IARS THE PROPAGATOR IARS

ILLAWARRA AMATEUR RADIO SOC. INC.

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO. SOC. INC.
VOLUME - 89 , NUMBER :1 FEBRUARY.1989.
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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 THE MEETING'S .

CONFERENCE OF CLUBS

The Illawarra Amateur Radio Society held a conference of clubs meeting at the Wollongong SES Headquarters on November, 12th 1988.

The meeting opened at 10.15am with Denis VK2DMR in the chair.

Those present where:- Peter VK2EMU (St George) Stan VK2EL (Mid South Coast) Peter VK2BIT (Illawarra) John VK2CFJ (Hornsby) Barry VK2AAV (Aapra) Dennis VK2XDW (Westlakes) Julie VK2XBR (Sydney ATV Group).

An apology was tendered for the WIA representative VK2KPL (Southern Highlands).

The minutes of the last meeting were unavailable and could not be confirmed.

Items on the agenda were:-

(1) That consideration be given by all States to adopt a calling frequency on the 40 and 80 metre band, possibly 7.105 Mhz and 3.605 Mhz and then embark on a forceful publicity campaign to advise all

CONTINUED PAGE 3

DECEMBER 1988

The last meeting for 1988 held on December was well attended by members xyl,yl and yl visitors.

The General business was fairly quickly sorted out and finalised and then it was into the canteen and a good ragchew whilst drinking tea or coffee and tucking in to the numerous creamy, chocolate and various types of cakes and goodies that had been supplied by the ladies.

It was a very enjoyable evening for members and ladies alike. It was good to have a face to face chat with someone who perhaps you have never met before or only meet once a year.

As one of our members remarked we should try and do this kind of meeting more than once a year, perhaps this could be something for the committee to discuss at a future meeting.

Anyway ladies, if you haven't been told before, we all thank you for making our once a year xyl meeting a very enjoyable one. Please come again next time.

MOON MESSAGES

Determined to obtain clear signals with fellow "hams" in the Northern Hemisphere. amateur radio operator Ray Naughton worked out a method of bouncing his messages off the moon. Ray, of Birchip (Vic.) became the first amateur operator in the world to achieve this.

SEMI CONDUCTOR THEORY 7

First of all I must apologise for this article not making the December issue of the propagator, and trust that santa and the season were kind to all of you.

This month we continue our look at the transistor by solving the problem of av and ap in novembers issue.

Solution.

Substitute current and resistance values in formulae:-

AV =DIC*RL/DIE*RI=95 * 10E-06*50000/100*10E-06 *100 = 475

AP = IC**2*RL/IE**2*RI = (95*10E- 06)**2*50000 / (100*10E - 06)**2 *100 = 451

The current gain of the amplifier is ai = 0.95. This is not the alpha but the current gain for the transistor working into a load.. Alpha represents a maximum limiting value for current gain and is a characteristic of the transistor independant of the load resistor.

COMMON EMITTER.

The operation of the transistor as an amplifier is most easily explained with the common base connection, but the common emitter connection is used far more often in practical work.

With the common emitter connection, the input is

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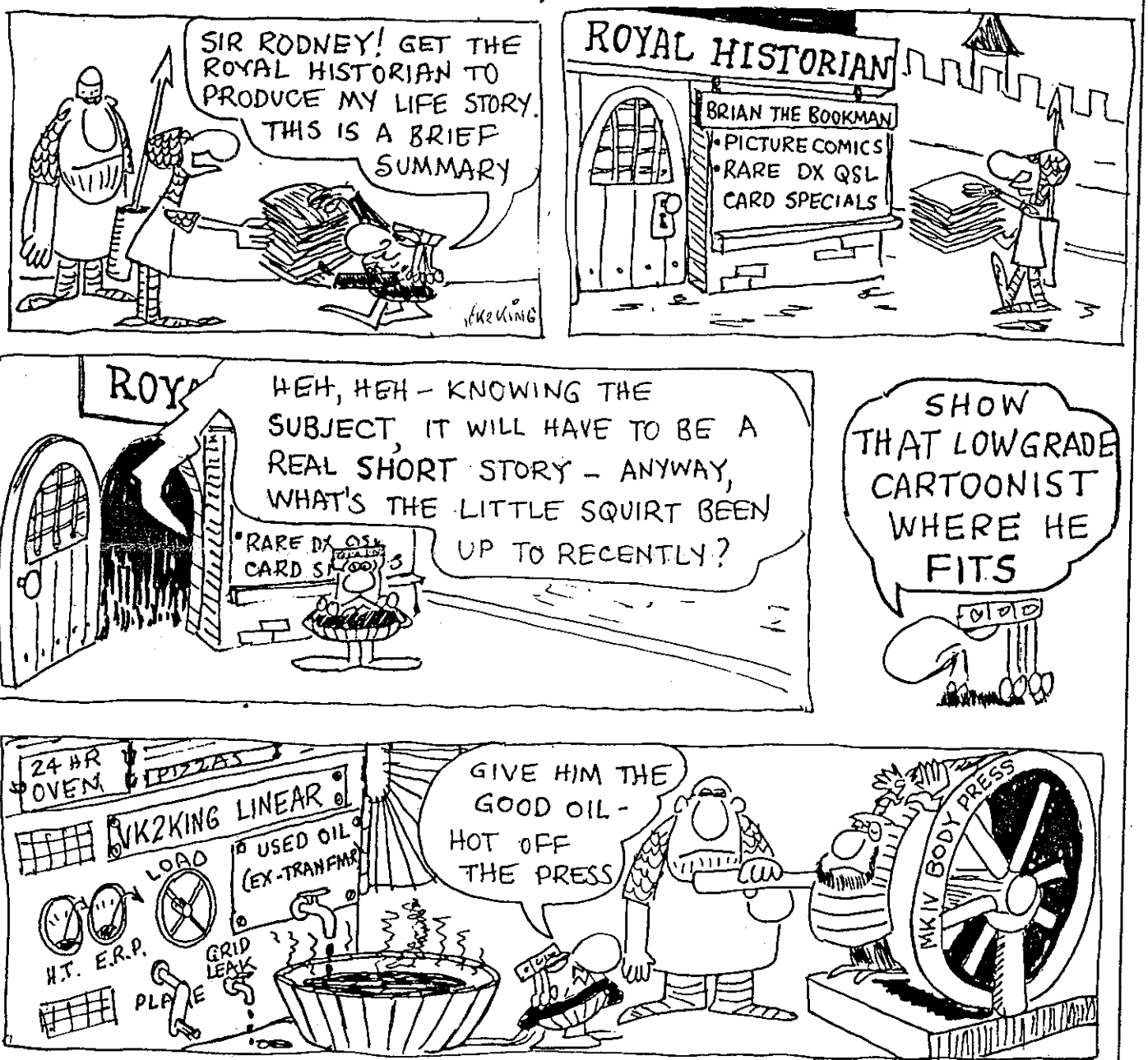
VK2KING - WORDS BY VK2ALU, PICTURES BY VK2AXI



CONFERENCE OF CLUBS CONTINUED

Australian Amateurs of the benefit of the (gentlemens agreement) moved (Wagga ARC) Seconded (St George ARS). Motion lost.

(2) That the WIA discuss with the DOTC the possibility of issuing amateurs with a supplementary "credit card" size licence to be carried by portable or mobile stations. Moved (St George ARC) Seconded (Aapra). Motion carried unanimously.

(3) That this Conference wholeheartedly agree with the divisional council visiting affiliated clubs on a regular basis. Moved (Hornsby arc) Seconded (Illawarra). Carried unanimously.

(4) That this conference discuss the requirements of section 11.2 of DOC 71 with regard to the requirement to notify in advance club station movements and if thought fit, pass a motion seeking relaxation of these conditions. Moved (Hornby) Seconded (Westlakes). Carried.

GENERAL BUSINESS

(1) That the WIA request that DOTC relax the requirements of section 11.2 DOC 71. Moved (Westlakes) Seconded (St George). Carried.

(2) That VK2BWI be exemt rom the requirements of section 11.2 of DOC 71 and be recognized as a continuously portable station. Moved (Westlakes) Seconded (Illawarra). Carried.

(3) That unless the following items are supplied to the WIA examination service by 31/12/88, the amateur service will withdraw from examination involvement.

Re examination question bank.

Re question breakdown for regulations.

Re morse generating programme.

Moved (Aapra) Seconded (ATV group). Carried.

(4) That the federal executive of the WIA submit as an agenda item to the WARC 92 that amateur communications on behalf of another amateur be defined as not being third party traffic nor should intermediate terrestrial or space-borne repeaters/translators be considered as being third party stations. Moved (St George) Seconded (Sydney ATV GROUP). Carried

(5) That this conference of clubs request WIA to reject attempts by DOTC to use the AR publication to disseminate DOTC information by paid newspaper and/or post to licenced operators. Moved (Westlakes) Seconded (Hornsby). Carried abstentions by St George, Illawarra, Aapra and Mid South Coast.

The 20th conference is set down to be hosted by the St George club on April 7, 1989 at the St. George Leagues Club.

Meeting closed 11.40am. Denis R.McKay (VK2DMR) Chairman. Jim Hayes Secretary.

SEMI CONDUCTOR

CONTINUED

applied to the base, or more specifically, the base and emitter. When a signal is applied to the base of a pnp transistor in the common emitter connection, it causes variations in hole and electron currents through the emitter junction and in hole current through the collector junction. These variations in the currents are the same as if the transistor was in the common base connection and the signal was applied to the emitter, however, in the common emitter connection the input current is the base current.

The short circuit common emitter current gain for a transistor working into a zero resistance load is symbolised by hfe or the greek letter beta. Mathematically this is expressed as hfe = dic/dib where dic = small change in collector current and dib = small change in base current with collector to emitter bias voltage held constant.

The current gain ai of this amplifier is found in the same manner, however, with a load resistance, ai is always less than hfe.

A simple relationship exists between alpha and beta. If alpha is given then beta can be found by the formula beta = alpha/1-alpha. Therefore if beta is given, we can find alpha by transposing: alpha = beta/1+beta.

More next month..

73, De peter vk2khe.

F.R.L.S. LUCKY WINNERS:-

Week No: 4. G. MUELLER
Week No: 5. J. Simon
Week No: 6. R. McKnight
Week No: 7. J. Lawer
Week No: 8. R. McKnight
Week No: 9. C. Proctor
Week No:10. N. Blaney

ON THE NET:
NEW TIME SLOT IS 8.PM. or 20.00. Hours .....

TIME

O time I can't keep up with you, too fast a speed you set me!
I'd like to slow you down a while if only you would let me.

In childhood when I thought on you, you travelled far to slow!
and how I wished you'd hurry up, let me to manhood grow.

But even then you heared me not or so to me it seemed;
for still your pace did not increase no matter how I dreamed.

And when at last I came of age, my long sought after goal;
why it was then, and only then, you hearkened to my call.

Life seemed to move much faster then since reaching twenty one!
because instead of passing slow you then commenced to run.

The years flew past with lightning speed, I could not slow them down;
and all the things i'd hoped to do were mostly left undone.

Now when we meet with friends we love and good times we enjoy,
tis now I wish you'd change your speed to when I was a boy.

But since I know this cannot be i'll do the best I can,
to live the little time thats left in acting out the man.....

THE TEN ELECTRONIC COMMANDMENTS

I. Beware the lightning that lurketh in the undischarged capacitor- lest it causeth thee to bounce upon thy buttocks in a most unprofessional manner.

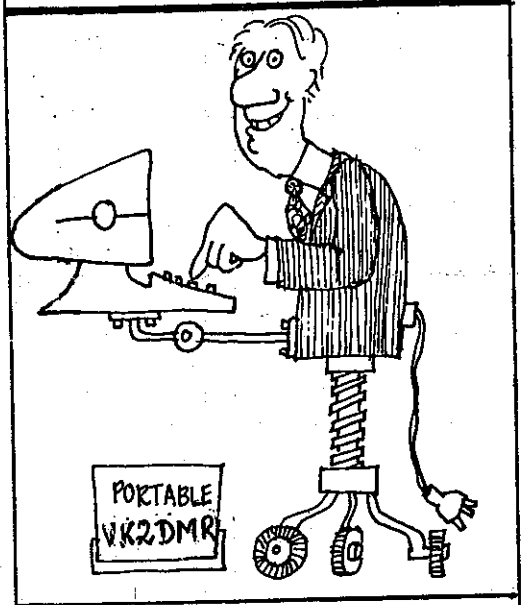
II. Causeth thou the switch that supplieth large quanities of juice to be opened and thusly tagged that thy days may be long in this earthly vale of tears.

III. Prove to thyself that all circuits that radiateth and upon which thou worketh are grounded and thusly tagged lest they lift thee to radio frequency potential and causeth thee to make like a radiator too.

IV. Tarry thou not amongst those fools that engage in intentional shocks for thy are surely non-belivers and are not long for this world.

V. Take care that thou useth the proper method when thou taketh the measure of a high voltage circuit so that thou dost not incinerate both thee and thy meter; for verily, though thou art expendable and can easly be replaced, the meter is not and as a consequence bringeth much woe upon the department.

VI. Take care thou tampereth not with interlocks and safety devices for this incurreth the wrath of thy supervisor and bringeth the fury of the major department head upon thy head and shoulders.

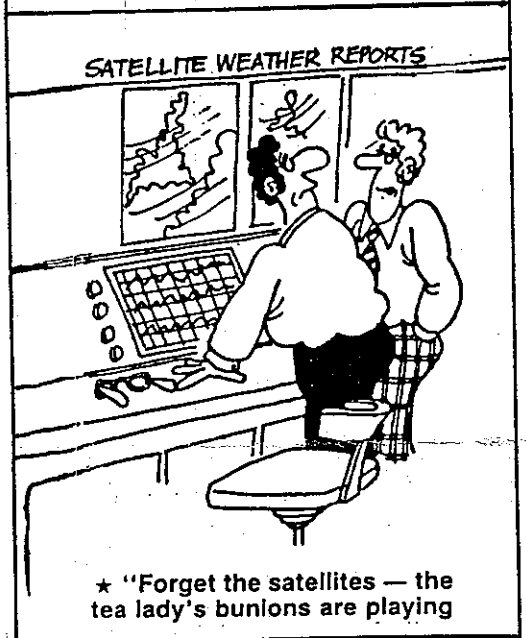


VII. Work thee not upon energized equipment, for if hou doest so, thy comrades surely will be buying beers for thy widow and consoling her in certain ways not generally acceptable to thee.

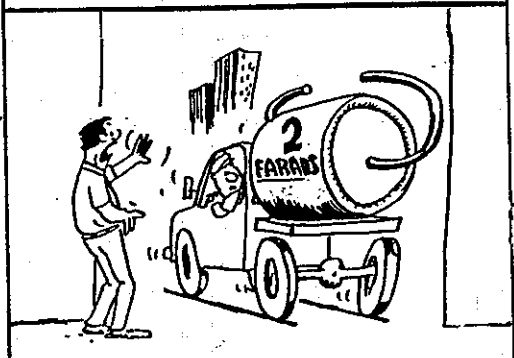
VIII. Verily, verily I say unto thee, never service equipment alone for electrical cooking is sometimes a slothful process and thou might sizzle in thine own fat upon a hot circuit for hours upon end before thy maker sees fit to end thy misery and drag thee into his folds.

IX. Trifle thee not with radioactive tubes and substances lest thou commence to glow in the dark like a lightning bug and thy wife be frustrated and have no further use for thee except for thy wages.

X. Commit thou to memory all the words of the prophets which are written down in varied and sundry memorandums, and which giveth out with the straight dope and consoleth thee when thou hast suffered a ream job by thy group leader.



★ "Forget the satellites — the tea lady's bunions are playing



"Hold it! I ordered two MICRO farad!"

IF you've got the Monday blues, just remember that tomorrow will be Tuesday. And on Tuesday you can tell yourself that the day after tomorrow you can say the day after tomorrow will be Saturday. Whoopee!

HE spent a small fortune on deodorants before he found out that people didn't like him anyway.

BUYING LASER PRINTERS IS TRICKY BUSINESS

There are many laser printers available in Australia - all have different prices. All seem to have different specifications.

So how do you sort out which laser is going to give you the best for money?

The original purchase cost of an average six eight page a minute laser printer can very from $3000-$6500. But this is only the tip of the iceberg compared with the cost of consumables to keep your laser running. The cost of buying toner, laser drums and collector units is all too often overlooked by many buyers, and is a source of confusion for many sales people.

If you make the wrong decision you could end up paying out eight times more than the original cost of your laser printer just for consumables you need to keep it running!

Let's look at eight popular laser printers in the Australia's printer market today. They are the Hewlett Packard Laser Jet Series II, Epson GQ-3500 , stR Laser Printer 8, Imagineering Ultra Laser, Brother HL-8, Commodore Laser, Oki Laserline 6 and Mitsui Ricoh PC Laser 6000.

Although all these printers come from different companies, each company buys the main body of the laser from only two manufacturers! If you look closely at the Epson, Ultra, Commodore, Oki and Mitsui, they all look the same on the outside because Ricoh manufactured the main body of the machine. This main body is called the laser engine.

If you look closer at the HP Laserjet, Star and Brother lasers there is little to distinguish these different brands except for the name tag and the front operator panel. This is because Canon manufactured their laser engines.

On average, the Ricoh engine lasers are $1000-$2000 cheaper than the Canon Engine lasers. But are you really saving money by buying one ?

To most of us, Ricoh and Canon are synonymous with good quality cameras. Because of the elns and mirror technology it takes to produce those cameras, it's not surprising to fined that both these manufacturers also make photocopying machines. If you have this technology under the belt, it only takes a few hi-tech steps to produce a laser printer!

So for traditional dot-matrix printer manufacturers it was a simple decision to buy the technology they needed rather than spend millions of dollars and perhaps three to five years in research and development, reinventing the wheel.

For most of these manufacturers, jumping on the laser band-wagon has meant developing a printed circuit board with enough chips on it to tell the laser engine what printer emulations to use, what fonts to use and how much laser memory to make available for a user's software programs.

Most people working in an office have seen a photocopier technician turnup on regular basis to service the office copier.

You call a technician because the copy quality has fallen off somewhat, and you can't fix the problem by simply adding more toner. Every so often the technician replaces the drum and other parts. Likewise in a laser printer; these same components need too be replaced from time to time.

The consumables that a six page a minute Ricoh engine uses, are the same, no matter what the brand name is on the outside. The same thing applies to all eight page a minute Canon engine lasers.

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However, there are major differences between the two engines which affect their serviceability and cost per copy. Both machines use toner to make a black image on the paper. This toner is made up of fine molecules of plastic. The plastic toner attracted to the paper that has been electrostatically charged. Both machines use a drum in the same way as a photocopier except that in a laser printer, a laser beam conveys an image onto the drum. Any similarities end at this point.

In a Ricoh-engine laser, the toner and drum have separate life expectancies, and individual parts must be replaced at diffferent intervals. This requires more than just a fleeting knowledge of how machine operates and means that you have to read and understand manuals or call a technician to do the job for you. the life expectancy on each of the components are: toner cartridge - 1500 pages, drum cartrige - 20,000 pages and collector unit - 10,000 pages.

The Canon-engine consumables all have the same life expectancy and are all contained in a disposable, easy to cartrige. The singular cartridge contains the main electro-pohotographic components make the printer easy to service and vary reliable. The life of the drum in the cartridge will not have totally expired by the time the toner runs out but this is a design feature to ensure that the quality of output is hogh from start to finish. The average life expectancy of a complete cartridge is 4000 pages.

A quick ring around dealers and suppliers revealed an average recommended retail price foor consumables of: Ricoh toner cartridge - $66, Ricoh drum cartridge - $412 and Ricoh collector unit $218. The Canon EP-S cartridge cost about $230.

Assuming that a laser is going to print at least 30,000 pages in it's life, let's look at how much it would cost to print all those pages. At 4000 pages a cartridge, the Canon engine would need 75 cartridges, which based on the above pricing, comes to a total cost of $17,250 or 5.75 cents a copy.

On the other hand, the Ricoh engine would need 200 toner cartridges, 15 drum cartridges and 30 collector units, which represents a total of $25,920, or 8.64 cents a

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FOR SALE

MICROLOG AIR-1 COMPUTER Interface for C64/C128 Computers.

Unit sends and receives AMTOR,ASCII,RTTY (Baudot) and CW.
Features "eavesdrop" mode in AMTOR allowing ARQ contacts to be monitored (displays all repeats, enabling circuit performance to be judge). Plugs straight into expansion port at rear of computer, automatically switches computer into correct mode (uses 40-col colour screen, colours can be customised to suit individual perferences). This unit performs well and would make an excellent backup/standby unit for the keen AMTOR-RTTY enthusiast. It also copies morse well, with automatic speed tracking (can be disabled if desired). Complete with comprehensive user's manual.

Price $250.00
Contact:
Ned (VK2AGV)
on (042) 378359.
Please leave a message on the answering machine if 'phone is unattended..

DOTC AND TVI

Proposed Handling of TVI Complaints by the DoTC

The Federal Government plans to charge Australian's wanting to receive a picture on their television sets or clear radio broadcasts, free from harmful interference.

The Professional Radio and Electronics Institute of Australia (PREIA) spokesman, John O'Brien, said the move was the latest in the government's cost recovery policy for the public sector. The decision, taken without consultation with the union in September, was not in the public interest, and would hit the elderly, the needy and ordinary family who rely on television as a major source of entertainment.

The DoTC was considering a charge of $50 before it investigates the 20,000 interference complaints a year.

It was also moving to amend the broadcasting legislation to remove it's obligation to conduct interference investigations.

The DoTC 'investigators who track down and eliminate sources of interference said they were horrified at the decision which was taken without consultation with the PREIA. Mr O'Brien said "a lot of interference problems can be traced to the fact that the government has not used it's powers under the Radiocommunications Act of 1983 to set manufacturing technical standards for TV and radio receivers."

"In the second reading speech of the Radiocommunications Bill in Federal Parliament substantial savings were foreshadowed for the government through the introduction of technical standards under the Act which would lessen interference."

"An unsuspecting public is suffering increased levels of interference becuse their home entertainment equipment is sub-standard."

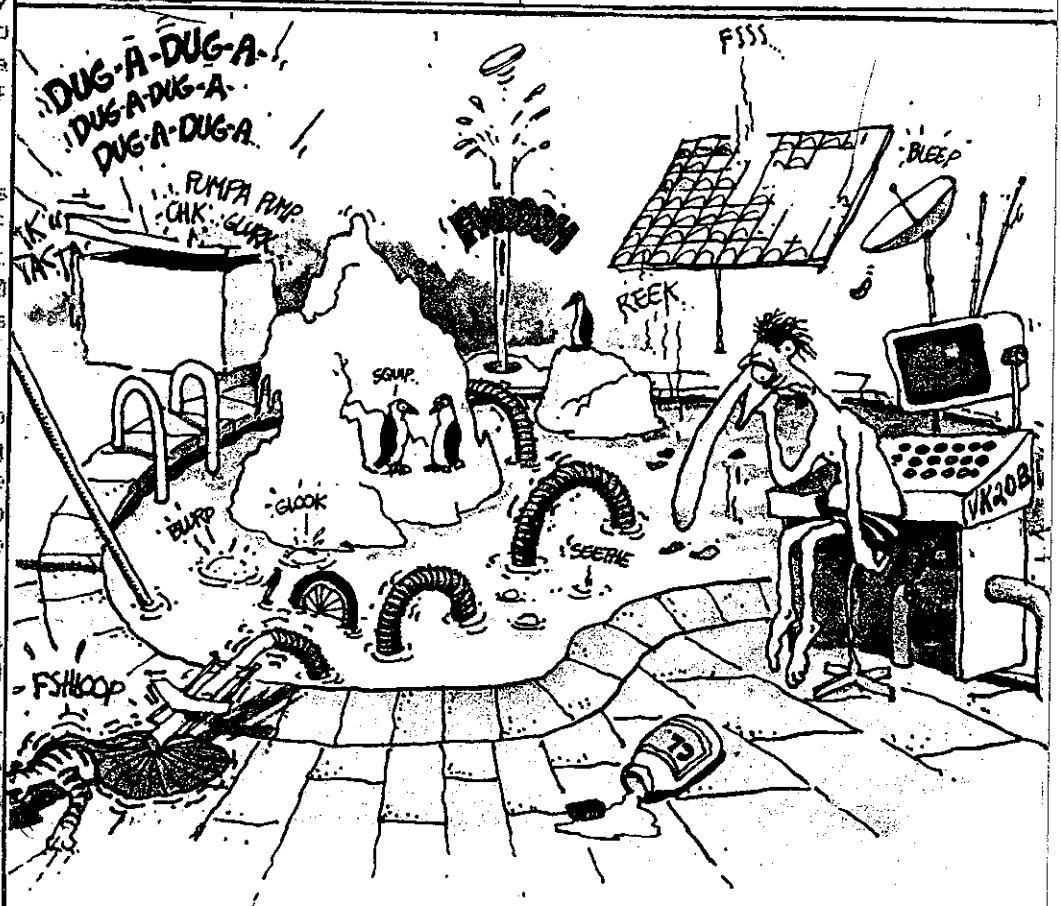
Mr O'Brien said technical and electronic standards are envisaged in the Act were being adopted in the United States, Canada, Britain and several other European countries.

The Radiocommunications Act also gave DoTC the power to control emissions in the radio spectrum from a vast range of sources including power lines, thermostats, electric motors and home computers which could all cause interference, he said.

It was suffered not only by radio and TV receivers, but could also cause havoc to public address systems, electronic organs, videorecorders, stereo amplifiers and even heart pacemakers.

Extract from VK3 Broadcast

VK2WI Broadcast, 8th Jan 1989. Copyright 1989 WIA (NSW) & contributors.



I REALLY DUNNO - IS THIS POOL FILTER A HIGH OR LOW PASS
CRICKEY - MY FILTER PROGRAM MUST BE STUCK IN A LOOP

THE TIK THAT CRIPPLES

The hazards of life are generally appreciated by us all, but it now appears that one of the lesser irritations should be considered in a more dangerous light.

The story begins with a tick bite suffered by a drilling rig crewman near Branxton in February 1980. That event marked the emergence of Lyme disease in Australia.

Lyme disease causes great concern in the U.S. and Europe and may be the most common tick-borne disease in the world.

Australian cases have since been reported from the south coast, Queensland and other areas. At least some cases may have contacted the disease from biting flies or mosquitoes.

The agent responsible for Lyme disease is a spirochete (elongated, spirally twisted unicellular organism usually classified with bacteria) which has not yet been isolated in the blood of Australian victims but which exists somewhere in our native mammal and insect population.

The disease develops in three stages. First is a red rash that spreads out in a ring from the bite within 2 to 30 days of being bitten. It is often accompanied by profound fatigue, fever, chills, headache and backache but in some cases not even the rash appears. The second stage is marked by complications in the nervous system and "migratory" musculo-skeletal pain.

Stage three typically involves the onset of arthiritis. Symptoms similar to rheumatoid arthritis occur in about 60 per cent of patients who have not been treated within a few months after the rash appears.

The nervous system can be affected at any stage and that leads to some of the most debilitating effects on the victim.

Happily, Lyme disease can be treated successfully at any stage with broad spectrum antibiotic tablets: early treatment naturally prevents many of the worst symptoms from developing.

For humans the message is clear.

Watch insect bites carefully for signs of red circular rash and dont neglect to associate other first stage symptoms with a previous tick or other insect bite

SO YOU WANT A DAY OFF

There are 365 days in the year. You sleep 8 hours a day, making 122 days. Subtracted from 365 days this makes 243 days.

You also have 8 hours recreation every day, so take away another 122 days and it leaves a balance of 121 days.

There are 52 Sundays that you do not work, which leaves 69 days.

You get Saturday afternoon off: this gives 52 half days or 26 more days. This leaves a balance of 43 days.

You get an hour off for lunch, which when totalled makes 16 days, leaving 27 days of the year.

You get at least 20 days leave every year, so that leaves 7 days. You get 6 legal holidays during the year, which leaves only 1 day.

So what makes you think you'll get THAT day off?.

LASER CONTINUED

copy for consumables alone. Buying a laser printer without a HP Laser emulation is like buying a car without a steering wheel...sure, you've got a nice machine but you can't really go anywhere!

Since Hewlett-Packard introduced its first desktop laser printer back in 1984, software developers throughout the world have adopted the HP standard. Reliable HP Laser Jet printer drivers are more prevalent than in application software than in any other laser printer.

After having made this point it seems incredible that several lasers available either don't have HP emulation or supply it as an optional extra. Whatch out for these hidden costs! Another hidden cost occurs when you opt for desktop publishing, the major desktop publishing packages, such as Venura from Xerox, require a laser to have at least one Megabyte oof memory of its own. Many of the lasers only have 512 K-byte of memory, and this includes the HP-Laser Jet Series II. It is always possible to expand a laser's memory.

On a recent visit to Australia, Mr Masahiro Kurita, general administrative manager of Epson's printer division in Japan, was quoted in an Australian computer magazine article as saying: "We are not paper copier manufacturers, so we don't have copier technology. That's why our current laser printers are not very satisfactory.

"Basically, our dotmatrix printers are low maintenance with a long life".

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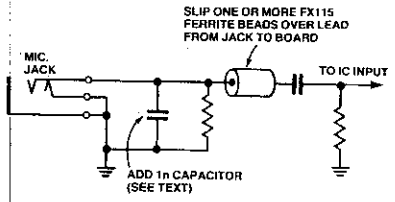
taken from the Advertiser 7th December 1988.

RF INTERFERENCE SUPPRESSION — TECHNIQUES

Interference pickup on speaker leads may be cut by winding part of the lead, nearest the amplifier terminals, on a ferrite rod — available at many parts suppliers.

Public address amplifier systems may be prone to RF interference from a variety of sources — and the source may be unknown or hard to track down. Sometimes the source is well known but impossible to eliminate — a nearby AM broadcast transmitter, for example. CB or marine transceivers in the vicinity of a PA system are notorious sources of annoying intermittent interference. But it's not the fault of the 'offending' transmission; the characteristics of modern solid state devices are the major culprits.

A number of techniques can be employed to protect a PA amp from interference. As it will depend on the individual application, we leave it to the constructor how much, or how little, interference protection to incorporate.



Adding RF suppression to the low level inputs.

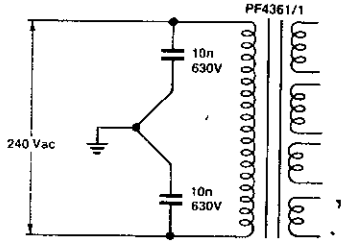
THE 'FRONT END'

The low-level input stages are particularly prone to RF pick-up. There are two components you can add quite simply to protect each low-level input. Firstly, a ferrite bead, such as the commonly available FX115 type, can be slipped over the lead running between the jack socket and the pc board. Secondly, a 1n 'greencap' capacitor can be soldered directly across the input jack socket terminals. If the leads of this capacitor are cut to a length of 25 mm, the capacitor will have a broad series resonance around 27 MHz, greatly aiding suppression of CB and marine radio interference. These components may be added to both MIC 1 and MIC 2 inputs.

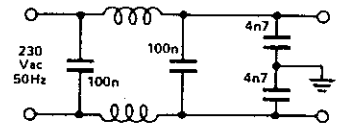
For the AUX input, a greencap with a value between 2n7 and 10n should be used.

THE 'BACK END'

Long runs of loudspeaker cable have the annoying tendency to act as antennas. 'Choking off' the RF once it gets on a cable run can be problematical. One of the most effective methods is to wind that part of the cable nearest the amplifier speaker terminals on a ferrite rod — such as is used for transistor radio loopstick antennas. This makes a very good broadband RF choke, but it *must* be installed as close to the amplifier output terminals as possible. There's nothing critical about it, but the ferrite rod should be at least 100 mm long, preferably longer. Ferrite rod in 200 mm lengths, 9.5 in diameter, is commonly available and quite suitable for the application.



Adding interference suppression on the mains input. The value of each capacitor may be anything between about 4n7 and 100n. They should be rated at 630 V or 1 kV.



Circuit of a mains input filter. The chokes should have an inductance between 5 mH and 50 mH and be capable of carrying up to 2 A. The capacitors may be greencaps or ceramic types rated at 630 V or 1 kV.

MAINS-BORNE INTERFERENCE

Apart from radio interference coupled into mains cables, light dimmers, motor controllers and switch contacts on mains equipment connected to the same line as the PA amp can cause a variety of clicks, pops and buzzes to be heard on the system. Proprietary mains filters can be obtained and often prove very effective. Alternatively, you can build a filter into the PA amp.

One of the simplest suppression methods is to connect a 10n/630 V greencap or ceramic capacitor from each side of the mains transformer primary to the chassis — at the same point. Three-pin mains plugs can be obtained with capacitors installed and may be quite effective. A 'pi' filter can be built up, as shown in the accompanying circuit, and installed in the amp's chassis.

PACKET STATIONS

TO ALL PACKET STATIONS HR AMSAT NEWS SERVICE BULLETIN 013.01 FROM THE QTH OF WD0HHU LITTLETON, CO JANUARY 13, 1989 TO ALL RADIO AMATEURS BT

A New Policy On AMSAT News Service (ANS) Bulletins

Because of the length of AMSAT News Service Bulletins on January 7, 1989, (ANS-007), a new policy has been adopted by AMSAT-NA to reduce the size of the ANS Bulletins. In the future ANS Bulletins will be shorter, more topical, with the emphasis on brevity. AMSAT News Service Director, Dave Cowdin, WD0HHU, apologizes to all packet stations who found last weeks ANS Bulletins "choking" their packet networks. In the future, only timely and "user-important" information will make up the content of the ANS Bulletins. Topics which warrant more than a paragraph and are not of immediate importance to the OSCAR satellite users will appear in the new AMSAT-NA Newsletter. This new publication will commence next month. It is hoped that this one bad mistake caused by WD0HHU's directorship of the ANS will not cause all packet station to shun ANS Bulletins in the future.
AMSAT-NA appreciates all packet stations who carry our Bulletins and provide them to whomever wishes to read them. AMSAT-NA wants you to know that you perform a vital service for us and hope that you will continue to provide ANS Bulletins on a weekly basis.

taken from packet BBS.

THE ILLAWARRA AMATEUR RADIO SOCIETY. INC.

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 Murray.
VK2RAW - 147.575. - (PACKET)	VHF	Mt Murray.
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 Transmitted on 147.275.VHF, and relay on 3.562.Mhz. +/- QRM. Callbacks taken immeddiately afterwards. The voice broadcast will be held straight after the WIA Broadcast on 146.850.Mhz < VK2RAW > and 3.562.Mhz +/- QRM.

W.I.A. RELAY: On 146.850. at 10.45.am. and at 7.15.pm. each Sunday.

CLUB - NETS: On 3.562.Mhz. SSB +/- QRM on Sunday 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.Inc, P.O.Box.1838. Wollongong. 2500. Full membership is $12 per annum; students & pensioners concessional members $9 per annum.

AWARDS: The Award of the Illawarra Amateur Radio Society.Inc. 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 2 I.R.C.'s .to THE AWARD-MANAGER, I.A.R.S.Inc,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:	VK2DYU- BILL CHADBURN. 45. Beltana Ave, Dapto.
VICE-PRESIDENT:	VK2OB - KEITH CURLE. 24. Beach Drv, Woonona.
SECRETARY:	VK2TPH- PHILL HOWCHIN. 12. Mawarra Ave, Dapto.
TREASURER:	VK2DMR- DENIS McKAY. 17 Doncaster street Corrimal.

GENERAL - COMMITTEE: VK2BIT - Peter Woods, VK2XCC - Ray Ball, VK2FPN - Peter.

REPEATER - CHAIRMAN: VK2XGJ - JOHN SIMON.

REPEATER - COMMITTEE: VK2CAG - GRAEME DOWSE, *VK2EXN - IAN CALLCOTT, VK2KHE - Peter Tomlin, VK2FPN - Peter, *VK2EMV - MORRY .v.d. VORSTENBOSCH, VK2MT-ROB-McKNIGHT, VK2BIT-PETER WOODS, VK2FCP-FRED BROWN.

QSL-CARD'S OUT	: VK2IU	- RAFFAEL BUONO.
QSL-CARD'S IN	: VK2BIT	- PETER WOODS.
PUBLICITY - OFFICER:		- (STILL LOOKING FOR ONE) (?)
BROADCAST - OFFICER:	VK2KHE	- PETER TOMLIN.
CARTOONIST	: VK2AXI	- BRIAN WADE.
PROPAGATOR-EDITORS	: VK2JT	- JOCK TAYLOR, VK2EMV - MORRY.v.d.VORSTENBOSCH, VK2DTC - DAVE CAPON.
PRINTERS	: VK2DFK - MIKE KEECH. AND POSTED BY VK2BIT - PETER WOODS.	
SOCIAL-DIRECTOR	: VK2XCC/PHD - RAY BALL. **D.O.C.LIASION** VK2OB - KEITH CURLE.	
CANTEEN-MANAGER	: VK2DYU - BILL CHADBURN.	
LIFE - MEMBERS	: VK2CAG-GRAEME DOWSE. VK2OB-KEITH CURLE.VK2ALU-LYLE PATISON	

SUNDAY - EVENING - CLUB-NET - ROSTER: STARTING AT 8.00.pm.

8.30.pm.

FIRST SUNDAY OF THE MONTH	: VK2MT	- ROB McKNIGHT.
2 nd SUNDAY OF THE MONTH	: VK2ENX	- TONY MOWBRAY.
3 rd SUNDAY OF THE MONTH	: VK2DTC	- DAVE CAPON.
4 th SUNDAY OF THE MONTH	: VK2PHD	- RAY BALL.
5 th SUNDAY OF THE MONTH	: VK2EBI	- KEVIN MURPHY.

And on stand-by : VK2EMV after NOTIFICATION ONLY!