AWA Newsletter

#59

November 2010

A Member of the SARL

Antique Wireless Association of Southern Africa

Inside this issue:

AWA Committee:

* President—Don ZS5DR
* Technical Advisor—Rad ZS6RAD
* Net Controller—Willem ZS6ALL
* Secretary/PRO—Andy ZS6ADY

Reflections:

It was not that long ago I was listening on 40m on a Saturday morning after my usual chat on the Wacral net, when Cliff ZS6BOX, said he was going across to the Collins Interest Group net.

At that stage I did not even know what a Collins radio looked like, but I followed him across to his net to hear what they chatted about. I can't remember exactly who was on frequency, but I do remember the conversation going around opening the Collins group up to more valve radio enthusiasts. Now that made my ears prick up, as I had been using valves all my ham career.

I chipped in and said it would be a good idea to be able to hear more about it, and that was my first introduction to Bushy ZS6YQ(later ZS6M) and Rod ZS5RK.

Little did I know, this would become the start of the Southern African Antique Wireless Association and it was not long afterwards it was announced. I immediately signed up as a member, by association, and the rest as they say in the classics was history.

Cliff was inaugurated as the Founding President and has the T shirt to prove it.

It started off small, but every Saturday morning at 08:30, there would be one or two more whose ears would be pricked and they would take interest. Rod, if I remember correctly, wrote the Mission Statement and Alan ZS6BIK refined it to what we still use today.

In August of 2003, the ZS0AWA call sign was used for the first time after having it registered, and Bushy was the regular Net Controller. Alan was instrumental in getting the call sign for the AWA and also having the call sign registered as an Educational call sign, which means it can be used where non licensed people can chat on air.

And so another piece of radio History has been written and who knows how long it will be remembered for ? One thing for certain, the AWA has certainly made it's mark in South African Radio History and will still be around for a good many years to come.

Best 73

De Andy ZS6ADY

Wikipedia—The Resistor

Preferred values

Early resistors were made in more or less arbitrary round numbers; a series might have 100, 125, 150, 200, 300, etc. Resistors as manufactured are subject to a certain percentage tolerance, and it makes sense to manufacture values that correlate with the tolerance, so that the actual value of a resistor overlaps slightly with its neighbors. Wider spacing leaves gaps; narrower spacing increases manufacturing and inventory costs to provide resistors that are more or less interchangeable.

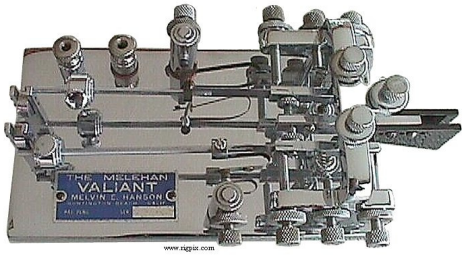
A logical scheme is to produce resistors in a range of values which increase in a geometrical progression, so that each value is greater than its predecessor by a fixed multiplier or percentage, chosen to match the tolerance of the range. For example, for a tolerance of ±20% it makes sense to have each resistor about 1.5 times its predecessor, covering a decade in 6 values. In practice the factor used is 1.4678, giving values of 1.47, 2.15, 3.16, 4.64, 6.81, 10 for the 1-10 decade (a decade is a range increasing by a factor of 10; 0.1-1 and 10-100 are other examples); these are rounded in practice to 1.5, 2.2, 3.3, 4.7, 6.8, 10; followed, of course by 15, 22, 33, … and preceded by … 0.47, 0.68, 1. This scheme has been adopted as the **E6** range of the IEC 60063 preferred number series. There are also **E12**, **E24**, **E48**, **E96** and **E192** ranges for components of ever tighter tolerance, with 12, 24, 96, and 192 different values within each decade. The actual values used are in the IEC 60063 lists of preferred numbers.

A resistor of 100 ohms ±20% would be expected to have a value between 80 and 120 ohms; its E6 neighbors are 68 (54-82) and 150 (120-180) ohms. A sensible spacing, E6 is used for ±20% components; E12 for ±10%; E24 for ±5%; E48 for ±2%, E96 for ±1%; E192 for ±0.5% or better. Resistors are manufactured in values from a few milliohms to about a gigaohm in IEC60063 ranges appropriate for their tolerance.

Earlier power wirewound resistors, such as brown vitreous-enameled types, however, were made with a different system of preferred values, such as some of those mentioned in the first sentence of this section.

CW Activity:

I have decided to change this section from the "CW Net" to "CW Activity, to try and include much more of what is happening on the bands as far as CW is concerned instead if limiting myself to the AWA Cw Net, which is very limited.
Should you, the reader, the CW enthusiast, know of any additional CW information you would like to see on these pages, then drop me a note and we will include it.
Information on DX activity or local activity will be welcome. So lets try expanding this section to hopefully stimulate more interest in the mode.
This probably means I am going to have to spend a lot more time on the bands listening out for CW activity too, but please do not leave me to my own devices here, because you may just get a little tired with reading the ramblings of a CW exposé. I cannot call myself a specialist, because that I certainly am not.
For instance, I know this last weekend was the CW QRP contest. Now unfortunately I was otherwise indisposed to be able to even listen in, never mind give away a few points, so it would be nice to get some feedback from someone who was there and heard what was happening.
Maybe some information on the QRP net, which happens every morning on 3579. What conditions have been like and who has been heard ?
I am sure we can put a lot more information into this section than just me rambling along, complaining about the lack of enthusiasm and poor band conditions. I'm tired of writing it, so I can imagine how tired you must be of reading it.
So email the info to me or send it by fax or snail mail, but lets get a bit more going here.



My thanks to Dave ZS6AAW, who regularly sends me interesting articles on CW, some of which we have obtained permission to reprint and used them in this newsletter.

Best 73,
De ZS0AWA … -.-

SSB Activity:

Activity on SSB has certainly improved with band conditions over the last month. 40m has been absolutely great and conditions have been really good, even for the normally short skip stations.

A lot of DX activity on 40m after dark has been happening, but this has been around through the winter period, so listen out and see what's happening.

Willem of course, is in his element with the return of many callers on the SSB net who migrated for the winter and for the period of poor band conditions. His short term goal every Saturday morning, to go National with callers from all the various divisions of course. He will even delay his highly desired refill of alkaloids , in order to go National.

To all those who have been hibernating over these tough periods, it's time you blew the dust off and reported in on the net again. We look forward to hearing a lot of the old call signs again.

It really is good to hear a lot of activity on 40 and on 80m these days. Over weekends there are a lot more stations to be heard than previously, so obviously, the word is out about the improvement in band conditions.

The AWA QSO party had a good few stations taking part, but very disappointing return on logs. Maybe there are still a few out there who could send in logs before the end of the month, you never know where you may end up.

Geloso G212

AM:

Well I don't know of much AM activity taking place outside of the AWA nets. Maybe there are a few more, so let us know what's happening out there.

If you run a net or attend one, give us the details and we can advertise it here in the newsletter. Our Mission Statement says "Thus ensuring the maintenance and preservation of our amateur heritage". This is not just the AWA that are involved in this.

The AM section of the AWA QSO party was also well attended with many stations calling in. I am sure there must be more who are interested in running an AM station than what we have on the Saturday morning and Wednesday evening nets. There still is a lot of interest in Am out there.

Remember, in order to qualify for this beautifully restored FR50B receiver, you have to have listened or taken part in one of the AM nets and given a report on the stations heard.

That way, your name will be on the list and put in to the draw at the end of the year. This rig could grace the rack of your shack if you just report in.

SSB call in is taken after the Saturday morning net, so if you have been listening to the AM net, you can still report in on SSB afterwards, or simply call on the SSB net and give us a report there. Send an email, or an SMS, whichever way you prefer.

Remember, if you are clling in on AM, wait for a gap between stations, there is always a large enough gap left for people to call in. If you try calling at the same time someone is transmitting, you will only put a carrier over the other signal and nothing will be heard from either station.

Yaesu FR50B Rx

AWA Update
The Year in a Page

Another year is fast approaching it's end and it seems like it was only yesterday that we were at the start of a new one.

In January of this year, Don ZS5DR took up his post as President of the AWA and became the 7th person to take the gavel. Don has always been a regular attendee of the AWA since it's inception and has certainly played a vital role in the AWA.

In February we had another successful CW activity day for the amount of CW operators we have in the country. Pierre ZS6BB walked off with the honours here for the most contacts.

In April we had another successful swop meet at the Transvaal Aviation Centre at Rand Airport. This meet was well attended by many and a good few bits and pieces of boatanchor equipment exchanged hands, as well as a successful gathering of enthusiasts, both to watch the aircraft landing and taking off from the Airport and of course to take part in some serious discussion about Amateur Radio and boatanchors.

In May we had the first part of the Valve QSO Party. This is always a good turnout with plenty of people calling in on both AM and SSB. A total of 54 call signs logged on the AM section and 91 on the SSB section, makes it well worth it's while. We say this QSO party is to encourage activity on the bands, so I suppose we should not be too concerned about the low submission of logsheets.
Jan,ZS4JAN walked away with top honours in both the AM and SSB sections. Not surprising, as I don't think there is a SA contest that Jan has not won, if not had good results in.

Rad ZS6RAD took it upon himself during the year to attend various swop shops with a lot of equipment which was donated to the AWA by John ZS1WJ and Hal ZS6WB. Thanks to his generous time, and of course given the opportunity for many eyeball contacts, Rad managed to swell the coffers of the AWA substantially. This was greatly appreciated, because as you all well may know, we have no membership fees for the AWA and it is due to donations such as these, we are able to bring the newsletter out to so many people.

Talking of reaching people, the membership of the Awa grows each and every year by a few more interested in preserving and using their valve rigs on the air. Of course there are also a good few early solid state radio's being used these days which one could also call antique.

By using the section from our Mission statement, "Membership is free and by association", our listed membership of those who receive our newsletter either in electronic format or printed format, now stands at 117.
I believe this is quite an achievement for a club that has no clubhouse or meeting place except on the air.

Various members have been taking part in the SARL 80m Club Championships and entering their logs for the AWA. This has put us in 3rd place in the contest (we dropped a place after the digital contest). So come up on the next CW section on the 24th November and gather a few more points for the AWA.

In October we had the second part of the Valve QSO Party which was once again well attended with 33 stations on AM and 85 on SSB. Results of the QSO party are detailed elsewhere in this newsletter, but congratulations to Andrew ZS6DEK for taking both top honours in the AM and SSB sections using his FT200.

So we come to that part of the year where once again we need to start thinking about who we would have for our next President. Nominations are welcome to be sent in and we will publish them in the next newsletter and we will take votes over the air.

We had hoped to arrange another get together at Williams QTH in Harrismith which is a fine halway point, but Me thinks William got scared at the thought of having all these raucous hams invading his property and carrying of all his beautifully restored and washed rigs. (Hi) Of course we will have to wait for another opportunity to go and tear up the streets of Harrismith (oh sorry, that's what the Bikers do).

A thought to end of with: we would like to see some more activity being encouraged in the various divisions for the AWA. So if you think you would like to become a "Representative" for the AWA (for sake of a better word), to encourage activities and get together's in the division where you are, then let us know. We realize it's not always easy for everyone to come to Div 6 for our gathering. So we would like volunteers from Div 1, 2, 3 and 4 to come forward if you want to encourage more use of antique wireless in your region.

Drop us a line, send us a note, write a snail mail or tell us on air. Whatever suits you. But it would be good to hear from you, the members of AWA.

Reactivating Old Rigs

By Ken Ketner, KA5ELD

Work-up procedure for reactivating long-stored or long-stale tube rigs

(with minor changes to suit RSA conditions)

by Ken Ketner KA5ELD

PREPARATION PHASE

Unless you are an experienced tech with TUBE rigs, do not proceed without a manual. Study the manual and schematics until you are familiar with the general operation of the equipment, and the theory of its function. There are many manual suppliers on the web.

My favourite is W7FG manuals www.w7fg.com. Many manuals are available for free download from BAMA at http://bama.edebris.com/manuals/ . Many Swan manuals are available for free download at http://www.6mt.com.
Yaesu at http://www.foxtango.org/foxtango001.htm.
Hallicrafters at http://www.w9wze.org/

There are many sites and best is to Google for the item you need.

POWER SUPPLY (may be separate or may be inboard on the rig).

PS 1. BE SURE PS is NOT plugged into an AC source. While the power cord is in your hands, check it for soundness. Take the cabinet parts off, including bottom plates. Using a screw driver, ground to chassis all plus terminals of electrolytic caps. (Yeah, I know it probably hasn't been plugged in for decades, but there is no such thing as probably hurt, and it is a valid habit to form - always discharge electrolytic caps before going into a PS the history of which you don't know - tubes are high voltage gear unlike transistors which are typically low voltage.)

Clean cabinet parts with soapy water and brush. If the finish is bad, I like to have mine powder coated (see the account at

http://www.w9wze.org/Restorations/PowderCoating/Powder_Coating_KA5ELD.htm).

Use a dry 1/2 inch paint brush and an air compressor to blow away dust from chassis and parts (not just a cosmetic thing, because dust or carbon traces can cause electrical problems).

Inspect for obvious damage or problems:

- burned out resistors

- bad solder joints (should look shiny, be complete, have no graininess or dull gray)

- loose or frayed wires/damaged insulation

PS 2. Use ohmmeter to test diodes - normal is low resistance in one direction, high in the reverse direction. Radio Shack has replacement 2.5 Amp 1000 PIV cheaply which should work ok in 900v PS. (Better still 1N5408 series which are 3A)

PS 3. Check all grounds, especially tighten grounds bolted or screwed to chassis (ground connections are part of the circuit too). Sometimes the ground is thru a pot or switch mounting bolt - check those to see if they are firmly tight.

PS 4. Check electrolytic capacitors preferably with a capacitor tester which will slowly apply working voltage (bring the voltage up slowly arriving finally at the working voltage with little or no leakage - if there is leakage after a forming period, replace). One has to remove one lead of the cap to get a good leakage test and for a good re-forming. It is better to reform caps singly instead of bringing them up all at once with a Variac, because "complex systems fail in complex ways." Better to get some surety about these crucial components in the PS instead of relying ONLY on a Variac initial start (which should still be done later). If you have not reformed electrolytic caps, get some info on it (a web search for REFORMING CAPACITOR using Google will yield several sources of info, such as http://www.angela.com/catalog/how-to/about_caps.html . If you can get or borrow a

Sprague Tel-Ohmike or one of the Heathkit cap checkers, you will have the circuits to handle caps of all kinds.

PS 5. If there are any paper or moulded plastic caps (non-electrolytics), replace those with contemporary 600 v moulded brown from RS or Communica 600v or 630v. In some cases, a higher working voltage may be called for - it is ok to use a higher working voltage in the replacement, but not a lower value.

Test continuity on transformers and chokes. Test and secure all mounting bolts on transformers and chokes - if they are loose the components can mechanically buzz when active.

PS 6. Check resistor value with an ohmmeter. Carbon resistors tend to age higher, sometimes quite a bit higher. Crucial resistors in the PS (for example, bleeders) might need replacing. I replace with Metal Film Resistors (source Capacitors and Resistors from RS or Communica).

PS 7. If there is a speaker in the PS, dust carefully with dry paint brush and air. Check to see that the cone travels freely, and that the cone is solidly attached to the voice coil form and to the frame (one source of audio distortion is a loose cone or a voice coil form that drags on the armature or has come loose from the cone. If you got speaker problems, there are procedures for fixing them, but that is a different topic. Check speaker coil and cable for continuity (a faded 1.5 v AA cell makes a good source of low voltage for testing onto the plug end - if the speaker makes clicking sounds, the cable and speaker are ok). The foregoing also applies to moving coil mics.

PS 8. Check and clean connecting cable from PS to rig.

PS 9. Check the value of the fuse **VERY IMPORTANT** - Is it the value called for in the manual?

THE RIG

R 1. BE SURE the rig is not connected. Remove the top cover and the cover on the final amplifier compartment, and KEEPING YOUR HANDS OUT OF THE PA COMPARTMENT, use a screwdriver to ground the plate cap(s) on top of the PA tubes to ground, likewise ground the top of the high voltage plate choke (the thingy that the suppressors coming off the plate cap(s) are connected to). Remember these are PLATE caps, not grid caps as on entertainment broadcast tube radios for living rooms etc. Plate caps use hundreds of volts, whereas grid caps usually very little voltage.

R 2. Perform the Power Supply procedures PS 1, PS 3, PS 4, PS 5 on the rig.

R 3. Remove tubes one at a time. As you do so, check to see if the proper tube is in the proper socket. A common problem is a wrong tube or a "substitute" that is not really a proper sub. Label sockets with pencil if they are not already marked with tube numbers. Clean each tube with a dry rag (dampness will often remove the lettering), and clean pins with a small wire brush - again this is not just cosmetic - dust can cause heat build-up or electric tracks. Test the tubes. Replace tubes with a good set - as you put each tube back into its socket spray a burst of good switch cleaner (Servisol SUPER 10) into the socket…. Gently wiggle the valve in its socket, remove it and spray again. Allow to dry and then replace the valve In a similar fashion clean and test all dial lamps and be sure the right kind are installed--wrong ones can upset tube filament circuits.

R 4. Spray Servisol into all potentiometers and switches including wafer switches). Flex or operate the pot or switch a few times.

R 5. Check all variable caps for cleanliness between plates, and that plates are not touching. Use a light machine oil to lube the ball bearings of the cap - can apply with a toothpick. Spray Servisol on the wipers of variable caps. Operate to distribute the stuff. Use some 600 wet/dry sandpaper strips to pull thru relay contact points - rough side up, rough side down on the NC, and then hold pressure to do the same with NO contacts. Maybe 6 or 8 passes are indicated per side per NO or NC. Apply a small amount Servisol to relay contacts to wash any dust away.

R 6. Reassemble the PA compartment and its cover. For any powered tests, always have the cover ON the PA compartment. When removing the PA cover, routinely check that the rig has been disconnected from power source for about 5 minutes then always ground the PA high voltage after removing the cover.

THE SMOKE TEST

This assumes that one has a manual which has been studied and that one has performed the above PS items and R items as a minimum, and that needed repairs have been made.

S 1. Arrange components on a comfortable and safe area. Have the PS in its box, and the rig out of its cabinet, but the PA cover on. Connect an antenna. With the rig turned off and the Variac (or voltage reducing device) turned off, connect the rig to a Variac or other course of variable AC power of sufficient capacity (usually 230 VAC). It is best if the variable AC input is metered so one knows the level of AC going in the set. For sets with tube rectifiers, with the set turned off, set the Variac to put out

60 VAC (with sets having diode rectifiers one can start the Variac at 25 volts).

S 2. Turn off the Variac. Turn the set on. Nothing is happening yet. But time has come to see if any smoke will leak. Use the manual to configure the set for receive only, power switch on. Double check the settings. I usually set RF gain full on and Audio gain full on to start.

Turn on the 25 (or 60) VAC Variac. Since the set is already on, you should see some activity, especially the dial lamps should glow just a bit. If they don't, stop and turn Variac off. Works out why those dial lamps don't light. Once they are lighting, let the set run on low Variac voltage for a while. Observe the tube filaments. Are they lighting? They will typically begin lighting around 120 - 140 v ac on the Variac, sometimes lower. If each and every tube filament is lighting, you may raise the voltage in 5 volt steps, listening for some audio and watching for smoke or noise or anything out of the standard - the first thing you hear may be receiver hiss. If you hear it, peak up the pre-selector or grid control for max hiss. If there is a PA plate current meter on the set, keep an eye on that, and if it reads anything while configured for receive, shut down and work that out. No transmit functions should be happening now.

I usually begin to hear the receiver, if everything is proceeding well, at around 140 volts Variac input. If you are hearing it, let it run at that level for a while, and again observe for anything out of the way. Raise the Variac by about 10 - 20 volt steps, and tune the controls for reasonable receiver operation. Once it will run without incident at 220v ac, you are ready to test the transmitter portion, and to begin general trouble-shooting and alignment (which I won't venture into at this point).

If the set receives well at 220v ac on a Variac, then you may be ready to run it off the main power outlet. But first check the voltage of your ac source and the specifications in your manual. The older sets were sometimes designed to run at various voltages, often 230v ac. If your standard voltage is high, as many locations now are, this could be a stressful environment for your rig. You might want to run it at factory specified voltage using a Variac as a reducer. Running a small (3 or 4 inch) 240v ac muffin fan set on the top of your rig helps to keep it cool. (Another trick that works well is to buy a 220v ac muffin fan but run it on 110v ac - makes a nice quiet unit.) You can place some stick-on feet on the bottom of the muffin fan and place a line switch in the power cord. Keeping some air flowing helps the old sets a lot. Also consider installing a Weber VST Copper Cap ® rectifier tube replacement

(see http://www.w9wze.org/df.php?dn=Tips/Reduce_Heat_in_Transformers.wp).

While there are a number of good books on receiver servicing, such as PRACTICAL RADIO SERVICING, by William Marcus and Alex Levy, or ELEMENTS OF RADIO SERVICING, by the same 2 guys,

I don't know of a similar book for trouble-shooting a transmitter. If anyone got one for that (other than the ARRL handbook, which is more theory than actual practical service procedures), please let me know.

es 73 de KA5ELD

My Earliest copy of Radio ZS.
I wonder if there are any earlier versions than this and when Radio ZS was actually first published ?

Results of the Valve QSO Party October 2010

The Results of the October section of the AWA Valve QSO party are:

AM: 1st place Andrew Dekenah ZS6DEK with 129 points
2nd place the AWA station ZS0AWA.
No further logs were received for the AM section.

SSB: 1st place Andrew Dekenah ZS6DEK with 279 points
2nd place Theunis Potgieter ZS2EC
3rd place ZS0AWA.

A disappointing number of logsheets were sent in as can be seen from the results, although there were a good number of stations who participated in the events.

In the AM section there were a total of 33 stations recorded and in the SSB 85 call signs. There may have been more participants, for instance in Div 1 which were not heard in div 6 but with the lack of logsheets, becomes very difficult to know.

Congratulations to Andrew and Theunis, your certificates will be on their way soon.

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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 transmitters and receivers. 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.

Notices:

For Disposal:

I have in my possession a Trio model JR60 receiver which was donated to the AWA.
It is in need of some TLC as the dial indication is completely wiped off the glass front.
Anyone wanting a good challenge of restoration or spares can contact me and I will send photo's etc.

Andy ZS6ADY—0824484368 or email

WANTED:
Transport for the FR50B which has been refurbished by Barry ZS2H in PE, back up to Johannesburg. I will collect anywhere in the Jhb Pretoria area, if we can get it up here.

Contact Andy ZS6ADY—082448438 or email

NET TIMES AND FREQUENCIES:
The following are times and frequencies for the AWA nets:

AM Net—Wednesday evenings from around 18:30: Saturday mornings from around 06:00 or when band conditions allow. Frequency—3615.

SSB Net—Saturday mornings from 08:30. Frequencies—7070 with a relay on 3615.

CW Net—Saturday afternoon from 14:00. Frequency—7020.
(Times given are CAT or SAST)