



THE COUNTY LINE ROADRUNNER

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From My Point of View

Joyce, WB9NUL

Once again I must start this note with sad news. This past month MARAC has lost some good people. NZ8K, Vern, W6FAH, Robert, K4UNF, Frank and W2IBB, Norm have passed away. I have lost some dear friends and I will miss them.

As you know, Norm was our secretary. Please be patient as a replacement is found and things are transferred. The board will be holding a meeting December 1st to approve this person to serve until the July elections.

Our November was busy. KG5UZ, Mike and KJ5PQ, Cheryl stopped by for a visit and a check on their grapefruit grove. My daughter had surgery and is doing well. Then came Turkey day with friends joining us to give thanks and devour a 15 pound bird. I hope that all of you were able to spend your holiday with friends and family.

The Christmas holidays are now approaching and the house is decorated and ready for celebration. This week Norm, W3DYA and his wife Karen will be visiting for a few days. We have two parties planned, one for my stitching friends and one for neighbors, radio friends and winter visitors to the valley.

I want to thank Dennis, N6PDB and Susan, WA6OCV for driving up to Plumas County and getting my last in California for Bingo. It was fun to be back on the air and helping the mobiles.

There was a big surprise in my mail last month. I got an award from the ARRL. I received an A-1 operator certificate. You must be recommended by a least two people to get this and you don't know who has taken the time to do this. I am very proud of this award and wish I could thank those people.

Barry and I are set for the convention in February and look forward to seeing you all. We both would like to wish you all a blessed Christmas.

73, Joyce, WB9NUL

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Dave's Call

Thanks to Pete, NN9K for leading me to the cartoon on the next page. I loved it and hope you do also. Yes, Dave, KE3VV, I got permission from Tribune Media... to use it.

Sorry, the schematic on page 14 isn't as clear as it should be. Contact Barry, W9UCW, if you want to see the details.

That's it for now. see you in the new year. Be safe!

Dave, KU4YM

Dateline CW

Ed, KN4Y

That indescribable expression peculiar to mobile county hunters doing CW at 70 MPH.

I am pressure washing the SWR's off my antenna tower when Gator drives up and backs into the parking spot that has a sign, Gator only. He gets out, "Good morning Dude, what's up." I point upward and say, "The Yagi." Gator completely ignores my attempt at morning humor, "You know that CB'er that lives on Resonator Road who installed a fiber glass deer with a mailbox as the head." "Yes, wonder where he got it." "Well as I drove by I noticed six bullet holes in the deer." "I guess at night that could be a problem, I see you have a new bumper sticker." I read the bumper sticker.

We do not want an arm and a leg,

We just want your tows.

"I got that from that Dude who started the towing business on Capacitor Court; who by the way just got his technician license, It means..." "I know what it means; let us go into the shack." I shut off the pressure washer.

We go into the shack, I pour two cups of java and give Gator one. "I had to run before you told me how many were at the South East Mini." "Well I would say close to 50 county hunters." "Did you see the old un-sunken submarine?" "No, we just sat around and told stories." "You mean BS." "Yes, but we had a good time, you need to go next year." "Where will it be?" "I heard Charlotte, North Carolina." "Dang Dude that is a full day's travel, all up hill." I change the subject, "Let's check my recent QSO party logs.

Gator points to the boxes on the floor, "What you got there? That is my Christmas lights; I plan to put them up today or tomorrow." You mention actual labor and Gator ignores you, he is looking at my Illinois QSO party log as he refills our cups with Java; the early art of multi-tasking. "You done good with 115 QSO's, must have been lot of mobiles." "Yes that was the fun part, chasing the mobiles around Illinois. There were five county hunters out that I heard." "Anyone I know." "Yes, I heard Tim, N9BIL, Pete, NN9K, Mel, KJ9C, and Jeff, W9MSE." "How about Jim, N9JF." "Yes, I heard Jim but only in a few counties." "Speaking about counties you got 25 for Bingo III and two for fifth time. I give Gator the high sign.

Gator looks at my New York QSO party log, "I see very little mobile activity, but you still got five for Bingo III, one natural Bingo and nine new counties on 80-meters." I again give Gator the high sign, "I also worked a silent key. I think to myself, only in New York. Gator gives me the high sign and brings up my CW Sweepstake log, "Have you confirmed the 12 for Bingo III, 13 for 80-meters and the last 2x1 call in Maryland." "I sure have." Gator gives me the high sign and brings up my Kentucky QSO party log, "Not bad for a short run. You got two bingo III, three 'A' prefix, and six new counties on 80-meters." There is CW coming from Gator's pants. It is his cell phone. "Got to go Dude my H1N1 elixir is ready for bottling. Gator is gone in a senior moment.

I notice the computer screen and see Gator has left the list of mobile CW county hunters that ran in November. I read AA8R, AB4YZ, AK8A, K0ARS, K0RU, K2HVN, K4EXT, K4XI, K4YFH, K8QWY, K8ZZ, K9JF, KD5JWC, KE3VV, KG4VBK, KR5C, KS7S, N0KV, N0RU, N4JT, N4AAT, N5MLP, N5XG, N9JF, NM2L, NN9K, NT2A, WV2B, W0GXQ, W0NAC, W4HSA, W7IN, W8JJ, W9OP, WB4KZW.

I move the boxes of Christmas lights to the corner, which is enough work for now. I look at the contest calendar. Looks like some serious contests, the ARRL 160-meter, the ARRL 10-meter, the Croatian CW contest, and the Stew Perry Topband Challenge. Be nice to end the year with some new counties added to my MARAC county challenge totals. The last State QSO party for the year is the South Dakota. I wonder how many county hunters worked all the State QSO parties during the year? H1N1 elixir does have a curing sound, might get a case and bribe Santa Claus to become a county hunter and get all the counties in one night. MERRY CHRISTMAS and you are 599 from reindeer mobile. Oh Boy, It is time for a nap; did I shut off the pressure washer?

MERRY CHRISTMAS AND A NUMEROUS NUMBER OF NEW COUNTIES NEW YEAR

Bound and Gagged by Dana Summers

November 10, 2009



Birthdays

Call	Birthday Date
KZ2I	Dec - 01
K1DFO	Dec - 01
KJ0H	Dec - 01
KD2Q	Dec - 01
NU5V	Dec - 01
WA4NBC	Dec - 02
NJ2DX	Dec - 02
WA9EZT	Dec - 02
W0MHK	Dec - 02
WE3Z	Dec - 02
NE6B	Dec - 02
N9ER	Dec - 03
N7JB	Dec - 03
NI7F	Dec - 03
KU8G	Dec - 04
W2GDW	Dec - 04
KE2RX	Dec - 04
K0PY	Dec - 04
N3XX	Dec - 04
K1VSJ	Dec - 04
WA7YUL	Dec - 04
K8BBM	Dec - 04
K7TM	Dec - 04
NF9R	Dec - 05
W8FDV	Dec - 05
W4IDW	Dec - 05
KB1GN	Dec - 05
K7DZE	Dec - 06
K6JN	Dec - 06
N4VA	Dec - 06
W9MDP	Dec - 06
K1QZV	Dec - 06
KD4LM	Dec - 07
K5CWR	Dec - 07
N1WA	Dec - 08
W1DIT	Dec - 08
K4ZT	Dec - 08
AB0EE	Dec - 08
KE5KC	Dec - 08
W5OXX	Dec - 08
KE9VM	Dec - 09
WA0WOB	Dec - 09
NV4Z	Dec - 09

Call	Birthday Date
KI7WO	Dec - 09
K9BX	Dec - 09
KN8M	Dec - 09
W3HU	Dec - 09
KM4NW	Dec - 10
KD7KWM	Dec - 11
K7ANT	Dec - 11
KD7KWO	Dec - 11
NG9L	Dec - 11
KB9BL	Dec - 11
W9HA	Dec - 11
N0ZA	Dec - 11
WB5LOZ	Dec - 11
N8KIE	Dec - 11
W8JJ	Dec - 11
N8TA	Dec - 11
KT7W	Dec - 12
WB8JZN	Dec - 13
KI0JO	Dec - 13
K4YY	Dec - 13
N9JF	Dec - 13
W9UX	Dec - 14
W0XT	Dec - 14
WA7ETH	Dec - 14
NN4NN	Dec - 14
KA9ZRW	Dec - 14
K1TEX	Dec - 14
N8CBW	Dec - 14
AC0B	Dec - 14
WA4AUL	Dec - 14
N4RFX	Dec - 14
KJ6NR	Dec - 15
K9PO	Dec - 15
N2XTU	Dec - 15
KV4DT	Dec - 15
K8BHG	Dec - 15
W4HSA	Dec - 16
NJ9X	Dec - 16
KA5WGL	Dec - 16
W3FG	Dec - 16
AF4PQ	Dec - 17
KE1LA	Dec - 17
AD1OS	Dec - 17

Call	Birthday Date
KC0VB	Dec - 17
KZ2P	Dec - 17
N4XP	Dec - 18
N8ESR	Dec - 18
KB9CC	Dec - 19
AD1C	Dec - 19
WA6KHK	Dec - 20
K1MLP	Dec - 20
KC0QA	Dec - 20
KC1WE	Dec - 20
N4EEL	Dec - 21
K7OQZ	Dec - 21
WA4KER	Dec - 21
AB8JF	Dec - 21
K3FP	Dec - 21
KE2ZG	Dec - 21
AB4AV	Dec - 22
W9UCW	Dec - 22
N7HS	Dec - 22
K8NB	Dec - 22
W4UB	Dec - 22
WB5TWK	Dec - 23
K3BM	Dec - 23
N0TKX	Dec - 23
KJ5M	Dec - 23
NM5SR	Dec - 23
W0FF	Dec - 23
N4FSZ	Dec - 23
KC4SF	Dec - 24
AB0C	Dec - 24
W6OF	Dec - 25
K3IMC	Dec - 25
AG4DX	Dec - 25
K1RY	Dec - 25
N8WH	Dec - 25
WA3PAK	Dec - 25
K9PI	Dec - 25
KG0BB	Dec - 26
WY7ML	Dec - 26
KH6G	Dec - 26
NU4D	Dec - 27
K2QK	Dec - 27
CT1TZ	Dec - 28

KC1NA	Dec - 28
AC4MP	Dec - 28
KC7OA	Dec - 28
N2OO	Dec - 28
W3JV	Dec - 28
KD3XA	Dec - 28
W8UPH	Dec - 29
W4BQD	Dec - 29
W9WIC	Dec - 29
K4SX	Dec - 29
K6TV	Dec - 30
ND0P	Dec - 30
WS5R	Dec - 30
WD9EJK	Dec - 31
WA3ZTY	Dec - 31
KB7KR	Dec - 31

Awards

Randy, AA8R

USA-No Stars Award

OBJECTIVE: To make **Valid Contacts** with amateur radio operators who have not received the USACA Award and to encourage new county hunters to transmit counties while mobile.

SPECIAL RULES: *Stars* is defined in General Rules and Definitions for MARAC Awards.

Only **Valid Contacts** with operators in **Mobile or Portable Operation** who have no **Stars** may be used for this award. If an operator has one or more **Stars**, only contacts made with that operator before the date that the USA-CA Award was issued to that operator may be counted for this award.

All contacts must be made on or after January 1, 2010.

AWARD LEVELS: No intermediate levels. USA-No Stars is awarded for working **All USA Counties**.

After completing USA-No Stars, each sequential award (USA-No Stars II, USA-No Stars III, etc.) can be worked by **Starting Over** and working **All USA Counties** again for the sequential award.

APPLICATION AND FEES: Standard application, logs, and fees.

Bingo – The Master County Hunter Award

OBJECTIVE: To make **Valid Contacts** with stations that match the first letter of the county in which the stations are operating with one of the letters in the suffix of their amateur **Call Sign**.

SPECIAL RULES: In addition to matching the first letter of the county name (Cobb, IL) with one of the letters in the call sign suffix (W9ABC, KA2CBA), there are several special rules that apply to dual letter call signs and short call signs, as well as two wild cards:

- **Short Call Signs:** Any letter that matches the first letter of the county name may be used from 2x1, 1x2, or 2x2 call signs. This includes the letters in the prefix.

For example, **W1AB** is good for Bingo in counties that begin with **W** or **A** or **B**. **KB3DC** is good for Bingo in counties that begin with **K**, **B**, **C**, or **D**.

- **Repeated Letter Call Signs:** If a letter is repeated in a call sign (W1MMM, W2MMA, W3MAM, or KM4M), the letters preceding or following that letter alphabetically may be used.

For example, the **MMM**, **MM**, or **M-M** counts for Bingo in counties that begin with the letters L, M, or N (as well as any other letter in the suffix). Note: Calls with **WW** or **YY** may be used for counties that begin with **V** or **W** or **Z**, but do not count as the “X” wild card. The **ZZ** double letter can be used for **Y**, **Z**, or **A**, and the **AA** double letter can be used for **A**, **B**, or **Z**.

- **Wild Card Call Signs:** Call signs with an **X** in the call (such as **KX1AB** or **W1ABX**) and call signs belonging to operators with one or more **Stars** are good for Bingo in every **USA County**.

The term **Stars** is defined in *General Rules and Definitions for MARAC Awards*.

For counties with two or more words in the name, the first letter of any word may be used to coincide with the call (**West Baton Rouge** or **Jim Hogg**).

For Alaskan judicial districts use **First Judicial District – South East**; **Second Judicial District – North West**; **Third Judicial District - South Central**; and **Fourth Judicial District - Central**.

AWARD LEVELS: No intermediate levels. **Bingo** is awarded for working **All USA Counties**.

After completing **Bingo**, each sequential award (Bingo II, Bingo III, etc.) can be worked by **Starting Over** and working **All USA Counties** again for the sequential award.

APPLICATION AND FEES: Standard application, logs, and fees.

Natural Bingo

OBJECTIVE: To make **Valid Contacts** with stations that match the first letter of the county in which the stations are operating with one of the letters in the suffix of their amateur **Call Sign**.

SPECIAL RULES:

For counties with two or more words in the name, the first letter of any word may be used to coincide with the letters in the suffix of the **Call Sign** (West Baton Rouge or Jim Hogg).

For Alaskan judicial districts use **First Judicial District – South East**; **Second Judicial District – North West**; **Third Judicial District - South Central**; and **Fourth Judicial District - Central**.

The special rules that apply to Bingo – The Master County Hunter Award for short call signs, repeated letters in call signs, stars, and wild cards do not apply to Natural Bingo. Only the actual letters in the suffix of the **Call Sign** may be used.

AWARD LEVELS: No intermediate levels. **Natural Bingo** is awarded for working **All USA Counties**.

APPLICATION AND FEES: Standard application, logs, and fees.

Master Gold Award

IN MEMORIAM: This MARAC award is in honor of Arnie Bachmann (K9DCJ, SK). Arnie was a big part of the history of county hunting and was the unofficial MARAC historian. In 1991, Arnie authored the “USA-CA Award: The Story of County Hunting,” which was published as a three part series in *CQ Magazine*. He wrote county hunting history articles for the MARAC convention annual reports.

OBJECTIVE: For holders of both a **Star** and the Bingo - Master County Hunter Award (“Bingo”) to make **Valid Contacts** in **All USA Counties** with each other and perform service to MARAC and the county hunting community.

SPECIAL RULES: All contacts for Master Gold must be made after the applicant has earned at least one **Star** and the Bingo Award. Each contact must be made with another operator who has also earned at least one **Star** and the Bingo Award.

Both counties involved in a **Valid Contact** may be counted by both operators.

In addition to making contacts with other eligible operators in or from **All USA Counties**, the applicant must provide proof satisfactory to the **Awards Manager** of a total of 1500 hours of service consisting of any combination of the following:

- *Service to the county hunting community* as Net Control or Assistant Net Control.
- *Service to the county hunting community for assisting mobiles.* Credit for service is 10 minutes for each mobile run. You must provide all of the following assistance to each mobile:
 - *Announce the mobile - giving their call and county;*
 - *Post the mobile (if you have Internet access);*

- **Remain on frequency and assist with relays; and**
- **Announce the mobile and county at the end of run.**
- **Service to MARAC**, including any combination of the following:
 - Awards Manager (500 hours per year)
 - Newsletter Editor (500 hours per year)
 - Secretary (500 hours per year)
 - Treasurer (300 hours per year)
 - President or Vice President (200 hours per year)
 - District Director or Past President (100 hours per year)
 - Appointed position or committee service (actual hours)
 - National or mini convention coordinator (actual hours)

An applicant may substitute **transmitted counties** for hours of service at the rate of one transmitted county equals one hour of service. You may transmit from the same county multiple times (but no more than once on the same date), and the same county may only be counted a maximum of 50 times.

All contacts for this award must have been made after June 1, 1994, and at least half (750) of the hours of service or transmitted counties (or combination of both) must have been performed after June 1, 1994.

AWARD LEVELS: Master Gold is awarded for working **All USA Counties** and completing the full 1500 hours of service or transmitted counties.

APPLICATION AND FEES: Standard application, logs (showing contacts for both worked and transmitted counties), and fees. **Service hour logs must include total hours of service claimed and the following information for each mobile run:**

- **Mobile call sign**
- **Date and time**
- **Band and Mode**
- **County and State**

Call	Date	Award
AA8R	04-Nov-09	Big Rig
AA8R	15-Nov-09	County Challenge
AB7RW	15-Nov-09	County Challenge
KC3X	17-Nov-09	Mobile to Mobile
N5XG	28-Nov-09	Roadrunner
WG9A	28-Nov-09	Roadrunner
N9QPQ	28-Nov-09	Roadrunner
W0GXQ	28-Nov-09	Roadrunner
N9JF	28-Nov-09	Roadrunner
N0KV	28-Nov-09	Roadrunner
WB4VFN	15-Nov-09	USA-CW
AA1VA	25-Nov-09	Worked all Counties - 1st Time - USA-CA
WB4VFN	27-Nov-09	Worked all Counties - 1st Time - USA-CA
N0DXE	19-Nov-09	Worked all Counties - 1st Time - USA-CA
N0KV	01-Nov-09	Worked all Counties - 2nd Time
K5GE	15-Nov-09	YL Mobile

SC Mini

2010 SOUTH CENTRAL MINI

WHEN: Arrive Feb. 11, Depart Feb. 14, 2010

WHERE: Best Western Palm Aire Hotel & Suites,
415 S. International Blvd. at Exp. 83, Weslaco, TX 78596
The hotel is located on Expressway 83 & FM 1015

ROOM RATE: \$64.00 A Night plus tax. Includes free buffet breakfast. (For up to 2 persons)

RESERVATIONS: Call 1-800-248-6511 and mention MARAC to get the special rate. Same rate applies if you come in early or stay late. Our block of rooms will be held til Jan. 29. Please reserve before then if possible.

FORUMS: There will be an antenna forum and undetermined others. Contact Barry, W9UCW to schedule yours.

MEETINGS: General Session, CW Ops, Others

CONVENTION REGISTRATION FORM

Registration includes name badge, group photo and prize drawing

Single..... \$10.00=\$ _____

OM/YL Couple..... \$15.00=\$ _____

Chuck Wagon Dinner (Thursday night).....# _____ X \$22.50=\$ _____

Big Ranch Style Buffet

Saturday Night Dinner.....# _____ X \$23.50 = \$ _____

Fajita Fiesta includes Grilled beef/Chicken Fajita, Charro beans, Spanish Rice, Shredded Lettuce & Cheese, Tomato, Sour Cream, Pico de Gallo, Dessert & Drink

Total.....(Includes Taxes & Gratuities).....\$ _____

Name _____ Call _____ USACA# _____

Name _____ Call _____ USACA# _____

E-mail address of primary registrant:- _____

Send a check for the total registration & dinner fees payable to:

Joyce Boothe, WB9NUL
21175 FM 2556
Santa Rosa, TX 78593

Phone: 956-636-9161
E-mail: Joycenul@aol.com
Cell: 956-202-3373

All Band Antennas

Balanced Lines, Tuners and Such

Barry, W9UCW

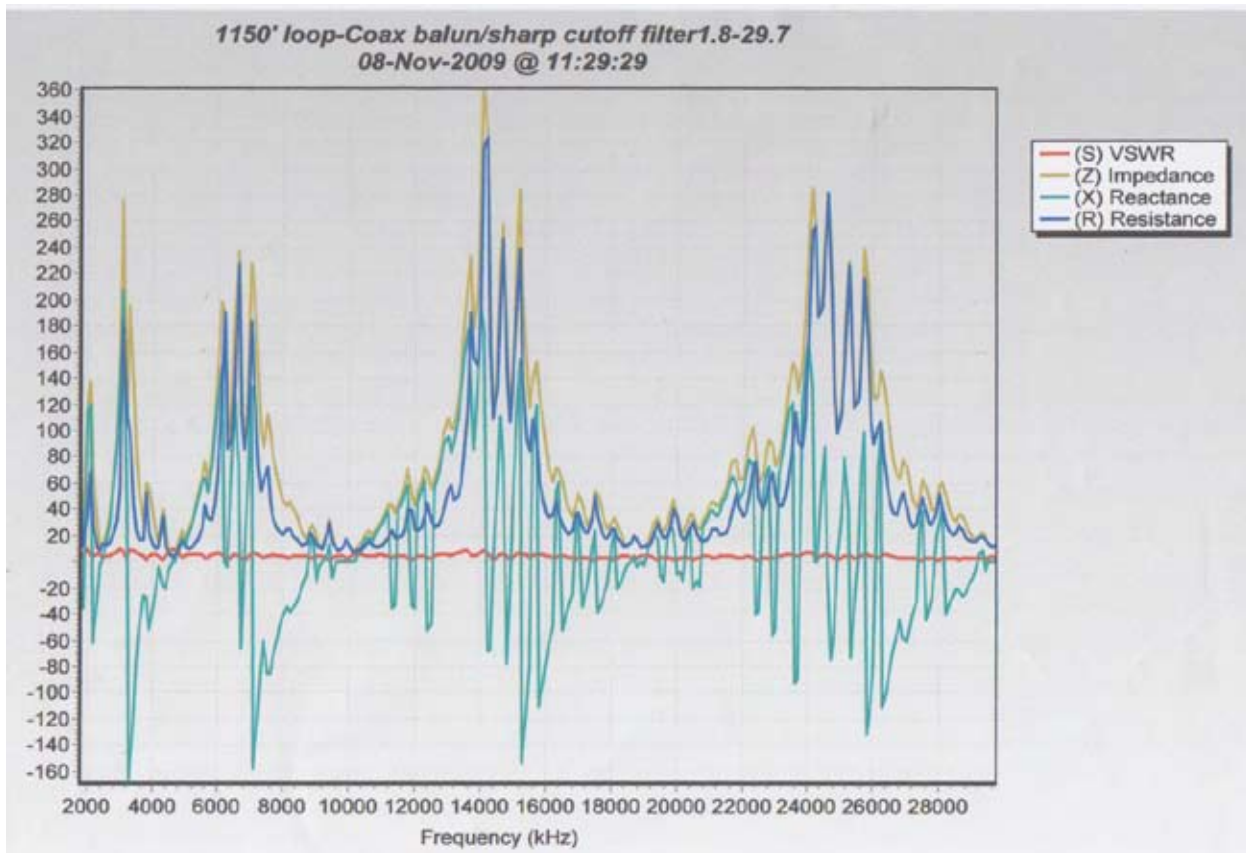
I often get into discussions concerning matching problems when using balanced feedline to feed an all band antenna like a big dipole or loop, for instance. Recently a friend wondered why he was having trouble getting a decent match on his newly extended dipole. He had gone from an 80 meter to a 160 meter dipole. He said that previously, he had no problems getting a 1:1 SWR connecting a “4 to 1” balun to the feeders, running coax down to tuner and on to the rig. I suggested that he might have been having trouble that he couldn’t see on an SWR meter and that some changes are in order if he is to realize the advantage of the enlarged antenna. He had some problem getting my drift so I went into more detail. Here are the main points related to an all-band antenna setup utilizing balanced feedline.

1. The use of balanced feedline on a dipole or a loop for example, allows an almost zero loss set up that can be perfectly matched across a very broad spectrum of frequencies.... like maybe 160 through 10 or even 6 meters. Other advantages are related to the nature of balanced feeders, like a lack of radiation or of signal & noise pickup from the feedline. This is because the currents in the two wires in a properly operating system are equal and of opposite phase. Therefore, the fields cancel one another. Thus, there is no radiation or reception from the feedline. Coax, on the other hand, does radiate and pick up unwanted noise unless it is feeding a purely resistive unbalanced 50Ω load. This is rarely the case, and almost never happens in an all-band antenna setup. More about that later.

2. At the radio end of the balanced feedline feeding an all-band antenna, there will be seen an infinite variety of impedances as you move across the frequency spectrum to be used. At each frequency the impedance is a combination of a resistive component and a reactive component. The reactive component must be tuned out or nullified for the most efficient transmission of energy. It is possible that at some frequency between, say, 1.8MHz and 29.7MHz that the impedance will be 50Ω or 200Ω or 300Ω resistive only (no reactance), but it is extremely unlikely .

3. The impedance will vary across the spectrum from perhaps under 50Ω to more than 1000Ω with reactances of high negative to high positive values. The impedance will “roller-coaster” up and down many times across the frequency spectrum.

Here is an example. This is the analyzer plot for our big horizontal loop in Santa Rosa taken at the “shack” end of the feedline. The plot covers 160 through 10 meters. Notice that the impedance (tan) goes from lows of about 15Ω to a peak value near 20 meters of 360Ω. The reactance varies across the spectrum from +180 to -160.



The pattern is determined by the length, size, shape, height and characteristics of the antenna and the feedline. The point is, the impedance at the end of the feedline has to somehow be “matched” to the output of the radio on each and every frequency of operation.

4. Because the output arrangement on modern gear is all but exclusively unbalanced, and usually at 50Ω , two things must happen. First, some mechanism must convert from BALanced to UNbalanced between the feedline and the radio. Secondly, whatever impedance is encountered at the incoming balanced feedline must be transformed to 50Ω . These two tasks are usually done by some sort of “antenna tuner” or “transmatch.”

5. The mechanism for the first task will be the “BAL-UN.” Excuse me while I climb up on my soapbox and talk about baluns.

The balun can be designed to go from a specific impedance to the same or a different specific impedance. Commonly, when one refers to a “1 to 1 balun” in ham radio setups, 50Ω to 50Ω is implied. Similarly, a “4 to 1 balun” most commonly means a 200Ω to 50Ω impedance. But, a 4:1 could be a 75Ω to 300Ω unit, or a 50Ω to 12.5Ω unit and the list of possibilities goes on and on. The point here is that baluns are designed for specific impedances, and as it turns out, for use on specific frequencies.¹

Having said that, I must add that broadbanded baluns have been designed using modern materials. It's possible to cover more than one, and in some cases, several ham bands with a balun without losing an excessive amount of power. It's even possible to make somewhat of an excursion from the design impedance. Let's see how that plays out.

For instance, consider the common 4:1 balun hung on the output of single-ended (unbalanced) tuners to feed balanced line antennas. This has been the way the vast majority of commercial tuners have been built for the past 30-40 years. The tuner makers claim or at least imply that the "all band 4 to 1" balun in their box covers 160 through 10 meters, and takes the balanced impedance encountered at the tuner output terminals and brings it down to one-fourth that amount. In the process, it is changed from balanced to unbalanced, leaving the "tuner" part of the box to take what comes out of the balun and transform it to 50Ω.

There are some problems in all this. First of all, most of the baluns in question have been wound on powdered iron toroidal cores. That means that the range of frequency over which they will do their job without much loss is 2 or 3 to 1. Like 80 & 40, or 40 through 15, or maybe 20 through 10 meters, depending how they were made. If they were wound on ferrite cores of the right mix, they might cover a 10 to 1 frequency range.

The second issue is that those baluns are universally designed for 200Ω balanced to 50Ω unbalanced. That means the only case where they do what they were designed to do is when the impedance at the radio end of the feedline is 200Ω. An excursion of 20% could be tolerated, although with greater losses experienced above 10MHz. This situation does not lend itself well to multi-band... or for that matter, even multi-frequency setups.

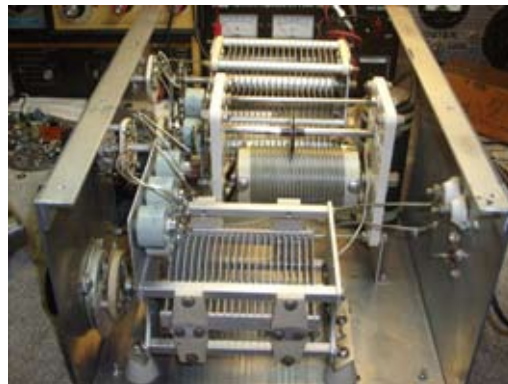
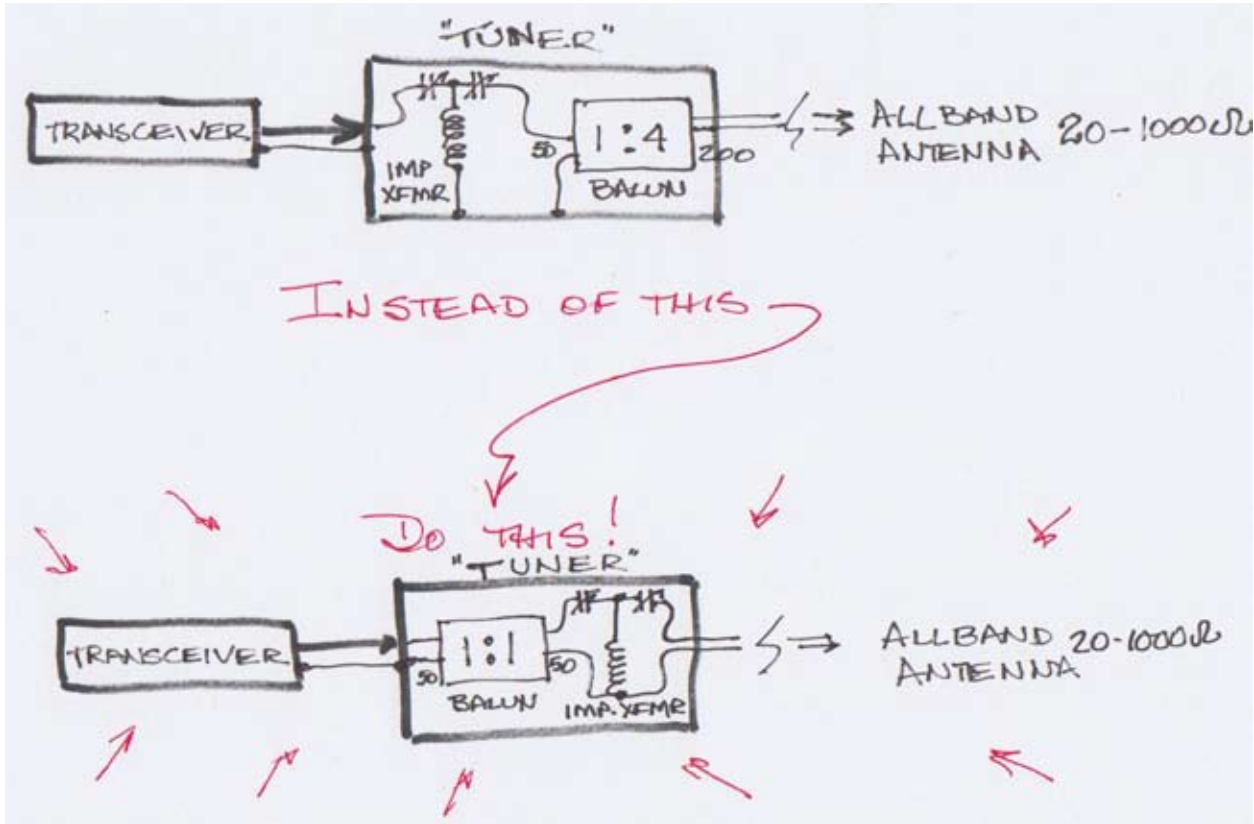
One might counter with the fact that 1:1 SWRs are nearly always achieved across all the bands in the HF spectrum with these kinds of tuners. That's true, but the great god \square SWR \square is not the only idol to be adored. If truth be known, in many cases where the meter shows 1:1, the antenna connected to the tuner/balun is acting like a big blob of metal or a long wire... not at all like it was designed to operate. Meanwhile, the balun and parts of the tuner are suffering losses and heat plus subjected to excessive voltages. SWR does not equate with efficiency!

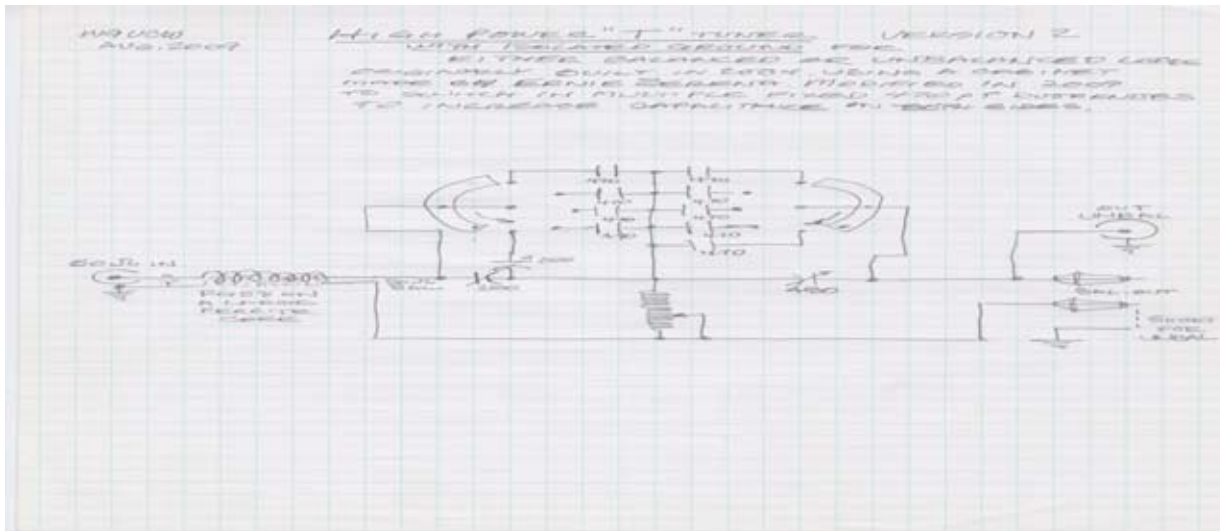
Okay, I'm giving you more information than you asked for... but it's important to understand what's going on in typical setups. The bottom line is, in the case of a multi-band antenna fed with balanced line, no fixed impedance balun can cope with the excursions of impedance at the radio end of the feedline without great losses, possible voltage arcs, and other problems.

This still leaves the task of going from balanced to unbalanced to satisfy the radio. The nice thing about this is that simple, inexpensive baluns can be easily constructed that will provide the conversion, 1:1, or 50Ω to 50Ω over the entire HF spectrum with little to no losses. So, let's put one of these at the input to the "tuner," where the output of the 50Ω unbalanced transmitter/transceiver is connected, and then deal with the second task of a "tuner." That is, transforming the impedance at the end of the balanced feedline to 50Ω balanced, the output of the 1:1 balun.

6. What must be connected between the feedline and the balun is an adjustable impedance transformer... we call them antenna tuners or transmatches or some such. It may be a balanced double "L" network, a balanced "T" net-

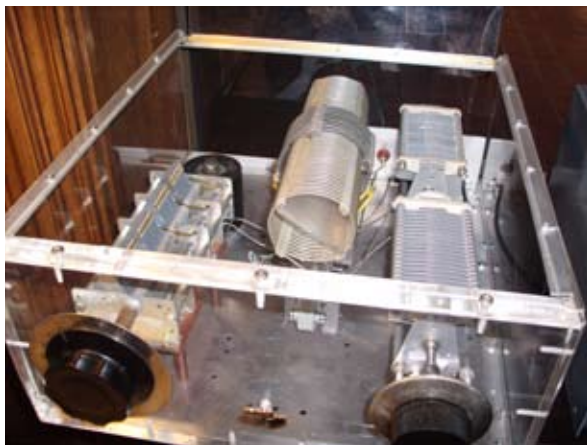
work, or an unbalanced "L" or "T" like the Ultimate or SPC Transmatch, as long as it is isolated from ground. There are a few variations in use, but any one of them can transform the impedance encountered at the end of the feedline, whatever it is, to 50Ω resistive, for example, still balanced.





This is a “T” tuner I built recently with the features discussed in the text.

There is one more notable device to mention in this context. That is the link-coupled, resonant tuner that has been around since time immemorial. Even though it requires a bit more setup and often means big plug-in coils for each band, this tuner (impedance transformer) does both the matching of impedance as well as the BAL-UN conversion. And it does it with the best loss figure of any design as well as providing a narrow passband. This last feature means a reduction of spurious or harmonic emanations on transmit as well as a reduction of front-end overload caused by strong off-frequency signals like broadcast stations and local hams.



This is my resonant-link coupled tuner with 160 coil in.

Here is the whole coil set.

There’s certainly lot’s more to this subject, but for now you have the basics concerning using tuners with balanced feeders to all band antennas. If you have questions to which I might help to find answers, e-mail and I’ll do my best.

For now, Happy Holidays, Happy New Year and Merry Christmas. 73, Barry

(Endnotes)

1 “Transmission Line Transformers,” Second ed., 1990 ,Jerry Sevick, W2FMI

HAPPY HOLIDAYS TO ALL Y' ALL!
FROM ALL OF US



Joyce



Terry



Lloyd



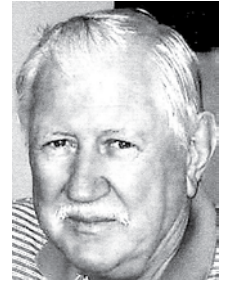
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“A Road Runner Is A Very Fast Bird”

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