

the B-VARC BULLETIN

The Monthly Publication of The Brazos Valley Amateur Radio Club

Volume 19 Issue 6

June 1996



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2-Year Board Member:
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(713) 494-3741

1-Year Board Member:
Claude Sessions—K5HFY
(713) 242-6069

Past President:
Carl Cunert—WB8SVR
Allen Mattis—N5AFV (appointed)

NOTE FROM THE PRESIDENT *by Ron Grimes—WASSCE*

It's almost June. Must be almost Field Day.

I thought it would be interesting to look back in some of my old ARRL Handbooks and see if I could find a little history about Field Day. No luck. Then I looked in my new ARRL Handbook. At least it rated a sidebar and a small photograph. Then I tried my ARRL Operating Handbook's chapter on Contesting. It got a brief mention as being one of the early operating activities conceived to train radio amateurs in emergency communication. Seems to me that an ARRL activity as popular as Field Day should have rated a little more print space.

Oh well, reading about it isn't nearly as much fun as doing it.

I'm always amazed to see how in a few short hours on a Saturday morning, we can transform a peaceful corner of Katy County Park into a very impressive and sophisticated communication center. My first Field Day was in 1968 at a farm near Cleveland where we had two stations, one with a dipole and one with a beam, both operating HF SSB. Compare the simplicity of that setup with last year's B-VARC Field Day station where we not only had multiple HF stations, but a Novice/Tech station, packet, 6m, and QRP. If you have ever wanted to experience a ham radio activity that you've not used before, Field Day is the time to give it a try. Regardless of your license class, you have the opportunity that day to operate any and all the bands because of the Extra Class control operators on site.

If you've not been to a Field Day before, let this be the year you try it. After all, think about the things that make Field Day so special. Field Day is always the 4th full weekend of June—that's prime time for being outdoors. The days are sunny and mild, the nights are crisp and cool, and there is always a gentle breeze. Insects have hatched and gone for the summer, and are never a problem. And then, there's Field Day in Houston. The gentle roar of the big industrial strength fans, the aroma of citronella wafting

across the night air, and the incessant calling of CQ Field Day. How could you stand to miss it?

A B-VARC Field Day is successful only because a lot of club members pitch in and help with any of the myriad of activities that are needed. Antennas, station positioning, and other planning activities have been getting special attention this year to help make it a fun event, and one which may actually net us a high score this year.

Allen Brier is your Field Day Coordinator this year. Please pitch in and give him a hand.

By the way, Vic's breakfasts and Carl's gourmet dinners are a lot better than what we had at my first Field Day. I seem to remember pork and beans as the best part of the meal. Probably just as well, the rest is forgotten.

73, Ron Grimes—WASSCE

FROM THE EDITOR

by Jackie Burton—KC5OHJ

I have nothing to report this month except for the fact that Field Day is drawing near. See Allen Brier—WB5BIR's article in this issue for more information on this upcoming event.

The Editor

SPECIAL THANKS

All of us at B-VARC would like to extend our gratitude to the management at KHTV, Channel 39, for the use of their equipment and facilities in order for this bulletin to be published.

We would also like to thank Claude Sessions—K5HFY, and all the other B-VARC members who volunteer their services in helping to put the bulletin together. It couldn't be done without you.

B-VARC BOARD MEETING*by Jackie Burton—KC5OHJ*

A quorum of the Board of Directors met at the Sugar Land Community Center on May 2, 1996. This was the fifth board meeting of the calendar year. The meeting was called to order by President, Ron Grimes—WA5SCE, at 7:30 p.m.

The following Board Members and guests were present: Ron Grimes—WA5SCE, Jackie Burton—KC5OHJ, Pete Norris—KJ5SS, Terry McCoy—KK5RL, Bud King—N5UOG, Allen Mattis—N5AFV, Sam Wilson—N5CPA, Harold Parker—ND5F, Vic Richard—N5NAS, George Jolly—ND5E, John Moore—KK5NU, Allen Brier—WB5BIR, and Connie Brier.

Recording Secretary, Jackie Burton—KC5OHJ, presented the April minutes. The minutes were approved with a motion that passed unanimously.

Treasurer, Pete Norris—KJ5SS, presented the Treasurer's report dated April 30, 1996, showing a balance of \$5,601.07. Pete stated that B-VARC currently has a total of 138 members, which includes 9 life members. Pete stated that he had received the package of materials from the ARRL. The treasurer's report was approved with a motion that passed unanimously.

Board Member, Terry McCoy—KK5RL, stated that he had checked with several different places for B-VARC to hold its meetings, with no success. President, Ron Grimes—WA5SCE, stated that we would continue to meet at the Sugar Land Community Center until we found another place. Bud King—N5UOG, suggested that we publish the meeting dates for the remainder of 1996 in every issue of the B-VARC Bulletin.

Since the board meeting for July 1996 is scheduled for the 4th, President, Ron Grimes—WA5SCE, stated that he would choose another date and place for this board meeting and advise us accordingly. He asked Bud King—N5UOG, to cancel the Sugar Land Community Center reservation for July 4, 1996.

President, Ron Grimes—WA5SCE, brought a box of B-VARC business cards for anyone to take and pass out as needed.

Board Member, Bud King—N5UOG, passed along a message from Board Member, Claude Sessions—K5HFY, that Claude regretted not being able to attend the board meeting.

B-VARC Rag Chew Net Manager, Sam Wilson—N5CPA, reported that the net is

doing well, and that the check-ins for the month of April ranged from 11 to 17.

Public Service Net Manager, Jackie Burton—KC5OHJ, reported that the Monday night Brazos Valley Public Service Information Net was going well, with fairly high check-ins.

Jackie Burton—KC5OHJ, reported on public service events, stating that the Clean Air Challenge is coming up on May 12, 1996, and that volunteers were still needed for this event.

Allen Brier—WB5BIR, reported that he is working on putting Field Day together and would have more to report later. President, Ron Grimes—WA5SCE, asked Allen to put a newsletter article together concerning Field Day for the June issue of the B-VARC Bulletin.

Pete Norris—KJ5SS, reported that he had received approximately 8 calls concerning the upcoming Novice/Tech classes. He stated that he had materials for 40 people. The class will begin on May 13, 1996, at the same location as the code classes. He stated that the students will be through with the class and prepared to take their tests at the July testing session. "Now You're Talking" will be the textbook for the class.

Harold Parker—ND5F, stated that the VE exams were going well. He stated that they are averaging 10 to 15 per session. He stated that there were 10 to 11 people at the Pearland test session. Harold also wished to commend John Moore—KK5NU, Jackie Burton—KC5OHJ, and Jim Cahanin—KB5TBZ, for their efforts on the B-VARC web page. Harold also stated that Ken Edinborough—W5BKK, who is Terry Van Slyke—N5KID's father, passed away last week.

George Jolly—ND5E, brought copies of the B-VARC by-laws. President, Ron Grimes—WA5SCE, will look them over and make copies to be distributed to the board.

John Moore—KK5NU, reported that the name "bvarc.org." was registered with the Internic as of 4/19/96. John is in the process of trying to obtain a block of IP numbers for B-VARC as an amateur group. He also stated that the B-VARC Bulletin was now on-line beginning with the January 1996 issue.

President, Ron Grimes—WA5SCE, brought up the issue of having embroidered patches made with the B-VARC logo. Vic Richard—N5NAS,

stated that he had one he would present as an example and that we would try to find a place to make these for the club.

President, Ron Grimes—WA5SCE, stated that he would not be in attendance at either of the next two regular meetings (May and June). President Grimes asked Allen Mattis—N5AFV if he would preside over the meetings if Louis House—KD5GM was not able to attend those meetings.

President, Ron Grimes—WA5SCE, asked Pete Norris—KJ5SS if we had any problems with members not getting their newsletter or appearing on the roster. Jackie Burton—KC5OHJ, stated that she had received several calls in that regard and had passed them along to Jim Cahanin—KB5TBZ, who is in charge of maintaining the roster/mailling list.

There being no further business, the meeting was adjourned by Ron Grimes—WA5SCE, at 8:08 p.m. with a motion, second and unanimous vote.

**MEMBERSHIP REPORT***by Pete Norris—KJ5SS*

As of May 9, 1996, the current membership for the club is:

141**HOUSTON HAM INFO. LINE****495-3495**

The Ham Information Line is available 24 hours a day by calling the above number with a touch tone phone. Information on local clubs and test sessions is provided.

FIELD DAY 1996

by Allen Brier—WB5BIR

Once again, it's that time of year to dust off your camping gear and portable radio gear! On June 22nd and 23rd at the Katy County Park, B-VARC will be hosting Field Day 1996. Everyone is welcome and encouraged to show up, help setup, play radio, and have a good time. Please bring your friends, as well. Katy County Park is located at 24927 Morton Road at the Katy Hockley Cutoff Road in Katy, Texas. To get there, head West on I-10, then turn north on Morton Ranch Road. Katy County Park will be on the left before reaching the Katy Hockley Cutoff Road. Talk-in frequency will be 145.47MHz. The coordination for this year's Field Day will be a bit different than last year. We are splitting up responsibilities between several people since I do not have enough time, due to professional commitments. (In fact, I will not even be in town the week before Field Day. I will be returning on Saturday, June 22nd.) So far, the following people have volunteered to help: Gailen—N4SKR - Rigs & Operators; Rick—KF5NU - Antennas; Steve—WA3PMT - Publicity. I will be doing scoring and log submission after the event. We still need volunteers to help with food (most important!), bonus points, talk-in, equipment, pick-up (using a U-Haul as we did last year), Novice station, misc. VHF/UHF stations including packet, satellite, solar power, etc. Please call me if you can volunteer either as a coordinator or just to help out with any of the items above. We are especially needing help with the following: food (as I mentioned before), generators, late night operating (especially CW), and we could also REALLY use a few pop-up campers or RV's with AIR CONDITIONING!!! Last year, we had two pop-ups and one RV and it sure made operating a lot nicer! Of course, fans would also be appreciated for those operating without such creature comforts. And let's not forget the fun we had with the Novice station. Besides providing bonus points for the club, it helped some of our young hams to get some exposure to HF operating. Don't count 10m out! We made several hundred contacts last year on 28MHz.

I want to mention again the fact that we have, at this point, no volunteers to cook dinner for the club on Saturday night. Last year, KB5LDY, KA0TEN, NSUOG and Christy Carrigan did a great job and cooked all of us a wonderful meal, for which I wish to thank them again. Please call me to let me know if you can volunteer this year for this most

important job. After a hard day of erecting antennas, assembling stations, putting up with the heat and insects and making contacts, a good meal really helps alot!

So, if you can help out on Field Day...or just want to show up and operate, please call me at 342-1882 or 342-1590, e-mail me at 74323.1140@compuserve.com, fax me at 342-0940 or call one of the other guys listed above (especially the week before Field Day).

73 and see you there!



HAND GUN
Carry Concealed Permit
CLASSES
Bill Reid Don Brown
(713) 341-1500
Texas D.P.S. Concealed Handgun Instructors

Westheimer Airpark
a Division of Real Management Co.
Don Brown, Sr. Operations Manager
(713) 341-9641
Alt #: (713) 392-3587 (713) 240-1009
24215 FM 1093 • Richmond, TX 77469
One and One-half Mile West of Grand Parkway
Flight School • Hangarage • Tie Downs

THE INTERNET

by Jackie Burton—KC5OHJ

The following article is the ninth in a series of articles John Moore—KK5NU, has written for publication in the B-VARC Bulletin.

The Editor

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All You Want to Know About the Internet and More

by John W. Moore—KK5NU

Navigating Instructions and Some of the Landmarks

At this point, we can only assume that you've gotten a successful connect, enabled the Windows Socket Application (Trumpet Winsock or one of the others), and are passing the packets with aid and assistance of the internet TCP/IP protocol. Now, just what do all of those alphabet soup names and directions mean and how do you get there from here—or, can it be done?

Whether or not you're operating from a UNIX shell environment and the old familiar command line prompt, or you're

cruising seamlessly within the Windows environment, you still must know a little something about the commands and the language to use. So, let's get started: "http://" is the abbreviation for transfers of data that is coded with and sent via hypertext transfer protocol. It suffices to say that you need not concern yourself with just exactly how it is done or how the browser handles it, only that you have to request the information over the link in the proper form for your browser software to handle it properly. No matter if you're using Lynx, Netscape, Mosaic or Internet Navigator, all of them handle the material in the same manner to establish the link for the World Wide Web. The browser is also able to handle "file://" to enable the screen display of a file; "ftp://" to set up for the proper transfer of a remote system's file to your home terminal; "gopher://" to get information from a gopher site; "news://" to give you the capability to read news information files from the remote server and display the information on your terminal screen; and "telnet://" to enable you to take control of the system on the remote server. So, let's examine that mysterious address that you've seen displayed or that you want to get connected to.

<http://www.server.location.domain/Directory/Subdirectory/File.html>

The first portion tells what type of operation you are requesting and that your system is being set up to handle. In this case—http://—or the Hypertext Transfer Protocol. The next segment reveals that you're expecting information in www or World Wide Web format. "Server" is the name or names of the remote piece of equipment that you are expected to communicate with. "Location" is the name of the organization or entity that is the host location for this remote server. "Domain" tells you and the world exactly what type of business or military organization you are contacting: "edu" - educational; "mil" - military; "gov" - governmental; "com" - commercial; "org" - organization; and "net" - a network. In addition, at this point, a country identifier may also be inserted if the server is located outside the United States, i.e. UK for Great Britain. Then, following customary UNIX naming conventions, follow with the directory, sub-directory and then the filename of the material that you are wanting to view.

Sounds simple once you have the schematic.

More to come... John Moore—KK5NU

**VE EXAM RESULTS
APRIL 1996**

by Harold Parker—ND5F

B-VARC again sponsored and administered the ARRL's Amateur Radio Examinations that were held on Saturday morning, April 20, 1996 during the Pearland Amateur Radio Club's Ninth Annual Hamfest at the League City Civic Center in League City, Texas.

The VE Team consisted of:

Carl Albrecht - AA5JW
 Chuck Andrews - NI5I
 Louis House - KD5GM

The Assistants were:

Cass Germany - KG5IT
 Harold Parker - ND5F

A total of 15 exams were administered during the morning to 10 applicants. One (1) unlicensed candidate received a new Technician license and two (2) others upgraded with a total of 8 elements passed. The overall "pass rate" for the morning was 53%.

Congratulations to all the following who upgraded and/or passed exams:

Francis Davies - Element 2
 Jim Denton—KC5KBR - Technician Plus
 Albert Jones—KC5BFT - Element 3B
 Princewss Miller - Element 2
 Michael Murphy—KC5CIY - General
 Charles Rizer - Technician
 Kevin Vinther—N5NPT - Element 3B

Many thanks to all the Team Members and Assistants who volunteer their valuable time and effort each month.

73, Harold Parker—ND5F

**THE WORLD OF TEN TEN
INTERNATIONAL**

by Al Mattis—N5AFV

The weekend of May 4-5, 1996 was the Ten Ten International Spring CW QSO Party. Approximately a half dozen Houston area stations participated. There was one band opening, with stations in IL, WI, IN, NC and GA being worked from Houston. The S.H.O.T. chapter thanks all stations who supported the chapter by participating in the event.

If your travel plans include visiting Nevada this summer, the annual Reno Paper Chasers Bash will be held August 15-18, 1996, at the Circus-Circus Hotel in Reno, Nevada.

The Houston S.H.O.T. chapter is pleased to welcome its two newest members, KC5OBT—club station for the Memorial Emergency Repeater Association, and KC5TBV—club station for the Gulf Coast Ham Convention. Check-ins to the S.H.O.T. net have continued to range from 6 to 12 stations, with no out-of-town check-ins. A recent poll of the various chapters of Ten Ten International has resulted in the Houston S.H.O.T. chapter being listed as the 5th largest chapter, with 1,629 members. The Colorado Centennial chapter was first, with 3,495 members.

Paper chasers continue to be active on 28.345MHz and 28.375MHz when the band is open. Chapters with specials this month include Pirates of the Mississippi (IL), Steel City (IL), and Choo Choo Belles (GA). The Brooklyn Bridge (NY) chapter has announced that N2EZL is the new certificate manager for that chapter. The Trotters and Pacers (NJ) chapter also has a new certificate manager, WB2LLH.

Because we are currently in the low portion of the solar cycle, propagation on the 10m band continues to be poor. Domestic band openings still occur, but are usually of short duration. Occasional DX can be worked at times, especially Latin American and the Caribbean. There have been several reports of domestic E-layer propagation during the past month, and this summer-type propagation should become more common during the next couple of months.

Remember, the Houston S.H.O.T. (Space Houston on Ten) net meets every Tuesday evening at 8 p.m. local time on 28.488MHz. All amateurs are welcome to check in, even if they do not have a Ten Ten number. If you are not a member of Ten Ten International and wish to join the organization, please check into the net. There are a lot of exciting activities in Ten Ten, and many friendly people can be found on the 10m band.

**B-VARC RAG CHEW NET
CHECK-INS**

by Sam Wilson—N5CPA

The B-VARC Rag Chew Net is held on Wednesdays at 8:00 p.m. on 3.960MHz. +/- 3kHz. The following check-ins were reported for the month of April:

April 3, 1996

N5CPA (NCS), KD6QZH, KC5JAR, KG5KV, KK5DO, KE5SR, WD5CJL, KI5SC, KB5PAJ, KF5NU, KK5RL, WB8SVR, W5GLD, KK5XR, KK5W, KB5ION.

April 10, 1996

KG5KV (NCS), KB5TBZ, WN5A, KK5DO, WB8SVR, WD5CJL, KI5SC, KB5PAJ, KB5VTB, KK5RL, AB5OK, W5GHK, AK5G, W5IHY, W5EFB, W5GLD.

April 17, 1996

N5CPA (NCS), KF5NU, KC5NMR, KE5SR, N5OAC, WD5CJL, W5GLD, KG5KV, KK5CK, W5IHY, W5GHK, AB5OK, W5EFB, WA5TWL, KK5XR, KK5RL, AK5G.

April 24, 1996

N5CPA (NCS), W5EFB, KK5DO, KE5SR, KG5KV, KC5GKJ, W5GLD, KK5RL, WB8SVR, W5IHY, WA5TWL, WN5A.

PSN CHECK-INS

by Jackie Burton—KC5OHJ

The Brazos Valley Amateur Radio Club Public Service Information Net had the following check-ins for the month of April 1996. Only the count is listed, as there is not enough room to list individual call signs:

April 1, 1996	45
April 8, 1996	36
April 15, 1996	42
April 22, 1996	35
April 29, 1996	37

UPCOMING SWAPFESTS . . .

June 7-9, 1996

Arlington, Texas
 Contact: Tom Gentry—K5VOU
 (214)442-1721
 e-mail: hamcom96@aol.com

July 13, 1996

Texas City, Texas
 Location: Nessler Civic Center

SCANNER JACK'S CORNER*by Jack Roberts—KB5TMY*

Here are the Ft. Bend County 800MHz frequencies:

868.825
868.5375
868.2625
867.7625
867.2375
866.7625
866.3125
866.0125 TAC 1
866.5125 TAC 2
867.0125 TAC 3
867.5125 TAC 4
868.0125 TAC 5

Here are the Sugarland, Missouri City and Stafford Police Dept. and Fire Dept. frequencies:

860.9625
859.9625
858.9625
857.9625
856.9625

1. Program all 800MHz frequencies from the highest to the lowest.
2. Do NOT use delay.
3. Every 12 hours, you must lock out the new data channel and unlock the old data channel.

B-VARC CODE PRACTICE NET*by Bruce Paige—KK5DO*

The Brazos Valley Amateur Radio Club sponsors a Morse Code Practice Net, called BCN, on Monday and Wednesday nights at 8:30 p.m. CDST, with the exception of the last Monday of the month. The purpose of this net is to offer a consistent code practice schedule for all amateurs who are working on their upgrades. The practice text is sent at approximately 5, 8, 10 and 13 wpm. The signal type is MCW on the 2m frequency and CW on the 10m frequency. The source of the text is announced in CW before the text is sent. The length of the net is usually 25 to 30 minutes. Check-ins are welcome at the start of the net (on 10m, check-ins are taken from 8:15 to 8:30 p.m.). Tune in on 146.47MHz simplex or 28.146.47MHz CW, with a desire to increase your code proficiency and have a good time.

All copy will come from *QST* and code is generated from a computer text file.

PUBLIC SERVICE EVENTS*by James Belk—KC5ODL*

[None reported]

PROFILES**Ron Fields—WA3WEE**

After having been off of the HF frequencies for many years, my interest was resparked when my father—NS3D, gave me a Kenwood TS130S. It had some minor problems, but thanks to Paul—K5LTS (Katy, TX), it was soon working in excellent fashion. I then purchased a used Butternut vertical, and with the help of Dave—WD8RZA (Katy, TX), I soon had the vertical mounted and ready for DX. Although I did work a few stations on single side band, I kept going back to the CW section of the bands. I have used the Morse code since about age 10 and have always enjoyed working CW. I ended up purchasing a keyer/paddle combo and now I find myself working CW on the HF bands about 99% of the time. As the QSL cards kept coming in from my various contacts, I noticed that several of them had little gold stickers on them that stated "Fists-CW Club." This would usually be followed by a membership number. After working one of those stations again, I inquired as to what the Fists CW Club was all about. That station ended up sending me a nice newsletter from the Fists CW Club, along with an application. The Fists CW Morse Club is the active chapter of the International Morse Preservation Society, whose prime aim is the fostering of the International Morse Code and its use by amateur radio stations, both veteran and novice. They have members throughout the world. The monthly newsletter is very interesting and informative. One of the biggest spinoffs is the number of firm and lasting friendships which are a direct result of contacts between members. There is no speed requirement, and the only criterion for membership is a love of Morse Code. The club even has their own QSL bureau which distributes members' cards free as far as is possible, and many members have chosen to adopt the club QSL card. Membership is only \$15.00 a year, which I feel is well worth the cost. I immediately filled out my application and sent it in with the required membership dues. I am now a proud member of the North American Association of the International Morse Preservation Society and its Fists CW Club. My membership number is #2324, which should give you an idea of how rapidly this club is growing in membership.

For an application or additional information, please contact: Nancy Kott—WZ8C, P.O. Box 47, Hadley, Michigan 48440-0047. Her phone number is 1-810-797-5388. E-mail via nancy@tir.com.

If anyone has any other questions that I may be able to answer, please contact me at 281-421-4642 (pager).

Very 73es and hope to CU on the air.

Ron Fields—WA3WEE - Fists #2324

SCHEDULE OF WEEKLY NETS

	Monday
7:30 p.m.	34.94 Swap Net 146.94MHz
8:00 p.m.	Ft. Bend Cty EM Net 145.49MHz
8:30 p.m.	B-VARC Code Practice Net 146.47MHz (receive only)
9:00 p.m.	B-VARC 145.47MHz
	Tuesday
6:30 p.m.	RACES Net 146.84MHz (103.5PL)
8:00 p.m.	Ten Ten SHOT Net 28.488MHz
	Wednesday
8:00 p.m.	B-VARC Rag Chew 3.960MHz (+/- 3kHz)
8:30 p.m.	B-VARC Code Practice Net 146.47MHz (receive only)
	Friday
8:30 p.m.	B-VARC Code Practice Net 146.47MHz (receive only)
	Saturday
9:00 a.m.	Houston Emerg. Mgmt. Net 146.84MHz (SkyWarn/ RACES)
	Sunday
7:30 p.m.	ARES Net 147.30MHz
10:00 p.m.	AMSAT Net 147.10MHz
	2nd & 4th Sundays
1:30 p.m.	TX State RACES Net 7.248MHz

RFI, EMI AND OTHER STUFF*by Pete Norris—KJ5SS*

Now that we have backed into a definition of mass through the derived units of force and the acceleration of gravity, due to the mass of the Earth or some other mass, we can write another expression: $f=Ma$, which is a mathematical expression of Newton's second law of motion. Too bad we had to do this but we could define the slug, for instance, as the mass that produces one pound of weight. This requires another explanation which doesn't really help us

on our way, so let's forget this deviation and press forward.

We now have Length, Mass, and Time taken care of so we can move to derived quantities. To start with, velocity (v), or speed, is: $v=L/T$, and the units are, from our table, ft/s, m/s or cm/s depending on the unit set chose. Acceleration (a) is the rate of change of velocity: $a = v/T = L/T/T = L/T^2$, and has the units of ft/s², m/s² or cm/s².

Force (f), as was mentioned earlier, is a derived quantity with units of ML/T^2 , which is quite a mouth full. In the English system, the units are slugs ft/s² is called a pound. In the MKS system, we have kg m/s², which is called a Newton (N), after Sir Isaac Newton, and in the CGS system g cm/s² is called a dyne. This seems like a good time to update our table presented in the first of this series. (see page 6)

Now we are in a position to talk about energy and power, which we will do next time.

ANTENNA COLUMN

by Rick Hiller—KF5NU

A Shortened Delta Loop for DX'ing (Theory and Construction)

In a previous issue of the B-VARC Bulletin, I wrote about the DX benefits and construction of the full-size, 1λ long, vertically oriented, corner fed, vertically polarized, Delta Loop. Deployment of a Delta Loop requires only a single high point making it very beneficial to those of us who live on small city lots. After building and testing the full size loop, I decided to experiment and determine if I could improve it in some way. I thought that I could make it smaller and therefore make deployment easier. But, could it be made smaller and still maintain the great performance of the full size version?

The Theory

The full size DX loop highlighted in a previous article provided the mechanical benefits of a single support point and corner feed. However, I noticed that on the standing wave current distribution plot (Fig. 1) of a loop fed $\frac{1}{4}\lambda$ from the top that the horizontal (baseline) portion of the full size loop consisted of half and half opposing polarity current distribution. These currents effectively cancel and therefore eliminate any horizontally polarized farfield emissions. In light of this, I decided to try and

shorten the loop by applying loading within this horizontal portion of the loop.

By placing the loading elements within the horizontal portion of the loop, I could keep the vertical portions of the loop full size and in the identical orientation as the full size loop. (The vertical sides are the part of the loop that radiates the low angle radiation.) By starting the baseline right at the feed point and making the baseline the same physical length as the other 2 sides, the triangle would remain equilateral. I felt that this configuration should allow the shortened loop to provide similar vertically polarized low angle radiation performance to that of the full size loop. However, I did have concern over the loss of the vertical portion of the loop from below the feed point to the corner as this is an area of high antenna standing wave current.

I researched some ham radio magazine articles dealing with shortened Delta Loops (bibliography is given at the end). These articles gave me a starting point for my design.

The Design

If I was to have an equilateral triangle with 2 sides equal to $\frac{1}{4}\lambda$ then the 3rd side (the baseline) would also have to be the same physical length. From this, the total electrical length of the 3 sides of the loop is $3/4\lambda$, a non-resonant length. To provide a total electrical length of 1λ , the $\frac{1}{4}\lambda$ (physical length) baseline would have to be "loaded" to obtain $\frac{1}{2}\lambda$ (electrical length). (Loading is that act of replacing the physical element length with the appropriate value of inductors or capacitors of various forms.)

Implementation

I took this baseline reduction and testing in a few steps. (Fig. 2a through 2e shows the progression from a full size loop fed $\frac{1}{4}\lambda$ from the top to a baseline loaded short loop.)

1. I folded the loops lower $\frac{1}{2}\lambda$ into a baseline with a center $\frac{1}{4}\lambda$ inductive stub (Fig. 2b). This method was straightforward, but had deployment problems in trying to figure out in which direction to run the 8.5 ft. stub.
2. I then folded the stub using the efficient linear loading method (Fig. 2c). This worked fine performance-wise, but was not a straightforward deployment due to the increased complication of hanging multiple uneven length wires under the baseline.
3. I decided to try capacitive loading at the voltage loop (high voltage point) (Fig. 2d), but again, the physical

layout was not stable with the hanging wires, etc.

All of the above stub, linear and capacitive loading techniques measured well and on-the-air tests proved their performance but mechanically, they lacked ease of implementation and size reduction. For example, the capacitive loaded 40m loop only decreased the vertical height by 5 ft., not the 10 ft. for which I was hoping.

Finally, I tried loading the baseline with lump inductive reactance (coils). By using coils, it would provide a single wire baseline and maximize the loop height reduction. With the use of coils, I could efficiently load the baseline and keep the mechanical implementation simple and within close proximity to the baseline wire.

Loading Coil Values

The value of the inductors required was figured simply by using the chart for "determining coil inductance values for off center loaded dipoles" found in the ARRL Antenna Handbook—Chapter on HF Antennas for Limited Space. Since the loops lower $\frac{1}{2}\lambda$ current distribution was the equivalent of an inside out $\frac{1}{2}\lambda$ dipole (Fig. 1), I could apply dipole shortening techniques. I was reducing the $\frac{1}{2}\lambda$ into a $\frac{1}{4}\lambda$ space, therefore the antenna size reduction was 50%.

As seen on this chart, inductor values are determined by their location on the antenna. Mounting them at the feed point and at the opposite corner, "the high current points," the inductive reactance (X_L) values needed are lowest. Moving the coil locations away from the high current portions of the antenna leg requires an increase in the inductance of the coil.

I chose a midpoint location for the inductors based on the good performance of center loaded mobile whips. X_L at this point from the chart is approximately 950 ohms. Applying the formula $X_L = 2\pi fL$, the inductor value works out to be $5\mu\text{H}$ (per side) for the 40m version.

Using the Radio Amateurs Handbook section on inductance, I calculated the physical dimensions for 3" diameter "airwound" coil (3" was the cardboard tube size I had available). I wound the coils from 18 turns of #12 soft un-insulated house wire. The final coils would be supported within the baseline on "Thompson's Water Seal treated" broomstick handles (Fig. 3).

Construction

Follow the instructions for building the full size loop in the previous issue, but make the sides $\frac{1}{4}\lambda$ configure the baseline. Construction is straightforward and the comments in the previous issue should suffice.

Feeding

Although the feed impedance of the shortened loop is lower than the full size loop, the same $\frac{1}{4}\lambda$ series section transformer in the previous article can be used.

Performance

I have the loop hung from a 42' push up pole. The loop baseline is 12' from the ground and conveniently is just above my house roof. The triangle is oriented in a North/South plane and therefore broadside East/West. On-the-air tests on 40m over the last 9 months with Mel—KB5ION and Maurie—VK3CWB in Australia, have shown this smaller delta loop antenna to be as good a DX performer as the full sized version. It even keeps up with Mel's element Bob-tail Certain (most of the time, anyway).

Summary

If you don't have room for the full size vertical loop, this reduced size version could provide you with an antenna that will fit your available space. This loop, as with the full size loop, can be scaled for other bands. Remember, that when converting the loading inductors inductive reactance to Henrys, that the formula is influenced by the frequency. Build your coils accordingly. The series section transformer length must be adjusted also. Turn on your soldering iron and have fun.

If you would like a full size copy of this article with drawings and additional charts or you need to borrow any of the references listed, please give me a call during the day at 388-4466.

References

Low Band DXing—ON4UN John Devoldere—Section 2.8 Loops
ARRL Antenna Handbook—HF Antennas for Limited Space
Corner Fed Loop Antenna—Ham Radio Mag. 1976
Top Loaded Delta Loop Antenna—Ham Radio Mag. 1978
The Reduced Size Delta Loop—Ham Radio Mag. 1985
the B-VarC Bulletin Sept. 1995, Antenna Loading—KF5NU

STORM SEASON IS UPON US!

This is the time of the year when storm season is brewing. This is where your help is needed.

On Saturday mornings at 9:00 a.m., the Houston Emergency Management net is held on 146.84MHz (103.5 PL).

This net is not only for participants in RACES and SkyWarn, but for anyone with a willingness to help out and support this group of people which provides emergency communications in the event of a major storm or disaster.

At the May B-VarC regular meeting, I made a plea for everyone who was available Saturday mornings at 9:00 a.m. to check into this net. I noticed that several of you checked in, for which I am greatly appreciative. Let's continue to show our support and check into this net, especially with storm season upon us.

I had never really paid much attention to 146.84MHz until recently. However, last Saturday while I was out running errands, the weather was quite nasty and I tuned over to 146.84MHz to give it a try. I was impressed with the organization and efficiency in which traffic was handled, as well as the awareness of the importance of keeping the traffic as up-to-date as possible. In a situation where time could be of the utmost importance, efficiency is critical. Also, the geographical area of coverage was much larger than I expected, and it kind of gave me an idea of where the storm had been, where it presently was, and where it was going, not to mention the conditions at or near the location of the storm. I also found that there appeared to be a team of people out there willing to help in whatever way possible.

This, to me, is a great source for us, as amateur radio operators, to participate and help with this ever-needed service. Please make every effort to check into this net on Saturday mornings. If you're not particularly an early bird, at least open one eye long enough to say your callsign. It doesn't take long, folks. We need to show our support in every way possible, even if it's just checking into the net. Let them know that there are people out there who appreciate their efforts in holding this net.

Thanks for your support.

The Editor

IMPORTANT NOTICE!!!!

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CHANGE IN MEETING DATES

Due to the fact that the board meeting for the month of July falls on Thursday, July 4th, the July Board Meeting of the Brazos Valley Amateur Radio Club will be held on Tuesday, July 2, 1996, at 7:30 p.m. at the Sugar Land Community Center.

Also, the general meeting for the month of July will be held on Thursday, July 18, 1996.

Please make note of these changes so that you won't miss either one! These dates will be published again in the next issue of the newsletter, as well as announced on the Monday night public service net as July approaches.

<u>Quantity</u>	<u>English</u>	<u>MKS</u>	<u>CGS</u>
Length (L)	foot (ft)	meter (m)	centimeter (cm)
Mass (M)	slug	kilogram (kg)	gram (g)
Time (T)	second (s)	second (s)	second (s)
Charge (Q)	Coulomb (C)	Coulomb (C)	Coulomb (C)
velocity (v)	ft/s	m/s	cm/s
acceleration (a)	ft/s ²	m/s ²	cm/s ²
force (f)	pound (lb)	Newton (N)	dyne (dyn)



REMINDER . . .

The deadline for articles to be placed in the B-VARC Bulletin is the **15th** of each month. Please make every effort to have your article(s) to me by that date. If you know that you will not be able to meet the deadline but are planning to contribute to the newsletter for that month, you may call me to make special arrangements. Otherwise, if I do not have your article(s) by the deadline, it/they will not be published in that issue. Thank you for your cooperation.

—The Editor

B-VARC CALENDAR OF EVENTS FOR JUNE 1996

6th	7:30 p.m. - B-VARC Board Meeting	11th	VE Testing Session
13th	7:30 p.m. - B-VARC Regular Meeting	21st	6:30 p.m. - Friday night dinner (location TBA)
		22-23	Field Day

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Membership Application

New Renewal Roster Update Only

Bring to a Club meeting, or mail with check to:
B-VARC, P.O. Box 1630, Missouri City, TX 77459

Regular membership dues are \$16.00/year. Life Memberships are \$160/person. Additional family members may join B-VARC for only \$2.00/year each with no additional copy of the newsletter.

Name _____ Callsign _____ License Class _____

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Remittance:

Regular Membership _____	+ Family Membership _____	=	Amount _____
B-VARC Life Memberships at \$160/person	Qty _____		Amount _____
ARRL Memberships (\$31.00/year)	Qty _____		Amount _____
Worldradio Subscription (\$15.00/year)	Qty _____		Amount _____
			TOTAL _____

I agree to observe the By-Laws of the Club and the rules and regulations of the Federal Communications Commission.

Signature _____

Date _____



the B-VARC BULLETIN

The Monthly Publication of the
BRAZOS VALLEY AMATEUR RADIO CLUB
Serving the Greater Houston Area
(Club Call Sign—KC5OIG)

Editor-in-Chief: Jackie Burton—KC5OHJ (713) 460-1968
e-mail: jburton@nol.net or CompuServe—71573,471

The Brazos Valley Amateur Radio Club (B-VARC) was originally organized in 1978, primarily as an emergency communications group available to assist the communities of Missouri City and Stafford, when required. Since that time, B-VARC has grown and expanded its activities to become the most active HAM radio club in the southwest Houston area.

Today, B-VARC is truly a general-interest club with an impressive record of Public Service. The commitment to service has been recognized by the Amateur Radio Relay League (ARRL) with the coveted status of Special Service Club. We are proud of our members who represent the finest in Amateur Radio. Membership is not limited to licensed operators, but is open to anyone with an interest in Amateur Radio. Meetings are held at 7:30 p.m. on the second Thursday of each month, at the Sugar Land Community Center. Talk-in assistance is available on the 145.47, 444.55 and 442.5 MHz repeaters.

To obtain information about the club, its activities, or about joining B-VARC, contact Betty Wilcox—KA0TEN, at (713) 859-6512

B-VARC MEETING SCHEDULE		B-VARC EATING SCHEDULE
Thursday, June 6th 7:30 p.m. Open to <u>All</u> B-VARC Members	Board of Directors Meeting Sugar Land Community Center	Saturdays—7:00 a.m. to 9:00 a.m. Location: New York Coffee Shop, 9720 Hillcroft @ S. Braeswood
Thursday, June 13th 7:30 p.m. Program: QSL Cards—What? How? Why? by Randy Pollard—AK5G	B-VARC Regular Meeting Sugar Land Community Center	3rd Friday Dinners—6:30 p.m. SHARP! Locations announced each month

Volume 19 Issue 6 June 1996

BRAZOS VALLEY AMATEUR RADIO CLUB
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ADDRESS CORRECTION REQUESTED



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