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# WATTS

## 04-2012

Year 82 + 4m

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



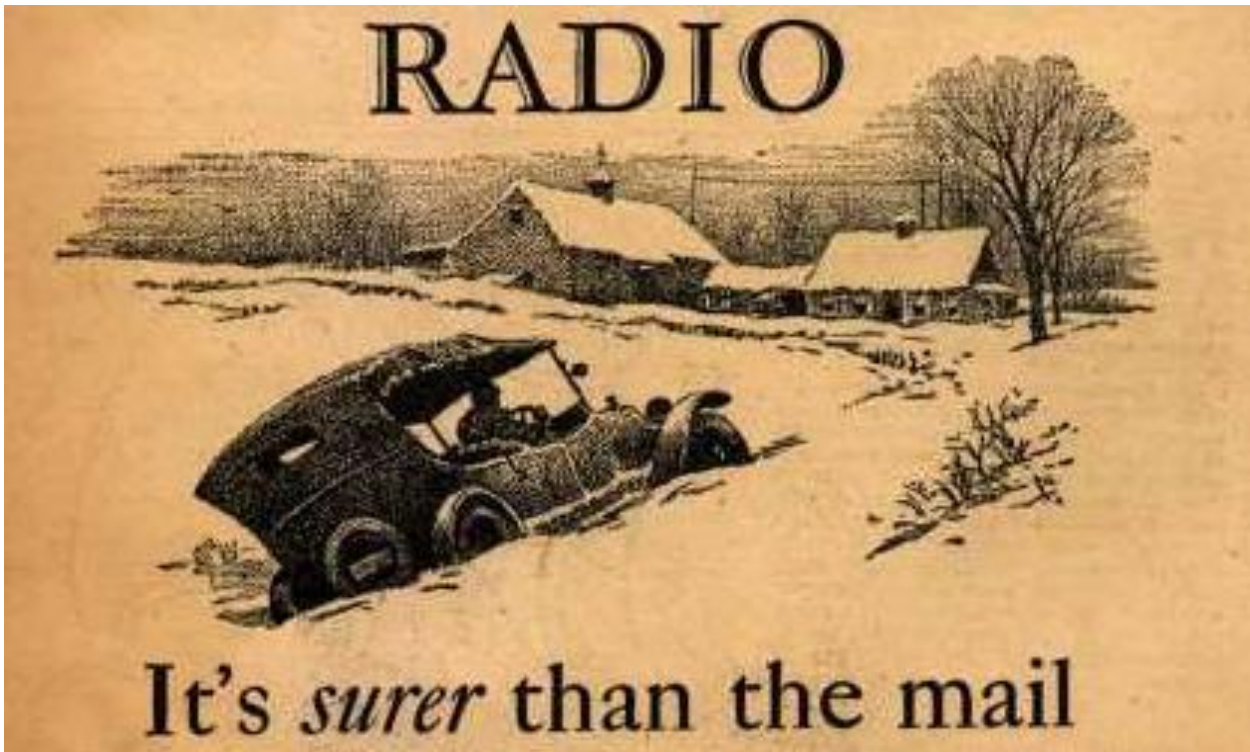
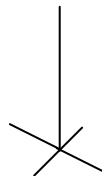
PARC, PO Box 12602, Die Hoewes, 0163, RSA



<http://www.parc.org.za> mail: [zs6pta@zs6pta.org.za](mailto:zs6pta@zs6pta.org.za)

Bulletins: 145,725 MHz 08:45 Sundays/Sondae  
Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz  
Activated frequencies are announced prior to bulletins

Swapshop: 2m and 7.066 MHz Live on-air after bulletins  
Bulletin repeats Mondays | herhalings : Maandae 2m 19:45



### In this issue

- Member news and activities Lede-nuus en Aktiwiteite  
25 Feb Special and General Meeting
- Technical | The death of lead-acid batteries | Tegnies
- Automatic 2nd antenna output
- The innards of a CFL lamp
- Page eight -- Bladsy agt

### In hierdie uitgawe

### Next fleamarkets and socials 2012

2 June  
1 Sept  
8 Dec

Venue: PMC, Silverton

# PARC Management team / Bestuurspan Aug. 2011 - Aug. 2012

Committee members

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Co-opted/Geko-opteer:

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<b>Clubhouse</b>	Pieter Fourie	ZS6-2512	<a href="mailto:pieter2@vodamail.co.za">pieter2@vodamail.co.za</a>	012-804-7417	083-573-7048
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<b>Training</b>	Fritz Sutherland	ZS6ASF	<a href="mailto:fritzs@icon.co.za">fritzs@icon.co.za</a>	012-811-3875	083-304-0028
<b>Historian, Awards</b>	Tjerk Lammers	ZS6P	<a href="mailto:zs6p@iafrica.com">zs6p@iafrica.com</a>	012-809-0006	

## 25 February: Special meeting to approve financial statements

Long-standing discrepancies and anomalies were analyzed, identified and put to bed by Andre ZS6BRC who presented the final statement for FY 2010-2011 to the satisfaction of members present as recorded by vote of the quorum present. The chairman Pierre ZS6PJH then put his signature to the final document.



## Subsequent General Meeting and presentation by Wynand ZS6ARF

HF RF amplifiers are his passion and he gave an interesting insight to what is involved hardware-wise but put heavy emphasis on your justifying your own need for a linear amplifier and all the tribulations of component procurement and doing a proper mechanical building job.



Showing a heavy ceramic bandswitch and a selection of high-power valves (with various price tags)



## Birthdays Verjaarsdae

April



- 01 Melanie, daughter of Peggy and Ed ZS6UT
- 04 Joe ZS6AIC
- 07 Tamzyn, daughter of Gary ZR6GK
- 08 Bertha, lv van Hans ZS6KR
- 08 Klasie, seun van Sylvia en Tjerk ZS6P
- 09 Tanya, daughter of Pat ZR6AVC and Frank ZS6GE
- 10 Joey, sw of Graham ZR6GJR
- 10 Callan, son of Phil ZS6PHL and VCraig ZS6RH
- 12 Jan ZS2LJ
- 13 Liam ZR6RAF, son of Heather and Vincent ZS6BTY
- 16 Tobie, seun van Margriet en Tobie ZS6ZX
- 18 Eric ZS6ME

## Anniversaries Herdenkings

April

- 06 Lynn en Andre ZS6BRC ( )
  - 12 Rika and erroi ZR6VDR ( 43 )
  - 30 Joey and Graham ZR6GJR ( 29 )
- 
- 21 Wynand ZS6ARF
  - 22 Marieta, sw of Roy ZS6MI
  - 25 Gerhard, son of Sander ZS6SSW
  - 28 Tracey, daughter of Rita and Victor ZS6VG
  - 29 Heather, sw of Vincent ZS6BTY

## Joys and Sorrows | Lief en Leed

Apparently none...

## Diary | Dagboek (UTC times)

### April

- 05 SARL 80m WSO Party**
- 07-08 SP (Polish) DX Contest 15:00-15:00
- 21 Holyland DX Contest 00:00-23:59
- 20-22 SARL Convention in Pinetown
- 28-29 Helvetia contest 13:00-12:59

## New Members | Nuwe Lede

Pieter Fourie **ZS6-2512** van Silverton  
Jannie de Beer **ZR6PHD** van Queenswood  
Eddie Ras **ZR6RAS** van Silverton  
Gustav Snyman **ZS6BWN** van Wapadrand  
Eric Meyer **ZS6ME** van Rietvalleirand

## Snippets | Brokkies

**ZS6PTA** came 5<sup>th</sup> in the multi-op category in the first leg of the SARL Field Day held 11-12 February.

**ZS6PTA** came 2<sup>nd</sup> over-all in last year's SARL HF Contest – Well done!

### Amateur Spectrum Used for Australian Formula One Grand Prix: (from WIA)

Consistent with past major sporting events, such as the Sydney Olympic games, the Melbourne Commonwealth Games and previous Formula One Grand Prix, the ACMA licenced some organisations coming from overseas to use, on a temporary basis, a small number of channels within the 70cm band. The Amateur Service is a secondary user in this band and has no claims for protection from interference. Also one frequency in the 2 meter band was used. The period of temporary use was from Wednesday 14th March to Monday 19th of March. The WIA has a flexible attitude to use of amateur spectrum to support these major events that showcases the operational ability of Australian organisers.

### DXCC fee system change as from April 2, 2012:

Each DXCC application -- be it paper QSLs, LoTW or Online DXCC -- will be considered as separate applications with separate application fees. Surcharges for subsequent applications are abolished and there will be no limit to the number of applications.

For further details go to: <http://www.arrl.org/news/arrl-announces-new-dxcc-fee-structure>





**Roger ZS6RJ** is doing a station revamp and building a new tower after wind damage on the previous one and his hexbeam.

Soon the tower will sport brand-new antennas. See his note at the bottom of the page.

**Psst:** He has booked himself into a soon coming up Lesotho 7P8 and later Vanuatu (YJ) DX-pedition.

Below is his arrangement of his SO2R (single operator, two radio) shack console.

This is an excellent contesting arrangement as well.



"The Hexbeam and rotatable dipole for 40+30 on the old tower will be replaced by a Christmas tree "stack" on the new tower I'm welding up: A 4 element long boom 6m mono band yagi at the top, an 8 element log periodic covering 20 to 10 metres in the middle, and a 3 element 30/40 metre yagi at the bottom (2 elements on 30 and 2 on 40 - common DE). The focus on gradual continuous station improvement this year is on the antennas and tower with the aim of being a lot more serious about putting up a fight in the international cw and rtty contests in the all band categories".

### Japan builds Tokyo Sky Tree, world's tallest tower

Standing 2,080 feet tall (634m), the Tokyo Sky Tree is a new digital broadcast tower built on reclaimed land in the Japanese capital. Engineers are confident it won't topple in an earthquake. The Sky Tree makes use of a *shinbashira*, a central column that features in the architecture of Japanese pagodas. The column acts as a stationary pendulum to counterbalance seismic waves, greatly reducing the sway in the surrounding structure. Indeed, there are almost no records of pagodas being toppled in quakes in Japanese history.

Read more: [http://news.cnet.com/8301-17938\\_105-57388126-1/japan-builds-tokyo-sky-tree-worlds-tallest-tower/#ixzz1ovTKaoMF](http://news.cnet.com/8301-17938_105-57388126-1/japan-builds-tokyo-sky-tree-worlds-tallest-tower/#ixzz1ovTKaoMF)



## **The death of lead-acid batteries**

An excerpt from Quantum magazine Jan 1012. from an article by Dr Peter Harrop, IDTechEx

### **Super capacitors replacing batteries**

Electrochemical double layer capacitors are known as ultra capacitors or more commonly super capacitors. They have four times the life of rechargeable batteries, tolerate much faster charge-discharge and employ readily available materials. Traditionally they are used across batteries in electric vehicles to cope with regenerative braking and fast charging stations. Their self-discharge and energy density has been poor but now there are some that self-discharge in a month rather than a day and some now have the energy density of a lead acid battery. Certain electric buses run on super capacitors alone. Indeed, Elon Musk, founder of Tesla electric car company, thinks super capacitors are the future not batteries. On that journey, both technologies have been combined in experimental “supercabatteries” and there are lead acid versions of these though they are not the most promising.

### **Lithium-ion batteries in e-bikes**

Almost all electric two-wheelers have lead acid batteries today but look closer and you realise that is because nearly all of them are bicycles in China. Lead acid is almost entirely shunned for other countries because of its heavy weight and poor life and performance. Worse, in China an increasing number of cities are banning or severely restricting electric bikes, the reasons including accidents, causing congestion and lead pollution. It has proved impossible to control the disposal of lead acid batteries from over 100 million electric bikes in use, whatever the law says in China. (For more information please read *Light Electric Vehicles 2011-2021* [www.IDTechEx.com/LEV](http://www.IDTechEx.com/LEV).)

As if that were not enough, even in China, bikes are moving from mainly battery assisted pedalling to bikes with a throttle - so-called e-bikes - a high proportion of which are scooters, meaning your feet are on a platform. With a trend to these larger two wheelers, lead acid cannot keep up with performance demands. Almost all of the use of lead acid batteries in the 31 million two-wheel electric vehicles being sold this year is hostage to an increasingly irritated Chinese bureaucrat’s pen and if you think that is wild-eyed scaremongering consider what has just happened with Chinese lead battery production.

### **China destroys most of its lead acid battery production**

China wants to leapfrog in technology and there is no leapfrogging on offer with lead acid batteries - just hideous pollution injuries from smelting, making and disposing of lead batteries in China. The Chinese Government has therefore cut lead acid battery manufacture to 42% of what it was in 2010. Earlier, the USA had seen the number of enterprises making lead acid batteries drop from 133 in the 1970s to 33 today but in China it was not due to market forces but to a government decision. Pollution is a major driver here. Few of the 1,930 inspected manufacturers will remain. The many unlicensed sites will be sought and destroyed. Now Xia Qing, Chief Engineer and former Vice President of China Research Academy of Environmental Sciences says: “Low cost high pollution times have gone away.” ([www.IDTechEx.com/evAsia](http://www.IDTechEx.com/evAsia))

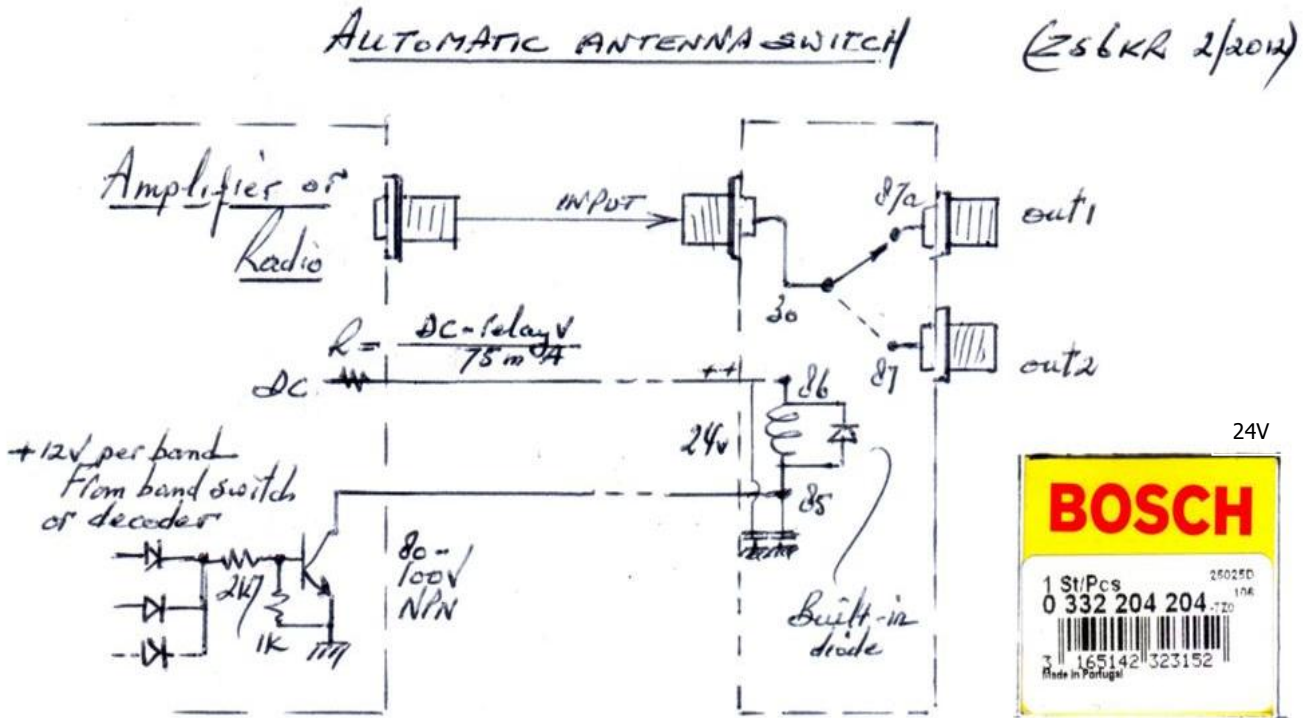
# Automating second antenna choice on one-antenna output systems

ZS6KR

All radios and amplifiers have an RF output configuration where band filters are switched with relays to output RF drive to the final stage(s).

Commonly each band filter relay is activated with a positive going 12V DC via a manual band switch on older sets and indirectly via pushbuttons on modern sets.

The author wished to connect to another antenna on 40m and 80m without having to manually switch a coax switch. This implies we need an external box with a changeover relay suitable to handle the required power. A 10A automotive relay proved to be a good choice. The solution is quite simple as shown in the diagram below:



You have to find the 12V switching lines to the relays in the band filter section and then OR gate whichever bands you wish to connect to the second antenna. The OR gating is simply done with diodes followed by the external relay driver transistor.

The choice of relay coil voltage depends on what is available in the radio or linear amplifier. The above example is for a 24V relay operated from 40V DC via a resistor  $R = (40V - 24V) / (75mA \text{ coil current as established after its purchase})$ . Approximately 180-220 ohms 5W was fine for the author's project but if your DC supply is 12V then purchase a 12V relay and no resistor is required. Possibly add a fuse in-line as this connection goes external.

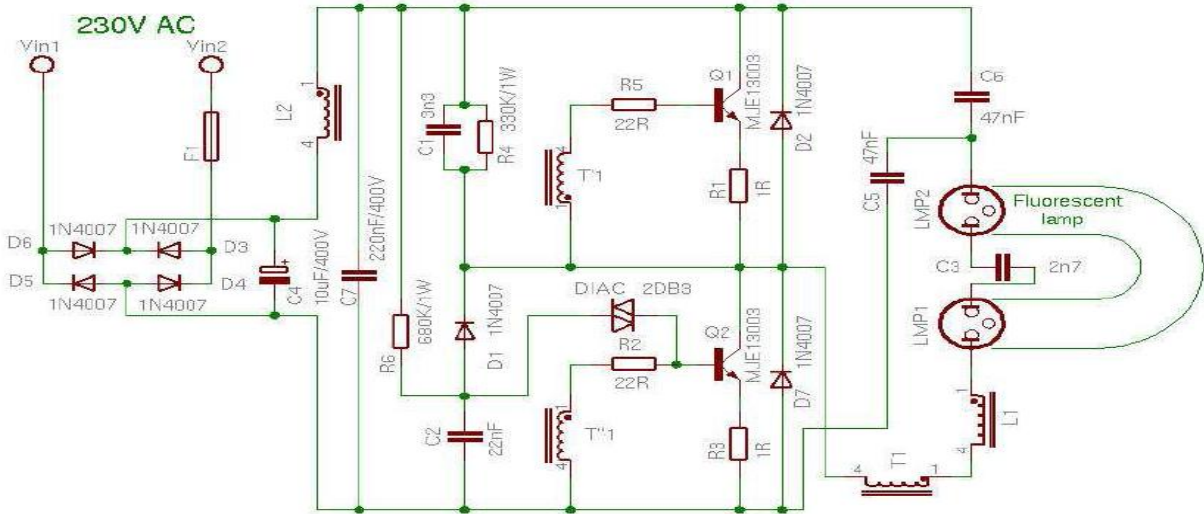
Implementation is as shown in the following pictures:



All parts fit in a Hammond 1590B box. The DC input is bypassed on both wires. The final installation was under my bench.



Circuit of a common Compact Fluorescent Lamp (CFL)



Springtime photos taken by Chris ZS6BGH/ZS3B

- an amazing array of live antenna elements!



KG6YPI's "RemoteHams.com"

Remotehams.com offers Internet-controlled RX and TX from around the world, including TX capability.

The custom client includes VoIP capability eliminating the need for a service such as Skype for audio. It also includes such features as visual level displays of both receiver and transmit audio, easy selection of audio sources, and simple adjustment of audio levels.

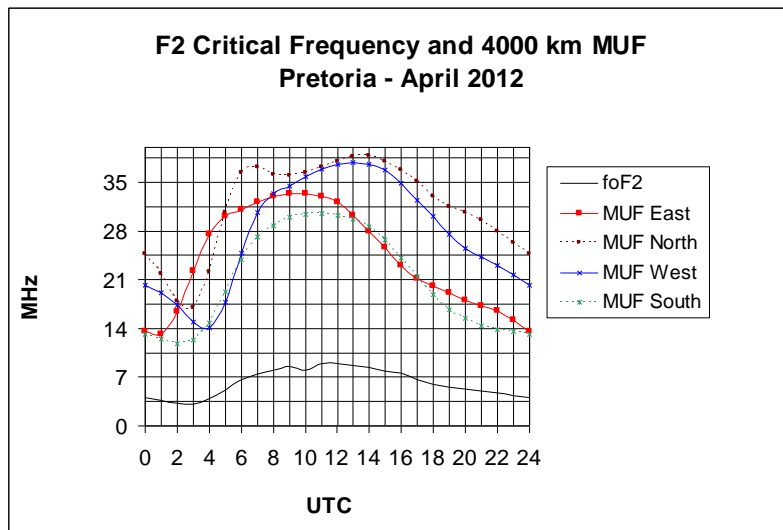
Beyond these features there is a superb very attractive, easy-to-use radio interface that makes using these radios both simple and fun. It even includes capability to send and receive CW.

You can give the system a try by going to: <http://www.remotehams.com>

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## Long Term HF Propagation Prediction for April 2012

Courtesy ZS6BTY

**(see also our website propagation tab)**

### 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.

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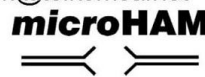
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## W2E - Doomsday 2012 - Special Event:

Please note that the special event station W2E - Doomsday 2012 will be QRV from 2200z on 20 Dec 2012 thru 2400z on 22 Dec 2012. The event celebrates the end of the Mayan Calendar and what has been characterized in popular culture as Doomsday 2012. *(Ed: the 21<sup>st</sup> is the calculated day – no use to ask for QSL card...)*

The special 1x1 Call - W2E is short for "World 2 End"

Special event operators will be making QSOs on the following frequencies, plus or minus: 3.866 MHz, 7.266 MHz, 14.266 MHz, 21.366 MHz, and 28.366 MHz.

Special emergency power has been arranged in the event commercial power connections are inexplicably terminated. Also, 7.266 MHz will be manned using a vintage Hallicrafters transmitter and receiver should solid state transceivers become non-functioning.

Dennis M. Barrett, J.D., Ph.D. / N4ECW (W2E Special Event Coordinator)

### Warnings from Icom – sometimes manuals are overwritten. Daniel L Baker (KM6CQ) Feb 12, 2012

Just a few warnings from the manual of my IC-7000 MOBILE radio:

Icom: NEVER apply AC power to the [DC13.8V] socket on the transceiver rear panel. This could cause a fire or damage the transceiver. *Seriously?*

WARNING! NEVER operate the transceiver while driving a vehicle. Safe driving requires your full attention— anything less may result in an accident.