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WATTS

12 - 2008

Year 78 +12m

Monthly newsletter of the Pretoria Amateur Radio Club
Maandelikse nuusbrieff van die Pretoria Amateur Radio Klub.



PARC, PO Box 73696 Lynnwood Ridge 0040, RSA



<http://www.parc.org.za> mail:zs6pta@zs6pta.org.za

Bulletins :145,725MHz 08:45 Sundays / Sondag

Relays : 1840, 3700, 7066, 10135, 14235, 51400, 438825, 1297000kHz

Activated frequencies are announced prior to bulletins

Swapshop: Live on-air after bulletin 2m and 40m

Bulletin repeats | herhalings : Mondays 19:45 on 145,725 MHz

Mega-Fleamarket 1 Nov: Offers you could not refuse. More on page 4



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In hierdie uitgawe

**Next Meeting
6 Dec 2008**

Time: 13:30 for 14:00
PARC Clubhouse
South Campus
University of Pretoria
SE cnr University and
Lynnwood roads

PARC Management team / Bestuurspan Aug. 2008- Aug. 2009:

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SARL liason, fleamarket					
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Social	Molly Peer	ZR6MOL	molly@peer.co.za	012-333-0612	

Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 12 Nov. 2008

Welcome: The chairman welcomed all present.

Present: See register, 19 members and 2 visitors. A special welcome to Riaan ZS5RSA from Durban and Molly's twin sister Sally from Cape Town.

Apologies: 5 as per register

Personal: Ivan ZS6AUT is not well, Bill ZS6KO is on Holiday and Mike ZS6AFG is recuperating at home.

Minutes: The minutes of the previous meeting were accepted. Proposed by Alméro ZS6LDP and seconded by Alf ZS6ABA.

Matters arising: None.

Correspondence: None.

Rallies: Joan ZS6JHB reported this had been a hectic year for rallies, with 18 having been supported this year. In the early days we had 3 to 4 a year and now sometimes had 3 in a single month. The end of year rally function will probably be in January 2009.

Fox Hunts: The fox hunt will now be held on Sunday 30 November followed by a bring and braai at the club..

Flea Market: The next PARC flea market will be the end of February.

Social: The Christmas meeting will be on December 6 followed by a bring and braai at the club. Salads will be provided. The Constructors' and Desert Island trophies will also be presented at that meeting.

Finances: We have R2647-78 in the bank and R500-00 in cash. Subscriptions of 22 members are outstanding. Trailer licences, radio licences and the post box will need to be paid soon.

Technical: Craig ZS6RH gave a detailed report on the repeater. He reported that ICASA has requested that repeater power be limited to 50 Watts. A vote of thanks to Nico ZS6AQ was recorded for his financial assistance. Johan ZS6JPL wants to have the 10M repeater running by Christmas.

Contests: The HF Field Day will take place on 15/16 November at Roodeplaat dam..

General: Roy ZS6XN has been appointed director of telecommunications at Telkom for the world cup. Pine ZS6OB gave a preview of the planned EME DXpedition to Namibia. The meeting closed at 20:45.

From the Editor and Management

Vanaf die Redaksie en Bestuur

A Blessed Christmas

'n Geseënde Kersees



It is difficult at the time of writing to realize that the Festive Season is soon upon us. The January issue of Watts will probably appear after Christmas. **The Management Team of PARC will now take the opportunity to wish you and your loved ones a Blessed Christmas and Happy New Year.** May there be new inspiration for the future through the Message and real meaning of Christmas for all. We also wish our Jewish members a happy **Chanukah**.

Dit is moeilik om nou ten tye van hierdie skrywe te besef te dat die Feesgety alreeds baie naby is. Die Januarie uitgawe van WATTS sal waarskynlik eers na Kersfees verskyn. **Die Bestuurspan van PARK wil nou van hierdie geleentheid gebruik maak om u en u geliefdes 'n geseënde Kersees en Gelukkige Nuwe Jaar toe te wens.** Mag daar nuwe inspirasie vir die toekoms deur die Boodskap en ware betekenis van Kersfees vir u almal wees.

Birthdays

Des Verjaarsdae

Des



02 Antoinette ZS6D, swof Danny ZS6AW
04 Wynand, seun van Wynand ZS6ARF
05 Tanya, daughter of Rita and Sarel ZS6AC
05 Hanlie, dogter van Susan en Freddie ZS6JC
06 Sylvia, lv van Tjerk ZS6P
07 Hansie ZS6AIK
08 Hans ZS6KR
08 Magda ZS6MVW, lv van Pieter ZS6PVW
12 Sarel ZS6AC
15 Don ZS6AQS
17 Dominic, seun van Adele en Hans ZS6HVG
21 Retha, sw of Roy ZS6XN
22 Steven, son of Bill ZS6KO

Dec

Anniversaries Herdenkings

17 Leanne and Allan ZS6AVC (14)
19 Ceciel en flip ZS4GE/ZS6BSO (44)
22 Rita and Vitor ZS6VG (29)
29 Molly ZR6MOL and Richard ZS6UK (32)

23 Niel ZR6AUK, son of Marieta and Roy ZS6MI
25 Chrissy ZS6JX, sw of Dave ZS6JW
28 Allan ZS6AVC, son of Frances ZR6AUT
29 Ricky, son of Rita and Vitor ZS6VG
30 Rika, sw of Errol ZR6VDR
30 Corrie, lv van Bridge ZS6BJM
31 Henk ZS6CS

Joys and Sorrows | Lief en Leed

- **Ivan ZS6AUT** is very ill and reportedly not improving
- **Suzette ZRSVW** het weer presteer op skool en Meriete Toekennings ontvang vir al 8 van haar Graad 9 vakke Boonop nog sertifikate vir Graad 9 akademies, Beste Akademiese Prestasie en die Dux Erekleure toekenning. Baie geluk, knap gedaan!
- **Tobie ZS6ZX** se dogter is op 9 November getroud.
- **Bill ZS6KO** was a while in the Kruger Park, **Ken ZS6NB** is holidaying in ZL and **Mel ZS5MF** is permanently back in RSA.
- **Mike ZS6AFG** listens faithfully to our bulletins but is not yet ready to respond. Vasbyt Mike.

Diary | Dagboek (UTC times)

Nov	30	Last day to nominate SARL Councillors
Dec	06	PARC Saturday meeting – Bring VHF/UHF projects, Desert Island yarn etc.
	17	MOON Contest 19:00-21:00
	20	Russian Digital and SSTV Contest 00:00-24:00
	20-21	Croatian CW Contest 14:00-14:00
	20-21	International Naval Contest 16:00-15:59
Jan	31	Last day to submit motions and agenda items for SARL AGM

VHF/UHF EME/Sat Group formed

Hal ZS6WB and Pine ZS6OB and several interested amateurs formed a working group in close association with SA-AMSAT. Each member will also join SA-AMSAT. Contact Hal at 082-636-7001 or Pine at 082-447-7823 if you are interested to join this exiting new pursuit

Snippets | Brokkies

- It was announced that we will soon have a **Wi-Fi project** going with Craig ZS6RH and Edwin ZR6ESP as instigators.
- PARC made a resounding 1st place in the second leg of the **SARL VHF/UHF Contest** with 288 038 points.
- **Foxhunts** will now be held on Sunday afternoons 2pm. Listen to bulletins for dates
- Some 25 members have not yet paid up their **membership** – reminders and invoices will go out soon.
- **Roy ZS6XN** has been appointed Telkom Director Communications for the 2010 soccer event
- The **Centurion 145.775 repeater** is again operational
- Our **10m repeater** should be operational in December. TX at Wonderboom and RX at MRK site. Courtesy Johan ZS6JPL.
- **Johan ZS6JPL** has donated a nice instrument rack to house our expanding repeater equipment.
- **Sue Blackburn ZS6SUE** has rejoined PARC after a quiet spell. Welcome back.

VHF DXpedition to Namibia

A VHF DXpedition to Namibia (Luderitz) is presently in the final planning stages. Although not yet 100% confirmed, it is most likely that the operation will be from Luderitz and will concentrate on VHF with all authorised bands and modes active. Moonbounce, meteor scatter and satellite operations are planned on the amateur bands from 50 to 1296 MHz. The group plans to leave from Pretoria on 5 January 2009 for the drive to Namibia and will set up and begin operation immediately after arrival, probably on the 6th or 7th and return to Pretoria on 18 January 2009.

Various operators are confirmed for the trip, but in order to fully cover all bands and modes, another 3 or 4 operators can still join. This would be a great opportunity for anyone who to find out what VHF DXing is like. It will be a lot of fun with a great bunch of hams and the experience of a lifetime.

Currently ZS6BUN, ZS6AC, ZS5DJ, ZS6OB, ZS6WB and group leader HB9CRQ are in the team.

Although this is primarily a VHF group, HF operators are also welcome to join and put some of the lower bands on the air.

The trailer sports 4x9el on 2m, 8x12el on 70cm and 1296MHz equipment courtesy Dan HB9CRQ who will join the party on 5 Jan.

An Az-El rotator is still urgently required to complete the trailer. Who can sponsor or loan such a beast?

Although the world ham community is eagerly awaiting this operation, it is not an ego-trip for anyone involved. The trailer will in future serve well to also demonstrate the hobby at RTA's, schools and further expeditions. Sponsorships are urgently required so as not to disappoint world expectations and show South African VHF expertise.

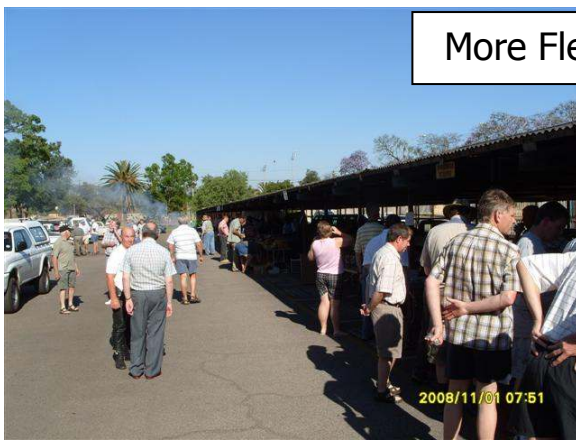
If you are interested, please contact Hal, ZS6WB as soon as possible by email zs6wb@telkomsa.net or cell phone 082 636 7001.

Toyota Dealer Rally 17-18 Oct. Bronkhorstspuit and Bapsfontein



Some of the 43 starters of which 32 finished. PARC handled all comms. Chris ZS6LOG (regs) het saam met Andrew Kirby diens gedoen as Chief Marshall. Sewe trajekte is in die Bronkhorstspuit omgewing op dag 1 afgehandel en 'n verdere 8 op dag 2.

More Fleamarket pics



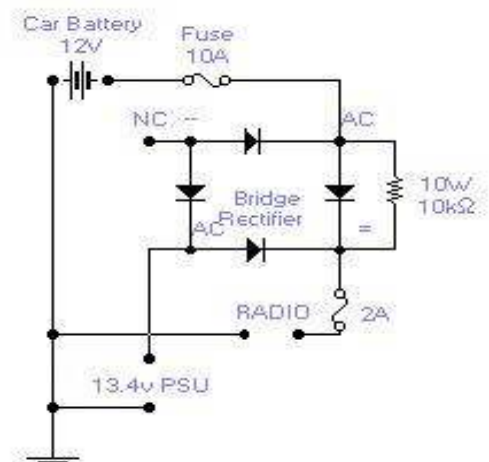
EMERGENCY POWER SWITCH

With acknowledgement to Acorn Times and NARL Newsletter

This circuit will allow any 12v equipment to continue operating when the main 240v supply to the PSU is cut.

The bridge rectifier and both fuses must be rated high enough to supply the necessary current for the equipment. R1 supplies a trickle charge whilst the PSU is in operation. This provides a continuous charge to the lead acid battery. A small voltage drop to the radio will be observed, but small enough to make no difference to the radio operation.

This circuit is being used in many commercial radio installations with excellent results. The bridge rectifier must be mounted on a suitable heat sink. If you are only running VHF, a motor cycle battery will take up less room and give sufficient power for 5 – 10 watts.



ZS6PTA HF Field Day Station 15-16 Nov

Our field station experienced good wx conditions. Pierre ZS6PJH and Pieter ZR6AHT and family had pitched tents and operations started at 12:00 sharp with visitor operator Hans ZS6KR and Pierre taking turns raking in contacts on 40m. The 10, 20, 80 and 160m bands also gave surprising results on local contacts thanks to a 15m high multiple inverted-V antenna system.

Hans ZS6HVG, Peter ZS6PJ, Brendan ZS6BW and Tobie ZS6ZX and sw visited on Saturday and Vince ZS6BTY came on Sunday morning to try out his own field station.

All in all a grand effort and special thanks to Pieter ZR6AHT for the use of the mast, solar panels and batteries that yet have to run out.



Rope Selection

A high quality rope satisfies the following four requirements:

- High breaking strength: determined by the rope material, the rope diameter and threading,
- High abrasion strength: determined by the rope material,
- Little elasticity: determined by the rope material,
- High weather resistance: determined by the rope material. Sun rays and rain water may damage the rope over time.

The following rope materials comply, in order of preference:

1. Polyester (PL) rope: Dacron®, Diolen®, Terylen®, Trevira®,
2. Polyamide (PA) rope: Enkalon®, Nylon®, Perlon®,
3. Polypropylene (PP) rope: UV-resistant only when black-coloured.

As a general rule, any materials you will find in a sailing hardware shop will comply with our requirements.

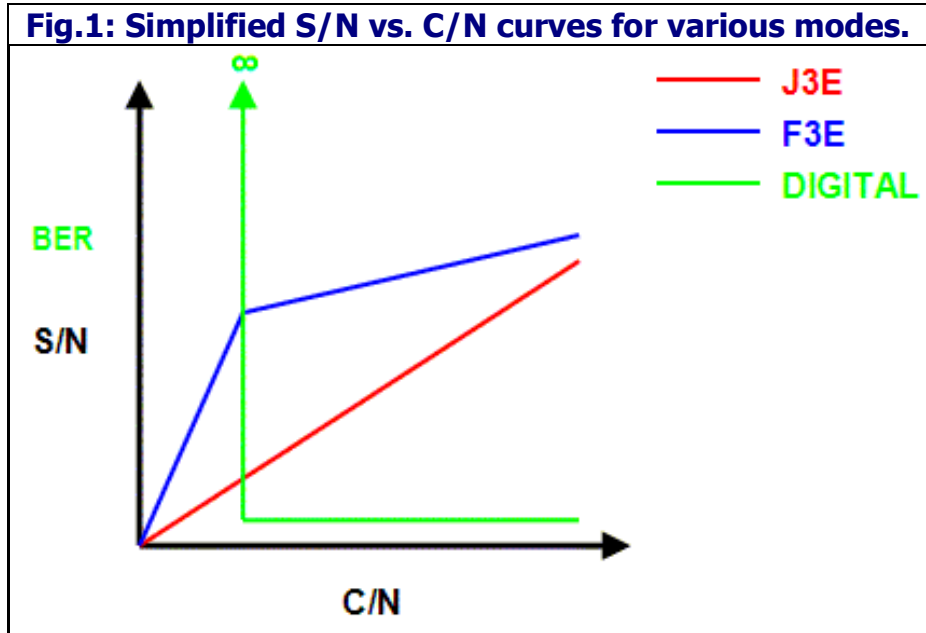
Future of SSB in a Digital Voice Environment

by Adam Farson*, VA7OJ / AB4OJ

Recently, I had occasion to reply to a question about the future of SSB in the "digital world". Here is a summary:

I believe that SSB will stay around indefinitely, as it is still the most bandwidth- and power-efficient method for voice transmission.

The use of any emission type is governed by the ITU, not by equipment manufacturers. Given the fact that all military, maritime, aviation and commercial fixed and mobile HF services use SSB and ISB, the ITU will not be changing those rules for a very long time. Even if ITU approval is granted for a bandwidth-efficient digital voice mode, SSB and ISB will continue to be authorised for the indefinite future, because of their proven ability to "get the message through" under conditions where the digital mode fails.



Apart from the regulatory aspects, we must consider how path performance degrades with decreasing C/N (carrier-to-noise) ratio for each emission type. The curves in **Fig.1** are illustrative:

To simplify matters, I have assumed that the thresholds for FM and a digital voice mode (dependent on RX/TX synchronization) occur at the same C/N ratio. This need not be the case, of course. It will be seen that SSB (J3E, red) has a linear relationship between C/N and S/N; there is no threshold "knee" as such. Modern DSP-based, heuristic noise-reduction (NR) techniques can often extract a usable baseband when the carrier is "down in the noise" (S/N < 3 dB). This has certainly been my experience with the IC-756Pro series of DSP transceivers, for example.

With FM (F3E, blue), when the threshold is reached with declining C/N, the S/N will degrade much more rapidly than for the J3E case, but intelligible voice audio is recoverable 3 to 6 dB below threshold - as long as incidental AM due to man-made noise is not too severe. Threshold-extension techniques (e.g. using a PLL demodulator with a loop filter cutting off at f_m) can push the threshold back along the C/N axis as much as 7 dB.

FM modulation index $m = \Delta f / f_m$ where Δf = peak deviation and f_m = highest modulating frequency.

Carson's rule: $TBW \sim 2 * (\Delta f + f_m)$ where TBW = transmitted occupied bandwidth.

A characteristic of FM is that as m increases, the S/N above threshold will be higher for a given C/N at the receiver, but the threshold "knee" moves to the right with increasing m . For $m = 1$ (typical in VHF or UHF FM systems with $\Delta f = \pm 2.5$ kHz and $f_m = 2.5$ kHz), the Carson's-rule occupied bandwidth is $2(2.5 + 2.5) = 10$ kHz. Compare 2.5 kHz occupied bandwidth for a typical SSB signal, which will be intelligible at a C/N ratio well below the FM threshold.

Note that when C/N is sufficiently high to fully saturate the FM receiver's limiter (*full quieting*), S/N will be higher than for the same C/N value in the SSB case. The reason for this is that AM noise which would be fully suppressed in the FM receiver will still appear in the SSB receiver's baseband output.

Now, let's consider the digital voice signal, which will generally be some form of PCM or ADPCM (adaptive differential PCM, or adaptive delta modulation) superimposed on some form of PSK. Assuming $f_m = 2.5$ kHz, the codec sampling rate is 5 kHz. Again, assuming that deltas in the quantized baseband level can be transmitted in 4 bits with acceptable quantizing distortion, we have a symbol rate of $5 * 4 = 20$ kb/s. Some polyphase PSK systems can compress this 20kb/s bitstream into an RF occupied bandwidth of 8 kHz or so; this is still wider than SSB. (A simple calculation based on Shannon's Theorem, assuming only two possible RF carrier states, yields approximately $20 * 1.6 = 32$ kHz occupied bandwidth.)

Next, let's look at what happens to the C/N vs. BER curve (green) as C/N approaches threshold. At threshold, the receiver loses sync with the transmitter, and all is lost. By contrast, a skilled operator, using an NR-equipped receiver, will be able to copy a weak SSB signal which appears "buried in the noise". ***This fact alone will keep our old friend J3E around for quite a while yet!***

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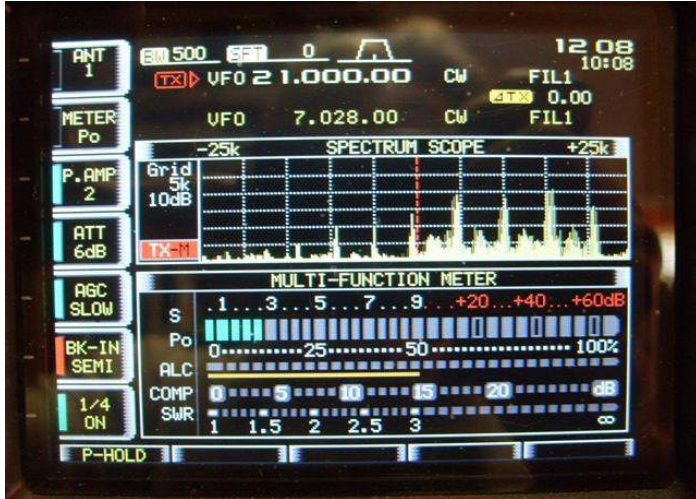
*Published with the author's permission.

Adam Farson started his Ham career in South Africa as ZS1ZG (1962-64) and ZS6XT (1964-68). There is a capsule history of his early Ham career on his website <http://www.ab4oj.com/>. His **ICOM** page contains excellent technical info on various models.

Radar obliterates DX

ZS6KR

F9LX	21020.0	QRM	QRM ALWAYS	0953	31	Oct
DL6QW	21020.0	ZC4RADAR	40dB over S9	0951	31	Oct
VU2YAM-@	21270.0	VU4MY	calling cq cq cq now	0945	31	Oct
SP4DM	21012.1	8Q7SO	QRM 59+20 40kHz	0944	31	Oct
LA5HE-@	21013.0	VU4RG	Now covered by RADAR !	0938	31	Oct
F8CRS	21014.5	OPEN	RADAR QRM	1430	31	Oct
SM00GQ	21010.0	ZC4/OTHR	loud and clear	1435	31	Oct



Shortly after ending a N-S 15m DX session at 0900 UTC on 31 October, I left the radio on and began to notice an aggressive chatter at high signal level. Thinking it would go away soon, I was mistaken.

By 10:00 UTC it was still there and covered the entire amateur allocation on 21MHz only.

To my surprise Eu stations on the OH2AQ DX cluster also reported the same as can be seen from the above cluster shot. It was then I decided to take a photo as illustration.

Not knowing much about the radar scene on HF, it appears to be correct that it is an Over-The-Horizon Radar originating from ZC4 (UK military base on Cyprus) judging from comments given.

Signal strength observed here did not deteriorate throughout the day. It ceased operation at 14:46 UTC but resumed at 14:58 UTC. By 15:45 UTC signal strength had dropped to about half due to N-S propagation and several stations could be now be heard sufficiently between the peaks. Much later it was still discernible on the spectrum scope.

Long Term HF Propagation Prediction for Dec. 2008

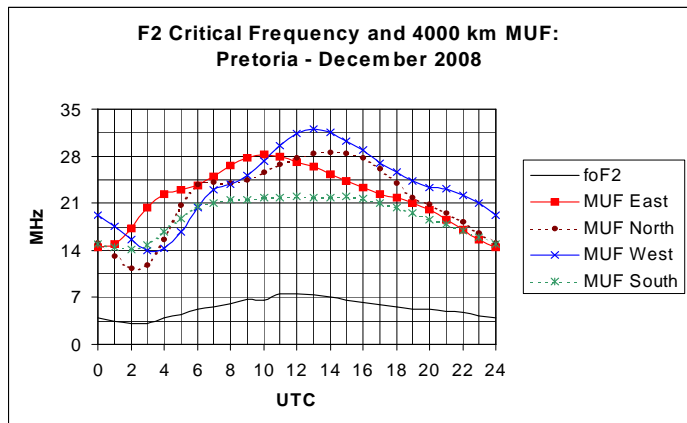
courtesy ZS6BTY

DX Operating

The graph shows the 4000 km maximum useable frequency (MUF) to the East, North, West and South from Pretoria for the first hop using the F2 layer.

Local Operating

The F2 critical frequency (foF2) is the maximum frequency that will reflect when you transmit straight up. E-layer reflection is not shown.



ARRL to Offer Self-Study CD-ROM Course on Digital Technology for Emergency Communications. \$50

With digital technology becoming an integral part of Amateur Radio, hams interested in Emergency Communications now have a new tool to help them take advantage of emerging modes such as Packet Radio APRS, Winlink 2000, IRLP, EchoLink and WIRES-II, D-STAR, APCO25, HF sound card modes and Automatic Link Establishment (ALE). This ARRL course will introduce hams to all of the ways Amateur Radio operators are using digital technology as a valuable emergency communications tool.

<http://www.remote.arrl.org/news/stories/2008/11/13/10448/?nc=1>



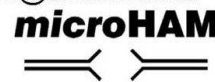
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Johan Lehmann ZS6JPL

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Wireless station 1930 Rand Airport

(one of a few in the Union)



'Aeradio stations' were expanded in the late 1930's to provide updated meteorological information direct to aircraft.

The facility known as 'Germiston Aeradio' also broadcast summarised weather reports by telegram to collection points at main airfields at Germiston, Kimberley, Cape Town and Port Elizabeth.

Germiston Airport was constructed in the 1920's and was equipped with workshops and DF (direction finding) and night-lighting facilities. Similar facilities existed at Barangwanath 6 miles SW of Jhb.

(Info from 'The Aeroletter' No.95+96)

INTERESTING SIGNS

Outside a Car Exhaust Store: "No appointment necessary. We hear you coming."

At a Car Dealership: "The best way to get back on your feet - miss a car payment."

On another plumber's truck: "Don't sleep with a drip. Call your plumber."

On a Church's Bill board: "7 days without God makes one weak."

On a septic tank truck: Yesterday's Meals on Wheels.

On another septic tank truck: "Caution - This Truck is full of Political Promises"

On a plumber's truck: "We repair what your husband fixed."

On an electrician's truck: "Let us remove your shorts."

On a fence: "Salesmen welcome! Dog food is expensive!"

In a podiatrist's office: "Time wounds all heels."

At a tyre shop: "Invite us to your next blowout."

On a maternity room door: "Push. Push. Push."

In a vet's waiting room: "Be back in 5 minutes. Sit! Stay!"

At a radiator shop: "Best place in town to take a leak."

What is that?

It's a hard disk with 5 MB storage.
In September 1956 IBM launched the 305 RAMAC, the first computer with a hard disk drive (HDD).
The HDD weighed over a ton and stored 5 MB of data.

Start appreciating your 8 GB memory stick!



1929 – The original hangar built at Germiston and the only structure on this airfield until it was expanded into Rand Airport.

