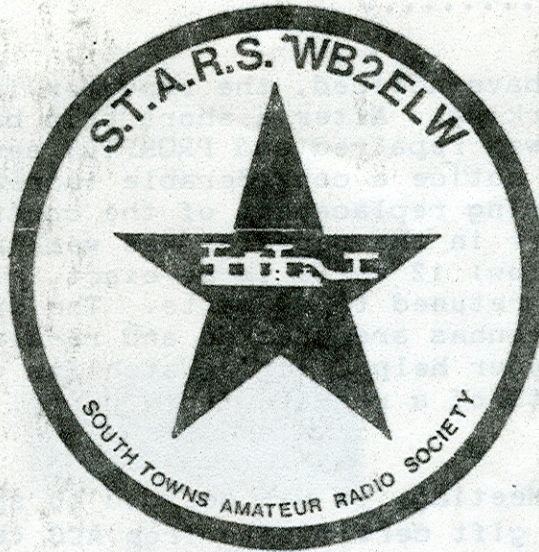


TELSTAR

KB2EQV
STEVE YEKICH
716-825-8049



Business Meeting = 1 June = Youth Center
Board Meeting = 27 June = Youth Center
Lancaster Hamfest = 4 June at the Depew Grove.
MS Bike Trek 17 of June. We need volunteers to help out. Sign up at the next meeting.

THE PRES SPEAKS



With our sudden dose of warm weather, it's hard to believe that we had 5 inches of snow just 3 weeks ago. I hope you are all taking advantage of this excellent tower climbing and are getting those beams, verticals, and dipoles tuned and ready for action.

Our May meeting was an interesting one with many subjects discussed. Among those were the motion and unanimous vote to have John, KA2RFT, our vice-president, take over the responsibility of Club License Trustee. After many years of devoted service, Guz, WB2EZU, has decided to retire from his club responsibilities, one of which was club license trustee. On behalf of the entire club membership, I would like to thank Guz for his efforts and dedicated service to the club since it's inception many years ago. I can only hope that THOSE OF US who take over the responsibilities left open can do as conscientious of a job as was done by Guz. I would also like to congratulate John, KA2RFT, for his new title of WB2ELW Club Call Trustee and know he will carry on the call with pride. Just as a reminder, it is every member's responsibility to make sure that the club call is used legally and within all the rules of the FCC.

Several other positions have been vacated by Guz which need to be filled as soon as possible; Election Chairman and assistant to XYLs of silent key members in dispensing of ham equipment. Others which have already been filled are NIKE Base Chairman filled by Gary, KB2ESN, Steve, KB2EQV, and Chris, N2IFJ, and VE Chairman filled by Dick, W2UJR, and Matt, NS2M. My thanks to Gary, Steve, Chris, Dick, and Matt for not waiting for the other guy to take care of it!

prez sez cont.....

As you may have noticed, the repeater is back and the phone patch is working. After a short trip back to ACC, the Controller was repaired and PROMPTLY sent back by ACC. You should also notice a considerable increase in repeater signal. During replacement of the controller, it was noticed that a driver in the repeater was weak and the repeater output was low; 12 watts to be exact. It has since been temporarily retuned to 40 watts. The driver will be replaced when the antennas are checked and re-aimed late this Spring. Thanks for your help Clint! Watch for up coming announcements of a repeater work party. We could use the help.

At the May Meeting, it was decided to spend \$25 in addition to the \$100 gift certificate from ACC (\$125 total) to purchase new repeater software (Version 4.0). Changes in repeater operation will be announced in an up coming Telstar.

We have decided to add an new feature to the Telstar each month. A rule from the FCC Rule Book will be reprinted for reminder to all members and notification of rule changes. I hope all will read and heed.

The next major event of the year will be the field day in June. We are going to try Packet this year. Hope many can make it. I'll be there, "Weather Permitting".

Support YOUR club
Stay Involved,
Bill N2GAO

97.84 Station Identification

Each amateur radio station shall give its call sign at the end of each communication, and every ten minutes or less during a communication.

This is a reminder to all club members to renew ARRL memberships or apply for a new ARRL membership through the club and Mal Vallone WA2VER

The beads below is what we want to by for the Nike base.

(SUPER BEADS)

BALUNS

Broadband Designed by N4KJ using ferrite toroidal core for broadband coverage and low-loss teflon coax for high efficiency and maximum power capability. Frequency range from 3 MHz to 30 MHz with 1.3:1 VSWR or better when connected to a 50 ohm resistive load. Kit includes ferrite core, RG 142B/U cable, SO239 connector, two ceramic feedthrough insulators, diecast box and #18 wire.

Ham Radio

June 1980

\$32.95

TRANSMATCH

TRANSMATCH 4:1 Balun kit. Replace that inadequate balun in commercial antenna tuners with one that will really handle the power. Kit includes three T200-2 cores, 20 feet of #14 silver plated Teflon insulated wire, and a roll of #27 Scotch tape. With instructions.

As above but three T300-2 cores and #12 wire

1500W rated \$22.50
3000W rated \$35.00

FERRITE BEAD SLEEVE BALUN

1:1 Sleeve baluns are the recommended choice since they will not saturate (causing TVI) and are power limited only by the choice of the coax cable used. Broadband 1.8 to 30 MHz continuous.

Kit #1 1.9KW (5KW @ 2:1 VSWR). Includes 1 foot silver plated, Teflon insulated coax, two Amphenol PL-259 connectors & UG-175 adaptors, one SO-238 double female splice, 8 CHO-SORB A-636 beads and instructions. \$23.95

Kit #2 4KW (2.5KW @ 2:1 VSWR). Includes 1 foot RG-213 or RG-11A (specify which), two Amphenol PL-259 connectors, SO-238 splice 5 CHO-SORB A-637 "Super Beads". \$15.95

We have decided to call these devices "SUPER BEADS" because of their superior ability to cure many forms of EMI/RFI/TVI. The following is a short list of some of the "field-proven" applications. 1. Coaxial sleeve balun to prevent feed line radiation without the saturation problem common to other types of ferrite baluns. The A636 will slip over RG58/RG59 types of cables (8 beads required) and the A637 may be used with RG8/BX/11/213 cables. (5 req'd). See our add on page 2. 2. Telephone Interference. Wrap up to 6 turns of the telephone cable thru an A637 at the point of entry to the building. Additional beads may be necessary at the input to each phone. 3. Computer Generated RF. Microprocessor controlled devices are proliferating in the home and business at a breakneck pace. The use of Super Beads on all input/output cables will reduce or eliminate computer interference to TV's, Ham/CE radios, etc. 4. TV/VCR's. Three or four beads on all antenna leads will eliminate common-mode interference. A quality high pass filter should also be installed. 5. HAM/Commercial/CB transmitters. Install 3 or 4 beads on all AC and Antenna cables to break up common-mode interference and prevent radiation from the AC house wiring. A low pass filter must also be installed at the transmitters antenna jack.

PRICES	1-9	10-99	100+
A636	2.69	2.56	2.42
A637	2.99	2.84	2.69

Some Aspects of the Balun Problem

Why all the mystery surrounding baluns? Here's some straight talk to dispel the rumors!

By Walter Maxwell,* W2DU, ARRL TA

The balun — to use, or not to use — is one of today's hottest topics in Amateur Radio. Because certain aspects of the connection between a coaxial feed line and a balanced antenna have been ignored, misunderstanding still exists concerning the function of baluns. Many commercial baluns embody some form of impedance transformer, promoting our tendency to misconstrue them as little more than a matching device, while their *primary* function is to provide proper current paths between balanced and unbalanced configurations.

To help clarify the misunderstanding, I will explain some of the undesirable effects that occur when a balun is not used, and some that occur when using baluns employing coupling transformers. (In many cases, these effects cause significant errors in measurements of antenna impedance and SWR.) I will also describe a simple and inexpensive method of loading the outside of a coaxial feed line with ferrite, which effectively produces a well-balanced, wide-band choke balun. Because this configuration eliminates the coupling transformer (with inherent impedance-transfer ratio errors), the accuracy obtainable in antenna impedance and SWR measurements is greatly improved. In addition, antenna-matching networks may be used with this choke balun, because no mismatch limits are imposed.

Transformer Accuracy

Using precision impedance bridges, (General Radio GR-1606-A and the Boonton 250A RX Meter), I have made measurements of transformer-type baluns that prove with a 50-ohm resistive load, the transformers in typical 1:1 or 4:1 baluns do not yield a true 1:1 or 4:1 impedance transfer ratio between input and output. This is because of losses, leakage reactance and less-than-optimum coupling; my findings have been substan-

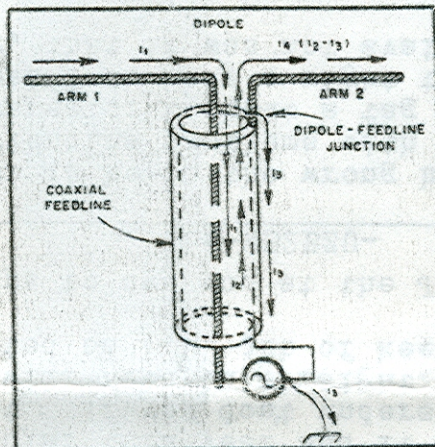


Fig. 1 — Illustration of the various current paths at a dipole feedpoint.

tiated by the work of John Nagle, K4KJ.¹ Furthermore, when we move away from the resonant frequency, the antenna becomes reactive and the impedance-transfer ratio degrades even further. This degradation of impedance transfer associated with baluns poses no serious operational problems. However, SWR curves plotted of an antenna using such a balun differ significantly from those plotted using a balun having no impedance-transfer error. Thus, when a precision bridge is used to measure antenna impedance ($R + jX$), the data will be erroneous with either a transformer-type balun in the circuit, or with no balun at all.

Should SWR Change with Line Length?

We know that the feed-line input impedance changes with line length when the load (antenna) is not matched to the line. Sometimes, trimming the length of our feed line helps to obtain a load impedance better suited to match the transmitter. Theoretically, SWR should not change with line length — except for a barely perceptible change because of line attenuation. Then why does the SWR sometimes change? If the SWR changes significantly with line length, it must mean

that the load impedance is also changing. The *load* impedance changes with line length? Yes. If a balun is omitted when you feed a balanced antenna with coaxial cable, the load impedance will change, as will the SWR! To explain this, we must investigate how current flows in an antenna system.

Examination of Current Flow

To understand the functions of a balun it is essential to be familiar with current paths at the dipole feed point. This is shown in Fig. 1. Because of their symmetrical relationship, the dipole arms couple energy of equal magnitude and opposite phase to the feed line, thus cancelling induced current flow on the outside of the feed line.² What is disturbing is the discovery that there are *three* paths for current flow in a coaxial feed line, instead of only two. How can there be three current paths in only two conductors? At r.f. the skin effect "divides" current between the inner and outer surfaces of the coaxial shield. This effect, which does not occur significantly at dc or low-frequency, prevents currents flowing on the inner braid surface from interacting with those on the outer surface, and vice versa.

While traveling within the transmission line, I_1 flows on the center conductor, and I_2 flows only on the inner surface of the outer shield. When antenna current flowing from left to right (Fig. 1), I_1 flows out of dipole arm 1 onto the center conductor, and returns to the generator. I_2 being of opposite phase, flows along the inside of the feed line until it reaches the junction of dipole arm 2. At this junction, it divides into two separate paths and forms I_3 , which flows back down the *outside* surface of the feed line, and I_4 , which equals $I_2 - I_3$ and flows onto dipole arm 2. The magnitude of I_3 depends on the impedance to ground provided by the outside surface of the coaxial shield.

If the effective path length to rf ground is an odd multiple of a quarter wavelength, the impedance will be very high, making I_3 negligible. In this case

¹Notes appear on page 40.

*243 N. Cranor Ave., DeLand, FL 32720



Guz - WB2EZU

Well some drastic changes were made in the committees that are operated by the club. I wish to congratulate John KA2RFT who has taken over the club station trustee position. The Nike base has three people on its committee and also Matt NS2M has taken over the STARS-V.E. program and is chairman. You know there is one committee that as yet has not been formed but might prove a great help to the Silent Key members families. It doesn't have to be a regular committee but it would be nice to have so that the family members can dispose of the Amateur Radio equipment???

It is with the deepest of regrets that I have to give up these positions, but my health condition is such that I cannot perform these duties and devote the time necessary to do a good job. I am sure that with the full cooperation of the members these Chairpersons will make the club a better run club and everyone will enjoy amateur radio more because you are a member of it.

Well with the break in the weather I hope everyone had a chance to take inventory of their antenna farms. I have obtained the materials for a G5RV all band wire antenna and expect to construct it within the next month or so. I will give a progress report on it when operating. How many of you are putting up new antennas this year?

Please don't forget to participate in the various activities that the club has in store for you in June. The big events are a Bike-A-thon where the club will provide the communication and then the field day event at the end of the month.

Also remember there is no HAM-O-Rama Hamfest this year so plan to attend the Lancaster Hamfest and the one in Elmira and Syracuse.

Our repeater is sure popular this year and it seems to be used at all times of the day and night. If you don't understand the codes get in touch with Bill N2GAO and he will set you straight. The 2 meter committee is to be congratulated on F.B. job of keeping it running as good as it is.

Hope to see you at the June 1st meeting

Guz-WB2EZU-

A POOR CHOICE OF WORDS or is he in the wrong hobby?

I realize STARS has been experiencing problems with the repeater. Being one who couldn't recognize a repeater without a tag attached I wouldn't think of complaining, but I feel I do have a right to express my "disappointment", shall we say, that it was not available when I needed it most.

My daughter, living in an apartment next to mine, called me one a.m. to assist in the emergency transportation of my grandson to Childrens Hospital from Elma. An acute asthma attack, life threatening.

With due respect for the volunteer firemen, waiting for three specific men to arrive at the hall can be frustrating, to say the least, so we had already made up our minds to transport by car. Previous emergency trips were in the wee hours of the night: this was to be during a heavy traffic hour. I figured to alert the Ogden St. toll booth via 911 on the way to open the emergency gate, and if the need should arise, call for a life support rig from the city. I was crushed! Repeater was down!

As it turned out, traffic was light, my grandson stabilized, and everything turned out ok.

The point of the story is my Ham contact said something to the effect "This isn't a commercial station. This is amateur radio--something to have 'FUN' with.

When I think of having fun I think of little girls playing with dolls; little boys playing with Dinkey toys in the sand, or the big boys on

on CB and their associated silly chatter. Amateur Radio, on the other hand, offers 'enjoyment' derived from serving the public or providing public assistance. If the FCC thought for one minute we were just "Having fun" every tower over three feet would come down and we would be back to 5 watts with the CBers.

Just since January of this year I have reported an automobile accident before the wheels stopped turning, an open hydrant in Elma, two burglaries in progress at construction sites, and assisted numerous stranded motorists on the I-90 and 400, about time we become more observant of the public's needs, offering assistance where it can be done in safety. Being a Mobile Block Parent isn't too bad of an idea. Being a Ham should be more than just "having fun".

True, I am not a technician, although I have had my ticket since BPH (before Pearl Harbor). When W2UJR speaks about radio I swear he is using a foreign language. But one doesn't have to be a gynecologist to enjoy sex--I don't have to be a radio genius to enjoy my hobby.

My 2meter rig and a lovely lady are alike to a degree. As long as I can remember the basics on how to turn them on, I can take it from there.

Very truly yours,

Harry Barclay WA2CKG
D:D.S. (retired)

Anybody remember
W2QLK and his
4x8 breadboard rig?
Mallott radio & TV



By Dick Haungs W2UJR

The next Stars VE test session will be on April 12, 1989 at the Hamburg Junior High School on Wednesday evening from 7-10 P.M. in room 117/119. Please send your 610 applications, a copy of your license and a check for \$4.75 made out to ARRL/VEC (yes the price went up) and a copy of your CSCE (upgrade or credit certificate)
TO: Guz Guzinski WB2EZX
5084 Chapman Pkwy
Hamburg NY, 14075

The Lancaster Amateur Radio Club will hold a test session on Wednesday Evening from 7-10 P.M. on June 21. For these test sessions send your 610's ETC.
TO: Matt Gorski NS2M
6117 Broadway
Lancaster NY, 14086

There will be No Walk-ins for any sessions. Applications must be received no later than 1 week before the session.

Dick Haungs W2UJR
Ve Liaison

FOR SALE

A: Pioneer car stereo, model KE-5100 with cassette and digital electronic tuner, 15 memories. Includes 2 Pioneer coaxial speakers, wiring, and manual \$125

Bearcat handheld crystal 4 channel scanner (VHF LOW, VHF HIGH), needs work on squelch circuit includes 3 antennas, charger, case, several area crystals. \$25

randy ka2rfw ph.649-1925

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BUSINESS MEETING = 1st THURSDAY

1930 Hours (7:30) = YOUTH CENTER

BOARD MEETING = 4th TUESDAY

1900 HOURS = YOUTH CENTER

S.T.A.R.S. NETS

75 METER NET = EACH SATURDAY AT
1000 HOURS = +/- 3925 KHZ

2 METER INFO NET = EACH WEDNESDAY AT
1900 HOURS = 147.69/.09

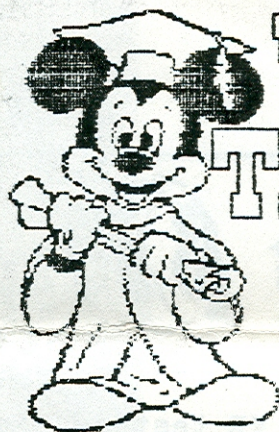
10 METER NET = EACH TUESDAY AT
2000 HOURS = +/- 28.420 KHZ



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