



# ZERO BEAT



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## President's QRM

Welcome to Spring! Though the propagation has been a bit up-and-down in the last month, there is still some interesting DX showing up randomly on the HF bands as solar conditions finally improve. I'm also having some fun with an off-center-fed vertical antenna that works well on 17m and 15m without a tuner, and 12m with some tuner assistance. I think I might have to keep "testing" it for a few more months – just to be sure, you know.



VHF enthusiasts were a bit disappointed in the late days of March, when an X-class solar flare and an associated coronal mass ejection failed to bring an aurora. Just remember: Nature does as it pleases, so don't be discouraged. There will be more opportunities as we go through the peak years of Solar Cycle 25.

March's membership meeting was fun and informative, and we got to hear all about the Solar Eclipse QSO party which takes place on Monday, April 8 from 10 AM to 8 PM EDT (1400Z to 2400Z). This is the last one we'll have for many years, so if you want to participate, there you go!

Field Day is coming. It will be on Saturday, June 22 and Sunday, June 23, and we will be returning once more to Camp Agawam in Orion Twp. We need volunteers, so if you want to get involved, please contact John AA8UU.

Let's keep making 2024 a good one for the Hazel Park Amateur Radio Club, and Amateur Radio in general!

Thanks and 73,

Mike Phipps, K8WU  
 President, Hazel Park Amateur Radio Club

## Build an Antenna in Ten Steps

In this Part 2, of a 3-part series, we build a dual band, (2m & 70 cm), vertical dipole.

As with the 1/4 wave ground plane from last month, if you change the ground plane lengths you can build this to work in any frequency. The steps are the same. The lower the frequency the longer the antenna so this is not the antenna for HF.

I have made this antenna from several things, copper wire, aluminum rod and copper pipe with good results. After you acquire the parts and tools you should be able to build this antenna and have it up and working in a single Sunday afternoon. The one we are building cost me less than \$20.

Let's get to building!

### 1. Acquire the parts and tools:

- o 762 mm of 1/4" Aluminum rod (or copper or stainless steel rod)
- o 1 - PVC T 1"
- o 2 - schedule 40 PVC Caps 1"
- o 1" schedule 40 PVC pipe 457 mm long
- o 1 - schedule 40 PVC Elbow 1"
- o 2 - Electrical ring terminal connectors
- o 800 mm RG-58 coax cable
- o 1 - SO-239 Connector
- o 2 - 1/4-20 x 2 1/4" bolts, 1/4-20 Nyloc nuts, 4 1/4" washers and 4 -1/4" fender washers, all stainless steel
- o a dowel, a rod or drill bit sized between 3/8" - 1/2". (any hard round dowel, I used a drill bit)
- o A vice
- o Rubber mallet
- o Hacksaw
- o PVC Glue
- o Drill press or Handheld drill
- o 1/4" drill bit
- o Wire cutters and strippers
- o Crimping tool for ring connectors
- o Rosin core solder
- o Soldering iron
- o Electrical tape or shrink wrap tubing
- o 4 zip ties
- o 1 can of beer (optional)

### 2. Make the elements. (Do this for both rods):

- a. Take your 1/4" aluminum rod and make a mark 169 mm from one end.
- b. Using the vice bend the rod on the line to around 135 degrees.
- c. Place the drill bit in the end of the bend and using a rubber mallet continue to bend the rod around the drill bit until you have gone roughly 180 degrees and the 2 ends are parallel with a gap the size of what you are bending around. (I used a 3/8" drill bit)
- d. Make the bars as parallel as possible. You can check the gap by sliding the drill bit through the gap.



By Mike Slupinski  
N8VDZ

## Build an Antenna in Ten Steps (cont.)

3. Trim 2 Meter end to length (Do this for both rods). Measure from the outside of the bend to the long end and using a hacksaw trim to 473 mm.
4. Trim 70 cm end to length (Do this for both rods). Measure from the outside of the bend on the short end and using the hacksaw and trim to 159 mm.
5. Prepare the PVC T:
  - a. Glue the PVC caps on the ends of the T leaving the bottom of the T open.
  - b. Lay the PVC T on its side in the position of a T and mark the center of the T line, up down left and right so a hole drilled will go through the round center of the T. (Do not drill in the center)
  - c. Drill a hole 30 mm on each side of center towards the caps. Center the best you can and drill straight through the other side. This is super important or your elements will not be aligned. (Drill press is best for this)
6. Install SO-239 connector to one end of the coax cable.
7. Prepare the other end of the coax for the ring connectors.
  - a. Strip back the casing of the coax being careful to not damage the braid underneath about 40 mm
  - b. Pull the braid back and loosen and unbraid the braid so that you can tightly twist it into a tight wire.
  - c. Cut back and eliminate the copper or aluminum shield under the braid, leaving the white dielectric insulator in place for now.
  - d. At this point evaluate the 2 wires. You want them to be as short as possible. After the ring connectors are on they will be connected to screws that go through the holes in the PVC T that you drilled in Step 4, so, put the 1/4" bolts in the holes, put the ring connectors on the bolts and use them as references to trim back the ends of your coax wires.
8. Install the ring connectors
  - a. Trim back the white dielectric insulator on the center coax wire just enough to accept the ring connector.
  - b. Crimp and solder the ring connector to the center wire.
  - c. Crimp and solder other ring connector to the braided shield. (I also like to tape or shrink wrap the bare wire.)
9. Attach the elements to the PVC T
  - a. Place a lock washer on each 1/4" bolt and slip them into the holes you drilled in the PCV T.
  - b. Add a fender washer to each screw.
  - c. Add the antenna elements. You can position with 70 cm ends either way but make them the same on both sides.
  - d. Add a second fender washer on top of the antenna elements.
  - e. Add the coax cable. Decide which element is the top (pointing up) and which element is the bottom,(pointing down. The center lead from the coax goes to the top element, the braid lead goes

## Build an Antenna in Ten Steps (cont.)

to the bottom element.

- f. Add 1/4" washers and then the 2 1/4-20 Nyloc nuts.
- g. Tighten the nuts so the elements are with the bends facing each other and going across the top of the T. Use a yardstick to help align the elements so they are straight across. When tightening you want them tight enough that they will not move from wind or a bird landing on it but not too tight that you crack the PVC.

### 10. Secure Coax Line

- a. Insert and glue the 1" 457 mm PVC pipe into the bottom of the T.
- b. Using a 1/4" rat tail file, file a groove into the exposed end of the PVC pipe. This groove will allow the coax to run on top of the pipe and then as it reached the elbow will duck inside the pipe. Use the elbow to determine how long to make the groove. The groove should line up with the center where the 2 elements meet so the coax can run 90 degrees to the elements before ducking in.
- c. Align the coax straight down the PVC and use the zip ties to hold in place. You want this line to be at 90 degrees to the antenna so it does not interfere with it.
- d. String the PVC Elbow over the end of the SO-239 connector and using the groove let it tuck onto the pipe. Make sure your elbow is facing the correct direction to accept the mast and have your antenna facing the correct direction. (Ref step 9, 5th bullet point) Glue the elbow in place. (Note, make sure your SO-239 is long enough to connect to a feed line after coming out of the elbow.)

### 11. Open that beer! You have a working antenna!

The nice thing about this antenna is the tuning. With many other antennas you trim/cut the antenna. When tuning this one you will loosen the nuts and slide the elements closer together or further apart and re-tighten the wing nuts.

The vertical dipole is a favorite among many amateur radio enthusiasts all over the world. There are several designs out there, this is only one. When yours is done let me know how it turns out.

## Submissions

KD8NYD

jonesdlus2@yahoo.com



## Propagation - Sunspot Predictions

A nice graph and interesting links:

<https://www.weather.gov/news/102523-solar-cycle-25-update>

<https://www.space.com/solar-maximum-expected-2024-new-predictions-suggest>

<https://skyandtelescope.org/astronomy-news/new-forecast-resets-solar-cycle-expectations/>

## Minutes of General Meeting

6:30 – 7:30 Used equipment sale with proceeds to the club.

7:30 Call to order and Pledge of Allegiance

Attendee introductions

Presentation on Zoom by Gary AF8A  
Introduction by Jay WB8SBI  
Complete solar eclipse 4/8/24  
QSO Party  
[HamSci.org/eclipse](https://HamSci.org/eclipse)

Antenna Workshop on 3/16/24 @ 10:00 at the QTH of Len, AD8FK

HPARC license classes and testing  
4/2/24 is next testing session  
Oak Park Community Center

HPARC officer elections in May, 2024  
Nominations are now accepted  
Voting will be in person at club meeting on 5/8/24

HPARC financial review  
Approximately 6700 still remains in the bank

Mentoring committee hosted by Len ADAFK

Siren testing on the KD8HR repeater  
Organized by Marsha N8FE

Space project  
Larry KE8LXA reports that Davis Aerospace High School was selected for North America  
Help is needed for coding in C  
Nyx will be launched with a new satellite for hams

Meeting adjourned at 9:00 pm

## Activities

### HPARC Official Sunday Night 2 meter Phone Net (Over 2000 weeks, WITHOUT fail)

Sundays at 9:00PM, on the W8HP repeater, 146.64 MHz Offset -0.6 MHz PL 100 and 443.225MHz, Offset +5 MHz PL 107.2 or by Echolink using node #980938

### -. .- / - . . (Continuous Wave/Morse Code CW Net)

- . . . . . / . - - / - . . . . . (Tuesdays at 8:00PM on 28.028 MHz) And Afterglow on W8JXU repeater, 443.225 MHz Offset +5 MHz PL 107.2 Hz

### Tech Class License Course

Contact Bob N8REL

**General Class License Course:** Need more students to hold. Please show your interest by contacting Bob N8REL

### Extra Class License Course Zoom Meeting

Tuesdays at 7PM

<https://us02web.zoom.us/j/86249572559?pwd=b1Q4TkNjcTZjM1JhUnhrbm9TOXNIUT09>

Meeting ID: 862 4957 2559

Passcode: HPARC

Dial by your location

+1 312 626 6799 US (Chicago)

+1 646 558 8656 US (New York)

### Amateur Radio Licensing Testing

First Tuesday of every EVEN month at 7:00PM at the Oak Park Community Center

### Socializing

Second Wednesday of the month, September through May, at 7:00PM, Hazel Park Library

### General Meeting (Hybrid)

Second Wednesday of the month, September through May, at 7:30PM, Hazel Park Library and Zoom

March - Solar Eclipse    April -Nominations    May -

June 22nd - Field Day at Camp Agawam

July, August - Summer Hiatus    September -

### Amateur Radio Public Service Corps (ARPS)C Thursday Night 2 meter Phone Net

Thursdays at 8:00PM on the W8OAK repeater, 146.90 MHz Offset -0.6 MHz PL 100 <http://www.arpsc.com>

### Hospital Radio Check

Last Thursday of the month at 7:30PM on the W8OAK repeater, 146.90 MHz Offset -0.6 MHz PL 100 <http://www.arpsc.com>

### Repeater Crawl

Fridays at 7:00PM, <https://mi-arpsc.org/net/wcrc/>

# Activities (Continued)

## HPARC HAM Buddy Breakfast Socializing

Saturdays at 8:15AMish, Cozy Cabin Diner, 2129 E. 12 Mile Rd (near Dequinder), Warren, MI

Attendance was

Everybody has something to add. Please come and keep HAM Buddy Breakfast valuable and fun!

## Oakland County ARPSC Siren Testing

First Saturday of the month, March through November, at 1:00PM on the KE8HR repeater, 146.760 MHz, Offset -0.6 MHz PL 100. Contact Marsha, N8FE, at n8fe@arri.net, to be assigned a siren to test.

## Officers

President	Mike K8WU qrz@k8wu.me
1st. VP	Joe WB8ADX joeraznik@gmail.com
2nd. VP	Jim W8DPM tenaciousjd@gmail.com
Secretary	Reuven KB3EHW rgevaryahu@gmail.com
Treasurer	Bob N8REL rlau6@aol.com
Parliamentarian	Hugh KE8BED photoink77@hotmail.com
Director	Len AD8FK len1perkins@yahoo.com

## Volunteers

W8JXU Trustee	Bill N8QVS
Mentoring	Leonard AD8FK
Contesting Mentor	Mike WD8S, Gerry K8GT
STEM/STEAM	Joe WB8ADX
Siren Check Ldr	Marsha N8FE
LoTW Mgr (Log)	Murray KE8UM
Cook	Bill N8QVS
Lark in the Park	John AA8UU
Net Control Op	Len AD8FK
	John W8TOY
	Mike K8WU
	Bob N8REL
Media Team	Hugh KE8BED
	John AA8UU
	Mike K8WU
	John W8TOY
Public Info (PIO)	Joe WB8ADX
Webmaster	Reuven KB3EHW
Facebook Admin	Aaron W8VIP
	Reuven KB3EHW
Zero Beat Editor	Donald KD8NYD

## Committee Chairs

Holiday Pot Luck 12/??/24	John W8TOY
Picnic-(Date?)	Jim W8DPM
Swap-(Date?)	John KD8NYF
Field Day 6/22/2024	John AA8UU
Repeaters, W8HP/W8JXU	Joe WB8ADX
Education & Exams	Jerry W9NPI, Bob N8REL
Sunday 2m Net	Bob N8REL
Media	Hugh KE8BE

# Mission

Service Through Education

<https://hparc.org/>

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