and we are confident that you will meet someone new and interesting or see some old friends. In the meantime, read the following QST from ARRL Headquarters. Some very important proposed changes are presented. Additional comments concerning this topic will be found elsewhere in this issue. Joe, KD4RWX

ARRL Proposes Simplified Amateur License Structure

QST de W1AW ARRL Bulletin 52 ARLB052 From ARRL Headquarters Newington CT July 20, 1998
To all radio amateurs

SB QST ARL ARLB052

ARRL Proposes Simplified Amateur License Structure The ARRL Board has agreed to propose a simplified Amateur Radio licensing structure with four classes. Lengthy discussion and debate during the Board's meeting July 16-18 led to majority support for a plan for four written examination elements to establish amateurs' operational and technical qualifications instead of the present five, and two Morse code examination elements instead of the present three. Under the plan adopted by the Board, the entry level to Amateur Radio would be known as Class D and would convey the privileges of the present Technician license. The written examination would be at the same level of difficulty as that of the present Technician examination, but consistent with the privileges of the license. All amateurs now licensed as Technicians would become Class D.

The next step would be known as Class C and would convey the privileges of the present General license, but with phone subbands expanded by 50 kHz on 75 and 15 meters and by 25 kHz on 40 meters. Class C would be the entry level to high frequency (HF) operating privileges. To upgrade from Class D to Class C, an amateur would pass a written examination on the operational and technical qualifications required for HF operation and a 5 word per minute Morse code examination. All amateurs now licensed as General, Technician Plus, and Novice would become Class C. The expansion of the telephony subbands would result from "refarming" of the Novice CW bands that are no longer required for their original purpose. The third step would be known as Class B and would convey the privileges of the present Advanced license, but with phone subbands expanded by 50 kHz on 75 and 15 meters and by 25 kHz on 40 meters. To upgrade from Class C to Class B, an amateur would pass a more advanced written examination similar in difficulty to the present Element 4A and a 12 word per minute Morse code examination. All amateurs now licensed as Advanced would become Class B.

The final step would be known as Class A and would convey the full privileges of the present Amateur Extra Class, with telephony sub-bands expanded by 50 kHz on 75 and 15 meters and by 25 kHz on 40 meters. To upgrade from Class B to Class A, an amateur would be required to pass the most difficult written examination in the sequence. Consistent with the practice in many other countries, no additional Morse code examination would be required beyond 12 words per minute. All amateurs presently licensed as Amateur Extra Class would become Class A.

In their discussions, Board members emphasized that the objective is to rationalize and simplify the amateur licensing structure without reducing the requirements for any class of license. Where reductions in Morse code requirements are proposed, there would be a corresponding increase in written examination standards. On the other hand, Board members were adamant that simplifying the structure should not come at the expense of privileges already earned by amateurs. Therefore, present Novice and Technician Plus licensees, having earned entry-level HF operating privileges, would be granted the new entry-level HF license.

Adoption of the simplification plan marks the culmination of 30 months of work by the Board, during which time the input of literally thousands of ARRL members and other amateurs and prospective amateurs was considered. The Board debated a wide variety of options including both smaller and larger numbers of license classes, higher and lower qualification levels, and different privileges. Nine of the 15 Directors voted in favor of the plan, with six opposed. Following the meeting ARRL President Rod Stafford, W6ROD, observed, "The debate was at times contentious and the result was not unanimous. Some Board members preferred greater simplification; others were uncomfortable with some of the changes being proposed. However, every Board member, without exception, left the meeting knowing that each of his or her colleagues did what they believe is best for the future of Amateur Radio."

Members are urged to contact their ARRL directors to comment on this proposal. E-mail addresses are on page 10 of any issue of QST. Members also may comment on the proposal via the ARRL Web site, <http://www.arrl.org> or via e-mail at restruxarrl.org. NNNN /EX

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More Picnic: GENERAL

This year we will try a new adventure on Picnic Day. We are going to have a SWAP SESSION. You are encouraged to bring along some of the extra Ham gear scattered around your house and see if someone else wishes to bargain it away from you. Likewise, you might just find an item which you have a need to acquire. Some of you might wish to bring a "show and tell" item. Something you have bought or built that you wish to let others see. This is not a real tailgate where you bring all of your ~~junk~~ extras to sell. But, feel free to bring a few items and make a deal or two.

Entry to McIntire Park is off the 250 Bypass just before the fire station for those traveling west. If you are eastbound, exit just prior to the railroad overpass bridge and make a left turn at the stop sign. Negotiate the next intersection carefully. A wrong turn will send you back on to the bypass. If you end up back on the Bypass going west, turn right at the park entrance.

Please reserve most of the NEAR SHELTER PARKING SPACES for those with Handicap tags or those who have special access needs.

A special attraction this year is the challenge to our AARC President to demonstrate his methodology of transforming one of the old 8088 computers into a Pentium computer. This has been referred to as the "Put up or Shut up session." No admission will be charged. Rumor has it that a credit card and a toll free phone number are involved.

Joe, KD4RWX

More Picnic: It's Time To Eat (again)

The Annual AARC picnic (August meeting) is on Tuesday, August 11. We will be at shelter #1 (same as last year - first one on left at the top of the hill). What is different this year? The club will not only supply the soda, but the hamburgers and hotdogs. (We had such a great time chasing the "bull" and dogs at Field Day, we thought we would do it again.) [Those who wish something other than burgers or hotdogs should bring their own choice.] You are encouraged to arrive sometime after 6 PM. If the grill(s) arrive by then, or earlier, then we will start to cook around 6:30 PM. If not, when Bill (KC4TQF) arrives around 6:30 - 6:45 with his grill, we will not cook until 7 PM. Speed in cooking is of the essence (there will be many of us to feed). Bill likes his beef well done and his "coach" (W2EIU) is more inclined to like "less done" (almost still mooing) so two grills will speed things up considerably.

We are using the same food plan from Field Day which is: People to bring rolls, salads, desserts, snacks, etc. We have plenty of plates, cups and utensils. The Field Day picnic was great fun and had great food. This is a good opportunity for those of you who were unable to attend Field Day to enjoy a nice get-together which is similar.

By now, all of you who participated in the food preparation for Field Day, know how much I, and those who were there to enjoy it, appreciate all you did. We have some GREAT cooks in our organization. Again, I look forward to another fun event with everyone there. See you on Tuesday, August 11.

Jessie, KE4OID

Classes To Begin

Just a reminder that classes will begin soon. Starting September 2 and held each Wednesday night from 6:30--9:00 PM for ten weeks the classes will be at CATEC. Please pass the word to anyone you may know who is interested and if possible have them contact me at 804-589-8143 or condrey@esinet.net. Remember--the more the merrier!
Ann, W0ANN

BACK TO THE FUTURE

When I was first licensed in 1946, the entry level Ham ticket was Class B. After a year, a B was eligible to take a higher level exam and then became Class A... then the highest level available. It wasn't until the very early 50's that the Novice, Technician, Advanced and Extra designations were adopted. Incidentally, at that time everyone had General Class privileges. The system has been with us for more than 45 years with many sub-band divisions by class and the addition of the No-code Tech which gave us a big six classes of license.

Elsewhere in this edition of our AARC Newsletter (Page 1), you will find a description of the ARRL Board of Directors proposal for a rather extensive simplification of our licensing structure... something which many have requested during the recent decades. The League proposal is just that... a proposal. Already in some of the Ham Radio circles you will see comments that Ham Radio has been "sold down the river" or, just the opposite... why didn't they go still further! In some cases, you can bet that the writers have not yet read the proposal in depth.

In the desire to be sure that the AARC membership does have the very latest "in print," KD4RWX has included the copy here. He has also taken his editorial prerogative to make editorial comment. We agreed that my contribution this month would address the same subject, but in a different manner.

My purpose is to suggest that each of us read carefully what is being proposed, discuss it among ourselves... perhaps even make it the subject of a future AARC meeting... and then take action to let the FCC know what we like or don't like.

As an ARRL proposal, the words will be submitted to the FCC for their review and possible action. They could accept all, part or none of the League's ideas. The latter is highly unlikely, because the Commission has said that they would look favorably upon some form of restructuring. If they agree with the ARRL's approach it is almost certain that they will not take too long to issue a Notice of Proposed Rule Making, a release that says very basically: Here is something we would like to do and we now ask you for your comment. Now we can go to it with well-chosen words describing our likes, dislikes or total acceptance.

One last word for this column: Some of you remember "Incentive Licensing" several decades ago. It was an extremely divisive age in United States Ham Radio. Many people lost privileges they had enjoyed for years. The League has stated "... simplifying the structure should not come at the expense of privileges already earned by amateurs." Someone remembered history! And... I might once again be "Class A" with many others, too! Keep posted. 73.

/s/ Harry, W2HD

Change in Repeater's Frequency in the Harrisonburg/Rockingham County area

There has been a change in frequency for a local repeater here in the Harrisonburg/Rockingham County area. The operating frequency for the N4YET repeater on top of Massanutten Peak, which previously operated on 147.315/147.915 has been changed effective July 18, 1998 to 145.130/144.530. A PL tone of 88.5 may sometimes be required. This change was made due to the close frequency proximity to the 147.300 repeater in Bluemont which is used heavily for Skywarn operation. The 147.315 frequency pair will be reactivated at some future point in time and will be used as a lower profile repeater in the Harrisonburg or Shenandoah County area. Anyone who travels into the Shenandoah Valley area may wish to program their radio accordingly.
John, N3GLZ - Elkton, VA - Rockingham County

Proposed License Restructuring: Comments from a Tech Plus Novice and Tech Plus Hams Can't Handle It!

Having entered Amateur Radio as a Novice (5wpm) who was not enamored with code but enjoyed talking on SSB to Hams in more than 135 different DXCC countries, I became a bit peeved at the apparent slight to the NOVICE licensees. Why couldn't I also talk on the 15, 20, 40 or 80 meter bands? I am sure many believed that providing the NOVICE with the then new privilege to use Phone and limit their SSB to a portion of the 10 meter band was perfectly proper. Even if the Novice passed the General Class theory, that was not enough to get on the other bands with the "big boys." No, you had to also pass a 13 wpm code test, even though you were only going to use SSB.

Now, I am not a professor of logic, but I do have a science background and many gray hairs. Bias and favoritism, keeping the newbies in check, and "don't let them have too big a car before they learn to drive" seems to me to more likely describe the rationale.

You can imagine how I felt when the reality of the sunspot cycle phenomena became obvious to me. My DX opportunities on 10 meters dried up like a mud hole in Death Valley. Friends would say, "You just have to learn the 13 wpm code." "Now, you have the time to do it." My response to that is, again, WHY? Why should I (or anyone else) have to learn the 13 wpm code just to do on other bands, what I (they) had demonstrated capability of doing on 10 meters SSB? It makes NO sense. Control. Control. Control.

Novice And Tech Plus Hams Get Smarter in 1998/9

Now, here comes the ARRL in 1998 with a proposal to let the Novice (N) and Technician Plus (T+) licensed Hams do exactly that (if the ARRL proposal is adopted by the FCC). These formerly unqualified to talk (SSB) on the other bands "N & T+" Hams, with their 5 wpm code, would be wah-la - now capable. Instant smartness. Anyway, it is about time someone started to smell the roses. ARRL Board, good plan, in general. Some adjustments may be made after membership feedback.

Who Is Affected Around Here?

Now that my "pain" is expressed, I would like to discuss some of the implications to area Hams if the proposal is implemented by the FCC. The following table is derived from the AARC database that I keep on many area Hams including members of the AARC.

[AREA HAMS DISTRIBUTED BY LICENSE CLASS]

	a	b	c	d	e	f
E	37	60	86		A	86
A	17	32	67		B	67
G	22	43	89			
T+	29	65	122		C	250
N	1	6	39			
T	24	40	93		D	93
Totals	130	246	496			496

Columns' Legend

- a: Current license classes
- b: Class Distribution of the Current AARC members
- c: Class Distribution of the Current plus

On The Fritz Publications
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nonrenewed AARC members 91-98

d: Class Distribution of the Area Hams in Database

e: Proposed new classes

g: Class Distribution of the in new classes

For the purposes of the following discussion, I will assume the ARRL proposal IS enacted as is presented (see the reprinted QST from ARRL).

Perhaps most of the focus on the data will be placed on the Active AARC members and the total database numbers. Also, specifically, Keep in mind that these numbers DO NOT represent that all of the HAMS indicated are active. In fact a surprisingly large number of area hams are NOT ACTIVE in radio communications. From my limited observations, the activity of many Hams waxes and wanes over time. In this plan, the effects on the Novice and Technician Plus Hams is the most pronounced. They are immediately elevated to "General Class" status having been placed into the new Class C category. Instead of having the current 89 General Class Hams there will be 250 Class C (General Class equivalent) Hams. Of these, a good many of the 122 former Tech Plus Hams will NOT have studied nor passed the General Class theory. And, all of the 39 former Novices will NOT have passed the Technician theory and the General Class theory.

Should the AARC Provide Educational Opportunities?
 (If proposed ARRL license restructure is adopted by the FCC)

Some potential needs:

- ★ Theory Class for the Class D entry license
- ★ Theory Upgrade Class old Novice and Tech + Hams who become Class C but have not studied the theory which was previously required and still needed in order to be prepared to advance to Class B
- ★ Theory Class for Class B
- ★ Theory Class for Class A

I am sure many will object to this "giving away" of privileges. Just remember the ARRL's proposal is trying to avoid the guffaw which previously occurred when some amateurs lost privileges under a license restructure. In this case they use the phrase "entry-level HF operating privileges" to mesh the old entry-level with the new entry-level licenses.

In reality the old Novices and Technician Plus Hams will NOT be required to pass any additional theory exams in order to use their new privileges. However, I suggest that this presents our club with an opportunity to present some special educational opportunities for these Hams. We should encourage them to study that theory. It will certainly help them to become prepared to advance to the next levels where the theory may be best understood with the Old General theory under their belt.

Another exciting outcome of this new proposal is for the current General Class Hams. They have already passed the 13 wpm code exam and therefore will not need to pass any more code tests on their way to achieving Class B (old Advanced Class) and Class A (old Amateur Extra Class) licenses. They only need to pass two written exams. Would not some of them like to study for those exams in some classes/seminars designed to assist them? I think in this scenario, many would like to do just that. Our Educational Committee should make plans for such possibilities.

Many of the current Advanced Class Hams have remained at that license

class because of the 20 wpm code requirement under the "old" system. Now that they no longer have to jump that hurdle, I suspect that many of them will be very willing to prepare for the Class A license (old Amateur Extra Class). Again, several of the individuals might like to study for the exams in an organized class setting.

It looks like we will need a new revival of the Elmering Spirit. Many of the current Extra Class Hams should step forth and make themselves available to assist this new wave of Amateur Radio operators who will now want to study the more rigorous theory to achieve the higher class licenses, which here-to-fore seemed an impossible dream because of real or perceived beliefs about their ability to pass a 20 wpm code test. We will not have to listen to the, "I can't learn 20wpm code" excuse any more from the current General and Advanced Class Hams. All that is left for them to do in order to earn an Extra Class (Opps), a Class A license is theory, theory, theory!! That is the way it should be, in my humble opinion.

Class D (old Technician Class) Hams need only pass a theory exam and certify code at 5 wpm in order to operate on some frequencies on EACH band. You talking about fun? When you start working Alaska, South Africa, Norway, Isle of Capri, Turkey, Seychelles Islands, and many, many more DX locations, you will start thinking about putting a mobile HF rig in your car. Then you can talk to California or Germany rather than Waynesboro through the repeater. Now that is reason enough to study the 5 wpm code. You bet! The sunspot cycle will not knock you out next time unless it knocks out the "big guys" as well.

Suggested Change

My one suggested change to the ARRL proposal is in the names for the license classes. Why not retain Extra, Advanced, General, and Technician. Drop the Novice and Technician Plus. This will save a lot of paper if all Hams are issued a new Class A, B, C or D license.

A final Caveat. If either the ARRL proposal or a new FCC proposal is enacted and the FCC sends out new licenses, many Hams may lose their license because their address is not up to date in the FCC database. The FCC can withdraw their license - I think. Be safe. Make sure you always update your address with the FCC when your address changes.
Joe, KD4RWX

YL SPEAK

Where does the time go? I need time to "play" on the radio and to learn Morse code and to start taking that boat anchor apart and.... I've heard a rumor that each day consists of twenty-four hours but I really don't believe that. If it did then I (and everyone else I seem to talk to) would be able to accomplish more each day than we do presently.

Of course we all have to sleep and that takes a fairly good size chunk of the day. And most of us have to work so there goes another even larger chunk of the twenty-four hours. Now we begin to get down to business. The time left over is supposed to be leisure time. Unfortunately, there are a few things not included in the workday and the slumber time that still need to be done. Speaking strictly from the YL viewpoint (you men have your own list) the "little" extras come into play. The house needs cleaning, the dinner prepared, the animals cared for, the kids bathed and/or helped with homework, the laundry done, the lawn mowed, the flower beds weeded, and on and on and on!

So would someone please help me find more time in a day? I tried not sleeping and that didn't work. I've tried not working and I can't buy any new radio equipment after a VERY short time of doing that. I

thought it would be okay when the kids grew up and left home but I'm busier than ever. So, if anyone out there can help--I'm desperate for more time!

Ann, W0ANN



Tour de Valley Century Bike Event

Well folks, it's that time of year again. The Milepost Zero Bike Club is planning their annual Tour de Valley Century, and has asked the Ham community to provide communications. The all day event is Sunday, September 6. This is the Tenth Anniversary of the event; they are advertising it heavily and expect 25% more riders than in past years.

Check out their web page: <http://cfw.com/~ringgold/mpzero.htm>

Therefore, they need even more help. If you can give even part of the day, please let me know. This is a fun event, and the club takes care of us.

Please respond via email to either myself or to Bill Bearden, kc4tqf (mailto:KC4TQF@juno.com) -- or catch one of us on the air on 147.075. Thanks! Terry (KT4UO)

Two Metering on the Outer Banks

This summer as I packed to spend my usual two week vacation at Avon on Cape Hatteras I thought that I might not even bother to bring my handheld radio. Even though this would be my first trip down with an amateur radio license, I thought it unlikely that Cape Hatteras would have any repeaters. The two repeater guides I had showed two repeaters far to the north, in Manteo and Nags Head. With 60 miles between them and my location on the beach, I thought getting into them unlikely.

Nonetheless, I decided to do some internet searches to be sure the repeater guides' information was up to date. I discovered that there was an Outer Banks Repeater Association with a web site that had a link to the Fessenden Amateur Radio Society.

The name Fessenden caught my eye. I had read a long piece on the controversies and conflicts of early "wireless" history and realized that Reginald Fessenden was the first experimenter to successfully send voice and music via "radio waves." I had also bought a number of copies of a postcard sold in the town of Buxton on the Outer Banks which proclaimed that the area was not only first in flight, it was also the first in wireless radio! The claim is based on one of Fessenden's first experiments which was to send a voice signal from Bodie Island to Hatteras Island. He later impressed many Marconi ship operators by sending voice and music to their unmodified receivers while on duty at sea.

The Fessenden Association web site listed a number of repeaters and remotes which would enable the use of handhelds over the entire length of the Outer Banks, including the sub-island of Ocracoke. This is about 70 miles of beach! Well, no question on the handheld, it got packed immediately.

Here's a list of some of the frequencies;

2 Meter repeater located in Buxton	145.150..pl	131.8
2 Meter remote located in Hatteras	145.150..pl	203.5
2 Meter remote located in Salvo	145.150..pl	100.0
2 Meter remote located in Ocracoke	145.150..pl	107.2
440 repeater located in Buxton	444.925..pl	131.8
440 repeater located in Buxton	444.725..pl	131.8 (this ones cross linked to the main repeater on 145.15 in Buxton)

There are also two Packet nodes;

HAT-145.710 located in Buxton, Operated by KE4EQJ, Lou Browning

DARE-145.710 located in Bodie Island, part of the Fessenden Amateur Radio Society System.

My first walk down to the beach I announced my presence on the Buxton repeater. Randy, W4HAT, came back to me, welcomed me and proceeded to describe all the bells and whistles of the local repeaters. It turned out the club had just set up a link to the city of Columbia on the mainland on 147.15 (131.8). This is to assist during hurricanes. Telephone communications and power are some of the first things to go.

Randy went on to say that the number of local repeaters approximately equaled the number of local active amateurs! But, between visitors and the occasional evacuation, at times they are quite busy.

Other than the open auto-patch, one of the neatest features of the Fessenden repeaters was the digital voice recorder. By keying the repeater and hitting 8* on the keypad, the repeater comes back with a synthesized voice asking you to make a test transmission. After you do this, it plays back your transmission in its entirety. Instant radio check, and you get to do the evaluation of your own audio. While I can't substantiate the claim of complete beach coverage, I got consistently fair-to-good radio checks from every area I visited, with just the 2.5 watt handheld.

The radio club holds a net on Thursdays at 8 PM, where I introduced myself to the 4 or 5 other local operators that checked in. Mr. Norris, the NCS, mentioned that the Fessenden Association was very interested in providing visitors with a good amateur radio experience while on their vacations.

When I was leaving I decided to give a last call on the Buxton repeater. I got Randy again, and I asked him to thank all the local hams that had been so helpful during my visit. And I look forward to checking back in next year, to see what new features they may have added to the Fessenden repeaters.

Ed Deasy, KF4UTD



HEADPHONES

by Joe Giovannelli, W2PVY

Most of us hams have used headphones at one time or another. Why?

A couple of reasons immediately come to my mind: First, others in the household might be disturbed by the sounds of Morse code and QRM and QRN which are all too often part of what we go through when working other stations.

Second, headphones help clarify signals which are not as easily "read" when they are heard via loudspeaker.

Headphones, or "cans," have been around since the earliest days of radio and have been made with at least three different methods by which they convert electrical signals into acoustical ones. Can you name these three?

Well, there's the variable reluctance type, the moving coil variety, and the electrostatic breed of phones. My purpose in this piece is to explain each of these types of phones because I suspect that many of us use them without really thinking about how they operate.

Variable Reluctance Headphone Operation

Such phones have been with us starting very early in radio history. Most such phones are made in such a way as to permit you to unscrew the front of each phone. When you do this, you see a rather thin, flat circular disk of steel. If you pull it away from its mountings, you discover that it was held in its place by a magnet which you may be able to see when the sheet, or diaphragm, is removed.

A coil is wound in close proximity to the magnet. You will recall from basic electronics studies that, when current is flowing in a coil, a magnetic field is set up around the coil. Because the coil in these phones is associated with a "permanent" magnet, the field around this magnet will be increased or decreased, depending upon the direction of current flow through the coil.

You may ask why this is so, and you should. Remember that there are both north and south poles in a permanent magnet. This is also true of an electromagnet. (This is the kind of magnet which is produced when current flows through a coil of wire.) In one direction, the current causes the poles to attract but when that current direction is reversed, there is a repelling action. This is no different from the effect you have seen when two, permanent magnets are put close to each other. They either attract or they push away from each other.

The current supplied to the coil in these phones is AC, which varies in both frequency and in amplitude, depending on the nature of the "information" fed into it. This "information" is in the form of a signal at the output of a transceiver or receiver. It might be Morse Code, SSB or anything else "hearable" on the unit.

Now we replace the diaphragm (which we removed so we could see the coil and magnet structure). The magnetic field immediately pulls the diaphragm onto its mounting. The mounting system is carefully machined so the diaphragm is very close to, but does not make contact with, the magnetic pole pieces of the phones.

If a current is flowing in the coil, we said that the strength of the magnetic field changes in accordance with that current flow. Guess what? This changing amount of magnetism will force the diaphragm to vibrate. That, in turn, moves air, and that air strikes our eardrums and we hear the signal from our receiver.

When current flows in one direction, the diaphragm is attracted toward the magnetic poles. When the current direction reverses, the diaphragm is repelled from the magnetic poles.

I told you that current flowing in a coil will produce a magnetic field which will vary proportionally to the current. Then we should be able to put the diaphragm near the coil and forget about using the permanent magnet, right?

Wrong! Let's think about what actually happens. The current flows in one direction, pulling the diaphragm toward the coil assembly. The current reverses but it cannot repel the diaphragm. Rather, it pulls it in toward the coil again. This means that the diaphragm reproduces twice the frequency of the input to the coil. A few real cheap junk was made that way, but I haven't seen one of those dogs in years! No loss!

We need the attraction and repulsion of an electromagnet against a permanent magnet if these phones are to operate properly. Further, the strength of the electromagnet must never be greater than that of the permanent magnet or some frequency doubling will again take place.

I'll let you think about that one.

We can think of this action almost like we are varying electrical resistance. In this case we use the term "reluctance" to represent magnetic resistance, so to speak.

My description is not completely accurate but was given only to clarify the operation of this type of headphone. In reality, there are two, separate coils connected in series, one wound around the south and the other around the north pole of the magnet. This provides greatly improved sensitivity of the phones. This was very necessary in the days of crystal detectors and the very small signals fed into the phones.

The audio frequency response of this kind of phone is rather limited, especially at high frequencies. This has to do with the inductance in the coils, capacitance between turns, and because of the mass of the diaphragm.

Most phones of this kind were designed to have input impedances of 2,000 ohms. This is a compromise between best sensitivity and frequency response. That impedance made it possible for the phones to function with crystal detectors as well as being used as plate loads for vacuum tube output stages of early receivers.

Moving Coil Headphones

Many of the operating principles described for variable reluctance phones are the same as those which are embodied in the moving coil types. Any headphones use a diaphragm to move air. The diaphragms of moving coil phones can be very light, low-mass units because they are not directly associated with magnetic action. Mylar is often the diaphragm material in modern, moving coil phones.

A coil is attached to the diaphragm and is suspended in a magnetic circuit. There is a kind of ring, or slit which forms the space between the north and south poles of a permanent magnet. The coil is made to slip within this slit, or gap but does not touch it. If you have ever taken a loudspeaker apart, you will immediately recognize that this is exactly the same kind of construction, except that it is very tiny in comparison.

Thin wires lead from the coil to the input terminals of the phones. Signal feeds into the coil and either adds to or subtracts from the magnet in the phones. This makes the coil move in or out of the slit, depending upon the direction of current flow. The diaphragm is moved as a result of this alternating current flow, and again, diaphragm motion forces air to move. You hear sound.

The length of the coil must be just sufficient so that the loudest signal won't force the coil to be completely out of its gap.

Frequency response can be very wide indeed because the diaphragm itself is light and because there are very few turns on the coil attached to the diaphragm. An impedance of 8 ohms is typical for such phones, but I have seen 600 ohm impedances on some.

If the use of headphones is confined to ham gear, we won't be too concerned about excellent audio quality. In fact, somewhat poorer sound quality may result in less overall noise being heard and better readability to be had.

Electrostatic Headphones

You will seldom encounter a pair of these phones and you won't likely use them on your transceiver. Still, they are around so why not talk about them.

As always, we have a diaphragm. This is the lightest, low-mass device of any phones. It is nothing more than a thin sheet of mylar, onto which is sprayed a one or two molecule-thick layer of metal. This is necessary for electrical conductivity.

Picture a sandwich made of a screen, the diaphragm, and a second screen. The diaphragm is connected to a source of high voltage, perhaps 2,000 volts. One screen is connected to one end of a very high-impedance winding of a transformer. The second screen is connected to the other end of the winding.

There is another winding on this transformer into which signal is introduced. This winding typically has an 8-ohm impedance so it will be usable from any audio amplifier.

When signal is fed into the transformer, a high voltage is developed between the two screens. Remember that we said that a high, DC voltage is applied to the diaphragm. The high audio voltage pulls the diaphragm toward one screen and pulls it away from the other, depending on the direction of the audio signal at any given instant. This process may seem odd but you have seen it numerous times. You probably have run a comb through your hair and found that the comb could attract small bits of paper. It is this very same attractive force which is involved here.

Again, we have a moving diaphragm which moves air. Because the screens are used rather than metal plates, sound can escape and be heard.

Care must be taken during manufacture to be sure that the diaphragm never touches either screen or the mylar will be punctured and the phones ruined. Also, the transformer must be meticulously designed to avoid high-frequency losses because of capacitance between turns. Along with all of this, the devices must be rugged. Yes, we're talking EXPENSIVE here! I can't say that I remember the prices too well, but the Stax phones (probably the best of this design) have to cost at least \$1000.

Like the moving coil phones, this design has also been used in electrostatic loudspeakers.

CLUB BUSINESS

AARC Board Minutes July 7, 1998

The Board voted to send a Thank You letter to Tony Critzer for the use of the tent at Field Day. Also, a \$50 check is to be included. North Anna Exercise on July 21st.

August meeting is a picnic. We will supply the burgers and drinks. Bill (KC4TQF) said to clean your shacks and bring to picnic those items you would like to sell/swap. (see meeting notices in this issue)

AARC Regular Meeting Minutes--July 14, 1998

The June Minutes were approved. Voted Steven Traylor (KF4ZGD) as a new member. Steven's dad was present.

Harry reported on a found camera at Field Day. (Owner has since been identified)

Field Day Results were reported by Joe (KD4RWX) and the information was turned over to K4DND for final processing in order to send to ARRL by end of month.

Jessie (KE4OID): A sign-up sheet for the picnic was passed around. The picnic will be at Shelter #1 in McIntire Park.

Ann (W0ANN) reminded the group about the next class. It will start the first Wednesday in September at CATEC, 6:30-9.

ARES: Dave (K4DND) mentioned the North Anna test on the 21st. Marty (KF4FRO) will soon be named the EC for Fluvanna County. He will fill a vacancy created when Brian (KF4FRP) left for college.

Dave (K4DND) read the following statement of appreciation for all who made Field Day 98 a success.

Field Day.....

Thanks to the following:

- Everyone that came out and helped set up and endured the most retched heat imaginable Everyone that showed up and operated
- Everyone that showed up with food and stayed around for dinner
- Everyone that showed up to help with the take down. I would never have believed it would be possible to have that whole FD operation taken down and loaded up in an hour, but we did it because we have such a great group of folks that are willing to pitch in and help out however needed.
- Also, thanks to the Earlysville Volunteer Fire Department for providing the space and use of their facilities
- Just to illustrate the fact that FD is a collective effort, let me mention the following contributions, omissions are an oversight on my part.
- K4DU for ground rods
- K8EV for the 10- 1 5-20 beam
- KB4YQC for the really big battery
- KC4TQF and Crutchfield for the batteries
- KD4RWX for the Novice/Tech station (rig, batteries, and antenna)
- KD4RWX and KF4MEF for all the publicity, and the station books with logs, band plans and license copy
- KE4AEK for the battery, and on very short notice, and for delivery and pick up KE4DDR and Tony Critzer for the big tent
- KE4OID for taking such good care of us food-wise speaking
- KF4RKT and KF4VVBG for always being at the meetings and willing to help out with anything KF4RJO and the local chapter of the Am Red Cross for the smaller shelter KJ4XZ for the set up and take down organization and the sun shades we used on the Red Cross shelter
- N4FWA for his typical archers skill, and who says the Vikings were only good at rape, pillage and burning
- NM4R for providing the club license
- W2EIU for putting up the club banner, tent and for getting the Governor's proclamation
- W2JIM for providing the station license for the Novice/Tech operation
- W2HD for providing a meeting place, the 10- 15 -20 station rig and feedline, and keeping a high level of enthusiasm at all times
- W4SM for the satellite station

Final Field Day Contact Results
(Final point total in a later QST issue.)

	CW	DIGITAL	PHONE
BAND			
80			33
40	7	11	183
20	77	15	115
15	109	21	
10	Novice	Station	96
Satellite			49
Natural			
Power	25		
TOTALS	218	47	476

Stan (K2SSB) cautioned the group about mentioning over the air that you are going to be away from your house. (There are lots of scanners out in the hands of persons who do not have your best interest in mind.)

Following the meeting, Bill Lakatosh (W4TJ) presented the program. It was related to reasonable cost devices to use in measurements related to signal output and antenna goodness.

Treasurer's Report

INCOME	
Awards	3.00
Donations	
Cash	10.00
Packet	10.00
Phone	250.00
Repeater	15.00
Surplus	365.00
Total Donations	650.00
Dues	1978.00
Hamfest	27.00
Textbooks	14.25
Total Income	2672.25
EXPENSES	
Refreshments	305.88
Corp Fee	25.00
Field day tent	50.00
Parts & Equip	81.48
Postage & publication	**
Recreation	50.00
Telephone	309.45
Total Expenses	821.81
Total Income/Expense	1850.44
Balance forward	2042.30
Total Income	3892.74

** waiting on bill from chairman

Submitted by Joseph D. Fritz (KD4RWX), Secretary AARC

Editorial Page

Part 97 Regulations: How are you doing?

STATION IDENTIFICATION & KINDS OF KERCHUNKS

Fundamental rules for an Amateur Radio Operator's operations are contained in Part 97[.....]. There are often situations heard on repeaters which surprise listeners because the activity appears to be violations of FCC rules. At other times, what is heard may not violate the FCC rules, but it may seem to be inappropriate. Perhaps bringing this attention to some of the issues will be enough to encourage each of us to reevaluate our on the air practices for correctness and quality.

In this article and others which may follow, I wish to explore some of the practices, activities, occurrences I have heard on our local repeater and comment upon them. In doing so, I realize that there will be instances which will be recognized as being associated with a certain individual or individuals. If feelings are hurt, I apologize for that outcome. If the procedures improve, then all the better. Perhaps we all should reflect on our practices to see if they are consistent with Part 97.

If I am mistaken, then it is I who should be educated. Many 18-wheelers on the road today exhibit phone numbers to call to report their driver's driving behavior. Here is my number. 804 973-1738. Let me know how I am doing. I could be driving you up the wall.

In the end, I hope to initiate discussion. Not vindictive in nature, but discussion which might bring about a better understanding of what the correct procedures might be.

To jump right in, what is a kerchunk? Basically, a kerchunk is a single carrier transmission from someone's radio which brings up the repeater and the control operator of the radio does not identify. Oftentimes it is done purposely by a Ham to see if they can bring up the repeater from their current location. Sometimes in making sure, the kerchunk is repeated more than once. Then there is the situation when someone unknowingly pushes the PTT switch and doesn't realize it came from his/her radio. That too is a kerchunk. Who could possibly care about these simple actions? Did they hurt anybody? No one was talking on the repeater so there was no interference. But, remember - there are lots of listeners.

Part 97 classifies both of these instances as illegal unidentified transmissions. In the first instance the operator purposely violated an FCC rule and in the second instance it was inadvertent, but wrong. An operator is to make every attempt to avoid this kind of operator error.

The solution of the first is easy. Press the PTT and identify. If I did that, a simple KD4RWX from me would make my transmission a proper one. The second transmission will forever be unidentified.

Kerchunking is a real problem for those individuals who monitor the repeater for many hours and are to take action if the repeater is behaving improperly or being used improperly. This is especially true when someone kerchunks the repeater repeatedly, irregularly and always without identification. What action is the repeater control operator supposed to take? They are authorized to turn it off.

Each of us knows the identification rule. We must identify our station at least every 10 minutes we are in conversation and at the END of our final transmission. This rule is violated so many times on our repeater that on some days it occurs at least 15-20 times. There are several well known circumstances which I will point out. If I am wrong, tell me so. If I am right, then take steps to correct the behavior. If you are one of

the individuals who plays loose with the identification rule, perhaps you should realize that doing so helps to define you as a poor operator. I might add that these rule infringements are not just done by new operators. Some VERY experienced Hams are observed doing this on a regular basis.

Part 97 identification requirements are not suspended during a net. There are individuals who check into a net (identified) and when they are called on for comments (last time to talk on the net) they do not identify. Picky, picky, picky you say. Well, yes I am, but remember recently a lot of time was spent on the NPEN concerning how to send a traffic message according to a precise set of rules.

I have two suggestions: (1) Public service nets like bike races should assign someone to serve as an identification timer. There have been good practices and poor practices in these types of nets. There still needs to be consistency. (2) Regular weekly nets: The net control should instruct and encourage those individuals who have comments to do something like this. "COMMENT... This is [callsign] back to net." It is so simple, yet so often violated. Picky, picky, picky. You bet. As they say about buckling your seat belts, "It's the law."

Two other infractions drive me up the wall. [Get a life, Joe! It is only a hobby.]

Do you remember the definition of a kerchunk? Well, see if this is a kerchunk. Some operators (and very experienced ones) after carrying on a conversation and signing properly feel compelled to squeeze the PTT one last time to say goodbye. Neither speaks or identifies that last transmission. Each operator that does this is in violation of the rules. Plain and simple. If you asked them, they might say, "Well, that has been done for many years. It's a tradition." Correct but still wrong. Even some of the newer Hams are following the practice of those who are suppose to be doing it right. Except that it would be wrong for me to do it, I am tempted to squeeze my PTT right after they sign to make the point that that practice is truly an unidentified transmission.

A close relative to this is the operators who must say one last word (sometimes even sentences). They have conversed for a while and each signed correctly. But one decides to say something else ["73," "thank you," "see you tonight," "ok, I'll pick up the bread." etc.] They do not sign. This is nothing more than an annotated kerchunk. I hear this frequently. The solution is simple. Say your call after the word/s.

I almost forgot the "jump-in-jump-out-annotated-kerchunk." This takes place when two or more individuals are in a discussion and another Ham, not part of the discussion, feels compelled to comment. He/she jumps into the conversation and makes a very quick comment and leaves the air. They do not sign nor do they continue with the group. Sure I can tell who it was from the voice, but Part 97 rules do not acknowledge voice recognition as a form of station identification.

I hope I have tempted you to write a note to me correcting me where I might be wrong. But, reflect on my thoughts to see if you see your practice is mentioned here. Perhaps my ears will soon be hearing better practices. More Part 97 next time. The Editor, Joe, KD4RWX

Some words we use incorrectly. Some non-words we use which we should not. Some non-words we say not to use, but we turn around and use other non-words gleefully. Some words we have used which the FC has rules against such use. Some phrases seem not to be correct. Put on your hard hat! See you next month.

HAMFESTS & EXAMS



August 2, 1998

ARRL

+ Shenandoah Valley ARC, Berryville, VA Wayne Koehler, KE4PMS
200 Settlers Way, Stephenson, VA 22656
540-667-8629 E-mail: hamfest@Vvalley.com
http://www.Vvalley.com/svarc/hamfest.htm

September 19-20, 1998 ARRL

* Roanoke Division Convention, Virginia Beach, VA Art Thiemens, AA4AT
2836 Greenwood Rd., Chesapeake, VA 23321
757-484-2857 E-mail: artthiemens@juno.com
http://www.vahamfest.com

September 26, 1998

Non-ARRL

x Central Virginia ARA, Rustburg, VA Cleudus O. Neighbors, KE4VVB
1020 Lakeview Dr., Lynchburg, VA
804-239-5716 E-mail: ke4vvb@lynchburg.net
E-mail: kd4awb@lynchburg.net

VE EXAMS REGIONAL VE TESTING INFORMATION

AUGUST, 1998 - September 5, 1998

08/03/98 Anthony Amato 804-717-5237 Chester
08/08/98 John T Berry 540-543-2580 Culpeper
08/08/98 Pat Wilson 804-932-9424 Richmond
08/09/98 Judy Friel 540-297-5351 Bedford
08/15/98 Buck Mowbray 540-289-9790 Harrisonburg
08/16/98 Terrance V Vlug 540-890-6782 Roanoke
09/07/98 Anthony Amato 804-717-5237 Chester
09/07/98 Chrles L Beard 804-832-7651 Lynchburg
09/13/98 Judy Friel 540-297-5351 Bedford
09/20/98 Terrance V Vlug 540-890-6782 Roanoke

EXTRA!!! The Times EXTRA!!!

CLASSIFIEDS

(These ads are also located on the AARC Web Pages.)

Since this list is going out to the full AARC membership, the list will be printed as if all are newly listed.

Any ad which has been published in two (2) consecutive AARC BULLETIN issues will be removed unless the Editor has received a renewal request.

New ADS may be placed directly to the Editor:
804 973-1738 or kd4rwx@aol.com

Also: Submissions to the Thursday Night Swap Net will be included here if the Editor has received the information.

LISTINGS

WANTED: DUMMY LOAD:

Jerry, KE4NHP is looking for a 50 ohm dummy load. Call him at 804 985-8494.

CLUB BENEFIT: BATTERIES:

Unused but old Gates sealed lead acid batteries, 2 V, 5 VA. We know how to rejuvenate them with a just a little work. 5 cells for a \$1 donation to the AARC. Contact Ron, K4RKA, or Grayson, KF4FYI, if you are interested.

FOR SALE: SIGNAL GENERATORS:

A variety of RF signal generators for a variety of prices. If you want to add this useful piece of test equipment to your shack, please call Ron, K4RKA, at 804-973-3640 or call me on the 146.925 repeater.

FOR SALE: ICOM 736: 4/30/98:

Ann, W0ANN, wants to sell an ICOM 736 hf + 6 meter all-mode transceiver. It has 100 memory channels and is in good condition. If interested, please call Ann at 804 589-8143.

FOR SALE: TRANSCEIVER AND AMPLIFIERS:

Kenwood TR-7400A 2m transceiver- \$80. Heath 2m, 40 W brick amp- \$35, KLM 70W brick amp- \$55. Carter, WD4AYS, 804 -979-7383.

FOR FREE: RACK CABINET:

Ed, KF4UTD, has access to a 19 inch 5 foot tall rack with one panel and some power meters which is free to someone who will pick it up in Staunton. For more information, contact Ed at 804 971-5628.

WANTED MILITARY RADIOS:

AN/GRC-109 and AN/GRC-9. These are small compact, low power, HF TX/RX units. Carter Elliott, WD4AYS, 804 979 7383.

PUBLIC SERVICE EVENTS 1998

DATE	EVENT	DESCRIPTION	LOCATION	TIME	EVENT
August 8, Sat	JM1BR98	James Madison Stage Race #1	Orange High School	8:30 AM	Bike Race (Road Race)
August 9, Sun	JM2BR98	James Madison Stage Race #2	Stanardsville	7:30 AM	Bike Race (Hill Climb)
August 9, Sun	JM3BR98	James Madison Stage Race #3	Downtown Orange	1:00 PM	Bike Race (Criterion)
October 4, Sun	HRTW98	Heart Walk	Charlottesville		
October 4, Sun	DBTW98	Diabetes Walk	Charlottesville		
November 1, Sun	MNTP98	Montpelier Races	Montpelier		Horse Race

Please sign up at meetings when the SIGN UP CLIPBOARD is passed around. You can also send an email to Greg (N4PGS) indicating your interest in working particular events. Greg (N4PGS) and (Hein N4FWA)

1998 - ALBEMARLE AMATEUR RADIO CLUB - 1998

OFFICERS & BOARD MEMBERS

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Youth	Jessie Preston KE4OID	Brian Meadowcroft	KF4FRP
Awards		Joe Fritz	KD4RWX

OTHER POSITIONS

ARRL Liaison	Bob Pattison	K4DU
ARES/RACES Coordinator	Dave Damon	K4DND
ARRL VE Coordinator	John Gray	W6UZ
Trustee (WA4TFZ)	Morris Jones	NM4R
Newsletter Editor	Joe Fritz	KD4RWX

AARC BULLETIN

Contact Information

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 Charlottesville, VA 22901-1431
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 Phone: 804 973-1738

DEADLINE FOR EACH ISSUE

The 23rd of each month should be considered as the last date to submit information for the NEXT MONTH'S BULLETIN. In some circumstances it may be possible to send information a week later. Check with me. **Joe, KD4RWX**

CLUB MEETINGS

Regular Meeting: Second Tuesday of each month at 7:30 p.m.
Board and Technical Meetings: First Tuesday of each month at 7:30 p.m.
 Meetings are held at the
 National Radio Astronomy Observatory (NRAO) building,
 Edgemont Road (UVA area)

WA4TFZ REPEATERS

INPUT/OUTPUT TONE ACCESS (if required, etc.)
 146.160/146.760.....88.5 Hz (If enabled, DTMF 325* will produce temporary Tone off and 326* will turn Tone back on)
 Door alarm off.....DTMF 100*
 Emergency Autopatch to access 911 Center.....DTMF 911*
 Emergency Autopatch to access VA State Police.....DTMF 918*
 Autopatch exit.....DTMF 0*
 Time.....DTMF 10*
 Tone status of repeater.....DTMF 700*
 146.325/146.925.....88.5 if enabled
 223.160/224.760.....no tone
 449.250/444.250.....151.4 Hz (If enabled)
 145.030 MACHO node
 145.030 CHO Packet Bulletin Board

Northern Piedmont

Emergency Net

146.76 repeater -
 Thursday 8:00 pm
 Plus Swap/Trade
 Technical sessions
 Net Control:
 Dave Damon, K4DND

Youth Net

147.075 repeater
 Mondays 8:30 pm
 Net Control: Rotating

Information Net

146.76 repeater
 Monday 7:00 pm
 Newslines program
 general news
 Net Control:
 Harry Dannals, W2HD

YL Net

146.760 repeater
 1st Monday of each month
 Net Control: Rotating

Albemarle Amateur Radio Club
P.O. Box 6833
Charlottesville, Virginia 22906

<http://members.aol.com/wa4tfz/aarc/>

AARC BULLETIN
AUGUST 1998

Coming Soon
Part 97 Regulations: How are you doing?
The language we use. How do we sound to others?
Is cleverness the best basis for communication or is correctness? Does Part 97 give any guidance?
 Letters to the Editor will be welcomed.



TO CORRECT LABEL INFORMATION CALL PHONE 973-1738: Your License expires.. Oct 31, 2004 D Y A
 KA4JJD G 1998

CURRENT MEMBER

Michael F. Rein
 109 Sturbridge Rd.
 Charlottesville VA 22901