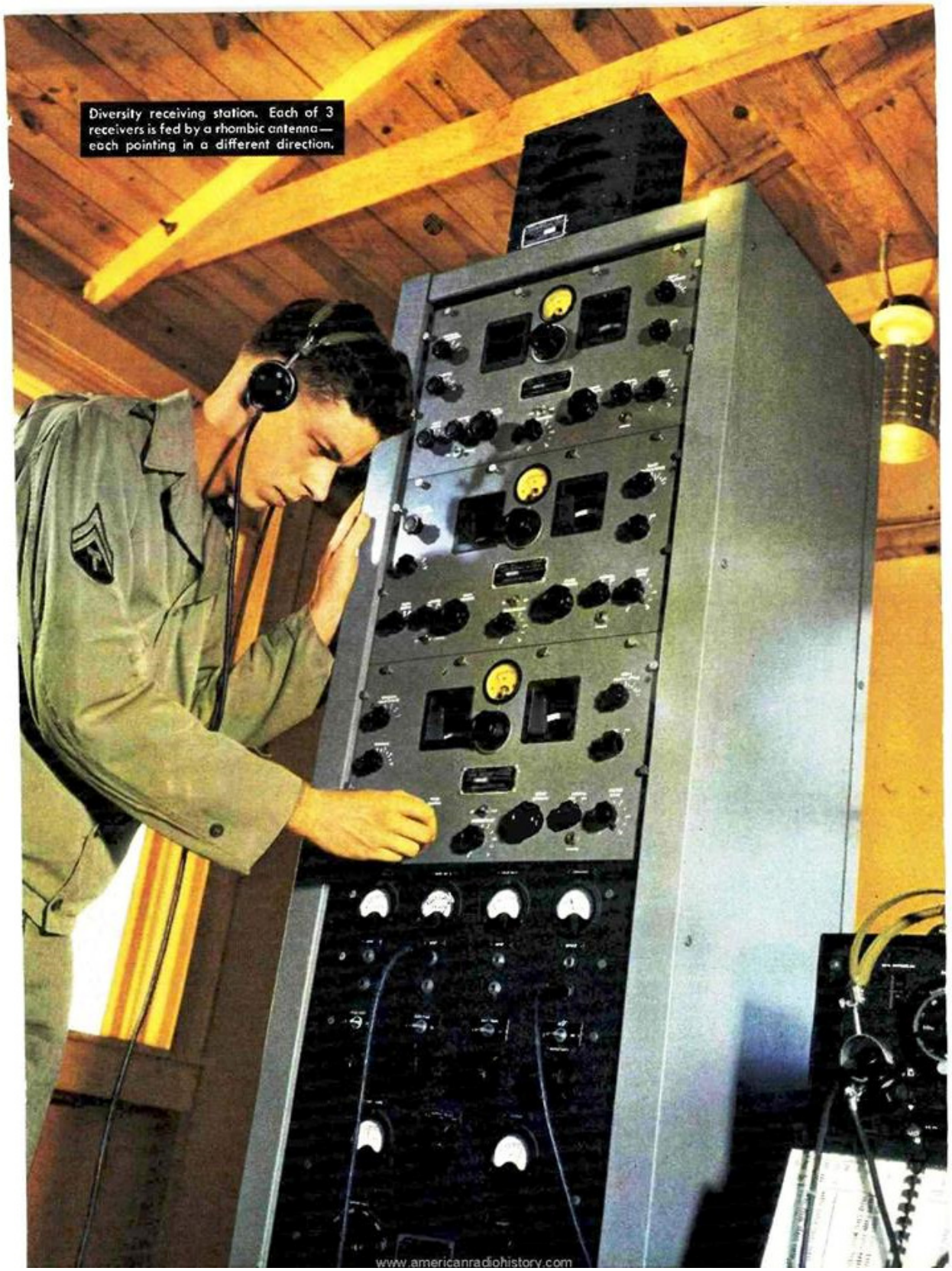
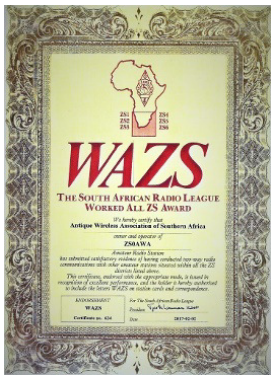
Newsletter

The Antique Wireless Association of Southern Africa

 # 170 **September 2020**





Inside this issue:

AWA Committee:

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* Acting VicePresident—John ZS1WJ
* Technical Advisor—Rad ZS6RAD
* Secretary/PRO—Andy ZS6ADY
* KZN—Don ZS5DR
* WC—John ZS1WJ
* Historian—Oliver ZS6OG

Visit our website:

www.awasa.org.za

Reflections:

What's in a name ?

From my very early radio days, going back to 1984, probably not as long as some of our readers, but long enough for me to learn and know the different types of radio that were available from that time.

When I first started out, CB was the in thing and so I learned about things like Royce, SB, GE, Cobra and so on. My first amateur radio experience was Hallicrafters, an HT37 and SX100. I thought these were the norm.

It was only as time went on, that I started to hear about Yaesu, Kenwood, Icom. But they were the ones that hams dreamed about and only those who had "real money" could afford. Guys like me starting out bought second hand because they were affordable.

I don't think much has changed even today. Many of the hams starting out, can also only afford second hand because of the way amateur radio has kept trend with most modern items that come on to the market.

As long as I can remember there has always been this thing about which is the best radio to have. Of course people will quote things like "audio quality". Something I believe I lost at still quite a young age was to be able to tell audio quality.

Working in a noisy environment before things like health and safety standards were around took a toll on my ears from an early age. "Tinnitus" was something I didn't really know about but was introduced to him quite soon. So as long as I could hear the station on the other side, audio quality didn't mean much.

Icom was always one of those very pricy rigs, so they never really caught my attention much. There always seemed to be a lot of Yaesu and Kenwood radio's around and as a personal like, Yaesu seemed to be my rig of choice.

My question around this is, does it really matter what type of radio I have ? Does it really matter what the name of the radio is or does it matter what I can do with it ?

Some of the best performers I have ever had were the Collins radio's that adorned my shack at one stage. They looked good, they talked good, they sounded good, and they didn't cost a fortune.

They were easy to fix, almost like an old Ford car, and they lasted for years without losing their appeal.

As the old saying goes, "Beauty is in the eye of the beholder".

The modern rigs are now filled with computer gadgetry, obviously attractive to the modern tech related guys, but give me an old valve rig that lights up the shack and warms the place up, and I am quite happy.

Best 73

DE Andy ZS6ADY

Wikipedia

Radio Propagation:

Airplane scattering:
Airplane scattering (or most often reflection) is observed on VHF through microwaves and, besides back-scattering, yields momentary propagation up to 500 km even in mountainous terrain. The most common back-scatter applications are air-traffic radar, bistatic forward-scatter guided-missile and airplane-detecting trip-wire radar, and the US space radar.

Lightning scattering:
Lightning scattering has sometimes been observed on VHF and UHF over distances of about 500 km. The hot lightning channel scatters radio-waves for a fraction of a second. The RF noise burst from the lightning makes the initial part of the open channel unusable and the ionization disappears quickly because of recombination at low altitude and high atmospheric pressure. Although the hot lightning channel is briefly observable with microwave radar, no practical use for this mode has been found in communications.

Calendar:

September
5 - West Rand Flea Market
5 and 6 - Region 1 SSB Field Day / RSGB SSB Field Day
7 - Settlers Day - arrival of the 1820 Settlers 200 years ago
8 - International Literacy Day
12 and 13 – SARL National Field Day
15 - Highway ARC meeting
16 - World Ozone Day; SARL 80 m Wednesday Club Sprint
18 - The Battle of Square Hill - 18 September 1918; Rosh Hashanah
19 – European SOTA Day
19 and 20 - SARL VHF/UHF Digital Contest; All Africa DX Contest
22 - Spring Equinox (15:31 CAT)
24 - Heritage Day; ZS SOTA Party; National Braai Day
26 - CTARC meeting
26 and 27 – CQ WW RTTY Contest
27 - Yom Kippur; World Maritime Day; World Tourism Day

YOTA Online Session 4 "YOTA Summer Camps" on 27 August

Are you ready for our upcoming YOTA online session already? Set your alarms for 18:00 UTC (20:00 CAT) on Thursday 27 August 2020. In this newest episode the team will present the main topic "YOTA Summer Camps". We will also have a prize draw after you solved our new riddle live on the show. So, stay tuned and be excited!
We will be streaming live again on our YouTube, Facebook and Twitch channels. Furthermore, we try to stream via the QO-100 geostationary satellite in DATV mode again.
Here are the links to our channels - YouTube - www.youtube.com/hamyota, Twitch - www.twitch.tv/hamyota and Facebook - www.facebook.com/hamyota
If you have questions while the event takes place do not hesitate to ask them. Please keep in mind that we will be monitoring only the chats on Facebook, YouTube and Twitch while we are streaming live. All other comments will be answered afterwards for sure.

Australia New Contest Call signs

The new Australian contest call signs are here! According to Glenn, VK4DU, "The Australian comms regulator, ACMA, have approved the issue of 2 x 1 contest call signs with VJ, VK and VL prefixes.
These callsigns are available for Advanced-class amateurs and club stations, for contest operation only. There is a limit of one callsign per licensee and one per club. The 2 x 1 contest callsign structure was originally developed by a cross-sector committee convened by the Radio Amateur Society of Australia. After a suggestion by the ACMA's outsourced call- sign provider, the Australian Maritime College, ACMA has extended this structure to two new prefixes: VJ and VL. This allows 2 x 1 callsigns to be available to many more amateurs. Here's a link to the new call - sign template and FAQ."
https://www.amc.edu.au/industry/amateur-radio/callsigns/new-callsign-template-and-faqs

The West Rand Flea Market

The West Rand ARC's planned boots sale for 5 September will go ahead. We like to invite you to come to sell your goods as in the past, however strict Lurgi protocol will be observed and rules like no mask, no entry will be enforced. We like to remind all that the pandemic is not over and persons with underlying conditions should be cautious and reconsider attending. The Gate opens at 10:30 for refreshments and 11:30 for vendors to set up, trading starts at 12:00. Only 50 persons will be allowed in at a time.
You are welcome to book a stand in advance as only every second one will be filled to ensure social distancing. Vendors, please book well as head of time to ensure your space is reserved. To book call Phillip, ZS6PVT on mobile 083 267 3835 or e-mail to zs6pvt@gmail.com

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)

Somalia, 6O. Ali, EP3CQ/6O1OO, announced on 17 August that he is "away (QRT) from Somalia until November 2020. During this period, all received QSL cards will be replied."

Zambia, 9J. Pedro, EA5GL, reports that he is now the QSL Manager for 9J2BS.

South Sudan, Z8. Diya, YI1DZ, is now active as Z81D from Juba. He is working there (under the UN-WFP) until 10 November. Activity will be during his free time there. He works SSB and the Digital modes, but recently has concentrated on FT8. No CW. He was heard this past week on 17 metres FT8 between 12:45 – 14:15 UTC. Diya states that he has antennas for all HF bands, except 160 m. QSL via OM3JW. All QSOs will be uploaded to QRZ.com, ClubLog, eQSL and LoTW.

African Islands

Madagascar, 5R. Francesco, IK0FUX, reports that he just received his 5R8UX call sign. He states that he will be active from Madagascar when COVID-19 travel restrictions are lifted. Michele, 5R8UI, who lives on Nosy Be Island (AF-057) helped Francesco get his call sign. Look for more info to be forthcoming.

Madagascar. Fancy being active from Madagascar? Michele, 5R8UI (IK5ZUI) can help you get a Malagasy lifetime licence and a "customized call sign suffix" (if available)" in less than 20 days." Write to dxholidayinfo@gmail.com for detailed information.

Reunion Island, FR. A couple of sources reports that Chris, F8FPY, is a resident in Le Guillaume on Reunion Island and now has the callsign FR8TG. Activity will be on various HF and VHF bands using mostly CW but will do some SSB and FT8. QSLs should be sent direct to: Mr. Chris, 88, Chemin de la Glacière, 97423 Le Guillaume Saint Paul, Réunion Island via France.

Diplomatic Wireless Service (DWS) MK. 214D Transmitter

Ludwig Combrinck ZS5CN

Fig 1. Diplomatic Wireless Service MK. 214D transmitter. This is SN161. The exciter top view photo is rotated in such a way that he panel front is on the right-hand side. The tube to the left top-side is an 807 (buffer amplifier) and the tubes in the bottom right-hand section are the oscillator (EF91) and the multiplier (EF55).

The MK214 up to serial number MK. 214D SN162 was built for CW, FSK or NBFM only. Manufactured units from SN163 and onwards had a link in the HT lead to the RF power amplifier located at the rear of the cabinet that could be used to connect to modulator Mk. 857. The early units were primarily used in CW mode, using a straight morse code key, or using the electronic keyer MK. 858.

With the development of the Piccolo MFSK system, further circuit changes were made to allow the MK214D to transmit in the Piccolo MFSK mode. As the first permanent HF link using the Piccolo mode was only established in 1965, it would seem that early units required field modification by adding a potentiometer and switch below the band switch of the PA unit. This modification can be seen in Figure 1. The potentiometer adjusts "Mod depth", and the switch selects either of CW, Set High, Set Low, or Piccolo. The switch changes the screen voltage levels applied to the 813 power amplifier tubes. I have measured the grid and screen voltages to figure out exactly what this modification does.

The PA configuration is not ideal for SSB operation, and initially I thought it likely that the bias was adjusted so that the PA could be used in linear mode for Piccolo transmissions. However, it turns out that the 813 PA stage remains in class C mode, with the grid voltage fixed at -85 volt. As part of the Piccolo modification, a diode in parallel with a 100k Ohm resistor, was attached to the negative grid supply via a small RF choke; this diode would conduct if the grid supply went positive, and so acts as protection against such an event. If one sets the switch to Piccolo, the screen voltage can be varied between 220 volt and 450 volt by the modulation depth potentiometer. The deeper "modulation depth" then occurs as screen voltage is reduced (with constant audio input level). There is an input phono type socket at the rear of the chassis, which was added by DWS. This is the audio input; therefore the Piccolo signal was a multi-tone audio input, and the modulation method seems to be screen-grid. In fact, the screen-grid regulator/ clamp tube V4 (807) is used as modulator as the audio input is connected to the 807's control grid.

The purpose of the clamp tube is normally to protect the finals in case there is no excitation. I tested this set-up with a low-power audio amplifier and microphone and it works well. The modulation depth needs to be adjusted for a clean, undistorted signal. Grid drive from the exciter also needs to be adjusted carefully, much less is required than driving the PA in normal class C mode. The PA then operates nearly as a class B linear. It will be best to adjust the modulation with an oscilloscope to ensure a clean signal. One can also make the modulator adjustment by reducing the plate current to half its normal value. The procedure would be:
Set up the D214 for CW operation, 30 mA grid drive, ~500 mA plate current, 460 volt screen voltage, output stage heavily loaded.

Reduce grid drive to the point where output starts to reduce.

Set selection switch to Piccolo; adjust mod depth potentiometer to reduce PA screen voltage until the plate current is 50% of its initial reading.

Switch on the modulation and adjust the modulator output until the plate current meter barely indicates an increase in plate

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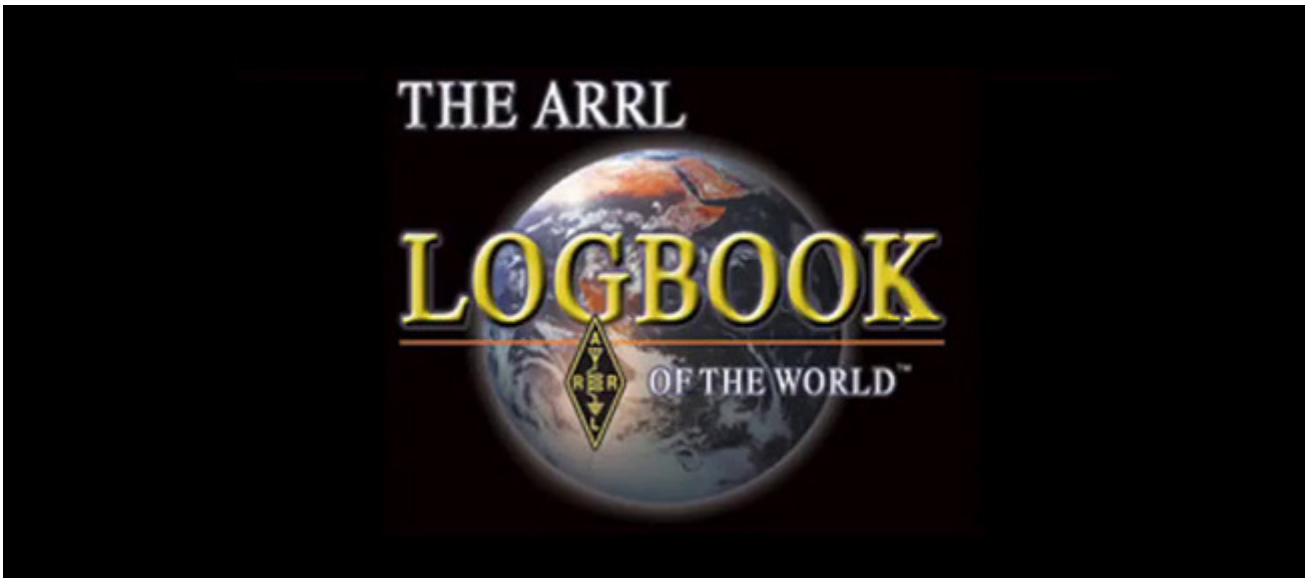


Since 2003, Logbook of The World has provided amateur radio operators with a quick, simple way to claim and verify contacts. This verification formerly required exchange of paper QSL cards and submission of a paper application to ARRL – a slow, environmentally unfriendly, and somewhat expensive process. Using LoTW today, some digital contacts get confirmed *within minutes* of when they conclude.

Because ARRL wants there to be no barriers to stations uploading their QSOs, LoTW is available to any amateur radio operator at no cost to the user. However, there are costs incurred by ARRL for Logbook operations run by ARRL staff members including costs for programmers, equipment, web access, and user help and support.

The future of LoTW!

ARRL Headquarters staff works with a permanent committee to oversee, maintain, and improve LoTW. Some notable achievements and goals that have resulted from this work include:

- Continuous reviewing and updating of Logbook processes to facilitate ease of use
- Adding new ARRL awards as well as awards from other organizations
- Enhancing DX registration through supporting email methods
- Adding support for multiple locations within a single upload, which supports the rover and mobile communities
- Future growth including a redesign of Logbook's web presence

Today, LoTW is more important than ever!

- The worldwide COVID-19 pandemic has significantly slowed international mail.
- In some countries, the mail has been embargoed.
- Many national ham radio societies have discontinued their QSL bureaus and it's unlikely that they will reappear.

Your donation to Logbook of The World will support maintenance of the current database and expansion of the system in the future.

Visit the **ARRL Donation Page** to support Logbook of The World today!

current. At voice peaks there should be a small upward flicker of the plate current meter, otherwise it should remain fixed and stable at about half that of its CW tuned value.

Perhaps this Piccolo modification was a field job, i.e. done at the point of installation using a kit provided by DWS. This is most likely as the soldering at the modification points leaves much to be desired...I will redo most of it. Initially the screen voltage in CW mode was nearly 1000 volt in tune mode and slightly over 1000 volt in operate mode. The screen voltage regulator circuit was not working. The culprit here was R7, a 30k Ohm, 12 watt resistor, which in series with R8 (20k Ohm) that is grounded, forms a voltage divider, feeding the screen of V4 (807) via R6 (50 Ohm). Resistor R7 was open circuit, but had no obvious signs of damage. This is the original circuit configuration; V4 acts as a screen voltage regulator. With the Piccolo modification, in the Piccolo switch position, R8 is not grounded and negative grid bias is fed into the grid of V4, thus creating a clamp tube. Audio is fed into the clamp tube grid and so screen-grid modulation of the finals take place. In addition, as the grid leak resistor R9 (5k Ohm) is connected to ground, controlled-carrier screen modulation must be taking place.

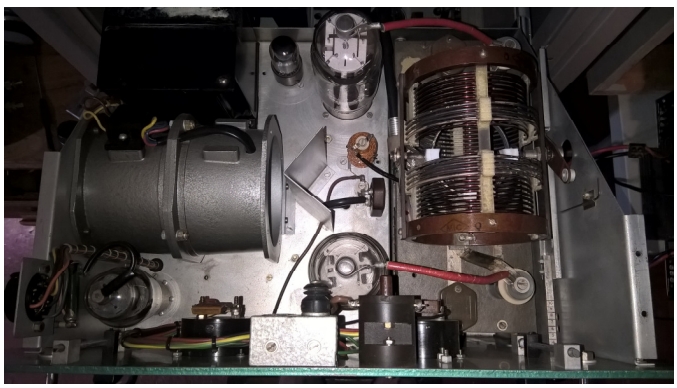
With a low power test into a 50 Ohm dummy load, when adjusted to a resting carrier (key down, no modulation) of 5 watts, modulation peaks run up to 20 watts with very clear audio. The AGC of the receiver needs to be turned off as the AGC is too slow to follow the very fast changes in carrier amplitude.

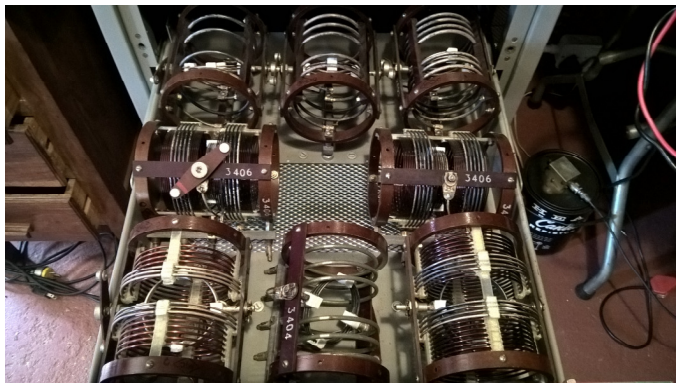
As the replica of the Luven radio station is off the grid, I do not have enough AC power (at this stage, November 2019) to fully test the DWS MK214D transmitter. I can therefore not report on the maximum RF output at this stage. Considering the efficiency of a typical screen modulated stage (~35%), one would expect a maximum modulated RF output in the region of 150 watts, whereas CW will be at least 5oo watts. However, in the carrier controlled screen modulated mode, the PA operates only at full input on modulation peaks and efficiency is closer to 55%; I expect a modulated output (PEP) in the region of 400 - 500 watts.

During April 2020 I tested the MK214D using a generator to provide power (see update at Refurbishment); CW output was 500 watt and AM (PEP) 400 watt. This is about what was expected, the CW tone is pure and clean, and the audio quality is fairly good (to my ear on a monitor receiver). I have yet to do some on-the-air tests though.

Update July 2020

On the 19th of July I had my first CW contact using the MK214D, on 7026 kHz, with Peter Jendrissek (ZS1JX). The receiver used was the Eddystone EA12, the antenna a dipole. The break-in arrangement works well, and I only have to switch from standby to transmit on the Eddystone when in transmit mode. The oscillator of the MK214D is then switched on and runs continuously. I have set up the Eddystone to act as monitor receiver, so the muting level is adjusted to enable one to hear the cw being transmitted, this is a very convenient arrangement as one can then easily adjust the receiver to be on the transmit frequency. My CW is a bit rusty, and ZS1JX is an expert, but it was fun nevertheless!

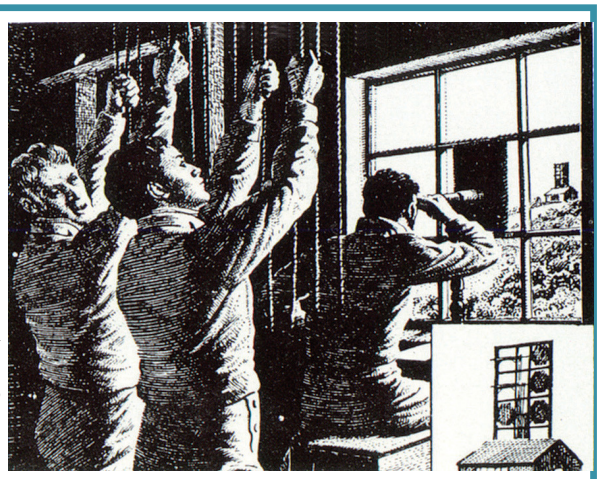




To view more of Ludwig's WW2 Secret radio shack, follow the link below:

https://sites.google.com/view/ww2secretradiostation

MILITARY COMMUNICATIONS -THE REAL ORIGINS



For thousands of years military communications remained unchanged from the very earliest days of conflict. Messengers, signal fires, drums, flags, semaphore, trumpets and the human voice remained the go-to techniques for ensuring that Commanders' orders and instructions were passed effectively. How effective was debatable.

With the invention in the 1840s of the electric telegraph, the Morse code and the heliograph, all was changed. The British Army had to adapt, as did all armies, to the new technologies on offer. From being a niche discipline in the fighting formation, signaling became a major factor in every conflict thereafter.

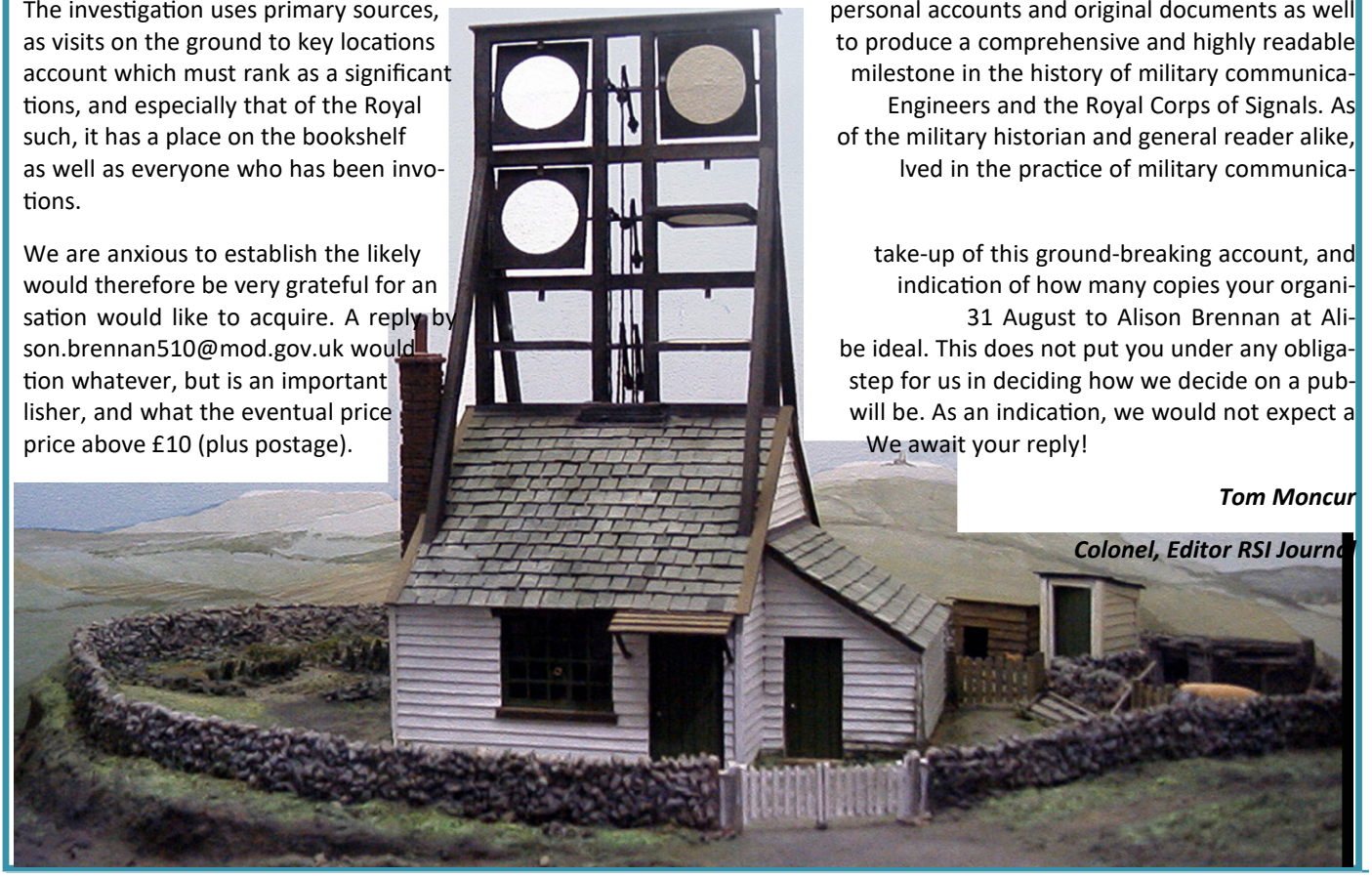
For the first time, Commanders were able to exercise close control of operations, communicate with other formations and liaise directly with ministries of defense, thousands of miles distant. For the British Army, the numerous wars, skirmishes and engagements in which it became involved allowed it full opportunity to practice and perfect its use of the new inventions.

Sadly, the actions and exploits of the early practitioners of the communicators' art has been largely forgotten and neglected – until now. Lieutenant Colonel David Mullineaux, formerly Royal Signals, has undertaken a painstaking research and exposition of the astonishing travails and feats of the early signallers in overcoming the huge tactical, technical, logistical and geographical challenges confronting them.

His book "Tales of the Telegraph" covers the actions of the Royal Engineers young officers who planned and implemented the communications support needed by our expeditions to Abyssinia, South Africa, India, the Middle East and elsewhere. The result is a fascinating, absorbing and revelatory series of accounts of signals involvement in actions such as the Zulu wars, the expeditions to the Nile, Bechuanaland and the Sudan, as well as the two Ashanti expeditions and the Boer War. As such, the book leads neatly into the time period of "Roger So Far" just published.

The investigation uses primary sources, personal accounts and original documents as well as visits on the ground to key locations to produce a comprehensive and highly readable account which must rank as a significant milestone in the history of military communications, and especially that of the Royal Engineers and the Royal Corps of Signals. As such, it has a place on the bookshelf of the military historian and general reader alike, as well as everyone who has been involved in the practice of military communications.

We are anxious to establish the likely take-up of this ground-breaking account, and would therefore be very grateful for an indication of how many copies your organisation would like to acquire. A reply by 31 August to Alison Brennan at Alison.brennan510@mod.gov.uk would be ideal. This does not put you under any obligation whatever, but is an important step for us in deciding how we decide on a publisher, and what the eventual price will be. As an indication, we would not expect a price above £10 (plus postage). We await your reply!



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Get your backdated issues at
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Visit our Website:
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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.

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— 3640
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.

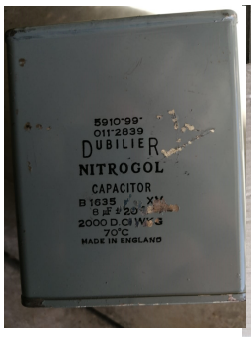
AWASA WhatsApp group:

Should you want to get on the AWA WA group where a lot of technical discussion takes place, send a message to Andy ZS6ADY asking to be placed on the group. This is a no-Nonsense group, only for AWA business.
+27824484368

For Sale:

The receivers shown on the following page have been completely restored by Tony Voorveld ZS6CCD and are up for sale. Should you be interested, contact Tony on 011 679 3207.

Tony also donated a whole lot of radio spares to the AWA, should you need anything, please contact Oliver ZS6OG on 0721175078.



Hallicrafters

SX28

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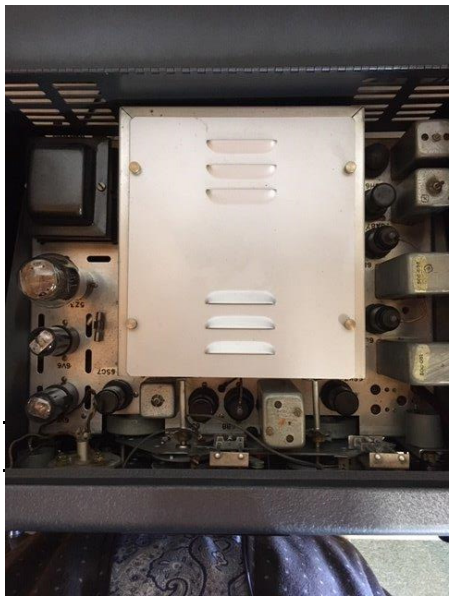

9RJ4

National 100A