THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY.
VOLUME - 86 , NUMBER : 4 MAY 1986.
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MEETINGS ARE HELD ON THE SECOND TUESDAY OF EACH MONTH , (EXCEPT JANUARY) AT 7.30.PM. AT THE STATE EMERGENCY SERVICES , BUILDING , IN MONTAGUE STREET , NORTH WOLLONGONG .

VISITORS ARE MOST WELCOME TO ATTEND MEETING'S .

MEMBERS RALLY TO F.R.L.

At the I.A.R.S. monthly meeting held on 8th APRIL , 33 People were in attendance

Included in this number was a visitor , Mr JOHN GARROD ZL2BMO , who gave an interesting talk on safety & rescue procedures.

He also talked on the types of radio equipment used in this important life saving work.

Also during the meeting an interesting VIDEO tape was shown. This had been organized by MIKE-VK2DFK and RAY-VK2XCC/PHD. This would be Rays last official act for the club before departing on his well earned holiday. Good luck RAY....

During the meeting DAVE VK2PZY (ME) put a CLUB FUND RAISING proposition to all club members present. And I am glad to say that the idea was a complete success. In fact it was so successful that it has already "GOT OFF THE GROUND" and has already brought much needed funds into the club.

I would like to thank all those present at the meeting for their 100% support and wish all of you good luck with your number etc.

Inside this weeks propagator you will find a copy of your added BONUS the LOTTO coupon that you can check off from every MONDAY for 26 WEEKS. This coupon is only of value to club members who have participated in this project and have their name on the list.

Also inside is a list of Name & Numbers so that you can check if yours is the lucky one for MONDAY-NIGHTS LOTTO-DRAW (Supplimentary number for the $10.)

Will all those on the list please keep this copy handy so you can check the LOTTO coupon numbers every Monday.

Once again good luck to all who are participating and may we all get the "BIG ONE".

ARE YOU

FINANCIAL

WITH YOUR CLUB ?

TO RECIEVE THE PROPAGATOR YOU MUST BE A FULLY PAID UP MEMBER OF THE I.A.R.S.

SO DO IT NOW

ANXIOUS AMATEURS

The club has some new members who are anxious to acquire a H.F. Rig. If you have a second hand rig that is now spare, working or not and would consider selling it please let a club committee member know and they will be happy to arrange a buyer for you.

UNCLAIMED Q.S.L. CARDS.

The club has available a list of unclaimed QSL CARDS

Would you please check to see that you are FINANCIAL with the W.I.A. as if not the cost of handling etc, has to be borne by your own club .

The following are some of the cards available :-

VK2VOM	- VK2PFU	- VK2VVS
VK2VME	- VK2JAM	- VK2VVN
VK2DZJ	- VK2VWT	- VK2PCK

Would you please pick up, or arrange for someone to pick up your cards by the May meetiing, THANK YOU....

73'S VK2DWR .

I.A.R.S.

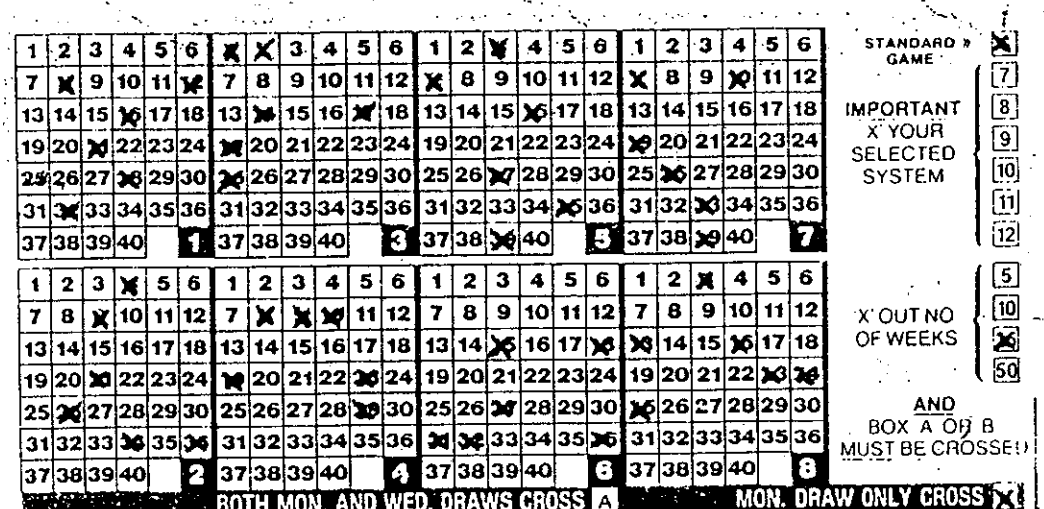
FUND RAISING LIST.

LIST NUMBER 1.

26 WEEKS COMMENCING ON THE 14-4-1986.

NUMBER	NAME	NUMBER	NAME
1	S. HARTU	21	R. McKNIGHT
2	C. LACEY	22	H. WILLIAMSON
3	K. CURLE	23	J. WOODWARD
4	D. HENDERSON	24	T. BROWN
5	N. KOOSACHI	25	T. STONE
6	D. SAMWAYS	26	T. MOWBRAY
7	P. JORDAN	27	K. MURPHY
8	J. TAYLOR	28	W. TOMCZYK
9	C. VAUGHAN	29	C. PROCTOR
10	D. CAPON	30	M. KEECH
11	J. LAWER	31	J. HAYES
12	L. PATISON	32	R. NORTHEY
13	M. v.d.VORSTENBOSCH	33	N. STONE
14	B. KNOBEL	34	J. HOFFMAN
15	J. HAYES	35	B. CRINNION
16	D. BOYS	36	B. CRINNION
17	I. CALLCOTT	37	B. CHADBURN
18	F. BROWN	38	B. ALDRIDGE
19	R. RYALL	39	D. ROUDLEDGE
20	P. HOWCHIN	40	P. WOODS

Go Lotto! Multi-week PLAYERS COPY



700746 57037 6 15

Agents No. Encoder No. Year/Week

30 PARK ST WOONOONA

DAVE CAPON
20, ORGANS ROAD, BULLI
N.S.W. 2516 X
I-ARS-FRL-1

SO THE STORY GOES

The carpet layer had just finished laying the carpet in the lounge of an old lady's house , he had done the lot from top to bottom.

He reckoned he had earned a smoke. Feeling for his packet of cig's he couldn't find them. On looking around the room he noticed a bulge under the carpet in the middle of the room. "I am not pulling all this carpet up again just to get a packet of fag's" he said, and promptly went over to the bulge and kept stamping firmly on to it till it eventually disappeared.

Just then the old lady popped her head round the corner of the door and asked the carpet layer if he would like a "cuppa" . By the way, she said "I believe these are your cigarettes I found them in the hall , and have you seen my Budgie annywhere?"

SPECTRAL TELECAST FROM THE PAST

TV EXPERTS admit they are still baffled by an uncanny telecast from the past — which was received in 32 cities around the globe.

The transmission — comprising the callsign and station identification of channel KLEE, Houston — was seen by astonished viewers from London to West Berlin to Durban, South Africa.

Next day, newspapers surmised that freak weather conditions must have bounced KLEE's signal around the planet.

But then came the shock.

When engineers and reporters tried to contact the channel they learned it had been closed down three years earlier.

The new owners of the site on which the station had stood assured enquirers they'd made no telecasts since the closure.

The transmitting mast — which could only have covered a small radius anyway — had been mothballed and the studio equipment sold off.

Sceptics immediately descended with glee on KLEE, claiming the telecast had been a hoax.

But British and US TV authorities opined that such a trick would have been unlikely.

In September, 1953, when the ghost telecast intrigued the world, a deliberate global linkup would have required coaxial links and repeater stations at a cost of more than $100,000.

While parapsychologists speculate about timewarps, engineers are now wondering whether some undiscovered natural phenomenon locked KLEE's signal into the atmosphere, before scattering it like seed around the earth three years later.

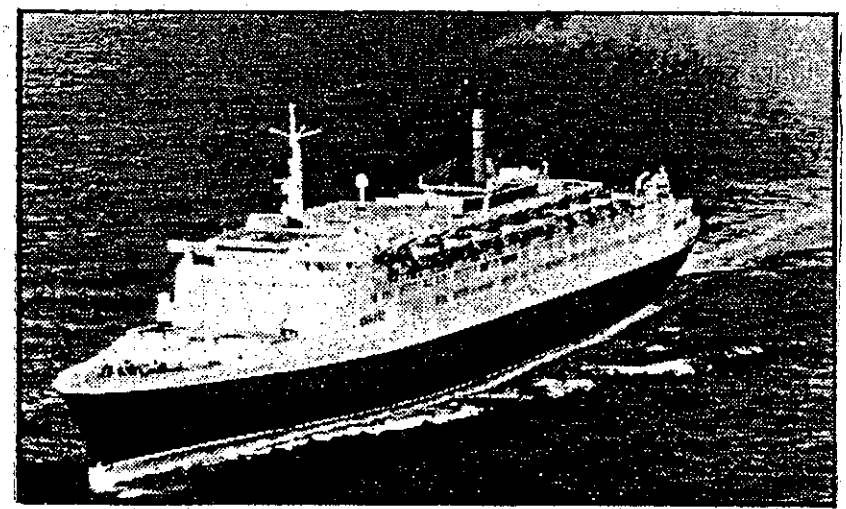
In 1982, the mystery of broadcasts from the past grew deeper.

Radio operators aboard the QE2 reported that they'd received a series of signals in a code superseded long before.

The messages purportedly came from a ground station which had been shut down and its transmitters dismantled five years earlier.

Broadcast engineers are still conducting part-time research in the hope of finding a down-to-earth answer.

But so far they've discovered no solution to the mystery of the spectral stations.



QE2 radio operators picked up mysterious code messages.

REPEATER REPORT - GRAEME VK2CAG

The wind generator at Mt. Murray was removed from the site on 22/3/86 for a general overhaul before the next windy season starts. During the last few trips to Mt. Murray it has been obvious from the movement in the rotor bearings that some wear has taken place, and that something should be done about it before its too late.

The repeater was placed on 20 second time-out for the period while the generator was out of service, just to ensure continuity of service, as the repeater is operating entirely from solar power with panels giving 3 amps peak output. Even so, the demand for repeater use has at times exceeded the supply of energy available.

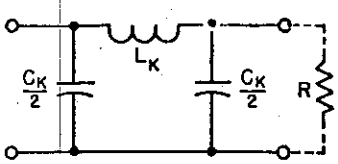
The two worn rotor bearings were replaced, and the generator was returned to service on 19/4/86.

A visit was made to Sublime Point repeater site on Anzac Day, while on a family picnic. Apart from some corrosion on the battery terminals, plenty of spiders and cobwebs on the equipment and rats droppings on top of the battery charger (where it is nice and warm), all seemed to be in good shape. The last previous visit to Sublime point was in October 1985!

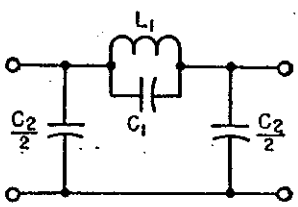
Only other repeater happening this month is that yours truly has spent several hours wading through the wealth of literature that is sent to us from the State repeater committee giving news about repeaters in general, policy matters and the like. A bunch of forms were completed and returned containing up to date info on our repeater situation in the Illawarra area for use in compiling the latest callbook.

MISCELLANEOUS DATA

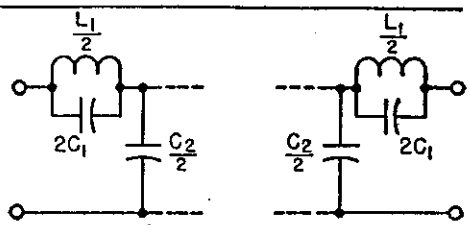
LOW-PASS FILTERS



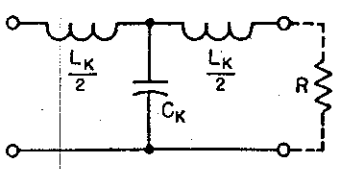
Constant-k π section



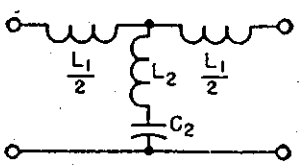
m-derived π section



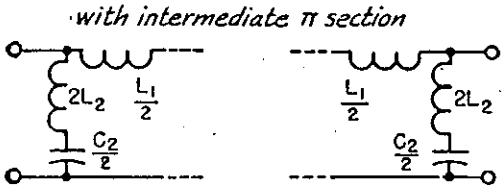
m-derived end sections for use with intermediate π section



Constant-k T section



m-derived T section



m-derived end sections for use with intermediate T section

$$L_K = \frac{R}{\pi f_c} \qquad C_K = \frac{1}{\pi f_c R}$$

$$L_1 = mL_K \qquad C_1 = \frac{1-m^2}{4m} C_K$$

$$L_2 = \frac{1-m^2}{4m} L_K \qquad C_2 = m C_K$$

$$L_1 = mL_K \qquad C_1 = \frac{1-m^2}{4m} C_K$$

$$L_2 = \frac{1-m^2}{4m} L_K \qquad C_2 = m C_K$$

In the above formulas *R* is in ohms, *C* in farads, *L* in henrys, and *f* in cycles per second.

THE SWAN YAGI ANTENNA DESIGN

from Ray Naughton 3ATN

General - The feed point is marked xx. All elements are 3/8" diameter aluminium tube. The booms are 7/8" or 1" diameter aluminium tube. The mounting insulators will have to be trimmed slightly for 7/8" dia. booms. Element mounting holes should be drilled 3/16" diameter.

All the 3/16" steel hardware on boom to insulator mounts; aluminium on driven elements to insulator mounts. All of the elements are insulated from the boom except for the mounting bolts on parasitic elements.

It is a good idea, if not essential, to clean all the elements thoroughly with steel wool, especially at the mounting holes, and spray a coat of lacquer or plastic on each one.

The phasing lines can be constructed from 14 SWG aluminium or copper wire (Al. preferred to prevent electrolysis).

The feed impedance is reactive and can be compensated by a universal stub as follows:- 48" of 1/8" dia. rod (brass or Al.) spaced 1/2" to 3/4" and spaced from boom with stand off insulators if run parallel to boom, or it can hangdown if you wish (not as good mechanically though). A simple double stub match using TV ribbon has also been used successfully

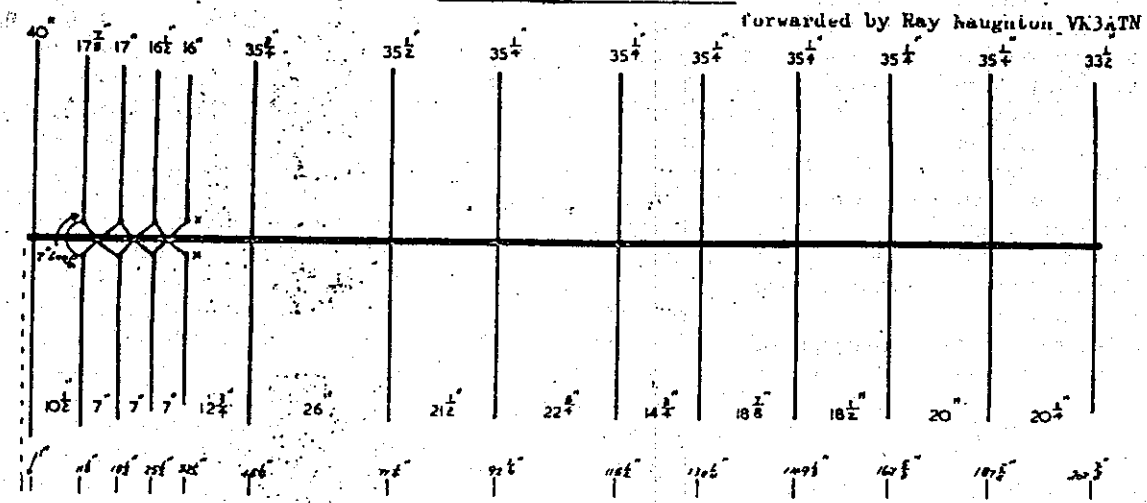
Claimed Figures. 1 14 element Gain: 16.1 db
VSWR: 1.15 to 1
Band width: 143 to 149 MHZ
Feed Impedance: 105 ohms.

2 11 element Gain: 14.1 db
other data as above.

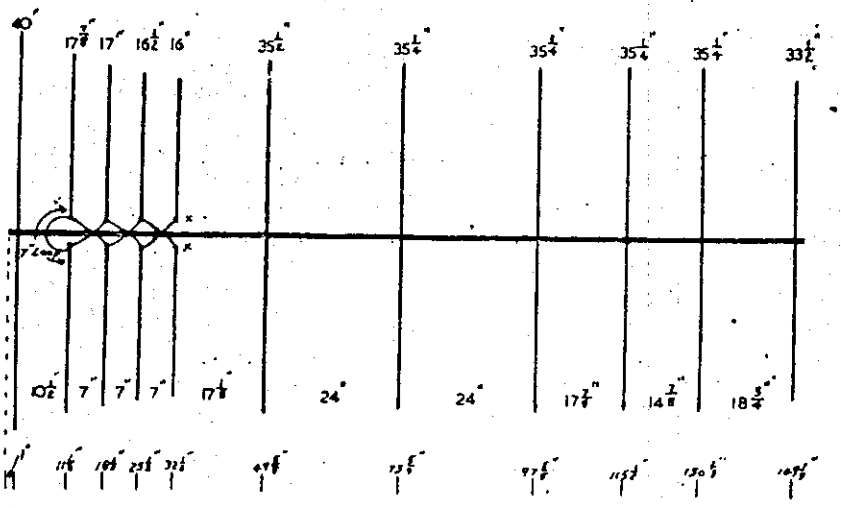
Ed. Note: On2/7/72 VK3's YBR, YFZ, YDJand AOT tested an 11 element model and found a gain of 11.5db ± 0.5 db. Further tests will be done later.

SWAN YAGI DESIGN DETAILS

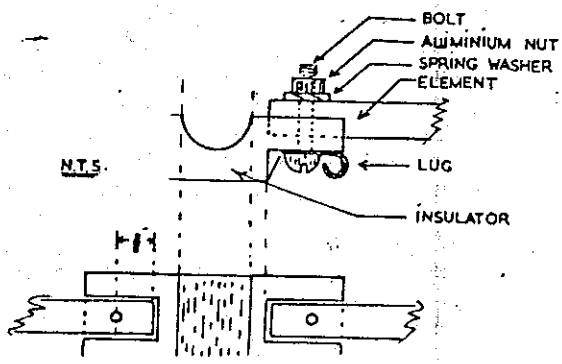
forwarded by Ray Naughton VK3ATN



14 ELEMENT 2M SWAN YAGI



11 ELEMENT 2M SWAN YAGI



Lightning Strikes

By G. R. von Kronenberger

Last May, four women playing golf at Mt. Lawley, Western Australia, were thrown to the ground when lightning hit a tree near a putting green. Two suffered burns, one to the roof of her mouth, one to her fingers. The others escaped with a bad shaking.

The women golfers were lucky. A golf course, or any open field, is a bad place to be in a lightning storm. In September 1965, a 40-year-old farm worker cutting clover near an irrigation canal outside Murram, southern New South Wales, was killed by a bolt. His was one of 24 deaths caused in Australia that year by nature's most destructive act of violence. During the same year, lightning storms inflicted injuries on 75 Australians and caused an estimated $10 million in damage to property. Much of this tragic loss could have been avoided through a proper understanding of this awesome electrical force and the practice of a few commonsense safety rules.

Lightning is an electrical charge which flashes not from cloud to earth—as it sometimes appears—but from earth to cloud. When storm clouds gather, the wild turbulence inside them results in a separation of electrical charges. Usually, negative charges accumulate in the lower part of the cloud, while positive charges build up in the earth and in the upper part of the cloud. Lightning occurs when the attraction between these opposite charges becomes strong enough to bridge the gap separating them.

An imperceptible stroke "leader" advances from the cloud step by step towards the ground, establishing the path the stroke will take. When it nears the ground, an avalanche of charges rushes upwards through the conducting path, neutralizing positive and negative charges (or ions). This return stroke produces the brilliant flash and thunder clap. The leader will follow the path of least resistance. It may seek out a tree, a chimney, you—whatever offers the shortest gap and the best conductor.

Tremendously powerful, lightning moves about 30,000 times as fast as a bullet and may contain thousands of millions of volts and as much as 500,000 amperes—millions of times as much power as in your electric house current. The intense heat generated when lightning strikes directly often causes all the sap in a tree to boil instantaneously and evaporate; in a chimney, the violent expansion of the moisture in bricks may blow them into millions of pieces.

Although scientists have been unable to measure lightning precisely, its approximate dimensions are known. The core of pure electrical energy in an average bolt is about one half to three-quarters of an inch thick. It is surrounded by a four-inch-thick channel of super-heated air. The length of a stroke may vary from 2000 to 15,000 feet or more and, since most lightning strokes are actually multiple, more than 40 strokes may occur in quick succession, spaced up to half a second apart.

Lightning bolts may be "hot" or "cold," or a combination of both. A hot one is a multiple stroke of long duration, perhaps as long as a second. It has high amperage and sets fire to flammable materials in its path. A cold strike is much faster, and has an explosive rather than igniting effect. A large bolt of cold lightning has enough energy to lift a 50,000-ton ocean liner six feet into the air.

The greatest number of lightning casualties, according to a recent study, occur outdoors, but one quarter occur in the home—mainly because that is where most people are during storms. Lightning strokes enter houses via chimneys, plumbing, wiring, TV antennas, or directly through the roof.

In one tragic case, lightning hit a tree alongside a suburban home, ran down the trunk to an attached wire clothesline, followed the line to a metal fitting that fastened it to the house, and reached a television set which touched that wall of the house. The young mother, attempting to unplug the set, was instantly killed. Her five-year-old daughter sitting close by was temporarily paralysed.

A chimney with attached TV antenna—the highest point on a house—is an obvious target for lightning. The average antenna is not grounded with a large enough conductor to offer lightning protection to the house. A charge striking it may jump down the chimney or find a better conductor on the way earthwards, such as metal fixtures around the fireplace or a metal heat or vent pipe. If this new conductor isn't grounded, the charge leaps out to the next-nearest conductor, and anyone happening to be in its path gets the full charge.

It is wise, therefore, to stay away from walls, fireplace, plumbing lines, electrical equipment and metal objects such as stove, sink or tub, during a storm that is striking close. Though the safest spot is generally the centre of a room, see that this location does not place you between one conductor leading down from the roof and another leading to the ground. A seat between a fireplace and a metallic heating or plumbing fixture, for instance, might turn out to be an "electric chair." And since overhead telephone wires often are struck, it is a good idea to leave the telephone alone during an electrical storm.

A properly designed and installed lightning-rod system is a useful safeguard. When lightning strikes a building thus protected, the bolt is intercepted by one of the rods, then led into a heavy conducting cable which dissipates it harmlessly deep in the earth.

The safest places to be during electrical storms are in a building with continuous steel-frame construction with the framing grounded, in a building equipped with proper lightning protection systems, or in a *closed* car.* If you are caught in the open, do not seek shelter under isolated trees or in small groves. It is better to crouch down in the open. Best is to find a cave, ravine or ditch.

Stay away from knolls, utility poles and golf tees, and give wide berth to wire fences—their posts attract the charge, and their wires are excellent conductors. Stay out of water, and particularly out of small boats. Rocky ground in the open seems to have a strong affinity for lightning, and campers should avoid such sites when pitching a tent. Also, groups of people in the open provide more attraction than individuals, and it is wise to scatter during a severe thunderstorm.

When a storm strikes so close that the flash of lightning and the report of thunder are almost simultaneous, and when the air is loaded with the pungent odor of ozone, it is time to carry precautions to the last degree. If you are in such a storm and feel your hair beginning to stand on end, you may be getting set up as a lightning target. In such a circumstance, toss dignity to the winds and lie flat. After all, it's better to be muddy than dead.

*A car is safe because its continuous steel frame provides an easy channel directly to the ground, and the stroke stays on the outside all the way down. Car windows should be closed.

LIGHTNING PROTECTION

Summer is the time for thunderstorms. A cloud to ground discharge can have a potential of 300 million volts at hundreds of thousands of amperes. The damaging effect of a stroke results from the power developed by the passage of a large current through a resistance (a human body, for instance). A lightning arrester provides a controlled path to ground for the lightning energy, shorting it to ground before it can damage the equipment being protected.

A secondary effect of a lightning strike is the tremendous electrostatic field set up within the vicinity of the bolt . . . up to 5 kV/cm. When the strike reaches earth, a great potential is set up between the strike point and 'neutral' earth, and earth currents flow outward from the strike point to re-establish equilibrium. These currents can flow along the outside of a coaxial line located in the vicinity of a strike (see Fig. 1). This potential can be induced into an inner conductor despite the presence of a lightning arrester in the line, or it can elevate the chassis of the radio equipment to thousands of volts above ground . . . even though the equipment is normally at ground potential.

One simple way to prevent the coaxial line from rising above ground potential is to pass it through a very simple waveguide cuttoff filter made from a 10 foot length of electrical (EMT) tubing. The coaxial line is passed through the tubing and line and tubing are then securely grounded at the station end of the line (as shown in Fig. 1). The opposite end of the tubing is not grounded. The ground potential passing along the outer conductor of the line will be shunted back to earth at the grounded end of the filter, thus protecting the equipment which is (or should be) grounded to earth at the same ground point.

When this approach is used in conjunction with a conventional lightning arrester, maximum protection is afforded the equipment in the shack during a thunderstorm.

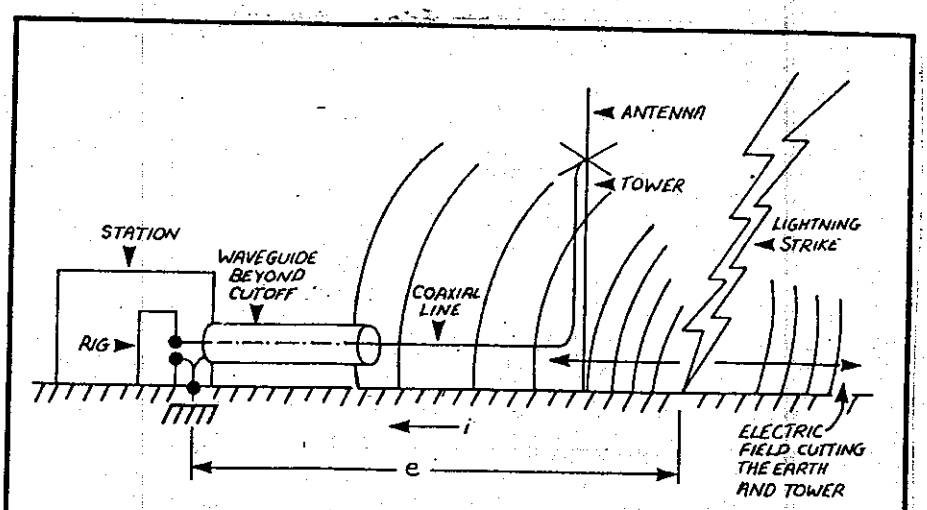


Fig. 1 — A lightning strike at or near an antenna can induce a potential drop in the earth with heavy ground currents flowing outward from strike point. Current is eventually dissipated in the earth. Ground current can be induced into the outer shield of coaxial lines with damaging effects to equipment even though a lightning arrester is in the line. Ground waveguide and equipment at one point in the Station with a heavy conductor to a good ground rod. A 10 foot length of EMT tubing is used for the waveguide.

Ten Ways to Save Petrol

By Les Sims
Technical Services Manager of Britain's Automobile Association

As petrol prices creep up and restrictions tighten, it is both prudent and patriotic to cut down motoring. Work out car rosters with neighbours for travelling to work, shops, parties and taking children to school, and try to avoid rush hours. Then follow these tips:

- Push in the fuel-thirsty choke as soon as the car is moving, and warm up as you drive along.
- Keep your speed down. Reducing your speed on a long trip from 110 km/h to 80 km/h gives you up to four kilometres more for every litre of petrol in an average family car. It is even more economical to travel at between 50 and 60 km/h.
- Avoid sudden changes of speed. Anticipate traffic lights and hold-ups. Each time you use the brake, you have wasted fuel.
- Go easy on the accelerator. If you accelerate hard when in the lower gears, you'll consume considerably more fuel than is necessary.
- Where speed restrictions, visibility and road conditions allow, sweep downhill fast enough to get you up the next hill—it is estimated that you use half as much fuel accelerating downhill as you do uphill.
- Avoid racing the engine in neutral and switch off if you are caught in lengthy traffic jams.
- Don't overload the car with passengers or freight. A heavily laden roof-rack can push up fuel consumption by 25 per cent.
- In extreme winter cold, keep the radiator partly blanked off with aluminium foil — a hot engine is more efficient than a cold one.
- Have your car regularly serviced, asking the mechanic to pay particular attention to timing, carburation, cooling and fuel systems.
- Reduce friction: under-inflated tyres, binding brakes and a too-tight fan belt all waste power.

HERE FIDO!!!

FIDO
The Obedient Electronic Dog or Another Dumb Circuit

Lost your keys, dog or even you mother? Here is an electronic gismo you can whistle up to get them to answer. Just dangle it around their neck and whistle your heart out.

The idea is not to be taken too seriously but it's a fun thing to build and show off to your friends.

The circuit uses a piezo transducer both as a microphone and an output sounding device. When you whistle at the resonant frequency of the transducer, this signal is amplified and rectified. This resultant rectified signal triggers an oscillator that then returns the sound to the transducer as an output.

Circuit Detail

Only two active IC devices are used along with a couple of diodes and a handfull of discrete components. The input section uses an operational amplifier as a high gain stage to amplify the signal from the transducer. The transducer in this case is used as a resonant microphone. The natural characteristics of this piezo device in its "tuned" housing is exploited for this function. When used normally as a sounding device, the transducer has the highest output at the resonant frequency. When used in reverse as an input component, this frequency becomes reasonably critical. This tends to reject all frequencies above and below this area. In this way, it can be seen that the combination of this microphone and amplifier become a crude tuned stage.

The amplifier circuit is resonably staight forward in design. The DC gain is set at 100, the AC gain is much higher. One side of the piezo is connected directly to the inverting input of the amplifier to achieve this high gain. The other end is tied to the output of the 555. Normally this output point is held low. The common mode point for the input stage is provided by the voltage divider R1/VR1 across the supply. This level can be adjusted so that the DC output of the op-amp is be set somewhere between 0V and 2.25V with respect to the negative rail.

The 555 output stage is configured as a gated astable with adjustable frequency. This frequency is adjusted by VR2 to where the output from the piezo transducer is at the highest level. The gating function is performed by the use of the reset input. In the "listening" state, the astable is disabled because this reset is held negative via R9 and R10. The output, pin 3 is therefore held low.

How Does It Work

In the "listening" state, the transducer is used as a resonant microphone. A signal at the resonant frequency (your whistle is this case) is picked up and amplified by the IC. On the positive excusions at the output of IC1, the diode D1 is forward biased and conducts. This charges C3 via R5. If the input continues for around two seconds, the potential on C3 will reach high enough to enable the 555 via the reset input pin 4 and voltage divider, R8, R9 and R10. Once triggered, the 555 starts to oscillate and drives the piezo element. This immediately causes positive feedback to the input of IC1 to maintain the state. At the same time, capacitor C5 is charged to a negative potential by the square wave from the 555 and the circuit of R11, C6, D3, and D2. This rising negative potential reaches a point where it cancels the charge on C3. The reset input follows this voltage change and because of it, disables the astable when the level falls below the threshold at about 0.7V. The amount of time required to reach this point is primarily governed by R11, C6 and C5. To increase this period (the sounding time), increase the value of C5.

Sensitivity Adjustment

Without any sound input, the DC voltage level on the output of IC1 (pin 6), is dependent on the setting of VR1. Increasing the value of this preset pot will cause the output to rise. A point will be reached where the 555 is triggered (after a delay caused by the charging of C3) via the reset input. This results in the circuit continuously operating on an on-off basis equivalent to the charge/discharge times of C3/C5. The correct setting is when the pot is set just before this point of oscillation. It will take several tries at this adjustment to find the correct level. You will have to be patient and wait for about 10 seconds before you try again. This is the time required for C5 to discharge after the system stops oscillating.

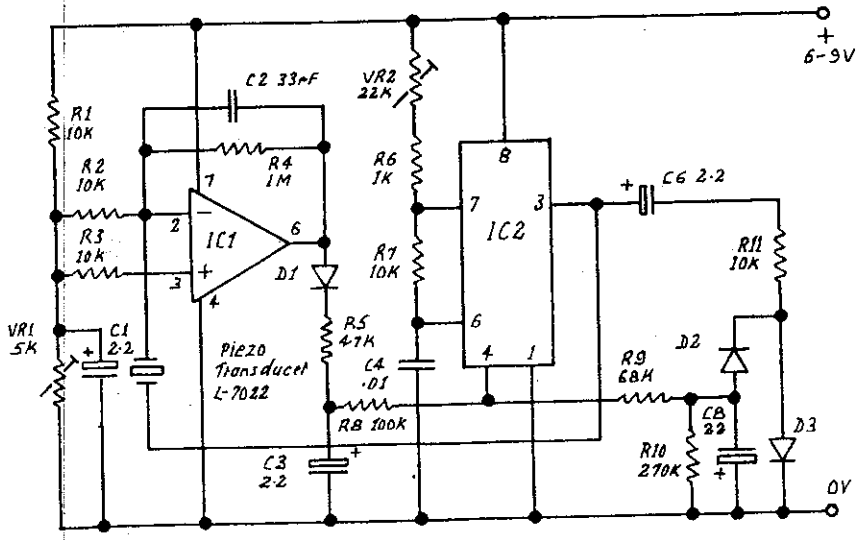
Components

The original circuit used a CA3140 op-amp and a ICM7555 CMOS timer. The current required with these two ICs is around 5mA. By substituting the op-amp with a TLC251 (Cat no Z-6021) low power version and the timer with a TLC555 (Cat no Z-6144), considerable power savings can be achieved and reduces the value of current required to less than 2mA at 9V.
We used the Dick Smith L-7022 as the Transducer.

How To Get Fido To Answer

After adjustment of the threshold pot, you can see if it will recognise your call. Simply give a continuous whistle near the transducer. Vary the frequency up and down untill the circuit responds. Some result should occur when the resonant frequency is crossed.

It may take a few tries to get "Fido" to answer. After he calls back, he goes deaf for around ten seconds while he recovers from the sound of his own voice. Be patient, both student and master require some training.



IC1 CA3140, TLC251 See text
IC2 TLC555, ICM7555 See text
D1 to D3 IN914 IN4148

FROM DICK SMITH ELECTRONICS

ON THE NET

During the last four weeks (March 30th to April 20th) there has been very good support on the I.A.R.S. Sunday nets.

Not only has there been good local club member support but we have also had contact from Queensland to Victoria, listed below is the call signs that came up.

SUNDAY March 30th.

VK2EMV Morry (co-ordinator)
VK2EXN-IAN . VK2MT-ROB .
VK2PEL-RALPH . VK2KAJ-TONY .
VK2PXY-FRED . VK2PZY-DAVE.
VK2DFL-DAVE . VK2JNC/P4-NIEL
VK2PIP-NORM (after the Hargrave Award) .

SUNDAY APRIL 6th.

VK2MT-ROB (co-ordinator)
VK22EXN-IAN . VK2EMV- MORRY.
VK2PYX-FRED . VK2PZY-DAVE .
VK2JAM-PETER . VK2EBI-KEVIN.
VK2AXI-BRIAN. (our cartoonist) . VK2QU-JIM (in Victoria)
VK2PIP-NORM (to get more call signs) . VK2JNC/P4-NIEL (from Queensland) . VK3CRK-RAY (from Victoria)

SUNDAY April 13th.

VK2KAJ-TONY (co-ordinator)
VK2EBI-KEVIN. VK2DFK-MIKE.
VK2DFL-DAVE. VK2PZY-DAVE.
VK2PIP-NORM. VK2PYX-FRED.
VK2EMV-MORRY. VK2EXN-IAN.
VK2NH/P1-DAVE VK2JNC/P4-NIEL
VK3YH-STEVE from Victoria..
VK2VPR-TONY.

SUNDAY APRIL 20TH.

VK2PZY-DAVE co-ordinator.
VK2DFK-MIKE. VK2MT-ROB.
VK2EBI-KEVIN. VK2DFL-DAVE .
VK2KAJ-TONY. VK2EMV-MORRY.
VK2PYX-FRED. VK2PEL-RALPH.
VK2EXN-IAN. VK2JNC/P4-NEIL.
VK2NH/P1-DAVE from Gavin ACT

VK2AMW/P MONTHLY CALL-BACK'S

SUNDAY APRIL 6th.
Call/back from the I.A.R.S. MONTHLY BROADCAST were VK2AXI-BRIAN. VK2QU-JIM. VK2OB-KEETH and also by Phone from PAPUA NEW GUINEA VK2YVF-ERIC FIEN.
Calls above taken on 80.Meters.

A big thank you to all and special from Eric to let us know that he still keeps listening for us way up there in the sticks TNX. We also apologize for not having the R.T.T.Y. transmision but hope to have it rectifide for the next one.
CALL/BACKS ON 2 METRE WERE VK2ALK - LES. VK2JAM - PETER VK2EXN - IAN . VK2ALU-LYLE

EDITORS * REPORT.

If you are a new club member of the I.A.R.S. and have not yet obtained a license to operate , and would like to " GET ON THE BAND". Then contact me on 849872 and I will endevour to arrange with a licenced club member near where you live , for you to get on AIR during our SUNDAY-CLUB-NET-NIGHTS..

FOR SALE

The ILLAWARRA AMATEUR RADIO CLUB has for sale the following items:-

1--UPGRADE KIT (U.H.F.) Price $20.

1--POWER AMPLIFIER KIT (U.H.F.) Price $79.

FOR SALE

VK2 JAM (Peter) has FOR SALE the following:-

1--SYSTEM 80 (THIRD GENERATION) COMPUTER.
Also included are instruction manuals.
All are in GOOD condition and can be purchased for $200.
Call Peter after 6p.m. on 833743

FOR•SALE

FOR ANXIOUS NEW MEMBERS OR NEW NOVICE LICENSE HOLDERS , AND WOULD LIKE TO GET ON THE H.F. BAND. HERE IS A CHEAP WAY TO GET ON THE AIR. I HAVE FOR SALE A CONVERTED PEARCE-SIMPSON FOR TEN METERS , ALSO WITH MANUAL . FOR MORE INFORMATION CONTACT VK2EMV-MORRY. OR VK2PZY DAVE CAPON PRICE = $ 80.

FOR•SALE

D . E . POOL FILTER
8. Square feet GOOD CONDITION.....
CONTACT: Jim Hayes VK2EJH.... $ 200.
Phone: 84-9317.

Satellite Notes (as at 22/4/86).

The latest opereting schedule for Oscar 10 commenced on 19th April. It is - Mode B MA 33 to 44 and MA 63 to 189, Mode L MA 45 to 62, OFF MA 190 to 32.

Lyle VK2ALU.

E.M.E. REPORT BY LYLE VK2ALU

Moonbounce Report - May 1986.

Modifications have been completed to the 1296MHz circularly polarised feed horn. Its various characteristics have now to be optimised, hopefully to result in better performance than with the original setup which was adjusted with the aid of fairly simple test equipment.

Reliable test gear for 1296MHz is not easy to come by, not at this QTH anyway! It is an advantage to be able to measure the horn characteristics at varying frequencies, starting about 50MHz below 1296MHz so that the feed port probes can be pruned to correct length, but unless the signal generator provides at least 10 to 15 watts of rf. then the measurement of reverse power at the feed probe under test will require a very sensitive power meter, which must 'look like' a 50ohm impedance in order not to modify the impedance of the coax. between the sig. gen. and the feed probe.

If the output of the sig. gen. is to remain sufficiently constant over the frequency range then at least 3dB and preferably 6dB of isolation is needed between it and the feed probe under test. Assuming 12 watts out of the sig. gen. and 6dB of isolation, there will be 3 watts at the feed probe. At a SWR of 1.2 to 1 the reverse power to be measured is 25mw, forward power has also to be measured in order to obtain the forward to reverse power relationship.

Adjustments have also to be made to maximise the isolation between the transmit and receive ports of the feed horn. A target of about 23dB of isolation is aimed for. this adjustment requires the use of a power meter which 'looks like' 50ohms at the second feed port and which can measure down to 15mw with 3 watts being supplied to the feed port under adjustment.

In addition it is essential that not only is the 'sense' of rotation of polarisation of the two feed ports be correct (anti-clockwise for transmit port and clockwise for receive port) but that the polarisation be as circular as possible. This is achieved by adjustment of a number of polarising screws on the feed horn. The measurement of 'circularity' requires the use of a helix type receive antenna, wound to the opposite sense to the rf out of the feed horn, and mounted some metres distant from the mouth of the horn. The polarising screws are adjusted to give minimum signal strength at the helix . The feed horn should be pointing at the unobstructed sky during all these measurements so that reflections from objects at or near ground level will not seriously modify the readings. This may not be important when the antenna is normally operating parallel to the ground but is very much so when it is normally looking skywards as in the case of EME antennas.

As two helix antennas will have to be made up, one wound clockwise to check circularity of the transmit port and the other wound anticlockwise to check the receive port of the feed horn, it is proposed that they be used together in conjunction with a sweep generator to verify the results of the adjustments obtained by the first procedure. As much lower power will be injected into the feed ports in this case it may not be possible to get a reading of power at the second port to check the isolation figure between the ports. In this case it will be necessary to reduce the sweep range to zero while the 'circularity' check is being carried out.

Ideally, all the measurements should be made simultaneously as each of the adjustments (ie those for test port SWR, isolation between ports and circularity of feed horn emission) affects each of the other characteristics!!

In all, it looks like a most interesting exercise! If all the test gear required cannot be provided then some compromises may have to be made and/or the process may take much longer to complete.

A memorandum from outer space

Is There Intelligent Life on RTH?

BY STEFAN KANFER

TO: *ZB*33+X*
FROM: *45=K29-1/4*
RE: *Exploration of Minor Planet*

WE HAD intended to observe this little ball "RTH" for a longer period. But we developed engine trouble over Omega, and by the time we entered orbit we were getting only two light-years to the litre. In our brief visit, however, we discovered what generates those high-frequency signals that have been jamming our radio telescopes. It is a little box called TEEVEE, present in nearly every dwelling in the OZZIES, a small land area between two oceans.

TEEVEE is the display window of the national store. Its merchandise is displayed against a plush but vapid background. This background is called PROGRAMMING and is of no importance. The key elements of the broadcast day (and night) are called SPOTZ. These SPOTZ are 30 to 60 seconds long and cost their manufacturers about $500 per second. Programmes, by contrast, cost $50 per second.

From observing SPOTZ we are able to report the following conclusions:

• OZZIES are bothered by many plagues. When distress appears, the person moves in quick, jerky motions and booms, "No headache is going to make me yell at my son (or daughter)." Thereupon the victim takes a miraculous white tablet, which dissolves in the stomach faster than another tablet. Just 3.1 seconds later, this incredible pill enables the victim to change his outlook and handle the most difficult household chores with ease. Other tablets simultaneously drain all eight sinus cavities, rearrange the background music and style hair in 3.2 seconds.

• OZZIES are of various hues, but mix freely. In all SPOTZ involving the young, there is a ratio of 1.5 black children to 4.9 white ones. Their smiles are constant and blinding. At adult cocktail parties, the ratio is 2.2 black couples to 6.8 white. The two types smile with equal candlepower.

• Some OZZIES dwell in apartments, where they live on either side of a medicine cabinet. All others live in white split-level houses. The males are cranky in the morning and astonished when the coffee is not bitter or the breakfast is palatable. Then they beam and demand to know the name of the product, which they repeat nine times.

• All OZZIES pets meticulously examine the labels of their canned food before dining.

• An elaborate etiquette prevails at supermarkets. For example, consumers are encouraged to squeeze the white bread, but forbidden to squeeze toilet tissue.

AT THIS point in the time-space continuum, we found it necessary to re-enter the intergalactic void for our millennial tune-up. As for your query: Is there intelligent life on RTH? Having peered at length at the little windows, our answer must be negative. How about a visit to Jupiter? The only SPOTZ there are the ones caused by meteors.

FIELD WEEKEND

The I.A.R.S. FIELD WEEKEND will be coming up in couple of months time (28th to 29th June 1986) so remember the date. The field weekend will be held on the EME side West of Wollongong. Tony VK2KAJ will be organising this event and would appreciate any help that club members could give him. For more information on this event, please contact TONY on 285296. All contacts would be appreciated.

THE ILLAWARRA AMATEUR RADIO SOCIETY

P.O.BOX. 1838. WOLLONGONG.2500. N.S.W.

MEETINGS: Are held every 2nd Tuesday of the Month except January,at 7.30.pm.in the S.E.S. Headquarters, Montague street, North Wollongong.

REPEATERS:

VK2RAW - 146.850. - (VOICE)	VHF	Mt Murry.
VK2RIL - 147.275. - (VOICE & R.T.T.Y)	VHF	Sublime Point.
VK2RUW - 438.225. - (VOICE)	UHF	Hill 60 Port Kembla.
VK2RIL - 438.725. - (VOICE & R.T.T.Y)	UHF	Sublime Point.

BROADCAST: On Sunday evening prior to the club meeting, at 7.00.pm. R.T.T.Y. Mode, and at 7.15.pm. on voice. Transmitted on 147.275.VHF, and relay on 3.562.Mhz. Callbacks will be taken after the voice broadcast.
W.I.A. RELAY: On 146.850. at 11.00.am. and at 7.30.pm. each Sunday.
CLUB - NETS: On 3.562.Mhz. SSB on Sunday at 8.00.pm. and a slow morse net on 28.440.Mhz. on Tuesday evenings at 8.00.pm.
NEWSLETTER: "THE PROPAGATOR" , published monthly to reach FINANCIAL-MEMBERS in the week preceeding the club meeting. All articles, adds etc , to the editor must be in, or try , by the 3rd Tuesday each month.
MEMBERSHIP: The Secretary, I.A.R.S. , P.O.Box.1838. Wollongong. 2500. Full membership is $10 per annum; students & pensioners concessional members $5 per annum.
AWARDS: The award of the Illawarra Amateur Radio Society is the LAWRENCE-HARGRAVE-AWARD. VK stations require 10 contacts with I.A.R.S. members. Overseas stations require 5 contacts with I.A.R.S. members. A contact with VK2AMW is sufficient for the award.Band-details, date, frequency, station worked and $2 or 4 I.R.C.'s . to THE AWARD-MANAGER, I.A.R.S.,P.O.Box. 1838. WOLLONGONG.2500. No QSL-CARD is required.
STORE: The club store operates at each club meeting. by COMMITEE-MEMBERS.

COMMITTEE:

PRESIDENT	VK2OB - KEITH CURLE. 24 . Beach Drv, Woonona.
VICE-PRESIDENT	VK2DYU- BILL CHADBURN. 45. Beltana Ave, Dapto.
SECRETARY	VK2EJH- JIM HAYES. 1 Kathleen Cres , Woonona.
TREASURER	VK2VAV-YKQ-DAVE HENDERSON.8.Gladstone st.Bellambi.
AUDITOR	VK2ZHU- GEOFF CUTHBERT. 1 Nioka Ave, Kieraville.

GENERAL-COMMITTEE: VK2EXN-IAN CALLCOTT. VK2KAJ-TONY MOWBRAY. VK2MT- ROB McKNIGHT. VK2ALK-LES KIRCHMAJER. VK2DWR-DAVE ROUTLEDGE. VK2JAM-PETER WOODS. VK2OE-WOJCIECH TOMCZYK. VK2BMH-MARTIN HUTCHINGS.
REPEATER - CHAIRMAN: VK2CAG - GRAEME DOWSE.
REPEATER -COMMITTEE: VK2EXN - IAN CALLCOTT. VK2EMV - MORRY.v.d.VORSTENBOSCH. VK2DFK-MIKE KEECH. VK2MT-ROB McKNIGHT. VK2JAM-PETER WOODS. VK2EZY-DAVE COLLESS.

QSL-CARD'S OUT	: VK2EXN	- IAN CALLCOTT.
QSL-CARD'S IN	: VK2DWR	- DAVE ROUTLEDGE.
E.M.E. CO-ORDINATOR:	VK2ALU	- LYLE PATISON.
PUBLICITY - OFFICER:	VK2VAV/YKQ	- DAVE HENDERSON
BROADCAST - OFFICER:	VK2KAJ	- TONY MOWBRAY.
CARTOONIST	: VK2AXI	- BRIAN WADE.
PROPAGATOR-EDITORS	: VK2PZY	- DAVE CAPON. VK2EMV-MORRY.v.d.VORSTENBOSCH.
PRINTERS	: VK2DFK	- MIKE KEECH. AND POSTED BY VK2EJH-JIM HAYES.

LIFE - MEMBERS : VK2CAG-GRAEME DOWS. VK2OB-KEITH CURLE. VK2ALU-LYLE PATISON

SUNDAY - EVENING - CLUB-NET - ROSTER:

FIRST	SUNDAY OF THE MONTH	: VK2MT - ROB McKNIGHT.
2 nd	SUNDAY OF THE MONTH	: VK2KAJ- TONY MOWBRAY.
3 rd	SUNDAY OF THE MONTH	: VK2PZY- DAVE CAPON.
4 th	SUNDAY OF THE MONTH	: VK2DWR- DAVE ROUTLEDGE.
5 th	SUNDAY OF THE MONTH	: VK2EBI- KEVIN MURPHY.