



Bulletin



November 2018

From the Pres



Dick K5TF

Baker 2018. Thursday Nov.15th at 7:30 PM, Rich Auditorium, Piedmont Hospital. A great program on tap for this month presented by SEDXC Member and Baker DXpedition Support Team Leader Tom Harrell, N4XP. Tom will report on that difficult, but very successful operation in June and July. Tom has worked them all, on all bands and modes, and has operated from many rare entities. The holder of the top slot for many major DX awards, DXCC-WAZ-WPX, Tom is a member of the CQ DX Hall of Fame. SEDXC was a proud sponsor of the Baker operation.

The SEDXC Holiday Dinner is only a month away and promises to be a fine gathering. We can seat 80 for this Southern Bar-B-Que Buffet Dinner to be held at The 57th Fighter Group Restaurant located at 3829 Clairmont Road adjacent to Dekalb Peachtree Airport.

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This Month's Meeting

Date/Time: **Thursday November 15th @ 7:30 PM**

Location: Rich Auditorium, Piedmont Hospital

Details at www.sedxc.org

Program Title: **Baker 2018**



Speaker: **Tom N4XP**

Tom, a SEDXC member and Co-Leader of the recent Baker Atoll, KH1/KH7Z DXpedition will bring to SEDXC the first club presentation of that difficult, but quite successful operation. The on-island team of 16 operators plus pilot and support team put Baker, the 6th Most Wanted entity, on the air from June 27-July 6, 2018. Baker, an uninhabited atoll lying 1,920 miles SW of Hawaii almost halfway between Hawaii and Australia, is a National Wildlife Refuge protected by the US Fish & Wildlife Service. This tough venue where Mother Nature, antenna restrictions, and marginal propagation reigned supreme generated nearly 70,000 QSOs, including 18,000 unique calls.

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See sedxc.org for details and to make reservations.
Deadline is November 30th

73 es gud DX,

Dick K5TF❖

Treasurer's Journal

Checkbook Balance as of October 31, 2018: \$11,649.
One check written to Chaz for website maintenance:
\$13.99.

73,

Jeff K1ZN❖

Announcements



SEDXC Holiday Party will be Thursday December 13th at the 57th Fighter Group in Atlanta. Full details are at <http://www.sedxc.org> and click-on the December Meeting link. **Please sign up by November 30th.**

My Story (Part 2)



Wey K8EAB

(Note: Part 1 of this article was published in the October issues of the Bulletin—Editor).

FAST FORWARD ...

Many years away from the day I received my Novice license ... it's Saturday, April 29, 1989 ... my family and I live in metropolitan Atlanta, GA ...

Around 6:15AM, I awakened with a feeling of uneasiness ... as I sat on the edge of our bed, my wife woke up and asked me what was wrong. I replied that I didn't know, but I had a feeling that something was wrong somewhere ... she asked if I thought it was my parents back in West Virginia. I said I didn't know. She asked if we should call them, and I knew at that hour they should be asleep so I said no. If something was wrong at their house, there was nothing we could do anyway. After a few more minutes had passed, the anxious feeling subsided and I was able to lie back down and go to sleep.

That evening, we called my parents for our weekly telephone talk. After the usual greetings, my Mom told me that Bill Fearnley (my Elmer) had passed away that same day. I asked when he had died, and my mother said "Shortly after 6:00AM this morning." I told my Mom about the anxiety attack I had that morning. I have never believed in para-normal events, but that experience was real and it amazes me to this day. **My Elmer had reached out to tell me goodbye ... that he was leaving. He was 84 when he died.**

Continued on p.6

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SEDXC Webpage: www.sedxc.org

SEDXC Chat Room: details on webpage

SEDXC Reflector: details on webpage

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Around the Shack by N4GG



1/12TH Wavelength Coax Transformers – Another Useful Transmission Line Trick

Last month we took a look at “line-flatteners,” which can flatten the SWR of a dipole over a wide frequency range. An 80 meter dipole can cover the entire band with less than 2:1 SWR if a line-flattener is used. The line-flattener is made up only of coax and we need coax to reach the shack anyway...it’s better than “something for nothing,” because a line-flattener used at the right place can eliminate the need for an antenna tuner.

What else can we do with various lengths of coax? The possibilities are endless. A quick read through the ARRL Antenna Book or an on-line search will yield lots of ideas for transforming impedances and feeding arrays of antennas using nothing but specific lengths of various impedance coax. There is no way to cover them all, but last month’s column and this column describe my two favorite (read: most useful) coax “tricks.”

Dipole antennas typically exhibit 75 ohms impedance at resonance. This is a near-perfect match for 75 ohm coax, but running 75 ohm coax all the way to the transmitter leaves the SWR for a 50 ohm transmitter at 1.4:1 at resonance, and as we move away from resonance the SWR climbs from there.

What we need is a way to transform a 75 ohm transmission line to 50 ohms with low loss, and if possible, using something simple like coax rather than an antenna tuner.

We have what we need to shift from 50 to 75 ohms, and back again if we need to – it’s called the “1/12th wavelength coax transformer.” Figure 1 shows how it’s done.

Continued on next page.

Starting with 75 ohms (example: the feed point of a dipole) we add 1/12th wavelength of 50 ohm coax followed by 1/12th wavelength of 75 ohm coax. At the far end of the 75 ohm section the impedance will be 50 ohms.

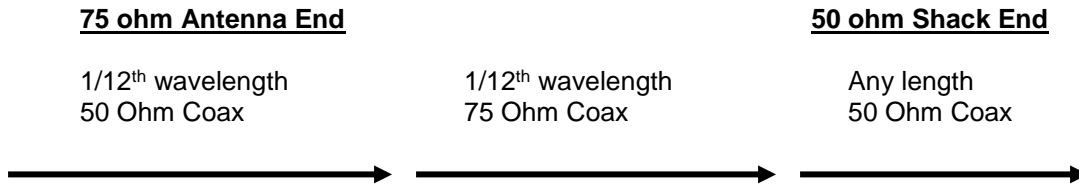


Figure 1 A “1/12th Wavelength Transformer”

Besides dipoles, there are other uses for a 1/12th wavelength transformer – particularly for long transmission lines. 75 ohm hardline is available at hamfests and sometimes cable companies scrap it as they move to fiber optics. 75 ohm hardline makes a great transmission line – the loss in hardline is very low. Loss however, goes up with SWR. If we want to feed a 50 ohm antenna using 75 ohm hardline, there will be a mismatch at the antenna and again at the transmitter. The two mismatches raise SWR which raises loss. The mismatch at each end can be eliminated using a 1/12th transformer to move from 50 ohms to 75 ohms at the antenna, and another 1/12th transformer at the shack end to move from 75 ohms back to 50 ohms. I have seen this done at large stations where the feedlines to distant towers are very long.

There are other ways to move back and forth from 50 to 75 ohms, but in my opinion none are as good as a 1/12th transformer. There are 50-75 ohm un-uns available, but they have loss and are large and expensive if they need to handle 1500 watts, particularly when the SWR is not 1:1. Un-uns do have the advantage of having large bandwidth and one un-un can cover multiple ham bands. The 1/12th transformer will only cover one band. If you want to use a single transmission line on multiple bands, the un-un may be the best choice vs. having to switch in a different 1/12th transformer for each band.

Figure 2 shows the SWR of a dipole resonant at 7.1 MHz, 60 feet high, fed with 50 ohm coax. The SWR at resonance is 1.7:1. The SWR is high because the antenna isn't exactly 75 ohms. The bandwidth for 2:1 SWR is 260 KHz.

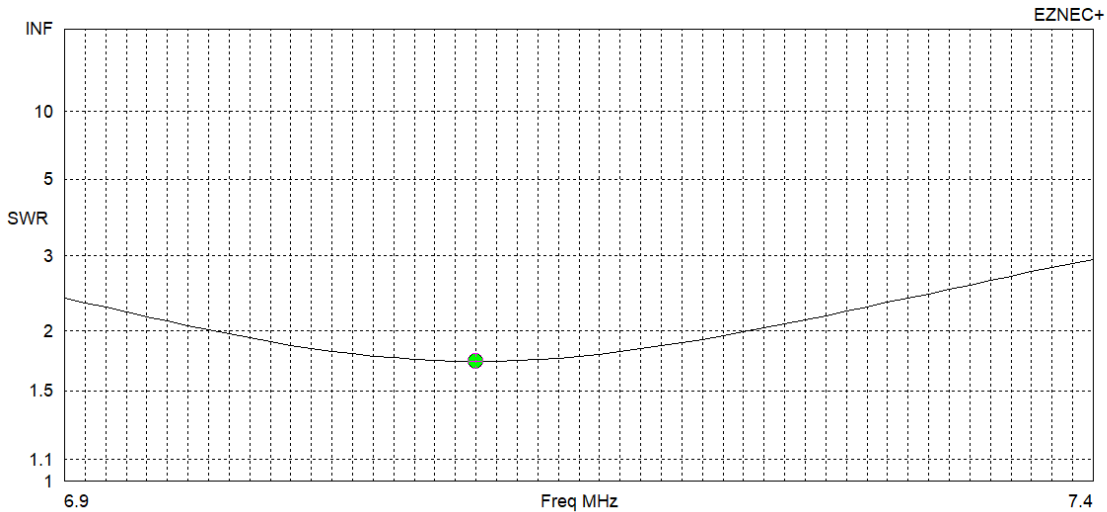


Figure 2 40 Meter dipole fed with 50 ohm coax

Figure 3 shows the same setup as Figure 2, but with a 1/12th transformer at the antenna end. The SWR is now 1:1 at resonance and the bandwidth for 2:1 SWR has increased to more than 500 KHz – enough to easily cover the entire 40 meter band.

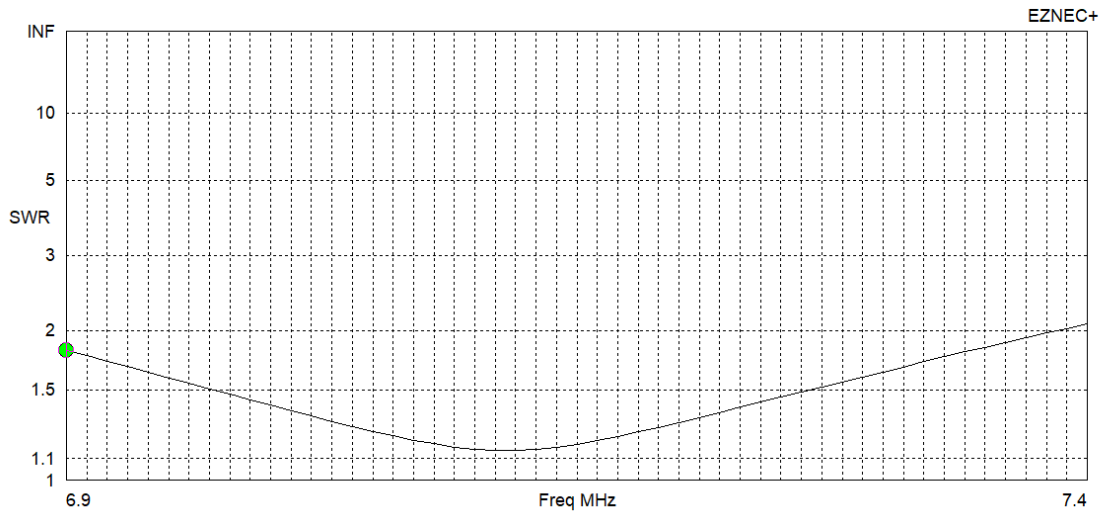


Figure 3 40 Meter dipole fed with a 1/12th transformer and 50 ohm coax

An important reminder: when calculating the length of a 1/12th wavelength section of coax, the velocity factor (Vf) of the coax must be taken into account. In the example above, the 1/12th wavelength sections would be 11.54 feet if the Vf was 1.0 – but the Vf for coax is NEVER 1.0. Using RG-59B/U (Vf = 0.66) for the 75 ohm section and RG-8X (Vf = 0.78) for the 50 ohm section, the lengths are:

- 50 ohm section: 9 feet
- 75 ohm section: 7.6 feet

I selected RG=59B/U and RG-8X as they available for a reasonable price from The Wireman in SC.

A minor detail: There is a formula for calculating the precise lengths needed for a “1/12th wavelength transformer,” and the result from the formula is a few percent shorter than 1/12th of a wavelength. The formula includes some higher math and can be ignored; 1/12th of a wavelength is close enough. The formula can be useful however, as it applies to transforming any impedance (within reason) to any other impedance.

Here is the formula if interested:

$$L = [\arctan(\sqrt{B/(B^2 + B + 1)})]/(2 * \pi) \text{ where } B \text{ is the ratio of the two impedances.}$$

The best way to handle the formula is in an Excel spreadsheet.

The 1/12th transformer is described on several websites, and was published in the June, 1997 QST. You can read the article in the QST archives. It was originally published in *Electrical Engineer Vol 33* in January, 1961. January 1961 is when I received my license – a happy coincidence.

73,

Hal N4GG❖

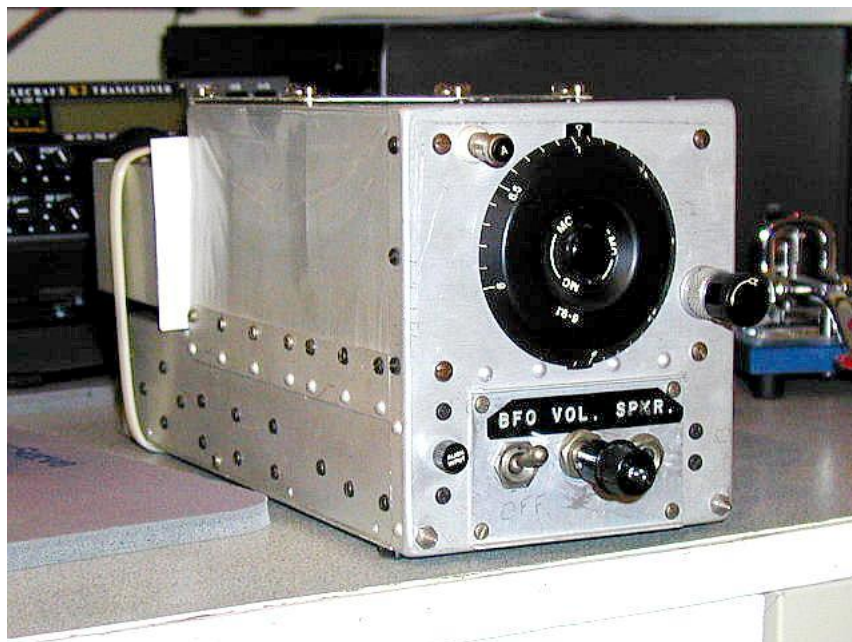
My Story (cont. from p.2)

FAST FORWARD (AGAIN)...

In early 2005, my Elmer's XYL passed away at age 94. Later in that same year, my family and I went to West Virginia to visit my parents for the July 4th long weekend. My mother told me that Gladys (my Elmer's XYL) had put some of Bill's (my Elmer) things in a large cardboard box and had someone leave them at my parent's house. Gladys thought I might like to have them.

As I'm sorting through this box, there are Allied and Lafayette and Radio Shack catalogs, several Call Books, bunches of QSL cards sent to W8VII, plus numerous ARRL books and assorted scrap pieces of ham gear. As I'm moving things in the box around, suddenly I see an ARC-5 command set!

I can't believe it's there ... that same receiver that Bill loaned to me nearly 50 years ago. I guess no one had wanted it from my Elmer's estate.



When we got back to Atlanta, I hooked it up and turned it on ... nothing came out of the speaker I had plugged into the headphone jack. **Wait a minute** ... this is a tube rig and it has to warm up. Sure enough after 20 seconds or so, the speaker comes to life and there are CW signals blasting my ears (NO AGC). I'm pretty sure the tubes in this receiver are the same ones it came from the manufacturer with. This is a WW-II radio, so quite possibly these ARC-5 tubes were more than 60 years old in 2005. I turn this receiver on every month for about 15 minutes to let it warm up. The original tubes are still going strong.

At New Year's, I used this ARC-5 receiver and a 1-Watt XTAL controlled GlowBug Transmitter to make 4 Straight Key Night (SKN) contacts ...



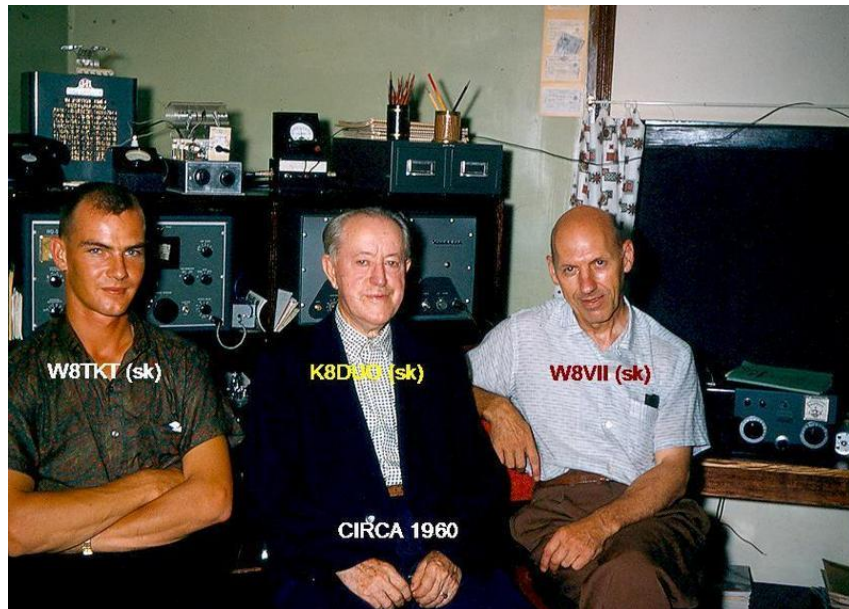
N3FJP's Amateur Contact Log 2.8 www.n3fjp.com

File Edit Settings Clear CallBook List Search Awards LoTW Country-List Recall Help

4 Listed Items

Re...	Call	Date	Bnd	Mode	Pwr	On	Snt	Rec	Off	Cou...	St	County	Other	S	R	Comments
997	KI5JF	1/1/2006	40	CW	1	05:26	579	559	05:35	USA	TX	William...	SKN			Nelson F Mikeska Jr - 121 Apache Trail - ...
996	N0YJ	1/1/2006	40	CW	1	04:37	579	569	04:48	USA	KS	Shawn...	SKN			Robert L Mcclendon - 305 W Theresa PO...
995	W5PRV	1/1/2006	40	CW	1	04:16	559	579	04:23	USA	TX	Kerr	SKN			Joseph F Morgan - 624 Kerrville South Dr...
994	K0YW	1/1/2006	40	CW	1	03:52	559	559	04:02	USA	CO	La Plata	SKN			Robert B Clark - POB 125 - Ignacio, CO 81...

I owe a debt I will never be able to repay to my "Elmer", Bill - W8VII, seen below in his shack in White Sulphur Springs, WV with K8DUO and W8TKT, two other local ham friends.



R.I.P. Dewey, Martin, and Bill...

73,

Wey K8EAB ❖

DXpedition Funding Requests

None at this time--Editor