Radio ZS

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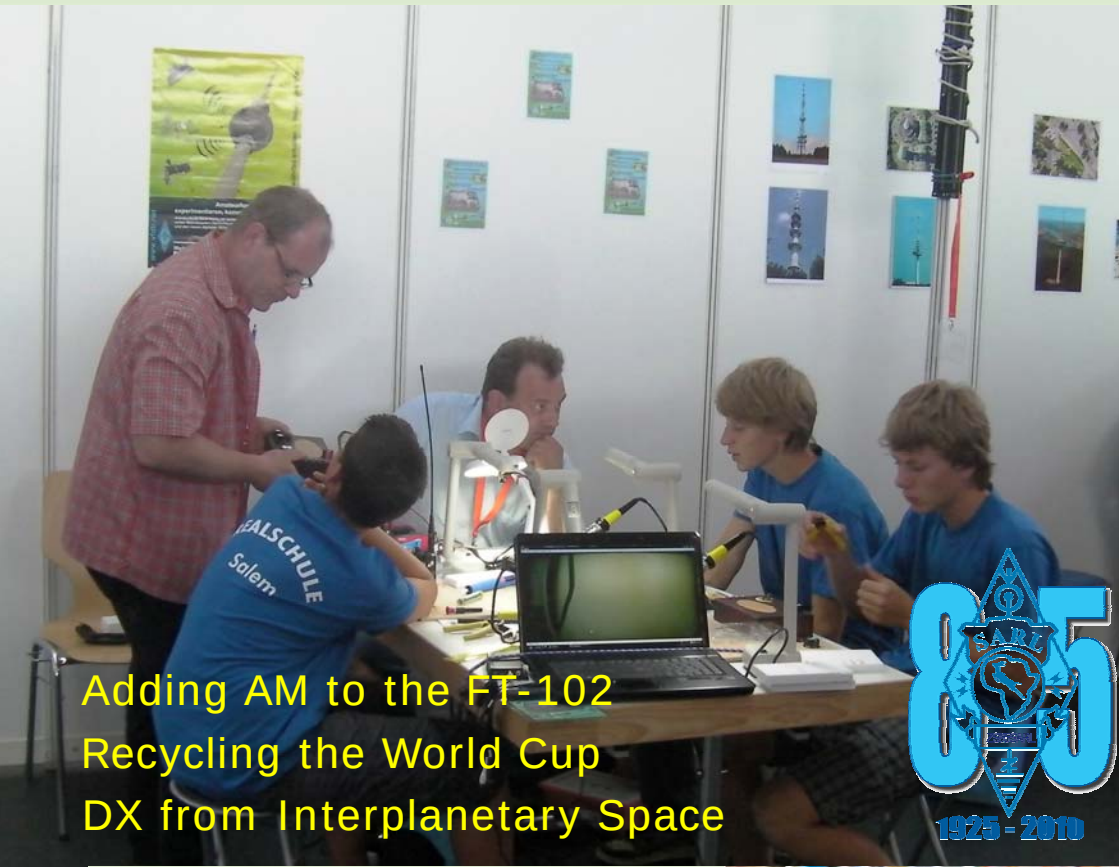

Adding AM to the FT-102

Recycling the World Cup

DX from Interplanetary Space

85
SARL
1925 - 2010

Be Surprised by the World of Amateur Radio

South African Radio League
Suid-Afrikaanse Radioliga

Founded 20 May 1925 / Gestig 20 Mei 1925
The National Body for Amateur Radio In South Africa
Die Nasionale Liggaam vir Amateurradio in Suid-Afrika
Member Society of the International Amateur Radio Union, Region 1
Ledevereniging van die Internasionale Amateurradio-unie, Streek 1

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SARL News Bulletins/ Nuusbulletins
Sundays / Sondae
08:15 CAT Afrikaans
08:30 CAT English
HF 20 m, 40 m, 80 m HF
VHF 2 m and 70 cm BHF

www.sarl.org.za/newsinbox.asp

Amateur Radio Mirror International
Sundays 10:00 CAT Sondae
16 and 40 metres AM; 7,082 MHz SSB
2 m and 70 cm FM; Echolink by ZS6FCS
http://www.sarl.org.za, click on ARMI and
follow the links

Mondays / Maandae
21:00 CAT - 3,215 MHz

South African Radio League
Suid-Afrikaanse Radioliga

Radio ZS

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Afrikaanse Taalversorging - George Honiball, ZS6NE

In this issue / In hierdie uitgawe

Front Cover / Voorblad

The future of amateur radio is with the Youth! Young people busy with kit building at the Youth stand of the German Amateur Radio Club (DARC e. V.) at Ham Radio 2010 in Friedrichshafen.

Die toekoms van amateurradio is die Jeug! Jongmense besig met boustelle by die Jeuguitstalling van die Duitse Amateurradioklub (DARC e. V.) tydens Ham Radio 2010 in Friedrichshafen.

Contributions to Radio ZS. Radio ZS is a forum for SARL members to share their amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or e-mail are especially welcome. Material may be submitted in rtf format. Material may be mailed to The Editor, Radio ZS, PO Box 12104, Brandhof, 9324 or by e-mail to radiozs@sarl.org.za. The SARL cannot be responsible for loss or damage to any material.

Get radio active or ....

Is amateur radio in South Africa a secret society? Does the average person know what amateur radio is and what radio amateurs do?

With my visit to Ham Radio 2010, in Friedrichshafen I found that Europeans know what amateur radio is. If I said amateur radio or 'funk amateur', people knew what I was talking about. I experienced a very positive attitude towards the hobby by the radio amateurs at Ham Radio.

This is not what I experience here in South Africa. The RTA attendance is one indicator. When I am asked about the antennas on my vehicle and I answer 'amateur radio', the response is "is that CB?" My colleagues at work are amazed when I speak to radio amateurs on HF in South Africa using the Yaesu FT-817 I carry around with me.

Do we advertise amateur radio? Across the country, we have many festivals, agricultural shows, country fairs, church fetes, etc. An ideal place to have a stall with an amateur radio display, showing many of the facets of our hobby, introducing amateur radio to the public and giving the public a chance to speak to somebody in a different part of our country (under supervision of a licensed radio amateur.)

Do we make use of the local newspapers to advertise our club activities? In most communities, we have free newspapers that are published weekly. Place a regular advert in the newspaper publicising your radio club meetings and outings. It may cost a few rand for the advert, but it may be a very good investment for your club.

Wat van amateur-radiokompetisies, waar gaan stel ons die radiostasie op? Daar in die veld vêr weg van die publiek. Moet ons nie die Velddag- of RaDAR-stasie daar by die plaaslike skool, die speelpark in die woonbuurt, die Voortrekker- of Padvinderterrein, ens., gaan oprig nie.

Baie klubs het 'n webwerf waar klublede inligting en die klubnuusbrief kan aflaai. Wat van die persoon wat belangstel in die stokperdjie, waar gaan hy/sy inligting kry?

Hoe adverteer ons amateurradio tydens klubvergaderings? Is die program wat aangebied word opwindend of is dit 'n uur en 'n half se gepratery oor die vorige notule, finansies, steurings op die herhaler, ens. Wat van 20 minute se besigheid en 70 minute nuwe tegnologie, praktiese antennaidees, tuisbouprojekte, ens!

Let us work together to get amateur radio out of the radio shack and into the public eye. SARL Hamnet have done an excellent job of advertising amateur radio during the 2010 Soccer World Cup. Make use of the local media to inform the people in your community. Get radio active or get out!

73, Dennis, ZS4BS

Amateur Radio – the most versatile hobby on earth

Economic Amateur Radio

Victor P du Preez, ZS6EA *

The general statement: ***"Amateur Radio – the most versatile hobby on earth"*** cannot be made if participation turns out to be so expensive that your average person cannot afford it. Fortunately, it is indeed possible to enjoy yourself without having to go bankrupt in the process. Of course, if you have access to riches, you would be able to have a ball; you could then buy the most sophisticated equipment and you could even have this professionally installed for you. Some radio amateurs do just this. But what would be the point? The bigger picture to the hobby is that you learn something in the process and that can only happen if you wield the equipment yourself. Better still, by building the equipment yourself you will learn the most - and take it from me, you will have the most fun by home brewing your own.

However, we have to be realistic. Do not expect to enter the hobby knowing nothing about the theory, science, rules and regulations of radio communication and expect to start building the most complicated stuff imaginable, it will not work. (I mean your plan and the equipment of course) A beginner should not look too far ahead; they should not worry about equipment but rather aim for doing the exams first. Nothing wrong with looking forward though, and establishing what it is going to cost you in the end. That should be done.

You will find Amateur Radio Clubs in bigger towns all over the world and within the clubs; you will find the *"Item"* that will help you with both the exams and later with the equipment without bankrupting you. I can assure you – go to a clubhouse, anywhere! This "*Item"* in the clubhouse needs you, and he needs you badly. Find that *"Item"*! You might not need the "Item" all that much yourself, but for now lets keep that a secret and you just pretend, OK. The time will come when you are hooked on radio and then the pages might turn. Enough said... There is no two ways about it, even with you finding the *"item*" you would still have to come to the party. You would have to study, but luckily studying is free and it is not difficult.

When inside the clubhouse, find the person that looks the most intelligent and talkative with many people gathered around him. Go ahead and tell him; *"I want to be a Radio Amateur, I need the "item" that can help me become a radio amateur! ... And I want to know what it is going to cost me."* You will find that this radio amateur and the gathering of radio amateurs around him will leave all they were busy with and very excitedly start telling you what should be done

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(Proudly Amateur Radio from page 5)

for you to become a radio amateur. I tell you, like magic! Congratulations on your first success, you have just found the "*item"* called a Radio Amateur. If lucky, you could find these *"Items"* outside of clubhouses, just look for a residence in your neighbourhood with a tower and antenna, now ring the bell and tell the first person meeting you the same as what is recommended for the clubhouse. Bingo! You have taken your first step in amateur radio! The cost, oh yes! The cost. Look, these radio amateurs are a strange lot! Do not tell, but most of them are real misers; however, let me conclude with a lesser-known fact about the radio amateurs in general.

When you find that you have to pay for the books, it will not be much, bear with me! The classes will cost a few bucks and the exams will cost a couple of smackers, but you will have to find out from the *"Item"* at the clubhouse how much for certain. The less known thing is that at these clubhouses you will find radio amateurs that, if they know about you and how keen you are to become a radio amateur will sponsor you. They will pay for your books, classes and exams on condition that they know you will bring your side of the bargain and not leave them disappointed. Is this not true my fellow radio amateurs? We are like that, are we not? #

* Victor P du Preez, ZS6EA. Maryanne-laan 56, Annlin X1, Pretoria, 0182. E-mail: vic@zs6ea.co.za

Adding AM to the FT-102

André Botes, ZS2ACP *

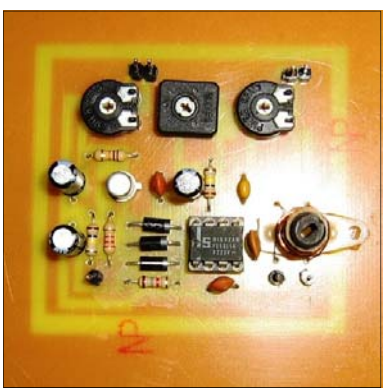
The AM/FM board was an optional extra for the FT-102 and is almost impossible to obtain these days.

The AM mode has become popular again on the AWA net, and many FT-102 owners cannot partake on the mode, as they do not have the AM board fitted.

Bill, W3DUQ, and Tom, K1JJ, came up with this simple circuit to generate the AM mode in the FT-102.

The ever-popular NE602 (or NE612) Double Balanced mixer, used by so many QRP constructors, is the heart of the design.

Gary, ZS2GA, and I have come up with a simple PC Board, which will fit into the original space provided for the Yaesu board. Many FT-102's have been modified in the US, using this design. The circuit is simple and easy to follow. The connections are as follows:



Locate the original plug nr P60 and P63:

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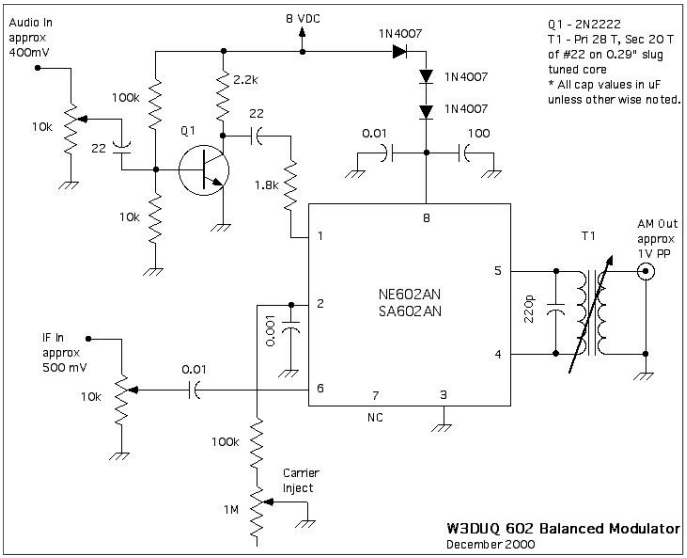
(Adding AM to the FT-102 from page 6)



Plug P60
Pin 3 - connects to "IF in" on the new board.
Pin 4 - earth.
Pin 5 - connects to "IF out" on the new board.

Plug P63
Pin 1 - to audio in on new board.
Pin 2 - earth.
Pin 3 - 8 V supply to new board.

To access the plug connections, make up short shielded cables. Solder stiff copper wire ends to these cables and insert into the female in-line connectors. Solder the other ends directly onto the new board.

Plug P60
1 * AMTX 8 V (not used)
2 * FMTX 8 V (not used)
3 * TX IF IN - to new board
4 * Earth (screen) to new board
5 * TX IF OUT - to new board
6 * Earth (screen) to new board

Plug P63
1 * Audio in - to new board
2 * Earth (screen) to new board
3 * 8 V - to new board
4 * Earth (screen)

Adjustments

Set the carrier level pot for about 150 mA plate current with the drive control (upper right).

The audio level should be set to just below flat top. This should coincide with full output on SSB, allowing switching modes without changing audio levels.

I have had good reports with 25 Watt on AM, having set the levels as above.

I hope to hear you on your modified FT-102 soon!

The PC Board for this project is available from Basie Du Plessis, ZR2BA, of Port Elizabeth. He can be contacted on 082 888 2118.

* Andre Botes, ZS2ACP, 3 Marisa Street, Kraggakamma Park, Port Elizabeth, 6070. Email zs2acp@telkomsa.net

Foot Switch for Contest Operation

Kevin McDonald, ZS6KMD *

Over the past few months, much attention has been focused on HF contesting on the SARL Forum. Several threads have been started with regard to revised rules, additional contest windows/opportunities and loads of comments about how much fun it has been for all. During a few of the contests that I took part in, it got a little busy and not being able to walk and chew bubblegum at the same time (men all over the world suffer from this), I was forced to re-think my setup.

Using VOX is an alternative that I do not really like, as it is never quiet enough in my shack as I have more than one radio running at a time.

This has led me to build myself a foot switch for operating contests to free my hands for logging contacts. Now many of you may ask why a foot switch… Have you ever tried to juggle a pen and paper log or the computer keyboard and try to find the PTT when it gets a little busy? I have, see my bubblegum theory above, and the simplicity of a foot switch has enabled me to focus on the logging without worrying about finding the PTT and microphone each time I have to answer a call.

This design is basic so please do not shoot me…

What I have done is to drill a small hole in the side of my desk microphone casing and fit a 3,5 mm mono phone jack. This I wired to the PTT control lines of the microphone.

For the foot switch itself, I took a length of shielded cable and fitted a 3,5 mm mono plug on one end and on the other end, a wooden block with a push to make/release to break switch (alarm panic switch). I made a cover for the switch using 3 mm Masonite and attached it to the switch using epoxy glue. This gives a larger surface area for the foot to press on. I drilled four small holes through the corners of the cover plate and fitted small coil springs and screws through these to create a stronger compress and release mechanism to ensure that I do not have false or accidental keying. I finally fitted some rubber feet to prevent it moving across the floor. See Figure 1.

Simple yet effective…

For those who would rather not drill or make holes in things, the alternative is to make a breakout box. A small box with a short length of microphone cable and a plug and socket wired for your microphone to which a socket for the PTT has been fitted. If anyone is interested in this option, please drop me a mail and I will provide you with some drawings and photos.

Figure 1 shows the foot switch and cable with plug and socket on the side. I am sure that many variations can be thought up, for instance using an old shoe polish tin with the switch

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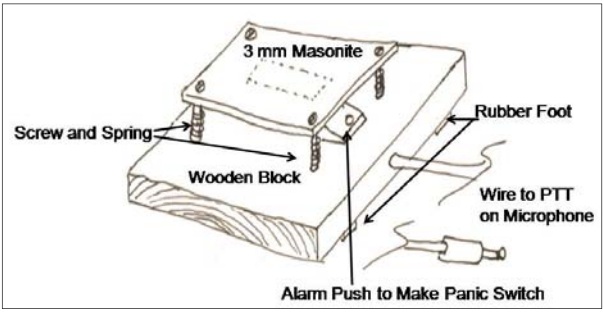
(Foot Switch for Contest Operation from page 8)

fitted inside. This would make a neat round switch with the two pieces moving over each other… Let us see what ideas you can come up with.

Go ahead, make one and try it, you will never work contests again without one. Simple hands free operation is the way to go…



* Kevin McDonald, ZS6KMD, Suite 13, Box 71664, Bryanston, 2021. Email: Kevin@zs6kmd.za.net

2010 Soccer World Cup, South Africa SARL Hamnet Involvement

Francois Botha, ZS6BUU - National Director

During October 2009, SARL HAMNET was approached by the Johannesburg Disaster Management to become part of the communications team preparing for the Soccer World Cup (SWC) as well as the Ekurhuleni Metropolitan Municipality that covers the East Rand area. One must remember that Gauteng South has three major Metropolitan Areas namely Johannesburg itself, Ekurhuleni that covers the East Rand from Bedfordview to Springs in the far east rand and Mogale Metropolitan Area that covers the West Rand.

The Johannesburg communications team comprised people from all walks of life and included at least three communications specialists to assist with the establishment of the network to cover events during the SWC.

However, prior to that, during a Disaster Management Forum meeting held in August 2009, we had guest speakers from various organisations elaborating on their involvement, approach to and planning of various scenarios that may occur before and during the SWC.

These were representatives from SA Police Services, the Civil Aviation Authority, Health Departments, Emergency Medical Services, Provincial Directors, Traffic authorities and so the list goes on. No stone leading up to the event was left unturned, inspected, discussed and replaced with a plan of action.

SARL Hamnet's final involvement began fairly late in the run up to the event – around March 2010, three months before the opening ceremony. This was due to the Joint

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Communications Committee in their planning realising that they had to plan for the eventuality of there being a total blackout of all types and forms of communication.

- All normal forms of communications are lost and our brief would then be to restore communications by utilizing amateur radio frequencies or any other appropriate frequency with SARL Hamnet members seconded to the emergency services at key points.
- A disaster occurs in an area where normal communications is non-existent and SARL Hamnet would have to set up a radio link between the incident and the controlling authority.

The Joint Communication Centre (JCC) building did have its own power supply generator should general power fail – and so did all the soccer stadiums around the country!

We were invited to attend meetings within the building allocated as the Joint Communication Centre, which in itself immediately presented some problems. The building was a classic example of a Faraday Cage with resulting communications from the control desk on the third floor on 2 metres to a repeater on the roof, another 8 floors higher, being impossible.

We then looked at running a cross band set-up by utilising 70 cm from the control room to a repeater on the roof and then out on 2 metres. This worked well as the JCC was within simplex reach of both the stadia – Ellis Park and the main arena, Soccer City – and many of the other venues due to the height of the antenna!

Our next objective was to obtain a list of all the Fan Fest Parks, Team locations (Hotels, etc.), training venues, township TV facilities, Park & Ride facilities, bus routes, Park & Walk facilities, and finally, the Road Closure list on days of games at the two venues.

Once this was done, we then drew up a list of all the volunteers in the Gauteng South Region – looking particularly at those with mobiles and 2 m facilities. The authorities at this point also invited us for a photographic session so we could be issued with EMS (Emergency Management Service) volunteer cards with our speciality embedded in the card. All the volunteers were briefed on their roles via meetings and on an individual basis prior to the start of the event!

The South African Police Service then required a complete list of all the volunteers including their types and makes of vehicles, registration numbers, name of driver, ID number, colour of the vehicle, etc. All this was done within a deadline of completion being one month prior to the opening ceremony. This was for accreditation purposes.

The Accreditation Routine was extremely strict – and so was security. Should there be an incident and a volunteer was required to do duty, that person first had to obtain a security clearance or accreditation certificate, attend to his call out and then

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must return the certificate from the issuing point after the incident is over!

We then ran into a problem regarding the equipment required for the operations room. Some new equipment, including a suitable Flight Case, had to be urgently obtained from suppliers locally and from Japan. We were also donated a good second hand working laptop as this was going to be built into the Flight case for Internet and APRS usage if required.

Although the emergency unit (kit) was ready approximately one week into the month long event, we decided in consultation with the JCC committee that we will remain on stand by and should it be necessary to install the emergency kit into the operations room, this could be accomplished in a very short period of time! We also needed permission to possibly drill holes into the wall on the roof to mount the antenna. This was ruled out and an alternative arrangement was prepared whereby the antenna was mounted on a footplate that was held down by concrete slabs to prevent the wind blowing down the mast. Fortunately, to erect this was never required – but it was in place! The committee was happy that SARL Hamnet was in place and that all the volunteers were on stand by if required.

This arrangement remained in place for the full duration of the games – locally and in other centres - as all games were displayed on Fan Park TV screens where anything could go wrong.

This takes care of Gauteng South Province.

In all the other cities/venues like Cape Town, Bloemfontein, Port Elizabeth, Durban, Rustenburg, Polokwane, Pretoria and Nelspruit, the arrangements for the volunteers were not that elaborate as in Gauteng. Each town or city had at least three people who were on standby and in communication with their local Disaster Management and SAPS members, should they be required for duty.

We know that Bloemfontein, Cape Town and Durban also had special facilities within their Disaster Management operations rooms for communication to any volunteers in their vehicles as well as being able to communicate directly with the main SARL Hamnet station in Johannesburg via HF, Echolink or Skype through the Internet.

In all, it turned out to be an excellent operation in preparing for something that may or may not happen. Gauteng South benefited by way of now having two emergency kits available and Cape Town will benefit from taking over one of the rigs for use in their operations room.

Gauteng Disaster Management with its operations room in Midrand, were never part of the Gauteng South plan but they were on stand by for the whole period of the World Cup event.

In total, for our area only, the number of amateur radio operators

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that took part – SARL Hamnet and non-Hamnet volunteers totalled around 65 people.

SARL Hamnet wishes to thank the authorities for allowing us to form part of, to be on stand-by during this whole operation and sincerely hope this will benefit closer co-operation between SARL Hamnet and local authorities in the future!

* Francois Botha, ZS6BUU, Box 555, Welobie, 1714.
E-mail: jfbotha@iburst.co.za

Recycling the World Cup

John Willescroft, ZS6EF *

I know you were looking at the car flags for the world cup, and said what a waste; it would make a super 2 m or 70 cm antenna.

Well so did I, and what is more I refuse to put a standard 2 m antenna on my nice new car! The flag holder will fit on the window and does no damage. The antenna is portable, easy to deploy, and just another antenna project that will take as much time as it takes your wife to call you for supper.

Well, I did what most of us busy people do and that is nothing until leaving a hotel in the Cape. I found on the floor in the car park next to the hire car wash, you guess it, a world cup flag. With 2 hours of torture ahead of me on the plane I got great fun writing this article, just to see how many more guys thought the same way, and how many different antennas we can produce using any of the garbage from the world cup.

This is the Flag Pole

Using the following materials, you can make the antenna but nothing is sacred so do your own thing.

- 470 mm long piece of 2,5 mm aluminium welding rod.
- One of the inside connector joiners from a chocolate block connector. Use this to join the inner of the co-ax to the welding rod.
- A piece of co-ax long enough to go from the rig to the rear side window, with extra length for the antenna outer.

First, throw the flag away and then file off the flag hooks from the flagpole. Remove the PVC outer covering from the co-ax for a little over

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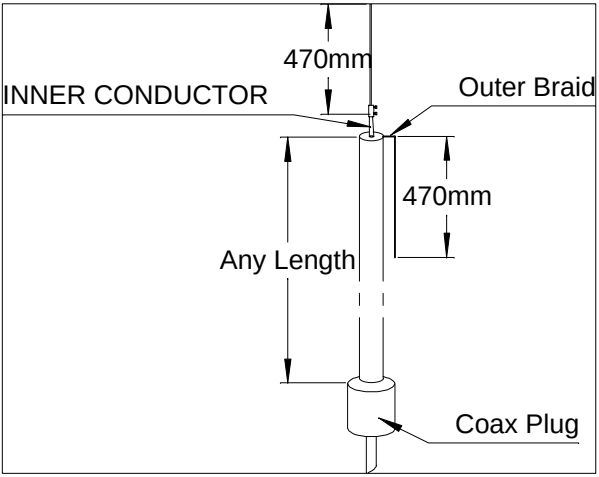
(Recycling the World Cup from page 12)



470 mm long. Push the outer braiding of the co-ax to one side without cutting it at the point were the PVC ends. Pull the inner through the outer so the outer braid becomes a pigtail 470 mm long and forms the lower end of the dipole.

Cut off the inner of the co-ax at 20 mm and skin back 10 mm to make a connection. Fasten the aluminium-welding rod, now the upper part of the dipole, into the groove they specially made for us on the flagpole. Use Insulation tape or heat shrink. Do the same to fasten the outer co-ax braid to the coax body making it neat so that FIFA will not stop you and complain!

Connect the antenna as shown in the diagram and if you must, use your SWR meter and trim for 1:1 ratio.

Mine matched on 2 m and on 70 cm without any fuss. Then do what all Radio Amateurs do and call for a report on the repeater.

* John Willescroft, ZS6EF, Box 3391, Witbeeck, 1729.
Email: iesupport@lantic.net

To QSL or NOT to QSL

Ettienne Vosloo, ZS1AX *

Reading a previous forum thread regarding QSL cards, it made me think of my experience how to QSL. We all take it for granted that everyone knows what QSL is and how it works, but do we? As a new comer to Amateur Radio, all I knew was that I wanted to talk to another person in a different country other than my own.

Yes, I have heard of a QSL card, but did not know how it actually worked. The courses we attended were technical of nature and did not go into the small details of actually operating back then. So now, I am on air and I can speak to another person in a different country.

I really enjoyed this “DX thing,” because now I can communicate to other radio amateurs worldwide. A couple of weeks after a session of DXing, I got a letter in the post. Who will send me a letter; can you still send a letter; no email?

Big was my surprise in opening this “letter.” Inside I found my first QSL card. It had my call sign on it, my name and the date that I spoke to this radio amateur, the time, frequency and mode of operation. Least to say I was very impressed. This is where the QSL bug bit me.

To think you can speak to another radio amateur anywhere in the world and they will send you a QSL card as “reference” for this call It is like getting a receipt when you pay for something; it is your proof of this “transaction.” Now I am fired up and want to know more about this QSL thing. Where do I start, what must I do so that I get more of it, etc.?

The Amateur code says we must be considerate, meaning that every QSL card that you get, you send one back, period!

Let us start - first, we need to get a call sign specific card or one that is unique to your design. What must be on this card?
Your Call sign
Your name/surname (I will get back to this one later)
CQ and ITU Zone information
The date, the frequency worked, the time (UTC), the mode and the signal report from the other station. Also, the radio and antenna used and at what power; also a comment line or a “thank you” tick box -TNX

Now that you have your template for the QSL card, off to the printers we go to get it made. For the causal operator who is not into DX, he or she can always use a normal postcard of the area and fill in the details of the QSO on it, or print your own one via PC; whatever your fancy is.

What now that I have filled in my QSL card? Take an envelope and put your return address on it if you are sending the card to the other radio amateur first. Put both your card and the self-addressed envelope in another envelope and fill out the address details of the other person.

(Continued on page 15)

(To QSL or NOT to QSL from page 14)

Normally you would put in two "Green Stamps" which in fact are two one-dollar notes for the return postage for the other radio amateur. This is the direct method and faster than the other route.

The second route is to send it via the Bureau if you are a SARL member. This will take some time to get to the other side as the Bureau only send QSL cards abroad if and when they have enough to fill the bag. Yes, you can e-mail it, but then it takes all the "Xmas" excitement out of it. So DX as much as you can, because then the bag fills up quicker!

Getting back to the name/surname comment I made earlier.

When I upgraded to my call sign ZS1AX, I always wondered who had my call sign first and who followed it. In obtaining old QSL cards, I could get the information that I was looking for. So far, it seemed that I am the third holder of this magnificent call sign and is very proud of it. I have currently in my possession QSL cards that date back to 1936.

One QSL card actually stated the old call sign system namely A6N which belonged to J.G. Swart of Zeekoe Vlei and another belonged to A.F Barwick of Plumstead in 1967.

So a QSL card is more than just a confirmation of a contact, it is actually a piece of history in the making. So go out and make some history so that in years to come your name is written down and preserved for others so they can look back and say, "That call sign *ZS1AX was a magnificent call sign*/person and did great things."


SOUTH AFRICAN RADIO RELAY LEAGUE

To RADIO W9IJW UR C.W./FONE, SIGS. W.K.D. HR 6:20 G.M.T.
QSA 3 ON 28/6/1936
R 5&7 XMTR.
T 8 Election Complied
FONE / Input 35 Watts.
RECEIVER
QSB yes Superhet.
QRN some
QRM bad
WX fine

ZS1AX

J. G. SWART,
P.O. Box 2185,
CAPE TOWN.

PSE. QSL
TKS. 73.


A.R.R.L. W.A.C.

ZS1AX

S.A.R.R.L. W.B.C.N.

OLD-A6N

QTH.
P.O. Box 3037,
CAPE TOWN.

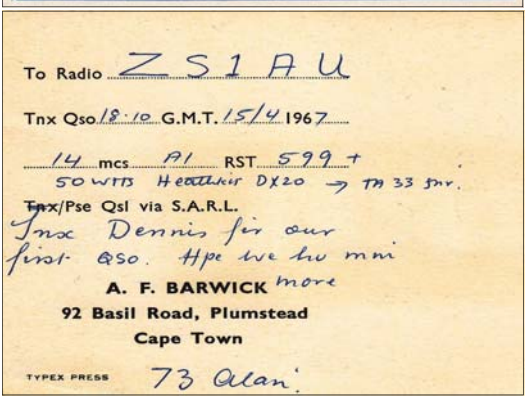
TO RADIO W6DZE
YOUR C.W./FONE WRKD: HR
ON 8/7/1947
AT 16.30 G.M.T.
Q.S.A. 5 S. 7 T. —

BAND 14 MES.
T/X. V.F.O.-100 W.
R/X. A.R.88.
ANT. BEAM.

QRA.
"WATERSIDE,"
ZEEKOE VLEI,
GRASSY PARK, C.P.
SOUTH AFRICA.

PSE QSL ES 73.

Guy
J. G. SWART.


To Radio ZS1AU

Tnx Qso 18:10 G.M.T. 15/4 1967

14 mcs A1 RST 599+
50 WTS Heathkit DX20 → TH 33 Snr.

Tnx/Pse Qsl via S.A.R.L.

Tnx Dennis for our first QSO. Hpe we hv more

A. F. BARWICK
92 Basil Road, Plumstead
Cape Town

TYPEX PRESS

73 Alan.

* Ettienne Vosloo, ZS1AX, 11 Piet My Vrou Street, Kuils River, 7580. E-mail: zs1ax@biancorp.com

Amateur Radio in Space [ARiS]

Eddie Leighton, ZS6BNE *
2010 NSN Radio Amateur of the Year

The AO-7 Satellite – A new world record! It has been a while since the distance limit has been broken via AO-7's Mode B Transponder. The new record was established on 15 July 2010 at 22:26 UTC between Luciano, PY5LF, and Joe, K3ZSH, via AO-7. The new distance record is now 7 843 km! That distance is just about the theoretical maximum distance that can be worked via AO-7 in its present, surprisingly ever stable, altitude.

Luciano posted a video on You Tube summarizing the contact. The URL is http://www.youtube.com/watch?v=GtQCevdgkLc. In this video, Luciano shows the equipment he used for the contact. Luciano has been the centre of many exciting satellite DX contacts among South African radio amateurs. His videos show the possibilities available to most radio amateurs working the satellites.

Look out for the Indian stations on AO-7! Congratulations to Pierre, ZS6BB, and Kanti, VU2GSM, for their two-way QSO via AO-7 during July 2010. It has been a long time in trying to work an Indian station on a LEO Sat!

SA AMSAT Committee

A new SA AMSAT Committee was elected in June 2010. Dave Long, ZS5FR is the President with Eddie Leighton, ZS6BNE as the Vice President. Hans van de Groenendaal, ZS6AKV is the Secretary/Treasurer, while John Williscroft, ZS6EF is the Technology Manager. The SAARDT Representative is Craig Gibson, ZS6CG, and the committee members are Laurie Devereux, ZS5DL, Dave Smith, ZS5LPT, and Allan Saul, ZS1LS.

Regional Organisers – Eddie, ZS6BNE will look after ZS3, ZS4 and ZS6, while Dave, ZS5LPT, will look after ZS5 and Allan, ZS1LS looks after ZS1 and ZS2. The 2010 SA AMSAT Committee regional organisers have been given the task of attracting newcomers to the satellite scene.

The official SA AMSAT website can be accessed at http://www.amsatsa.org.za/. Dave, ZS5LPT, has offered to assist Hans, ZS6AKV, in updating and maintaining the website that hosts all the latest information. SA AMSAT was also started as a group on Facebook and can be accessed on http://www.facebook.com/home.php?#!/group.php?gid=115012688514806. Please feel free to join the group and post your comments there. To date, we have 82 members in the group.

Where are the Satellite operators?

(Continued on page 17)

(Amateur Radio in Space from page 16)

My laptop was recently damaged and I donated my excellent shack PC to my XYL, which left me with no PC control of antenna rotator systems and rig control for Doppler. The point is, it has put me in a position to understand, possibly, why the satellite community is not expanding at the rate SA AMSAT would like to see!

What are the most basic elements needed to be successful in satellite communications? Firstly, it is a will to make a success of satellite communications. It does require perseverance on the part of the radio amateur, to accept occasional failure and to come back again another day, stronger and more knowledgeable. So then, what is needed otherwise?

Secondly, a computer! Ideally, the computer should be able to access the Internet. Thirdly, on-line predictions can be accessed on the Net or dedicated satellite prediction software loaded onto the computer can be used. These can be SatPC32, HRD, Orbitron or any of the other available systems of your preference. Note, an Internet connection is required to get updated Keplerian elements off the Internet. This is, in most cases, automatically done in the background. The computer should ideally have at least four COM ports (quite rare nowadays) or at least good USB to Serial adapters. One or two ports will be used to control a relatively modern transceiver or two for Doppler and the third for possible rotator controller communications. The fourth port could be used to control a rig's PTT via a sound card interface. Some rigs could use VOX or CAT commands saving on one COM port.

Radio requirements are up to the amateur radio operator's preference. Rigs like the Yaesu FT-847 are quite scarce; Icom 910's are ideal satellite radios specifically built for the purpose. Both these rigs offer ideal satellite communications facilities and are "Full Duplex." These rigs are more for the SSB satellites. Of course, it is ideal to build a satellite station that can do SSB communications effectively. A full duplex rig, together with a reasonably good computer can certainly be a very effective tool in the modern shack.

Then there is the question of antennas. The video clip mentioned above from Luciano, PY5LF, will give a good idea of the ultimate antenna system together with the pre-amps. All these are certainly nice to have but not an absolute prerequisite. Working the FM satellites or even SSB satellites with minimum equipment and antennas have been discussed extensively in previous publications of Radio ZS.

CU on the Sats!

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Email: zs6bne@nwinternet.za.org

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An unusual voyage into the world of CW [Part 2]

Vidi La Grange, ZS1EL *

Back in South Africa, my priorities had to change due to academic pressures, especially after missing a year at school. However, my enthusiasm about learning Morse code helped me keep up listening to the perforated paper tapes and practice sending code using the J-37 surplus key. Unfortunately, I lost contact with Johan, ZS6AIC, because we relocated to the Western Cape where my dad took up a position as professor at the University of Stellenbosch.

Soon after my 18th birthday, the minimum required age for an amateur radio license; I made an appointment with the Postmaster of our new hometown. On the big day, I cycled to the Post Office and arrived there, a near nervous wreck, carrying a basket containing the battery operated oscillator and key imported from the USA nogal. I reported at a counter and was shown into the postmaster‘s office.

It was a large, impressive room with heavy wooden furniture, lots of books on shelves behind glass doors and an enormous desk. Behind the desk sat a heavy built, cross-looking elderly man, wearing a suit and tie. He was busy seriously paging through some paper work. This was worse than any exam I have ever written at school, I thought. While hardly breathing due to nervousness, I patiently waited for the gentleman to finish with what he was doing. His secretary pulled a chair up for me to sit directly opposite him. After what seemed a very long time, he looked up, gave me half a smile and introduced himself as Mr Oosthuizen. He asked my name and wanted to know the purpose of the appointment.

He must have realized that he was dealing with a completely stressed out code candidate who would get nowhere in the state he was in. He started a friendly conversation and asked about where I was born and how I became interested in amateur radio. I managed to settle down a bit and started fumbling around with sweaty hands to set up the oscillator and key on my side of the desk. Mr Oosthuizen opened a thick book and paged around for a suitable paragraph for the test. He pointed at a paragraph, slowly slid the book towards me and asked me to start sending. At this time, he turned his head towards a window in an obvious serious listening mode. Wow, I thought with a sigh of relief, sending was the easiest part and I was happy to do that for starters rather than battling to read code in a style different to the sound of the paper tapes I had memorized by now. I took a deep breath and started sending, carefully concentrating on letter

(Continued on page 21)

(An unusual voyage from page 20)
and word spacing as Johan had taught me. A fumble here and there did not seem to upset Mr Oosthuizen too much and after sending only a few sentences I was interrupted by: “Stop maar boet, ek sien jy ken die storie” (You can stop kiddo, I see you know your stuff) Instead of him taking over the key to test my reading ability, he started filling in a form and said that I had passed!

I could not believe this and with a completely puzzled, blank look on my face, he said something to the effect that he did not have to go through all the formalities because he recognized a successful candidate after just listening to the first few words. I felt relieved and rather flattered but on the other hand disappointed that he did not put me through the whole drill, for which I had been preparing for so long.

A few weeks later, I received my first license with the call sign ZS1AL assigned to me. By this time, I had two plug in crystals in the CW part of the 40 m band for the Eldico. I was a full time student at the University of Stellenbosch by then doing a bachelors degree in physics and applied mathematics. I had great pleasure in building the Eldico in my spare time. My soldering was not wonderful, but good enough for the transmitter to pass its first test on the air! For a receiver I had a very junky Hallicrafters SX-43, which my dad found, by coincidence, at a used furniture store of all places. My antenna was a Windom fed with a single wire feed line. It was supported by a crooked bamboo pole of about 7 m at one end and a telephone distribution pole in the far corner of our small city lot.

The 12 months of code slipped past with many QSOs in the log. Although 'phone' was now permitted, CW remained my favourite form of communication. One of the main reasons was that it was so thrilling to work DX with my down to earth (near to earth) Windom antenna. During the first year of operating, I was surprised how my code skills picked up without really noticing it and that I could even follow a conversation without taking notes.

The first real friend I made on the air was Mac McKesson, W5KF, of Albuquerque NM where he held a technical position at the Sandia military base. In his younger days, like in the early 1950s, he used to be a telegrapher on board one of the thousands of cargo ships operating on the great lakes of the USA. He used a Vibroplex mechanical bug and had what was known as a Great Lakes Swing, with the first dah, typically of C, Y, W, etc., stretched out extra long. I still miss those musical, rhythmic fists, which disappeared from the bands since electronic keyers became the norm. Mac and I met regularly and we started early morning CW skeds on 20 metres before I had to cycle to the university for lectures. This continued for more than a year during which time I often received small gift parcels containing a variety of used components. These helped me build up my early

(Continued on page 22)

(An unusual voyage from page 21)
junk box of electronic odds and ends. He also sent me circuit diagrams with written instructions to help me build my first electronic keyer, using a pair of triode vacuum tubes and an open frame relay.

It was unusual for Mac not to show up for sked a few days in a row. While waiting for his reply to my many calls one morning, my mother came to the shack and handed me a telegram form Mac's wife. Shock and disbelief filled me when I read that Mac had passed away due to a heart attack a few days earlier.

It took me a very long time to put the loss of a friend, who I never met in person behind me and get back on the air to make new friends. However, it did eventually happen and I can look back at years of enjoying amateur radio, making many friends all over the world.

After obtaining a bachelors degree in physics at the University of Stellenbosch, I applied for my first job at the Johannesburg satellite tracking facility, which was run by the South African Council for Scientific and Industrial Research (CSIR) in a contract with NASA. My call sign then changed to ZS6AL. This era was in the early days of space research and South Africa played an important role, being the first continent a satellite would cross after being launched from Cape Canaveral, Florida. I enjoyed those interesting and inspiring years during which I met many American radio amateurs who were involved in space research at the time. The first who comes to mind is Hugh Turnbull, W3ABC, with whom I had skeds on CW over many years until ill health made him retire from amteur radio and settle in a frail care centre. The more automated and sophisticated space technology became, the more long-term career potential dwindled at the CSIR. In 1972, I accepted a position with the South African Iron and Steel Corporation, which, for financial reasons, was a move, I had to move away from electronics. After a long and successful career, I retired in 1994 after holding a position Manager Tin Plate Technology for a number of years.

I met Hester Ann, N4MPQ, of Hendersonville, NC on 20 m CW shortly after I retired. It was a hot summer evening in South Africa and a cold winter's morning in Hendersonville. Regardless of weather conditions, a warm friendship started from the moment I answered that CQ call on 14,014 MHz. At the time we met, I had already made plans to travel to Canada and the USA and spend time with a few special radio friends I made over the years. The week in Halifax visiting Don Watters, VE1BN, was unforgettable. This was followed by a week with Jim Talens and Nina in Arlington, VA, from where I made daily excursions to the Smithsonian Institute. Needless to say, a stop over in Hendersonville on the way home had to be fitted in. That turned out to be the highlight of the trip when Hester and I discovered that there was more in store for us than just being friends.

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(An unusual voyage from page 22)

In September 1996, the most important and exciting journey, this time not leading to code but as a result of code, was when Hester flew to South Africa with a one-way ticket. This took some explaining at the port of entry. Imagine a person holding an American passport coming to Africa and not having a ticket to go back!

We are both retired and enjoy life in Somerset West. From our house, we have a view of the Atlantic Ocean, the vast water mass that separated us for the few years after our first QSO. I still enjoy amateur radio, contesting and chasing DX while Hester started other interesting hobbies like painting and doing lots of reading.

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DX from Interplanetary Space

Mike Bosch, ZS2FM *

The new frontier for amateur radio lies in the microwave spectrum, digital modes and space

The Birth of Amateur Radio

Guglielmo Marconi developed and promoted Radio Telegraphy and became the first Radio Amateur in the world. When Marconi spanned the Atlantic Ocean by radio on 12 December 1901, using a wavelength of 1 000 metres (300 kHz), many electrical enthusiasts were inspired worldwide. They constructed their own spark transmitters and coherer receivers, communicated via Morse code, then advanced to the more sensitive crystal detector receiving sets. During the years that followed Radio Amateurs became great experimenters, pioneers and researchers. Radio amateurs were willing to try things that more learned people would have said to be impossible. They contributed a great deal to the advancement of radio science, and were later rewarded for their efforts with the allocation of dedicated amateur bands during the Washington Radio Telegraph Convention of 1927.

Marconi as well as the early Radio Amateurs began their experiments on Long Waves. When AM broadcasting started in 1920 on LF and MF, the authorities forced amateurs on to the “useless” wavelengths below 200 metres. With the aid of the new CW (continuous wave) mode, they transmitted Morse code signals across the Atlantic at night on 160 metres via the F-layer. For many years, Radio Amateurs only used Morse code (CW) to communicate until they reluctantly accepted the new AM phone mode. They also explored the shortwaves and discovered daylight DX on 20 metres that was propagated by the F2-layer on the HF bands. In time, Radio Amateurs researched VHF, UHF and finally ended up on Microwaves reaching a frequency of 411 GHz (0,7 mm).

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Now they are also experimenting with infra red on 370 THz and red and blue light communications on frequencies of 474 THz and 678 THz respectively, as well as 1 074 THz in the ultra violet spectrum.

The Dawn of the Space Age

Fifty-three years ago, the space age was born when the Russians launched the first artificial Earth satellite, Sputnik 1, on 4 October 1957. Sputnik transmitted beacon signals on 20 and 40 MHz that were received worldwide and lasted for about three weeks before the batteries ran flat. The number of beeps per minute indicated the temperature in the spacecraft. Reception reports of Sputnik from amateurs were rewarded with a special QSL card from Moscow. Sputnik 2, with Laika the dog on board, was soon followed by military satellites as well as the first commercial satellite Telstar.

The first Orbiting Satellite Carrying Amateur Radio, OSCAR 1, was launched by AMSAT in December 1961 and transmitted HI in Morse code. Since then 111 amateur satellites have been launched by 23 countries and currently a number of them are still active including the 36 year-old OSCAR 7. During this time many more military and commercial satellites were placed in orbit, such as analogue TV satellites on the 4 GHz C-band followed by DSTV on the 11 GHz Ku-band.

Experimental Amateur Radio Can Be Revived

It appears that experimental Amateur Radio has degenerated merely into a chat show. Why? The Digital revolution affected Amateur Radio in many ways. The advent of mainframe computers ultimately led to the development of microprocessors and home PC's. Eventually we ended up with Cell phones, World Space Satellite Radio, the Internet, ADSL, Blue Tooth, Wimax, Broadband, 3G, Ipods, WiFi, GPS, Google Earth and so forth. Then Digital Data modes also appeared in the radio amateur world such as Packet Radio, PSK31, APRS, etc. During the 21st century, we saw the introduction of Weak Signal Digital Data modes such as FSK441 up to the JT65 series for Radio Amateur communications.

Currently millions of people, including children, are equipped worldwide with miniature handheld transceivers and can talk to each other via digital repeaters – it is the smart cell phone era! The question is can Amateur Radio offer them something as fascinating as what they are now experiencing in this computer age? The answer is a definite yes, a challenging and exciting world of VHF and UHF awaits them; they only have to make an effort to get started, discover it for themselves and learn more about its many fields. If their interests are in the computer field, then many digital radio communication modes available could appeal to them too. There is also a vast almost unexplored microwave spectrum out

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there including the final frontier SPACE! Radio Amateurs should once again become leaders and not followers!

Our Satellite, the Moon

Fortunately, just behind the horizon lies a new golden age of Amateur Radio! It may happen within the next decade so stop being negative it is coming!

In 1972, Apollo 17 was the last of six manned Moon landings by NASA on the Sea of Serenity, a barren and airless world. Currently several countries including NASA are planning the construction of permanent Moon bases at one of the lunar poles sometime around the year 2020. It will open the way for lunar settlers and a vast field of scientific research. Some of these settlers could be Radio Amateurs and they would certainly like to talk to us Earthlings in their spare time.

The US Signal Corps bounced radio signals off the moon on 111,5 MHz as early as 1946. In 1953, Ross Bateman, W4AO, and Bill Smith, W3GKP, were the first Radio Amateurs to pioneer moon bounce (EME) on 144 MHz when they transmitted and received a series of pulses from the moon on 144 MHz. However, the first two-way EME contact was only recorded in 1960 between W1BU and W6HB on 1 296 MHz.

When we study the Earth/Moon/Earth path, it becomes clear how little energy is actually reflected back to the Earth during an EME transmission. It is estimated that about 17% of a radio signal is reflected from the surface of the moon but scattered in all directions and very little actually reaches the Earth. Although EME is a very high tech and challenging system, the high path loss makes it very wasteful of power and a very inefficient communication system.

EME signals reflected from the Moon are very weak and CW was the preferred mode of communication. Digital modes made it considerably easier to operate EME and with less ERP even on 50 MHz. However, this whole picture would change completely when you transmit directly from the Moon to Earth. Radio signals from the Moon would be a great deal stronger, therefore efficient amateur equipment on VHF or UHF, using high gain Yagi arrays that could track the Moon, should provide good voice contacts on SSB and maybe even FM. So do not throw away your 2 metre analogue equipment yet, it could still provide many of you with almost 400 000 km lunar DX phone contacts!

Future Bases On the Moon

You may ask of what value is a Moon base? Moon bases would permit the scientific exploration of the lunar surface, the mining of rare minerals as well as ice (the water supply) from polar craters where the Sun never shines. The establishment of laboratories would enable important research to be conducted in a natural vacuum and low gravity environment. Large optical telescopes could be

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built where celestial images will not be blurred by an atmosphere, as well as the construction of large radio telescopes, such as the SKA type on the far side of the Moon, which will be shielded from radio pollution emitted from mother Earth.

However, how can they communicate with each other on the surface of the Moon when there is no atmosphere or ionosphere present? Therefore, the lack of air cannot produce Tropo or Meteor Scatter, and because of the absence of an ionosphere, Sporadic-E, Ionospheric Scatter or F2 propagation, etc., cannot exist; only Line of Sight (LOS) propagation is possible. If you should become trapped in a crater on the moon, with a portable two-way radio transceiver, then you would be lost! Local communication could be provided via satellites orbiting the Moon or powerful Earth-based repeater stations. Later this century there might be a number of international settlements on the Moon sponsored by NASA, the European Space Agency as well as countries such as China, India and Japan. The lunar surface could become a hive of activity, but underground pressurized living quarters would protect the lunar settlers from extreme temperatures, meteorites, meteor showers and radiation from solar flares, etc.

Currently the low-noise Yagi Loop-Fed-Array is one of the most efficient beam antennas up to about a 900 MHz, but above this frequency, it becomes the domain of the parabolic dish antenna. AMSAT or some other group might erect a number of repeaters on the Moon, operating on VHF, UHF and/or Microwaves, which could permit us Earthlings to talk to each other for 12 hours daily and would cover the whole world between moonrise and moonset. However, future broadband microwave Digital repeaters could open up a more efficient form of world-wide communication and cover thousands of channels. It would encourage long distance QSOs between Earth amateur stations on Digital Data and Voice modes as well as high definition Fast Scan Digital TV transmissions. Earth/Moon communication could inspire experimental work on microwaves and a learning curve for deeper space communications in the future.

Planet Mars

Mars is the fourth planet from the Sun and about the diameter of the Moon. Maybe within the next twenty years or so the exploration of planet Mars could also begin. More sophisticated and high power microwave equipment, using klystron, travelling wave tube or solid state RF power amplifiers, would be required operating on a frequency around 10 GHz (3 cm) in the X-band. An efficient 6 metre microwave parabolic dish with a gain around 60 dBi and a very low noise receiver on this frequency might just do the trick; but advanced Digital modes would be a prerequisite. At closest approach to the Earth, i.e. 56 million kilometres, Mars has an apparent diameter of only 26 arc seconds and it will call for a very nar-

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row beam and accurate tracking of the dish.

When we start transmitting deeper into space then we are confronted with a new set of problems. The Galactic noise emitted by the stars in our galaxy, the Milky Way, including the water vapour and oxygen noise that is created in our atmosphere, will increase the sky temperature and attenuate space communications from Earth. A minimum galactic noise level is experienced between 1 and 10 GHz but the water vapour noise rises rapidly above the latter frequency and peaks around 22 GHz. NASA is already using frequencies in the Ka-Band (20 – 40 GHz) to increase their data rate during space transmissions.

Also inside this fairly quiet low noise spectrum is the hydrogen emission line on a frequency of 1 420 405 751 MHz (21 106 114 cm) and radio transmissions are forbidden on or near this frequency. This is where SETI originally listened for alien radio signals, and that part of the microwave spectrum is often referred to as the waterhole. Fortunately, the water vapour and oxygen noise would not be a problem on the Moon.

A Settlement on Mars

NASA is planning to launch the Mars Telekom Orbiter sometime in the future. Its main purpose is to test the first interplanetary laser link which will transmit Digital Data ten times faster than an RF link, but it has the disadvantage of not penetrating clouds. On the RF side, the spacecraft will be equipped with a three metre dish and a 35 Watt TWT microwave transmitter operating in the X-band. Also on the drawing board is the German AMSAT-DL Phase 5-A satellite that will orbit the planet Mars. Amateurs who are well equipped to operate on 10 GHz (3 cm) will be able to track the satellite and monitor the beacon and telemetry signals on Digital modes. Recently AMSAT-DL acquired a disused radio telescope at Bochum, refurbished it, wrote the software and successfully bounced the first amateur radio signals off the planet Venus on a frequency of 2,45 GHz (13 cm). President Obama of the USA recently outlined the new Mars mission, he says it should be possible to send astronauts to orbit the planet Mars by the mid 2030's and return them safely to Earth.

When the Martian base is established then amateur signals might be able to share the larger NASA dish on the planet by attaching the amateur feed horn on to their feed horn cluster. If the ARRL could also acquire a disused radio telescope in the USA then radio amateurs, who are not equipped with high gain microwave dishes, could link up with it via geo-stationary satellites or the Internet and make low cost digital contacts with planet Mars. Currently the 34 metre Goldstone radio telescope, which was replaced by newer antennas in the Mojave Desert, is being used by students to learn more about radio astronomy.

During its closest approach to Earth, radio and light signals could

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reach Mars under 4 minutes and a complete over may take less than 8 minutes, enough time for a coffee break; at its greatest distance the round trip would take about 40 minutes. By the turn of this century, space exploration should be well on its way in the Solar System and visits to the satellites of the bigger planets, like Jupiter and Saturn or beyond, could be envisaged. Of course, Amateur Radio will follow! Space DX expeditions could become possible in the distant future to most of the solar planets and maybe even the Asteroids.

A new golden age of Amateur Radio is just around the corner, where an exciting, fascinating and thrilling future world of VHF, UHF, SHF and EHF awaits the younger Radio Amateurs of today. So accept the challenge and start now, get involved in experiments on VHF and above, it is the high-tech side of Amateur Radio. Try to improve your equipment and build bigger and more efficient Yagi antenna arrays for better results.

Prepare now for the future - GO FOR IT!

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Ham Radio 2010 Friedrichshafen, Germany

At the end of June 2010, I had the opportunity to attend Ham Radio 2010 in Friedrichshafen on Lake Constance in southern Germany. WOW, what a fantastic amateur radio experience! The main reason for my visit was to present the SARL's plans for the 22nd tri-annual IARU Region 1 General Conference to be held at Sun City in August 2011, to the international meeting held on Friday afternoon 25 June 2010.

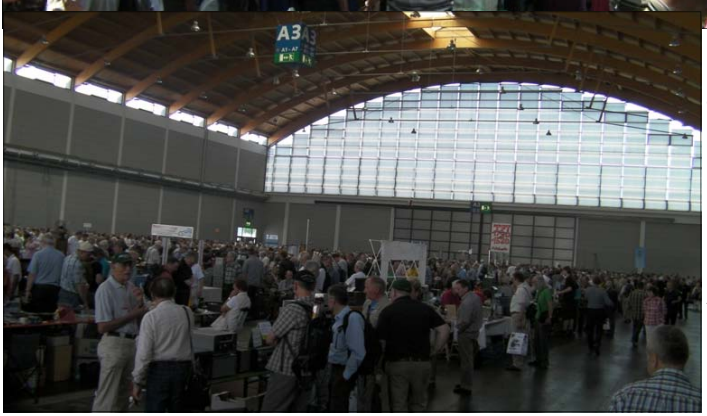
I met and saw radio amateurs from about every European country at Ham Radio. There is a very positive amateur radio vibe in Europe.

For the 35th time, HAM RADIO opened its doors in Friedrichshafen, from 25 to 27 June 2010. It is held at the Messe Friedrichshafen, opposite the Zeppelin Museum. For almost four decades, this has been the European meeting place for some 170 exhibitors from 30 countries and most recently 17 400 visitors from all over the world.

The German Amateur Radio Club (DARC e. V.) also meets during Ham Radio and it is called the Lake Constance meeting. 2010 saw the 61st Lake Constance meeting. The DARC are celebrating their 60th anniversary this year.

The layout of Ham Radio - Rothaus Hall A1 is the displays of the member societies and HAMtronics (all the dealers of new equipment);

(Continued on page 30)



Top and middle: Rothaus Hall A1, member societies and dealers.

Left: Rothaus Hall A3, Flea market

(Ham Radio 2010 from page 28)

Rothaus Hall A3 and A4 is the flea market. Rothaus Hall A2 is divided into lecture rooms. The 61st DARC Lake Constance meeting was held in the Conference Centre.

Then there was Ham Rallye, numerous stations in the Rothaus Hall A1 for children and young people. Also a Ham Camp, a comprehensive hands-on programme which is complemented by interesting special exhibitions on the topic of amateur radio.

On Friday there was training for teachers in co-operation with DARC and the Amateur Radio and Telecommunication in Schools (AATiS) Working group. There was also various workshops held at the Projects stand in the Rothaus Hall A1, one such was "PCB production using milling technology."

Over the three days, various lectures were presented in English and German on subjects covering antennas, D-Star, VHF/UHF/SHF operation, ARDF, Emergency communications, etc.

There were two restaurants and a beer garden to provide refreshments to the many visitors.

One of the lecture areas

Was it worthwhile? YES, YES and YES again. I would encourage everybody to make an effort to attent Ham Radio at Friedrichshafen. It is a mind blowing experience!

Radio Scouting

Dave Gemmell, ZS6AAW

CQ Hou Koers and Jamboree-on-the-Air - 15, 16 and 17 October 2010

Amateur Radio Activities and Contests during CQ Hou Koers and JOTA

When you read this and realise that your club has organised a contest/activity or another special event, please do not cancel it or change your plans. If possible, please include the Scouts, Guides and Voor-

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(Radio Scouting from page 30)
trekkers in your plans if you have any in the vicinity at the time.

I do not think that there are going to be so many CHK or JOTA or contest stations on the air that any serious QRM problems will be caused. The European situation is a little different. The Deutsche Amateur Radio Club runs the Worked All Germany contest on the same weekend. Western Europe does have a lot more JOTA stations.

One favour I do ask the contester is, please, have a word with the Guides, Scouts and/or Voortrekkers about what you are doing. Please do not be abrupt and change frequency.

Whilst On The Subject Of Extra Stations…

Once again I appeal to you former Scout/Guide/Voortrekker radio amateurs that if you cannot help the young people run their CHK and/or JOTA station, run your own. This "plea" even includes those who were "in uniform" 50 years ago. No JOTA station need be on the air the whole weekend, which extends from 00:01 Saturday 16 October to 23:59 on Sunday 17 October 2010. If you want to, by all means, do so.

One of the ideas for such a casual station would be to invite you radio amateur friends over for a braai on the Saturday afternoon. While sitting around the fire have your station on and some other radio amateur buddy using it (ex-Scout/Guide/Voortrekker hopefully). There are other "combinations." This set-up can also be used to demonstrate your favourite mode of operation.

Why Mention Monitoring in the Radio Scouting Column?

Monitoring is another name for Short Wave Listening. An essential start to any amateur radio career. Most of the radio amateurs I know started as short wave listeners (SWL).

Be progressive! Obviously the young learner will have to practice and regularly. Then again, he should at some stage use other receivers as well.

SWL is also good for the average ham. How many of us can tell the difference between QRM and QRN? It can be quite interesting and entertaining to try to identify not only the type of interference but also the source and its position. What type of signal is it? Is it an AM broadcast station, SSB radio amateur, electric fence, welding machine, etc.

Can YOU tell the difference between the QRM caused by emissions from a security fence, neon sign or Power Line Communications (PLC or PLT)?

If you read up on the Scout training methods, encouraging the young in the correct use of deduction, is mentioned quite a few times. Would it be a bad idea if we Old Timers did the same!

In any case short wave listening would be a good activity for the CHK / JOTA weekend (15 to 17 October) and its one which the young people can continue to follow at home. Having a suitably positioned table with two or three different receivers available

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for the Voortrekkers or Scouts to use would be quite a draw card!

Remember, there are simple circuits available, which enable you to connect several receivers to the same antenna! If you do have a transmitter which is nearby make sure your receive antenna runs at right angles to the transmit antenna.

Connecting the antenna and earth to the receiver can be quite an adventure for a young Wolf Cub. Even erecting a simple long wire as well.

I remember a "funny" story from the '60s when one of the first OSCAR satellites was launched. The ARRL had asked the American radio amateurs to keep track of it and send in tape recordings of the signals heard. Well, keeping the story short one radio amateur sent in recordings of WWV. What is WWV? Any one remember WWV or even ZUO? (WWV = See the answer at the end of this column)

What about voice procedure?

Voice procedure is also important when using the landline telephone or even the cell phone! Do not forget to emphasize the 5 second break between overs. There are many radio amateur on regular nets, who forget to do so! It is even necessary to use it when using SKYPE! That over break even includes not making a noise or clattering when the distant end is saying something.

Please use the correct phonetic alphabet. If the static is heavy and you can hardly hear the other chap, sometimes W = Washington cannot be heard but the word "Whiskey" would get through much clearer!

So there you are! Those are just a few ways youngster can be kept busy and interested!

Important Web Sites for JOTA/JOTI

The following web addresses are included

www.jota.sub.cc JOTA only website
www.jotajoti.org and www.joti.org same website but for JOTI only.
www.scout.org WOSM website for general Scouting information

WWV = You should have recognised this immediately, it is the time signal transmitted from Colorado, USA

The Museum Piece

Dave Gemmell, ZS6AAW,
and the Old Timers

Many Thanks!

Many thanks to Hein Dreyer, ZS6JJ, for some odds-and-ends he donated to the Wireless Room at ZS6MUS. One prize was a handbook, at the back section of which, showed the connections for the C11 transmitter and the R210 receiver to the various junction boxes of the system. I actually "found" this page by pure chance. One does not expect to

(Continued on page 33)

(The Museum Piece from page 32)
find an important piece of information on the back page. Just goes to prove that if you wait long enough the information you want finally gets to you. Mind you! Most of us keep looking at the centre fold! Old habits die hard!

The Future of Amateur Radio is With the Youth

Recently I have seen a number of club photographs in magazines proving that we need more "young blood." Just about every radio amateur in the photo must have been at least 60!

As we are reminded by what was said at the SARL Awards banquet - the future of amateur radio is with the youth and we need to adapt if we want to attract them. Hans, PB2T, said that the expectations of the youth are very different from those that moved the current generation to become radio amateurs.

So what is the average radio amateur to do if the youth are to be attracted? More provision must be given to meaningful activity. The way to go would be to list as many radio related experiments which can be carried out using simple equipment. It is not much use showing the student an activity, which requires fairly sophisticated equipment, which he/she cannot duplicate at home or in the school laboratory.

Then, on top of that, help must be given to the youngsters to prove to the parents that the radio experiments they are performing will actually help with their schoolwork!

The Good Old Fashioned Crystal Set

Now here is a good item for a school project, which is also suitable for Jamboree-on-the-Air. During the 27th JOTA in 1984, Cubs had to build crystal sets. Most successful, they could even receive the signals sent by Dave, ZS6AZP. The "antenna" used was the downpipe of the gutter system. Although tuned for 00 – 1600 kHz, I suppose it beats my kitchen window frame antenna, used for monitoring 3 615 kHz on Saturday mornings!

Next time your club organises a public event station in the local Mall or what have you, think of displaying a couple of homebrew items including a working crystal set. You will be surprised at which will be the most popular. Try it and prove me wrong!

Has any reader had any success with crystal sets, tuned to 160 metres, 1,850 MHz or in the region of 2 to 5 MHz? Please let us know.

Interested students and radio amateurs wanting more information about crystal sets should have a look at www.midnightscience.com. The web site also gives quite a list of

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broadcast stations in the USA.

Medicinal Properties of Morse

Included here because there is no cure like an old cure! Yup! It keeps on cropping up but you have to admit it does have a certain charm about it!

I have read a story in the QST magazine about an old ship radio operator who had a stroke and lost the ability to write or speak. Fortunately, his doctor was a radio amateur and they managed to communicate in Morse code. The Old Chap was first able to attract the doctor's attention by tapping messages using a spoon against the bedside locker.

With this in mind, I have often wondered whether the process of receiving Morse can improve the short term memory. My doctor recently muttered something about mine to me, so I decided to try. Whether or not it was the CW but I feel better for the practice.

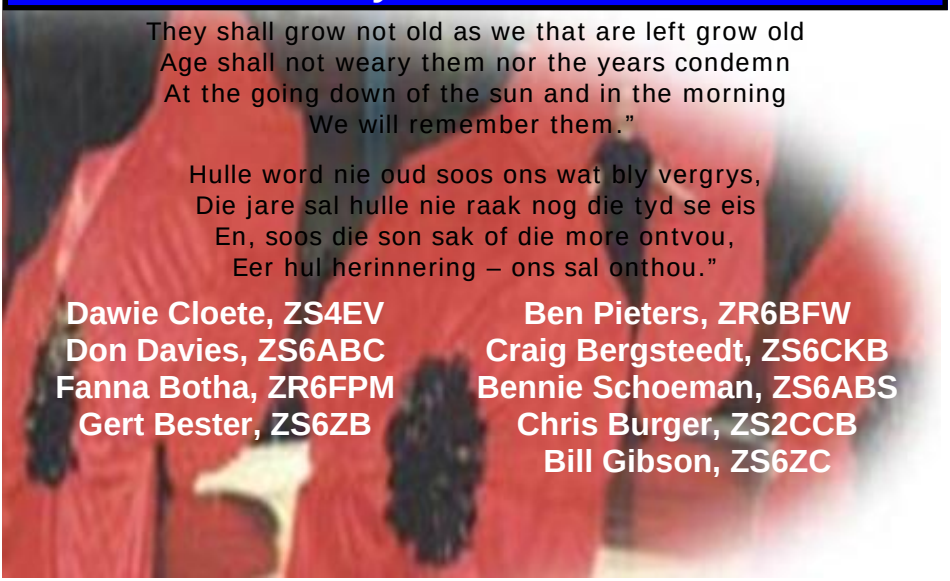
The method recommended is the standard advice given to any learner. Assume the alphabet is being sent; use cursive handwriting rather than printing. Memorize each letter whilst the next is being sent.

- Listen to the first letter and remember the "a"
- write the "a" down as you are listening to the "b"
- write the "b" down as you are listening to the "c" and so on.

Now all I have to do is improve my cursive handwriting!

* Dave Gemmell, ZS6AAW, PO Box 77, Irene, 0062. Tel 012 667 2153
Email dave@zs6mus.org.za

Silent Keys Stil Sleutels



They shall grow not old as we that are left grow old
Age shall not weary them nor the years condemn
At the going down of the sun and in the morning
We will remember them."

Hulle word nie oud soos ons wat bly vergrys,
Die jare sal hulle nie raak nog die tyd se eis
En, soos die son sak of die more ontvou,
Eer hul herinnering – ons sal onthou."

Dawie Cloete, ZS4EV
Don Davies, ZS6ABC
Fanna Botha, ZR6FPM
Gert Bester, ZS6ZB
Ben Pieters, ZR6BFW
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