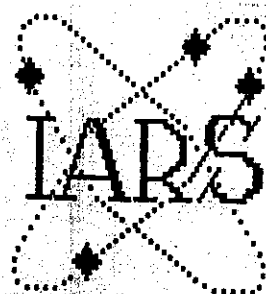


THE PROPAGATOR



ILLAWARRA AMATEUR RADIO SOCIETY

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY .
VOLUME - 86 , NUMBER : 10
REGISTERED BY AUSTRALIA POST PUBLICATION NUMBER : NBH - 1491.

NOVEMBER 1986.

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 THE MEETING'S .

EYE OPENING TOUR

If you didn't go to the October monthly meeting of the Illawarra Amateur Radio Society , HARD LUCK , you missed out on a very interesting and entertaining night out.

As a member who has never been to any of our Repeater sites , and I would hazard a guess that this could also apply to 80% of the Club Members , the VIDEO show by Graeme VK2CAG was very enlightening on this subject.

The Video was very nicely put together and narrated by Graeme VK2CAG, with shots taken from inside the 4 wheel drive vehicle that was used to TRY and reach the Mount Murray Station , without success(I might add), and most of the journey to the site was by shanks pony.

After seeing this Video I feel that the Repeater Boys should be congratulated on their feat of endurance whenever they have to make this trip into

the back of beyond.

Apart from a visit to Sublime Point Repeater we also were taken on a very interesting tour around the Coast Guard Station at Port Kembla.

All in all a very good nights entertainment and definitely an "EYE opener". Along with the Members present , were Visitors Barry VK2ABS, and the Wife and Daughter of Graeme VK2CAG and also the YL of Peter VK2XAN . The meeting was rounded off with tea & biscuits in the canteen...

JOTA WEEKEND

The Jamboree of the Air is over again for another year. This year I was involved at the Girl Guide camp at Mt. Keira. I was there last year for the first time and despite poor conditions we had a busy time. Many guides and scouts to talk to.

This year Ron VK2DXQ, Sep VK2KIH and myself VK2EJH put up the aerials after work, on Friday. I took an inverted V with open feeders

CONTINUED

ON PAGE 11.



AUCTION SALE
on the 11th of
November. 1986

AT THE NEXT MEETING !!
at the S.C.S. H.Q. Montague street....

I.A.R.S.

FUND RAISING LIST.

LIST NUMBER 2.

26 WEEKS COMMENCING ON THE 20th October 1986.

NUMBER	NAME ECT.	NUMBER	NAME ECT.
1	I. CALLCOTT	21	A. DOWSE
2	D. CAPON	22	C. VAUGHAN
3	T. STONE	23	J. HOFFMAN
4	T. MOWBRAY	24	P. WOODS
5	D. ROUTLEDGE	25	J. TAYLOR
6	N. STONE	26	M. KEECH
7	J. WOODWARD	27	G. HOOD
8	C. LACEY	28	C. HAYES
9	D. BOYS	29	J. HAYES
10	R. DORIN	30	K. CURLE
11		31	N. ROOSACHI
12	G. PARSON	32	P. JORDAN
13	F. BROWN	33	M. McCONNELL
14	B. CHADBURN	34	M. WOODWARD
15		35	
16	R. RYALL	36	
17		37	J. LAWER
18	R. Mc KNIGHT	38	S. HARJU
19	P. HOWCHIN	39	
20	B. CRINNION	40	

GoLotto! Multi-week PLAYERS COPY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40						
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40												
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40																		
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40																								
31	32	33	34	35	36	37	38	39	40																														
37	38	39	40																																				

STANDARD GAME

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Agents No. Encoder No. Year/Week

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X-RAYS

Get the PICTURE?

★ DID you know that it would take about 60 chest x-rays to receive the same amount of genital exposure to radiation as would be received in just one airplane flight from Sydney to Perth?

And despite ever-increasing modern medical technology it is highly unlikely that x-rays as such will ever be replaced for diagnosis.

This is a fascinating quiz on the subject, and it will answer all those questions you have probably asked yourself about x-rays.

1. DO x-rays occur naturally?

YES. X-rays are one type of radiation that along with light, radio and heat waves make up the natural background environment. X-rays were first identified by Wilhelm Roentgen in 1895.

In his honor, the term roentgen has been adopted as a measure of radiation. Treating cancerous growths requires very large doses of x-rays (5000 roentgens). By comparison, the radiation involved in the typical diagnostic x-ray exam is fairly small.

The common chest x-ray, for example, requires only .02 of one roentgen. For most of us, our exposure to natural radiation in the environment totals to about .1 roentgen per year. This radiation comes from cosmic rays and uranium in the earth.

There is also some radiation in the environment as a by-product of nuclear weapons tests. Televisions, electron microscopes, the weapon detectors used at airports and even luminous watch faces also contribute their share of radiation to the environment. The natural exposure level of .1 roentgen per year is an average figure.

The actual amount of exposure one gets depends on many factors. For example, radiation levels increase with distance above sea level. If you live high on a mountain, your exposure is likely to be twice as high as if you live at the seashore. (Unless, of course, you happen to live near a site used to store radioactive sand.)

There is also an increased exposure to radiation among those who travel a lot by airplane because of the height at which they fly. The maximum exposure recommended by authorities is .5 roentgens per year for naturally occurring (non-medical) radiation. Very few of us are likely to reach this level under normal living conditions.

2. ARE x-rays unhealthy?

IT DEPENDS. Most x-ray exams use very low levels of radiation. Moreover, most of this radiation is focused away from the reproductive organs where they can cause the most trouble.

By the way of comparison, it takes about 60 chest x-rays for a man to receive the same amount of genital exposure to radiation as he would receive in one airplane flight from Sydney to Perth. There are, of course, x-ray exams that produce much higher radiation levels.

These x-rays involve repeated exposures to radiation which can often exceed the annual environmental levels we are normally exposed to. For this reason, these exams are only undertaken when there is a clear medical reason for doing so.

While it is true that even large doses of X-rays like the ones that are used to combat cancer will not be fatal to the body if they are well focussed, much smaller doses can be lethal if they are spread over a wide body area. Even non-fatal doses can cause mutations and other problems.

This does not mean that you should avoid medical diagnostic x-rays that are recommended by a doctor. In most cases, not having the studies made will be more harmful in the long run than the x-rays.

3. ARE x-rays being replaced by other techniques?

NOT YET. There are several techniques available for visualising internal bodily states. Some of these make use of x-rays and computers to draw detailed pictures never before available of such organs as the brain. Other techniques make use of high frequency soundwaves to visualise internal body parts.

Although new techniques are constantly being developed, it is unlikely that x-rays will be replaced for most routine medical tests.

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OFF TO A GOOD START

The NEW FUND RAISING LIST (F.R.L.2.) has got off to a good start.

And for those on the list, the committee would like to express their appreciation to these Club Members (or Wives), and wish them luck with their number or numbers in the ensuing 26 weeks. Lets hope we crack the **BIG ONE**.

As at going to press, there were still a small amount of Numbers available.

But going on the response to F.R.L.1. these won't last very long, so get in early and get a Number now before they all go.

The F.R.L.2. commenced on the 20th October 1986 and a copy of the LOTTO TICKET and a list of Names and their SUPPLEMENTARY NUMBER has been printed in this Months PROPAGATOR, keep this copy of your MAGAZINE handy so that you can check the coupon etc on each Monday nights LOTTO drawn on T.V.

Once again good luck to all who have entered the F.R.L.2. (Fund Raising List 2).

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PHONE : 84-9872 .

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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 Pearse-Simpson for ten meters, also with manual. For more information contact UK2EMU Morry or UK2PZY Dave.

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PLUS * TP-40 Printer, Plot-

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* Green scr-monitor

* Avtek Multi prom

interface (in kit

form-not made up)

* ETI facsimile deco-

der (in kit form

not made up)

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articles

* Technical manual

(worth Gold)

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ON

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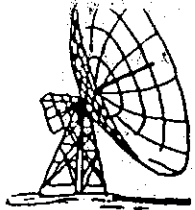
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SATELLITE NOTES BY LYLE VK2AEU

Satellite Notes - November 1986 (prepared 27/10/86)

Items from AMSAT Australia broadcast Sunday 26/10/86.

Anyone wishing to have AMSAT UK membership for the year 1987 may do so by remitting the required amount (Aus\$40) to the Amsat Aust. Coordinator VK5AGR, who will arrange for their monthly newsletters to be dispatched by airmail to Australia in bulk, then sent on directly to individual members. This is somewhat cheaper than would be achieved by subscribing direct.

RS5, RS7, UO9, UO11 and FO12 satellites continue to perform normally. Oscar10's parameters (as far as can be determined under the present circumstances) are being monitored closely. Information received last week from the "experts" at AMSAT US indicated that its Sun Angle was starting to increase again, quite rapidly. The power output of the solar cells was back up to 25% of maximum (8% on Oct. 12) and will be shortly up to 60%. The beacons, which have remained on, are to be commanded "OFF" for a period in order to assist battery condition. After they are switched on again, attempts will be made to reload a program of (possibly simplified) software to the satellite's onboard memory. All Oscar10 users are asked to "keep their fingers crossed".

COPPER-WIRE TABLE

Wire Size A.W.G. (B & S)	Diam. in Mils ¹	Circular Mil Area	Turns per Linear Inch ²				Turns per Square Inch ²			Feet per Lb.		Ohms per 1000 ft. 26° C.	Current Carrying Capacity ² at 700 C.M. per Amp.	Diam. in mm.	Nearest British S.W.G. No.
			Enamel	S.S.C. ⁴	D.S.C. ⁵ or S.C.C. ⁶	D.C.C. ⁷	S.C.C.	Enamel S.C.C.	D.C.C.	Bare	D.C.C.				
1	289.3	83690	—	—	—	—	—	—	—	3.947	—	.1264	119.6	7.348	1
2	257.6	66370	—	—	—	—	—	—	—	4.977	—	.1593	94.8	6.544	3
3	229.4	52640	—	—	—	—	—	—	—	6.276	—	.2009	75.2	5.827	4
4	204.3	41740	—	—	—	—	—	—	—	7.914	—	.2533	59.6	5.189	5
5	181.9	33100	—	—	—	—	—	—	—	9.980	—	.3195	47.3	4.621	7
6	162.0	26250	—	—	—	—	—	—	—	12.58	—	.4028	37.5	4.115	8
7	144.3	20820	—	—	—	—	—	—	—	15.87	—	.5080	29.7	3.665	9
8	128.5	16510	7.6	—	7.4	7.1	—	—	—	20.01	19.6	.6405	23.6	3.264	10
9	114.4	13090	8.6	—	8.2	7.8	—	—	—	25.23	24.6	.8077	18.7	2.906	11
10	101.9	10380	9.6	—	9.3	8.9	87.5	84.8	80.0	31.82	30.9	1.018	14.8	2.588	12
11	90.74	8234	10.7	—	10.3	9.8	110	105	97.5	40.12	38.8	1.284	11.8	2.305	13
12	80.81	6530	12.0	—	11.5	10.9	136	131	121	50.69	48.9	1.619	9.33	2.053	14
13	71.96	5178	13.5	—	12.8	12.0	170	162	150	63.80	61.5	2.042	7.40	1.828	15
14	64.08	4107	15.0	—	14.2	13.8	211	198	183	80.44	77.3	2.575	5.87	1.628	16
15	57.07	3257	16.8	—	15.8	14.7	262	250	223	101.4	97.3	3.247	4.65	1.450	17
16	50.82	2583	18.9	18.9	17.9	16.4	321	306	271	127.9	119	4.094	3.69	1.291	18
17	45.26	2048	21.2	21.2	19.9	18.1	397	372	329	161.3	150	5.163	2.93	1.150	19
18	40.30	1624	23.6	23.6	22.0	19.8	493	454	399	203.4	188	6.510	2.32	1.024	20
19	35.89	1288	26.4	26.4	24.4	21.8	592	553	479	256.5	237	8.210	1.84	.9116	21
20	31.96	1022	29.4	29.4	27.0	23.8	775	725	625	323.4	298	10.35	1.46	.8118	22
21	28.46	810.1	33.1	32.7	29.8	26.0	940	895	754	407.8	370	13.05	1.16	.7230	23
22	25.35	642.4	37.0	36.5	34.1	30.0	1150	1070	910	514.2	461	16.40	.918	.6438	24
23	22.57	509.5	41.3	40.6	37.6	31.6	1400	1300	1080	648.4	584	20.76	.728	.5733	25
24	20.10	404.0	46.3	45.3	41.5	35.6	1700	1570	1260	817.7	745	26.17	.577	.5106	26
25	17.90	320.4	51.7	50.4	45.6	38.6	2060	1910	1510	1031	903	33.00	.458	.4547	27
26	15.94	254.1	58.0	55.6	50.2	41.8	2500	2300	1750	1300	1118	41.62	.363	.4049	28
27	14.20	201.5	64.9	61.5	55.0	45.0	3030	2780	2020	1639	1422	52.48	.288	.3606	29
28	12.64	159.8	72.7	68.6	60.2	48.5	3670	3350	2310	2067	1759	66.17	.228	.3211	30
29	11.26	126.7	81.6	74.8	65.4	51.8	4300	3900	2700	2607	2207	83.44	.181	.2850	31
30	10.03	100.5	90.5	83.3	71.5	55.5	5040	4600	3020	3287	2534	105.2	.144	.2516	32
31	8.928	79.70	101	92.0	77.5	59.2	5920	5280	—	4145	2768	132.7	.114	.2268	33
32	7.950	63.21	113	101	83.6	62.6	7060	6250	—	5227	3137	167.3	.090	.2019	34
33	7.080	50.13	127	110	90.3	66.3	8120	7360	—	6591	4697	211.0	.072	.1798	35
34	6.305	39.75	143	120	97.0	70.0	9600	8310	—	8310	6168	266.0	.057	.1601	36
35	5.615	31.52	158	132	104	73.5	10900	8700	—	10480	6737	335.0	.045	.1426	37-39
36	5.000	25.00	175	143	111	77.0	12200	10700	—	13210	7877	423.0	.036	.1270	39-40
37	4.453	19.83	198	154	118	80.3	—	—	—	16660	9309	533.4	.028	.1131	41
38	3.965	15.72	224	166	126	83.6	—	—	—	21010	10666	672.6	.022	.1007	42
39	3.531	12.47	248	181	133	86.0	—	—	—	26500	11907	848.1	.018	.0897	43
40	3.145	9.88	282	194	140	89.7	—	—	—	33410	14222	1060	.014	.0799	44

¹ A mil is 1/1000 (one-thousandth) of an inch. ² The figures given are approximate only, since the thickness of the insulation varies with different manufacturers. ³ 700 circular mils per ampere is a satisfactory design figure for small transformers, but values from 500 to 1000 C.M. are commonly used. For 1000 C.M./amp. divide the circular mil area (third column) by 1000; for 500 C.M./amp. divide circular mil area by 500. ⁴ Single silk-covered. ⁵ Double silk-covered. ⁶ Single cotton-covered. ⁷ Double cotton-covered.

REPEATER REPORT GRAEME VK2CAG

6850 Mt. Murray.

So far so good with the energy situation at Mt. Murray. Still there has been no hint of low battery voltage since the installation of the additional solar panel. No time-out or power restrictions have been necessary even though the repeater has seen plenty of use. During the Jamboree of the air 6850 was used quite heavily, and in spite of overcast weather the battery voltage did not fall below the level that would cause the repeater to switch to low power, and recovery to tone no. 4 (above 13 volts) was fairly quick.

Thanks for the response to last month's appeal for help in upgrading the track to the repeater. We have gained permission to do the work necessary to improve access by clearing the track of rocks and spreading suitable covering over the slippery section. No date has been set for the work to be done as we are looking at the possibility of borrowing some machinery to make the job easier. My own spare time is scarce these days, and since nobody has volunteered to take on the job of organizing things, it looks like it's up to me again, so it may be some time before I get the time.

While on that subject, I do have a long list of things to do. I.e. check pager interference at Sublime Point..... Check out the intermittent receiver muting problem at Hill 60..... write these repeater reports..... UHF duplexers to be designed and built for both 70cm repeaters... etc.....

All of these jobs will be attended to in due course, but access to Mt. Murray has top priority. I feel that if I have to organize every detail of the access track job, and be present on site when the work is being done, then the other jobs will have to wait. There are dozens of members in our club who have already demonstrated their knowledge and spoken of their abilities in this type of work. I would think that the majority of members have the knowledge and ability to organize and carry out the work, but only a minority such as myself have access to the equipment and knowledge of the repeaters to carry out the more technical jobs.

Put another way, if you (the members, and repeater users) would like the pager interference at Sublime Point investigated as soon as possible, or the muting problem at Hill 60 fixed, the best way is to help me with the jobs that you are capable of doing (that don't require the use of a spectrum analyzer), so that my next valuable bit of spare time can be spent doing what I have the equipment and knowledge to do. Most jobs I can handle on my own, or with the help of one or two of our very capable repeater committee members. However, organizing others to do things is not my strongest point and consumes much more time than actually doing the job. The kind of help I want is someone to completely take over the responsibility of one particular project, a project manager if you like, to see the project through to the end, handling all details involved.

I trust that you enjoyed the videotape of the repeater sites that was shown last meeting. Edited sections of the tape will be transferred to VHS format and the tape will be property of the IARS.

ABOUT YOUR FRIENDS

Heard on the air waves recently that Kevin VK2EBI has just celebrated his 77th birthday. Happy returns of the day Kevin, and hope you celebrate many more to come.

Phil VK2KPL from Moss Vale is home again after spending 5-6 weeks in Hospital. Nice to hear you on air again Phil.

Going on Holiday to Tassie soon is Jim VK2OU. Jim will be accompanied by his XYL, who has recently come home from Hospital. Have a nice Holiday Jim and hope to hear you on air during your stay in the Apple Isle.

Dave VK2CDP secretary of the LYRE BIRD CLUB went into Hospital recently for an Operation. Hope everything turned out alright Dave. Best regards to you and your XYL Judy.

Fred VK2KFW seems to be OK now after having a few weeks of pain associated with his legs. Good on you Fred, and I have to tell you I don't believe the story going around that you had gout brought on by too much VINO from your private cellar.

Heard that the XYL of Geoff VK2EWJ recently underwent an operation which was a success. Good luck Margee and hope you make a speedy recovery.

"Mum, when we were at church last Sunday the vicar said we were made out of dust and unto dust we shall return."

"That's right, Georgie."

"Well, you'd better look under my bed, cos there's someone there either coming or going."



Heaven for some

I heard a joke the other day about a group of mice Who were touring up in heaven, and it was really nice.

St Peter came upon this group as he was looking round

And asked them how they liked it, compared to life on ground.

They said, "It's very lovely, but there's oh, so much to see!

We need some wheels to carry us, then we'd be really free."

St Peter gave each mouse some skates, and sent them on their way

To see the very most they could, enjoying every day.

St Peter, one week later, was checking all around.

But not one mouse was there to see, no squeak nor any sound.

A big fat cat he came upon, dozing in the sun;

"How do you like this lovely place?" he asked the sleepy one.

"I like it very much," said cat, stretching out his claws.

"It's quiet and it's comfy, and it's soft on weary paws.

"But the thing I like the very best," said he with toothy grin,

"Are the meals on wheels which you supply,

They're great -- for one so thin."

ON THE NET

5th October 1986.

UNKNOWN ??????????

12th October 1986.

VK2ENX-Tony Co-ordinator
VK4BBG-Jim, VK2MT-Rob,
VK2JAM-Peter,

19th October 1986.

VK2PZY-Dave Co-ordinator
VK2MT-Rob, VK2ENX-Tony,
VK4BBG-Jim, VK2EMV-Morry,
VK2JAM-Peter

26th October 1986.

VK2MT-Rob Co-ordinator
VK2DFL-Dave, VK4BBG-Jim,
VK2PZY-Dave, VK2EMV-Morry,
VK2IU-Ralph, VK2JT-Jock,
(Rare D.X.station),
VK2JAM-Peter, VK2EBI-Kevin.

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F.R.L. 1. WINNERS

Week No: 26 D. BOYS

F.R.L. 2. WINNERS

Week No: 1 J. LAWER

Week No: 2 I.A.R.S.

E.M.E. REPORT BY LYLE VK2ALU

Moonbounce Report - November 1986.

Calculations based on the information supplied by Dick Turrin, W2IMU show that the optimisation of the feed horn of our 0.4 f/d dish has achieved the looked for improvement. Dish gain is as high as can be obtained from the W2IMU feed horn. Antenna efficiency of approx. 40% is some 10 to 15% less than could be provided by an "optimum" feed, such as the Chaparral feed, but no details are available for a design which would also provide "built-in" circular polarisation and transmit and receive ports. W2IMU has been asked if he can help with details of such a design.

Other calculations have shown that an average signal strength of 4dB above noise is that theoretically achievable for echoes from the moon by our present transmit/antenna/receive system. We were obtaining near to that signal to noise ratio during our last EME tests.

On arrival at the dish site on Sunday 26th October, for EME tests, I found that intruders had broken into the operating building yet again. Items had been taken and cables ripped out, including power cables which had broken somewhere along the underground conduits between the operating building and the dish, after being ripped out in the operating room. The nature of the damage and other evidence of occupancy suggests to me that they could have been in the building for some time, possibly up to an hour or so.

Tony VK2KAJ, Dave VK2YKQ and myself set to work, running and terminating temporary cables, but before we could complete this and also clear up a couple of small "bugs" which stopped supply getting to the the receive preamps and converter for a while, due to a faulty relay, the moon had set. At least it was possible to give a demonstration of reception of sun noise, ground to sky noise ratio and transmitter output power - all of which were of normal value - to Henry, a visitor who came along with Dave. The dish pointing computer was also given a run and operated perfectly.

Modifications to the damaged cable system are being looked at, which may reduce the chances of similar damage in the future.

I am hoping to be able to operate our 1296MHz EME station, VK2AMW during the second ARRL EME Contest weekend. We would try for contacts with stations during the European window period, on the morning of Sunday 23/11/86 local time, commencing at 9.00am EDST. Anyone wishing to participate might contact me by phone (296984) but not before the evening of Friday 21/11 so that I will have an idea of possible weather conditions on the Sunday before making a final decision about the operation.

Lyle VK2ALU.

SO THE STORY GOES

A vicar was approached by a young woman parishioner with what she called "an unusual request". She said her father, whose health veered on the fragile, had just won a big lottery prize but was not yet aware of this.

"I'm afraid to tell him," she explained, "because the excitement could bring on a heart attack. I was wondering if you could do it in your gentle, tactful way ..."

The vicar readily agreed. He called on the girl's father, talked quietly to him and carefully brought the conversation around to the point where he gave him the big news.

"That's wonderful," said the invalid, "absolutely wonderful. And since you're the person who told me about it, I'm going to give you half the prize."

The vicar had a heart attack.

★ A FARMER ran over his neighbor's new rooster. Knowing she was a very outspoken person, he approached her with some apprehension when he called to explain what had happened.

"What sort of car were you driving?" the woman asked.

"My old Model T Ford," the man replied.

"In that case," said the woman, "just forget all about it. If my rooster couldn't outrun that thing, what chance did he have of catching my hens?"

A retired Ham went to see his Doctor for a check up, and whilst in the waiting room had a bad attack of smokers cough.

It was the Hams turn next, and on entering the surgery the Doctor asked him what was his trouble.

The Ham replied "I have come for a check up and to see if it is possible to lower my SEX DRIVE".

The Doctor asked the Ham "how old are you" the Ham replied "I AM 93".

"Just as I thought" said the Doctor, "at your age its all up in your head". The Ham replied, "that is why I want to LOWER IT".



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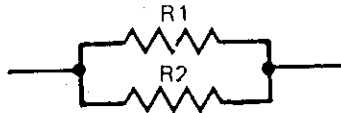
11. MOLLOY STREET, BULLI.

PHONE: 042-84-6838

**TO ALL OUR CLUB
MEMBERS.**

TIPS AND HINTS

RESISTORS IN PARALLEL



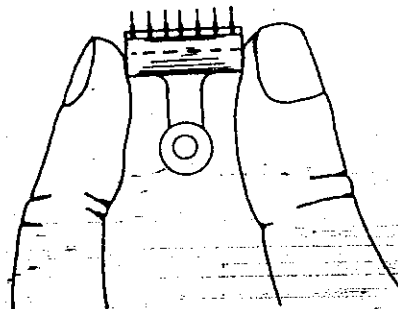
R2 \ R1	10	12	15	18	22	27	33	39	47	56	68	82	100
10	5.00	5.45	6.00	6.43	6.88	7.30	7.67	7.96	8.25	8.48	8.72	8.91	9.09
12	5.45	6.00	6.67	7.20	7.76	8.31	8.80	9.18	9.56	9.88	10.20	10.47	10.71
15	6.00	6.67	7.50	8.18	8.92	9.64	10.31	10.83	11.37	11.83	12.29	12.68	13.04
18	6.43	7.20	8.18	9.00	9.90	10.80	11.65	12.32	13.02	13.62	14.23	14.76	15.25
22	6.88	7.76	8.92	9.90	11.00	12.12	13.20	14.07	14.99	15.79	16.62	17.35	18.03
27	7.30	8.31	9.64	10.80	12.12	13.50	14.85	15.95	17.15	18.22	19.33	20.31	21.26
33	7.67	8.80	10.31	11.65	13.20	14.85	16.50	17.88	19.39	20.76	22.22	23.53	24.81
39	7.96	9.18	10.83	12.32	14.07	15.95	17.88	19.50	21.31	22.99	24.79	26.43	28.06
47	8.25	9.56	11.37	13.02	14.99	17.15	19.39	21.31	23.50	25.55	27.79	29.88	31.97
56	8.48	9.88	11.83	13.62	15.79	18.22	20.76	22.99	25.55	28.00	30.71	33.28	35.90
68	8.72	10.20	12.29	14.23	16.62	19.33	22.22	24.79	27.79	30.71	34.00	37.17	40.48
82	8.91	10.47	12.68	14.76	17.35	20.31	23.53	26.43	29.88	33.28	37.17	41.00	45.05
100	9.09	10.71	13.04	15.25	18.03	21.26	24.81	28.06	31.97	35.90	40.48	45.05	50.00
120	9.23	10.91	13.33	15.65	18.59	22.04	25.88	29.43	33.77	38.18	43.40	48.71	54.55
150	9.38	11.11	13.64	16.07	19.19	22.88	27.05	30.95	35.79	40.78	46.79	53.02	60.00
180	9.47	11.25	13.85	16.36	19.60	23.48	27.89	32.05	37.27	42.71	49.35	56.34	64.29
220	9.57	11.38	14.04	16.64	20.00	24.05	28.70	33.13	38.73	44.64	51.94	59.74	68.75
270	9.64	11.49	14.21	16.88	20.34	24.55	29.41	34.08	40.03	46.38	54.32	62.90	72.97
330	9.71	11.58	14.35	17.07	20.63	24.96	30.00	34.88	41.14	47.88	56.38	65.68	76.74
390	9.75	11.64	14.44	17.21	20.83	25.25	30.43	35.45	41.95	48.97	57.90	67.75	79.59
470	9.79	11.70	14.54	17.34	21.02	25.53	30.83	36.01	42.73	50.04	59.41	69.82	82.46
560	9.82	11.75	14.61	17.44	21.17	25.76	31.16	36.46	43.36	50.91	60.64	71.53	84.85
680	9.86	11.79	14.68	17.54	21.31	25.97	31.47	36.88	43.96	51.74	61.82	73.18	87.18
820	9.88	11.83	14.73	17.61	21.43	26.14	31.72	37.23	44.45	52.42	62.79	74.55	89.13
1000	9.90	11.86	14.78	17.68	21.53	26.29	31.95	37.54	44.89	53.03	63.67	75.79	90.91

CMOS DIL HANDLING DEVICE

For those of us that get into a cold sweat when handling CMOS devices, we can all now sigh with relief. A cheap solution in the form of a spring clip can be obtained from a well-known stationery chain-store. The clips are called "letter clips" and cost 30p for a card containing 12 clips.

In the light of experience the following points are worth noting.

1. Before using the clips any internal burrs should be removed, as these will prevent a good contact being made with the IC pins.
2. NEVER remove the IC from the



impregnated foam until the clip has been fitted.

3. When fitting the clip ensure that it 'shorts out' ALL the IC pins.

4. During IC insertion or removal from a PCB or socket, the IC and clip are gripped TOGETHER across their ends, with the thumb and forefinger (see sketch). This procedure should remove any chance of the clip accidentally releasing the IC.

5. If the IC is to be soldered into a PCB, the clip should be left in place during the soldering process, as it will also act as a heat-sink. If several IC's are to be soldered into a board, it is worth while leaving all the clips attached until the last IC has been soldered in position.

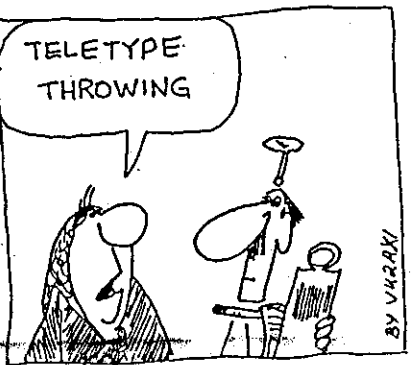
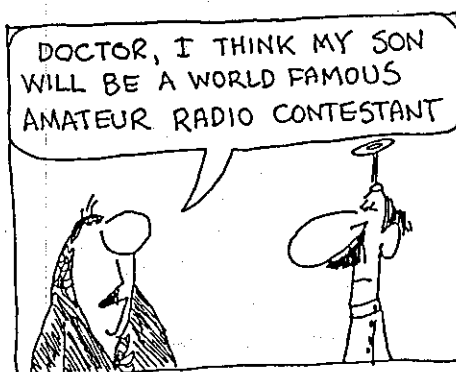
IDENTIFYING SURPLUS IC's

In checking unmarked surplus IC's, a clue can be gained as to the identity of the IC if the ground pin can be located first. In epoxy encapsulated IC's, the truncated part of the lead frame can be seen at both ends, perhaps partially covered by moulding

flash. This is generally connected to the substrate. In TTL and most linear IC's, this is the most negative pin (ground). In PMOS (clock and calculator chips) this is V_{ss}, the most positive pin. An ohmmeter can find which pin is connected to the substrate by touching one probe to the

frame and the other to each pin in turn.

Another clue to whether the IC is linear or digital is the fact that most digital IC's have diode protection against reverse bias at inputs. Knowing the ground pin, this can be checked rapidly.



JOTA WEEKEND

CONTINUED

and a 40 metre dipole with co-ax feeder. These were erected rapidly because of the groundwork done previously.

The inverted V was much more successful than the 40 metre dipole. Ron had his usual 300 metre long wire strung from flagpole and power poles. There were plenty of contacts made with ZL and a few with VK3, 4, 6 and 7.

I worked an EAP station (on the coast of North Africa) but the Jamboree had not yet started there and lots of other stations were trying to work him as well.

Conditions were OK on the Saturday and even better on Sunday until late morning when the bands closed for two hours. We were in contact with a ZL station at the time and they just faded away mid-sentence. We didn't have many QSOs but those we did have were from 1/2 hour to 2 hours.

Lots of names and addresses were exchanged with other regions and I hear that people are still corresponding with last year's contacts.

Unfortunately, not many people were in camp to make use of the radios but those who were managed plenty of air time and made the weekend a most enjoyable and rewarding one.

Ron, Sep and I would like to thank everyone involved for their time and assistance.

JIM VK2EJH.

Dont make expensive mistakes by buying blind What should you expect as a minimum when purchasing an IBM compatible?

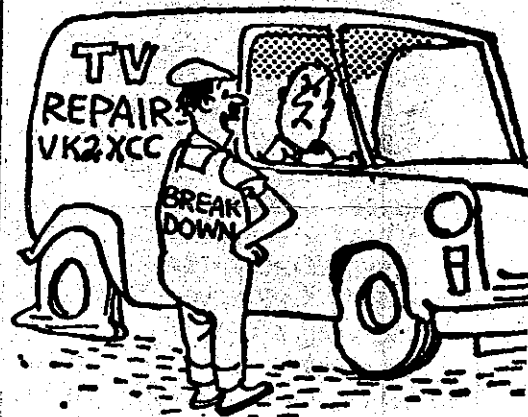
- * Dual speed 4.77MHz & 8MHz
- * 8088-2 Processor
- * Fully socketed Mother Board
- * Socket provided for 8087 arithmetic chip
- * Eight Expansion slots (2 should only be occupied)
- * Extra sockets for ROM's
- * Minimum 640K on Mother Board
- * 135w Power Continue output
- * Built in cooling fan
- * Centronic parallel printer port
- * 2 RS-232 serial Communication port (you will probably end up with a Modem & Mouse or A/D card etc)
- * Joystick Port
- * Dual floppy Controller
- * Battery backed clock/calendar
- * Legal Bios eg. ERSO
- * 2 Quality Floppy Japanese Disk Drives as used in Sperry, IBM, Olivetti etc .
- * An on site Warranty & Insurance must be available from Computer Shield or Hills Industry (Nationally protected). If these companies dont offer maintenance on the machine you are purchasing then forget it, Companies only offer maintenance contracts on machines they believe are reliable.

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NOTICE

MEMBERS, THIS IS YOUR LAST CHANCE TO MAKE YOUR CONTRIBUTION TOWARDS THE CLUB'S 25th ANNIVERSARY, BY SENDING US ANY INFORMATION THAT COULD HELP US TO COMPILE A SUITABLE FORMAT FOR THIS SPECIAL OCCASION.

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.p.m. 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.p.m. R.T.T.Y. Mode, and at 7.15.p.m. 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.p.m. each Sunday.
CLUB - NETS: On 3.562.Mhz. SSB on Sunday at 8.00.p.m. and a slow morse net on 28.440.Mhz. on Tuesday evenings at 8.00.p.m.

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 COMMITTEE-MEMBERS.

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SUNDAY - EVENING - CLUB-NET - ROSTER:

FIRST	SUNDAY OF THE MONTH	:	VK2MT - ROB McKNIGHT.
2nd	SUNDAY OF THE MONTH	:	VK2ENX- TONY MOWBRAY.
3rd	SUNDAY OF THE MONTH	:	VK2PZY- DAVE CAPON.
4th	SUNDAY OF THE MONTH	:	VK2DWR- DAVE ROUTLEDGE.
5th	SUNDAY OF THE MONTH	:	VK2EBI- KEVIN MURPHY.