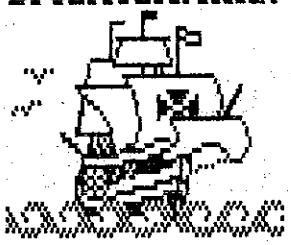
BI-CENTENNIAL.



THE PROPAGATOR

BI-CENTENNIAL.

ILLAWARRA AMATEUR RADIO.SOC.INC.

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO. SOC. INC.
VOLUME - 88 , NUMBER : 8. SEPTEMBER 1988.
REGISTERED BY AUSTRALIA POST PUBLICATION NUMBER : NBH - 1491.

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 .

S.E.S TALK TO MEMBERS

Mr.Alan Weebie, of the S.E.S. was our guest speaker at the August monthly meeting and gave an interesting talk on the functions of the S.E.S.

The prime role of the S.E.S. is to co-ordinate the various services involved in emergencies and to play a major role in disaster such as flood and storm damage.

The S.E.S. is a totally voluntary service and the role played in different districts is based on the needs of the area. The various areas of SES include Rescue, Warden, Intelligence, Supply and Transport, Communications, Operations and Medical.

Wollongong is one of the better set up SES branches in N.S.W. due to assistance from local firms in addition to government grants and council funding.

Communications facilities in SES are fairly basic due to lack of frequencies and equipment, and assistance of I.A.R.S. Members in the 1984 floods showed the value of using Club Members facilities.

Because SES do not have repeaters their VHF equipment has limited range and the use of R.T.T.Y. with hard copy had particular value in transfer of lists of people involved in emergencies.

A demonstration by Club members of repeater, R.T.T.Y. and Packet relay of information has been arranged for the 21st of September.

CLUB ACTIVITY WITH S.E.S.

Sunday the 14th August was a busy day for some Club Members. Rob VK2MT and Peter VK2BIT were erecting a mast and a 2 metre antenna for the Club at the SES headquarters while other members were providing a VHF link from an SES/Bushfire brigade exercise to Montague st rooms.

John VK2XGJ and Peter VK2KHE provided a fixed station at Darkes Forest linked to Montague street, which was manned by Tom VK2JTB and Col VK2FJE and yours truly at various times. President Bill VK2DYU was also present as a back-up. And a big thanks to the boys for participating in the excercise and a job well done Thanks to the members involved.

VI88NSW LOGS REQUIRED

Tony AX2ENX requests that any logs not yet submitted to him for forwarding, be handed in as soon as possible.

SEMI CONDUCTOR

THEORY PART 4

This month we begin by discussing the construction and operation of a transistor.

In it's physical appearance the transistor is nothing more than two back to back diodes; however, because the spacing between these diodes is so small, a new phenomenon takes place in a transistor. This phenomenon makes it possible for us to obtain one of the most important effects in electronics, namely, amplification.

CONSTRUCTION OF JUNCTION TRANSISTORS

The junction transistor is built around two pn junctions formed by making a sandwich arrangement of p type and n type semiconductor material. If two layers of n type semiconductor are placed outside a layer of p type semiconductor, the result is an npn transistor. On the other hand, if a layer of n type semiconductor is sandwiched between two layers of p type semiconductor, the result is a pnp transistor.

The middle layer of semiconductor material is called the base, one of the outside layers is called the emitter, and the other outside layer is called the collector. The base is always much thinner and more lightly doped than the emitter or the collector.

The junction between the emitter and the base is called the emitter base junction, and that between the base and the collector is called the collector base junction. The three elements of the transistor, the emitter, base and collector, have specific functions.

The emitter emits charge carriers which move through the base. The base controls the flow of these charge carriers. The collector, as its name implies, collects the charge carriers.

RULES FOR BIASING A TRANSISTOR

A transistor must be biased correctly to operate properly. The general rule for both npn and pnp transistors is that the emitter junction is forward biased and the collector junction is reverse bised. I.E. with forward bias, the positive supply is connected to the p material.

Thus the correct bias connections can always be determined for npn and pnp transistors.

NPN JUNCTION TRANSISTOR

In a junction transistor, a barrier potential exists at each junction and tends to limit the diffusion of majority charge carriers across the junction. As in the diode, this potential can be made higher or lower by applying reverse or forward bias respectively across the junction.

Now let us look at the npn transistor circuit in fig 7. With no connection to the emitter, and with the collector voltage Vcc made positive with respect to the base, the collector is reverse biased and the transistor acts only as a reverse biased diode. Under these conditions, the junction has a very high electrical resistance so only a small reverse current will flow.

This reverse current consists of minority carriers and is desireable to be as low as possible.

Continued P.3

SEMI CONDUCTOR

THEORY CONTINUED

When the emitter junction is forward biased by a voltage Vee as shown in fig 8, and the collector junction is left reverse biased as before, free electrons diffuse across the junction to the base.

At the same time, holes move toward the emitter. As the base is very thin, nearly all the electrons from the emitter diffuse across the base to the collector junction.

As they come under the influence of Vcc at the collector junction, they are quickly swept across the junction to the collector. A large current then flows in the external circuit. Not all the emitter current reaches the collector, a few electrons recombine with holes in the base region.

This current is the base current and is only a small percentage of the total emitter current.

The equation for these currents is:
Ie=Ib+Ic

For example, if a transistor has an emitter current Ie=20 ma, a base current Ib=0.4 ma and a collector current Ic=19.6 ma, we can see that most of the emitter current reaches the collector circuit.

73's till next month.
De Peter, VK2KHE.

fig 7.

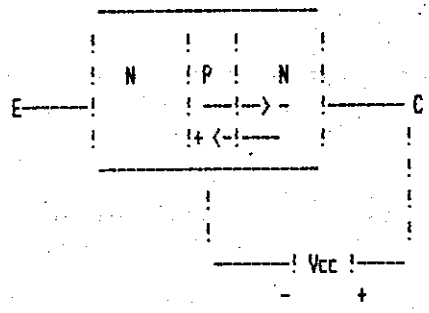
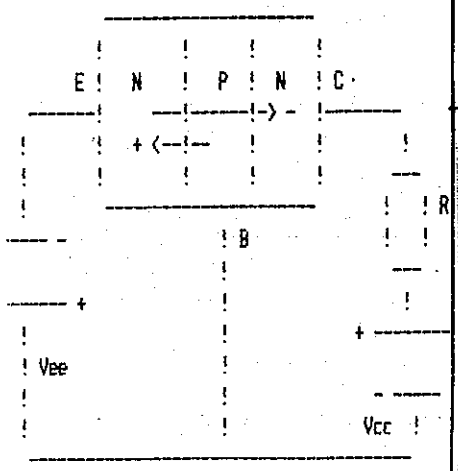


fig 8.



TO ALL THE HOME - BREW ANTENNA FIENDS

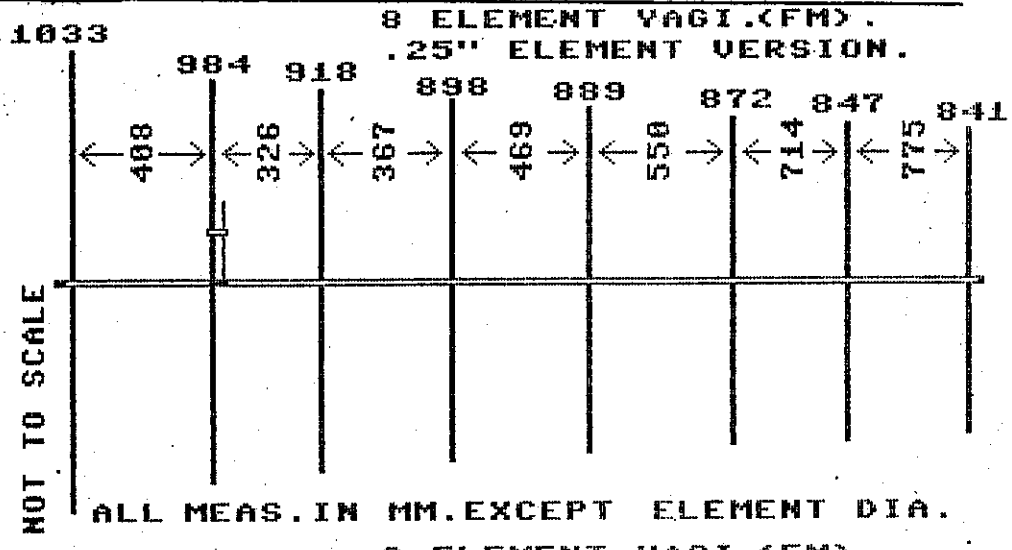
I hope this does the job for you. It seems to work really well on two metres. (F.M.) The elements are fitted into boom. (25 - 30mm square or round boom). The gamma match used is extremely simple, but works fine.

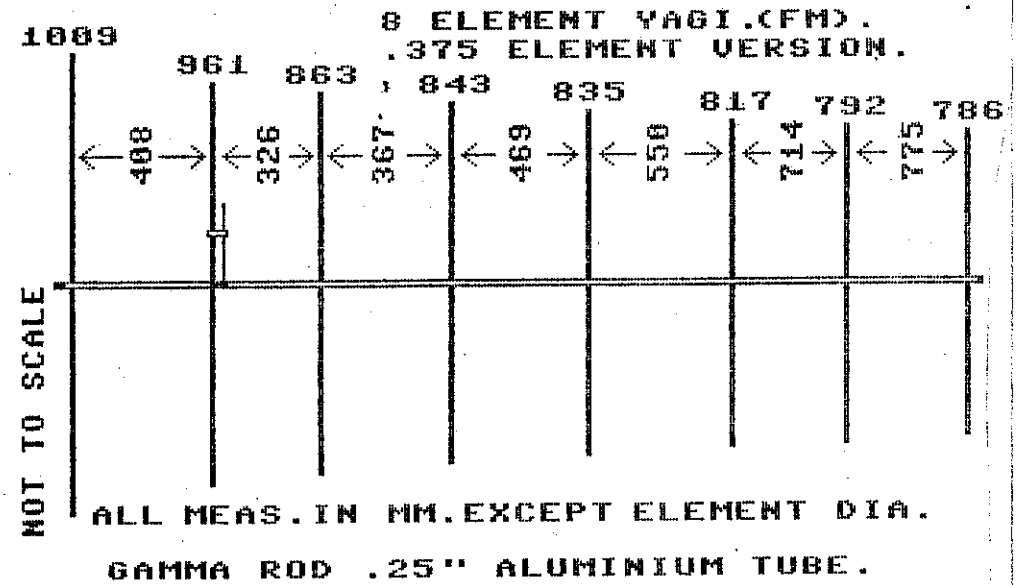
It consists of a 150mm (approx.) length of .25" aluminium tubing spaced about 30mm from the driven element, (spacing not critical).

You use a SO 239 socket on the boom. Solder a length of insulated wire to the centre pin (taken from some old RG58U co-ax. The only other thing you need is an aluminium bracket between the gamma rod and the driven element solid enough to hold it rigid.

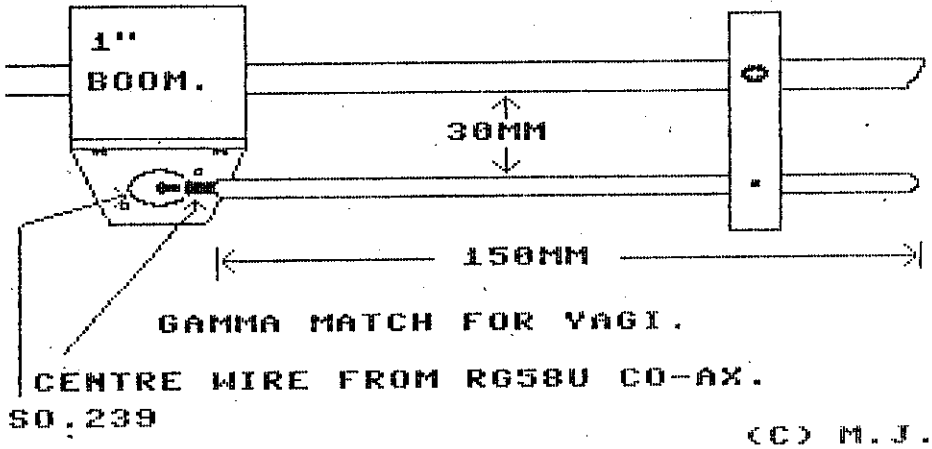
The adjustment is straight forward, I usually lean the beam against the side fence, (wooden). Make sure you have the centre wire longer than you will need. If you start with the rod set at 125mm slide the wire in or out until you get the lowest reading, like wise the bracket.

Continued P.9





GAMMA ROD .25" ALUMINIUM TUBE.



(C) M.J.W.

WHEN IS A HAM A HAM ?

Although no one knows for sure why an amateur radio operator is called a "ham", several theories have been advanced to explain the origin of the term.

On theory mentioned in the Dictionary of Word and Phrase Origins is that the word is derived from the initials of the first three men to hold an amateur operator licenses (H.A.M.).

The authors grant that theory little credibility and conclude that ham is simply a shortened form of amateur. Modern usage seems to support such an idea and has given it a positive connotation in addition.

Yet that expression of endearment might not always have been reflected in the use of the term. Art Seller, an employee of the Federal Communications Commission, the federal agency that licenses and regulates amateur radio operators, says that in 1905 the word "ham" had a bit of an edge to it.

Seller says that "ham" was likely a shortened form of the word "hambone", which some Navy radio operators called amateur operators they believed were intruding into the airwaves.

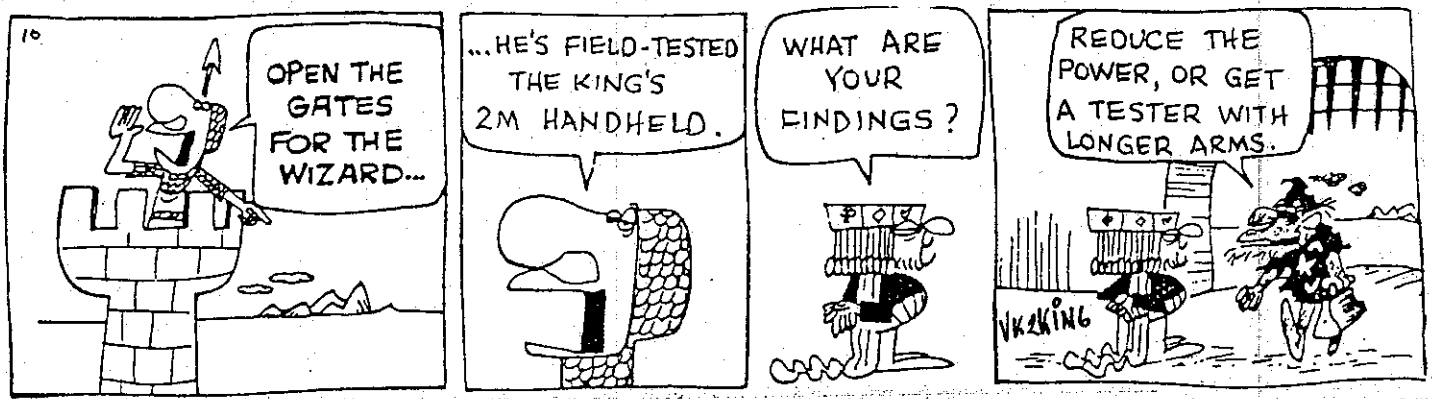
"When radio was still new to society, the only people on the air were the radio operators," Seller says. "As Navy communicators came into play, they accused the (amateur) radio operator of interfering with their work over the air."

Taken with compliments from the Lyrebird.

ON THE NET:
14th August.1988.

VK2ENX-TONY, Co-ordinator
VK2NNJ-JOHN, VK2BIT-PETER

21st August.1988.
VK2EMV-MORRY, Coordinator
AX2DFL-DAVE, VK2AXI-BRIAN
VK2KGI-DAVE.



AMATEUR RADIO FOR FUN AND LEARNING

You have heard it all before, amateur radio is just not what it used to be, we don't make our own components, most of us don't build our own equipment any more, you can even buy a commercial wire dipole these days, all you need is money and a licence and you can be on air.

I have a radio book which was written in 1922 which said much the same thing about radio in those days so to catch cries are still the same, and still we have amateur radio today in all its forms.

Amateur radio is about learning not just by doing a theory test and passing the exam but also by the application of the art of experimentation and observation.

In these times of black boxes and aerials bought over the counter there lies a whole new world of experimenting fun and observations to be rediscovered by you the new chum, the aim is to get into this world of action without having to spend the family fortune.

Enter the magical "JUNK BOX", to acquire such a treasure you must become familiar with the physical properties of the various components which are used to construct the electronic circuits that are used.

The process of collection can take many forms, relatives, friends, neighbours can be made aware that you are on the lookout for give aways of unused, non working or otherwise not needed articles of electronic nature, another source is the radio disposals market and you should always put in a showing at the radio club auctions, a few words about auctions, inspect the chosen articles or cardboard box's of bits and pieces, place a value on each lot according to your own values or need and then bid up to that value and no more, if you don't you are buying at an inflated price, always beware of the smooth talking auctioneer who will attempt to push up the bidding with sometimes outlandish claims about the contents and value of the lot that is on the block, remember he is only there to sell to the highest bidder to obtain the commission for the club funds and you don't get your money back if the article is a dud.

Having acquired this new source of supply the next step is to recover the component parts.

This is the ideal way to discover the various forms of construction, there physical appearance, together with their recoverable and reusable properties, usually old TV's Radios etc.

Are very dirty so first thing give the device a good go over with brush and vacuum cleaner in the sucking mode.

In most cases the best method is to cut the leads of the components leaving the longest length possible other components must be desoldered, when desoldering a sucker is helpful I have used a bulb type successfully also clean coax braid removed from odd pieces of coax can be used as a solder wick to sop up solder.

Some wrecking of components happens while you learn how they are constructed or installed this is all part of the learning process and you will bbe surprised how devious you become at the art of recovery without damage to components with practice.

Early on I came to the conclusion that recoverd components were

Continued next page

AMATEUR RADIO FOR FUN AND LEARNING CONTINUED

often useless because of the film of grime on them, they were always messy to handle.

An experiment was conducted to wash the components and see how they were affected.

Final outcome is the method that I now use. Components are sorted into packages so that approx one third of a one litre coffee jar is components, then the jar is almost completely filled with water and a teaspoon of liquid kitchen detergent is added, the lid is then screwed on and the jar is given a good vigorous shake for three or four minutes complete rinsing is then carried out until all the suds are gone, the components are then sun dried . Even electro's.

When using recovered components good habit is to test the device before use, a simple test is usually all that is needed, eg.

Leakage test of capacitor, resistance value, reverse polarity test on diode, done in a second with a multi meter.

Constructors using recovered components usually build one off type devices, which are point using tag strip or similar, layout is determined by the size and shape of the available components so that using this practice the projects are not usually for reproduction on even a small scale.

Many projects lend themselves to construction using recovered components power supply, audio, some high frequency transmitting and receiving projects can be adapted for construction, they may not be " R LA the Handbook " but they will function and work well and you will have had a hands on experience of practical design and construction at minimal cost to your budget, time and effort maybe a different story.

So if you want to talk about something different on or off the air, you maybe able to talk with experience on the practical problems of others and even if you cant you will have at least passed thru the stage that many before you have said they did, that of burnt finger tips, melting resin fumes up the nose and in the eyes, with many hours of fun and frustration, I have never seen it written yet that it is compulsory to do these things to become a good amateur or experimenter but it has been proven that it all helps to produce a more complete person in this field.

Times have not changed much as I commented in the start of the article, simple and learning experiments with a gradual progression with knowledge have always been available to those who seek with meagre means for what ever reason, and I believe that will continue to be so for a long time to come, remember the observations that you make and the conclusions you draw are yours and believe me you will remember them long after the event, by the doing not the reading it just happens that way.

If you have never considered this aspect of experimenting these are my experiences passed on for your judgement, you may find it different but then that will be your observations, can you make amateur radio and experimenting a fun and learning hobby affordable to yourself

by VK2BHO - John.

Excuse me Guf ! How did you manage to crack the combination on my HOME-BREW burglar alarm ????

"As a really lovely surprise, not only do we have a video of our holiday but one of mother's holiday too . . . !"

BOGUS RADIO INSPECTORS IN QUEENSLAND

THE DEPARTMENT OF TRANSPORT AND COMMUNICATIONS (DOTC) HAS WARNED RESIDENTS OF NORTH QUEENSLAND TO BEWARE OF PEOPLE POSING AS RADIO COMMUNICATIONS INSPECTORS.

A SPOKESPERSON FOR THE DEPT., MR KINTON, SAID THERE WERE REPORTS OF SEVERAL PEOPLE OWNING CB RADIOS IN CLERMONT, BLACKWATER, EMERALD AND MT. ISA BEING VISITED BY A PERSON CLAIMING TO BE AN OFFICER OF THE DEPT.

INSPECTORS CARRY THE DEPARTMENT'S OFFICIAL PHOTO IDENTIFICATION CARDS AND TRAVEL IN COMMONWEALTH VEHICLES WITH "Z" NUMBER PLATES".

THE DOTC IS TREATING ALL REPORTS OF SUSPICIOUS VISITS SERIOUSLY AND CONDUCTING INQUIRIES IN CONJUCTION WITH THE STATE POLICE.

THE DEPT. IS INTERESTED IN HEARING FROM ANYONE VISITED BY A BOGUS INSPECTOR. A DESCRIPTION OF THE PERSON, OR A VEHICLE REGISTRATION NUMBER WOULD BE OF GREAT HELP.

THE AUTHENTICITY OF A RADIOCOMMUNICATIONS INSPECTOR CAN EASILY BE CHECKED. RESIDENTS SHOULD ASK FOR THE INSPECTORS SUPERVISOR'S TELEPHONE NUMBER AND THEN CALL THE DEPT. TO CHECK WHETHER A DISTRICT RADIO INSPECTOR IS IN THE AREA CITING THE NAME AND NUMBER ON THE IDENTIFICATION CARD OFFERED.

DOTC QUARTERLY STATISTICS FOR JUNE 1988

VK2KING GOES DX

A letter from Ross VK2BRC to Morry VK2EMV mentioned that VK2AXI's cartoon strip has now appeared in the ZL amateur journal Break-in This means Brian has gone international if he hadn't done so already.

I think you had better check that BASIC cooking program on my computer.. Somting seems wrong to me Lov !

FOR MEDICINE . . .

OPTICAL CARDS

Omiya Sogo Hospital of Japan, one of the 53 hospitals belonging to the All Japan Federation of Social Insurance Association, recently began experimenting with an information storage system that utilizes an optical card.

Each patient's medical data, such as last check-up date, case history and its treatment, blood type, health insurance membership, and any allergies against drugs, are recorded in the optical card.

If the use of these cards become widespread, health insurance cards and patient charts will no longer be necessary.

The optical card has a memory capacity 30,000 times as large as that of a conventional magnetic card. A NAME CARD-SIZED OPTICAL CARD CAN STORE THE AMOUNT OF INFORMATION FOUND IN AN 800-PAGE TELEPHONE BOOK.

Since approximately 25 manufacturers in a number of countries are developing the card, standardization of the reading and writing equipment was critical. Thus, Omiya Sogo Hospital called on Japanese manufacturers to standardize their equipment.

Joint experiments with these manufacturers will be conducted for 13 months in the hospital. Depending on the results, the card will be introduced as part of routine medical check-ups at the hospital as early as late this year (1988).

DU1JRB (Jess)
28-Jun-88 XGJ/BBS

TO ALL HOME BREW-ANT CONTINUED

When everything is OK, you can trim the wire so it goes straight from the socket into the rod. Its a good idea to mark the wire or measure it when you have the SWR at the lowest. That's it, if you stick closely to the program I can guarantee the performance. Leave about a 5mm gap between the socket and the gamma rod.

There have been four of these antennas built in Ballarat so far, with very good results. The last two were constructed from old T.V. antennas, one drilled through the boom, and one using the original element clamps above the boom.

We haven't done any tests between the last two but listening on air there doesn't appear to be any difference. It's a cheap way for the new 2 metre band users to obtain more coverage at a low or nil cost.

I have included dimensions for 1/4" and 3/8" elements. It's interesting to note the difference in length between the two. This is where a lot of hams go astray. And why some antennas work where others don't....

P.S All artwork and text done on C.64.
Taken from July B.A.R.G. NEWS.

COMPUTER SOFTWARE PIRATES

HONGKONG-Hongkong has declared war on the booming fake computer software industry, with tough new powers for investigators and a series of raids that netted goods worth HK$8.5 million (about S$2.2).

"We are determined to eradicate computer piracy in Hongkong," a senior government official said yesterday.

Shops in Kowloon's Golden Shopping Arcade, normally packed with pirated software and manuals, were deserted, their shelves bare after raids by Customs and trade department officers.

On Sunday, investigators made the fourth in a series of swoops which have yielded thousands of pirated diskettes and counterfeit manuals. Some 30 shops were dealing in counterfeit goods, along side stores selling genuine goods.

----------*****----------

MOBILE TRADERS

The official said the raid was aimed at stores as well as mobile traders selling from street stalls.

"When our officers appeared the mobile traders just ran, we found their stalls abandoned," he added.

Local shopkeepers said they expected the pirate trade to disappear completely as dealers switched to other products.

Mr Wong Chun-kwong, in charge of the government fight against pirated software, said planning started last November.

Genuine software publishers were approached and laid formal complaints and it was decided landlords who knowingly let shop premises be used by pirates would be warned they risked prosecution for aiding and abetting.

The government granted Customs officers sweeping powers allowing them to search suspected premises without a warrant.

"It's like draining the water so the fish have nowhere to swim," Mr Wong said.....
taken from:
T.S.Times. 2/8/88

AUGUST MONTHLY MEETING

President Bill VK2DYU reported that the link provided for SES on Sunday 14/8/88 worked well with plenty off members turning up.

John VK2XGJ reported A good roll-up of about 40 members and guests were present at the August meeting.

General business included organising members to attend the Truck-Show at Shellharbour Workers Club on Fathers Day weekend and members to provide a VHF link for S.E.S./Bushfire Brigade exercise at Darkes Forest on 14/8/88

Keith VK2OB suggested to the meeting that the Club submit a motion to Conference of Clubs to support access for Novices to six metres. This was strongly supported by the meeting.

Morry VK2EMV called for members to act as co-ordinators for club net. Volunteers for this were only a few ??? as it is not to good having all Co-ordinators and no other Club-members participating in coming up and make it worth while to run a Club-net. As you well know there that the response to the request for members to assist with the disply at the " Truck Show " was not sufficient to provide a two day display and sought the views of the meeting. It appears the display will be abandoned.

John also suggested the planned working bee at Mt Murray, as other business included Guest Speakers and future meeting arrangements and newsletter costs.

travelers which relay on the Club-net to make contact with Family and friends , and it is shore nice to know that there is a net on Sunday and can make a contact with Club members , incase no other communications are available , , so please give it some thought as you may be one day in the same perdicament or situation your self, so give it some support....

----------*****----------

Lyle VK2ALU raised the fact that OSCAR 13 is working and a lot of fun could be had using it. Lyle will be happy to inform members wishing to know more about Oscar activity.

Bill announced a working bee at Mount Murray to restore the antenna to good working order.

Dennis VK2DMR urged members in arrears to update their instalments to FRL4 and FRL5.

----------*****----------

President Bill urged members to join a Sub - committee to provide links for SES in emergencies.

Lyle VK2ALU thanked members who took part in VI88NSW. 29 three hour segments were provided by 11 members.

A talk by Mr Weebie of SES was followed by the usual tea and coffee.

WHY BRUISES LOOK BLACK AND BLUE

****

A bruise is not really black and blue; its a bright shade of red. But we perceive this most commonplace of all injuries as being decidedly dark in colour because of the way skin reflects light.

Light that passes through the skin, striking the bruised region and reflecting back to us, is distorted in such a way that the longer, red wavelengths of the spectrum are absorbed by muscle and tissue. Only the shorter blue-to-violet beams escape. The bruise adopts a purplish hue because that is the only shade the skin allows us to see.

Such optical chicanery,though deceptive, nevertheless provides a reliable diagnostic tool As the bruise nestles further into underlying tissue,the light distortion becomes more severe. The body thus supplies natural yardstick with which to measure the gravity of the injury; the darker the bruise, the deeper the wound.

SEPT MEETING PLANS

The September meeting will take place at the S.E.S. building on 13/9/88 and the guest speaker will be our own John VK2BHO. The subject will be ONES and ZEROS and a free raffle of a donated copy of ARRL antenna bible will be held for members not having a copy already. The book was donated by VK2AUP .....

SEMICONDUCTOR PRIMER

By A.P. STEPHENSON

20 ■ SIMPLE DESIGNING

Design of a simple class A common emitter stage amplifier using potential divide biasing is detailed below and in Fig. 20.1.

Requirements

The output is to have a voltage swing of 8 volts peak-to-peak and the emitter resistor is to waste 20 per cent of the rail voltage.

The transistor has a gain (h_{FE}) of 100 and is to operate with a 1mA collector current.

Design Procedure

Base current is given by:

$$\frac{\text{collector current}}{h_{FE}} = \frac{1\text{mA}}{100} = 10\mu\text{A}$$

Step 1 First, all VOLTAGE DROPS should be calculated as shown in Fig. 20.1. Remember that about 0·6 volts must be allowed for across the base/emitter junction of TR1 (shown *npn*).

Step 2 Now calculate the currents in base bias chain *R1*, *R2*. This current is not critical but should normally be much larger (say ten times larger) than the base current. Since base current is 10 microamps, the bias chain may be set at 100 microamps (0·1mA).

Step 3 Apply Ohm's law to produce resistor values. It is at this stage that intelligent approximations can be made to "round off" in accordance with preferred values.
This yields $R1 = 68$ kilohm, $R2 = 2{\cdot}7$ kilohm, $R_L = 3{\cdot}9$ kilohm $R_E = 2$ kilohm.

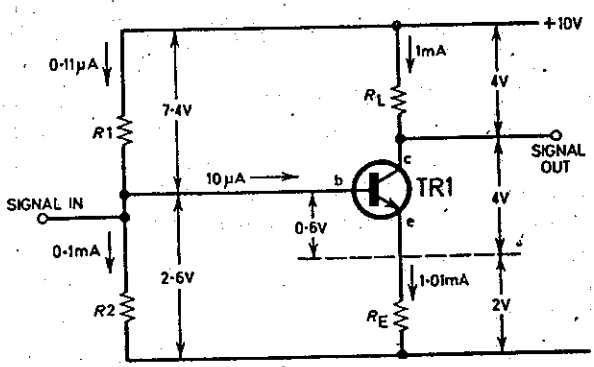


Fig. 20.1. Calculated current flow and voltage drops in the design of a simple single-stage amplifier.

21 ■ D.C. COMPONENT AT THE OUTPUT

The "output signal" of an amplifier is really a steady d.c. level with superimposed variation.

Consider the circuit diagram of Fig. 21.1, a simple amplifying stage in which the resistor bias values are such that the voltages shown are those with NO input signal—called the quiescent conditions.

Without any signal, the output is delivering a steady d.c. voltage of 8 volts which is not a signal, Fig. 21.2a.

If a small a.c. voltage signal of say 0·1 volts peak is applied to the input, the output terminal will swing up and down by one volt, since the voltage gain is 10. The actual output will thus vary between (8+1)V and (8−1)V as the signal deflects it, i.e. between 9 and 7 volts see Fig. 21.2b.

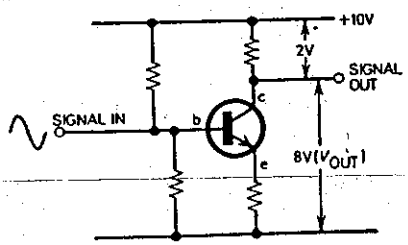


Fig. 21.1. Quiescent voltage conditions at the output of a simple amplifier having a gain of 10.

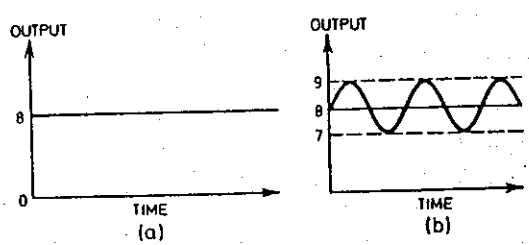


Fig. 21.2. Output voltage at the collector of TR1 with (a) no input signal (b) 100mV peak a.c. signal.

Taken from A.E.

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 8.30.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 4 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, VK2KGI - 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 8.30.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 :	VK2KGI - 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!