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WATTS

02 - 2006

Year 76+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.qsl.net/zs6pta>

Bulletins : 145,725MHz 08:45 Sundays / Sondag
Relays : 1840, 3700, 7066, 10135, 14,200 MHz
depending on season

✂ Swapshop: After bulletin 2m and 40m (also on-line)



Chris ZS3B (ex ZS6BGD) besoek Pretoria met sy TAK-TAK. (bl3)

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Tegnies
Bladsy agt

Next Meeting 01-02-2006

Time: 19:30 for 20:00
PARC Clubhouse,
South Campus,
University of Pretoria.
SE cnr University and
Lynnwood roads.

PARC Management team / Bestuurspan Aug 2005- Aug 2006:

Committee members

Chairman, SARL liason, Fleamarkets	Alméro Dupisani	ZS6LDP	almero.dupisani@up.ac.za	012-567-3722	082-908-3359
Vice Chairman, Secretary Rallies, Social, Hamnet	Johan de Bruyn	ZS6JHB	johandbr@absa.co.za	012-803-7385	082-492-3689
Treasurer, Clubhouse, Database, DF hunts	Richard Peer	ZS6UK	peerrk@safrica.com	012-333-0612	082-651-6556
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Repeater custodian	Pine Pienaar	ZS6OB	janpienaar@ananzi.co.za	012-345-1801	082-447-7823

Co-opted / Geko-opteer:

Repeater, technical	Johan Lehmann	ZS6JPL	jlehmann@csir.co.za	012-804-6173	083-300-8677
	Hans Gurtel	ZR6HVG	adele123@absamail.co.za	082-940-0623	082-940-0623
	Pieter Human	ZR6AHT	humanp@telkom.co.za	012-800-2888	082-565-6081
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Auditor	Egbert Begeman	ZS6AZG	egbert@worldonline.co.za	012-347-1905	082-490-1963
Asset control	Andre v Tonder	ZS6BRC	andre.vtonder@absamail.co.za	361-3292	082-467-0287
Tydrenne	Johann de Beer	ZR6YV		011-918-1060	082-857-1561
Klubfasiliteite, vlooiemark	Willie Greyling	ZR6WGR	willie@up.ac.za		082-940-2490
Webmaster,	Edwin peer	ZR6ESP	zr6esp@peer.co.za	012-333-0612	
RAE	Brian Scott	ZR6BJS	scottbri@gmail.com	084-312-7407	
Hamnet, projects	Roy Newton	ZS6XN	newtonr@telkomsa.net	012-547-0280	
Morse testing	Bill Ingleson	ZS6KO		012-331-2327	
Tea	Molly Peer	ZR6MOL	molly@peer.co.za	012-333-0612	
	Doreen de Bruyn	ZR6DDB		012-803-7385	

Editorial

Having effected a major revamp of my shack, I said goodbye with considerable reservation to some trusty equipment that had become redundant. Some rearrangement was needed and most RF, control and audio cabling was redone to suit the new layout. The change is such that I am still not quite used to it, but I am now glad I found the courage. Several audio connectors were replaced, sockets cleaned up, and one RF connector went to the dustbin. Some of these did over 20 years of service.

Here is the crux: Although you think you are 100% reliable, go through the exercise of disconnecting the lot and at least treat all surfaces with contact cleaner, especially the sockets on your (older) radios as plating tends to go dull and non-conductive. Unscrew connectors to inspect soldering, shorten unnecessarily long connections and, while you are about it, get rid of all the years of dust under and behind the equipment!

Someone once jokingly told me that being so perfectionist and over-tidy was a sign of a sick mind, but having genuine reliability is what I want – don't you?

Redaksioneel

Na 'n onlangse hersiening van my radiokamer, het ek met aansienlike voorbehoud tot siens gesê aan party betroubare apparaat wat te veel en oorbodig was. 'n Bietjie herrangskikking was ook nodig en die meeste RF-, beheer- en audio kables is oorgedoen om by die nuwe uitleg aan te pas. Die verandering was sulks dat ek selfs nou nog nie heeltemal daaraan gewoond is nie, maar ek is nou bly dat ek die moed kon bymekaar kry.

Verskeie audio verbinders is vervang, sokke skoonmaak, en een RF verbinder is asblik toe. Party van hulle het meer as 20 jaar diens gedoen.

Hier is nou die kern van die saak: Alhoewel jy dink dat alles 100% betroubaar is, gaan deur die oefening om alles te diskonnekteer en behandel tenminste alle oppervlaktes met kontak-schoonmaakmiddel, veral die sokke agter op jou (ouer) radios omdat die platering al hoe meer verdonker met gepaardgaande slegte geleiding. Skroef konnektors oop en kyk na die soldeerlasse, maak onnodige lang verbindings korter en, terwyl jy dan so besig is, raak ontslae van al die jare se stof onder en agter die apparaat!

Iemand het eens op 'n tyd gegrap dat perfeksionisme en oormatige netheid 'n teken was van 'n siekte, maar betroubaarheid is wat ek wil hê – jy dan nie?

Die lewe op Aarde is duur, maar dit sluit wel elke jaar 'n verniet reis om die son in.
Living on Earth is expensive, but it does include a free trip around the sun once a year.

Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 10 Jan. 2005

Welcome: Almero ZS6LDP declared the meeting open and welcomed all who attended. Almero extended a special word of welcome to all the visitors .

Attendance: The meeting was attended by 18 members and 2 visitors. Apologies were received from Hal ZS6WB, Malcolm ZR6OLM , Helen Newton , Edwin ZR6ESP and Hilary ZR6HAP.

Personal Matters/Lief en leed: Roy ZS6XN se dogter, Helen het begin met Graad 8.

Johan ZS6JHB en Doreen ZR6DDB se oudste kleindogter Patricia , is ook vanjaar in Graad 8 en die oudste kleinseun in Graad 1. Dawid ZS6DSG , het verloof geraak aan Juanita .

Bertha,lv van Hans ZS6KR , sterk tuis aan.

Pine ZS6OB gaan binnekort weer oupa word.

Matters arising from previous minutes: None.

Minutes of previous meeting: The minutes of the previous meeting were approved. Proposed by Willie ZR6WGR and seconded by Pine ZS6OB.

Club Activities/Klub Bedrywighede.

Rallies/Tydrenne : Johan ZS6JHB – Volgende Tydren - 21/01/06 - All Tar Rally.Tydren sal begin in Johannesburg – Wesbank Raceway – Gerotek - Zwarkops – Kyalami Daar sal van 12 veldstasies, 3 mobile stasies en 1 beheer stasie gebruik gemaak word.

Foxhunts/Jakkalsjag: Richard ZS6UK – Foxhunt will commence in February 2006 .

Social/Sosiaal : Johan ZS6JHB – Next social , Day in the sun , will be in Feb/March 2006. Date will be announced.

Financial : Richard ZS6UK – Informed the meeting on the financial status of the club – all is well .

Projects : Hans ZS6KR – Overvoltage protection kits still available .

Technical/Tegnies : Pine ZS6OB – Thanked Pieter ZR6AHT and Johan ZS6JPL for worked done on the repeater .

Tegniese praatjie op Maandae aande .

Pine asked for assistance in locating a security co. causing breakthrough on our repeater.

Fleamarket/Vlooiemark : Almero ZS6LDP – Next fleamarket – 1/04/2006 at PARC.

General/Algemeen.

RAE classes – Brian ZR6BJS – Classes will start end February if there are enough candidates .

ZR6GN – Charl proposed that we start with a Amateur Radio Museum. The proposal was well received and Willie ZR6WGR donated a radio towards the museum.

Presentation. Ed ZS6UT gave a talk and CD presentation on a new concept 160m vertical antenna.

Next Meeting/Volgende vergadering: 8 Feb 2006 – 19:30 for 20:00 .

Ed: Ed ZS6UT's presentation of Roy Vincent's (Rhode Island University) patented innovative DLM (Distributed Load Monopole) antenna showed that advances in antenna design are still possible. The US Navy was interested in it's increased horizontal low radiation angle properties and better efficiency above a quarter wave dipole of any kind. The pictures of their test methods and facilities were certainly interesting. Thanks Ed for an informative presentation.

Do you have something to present at meetings? Share your expertise or present the expertise of others at our regular presentation slot at club meetings. Anything technical, even outside the ham-radio field, can be of interest. Overhead projector, video, DVD and CD screening facilities are available.

Voorblad: ZS3B se drie-wiel Tak-Tak kompleet met radio installasies voor- en slaapperiewe agter. Die aandrywing is 'n 550cc 2-silinder Daihatsu enjin. Die stuur is soos 'n motorfiets s'n. Die HF radio is bo teen die dak. Hierdie voertuie is volop in lande soos Indonesië waar hulle privaat bedryf word as publieke vervoermiddels. Die passasiers sit dan agter onder 'n sondak.



Birthdays

Februarie
Verjaarsdae



03 Nico ZR6VT
03 Willie ZR6WGR
03 Aletta, lv van Alf ZS6ABA
06 Ellen, sw of Joe ZS6AIC
07 Andre, son of Andre ZS6GCA
07 Victoria, dogter van Diana en Louie ZS6LVW
08 Melvyn ZS5MF
09 David, seun van Ellen en Joe ZS6AIC
09 Kenny ZS6KMM
10 Paddy, sw of Kenny ZS6KMM
11 Leanne, sw of Allan ZR6AHL
12 Yvette, daughter of Rika and Errol ZR6VDR
13 Gerda, lv van Hennie ZR6LOM
13 Sander ZS6SSW
15 Philippe, son of Claire and Robert ZS6ARC
16 Pat ZR6AVC, sw of Frank ZS6GE

February

Anniversaries Herdenkings

03 Heather and Vince ZS6BTY (16)
13 Claire and Robert ZS6ARC (46)
18 Sarina en Willie ZR6WGR (6)
27 Paddy and Kenny ZS6KMM (41)
28 Martie en "JB" ZR6YV (30)

17 Freddie ZS6JC
22 Christopher, son of Joey and Graham ZR6GJR
23 Arrie ZS6IRA
24 Daniel, son of Claire and Robert ZS6ARC
24 Claire, daughter of Anne and Jac ZS6QA
24 Petro, lv van Gert ZS6ZB
25 Bernice, lv van Pieter ZR6KSA

Sick Parade | Krukkelys

May, sw of Bill ZS6KO is recovering from a hurt arm after a fall.
Bertha, lv van Hans ZS6KR sterk aan by die huis
Pine ZS6OB word alweer oupa.

Nuwe lede | New Members

Aansoeke is ontvang van Tobie van Rensburg ZR6ZT and Johnny Burroughs ZS6BAJ

Verlowing

Geluk aan Juanita en Dawid ZS6DSG !

PARC Diary | Dagboek

Jan 20-22 PEARS VHF/UHF Contest 16:00-16:00
28-29 CQWW 160m CW Contest
end :Submissions for Tinus Lange Technical Excellence Award
Feb 01 PARC Club meeting
04 SA-AWA day at Rand Airport
04 Fleamarket E.Rand Radio Club, Springs
11-12 SARL HF Field Day – 1st leg 10:00-10:00UTC
14-15 Dutch PACC Contest
18-19 ARRL International CW Contest
28-29 CQWW 160m SSB Contest
Mar 18-19 SARL VHF/UHF Contest part I

Snippets | Brokkies

- **For our electronics tinkerers:** Visit <http://technick.net/public/code/circuits.php> where you will find a wealth of proven circuits with descriptions covering just about any application. Besides that, there is a 'pinouts' section defining connections to all types of plugs and sockets. Another one to investigate is: <http://www.discovercircuits.com/resources.html> Here are also links to component data and manufacturers.
- Our **next foxhunt** will be on 18 February. Contact Richard ZS6UK 333-0612 if you want to participate.
- **RAE classes** start toward the end of February. Contact Brian ZR6BJS for details. 084-312-7407.
- **Volgende vlooiemark | Next fleamarket** : 1 April 09:00
- **Roy ZS6XN has 3-LED battery condition indicator kits** available at R20 each. Contact him on 012-547-0280
- **Radio protection kits** are still available from Hans ZS6KR. [Owners of older negative regulator supplies such as Yaesu FP747/757HD etc. must ask for special installation instructions.](#)

Instruction labels on consumer goods:

On a child's Superman costume: Warning: wearing this garment does not enable you to fly.
On a packaging for a Rowenta iron: Warning: do not iron clothes on body.
On a Korean kitchen knife: Warning: keep out of children.

ZS 6 PTA

1930-2006

APRIL, 1950

11

THE YLs' CORNER

By DIANA TUCK, ZS6GH



The call sign of our illustrious late Tinus Lange ZS6TL was pre-owned in the 1950's by the young lady in the photograph. It is unknown for how long she had use of it.

YL of the month . . .

Who is "Sylvia"?—that is the question this month. We have great pleasure in introducing her to you.

She comes from G-land, and has been in ZS-land for three years. Her call sign is ZS6TL, and the OM is ZS6TK. Bernard and Sylvia learnt their Morse Code at the same time and took their tests on the same day.

It would seem that Sylvia likes trotting around, for she has been to CR7, ZE and VQ2. Her voice has been heard from stations in these countries, as well as from her shack in Johannesburg. She has one Junior op., who keeps her busy.

In her shack is a super AR 88 and the favourite band is 20 metres.



More Mobiling Members of the past: Ritchie ZS6ET



The Possible Impractical Impossible Circuit

WOULD YOU BELIEVE A SINGLE-DIODE FULL-WAVE RECTIFIER?

By TOM DUFFY and JERRY OLEKSY

A ONE-DIODE full-wave rectifier? Impossible! Everyone knows you need at least two diodes for full-wave rectification. Or, should we say, everyone *assumes* that you need two diodes.

You can demonstrate one-diode full-wave rectification with the circuit shown below, left. The frequency of the input is relatively unimportant. Connect an oscilloscope across output terminals *D* and *C* and you should get one of the three waveforms shown, depending upon the position of the potentiometer arm.

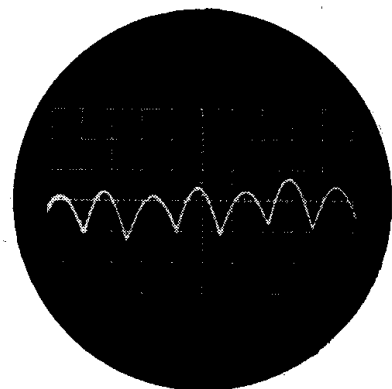
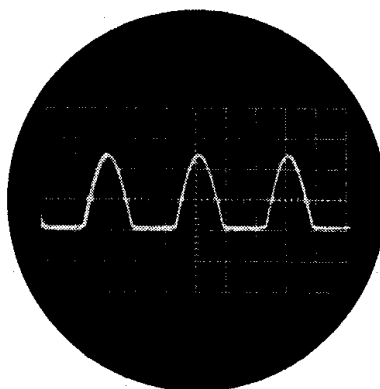
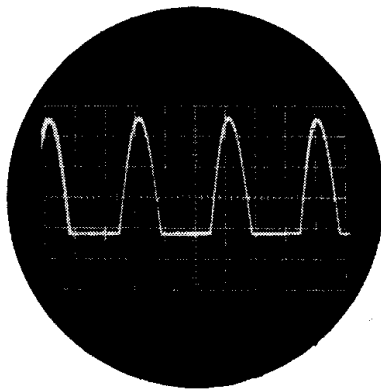
With the potentiometer arm at the top, the waveform should be like the one at the extreme left. Rotating the arm to the other extreme should produce a waveform like the one in the middle photo. If you carefully balance the two waveforms (via the potentiometer), the output should become a typical full-wave rectification pattern (right).

The two theory schematics (center and

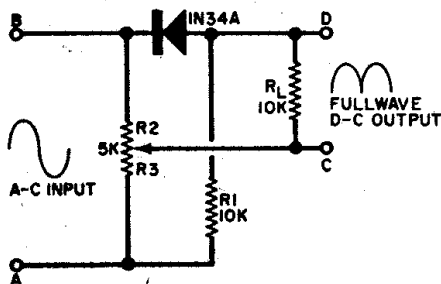
right) show what's happening. When terminal *B* is negative with respect to *A*, the current flow is indicated by the arrows. Note that current goes through the rectifier and through the load resistor. When the polarity of the input is reversed, current flow through the rectifier is blocked, but a new path is formed through resistor *R1* and current continues to flow through the load. Thus, no matter what the sine-wave excursions are, the direction of flow through the load resistor is the same—hence, you have full-wave rectification.

Why isn't this circuit used in practical everyday equipment? Well, in a conventional full-wave rectifier the efficiency can go up to 90%, but in this one-diode arrangement the efficiency is only about 25%. Also, all of the resistors are in series with the load and any voltage drop across them will subtract from the output.

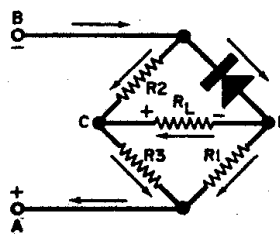
—30—



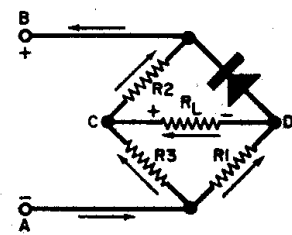
The test circuit diagram is shown below. You can easily duplicate this experiment as a science fair project. All of the scope photos above were taken off a Heathkit Model IO-14.



As potentiometer is rotated from one extreme to the other, traces show two different half-wave patterns (above left, and center).



Balance the two half waves and the scope trace should look like the one above. The theory diagrams are shown below.



Semiconductor manufacturing steps

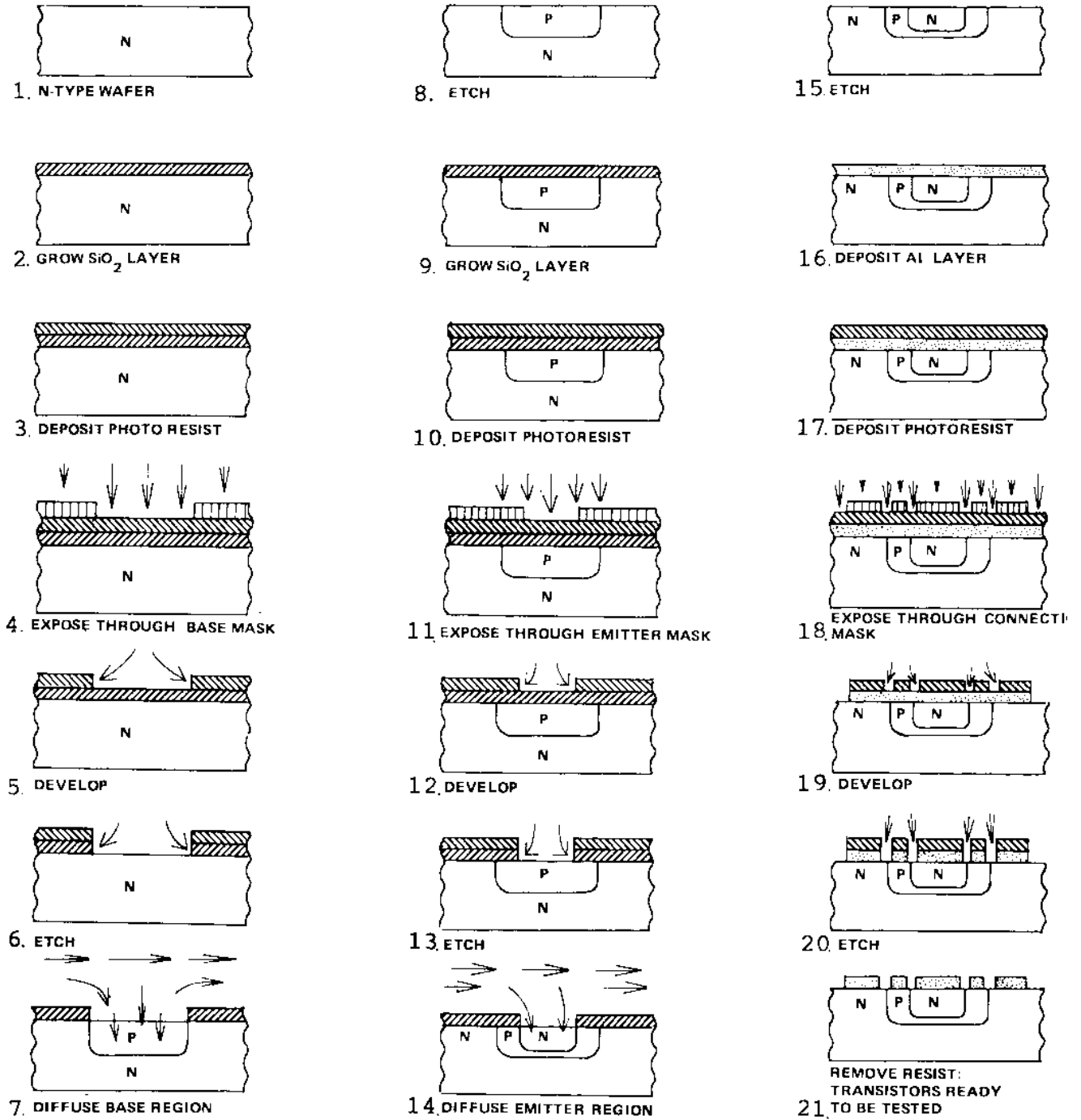
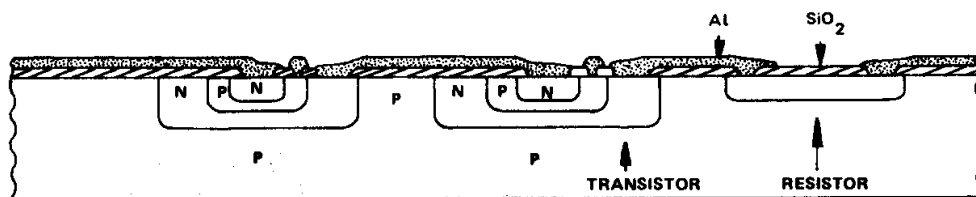


Figure 3. Fabrication of a planar transistor.

In combination = integrated circuit (also note the turmoil this technology caused [p8])



DOCTORS, PLEASE NOTE

1935

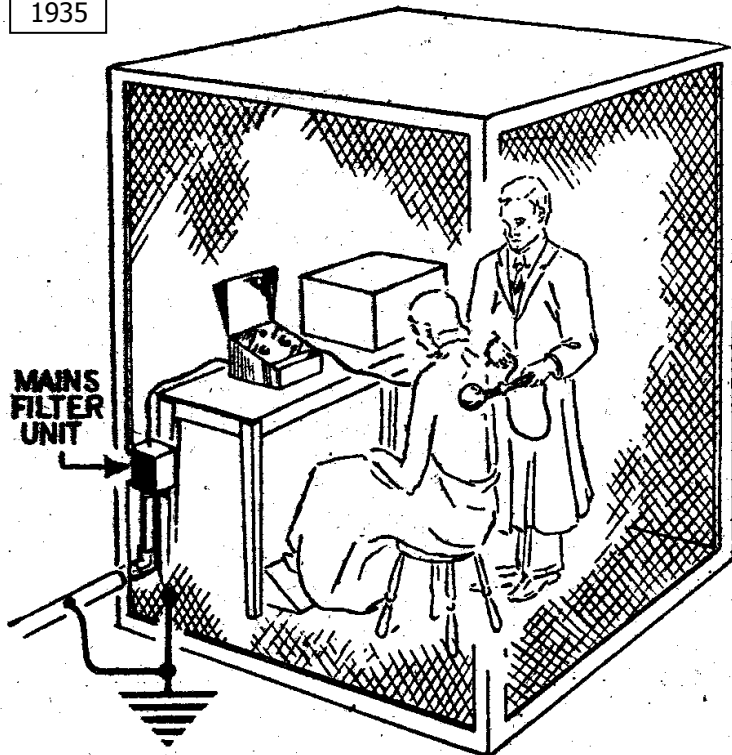


Fig. 5. Where high-frequency medical apparatus is used it should be operated in a screened "cage" with mains filters as shown, if interference with neighbouring radio sets is to be avoided.



----- What next? -----

The "Chip"

...will it make or break your job future?

THE DEVELOPMENT OF INTEGRATED CIRCUITRY is the dawn of a new age of electronic miracles. It means that many of today's job skills soon will be no longer needed. At the same time it opens the door to thousands of exciting new job opportunities for technicians solidly grounded in electronics fundamentals. Read here what you need to know to cash in on the gigantic coming boom, and how you can learn it right at home.

TINY ELECTRONIC "CHIPS," each no bigger than the head of a pin, are bringing about a fantastic new Industrial Revolution. The time is near at hand when "chips" may save your life, balance your checkbook, and land a man on the moon.

Chips may also put you out of a job...or into a better one.

"One thing is certain," said *The New York Times* recently. Chips "will unalterably change our lives and the lives of our children probably far beyond recognition."

A single chip or miniature integrated circuit can

perform the function of 20 transistors, 18 resistors, and 2 capacitors. Yet it is so small that a thimbleful can hold enough circuitry for a dozen computers or a thousand radios.

Miniature Miracles of Today and Tomorrow

Already, as a result, a two-way radio can now be fitted inside a signet ring. A complete hearing aid can be worn entirely inside the ear. There is a new desk-top computer, no bigger than a typewriter yet capable of 166,000 operations per second. And it is almost possible to put the entire circuitry of a color television set inside a man's wrist-watch case.

And this is only the beginning!

Soon kitchen computers may keep the housewife's refrigerator stocked, her menus planned, and her calories counted. Her vacuum cleaner may creep out at night and vacuum the floor all by itself.

Money may become obsolete. Instead you will simply carry an electronic charge account card. Your employer will credit your account after each week's work and merchants will charge each of your purchases against it.