

**Q S X**  
**P E**

*Port Elizabeth Branch of the  
South African Radio League*

**P.O. Box 462, Port Elizabeth. 6000.**



P.E. Repeater	145.05/65
Grahamstown	145.15/75
Lady's Slipper	145.10/70
Cockscomb	145.00/60
Rtty Mailbox	145.35

**ZS2PE**

**Sunday bulletin: 08h40**

**HF - 40M-- 7098 KHz (lsb)**

**80M-- 3640 KHz (lsb)**

**VHF - 145.700 MHz (fm)**

APRIL 1986

**We like being your branch!**

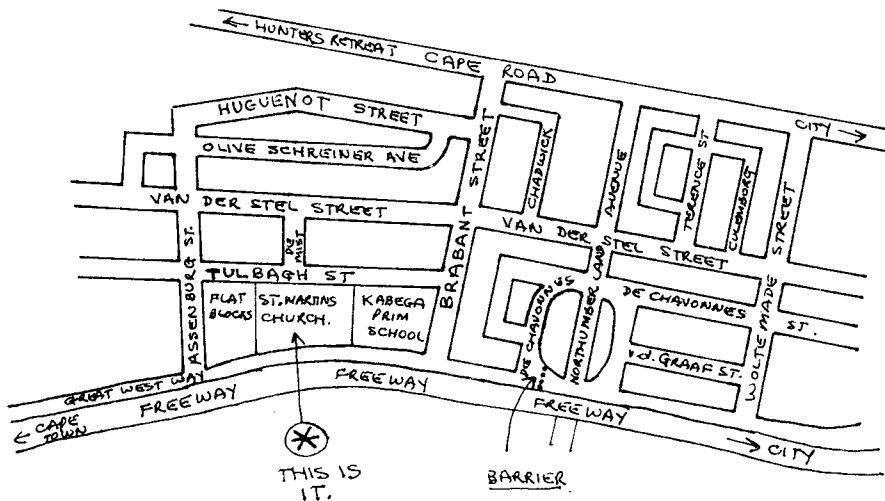
# *Port Elizabeth Branch*

## >NOTICE OF MONTHLY MEETING<

THE MONTHLY MEETING OF THE PORT ELIZABETH BRANCH WILL TAKE PLACE ON FRIDAY 23th APRIL, 1986 AT 8.15P.M. AT THE SAINT MARTIN'S PRESBYTERIAN CHURCH, GREAT WEST WAY, KABEGA.

PLEASE NOTE THAT THE MEETING IS ONE WEEK LATER AND AT THE NEW VENUE. THERE WILL BE A TALK AND DEMONSTRATION ON PACKET RADIO BY ANDRE ZS2BK AND LIONEL ZS2DD.

BELOW IS AN ACCURATE(!) MAP SHOWING THE LOCATION OF THE CHURCH.



### COMMITTEE

CHAIRMAN:	Brian ZS2AB 303498	VICE CHAIRMAN:	Lionel ZS2DD 321770
SECRETARY:	Marge ZS2OB 303498	TREASURER:	Dick ZS2RS 322111
AWARDS:	Bill ZS2-157 512580	J.O.A.T.	Trevor ZS2AE 321746
QSOX-PE:	ZS2OB and ZS2AB	LIBRARIAN:	Colin ZS2AO.

### BULLETIN ROSTER



20th April	Brian	ZS2AB	From the middle down.
27th April	Lionel	ZS2DD	From the middle up.
4th May	Marge	ZS2OB	From the bottom up.
11th May	Dick	ZS2RS	From the top down.
18th May	Trevor	ZS2AE	From the middle down.

# THIS and THAT

SILENT KEY We were very saddened to hear on Saturday 12th April of the passing of O.M. Woody Damp ZS1WD of Monte Vista in the Cape. Woody had been a member of this Branch for many years holding the call of ZS2WD at one time. He was also an active member of the Committee. He had been ill for some time but nevertheless his death was a great shock. He was always such a regular caller-in on the Bulletin nets. We will miss him greatly and to his family and friends we extend deepest sympathies.

CONGRATS To the Branch for being awarded the Neill Efficiency Shield and to Mike Bosch ZS2FM for receiving the Bert Buckley 6 metre Trophy for all his efforts on this band. Well done and let's try again for next year.

HAPPY BIRTHDAY Congratulations and felicitations to Toff Scarr ZR2EY who celebrates his Coming-of-Age on 28th April. Trevor ZS2AE and Jillie will be travelling down to Cape Town for a celebration.

CONGRATS To Gus ZS2MC and Shirley on the birth of their grandchild.

ABROAD We hope that Sam Abrahams ZS2SI and Eunice are enjoying their holiday in Australia. Sam has been heard on occasions in QSO with the boys here in Port Elizabeth.

CONDOLENCES On behalf of the Committee and members, we extend deepest sympathies to John Magee ZS2RG on the death of his mother. Our thoughts and prayers are with you John.

NEW CALL We hear Peter Wilken ex ZS2GW sporting his new call of ZS7AAD. At the time of going to press, Gordon Knapp ZS2GK had not yet received his Div. 6 call.

OLD TIMERS The Committee would very much like to have the names and calls of any of our members who have been members of the League for 20 or more years. Please let us have the details, such as date of joining, etc.

FOR SALE. P.T. 200 and D.C. power supply. Contact Gordon Knapp, P.O. Box 11559, Randhart 1457 or phone 011 908 3538.

DONATION FOR HALL Due to our having to move from our venue at the Kabega Scout Hall, we have been able to obtain the use of St. Martin's Presbyterian Church Hall. We will be making a donation of R10 per meeting and would therefore ask that members make a donation of 50c for their tea and eats at the meetings. This is still a bargain - at the A.G.M. the price of a cup of tea was R1.10 and a sandwich was R2.30. Tea will be served from the kitchen hatch.

THANKS To Bill Browne ZS2BY and Cliff Wickham ZS2AP for their donations of books to the library.

## VIDEOTAPE OFFER TO MEMBERS.

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OUR VIDEOTAPE DONOR IS NO LONGER ABLE TO ASSIST US WITH BETA TAPES-THESE WILL THEREFORE NO LONGER BE PART OF OUR SPECIAL OFFER. HOWEVER WE ARE STILL ABLE TO OFFER BLANK 3-HOUR VHS TAPES AT R15 EACH.

CONTACT MARGE ZS2OB AT MEETINGS OR ON 30-3498 OUTSIDE OFFICE HOURS.

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MINUTES OF THE GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE HELD AT THE SCOUT HALL, KABEGA PARK, PORT ELIZABETH ON FRIDAY 21st MARCH, 1986.

PRESENT: 22 members and visitors.

APOLOGIES: ZS2RB, MG, LW, RG.

The Chairman welcomed all to the meeting.

MINUTES: The Minutes of the General Meeting held 21st February, 1986 having been published and circulated in QSX-PE were taken as read, proposed by Dick ZS2RS and seconded by Andre ZS2BK.

ARISING: Comment was passed that the get-together at the Tivoli Restaurant had been most enjoyable, and when was the next one!

FINANCE: The Treasurer said he had paid the Delegate's travelling expenses and registration fees.

CORRES:

- (1) Letter from Audrey Burrell thanking for her birthday card and wishing well to all.
- (2) Letter from Hobbies Fair Convenors. We had asked for two stands further away from the corner and perhaps even down the centre aisles. Dates from 30th June to 5th July.
- (3) Letter from S.A. Amateur Radio Development Trust. This letter was read to the meeting. The questions were raised as to what benefit Amateur Radio would receive and would this not carry more weight if it was handled through the League.
- (4) Letter from above Society as to nominations for Amateur of the Year Award. Unfortunately this letter was received after the closing date for nominations.
- (5) Several Branch Newsletters.

GENERAL:

- (1) The Chairman announced that this was the last general meeting to be held in this Scout Hall, as the Scouts would be requiring the hall on Fridays in future. Another venue had been found which was only a short distance away. This is the St. Martin's Church Hall, for which the donation would be R10 per evening. An alternative was to change the meeting night, but most members felt this to be inadvisable. It was decided to ask for a donation of 50c per member for tea and eats, which was far less than would be paid for anywhere else.
- (2) Members might have noticed that a list appeared next to the bulletin roster. This had no anatomical references but was the order in which the roster would be called in order to give all members a chance to be high up on the list. Preference would be given to the known early-leavers-for-church however.
- (3) Several packets of off-cuts of colour-coded wire had been donated by Fred Friskin and were available for members to help themselves.
- (4) Trevor ZS2AE reported that he had been able to repair the crystal filter used in the Cockscomb Repeater. The BNC connector had been vapourised by lightning. It was hoped to include cavity filters and change to one antenna. At the present rate of exchange it would be impossible to purchase another crystal filter.
- (5) Andre ZS2BK was congratulated on his achievements with packet radio. Lionel ZS2DD was waiting for the return of his equipment and hoped to be operative soon.
- (6) Peter Wilken ex ZS2GW was now ZS5AAD.
- (7) Congratulations were extended to Gus ZS2MC and Shirley on becoming grandparents.
- (8) Members were asked if any of them had unbroken membership of the League for 20 years or more. ZS2DD, ZS2BY, ZS2RM and ZS2CZ replied affirmatively.

(9)The Chairman said that the Secretary had gone to a lot of time and effort to prepare a general and radio knowledge quiz and this would be held after tea.

(10)Dick ZS2RS wished the Chairman/Delegate and Secretary a safe trip and pleasant and successful A.G.M. in Bloemfontein.

(11)The question was raised about the Halley's Comet Branch Braai. It was decided to try and find a venue suitable for the best viewing and members would be notified as soon as possible.

(12)The matter of printed T-shirts was raised. It was felt that these could be worn for events such as the Hobbies Fair, JOTA and other times when members wished to wear them. Dick said that his firm were using a better quality shirt and said he would make enquiries as to the price.

(13)Our newest Committee member, Bill Hodges, was thanked for the eats for the meeting.

There being no further business, the meeting was closed and tea was taken. Thereafter the quiz was held. This proved both entertaining and enlightening.

sgd:  
B.A. Weller Chairman  
ZS2AB

sgd:  
M.T. Weller Secretary  
ZS2OB.

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HI HI HI HI HI HI HI HI HI HI HI

My seventeen year old comments that if they want to keep prayer out of the schools, they are going to have to ban final examinations.

A little arson joke: These two fellas are walking down the beach in Miami. "My factory burned down", says the first, "and I retired on the insurance". "That's funny", says the second. "My factory got washed away in a flood, and I retired on the insurance too!" "Really?" asks the first, incredulous - "How do you start a flood".

In 1957 a single transistor cost £10, a Cadillac limousine \$7,600. If the limo had followed the semiconductor's cost curve, it would sell for 3 cents today instead of \$40 000.

A long-distance transport driver from Johannesburg went into a Cape Town cafe and sat down looking miserable. "I want two fried eggs that got broke in the pan, a slice of burnt toast and a cup of cold tea," he told the waitress. After being assured that he wasn't joking, she went off and returned with the man's order. "Do you want anything else?" she asked. "Yes, sit opposite and nag me. I'm homesick".

Sam Goldwyn was once alleged to have said: "A verbal contract isn't worth the paper it's written on".

## A. G. M. BLOEMFONTEIN 1986

This event started for Brian ZS2AB and myself when we left Port Elizabeth very early on Good Friday morning to drive up to Bloemfontein. In spite of a little trouble with slight overheating of the car (the weather was pretty warm) and a few small swarms of locusts, the trip was pleasant and made more so by the fact that we were able to keep contact on 40m with Jeff ZS1VS in Kommetjie, Cape, every hour. We had actually arranged to keep sked with Lionel ZS2DD but when we reached Bloemfontein, we remembered that this was supposed to be on the hour and not the half-hour! Sel ZS6SS was heard briefly once, on his way to Upington, but conditions were not too good. As we approached Bloemfontein, we spoke to several members of the Bloemfontein branch on 2m.

On our arrival at the Holiday Inn, we checked in and Brian attended to the registration for the meeting. We were somewhat dismayed to hear that over 240 hockey players from all over the Republic were also staying at the hotel, and from their antics when we arrived, we were not too surprised to hear the goings-on at 2 o'clock each morning. Not too much sleep!

During the afternoon, two preliminary meetings were held for the delegates, but I took the opportunity to visit someone in the Universitas Hospital. This is a most modern building and one of the best equipped in the whole world, and it is easy to see why Bloemfontein is proud of it.

On Friday evening a Braai had been arranged for delegates and visitors and this was held at the S.A. Breweries quite a distance out of town. A bus was provided, and after a slight delay when we stood around for a while waiting for the driver - who was standing around waiting for us to get into the bus (Amateurs - communication?), we took a trip through the town to the venue. An outstanding braai had been provided and it was obvious that the wives had been hard at work on salads, etc. This was very much enjoyed by all. Neville, the son of Norman ZS4BA, provided musical entertainment on a very nice electronic organ and synthesiser.

On the Saturday morning, the actual Meeting started fairly promptly in the Parys room, which is evidently used for meetings of this type. After the preliminaries of welcome and checking voting strengths, the meeting started. Starting with Motion 1, the Jack Twine Merit Award was presented to Buck Taylor ZS1VP by Derek ZS1DP, President. Derek thereupon said that it seemed appropriate at that time to present two more Jack Twine Awards to two others who were present. Neither knew of the awards which had been recommended by their Branch Committee. Imagine my surprise, embarrassment and pleasure at hearing my name called to go forward. I was told by Councillors and several delegates that my face was a picture! All I knew was that it was somewhat pink and warm! The other recipient was George ZS6ARP of West Rand. The meeting then continued until lunch time. The lunch was provided by the Hotel and was very enjoyable.

Back to the Parys room for the continuation of the meeting. (By the way the results of the Motions appear elsewhere in this Newsletter). By three o'clock, I am sorry to say that sleep was catching up on me, both as a result of taking medication for a bad attack of sinus, the results of the travelling and the noise of the hockey players - definitely not as a result of the meeting, which was very interesting - and I retired to the hotel bedroom for a quick shut-eye, which did me the world of good!

On Saturday during the meeting, the wives were entertained with various trips around town, including the new Sand du Plessis Theatre which is worth a trip to Bloemfontein just to visit that. There were also several demonstrations of sugarcraft, a trip up Naval Hill, a visit to the super Orchid House and many more. The itinerary had looked so inviting that I was tempted to go along, and it didn't even dawn on me that there was something suspicious going on, when Brian said to me that I was to sit close to him at the meeting, & cause he might need to pick my brains!

After the business of the meeting was over and everyone had time for a quick rest and brush-up, the bus was once again waiting to take us to the final function. This time no one waited to climb aboard. After a short sight-seeing trip through the town, and there certainly are a large number of places to see, from the greatly historic to the very modern - we arrived at the A.D. Viljoen Hall, which is used by the S.A. Association of Municipal Employees and for overflow functions when the City Hall and other larger Municipal Halls are busy. We were welcomed there by the Senior Councillor, also a Mr. Viljoen and his wife. A very tasty spread had been provided by the Council. After the welcoming speech by Councillor Viljoen and the reply by Derek Siegel ZS1DP, the main business of the evening was attended to. Thereafter, Buck Taylor who apart from being Editor of Radio ZS is also Awards Manager, made the presentations of all the League's Awards. Mike Bosch ZS2FM of P.E. Branch was Awarded the Bert Buckley 6 Metre Trophy for his efforts on that Band, and imagine our surprise and delight when the Neill Efficiency Shield Award was made to the Port Elizabeth Branch. Brian chased me up to the front to receive the presentation! He had accepted Mike's trophy on his behalf. Just after 9p.m. we all returned to the Hotel and most people went off straight to bed, tired out after the proceedings and most getting ready for the trip back on the Sunday morning. Two people in Room 902 were very happy and satisfied with the weekend's proceedings.

After breakfast at the Hotel, we left just as Paul Johnson ZS1BR was reading Headquarters Bulletin. This was well-received on the Bloemfontein repeater. After that we called in on the P.E. Branch net on 40 metres. We kept contact with Lionel and Jeff every hour on the way back and this helped to make the time pass much more quickly. The car still had a few slight overheating problems, but not as much as on the trip up, mainly I suppose because we were going downhill most of the way and the weather was not quite so hot. Don't let anyone bluff you that the wind only blows in P.E. It just didn't stop all the way to Bloemfontein and all the way back - someone said it was just to make us feel at home.

All in all, a very pleasant week-end and it was nice to renew friendships and acquaintances and meet several new people. Next year the A.G.M. is being hosted by the Kempton Park Branch and we hope the delegate has as pleasant a time as we did in Bloemfontein.

Marge ZS20B.

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**LOOKING FOR A VIDEO MONITOR?**

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A VERY GENEROUS DONATION, ARRANGED BY ANDRE ZS2BK, OF A NUMBER OF EX-COMPUTER VDU'S, ENABLES US TO OFFER THESE TO MEMBERS, THE PROCEEDS TO GO INTO BRANCH FUNDS.

THE UNITS, MADE BY MOTOROLA, CONSIST OF A 12" MONOCHROME CRT, WITH SCAN YOKE, AS WELL AS THE VIDEO AND SCAN P.C. BOARDS, HOUSED IN A DESK-TOP BLACK CABINET, WITH ON/OFF SWITCH AND BRIGHTNESS CONTROLS IN FRONT.

THE UNITS REQUIRE THE ADDITION OF A MAINS POWER SUPPLY DELIVERING 70 VOLTS AT 0.5 AMPS (PLENTY OF ROOM INSIDE FOR THIS), AS WELL AS A FEW RELATIVELY SIMPLE MODS TO ACCEPT STANDARD COMPOSITE VIDEO SIGNALS. SEVERAL OF THESE UNITS HAVE BEEN PUT INTO SERVICE, AND FULL SCHEMATIC DIAGRAMS, TOGETHER WITH ALL DETAILS OF A SUITABLE POWER SUPPLY AND VIDEO CONVERSION ARE AVAILABLE WITH EACH UNIT SOLD.

ALSO AVAILABLE ARE SEVERAL KEYBOARD UNITS. THESE ARE HOUSED IN DESK-TOP CABINETS, HAVE HALL-EFFECT SWITCHES (NO MECHANICAL MOVING CONTACTS), 69 KEYS AND A ROW OF 8 LED'S, QWERTY FORMAT, WITH BUILT-IN ASCII ENCODER CHIP. A CABLE AND PLUG ARE FITTED AND THE OUTPUT IS PARALLEL ASCII. AGAIN, SCHEMATICS AND CODING DETAILS ARE AVAILABLE.

PRICES: VDU'S R50 EACH  
KEYBOARDS R25 EACH.

CONTACT BRIAN ZS2AB ON 30-3498 TO ARRANGE TO VIEW THESE ITEMS AND SEE A WORKING EXAMPLE OF THE VDU.

## WHAT DO YOU KNOW ABOUT VIDEO?

continued.

Meanwhile, back at the chrominance stage (that is, the colour information) the colour signal is mixed with a local oscillator inside the recorder (which is what 'local' means) and the difference frequency is taken. The end result is this, a 685kHz (again figures vary with format) signal which has got all the colour information and phase information on it. The colour information is amplitude modulated, remember, and all that has been done is that it has been down converted in frequency. This is well spaced from the 3 to 5MHz frequency modulated colour information and both of these are put onto tape.

The frequency modulated signal is recorded to saturation on the tape and effectively acts as a bias for the 685kHz amplitude modulated signal! Clever these Japanese! In fact b...y clever and this particular piece of wizardry I find amazing.

This is all very well but we still have quite a difficult signal to record. FM theory says that if you are going from 3 to 5MHz, then to recover all the information you've still got to take at least the first side-band which means that the actual response has to extend by 2 MHz either side of the original limits.

So the tape system still has to have a response that goes up to about 7 or 8MHz, which means that the head has to have a very fine gap and the tape has to be of the highest quality with extremely small particles. Part of the reason for the sudden surge of machines is that this sort of recording has been waiting for technology to catch up - and recently it has done just that!

One of the main parameters that affects the frequency response of a tape system is tape speed, and remembering that an audio cassette running at 1 and seven-eighths ips can achieve about 15kHz (just about and with difficulty) you can imagine how fast the tape has to be moving to record and playback a couple of Megahertz.

The BASF LVR (longitudinal video recorder) leaves the head still and does run the tape extremely fast but all the other systems use a technique known as helical or slant scan to overcome this problem. The VHS system, for instance, has a writing speed (i.e. tape speed) of only 23,39mm per second.

So obviously if the tape is barely crawling along and a high tape to head speed is required, the heads must be moving pretty fast. This is exactly how it is done and rotating heads are used to achieve the required relative speed. This means that you can't lay down the information longitudinally as the tracks would all end up on top of each other. Instead a field at a time is laid down on the tape, slanted across the tape width.

The various systems all use slightly differing angles, diameter of scanners and linear tape speeds just to be b...y minded, but fundamentally the technique is the same. They all have two heads spinning around in a drum which lay down tracks alternately. Obviously, good synchronisation is needed here, and there are other tracks on the tape to help with this.

Apart from the audio track which is recorded quite conventionally, there is also a control track. The easiest way to describe this is to say that it is equivalent to the sprocket holes on a film. It tells you where you are in relation to the frames of a film (remember that each track on the tape is one field and two fields make up a frame). Typical width of a track is about 85  $\mu$ meters, which is small by any standards! The control track is laid down at the time of recording merely to indicate where the fields are located on the tape.



To reduce the load on the drum drive motor and increase performance stability, spiral grooves are milled into the top half of the tape heads to provide a cushion of air between the slowly moving tape and the rotary head drum.

The audio and control head stack is completely separate from the video and is kept stationary, and thus the relative head to tape speed for the audio is the same as the tape speed. This is very low in order to achieve maximum length of play and the audio side of things necessarily suffers. The tape is designed for the best video performance and thus isn't ideally suited to audio requirements either. The particles are a lot smaller than those on an audio cassette which means that you can't get as much energy on the tape. The amount of equalisation that can be used to extend frequency response is also limited and vast amounts of it are needed at these low tape speeds. The inability to put on a large flux density and the small width (the audio part typically gets 10 per cent of the tape width) all lead to a lousy audio performance. But then this only reflects the quality of the audio side of a domestic TV set. Mind you, most VCRs do provide a separate audio output socket which suggests that feeding it to a hi-fi system would be an advantage, but with a response limited to 8kHz who needs it?

As explained, each head lays down one field and then the other head takes over for the next complementary field which, when correctly interlaced with the first, makes up a 625 line frame. The change-over from one head to the other thus has to take place during the vertical flyback time. There is no video information here and the flyback time is 25 lines long. (This is no more than a convenient method of measuring time - 25 lines means the time taken to display 25 lines). It is a short interval and as there is no video information here it is used for a variety of purposes notably Ceefax information, but that's another story.

Despite the tight tolerances of the machines and the laser insertion technology used to locate the heads, they are still not going to be exactly 180 degrees apart and a small timing difference here would reproduce as a step in the picture. Switchover is therefore done in the flyback time and this gives the TV set time to stabilise and locate itself on the next head's sync pulses by the time the picture starts. If the machine isn't properly set up, though, you may well see wavy lines at the top of the picture. But seeing this depends on whether your set is over-scanned or not (as most are, to compensate for mains variations). Similarly the Ceefax information can sometimes be seen as crawling maggots across the top of the picture if everything isn't hunky dory in the set.

During recording there is a servo on the heads to phase up the head to the video such that changeover will always occur during the vertical blanking period.

To be continued.

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## RESULTS OF MOTIONS-1986 AGM.

HERE IS A SHORT SUMMARY OF THE RESULTS OF THE MOTIONS DISCUSSED AT THE 1986 AGM IN BLOEMFONTEIN.

- MOTION 1: ADOPTED UNANIMOUSLY.  
MOTION 2: WITHDRAWN AS THE PRESIDENT IS EMPOWERED TO REARRANGE MOTION ORDER TO SUIT HIMSELF.  
MOTION 3: ADOPTED AFTER AMENDMENT OF THE CLOSING DATE TO 30TH NOVEMBER.  
MOTION 4: ADOPTED AFTER REMOVAL OF THE WORDS "OF 'N ANDER ONDERAFDELING VAN DIE LIGA".  
MOTION 5: KOOS ZSIW SAID THAT THE P.M.G. HAS IMPLEMENTED A SYSTEM WHEREBY CASSETTE TAPES WILL BE SENT TO ANY POST OFFICE AT WHICH A CANDIDATE WISHES TO TAKE MORSE CODE TEST. THE PRESIDENT STATED THAT COUNCIL SUPPORTED THE MOTION. ADOPTED  
MOTION 6: LOST. THE PMB DELEGATE WAS ASKED TO INVESTIGATE POSSIBLE CHANGES TO THE WORDING SO THAT IT COULD BE RECONSIDERED AT ANOTHER AGM.  
MOTION 7: WITHDRAWN AFTER COUNCIL POINTED OUT THAT A SIMILAR EXERCISE HAD BEEN ATTEMPTED BY HQ WITHOUT SUCCESS.  
MOTION 8: ADOPTED WITH THE AMENDMENT THAT A 2 YEAR LIMIT BE PLACED ON ANY CREDIT GAINED BY A CANDIDATE.  
MOTION 9: THE BANDPLANNER SAID THAT SUCH CONTEST SEGMENTS ALREADY EXISTED IN SEVERAL BANDS. WITHDRAWN. (DETAILS ON REQUEST).  
MOTION 10: WITHDRAWN  
MOTION 11: DISCUSSED BEFORE MOTION 10. LOST  
MOTION 12: ADOPTED WITH THE AMENDMENT THAT AN AGE LIMIT OF 25 YEARS BE IMPOSED. COUNCIL TO DECIDE ON THE SCRAPPING OF THE ENTRANCE FEE.  
MOTION 13: WITHDRAWN  
MOTION 14: ONLY 6 OF THE OLD HQ MEMBERS REFUSED TO JOIN A BRANCH. AN AMENDMENT WAS PROPOSED THAT ANY HQ MEMBERS HAVE VOTING RIGHTS VIA COUNCIL. MOTION AND AMENDMENT LOST.  
MOTION 15: MUCH DISCUSSION. LOST!!!  
MOTION 16: GENERALLY FELT THAT SUCH A SYSTEM WOULD MAKE ALL MEMBERS PAY FOR THE BENEFIT OF THOSE WHO CHOOSE TO QSL. LOST  
MOTION 17: LOST  
MOTION 18: IT WAS FELT THAT RADIO-ZS IS THE VOICE OF THE LEAGUE. LOST  
MOTION 19: AFTER DEDUCTING RADIO-ZS PORTION, BRANCH ALREADY GETS 50 PERCENT. LOST  
MOTION 20: GOOD IDEA. CARRIED, BUT NOT IMPLEMENTED THIS YEAR.  
MOTION 21: WITHDRAWN. COUNCIL ALREADY MADE SUCH ARRANGEMENTS.  
MOTION 22: WITHDRAWN. COUNCIL ALREADY USES AN ACKNOWLEDGEMENT SLIP.  
MOTION 23: WITHDRAWN.  
MOTION 24: ADOPTED UNANIMOUSLY. TO BE IMPLEMENTED FROM 1983 VERSION OF CONSTITUTION.  
MOTION 25: ADOPTED UNANIMOUSLY.  
MOTION 26: SUBJECT OF A MEETING ON THE FRIDAY AFTERNOON. WITHDRAWN.  
MOTION 27: COUNCIL HAS ALREADY APPROACHED THE P.M.G FOR ASSISTANCE WITH PART 2 OF THE PROPOSAL BUT THEY DO NOT WISH TO BECOME INVOLVED. CARRIED UNANIMOUSLY.  
MOTION 28: A BULLETIN BOARD EXISTS IN DEREK SIEGELS OFFICE. WITHDRAWN.

ANYONE WISHING TO HAVE MORE DETAILS OF ANY OF THESE RESULTS MAY REQUEST THESE AT THE APRIL MEETING.

# C AND L MEASURING GIMMICK

by Frank Noble, W3MT.

The box to be described will measure capacitance from 800 pF to 0,8µf and inductance from 80 mH to 80 H when used with a calibrated audio oscillator and either an ac VTVM or an oscilloscope, hereafter referred to as the "detector". The device has no variable controls and is very easy to build and use.

The idea is to find the frequency at which the reactance of an unknown coil or capacitor is 10 000ohms. Referring to the circuit Fig. 5, the input from the oscillator, E1, feeds a 10K resistor, R1, in series with the unknown coil or capacitor. The oscillator frequency is varied to find the value at which the output voltage is 0,707 Ei corresponding to a reactance of 10K. Since the output voltage of inexpensive oscillators will vary with the load, and since the load always has a reactive component and hence varies with frequency, the oscillator output can be expected to vary with frequency. To facilitate matters, the voltage divider made up of R2, R3 and R4 always produces an output of 0.707 Ei, regardless of variations in Ei. With the switch in the "set" position, the operator adjusts the oscillator amplitude and detector gain to a convenient reading. The switch is then thrown to the "test" position and the oscillator frequency is varied to obtain the same reading. As the reading is approached, the switch is thrown back and forth as small changes are made in the frequency until the point is reached where the detector reads the same with the switch in either position. The oscillator frequency is then read and substituted into the appropriate equation:

$$\text{Eq.1: } C = \frac{15.9}{f} \mu\text{F}$$

$$\text{Eq.2: } l = \frac{1590}{f} \text{ henrys}$$

where f is the balance frequency in Hz. Alternatively, the unknown value may be obtained from the graph, Fig.6. The location of the decimal point is facilitated by reference to Table 3. If noninductive ( i.e. not wire-wound) resistors of the specified tolerances are used, the accuracy will be limited primarily by the accuracy of the oscillator frequency calibration.

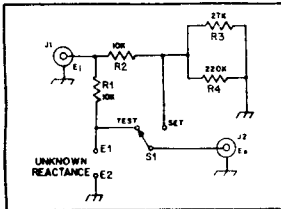


Fig. 5 — Electrical schematic. All resistors are noninductive — i.e., not wire-wound.  
E1, E2 — Binding posts  
J1, J2 — Phono jacks  
R1, R2, R3 — 1 percent tolerance, 1/2-watt.  
R4 — 5 percent tolerance, 1/2 watt.  
S1 — Spdt rotary or toggle

Table 3  
Unknown Capacitance and Inductance Over the Usual Frequency Ranges of Audio Oscillators.

f, Hz	C, µF	L, henrys
20	0.795	79.5
200	0.0795	7.95
2000	0.00795	0.795
20,000	0.000795	0.0795

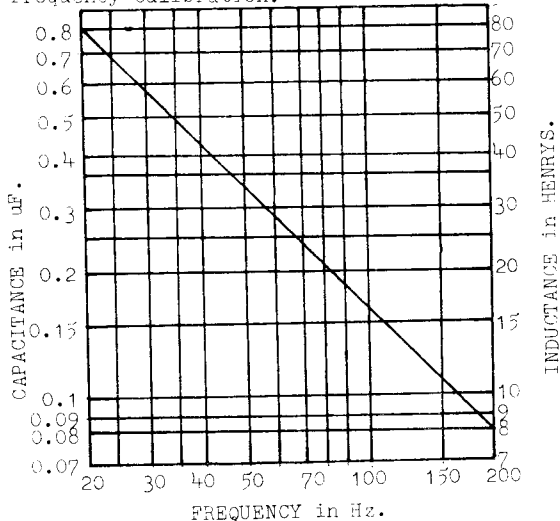


Fig. 6 — Graph of unknown C or L vs. balance frequency. For decimal point, refer to Table 3. E.g., if the balance frequency is 350 Hz the frequency is between 200 and 2000 Hz so the capacitance is between 0.0795 and 0.00795 µF or the inductance is between 7.95 and 0.795 henrys. The values at 350 Hz therefore would be 0.045 µF or 4.5 henrys.

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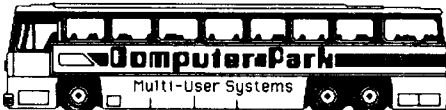
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