Recd 5/4/01

THE PROPAGATOR. IARS

VOLUME 00/01 Issue 4 April 2001 PRINTED BI-MONTHLY PRICELESS

Meetings 2nd Tuesday of each month (except January) S.E.S. Building Montague St Nth Wollongong
Starting At 7:30 P.M. Official Newsletter Of The Illawarra Amateur Radio Society P.O. Box 1838 Wollongong 2500

It would appear the news this week is not to good for the Orange Amateur Radio Club. Their site rental fees have just been re-negotiated with the owners of the site and it is a possibility that it might not be feasible to maintain their repeater at its current location. As with the Auctioning off of the Radio Spectrum and it being a finite resource these site owners found it necessary to increase the fees that they were charging for the site. There is a real possibility of this happening to the sites that our club has for some of our repeaters in the area. We pay rental fees now and as a non-profit organization these fees are reasonable. If we were to face massive increases for our rent then the future of our repeaters could become less secure. Multiply this by the number of sites that we have.....You get the picture.

We would need to increase the club membership fees in order to keep our sites. I don't know how other members feel about that but it would be a real tragedy if we were to lose them. We have a terrific network of repeaters on the south coast and indeed not all of our members use them but a lot do. The alternative to raising fees would be to attract more members. We have tried various methods over the years (mail-outs to all local VK's, Discount Vouchers on fees etc) with various results.

If you look at the age of the members of the society we wonder where we will be in say 30 years time. We need to get the younger members of the community interested in radio, but what do you do when you show a 15 y.o. How you can have a conversation with someone on the other side of the world and his response is

" Yer but dad's truck radio can do that!!!"

And he's right..... His dads truck radio can do that!

What's the answer...? I don't really know. Perhaps it lies in the linking of the Internet of the use of some of the newer methods coming along.

If anyone has any ideas on attracting new blood, the let the committee know your thoughts.

Inside this edition of the propagator you will find some interesting articles. Is the "MORSE" code actually that....Perhaps Samuel Morse had a lot of help when developing the code???. There is an interesting article inside that discusses that very issue. We also have some sets of plans for several antennas along with the IARS classifieds and lots of other things. Brian has also provided us with a trip report on Wyong.

For those at the February meeting that were interested in the demonstration of the PSK31 by John and Brian, John VK2BHO has submitted the plans for the equipment to build your own units. Thanks for that John.

The March meeting from what I was told was very successful. Unfortunately I didn't get there. We were on our way back from Batemans Bay and didn't get home in time. We had our Holiday with rain from start to end (As Usual when we go camping).

The next meeting of the club will be on April 10th usual time usual place. I hope to see you all there.

Until then 73

Bill Stone de VK2JBS.

Minutes Of General Meeting Held February 13th 2001

Opened: 19:50 with Brian VK2UBF in the chair as Jim was not there.
Attendance: 26
Apologies: VK2'S KRH, ZDM, TTH, WRJ, ZWG, TNB, TPH, MT, and TNK.
Visitors: Ken VK2TKE and Norm Monahan.
Correspondence in: E-mail from John Eyles re linking conference at Goulburn. NTAC papers from the WIA, treasurers report form VK2CAV for December, Account from Bulli Pass Scenic Reserve Trust for $102 rent. Letter from Martin Luther regarding the way he thinks the W.I.A. should be heading. Minutes of W.I.A. Meeting for November. E-mail from the W.I.A re Internet linking. E-mail from Marcus Johnson from 1Earth re the web page. ATO papers re cancellation of GST ABN and how to fill-out the BAS. Membership Application from David Warner with cheque
Newsletters: Australian Naval Amateur Radio Soc, Central Coast, and Ballarat.
Correspondence Out: Welcome to the club letters to Geoff VK2HGH Michael VK2GNV Les VK2MPZ. Letter to David Warner re joining the club and membership form. Letter from Rob VK2MT to ACA re the license for 10m repeater. Letter to 1 earth accepting their offer of Internet connection for the club and the offer of FREE web page set up. E-mails to 1earth re the clubs web page. Cheque to Bulli Scenic Trust for site rental for Sublime point. BAS to the ATO for December. E-mail to WIA re the Goulburn linking conference starting time change. Letter to Goulburn club thanking them for hosting the linking conference. Propagator to all members. **Moved: VK2UBF 2ND VK2ZRF**
Minutes of meeting as read in February Propagator. **Moved VK2UBF 2ND VK2DZJ**
Matters arising from: In the December minutes the membership badge draw should be $35 and NOT $40.
Treasurers report: attached Moved **VK2CAV 2nd vk2dzj** Loss for month $164:30
Repeater report: As Rob was not present Brian vk2ubf spoke on the linking conference held in Goulburn and also spoke about Internet linking. Simon spoke also on what he knew about this and it will be put to the members in general business to discus more.
General Business: Suggestions for web page. ***None given.*** Vote on if the members want Internet linking? ***After much talk on how and how much it was put to the vote most present agreed to look at it. (19 for 1 against 6 abstained) If irlp is to go ahead the committee to look at the cost from ISP and ongoing costs then report back to members.*** Names badges.*5 members asked to have badges and these will be ordered ASAP.* Bus trip to Wyong. *Names and money given to Ken and bus will leave for Wyong at 0530.*

Next General meeting: **SAT** March 10th at Cataract Dam from Around 11am.

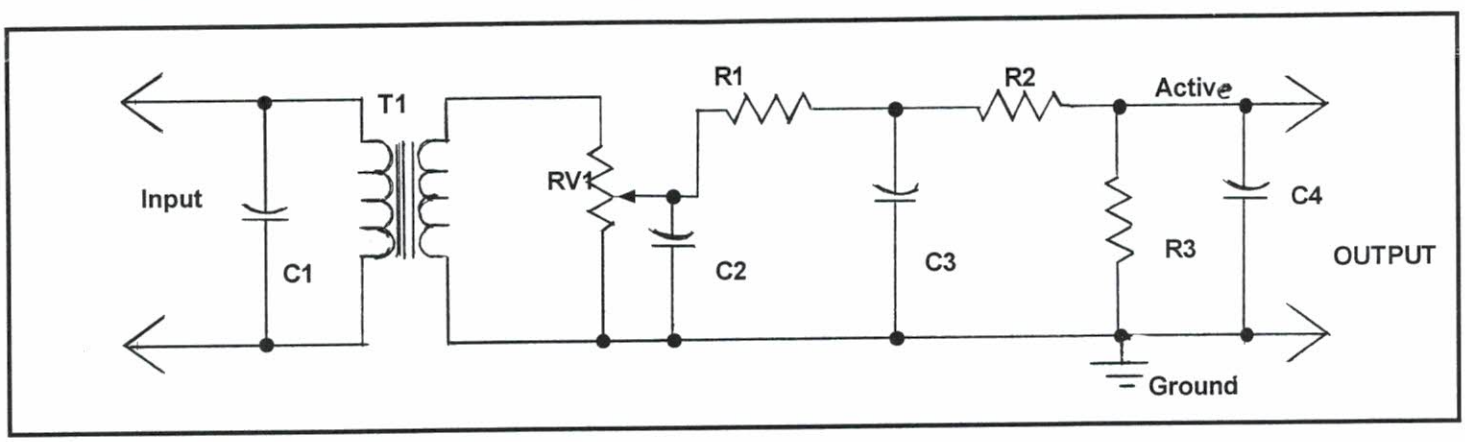
Meeting close: 20:55 **Badge draw # 18 $35.** Colin Vaughan **VK2FJE.** Not present next meeting it will be $40
Raffle prize. *Large meat tray* Won my VK2BHO all over for dinner next week John!!!
After some drama's with a computer, which was fixed during the meeting, the PSK31 demo went ahead and all members where quite impressed with the results.
John vk2bho drew up circuits on the white board and many pens where out drawing them up and pieces of paper. Tnx Brian VK2UBF and John VK2BHO for putting it on.

For those members that were in attendance at the February meeting and were interested in the demonstration of the PSK31 equipment that was being used by John VK2BHO he has kindly sent me the Schematics for the Control Boards.
The PC to Radio Interface Boards Are Shown Below with the corresponding Data Operated Transmit Controller on The Next Page.

NOTE: Two Of The Below Units Are Required, One for Transmit and one for Recieve

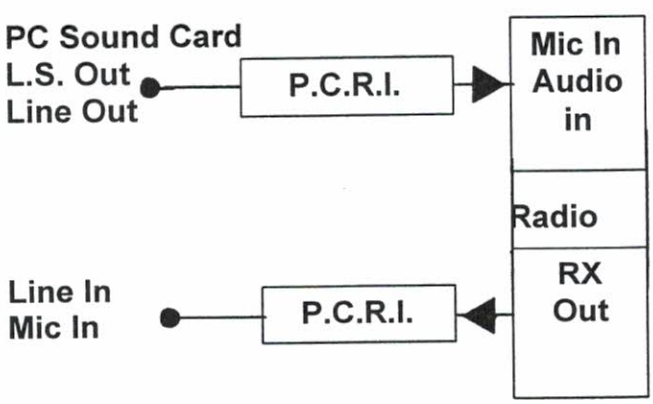
My Thanks Go To John VK2BHO For The Diagrams

VK2BHO P.C. to Radio Interface March 2001

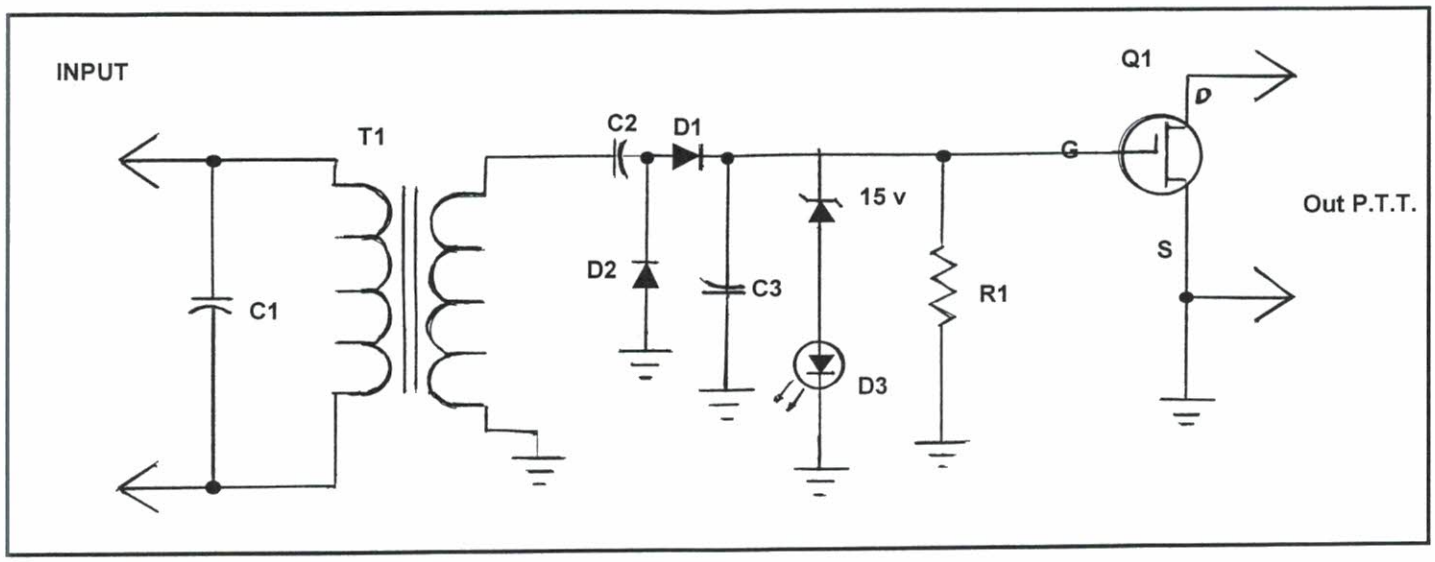


Parts List

T1 1:1 eg M0222 or MM2534
C1 .022uf Disk
C2,C3,C4 .022 Poly
RV1 1K
R1,R2 4k7
R3 1k2



Data Operated Transmit Controller By VK2BHO

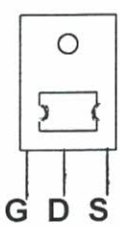


Parts List For Transmit Controller

T1 8ohm To 1Kohm Transformer eg MM2532 or M0216
R1 I Mohm
C1 .001uf Disk
C2 .47uf Poly
C3 .1uf Poly

D1 IN4004, IN914
D2 IN4004, IN914
D3 Led
Q1 MTP3055E
ZD1 15v Zenner

Q1



P.C. Sound Card
Speaker Out
(Left Or Right)

Not Shared

Radio

- NO DC Circuit To Exist In To Out.

Morse Code or Vail Code?

Did Samuel F. B. Morse Invent the Code as We Know it Today?
Franklin Pope and William Baxter give some answers.
by Neal McEwen, K5RW
nmcewen@metronet.com

A WWW Page for Telegraph Key Collectors and Historians
http://www.metronet.com/~nmcewen/tel_off.html

The invention of the Morse code is generally attributed to Samuel F. B. Morse.
Have we been mislead by historians? Have historians overlooked important documents? Or have historians just not shared all the facts with us? The following quote is taken from an article in "The Century: Illustrated Monthly Magazine", April, 1888, by Franklin Pope, titled "The American Inventors of the Telegraph, with special references to the services of Alfred Vail". The article is quite lengthily and comprehensive and is recommended reading for anyone interested in early telegraph history. "The Century" was a popular periodical of the era and should be available at larger libraries and book dealers. In case you haven't the time or inclination to get the whole article, I have quoted the most relevant part below.
Before jumping in, let's set the stage and see who the players are. Franklin Pope was a telegraph inventor, entrepreneur and writer.

He may be best known for his partnership with Thomas Edison in the telegraph services business in the early 1870s. Alfred Vail was one of Samuel Morse's partners and contributor in the development of the telegraph. William Baxter was Vail's laboratory assistant at the Speedwell Iron Works where early developments were made.
Quoting from Pope's article:
"It is also important to remember that the code of conventional signals which had been devised by Morse, and which, in connection with his machine, he proposed to use for the transmission of intelligence, were numerical and not alphabetical." According to his scheme, a specially prepared dictionary was required in which every word in the English language was represented by an arbitrary number. A separate type represented each numeral, having a corresponding number of projections or teeth. We reproduce a specimen of telegraphic writing by this numerical code. The numbers refer to words in the telegraphic dictionary. They are translated by counting the points at the bottom of the line, and then, by referring to the dictionary, the corresponding words are found and the communication translated.
The construction of the machines referred to by Mr. Baxter was begun early in September, 1837, immediately after the partnership between Morse and Vail had been determined upon. Meanwhile, Morse remained in New York, engaged in the preparation of his caveat. This document was subscribed by him on the third day of October, 1837, and from it we may learn precisely of what his invention then consisted. He enumerates the essential parts of his apparatus as follows:
"First, a system of signs, by which numbers, and consequently words and sentences, are

signified; second, a set of type, adapted to regulate and communicate the signs, with rules in which to set up the type; third, an apparatus called the port-rule, for regulating the movement of the type-rules, which rules, by means of the type, in their turn regulate the times and intervals of the passage of electricity; fourth, a register, which records the signs permanently; fifth, a dictionary, or vocabulary of words, numbered and adapted to this system of telegraph; sixth, modes of laying conductors to preserve them from injury."

This, then, was Morse's telegraph, as it existed in October, 1837. It was the first apparatus to record simple numerical signs at a distance by electricity. Writing as late as 1867, and giving what may be regarded as his own mature opinion of his work, Morse claims, and with justice, to be the first inventor of a recording or printing telegraph, as distinguished from a semaphore, giving only evanescent signs, either visual, as in the apparatus of Schilling and others, or acoustic, as in the apparatus of Henry. He inquires:

"What else was necessary to be added to the catalogue of facts known in 1832 to construct a telegraph ? One other fact only was wanting, and that was a system of signs adapted to the capabilities of the mechanism for printing at a distance; and this system of signs I invented in 1832, and adding to it the inventory of known facts successfully combined them to produce the telegraph."

But, as we shall hereafter see, the telegraph invented by Morse in 1832, and described in his caveat of 1837, has nothing in common with the essentials of the modern system of telegraphy which is known in the United States as Morse's; nor is the code of alphabetical signs now universally used in telegraphy throughout the world the same, either in principle, or in construction, as that of the caveat.

As soon as the caveat had been safely lodged in the Patent Office, Morse began the preparation of a dictionary. October 24, he writes to Vail: The dictionary is at last done. You cannot conceive how much labor there has been, but it is accomplished, and we can now talk or write anything by numbers. The spark passes freely as yet three and a half miles, and magnetizes well at that distance, though evidently with diminished strength, which would seem to indicate that there is a limit omewhere. We have just heard that Professor Wheatstone has tried an experiment with his method - twenty miles - with success ; we have, therefore, nothing to fear.

On the 29th, Morse went to Speedwell for a few days, partly to observe the progress of the new machinery, and partly with the intention of painting the portraits of the members of Judge Vail's household, in fulfillment of a commission which had been given him as a delicate and considerate manner of relieving his pressing pecuniary necessities. After his return to New York, he wrote to Vail,

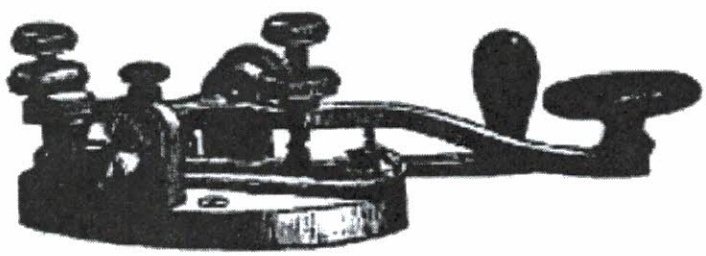
November 13:

You will be gratified and agreeably surprised when I inform you that the result now is, that, with a little addition of wire to the coil of the small magnet which I had all along used, the power was as great apparently through ten as through three miles. The result has surprised us; and yet there is no mistake, and, I conceive, settles the whole matter.

Meanwhile Alfred Vail and his young assistant, William Baxter, were engaged night and day in pushing forward the construction of the new machinery. Writing of this period, Mr. Baxter says: Alfred was singularly modest and unassuming, while Professor Morse was very much inclined to insist on the superiority of his own plans and methods - if for no other reason; because they were his own. As we all looked upon him with the respect due to a professor, we were at first quite willing to defer submissively to his dicta. It resulted from this, that the first machine which was constructed at Speedwell was substantially a copy of the original model, although constructed of metal, in a more symmetrical and practical form.

As we became acquainted with Morse it became evident to us that his mechanical knowledge and skill were limited, and his ideas in matters relating to construction of little value. As the weak points in the apparatus were one after began to draw upon the resources of his own wonderful power of invention in substituting practical and commercially valuable mechanical combinations for the more or less impracticable designs of Morse.

We found, for example, that the pencil of the recording apparatus frequently required repointing, and that when freshly sharpened it made a different mark from that made by a worn point, which tended to render the record obscure and difficult to decipher. Alfred contrived a fountain pen that made a uniform line. This device, however, was not satisfactory to him, as it threw the ink in all directions when jerked by the sudden action of the magnet, and he spent some time in diligent study in the endeavor to devise a remedy. He was a mechanical draughtsman of surpassing skill, as is fully attested by some of his work still in possession of his family. He brought to me one day, after working for an hour at his drawing table , a sketch of a new marking device, in which a vertical motion was given to the lever instead of the transverse movement which had hitherto been employed. We constructed the new lever, and thus for the first time produced a register capable of making dots, dashes, and spaces. Alfred's brain was at this time working at high pressure, and evolving new ideas every day. He saw in these new characters the elements of an alphabetical code by which language could be telegraphically transmitted in actual words and sentences, and he instantly set himself at work to construct such a code. His general plan was to employ the simplest and shortest combinations to represent the most frequently recurring letters of the English alphabet, and the remainder for the more infrequent ones. For instance, he found upon investigation that the letter e occurs much more frequently than any other letter, and accordingly he assigned to it the shortest symbol, a single dot(.). On the other hand, j, which occurs infrequently, is expressed by dot-dash-dash-dash (.- - - -) After going through a computation, in order to ascertain the relative frequency of the occurrence of different letters in the English alphabet, Alfred was seized with sudden inspiration, and visited the office of the Morristown local newspaper, where be found the whole problem worked out for him in the type cases of the compositor.



In this statement I have given the true origin of the misnamed " Morse " alphabet the very foundation and corner-stone of a new system, which has, since become the universal telegraphic language of the world."

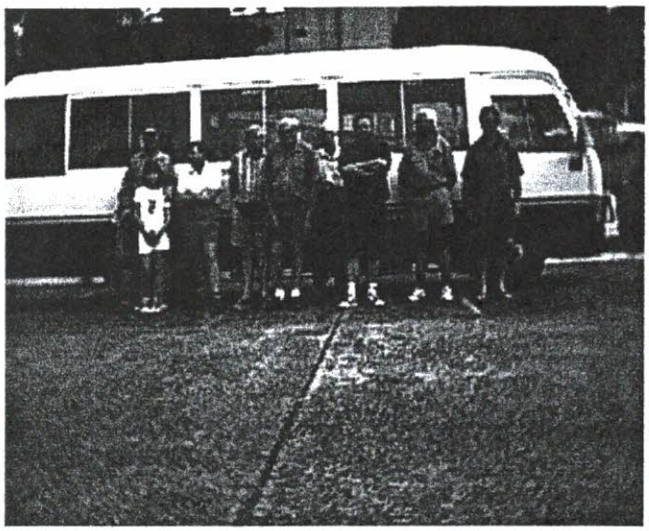
Karen Weiss, a professional researcher based in Washington D.C., found this article and sent it to me. I am much indebted to her. I think you would agree that this is a significant document. Are Pope and Baxter entirely correct? Did they have some personal agenda? We may never know. I tend to believe that "where there is smoke, there is fire." Will history be re-written?

Probably not.

HAM CHRISTMAS (February 25th 2001)

As per usual the Illawarra Amateur Radio Society again this year went to *HAM CHRISTMAS* at Wyong Race course on February 25th. The bus left Ken's QTH at 05:30 and picked up at Warilla, Fairy Meadow, Bulli, Loftus and Blakehurst.
The trip up to Wyong this year was uneventful, not like last year when it was quicker to walk up hills and catch the bus as it passed you. The bus arrived at Wyong at 08:30.
Everybody onboard went their different ways and met back at the bus about every hour to deposit their goodies. Some stopped on the way to our bus to have a drink with the boys from the Goulburn bus. Their drinks $1 a can. There where many takers at one time I walked pass. (I didn't have any, as I didn't want to STOP at every tree on the way home.)
I think there wasn't as many people there this year as there has been in other years. At about 10am there where many people walking about but it seemed to clear soon after 12noon. By 2pm the crowd was very THIN. The under cover area had many traders and some seemed to do good business.
The upstairs, which was air-conditioned, had lots of takers to get away from the high humidity and many people met old and some new friends there. The tea and coffee was FREE and much appreciated by all.
On one of my many trips to cool off I met Dave VK2AWZ and he was starting up a club AGAINST Internet linking. Judging by the LACK of people around him, it seemed to me to be a DEAD cause. I hope it will be SOON when this club starts Internet linking. It never seems to amaze me the number of NON members that gripe about this CLUB and it's repeaters. Maybe its because they are SO good and work great. Well to them JOIN up and get onto a committee or SHUT UP and let us get on with what we do best. Maybe we should send some letter to them and say if you don't like OUR repeater system ""DON'T USE THEM""
There where many bargins in the car park and some items there should have been in LANDFILL years ago. One stall had a lot of LADIES shoes so I would think if any HAM wanted to get back in the good books with his xyl, this would have been the place to look. I didn't see many takers. I also seen some carved wooden spoons and I would think they would make a GREAT display in any shack. I would have got them for my shack but the color wouldn't fit with my decor. I was nearly going to ask DICK SMITH would he give me a lift home in his helicopter but he told me he was busy and he would have done so, but it would be better to BOOK ahead. So maybe next year. In the bus on the way home those that brought up big looked at their goodies and some even had them going. Most items seemed to work.
The two children of Brian VK2GCE had a ball, pulling faces with the people in the cars just behind the bus and some even pulled faces back. As usual the stop was made at GOLDEN ARCHES for a feed and a photo. I have enclosed a photo so I hope it comes out ok. This photo came from Michael VK2GNV. (See Next Page) The first photo taken by Rob VK2MT I don't think would have turned out ok as the place where he had the camera was on a BLUE garbage bin. As Rob Walked away to be in the picture the large DOOR which hides the bin decided to CLOSE . When it was fully closed the timer went off. So Rob will that be put into the photo album? After a stop for fuel and a pee the bus started on it's final journey home. Dropping off at some member's homes. I arrived back in Beautiful Bulli at about 18:00 being away about 12 hours and only $70 spent. It was a pity that MORE members had not been on the bus but it was a **GREAT** day out. If we had had more members it would have been a little less costly for those that attended but a GREAT day out was had by all. Lets hope the bus can run again next year and we have MORE members coming along.

Brian Farrar VK2UBF.



I.A.R.S. Classifieds

WANTED:
DG5 Display to suit Kenwood 520-S. If you can help contact Geoff VK2HIC.
☎ 02-42763712

For Sale:
P.C. Ipex Pentium 100
16Mb Ram 1Gb Hard Drive
Keyboard Mouse Monitor
3.5"Floppy Drive
Windows 3.1 Installed
$100.00.
John VK2ZLJ
☎ 02-42941690

For Sale:
Citizen A.M. Base Station CB Radio
In-Built Power Supply 40 Channel
For More Details
Contact Ted Hawkins VK2TTH
☎ 02-42572136

For Sale:
CB Radio Uniden AX144 AM/SSB
In Good Condition. Price Neg
Contact Ted Hawkins VK2TTH
☎ 02-42572136

For Sale:
HO Scale Model Railway Items.
Some Very Rare (Collectors Items)
Loco's And Rolling Stock
Various Prices
Contact Ted Hawkins VK2TTH
☎ 02-42572136

The Following Was Written By Mr Doug Pannell VK6EP.

I found it in an OLD OLD Copy of a Magazine but on reading it the Principles are still the same.

The author has many requests for details of the techniques he has used with success in constructing mobile helical whip antennas. He has now provided the information in this article so that all who are interested in building mobile antennas may benefit from his experience.
This information applies to the whips presently in use.
Details may vary somewhat from car to car but the fundamental requirement is that the antenna must be resonate on its operating Frequency by monitoring the frequency while energising with a Grid Dip Oscillator.(via a link to the Antenna Base.

All the whips are wound on standard six-foot solid fibreglass fishing rod blanks Start with a spool of tough enamelled Wire that is at least 3/4 wavelength long as listed in the accompanying table.
Set up a winding area, preferably clamping a drill large hand drill in a vice and providing a rest or a steady for the rod. A stand for the wire spool should be about 5 feet away for 4 ft of travel (the length of the longest winding) with ease.
Fit the sleeve and apply a quantity of Loctite to the base and sleeve bore. Tap the sleeve on until the ends are flush and add more loctite as it wicks down. Set this aside for the chemical reaction to occur.
While waiting measure the rod and mark marks with a ballpoint pen at the winding terminations. Mark up the extra 3 " for the braid tip
While waiting measure the rod and make marks with a ballpoint pen at the winding terminations. Mark up the extra three inches for the braid tip, obtain a length of braid from a similar sized coax. Clear the enamel from an inch of wire wrap several strands of the braid carefully around the wire and solder, remembering that the braid has to be stretched and cemented in place. This can now be done.

The wire could be soldered after attaching the braid but fibreglass is susceptible to heat and if the braid is fastened to the rod before soldering the resultant burning can cause embrittlement to the rod and fracture so be careful.
Before commencing winding attach several lengths of masking tape to a convenient edge for quick accessibility
Secure the assistance of a friend pip the rod top off about 3" above the braid. After the cement has set fit it in the drill chuck.

Set up the steady just beyond the end of the close wound mark. Adjust the position of the spool stand and wrap 2 terns of masking tape around the braid to support the soldered joint and with a glove or soft clamp to hold and guide the wire commence winding.

Allow the wire to roll between the fingers for the first few turns gradually applying more pressure and letting the wire run hard against the preceding turn. In trouble develops rapid turn of tape one quickly.
Wrap the termination of the winding with two wide spaced turns of tape forming a guide through which the wire is pulled to remove turns. Remove from the chuck after wrapping a few wide spaced turns down the sleeve and adding a turn of tape.

Fit the sleeve in the mount, which is preferably is on the sun visor or a bar over the roof and lay the spool on the roof.
Scrape a small spot on the wire, attache a one-turn link with alligator clips on each end of the bare copper and an adjacent earth and an accurate monitor at the desired frequency and check the resonance with a GDO. Turns may be added or removed readily providing that care is taken to in barring the copper.

Dip the whip to the monitor in a place free from frequency pulling effects such as resonant overhead antennas guys or fencing wires poles of overhead shielding feeders etc.
Should multiple dips be in evidence the winding is much too long and a considerable number of feet can be removed.

Be very wary about S.W. R. as this antenna complete with its image, is equivalent to three Collinear half waves in phase centre fed in each half wave has its own S.W.R. Therefore you have three standing waves and two of them have the effect shortening while the centre one is centre fed, so stick absolute resonance and be very wary about pruning the braid top.

Due to length of winding and the collinear effect there is a gain factor over a wound quarter wavelength. Tests has shown several "S" points between 1/2 and 3/2 wavelength whips, checked over 2 to 10,000 mile ranges.

Serious reading of A. R. R. L. antenna handbook chapter 2 is recommended as it will open the way to an understanding of image as well as physical antennas, their harmonic operation, lobe angle feed impedance etc.

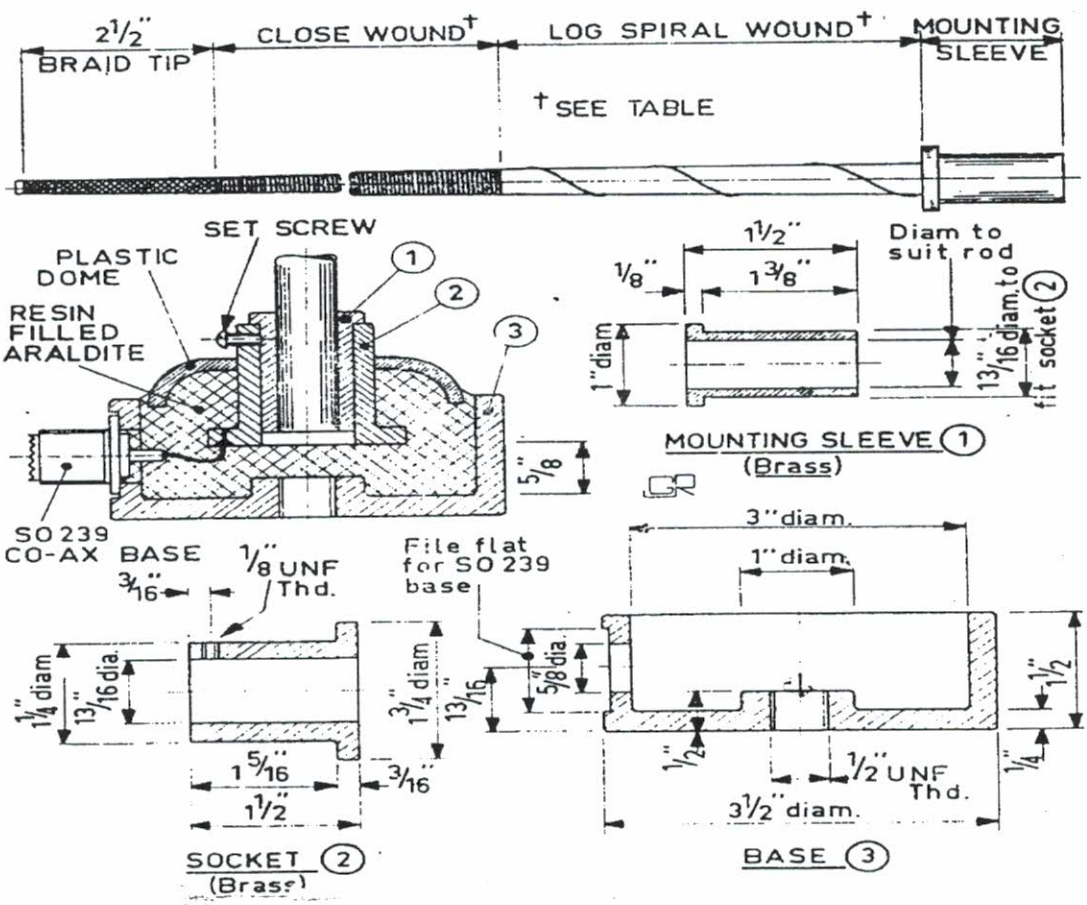
Having resonated the whip possibly had a look at the S. W. R., Cut the Spool free and carefully solder the barred end to the sleeve. Don't Get It Damp because it will become non-resident and it will have to be dried out.

When you have it to your satisfaction and dry spread out the spaced winding out, fix with small strips of masking tape and apply a liberal coating of plastacoat 33. This does not affect the resonance but leaves a pleasing effect, a real finishing touch. Don't forget to have some plastacoat Thinners on hand clean off the brushes ands and splashes. Mineral turps will not work.

Taken From A.R. Magazine 1973.

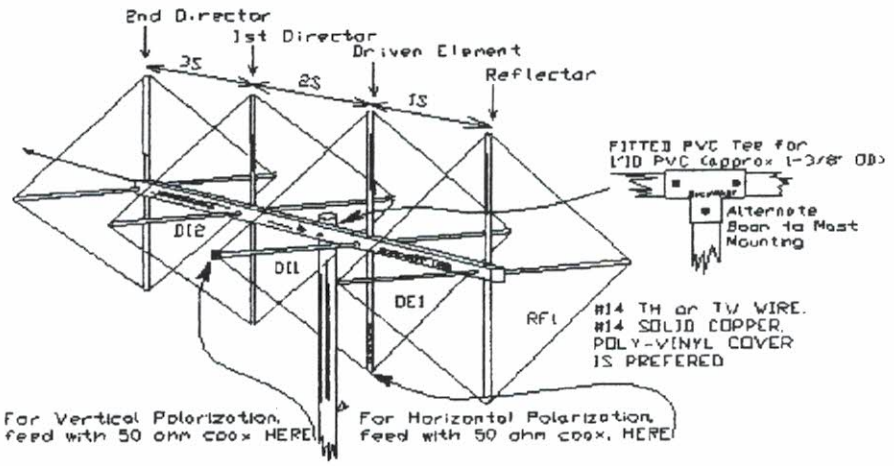
Freq. MHz.	Wire Mils.	Radius Mils. Base	Radius Mils. Top	Winding Inches C.W.	Winding Inches Spac.	Turns C.W.	Turns Spac.	Wire Ft. C.W.	Wire Ins. Spac.	Wire Av. T.P.I.	¾λ Ft.
3.6	22.6	380	130	53	9	2332	4	175	11	44	205
3.6	28.5	560	175	48	14½	1728	4	193	17	36	205
7.07	27.5	380	145	38½	24¼	1386	11	104	28½	36	104
14.2	27.5	366	180	24½	31½	882	9	41	35	36	52
21.3	27.5	380	145	13⅜	49	477	10	24	51	36	35
28.4	27.5	380	140	9½	55	346	11	16	57	36	26
52.6	27.5	183	95	3½	35	117	16	3	37½	36	14

Table 1.



In The Last Issue Of The Propagator The Plans Were Published For A 2 Metre Quad. These Diagrams Were Sent To Me By Jim VK2ZWG. Shown Here Is The Plans For The 6 Metre Version.

6 Meter Quad plans



AN EXAMPLE OF A 4 ELEMENT, SIX METER QUAD

TOTAL ELEMENT WIRE LENGTHS
RF1 = 241-3/4 INCHES
DE1 = 236-0"
DI1 = 229-.0"
DI2 = 225-.0"

LENGTH OF ONE SIDE
60-1/2 INCHES
59-.0"
57-1/4"
56-1/4"

ELEMENT SPACING
1S RF1 to DE1 = 43 INCHES
2S DE1 to DI1 = 34 INCHES
3S DI1 to DI2 = 34 INCHES
ADD 2 INCHES AT EACH END
TOTAL BOOM LENGTH = 115 INCHES

When stacking two of these quads, use 44 inch lengths of 75 OHM cable from Coax "TEE" connector to each Quad. Coax from transmitter to "Tee" is 50 ohm coax. As viewed above, for vertical polarization, feed both quads as shown (left side). For Horizontal polarization, feed both quads at bottom of the driven element (as indicated).

ILLAWARRA AMATEUR RADIO SOCIETY inc

P.O. Box: 1838 Wollongong N.S.W. 2500 - (VK2AMW)

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Club Meetings are held at 7.30pm on the 2ND Tuesday of every month (except January), in the S.E.S. Building, Montague Street, North Wollongong.
Committee Meetings are held on the 3RD Wednesday of EVEN months.
MEMBERSHIP: Full - $20 Concession - $15 (Expires after August A.G.M.)

Callsign	Freq.In/Out	Type	Location	Linked to:
VK2RUW	29.520/29.620	VOICE	KNIGHTS HILL	*(OFF AIR)*
VK2RBT	146.075/146.675	VOICE	MT BOYNE	RMP & RIS
VK2RMP	146.250/146.850	VOICE	MADDENS PLAINS	RIS & RBT
VK2RIS	146.375/146.975	VOICE	SADDLEBACK MTN.	RBT & RMP
VK2RUW	433.225/438.225	VOICE	KNIGHTS HILL	*(OFF AIR)*
VK2RMP	433.725/438.725	VOICE	MADDENS PLAINS	RGN/RHR/RGI/RTW
VK2AMW-1	144.725/144.725	GATEWAY	WOLLONGONG	(OFF AIR)
VK2AMW-3	144.700/144.700	NODE/DIGI	MADDENS PLAINS	VK2AMW-4
VK2AMW-4	144.925/144.925	NODE/DIGI	MADDENS PLAINS	VK2AMW-3
VK2AMW-5	147.575/147.575	NODE/DIGI	MT BOYNE	
VK2AMW-7	147.575/147.575	NODE/DIGI	MT MURRAY	
VK2XGJ	53.100/53.100	BBS/SATGATE	DAPTO	
VK2XGJ	144.700/144.700	BBS/SATGATE	DAPTO	
VK2XGJ	147.575/147.575	BBS/SATGATE	DAPTO	
VK2XGJ	440.050/440.050	BBS/SATGATE	DAPTO	

HANDLE WITH ENTHUSIASM

Lyle Patison
VK2ALU
98 Heaslip Street
Mangerton
2500

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THE PROPAGATOR

VK2AMW SINCE 1948

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