



MTARA NEWS



| NOVEMBER 2021 | [Mountain Top Amateur Radio Association](http://www.mtara.org) |

President: Vic Marquez, KK6WKI

Secretary: Dave Esquer, K6WDE

Ed/Membership: Tracy Lenocker, WM6T

The Rim of the World ARES group is an ARRL affiliated organization and part of the Mountain Top Amateur Radio Association.

Vice President: Gary Johnson, AA6GJ

Treasurer: Patty Szychowski, KK6LWH

Past President: John Snedden, KT7P

President Vic's Message

Greetings from your President, Vic, KK6WKI.

Hopefully, we got a few MTARA members to participate in this year's Fire Prevention Week Special Event. As I mentioned in last month's newsletter, there are 12 special event stations, NOF thru N9F, plus 2 wildcard stations: KF2IRE and VE3FIRE.

Last year, N6F's QSO count was 2,174, the highest count out of the 12 stations, the year before that, our count was 1,479, the second highest. Ed, KM6UWI and myself called for November Six Foxtrot and made several QSOs, hopefully for another highest count record.

When I wasn't calling for N6F, I was chasing stations and I got a Clean Sweep (work any ten of the twelve special event stations).

Ed, KM6UWI really enjoys this special event because it's a little slower paced and you can have some nice QSOs with folks, on one particular contact, the person shared an experience, telling Ed how he had lost his home in the Camp Fire, November 2018 (The Camp Fire was the deadliest and most destructive wildfire in California's history).

If you didn't get a chance to participate this year, there is always next year.

We hope to SEE you on November 2, for our monthly club meeting at the Masonic Lodge in Twin Peaks.

All for now. Stay radio-active and as always, **if you see something, say something!**

73, Vic

Pacificon Wrap Up - K6WDE

Traveling to the San Ramon Marriott hotel from the 14th through the 17th of October were MTARA members, Dave and Tina Bremer, Dede and Tom Hermon, Denise Loxton, Gary Heston, Tracy and Jodi Lenocker, Dave and Sandy Esquer (yeah, sorta), Gordon West, Lauren Meissenheimer and Garry and Debbie Johnson. **Pacificon**, the **ARRL Pacific Division Ham Radio Convention** was once again hosted by the Mt. Diablo Amateur Radio Club and while of much smaller scale, it was nice to meet and greet with some of our new and old friends.

Friday was devoted to the Antenna Forum where all types of antenna discussions took place from ham radio antenna construction tips to learning and analyzing how Smith Charts can help you design and/or tweak your antenna system. That one was head-scratcher (or headache) for sure!

Saturday started off with Gordo's signature 8:00 am breakfast. Most of the MTARA members were on stage to read jokes. Gordon called the group his "pun-sters". Gary, W6LVC recorded the event. There were 23 different forums that you could choose from with something of interest for all. Capping off Saturday was the Pacificon Banquet with guest speaker Kristen McIntyre, K6WX, the Pacific Division Director, speaking on the future of ham radio.

Most importantly, Sunday brought early risers to the parking lot for the Swap Meet from 6:00 am to noon. Additionally, if you didn't have enough, there were 4 more sessions to attend in the Digital Radio Academy that day.

The vendors were on the floor all 3 days as well. Elecraft, ICOM, PowerWerx, RT Systems and Buddipole were the main vendors along with a collection of other

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'must-have' shops full of do-dads and essentials for us ham radio operators.

Don't forget, put Pacificon 2022 on YOUR calendar!

Monthly Club Meetings

Our monthly meetings are on the first Tuesday of each month. **November 2 is the next meeting, remember we are now at the Masonic Lodge in Twin Peaks.** The address is 26012 Highway 189, Twin Peaks, CA. 92391 adjacent to the Sheriff's Station. The meetings begin at 7:00 p.m. and last until about 9:00 p.m. Our meetings are open to everyone, licensed amateur radio operators or just interested parties. Our purpose is to provide educational opportunities, mentoring, radio communication training and radio communications for community events.

See you soon!

Treasurer's Report - KK6LWH

Our opening September balance was \$8,522.73 with \$2,315.00 in deposits and no expenses for the month. The total funds on deposit in our account is now \$10,837.73 as of October 5.



73, Patty

Online Zoom meetings ...

Our Zoom meetings are on THURSDAYS at 2:00 p.m. Check out the MTARA Website home page for a listing of what each of the presentations will be about.

The plan at this time is to try and carry forward until the end of the year. However we will be having some Saturday training classes and field operation trainings which will definitely be in lieu of a Thursday Zoom session.

There are holidays, conflicts and other events coming up so on the following dates **we will not be having a Thursday Zoom Session: November 11, November 25, December 23 and December 30.**

Map, Compass and GPS Skills Class - October 23

The Map, Compass and GPS class was held at the Masonic Lodge in Twin Peaks. It was a full class. We



learned about topographic maps, their usage and interpretations, compass skills and the use of modern GPS technologies.

The attendees were treated to a lunch of hot dogs, hamburgers, chili, beans, salad and watermelon.

What a great treat provided by the lodge and thanks to Chet and Paula.

Antenna Team Install in Big Bear - DONE!

The Antenna Team consisting of Tom, K6KTH, John, W6GC, Craig, KN6PLO, Johnny, KN6LUX, Dede, K6DDZ and Tracy, WM6T successfully installed a complete VHF/UHF radio system in the Masonic Lodge in Big Bear. It looks so professional and provides another fixed 50 watt station in case of an emergency.

2022 Board of Directors Election

If you are interested in running for one of the MTARA offices for the 2022-2023 years please let Vic, KK6WKI or Tracy, WM6T, know. So far we have the following Nominees:

- President: Lorna, KJ6GFS
- Vice President: Chet, AE6CO
- Secretary: Debbie, WB6LVC
- Treasurer: Nancy, K6CUB

Elections will be held at the December club meeting. If you feel the calling, you too can throw your hat in the nominations ring!

Remember, we vote at the December meeting, if you're NOT there, you may just find yourself on the BOARD!

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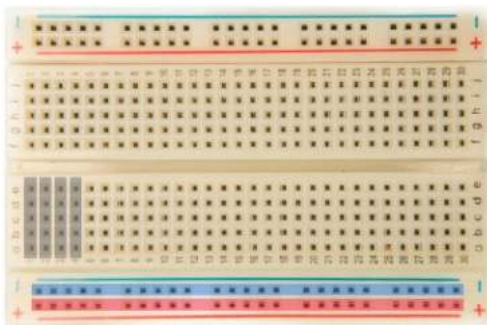
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Construction Techniques - AJ6FN

This month I will describe five types of construction for building electronic projects for the shack. There are other methods, but these are the ones that I use or have used. We will take a brief look at which type of construction is best for a given application. These methods are presented in no particular order.

The first type of construction, breadboard construction is best used for prototyping and is not suitable for a permanent use. Breadboard construction allows for a quick build and easy circuit changes without soldering.

The figure below shows how the rows and columns of a breadboard are connected together. The columns are connected (gray shading) both above and below the gutter that runs across the center of the breadboard.

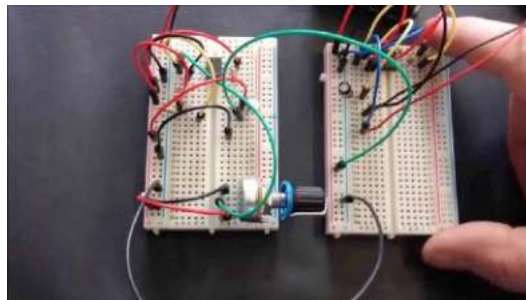
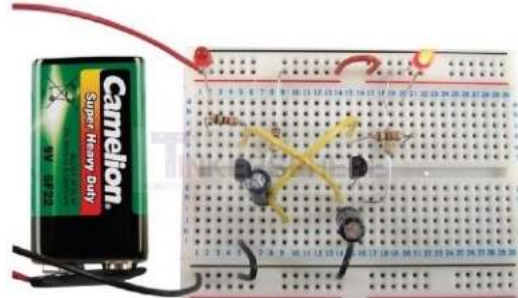


The rows (with the exception of the top and bottom two rows red and blue shading) are not connected together. The two rows at the top of the breadboard are connected like the ones on the bottom and are generally used as power supply buses. The breadboard gutter allows standard DIP integrated circuits to be plugged in with a row of pins on either side of the gutter. Most breadboards of a given manufacturer can also be snapped together to form a larger breadboard and breadboards can be purchased in various sizes.

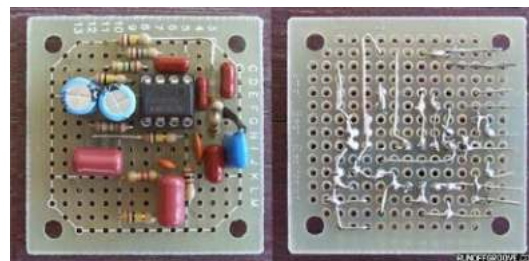
Here are a few images of circuits built on breadboards.

I often use breadboard construction to try out new circuits which may or may not work as intended the first time out. When I get the design working properly, I use one of the following construction methods to build

a permanent final project.



The next type of construction I will describe is perf-board (perforated circuit board) construction. Perf-board is circuit board with holes arranged in rows and columns spaced to accommodate standard component



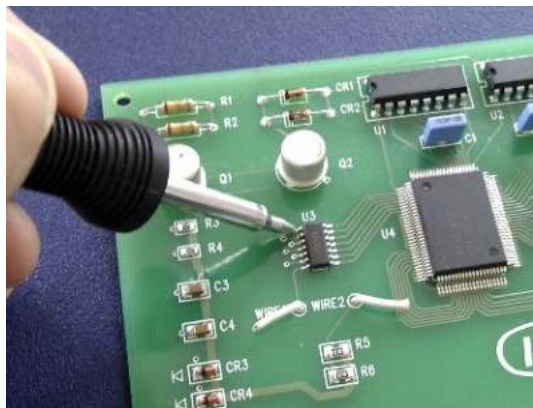
spacing of “through-hole” components. Some perf-boards may or may not have foil solder pads

around each hole while others have foil patterns resembling the breadboard rows/columns mentioned above. The figure above shows the top and bottom of a circuit built on perf-board. Perf-board construction is robust and is often used by the home builder to build permanent circuits. Whenever I use this type of construction, I highlight each connection on the schematic diagram as I make that connection on the board. When the entire diagram is highlighted, I am finished.

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Next up is printed circuit board (PCB) construction. Printed circuit boards provide a solid, easy to build, and robust circuit platform and is standard for commercially made products. A printed circuit board begins as an epoxy/fiberglass circuit board with a layer of copper foil on one or both sides. The foil is etched in such a way that unwanted foil is removed from the board leaving a pattern of conducting foil traces connecting various components. This pattern of foil traces is used in place of wires. The pattern is usually drawn using PC board software. This pattern can then either be transferred to a copper clad circuit board and etched in the home shop or sent to a PC board manufacturer to be professionally etched. Component designations are often silk screened on the top (component side) of the board so the builder knows where to place each component. Figure 5 shows the top side of a double sided PC board. This board has both through-hole and surface mount components. Some of the through-hole components are R1, R2, CR1, CR2, U1 and U2 while some of the surface mount components are R3, R4, CR3, CR4, U3, and U4.

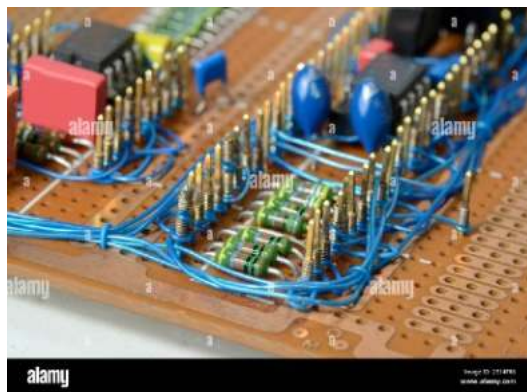


Etching boards at home involves the use of chemicals, a drill press, and can be time consuming. If you are not comfortable using

chemicals or do not have a drill press, sending your computer generated circuit board pattern to a circuit board manufacturer is simple and relatively inexpensive. Professionally manufactured boards are almost always better quality than those made at home. Check the Internet for free PC board software and board manufacturers.

The next method, wire-wrap, is a method best suited for prototyping complex circuits with many wires such

as a project containing individual microprocessors, RAM, ROM, and peripheral chips. These devices have



address and data buses that require connections to most devices on the board (lots of connections). This figure shows a wire-wrapped circuit board.

Wire-wrap is done using either a small hand tool or a wire-wrap gun. These tools wrap about eight turns of wire around the legs of IC sockets or other components making a solid connection. The wire used for wire-wrap projects is AWG22 – AWG 30 which is very fine wire. A special stripping tool is used to strip insulation from the wire without nicking the wire itself. The wire-wrap tool is used to wrap the wire tightly and neatly around posts. The IC legs/posts are about one-half inch long so multiple connections can be made on the same



post. This figure shows the two types of wire-wrapping tools mentioned above.

Wire-wrap was popular many years ago before the advent of

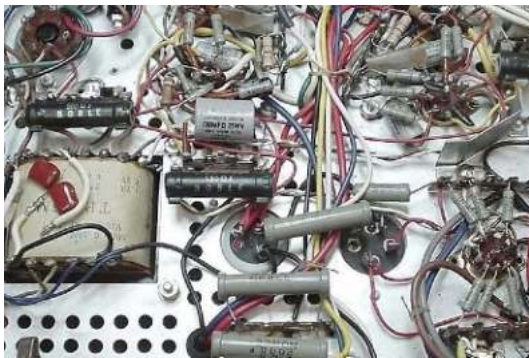
microcontrollers which have the support circuitry built-in. However, it is still a suitable method for homemade projects.

The final construction method I will look at here is point-to-point wiring that was commonly used with

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tube radios. Before dismissing this method, consider that many hams today still build one or two tube CW transmitters or regenerative receivers similar to the ones used a few decades ago. The figure below shows the underside of a vacuum tube equipment chassis. The tube sockets, electrolytic capacitors, power transformer and terminal strips are mounted to the chassis. Those components are interconnected with wire, resistors, capacitors, etc. This may look messy



but the wire lengths are short and direct in order to avoid unwanted oscillations or induction of stray signals. If

you're smiling nostalgically at this type of construction, then like me, you probably remember having to wait for the TV to warm up after turning it on.

These are a few methods for constructing projects for the ham shack. There are other methods used such as "Dead bug" style or Manhattan style which can be seen on the Internet.

Whichever method you choose, Fall is here and it's a great time to build something just for the fun of it or to finally build that gadget for the shack that you've been putting off.

Good luck and good building,

Greg ~ AJ6FN



Local Weekly Nets

	Repeater	Time	Activity	Purpose
Monday	MTARA-2	7:00 p.m.	Weekly Check-in	MTARA news
Monday	144.330 Mhz	8:00 p.m.	'Gordo' net	Simplex readiness
Tuesday	MTARA-5	7:00 p.m.	Weekly Check-in	Tech discussions
Wednesday	HF	7:30 p.m. first monthly Wednesday	7.223 Mhz	Band(s) status
Friday	MTARA-5	5:00 p.m.	XYL Happy Hour!	It's Friday!
Daily	CBARC	7:00 a.m.	Technet	Elmer sessions

Membership Info

Membership in the Mountain Top Amateur Radio Association© is open to any person interested in learning more about Amateur Radio.

Members do not have to be a licensed Amateur Radio Operator to be a member but licensure is recommended. Members must be active in club activities which includes trainings, events, club meetings and Field Day. Membership is on an annual basis and is from January 1 to December 31 of each year. There are no prorated memberships. The annual membership is \$20 for a single member or \$30 for an entire family.

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Current members do not need to fill out the renewal application form for 2021. You can just mail your check to MTARA, PO Box 2441, Lake Arrowhead, CA 92352-2441. We already know who you are. Those who joined in November or December of this year are already paid for 2021. The membership form can be downloaded by [clicking here](#).

The NEW YL Corner! - WB6LVC

YLs can be found all over the world. From past columns, you know of YL's from the past, clubs in the United States and Britain and even authors of fictional works. But were you aware of an amazing YL from India! Her name is Bharathi Prasad. She is a resident of Delhi, India. But she doesn't just sit there, in her home, making contacts. Oh, no; she has traveled the world, giving talks, and taking part in DXpeditions.

India has an exceptionally large and enthusiastic ham community. The government has tight controls on who can acquire a license. Individuals must pass a lengthy exam before they receive a license. The community of hams is heavily male dominated, as you can imagine, but many more women are seeking college degrees in engineering. And growing groups of them are looking to get their licenses, depending on their marital status.

Prasad became a ham in 1980. At that time, there were only about 50 YLs in India. She had a background in science, but not electronics. She also did not speak English. And because of her family and culture, she faced opposition when she showed interest in this hobby. She was told that there were men as well as women on the air and she could not talk to men. Prasad received support from her brother-in-law and eventually convinced her family to let her try. Prasad worked extremely hard to pick up the skills that she needed. Today she is

among the most prominent ham in the country. Her call is VU2RBI. She is an extremely active ham. Prasad knows that becoming a ham opened the entire world to her. Back in 1983, she became the first YL from India to go on an DXpedition. She travelled to Lakshadweep, staying on site for 15 days. She made contacts around the world with over 25,000 hams! And she was only 22 years old at that time. In December 2004, she set off with 15 men and women to the Andaman and Nicobar Islands to set up some portable stations. While there, an earthquake hit Indonesia that triggered a tsunami. For 25 days, while most of the others in her group roamed the islands or returned home, Prasad sat in her hotel room with headphones and a radio, working up to 18 hours a day. The entire group made 35,500 contacts across the world during that time frame.

Bharathi Prasad has become the Chief Co-Ordinator at NIAR, National Institute Amateur Radio. She has travelled to many locations to speak or receive awards. In the 2000's, she visited with hams in Brisbane, Australia. And in 2005, she was the speaker at the DX Convention in Visalia, Ca, held on 4/16-17. She also received the Special Achievement Award at the Dayton Convention in the same year. Most recently, she contacted AA6GJ-Yes, that's right, my Gary, to ask about his recorded license classes for Technician and General classes. She informed him that she is an advance license holder in India, and she wanted to

study so she could acquire a reciprocal license. We were "blown away," to say the least. At this point, she has not sent any additional emails, so we are not sure if she is studying with his classes or has chosen another path. Either way, it was amazing to be in contact with this outstanding YL.

Until next time, 33 YLs!

-Debbie

**eat
sleep
HAM
RADIO**

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Upcoming Calendar of Events

Activities that MTARA will be participating in or supporting during the upcoming months:

- ▶ October 30-31, [CQ World Wide DX Contest, SSB](#)
- ▶ November 2, MTARA November Monthly Meeting
- ▶ November 3, “**I am lost**” trail ride, 9:00 am to 1:00 pm
- ▶ November [6 - 8 \(CW\)](#) and [20-22 \(SSB\)](#) ARRL Sweepstakes
- ▶ November 13-14, [Day of the YLs Contest](#)
- ▶ November 27 - 28, [CQ Worldwide DX Contest](#) (CW)
- ▶ December 4 - Blue Jay Christmas Parade communications support - more info to follow!
- ▶ December 7, MTARA December Monthly Meeting - **WE VOTE TONIGHT!**
- ▶ January 23-29, [Quartzfest!](#), the real deal, no PAUSING THIS YEAR.
- ▶ January 29 - 30, [Winter Field Day](#), come out and play portable!
- ▶ TBD - Digital Modes Workshop

Upcoming VHF/UHF and HF Ham Radio contests or special events

A few fun events that club members can participate in and/or sharpen their communication skills with!

- ▶ [Slow Speed Con\(Test\)](#) for CW operators, **EVERY SUNDAY** (5:00 - 6:00 p.m., PDT) and **EVERY FRIDAY** (1:00 - 2:00 p.m., PDT), a great learning tool for us new operators!
- ▶ [Weekly Phone Fray](#) by NW2K. A great way to get your feet wet for 30 minutes. It is weekly on Tuesday nights from 6:30 p.m. to 7:00 p.m. PST on SSB. The rapid-fire exchange is OP name and location ('Dave CA', e.g.). Folks start on 15 meters and then migrate to 20, 40, 80 and even 160 meters, its fun to watch the bands change as seasonal propagation does!
- ▶ Ongoing, updated [Contest Calendar](#) sponsored by WA7BNM, there is something for everyone, check it out!

MTARA shirts and jackets

We have our optional MTARA logo shirts and jackets available so that you too can look smart and cool! If interested, please contact Mary at Classic Images in Crestline. Her telephone number is 909-338-2281 from Tuesday through Friday at 23723 Rocky Dell Drive, Crestline, CA 92325.



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Welcome to "Ponder the Pool" by AA6GJ

Ponder the Pool is my column for the MTARA Newsletter. Every month I pick a point to ponder (a question) from one of the three FCC question pools and try to explain it more and review the concepts because,

"If you don't use it, you lose it!"

This time, we will ponder a question from the General Class pool: Question No. G9D12 (Pg. 170 in Gordo's General Book)

G9D12 – What is the common name of a dipole with a single central support?

Making an Inverted Vee Dipole

No. 1 Decide what band and frequency to operate on.

OK, let's pick 6 meters. It's a small antenna, easy to work with, and it fits in the room.



No. 2 Do the math. 50.125 MHz 50.125 MHz is the 6 Meter Calling Frequency.

Length (in Meters) = $300 \div \text{frequency (in MHz)}$

$$\underline{\quad\quad} \div \underline{\quad\quad} = \underline{\quad\quad} \text{ Meters}$$

Length (in Feet) = $468 \div \text{frequency (in MHz)}$

$$\underline{\quad\quad} \div \underline{\quad\quad} = \underline{\quad\quad} \text{ Feet}$$

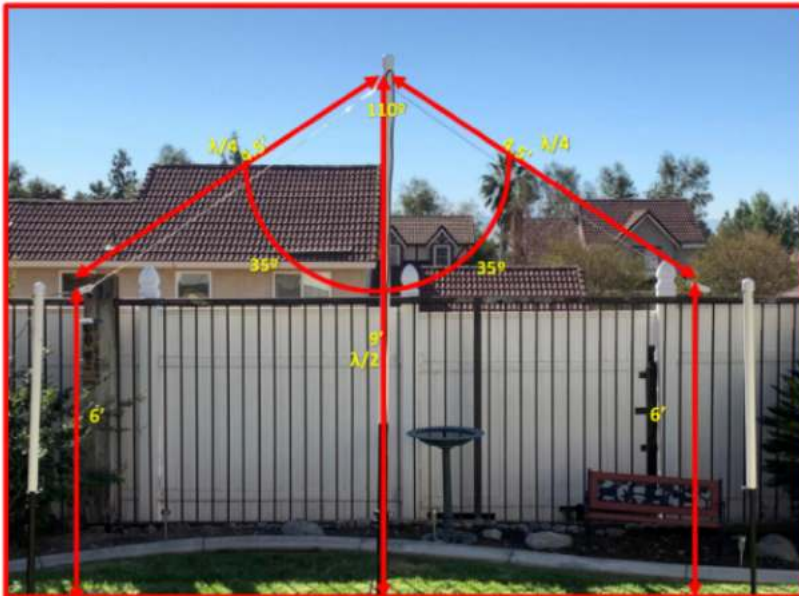
3.6% subtracted to get Inverted Vee Length = $\underline{\quad\quad}$ Feet

No. 3 What will the antenna look like?

We are making an Inverted Vee Dipole. It's a 9 Foot wire cut in half. (Dipole = 2 Poles)

We will put half on one side of the feed point and the other half on the other side.

Total feet $\div 2 = \underline{\quad\quad}$ Feet



3 Tripods - Center 9' Half Wave Length off Ground - (2) 6' to create two 35° (70°) Angles
A Straight Across Dipole would be 180° $\underline{\quad\quad}$ ° - $\underline{\quad\quad}$ ° = $\underline{\quad\quad}$ ° at Apex

This is going to be a little different Ponder the Pool. I am going to give you a few instructions, and then you will be doing the Exercise on your own. Don't worry, the answers are at the end of the article upside down. Don't cheat now! Ok, here we go.

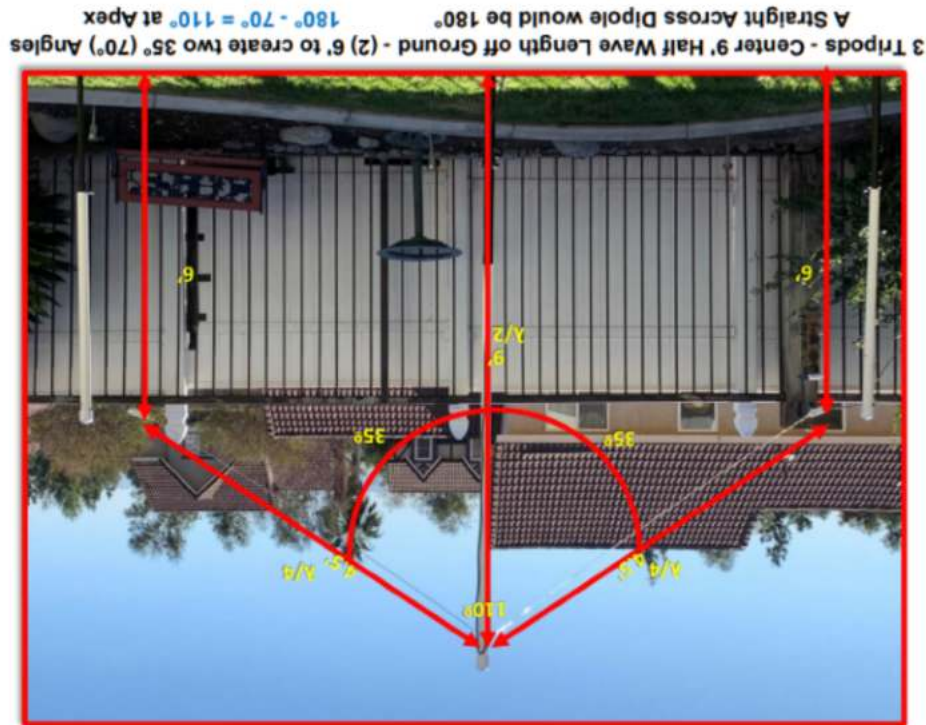
Your assignment, should you choose to accept it, is to design a dipole antenna called an Inverted Vee. The inverted vee is probably one of the easiest HF antennas to deploy. You will need one center support. The "legs" of the antenna can come all the way to the ground, or it can be supported on the ends by poles, fences, walls, tree, etc. So, all you need is a piece of #14 wire, some coax, a couple of insulators, your supports, and a calculator. Now, look at the picture.

All of the information you need is in the picture. Plug in the numbers on the lines and do the math. The inverted vee antenna is slightly shorter than a regular dipole. In this case, because of the 110° angle at the apex, it is 3.6% shorter.

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Hint: Take the measurement that you get from the “length in feet” and subtract .336. This will give you the correct length of the whole antenna. Now you can carry on.



The last equation deals with the angle at the apex of the antenna. A straight across dipole is 180°. The inverted vee bends down to create the vee. The angle at the apex should be between 60° and 120°. This angle also is important for obtaining a 50Ω match for your 50Ω coax and your 50Ω transceiver. Extra credit if you can figure out how I did it. So good luck! But, most of all have fun!! The answers are below.

The official answer to this question is:

G9D12 – Inverted Vee

There you have it, Ponder the Pool for another month. I hope it was helpful. Stay tuned, and we’ll do another one next month. 73 – Gary

If you have any questions or comments, drop me an email at AA6GJ@arrl.net

No. 1 Decide what band and frequency to operate on.
 Ok, let's pick 6 meters. It's a small antenna, easy to work with, and it fits in the room.

No. 2 Do the math. 50.125 MHz 50.125 Mhz
 Length (in Meters) = 300 + frequency (in Mhz)
 $300 + 50.125 = 5.99$
 Meters About 6 Meters
 Feet → 19.6522 9.82612
 Full λ Half λ

Length (in Feet) = 468 + frequency (in Mhz)
 $468 + 50.125 = 9.34$
 Feet
 3.6% subtracted to get Inverted Vee Length
 $9.00 = 9.00$
 Feet About 9 Feet

No. 3 What will the antenna look like?
 We are making an Inverted Vee Dipole. It's a 9 Foot wire cut in half. (Dipole = 2 Poles)
 We will put half on one side of the feed point and the other half on the other side.
 Total feet + 2
 $9.00 + 2 = 4.50$
 Feet About 4.5 Feet

Making an Inverted Vee Dipole