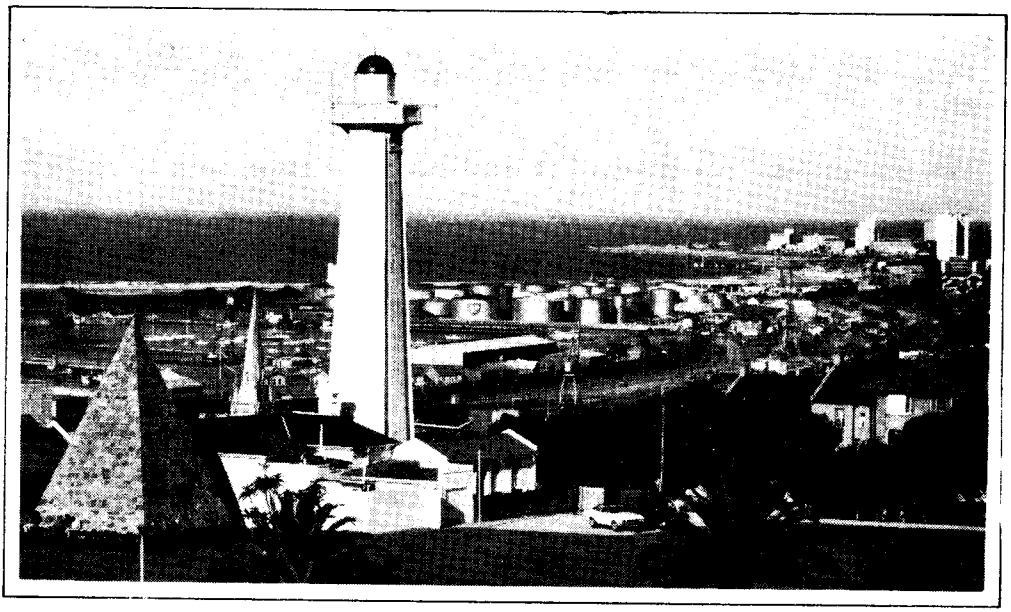
November 1993

QSX

Port Elizabeth



The Port Elizabeth Branch of the
South African Radio League
P O Box 10402
Linton Grange 6015

NOTICE OF MEETING

The next Meeting of the Port Elizabeth Branch will be held on Friday, 19 November 1993, commencing at 20h00 (8pm) in the Civil Defence Centre, Westview Drive, Mill Park, Port Elizabeth.

This being the last meeting of the year it will take the form of a social get-together and flea market. Please bring your XYL/YL with to join in the get-together as well.

PLEASE BRING ALONG A PLATE OF SNACKS AND YOUR OWN REFRESHMENTS AND DRINKING GLASSES. Coke will be available as usual.

George ZS1GJO has very kindly donated a bag of resistors to the Branch and these will be on sale. George has done a fantastic (and no doubt time-consuming!) job of packaging the resistors. Also, Steve ZS2WS will be bringing along some bits and pieces ex equipment from his saltmine, including some nice power supply heatsinks. Many thanks to you both.

Please bring along any radio equipment and/or components you wish to dispose of.

Flea market items not disposed of must please be taken back home by the seller/donor.

This should be a great evening, so see you there !!

HAMNET

There are big plans afoot for the holiday season with regard to road safety. Particularly in the Transvaal, Hamnet will be providing a significant contribution toward reporting of traffic movements and accidents. We in the East Cape can do our little bit to help too. While travelling, be alert to any unusual conditions or occurences on the roads, notably accidents and, if necessary, report this to the control station. The control station will be using the callsign of ZS2DCC. When at home, monitor the repeaters and/or HF for any emergency traffic and pass this on to the control station. Full details of times, frequencies, etc to monitor will appear in the December issue of QSX.

73, Al ZS2U

ZS2CTR on Frequency

* The response from readers for articles for QSX was most surprising and I am most grateful for the articles and letters received this month. Now what about next month! QSX will be published in December as usual, but not in January 1994.

The prospect of the Branch purchasing a decent printer to enhance the production of QSX is being looked at by the Committee. The matter along with its financial implications will be considered after the League AGM.

* I must profess that I am not a newsletter editor's bootlace - I am merely filling a gap. But we need to have a newsletter - spelling mistakes and all !! Could there be someone out there who might like to take on the job? They certainly would be very welcome to do so.

* A suggestion has been made that the Branch should hold a VHF QSO Party just for YL operaters. What do you think of the idea, ladies?

* Thanks go out to Al ZS2U, Gerhard ZS2UM, Garth ZS2HB and Keith ZR2AAX for giving up a lot of time to provide RAE classes on behalf of the Branch. Your efforts are very much appreciated.
We are all holding thumbs for the candidates!

* The Committee has discussed the invitation to the Branch from Roger Davis ZS1J to hold a get-together and braai at his farm on the other side of Plettenberg Bay. One suggestion made is that because of the distance involved we should consider "overnighting" in the area, say at Knysna. It is likely that this event will only take place after the League AGM in March 1994. Perhaps you could give some thought to this.

* Another Intechnet will be held on Sunday 5 December 1993 at 7:30pm. HQ is hoping to have an American Space Shuttle Amateur-Astronaut as the speaker. The telephone link-up will be relayed on 3640 KHz and on the Lady's Slipper and Grahamstown repeaters. Want to talk to an astronaut? Here's your chance!

* The social get-together and flea market this Friday should be a gre. way to end off Branch activities for this year. 'Look forward to seeing you there!

Until next month, **73, Colin ZS2CTR**

SARL AGM UPDATE

* Our appeals for members willing to serve on an AGM Organising Committee to come forward have to date not been positive, but our Convenor, Dick ZS2RS, is undeterred by this for now, and planning by himself and The Branch Committee is continuing.

* The Welcoming Party on Friday evening, 11 March 1994, will be held at a separate central venue where a lot more people can be accomadated. Delegates, Councillors, members as well as any hams will be welcome to attend this Cocktail Party free of charge. We plan to do our own catering for this function and will need the assistance of the XYL's and YL's of many members to do this.

  Early in the new year all XYL's and YL's associated with the branch will be contacted and a special meeting held to plan and arrange this function. We are sure that we can count on your friendly support!

* The programme for the AGM has been finalised and will be published in the January 1994 issue of "Radio ZS".

  A special item we have included is a get-together of XYL's and YL's at the PE Technikon for the Saturday morning whilst the AGM is in progress.

  In the Saturday afternoon two lecture presentations will be given at the Technikon - VHF Radio by Mike Bosch ZS2FM, and the Presentation of RAE Technical Classes by Hans ZS6AKV.

  The AGM Dinner and Prize-giving will be held at the Technikon Conference Centre Dining Room on the Saturday evening. Seating is unfortunately limited to 130 persons.

  In addition, we propose to include a coach tour for our visitors over the weekend.

* WE APPEAL to all members to please give a few moments thought to how they might be able to assist with the AGM, both directly or indirectly by way of a friend or business associate. Assistance in any way will go a long way to help us. PLEASE GIVE THIS SOME THOUGHT. Thank you.

VERY SHORT HELICAL ANTENNAS FOR HF. Shaw ZS1I

A short helically wound antenna is probably most often seen as a "Rubber Ducky" for 2 metres and other hand held transceivers. Also found on automobiles for FM reception. The "Joy-Stick" commercial antenna for indoor and mobile use was also based on this method of shortening. A very efficient mobile unit from Japan gives a good account of itself.

The ARRL Handbook gives an example of a helically wound ½ wave dipole for 40 metres at about one third the size of a standard half wave (20 metres). An older edition gave details of a short helical for 160 metres used as a vertical radiator, worked against ground.

The theory seems to be that the distributed helical inductance flattens the usual sinusoidal current distribution curve of a half wave dipole, thus giving fairly high current over the length of the coil and thus radiating from its entire length.

My 'shack' is on the second floor of a block of flats, so the desk top on which my FT 707 stands, is about 8 metres above ground level. The height from desk top to ceiling is about 1,8 metres. A length of wood (meranti) was found, that would just fill the gap and stand neatly in place. The section was about 44 x 10mm, giving a circumference of 108mm.

I wound 2 helicals for 80 and 40, and a third one for 20 metres only, 1,2 metres in length. In each case I used a half wavelength of 23 gauge, enamelled copper wire, from an old transformer. On 40 metres a half wavelength for 7,050 khz, equals approximately 21,25 metres at 108mm per turn, a pitch of 9mm per turn gives about 200 turns. This is not critical. The other bands are easily calculated.

A banana plug at the end of the wire with about 20cm of lead, fits neatly into the centre of the coax outlet of the atu on each band. The antenna loaded to a 1:1 SWR with the atu dial readings about at book value, for a 50 ohm load. There was little variation over the entire 40 metre band,

On 20 metres I have worked into California via long path. On 15 metres into the UK and on 40 metres, reports are good all around the Republic. On 80 metres, into Zimbabwe. Reports are equal to those received by good mobiles.

At the very least, it was an inexpensive way to pass a few happy hours and the experiment worked.

VERSATILE LONG-DURATION AUTO-SHUTOFF TIMER

by Brian Weller ZS2AB

Being a great believer in that marvellous invention, the Electric Screwdriver, I found myself rather frequently faced with a problem - when I most desperately needed it, the batteries were flat !! The unit came with a plug-in charger adapter which, according to the booklet, would provide a complete recharge from flat in 3 hours. Now it's common knowledge that one can recharge NICAD cells at virtually any current, but as the charge current is raised, the time has to be carefully controlled to prevent the cells overheating and possibly venting through excess pressure, or worse, exploding.

A couple of neglectful charges showed that the cells were pretty warm if left on for much longer than the specified 3 hours, so faced with the burden of having to remember to turn the thing off at the right time, the unit described here was designed to take care of the problem. The main design criteria were that a simple button push would start it, it would shut itself off, and would draw no current when not charging.

The circuit is based on a 555 timer running in the Astable mode. This drives a commonly available CMOS multi-stage counter IC which counts the pulses coming from the 555 and activates its various outputs as the count progresses. The counter could be either the CMOS 4020 or 4040, the 4040 being used here because it was to hand. This chip has 12 outputs providing division ratios from 2 right up to 4096. (if one were to run the 555 at a 15 min delay and use the div-by-4096 output, the delay would be 42.6 DAYS!!)

In the final design, the 555 runs at a delay of 42 seconds and the div-by-512 output is taken from the counter IC. (The mental arithmetic buffs will already have worked out that 42 secs times 512 is not 3 hours, but 6! - quite right, but bear with me).

The fiddle comes courtesy of the designer of the counter IC. Lets look at the overall operation of the timer. The push button applies Mains to the primary of a small transformer with a secondary of about 15 volts at around 30 mA. The secondary voltage is rectified and smoothed and fed to a 12 volt regulator which powers the 555, the 4040 and the relay circuit. At the start of the whole sequence, the outputs of the 4040 are low. The relay is driven by a PNP Darlington transistor whose base is pulled low by the output of the 4040 hence the relay pulls in immediately and its normally-open contact shorts the push-button, providing a self-holding function. Power is applied to the output socket, and remains on until the end of the delay period. I hope that the logic purists will forgive the liberty I took in sinking the base of a power transistor directly with the output of a CMOS device! SKANDE!!

With the base resistor values shown, the current into the output of the 4040 is only 250 microamps, and the chip will not be too stressed. The TIP125 was chosen as it has a gain of about 1000 and also has a built-in back-emf diode to protect it from spikes when the relay releases. (An alternative transistor is the BC516 which has a higher gain but no internal diode - see notes on the diagram)

Now, back to the fiddle with the counter chip. The outputs of such counters start off low and remain so until **half-way through the count**, when they go high, to fall low again when the count is completed - so.... the output chosen for this job will go high when a count of 256 x 42 secs, near enough to 3 hours, is reached, and when it does, the base of the TIP125 will go high and the relay will drop out, disconnecting the mains from the power transformer and the output to the charger adapter, thereby shutting the whole system down until the button is pressed again.

There is one little problem with these counters and that is that the internal count could be anything when the chip is powered up, so it is necessary to reset the count to zero before starting the timing sequence to ensure that the correct count is achieved. The reset line on the 4040 needs to be taken high briefly to reset all the latches and then go low again in order to count. This is achieved very simply by the .1uF capacitor and 100k resistor attached to pin 11 of the 4040. Before power is applied, the capacitor is obviously discharged. When the 12v appears on the capacitor, it charges through the 100k resistor but for a very short time whilst it is charging, the junction of the cap and resistor (and hence pin11) will shoot up to nearly 12 volts and drop low again as the charge in the cap builds up. This resets the 4040 and ensures that a correct count will be obtained. By the way,

unless you've got a really good oscilloscope, don't even bother to look for this pulse, you probably will not be able to see it although a decent logic probe will register it.

To set up the timer, put a voltmeter between pin 3 of the 555 and ground, and, with the aid of your watch, set the time for one full delay period of the 555 to 42 seconds. Remember that the 555 output goes high when the cycle starts and drops low at some point during the delay period, going high again at the end of ONE FULL DELAY CYCLE so you must take the time from the start of one low-to-high transition to the time of the next low-to-high change. The length of time during the total delay period which the output is either low or high is a direct function of the ratio of the timing resistors and is not important here.

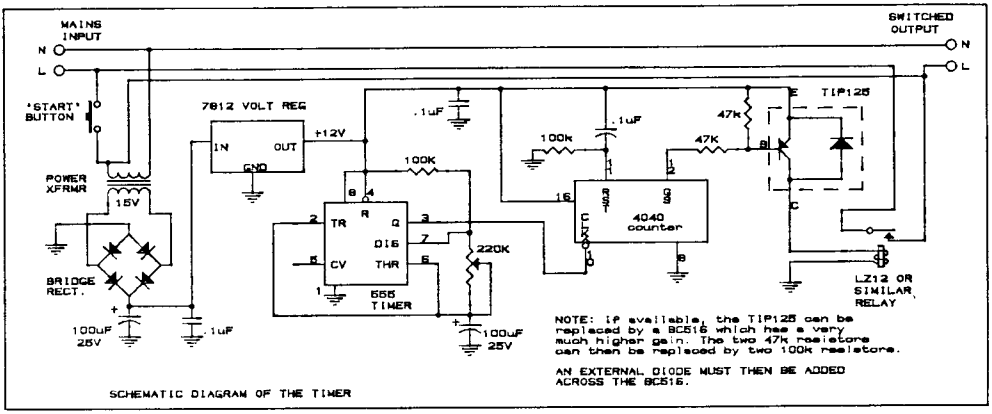
In the original unit, a preset 220k control was mounted on the PC board and once set, was not needed to be adjusted again, however if you want to make the timer variable, use a standard panel-mount control and calibrate the thing to suit your needs.

A WORD OF WARNING: In the diagram you will see that the preset is connected directly between pins 6 and 7 of the 555. Should the preset be turned all the way to the low-resistance end, effectively shorting pins 6 and 7, the 555 will be damaged. If you want to be sure that you don't accidentally pop the 555, connect a resistor of 10k between one end of the preset and its corresponding pin on the 555. It does not really matter which end, it will just stop you shorting pins 6 and 7 together and will not affect the timing too radically. This mod. will be especially vital if you DO use a panel-mounted control as you may well turn it all the way to the "wrong" end. When you get to calibrate the timer, if you have not included the 10k resistor, set the preset pot to about mid-rotation before you start testing. You will get a delay of 42 secs with the pot not far off the middle anyway, or you should, if your 100uF capacitor is OK.

The rest of the circuit probably needs no long explanation. The original unit drew just on 25 milliamps from the 12 volt supply when the relay was energised, and I used the very common 1N4148 diodes for the bridge rectifier. The voltage regulator can be the low-power 78L12 version if desired, it's good for about 100 milliamps and should not show strain in this circuit. The unit can be constructed in just about any box you like. If a metal box is used, it would be wise to connect the box to the mains earth for safety.

I realised right at the end of the deadline for this article that I had not shown a fuse in the diagram. There should be a suitable fuse incorporated in the incoming mains Live connection before the supply goes to the pushbutton and relay contact. The fuse should be rated to suit the load you intend to switch, in the original unit I used a 500 milliamp fuse which is more than adequate.

A small PC board which accomodates everything except the power transformer and pushbutton is available from the writer. (Tel. (041) 35-3935)



AUSTRALIAN LADIES
AMATEUR RADIO ASSOCIATION

- Submitted by: Anne Olivier ZR2ABC

On 30th June, 1975 a group of women interested in amateur radio met in Melbourne and formed an association known as LARA. The foundation President of LARA was Norma VK3AYL (now VK2DJO). Since 1975, ALARA (as it is now known) has grown, with over 200 members throughout Australia and the rest of the world. The main aim of ALARA is to encourage the active participation of women in amateur radio. We have an Award, contests and trophies to be won. We have numerous nets and activities, as well as a quarterly Newsletter.

The official ALARA net is held every Monday night on or about 3.580 MHz (depending on QRM) at 1030 hours UTC or 1000 UTC during daylight saving time, and links YL (young lady) operators all over Australia for a regular chat. The net allows YL newcomers to try their hand at operating, overcoming ("mike shyness", and to come up and say hello. All YLs are welcome. We all have to start some time, so why not come and join in? If you do not have your own station and callsign, you can still join in if you are the guest of a licensed station, providing all transmissions are supervised by that station according to the Regulations.

Monthly meetings of ALARA are held on air on the fourth Monday of each month (except December) on 3.580±, at 1030 UTC (1000 UTC during daylight saving), so distance need not prevent anyone from having an active say in the running of their Association.

Some other YL nets are:

YL 222 DX Net - Monday 0600 UTC, 14.222 MHz
15 metre net - Friday 0400 UTC, 21.188 MHz
Western Australia ALARA/YL net - Monday 1200 UTC, 3.585±
VK4 YL Net - Friday 3.575 MHz - 0930 UTC

Members of YL Clubs throughout the world meet in the BYLARA (British Young Ladies' Amateur Radio Association) world-wide "YL Activity Day" on the sixth day of each month.

This is a lovely way to meet and come to know YLs normally only contacted briefly in contests. It allows you to have more personal QSOs than are possible in a formal YL net. Suggested frequencies are:

3.588, 14.288, 21.138, 28.588, 28.688
Listen on the hour UTC and if no YL activity is heard, call CQ YL as others may be listening too.

Continued/ALARA.....

ALARA also holds a world-wide Contest on the second Saturday in November, and this is great fun. Everyone joins in, non-members and OMs alike. Valda VK3DVT designed the winner's certificate, most attractive in black and yellow. Also, there is the Mrs Florence McKenzie Trophy for the Australian YL novice with the highest CW score. Watch the Newsletter and "Amateur Radio" for details.

ALARA issues a Newsletter quarterly, and news of your plans and activities, exam results - in fact anything you would like to share with the other girls - would be welcomed by the Editor.

Watch too, for the ALARA notes and photographs in "Amateur Radio" each month by our Publicity Officer. This magazine reaches over 7,000 amateurs (YLs and OMs) throughout Australia and overseas. ALARA is affiliated with the WIA, who publish "Amateur Radio"

ALARA has a most attractive Award, designed by Heather VK3AZU, the certificate combines dignity and delicacy, with Old English lettering in the centre, and the beautiful wildflowers of each State, hand-coloured by Valda VK3DVT, forming a border. Conditions for gaining this Award are published regularly in the Newsletter.

"33", the signature used between YLs was originated in 1939 by Clara W2RUF (now a silent key) and adopted by the American Young Ladies' League for exclusive YL use. It means "love sealed with friendship between one YL and another".

Age is no limiting factor, as we have girls from 12 years old to great-grandmothers sitting for (and passing) exams. Even before you get your licence, we hope you will become a member of the Australian Ladies' Amateur Radio Association.

Not all members have an amateur licence, and if you would like to join ALARA (you would be most welcome),

What about starting 'SALARA" - There are already about 18 YL/XYLs in Port Elizabeth!!!

Membership Fee:- $A10.00 for DX membership

Badge : $A5.00
Spoon : $A7.20

CONTACT: ANNE OLIVIER - ZR2ABC

VHF QSO PARTY Results !!

The main purpose for organising this QSO Party was to provide an opportunity for amateurs, in the East Cape particularly, to make many simplex contacts on two and six metres, and in this regard it has proved to be a resounding success. Twenty logs have been received and at least sixty stations participated. To my knowledge, no previous two metre event has been so well supported in the East Cape. Unfortunately, six metre activity was a bit low, and it would have been nice to see more activity from the East London area. Band conditions were not so good, but nevertheless a few Port Elizabeth stations managed to contact John ZS2AH and Erich ZS2EF in East London, John ZS2J in Bathurst and Van ZS2JC and Paul ZS2ABY in Humansdorp. Highlights were that Mike ZS2FM managed to contact Mike ZR5ADQ in Umbumbulu and Leroy ZS6XJ in Randburg on six metres. Mike ZR2MBM was heard in Cape Town on two metres. It was great to see several newcomers to amateur radio putting up a very creditable performance. Here are the results :

Zone A Fixed Station 2m

Station	Contacts	Points
ZS2SZ	45	59
ZS2ABU	36	54
ZR2DCB	30	40
ZS2Y	28	38
ZS2FM	15	36
ZR2ABT	23	33
ZS2BWB	20	30
ZR2BG	23	29
ZS2F	16	26
ZS2DO	13	24
ZR2KA	13	23

Zone A Portable Station 2m

Station	Contacts	Points
ZS2U	43	137
ZR2MBM	43	130
ZR2PF	43	130
ZR2AAR	18	76

Zone A Portable Station 6m

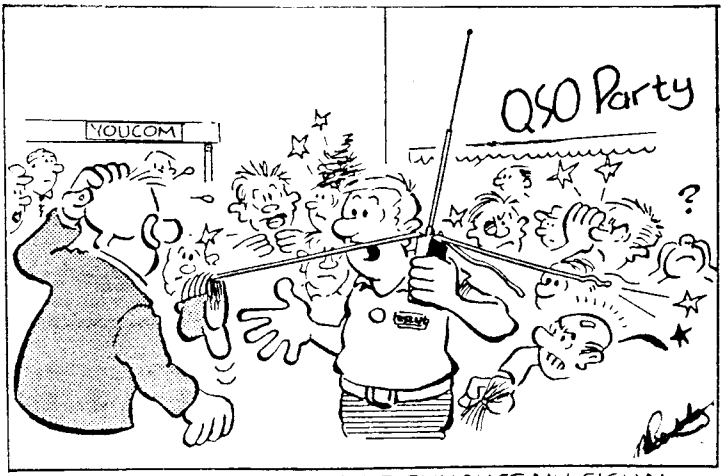
Station	Contacts	Points
ZS2U	7	23
ZR2MBM	4	12
ZR2PF	4	12

Zone A Fixed Station 6m

Station	Contacts	Points
ZS2FM	9	40
ZR2ABT	6	12

There were no logs received from Zone B.

QSX Port Elizabeth



I WAS HOPING RADIALS WOULD ENHANCE MY SIGNAL

FOCUS ON MEMBERS

* Nice to hear that Jeff ZS1VS is recovering well from his back injury.

* Congratulations to Phil ZS2PP on successfully building a 4-band HF QRP sideband transceiver.

* Andre ZS2ACP worked the recent Space Shuttle mission on phone on two occasions recently. Well done, Andre. The PE Branch flag flies again!!

* The new Uitenhage 2-metre repeater assembled by Martin ZS2ABN is working very well - the most noticeable improvement being the reduction in interference from the many commercial stations at the high-site. Thanks for your efforts, Martin.

* Steve ZS2WS recently tuned-up the duplexers for our Town and Uitenhage 70cm repeaters. Many thanks for your assistance, Steve. Martin ZS2ABN hopes to have the Uitenhage 70cm repeater working this month. The repeater frequencies are 438,675 MHz out / 431,075 MHz in.

* We are pleased that the daughter of Andries ZS2P is out of hospital. We hope she makes a speedy recovery, Andries.

* Welcome back to Sean ZS2SNA from his trip to the USA. Whilst in the States he attanded a local ham meeting which turned out to be their AGM. He noted that all of their voting was done by the ballot box. Greetings were passed on from the PE Branch, but Sean found most of the hams there to be a very arrogant bunch! He returned with a super new dual-band hand-held. (Every month we are adding another name to the growing list of local 70cm operaters!)

Port Elizabeth Branch Committee

Chairman, Editor QSX and Bandplanning:	Colin Robertson ZS2CTR	Tel 300570
Vice-Chairman, Hamnet, Training Rallies and Club Station:	Al Akers ZS2U	Tel 302983
Secretary, Tea Convener, and Uitenhage/Despatch Liaison:	Sharon Layton ZR2ABK	Tel 9227958
Treasurer:	Clive Fife ZS2RT	Tel 323203
Awards, Asst Rallies and Club Station:	Peter Flynn ZR2PF	Tel 464096
Digital and Repeaters:	Wolf Gerstle ZS2WG	Tel 301510
Projects and Repeaters:	Martin Layton ZS2ABN	Tel 9227958
Social, Guest speakers, Special Events & 1994 AGM Convener:	Dick Schonborn ZS2RS	Tel 563908
Branch Bulletin News:	Colin ZS2CTR, Sharon ZR2ABK and Peter ZR2PF	

Sunday Bulletins

Bulletins are transmitted on Sundays at 08h45 on

		Reader	2m Net
3640 kHz	:	21/11 ZS2CTR	ZS2WG
7098 kHz	:	28/11 ZR2ABK	ZS2ABN
145-700 MHz:		05/12 ZS2RT	ZS2RS
145-750 MHz:		12/12 ZR2PF	ZS2CTR
		19/12 ZS2WG	ZS2U

Branch VHF & HF Services

Repeaters:

Town VHF.....145-050/650
Town UHF.....431-050/438-650
Cockscomb.....145-000/600
Grahamstown.....145-150/750
Kareedouw.....145-125/725
Lady's Slipper.....145-100/700
Uitenhage.....145-075/675
University..... 145-175/775

Other Services:

2m Beacon (ZS2PE CW ID).....144-910 MHz
Packet Bulletin Board (ZS0NTP).....144-675 & 14-109 MHz
Digipeater (Grahamstown ZS0GHT).....144-675 MHz
6m Link with Lady's Slipper.....51-400 MHz
6m Beacon (ZS2SIX CW ID).....50-005 MHz
Wefax Relay (Meteosat II).....145,350 MHz