

THE NUGGET



Mother Lode DX/Contest Club

The Newsletter of the Mother Lode DX/Contest Club

May 2023

Volume 29 Number 5

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Secretary's Report

General Meeting Minutes

May 11, 2024

Los Pinos Restaurant, Cameron Park

Meeting was called to order at 12:46 p.m. by President Steve Allred, NC6R. 13 members and 1 (W6WHU) guest were present.

Steve welcomed everyone. Each member then introduced themselves. Steve then announced that Ron (W6RM) was having medical issues and please keep in your thoughts and prayers.

No minutes were published last month.

The April treasurer's report was published in the April newsletter. Norm N6JV moved and Dave K6TQ seconded and the motion to accept was unanimously approved.

Old Business:

Steve W1SRD reminded everyone to contact him if they want to use the club call sign for the upcoming field day.

New Business:

Bob W1RH is looking for suggestions for locations for our meetings which have meeting rooms, good internet connection, good monitor,

and somewhat quiet. Please check out and send any suggestions to Bob.

Norm N6JV would like the President, Vice-President, and any other club members to submit articles and or comments to him for publication in the monthly newsletter.

Announcements / Discussion:

Upcoming Contests – Russian DX Contest, World Wide SSB Contest, Canadian Prairies CQP, VHF-UHF FT8 Activity, Arkansas QSO Party, Kentucky QSO Party, West Virginia QSO Party, Stew Perry Topband Challenge, ARRL Field Day.

Upcoming DX Operations -- St. Kitts & Nevis, Bolivia, Barbados, Cyprus SBA, Maldives, Br Virgin IS., Ogasawara, Bermuda, Aland Is, Glorioso Is, Monaco, Crete, Pitcairn, Mozambique, Tanzania, all active between now and our next meeting on June 29th.

Next Meeting:

June 29th is next meeting, location TBD.



DELETED COUNTRIES – Karelo-Finnish Republic



Karelo-Finnish Republic

The Karelo-Finnish Republic or simply Karelia is an outcome of the USSR encroaching on Finland. In 1940 the Russians ceded the territory from Finland in the Winter War. The area covered the Karelian Isthmus and Ladoga Karelia. The population fled to Finland and the Russians cleared out any remnant. The dispute over this region continued with Finland retaking the region and Russia invading it and claim it as their own. It was incorporated into the Russian SFSR in 1956 as an autonomous republic. This eased the tensions between Russia and Finland giving Russia another port that was mostly unfrozen and a buffer from Finland who by the way kicked Russia butt several times. When the USSR dissolved the Karelian ASSR became the Republic of Karelia, part of the Russian Federation. Of course, the government was communist with ties to Russia. One notable member was Yuri Andropov, its first secretary.



Thanks to the Southern California DX Club Newsletter

Tube of the Month

Fixed Vacuum Capacitors

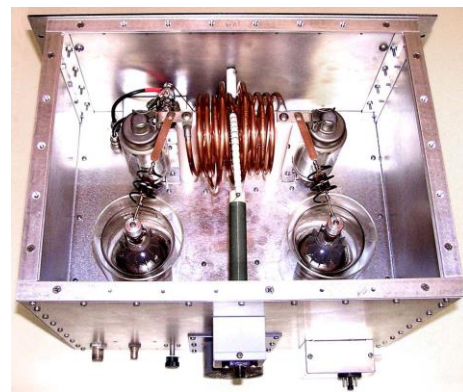
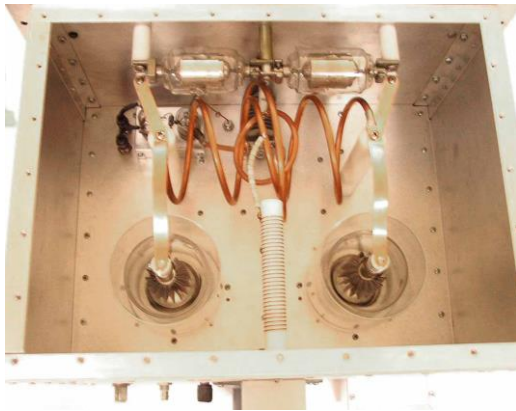
By 1939, EIMAC had solved a serious problem with very high voltage glass seals. One of these improvements was the use of uranium glass. High power amplifiers employing their tubes needed to be very large and potentially impractical and this could affect tube sales. One issue was the large size of the plate tank assemblies. The plate tank capacitors were the “bread slicer” type and at a KW, you could get by with relatively close spacing on 160 and 75 meters if you were on CW, but on AM phone the spacing was inadequate. A unit of 300 pF with .50 inch spacing was a monster. A small capacitor that was enclosed in an envelope of thick transmitting tube glass and the uranium glass seals, could withstand very high voltages. They started experimenting with units up to 50 pF. That year they went to market with small units of [6, 12, 25 and 50 pF](#) at 32,000 peak volts. Those were the days of plug-in coils and push pull amplifiers. Eventually the “butterfly” type of variable capacitor was made with sufficient spacing for AM use and a minimum capacity that would be tuned on the upper bands. On the lower frequencies, the vacuum caps could be clipped onto the adjustable cap along with the appropriate tank coil. The result was a very compact plate tank assembly. At very high voltages, neutralizing caps needed to be very large. A vacuum cap could be mounted in series with a smaller adjustable cap that could be adjusted from the front panel. Much easier than removing some shielding to get an insulated rod in to make an adjustment. High power and manageable size should result in higher sales.

During World War II, EIMAC made large numbers of these caps and they became a common surplus item after the War. Several sets like the antenna tuner used with the BC-610 incorporated these caps. Other manufacturers produced vacuum capacitors including General Electric, Amperex, Dolinko & Wilkens and especially Jennings Radio. Jo Jennings, W6EI, was employed by EIMAC until 1941 when he went out on his own to concentrate on the vacuum capacitor production. He was assisted by EIMAC in getting started and went on to produce large numbers of these units. After the War, Jennings produced an impressive number of different sizes of vacuum caps including variable types.

You don't see a lot of these caps today at swap meets. I guess it's because I bought up most of them 40 years ago. I wanted to build single band amplifiers and using the vacuum caps with a variable inductance was the way to go. The first amps were 813s and later 4-400As and 3-500Zs that were in a push pull, grounded grid circuit. This configuration performed very well so additional amplifiers were added. The first amplifier shown is for 6-meters using 3-500Z triodes. The two Jennings miniature caps are mounted parallel to the inductively tuned coil. The second is the 20-meter amplifier with the larger caps mounted vertically besides the coil supports. This basic configuration is used in each of the single band amplifiers down to 40-meters.

Norm N6JV

[Tube museum](#)



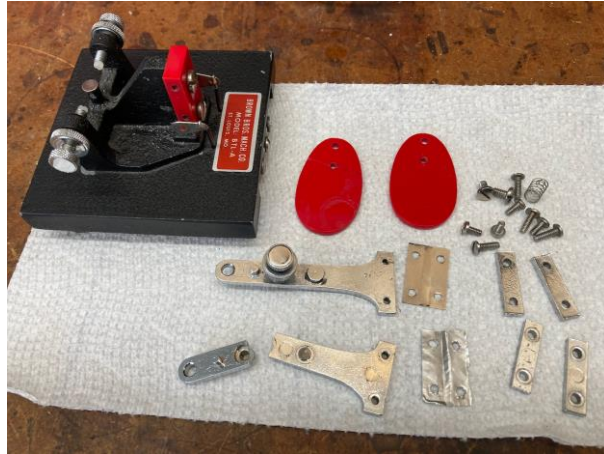
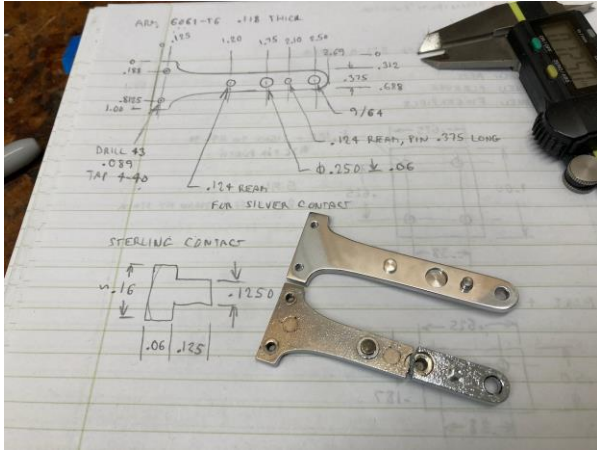
Restoring a Brown Brothers BTL Paddle

Gary Johnson, NA6O

Apr 29, 2024

Many different Morse keys have passed through my shop for restoration and general tune-ups over the years. This month, I received a damaged Brown Brothers model BTL-A iambic paddle. Made in the 1960s through the 70s by a one-man shop, it uses flexures (flexible metal strips) instead of bearings. I actually owned this exact model, purchased in 1975, and as a hardcore CW op, it saw countless hours of use. Information on this company is available at <https://www.qsl.net/n6tt/brown.html>.

This particular key is owned by a blind ham, and from the damage I'm guessing something was dropped on it. There was further damage in shipping. As found: Fractured arm, broken finger piece, and both flexures mangled. The flexures are prone to damage anytime the key is manhandled; I have seen this before. The arms are chrome-plated cast aluminum which is actually pretty strong but something really whacked this one.

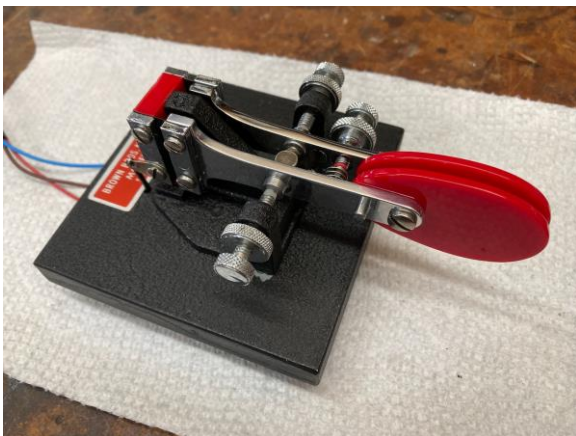


The first thing I did was make a new arm, machined from aluminum and exactly duplicating the original dimension. It was then highly polished and clear coated, making it look almost exactly like chrome. In fact the finish looks better than the original, which was fairly rough when plated. A new contact was machined from sterling silver, my standard contact material, then pressed into place.

New flexures were made from 6 mil feeler gauge stock. This is nice material, very springy and easily cut to size with tinsnips. A special punch and die had to be machined to punch the holes at precise locations and to achieve clean holes in the hard metal. This method is something I learned from a book by W. R. Smith, W4PAL (SK) called "How to Restore Telegraph Keys" available at <https://wrsmithlocks.com/product/how-to-restore-telegraph-keys/>. New finger pieces were sawn from 1/8 inch red acrylic sheet and then polished to perfection. They look identical to the originals. The final touch was fixing up the cable with proper spade lugs.

To prevent a repeat shipping disaster, I always make custom foam packing inserts for every key that I work on. My favorite packing material is Ethafoam, a medium density polyethylene foam that comes in large sheets. I get it from Bob's Foam Factory in Fremont.

The key came out looking and operating like new, or perhaps a bit better. If you have any kind of Morse key—straight key, bug, or paddle—that needs repair, restoration, or just a tuneup, give me a jingle.



Antenna of the Month

Gary, NA6O

May, 2024

Inverted L

Long wavelengths mean long antennas, and when you're trying to put up something for 80 or 160 meters, you can quickly run out of real estate and altitude. A popular and effective solution is the inverted L. It's simply a vertical with the top bent over and running roughly horizontally. The vertical part does most of the work since high current is present nearer the base. The horizontal part can be thought of as more of a loading or matching device if it doesn't dominate the overall length. Unless you have a very tall tower to support a high dipole, a vertical antenna of some sort will typically be your best bet for DX performance on these low bands.

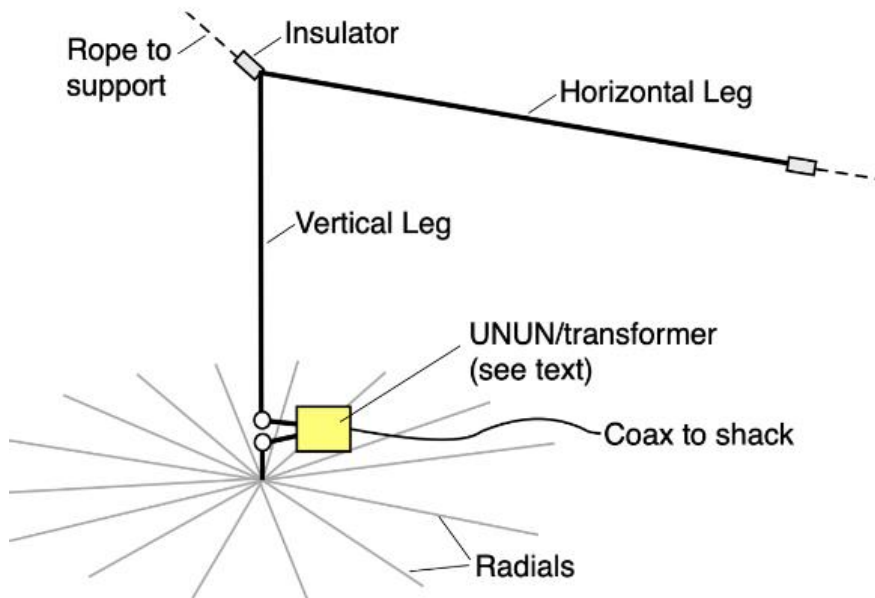


Figure 1. Typical inverted L construction.

Like any vertical (monopole), this antenna requires a ground radial system. It can consist of a large number of radials on or slightly under the ground, or a modest number of elevated radials. For ground radials, generally more is better; 32 is a good target. One thing about them is that they are non-resonant so length is not very critical. Elevated radials are resonant and will directly affect antenna tuning, but you can get by with just a few. For best performance, elevated radials should be up about 8 feet on 80 m and almost twice that on 160 m. See the ARRL Antenna Handbook for in-depth advice on design tradeoffs for any kind of radial system.

Our reference antenna is a wire vertical, 66 ft tall and with 32 shallow-buried radials 45 ft long. The inverted Ls use the same radial system. I varied the length of the vertical portion of the L, choosing 20 and 30 ft for comparison. The remainder of the wire ran horizontally, 46 and 38 ft, respectively.

Figure 2 compares the SWR. A properly-installed vertical ends up around 42 ohms at resonance, a good match to our regular coax. Inverted L antennas are always a lower impedance because of the coupling between the horizontal wire and ground, usually around 20 ohms, and that's what my simulation shows. The shorter the vertical segment, the lower the impedance. For a better match, some guys add a transformer or some other matching network at the feedpoint. Note: You should always place a common-mode choke at the feedpoint of any of these antennas. (In this case, it's sometimes called an UNUN for unbalanced to unbalanced, but really, it's just a choke.) That will prevent the outside of your coax from becoming another radial with unknown properties.

A good radial system is extremely important. If it's inadequate, there will be excessive loss due to current flowing through the lossy Earth rather than copper wires. Curiously, this loss can actually improve your SWR! That's because the added loss appears in series with the antenna's radiation resistance. If your inverted L looks like 50 ohms, you probably have upwards of 25 ohms of loss in your radial system and literally half your power is being dissipated there. So don't be fooled: SWR is not a direct indicator of antenna performance.

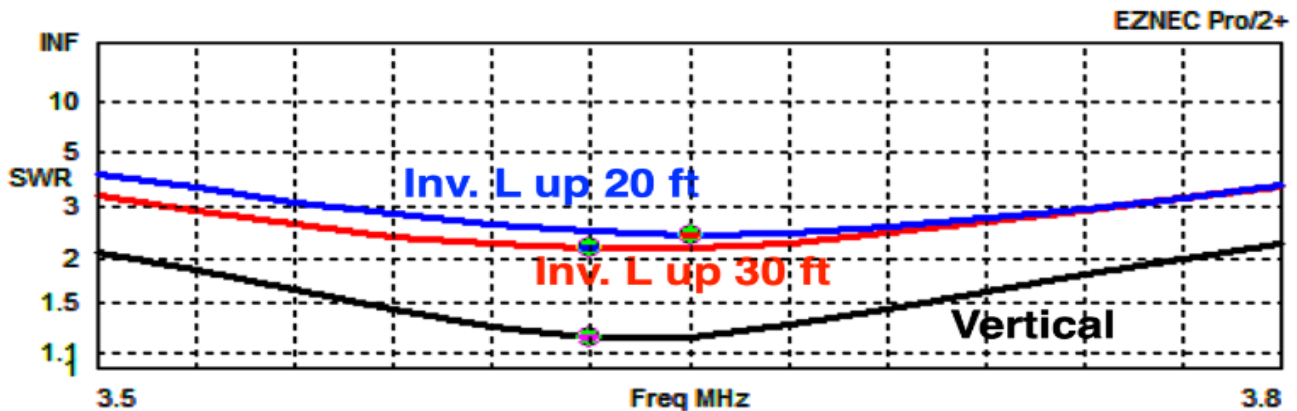


Figure 2. SWR comparison over average ground conditions. An inverted L at resonance is typically around 20 ohms with a good radial system.

Looking at the pattern in azimuth, it's going to be omnidirectional with a slight bias in the pattern away from the horizontal wire's direction. For the 20 ft vertical case, it's about 3 dB. The better news is that the elevation pattern (Fig. 3) is very good compared to the baseline vertical with excellent low-angle radiation. "Forward" gain is nearly identical, with only the small decrease off the back. Also the horizontal wire gives you some radiation straight up which can be useful for shorter-distance QSOs

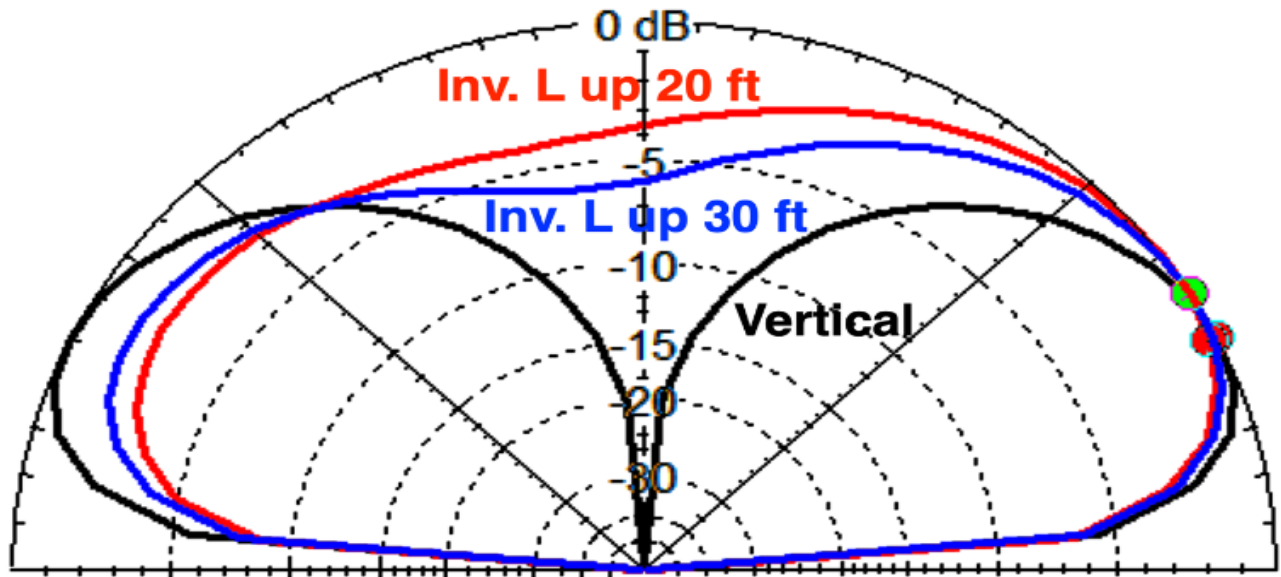


Figure 3. Comparison of elevation patterns. Outer ring is 0.0 dBi.

The last simulation I did was with four elevated radials. The elevation pattern has a bit more energy at higher takeoff angles, and a greater front-to-back ratio, on the order of 5 dB, but it's still excellent at low angles. The other difference is that the impedance is even lower, on the order of 12 ohms. A 4:1 impedance transformer would be a good idea here. As I mentioned, elevated radials are resonant and tuning is required. Adjusting the relative length of the vertical-horizontal wire vs. the radial length can walk the impedance around a bit for a better match but it will still be pretty low. For instance, shortening the radials by 10% increased the impedance to about 18 ohms.

In conclusion, the inverted L is a well-respected antenna for low band DXing when space is limited, especially if you can lay down a good radial field. Don't be afraid to route the horizontal wire to fit your property. It can slope downward and bend in odd directions without seriously degrading performance.

SACRAMENTO HAM SWAP

The 2024 Carmichael Elks Annual Ham Swap Meet is scheduled for Sunday, May 26 from 7 am to 12 noon at the Carmichael Elks Lodge on the corner of Cypress and Hackberry, 5631 Cypress Ave, Carmichael, CA 95608. Parking is free to buyers on the East lot. For Sellers, South lot spaces are \$10 each space.

Thank an Elk for this great price! The Elks Lodge will be selling coffee, water, maybe dogs and doughnuts.

There will be an electronic salvage trailer available for stuff you want to donate.

This is a LEAVE NO TRACE event.

We want to leave the Elks facility cleaner than we found it!

Cheers -- I'm John Dyer www.johndyer.com

Club Log Standings 2024

Overall

1	W1SRD	Steve Dyer	211
2	NK7I	Rick Bates	209
3	W6DE	Dave Engle	206

CW

1	K6YK	John Lee	167
2	W1SRD	Steve Dyer	134
3	W6DR	Dave Ritchie	117

Phone

1	W1SRD	Steve Dyer	121
2	K6YK	John Lee	107
3	K6TQ	Dave Sanders	97

Data

1	NK7I	Rick Bates	201
2	W6DE	Dave Engle	185
3	NJ6G	Dennis Moore	179

Awards Checkers ARRL

Rick Samoian, W6SR
(DXCC, WAS, VUCC, 160M)

MLDXCC Focus Contests

Northern California Contest Club (NCCC) announced their focus contests at their August 2018 meeting. This list can be found in the Aug 2018 NCCC newsletter.

ARRL RTTY RU
CQ WPX RTTY
CQ WPX SSB
CQ WPX CW

The NOAA Solar Update

Click the link below to display the latest NOAA solar predictions.

<http://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecas>

Upcoming Events

For the latest contest info. click on the following link:

<http://www.contestcalendar.com/contestcal.html>

The following lists all contests in which MLDXCC would appreciate your efforts.

ARRL SS CW/PH
ARRL DX Phone*
ARRL DX CW*
ARRL 10M*
ARRL 160M*
California QSO Party

Upcoming DX and DXpeditions

Click the link below to display upcoming DXpeditions.

<http://www.ng3k.com/Misc/adxo.html>

MLDXCC Reflector

The MLDXCC reflector is maintained at groups.io. Visit <https://groups.io/g/mldxcc>

We also maintain a spotting reflector at <https://groups.io/g/MLDXCC-Spots>

We are also on Facebook!
<https://www.facebook.com>

Classifieds

Members are requested to review their classified ads each month for accuracy and to resubmit their ads or confirm their desire to keep it running in the next issue.

Need QSL cards, business cards, club banners?
Contact Vina K6VNA vina@sign-tek.com

Kenwood TS-590S with power cord,
microphone, dust cover. \$700.00

Yaesu FT-897 with power cord and microphone.
HF output is good, VHF/UHF output does not
work (separate antenna out). \$350.00

(209)329-2951 dsmoore63@gmail.com

73, Dennis NJ6G



W6SR

I have two items for sale/trade.



1. Recently I acquired a Johnson KW tuner (site unseen) from a friend. My plan was to modify it for the remote radio setup at W1RH. However, after I inspected the unit, it is way too nice to modify. It's (IMHO) collector quality, original in and out. It even has the original, working SWR meter, relay, relay power supply and directional coupler cable. But not the directional coupler. Couplers are more available than the KW tuners since they were used on the 250W tuners also. I hate to see a vintage piece of collector quality gear hacked. Anyone interested in one of these? Price, you tell me, best offer takes it.



2. Ameritron ALS-1306/ 160m-6m 1200W Solid State Power Amplifier and companion power supply (looks and works great). Approximately 40W in for 1KW output, 50W in for 1200 out. Wired for 230V but 115V operation by re-strapping. I have the original shipping boxes and interface cable for flex-radio. \$2195/offer or I will accept a Acom 1000 for trade.

More pictures are available upon request. Contact me at ricksamoian@outlook.com de Rick, W6SR

K6VVA

Antennas 4 SALE

=====

ANTENNA (“New-In-Box”) – Never Installed

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* RAIBEAM – 3el 20M Yagi (NIB) – Price: \$300
A “Collector’s Item” for some?

=====

ANTENNAS (USED)

=====

1. CUSHCRAFT 104CD (4el 10m Yagi) - Price: \$300 USD
Mostly New Hardware in bag.

2. 40m 4-SQUARE Antenna Components - Price: \$300 USD
Mostly Butternut aluminum sections and base coils (possibly for 80m?).

3. Force 12 Sigma 180S 80m Rotatable Dipole - Price: \$300
Supposedly “T-Bar” loading but would need to be verified. Hopefully with all pieces.

This does NOT have large in-line coils, but a heavy duty boom to mast mounting plate.

For Pick-Up Only in the Morgan Hill/Gilroy (CA) rural area. Photos available.

4 SALE

U.S. TOWER TX-455 w/base and coax standoffs – Price: \$2,000 USD

Antenna support mast w/thrust bearing and large bolts for concrete installation included.

For Pick-Up Only in the Morgan Hill/Gilroy (CA) rural area. Photos available.

email ONLY TO: items4sale@k6vva.com (include your Callsign, Name & Phone Number !!!).

Area Clubs

Northern California Contest Club -

<https://www.nccc.cc>

Lodi Amateur Radio Club -

<http://www.lodiarc.org>

Stockton Delta Amateur Radio Club -

<http://www.w6sf.org>

Pizza Lovers 259 –

<https://www.pl259.org>

El Dorado Amateur Radio Club -

<http://edcarc.net>

Sierra Foothills Amateur Radio Club -

<http://www.w6ek.org>

Redwood Empire DX Association -

<http://www.redxa.com>

Calaveras Amateur Radio Society

<http://calaverasars.org/>

Tuolumne County Amateur Radio Electronics
Society (TCARES)

<https://tcares.net/>

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The MLDXCC NEWSLETTER

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