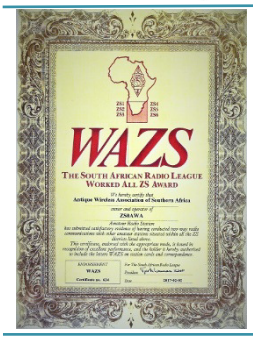
Newsletter

The Antique Wireless Association of Southern Africa

 # 156

July 2019

A Member of the SARL



Inside this issue:

HF Happenings	2-3
Low Band Dipoles	4
CW Revival	4
Simplified Analysis of TLT	6-8
Heathkit Challenge	9
Notices	10

AWA Committee:

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* VicePresident—Renato ZS6REN
* Technical Advisor—Rad ZS6RAD
* Secretary/PRO—Andy ZS6ADY
* KZN—Don ZS5DR
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* Member—Jacques ZS6JPS

Reflections:

I feel quite elated, yet at the same time quite sad. How, well I have finally gathered all the QSL's necessary to apply for my WAZS in CW. Now although this was quite a feat, as I did not use any of my QSL cards prior to the inception of the electronic QSL that was introduced on the SARL system. To be fair, I have a box full of QSL cards that were gathered over the years as I did my CW to get my full ZS licence, but I decided I was going to use only the new system to get my WAZS.

Now, as many of you may know, in SA today, that is not something that is easily achieved. I am sure there are still many out there who can still do CW, but try to get 100 CW contacts confirmed in this day. I don't think there are even 100 CW ops that are active any more.

So my elation is that I have finally reached that goal, but my sadness is that I will probably be the last ZS operator to reach that goal. I hope this is not true though.

We have been trying so hard to encourage people to come back on to the CW side of the band, not the dark side, but the light side, and it has been a real uphill battle.

Last year at the AGM, OM Daryl ZS6DLL was awarded the Jeffrey Wright CW trophy for his endeavours in running CW classes to get a few more guys up and going on CW. Today, two out of the five are still actively using CW, which is not bad considering the amount of ZS ops that had to do CW in order to get their full ZS licence and immediately dropped CW after going on to phone.

I do understand that CW is not for everyone and that for many, it was a means to an end. Many simply passed their CW and then waited the obligatory year to go past, using 2m as a go between, and then went straight on to phone.

But for many it was an enjoyable mode to operate on. I cant believe that all of those who enjoyed CW are no longer in our midst.

Be that as it may, we shall endeavour to keep the ever fading light of CW glowing and hope that each year that goes by, there will be at least another 2 ops that will join the diminishing CW clan and help us to keep going.

So whether you use a bug, a paddle. a straight key. Hacksaw blades with an elastic band. Home made, bought or stolen. Do consider trying your hand on the band again. You never know, you may just enjoy it.

Best 73

DE Andy ZS6ADY

WIKIPEDIA

Modes of communication:
Hellschreiber:

The **Hellschreiber**, **Feldhellschreiber** or **Typenbildfeldfernschreiber** (also **Hell-Schreiber** named after its inventor Rudolf Hell) is a facsimile-based teleprinter invented by Rudolf Hell. Compared to contemporary teleprinters that were based on typewriter systems and were mechanically complex and expensive, the Hellschreiber was much simpler and more robust, with only two moving parts. It has the added advantage of being capable of providing intelligible communication even over very poor quality radio or cable links, where voice or other teledata would be unintelligible.

The device was first developed in the late 1920s, and saw use starting in the 1930s, chiefly being used for land-line press services. During WW2 it was sometimes used by the German military in conjunction with the Enigma encryption system. In the post-war era, it became increasingly common among newswire services, and was used in this role well into the 1980s. In modern times Hellschreiber is used as a communication mode by amateur radio operators using computers and sound cards; the resulting mode is referred to as **Hellschreiber**, **Feld-Hell**, or simply **Hell**.

HF Happenings

DXCC Approved

The recent 3D2CR DXpedition to Conway Reef has been approved for DXCC credit. According to Club Log's latest - but apparently not final - update, between 1 and 9 June the two operators made 33 828 QSOs with North America (39%), Asia (40%), Europe (15%) and the rest of the world (6%). The most productive band was 20 m (11 005 QSOs); the most productive mode was FT8 (22677 QSOs), followed by CW (7 708) and SSB (3 444).

Already approved for DXCC credit are also the upcoming DXpedition to Banaba Island (T33T) and the A82Z and A82X DXpedition to Liberia (28 September to 11 October).

A grand solar minimum

Frank, W3LPL, posted to the Topband email reflector this week: "This article in *Nature* forecasts that we are approaching a grand solar minimum - similar to Maunder Minimum - starting in 2020 and lasting for three solar cycles. I hope these scientists are wrong." www.nature.com/articles/s41598-019-45584-3

Word to the Wise

"Moving Multipliers" - Asking a station you're in a contact with to move to another band where they'd be a multiplier for you. This is most effective when the other station is not busy and should only be done when there's a reasonable expectation that you'll actually be able to make a contact on that different band subject to propagation. You should also agree on a frequency before QSYing to the new band.

Calendar:

July

1 - Start of SARL Financial Year and Membership payment is due; Closing date Top Band logs
6 - Durban July Horse Race; SARL Newbie QSO Party
7 – ZS5 Sprint
9 - Provincial schools open
12 - Washie 100 Miler, Port Alfred to East London
13 - RaDAR Challenge; October RAE registration opens
13 and 14 - IARU HF Championships; Franschhoek Bastille Festival
15 – Commemoration of the Battle of Delville Wood - 15 to 20 July 1916; closing date Newbie and ZS5 logs
16 - Highway ARC Monthly Meeting
17 – Wednesday 80 m Club Sprint
20 - Winter QRP contest
21 - ZS2 Sprint
21 to 23 - Winter Wonderland Festival, Gordon's Bay
25 - Closing date for August Radio ZS
27 and 28 - RSGB Islands on the Air (IOTA) contest
29 - Closing date for RaDAR, QRP and ZS2 Sprint logs
28 to 30 - Winter Wonderland Festival, Gordon's Bay

Operating Tip

Embrace Automation - "Reducing cognitive load" is just another way of saying that you are fool-proofing common operations by automating them. Automating manual tasks can gain a few seconds here and there, but even more importantly reduces the opportunity for human error in the wee hours.

QSX QRP SSB Transceiver

QRP-Labs principal Hans, G0UPL, designer of the forthcoming QSX (**Q**rp **S**sb **X**ceiver) QRP SSB Transceiver, talked about the design decisions and overall difficulty of bring this transceiver into existence in a number of presentations related to the Hamvention and the Four Days in May (FDIM) event http://qrplabs.com/dayton2019.html. Materials include a slide presentation, a 26-page paper and a podcast recording of the event. See the linked page for details. QRP-Labs is known for their Ultimate3 beacon kits, used in many high-altitude balloon flights, as well as their QCX QRP CW Transceiver originally developed for the 2017 YOTA Camp.

Over 7 200 QCX CW Transceiver kits have been shipped to date.

New IOTA references

During the IOTA Forum at this year's Ham Radio, Roger, G3KMA announced the following six new IOTA groups:

AS-206; JA0, 1, 2, 7, Honshu's Coastal Islands East, Japan
AS-207; R0K, Chukchi Sea Coast Centre group, Chukotskiy Avtonomnyy Okrug, Russia - Asia
OC-298; FO, Tatakoto Atoll, Tuamotu Islands, French Polynesia
OC-299; V6, Yap East group, State of Yap, FSM
OC-300; T31, McKean and Nikumaroro Atolls, Phoenix Islands, Central Kiribati, Kiribati SA-101; CE0, Alejandro Selkirk Island, Juan Fernandez Archipelago, Chile.

For more information see www.iota-world.org/info/new_groups_2019.pdf

African DX

Contacts with stations on the African continent count towards the SARL's All Africa Award (www.sarl.org.za/public/awards/awards.asp)

South Sudan, Z8. Diya, YI1DZ will be back to Juba, South Sudan from 22 June to 10 October and be active again as Z81D. In his spare time, he operates FT8 on various bands, 60 m included. QSL via Club Log's OQRS, or via OM3JW. He does not use LoTW.

5X - Anders, SM0HPL is active again as 5X7W from Kampala, Uganda until 6 July. In his spare time, he operates FT8, FT4, JT65 and CW running QRP. QSL via LoTW, or direct to home call; log search on Club Log.

Ghana, 9G. A group of Slovenian operators will be active as 9G5W from Kokrobite between 16 and 27 November. Operators mentioned are Tine, S50A, Leo, S50R, Marko, S51DS, Tone, S51TC, Sergej, S51ZJ, Peter, S54W and Renato, S57UN. Activity will be on 160 - 10 meters using CW, SSB and RTTY. They plan to be in the CQ WW DX CW Contest (23 and 24 November). Their equipment contains of three Kenwood TS-590SG with various verticals for 160, 80, 40 and 30 m and two SpiderBeams for 20 – 10 m. QSL via S59ZZ or ClubLog's OQRS. Log will be uploaded to LoTW (usually 6 months later). For more details and updates, see https://www.ghana.si

African Islands

IOTA Frequencies
CW: 28 040 24 920 21 040 18 098 14 040 10 114 7 030 3 530 kHz
SSB: 28 560 28 460 24 950 21 260 18 128 14 260 7 055 3 760 kHz
Tanzania, 5H. Elena, RC5A and Yuri, RM0F will be active from Mafia Island, AF-054 (Tanzania) from 29 September to 5 October 2019 as 5H3CA and 5H3RRC. They will be active on 160 to 10 m using CW and SSB. QSL via RC5A.
Mayotte Islands, FH. Willi, DJ7RJ, will once again be active as FH/DJ7RJ from Mayotte between 15 October and 3 November. Activity will be on 160 - 10 metres with a focus on the lower bands using CW and SSB. QSL via his home call sign, direct or by the Bureau. NO LoTW or ClubLog.

What Does Operating Assisted Mean? Brian N9ADG

Every few months it seems we get some new tool or technology to help put more contacts into the log more quickly. Call histories and contact exchange pre-fills, along with spots filling the band map are standard fare and do not even qualify as "assistance" in many contests. Last year, spectrum displays and annotated waterfalls became must-haves for many. Once a new feature is established, more nuanced usages become desirable over time, for example clicking on a call sign can QSY to a frequency automatically, zero-beating or specifically NOT zero-beating the target station at the operator's choice in the hopes of working it as quickly as possible. If internet spots are not voluminous enough, a local skimmer can find those stations that have not been spotted yet.
Will 2019 find contesters selecting specific low-latency spot servers to get spots before their competitors, the way high-frequency traders seek to get closer to stock exchanges? With recent improvements to *N1MM Logger+*, radio spectrum information is digested by the logging program so the computer can quickly find the next empty frequency up or down the band for runs, or tune to frequencies that are in use for searching and pouncing. Probably more quickly than many humans.
Propagation predictions that inform operating strategy are readily available, but perhaps we'll see this information incorporated into a more advanced "Auto Elmer" type feature. A hypothetical "Auto Elmer" considers real-time solar weather inputs, current spot streams, VOACAP models, past logs, and current multipliers worked and multipliers needed to generate actionable suggestions of what the operator should be doing right now instead of what they are doing. The advice feature could present a list of tactics and then execute with just a click, relying on the capabilities of the logging program to, for example tune to a new band, find an empty spot (consulting spot data as well as spectrum data), enter run mode, and start sending the CQ message.
Some might see any additional operator aids or technology improvements like an "Auto Elmer" as a drop of another few feet down the slippery slope to the operator's eventual role of just hitting the "Enter" key at the right time after the computer does everything, while others might see it as a way to be able to help operators to concentrate on operating.

Low Band Segmented Dipoles
40—80—160

Three separate dipoles for 40, 80 and 160m requires considerable space, antenna wire and transmission line. As a result, few stations have optimum antenna systems for operation on these three low bands. Such operation can be provided with a single antenna if space is available for a 160 meter dipole erection. A single antenna and a single transmission line can provide three band facilities.

The segmented arrangement with insulators and jumpers is shown in the figure below. A simple halyard arrangement at one end can let the antenna down to make the necessary jumper connects or disconnects when operation on another band is desired

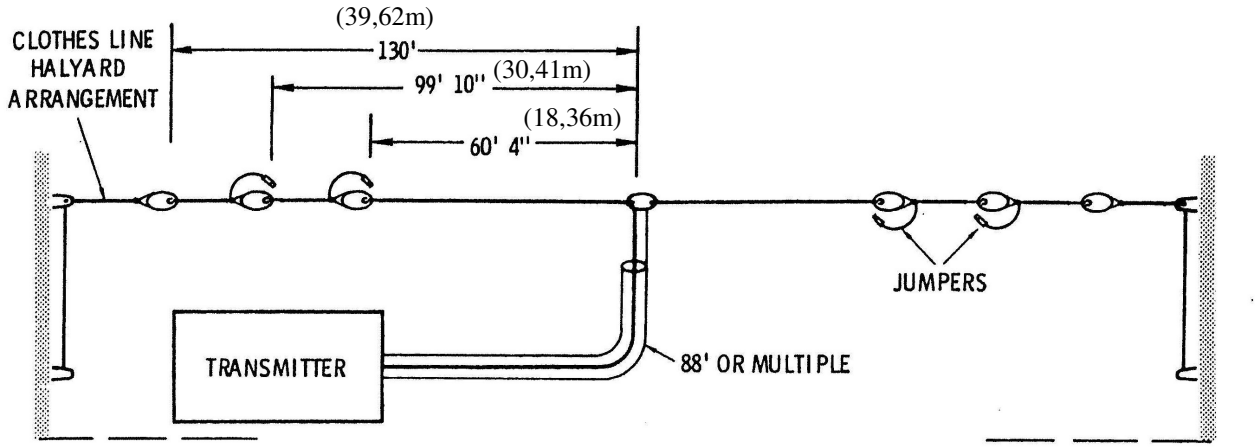

Fig. 24. Low-bands segmented dipoles—40, 80, and 160 phone.

The dimensions shown permit operation as a dipole on 80 or 160 meters, and operation as a 3/2 wavelength antenna (three quarter wavelength legs) on 40 meters. Preferred transmission line lengths would be 175 feet (53,34m), or an integral multiple. Although a 160m dipole is used, transmission line lengths of 88 feet (26,82m) (or a multiple) can be used if the 160m dipole is cut and resonated rather carefully for the portion of the 160m band in which operation is desired.

THE SOUTH AFRICAN MORSE CODE REVIVAL IS IN FULL SWING!

The CW revival has begun, visit the ZS-CW Facebook page to find out more.

Contact Mike, ZS6MSW at e-mail zs6msw@gmail.com to join the fast growing WhatsApp group CW POTA/SOTA. Meet the operators on 7 035 kHz after hours and over weekends.

We have the honor to have added 21 new members to the group in one week. Warm welcome, get out there, recruit, train and integrate the newcomers into MORSE CODE

Remember to notify the whatsapp group of your intention to call in on 7035 so we can participate. Enjoy

This is a great initiative by some of the newcomers to CW and it is just so encouraging to see and hear what they are up to. Keep it up Mike and all those who you have added. We look forward to hearing more of the CW group. Ed

A Simplified Analysis of the Broadband Transmission Line Transformer

By Jerry Sevick

Bell Laboratories (Retired) and Consultant

This article presents the fundamental concepts and describes the impedance matching capabilities of broadband transmission line transformers.

This paper presents an easily understood analysis of the transmission line transformer (TLT). It also includes some history and the author's suggestion for the future of these devices. It is hoped that future device development and application will be encouraged.

The Transmission Line Transformer

The TLT transmits the energy from input to output by a transmission line mode and not by flux-linkages as in the conventional transformer. As a result the TLT has much wider bandwidth and higher efficiencies than its conventional counterpart. With proper core materials and impedance levels of 100 ohms or less, bandwidths of about 100 MHz and efficiencies approaching 99% are possible today when matching 50 ohms up to 100 ohms and 50 ohms down to about 3 ohms. Future research and development, especially with impedance ratios less than 4:1, should make TLTs operate at much wider bandwidths.

The TLT and conventional transformer have two models used in their analysis. The low frequency models are similar, usually containing an inductive impedance in parallel with the input impedance. The high frequency model of the conventional transformer consists of a distributed capacitance in parallel with the leakage inductance. The TLT in turn contains a configuration of transmission lines in the high frequency model. Therefore, the conventional transformer model only requires a background in circuit theory, while the TLT requires both circuit and transmission line theory.

The TLT first appeared upon the scene in 1944 in a classic paper by George Guanella in the Brown Baverie Review. The title of his paper was "Novel Matching Systems for High Frequencies" [1]. The second classic paper was written by Clyde Ruthroff at Bell Labs and was published fifteen years later in the Proceedings of the IRE. His paper was named "Some Broadband Transformers" [2] and introduced the 1:4 unbalanced-to-unbalanced transformer (unun).

Guanella's basic designs were balanced-tounbalanced (balun) transformers. They consisted of transmission lines connected in a parallel/series arrangement. They are the basis for the later "equal-delay" TLTs. Ruthroff on the other hand, applied the input voltage to part of the output, which has been known as a "Bootstrap Effect." His transformers usually added a delayed voltage to a direct voltage therefore a cancellation effect took place limiting the high frequency response.

Guanella's goal was to develop a balun to match the balanced internal impedance of a push-pull vacuum-tube amplifier of 960 ohms to the unbalanced impedance of a coaxial cable of 60 ohms, a 16:1 ratio. Since Guanella did not have access to the modern nickel-zinc ferrites of today, his goal was never realized. Even today it would be a formidable task. Ruthroff on the other hand, designed ununs to match the low impedance of transistors up to 50 ohm coaxial cable.

Since the TLT can also operate as a very efficient isolation transformer it is now possible to convert a balun to an unun or vice versa. Therefore, the classification on these devices can be simplified, resulting in only four basic classifications: 1) TLTs with 1:1 ratios, 2) TLTs with 1:4 ratios, 3) TLTs with less than 1:4 ratios and finally TLTs with ratios greater than 1:4. These will be covered in the next sections.

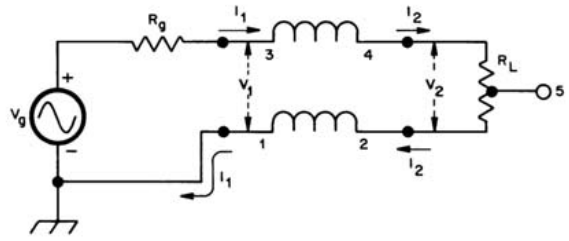

Figure 1 . Guanella's basic building block, a transmission line segment with input and output isolated by the inductive reactance of the windings.

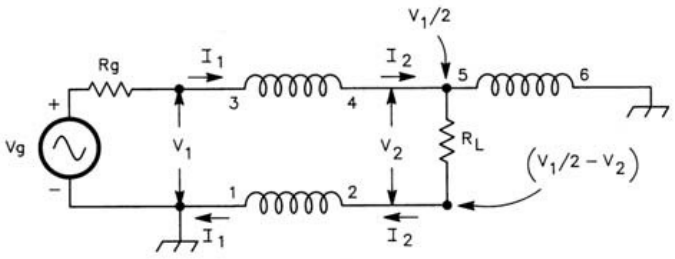

Figure 2 . Ruthroff's 1:1 balun design, which includes an isolated transmission line section, along with a third winding acting as a voltage divider.

TLTs with 1: 1 Ratios

Figure 1 shows Guanella's basic building block. With terminal 5 grounded, the device operates as a balun, matching the unbalanced source to the balance load RL. In this case, the low-frequency performance is determined by the reactance of winding 3-4. In practice, this reactance should be 10 times greater than Rd2 (or 5 times greater than RL). If terminal 4 is grounded, the building block performs as a phase-inverter. Thus, terminal 2 becomes negative. In this case the reactance of inductor 34 should be 10 times greater than RL. If terminal 2 is grounded, the result is a simple delay line. In this case no reactance is necessary. Instead of coil windings, ferrite loaded straight transmission lines can also be used, although the required inductance may be impractical to obtain at lower frequencies.

Figure 2 shows Ruthroff's version of the 1:1 balun.

Windings 3-4 and 5-6 act as a voltage divider. Windings 34 and 1-2 act as Guanella's basic building block. In this case the reactance of 5-6 should be 10 times greater than RL. When the reactance of 5-6 is much greater than Ru its high impedance is swamped by the lower impedance ofRL and the device acts exactly the same as a Guanella building block.
TLTs with a Ratio of 1:4

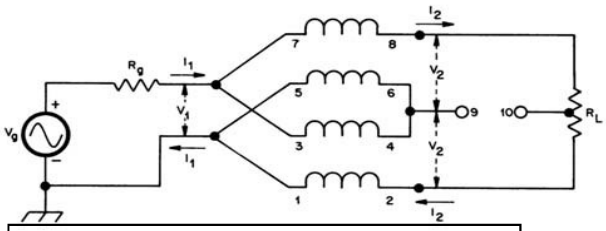

Figure 3 . Schematic of Guanella's 1 :4 balun, showing the inputs in parallel and outputs in series.

Figure 3 shows Guanella's version of a 1:4 balun. The two transmission lines are connected in parallel at the low impedance side and in series at the high end. For an ideal match, the characteristic impedance of the two transmission lines should be Rd2. Thus, if the transmission lines are terminated in their characteristic impedance, Zo' the high-frequency limit is that of a regular transmission line. Further, by grounding terminal 8, the device can act as a phase-inverter and by grounding terminal 2 it performs as a 1:4 unun.

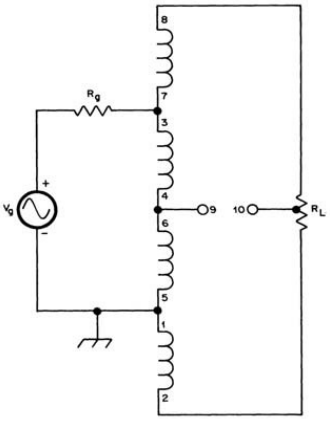

Figure 4 · Low-frequency model of Guanella's 1:4 balun.

Figure 4 shows the low frequency model of Guanella's 1:4 transformer. As a 1:1 balun the reactance of winding 3-4 in series of winding 5-6, wound on two separate cores, should be greater than 10 times the input impedance. When terminal 2 is grounded, the reactance winding 1-2 is eliminated and therefore should be considered when using Guanella's 1:4 transformer acting as an unun.

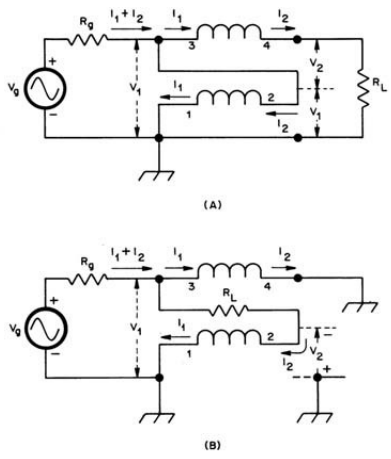

Figure 5 · Ruthroff's 1:4 transformer, (A) as an unun and (B) as a balun.

Figure 5 shows the schematics of Ruthroff's 1:4 TLTs. (A) is his 1:4 unun, with terminal 2 connected to the input terminal 3, thus raising this transmission line by the input voltage Vi. This is called the "Bootstrap Effect." The output voltage V 2 is delayed as it travels the transmission line. Because of this, Ruthroff's 1:4 design does not have the high frequency response of Guanella's, but if the transmission lines are short compared to the wave length, Ruthroff's design is practical. Figure 5(B) shows Ruthroff's 1:4 balun, first acting as a phase inverter, followed by RL between terminals 3 and 2 to become a 1:4 balun. This configuration also adds a direct voltage to a delayed voltage, limiting its high frequency performance.

Figure 6 shows the low frequency models of Ruthroff's 1:4 TLTs. (A) is the unun model and (B) the balun model.

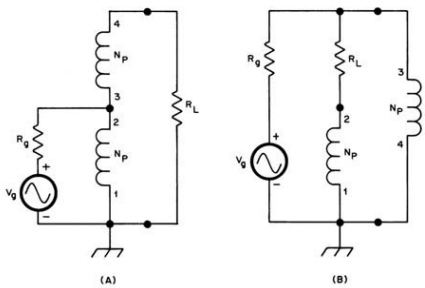

Figure 6 · Low frequency models for the Ruthroff 1:4 unun (A) and balun (B).

TLTs with Ratios Less than 1:4

Figure 7 shows the high frequency model of a trifilar "Bootstrap" model of an un un yielding a ratio of 1:2.25. Since the low frequency model for this device would show three inductors in series on the same core, the low frequency end is greatly aided. Also, as this device adds two direct voltages in series with one delayed voltage the high frequency performance is much better than Ruthroff's 1:4 unun. This device has produced exceptional bandwidth and efficiencies. This TLT can be tapped on the "top" winding to obtain other impedance ratios. For example, if the tap is set for Va = 1.414(V1) the ratio is exactly 1:2.

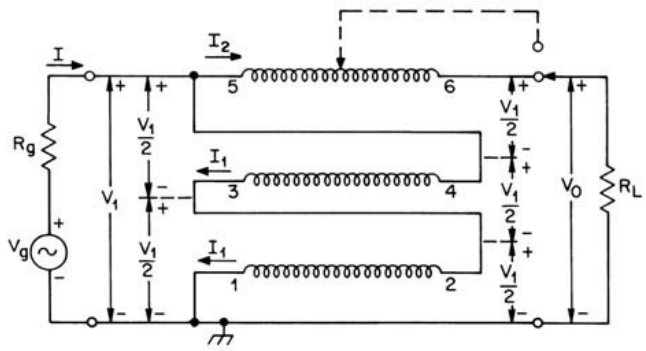

Figure 7 · Trifilar 1:2.25 Bootstrap TLT, showing how a tap can be used to obtain variable matching.

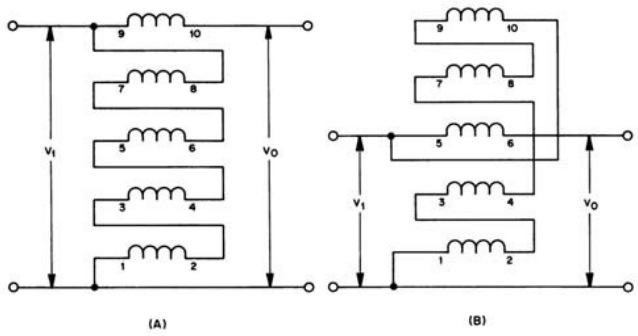

Figure 8 · 5-winding 1:1.56 Bootstrap TLT connections:(A) higher impedance; (B) lower impedance.

Figure 8 shows two high frequency models using ratios of 1:1.56. (A) is designed to match 50 ohms to 78 ohms while (B) is optimized to match 32 ohms to 50 ohms. This device has 5 transmission lines in series to help the low frequency performance, and because it adds a delayed voltage of only V/5 it can have a better high frequency response than its trifilar counterpart.

TLTs with Ratios Greater than 1:4

Figure 9 shows Guanella's models of his 1:9 TLT. (A) shows the high frequency model and (B) its low frequency counterpart. Since each line has an equal delay, this TLT has high frequency performance the same as a simple transmission line. As seen in the diagram each transmission sees 1/3 of the load RL. In matching 50 ohms to 450 ohms the optimum characteristics impedance Zo is 150 ohms. In matching 50 ohms to 5.5 ohms the optimum characteristics impedance is 17 ohms. Since the low impedance version requires much smaller inductances in order to have enough reactance for input-output isolation, its performance at this low impedance level should be vastly greater than the high impedance version. This factor is especially beneficial at lower frequencies.

Figure 10 shows a schematic of a quadrifilar-wound transformer providing ratios as high as 1:9 when connecting terminal A to terminal D and as low as a 1:1.36 ratio when connecting terminal B to terminal F. In the 1:9 ratio three transmission lines are in series which aids the low frequency response, but a single direct voltage is added to a twice delayed voltage yielding a poorer high frequency response than its 1:4 counterpart. When matching 50 ohms on the right to lower impedances on the left this unun is a practical multimatch transformer.

Since these broadband TLTs can also be made very efficient, they can be connected in series, yielding ratios between 1:9 and 1:4. This compound TLT obviously favors matching 50 ohms to lower impedances.

Closing Remarks

This paper attempts to summarize the simple basics of these broadband TLTs. There are many details regarding the use of magnetic materials, examples of transmission lines, and additional TLT models that have not been included. This would take an entire book or more [3,4]. It is hoped that these notes stimulate an interest in these devices and provide a feeling for their capabilities.

Although the TLT was first intended to be used for matching vacuum tubes its real strength lies in matching to low impedance solid state devices. Further work in the design and application of these lower impedance TLTs needs to be done. Also, continued research on magnetic materials is encouraged. Equal-delayed TLTs acting as ununs appears to be a key technique for the future. Finally it should be pointed out that the TLT is designed to match broadband loads, that is impedances that have no (or small) reactive components.

References

1. Guanella, G., "Novel Matching Systems for High Frequencies," Brown-Boveri Review, Vol 31, Sep 1944, pp. 327-329.

2. Ruthroff, C.L., "Some Broad-Band Transformers," Proc IRE, Vol 47, August 1959, pp. 1337-1342.

3. Sevick, J., Transmission Line Transformers, Noble Publishing Corp., 4th Edition 2001.

4. Sevick, J., Building and using Baluns and Ununs, CQ Communications, Inc., 1st Edition 1994.

Author Information

Jerry Sevick is retired from AT&T Bell Laboratories, and remains an occasional consultant and lecturer.

The Heathkit Challenge.

Don't forget about the Heathkit Challenge coming up at the AGM at the end of this year.

As a reminder, John ZS1WJ (our president) put a challenge to everyone to find a Heathkit SB/HW101 and restore it as part of an endeavor to bring back some of these fine old kit radios, to life. The idea is that you find an old Heathkit SB/HW101 and document the restoration process from the time you received it to the time you finish it, hopefully in all its glory, firing on all tubes and working the way it was designed to.

There are still many of these fine old rigs out there somewhere and so it will be a challenge to find them, and then to restore them.

Once you have documented the process you have gone through to restore the rig, the object is then to convince the panel (still to be decided) that your restoration project was the best one and you can win R1000 .

The decision of the judge/s will be final and the winner will be announced at the AGM in November. So there's not that much time left to get stuck in and do your restoration, document it all and get your project in. Documents can either be sent to myself, ZS6ADY or Rad ZS6RAD or John ZS1WJ. Email addresses can be found on the SARL website or if you are in doubt simply contact the editor and I will pass on details to you.

Even if you are out of SA and want to partake in the challenge, you are quite welcome to do so.

In Discussion with John, we have decided on a few things that entrants need to do :

1. You need to document the process you have gone through during the restoration. This must be corroborated with a few pictures of the before and after process that has taken place.
2. Before the judging, there will be an opportunity to do on air testing. This will more than likely be done per province or area where one can be heard due to propagation conditions at the moment.
3. If you stay in the Gauteng area and can be at the AGM in November, then you will need to bring the radio along to put it on display. (If you are coming from out of town and want to bring your radio along to put on display you can do tha too.
4. An entrance form will need to be filled in for the competition. This will be made available in one of the future Newsletters. This entrance form can be emailed with supporting documentation.

As a precursor, it would be interesting to know how many people are actually going to take part. Send us an email just to let us know how things are going with your rebuild.

HW 101

SB 101

CONTACT US:

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Get your backdated issues at
http://www.awasa.org.za/index.php/newsletters

Visit our Website:
www.awasa.org.za

Antique Wireless Association of Southern Africa

Mission Statement

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yesterdays radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website.

Notices:

Net Times and Frequencies (SAST):
Saturday 06:00 (04:00 UTC) —AM Net—3615
Saturday 07:00 (05:00 UTC) —Western Cape SSB Net— 3630
Saturday 08:30 (06:30 UTC)— National SSB Net— 7140; Sandton repeater 145.700
Echolink—ZS0AWA-L; ZS6STN-R
Relay on 3615 for those having difficulty with local skip conditions.
Saturday 14:00 (12:00 UTC)— CW Net—7020; (3550 after 15 min if band conditions not good on 40)
Wednesday 19:00 (17:00 UTC) — AM Net—3615, band conditions permitting.

For Sale:

Hallicrafters SX76 Receiver. Complete and in reasonable cosmetic condition. Will need some work.
Comes with a Hallicrafters Speaker Box and a 230 to 115 step down transformer.
Buyer to collect or arrange transport.

Contact Dave Oxborrow, Work: 031 205 6331; email dave@lehmantr.co.za

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For Disposal:

I have numerous electronic valves to sell [new and second-hand (used)] at reasonable prices. The 12AX7 (ECC82) are going for R1.50 each but they are used and each has been tested and wrapped by hand in a paper towel. No guarantees and the postage is extra. I offer these valves to our members and the Antique Wireless Association before I put them on e-bay. I will send you a list of what I have available.

Contact:
Robin Cross
[Former Naval Officer at SAS Unitie and now a Member of the SIGNALS ASSOCIATION]
E-mail address : w1ntek@telkomsa.net
Mobile No : 078-550-9618
