



R F News

September 21, 2016

From The President

"If at first you don't succeed"...Well I sure hope that Frank Revitte the Warning Coordination Meteorologist from the National Weather Bureau will be able to proceed with his presentation at the September 27th BRARC monthly meeting. Of course tropical weather in the gulf could keep him tied down in Slidell just as it did in August. Should he be unable to attend, Todd AB5TH will discuss shortwave listening. Currently, the main library is back to a routine schedule and our meeting is scheduled to start at 7:00 pm as usual. Should there be any change, we'll try to alert everyone by email and via the Sunday night net.

The dominate news locally has, obviously, been the devastating flooding which occurred last month. Many BRARC members and their families have been directly or indirectly personally affected to varying degrees. I sincerely hope that those whose homes or businesses flooded will be able to recover as completely and quickly as possible.

BRARC members responded to the flooding disaster by assisting in emergency communications and were joined by a number of hams from outside the region. Deepest thanks to all those who participated in support of Red Cross and other relief activities. Perhaps, the ham community may someday be thought of as the signal corps equivalent of the "Cajun Navy."

Continued on page 2

Upcoming Events Calendar

9/27/2016-BRARC Monthly Club Meeting, Goodwood Library. 7:00 PM. Program: Severe Weather on the Gulf Coast by Frank Revitte from the National Weather Service in Slidell.

In the event of a tropical disturbance in the Gulf of Mexico, the backup program for the September club meeting will be Shortwave Listening Tips by Todd-AB5TH

10/1/2016-NPOTA Activation-Acadian Cultural Center in Eunice, Louisiana. See Brett (KG5IQU) for more information

Baton Rouge Amateur Radio Club

PO Box 4004, Baton Rouge, LA 70821
Web: www.brarc.org brarc@brarc.org

President	Dick Burroughs, N5KIP
Vice President	Jon Reise, WA9JBR
Secretary	Todd Huovinen, AB5TH
Treasurer	Ken Shutt, W5KQ
Directors	Vernon Morris, AA5O Brook Samuel, N5DGK Daniel Smith, N5KHM Steve Irving, WA5FKF Dave Thomas, K5CGX Brett Hebert, KG5IQU Robin Hudson, KK5RH
Repeaters:	146.790 - and 444.400 + (PL tone 107.2) both Yaesu System Fusion
Nets:	BRARC Club Net - Sunday 8:30 PM 146.790 (PL tone 107. Ten Meter Net - Monday 7:30 PM 28.450MHz USB

RF Bytes

Members, whose station were affected by the floods, can check out equipment from our Radio Loan Program with the rental fee waived. We know this is a small consolation to the members that flooded, but we want to do what we can to get you back on the air quickly.

Jon Reise, WA9JBR

Here is something that might be of interest to everyone trying to deal with the less than stellar HF band conditions this summer. Here is a link to a bunch of Software Defined Radios on the internet:

<http://www.websdr.org/>

There are receiver sites located all over the globe to choose from-Todd AB5TH

From The President-continued from page 1

There are several upcoming activities which are described elsewhere in this RF News. A couple of events I would draw your attention to are the Red Stick Grand Isle expedition on October 14th to 16th and the club visit to "Mr. Charlie" (a retired gulf oil platform) and two local museums in the Morgan City/Patterson area on October 29th. Additional club activities include National Parks on the Air and USS Kidd operating events.

Let's pray for a pleasant fall and favorable weather.

73, Dick N5KIP

Upcoming Events-continued

10/8/2016-Baton Rouge Mini Maker Faire-Baton Rouge Goodwood Public Library. See Dick's article on page 7 for more information.

Do You Have Topics or Suggestions for the RF News?

Do you have pictures, articles, links or other ham radio related items for inclusion in the RF News?

Contact the club secretary, Todd (AB5TH).

BRARC Elmers

Dick Burroughs, N5KIP
Buddy Brown, N5BUD
Keith Davis, KE5LVT

If you need assistance, please contact one of above.
If you would like to be an Elmer, please contact the
club secretary Todd, AB5TH.

BRARC Facebook Page

If you haven't done so, please visit and "like" our BRARC Facebook page. You will find a link at the club's website: <http://brarc.org/>

We're using Facebook to keep the membership better informed in a timely manner about what's going on in your radio club. This page is also a good way for BRARC members to keep in contact with each other.

73,
Robin, KK5RH

VE Questions

September 2016

Tech

T9A03 (B)

Which of the following describes a simple dipole mounted so the conductor is parallel to the Earth's surface?

- A. A ground wave antenna
- B. A horizontally polarized antenna
- C. A rhombic antenna
- D. A vertically polarized antenna

General

G8C06 (B)

What action results from a failure to exchange information due to excessive transmission attempts when using PACTOR or WINMOR?

- A. The checksum overflows
- B. The connection is dropped
- C. Packets will be routed incorrectly
- D. Encoding reverts to the default character set

Extra

E7D01 (D)

What is one characteristic of a linear electronic voltage regulator?

- A. It has a ramp voltage as its output
- B. It eliminates the need for a pass transistor
- C. The control element duty cycle is proportional to the line or load conditions
- D. The conduction of a control element is varied to maintain a constant output voltage

Radio Loan Program

Baton Rouge Amateur Radio Club



Are you a newly licensed Technician, who would like to operate VHF before investing in a radio? Maybe you've upgraded to General and want to experience the HF bands before you decide on a transceiver to purchase. Members may want to operate portable,

but don't have the equipment. If that's the case, this program is for you.

Radios are loaned to BRARC members for a 90-day period – just like checking a book out from the library. All that is required is that you are a current member, completion of the application, and payment of the \$20 rental for the HF radio, \$15 for the VHF base radio, and \$5 for the 2m/440 HT.

If you are newly licensed, we will assist you in determining the best antenna for your location and assist you in the construction and installation of your antenna. The cost of the antenna will be the responsibility of the borrower.

The available radio packages are:

- **Icom IC-730 HF Transceiver** with power supply, microphone, external antenna tuner, and G5RV antenna.

5 bands, 100 W, SSB, CW, AM

Receive only on 30, 17, and 12 meter bands

Pass Band Shift Control, Noise Blanker, VOX, SWR meter



- **Icom IC-2100H VHF FM Transceiver** with power supply, microphone, and external magnetic mount 144 MHz mobile antenna.

2 meters, 55 W (4 power levels), 200 memories with scanning, WX alert, aviation frequencies (118 – 136 MHz).



- **Yaesu FT-50R Dual-Band Hand-Held Transceiver** with NC-60B charger.

2 meters / 70 cm TX & RX

76-200, 300-400, 400-540, 590-999 MHz RX

5 W (4 power levels) output



To participate in the Program, download the [application](#), fill it out and send it to [brarc @ brarc.org](mailto:brarc@brarc.org) . One of the club's mentors will contact you to discuss the antenna options for your station and to arrange the next steps. If there is more than one request for a radio, preference will be given to those who have the least experience with HF or VHF operating.

Baton Rouge Mini Maker Faire October 8

The Baton Rouge Mini Maker Faire will be held at the main EBRP Library (Goodwood Boulevard) on October 8th from 10 AM to 6 PM. See the website for details:

<http://www.makerfairebatonrouge.com/>

BRARC may participate again this year if we have enough interest from the membership. If you would like to participate, please get in touch with Daniel (N5KHM).

73, Dick (N5KIP)

FOR SALE

For Sale

Tektronix 2215 oscilloscope

60mhz bandwidth. Works perfectly. Comes with two 100mhz probes. Printed copy of instruction manual downloaded from Tektronix web site.

\$100

Hank Ellis K5HDE

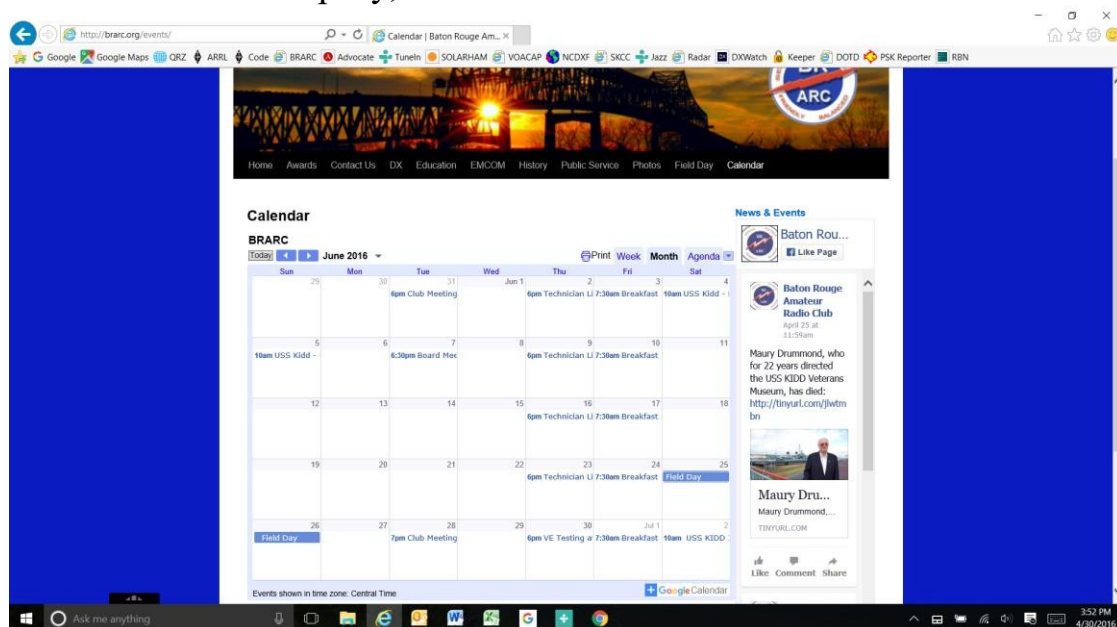
[225-931-8811](tel:225-931-8811)

BRARC EQUIPMENT AVAILABLE FOR LOAN

ITEM DESCRIPTION	MFG	Model #	SERIAL #	LOCATION	AVAILABILITY
Antenna Analyzer	MFJ	259		K5DFD	No
Bandpass Filter 10m	W3NQN			K5DFD	Yes
Bandpass Filter 15m	W3NQN			K5DFD	Yes
Bandpass Filter 20m	W3NQN			K5DFD	Yes
Bandpass Filter 40m	W3NQN			K5DFD	Yes
Bandpass Filter 80m	W3NQN			K5DFD	Yes
Crimping Tool	West Mountain Radio	Power Crimp		K5DFD	Yes
FM Deviation Meter	Lampkin		185	K5DFD	Yes
Power Supply (13.8V @ 20A)	Icom	PS-55	5194	K5DFD	Yes
Kit Building Tools				K5DFD	Yes
Power Supply (12 V/A)	ER	PS-104		K5DFD	Yes
Wattmeter	Bird	43	127199	K5DFD	Yes
5w Slug				K5DFD	Yes
50w Slug				K5DFD	Yes
100w Slug				K5DFD	Yes
250w Slug				K5DFD	Yes
1000w Slug				K5DFD	Yes
2500w Slug				K5DFD	Yes
RADIO LOAN PROGRAM					
160M-10M HF Transceiver/941C Tuner	Icom/MFJ	IC-730		N5KIP	Yes
2M mobile rig	Icom	IC-2100		N5KIP	Yes
David Ducote	K5DFD		(225) 603-0801 (cell)		

Keep Up to Date on BRARC Events

Now use our new BRARC Google calendar to find out about upcoming club events. Click *Calendar* on the drop down menu on our home page, www.brarc.org. We are posting events through 2016 as they become available. If you have an event you want posted, contact our webmaster John Krupsky, WA5MLF .



Congratulations!!

On behalf of the Baton Rouge Amateur Radio Club it would like to welcome the following new members to the club:

John Stevens K5JS

Jeff Hawkins-WA5RRT (Renewal)

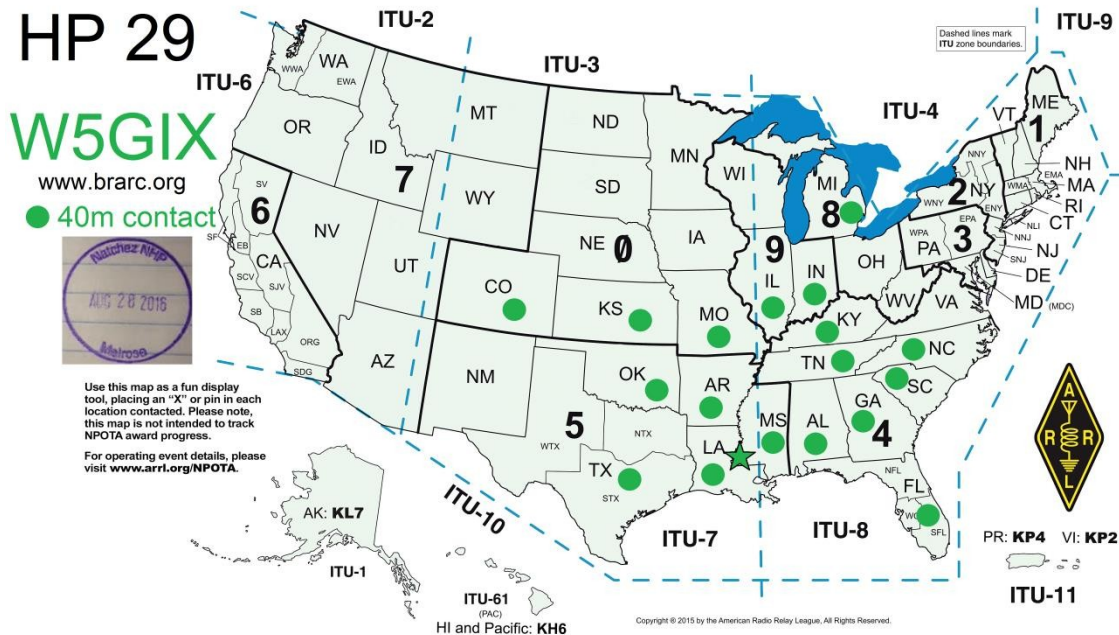
KG5KRV Report on W5GIX NPOTA HP29 Activation from Melrose Mansion in Natchez, MS

On August 28, 2016 my family and I went to Natchez, Mississippi to activate HP29 Natchez National Historical Park for National Parks on the Air. We operated at the Melrose Mansion and made 126 contacts! We operated on 40 meters with the BRARC club callsign W5GIX. It was a beautiful day to be transmitting. We made contact with 18 states. This was the second activation from the Melrose Mansion. We chose this week because it was the 100th anniversary of the National Park Service. Natchez was also celebrating their tri-centennial. The event was a lot of fun and I am looking forward to participating in many more activations. 73 de KG5KRV



Synomen (KG5IRS) looks on as Brynn (KG5KRV) logs while Logan (KG5LLM) operates as W5GIX from Natchez, MS with Melrose Mansion in the background.

National Parks **ON THE AIR** 2016



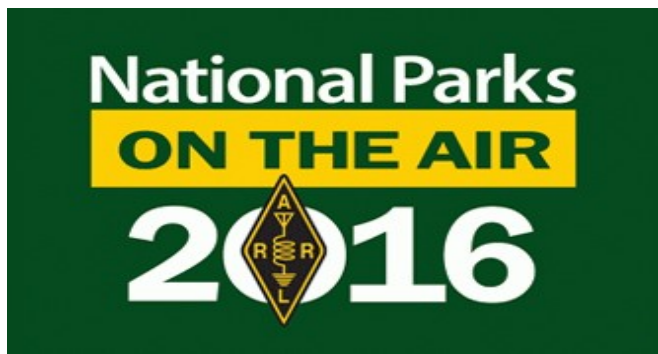
Propagation on 40 was great for making contacts across the southeast US from HP29 in Natchez, MS

Throughout 2016, Amateur Radio is helping the National Park Service celebrate their 100th anniversary. Hams from across the country will activate NPS units, promote the National Park Service and showcase Amateur Radio to the public. The ARRL National Parks on the Air (NPOTA) event runs in parallel with the National Park Service's centennial. The program runs from 0000 UTC January 1, 2016 through 2359 UTC December 31, 2016.

<http://npota.arrl.org>

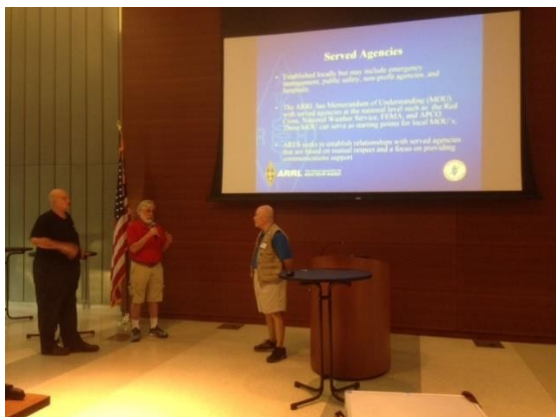
Baton Rouge Amateur Radio Club members are on the air throughout 2016 as W5GIX for ARRL National Parks on the Air commemorating the 100th anniversary of the National Park Service.

W5GIX will activate HP17 for National Parks on the Air on Saturday October 1, 2016. The activation will be at the Prairie Acadian Cultural Center in Eunice, LA. It is one of six of the Jean Lafitte National Historical Park and Preserve sites. Contact Brett Hebert (KG5IQU) to sign up or to get more information.



Amateur Radio operators will again be celebrating the National Park Service's Centennial on Saturday October 1st, at the Prairie Acadian Cultural Center in Eunice, LA. They will be setting up portable radio gear and making two-way radio contacts, without the need for traditional communications infrastructure, such as the internet or cell phones. Temporary, portable operations are one of the ways in which Ham radio operators train and prepare for such emergencies, and combine their recreational enjoyment of Amateur Radio with the great outdoors. The Amateur Radio station will be operating from 10 am – 2 pm. Come join in on the fun by talking to other Ham Radio operators around the country. See demonstrations on the use of Morse code for carrying on communications.

Photos from the last meeting



32 members and guests attended the August BRARC meeting which was devoted to ARES and the American Red Cross response to the LA Flood Disaster. Michael Nolan KD5MLD (right) presented an ARES power point, describing the organization and the value they add, by providing trained operators during a disaster. Steve Irving WA5FKF (center) talked about the Red Cross response, by sending Hams to shelters to provide communications when the AT&T cell coverage went down. The Louisiana ARES was activated and numerous Hams came from as far as Alabama to provide communications. A total of 31 Amateur Radio operators were used during the disaster. Robert Hobbs N5ULA, the District 2 DEC is pictured at the left.



Robin Hudson KK5RH (left) presents Dan Lott KF5TQN (right) with the winning prize of \$40 in the 50-50 monthly drawing.

SAVE THE DATE

October 29, 2016

A DAY TRIP TO VISIT THE FIRST OFFSHORE OIL RIG AND A VISIT TO THE WEDELL-WILLIAMS AVIATION AND CYPRESS SAWMILL MUSEUMS



The International Petroleum Museum- "Mr. Charlie"

Visit the first offshore submersible transportable drilling rig in the United States. Located in the Atchafalaya River in Morgan City it was first built in 1953 and served as a drilling platform for offshore drilling from 1956 until 1984. A guide will explain what it was like to work and live offshore 7-14 days at a time. Visit a real drilling rig and walk in the steps of roustabouts, roughnecks, and drillers. After our rig tour we will visit Morgan City where we can walk the 21 foot wall that protects the city from flooding. We will eat at a typical South Louisiana cafe and then take a short drive to Patterson, Louisiana to visit the **Wedell-Williams Aviation and Cypress Sawmill Museums**. Jimmie Wedell and Harry Williams were nationally prominent during the "Golden Age of Aviation"

and formed an air service in Patterson in 1928. Patterson, LA was also once home to the largest cypress sawmill operation in the world!

Plan to leave in the morning on Saturday. We will tour Mr. Charlie beginning at 10 am and the tour should last 1.5 hours. We will eat and then tour the two museums. We have a little lagniappe for you on the way back through Pierre Part, Louisiana.

No open toe shoes and we will be climbing steel grated stairs. Tour will not take place if it is raining. Further details will follow later.

Contributed by Thornton Cofield (KG5HLC)

An Invitation to Members of the BRARC, a Special Service Club of the ARRL

Why should I join ARES? Because it is an important service to your community. Why should you join? Because each one of us as an active member of our club has special gifts and talents and a willingness to share. ARES is great way to serve your neighbors during communication emergencies. General Honore indicated that one of the top key components in an responsive emergency plan is communication. ARES serves that mission with its partnered agencies, such as FEMA, Red Cross, RACES, and many of the faith based groups.

There is no additional cost to apply to be a member, no binding commitment if you cannot serve, and it is easy to register by going online to the <http://www.laarrrl.org> website. Once there, click on ARES at the top. Scoll down to ARES REGISTRATION and click. Complete the form and hit the submit button. If you need training, the ARRL & FEMA courses are online. I will be glad to assist you with the training and answer any additional questions. My contact information is below. Thank you for your consideration and all that you do for amateur radio.

Michael J. Nolan, KD5MLD (formerly WA5JSK)





The Baton Rouge Amateur Radio Club presents:

Severe Weather Forecasting for Louisiana

Frank Revitte,
National Weather Service, Slidell, LA.

Tuesday, September 27th, 7 pm

EBR Main Library

7711 Goodwood Blvd.

Baton Rouge, LA 70806





Jamboree On The Air

Saturday, October 15, 2016

Jamboree-on-the-Air, or JOTA, is the Scouting event in the world. It is held annually the third full weekend in October. JOTA uses amateur radio to link Scout and hams around the world, around the nation, and in our community. The Scouts will experience fulfilling requirements in technology communication as well as citizenship. Toward that endeavor, the BRARC will be operating aboard the USS Kidd to provide the setting. Both Boys and Girl Scouts have been invited to participate. Amateur radio

operators are needed to present to the Scouts a short introduction to amateur radio, which will be a powerpoint presentation, as well as control operators for the radio station, W5KID. Please contact Michael J. Nolan, KD5MLD, for additional information and to schedule time to assist with this youth service activity.

When: Saturday, October 15, 2016, from 09:30 to 16:00 CST.

Location: USS Kidd Veterans Memorial Museum, 305 S. River Road, BR, LA 70802

Contact: Michael J. Nolan, 225.229.1624

Conducted this month by John Stevens, K5JS

Cheap Yagis to the Rescue!

Many new hams, especially the new Technician, will begin ham radio with an inexpensive VHF/UHF Handy Talkie that is supplied with a short whip antenna. One of the first questions is how can they use that new radio from the shack to contact local repeaters they cannot reach with its short whip antenna. This month we'll look at a simple and inexpensive way to make that 5 Watt HT or desktop VHF/UHF radio contact repeaters that are much farther away. Enter the "Cheap Yagi" design by VHF/UHF/Microwave Antenna professional, Kent Britain (WA5VJB)!

This antenna was designed some years ago to have high gain, repeatable performance, simple construction, and cheap. To top it off, this antenna and its close relatives consistently perform near the top of the ratings at the annual Central States VHF Society Conference antenna measuring contest. Various design papers contain the details to build this antenna from 2 Meters through the 1.2 GHz range. There are designs for HDTV and dual band designs with diplexer for working the amateur satellites. You can build them with a different number of elements if you have size constraints. Elements made of different materials such as Brass, Copper, Bronze or Aluminum, or some combination all work just fine.

The design I picked for this article is the combination of a 6 element 2 Meter and a 5 element 70 cm antenna with a diplexer all on a single 8' wooden boom. The diplexer is a splitter that allows you to use a single feedline from your dual band radio to energize the proper antenna. You can also use a smaller antenna of this same design to work the amateur satellites that have a cross band repeater or linear translator. This design is a bit large to use as a handheld satellite antenna, however, by the end of this article you will know exactly how to fix that! Enough background. You should now read and/or print the reference articles before you even begin to gather materials. There are

many other articles about the Cheap Yagi on the internet. They are all very interesting reading and illustrate many different construction approaches.

List of Materials for 6 Element 2M and 5 Element UHF Yagi Antenna

- 1 - 8' X 3/4" X 1/2" wood trim stick from either big box store as a boom. A 3/4" or 1" square stick would be better, but I couldn't find one. I did get an 8' X 1" X 2" "select pine" board to rip lengthwise on a table saw when I get time. 1" PVC pipe (1 3/8" OD) will work also. Any non-conductive boom is fine.
- ~27' of Element (1/8"-ish diameter) material for the 2M antenna and 8' for the UHF antenna. Just add up all the element lengths and add a generous length to account for any mistakes. I used #6 bare copper wire. **NO INSULATION.** #6, #8, or #10 **solid** copper is available at the big box home and smaller hardware stores. #6 soft drawn at the local hardware store was \$0.69/foot. You can also use heavy aluminum ground wire (#12 and larger) for all elements except the driven which should be brass, bronze, or copper. It "can" be aluminum, but attaching the feedline will be more problematic as you will see later. You will need clamps for an aluminum driven element. 1/8" diameter brass rod in 3' lengths is ideal for the UHF antenna if you can find it. More comments later.
- 20-25 small rubber grommets (1/8") to secure elements to the boom. Two per element. Take a piece of element material to the hardware store to select proper grommet size.



- 2 Screw or Crimp connectors to affix aluminum coax shield to driven elements. See above picture for what I used after removing the lug section. Fork lugs may also be used.
- 1 - U-Bolt for mounting the antenna to your mast. I used a 1 3/8" SS U-bolt which fits a 1" ID PVC mast.

- Coax to feed the antenna. I am using RG-6 because of lower loss, availability, and price. More comments about this later.

That's pretty much everything except for your mast, tripod and mast, or whatever you need for mounting the antenna. The pictures show what I used. Your junkbox will probably yield better stuff. My junkbox is located remotely...

I found the following tools to be handy. Side cutters (big), pliers, large needle nose pliers, 12' tape measure, Meter stick for measuring out individual elements, small square with ruler, electric drill with 3/16" bit, small bit for pilot holes, 1/4" or 5/16" bit for the 1 3/8" U-bolt. 100W Soldering GUN or larger iron than you would normally use for circuit boards.

The least expensive method of construction is heavy aluminum ground wire with brass, bronze, or copper driven elements. The aluminum ground wire is near unobtainium in the old ground wire size. The two big box home stores do have aluminum garden wire with a greenish plastic insulation which you will need to remove. Size about #12, maybe #11. Not in the garden department though. Don't look there. 1/8" aluminum rod is perfect for this and cheap, but difficult to find locally. It would have to come from a big metal supplier. Bronze welding rods will also work well. This stuff is tough, so bolt cutters may be in order for these.

Brazing/Brass rods make a very nice UHF antenna. You can sometimes find 3' brass rods at True Value or Ace Hardware stores if they have a K&S Metals display. Don't bother looking for these at the big box places. Each 3' rod will make two or three UHF elements. It will take an entire rod for the driven element. Call the hardware store before you go to be sure they have the rods. Not all of them have a K&S display.

You can manually straighten coiled wire by bending and bending, but there is a trick that will do a pretty good job without all the bending and bending. Cut a length of about two elements of your 2M element material adding an extra foot. Wrap a few inches on one end around a strong stationary rod or clamp in a vise. Wrap a few inches of the other end around a large screwdriver or dowel. Make sure these end wraps are twisted together for the next step. Stretch

the wire out straight, then pull as tight as you can while twisting the entire wire 10-15 times from the screwdriver or dowel end. If you did not secure the wire well, you will experience a sudden loss of tension. The bruises are mostly gone now. You can try a power drill to do the twisting, but it may require some experimentation on securing the end in the chuck.



VHF Elements / Boom / UHF (uncut)
and still insulated with double cotton

Ok, we now have straight-ish wire. Measure (twice) and cut your prepared elements according to the tables in Appendix A. These elements are cut for the low end of the band, but work throughout the band. If you prefer to be higher in the band and get that last bit of gain, remove a half inch from all the lengths. Spacing remains the same. I ran out of boom for the 6th UHF element. I cut the element anyway and plan to add a 3-4" extension or a new boom to get the 6th element in the antenna. Popsicle sticks or perhaps tongue depressors come to mind...

As you can tell from the description of this antenna, you can use nearly anything you have laying around to build this antenna. After you have cut your elements, mark the boom with the locations of each element. Note that the element spacing in the tables are ALL MEASURED FROM THE REFLECTOR. This makes measuring easy. No adding or subtracting. Lay your tape measure along the boom starting at the reflector

location and mark away. Separate the UHF reflector at least 3" past the last VHF director. This is assuming of course that you intend to build both antennas on the same boom. You might want to build only one of them or build them on different booms.

I borrowed access to a drill press to drill the holes for the boom. Not really required, but the elements don't require any extra bending to line them up. I used a 3/16" bit for the 1/8" element wires. The wires will slip through the holes easily. And fall out the other side. I found that very small rubber grommets for 1/8" rods from the hardware store fit tightly around the wire and will keep the wires from exiting stage left.

Insert each element in its proper position, center it, and add a grommet to each side of the element next to the boom to hold it in place. The driven elements will need a bit more work.

The driven elements are shaped as shown in the drawings and in the photographs. They resemble a folded monopole or J-pole on its side.

The element is a half wave from the bend to the end of the element. The length of the folded part of the element is half the length of the driven element plus about 2" to make the bend of the proper radius. Give yourself a little extra on each end so you can trim it to length after you get the right shape. I used a 3/4" dowel to make the bend for the 2M driven element and a 1/4" dowel for the UHF driven element.



Feedline. RG-6 composition is all over the map. The only thing consistent is the 75 ohm impedance and cable

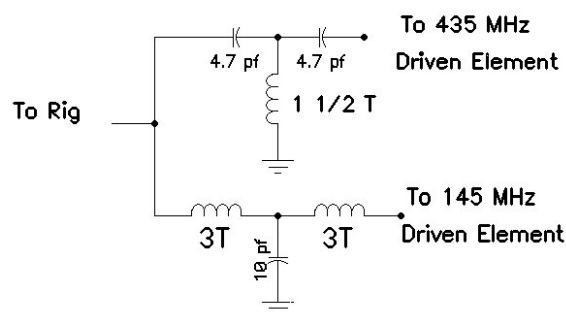
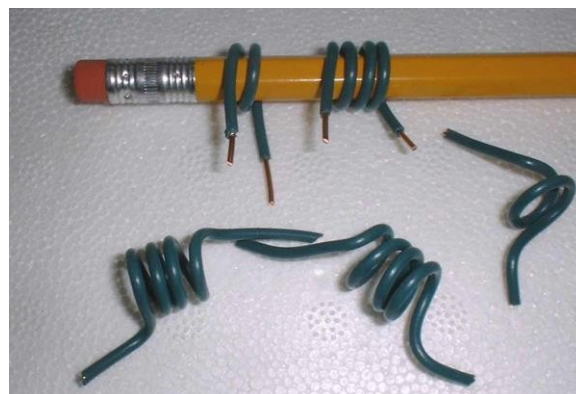
diameter. The center conductor can be solid copper or copper clad steel. The shield is a layer of aluminum foil, aluminum or copper braid, another layer of foil and the outer covering. This means that you can always solder the center conductor to a copper or brass driven element. Bad luck on the draw gets you aluminum braid. Copper is like winning the lottery. I ended up clamping the aluminum braid to the center of the driven elements. Another method is to use a fork lug, crimp it to the braid and solder the lug to the center point of the element (Thanks to N5IB for this idea). Panel mount female F connectors or BNC connectors will also work well at the feed point if you have them. My soldering iron was woefully inadequate for heating the 2M driven element to good connection temperature. Hence the clamp. Copper braid will solder easily. You can avoid all this by using 50 ohm normal coax. Copper all the way.



At this point, I will leave the diplexer to the reader. The instructions in the references are quite clear with good photographs. I intend to complete the diplexer at a time in the very near future.



Diplexer / Splitter



So how does the dual band yagi work? Testing each yagi individually with signal reports from club repeater users indicate good performance. The 5W HT transmitter power does not fold back indicating an acceptable SWR. No test equipment is available for measurements at the moment. Remember the earlier comment about repeatable design and performance? Antenna height above ground was about 8' on a deck under a metal roof. Polarization is vertical.



My location in Gonzales is 15 miles from the 146.79 repeater and 19 miles from the 444.400 repeater. I am unable to access either repeater with my 5W HT and 17" antenna. Not even a kerchunk. My 10W mobile radio and roof mounted antenna is nil on UHF and poor on VHF from this location. I can hear both repeaters weakly with the HT

with the 17" antenna and somewhat better with the mobile installation.

The "S-Meter" on the HT is now full scale on VHF and near full scale to full scale on UHF with the new antenna. The UHF path is odd and not direct to the repeater. Audio reports indicate slight background noise on VHF and a bit more on UHF. Audio is completely understandable on both repeaters.

These antennas with a small support/mast make a very valuable addition to your "Go bag" for emergency communications, leisure operating away from home, or from that SOTA mountain top way out West. This antenna can be disassembled or assembled in about 2 minutes. Weather proofing will turn them into good home station antennas and make your 5W HT sound like a 40W radio.

This same design VHF antenna 6' off the ground in Phoenix with a 10W radio was used routinely to make contacts through repeaters over 90 miles away. Yeah, ok. The repeaters were on 8-10,000' mountain tops, but it still serves to illustrate the effectiveness of these simple antennas. Build one. Put it in your bag of tricks for the next flood or outing. You'll be glad you did.

Thanks for the signal reports from N5DGK, W5KQ, and N5IB. Thanks to Jim (N5IB) and Dana (AD5VC) for ideas, 4NEC2 modeling, and materials. Thanks also to Kent (WA5VJB) for his terrific original design. You should see his line of PC Board microwave antennas...

The first two references below are the primary sources for the contents of this article. There is a wealth of info at: <http://www.wa5vjb.com/references.html>

References:

<http://www.wa5vjb.com/references/ClubYagiProject.pdf>

<http://vk4zz.no-ip.org/cheapyagi.htm>

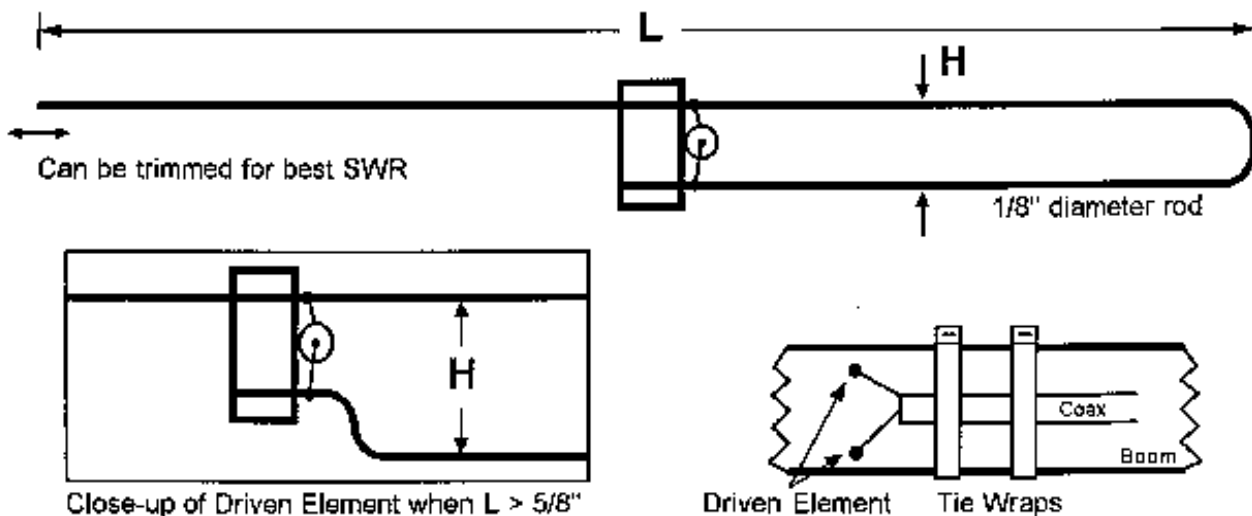
<http://www.wa5vjb.com/references/CheapAntennas-LEOs.pdf>

<http://www.fredspinner.com/W0FMS/CheapYagi/vjbcy.html>

<http://www.wa5vjb.com/yagi-pdf/cheapyagi.pdf>

Appendix A Antenna Dimensions

Driven Element Construction (*all versions*)



144 MHz. This antenna is peaked for 144.2 MHz but performance is still good at 146.52 (emergency use only!) Driven element dimensions are $L = 38.5"$ and $H = 1.0"$ Elements are 3/16" diameter. If using 1/8" diameter material, make the elements 0.25" longer to compensate.

To scale this design for the FM portion of the 2m band, simply shorten each element by 0.5".

The total length of element material for the driven element is about 60". Give yourself some extra for forming and trimming adjustments.

Total length of element material for the 6 element 144.2 MHz version is about 21'. Again, give yourself plenty of extra if you intend to use the wire straightening method mentioned the articles.

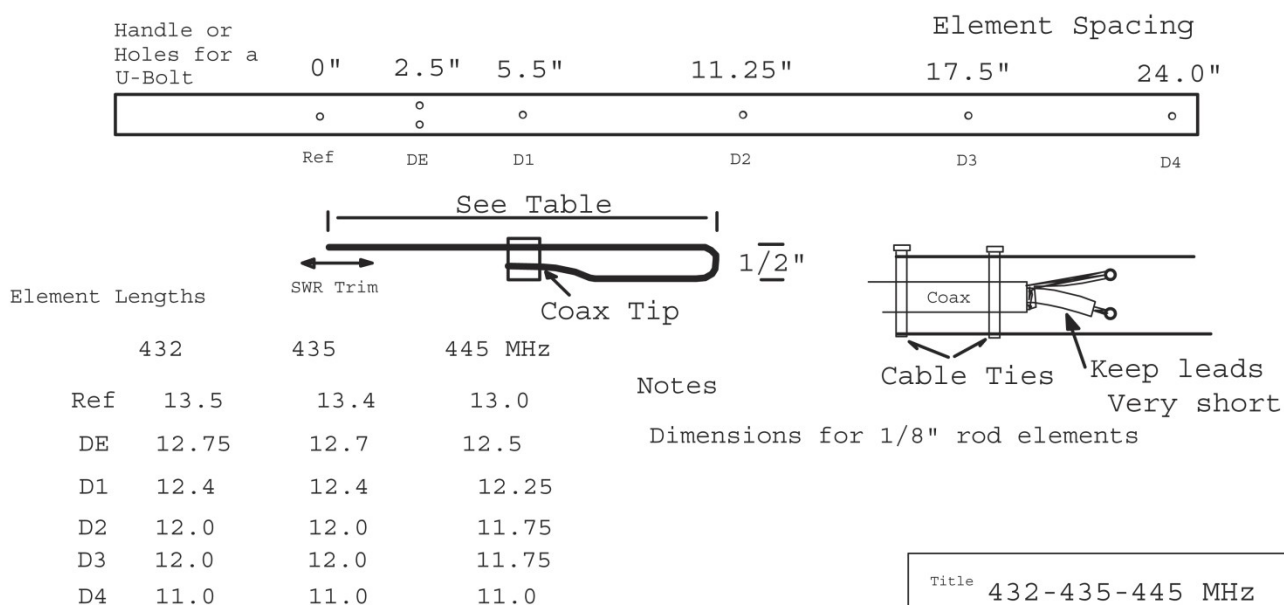
		Ref	DE	D1	D2	D3	D4	
3 Element	Length	41.0		37.0				All Dimensions
	Spacing	0	8.5	20.0				in inches.
4 Element	Length	41.0		37.5	33.0			All Elements 3/16"
	Spacing	0	8.5	19.25	40.5			dia.
6 Element	Length	40.5		37.5	36.5	36.5	32.75	
	Spacing	0	7.5	16.5	34.0	52.0	70.0	

70 cm Yagi

The total Driven Element length is about 20". Give yourself some extra for forming and trimming adjustments. Total length of element material for the 6 element 445 MHz version is about 7'. Again, give yourself plenty of extra if you intend to use the wire straightening method mentioned the articles.

Club Project Yagi for New Hams

WA5VJB



For outside use the antenna can be painted

Title 432-435-445 MHz		
Size B	Number CQ	Rev A
Date: 07-01-15		Drawn by: KEB
File Name: Simp3B.pcb		Sheet 1 of 1