



ZR6FD logo

Drukwerk ZS6UK  
Papier / Paper ZS6UK

# WATTS

02-2014

Year 84 + 2m

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



PARC, PO Box 73696, Lynnwood Ridge 0040, RSA



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

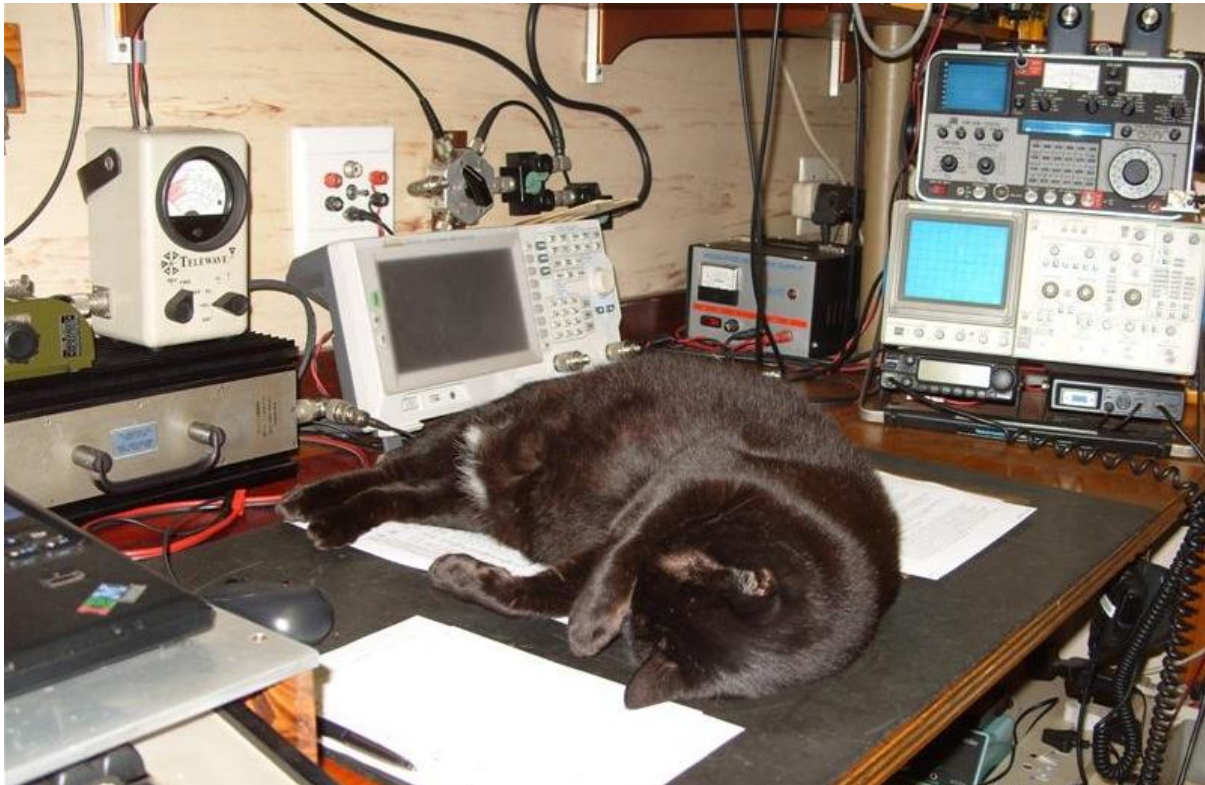
Bulletins: 145,725 MHz 08:45 Sundays/Sondae

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

**Sunday morning bulletin time at ZS6KR. Elbowing for bench real estate is not uncommon!**



## In this issue

- Member news and activities Lede-nuus en Aktiwiteite
- **Nominate for SARL Council Awards. Club Logo to change**
- Technical | ZS6OB EME VUCC and set-up | Tegnies  
Increase amplifier relay speed  
e-Waste: CD's and DVD's
- Page eight -- Bladsy agt

## In hierdie uitgawe

### Next club events

**Fleamarket at PMC**  
1 February

**Club social at U.P.**  
6 Feb 7:00PM  
Social only

**Club committee meeting**  
20 Feb. 7:00PM

## PARC Management team / Bestuurspan Aug. 2013 – Aug. 2014

### Committee members

<b>Chairman, Contests, Liason</b>	Pierre Holtzhausen	ZS6PJH	<a href="mailto:zs6pjh@telkomsa.net">zs6pjh@telkomsa.net</a>	012-655-0726	082-575-5799
<b>Vice Chairman, SARL liason</b>	Fritz Sutherland	ZS6SF	<a href="mailto:fritzs@icon.co.za">fritzs@icon.co.za</a>	012-811-3875	083-304-0028
<b>Secretary</b>	Jean de Villiers	ZS6ARA	<a href="mailto:zs6ara@webmail.co.za">zs6ara@webmail.co.za</a>	012-663-6554	083-627-2506
<b>Treasurer, SARS</b>	Andre van Tonder	ZS6BRC	<a href="mailto:andreh.vtonder@absamail.co.za">andreh.vtonder@absamail.co.za</a>	361-3292	082-467-0287
<b>Motorsport, Social</b>	Johan de Bruyn	ZS6JHB	<a href="mailto:zs6jhb@gmail.com">zs6jhb@gmail.com</a>	012-803-7385	079-333-4107
<b>Web co-ordination</b>	Graham Reid	ZR6GJR	<a href="mailto:greid@wol.co.za">greid@wol.co.za</a>		083-701-0511
<b>RAE, Bulletin co-ordinator</b>	Vincent Harrison	ZS6BTY	<a href="mailto:zs6bty@telkomsa.net">zs6bty@telkomsa.net</a>	012-998-8165	083-754-0115
<b>Repeaters</b>	Craig Symington	ZS6RH	<a href="mailto:zs6rh@hotmail.co.za">zs6rh@hotmail.co.za</a>		081-334-6817
<b>Fleamarket</b>	Alméro Dupisani	ZS6LDP	<a href="mailto:almero.dupisani@up.ac.za">almero.dupisani@up.ac.za</a>		083-938-8955
<b>Clubhouse</b>	Pieter Fourie	ZS6CN	<a href="mailto:pieter2@vodamail.co.za">pieter2@vodamail.co.za</a>	012-804-7417	083-573-7048
<b>Club activities</b>	Richard Peer	ZS6UK	<a href="mailto:zs6uk@peer.co.za">zs6uk@peer.co.za</a>	012-333-0612	082-651-6556

### Co-opted/Geko-opteer:

<b>Auditor</b>	Tony Crowder	ZS6CRO	<a href="mailto:tcrowder@telkomsa.net">tcrowder@telkomsa.net</a>	011-672-3311	
<b>WATTS newsletter/Kits</b>	Hans Kappetijn	ZS6KR	<a href="mailto:zs6kr@wbs.co.za">zs6kr@wbs.co.za</a>	012-333-2612	072-204-3991
<b>Historian, Archives, Awards</b>	Tjerk Lammers	ZS6P	<a href="mailto:zs6p@iafrica.com">zs6p@iafrica.com</a>	012-809-0006	
<b>Digital, photographer,sound</b>	Theo Bresler	ZS6TVB	<a href="mailto:theo@bresler.co.za">theo@bresler.co.za</a>		082-698-1742



### To all members

PARC is putting out a recording of your Sunday morning bulletin on the 145,725 MHz repeater on Monday evenings at 19:45.

For members not able to listen on Sunday mornings, stay in touch with your club and make time on Mondays to listen to the recording.

Also stay in touch with your League and Amateur Radio in general by listening to another recording after the PARC Bulletin of Amateur Radio Today which repeats the SARL HQ bulletin and follows with many interesting news snippets and recordings mainly from overseas.

We have over a hundred paid-up Club members.

Yet very few call in on Sundays and even fewer on Mondays.

Have you heard any of these transmissions at any time?

Since many also have no access to Radio ZS due to non-membership or not accessing it on the web, we appeal to you to stay regularly informed on your Club, technology and Radio Amateur matters.

We appeal to you to show interest and participation and hope to hear more call-ins from 19:35 to 19:45 on Mondays.

It also strengthens the motivation of those doing the recordings every single week of the year by hearing that their effort is not a waste of time.

## Birthdays Verjaarsdae

Feb.



- 01 Pieter ZS6SPY
- 03 Willie ZS6WGR
- 03 Nico ZS6AQ
- 04 Nina, sw of Edwin ZR6ESP
- 06 Ellen, lv van Joe ZS6AIC
- 07 Andre, son of Andre ZS6GCA
- 09 David, seun van Ellen en Joe ZS6AIC
- 09 Kenny ZS6KMM
- 10 Paddy, sw of Kenny ZS6KMM
- 11 Leanne, sw of Allan ZS6AVC
- 12 Yvette, daughter of rika and Errol ZR6VDR
- 14 Tobile ZS6TKO
- 15 Phil ZS6PHL, sw of Craig ZS6RH

## Anniversaries Herdenkings

Feb.

- 03 Heather and Vincent ZS6BTY ( 24 )
- 18 Sarina en Willie ZR6WGR ( 14 )
- 27 Paddy and Kenny ZS6KMM ( 49 )
- 28 Martie en "JB" ZR6YV ( 38 )
- 28 Phil ZS6PHL and Craig ZS6RH ( )

- 20 Ivo ZS6AXT ( 80 )
- 22 Joshua, son of Darlington and Hilary ZR6HAP
- 22 Christopher, son of Joey and Graham ZS6GJR
- 23 Peter ZS6PJ

### Lief en Leed | Joys and Sorrows

Martinho ZS6BQP reported a new grandchild  
Andre ZS6GCA had a minor operation

### New Members | Nuwe Lede

Hartlike welkom aan | A hearty welcome to  
**Tinnie Hendriks ( luisteraars lisensie )**  
**Carel Kruger ZS6CPK**

### Diary | Dagboek (UTC times)

Feb.

- 01 **PARC fleamarket at PMC**
- 01-02 Mexico International RTTY Contest 18:00-17:59
- 01-02 10-10 Winter Contest SSB 00:01-23:59
- 01-02 AWA CW activity
- 08-09 Dutch PACC Contest 12:00-12:00
- 08-09 CQWW International RTTY WPX Contest 00:00-23:59
- 08-09 **SARL National Field Day**
- 08-09 SARL V/UHF/Microwave Contest
- 14 **Last day for SARL Awards nominations. See p4.**
- 15-16 ARRL International DX CW Contest 00:00-23:59
- 15 **SARL Youth Contest**
- 22-23 CQ 160m Contest SSB 22:00-21:59
- 22-23 REF Contest SSB 06:00-18:00
- 22-23 UBA DX Contest CW 13:00-13:00
- 23 **SARL Digital Contest**

### Club Logo Competition !

see page 4

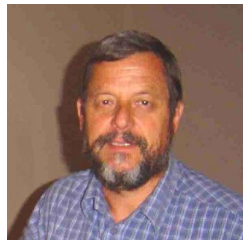
**Ed ZS6UT** explaining electronic principles to a local resident at the Somabulu Nature Reserve.



### Snippets | Brokkies

- **Pine ZS6OB achieves VUCC.**

He is the second amateur in the southern hemisphere after ZL3TY to achieve this. Congratulations!  
See p5 for more details



- **RAE classes** have started on 21 January. It is not too late to join.

- **Fleamarket dates.**

The following dates have now been confirmed:  
February 1  
May 1 or 3 (to be announced)  
July 26  
October 4

- **The SARL diary of events for 2014** has been posted to members. Keep it handy.  
Non members can also download it from  
<http://www.sarl.org.za/public/SARLDiaryOfEvents.asp>.

### Tokyo Hy-Power files for bankruptcy:

Tokyo Hy-Power, a manufacturer of Amateur Radio amplifiers, antenna tuners, and other equipment, is in bankruptcy, and its plant, in Saitama Prefecture near Tokyo, has been shuttered.

Telephones at the company no longer are being answered, and its Japanese website has been taken down, although the company's US website remains working.

Company CEO/President Nobuki Wakabayashi, JA1DJW, founded Tokyo Hy-Power Labs in 1975.

He blamed "the recent depression in the industrial RF power products area [which] has led to the very difficult financial position."

## **SARL Council Awards** Members and clubs are invited to submit nominations to Council at or before 14 February 2014. Send a nomination to [Secretary@SARL.org.za](mailto:Secretary@SARL.org.za)

**1. Honorary Life Membership** - This is the SARL's highest honour.

**2. The Willie Wilson Gold Badge**

Is awarded to an amateur that gave exceptional and meritorious service to the League.

**3. The Jack Twine Award**

Is awarded to Amateurs who, in the opinion of their fellow Amateurs and the League's Council, exemplify qualities such as unselfishness, clean operating and a genuine interest in the hobby and its affairs.

**4. The Arthur Hemsley 2 metre Trophy**

Is awarded to a Radio Amateur for individual achievements on the 2 metre amateur band on EME modes or tropospheric propagation.

It is not for the longest distance worked but rather for persistence in achieving something special on 2 metres.

**5. The Barney Joel Trophy**

Is awarded to any SARL member for the best performance during the year whilst working HF mobile or Rally and public event communication.

**6. The Icom Excellence Award**

Is bestowed annually on the Amateur who brought international recognition to South Africa by either the achievement of an IARU internationally recognized VHF/UHF long distance record, or by service to the Republic of South Africa or the SARL in the field of scientific research using the amateur spectrum, or in promoting the amateur service internationally or as Council may determine from time to time.

**7. The Joseph White Plaque**

Is awarded to any SARL member for exceptional achievements in the 432 MHz band during the past year.

This is not awarded for the longest distance worked, but for all round achievements.

**8. The Bert Buckley Six metre Trophy**

Is Awarded to any radio amateur for individual achievements with transmissions in the six metre amateur band.

This award is not for the longest distance worked but for outstanding work or activity on six metres.

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## **Club Logo competition**

Op die AJV wat op 10 Augustus 2013 gehou was, was besluit dat die Klub se logo verander moet word.

Die rede vir die verandering is omdat die logo van SARL nie meer in klubs se logos mag verskyn nie.

Die vergadering het besluit dat 'n kompetisie uitgeroep gaan word onder die klublede om met voorstelle van 'n nuwe logo te kom waarna die Komitee die wenner op die volgende AJV hierdie jaar sal aanwys.

Die wenner sal 'n jaar se gratis lidmaatskap ontvang.  
Die sluitingsdatum sal die einde Junie 2014 wees.  
Alle voorstelle moet slegs na die Sekretaris by [zs6ara@webmail.co.za](mailto:zs6ara@webmail.co.za) gestuur word.

On the AGM held on 10 August 2013, it was decided that the Club logo had to change.

The reason being that the SARL logo was not any more allowed to be included in club logos.

The meeting decided to introduce a competition amongst club members to come forward with new logo ideas after which the Committee would appoint the winner at the next AGM this year.

The winner will receive a year's free membership.  
The closing date will be the end of June 2014.  
All suggestions must be sent to the Secretary [zs6ara@webmail.co.za](mailto:zs6ara@webmail.co.za)

The first element of all of my transmissions was shortened when running the amplifier. Worse, the transmitter ALC swung high, which automatically reduced transmitter power for several seconds. Both problems were traced to a slow acting T/R relay in the amplifier.

The circuit (Figure 1) speeds the relay by blasting it with twice the normal coil voltage when first activated. The coil voltage decays to normal within a few milliseconds (decay time is proportional to the capacitor size; 47µF is a good starting point). This circuit was designed by Tony, K1KP.

This circuit only does its magic with amplifiers that switch a relay coil to transmit. Also, the relay must use a DC coil. Suitable amplifiers include the Drake L4B and L7, Ameritron amps, and the TL-922.

After adding these parts to the T/R cable from the rig to the amplifier, my AL-1200 no longer truncates leading dots, even at high speed. If your amplifier has slow T/R switching, try installing this simple circuit in the T/R line!

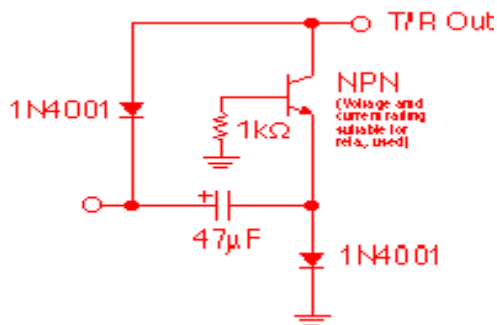


Figure 1. Relay Accelerator Speeds Your Amplifier

Circuit Operation

When the amplifier is initially powered up, the T/R Out voltage rises, charging the capacitor through both diodes. When T/R In is pulled low (to about zero volts), the emitter of the NPN transistor suddenly falls to a negative voltage--nearly equal in magnitude to the open key voltage ( $V_{OPEN}$ ) on T/R Out.

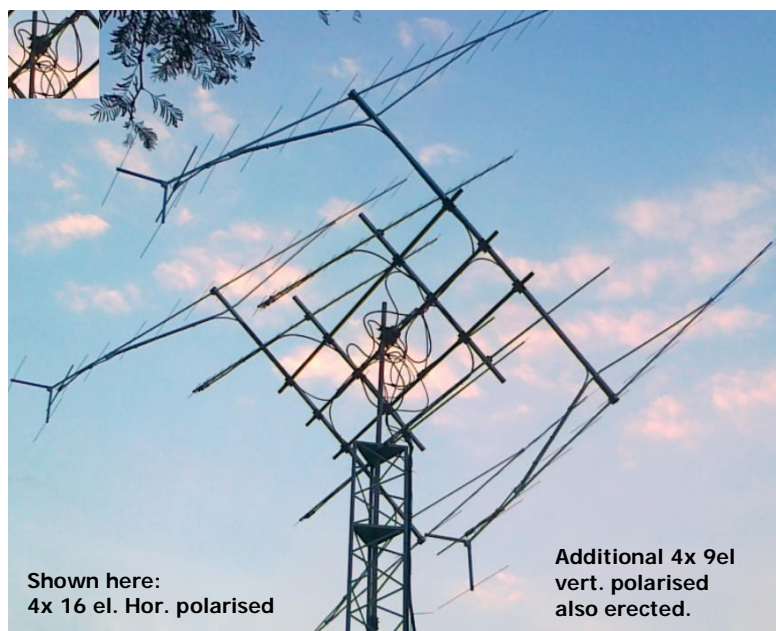
The transistor turns ON and the instantaneous voltage on T/R Out is  $V_{OPEN}$ . The relay coil sees twice  $V_{OPEN}$  across it and closes faster than normal. As soon as the capacitor discharges, the relay coil only sees  $V_{OPEN}$ , so coil power dissipation remains normal.

When T/R In goes high, T/R Out stays low only until the capacitor charges up again a very short while. The 1k base resistor is needed to prevent the transistor from clamping the negative spike to only 0.7V (and also avoids destructively high base currents).

Before you select a transistor, measure  $V_{OPEN}$  and the short-circuit (key down) current through T/R Out. The Ameritron relays generally run 12V at about 100mA. The L4B switches 50V at 50mA.

Make sure your transistor can handle both the open circuit voltage and the short circuit current. The capacitor must have a voltage rating above  $V_{OPEN}$ .

Dit is hoe Pine ZS6OB dit verwerf het:



Shown here: 4x 16 el. Hor. polarised

Additional 4x 9el vert. polarised also erected.

van 16 element F9FT antennas horisontaal gepolariseer. Later het daar 4 by 2M9 nege element antennas vertikaal gepolariseer by gekom op 'n tweede toring. Alle antennas en installasie is self gebou en geinstalleer.

**Die voerlyne** Die voerlyne is 7/8 Foam Heliac dieselfde as wat op die selfoon torings gebruik word met N tipe koppelstukke Hierdie 144 MHz DXCC is die 2e in die suidelike halfmond en die eerste in Afrika en in Suid Afrika.

VUCC = DXCC on VHF/UHF [http://en.wikipedia.org/wiki/VHF/UHF\\_Century\\_Club](http://en.wikipedia.org/wiki/VHF/UHF_Century_Club)

[http://en.wikipedia.org/wiki/DX\\_Century\\_Club](http://en.wikipedia.org/wiki/DX_Century_Club)

Die modus wat gebruik was om die kontakte via EME te maak was Joe Taylor se WSJT program en die mode JT65B

Al die kontakte was via die maan dws EME.

**Die toerusting gebruik gedurende die periode vanaf 2005 was as volg:**

1. ICOM IC-7000, IC-746Pro, IC-910H en 'n IC-9100 afgelope jaar

Die afgelpoe 12 maande het ek net die vier vertikale 9 element antennas gebruik

**Antennas** Aanvanklik een 16 element F9FT met 100 watt en later 300 Watt en 4

## Current hot WX – Learn about your fridge compressor: Current Relay Operation

From Fig. 1b notice that when voltage is applied to the compressor, the run winding will pull locked-rotor amperage (LRA) of up to 40 A. Since the coil of the current relay is in series with the run winding, it will also see this large current, which will be strong enough to pull the current relay's contacts closed. When the contacts close, it will provide a path for voltage to reach the start winding. This voltage will also pass through the start capacitor, which causes a phase shift in the magnetic field in the start winding and the torque will be strong enough to start the compressor motor even though it's under 70-80 psi of pressure.

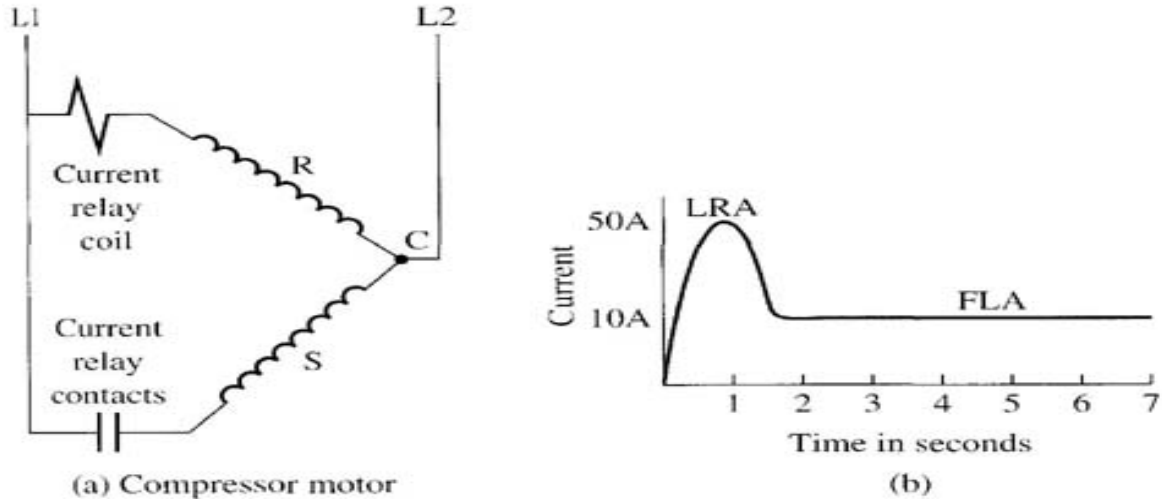


Fig 1.

The current relay has a return spring connected to its contacts that tries to pull them open. After the motor starts and picks up speed, the rotor will produce enough counter EMF to allow the full-load current (FLA) to drop substantially. When the motor's current drops to the FLA level of 3 to 4 A, the spring will pull the contacts open. This drop in current from LRA to FLA occurs in 1 to 2 seconds as the motor reaches full speed. When the contacts open, the start capacitor and start winding are removed from the circuit and their current drops to zero. Since the run winding continues to be energized, it will draw FLA and the motor will continue to run. A graph of the locked rotor current and full-load current is also shown in Fig. 2b. Note that LRA only exists for several seconds while the rotor is coming up to speed. This current is strong enough to pull the current relay's contacts closed for the few seconds the motor requires to start.

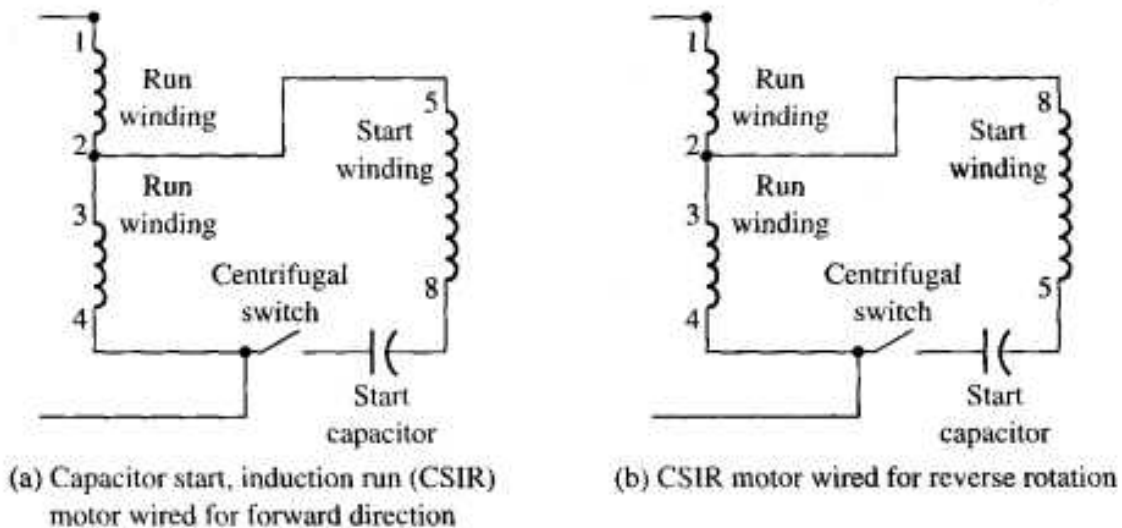


Fig 2.

Since the current relay is mounted on the outside of the compressor, it can easily be replaced if it becomes faulty. It can also be tested easily by checking voltage from L2 to the S terminal of the motor during the time the motor is starting. If no voltage is present at terminal S during start, the start capacitor should be removed from the circuit and an attempt made to restart the motor. Allow the motor to try to start for only a few seconds during this test because continued LRA current will damage the motor.

If terminal S on the motor receives voltage when the capacitor is removed, one can assume that the capacitor is open. If the terminal still does not receive voltage, the current relay is faulty and should be replaced.

- See more at: [http://www.industrial-electronics.com/AC-DC-motors/51\\_Current\\_Relay\\_Operation.html#sthash.wlxRJA0k.dpuf](http://www.industrial-electronics.com/AC-DC-motors/51_Current_Relay_Operation.html#sthash.wlxRJA0k.dpuf)

## e-Waste: CD's and DVD's

Burning CD and DVD media releases toxic fumes.

CDs and DVDs are made from many different materials, each of which has its own separate life cycle involving energy use and waste. They include:

- Aluminum-the most abundant metal element in the Earth's crust. Bauxite ore is the main source of aluminum and is extracted from the Earth.
- Polycarbonate-a type of plastic, which is made from crude oil and natural gas extracted from the Earth.
- Lacquer-made of acrylic, another type of plastic.
- Gold-a metal that is mined from the Earth.
- Dyes-chemicals made in a laboratory, partially from petroleum products that come from the Earth.
- Other materials such as water, glass, silver, and nickel.

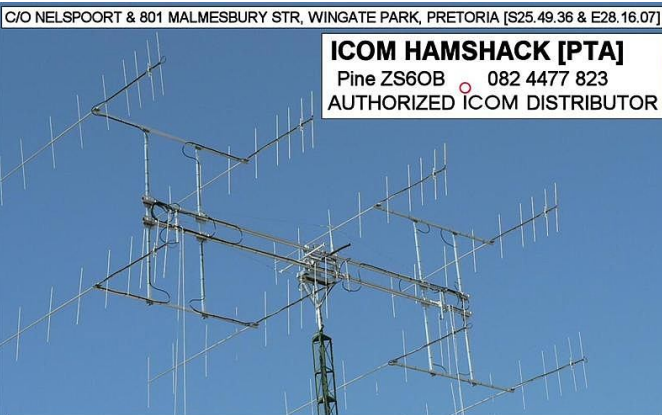
For the more creative folk, here are some ideas on how to reuse those CD's and DVD's:

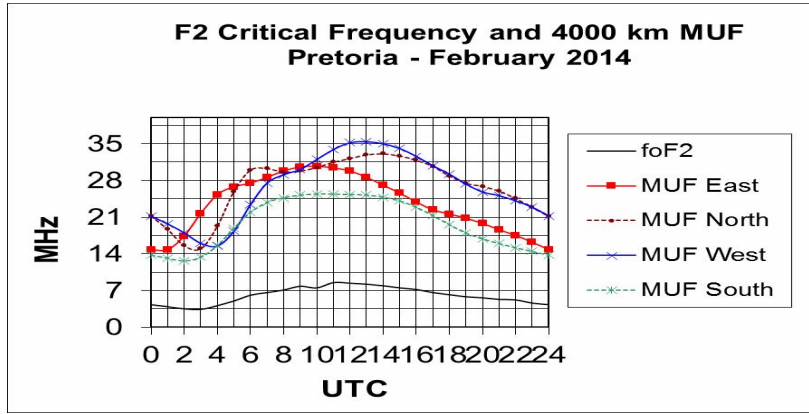
- Trade em in – If the CD's are in good condition you can bring them to a recycled record store for cash or credit. Note that even if the store does not want your CD, they will often accept them for recycling.
- Drink coasters – Cut a round piece of felt to fit over the CD and glue it onto the label side of the CD so that the shiny side will face up when you use the coaster.
- Make a mobile – There are plenty of designs you can search on the web. We're partial to this recycled bottle fish mobile hanging from a CD.
- Scarecrow replacement – Hang them from trees to prevent birds from being a nuisance in your garden. The deflected light scares the birds.
- Holiday decorations – Just in time for Christmas, make a CD wreath.
- CD photo frame: This simple art project can be used to entertain kids on a gloomy day, or provide them with an opportunity to create an original gift.
- Candle holders – Place CD's under candles to catch the drips of wax.
- Bike safety – Use them as reflectors on your bike wheels.
- Garden row markers – Write the name of the vegetable on the CD, with a permanent marker. Glue the CD to a Popsicle stick and put it in the ground to mark your garden rows.
- Make a clock – Turn a disc into a funky clock. Inexpensive kits can be purchased online. Paint and design one side of the CD and let it dry. Write or use stickers to create the numbers around its edge. Assemble the clockwork onto the CD.
- Wind chime – Glue two CD's together and let dry. Drill one tiny hole in top and five or six holes along bottom. Use permanent magic markers to decorate both sides of CD's. Draw a simple design with a black marker and fill in with the colored markers. Hang beads or metal rods from bottom holes using floss or fishing line. Tie a piece of same in top hole and make a loop for hanging. You can also decorate these C.D.'s with sequins or beads instead of the magic markers.

Polymer Reprocessors Ltd, whose factory is situated on Knowsley Industrial Park, developed their unique 100% recycling process for surplus non-biodegradable stock CDs and CD-ROMS after an initial 2-year research and development period and have now perfected and patented the process.

The company employ a process that involves the jewel (CD) case being granulated and then fed through an extrusion system fitted with laser filters that remove contaminants. The end product is a high quality polystyrene pellet that can be used, for example, in new jewel cases, packaging and insulation foam or artificial wood. The discs themselves are granulated, blended and compounded into high quality injection molding polycarbonate that has a variety of uses, including as part of alarm boxes and motorway traffic lenses.

The whole process is set to reduce the use of landfills- previously the only way to dispose of unwanted CDs- by around 2500 tonnes a year.

<p>C/O NELSPOORT &amp; 801 MALMESBURY STR, WINGATE PARK, PRETORIA [S25.49.36 &amp; E28.16.07]</p> <p><b>ICOM HAMSHACK [PTA]</b> Pine ZS6OB 082 4477 823 AUTHORIZED ICOM DISTRIBUTOR</p>  <p><b>FOR ALL YOUR ICOM PRODUCTS &amp; ACCESSORIES</b> SPECIALLY MANUFACTURED VHF/UHF EX60B ANTENNA SYSTEMS FOR: EME, TROPO, MS, REPEATER &amp; SATELITE SYSTEMS</p>	<p><b>QRV Services offers the following expertise:</b></p> <ul style="list-style-type: none"><li>• General equipment and Television repairs</li><li>• Small-scale design and manufacturing</li><li>• Precise frequency and power calibration</li><li>• Technical writing</li><li>• 3<sup>rd</sup> Party scrutiny of projects and documents</li><li>• MFJ 259/69 Analyzer repairs and calibration</li><li>• Ham radio and solid state amplifier repairs</li><li>• Valuation of ham estates and their disposal.</li></ul> <p>Products:</p> <ul style="list-style-type: none"><li>• Legal limit 30m and 40m dipole traps</li><li>• Linear power supply O.V. protection kits</li><li>• 30A DC switching supplies</li><li>• 30A DC Anderson Power Poles</li><li>• Connectors RF and Audio</li><li>• Plug-in triple sequential industrial timers</li></ul> <p>Contact Hans at 012-333-2612 or 072-204-3991</p>
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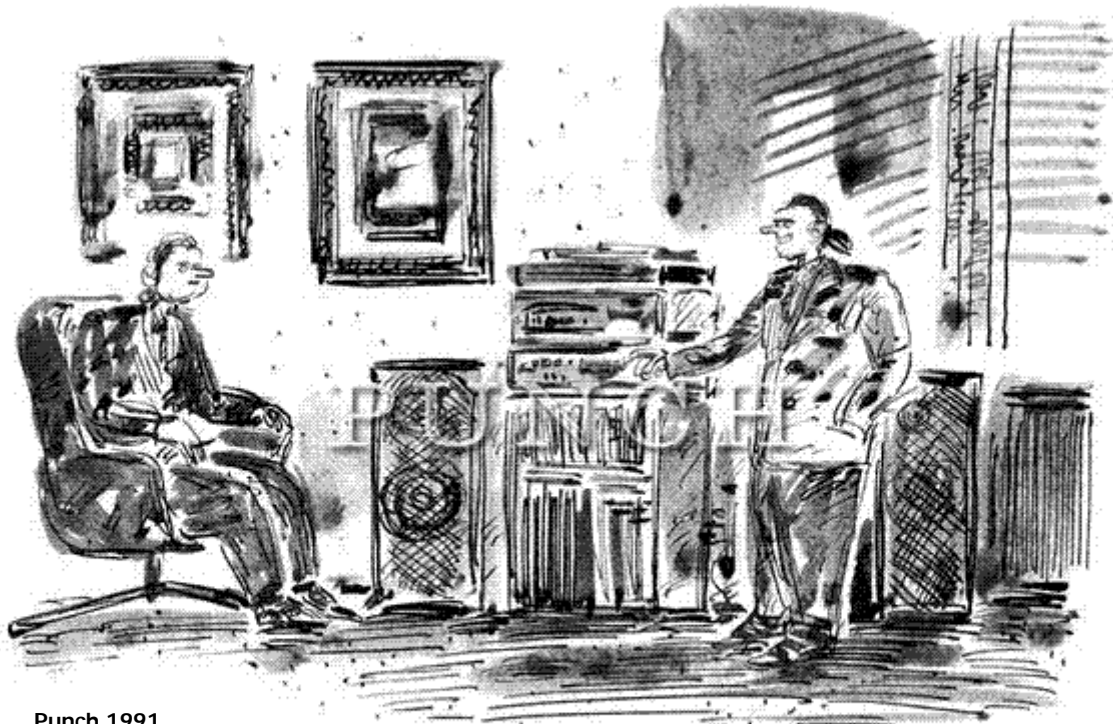
(see also our website propagation tab)

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.



Punch 1991

*"This CD's for real hi-fi buffs. It reproduces with total accuracy the sickening crunch and sizzle of a stylus hitting an old-fashioned vinyl disc."*

