

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

*Port Elizabeth Branch of the  
South African Radio League*

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



National Call	145.5 Mhz
P.E. Repeater	145.05/65
Grahamstown	145.15/75
Lady's Slipper	145.10/70

**ZS2PE**

**Bulletin: Sunday 08h40**  
**HF: 40m — 7098 KHz**  
**VHF: FM-145,700 MHz**

APRIL 1985

# Port Elizabeth Branch

## NOTICE OF MONTHLY MEETING

THE MONTHLY MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE WILL BE HELD AT THE SCOUT HALL, VAN PLETTENBERG STREET, KABEGA PARK ON FRIDAY 19th APRIL, 1985 AT 8.15p.m.

(Please note the starting time! This is to give all those A Team Fans time to get to the meeting before it starts!)

BESIDES BEING THE DIAMOND ANNIVERSARY OF THE LEAGUE, IT ALSO IS THE DIAMOND ANNIVERSARY OF THE PORT ELIZABETH BRANCH AND WE WILL BE HAVING A SPECIAL BIRTHDAY CAKE AND THE PRESENTATION OF THE HONORARY LIFE MEMBERSHIP AWARDS TO VI CRUICKSHANKS ZS2BR AND CYRIL GOODMAN ZS2KX WHICH WERE ACCEPTED ON BEHALF OF VI AND CYRIL AT THE LEAGUE A.G.M. LET'S SEE AS MANY OF YOU THERE AS POSSIBLE.

THE DELEGATE WILL GIVE A REPORT BACK ON THE LEAGUE A.G.M. HELD IN PRETORIA OVER THE EASTER WEEKEND.

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## Committee

CHAIRMAN:	Brian ZS2AB(303498)	VICE CHAIRMAN:	Dick ZS2RS (322111)
SECRETARY:	Marge ZS2OB(303498)	TREASURER:	Pete ZS2PJ (301493)
AWARDS:	Gordon ZS2GK(306776)		Trevor ZS2AB(321746)
	Q SX-PE: ZS2OB and ZS2AB		

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## bulletin roster



14th April	Trevor ZS2AE
21st April	Gordon ZS2GK
28th April	Brian ZS2AB
5th May	Dick ZS2RS
12th May	Marge ZS2OB

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## for sale

YAESU FT208R 2m Rig R430. YAESU NV8 PSU R100.  
YAESU YD 148 Mic R60. Prices negotiable. Phone 721532.

KW2000E Xceiver. Valve set. SSB/CW 80 - 10m. In good order.  
180w p.e.p. input. Hand microphone with pre-amp. Power supply  
and speaker. R350.00. Phone Wolfie ZS2WG Home 301510.

Midland CB speaker - microphone 500 Ohms Model 22-232 As new. R9.50  
One genuine Model T Ford ignition coil 6 volt made April 7 - 1914.  
What offers? Perhaps a Vintage Car Club member would be interested.  
Contact Dudley ZS2AW, 10 Cromwell Street, Grahamstown, 6140 or  
phone 0461-3985.

2 copies 1984 A.R.R.L. Handbook at R17. New price now R35.  
Contact Brian ZS2AB phone 303498.

QSL stickers, Log books and Great Circle Maps obtainable from Pete  
ZS2PJ. Phone 301493 or also available at Branch meetings.

# THIS and THAT

CONDOLENCES: On behalf of the Committee and members, we would like to extend deepest sympathies to Dick ZS2RS and his family on the recent death of his brother.

CONGRATULATIONS: To Vi ZS2BR and Cyril ZS2KX who have been awarded Lifetime Membership of the League for their services to Amateur Radio and the community during the past years.

SICK LIST: We are glad to see that Percy ZS2RM is up and about after his operation and is taking a two sided view on life these days.

## REPORT ON LEAGUE ANNUAL GENERAL MEETING - PRETORIA APRIL 1985.

This is not a report on the business side of the meeting, but only on the social activities and the hard work on the part of the members and wives of the Northern Transvaal Branch, and having been involved ourselves for two years prior to our own Annual General Meeting host duties in 1984, we were well aware of all the work that had been put into it. The venue for the meeting proper was the Palms Hotel in Silverton, just outside Pretoria, and it is well named, as it is not only surrounded by huge palm trees, which are very well equipped with hundreds of birds, which don't do much good to the motor cars parked underneath them, but the hotel also has three palm trees which are at least 70 feet tall actually growing up through the building and appearing over the top of the roof. The trees were probably there first and an additional wing built on. Anyway, these trees start in the lounge downstairs where they are landscaped with ferns and other plants and then continue through the conference hall where they are surrounded by glass walls on four sides and then up through the roof! Enough of the trees, but they were quite intriguing. Most of the Councillors and Delegates, including us, stayed at the hotel and it was the little touches from the ladies that also did a lot to make the stay pleasant. In each room, there were Easter eggs, a bottle of Babycham and flowers. The Friday evening cocktail party was held at the Clubhouse in Andries Street which is almost in the middle of Pretoria and free transport by bus (which we missed anyway and had to use our car!) was provided. The eats which had been provided by the ladies were excellent and went down very well accompanied by punch and other beverages. The conference hall was very big and well ventilated but a small problem with microphones was encountered. The A.G.M. was opened by His Worship the Mayor of Pretoria and the Postmaster General also had a few words to say, thereafter the Life Membership Awards and Jack Twine Merit Awards were presented. Lunch at the hotel was quite pleasant and then back to business! The evening Buffet supper at the hotel was also very pleasant and each lady was given a frangipani corsage, plus a small bottle of perfume and cake of soap and the gents received a fangipani corsage. The food was a hot and cold buffet and was excellent. During the day a bus tour was laid on for the ladies who were not interested in the business proceedings. A Hamcomptronics exhibition and flea market were also held during the three days plus a very interesting exhibition of old radios and equipment from the Post Office Museum. There were various activities on the Sunday including a Braai, but we had other appointments so did not partake. Willie the Chairman of T.N.T. and his XYL Sarie and all the other members are to be congratulated on their excellent efforts for the smooth running of the A.G.M. and as mentioned earlier, they were all the more appreciated in view of the fact that we knew just how much work was involved. It was most pleasant just to attend a function without having to do the work! Well done, Northern Transvaal Branch.

MINUTES OF THE GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE HELD AT THE SCOUT HALL, VAN PLETTENBERG STREET, KABEGA, PORT ELIZABETH ON FRIDAY 15th MARCH, 1985.

PRESENT: 20 members.

APOLOGIES: ZS2KX, ZS2BX, ZS2MF, ZS2AO, ZR2DN, ZS2NU, ZR2EY, ZS2JR, Bill Hodges and Joan Knapp.

The Chairman welcomed all to the meeting.

MINUTES: The Minutes of the General Meeting held 15th February, 1985, having been published and circulated in QSX-PE were taken as read, proposed by ZS2AE and seconded by ZS2JS.

- ARISING: 1. The Chairman reported that he had still heard nothing as regards the helicopter transport for the Cockscomb Repeater and Trevor ZS2AE said we should make plans to go up by foot, with the help of the farmer's four-wheel drive vehicle, and if there were enough people, the burden would not be too great.
2. The Chairman said it had been mentioned to him that the Branch had not appointed an alternate delegate to the AGM and ZS2OB was proposed by Lionel ZS2DD and seconded by Bill ZS2BY.
3. With regard to the beacon, Brian said he would be getting the equipment to Lionel ZS2DD who had offered to get it on the air. The frequency is 144,910 MHz.
4. Bill ZS2BY asked if the Branch would like to have a 450Mhz repeater, and if so, he was willing to donate one which was already complete. The offer was gratefully accepted and it was decided to apply for a licence.

FINANCE: Pete ZS2PJ reported that apart from the advance for the AGM delegate's expenses, there was nothing to report.

CORRES: 1. Letter from ZS6AKV regarding videos which were available.  
2. Several Branch Newsletters.

ARISING: One of the videos available was on Packet Radio, and Viv ZS2VM said that this was very interesting, particularly for this involved with RTTY and it was decided to get this for showing at a Branch meeting.

- GENERAL: 1. The Chairman made mention of the items under "Forthcoming Events" in QSX PE with reference to a DF Hunt. Much interest was shown and it was decided to go ahead with the project. Discussion took place regarding the use of 160m and 2m and it was decided that because the Branch had 11 160m sets, these would be used at first. 6 of the DF sets could be accounted for, but 5 were in possession of members of the Algoa Branch and it was suggested that these be recovered.
2. The social get-together in the form of a dinner outing was enthusiastically received and this would be arranged as soon as possible after the Easter weekend.

MOTIONS: Discussion then took place on the Motions which had been submitted for the AGM in order to give a clear mandate to the Delegates. The voting went as follows:

Motions 1, 2, 3.	Approved.	10
Motion 4	Approved.	7
Motion 5	Lost.	5
Motion 6	Carried	10

- Motion 7. Lost.
- Motion 8. Lost. Motions should be confined to the Constitution.
- Motion 9. Lost.
- Motion 10. Carried.
- Motion 11. Falls away.
- Motion 12. Lost.
- Motion 13. Lost.
- Motion 14. Carried, if done properly.
- Motion 15. Lost.
- Motion 16. Lost.
- Motion 17. Carried, if confined to borders of R.S.A.
- Motion 18. Carried.
- Motion 19. Carried, with the amendment that only the good works of both Hamnet and W.R.R. be shown.
- Motion 20. Carried.
- Motion 21. Carried.
- Motion 22. Good idea, but too much finance involved. Delegates discretion.
- Motion 23. Lost.
- Motion 24. Lost. We should renew our offer from previous A.G.M. Bill ZS2BY was prepared to help.
- Motion 25. Delegates discretion.
- Motion 26. Lost.

There being no further business, the meeting was closed.

sgd:  
B.A. Weller ZS2AB  
Chairman

sgd:  
M.T. Weller ZS20B  
Secretary

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Readers with maritime connections will be saddened to learn of the death recently of Harold Cottam at the age of 93. A former Marconi ship's operator, Cottam was the sole operator aboard the Carpathia at the time of the Titanic disaster in April, 1912. He was 21 at the time.

By great fortune he had remained on duty longer than necessary and happened to hear a message from Cape Cod warning of the danger of icebergs. Shortly after this, distress signals from Titanic were heard. Cottam at once alerted his Captain who was at first unable to believe that the giant luxury liner could be in trouble on what was a calm, clear night.

However, he ordered Carpathia around. By the time Carpathia reached the scene, Titanic had gone to the bottom but they were able to rescue 711 of the 2201 souls who had been aboard here.

Acknowledgments to Practical Wireless and Dudley ZS2AW who sent us the story. Thanks).  
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## Forthcoming Events

Don't forget the forthcoming DF Hunt. All the necessary explanations for the necessary requirements and instructions on how to find the Fox will be given.

We haven't forgotten the Social outing, and we have even more to celebrate now due to the fact that it is the Diamond Anniversary of the Branch as well as the League. More details soon.

A brief report on the 1985 National AGM by Brian ZS2AB.

Well, another AGM has come and gone. I suspect that mainly, it went as many others have gone before, but, being my first time in the "hot-seat", it was quite an experience. The arrangements at the hotel were very good and the little added touches (the work, I suspect, of the ladies of TNT) certainly did not go unnoticed by the visitors. The spread of food on the Friday evening at the clubhouse was such that we could not possibly have eaten it all if everyone had stayed there all night!! TNT have the use of a house in Andries Street, Pretoria which has been earmarked for demolition when a new road is built, but they have the use of it until then at a cost of R12 per annum. They have a kitchen, a shack/library/small lounge, a larger room where the meetings are held, and a workshop. A large area under cover at the back of the building is very handy as well for any spill-over from the meeting room.

On Friday afternoon a meeting was held at the hotel, where Dave Perry ZS1SG gave a report on IARU meetings held in Germany recently. It was decided that the Region 1 bandplan would be amended and accepted as such by the S.A.R.L. Changes made were as follows:

40 metres: 7.00 to 7.03 MHz - CW only.  
7.03 to 7.10 MHz - all modes.

30 metres: 10.10 to 10.125 MHz - CW only.  
10.125 to 10.150 MHz - all modes.

Hopefully this will end the bickering between those who believe that the bandplan should be adhered to, and those who argue that the S.A.P.O. regulations make no restriction on the use of these bands. It was agreed that NO frequencies in the 10 MHz bands could be commanded for "exclusive" use by the so-called "emergency services" as has been done in other bands. Dave also stressed that we have the use of the 30 metre band on a secondary basis and must be very careful not to interfere with existing services in this band. A vote was taken at the meeting on whether our Postmaster-General should be approached with a view to amending the Post Office Radio regulations to include the new divisions of 30 and 40 metres, but this idea was voted against, and remains only a recommendation, although it is hoped that League members will operate in these bands as suggested. There is no doubt that Dave and his fellow Councillors devote a tremendous amount of time and trouble to the aspects of representation at the IARU meetings, and, no doubt, have to put up with a lot as well.

The question uppermost in most peoples' minds is almost certainly "What about the subs.?" Well, the subs. for the coming year have been raised quite considerably, but for very good reason. As most members will know, OM Koois van der Merwe ZS1AW has had the almost sole responsibility of supervising the HQ offices all day every day for many years now. OM Koois is in his 80's, and feels that he must take a back seat. Council consists entirely of people who hold down full-time jobs and are obviously not able to be at HQ all day. For this reason it has been decided to employ a full-time secretary at HQ who will be responsible for the running of the offices. A budget allocation of R14000 has been made for 1985/86 for this post.

this amount, after tax, is not really a marvellous salary, but Council are going to be looking at employing a ham who has recently retired, and who has a good knowledge of the Leagues' operation, and who will be able to oversee the day-to-day operations at HQ. There are still a few points to be clarified concerning wives and junior members subscriptions, but the amount payable for full members will R36 for 1985/86, distributed as follows:  
Headquarters R20 ; Branch R10 ; Radio ZS/Callbook R6.  
Pensioner members subs. increase to R26 split into :  
Headquarters R20 ; Branch NIL ; Radio ZS/Callbook R6.  
(Final clarification is awaited on the split for pensioners).  
The Radio ZS subsidy remains at R12000 for 1985/86 and I learned, with some surprise, that at present, postage on Radio ZS for a year amounts to R7000 and GST on printing and packaging about R4500. The balance of the HQ subsidy plus the income from adverts have to pay for the actual setting-up and printing.  
I raised the subject of Radio ZS under General at the AGM and some animated discussion ensued, with most Branches expressing dissatisfaction with the current state of affairs. It was decided that Council will immediately investigate the feasibility of once again producing Radio ZS in Cape Town, and will obtain quotes as necessary and report to the Branches as soon as possible.

HQ have undertaken to pay all repeater and beacon licences themselves out of general funds, and branches will no longer be required to pay them. The main reason for this move has been that so many branches have been slack with payments, and a large volume of work has resulted, trying to collect a bit here and a bit there, and some friction has been caused with the PMG as well at times. Other expenses have risen, as they always do, and I will have the full League budget at the meeting on Friday for discussion.

To those members who, like myself, have so often asked "What do I get out of the League for my subs?", let me say that there is a lot done quietly by HQ for the benefit of ham radio in South Africa generally, and much of this only becomes evident when one is right there at an AGM when discussion takes place. Unfortunately, much of the work done by the League also benefits non-members, and if existing members decide to leave the League and still reap most of the benefits, it will be a great pity.

There has recently been much negotiation with the Post Office about the Technical Exam, triggered off by the very misleading questions in Nov. 84. paper, and it seems that the League now has a reasonable grip on the Post Offices' ear in this respect. HQ have a genuine desire to improve things (Radio ZS included) and I can only ask all our members to carry on their membership this coming year and give Council a chance to do what they can for us. Council have budgeted for a 15% loss of members for 1985/86 as a result of the subs. increase, rather than a hoped-for 5% increase in membership. Don't let the PE branch get anywhere near this 15% !

Remember that you can arrange to pay your subs over a period of 2 or 3 months if you wish. Just tell the Treasurer, and it will be done.

Anyone who would like more details of the goings-on at the AGM can find out all about it at the meeting. Looking forward to seeing YOU there.

# VHF/UHF TV modulator

COMPUTERS, VIDEO GAMES, VIDEO CAMERAS, GAMES COMPUTERS: ALL OF THESE PRODUCE VIDEO SIGNALS THAT MUST BE DISPLAYED VIA A TELEVISION SET. IF THE TV RECEIVER IN QUESTION DOES NOT HAVE A VIDEO INPUT AND ITS OWNER IS RELUCTANT TO VANDALISE IT IN ORDER TO FIT ONE THEN THIS SORT OF MODULATOR IS THE OBVIOUS SOLUTION. IT IS A SIMPLE CIRCUIT THAT PROCESSES VIDEO SIGNALS TO ENABLE THEM TO BE FED STRAIGHT INTO THE TV SET'S AERIAL INPUT.

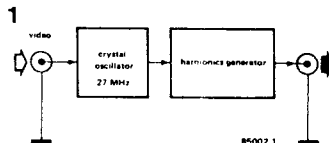
A TV modulator is really no more than a transmitter. It is a very small transmitter, admittedly, but none the less that is what it is. What does a modulator actually do? In general - and this design is no exception to the rule - it is a simple oscillator that generates a frequency somewhere in the VHF or UHF region. The oscillator is modulated with the video signal and the modulated carrier wave thus generated is fed into the TV set's aerial input via a cable. Then all that remains to do is tune the TV to the correct frequency.

## THE LAYOUT.

The whole business is not quite as simple as we have just suggested, of course, as the mini transmitter must meet certain requirements. The frequency stability must be very good as, indeed, must the quality of the display. The required frequency stability is achieved by the use of a crystal oscillator. A well thought out choice of component values takes care of the display quality: the modulator allows a resolution of 80 characters per line, as this is a value that is often needed.

A very important feature of the circuit that must be decided is the transmission frequency. If this is only a single channel, as suggested above, it gives rise to some practical problems. Different users will want different channels, the carrier wave can become somewhat difficult to locate, and unless the frequency is exactly spot on no signal will be received. A much better idea is to ensure that the HF signal contains a large number of different frequencies. This makes it much easier to tune the TV set to one of the frequencies as there will surely be one to suit every user.

The block diagram of Figure 1 shows how this is achieved. The TV modulator is made up of two parts, namely a modulatable crystal oscillator and a harmonics generator. The oscillator operates at a frequency of 27 MHz which is quite low so inexpensive crystals are readily available. The harmonics generator converts the oscillator signal into a sort of frequency spectrum containing all the multiples of 27 MHz up to above 1800 Mhz. The TV modulator's output signal is made up of a large number of little peaks, each of which is a complete transmitter signal. At least one of these will always be in band 3 (VHF channels 5 ...12) and many of them will be in bands 4 and 5 (UHF channels 21..69).





## THE CIRCUIT DIAGRAM.

Like the block diagram, the circuit (shown in figure 2) is very straightforward. The crystal oscillator is based on a very fast HF transistor, T1 (BFR91) which performs the amplitude modulation. Apart from this, there is little to be said about the oscillator except, perhaps, that it is essential to use the correct values for the components surrounding T1. This is, of course, simply common sense in this sort of HF circuit. The harmonics generator is formed by two Schottky diodes, D1 and D2. These diodes must switch very quickly in time with the 27 MHz signal so they provide strong harmonics up into the gigahertz range. The modulation depth can be set with P1, while the oscillator's d.c. value can be varied by means of P2. The combination of these two presets enable either positive or negative amplitude modulation to be selected. This is essential as the harmonics produced vary in this respect. We will discuss the calibration of P1 and P2 later in this article.

The power for the circuit can be provided by either an unstabilised 8 - 30 V or a stabilised 5V. The latter could be taken from a computer's power supply and in this case IC 1 is not needed.

## CONSTRUCTION.

The tiny printed circuit board designed for this circuit is shown in figure 3. (correct size). It is not double-sided as this was found to be unnecessary. Construction is therefore simplified and readers will find it easy to make themselves. Building the circuit is simply a matter of fitting the components onto the printed circuit board. The coils, often a source of much teeth-gnashing and hair-pulling, will not be a problem in this case. Two of them, L1 and L2, are made by winding  $3\frac{1}{2}$  turns of enamelled copper wire (about 0,2mm thick) on a 3,5mm ferrite bead. Another, L4, is just one turn of copper wire (0,8 ... 1mm thick) air-wound with a diameter of 8 mm. The fourth inductor, L3, can simply be bought.

Any third overtone crystal with a frequency of between 25 and 30MHz will work in this circuit. The only parts that might prove difficult to find are Diodes D1 and D2. The ones stated in the parts list are available at the moment, but do not give up hope if your corner shop does not have them. The only important thing is that they must be UHF Schottky diodes; the actual type number is of little consequence.

## CALIBRATION.

Calibrating the modulator calls for a certain degree of care as it involves more than just 'set the presets to mid-position'. The setting depends, in fact, on the harmonic to which the circuit is tuned. Calibration should be carried out as follows:

- Set the TV receiver to maximum brightness and contrast.
- Feed a video signal into the modulator (a video recording of a test card, or a link to a computer's TV socket, could be used) and connect the circuit's output to the TV's aerial input.
- Set P2 to mid-position and P1 to minimum resistance (fully anti-clockwise)
- Tune the TV receiver to a harmonic, preferably one of the VHF bands (channels 2 to 12). The tuning is correct when the 'snow' on the screen becomes dark.
- Turn P1 very slightly until 'something' becomes visible.
- Calibrate P2 to give the best possible quality image. If the result is not very good the wiper of P1 can be moved a bit more and P2 again trimmed to give a better image.
- If this still fails to provide an acceptable result, tune the TV to the next harmonic. This must give a decent image.

(To be continued next month)

# Propagation News

Propagation Forecast from ARRL HQ 7th April, 1985.

Last week's prediction of higher flux values was not fulfilled. Instead, flux numbers slid down steadily, with two days at 70 ending this week. The predicted interesting conditions on Trans-equatorial circuits were available. Some DX opportunities on 28 Mhz went almost unnoticed. The CW beacons between 28,2 and 28,3 Mhz often give the warning that this band is open. For example, DLØIGI in Southern Germany was heard one afternoon in Florida. DK2RSY came in two different afternoons around 2230UTC. PY2AMI and LU1UG are heard almost every day. The appearance of FØ8KF, French Polynesia, was a pleasant surprise. He was having rag chew type QSO's and was easily workable. Five South and Central American countries and several W6 stations were worked on 28Mhz on April 3 and the 50Mhz beacon of HC2FG was heard for nearly two hours. Many traffic nets and informal rag chew type gatherings organised around the short skip normally encountered on 40 and 80 metres are in trouble currently. Signals from beyond their normally expected distances are dominating channels they formerly used. There is no simple answer to this problem as it varies with each situation and may change considerably with the time of day, the season and the sections of the country involved. Generally low levels of solar activity are expected for the forecast week. The area of the sun now facing the earth brought a slight rise in the solar flux four weeks ago. It may repeat this trend toward the end of the week, but no major change is likely, either up or down. In general there should be fair to good conditions until April 13 to 15, then higher geomagnetic activity is likely to bring good high latitude propagation, but with no large change in the low latitudes and on transequatorial circuits. Good performances to the South Pacific regions should continue on all frequencies. DON'T WAIT FOR SOMETHING TO HAPPEN ON 28 AND 50 MHZ. Get on the air and make things happen. An open path does not help if it is not used.

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## CQ DX CQ DX CQ DX

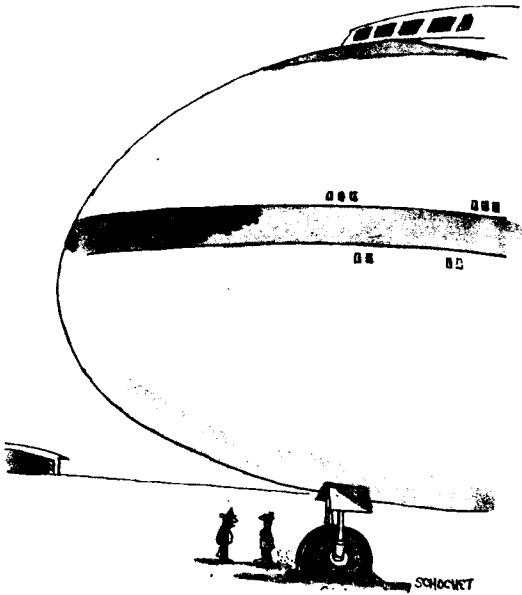
- CHRISTMAS ISLAND: Steve VK6IR has been reported signing VK9XB. His signals have been heard on 40 and 80 meter SSB.
- TONGA: Ray, WA6VNR is now signing A35CQ. His operation will include 80 thru 10 meters, SSB and CW. Ray joins Ron AL1AMO who has been signing A35EA for the past two weeks.
- FIJI: 3S2CQ, Ray, has been active on 7005 KHz at 1100Z. QSL to WA6VNR.
- REUNION: FR4ZD, Guy, has been active on 7004 KHz at 0300Z. QSL direct.
- PAPUA NEW GUINEA: Jim P29JS, has been active on 3790 KHz at 1000Z.
- EL SALVADOR: VS9CHE, Chet, is on 160 for the first top band operation from Salvador in many years. He is on 160 at present as a result of donated antennas. He is on 160 at 0400Z around 1838 KHz. QSL via WAØJYJ.
- 160 METERS: High static levels have plagued conditions for the last several days. In spite of this, the following have been heard or worked: KX6DS, A35EA, P29PR, VK6HD, 3V8PS, NA6T/KH4 and 7X5AB,

Thanks to Buck ZS2RM for the above.

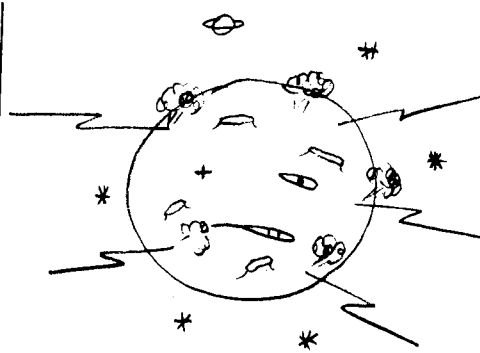
THE NATIONAL AERONAUTIC AND SPACE ADMINISTRATION'S SOLUTIONS:

- 15 Box of matches. Since there is little atmosphere on the moon, the matches wouldn't burn, so they would have little or no use.
- 4 Food concentrate. This would be very nutritious, and food would be one of your main concerns.
- 6 50 feet of nylon rope. It has a number of uses - tying people together, climbing small mountains, tying all the equipment together and pulling it.
- 8 Parachute silk. This would be ideal protection from the sun's rays. One thing the task requires you to figure out is that you are on the lighted surface of the moon.
- 13 Portable heating unit. This would be useful only if you had landed on the dark side of the moon.
- 11 Two .45 calibre pistols. NASA says that self-propulsion devices could be made from these.
- 12 One case dehydrated milk. This would have some usefulness - as food mixed with water for drinking - but probably very little if you already had food concentrate,
- 1 2 hundred-pound tanks of oxygen. Oxygen was seen as the most pressing need. Because the gravitational pull of the moon is only about one-sixth of what it is here on earth, these tanks would weigh only about 30 pounds.
- 3 Stellar map. NASA saw this as the most important means of navigation.
- 9 Life raft. This has a variety of uses. Inflated, it gives protection from the sun, a means of carrying injured or equipment. NASA favours using CO<sub>2</sub> bottles on the raft for propulsion across chasms, etc.
- 14 Magnetic compass. If there is a magnetic field on the moon, it doesn't seem to be polarised. The needle would probably spin and angle and be of little use.
- 2 5 gallons of water. You get 200<sup>o</sup>+ temperatures on the moon's lighted surface. There would be a pressing need for water to replenish fluid losses.
- 10 Signal flares. Possibly useful if you could get close enough to the ship for them to be seen.
- 7 First Aid kit containing pills and injection needles. The pills or injection needles might be valuable.
- 5 Solar powered radio. This could be used as a distress signal transmitter and for possible communication with the mother ship.

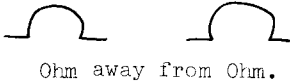
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"Well Robbie, did you have to kick it?"



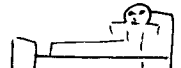
These E M E contests are Hell!  
 (Thanks to Clive ZS2RT)



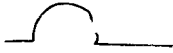
Ohm away from Ohm.



Mobile Ohm.



Ohm sick.



Broken Ohm.



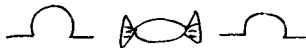
Happy Ohm.



Ohm Time





Ohm stretch




Ohm Sweet Ohm

The above contributions from Dudley ZS2AW and Marge ZS20B.





## Instant Printing



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