WATTS

05 - 2007
Year 77+5m

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

PARC, PO Box 73696 Lynnwood Ridge 0040, RSA

web http://www.zs6pta.org.za mail:zs6pta@zs6pta.org.za

Bulletins :145,725MHz 08:45 Sundays / Sondae
Relays : 1840, 3700, 7066, 10135, 14200 kHz, 51,4 and 438,825 MHz
Activated frequencies are announced prior to bulletins
Swapshop:Live on-air after bulletin 2m and 40m
Bulletin repeats | herhalings : Mondays 19:45 on 145,725 MHz

ZR6FD logo

Drukwerk printing ZS6BAQ

Papier / paper Errol ZR6VDR

Flea Market 31 March – bargains galore. See p3 for more

In this issue / In hierdie uitgawe

Next Meeting
5 May 2007
Time: 13:30 for 14:00
PARC Clubhouse
South Campus
University of Pretoria
SE cnr University and Lynnwood roads.

PARC Management team / Bestuurspan Aug 2006- Aug 2007:

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Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 7 March 2007

Welcome/Verwelkoming.
Almero ZS6LDP declared the meeting open and welcomed all present at the very first meeting on a Saturday.
Attendance/Bywoning.
The meeting was attended by 22 members and 3 visitors.
Apologies/Verskonings.
Edwin Peer ZR6ESP and Hilary Peer ZR6HAP.
Personal Matters / Lief en Leed .
Bernie ZS6ANU is recovering after a long illness.
Derek ZS6KQ het almal bedank wat dit moontlik gemaak het dat die maandvergadering na Saterdae verskuif het.
Baie geluk ook aan Derek ZS6KQ en sy lv wat hulle 46ste huweliksherdenking gevier het.
Tobie van Rensburg ZS6ZX is weer op die been na sy onlangse operasie.
Matters arising from previous minutes/Sake voortspruitend uit vorige notule.
None / Geen.
Approval of previous minutes/Goedkeuring van vorige notule.
The minutes of the previous meeting as published in Watts were approved .Proposed by Chris ZS6BGH and seconded by Richard ZS6UK.

Club Activities/ Klub Bedrywighede.

Rallies/Tydrenne. Johan ZS6JHB .
Next rally – Sasol Rally 20-21 April 2007. Briefing meeting will take place on 18th April at the clubhouse at 19.30 for 20.00.
Foxhunts/Jakkalsjag . Richard ZS6UK .
Due to Rally activities the Foxhunt had to be cancelled .
Social/Sosiaal . Johan ZS6JHB .
Bring en braai na afloop van die klubvergadering op Saterdag 5de Mei.
Hamnet . Johan ZS6JHB .
Lys van toerusting benodig deur Hamnet Gauteng Noord is saamgestel en versend na Francois ZS6BUU vir goedkeuring .Daar word ook gekyk na n verskeie persele wat in die toekoms gebruik kan word as ops kamers vir Hamnet Gauteng Noord. Hamnet Gauteng Noord se bulletin vind plaas op Maandae aande om 19.00 op 145,725.
Financial Report / Finansies. Richard ZS6UK .
Finances in order .
Technical / Tegnies .
No report.
Fleamarket / Vlooimark . Almero ZS6LDP .
Almero ZS6LDP informed the meeting that the next fleamarket will take place end June 2007.
Projects/Projekte.
Hans ZS6KR reported that he had sold a number of valves for R1,100.00 to a local customer and handed the cheque to our treasurer Richard ZS6UK. Hans also thanked Raymond ZS6ALG for his donation of R30.00.
General / Algemeen :
Members unable to attend the AGM of the SARL were requested to hand their proxies to Richard ZS6UK .
Presentation / Aanbieding .
Johan Lehman ZS6JPL gave a brief report on the current 2m repeater status .
Next meeting / Volgende vergadering .
5th May 2007.Starting time 13.00
Closure / Sluiting .
The meeting closed at 14.45.

FLEAMARKET SNAPS

Early birds catching the worms

Pierre ZS6PJH and his wares

Almero ZS6LDP en Hansie ZS6AIK in diep gesprek

Pieter se worse begin al lekker ruik

End view

Louie ZS6LVW verkoop alles vol prys, half prys en verniet

Hermann ZS6SN met 'n bootanker

Freebie time

Birthdays Mei Verjaarsdae

01 Hannie ZR6JMP
01 Amanda, dogter van Martie en 'JB' ZR6YV
02 Chris ZS6LOG
06 Suzette, dogter van Magda ZS6MVW en Pieter ZS6PVW
09 Heilie, daughter of Heila and Melvyn ZS5MF
09 Diana, sw of Louis ZS6LVW
10 Roy ZR6RV, son of Marieta and Roy ZS6MI
11 Wally ZS5WP
14 Johannes ZS6BPB
14 Pieter ZS6PVW
17 Roderick, son of Angie and Trevor ZS6-2510

May Anniversaries Herdenkings

04 Ronel en Pieter ZR6PSR ( )

17 Vince ZS6BTY
18 Karen, daughter of Pat 6AVC and Frank ZS6GE
20 Deryck ZS6KQ
22 Otto ZR6ZRO
23 Lilly sw of Harry ZS6AMP
25 Tjerk ZS6P
26 Vitor ZS6VG
31 Dave ZS6JW

Sick Parade | Krukkelys

Carl ZS6NCC is in frail care

Diary | Dagboek

(UTC times)

May	01	ZS1HELL
	05	Portuguese Navy Day Contest PSK31 1500-2100
	05-06	Portuguese Navy Day Contest CW/SSB 1500-1500
	06	Mother's day
	17-18	King of Spain Contest CW 1200-1200
	19-20	EU PSK DX Contest 1200-1200
	26-27	CQWW WPX Contest CW 0000-2400

Snippets | Brokkies

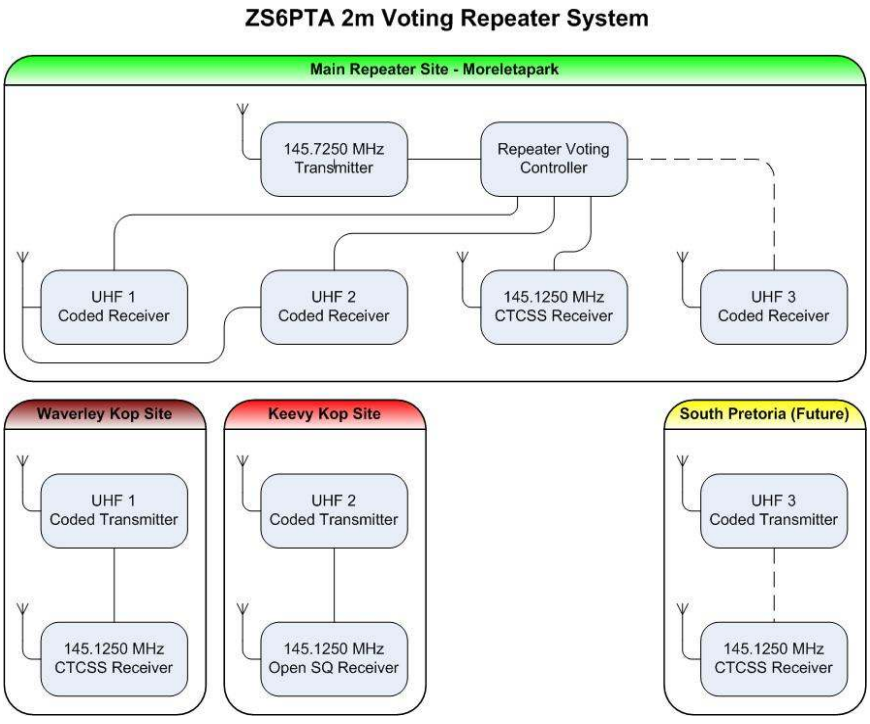
- **Pine ZS6OB** received the Radio ZS 2m Floating Trophy at the SARL AGM. This was for the longest reported meteor scatter contact in 2006 between Pretoria and an (amateur) radio officer on a Russian fishing vessel off the coast of Namibia over a distance of 1876 km.
- **Tjerk ZS6P,** Awards Manager at the SARL AGM, remarked afterwards that our club should pay more attention to nominating members for awards. Some of our members did sterling work over the past year and lost out.
- Start saving for your **PARC and SARL subscription fees** due 31 June.
- We have almost run out of **A4 paper** again. Donators will be listed under the front page logo.
- **Subaudible tone boards** required for your old rig? Place your order at technical@zs6pta.org.za. See article below.

PARC 2m Voting Repeater System

Johan ZS6JPL

Approximately a year ago the PARC technical team decided that the club can offer the members a vastly improved 2m repeater if a voting system can be implemented on the PARC 2m frequency.
The club was very fortunate to receive a generous sponsorship towards the system cost from Nico ZR6VT and on Thursday 5 April phase 1 of the voting system was finally commissioned by Craig ZS6RH and myself.
This article serves as guide to inform the users of this repeater, how it works and fits together.

A normal repeater system has a single receiver and a single transmitter located at an optimal site for reception and transmission. The repeater coverage is usually determined by the geography of the surrounding terrain. A common problem with this approach is that mobile and portable users can sometimes hear the repeater transmitter but are not heard by the repeater receiver.



The solution to overcome this problem is the voting repeater. Basically it is a single high power transmitter located at an optimal high site to radiate over as much of the repeater geographical area as possible. Multiple receivers are then placed on carefully selected sites within the repeater geographical area and the signals received by these sites are then relayed to a central point, usually the transmit site, with wire-line or microwave links. All the received signals are then processed by a voting panel.

The modern voting panel is a microprocessor based device and work on the principle of signal to noise comparison. The voting panel will compare the multiple received input signals with each other and will pick the best quieting signal on the fly and route it to the transmitter. This decision on which receive signal to use happens at least ten times per second. A good voting system is completely transparent when it is working properly and the users can not tell the difference except for the improved coverage they will experience.

The PARC repeater system currently uses a 50W transmitter located at Moreletapark south east of Pretoria. The transmitter is also transmitting an 88.5 Hz tone to enable repeater users to activate CTCSS receive squelch on their radio's. This feature is very helpful to reduce the noisy interference we experience from time to time on our radios in the high RF environments of the cities.
The receivers are located on the Magaliesberg north of Pretoria, Moreletapark south east of Pretoria and Keevy Kop in the centre of Pretoria. The plan is to place at least one more receiver south west of Pretoria in the future. The receivers are equipped with UHF transmitters to link the received signals to the main site.
Normally in such a system all the receivers would require a sub-audible tone before the squelch would open and activate the link to the main site but because some users still have equipment that can not generate tones, the decision was made to operate the Keevy Kop receiver on carrier squelch only. The other receivers require an 88.5 Hz transmission from the user to open the receiver squelch.

Should the user transmit without an 88.5 Hz tone he or she can only be heard by the Keevy Kop receiver and now voting can take place. If the user does transmit an 88.5 Hz tone the system will vote and he or she will experience all the benefits of the system. We would like to request that all users to enable 88.5 Hz on their equipment when they use the repeater and experience the benefits in real time.

Have fun and please ask Craig or myself if you need more information on the system.

WAP MEETS HAM - FROM DICK, ZS6RO - Worth repeating from SARL Bulletin 31-03-07

Suitably designed Web-sites are usually required to allow cellphones with their small screens to be viewed properly. These are called WAP-sites. WAP or 'Wireless Application Protocol' is the protocol used to send and receive certain data over cellphone networks.
If one considers that at today's South African prices for data, and assuming the cheapest cellphone package, one could easily view over twelve or more cellphone screens of text for about 1 or 2 cents. Remember that one will not pay for the time connected, but for the amount of data sent or received. You could stay connected all day and view one or two screens in that time and only pay one cent!
But what could be interesting enough to view to do that sort of exercise?
I have designed a WAP-site so anyone who has a WAP-enabled cellphone can visit it, from about anywhere in the world. The WAP Home-Page menu links the cellphone user to various pages. It has been running successfully for more than a year.

One link called 'DX-SPOTS' will bring back a screen with the latest five DX-Spots from the International DX-Cluster network. As the DX-Spots come in from the DX-Cluster network, the user can refresh his cellphone screen and see the current spots straight away.

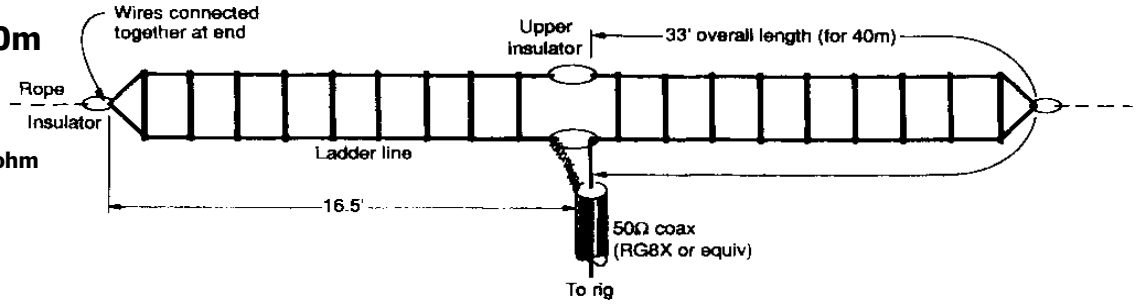
Another link called 'DX-Callbook' will allow the user to enter a callsign, local or DX, and get a screen showing that callsign's information. Think of the possibilities when you are on your next field-day trip with your radio gear and cellphone. By the way, one may also access the same callbook database by sending a packet message to ZS0MEE BBS where an automated packet message will be returned with the callsign information.

There is also a link to the weather anywhere in the world and defaults to South Africa on start-up. There is a link to top South African News items as well.

To access my WAP site from a WAP-enabled cellphone, use the URL "www.zs6ro.co.za" - if that isn't successful, add to the URL "/index.wml". (www.zs6ro.co.za/index.wml). The reason you may have to add to the URL is because some cellphone micro-browsers are not always recognised correctly by WAP sites. As a matter of interest, if one uses the same URL, without the add-on just mentioned, on a standard desktop PC, the user will be directed to my normal WebPage on the Internet which contains other ham-related information.
Some desktop PC browsers may fail when trying to connect to a WAP site. The reason is that the PC browser expects html content whereas a WAP-site sends text content and this may 'confuse' the standard WEB browser. Have fun with your cellphone ...

Short 40m/80m dipole

(uses 450 ohm ladderline)



12V Gel-Cell charger

N1HFX design from the www. (article shortened to essentials)

The MAX712 IC meets all the requirements for almost any type of battery charging system. The circuit shown was designed specifically for 12 volt gel cells.

When a discharged gel cell is connected, the charger goes into a fast charge mode at a fixed rate of 400 ma. After the chip detects the voltage leveling off or when 4 1/2 hours has elapsed. (whichever happens first) the fast charge will stop. After the fast charge has ended, the IC goes into a trickle charge rate of about 50 mA. This trickle charge continues until 13.8 volts is reached and then stop. If the cell voltage should drop for any reason, either a fast- or trickle charge (IC will detect what is needed) will start again.

Be sure to attach a small heat sink to Q1. Apply a DC (partially filtered) voltage of at ***least*** 15.3 volts. The voltage must never go below this level even under load conditions. The output voltage must be adjusted with R7on open circuit using a digital volt meter on pin 2 for exactly 13.8 volts.

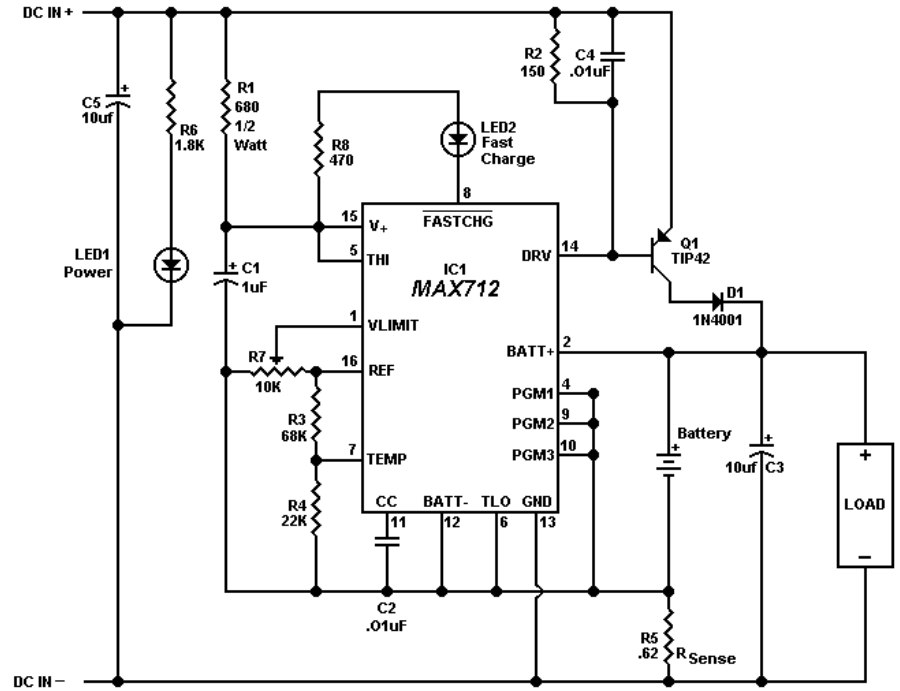


Figure 1

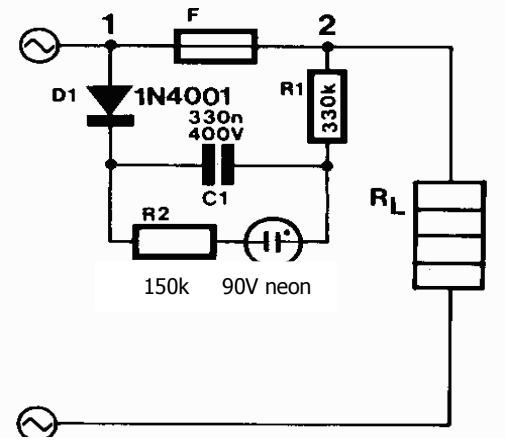
Because this circuit will not overcharge a gel cell, the battery can be connected indefinitely. This circuit is designed primarily as a 12V backup system and can be connected to the load provided the device to be powered only draws current during power line interruptions. Use a diode from the battery to load if needed. This circuit makes an excellent battery backup to an amateur transceiver.

PARTS LIST

C1	MAX712 Battery Fast-Charge Controller IC (Cost is $6.27 from Digi-Key)
R1	680 ohm 1/2 watt resistor (Blue Gray Brown)
R2	150 ohm resistor (Brown Green Brown)
R3	68K resistor (Blue Gray Orange)
R4	22K resistor (Red Red Orange)
R5	.62 ohm 1 watt resistor (Blue Red Silver) (Cost is 27 cents from Digi-Key)
R6	1.8K resistor (Brown Gray Red)
R7	10K PCB trimmer resistor (103)
R8	470 ohm resistor (Yellow Violet Brown)
C1	1 microfarad tantalum capacitor (observe polarity)
C2,C4	.01 microfarad capacitor (103)
C3,C5	10 microfarad electrolytic capacitor (observe polarity)
Q1	TIP42 PNP transistor or similar (attach heat sink)
D1	1N4001 Diode (observe polarity)

LED1,LED22 volt standard LED (observe polarity)

Blown fuse indicator



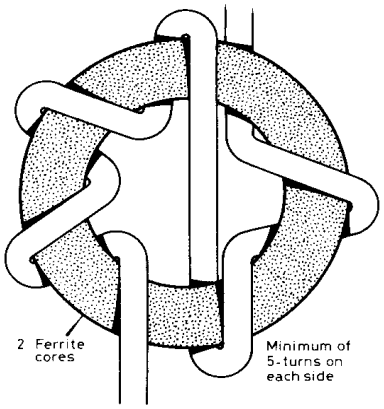


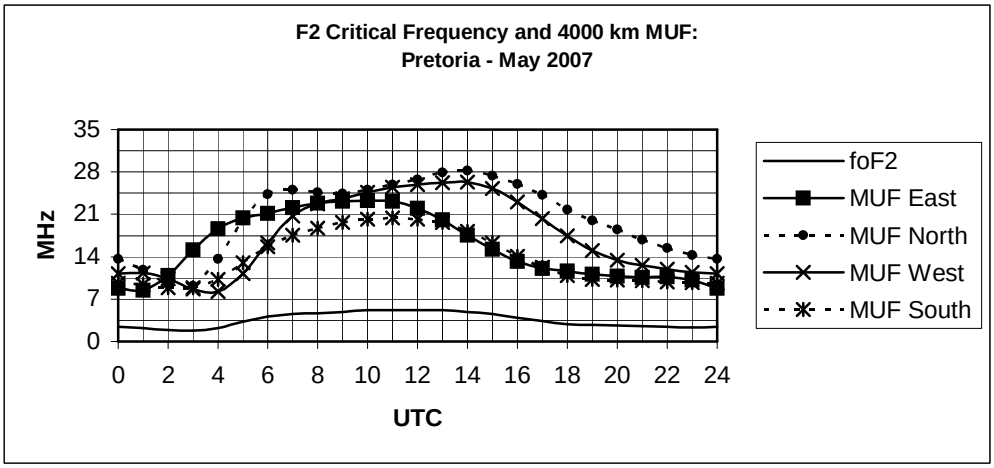
Fig A4.3. Choke balun wound to minimise input/output capacitance

Long Term HF Propagation Prediction for May 2007

Vince ZS6BTY

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

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

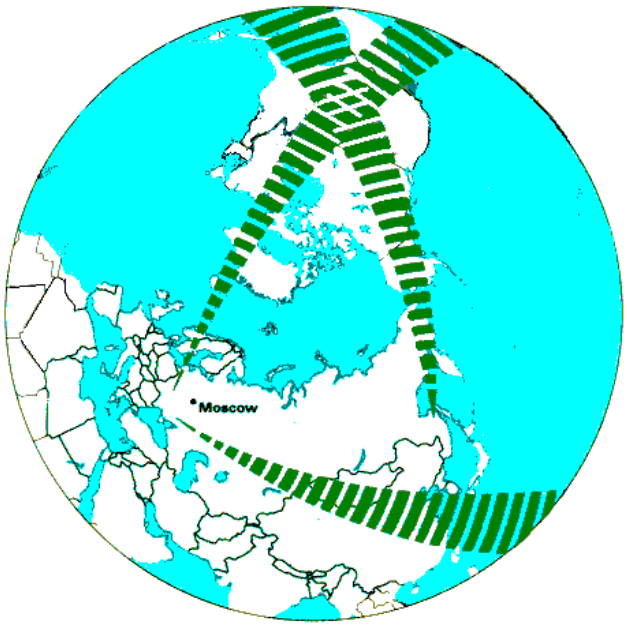


The Russian Woodpecker

From Wikipedia, the free encyclopedia

The **Russian Woodpecker** was a notorious Soviet signal that could be heard on the shortwave radio bands worldwide between July 1976 and December 1989. It sounded like a sharp, repetitive tapping noise, at 10 Hz, giving rise to the "Woodpecker" name. The random frequency hops disrupted legitimate broadcast, amateur radio, and utility transmissions and resulted in thousands of complaints by many countries worldwide.

The interference dogged amateur radio operators worldwide and led to a thriving industry of "Woodpecker filters" and noise blankers. One idea amateur radio operators floated to combat this interference was to attempt to "jam" the signal by transmitting synchronized unmodulated continuous wave signals, at the same pulse rate as the offending signal. This idea was considered, but abandoned as impractical. Simple CW pulses didn't appear to have any effect however playing back recordings of the woodpecker transmissions sometimes caused the woodpecker transmissions to shift frequency leading to speculation that the receiving stations were able to differentiate between the "signature" waveform of the woodpecker transmissions and a simple pulsed carrier.



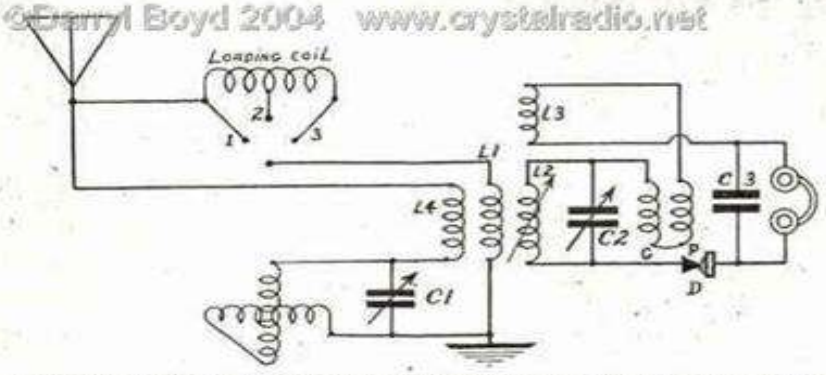
In 1988, the Federal Communications Commission conducted a study on the Woodpecker signal. Data analysis showed an inter-pulse period of about 90 ms, a frequency range of 7 to 19 MHz, a bandwidth of 0.02 to 0.8 MHz, and typical transmission time of 7 minutes. The signal was observed using three repetition rates: 10 Hz, 16 Hz and 20 Hz. The most common rate was 10 Hz, while the 16 Hz and 20 Hz modes were rather rare. The pulses transmitted by the woodpecker had a wide bandwidth, typically 40 kHz.

The Woodpecker turned out to be an over-the-horizon radar system known to NATO as **Steel Yard**. The first operational site was located near Gomel in what is now Belarus, and the second site was at Komsomolsk-on-Amur in Siberia. One of the sites is located within the 30 mile Zone of Alienation around the Chernobyl power plant - it was most likely shut down and abandoned after the disaster in 1986.

The use of the shortwave spectrum, which was sensitive to ionospheric refraction, allowed the Soviets to detect alterations in ionosphere propagation caused by the depletion of ions by missile exhaust plumes.

Transmission power on some woodpecker transmitters was estimated to be as high as 10 megawatts. As well as disrupting shortwave amateur radio and broadcasting it could sometimes be heard over telephone circuits due to the strength of the signals.

My Crystal Set That Gets DX



A CRYSTAL CIRCUIT that is selective and gets DX! It has four controls, but every one is a big help. Distances up to 1,000 miles have been reported on this set, and 500 to 400 miles called average range. It puts many a tube set to shame, says the author. For the loading coil wind 40 feet of wire on a tube 3" in diameter. Tap it at the end of 20 feet. L1 is 25 turns wound on a 4" tubing; L2, 40 turns on a 3" diameter; L3, 30 turns on a 4" tubing. Mount L1 and L3 about 1" apart. L4 is 30 turns wound on a 3" tubing. GP are two 25-turn honeycomb coils.

By G. N. Barkett

MOST writers apparently think a crystal set is merely a toy for the kids. Many persons do not feel financially able to maintain a good tube set. On reading your reply (Page 15, November 8, RADIO WORLD), in which you inform Mr. Day, of Newark, Cal., that 30 miles is a very good distance for a crystal set, I wish you would try my set yourself. Maybe my location is unusually good, but another set made accordingly is doing fine work, and tube sets here do not seem to be getting any better results than elsewhere. I had no trouble getting three to four hundred miles, and fairly regularly picking up Fort Worth, Dallas (620 miles) and WGY (975 miles) with the set I was using then, and this one seems better.

In all crystal hookups I tried previously I have been unable to tune out WOC, Davenport, 100 miles away, without loss of volume to such an extent that other stations were not loud enough to enjoy, but with this hookup I can accomplish the desired purpose.

All coils are low-loss basket-weave, with the exception of coils G-F, which are 25-turn honeycomb. Other forms will do, but honeycomb is best.

L1, primary has 25 turns on a 4-inch diameter tubing. L3 is 30 turns, same size. L2 is 60 turns on 3-inch diameter. L1 and L3 are mounted about 1 inch apart (test for best setting) by taking a length of insulated wire, bending it at right angles, running it through a hole in coil form and bending the other end into a loop, screwing to the baseboard. Each coil preferably is on a separate mounting. Tie a small block of insulating material or dry wood to one side of secondary and fasten shaft to it. Use panel for front bearing and directly opposite tie another block with a hole nearly through it, into which a stiff wire from baseboard is inserted for the back bearing. Coils G-P are both 25-turn HC tied together so that both coils are wound in the same direction and mounted at a right angle 3 or 4 inches from other coils. Connect aerial through loading coil to start of primary to ground. From start of L2 to start of GP, finish of GP to start of tickler or L3, remaining two terminals to detector and phones.

The loading coil length should be determined by test. With my aerial, 37 ft. high, copper ribbon 114 ft. long between insulators, I use 40 ft. of No. 20 wire tapped in middle. Tap No. 1 brings stations in up to about 250 to 370; tap No. 2 to about 450, and tap No. 3 takes care of the higher waves. If this part of circuit is tried another variable condenser .00025 should be shunted around the detector and phones in addition to the fixed phone condenser to make a good selective circuit that can be logged. A variometer may be used in place of coils G-P if set in same position as these coils.

Wind another 30-turn coil on 4-inch diameter tubing and mount it about 1¼ inches from primary L1 in same manner, so that it is wound in same direction as other coils. Try this beside primary and also beside tickler L3. Leave it where it works best. Wire this, direct from aerial, not through loading coil, to the s[illegible] L4., to variometer, from variometer to ground, with a .00025 variable condenser C1 shunted across terminals of variometer.

We now have a 4-control, selective set, with plenty of volume. It will get DX and can be logged, although it may be necessary at times to make a slight change from log settings.

CRYSTALS successfully used as Oscillators and Amplifiers for the First Time. A two-part article, with diagrams of six hook-ups in Radio World, issues of Aug. 9 and 16. Send 30 cents. Radio World, 1493 Broadway, New York City.

An ostrich's eye is bigger than its brain.

A cat's urine glows under a black light.

An elephant is the only animal that cannot jump.

The strongest muscle in your body is your tongue.

A cockroach can live nine days without its head.

Huwelikssertifikaat: 'n sort jaglisensie wat jou tot een bok beperk.

Baba: 'n soort engel waarvan die vlerke korter word namate die bene langer word.

Vleis Braai: 'n Partytjie waar die kos so 'n bietjie rou en die gaste 'n bietjie gaar is.

Universiteitsgraad: Kwitansie wat 'n kind ontvang vir die rekening wat pa betaal het.

Middeljare: Wanneer jy jou emosies vir simptome verruil.

Gewete: Iets wat pla as alles lekker gaan.