Newsletter

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A Member of the SARL

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AWA Committee:

* President—Jacques ZS6JPS
* Vice President and-Western Cape—John ZS1WJ
* Technical Advisor—Rad ZS6RAD
* Secretary/PRO—Andy ZS6ADY
* KZN—Don ZS5DR
* Historian—Richard ZS6TF
* Member—Ted ZS6TED

Reflections:

I am sure there are many of you, like me, who are wondering "what has happened to this year ? ".

I'm sure this cant just be an old age thing that time just seems to fly by and before you can wipe the dirt out your eyes it's the end of the year again.

I know for myself, this year has been filled with excitement of new things to come, frustration that they aren't getting there quick enough. Not knowing what to do with it all when it does arrive in one go and then wondering where it all went to when its over.

Sounds pretty confusing, but then that's life.

But then here we are, at the end of another year. All set to make some dumb new year resolutions that we will never keep, because before we can start them, the next year is gone.

Don't get me wrong here, I am in no ways a pessimist, Just don't get the time to become optimistic.

I am sure not all feel the way I do. There have to be some pretty positive people out there who sail along through life without a care in the world, just watching the days go idly by, sipping their gin and tonic or whatever beverage suits their taste.

Red wine has been a long time favourite of mine, but then I can never remember to drink the stuff after opening the bottle.

Still, I think we are going to be in store for another pretty awesome year ahead. We are all praying for band conditions to improve, although the pundits don't seem very hopeful for that to happen. But lets face it, the days when the bands are good are like sunny days in the cape, everyone comes out to enjoy them.

We're looking forward to hearing many more of you with your newly restored valve rigs on the air, cruising the bandwidth and really putting out some good signals. That's what we're all about, making it all happen with valves.

Here's wishing you all a really happy festive season, whatever it is that you do. Be it around a Christmas tree, a Hannukiah, or a bottle of red wine. Do have a fabulous festive season surrounded by family and friends.

I am sure the rest of the committee would wish you all the same thing and say thanks for all the support

Best 73

DE Andy ZS6ADY

WIKIPEDIA

Electrical Telegraph

In 1833, Carl Friedrich Gauss, together with the physics professor Wilhelm Weber in Göttingen installed a 1,200-metre-long (3,900 ft) wire above the town's roofs. Gauss combined the Poggendorff-Schweigger multiplicator with his magnetometer to build a more sensitive device, the galvanometer. To change the direction of the electric current, he constructed a commutator of his own. As a result, he was able to make the distant needle move in the direction set by the commutator on the other end of the line.

At first, they used the telegraph to coordinate time, but soon they developed other signals; finally, their own alphabet. The alphabet was encoded in a binary code which was transmitted by positive or negative voltage pulses which were generated by means of moving an induction coil up and down over a permanent magnet and connecting the coil with the transmission wires by means of the commutator. The page of Gauss' laboratory notebook containing both his code and the first message transmitted, as well as a replica of the telegraph made in the 1850s under the instructions of Weber are kept in the faculty of physics of Göttingen University.

Gauss was convinced that this communication would be a help to his kingdom's towns. Later in the same year, instead of a Voltaic pile, Gauss used an induction pulse, enabling him to transmit seven letters a minute instead of two. The inventors and university were too poor to develop the telegraph on their own, but they received funding from Alexander von Humboldt. Carl August Steinheil in Munich was able to build a telegraph network within the city in 1835-6. He installed a telegraph line along the first German railroad in 1835.

Across the Atlantic, in 1836 an American scientist, Dr. David Alter, invented the first known American electric telegraph, in Elderton, Pennsylvania, one year before the Morse telegraph. Alter demonstrated it to witnesses but never developed the idea into a practical system.[14] He was interviewed later for the book Biographical and Historical Cyclopedia of Indiana and Armstrong Counties, in which he said: "I may say that there is no connection at all between the telegraph of Morse and others and that of myself.... Professor Morse most probably never heard of me or my Elderton telegraph."

2016 AGM

The AGM this year was held at the premises of the SAIEE once again, and first and foremost we would like to express our thanks to them for the use of this fantastic venue. There was a bit of a glitch at the beginning of the meeting when no one could get the lights in the main auditorium to come on, but then was soon solved when some ingenious ham opened the curtains and let in the natural light in.

The Walking Stick Brigade

People started gathering early and the SAIEE museum station was used by a few to call in on the AWA SSB net. This area became the general meeting place and most people spent some time in the exhibition center admiring the fine displays that have been put on in the various sections. Small groups of people could be seen all over the place discussing various aspects of the displays or when last they had heard each other on the nets.

There was lots of chatter and banter, as is usual for these gatherings. A few bits and pieces were available at the swop shop before the main meeting and there some helpful exchanges made along the way.

The technology Brigade (all using cell phones)

When the right time arrived, all were herded off to the main auditorium for coffee and biscuits, kindly provided by the SAIEE and then on to main matters.

Jacques ZS6JPS (President) opened the meeting by welcoming all there. There were 26 people accounted and present at the meeting. Apologies were received from Don ZS5DR (KZN) and from John ZS1WJ (Western Cape) as well as from a few who tendered their apologies on the SSB net prior to the meeting.

A special welcome was given to Nico van Rensburg ZS6QL, our SARL President.

In opening, Jacques spoke about the happenings in the AWA over the past year. The success of the CW QSO Party, and the SSB /AM Valve QSO parties and all who received certificates for their participation in these. It is good to see the numbers of people who participate in these activities and that every year there has been different people taking the laurels.

At the meeting in Harrismith, Roy ZS5RF, gave a big brass key to the AWA to be used for whatever the committee decided on. This key was originally built by Geoff Wright ZS6FIX, but never completed. Ted loaded it in to his vehicle and took it back to Klerksdorp where it was transformed into a fine looking trophy to be presented to the person who it was felt had contributed the most to CW over the past year. In recognition of his contributions to the CW nets and CW in general, Barrie ZS6AJY was presented with this fine trophy.

The SAIEE has offered the use of their facilities as a training venue for the AWA to train people in various aspects of Amateur Radio, from ARE to soldering courses or whatever we might like to present. The facilities are offered free of charge and the SAIEE are willing to assist in setting up equipment for us to offer these classes.

The only pre-requisite for this is that the SAIEE must be indemnified against any and accidents or things which might happen on the premises against claims of any sort. There was quite a bit of discussion around this point as to whether it was insurance that was required or was it simply people signing an indemnity form relinquishing any claims against the SAIEE should anything happen to them while attending classes.

This was quite understandable and it was felt the AWA should also have any students or people attending classes also sign an indemnity form for the AWA for similar purposes.

Adi ZS6CNC contacted a broker around what was required as far as indemnity insurance and what would be required and offered to take this up further should there be a requirement for it.

This will be investigated further and a working group would be formed to investigate further what kind of tutorial classes could be offered by the AWA. Nic Van Rensberg SARL President also gave some thoughts around training courses and informed us as to what was happening with the Hammies youth group. He expressed great interest for the introduction of training courses at the SAIEE.

It was brought to the attention of all that Evert ZS6AQW has a large collection of valves he wishes to donate to the AWA. It was requested that should anyone be travelling out towards Polokwane at all and would be interested in collecting the valves to return to the care of Oliver ZS6OG, then they should contact Oliver to make arrangements.

Oliver has taken over the care and maintenance of the valves for the AWA and and anyone looking for valves should contact him. Oliver's details are available in the SARL call book and on the SARL website.

Rad ZS6RAD raised a point of the radio station at the SAIEE and requested that should anyone eb interested in donating a linear amplifier for use in the station, they should consider it. It was felt that should the station be used as a net control station for the AWA net at all, a linear would be necessary.

There was a request for the Echolink link to be reinstated again. In these poor times of propagation it could be used by many to hear what was happening from stations they were not able to hear at all.
Henry ZS6MCC informed the group that the Sandton branch has offered up the use of their repeater to be used for Echolink via 2m. It was suggested that Rad do some tests into the Sandton repeater from his QTH and then he could relay back on 2m which in turn is connected to Echolink. The link is ZS6STN-R on Echolink and test reports would be welcome. At the moment there might only be a listening mode, but we will keep you updated on progress.

Cliff ZS6BOX, requested to be able to make a short speech on a matter of importance and paid tribute to some of the “Giants” of ham radio as he called them. Cliff specifically gave mention of Sakkie ZS6BPQ and Barrie ZS6AJY. The following is from Cliff dissertation:

A TRIBUTE TO OM SAKKIE ZS6BPA

A recent lapse in health, from which I have fully recovered, reminded me of my slogan that “we are who we associate with” and that I should therefore spend more time acknowledging those around me. There are in this room a number of Giants of the AWA. OM’s and YL’s who are passionate about our association and devote much time to furthering its aims.
All this brings me to draw to your attention the presence of Giant OM Sakkie today. I well remember putting my chin down on my folded arms and listening to Sakkie, Duppie and our beloved silent key, Bushy coming over the speaker of an old Hammerlund 129X. Sakkie lives by the writing of “The Radio Amateurs Code” and I will go so far as to say that I believe he has a fairy sitting on his shoulder calling it out to him each time he fires up his rig.
As long as I can remember, Sakkie has always had a “kirrie”, which some years ago, I believe he merely used to draw a circuit in the sand. For those of you that do not know, he is waiting for a knee replacement to arrive from Belgium and so will undergo

surgery in January. I am sure you all join me in wishing him a speedy recovery and hopefully the "kirrie" will once again be used to point out in the sand to chaps like me, that it is the mixer that follows the RF Stage and not visa versa.
But I also wish to bring to your attention that Sakkie does not let the distance between him and "Baie Dom Duppie" stop him from taking to the road to visit his and our old chum. He tells me that Duppie is confined to a wheelchair or lying down on his bed. Duppie for those of you who do not know, built up a significant cable company, so he certainly was not dom as he allowed others to call out to him at the end of their overs.
Sakkie, we wish you well and look forward to seeing you prancing about soon.

After this, Jacques requested for any motions of changes to the committee to be put forward. Rad ZS6RAD tendered his notice of resignation from the committee as Technical Advisor at the next change which would be due to take place in 2017.

There was consensus from all present that the present committee should remain as is and that no changes should be made at present.

Dior mentioned DX openings as a matter interest and also mentioned that the new LM radio station was busy being built in Springs. They will be transmitting on the old 702 frequency on AM when the station takes of next year. Chris ZS6GM has been greatly involved in this process of bring LM radio back on air.

Jacques then offered a word of thanks to the SAIEE again for use of their venue and also thanked all those who were actively involved in offering valuable time to the SAIEE in maintaining the museum and the radio station.

The meeting was then adjourned with no further points of discussion and all retreated to car park where the braai fire was being prepared.

Most people stayed behind to enjoy the get together and the smell of meat on the braai soon permeated the area.

Much conversation and much talk about various issues followed.

Then it was time to end it all and another AGM came to an end . If you missed it this year, we would love to see you at the next one. You have a whole year to make travel arrangements.

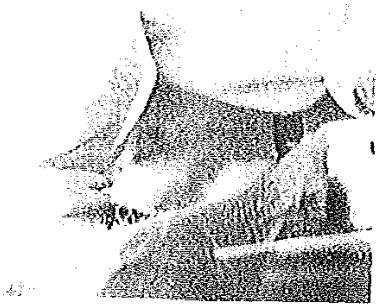
ZEESEN

L.G. Latsky

An early memory from the 1940's during WW2: Grandpa Louis Boshoff cupping his ears to listen to Hitler ranting and raving on the S.W. transmission form Zeesen, radiating from Königswurterhausen on 31m. Behind his 1936 HMV wireless set, was a framed photograph of his great hero, Gnl Jan Smuts, in full uniform……

Oupa knew that the Smuts Government frowned on people tuning in to Hitler's propaganda-programmes eminating from Zeesen, but because he was a highly intelligent man and also a very curious one, he liked hearing a thing straight from the horse's mouth!

There Oupa Louis sat, hunched up, ears cupped, virtually at attention, eyes glazed, as he guiltily stared at the photograph of Gnl Smuts on the wall behind his HMV wireless set, but curiously listening to Hitler……!



L.P. Boshoff
1865 - 1952

HIS MASTERS VOICE TOMBSTONE RADIO
RCA MODEL 5T5

A TWO BAND RECEIVER USING 5 UX TYPE TUBES: 6A7, 6D6, 75, 42, 80 IN NEAT MAPLEWOOD BOX. MADE IN USA BY RCA FOR THE GRAMOPHONE CO. HAYES, MIDDLESEX, ENGLAND. MW AND SW 60-16M. USES LARGE ELECTROMAGNETIC SPEAKER GIVING PLENTY OF VOLUME. ON SW IT COULD RECEIVE ZEESEN IN GERMANY DURING WW2. THIS 1936 RADIO IS A CLASSIC GEM - A COLLECTOR'S DREAM. CABINET REFURBISHED BY MR P. DU TOIT, VANRHYNSDORP

AS USED BY MR L.P BOSHOFF OF TAMBOERS KLOOF C.T.
1936
USA

RADAR

L.G. Latsky

My "feevrit" Aunt, Miss Martha Dove Boshoff (Auntie Abe) joined the Signal Corps during WW2. She held an MA degree in Latin and after being jilted by her fiancé, she joined up and trained as a wireless operator, mastering the Morse Code and soon she had the rank of Sergeant.

Then along came Radar in the early 1940's and she was seconded to the new and very hush-hush 'Special Signals', alias Radar as the Army was in need of intelligent radar operators with higher education. By the end of WW2 she was a full Lieutenant and was then transferred to the Demobilization Office and later to Military Welfare.

Most women keep cosmetics in their dressing table drawer, but Auntie Abe kept pliers, screwdriver, plugs, etc and she could wire up a power plug, mend a broken cord, etc. She was a very kind and generous aunt, very feminine and never spoke ill of anyone, but if she did not like someone, she'd say: "Well he/she isn't my 'feevrit' person!"

Lt Boshoff was stationed at the Radar Station atop Signal Hill in Cape Town, above Tamboers Kloof, with the Operations Centre in the basement of the Old Mutual building in the central city. She could talk about ' Range' and 'Bearing' and knew all about the CRT and reflected power, etc etc.

One day a rather "dumb" radar operator turned the antenna in the wrong direction and picked up the echoes of Lion's Head, but she thought she was seeing a whole flotilla of enemy ships off the Cape Town coast.

Sgt. M.D Boshoff
SACS Radar Operator WW2

M.D. Boshoff
1904 - 1995

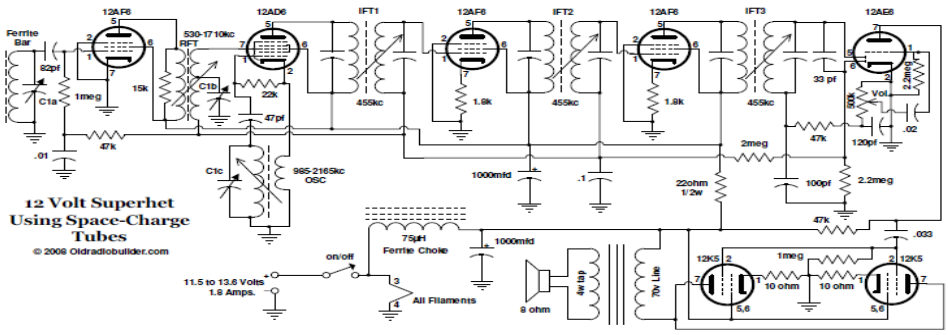
Lt. M.D. Boshoff
SACS

A DOG BY ANOTHER NAME
by Richard F/ZS6TF/P

The original Space charge is not from Star Wars or your local storage depot but was first hinted at with the Edison effect and postulated by Fleming as being responsible for the linear region of the diode characteristic discovered by him in 1904. The term denotes a cloud of free electrons which accumulate around a heated cathode in an evacuated thermionic device. The space charge acts as a brake on newly emitted electrons on their way to the positive anode as it is negatively charged until the point where the anode voltage is high enough to accelerate all the electrons towards it.

The Audion was the first Triode, the three electrodes; a heated filament, a grid, and a plate were contained in a partially evacuated glass tube. For the first time a thermionic device which could amplify a small electrical signal applied to the grid to control a larger current flowing from the filament to plate became a reality. It was invented by American electrical engineer Lee De Forest in 1906 and in the six years leading up to the outbreak of war research and development into improving thermionic valve performance around the world continued apace.

Initiated by military applications to radio in WW1, three distinct types of tetrode valves appeared during the period 1913 to 1927. All had a normal control grid whose function was to act as a primary control for current passing through the tube, but they differed according to the intended function of the other grid. In order of invention these are the space-charge grid tube, the bi-grid tube and the screen-grid tube. At the beginning of the war Dr Walter Schottky of the Siemens Halske was researching for the German army the possibility of a valve which could operate on a very low plate voltage thereby making portable field equipment much lighter and compact. The valve developed had an additional grid interposed between the filament and the control grid which was held at the same voltage as the plate but not connected to it. With voltages as low as 10 volts, a higher gain was achieved. The effect of the extra grid was to neutralise the space charge between the filament and the control grid. The development was made at a time when other drawbacks of thermionic valves particularly plate to grid capacitance due to contemporary construction techniques, had yet to be surmounted. Although originating in Germany, the space charge design was not widely applied there and it fell into oblivion for nearly 40 years. Later, some conventional valves were found by experiment to operate in space charge mode. The type 49 had an ideal electrode structure and it featured in a space charge design originating in New Zealand published in a 1936 edition of Popular Mechanics. Called the “Hikers one”, it was a regenerative design of receiver which operated on a plate voltage of 9 volts from a re-deployed grid bias battery.
In the late 1950’s, cars in America were becoming universally 12 volts, transistors were in their infancy, and the demand for car radios rising. A bête noir of car radios was the mechanical vibrator, used to switch 12 volts into the primary of a step up transformer to provide HT supplies for the valves. These were noisy at both audio and RF and had a finite life due to contact arcing. Engineers at Tung-Sol developed a range of 30 different low voltage space charge valve types that operated at a plate voltage of 12 volts to do away with the need for vibrator power supplies in car radios. Getting a tube to output significant power with 12V on the plate is almost impossible. The space-charge 12K5 driver tube can produce just 35 milliwatts at either audio or RF. For more, push pull output is necessary and scrutinising the following superhet schematic using these valves will illustrate the design differences to more conventional valve circuits.



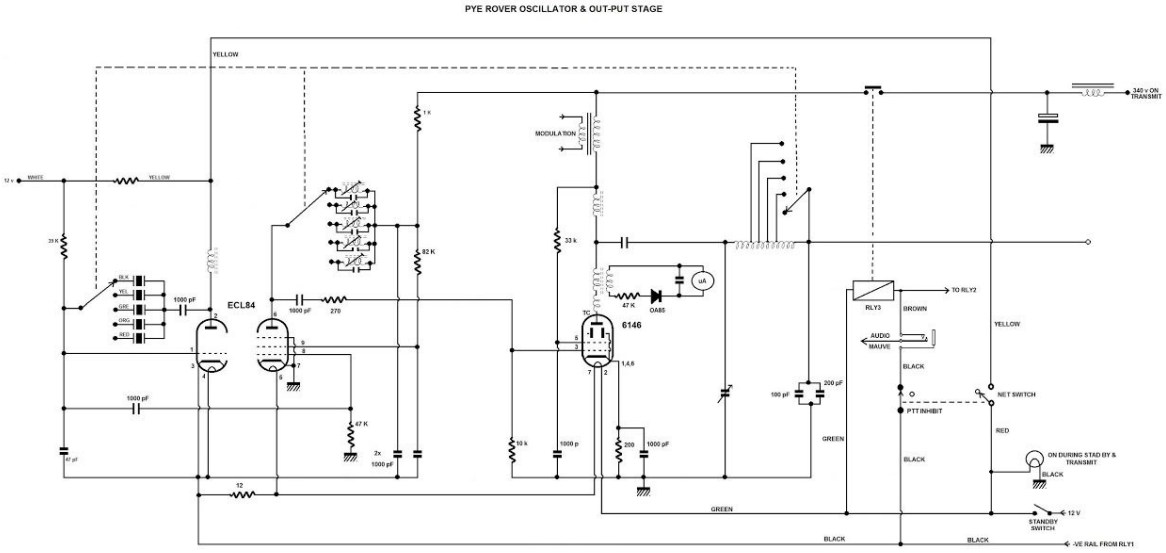
Enter stage left the PYE “Rover” given to me a few years ago by OM Sakkie Coetzee ZS6BPA when he was moving from his house in Dunnottar to a town house in Alberton, pictured on the next page, “as found”.

Casual observation at the time registered that it was an HF mobile transceiver, designed for 12 volt operation, with a single 6146 in the final, 5 crystal transmit channels and a continuously tuneable receiver with 3 wavebands. It could be set for negative or positive earth by jumper panel provided under the set. At the time I sent pictures of the Rover to Richard Howes G8DJK who

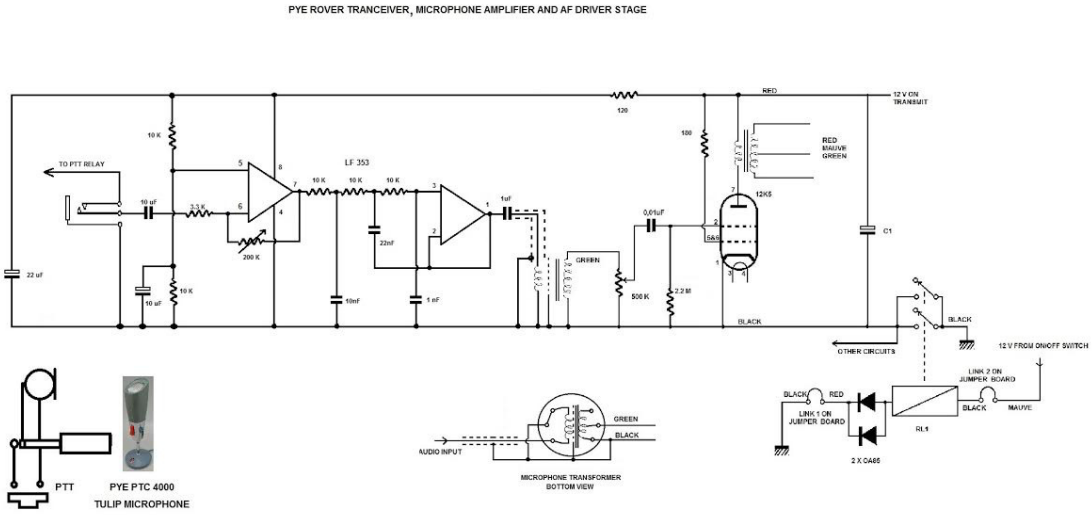
is responsible for the radio collection at IWM Duxford as well as the curator of the PYE collection in Cambridge. His response was that it is not a model known to their archives but the PYE colonial offshoots, particularly Australia, were prone to producing prototypes as prospects to feed into the local production facilities. He also said that scrutinising the front panel there are a few bits that have Australian provenance such as the receiver dial but it is definitely not an Aussie model. It remained untouched as project 39A until my departure for France last June when it was passed to Oliver, ZS6OG to find "a good home" for it. That home became with Bill Pointer ZS6WP who has excelled by applying ex sanctions busting reverse engineering techniques to discover an amazing confection of technologies on the cusp of the hollow state to solid state transition in the 1950's. The transmitter was designed to work on 4 to 10 Mhz and Bill naturally wanted to get it onto 80 metres. He needed to install a longer tank coil with more turns and this was made on the right diameter paxolin tube he had "in stock" by machining a 2mm deep thread on it using his lathe. Winding the coil itself was tricky because if the free end was allowed to slacken, the copper wire sprang open like a clock spring.

He also made a new pulley wheel for the output tank tuning and fitted a new drive cord.

That did the trick and with an 80 meter crystal installed, the mighty "class A" 6146 deriving its anode voltage from an inverter using two germanium PNP 2N174 transistors delivered 11 watts.



Scrutinising the TX schematic drawn by Bill reveals that the oscillator triode portion of the ECL84 is operating on 12 volts HT in space charge mode but the buffer/driver pentode portion within the same envelope, uses the HT inverter supply



The presence of LF353 Wide Bandwidth Dual JFET Input Operational Amplifiers in the modulator is an anachronism since JFETS were only perfected as practical devices in the late 60's .It was constructed by Bill non-invasively to make a Pye "Tulip" microphone of the same era work in place of the original carbon microphone. The crystal insert was duff so he replaced it with a dynamic capsule and the amplifier. These match into the 12K5 modulator driver valve, one of the space charge specific Tung Sol designs. Not shown in the schematic is a complex relay circuit to bring the receiver OC16 audio transistor into play as a modulator output on transmit to match the PA reflected impedance.

Other work completed is a strip and re-spray of the case, a few resistors and capacitors have been replaced, some missing hardware from the rear of the dial assembly has been made and fitted, and a partial re-alignment of the receiver has brought the dial calibration into line.

Bill' is in search of a crystal for 3615kHz so here's wishing for good propagation on 80. His care and attention to detail so far exemplifies the AWA mission and is highly commendable, especially as the transceiver is probably a one-off design study. The Aussies did produce an HF transceiver in period which stacked the RX and TX vertically and had the same RX dial. So my best take on what the "Rover" represents is a one-off prototype which did not reach production, cobbled together by the PYE operation in SA with a view to addressing the local commercial HF mobile market beyond VHF range, an application similar to Australia. It is a small but important piece of our radio heritage reflecting the last gasp of commercial space charge valve utilisation before transistors wiped them out.

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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'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: www.awasa.org.za

Notices:

Net Times and Frequencies:
Saturday 06:00—AM Net—3615
Saturday 07:00—Western Cape SSB Net— 7140 (Alternate 3630)
Saturday 07:30—KZN SSB Net—3615
Saturday 08:30— National SSB Net— 7140;
Saturday 14:00— CW Net—7020
Wednesday 19:00— AM Net—3615, band conditions permitting.

Wanted:
I started to restore this amp a few days ago, a well built fixed bias 30 watt pp design that is home brew.

The fuses were blown and foil wrapped, a bad sign. The GZ34 rectifier caused my AVO tester to howl because it was shorted from what I suspect are bad can filter capacitors. I began tracing and planning to replace the cans and install a large choke over the holes in the chassis.

Then, just because, I metered the output transformers and found that one of them has an open winding on one side from the center tap where the B+ is wired. These transformers are potted so I removed the bottom and the wiring was intact telling me the problem was inside of the tar mass.

This is a long shot but I am in need of a Rex (aka Calrad) HC30-66 output transformer (s). This particular unit is UL with screen taps. Otherwise I will also consider different 30 watt UL transformers with a winding of 5k to 8k ohms.

Contact Mark ZS4D, mcwilson@telkomsa.net