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# WATTS

09-2011

Year 81 + 9m

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



PARC, PO Box 73696 Lynnwood Ridge 0040, RSA



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

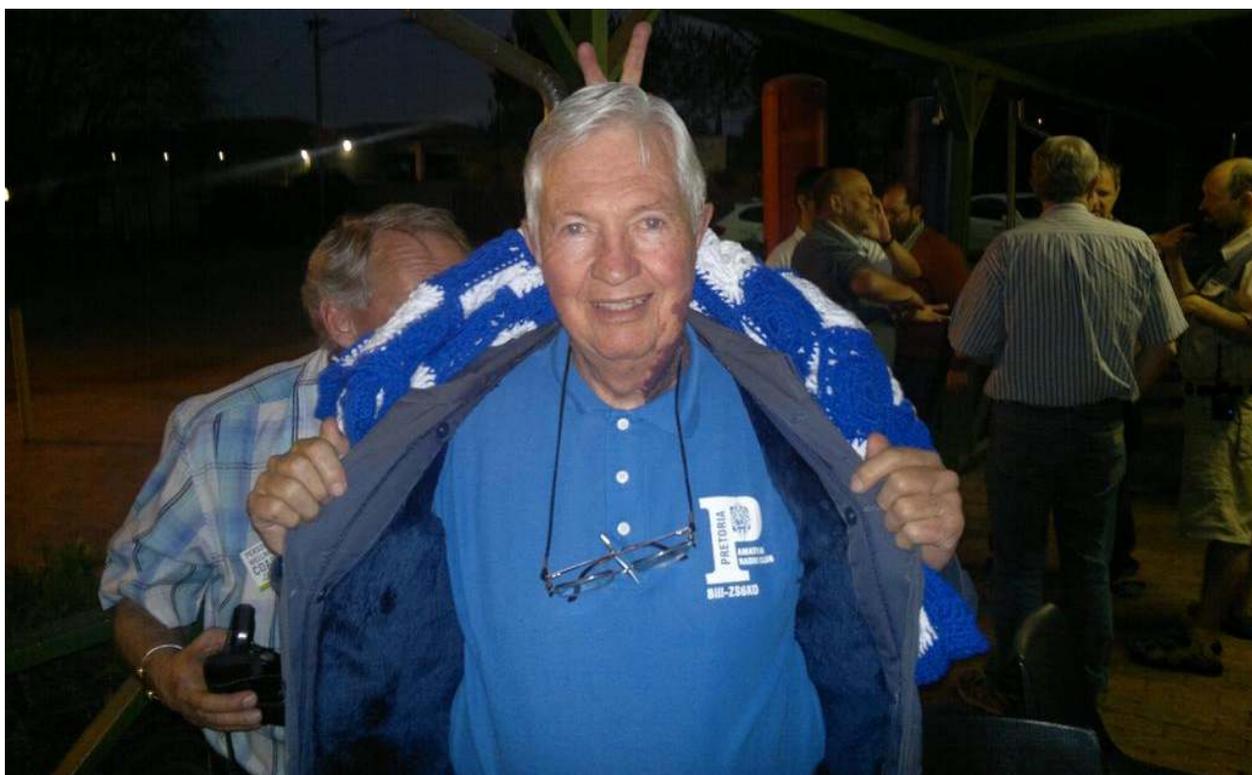
Bulletins: 145,725 MHz 08:45 Sundays/Sondae  
Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz  
Activated frequencies are announced prior to bulletins

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



**The 81<sup>st</sup> AGM is behind us**

**Die 81<sup>e</sup> AJV is agter ons**



## In this issue

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- Member news and activities Lede-nuus en Aktiwiteite
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- Semiconductor device numbering systems
- Page eight Bladsy agt

## In hierdie uitgawe

### Next meeting

Date: Sat 10 Sept 2011  
Time: 13:30 for 14:00

Building 4  
University of Pretoria.  
S/E corner University and  
Lynnwood roads

## PARC Management team / Bestuurspan Aug. 2012 - Aug. 2013 (NB: not final)

Committee members

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<b>Web co-ordinator</b>	Graham Reid	ZR6GJR	<a href="mailto:webmaste@zs6pta.org.za">webmaste@zs6pta.org.za</a>		083-701-0511
<b>Social co-ordinator</b>	Doréén de Bruyn	ZR6DDB		012-803-7385	082-857-9691

Co-opted/Geko-opteer:

(NB: not final)

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<b>Public relations</b>	Alméro Dupisani	ZS6LDP	<a href="mailto:fleamarket@zs6pta.org.za">fleamarket@zs6pta.org.za</a>	12-567-3722	083-938-8955

## 2011 81<sup>st</sup> AGM observations

(not the official minutes)

Pierre ZS6PJH opened the proceedings and welcomed some 25 members and 6 visitors.

Louis Pieterse from ICASA then was invited to give his lecture on interference which he did with a power point presentation and much discussion. He warned that much interference can in future be expected from community security radio operators and local community radio- and TV transmissions. ICASA has done little to enforce technical and regulation requirements of such operators which is to be deplored.

Also much equipment comes into the country in small quantities regarded as evaluation samples and there is little control as to their conformance to any standard.

Generally CB operators are still the largest offenders interfering on commercial transmissions and 90% are probably not licensed. Many installations belonging to complainants are however also at fault due to ageing, corrosion and plain ignorance of proper connections and cables as well as having substandard entertainment equipment.

Licenses are issued as Spectrum Licence or Content License. For instance the former applies to Amateur operators and the latter would be for broadcasters. He mentioned that license information is not privy to ICASA only and access should not be difficult if one needs to find out who is licensed for what in a particular area.

ICASA is continuously on the hunt for offenders and uses hi-tech fixed equipment in several cities (one is on KlapperKop) which are activated after a complaint is received to ferret it out. Sometimes the Military are also requested to help spot offenders.

The Committee Report followed and first five SK's were noted to have passed on in the past financial year. They were Gert ZS6ZB, Jac Roux ZS6QA, Ivan Litster ZS6AUT, Freddie Calitz ZS6JC and ZS6ARC Robert Boulanger.

A special thanks went out to those members who devoted much time and effort on a regular basis into the club and its activities.

A wrongly recorded motion was converted to a discussion point regarding the days and times of club meetings. After going through four options it was noted that a regular 2pm second Saturday of the month had the majority of votes.

The financial report could not be presented due to the recent illness of Richard ZS6UK as it was not complete and audited at this time. The floor approved it then to be presented at the next club meeting.

Tjerk Lammers ZS6P then took the stage and bestowed Honorary Memberships on Hans Kappetijn ZS6KR and "JB" ZR6YV. The following 2010-2011 Awards were then handed out to club members:

ZS6BLY Trophy: Mark Lukinovich ZS6USA

Sonny Don Practical Assistance Trophy: Fritz Sutherland ZS6ASF

Pretoria Ham Spirit Award: Craig Symington ZS6RH

Hansie Meyer Deelname Trofee: Pierre Holtzhausen ZS6PJH

SARL Piet Roos Trofee: Hans Kappetijn ZS6KR

Roy Alexander Rally Trophy: Johan de Bruyn ZS6JHB

Certificates of Merit went to

ZS5CH for repeater assistance

ZS6JPL vir Echolink en IRLP betrokkenheid

ZS6SSW vir D-STAR toepassing ontwikkeling

ZS6SPY vir Herhalertoerusting bydraes

The Committee election then followed with Pierre ZS6PJH, Graham ZR6GJR, Alméro ZS6LDP and Johan ZS6JHB available and duly elected. The floor then voted Pierre ZS6PJH for a second term as Chairman.

# 81<sup>st</sup> AGM glimpses | 81e AJV blikke



Audience



Louis Pieterse on interference



Pierre ZS6PJH with the minutes and Committee Report



"JB" ZR6YV and Hans ZS6KR receive Honorary Membership



Fritz ZS6ASF (Sonny Don Trophy)



Craig ZS6RH (Ham Spirit Award)



Pierre ZS6PJH (Hansie Meyer Trophy)



Johan ZS6JHB (Roy Alexander Rally Trophy)



Charles ZS6CTO (ZS5CH) repeater assistance certificate

## Birthdays

## Verjaarsdae

Sept



Sept

## Anniversaries

## Herdenkings

02 Charrell ZR6GN  
02 Lizette ZS6LZT, dogter van Pieter ZS6PVW en Magda ZS6MVW  
04 Carl Hein, seun van Hein ZS6Q  
09 Brendan ZR6AIU, son of Merylyn and Deryck ZS6KQ  
11 Johan ZS6JPL  
15 Pamela, sw of Harry ZS6HRD  
17 Caroline, dogter van Hein ZS6Q  
21 Johan ZS6JHB  
24 Estie ZS6CC  
26 Graham ZR6GJR  
29 Grant ZR6AAT, son of Merylyn and Deryck ZS6KQ

02 Lily and Harry ZS6AMP ( 55 )  
07 Gerda and Roger ZS6RJ ( 9 )  
28 Retha and Roy ZS6XN ( 26 )  
29 Karin en Sarel ZS6EK ( 32 )  
30 Elma en Chris ZS6LOG

## Joys and Sorrows | Lief en Leed

**Luther ZS6E** is nou afgetree in Wakkerstroom. Hy is nie meer op die lug maar nog bedrywig op die internet: herlut@vodamail.co.za  
**Gary ZS6YI** (ex-PARC member) miraculously survived an armed robbery in which he was shot six times. Get well soon Gary.  
**Aleck ZS6MVA** (nie-lid maar was gereeld op ons herhaler aanwesig) het onlangs beswyk aan kanker.  
**Bertha, lv van Hans ZS6KR** is weer opgeneem in die hospitaal met ernstige long probleme

## Diary | Dagboek (UTC times)

Sept

03 **PARC Fleamarket**  
10 **PARC Club meeting 1400 local**  
17-18 SARL VHF/UHF Analogue/Digital Contest1000-1000  
24-25 CQ Worldwide RTTY DX Contest 0000-2400

Oct

06 SARL 80m QSO Party. 1700-2000  
16 Worked All Germany Contest. 1500-1459  
30 CQ Worldwide SSB DX Contest. 0000-2400

### Forgot?

### PARC SUBS / LEDEGELD 30-06-2011

Please remit your subs in  
time to our treasurer or  
by transfer to:

Betaal asb. u ledegeld  
betyds aan ons tesourier  
of per oorplasing aan:

Bank : FNB Ordinary members/ gewone lede R150  
Branch : 25 20 45 Spouses, pensioners R50  
Account : 546 000 426 73  
Your call sign must appear as statement text! !

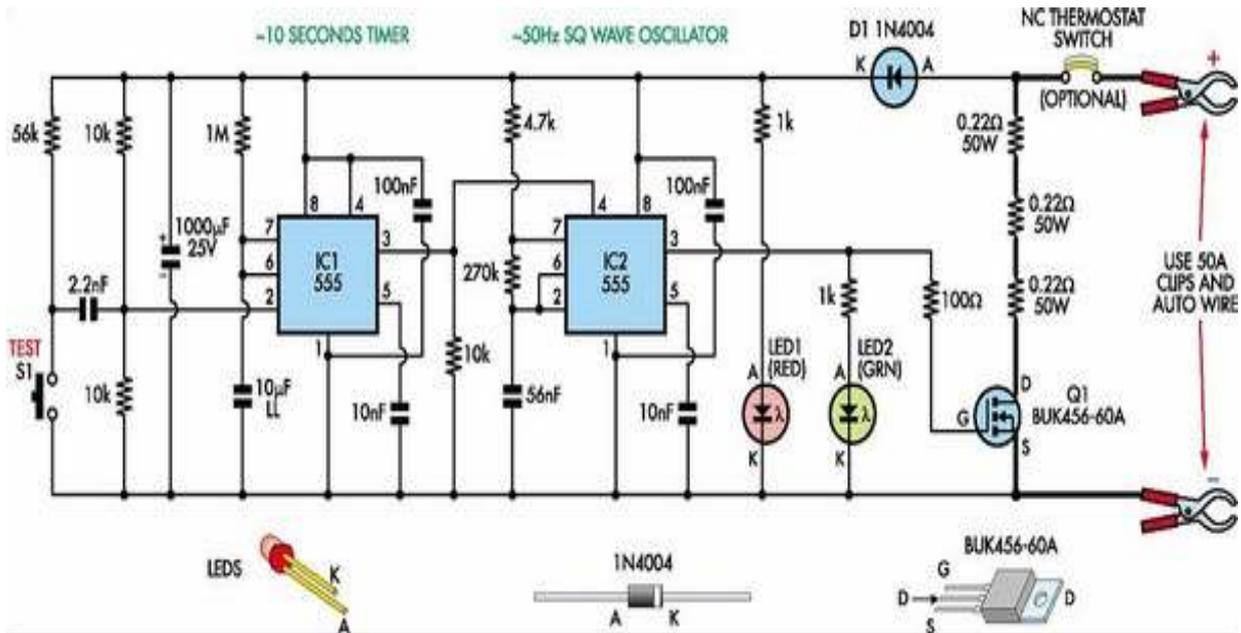
**SARL Subs** have also been due since 30 June

## Snippets | Brokkies

- **Current repeaters: 145,725 (Radcliffe) is now coupled to 438,825 UHF from New Road and further south. Similarly use 439,025 simplex north of the Magalies ridge to reach Radcliffe.**  
Thanks to Craig ZS6RH we have excellent coverage in previously sketchy 2m areas. Also see our Club News page for detail.  
In order to prevent lock-ups there is 3 minute time-out-timer (TOT) on each so restrict your overs to less than 3 minutes.
- **D-Star Repeater back on a Highsite** (20 Aug 2011)  
The D-Star repeater is back on a highsite and available for use. Craig ZS6RH installed the Dstar Rpt with gateway on Raddcliff highsite on Saturday 20 August 2011. The frequency remains 145.7125 and the callsign ZS6PTA C. The gateway needs to be commissioned on site by ZS6SSW as soon as he is available to go to site with ZS6RH. This is still in the "proof of concept" phase.
- The PARC is appealing to members to support our club in volunteering to partake in **Rally Communications**. You can gain a wealth of experience in the real world of radio in the field.
- **RAE lectures** currently only have 3 candidates and more are still welcome. Contact Fritz ZS6ASF 083-304-0028 012-811-3875 to receive a schedule or see it on Club News on our website. The exam registration deadline is 25 Sept.
- The PARC still has a **vacancy for a Contest Organizer**. Volunteers can opt for either V/UHF only, HF only or both.
- **Bill ZS6KO** won the little blanket knitted by **Brinette ZS6MZA** as a donation to the club and handed to the person who guessed the amount of wool used. The club benefited handsomely from the participants.

# Battery Internal Resistance Tester

from [eleccircuit.com](http://eleccircuit.com)



This circuit is designed to check the condition of lead-acid and gel cell batteries with capacities greater than 20Ah. It switches a load of about 18A at a rate close to 50Hz so that the internal resistance of the battery can be measured using a digital multimeter across the battery terminals.

The measured AC voltage in millivolts divided by 10 (ie, a shift of the decimal point) is approximately equal to the battery's internal resistance in milliohms.

As shown, the circuit is quite straightforward and is based on two 555 timer ICs (IC1 & IC2) and power Mosfet Q1.

IC1 operates as a monostable timer with a period of 10s.

When switch S1 (Test) is pressed, IC1's pin 3 output goes high for 10s and this enables IC2 which operates as a 50Hz astable oscillator.

IC2 in turn drives power Mosfet Q1 which is connected across the load in series with three 0.22W 50W resistors. IC2 then turns off again after 10s – ie, at the end of the monostable timing period.

LED1 provides power indication when the circuit is connected to a battery, while LED2 (green) comes on during the test period.

The thermostat is not necessary unless the unit is to be used repeatedly (the Jaycar ST-3823 70°C unit is suitable) and you want to protect the output circuit against overheating.

The power Mosfet does not need cooling but the thermostat and the 0.22W 50W resistors should all be mounted on an aluminium heatsink at least 2mm thick.

In practice, the internal resistance of car batteries can vary from about 15mΩ down to about 3mΩ.

Before testing the battery, check that the electrolyte level is correct and that the voltage across its posts exceeds 12.5V for a nominal 12V battery; ie, close to full charge. That done, switch on the car's headlights and measure the DC voltage between each battery post and its connecting terminal. It should be less than 10mV in both cases; if not, the terminals need cleaning.

Once you've done that, you can turn off the headlights, connect the tester and proceed with the internal resistance test.

Be sure to connect the multimeter's test probes directly to the battery posts, to read the internal resistance. (not the battery terminals).

Author: Victor Erdstein – Copyright: Silicon Chip Electronics

Link:[http://www.extremecircuits.net/2010/06/internal-resistance-tester-for\\_14.html](http://www.extremecircuits.net/2010/06/internal-resistance-tester-for_14.html)

## DX Code of Conduct recently approved at IARU region 1 Conference

I will listen, and listen, and then listen again before calling.

I will only call if I can copy the DX station properly.

I will not trust the DX cluster and will be sure of the DX station's call sign before calling.

I will not interfere with the DX station or anyone calling and not tune up on the DX frequency or QSX slot.

I will wait for the DX station to end a contact before I call.

I will always send my full call sign.

I will call and then listen for a reasonable interval. I will not call continuously.

I will not transmit when the DX operator calls another call sign, not mine.

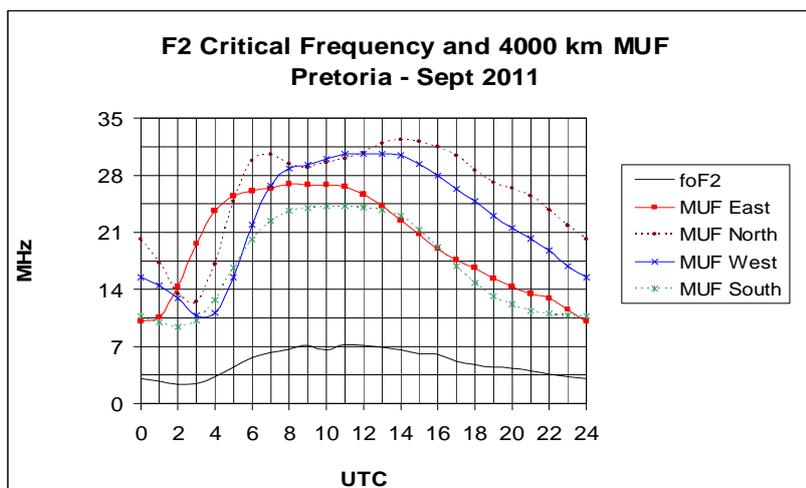
I will not transmit when the DX operator queries a call sign not like mine.

I will not transmit when the DX station requests geographic areas other than mine.

When the DX operator calls me, I will not repeat my call sign unless I think he has copied it incorrectly.

I will be thankful if and when I do make a contact.

I will respect my fellow radio amateurs and conduct myself so as to earn their respect.



### Long Term HF Propagation Prediction for Sept 2011

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.

#### QRV Services offers the following expertise:

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# Semiconductor Device Numbering Systems

## European Pro-Electron Numbering System

**Format:** two letters, [letter], serial number, [suffix]  
**The 1st letter specifies the semiconductor material :**  
 A Germanium  
 B Silicon  
 C Gallium Arsenide  
 R Compound Materials  
**The 2nd letter specifies the type of device :**  
 A Diode, low power or signal  
 B Diode, variable capacitance  
 C Transistor, audio frequency low power  
 D Transistor, audio frequency power  
 E Diode, tunnel  
 F Transistor, high frequency low power  
 G Miscellaneous devices  
 H Diode, sensitive to magnetism  
 K Hall effect device  
 L Transistor, high frequency power  
 N Photocoupler  
 P Light detector  
 Q Light emitter  
 R Switching device, low power e.g. thyristor, diac, UJT etc  
 S Transistor, low power switching  
 T Switching device power, e.g: thyristor, triac, etc.  
 U Transistor, switching power  
 W Surface acoustic wave device  
 X Diode, multiplier, e.g. varactor  
 Y Diode, rectifying  
 Z Diode, voltage reference  
**Third Letter if used** Indicates intention for industrial or professional applications. Usually W,X,Y or Z. Eg: BFY51.  
**Serial Number:** The serial number runs from 100-9999.  
**Suffix:** A,B or C = low, medium or high gain  
 No suffix = ungrouped (any gain).

## American JEDEC Numbering System

The JEDEC system, ( J oint Electron Device Engineering Council. This system has the following format:  
 digit, letter, serial number, [suffix]  
**Digit:**  
 The first digit designates the amount of P-N junctions in the device.  
 So a device starting with "2" would contain 2 P-N junctions and would most likely be either a transistor or a FET. Common part numbers are listed below:  
 1. Diodes  
 2. Bipolar transistors or Field Effect Transistors  
 3. Double Gate MOSFETS, SCR's  
 4. Opto Couplers  
**Letter:**  
 The letter is always "N", and the remaining figures contain the device serial number.  
**Serial Number:**  
 The serial number runs from 100 to 9999 and indicates nothing about the transistor.  
**Suffix:**  
 If a suffix is present then this indicates the gain group as below:  
 A = low gain  
 B = medium gain  
 C = high gain  
**No suffix** = ungrouped (any gain).  
 So for example, 1N4001 would be a diode and 3N201 would be a dual gate MOSFET.

## JIS System

The Japanese Industrial Standard has the following format: digit, two letters, serial number, [suffix]

**Digit:** This indicates the amount of p-n junctions as in the JEDEC code.  
**Letters:** The letters indicate the intended application for the device according to the following code:  
 SA: PNP HF transistor SB: PNP AF transistor  
 SC: NPN HF transistor SD: NPN AF transistor  
 SE: Diodes SF: Thyristors  
 SG: Gunn devices SH: UJT  
 SJ: P-channel FET/MOSFET SK: N-channel FET/MOSFET  
 SM: Triac SQ: LED  
 SR: Rectifier SS: Signal diodes  
 ST: Diodes SV: Varicaps  
 SZ: Zener diodes  
**Serial Number:** can run from 10-9999  
**Suffix:** An optional suffix indicates type approval for use by various Japanese organizations.

Major manufacturers often produce their own code and numbering scheme for commercial reasons. The following abbreviations represent some of the larger Semiconductor manufacturers:

MJ: Motorola power, metal case  
 MJE: Motorola power, plastic case  
 MPS: Motorola low power, plastic case  
 MRF: Motorola HF, VHF and microwave transistor  
 RCA: RCA  
 RCS: RCS  
 TIP: Texas Instruments power transistor (plastic case)  
 TIPL: TI planar power transistor  
 TIS: TI small signal transistor (plastic case)  
 ZT or ZTX: Ferranti

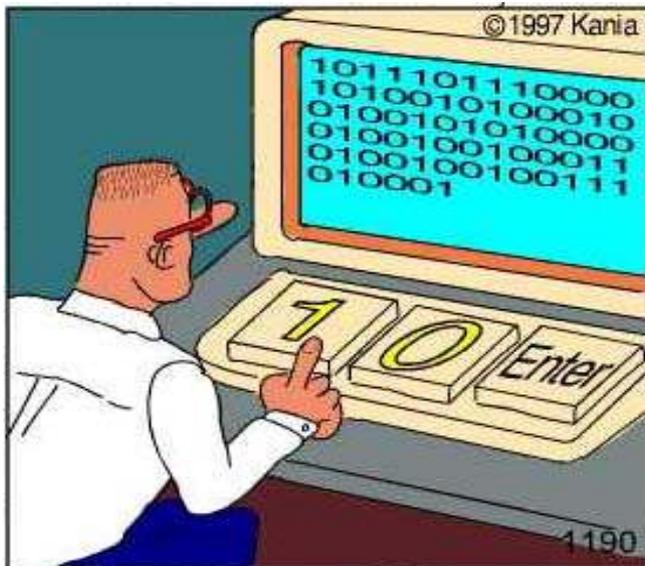
Common examples include: TIP32A, MJE3055, ZTX302.

C/O NELSPHOOT & 801 MALMESBURY STR, WINGATE PARK, PRETORIA [S25.49.36 & E28.16.07]

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## I didn't know that..

**Q:** Why do ships and aircraft use 'mayday' as their call for help?

**A:** This comes from the French word *m'aidez* - meaning 'help me' -- and is pronounced, approximately, 'mayday.'

**Q:** Why do X's at the end of a letter signify kisses?

**A:** In the Middle Ages, when many people were unable to read or write, documents were often signed using an X. Kissing the X represented an oath to fulfill obligations specified in the document. The X and the kiss eventually became synonymous.

**Q:** Why is shifting responsibility to someone else called 'passing the buck'?

**A:** In card games, it was once customary to pass an item, called a buck, from player to player to indicate whose turn it was to deal. If a player did not wish to assume the responsibility of dealing, he would 'pass the buck' to the next player.

**Q:** Did you ever wonder why dimes, quarters and half dollars have notches (milling), while pennies and nickels do not?

**A:** The US Mint began putting notches on the edges of coins containing gold and silver to discourage holders from shaving off small quantities of the precious metals.

Dimes, quarters and half dollars are notched because they used to contain silver.

Pennies and nickels aren't notched because the metals they contain are not valuable enough to shave.

**Q:** Why do people clink their glasses before drinking a toast?

**A:** It used to be common for someone to try to kill an enemy by offering him a poisoned drink.

To prove to a guest that a drink was safe, it became customary for a guest to pour a small amount of his drink into the glass of the host. Both men would drink it simultaneously.

When a guest trusted his host, he would only touch or clink the host's glass with his own.