

CB RADIO

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The British Breakers Mag.

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The Leicester Demo



Yellow Peril - a toast of champagne.



27 AM - No Future?

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THIS MONTH'S FRONT COVER

Wanna rig? Try your local rip, because that's where the Home Secretary would like to see all your expensive AM transceivers. It seems that AM rigs can cause serious problems like interfering with Crossroads, Coronation Street or even Party Political Broadcasts...

Photograph by Zodiac, on location at Malibu Beach, oh yeh Edl Equipment by Breakerway, Dustbin by the back door.

Time is still the Enemy

27 FM is still the unknown quantity.

As our regular readers will know, we try to publish the facts not fiction. I am sure you will remember us relaying how difficult this can be in such an emotive field. Previously we have stated that rumours are continuously rife, this situation has not changed indeed nor will it until legal and 930 FM transceivers can be bought from your average radio shop. Even then there will still be the well founded rumours, especially on the 27AM subject.

This brings us to the present situation and the reason I am writing this one day before our 10-4 day CB Show. For some time now it has been expected that the specifications for the Governments 27FM equipment will be released in a draft form.

Today was tipped as the release date however as with all things bureaucratic the calendar rarely matters. The draft is prepared, it is awaiting final approval and should be released, soon . . .

As with all publications, that soon . . . could be before this issue is actually published, but from Home Office information the draft is not expected to be available until at least three weeks from now.

Time still marches on

Meanwhile summer draws closer and with it cheap holidays to America, how many more illegal imports will be brought into Britain before the first FM rig can be legally purchased? More to the point does it really matter, for will the dedicated 27 AM CB'ers change?

There is good reason to believe that more than a large percentage will not. The rest of Europe has exactly the same problem and in many countries AM is still abundant and in regular, every day use. For sometime a crack down on illegal use has been expected by users and dealers alike. One chap was recently fined £900, you can read about his encounter next month. The customs, reportedly, have already clamped down hard on imports and last month over £50,000 worth of adapted receivers only, previously allowed into this country, were seized, impounded and destroyed. The owner sadly was left with a second shipment arriving later of the component parts necessary to adapt the receivers into transmittable apparatus.

As the customs have become more effective the price of illegal transceivers has soared, from an all time low of less than £30 trade back in August 80 to a trade price now bordering on £70 and this is for a basic 40 channel set. This tightening of import control is having the governments desired effect and is reducing supply slightly, but it is also creating a reverse, smuggling rigs is quickly becoming more and more profitable. The high price along with the increased demand produced by the

media and the nature of the subject is bringing back the situation of profiteering that existed back in 79 when £150 was the average price for a basic 40 channel set.

Wintjoy does it again

Now for something completely different. I know it's bad of us to harp on about things that happened before our circulation was dramatically increased, but yet again I find that some reference to earlier issues may help to explain.

Wintjoy is one of the original CB shops to open in Britain, it was established in 1979, something few CB companies can claim. At this time there were no magazines on CB and apart from the BOF column in Hobby Electronics no means of advertising for these early retailers. When we arrived on the scene with issue one we proudly displayed a rear cover bearing the first full colour CB advertisement in Britain to appear on a regular magazine – it was of course Wintjoy.

Glyn Hall, the Managing Director, had also persuaded us, a small independent on an illegal subject, to sell him our front cover photo space as well. The result was, to say the least interesting, instantly the other CB companies were demanding that space and Wintjoy was dubbed our most controversial advertiser.

Buy why are we telling you this? Simple, last months rear cover caused an unbelievable amount of interest. We received many complaints from, "it degrades CB; it's disgusting" to "I don't really like it", "What ever happened to womens fib?"

YOU CAN'T 'LIK' A STIK 



On the other extreme Glyn received a request for 30 full colour posters 30" x 20" of our rear cover! For those of you who were upset, we do offer our apologies for last month, now in advance we must also apologise for those who will be upset this month, yes Wintjoy has done it again!

The Magistrates Association

An extract from "The Magistrate", the official journal of the Magistrates Association.

For many who have followed our *The Law and You* spots, the present ridiculous legal situation may be partly clear. It is often possible to hear of a fine for illegal use of 27 MHz being only twenty pounds coupled with a return of the seized equipment. At the other extreme fines of three hundred and confiscation of the equipment are dished out in similar circumstances.

Why is there such a discrepancy in British justice and its attitude to CB? The answer simplified is one of no published statutes. That is to say there are no precise guidelines to judges, solicitors and other members of our judicial system informing them of a fair just and average penalty for CB offences.

This is the main thinking behind our CB Fact File (March Issue), the intention being to collect all the possible information on lines handed out to CB'ers. From these figures we can then ascertain the average or generally considered maximum fine. As one can understand, armed with this information a solicitor can protest and back up his argument if a case he is representing is levied with an unjust or high penalty.

So it was with interest that we read this following comment in the official journal of the magistrates, this was released prior to the announcement of 27 MHz FM, but it would appear such announcement would have little or no effect.

Citizens Band Radio

Many magistrates will be aware of the considerable, and growing, number of people who communicate with each other by two-way radio telephoning, the so-called 'citizens band radio' (CB). This practice is lawful, and regulated, in many countries but not in Great Britain. Despite this, there are thought to be between 30,000 and 70,000 illegal CB sets in this country, and there is a lobby based on two principal organisations, pressing for CB to be made lawful here.

CB is quite different from the use of powerful and complicated equipment used to communicate over long distances by licensed radio amateurs (Hams); CB has only a limited range in flat, open country and even less when mobile or portable transceivers are used in built-up areas. The frequency of which CB operates is 27 MHz because that is the permitted band in the USA and in many European countries and most of the apparatus used in this country is manufactured for use in those countries. Despite the short range for which these sets are designed, many illegal operators fit power amplifiers (known as 'burners') which considerably increase their range.

It puts fellow citizens at risk

There are arguments both for and against the legitimisation of CB, a consultative paper (Open Channel) has recently been issued, inviting comments from all interested parties, in this country that the band has already been allocated to hospital paging systems and to the remote control of model aircraft. Unauthorised transmissions in this band may not only interfere with these broadcasts directly, but the harshness of such transmissions can also affect TV and other broadcasting reception, including aircraft and emergency services communications in old

ment and/or a fine up to £400; there is also power to order the forfeiture of the offending apparatus (section 14).

Not to be treated lightly

There have been wide variations in the fines imposed by different magistrates courts, to judge by press reports. Consistency is as desirable in the penalty exacted for this offence as it is for all common offences, and this offence is now in that category. Having regard to the possibly serious consequences of the unlawful use of CB and in view of the sympathetic consideration which the government is now giving to permitting its use of another frequency, the offence is not one which should be treated lightly or as merely 'technical'.

A reasonable starting point for a first offence might be thought to be a fine of £100, with forfeiture of the apparatus. The fact that the government may well legitimise and regulate this activity is not a mitigating factor, rather, the reverse.



people's alarm systems. Illicit transmissions by those who now unlawfully, and perhaps powerfully use CB in the 27 MHz band may easily put their fellow citizens at risk.

Contrary to the WT Act

The importation installation and use of CB radio equipment is illegal by virtue of sections 1 and 7 of the Wireless Telegraphy Act 1949, which provides maximum penalties of three months imprison-

ment and/or a fine up to £400; there is also power to order the forfeiture of the offending apparatus (section 14).

Diamond Jubilee Exception
The following letter has been received by Sir Thomas Adams from the Public Secretary to Her Majesty Queen Elizabeth The Queen Mother:
14 November 1980
Dear Sir Thomas,
Queen Elizabeth The Queen Mother has asked me to convey to you and to all those who helped in the organisation of the Reception at Guildhall her warmest appreciation of the really excellent arrangements.
It was for Her Majesty a source of great delight to meet such a wide cross section of magistrates from every part of England and Wales, and your careful planning enabled Queen Elizabeth to talk personally to a considerable number of those who were present. The Queen Mother knows well how much thought had been given to the whole operation and hopes so much that you and those on your staff will have felt rewarded by the success of the evening.
Finally, I am to tell you how deeply touched Queen Elizabeth is by the really beautiful gift which she was so happy to receive. The Queen Mother asks that her very sincere thanks may be conveyed to all who contributed to the present. It will always be among Her Majesty's most treasured possessions.
Yours sincerely,
MARTINE GILLIAT

Citizens band radio
Many magistrates will be aware of the considerable, and growing, number of people who communicate with each other by two-way radio telephoning, the so-called 'citizens band radio' (CB). This practice is lawful, and regulated, in many countries but not in Great Britain. Despite this, there are thought to be between 30,000 and 70,000 illegal CB sets in this country, and there is a lobby based on two principal organisations, pressing for CB to be made lawful here. CB is quite different from the use of powerful and complicated equipment used to communicate over long distances by licensed radio amateurs (Hams); CB has only a limited range in flat, open country and even less when mobile or portable transceivers are used in built-up areas. The frequency of which CB operates is 27 MHz because that is the permitted band in the USA and in many European countries and most of the apparatus used in this country is manufactured for use in those countries. Despite the short range for which these sets are designed, many illegal operators fit power amplifiers (known as 'burners') which considerably increase their range.

Our main aim
When addressing the South East London Branch of the Association in November last the Public Secretary, Sir Thomas Adams, said that the Government is now giving to permitting its use of another frequency, the offence is not one which should be treated lightly or as merely 'technical'. A reasonable starting point for a first offence might be thought to be a fine of £100, with forfeiture of the apparatus. The fact that the government may well legitimise and regulate this activity is not a mitigating factor, rather, the reverse.

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Amplitude and Frequency Modulation

A simplified explanation of both systems by E. A. Rule

In the world of communications there are many different systems of transmitting information from one point to another. The most popular systems with amateur and CB operators are; AM (Amplitude Modulation), FM (Frequency Modulation), and SSB (Single Sideband). In this article we are only going to consider the first two AM and FM and the main advantages and disadvantages of each type.

With both these systems a 'carrier wave' is first produced and this then has the modulation added to it. It is in the way that this modulation is added and then recovered at the receiver which is the main difference between the two methods.

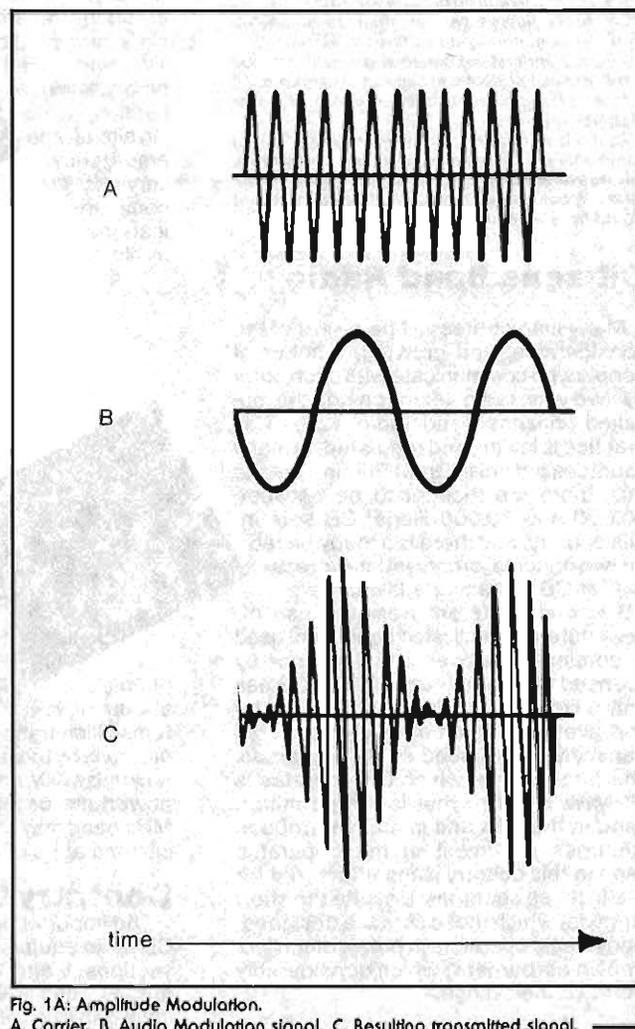
Dealing first with the transmitter, Fig 1A shows, a, the carrier wave, b, the audio modulating signal, and c, the resulting transmitted signal.

In technical terms, amplitude modulation is produced when the audio signal from the microphone is mixed with the carrier wave in a non-linear device. The result of mixing the two signals in this way is that the two are added together. However as they are at vastly different frequencies there is considerable phase difference between them, with the result that sometimes the two signals add and at others they subtract in amplitude. Where the two signals are adding (in phase with each other) the amplitude of the carrier wave is increased and when the two subtract (out of phase) the amplitude reduces. When the amplitude of the two signals are equal we reach a point of 100 percent modulation, because at the point where the two signals are in phase the amplitude will be double that of the plain carrier and at the point where the two signals are out of phase the carrier will just reach zero amplitude. If we try to increase the audio signals amplitude beyond this point the carrier wave will increase still more when the signals are in phase but when the signal becomes out of phase the carrier is reduced to zero for the duration of the time that the audio signal is greater in amplitude than the carrier wave, Fig 1B, this results in distortion of the modulated signal and an increase in the bandwidth of the signal which will cause interference problems to stations working in adjacent channels. It is not intended here to go into the technical aspects of all this as we want to keep the general explanation simple.

Fig 2 shows a, the carrier wave, b, the audio modulating signal, and c, the resulting transmitted signal. But this time it is for an FM system. Note that both the carrier and

the audio modulation are the same as in Fig 1. It is only the final transmitted signal that is different. In the AM system we saw how the two signals were mixed and how this resulted in the AMPLITUDE of the transmitted signal varying. Now, with FM it is the FREQUENCY that is varying with the modulation, the amplitude is constant.

The first difference to notice is that the amount of change in transmitted frequency is dependent on the amplitude of the audio signal. In other words, if the



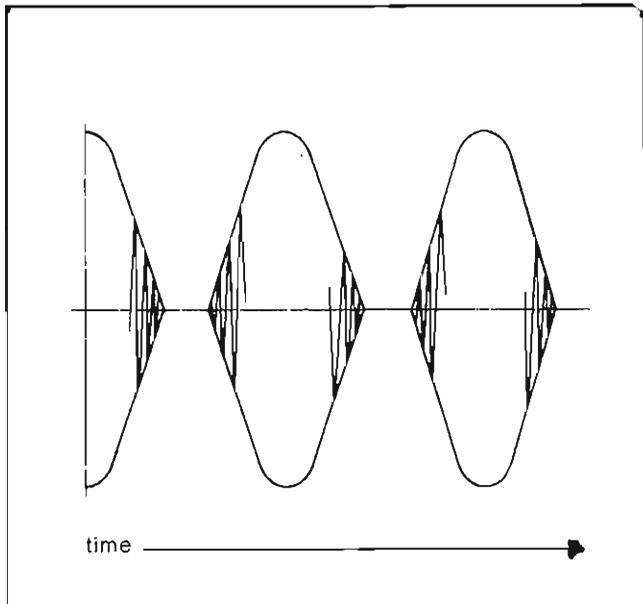


Fig. 1b: Overmodulated Carrier Wave. Note the large periods of time when the carrier is reduced to zero. This causes severe distortion of the signal and results in spurious signals being generated and causing interference to other stations.

amplitude of the audio modulating signal is increased the frequency swing (deviation) of the transmitted signal will increase, ie there is no overmodulation as such. At first sight this may seem like the answer to a prayer, but, there is a snag. If the deviation of the transmitted signal is wider than the receiver bandwidth the signal will move out of the receivers band pass and be lost or at least very distorted. On amateur and CB equipment this deviation is normally limited to around 5 KHz. In other words, the modulating audio signal will increase or decrease the carrier wave frequency by 5 KHz and this is assumed to be equal to 100 percent modulation (the HI-FI BBC network uses a maximum deviation of plus and minus 75 KHz and the receivers have to have a very wide band width to receive them without distortion, typical bandwidths being 220 KHz). The average amateur or CB receiver has a band width of 12 to 25 KHz.

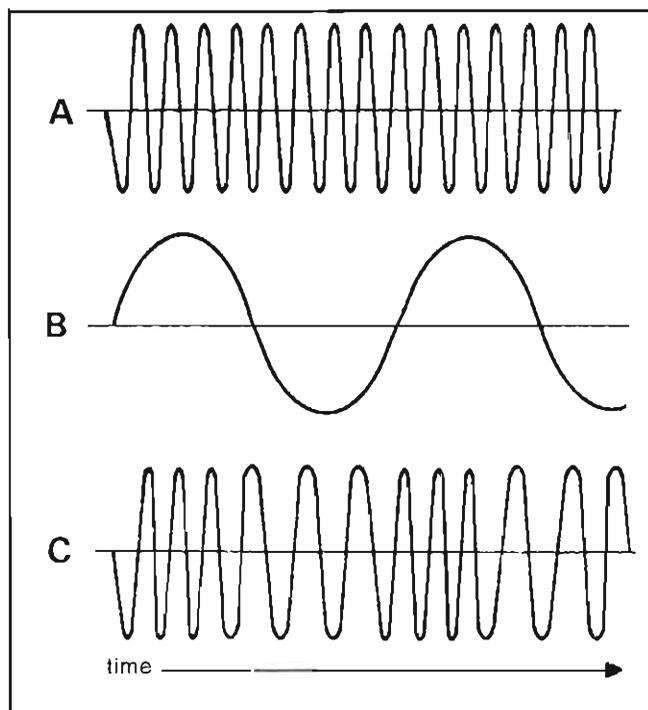


Fig. 2: Frequency modulation. Note the carrier wave and audio modulation signal are the same as for AM, but the resulting transmitted signal is of CONSTANT AMPLITUDE. Only its frequency changes due to modulation being applied.

In practice this means that the smaller the amount of deviation the more stations you can get into a given band. For example, with a 5 KHz bandwidth you can have one station every 25 KHz without interference with each other. With the wideband BBC system you would only get one station every 500 KHz or so. There are good technical reasons why the receiver band width has to be wider than the deviation used at the transmitter but these are too involved to fully describe here. The main point of this article is to show the main differences between the FM and AM systems.

Advantage FM? or AM?

As far as quality of communication is concerned both systems are about equal, but the FM system has certain advantages over AM. We will now take a look at some of these.

Most forms of interference are of the impulse type, switch clicks, ignition from cars etc, lightning static and many more. Now the AM system has to use receivers which are designed to respond to AMPLITUDE changes in the carrier wave which they are tuned too, and of course this signal is detected in exactly the same way as any other amplitude changes, therefore the receiver responds equally well to all forms of impulse interference.

The FM receiver on the other hand is designed to only respond to changes in the FREQUENCY of the carrier wave. A well designed FM receiver will not respond to amplitude changes. Therefore it will not respond to impulse noises either. This means in practice that a well designed FM receiver used in a car for example will not suffer anything like as much from car ignition as an AM receiver. It will suffer from a small amount, nothing is perfect!, but it is several hundred percent better than an AM receiver under the same conditions.

Ah, I hear you ask, why bother with AM at all if FM is that good. Well, yes, you've got it, there's a snag! It's to do with a thing called Capture Ratio.

With an FM receiver, the discriminator (detector) will 'capture' a signal which is on the same frequency and slightly stronger. In practice this means that if an interfering signal is becoming stronger (perhaps a mobile coming into range) there comes a point when it is slightly stronger than the original signal and will be 'Captured' by the discriminator circuits, with the result that the original signal just vanishes. Now on an AM system you would still hear both signals although there would be some mutual interference present. However with FM this effect also happens with noise. If the wanted signal is becoming weaker it will reach a point where the background noise present is slightly stronger, at which point the receiver will 'capture' the noise and the wanted signal will vanish. On AM it is possible to copy signals right down into the noise and even with practice to copy signals which are below the noise level. So as far as really weak signals are concerned, AM is better providing there are no impulse noises present. Of course a good AM receiver would have a noise blanker fitted which would remove a considerable amount of the impulse noises present and in practice either system may be best depending on the reception conditions at the time. In general, if the received signal is of reasonable strength, the FM system will provide a better freedom from interference.

It has another advantage, on AM, as the incoming signal varies in strength the actual audio output from the loudspeaker will also vary, although not by the same amount. AM receivers have an automatic gain control

Amplitude and Frequency Modulation

system fitted which controls the gain of the receiver so that it is reduced as the signal becomes stronger. This enables the output to be reasonably constant, however as the signal gets weaker the gain increases and this will increase the sensitivity to pick up noises etc. On FM, once the point has been reached where the AMPLITUDE of the signal is limited, the output remains absolutely constant for all input signal levels. In practical terms, this means that in an AM set the different signal levels being received would cause the gain of the receiver to change and therefore the background noise also. On FM the actual signal strength is not important, once the limiting point has been reached, ALL stations will be received the same. Which means that you don't have to keep adjusting the volume control for each station. It also means that if you have set the volume level for a weak station and your neighbour comes on, on FM he will be reproduced at the same volume, and on AM you will be deafened! Fig. 3 shows a typical sensitivity curve for an FM receiver. Note how once a certain point is reached the output remains constant.

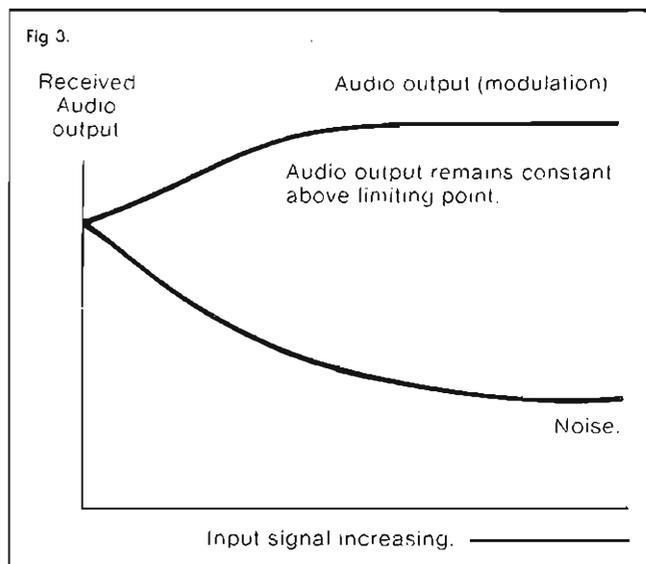
The disadvantage of FM is that it takes up more bandwidth than AM, so fewer stations can be channelled into a given band. For example, if we have a band which is say 500 KHz wide, we could have 20 FM channels or 100 AM channels (or 200 SSB channels, but that's another story). In practice it is possible to have more of each type in a given band width but it depends on how much mutual interference can be accepted.

One point worth mentioning is that with a well designed FM or AM receiver it should not respond to the other system. On an FM receiver an AM signal should sound like a blank carrier (because the FM detector will not respond to amplitude modulation). Likewise on an AM receiver with an FM signal, however in practice it is possible to detect something and even at times to copy the signal quite well. If an FM receiver will copy AM, it is not a very good FM design! After all, if the FM receiver is detecting an AM signal it means that it is responding to amplitude modulation and therefore cannot be rejecting impulse noises as well as it should. The acid test for an

FM set is to tune it to a channel where there are NO FM signals, if it is well designed you should not be able to resolve any AM signal or hear ignition etc.

The reverse is not quite true, on an AM receiver it is possible to resolve an FM signal by what is known as 'SLOPE DETECTION'. Without going into the technicalities, this simply means that if you detune the receiver slightly you will be able to resolve an FM signal on an AM receiver, but with some distortion and of course some impulse interference as well if any is present.

That just about sums up the main differences between the AM and FM systems. Which is best? For my money I prefer FM for freedom from noise but AM for DX'ing.



Note: Once the signal is above the background noise level by only a small amount, it is 'Captured' by the discriminator and the noise falls away very quickly. The actual audio recovered from the signal remains at a constant output level above the 'limiting point' irrespective of the signal strength.

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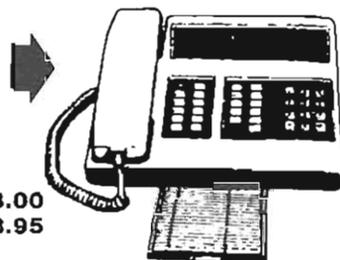
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News Review



What the papers say about CB.

Following the announcement, last month, of plans to legalise "Open Channel" on 930 MHz FM and 27 MHz FM by the autumn, the newspapers have been full of articles explaining the present situation, and forecasting the outcome of eventual legality. On the whole, most of these articles said the same thing, without going into too much detail about the pro's and con's of 27 MHz FM and how many of the existing AM, breakers will make the change, or, how many will stay illegal.

Also, in a few cases the vulnerability of some AM breakers has been taken advantage of by some nasty specimens seeking capital gains, by devious means. For details of these and other events please read on.

CPD

The subtle art of making U turns

The Times

Mr. Whitelaw, the Home Secretary, was forced into making a messy compromise on CB Radio, by the failure of one of his favourite techniques, claims Peter Evans, home affairs correspondent for the Times. The technique involves making some kind of drastic proposal, waiting for the protests to flood in from the opposition and then turning away from his original proposal, leaving him in a favourable "middle of the road" position.

Mr. Whitelaw's decision, made in response to pressure, in this case, did not end the row. The delay in reaching a decision has meant that the number of illegal users has risen to more than quarter of a million, therefore protests still flooding in from ardent 27 MHz AM users are going to threaten the security of his "favourable position", which all goes to show you can't win them all.

Crowd cheers Godiva Girl

Evening News

18 year old Julie Crompton, a member of the Bury CB Radio Club did a "Lady Godiva" ride around several Bury pubs wearing nothing but a wig and a few blushes.

The horseback ride to visit a total of 12 pubs was organised to raise cash for a Ramsbottom childrens charity. Around

£500 is expected to be raised, and the money will be spent on a trailer tent for the Fir Street Childrens Home.

Look out for Smokey Bears on Motorways

Daily Telegraph

"Since the late 1940s the world of Smokey Bears, Rubber Ducks and electric pop guns has become an international million pound industry" we are informed by the Daily Telegraph in an article that appeared the day after the announcement from the Home Office. They felt that "For people outside the world of CB Radio the complex code of esoteric call signs and jargon is mainly unintelligible", although they do point out that, this is intentional and that the code names are essential if detection is to be avoided. Although I have never understood the logic of telling the general public or anyone else who may be reading their paper, the meanings of some of the code words as this rather defeats the object of having a code in the first place. Thankfully, the one's most papers publish are the more obvious cliché'd codes that come over with "Convoy" and that anyone with a reasonable intelligence can decipher anyway.

"The majority of people using CB Radio are lorry drivers and motorists who do a great deal of travelling", say the Telegraph "they use their sets to gather information on weather conditions and traffic jams", not to mention the social aspects, and the advantages of CB in an emergency situation. The rest of the article outlines the recent history concerning CB Radio

and mentions the fact that although proposals to make it legal have been announced the wrong frequency has been allocated and most CB Radio enthusiasts are far from happy.

Plans for Citizens Band Radio Criticised

Financial Times

Both manufacturers and users of CB radio in the UK are criticising the government about their recent announcement of plans to legalise on 930 MHz FM and 27 MHz FM this autumn "It seems unlikely" claim the Financial Times, "that there will be any significant UK manufacture of the legalised CB sets". The result of this would be that more and more illegal sets will enter the country and interference to television, hospital paging systems and model aeroplanes will be on the increase.

"Several UK companies have declared a tentative interest in marketing CB radios including G.E.C., Philips, Fidelity, Ambit and Voxon" we are told, and that "any company entering the UK market is likely to import from the Far East or U.S.A. because of the Home Offices decision on frequency". A small British electronic systems company Blakell Parfitt, believe that CB radio will be manufactured in the UK despite the imports from US and Japan. They are at present discussing with other companies the possibilities of turning out CB Radio sets on the prescribed frequencies and claim that a set working on 930 MHz and 27 MHz FM could be available for around £180 and a set operating on 27 MHz FM only could

The subtle art of making gentle U-turns

The mouse compromise which Mr. Whitelaw, the Home Secretary, announced over the introduction of Citizens Band radio was in the end forced on the Government by the failure of one of his favourite techniques. He starts out with a proposal on keeping with the fashionable party line, and then the opposition to an average of ten backs away from the original proposal. The technique enables him to go where his constituents would rather he should have been the middle ground, in the hearing of our nation's Conservative if anyone else did it, it would be called a U-turn.

The technique was first used in 1974, in a proposal to give all children born before a certain date the right to acquire British citizenship provided they could fulfil a residence qualification.

A further amendment put some under attack from his own back benches. Under a clause on naturalisation of registration was to be required to be established, contributing to their child's citizenship. Mr. Whitelaw's original intention was to allow the Government to do and allowing parents to build up numbers of illegals grew to more than quarter of a million.

Mr. Whitelaw's compromise



Mr William Whitelaw

is to go for two frequencies, one at 930MHz and another at 27MHz. The one at 27MHz will be for frequency modulated, but FM (frequency modulated).

The great example of Mr. Whitelaw's gradualist approach is in plans to reduce standards overrodding in prisons. It has in fact proved to slowly on the issue that people have sometimes been unaware of the changes in his position.

It is, of course, a sensitive area, because, as Home Secretary, he must not be seen to be telling courts their business.

Yet it is they who have the power to reduce numbers in prison (for which he is responsible) by sending fewer more explicit it would be good from his point of view if the people there and for shorter sentences.

He has now got to the point of allowing people to realise that the Government may have to introduce legislation if more have to go on taking. If they do, it will not be a U-turn, it will be a U-turn in the sense that the Government may do, so that it can

Keeping a blood curdling sharp shock in detention centres, though the results have yet to be shown in the press. It will be a tribute to Mr. Whitelaw's political skill if he does manage a cut in prison sentences without opening up a Pandora's box of trouble for the party's image in its favour of tougher punishment.

Peter Evans
Home Affairs Correspondent

be available for only £85.

These prices are relatively expensive by the standards set by the foreign competitors on AM who have already sold over 250,000 illegal sets in the UK but reasonable when compared with between £300 - £500 for a radio telephone. A further point in the argument is that conversion from AM - FM is reasonably cheap, which means that British manufacturers will be unable to compete with the foreign competition.

The estimated sales of CB sets, according to the Times is between one - two million sets per year for 2 years or so, after which the sales are expected to fall off sharply.

Plans to keep 27 MHz AM illegal has been strongly criticised by James Bryant, president of the C.B.A. who claims that the decision will keep the smugglers in business. The same situation occurs in France where although 27 MHz FM is legal the majority of Breakers use 27 MHz AM illegally.

It is therefore inevitable that the same thing will happen in the UK unless the government and manufacturers come together to solve the situation.

Magistrates refer case to Euro court of Human Rights

Surrey Mirror

Reigate magistrates referred a case involving CB Radio to the European Court of Human Rights according to an article in the Surrey Mirror. The two men in question face charges of using CB radio's without a licence and their representative says that the equipment has been legalised in other states of the European community and has asked for the case to be referred to European court for a preliminary hearing on the validity of the English ruling of CB.

The clerk of the court said it could be months or years before the ruling is known.

Airwaves Victory

Aberdeen Evening Express

"Down at Nasty Ned's there was an air of watchfulness", could almost be the start of classic hollywood western instead of the opening sentence of a news feature in a local newspaper. Nasty Ned is the local CB radio dealer who is cashing in on the growing demand for naughty little black boxes, although the need for such a dealer may not be so much in demand come autumn time.

The Grampian breakers think otherwise, "I don't think people will throw away their 27 MHz sets, they will be with us for a long time", said their spokesman Raymond Straehan. On 930 MHz he said that "It would be a health hazard (even though it has already been cleared by the government safety council - a controversial announcement itself).

Range will be cut to line of sight, sets would cost between £200 - £500 instead of £50 - £70".

He continues "We really do believe that CB saves lives. For instance 35 of us

turned out on New Year's day to look for someone who had gone missing", and on the subject of interference. "There are complaints of interference but the main cause is skip, foreign signals bouncing off the ionosphere. Signals that are more powerful than ours".

He lists, the elderly, the lonely, the handicapped and long distance lorry drivers as the main benefactors of CB radio. Apart from its emergency and social uses, getting directions for deliveries etc. are one of the main advantages.

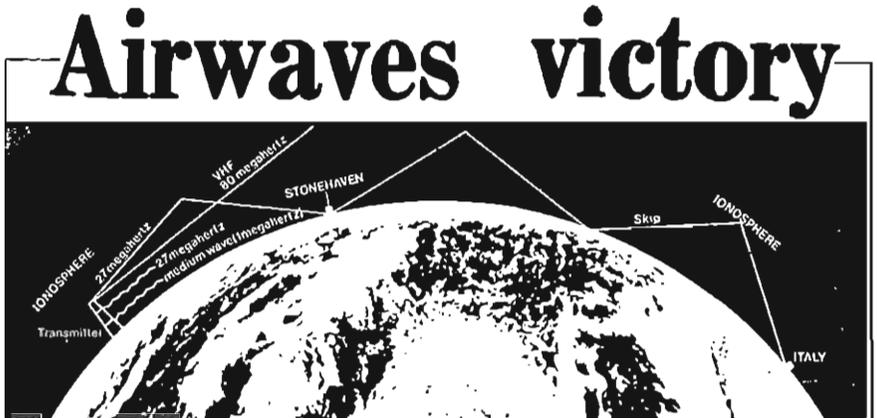
A special column on the right hand side of the article explained the technical details in simple terms and a diagram at the top of the page ensures that all is understood. On the whole one of the better articles I've seen from a local newspaper.

Who! Has a haunted House?

North Wales Weekly News

It would appear that the latest craze amongst CB'ers is ghost hunting. The Colwyn Bay CB Cruisers Club are at present searching for a haunted house, or pub where they can sponsor an all night vigil to raise money for charity. The premises must be eerie and creaky, through which the wind whistles to set the proper atmosphere, just like a thriller film.

An adjudicator will sit to ensure that everyone stays put and that the spooks are authentic and not simulated by "piping in" strange noises via radio's. It all goes to show that breakers will do just about anything to raise money for charity.



The law changes but the CBers are not cheering yet

Citizens' Band radio is once more in the headlines as Mary Riddell deft reports, the "good buddies" will remain Robin Floods of a white longer.

Artwork by Graham MacLennan

DOWN at Nasty Ned's there was an air of watchfulness. Ned and his cronies are well used to keeping a sharp lookout - for the cops, the hoppers and the Customs.

The bears are the police, the hoppers are self-explanatory, and Nasty Ned is the supplier to what was Aberdeen's fastest-growing criminal fraternity, the CB radio enthusiasts.

Just a year ago, there were a dozen of them in the city. Now there are tens of thousands. The hundreds of good buddies has shot up from six to 2000 in the same time, as the Americans in their fathers' footsteps.

Until yesterday, Citizens' Band radio was illegal in Britain, along of the Customs Market countries. All the sets in use have been smuggled in - Customs seized 2000 of them last year - and people caught transmitting face a maximum fine of £400 and three months jail.

Yesterday, everything changed. Home Secretary William Whitelaw said a new, legal CB service would start in the autumn, but several months before a maximum fine of £400 and three months would still be illegal.

This, according to C.B.A., is a little harsh. Club members, after all, are themselves, as the Robb's Bloods of the world.

The Northern Breakers, from Aberdeen, have just raised £100 for the elderly, and Grampian Breakers have a charity fund and regular search parties for missing people.

They say they have even been given a commendation by Grampian Police. The police said they were probably shocked at the group. They also stress that they are co-operating with the Post Office to clamp down on illegal use of CB.

The problem is that Whitelaw is not on the same wavelength as the two-way radio buffs. The Home Office say that 27 megahertz AM - the frequency used by amateurs - is reserved for other CB's.

These include hospital paging systems, or doctors' beepers, distance calls and mobile appliances, and illegal CB users are causing interference, according to the Post Office.

They say that CB accounts for 30 to 40 per cent of all radio interference reported to them - and sets-modifiers claim that even more interference have sets-modifiers causing to the ground.

A Post Office spokesman said the main problem was television, where TV cables have a centre core and a screen which acts as a good high-frequency shield and picks up CB signals.

"It's causing considerable chaos, and it could get a lot worse. Given a free hand, amateurs could look out every TV set in Aberdeen with no difficulty, unless viewers brought in to stop it."

"This is the new position. The addresses are a national resource, in the sense that if North Sea gas or coal, and if people start picking their own frequency and using it, it's the law of the jungle."

There are complaints about interference, but the main cause is skip - foreign signals bouncing off the ionosphere. Signals from overseas are a lot more powerful than ours.

He and his committee are keen on the idea of CB helping the housebound, the handicapped, the elderly, the lonely - and also the late category radio amateurs, the men with the long, solo drives.

More and more of them are fitting CB sets to their cars, and law talkers about the reasons why.

"You get into strange towns and straight away you can get directions for delivery. You must have travelled how far three hours."

"When you get off from A - when you can get a weather report, a doctor's number, and you find out which hospital or clinic. If there's been a bad accident you know about it."

Besides that, it keeps your mind alert. You might talk to a hundred, 200 hundred people on the way to London. Of course, you have to take the set out before you go through Customs.

The other day, I was stopped by police, and the set was hidden in a matter of seconds, although a lot of the forest men you've got them."

Customs stopped the owner of the set, but sets are still coming in, and they say the numbers in an Irish farmer's house had passed the border between Northern Ireland and Eire.

He drives a tractor between the border, transfers them to his motor, and they say the numbers in an Irish farmer's house had passed the border between Northern Ireland and Eire.

"If I can't bag the pots, if they're done I have to pay dear, but I just carry my coat and make a bit. Generally, I change between 150 and 175, and the last trip down took me £150."

"Sometimes I'm bringing in stuff such as £600. It sounds a lot of money, but it's not very profitable when you think of the risk I'm taking."

"How many sets have I brought in? About 200 so far."

His message, coming over loud and clear, was that the border was open and the international wavelength, the 27 megahertz CB set, should stay open.

That solution would have cleared the air, but the Government has not given C.B.A. exactly what they wanted.

Nevertheless, legislation has gone through and that will iron out a lot of anomalies.

Before yesterday, there were 270 CB licences, and regulations were on an act as opening up a top of 270 sets. Now, however, there will be 2700 sets, which has been legally imported - and some with a little knowledge of electronics could convert them to legal use.

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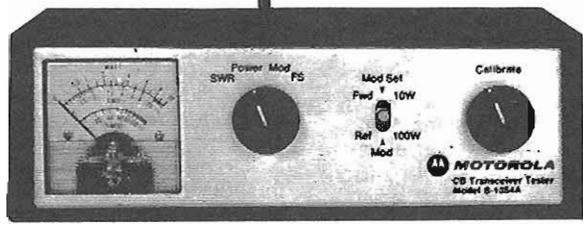
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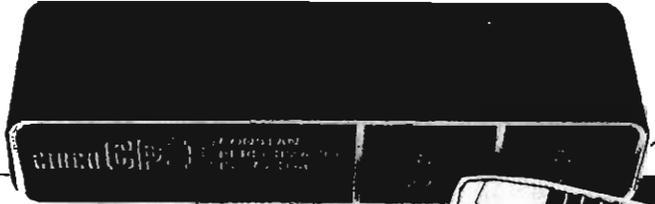
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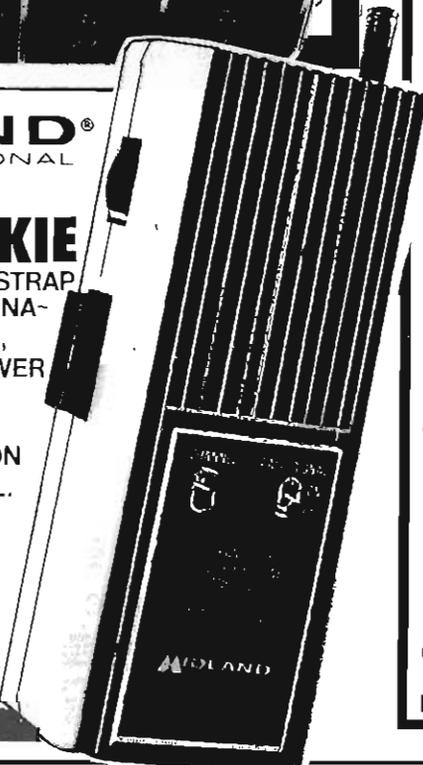


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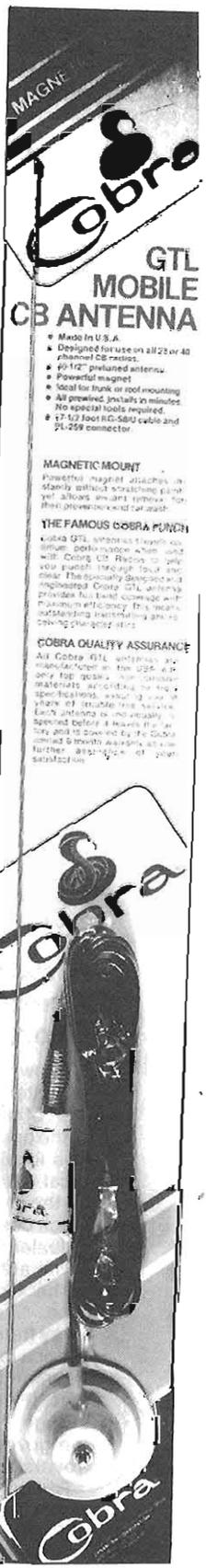
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Dealing with Interference Problems

by E A Rule – Part 2

In general, the vast majority of interference problems are due to deficiencies in the affected equipment and not the transmitting equipment. However this does not mean that the transmitting station operator can ignore the problem and a responsibility exists to take steps to minimise any interference, however it may be caused.

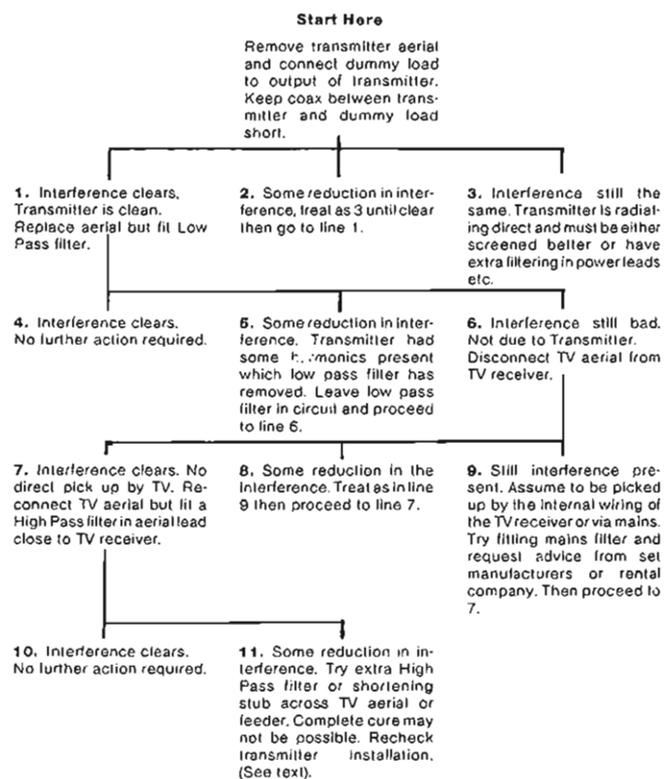
The very first step is to make sure that the transmitter is 'clean'. It is possible that a transmitter will radiate signals apart from the actual wanted one, harmonics of the fundamental and/or spurious signals may be present in the transmitter output. Most commercial transmitters are built to a very high standard as far as the radiation of unwanted signals is concerned, but like most things, these spurious signals are relative to other factors. For example if we have a transmitter with a power output of say 10 watts and its harmonics are one hundredth of the total then it follows that the harmonics will be radiating about .1 watt of power (in practice, most transmitters will be better than this) but this is quite enough to cause severe interference to a nearby TV receiver if one of the harmonics happens to fall on the same frequency as the wanted TV signal. Harmonics of only a few milliwatts in power can cause severe interference in areas where the received TV signal is of low strength, it's all a question of the relative strengths of the two signals, bearing in mind that the transmitter is very much closer to the TV receiver.

Low Pass Filters

Fig 1 (part 1) showed a typical layout for a transmitting station, all the connections between the transmitter and aerial system are made with low loss coaxial cable. The LOW PASS filter should be placed as close to the transmitter as possible and the interconnecting lead should be as short as practical. The best place for this filter is mounted along the rear of the transmitter and a short lead (coax) used to connect it to the transmitter output socket. Do not let the metal case of the filter touch the metal chassis of the transmitter. The only electrical contact must be through the coaxial leads, otherwise the effectiveness of the filter may be reduced.

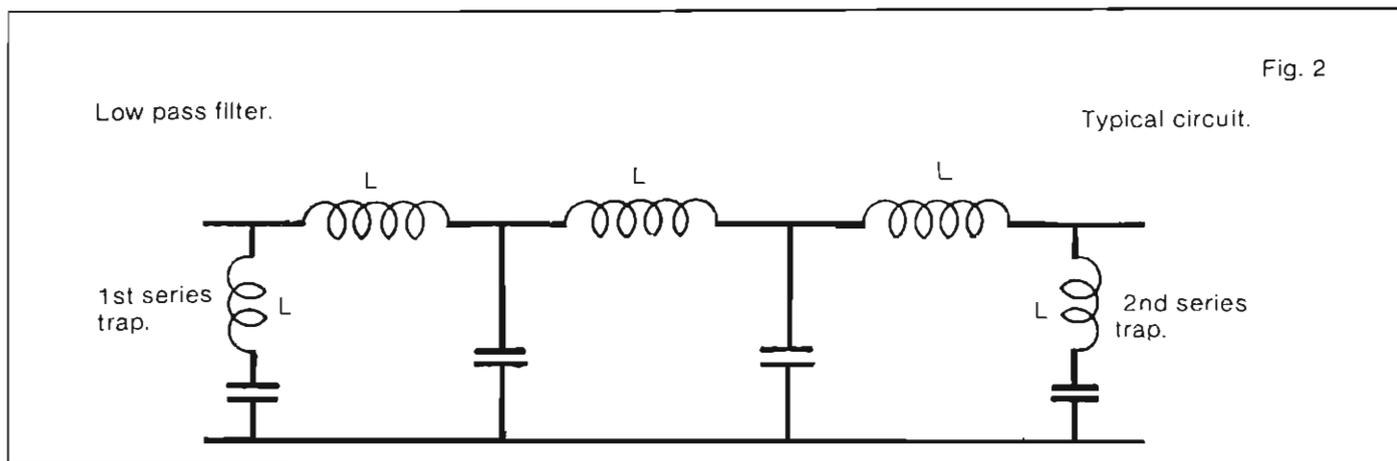
Use a good quality filter, these are a good example of "you only get what you pay for", cheap filters may not maintain the correct impedance of the aerial system and may also have a poor high frequency cut off, a good filter should reduce the harmonics by at least 60dB (1000) or better still 70dB (3000+). For transmitting

frequencies up to 30MHz, it should start to cut off in frequency at around 32 to 34 MHz and reach maximum reduction around 150MHz or lower. Many good quality filters also have 'series traps' fitted which are tuned to the second or third harmonics of the 27 to 30 MHz range, these filters have a much steeper rate of cut off and will be found most effective where the problem is with the old VHF TV's using the 405 line transmission frequencies around 45 to 70 MHz or so. The inclusion of the 'series traps' is not so important where only UHF TV



Interference tracing chart. This chart may be used as a general guide to tracing the cause of interference, but in many cases more than one cause could be at work.

Chart No 1. It is possible that a number of different 'cures' will be needed before the interference is completely removed. Proceed in an orderly manner down the chart and the reason for the interference should become known. The help of a third party will make the tests easier to carry out, they can be checking results while you operate the transmitter.



Typical circuit diagram for low pass filter.

frequencies are concerned. However they are a form of insurance to be preferred. A good filter should have its specification available and preferably printed on its case. Fig 2 shows a typical filter response and the effectiveness of the two series traps can be clearly seen. The dotted line shows the response without the series traps fitted and it can be seen that they only affect the lower frequency response end of the curve.

A point worth mentioning here is that if you try to measure the SWR by placing the SWR meter between the transmitter and filter you may get a very high reading. This is not due to any mismatch but simply the fact that any harmonic content of the signal is prevented from getting into the aerial system and the only place it can go is back to the transmitter! . . . so a high reading may show that you have a large harmonic content present which is being returned by the filter and reading as reflected power, the SWR meter should always be fitted after any filter while checking an aerial system for S.W.R.

Whilst on this point, sometimes a high SWR can be obtained from an aerial system that is correctly matched, an aerial is correctly matched only at the fundamental transmitting frequency, NOT THE HARMONICS. Therefore any harmonics present will not be matched and will be reflected back from the aerial and will be measured as high SWR. Therefore, a filter, by removing these harmonics may result in an apparent improvement in SWR measurement. If this happens it's a fairly reasonable assumption that a high harmonic content was present in the original signal. Unless you really know what you are doing, be very very careful when taking SWR readings, THEY ARE NOT ALWAYS WHAT THEY SEEM!

One final point regarding SWR meters. These contain diode rectifier circuits to measure the forward and/or reflected power from the aerial. These diodes generate HARMONICS and these can get into the aerial system, so once you have checked your installation out for correct matching, either remove the SWR meter completely or place it BEFORE the low pass filter and just use it as an indicator for reference only, this way any harmonics generated by the SWR meter will be removed by the filter. However do remember, it may not give a true reading used in this manner. Many radio amateurs have been caught out by this one, so it is worth checking this point if interference continues after other remedies have been tried.

High pass filters for the TV receiver will be dealt with later.

Tracing the cause

When a report of interference is received the first step is to find out what type it is. It may vary from completely 'blocking' the receiver to one of only very mild breakthrough. The interference Chart No. 1 will be found useful in finding out what type is present. Start by putting the transmitter onto a screened 'dummy load' and check if the interference clears under these conditions. If it is still present it means that the problem is direct radiation from the transmitter and/or its associated equipment and this means that these items will need to be better filtered or screened before proceeding further.

A mains filter may help if the interference is getting into the receiver via the mains wiring and the best place for this is at the source, i.e. at the transmitter. This prevents the interference getting into the mains wiring in the first place. Once any interference is allowed to get into the mains wiring it can be re-radiated over large distances. So prevention is the best cure. However, mains filters tend to use the mains earth and this is only taking the interference from the 'live' and 'neutral' leads and transferring the interference into what may be a poor earth system, however it is still worth trying and in many cases will be found to reduce mains borne interference by a considerable amount.

If, while the transmitter is tried on a dummy load the interference stops, then the transmitter itself is ok and no further filtering should be required. Also the earthing arrangements are satisfactory. Connect the transmitter back to its aerial but fit a LOW PASS filter between the transmitter and its aerial as close to the transmitter as possible. If the interference has now stopped or reduced then it was due to harmonics from the transmitter getting into the aerial system. If only partial or no reduction in interference is obtained with the low pass filter added then a HIGH PASS filter should be fitted in the TV aerial lead as close to the receiver as possible.

Leave the LOW PASS filter fitted in the transmitter output, a filter should always be fitted as standard in any case but do make sure it is a good one designed for insertion in a transmitter aerial system. Quite a few of the cheaper imported types are not suitable for the UK market. Also remember that a mismatched aerial system will prevent the filter working correctly, but more about this aspect later.

Assuming that you now have a low pass filter fitted in the transmitter aerial system and also a high pass filter in the TV aerial system you should now be free from interference, however if the interference is still present then proceed as follows.

Dealing with Interference Problems

If all the remarks made so far have been heeded, then we can be reasonably sure that the transmitter itself is not radiating harmonics and that the TV receiver is not being 'blocked' by a strong input signal from the transmitter. However it is still possible for the signal from the transmitter to bypass the TV aerial filter by getting directly picked up on the printed circuit wiring inside the TV set. This can be checked by removing the TV aerial from the set and checking if the interference is still present. If it is, then it is due to direct pick up and there is not much that can be done except by requesting help from either the TV manufacturer or the TV rental company.

Apart from either of these suggestions the only other remedy is to reduce the strength of the transmitter signal. As mentioned before (part 1), if the transmitting aerial can be moved further away from the TV concerned the signal strength will fall off at the rate of four times for each doubling of the distance between the two items.

Also remember it may be possible to get the owner of the TV to move it to another part of the room. As an extreme example; supposing you had an indoor transmitting aerial standing near the party wall and the TV had a set top aerial the other side of the same wall. The field strength of the signal from the transmitter would be very large, now if either item or both could be moved to the opposite sides of their respective rooms the field strength would be reduced considerably and there would be every chance of a complete cure.

Transmitting Aerials

Any aerial system that is critical of its feeder length, i.e. where you are told to adjust the length of feeder to get a satisfactory SWR is NOT CORRECTLY MATCHED.

When an aerial is correctly matched the length of feeder has no effect on the SWR. Now unmatched aerials can cause TV interference problems because they can cause the feeder cable itself to radiate, and this is normally running through the house from the transmitter to the aerial. It is close to house mains wiring and other equipment, IF IT IS RADIATING IT WILL INCREASE THE CHANCE OF INTERFERENCE PROBLEMS. So having made sure your transmitter is o.k. and correctly filtered etc, always use a matched aerial system and better still use a BALANCED or 'FREE SPACE' aerial.

One such example is the 'Big Jim' designed by F.C. Judd of ZL Communications. This is a free space design which is balanced by means of a carefully designed matching system, and as a result the feeder cable length is not critical, (incidentally this aerial also has a very low angle of radiation which means it will put a better signal out than any ground plain type). Also if the mast uses guy wires for support they should be broken up with insulators so that the individual lengths are not resonant at the transmitting frequency, otherwise they could also radiate and cause possible TV interference, as well as spoiling the polar pattern of your aerial. Finally, always use the best quality coaxial cable you can afford, cheap coax may not maintain its impedance over its entire length or under all weather conditions, and, for example, can cause interference after rain due to absorbing moisture etc. It always pays to use the best from the start, it is always cheaper in the long run.

NEXT MONTH WE SHALL SHOW HOW PRACTICAL FILTERS CAN BE SIMPLY MADE BY THE AVERAGE CONSTRUCTOR.

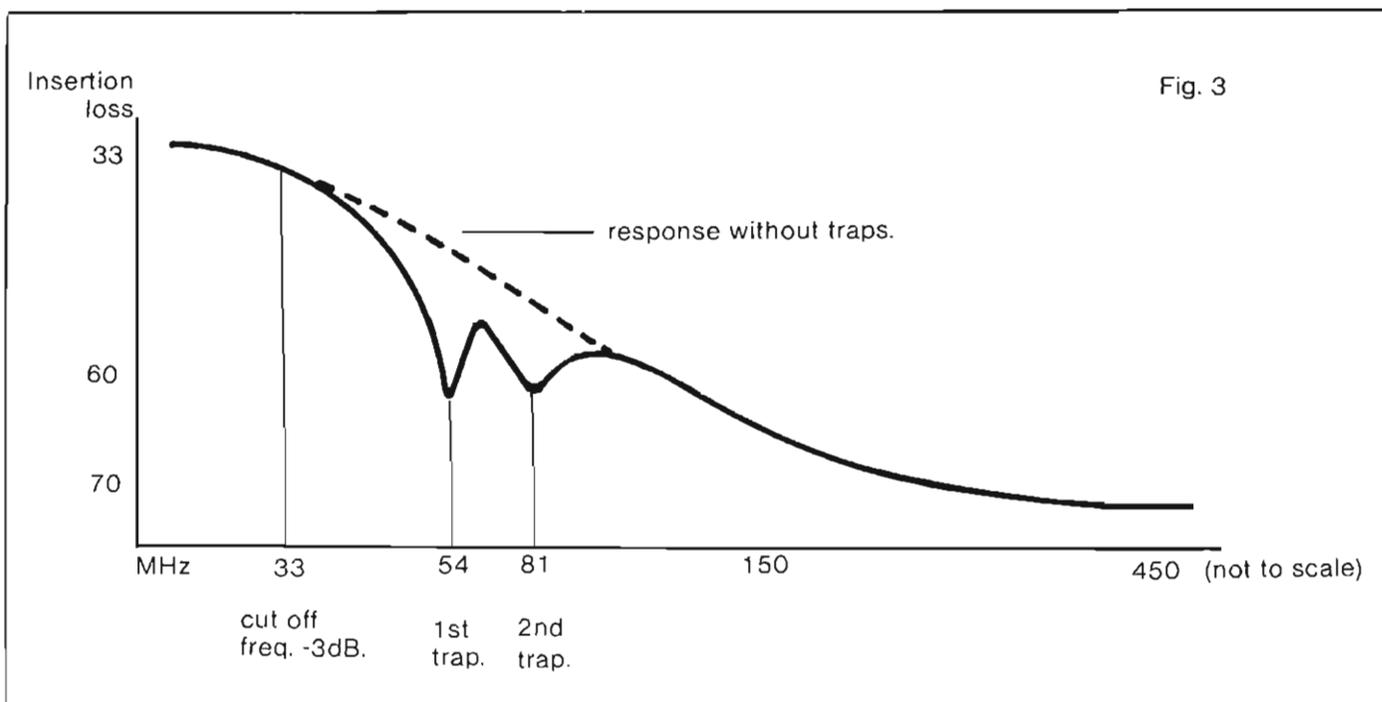


Fig. 3: The traps are normally tuned to the 2nd and 3rd harmonics of the 27 to 30 MHz band, for a filter which starts to cut off at around 32 to 34 MHz.



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Parliamentary Review



The lull after the storm.

Having exerted themselves to the point of extreme mental fatigue last month in deciding the future of C.B. Radio, our honourable friends in the House, in sheer contrast, do not seem to have found much to say for themselves this month. Perhaps this is just a tactical move to allow the existing illegal breakers to get used to the idea of being restricted to the F.M. band. Whether this is correct or not, it is imperative that specifications for a legal F.M. transceiver are announced shortly, otherwise our British manufacturers are going to be pipped at the post by foreign importers. As for an amnesty for the existing breakers on AM there is still no sign of any change of attitude in the house, as is indicated by the answer to Mr. Wall's question.

CPD.

How to prevent 27 MHz AM

Mr. Campbell-Savours (Labour MP for Workington) asked the Secretary of State for the Home Department (1) what assessment he has made in his evaluation of the possible use of 27MHz FM as the frequency for citizens band radio, of the adequacy of the resources currently available to his Department to prevent the illegal use of 27MHz AM by the considerable number of current illegal users; (2) what consideration he has given, in his evaluation of the use of 27MHz as the frequency for citizens band radio, to methods of preventing the development of two parallel services of 27MHz FM and AM, one legal and the other illegal; (3) if he will specify a two-year lead-in period for any arrangements he may make for the frequency to be allocated to citizens band radio, particularly in view of the special problems if the frequency of 27MHz FM is selected; and whether he will provide immunity from prosecution for all users of 27MHz AM equipment during this lead-in period; (4) if he has had any consultations with the Dutch, Belgium, French and German Governments on their success in preventing the continued growth in the use of amplitude modulation frequencies by citizens band radio enthusiasts following their allocation of frequency modulation to such users.

Mr. Raison (Conservative MP for Aylesbury): The best safeguard against continued illegal use of 27 MHz AM equipment is to provide a convincing alternative which meets the legitimate aspirations of CB enthusiasts. 27 MHz FM equipment complying with Home Office specifications will be as good and similar in cost while greatly reducing the risks of interference to T.V. reception and other radio services. We believe that this gives the strongest incentive to users to act responsibly. Inevitably, however, action will continue to be necessary against those who do not do so. The evidence of the

harm they do is so clear that we cannot encourage this by any form of amnesty or lead-in period.

In reaching our decision we took account of recent experience and developments in other European countries, with whom we are in regular contact over the whole range of radio regulatory matters.

Any chance of an amnesty

Mr. Wall (MP for Halton Price, Conservative) asked the Secretary of State for the Home Department if he will consider granting an amnesty to users of 27MHz AM citizens' band radio sets to give them time to change over to 27MHz FM.

Mr. Raison: No. The evidence of the harm 27MHz AM transmissions do is so clear that we cannot encourage this by any form of amnesty or lead-in period.

Safety at 930 MHz

Mr. Skeet asked the Secretary of State for the Home Department what evidence there is that the frequency of 930 MHz offered for open channel radio will induce tumours in operators using transmission and receiving equipment.

Mr. Raison: As I indicated in my reply to a question by my Hon. Friend the Member for Sudbury and Woodbridge (Mr. Stainton) we sought advice on this matter from the National Radiological Protection Board which published a statement. (See this issue page 26)

Concessions for the Disabled

Mr. Carter-Jones (M.P. for Eccles) asked the Secretary of State for the Home Department if he will publish in the Official Report his reply to the Hon. Member for Eccles regarding a letter relating to the use of citizens band radio for disabled persons; and if he will make a statement.

Mr. Raison (Secretary of State for the Home Department): I welcome the opportunity to confirm the Government's belief that the introduction of a citizens band service may have considerable advantages for disabled people. It is therefore appropriate that the facility will be legalised during the Year of the Disabled and we hope that this aspect of the service will be developed.

The correspondence raised the question of concessionary licences for disabled people. We have not finalised the licensing arrangements and will certainly keep this possibility in mind; but I am bound to say that it raised real difficulties".



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Whip Tapered 17-7 PH stainless steel. Full 60" length.
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Total Height ... 65".



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Specifications

Model MR125
Whip 17-7 PH stainless steel, taper ground.
VSWR 1.5:1 or better, channels 1-40.
Cable 17' RG58U coaxial.
Connector PL-259.
Mount 3/8" hole mount.
Total Height ... 47".



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Wintjoy Limited, 103 High Street, Shepperton, Middx. 093-2248145

The Leicester Demo

Proper planning results in a successful day

If the unsuccessful Bedford protest was a perfect example of how not to stage a demonstration, then the Leicester Breakers gave everyone a lesson in exactly how to organise one properly. Most of the credit must go to Horizontal who stage managed the proceedings like a professional.

Everyone was asked to assemble at Victoria Park, Leicester from noon onwards. Even before twelve the assembly area was busy with marshals organising car parking and a collection of toys for the local childrens hospital. In the hour before the march moved off, the numbers grew rapidly and several coaches arrived to loud cheers. By one o'clock the police were looking slightly surprised by the turn out and the senior officer present was disputing the P.A. system and the number of cars intending to join the march. The police estimated numbers at 2,500 but these estimates are usually pessimistic - about 1,000 more would be a realistic figure.

Rain Again

The procession moved through Leicester with plenty of banners, posters and mangled Buzbies on display the now familiar yellow and blue CB Radio Magazine van following the route. Unfortunately the usual problem of marches appeared - rain. However it didn't dampen the spirits of the marchers and Leicester shoppers and motorists soon got the message.

The intention of the march was to show the support for AM CB and the banners made sure everyone realised this. Horizontal emphasized that a 27MHz AM system was quite feasible if properly controlled and there was no reason why it should give any more interference than any other radio service.

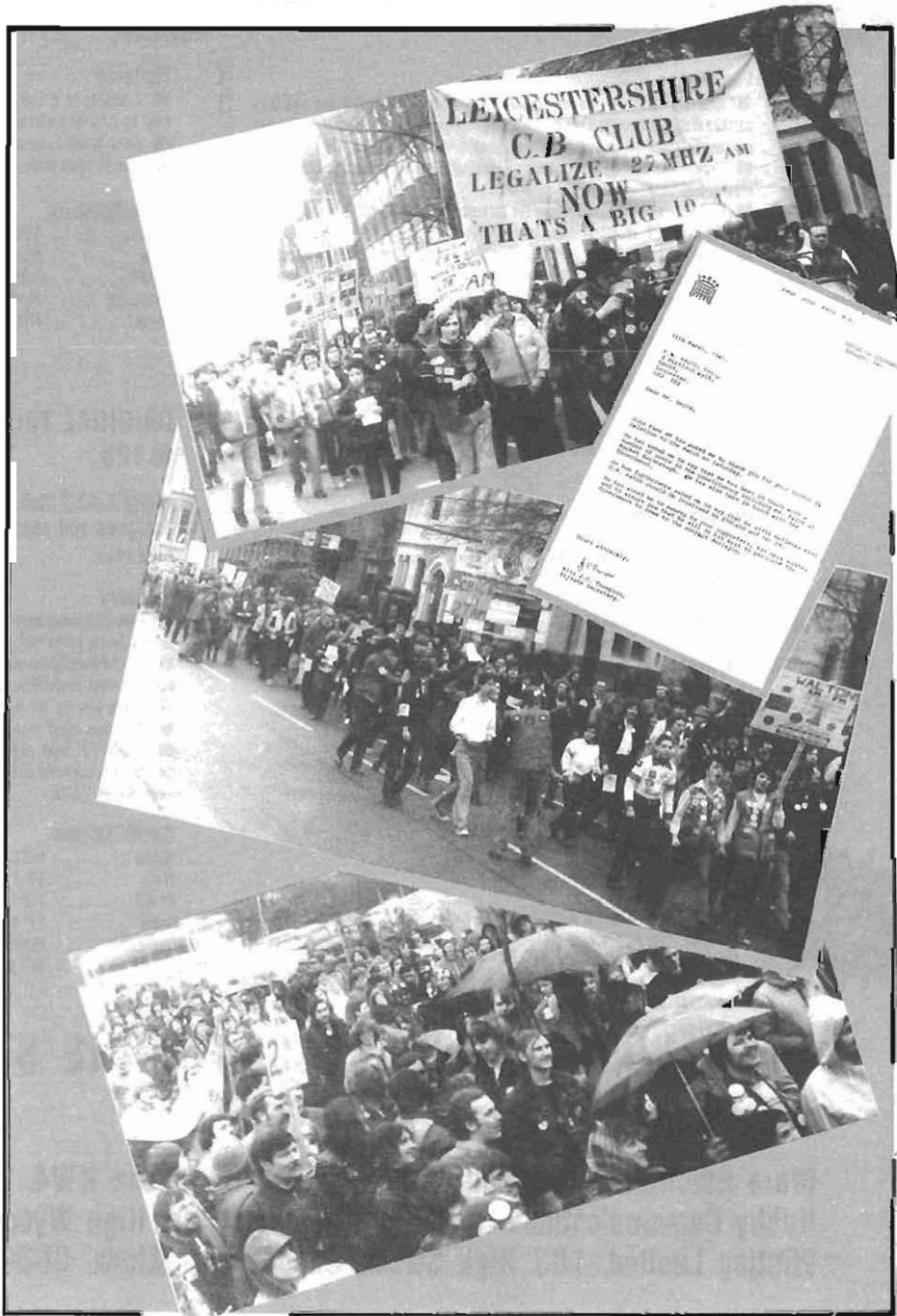
The Envy of the Crowd

BBC Radio Leicester arrived to record interviews and comments for the local radio station with the biggest, most suspicious aerial ever seen - 30ft high and hydraulically operated. The envy of the crowd! The Midland/Northern clubs always seem to get greater support than the apathetic Southerners (Please don't send hundreds of letters disagreeing). There were at least twenty clubs representing a large area surrounding Leicester.

Police pleased (for a change?)

The police said they were very pleased with the way the march had gone. It illus-

trates how well things can be done with proper planning, permission and organisation. Unfortunately the Conservative M.P. for Harborough, Mr John Farr, could not attend but sent a letter of support.





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Club Directory

CB Radio Magazines quarterly list of clubs.

All the information is correct at the time of going to print. If your club is not here or your club details are incorrect, outdated or sparse, ie no address or club night, then phone or write to Carole.

Aire Valley Breakers Club
Shipley Civil Social Club, Shipley,
West Yorks.
Contact c/o Miss C. Cardwell,
53, Albert Avenue, Saltair,
Shipley, West Yorks. B21B 4NS.

**Amalgamated Breakers Club
(A.B.C.)**
The Crown Hotel,
Liverpool Road, Birkdale.
Every other Thursday Evening.
Contact Brenda Gruneklee (Sec),
78, Bedford Road,
Birkdale, Southport.

Amber Valley Breakers Club,
The Cowboy Club, Derby.
Every Tuesday Evening.

Anchor Breakers Club
The Anchor Pub, Shepperton.
Every Tuesday 7.30 p.m.

Andover 27 Club
Andover, Hants.

Anglia Breakers Club
The Great White Horse Hotel,
Tavern Street, Ipswich, Suffolk.
Every Second Sunday 7.30 p.m.

Apple County Breakers Club
The Lord Nelson,
Ilminster, Somerset.
Every other Sunday 8.00 p.m.

Arun Breakers Club
The Windmill Public House
Littlehampton and
The British Legion, Bognor Regis.
Meetings held at these Venues on
alternate Monday Evenings.

Atherton Breakers Club
Contact c/o 11, Ramsey Close,
Atherton, Nr M/C Lancs.

Avon Breakers
The Lamb Public House,
Cadbury Heath, Bristol.
Every Friday 8.00 p.m.

Aylesbury Breakers Club
The Buckinghamshire Yeoman,
Aylesbury.
Every Wednesday 8.30 p.m.,
Contact c/o 57, Abbey Road,
Aylesbury, Buckinghamshire
HP19 3NP

Ayrshire Breakers Club
Ayrshire, Scotland.

**Banagher Foxrott Citizens
Band Club**
Ireland

Barnsley Breakers Club
The Londoner,
Monk, Bretton, Barnsley, Sth Yorks.
Contact Mrs M Spence (Sec),
55, Chatsworth Road, Barnsley,
South Yorks, S71 3OH
Telephone: Barnsley 88450

**Barnstaple Breakers Club
(B.B.C.)**
Barnstaple.
Every other Friday Evening.
Contact Mr Pete Whitehead
(0271-814080)

Basingstoke Breakers Club
Sinatra's Night Club
Basingstoke.
Every Wednesday 9 p.m.

Barrow CB Club
The Soccer Bar Social Club,
Walney Road, Barrow-in-Furness.
Every other Wednesday 7.30 p.m.

**B.A.T.S. Citizens Band
Radio Club**
Newbridge, Ireland.

B.A.T.S.
The Millard Arms,
London Road, Isleworth.
Every Sunday Evening 7.00 p.m.

Bay City Breakers
Portstewart, N Ireland.

Barnet Breakers Club (B.B.C.)
The British Legion Hall,
Brookhill Road, East Barnet,
Herts
Every Sunday 8 p.m.

B.B.C.
Bedford.
Every Monday Evening.

Beach Breakers Club
Kings Oak, Nursery Road,
Nr. Loughton, Essex.
Every Sunday 7 p.m.
Contact 26, Goldingham Avenue,
Loughton, Essex.

Bedford Breakers Club
Kempston Rovers, Bedford.

Belfast Citizens Band Club
Belfast, N. Ireland.

Bicester Breakers Club
The Red Lion,
Bicester (off Market Square).
Every Friday Evening.

Big A Breakers
The Night Owl Club,
Aldershot.
Every Monday 8.00 p.m.
Contact c/o Maureen and Len Cutler
244, Lyndhurst Avenue,
Tices Meadow, Aldershot, Hants

Big Ben DX QSL Club
Contact Jim Glavin, 14a Bridge
Street, Godalming, Surrey.

Big E Club
Devonshire Hall,
Devonshire Hill Lane,
Toittenham, London N17
Every Thursday.

Big Four Club
Hove, Sussex

Biscuit Town Breakers
Merry Maiden
Shinfield Road, Reading.
Every Sunday 7.00 p.m.

Black Country Breakers
Brierley Hill Civic Hall,
Contact c/o 1, Queen Street,
Stourbridge, West Midlands.

**Bournemouth Independent
Breakers Association (B.I.B.A.)**
The Coach House,
Farndon, Bournemouth.
Every Tuesday Evening.

Boxers Breakers Club
South Liverpool

**Boy Breakers Citizens
Band Club**
Carberry, N. Ireland.

Bradford Breakers Association
Bradford, West Yorkshire.

Breaker Alley Breakers (B.A.B.)
Standalane Tavern,
Ghost Town.
Every First and Third Monday.

**Breakers Town Citizens Band
Club**
Stanley Club,
Stanley Road, Carshalton, Surrey.
Every Tuesday 7.30 p.m. - 11 p.m.

Breifni Breakers Club
Northern Ireland.

Brickett Wood Breakers Club
The Gardenia Nudist Camp,
Lye Lane, Brickett Wood,
Every Wednesday Evening.
Contact Lee Component Centre,
7, Langley Road, Watford, Herts.

Bridgetown Breakers Club
The Phoenix Social Club,
Hessle Road, Hull.

Brighton Breakers Club
Brighton, Sussex.

Bristol CB Club
The Paradise Motel,
A38, Redhill, Bristol, Avon.
Every Tuesday 9 p.m. - 12 p.m.
Contact c/o above address.

**Britannia International
Sidebanders**
Contact Scott Marshall,
12 Kepsford Close, Leeds 5.

British Sideband Network
Contact Albie and Lesley Vickers,
15, Carman Walk, Broadfields,
Crawley, West Sussex.

Broadland Breakers Club
The Swan,
Stalham, Norfolk.
First Sunday in the month.

Burns Breakers Club (B.B.C.)
Ayr, Scotland.
Every Tuesday Evening.

**Bury St. Edmunds Citizens
Band Club**
Ripley House Hotel,
Northgate Avenue,
Bury St. Edmunds, Suffolk.
Every Third Sunday.

Buzzy Binders DX Club
Birmingham

**Campaign for British Citizens
Band Club**
Birmingham.
Contact Mr Keith Townsend
1163, Yardley Wood Road,
Birmingham, B14 4LE

Canal Side Breakers Club
The Dingle Hotel,
Lymm.
Every Monday (Excluding the 1st
Monday of the Month) 8.00 p.m.

Canvey Breakers
The Goldmine Discotheque,
Canvey Island.
Every Sunday Evening

**Cardiff and District Breakers
Club**
Cardiff.

Carlisle Truckers Club
Carlisle.

Carshalton Club
St. Heliers Arms,
Middleton Road, Carshalton.
Every Thursday 8.00 - 12 p.m.

Castle Breakers Club
Every Tuesday 8.00 p.m.
Contact Mr Peter Beilby,
c/o 181, Derby Road, Long Easton,
Nottinghamshire

Cathedral Breakers Club
Lincoln.

C.B.C.
Blighty's Club
Farnworth.
Every Thursday 8.00 p.m.

CB Cruisers Club
Gwynedd, Wales.

CB Musketeers
Milton Keynes, Bucks.

C.B.N.E.
High Fell Social Club,
Old Durham Road, Gateshead,
Tyne & Wear.
Alternate Tuesday Evenings
Contact Mr Ian Morrison,
89, Hareydene, Newcastle,
Tyne & Wear, NE5 4QH
Telephone (0632) 862900

**C.E.B.A. (Central England
Breakers Association)**
Lafayette Club,
Sunday Night 8 - 12 p.m.

Central Breakers Club
Lord Worsley,
Southall, Middx.
Every Thursday Evening.

**Central Scotland Citizens Band
Radio Club**
Stirlingshire, Scotland

**Charlie Tango Citizens Band
Club**
Castletown, N. Ireland.

**Charlie Tango Citizens Band
Club**
Cow Town, N. Ireland.

**Charlie Tango Citizens Band
Club**
Dungannon, Tyrone,
N. Ireland.

**Cheltenham Breakers (District)
Association (C.B.D.A.)**
Cheltenham, Glos.
Contact 6b/6 Pitville Crescent,
Cheltenham, Gloucestershire

Chicken Chokers Radio Club
Burton on Trent.
Every Monday Evening.

Chinatown Breakers Club
Risis, Wires and Cables Social Club
Milehouse, Newcastle, Staffs.
Every Tuesday Evening.

Circle City Breakers
Leeds, Yorkshire.

**Citizen Band Radio Action
Group (C.B.R.A.G.)**
London, SE23.

**Citizens Radio Association
Breakers (C.R.A.B.)**
High Wycombe, Bucks.

City of Derry C.B.R.G.
c/o New York New York,
Stand Road, Londonderry.

**Cloy Town Breakers
Association**
Bolton.

Club 27
Southend Lane, Bromley.

Clyde Coast Breakers
Ayrshire.

**Clydesdale Breakers
Supporters Club**
The Shift,
Nr. The Windy Hill,
Lanarkshire.
Alternate Tuesdays 7.30 p.m.

**Coastal Breakers Association
(C.O.B.R.A.)**
The Ocean Bars,
Bognor Regis Pier, Esplanade,
Bognor Regis.
Every Sunday 7.30 p.m.

The Coffee Shop
The Soxley Riding Stables
Glasgow.
Monday, Tuesday, Wednesday
and Thursday 8.00 p.m.

Colortown Breakers
The White Hart,
Duffield, Derby
Every other Wednesday 8.00 p.m.

Corby Town Breakers Club
Corby Town.
First Wednesday of the month.

Copy Cats Club
Martholme Grange, Altham,
Accrington, Lancashire.
Alternate Tuesday 8 pm - 1 am

**Concrete Canyon Breakers
Social Club**
Cross Keys,
Bolsover, Nr. Chesterfield,
Derbys.
Every Thursday 7.45 p.m.

**Cork City and County Citizens
Band Club**
Cork.

Cotswold Breakers UK
New Lodge Inn,
Minchinhampton Common,
Stroud, Glos.
Every other Sunday.

Cotswold Breakers UK
Contact The Secretary
P.O. Box 6, Stroud,
Gloucestershire, GL6 0DY
Every second and last Sunday
of the month.

County Area Breaker CB Club
Inverness.
Contact Tony Blues (Vice Chairman)
4, Corbett Gardens, Ardersier,
Inverness, IV1 2RY.
Telephone: Ardersier 3120

**County Wicklow Breakers
Club**
County Wicklow, N. Ireland.

**Coventry Junior Breakers
Club**
Coventry.

**Craigavon Citizens Band
Club**
Craigavon, County Armagh,
N. Ireland.

**Cranham, Hornchurch,
Upminster Breakers (C.H.U.B.)**
The Cricketeers Public House,
High Street, Hornchurch.
Every Friday 8.45 p.m.

Cumnock Breakers Social Club
The Dumfries Arms Hotel
Cumnock.
Every other Sunday evening.

**Cwmbran & District Breakers
Club**
The Big L, Cwmbran.
Contact Lad J (Secretary)
48, Fairhill, Fairwater,
Cwmbran, Gwent NP44 4QD.

Delta Echo Club,
The Territorial,
Huntingdon, St. Ives.

**Delta Tango Sidebanders
of Great Britain**

**Derwent Valley Breakers
(D.V.B.)**
Black Bull,
Lanchester.
Contact c/o 10, Prospect Terrace,
New Kya, Stanley, Co.Durham.

Deveron Valley Breakers Club
Turril,
Aberdeenshire, AD5 7PO

Don Valley Breakers
Doncaster, South Yorkshire.

Droitwich CB Club
Edward G's Wine Bar,
Droitwich.
Every other Sunday.

Dublin 10-30 Club
Dublin, Ireland.

Dukesvill Breakers Association
The Dukeries Night Spot,
Notis.
Every Wednesday Evening.

Dumfries Breakers Club
Gordons Bar,
First Wednesday of the Month
7.30 p.m.

**Dunstable Association of
Breakers (D.A.B.'s)**
The Dunstable Football Club,
Dunstable, Beds.
Every Tuesday Evening.

Dynamite Breakers Club
N. Ireland.

East Antrim CB Club
Antrim, N. Ireland.

East Coast Breakers Association
The RAF Association Club,
Scarborough.
Every other Tuesday 8.00 p.m.

East Coast Breakers Association
The Tarian House,
Frating, Nr. Colchester.
Every First Sunday of the Month.

East Coast Breakers Club
The Queens Head,
Great Clacton.

East Coast Citizens Band Club
Ireland.

East London Breakers Club
Canning Town, London.
Every Friday 8.00 p.m.

**Eastern Counties Open
Channel Club**
Everards Hotel,
Bury St. Edmunds,
One Sunday a month.

Echo Alpha Citizens Band Club
East Antrim, N. Ireland.

**Edinburgh Citizens Band
Radio Club**
The Fountain Inn,
Bernton, Edinburgh,
Every Second Wednesday.

Elite Breakers Club
The Windmill Public House,
Lambeth High Street, London SE 1
Every Wednesday Evening.

Elite Breakers Club
Delgany, Co. Wicklow, Ireland.

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Club Directory

Enfield Breakers Club
Royalty Dance Hall,
Southgate, N14.
Every Monday 8.00 - 10.00 p.m.

Essex Citizens Band Club
Witham, Essex.

Exeter Breakers Club
Exeter.

Falkirk and District Open Channel Club
Falkirk.

Farnborough Area Breakers (F.A.B.)
The Oasis Club,
Alexander Road,
Farnborough, Hants.
Every Tuesday Evening.

Flixtton, Urmston, Dalghalme Good Buddies Association (F.U.D.G.B.A.)
Manchester.

Forth Valley Breakers Club
Scotland.

Four Counties Breakers
The Crystal Rooms, Stamford.
Last Friday of the Month.

Foyle Cross Border Breakers Club
Londonderry, N. Ireland.

Free Breakers
The New Carlton Club,
Raunds, Nr. Wellingborough,
Northants.
Every Friday 8.00 p.m.

Free Wheelers CB Club
Creddon, Devon.

Friendly Breakers Incorporated (F.B.I.)
The Bulldog Public House,
Ashford, Middlesex.
Every Wednesday Evening.

Freedom Breakers International
Liverpool.
Contact Red Fox,
11, June Street, Bootle,
Liverpool, Merseyside, L20.
Every Tuesday Evening.

G.B.A. Manchester
The Angles Public House,
Gardeners Row, Salden,
Nr. Blackburn.

Glasgow CB Club
Barlanark Primary School,
361, Hallhill Road, Glasgow.
Telephone: 041-771-6149
Every second Thursday 7.30 p.m.

Glasgow Citizens Band Club
The Three Pigeons,
Charing Cross, Glasgow.

Gloucester Committee U.B.A.
Matson Rugby Club,
Every Wednesday 8.00 p.m.

Goytre & District Breakers Club
Goytre.

Grampian Breakers Club
Aberdeen, N.E. Scotland.
Contact R J Strachan (Sec.)
59, Jasmine Terrace,
Aberdeen, Scotland.

Grantham Breakers Association
Consisting of: The Original Filly
Grantham Breakers,
The Cruiser Club GB,
The November Mike Club for
Sidebanders.

Contact Mr Dave Crosse,
8, Parklands Drive, Harlaxton,
Grantham, Lincoln, NG32 1HX

Jrass Court Breakers Club
Haydock, Merseyside.

Greater Easterhouse Breakers Club
Contact J Prow,
133, Lochend Road, Easterhouse,
Glasgow, G34 0CW.

Greater Glasgow Breakers
Glasgow.

Guildford City Breakers
The Rowgate Public House,
Near the River.
Every Friday Evening.

Gwent Breakers
High Ground 3 Bar,
Balleys Night Club,
Catsash, Newport.
Every Thursday, Friday and
Saturday Evenings.

Gwent Breakers Club
Gwent, Wales.
Contact c/o Breakerway CB Centre,
101, Alexandra Road,
Gwent, Wales.
Every Thursday, Friday, Saturday
and Sunday 8.00 - 12.00 p.m.

The Handbreak Club
Contact David Bull,
134, Cromwell Road,
Peterborough, Cambs.

Harbour Breakers Club
Harbour Tavern,
Newhaven, Sussex.
Every Wednesday Evening.

Harrow and Wembley Citizens Band Group
The Queens Arms,
High Street, Wealdstone, Middx.
Every first and third Wednesday.

Hart of England Citizens Band Club
The Cutalong Public House,
Bilkington Road, Bebbworth, Works.
Every Wednesday 8.00 p.m.

Hastings Breakers
The Carlise,
(On Hastings sea-front)
Every second Sunday 8.00 p.m.

Hat Town Breakers Club
Contact c/o 120 Coleshill Road,
Atherstone, Warks.

Hazard County Breakers Club
Kendall, Cumbria.

Heathfield 20 Club
Heathfield, East Sussex.

Helens Bay CB Radio Club
The Sands Hotel,
Bangor, Ireland.
Every other Sunday 8 - 10 p.m.

Hemel Hempstead Breakers Club
Hemel Hempstead.

Hereford Breakers Club
Lincolnshire.

Herts C.B.A.
Contact 190 Blythway,
Welwyn Garden City,
Hertfordshire, AL7 1DV.

Highland Breakers CB Club (H.B.C.)
The Hayloft,
Eastgate, Inverness.

Hinckley Breakers Club
Hinckley.

Hope Valley Breakers Club
Derbyshire
Contact Bambie (Sec.)
Telephone Hope Valley 30294

Hucknall Welfare Breakers Club (H.W.B.C.)
Hucknall and Linby Miners Welfare,
Portland Road,
Hucknall, Nottingham.
Every Tuesday 7 p.m.

Independent Top Valley Breakers Club
Bestwood Lodge Hotel,
Bestwood Lodge Drive,
Arnold, Nottingham
Every Tuesday 8.00 p.m.

Ilkeston Breakers Club (I.B.C.)
The Festival Inn,
Trowell, Notts.
Every Sunday Evening.
Contact "Venus" (Sec.),
1, Exbourne Road,
Aspley, Notts.

The Inner City Breakers
York.

International DX Breakers Club
Contact 430 Westwood,
Windmill Hill, Runcorn,
Cheshire, WN7 6LL

International DX Club
Contact Lez Carroll,
225, Arnold Street, Boldon,
Tyne & Wear, NE35 9BA

The Invaders Club
Forslar,
Teesside, Area, Scotland.
Every other Monday in various
venues.

Jersey CB Breakers Club
Jersey.

Jolly Rodger Club
Central Fiife Scotland.

K.19 Club
Kilmarnock,
Every other Tuesday evening.

Kent and Essex Breakers
Contact c/o 24, Mill Lane,
West Thurrock, Grays, Essex.

Kettering Breaker Club
The Royal Hotel
Kettering.
Last Monday of the month,
Contact D E Linnit,
1, Beverley Close, Rothwell,
Kettering, Northants.

Kilkeel Radio Society
Newry, County Down,
Ireland.

Kings Norton Citizen Band Club
Birmingham.
Contact Mr John Viney,
(Chairman, K.N.C.B.C.),
112, Arlington Road,
Warstock, Birmingham, B14 4QE

Lagan Valley Citizens Band Club
The Halfpenny Gate
Nr. Lisburn, Co. Antrim, N. Ireland.

Lakeland Breakers Citizens Band Club
Enniskillen, N. Ireland.

L.C.B.
Leicester.

Leapool Breakers Club
Maid Marian Public House,
Copice Road, Arnold,
Nottingham.

Leighton Buzzard Breakers Club (L.B.B.C.)
Bossard Hall, Leighton Buzzard.
Every Thursday 8.00 p.m.

Leslie Breakers Club
Leslie Public House,
Croydon.
Every Monday Evening.

Letchworth and District Breakers Club
Contact P.O. Box 29
Hitchin, Hertfordshire, SG5 4DS.

Limerick Breakers Club
Limerick, Ireland.

Light House Breakers Association (Lima Bravo Club)
Salisbury, Wilts.
The First Sunday of each month.

Liverpool Breakers Club
Liverpool.

L.O.T.S. CB Club (Land of the Stars)
Hollywood, N. Ireland.
Contact c/o P.O. Box 15,
Belfast, BT5 5HA.

Mainline Breakers CB Club
c/o The Saracens Club
Bredon Avenue, Binley,
Coventry, West Midlands.
Meet every Monday starting
7.30-8.00 p.m.

Malvern Breakers Association (M.B.A.)
Malvern, Worcs.
Every Wednesday, 8.00 p.m.

Memphis Citizens Band Club
N. Ireland.

Meon Valley Breakers
The Pit, Gosport.
Every other Monday evening.
Contact Meon Valley Breaker,
4, Lawfence Road, Fareham, Hants.

Marseyside 27 Club
Liverpool.
Contact Mr G Eagle,
Merseyside "27 Club",
c/o 34 Micklefield Road,
Liverpool 15.

Middlesex Breakers Club
The Airman,
Feltham, Middlesex.
Every Monday 8.00 p.m.

Mid Glam Breakers
Glamorgan.

Mid Kent CB Club
The "Queens Head Hotel",
High Street, Maidstone, Kent.
Every Sunday 7.30 p.m.
Contact M.K.C.B.C.
c/o Ten Four Telecom Ltd.,
22 The Broadway, Maidstone, Kent
Telephone Maidstone 681719

Mid Kent Citizens Band Club
Medway Public House,
Bank Street, Maidstone, Kent.
Every Sunday.

Midlinks Breakers
Sleaford, Lincolnshire.
Every Sunday Afternoon.

Midlands Citizens Band Radio Club
Sandies Night Club,
West Bromwich.
Every Monday Evening.

Mid Somerset Single Sideband and DX Club
Somerset

Molesey Open Breakers (M.O.B.)
The Royal Oak,
Molesey.
Every Wednesday Evening.

Moonlight Breakers
The Worlington Hall Hotel
Worlington.
Every Tuesday Evening

Moorland Rider CB Club
Monts Cafe, Liverton, Devon.
First Thursday of every month.
Contact c/o R. Kerrison,
Monts Transport Cafe,
Shute Park, Liverton, Devon.

Moray Breakers Club
The Pine Grove
Elgin.

New City Breakers Club (N.C.B.C.)
Every Tuesday Evening.
Contact c/o CB Centre,
9, St Leger Court,
Linford Local Centre, Great Linford,
Milton Keynes, Bucks.

Newcastle City Breakers
Bluebell Public House
Shield Road, Byker,
Newcastle upon Tyne.

Newry and District Citizens Band Club
Newry, Co. Down.

Night City Breakers (N.C.B.)
The Nelson Arms,
Trafalgar Road, Horsham, Sussex.
Every other Monday Evening.
Intermediate Mondays at Pimmes
Night Club, Horsham.

19 Sliders
The Chequers Public House,
Horsparth, (Outskirts of Oxford).
Every Friday Evening.

North Birmingham Citizens Band Club
Birmingham.

North Bucks Breakers
The Folly,
Adstock, Buckingham.
Contact The Secretary,
c/o 20 Pightle Crescent, Bucks.

North Country Breakers
The Forrester,
Adwick, Nr. Doncaster.
Every Thursday 8.00 p.m.

North Cotswold Citizens Band Club
Stratford Upon Avon.

North East Derbyshire 10-4 Club
The Shoulder of Mutton,
Nr. Chesterfield.
Every Wednesday 8.00 p.m.

North London Breakers Club
The Red Lion,
Borehamwood, Herts.
Every Tuesday Evening.

North London Breakers Association
The Sparrow Hawk,
Glengall Road, Edgware, Middx.
Every Wednesday Evening.

North Manchester Citizens Band Club
The Belmont Hotel,
Middleton Road, Crumpsall,
Manchester 8.
Every other Monday 8.00 p.m.

North Surrey Breakers CB Radio Club
The Rose Pub,
"Napoleon Bar",
Carshalton, Surrey.
Every Saturday Evening.

North West Citizens Band Club
Meet monthly at different venues.
Contact Miss Vivien Blackburn (Sec.)
104, Duke Street, Southport,
Merseyside PR8 5DE

Northampton Breakers Club
The Needle, Northampton.
Every Wednesday and Sunday
Evening

Northern Association CB Club (N.A.C.B.C.)
Contact John Hardy,
19, Lings Lane, Hatfield, Doncaster
South Yorkshire
or Steve Robinson
3, Ivy Road, Thorne, Doncaster,
South Yorkshire DN8 4HP
Tel: Thorne 812609

Northside Breakers Club
The Lansdown Hotel
Every other Tuesday Evening.
Contact c/o Lansdown Court,
Antrim, Belfast, N. Ireland.

Norwich Social Breakers Club
Norwich, Norfolk.

Oasters Breakers and Social Club
Weald of Kent.
Every Friday Evening.

Oldham Breakers
Oldham, Lancashire.

Orpington CB's Club
Ramsden Boys School,
Orpington, Kent.
Every Tuesday Evening.

Outer City Breakers
Sothall Working Mens Club,
Beighton, Sheffield.
Every Tuesday Evening.

Paisley U.B.A.
Argowan Hotel, Paisley.

Panderossa Breaker Club
The Burnside Cafe,
Hartmill.
Every Tuesday 7.30 p.m.

Pendle CB Club
Lancashire.

Parshore CB Radio Club
(Plum Town)
The Plum Tree, Pershore.
First and Third Saturday 7.30 p.m.

Peterborough Handbreak Club
Meet at the Lime Tree,
Peterborough.

Plymouth Citizens Band Club "Singing Wheels"
Last Sunday of the Month
Contact c/o R. Kerrison,
Monts Transport Cafe,
Shute Park, Liverton, Devon.

Polomint City Breakers
The Greenhills Hall,
Contact P.O. Box 1004,
East Kilbride, Scotland.
Every second Monday evening.

Pony Town Breakers
The Golden Lion Hotel,
High Street, Newmarket.
Every Monday 8.30 p.m.

Popular Breakers Club
Dryden Hall,
Basingstoke.
Every Tuesday 8.00 - 11.00
Contact Stephanie Jones,
Basingstoke (0256) 54581

Proper Bravo Charlie DX Club
Contact Mike,
P.O. Box 6, Pershore.

Quarry Breaker UK CB Club
Headlington Oxford.
Every other Friday evening.
Contact c/o 35, Feltiplace Road,
Headlington, Oxford.

Ram City Breakers (U.B.A.)
P.O. Box 34, Derby.

R.B. DX Club
Contact P.O. Box 4,
Stradrair, Scotland.

Radsord and District Breakers Club
The Pilot Public House,
Burnaby Road, Radsord, Coventry.
Every Sunday Evening 8.30 p.m.

Raddish Breakers
Blyth Night Club
Farnworth.
Every other Thursday Evening.

Renfrew and District Citizens Band Club
Renfrew, Scotland.

Rhondda Breakers Club
Contact B. D. Sinclair,
c/o 35, Shady Road, Gelli,
Rhondda, South Wales.

Ribble Breakers Association (R.B.A.)
Preston Northend Supporters Club
Deepdale, Preston.
Every other Monday Evening.

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Club Directory

Road Runner CB Club
Exeter.
Every Tuesday Night
Winstons in the High St., Exeter.
Contact Sec. Mrs. M.J. Taylor,
32, Isca Road, St. Thomas,
Exeter EX2 8BJ.

Roaring Forties Citizens Band Club
Donegal, N. Ireland.

Roger Bloop Club
Bestwood Miners Welfare Club,
Bestwood Village, Nottingham.
Every Thursday Evening 7.30 p.m.

Rolling Road CB Club
Cornwall.
Contact c/o R. Bacca,
West Lynn, A30 Main Road,
Blackwater, Nr. Truro, Cornwall.
Telephone: St. Day 820 347

Roman City Breakers Club (R.C.B.C.)
Chester-le-Street, Co. Durham.

Sandwell Area Citizens Band Radio Club
The Liberal Club,
Nimmings Lane, Blackheath.
Every other Tuesday Evening.

S.B.C.B.C.
Contact 14, Delrene Road,
Shirley, Solihull, West Midlands.

Seven City Breakers
Dereks Club,
Harlescott, Strewsbury.
Every other Tuesday 8.00 p.m.

Shakespeare County Breakers
Stratford Upon Avon.
Every other Monday Evening.

Shaky Town Area Breakers (S.T.A.B.)
The William Cobett Public House,
Farnham, Surrey.
Every Wednesday Evening.

Shaky Town Breakers Club
The Maudsley Social Club,
Great Arns, Nr. Alcester,
Stratford Upon Avon, Warwickshire.
Every other Monday 8.00 p.m.

Sierra Tango Citizens Band Club
Ballymena, N. Ireland.

Silly Breakers Society S.B.S.
The Royal Oak,
107, High Street,
Teddington, Middlesex.
Every Thursday 8.00 p.m.

Silk Town Breakers Club
Macclesfield, Cheshire.

Silsoe Breakers Club
Berks.

Slough Lot of Breakers S.L.O.B.S.
Slough.

Spirotown Breakers S.C.
The Hollingwood Hotel,
A619, Chesterfield.

The Smoke City
Belfast, N. Ireland.

Southampton CB Club
The Muddled Man,
Spring Road, Sholing, Southampton
Second and Last Thursday of month

Contact Secretary S.C.B.C.
497 Romsey Road,
Shirley, Southampton.

Southend Breakers Association
Southend.
Every Wednesday Evening.

South Coast Area Breakers S.C.A.B.
Worthing, West Sussex.

Southern Breakers Society Social Club
Beach Hotel,
Littlehampton.
Every Wednesday Evening.
Also meet at the
Rock Gardens Pavillion,
Portsmouth
Every Tuesday Evening.

Southfields Breakers Club
Southfields.

South Manchester Breakers Club
Stretford, Manchester.
Every Second Sunday.
Contact c/o 8, Parsonage Road,
Withington, Manchester 20.
Telephone: 061-445-7612
(Evenings and Weekends only)

South Somerset Breakers (S.S.A)
Yeovil, Somerset.

South Staffs Breaker Association
The Dolrick
Hednesford Road,
Brownhills West, West Midlands.
Every Tuesday 8.00 p.m.

Spey Valley Breakers Club
Scotland.

Squad 27 Swing City
The Flying Salmon,
Llandysul, Dyfed, Wales.
Every Tuesday Evening.

Square Weald Breakers
Every Thursday at Fox and Hounds
Haywards Heath, Sussex.

St. Albans Breakers
The Crystal Palace,
St. Albans, Herts.

St. Giles Breaker Club
St. Giles Football Club,
Barton Road, Barkstone,
Nr. Nuneaton, Warks.
Every Tuesday Evening.

The Stag Town Breakers Club (S.T.B.)
Courtlands Social Club,
Thorpe Road, Bellamy Road Estate,
Mansfield, Notts.

Stone City Breakers
Kidderminster.

The Strawberry Town Breaker Club
Contact c/o 86, Edinburgh Drive,
Wisbech, Cambs.
Telephone: Camb. 67771

Surf City Breakers
Contact c/o M. Biddlecombe,
23, West Park Road,
Bude, Cornwall.
Telephone: Bude 2746.

Swindon CB Club
The Moonraker Public House,
Swindon.
First and fourth Wednesday of the
Month 8.00 p.m.

Tamworth Tame Valley Breaker Club (T.T.U.B.C.)
Belfrey, Sutton Coldfield.
Every other Sunday Evening.

Telford CB Radio Club
Contact P.O. Box 418,
Tweedale, Telford, Salop.

10-4 Club,
The Town Centre Club,
Warrington.
Every Friday 8.00 p.m.

10-4 Club
The Essex Arms,
Forest Road, London E12.

10/20 Breakers Club
Hurlford Working Mens Club,
Hurlford, Kilmarnock.
Every Second Tuesday Evening.

21 Breakers Club
Newquay, Cornwall.
Contact 4, Chesterton Place,
Chester Road, Newquay, Cornwall.
Telephone Newquay 3335

27 Coastline Breakers
Contact P.O. Box 24,
Rhyl, Clwyd, N. Wales.

The Thorne and District Breakers Club
The White Hart,
Thorne.
Every Tuesday Evening.

Three Countries Breakers Club (S.C.B.C.)
Dorset.

TROUT CITY Breakers
Lancashire.

Tullamore Citizens Band Club
County Offaly, N. Ireland.

Tunbridge Wells Citizens Band Association
Tunbridge Wells, Kent.

Tunnel Town Breakers Club
The Teashop, Aricaive.
First Thursday of the month 8.00pm
and The Peter Thompson Hall
Cotterock.
Third Thursday of the month 8pm
Contact Tunnel Town Breakers Club
P.O. Box 28, Clerraine,
BT52 1NR, N. Ireland.

T.V. Club
Every Sunday 10.30 a.m.
Contact T.V. Club,
P.O. Box 17, Long Eaton,
Nottingham, NG10 2DB
Write enclosing name A.M. Handle
and a daytime or evening phone no.

United Kingdom Citizens Band Radio Club
Contact U.K.C.B.R.C.
Flat 6, 31, Oldchurch Road,
Uphill, Weston Super Mare, Avon.

Valley Breakers Gwent
The Hafodyrnyf Welfare Club
Every Sunday morning - eyeball
Every Wednesday evening - meeting

Contact Jeff Woodland (Secretary)
c/o The Silver Rooster CB Store,
Crumlin Institute Building,
Crumlin, Newport, Gwent, Wales.

The Voice of Scotland International DX Club
Kilmarnock, Ayrshire.
Contact The Ace Kilm. 43964

Warwick and Leamington CB Organisation
Chimes Nightclub,
Leamington Spa.
Every Monday 7-10.30 p.m.
Contact P.O. Box 6,
Leamington Spa, CV32 6SB.

Wessex Open Channel Club
The White Hart
Ford, A420
(Between Chippenham and Bristol)

West Glamorgan Breakers Association
The Four Winds Public House,
Port Talbot, West Glamorgan.
Every Tuesday 7.30 p.m.

West Coast Breakers
West Glasgow.

West London Breakers Club (W.L.B.C.)
The White Hart,
High Street, Southall.
Every Tuesday 8-12.00 p.m.

West Oxfordshire Breakers Club
The Swan Hotel,
Eynsham, Oxford.
Every Monday Evening.

West Wales Breakers Club
Wales.

Weymouth & Dorchester 40 Ch, Club
Dorset.
Contact Sue Brackley (Secretary)
P.O. Box 13, Weymouth,
Dorset.

Whiskey Club
The Railway,
New Malden.
Every Sunday 8.00 p.m.

Whisky Mike Breakers Club
West Marling Social Club
Kent.
Every Thursday Evening.
Contact Mr. Prentice,
153, Saltins Road, Snodland, Kent.

White Horse Breakers Club
The East Challow Country Club
Wantage.

White Mountains Breakers
Contact c/o D. Rotherham,
Little Trenance,
St. Austell, Cornwall.
Telephone St. Austell 820 347

Wight Breakers Club (W.B.C.)
Isle of Wight.

Woking Centre Breakers
Jovial Sailor,
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Wool Town B.C.
The Old Cobler,
Thornhill Lees,
Dewsbury, W. York.

Worcester Breakaways,
The Forrester Arms,
Every Sunday Evening.

Worcester 19 Breakers
The Bush Inn
St. Johns, Worcester.
Every Thursday Evening.

Worth Valley Breakers Club
"Brockling Working Mens Club"
Contact Mr. B. Widdop,
c/o 1, Woodhouse Drive, Keighley.

Wyre Forest Breakers
Worcs.

Yanki Kilo Club
York.

Yate and District Breakers (Y.A.D.)
The Stars and Stripes
Entertainment Centre, Yate.
Contact Secretary,
c/o 79a Grove Road,
Fishponds, Bristol.

Yorkshire Elite Breakers
The Fairway Inn,
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Phew! This Club List just grows and grows.

Sorry, no room for Club Spot this month because of the size of the Directory - back next month.

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Safety at 900 MHz?

The National Radiological Protection Board have given 928 a clean bill of health.

World wide controversy surrounds the allocation of a 900 plus frequency to public use. Britain is, as the government have continually stated, not alone in allocating a VHF Citizens Band frequency. In America the subject caused great alarm and resulted in many interesting developments, some of which we have reported on in the past (*issue 2 featured an article by Richard Vincent, vice president of Firestik entitled 27,450 or 900 Mhz? Later in issue 5 a further article 900 MHz... the known and the unanswered also raised the subject of safety for the users. Then in issue 6 we reported on an out of court settlement in America where a 450,000 dollar law suit had been filed against Motorola charging body damage created by radiation at 8000 MHz. It was reported to have been settled out of court for 200,000 dollars).*

Just from these brief extracts it becomes apparent of the fears many have regarding RF at such a high frequency as 930MHz. Yet despite many leading world experts fears, 930 MHz has received clearance and has been declared by the British National Radiological Protection Board as safe for public use. The following is an extract from their recent statement designed to allay fears.

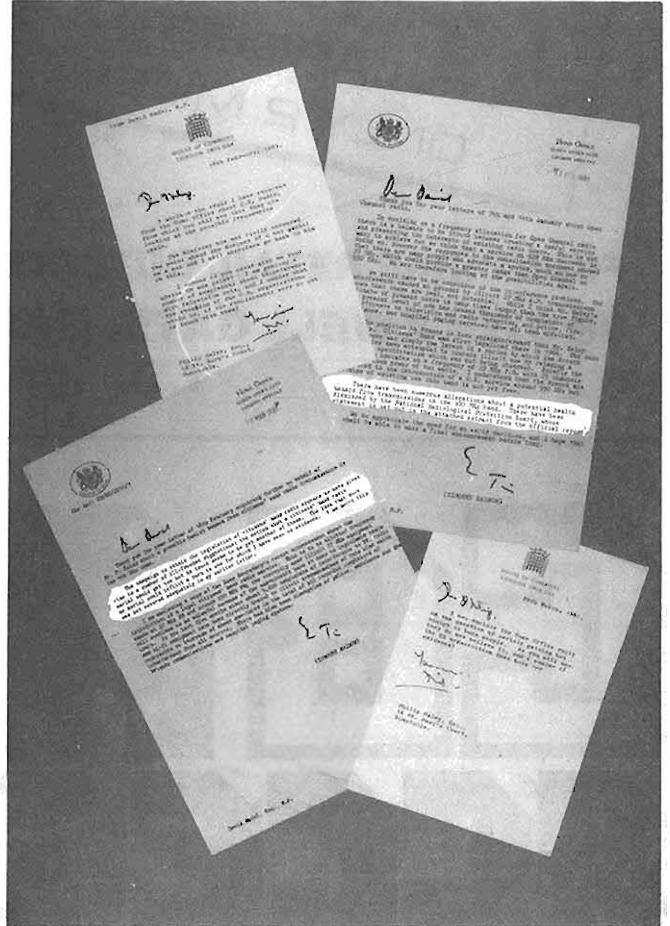
Induction of brain tumours

"Objections have been raised to the government's preferred frequency for a public 'Open Channel' radio service (around 928 MHz UHF) on the grounds of possible health hazards. The specific dangers cited are the induction of brain tumours and cataracts in the eyes.

The board considers that there is no scientific evidence that exposure to microwaves or radio frequencies will cause brain tumours or other cancers or that there is any evidence which indicates the existence of special hazards from radiation in the frequency range 150 to 1200 MHz.

Cataracts in animals

Exposure to very high power levels of microwaves has been shown to cause cataracts in animals and may be inferred to give rise to a similar effect in humans, but the exposure must be such as to raise the temperature of the eye by at least 4°C for more than ten-minutes. The normal temperature of eyes and body fluctuates daily by about 1-2 degrees C. and possibly more under the influence of physical exertion. For hand-held radio transmitters with total effective radiated powers of less than 3 watts, studies indicate that the temperature rise in the eyes will not be more than 1.0°C when their aerials are held no closer than 1 cm to the face and the transmitter operated continuously for several minutes. Direct comparisons between hand-held transmitters



has shown little difference in the total power absorbed by the head at 150MHz, 450MHz and 900MHz or in the maximum values of the power absorption. There is no reason to expect significantly different results at other frequencies in this range.

Unlikely to be any danger

There is unlikely to be any direct danger to health from hand-held transmitters used for the 'Open Channel' communication in any part of the radio frequency spectrum, when the effective radiated powers are less than 3 watts and the transmitters and their aerials are kept more than 1 or 2 cm from the head. In the case of mobile transmitters with effective radiated powers of 25 watts it would be inadvisable to place the head closer than about 10cm to the aerial for any length of time.

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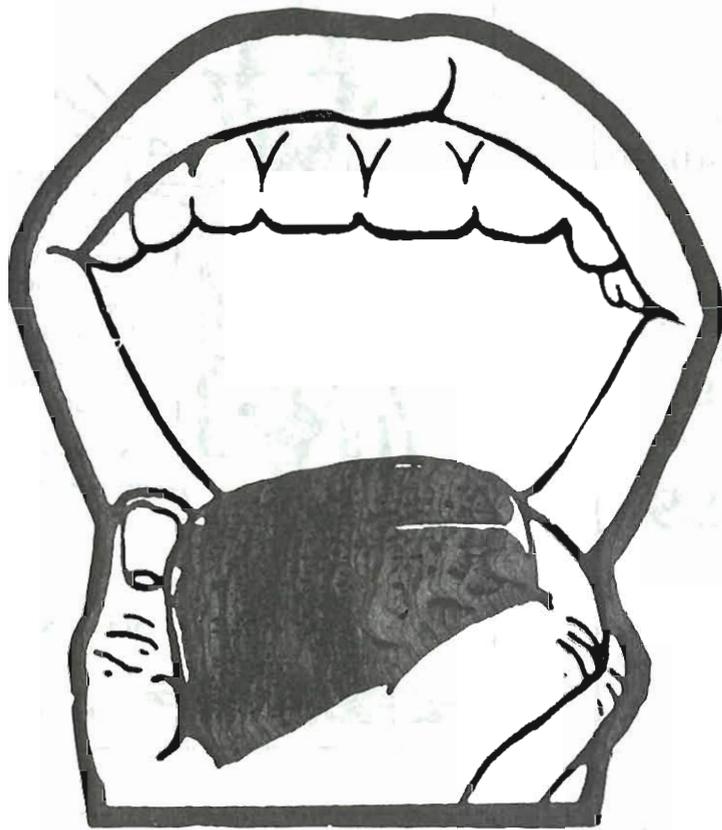
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Antennas and Transmissions on CB Frequencies

by F.C. Judd, FISTC, MIOA. IPRE. – Part 7

Antenna Gain and Reference

All antennas have a specific performance and the different parameters concerned with that performance are or should be given in manufacturers specifications. Although there is a great variety of antennas of different types there is only one basic antenna and that is the 'half-wave' and the term means precisely that i.e., the length of the antenna is half of the wavelength at the frequency of operation. At 27MHz the full wavelength is:-

$$\frac{300 \times 10^6}{27 \times 10^6} = 11.11 \text{ metres}$$

The length of a half-wave antenna at this frequency will therefore be 5.55 metres or 18.2 feet. All other antennas, no matter what kind, are either multiples of half-wave elements as used for example in the formation of parasitic beam arrays and also in co-phased active element arrays (colinears). However, an antenna may consist simply of a single element of some other fraction of a wavelength for example, a quarter wavelength or five-eighths of a wavelength, both of which are fairly commonly used.

All antennas have a property called DIRECTIVITY which refers to the maximum radiation from the antenna in one or more specific directions. It is this factor of directivity alone that determines the so-called GAIN of an antenna and which is also one of the most confusing of all the various antenna performance parameters. Unfortunately very few understand the real meaning of gain and this particular parameter is exploited deceptively by many manufacturers in order to make the performance of their antennas appear far better than they really are.

In fact some of the performance claims in respect of 'gain' quoted by many antenna manufacturers completely contravene the British Trades Description Act. Deception of this kind lies mainly in the use of the term *decibel*, or dB, when used to express gain factors.

To begin with the decibel is *not* a measure of gain, or of anything else for that matter and has no meaning whatsoever unless related to a quoted specific reference. The decibel, which is one tenth of a Bel, is simply a logarithmic ratio of two voltage, or current, or power

levels. One of the levels must be given as a reference otherwise any figure quoted in decibels has no meaning at all. It cannot simply be said:- "This antenna has a gain of 6dB". Such a statement is quite meaningless. But supposing it was said:- "This antenna has a gain of 6dB relative to the gain of a dipole referenced at 0dB". Now we have a statement which is meaningful. It is telling you that the 6dB gain of this antenna is directly related to the gain of a dipole, which is the normally accepted standard antenna with a reference gain of 1 (or unity) and which is rated as 0dB.

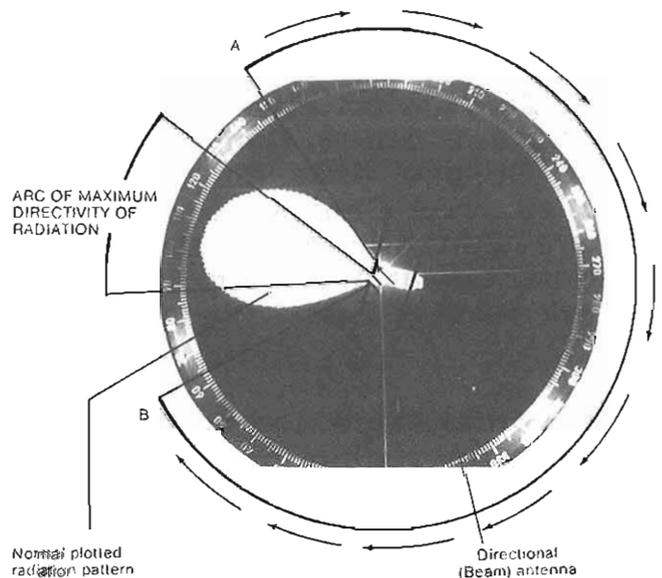


Fig.1: Radiated power from an antenna can be concentrated mainly in one direction. The area covered is known as the *area of maximum directivity*. Thus, radiation is not wasted in other areas for example, that which lays within the arc between the angles A and B. The polar pattern shown is typical of that produced by a small beam antenna.

Let us take this a little further. Firstly the 6dB we have used as an example does not mean that this antenna will radiate 6 times more power than is fed into it, or even six times more power than could be radiated by a single dipole. A 'gain ratio' of 6dB is in actual fact a power gain of 3.98 and which is really only 'effective' gain. Remember that in any case power is measured in WATTS not decibels.

No antenna can radiate more power than is actually supplied to it but certain types of antenna are designed to radiate mainly in one direction only as shown in fig. 1.

In this case power is *not* wasted by being radiated in directions where it is *not* needed. The power thus saved is therefore added to that being radiated in a desired direction. So we have achieved power gain, or what should really be called *directivity gain*. Generally speaking the more radiation an antenna can be made to concentrate in one direction the greater will be its effective gain. This is why omni-directional antennas such as single element ground planes and single vertical dipoles (or half-wave antennas) which radiate equally in all directions around, *have no gain*.

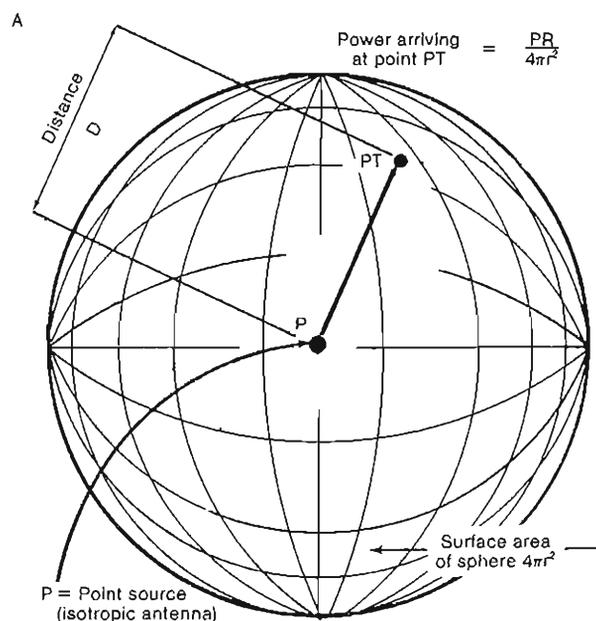


Fig.2: The derivation of an isotropic antenna which is sometimes used as a standard unity gain reference.
(A) The configuration of a point source antenna radiating power to a definable point (PT) on the surface of a sphere.

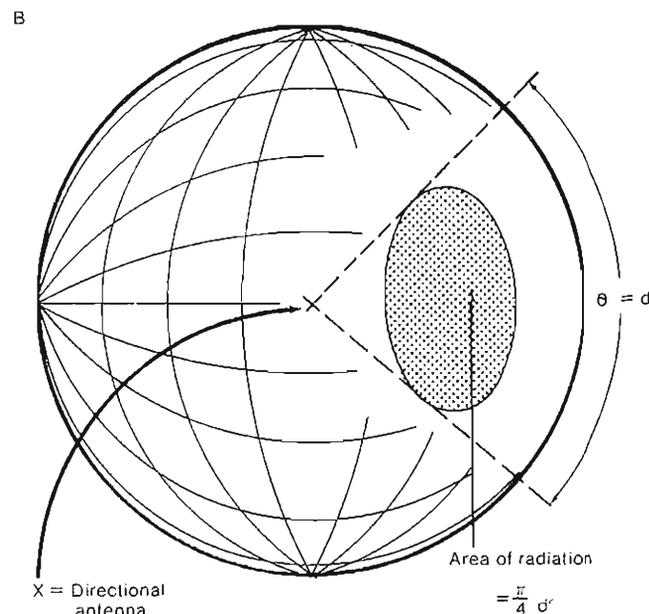
The Isotropic Antenna

It is hoped that the previous explanation regarding so called antenna gain has made clear the fact that no antenna produces gain in the sense that it amplifies the power supplied to it. However, assuming a perfect antenna with no losses all the power supplied to it would be radiated. On the other hand no antenna exists that will radiate all the power supplied to it in all directions around it. Nevertheless, it is convenient to assume that such an antenna does exist and this is known as an *isotropic* antenna which can be better visualised as a point source of radiation at the centre of a sphere with an area $4\pi r^2$. If, as shown in fig. 2A, the radiated power from a point source (P) travels for a given distance (D) then the unit power (PR) arriving at any single point (PT)

on the surface area of a sphere will be:

$$\frac{PR}{4\pi r^2}$$

Since radiation from an isotropic antenna would be uniform in all directions its "gain" would be absolute unity which allows it to be used as a reference by which to compare the directivity and therefore the power gain of all antennas having directive properties.



(B) Shows how the cross section beam area from a directional real antenna can be used to calculate its directivity or power gain.
NOTE: as explained in the text the isotropic is frequently used as a reference antenna although the more usual reference is the half-wave (dipole).

If the isotropic antenna could be replaced by a *real directional* antenna as indicated by 'X' in fig. 2B, then the power from this reaching the surface of the sphere would be concentrated over an area formed by a cross section of the whole radiation field. The position of this cross section is taken as being between the angles intersecting points where the power amplitude is 3dB from maximum i.e., at 0.707 of maximum radiation intensity. If the cross section were circular with a diameter (d) of say 60° then its area would be;

$$\frac{\pi}{4} d^2 = \frac{\pi}{4} 60^2 = 2827.43 \text{ square degrees.}$$

The ratio of this area to that of the sphere in square degrees is a direct ratio of the directivity of the antenna and from this we can verify the power gain with reference to an isotropic. So taking the area of the sphere as $4\pi r^2$ or 41253 square degrees, the power gain of the directional antenna would be

$$\frac{41253}{2827.43} = 14.59$$

The gain in decibels would therefore be $10 \log_{10} 14.59$ or 11.6dB, or more correctly, 11.6dBi (i indicates gain over an isotropic). We can therefore say that this antenna has a gain of 11.6dB over an isotropic.

Antennas and Transmissions on CB Frequencies

Reference Antennas

It may now be realised that we have two possibilities for a reference antenna i.e., an antenna by which all others can be compared for power gain and in fact other parameters of performance as well. One is the isotropic antenna which is purely hypothetical i.e., it does not exist, the other being the half-wave or dipole and which is of course a real antenna. This has already been referred to.

When the isotropic is used as a reference for unity gain, or 0dB, then the gain of a real dipole can be said to be 2.14dB, relative of course to the isotropic. If the dipole itself is used as a reference antenna then its gain must be taken as unity or 0dB. Therefore the directivity gain of any antenna can be referred to either the isotropic or the dipole so when you purchase an antenna for which the maker claims a gain of so many dB you should ask:- "What is the gain of this antenna referred to; a dipole or an isotropic radiator?" *It is misleading to quote a dB figure without a reference.* For example, suppose the maker says this antenna has 5dB gain. If this figure really does relate to an isotropic then the gain

of this antenna over a dipole is actually 2.86dB and NOT 5dB. In other words for any gain quoted in dB *relative to an isotropic* simply subtract 2.14 from the figure to obtain the gain relative to a dipole.

Final word of advice. Irrespective of any gain figure quoted in dB (decibels) do not accept it unless it can be proved by a manufacturers statement exactly what that gain is relative to i.e., isotropic or dipole.

Next month I hope to deal with different types of popular antennas at present available and the real directivity gain that each is capable of. for example, most ground plane type antennas have no gain at all and indeed the efficiency is often so much lower than that of a dipole, that any gain, if one could call it that, is negative.

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Readers Write

Dear Sir,

With reference to your piece on the London Convoy. I thought you may be interested to know that certain breakers from the south didn't reach the final meeting point due to a pile up on the M25.

The breaking channel was 12 for the convoy so any messages to the convoy could be heard on this. Humorous messages were passed over on this channel as well as occasional complaints about the convoy moving too fast or slow. Also, a certain white car in the convoy was warned by breakers, that his brake lights were not working.

We turned onto the M25 from the M3 heading for the M4 and the Heston service area. About 500 yards down the M25 there was a sudden mass of confusion. Someone had stopped quickly and been hit in the rear, followed by another 3 cars including myself on the end. My girlfriend had concussion as she had hit the screen with a fair whack. My car was immobilised so with the help of ever faithful breakers we pushed it onto the hard shoulder. My thanks at this point goes to the chap in the Austin Princess and his companions who helped a great deal. My main worry was about my girlfriend, but I managed to exchange addresses and insurance companies with the car in front of me. I left before the police arrived as I wanted to get 'Music Maker' my girlfriend seen to. Kango kindly gave us both a lift to my cousins in Knightsbridge. To cut a long story short, we eventually got home by train.

I thought this may be of some interest to you coming from a fellow breaker who was actually in the convoy from where it first set off down south. Even though this was a great loss to me I'm even more into CB radio especially as there are always people who are breakers prepared to help people in trouble as we most definitely were.

Yours
PRIZE GUY (Portsmouth)

Dear Sir,

I am interested in CB and "Ham" radio. I am at present unemployed "thanks to Maggie's cut back", secondly I was in Signals during my army life from 1936-67, and now have bags of time to catch up with the hobby. At least I am home based with a Hi gain station. I shall be building up my station to a good working home base and any information on a good layout would be gratefully accepted. P.S. You're never too old to learn. I'm 61 years young.

BIG OAK

Dear CB Radio Magazine,

I would like to make a suggestion concerning the breaker channel. Being a long distance truck driver (who's rig has been confiscated by the police, of whom I hold no malice), 19 is known as the truck drivers channel, so numerous towns in the country have moved their breaker channel to various other places on the dial ie. 27.14 and 5.

My suggestion is, that, like we have

breaker channels 19 for the truck and 9 for emergencies, why not have one channel for all the local breakers? For example channel 25. This would make things a lot easier especially for local breakers, as it would mean that they would not be shouting to truck drivers to clear the breaker channel. This would also mean that truck drivers, holiday makers, travelling salesmen and out of town breakers etc. would also know what the local breaker channel is (ie last summer I was in the Isle of Man for four days before I found out what the local breaking channel was) and use it if they wish to.

I would like this suggestion to be put up at Breakers clubs and then depending on the response to it, see if we can get one national, but local breaker channel.

Yours faithfully,
BLUE (Summer Wine City)

Unfortunately, in Scotland, the UBA have unsuccessfully attempted to steal the thunder from the more informed CB clubs in that they have openly admitted that they are the ones who will campaign for CB, and no one else.

Let us take the argument a bit further. It is all too true to say that the majority of breakers seldom consider the implications of 27 MHz AM CB being legalised. If we end up with this system (God forbid) we will be unable to fully utilise the possibilities of an easily obtainable two-way radio system due to the problem of tropospheric propagation.

In Glasgow, the use of 27MHz CB rigs has increased by such a degree that it is no longer uncommon to meet neighbours at a CB club meeting. It is undeniably true that 40 channels is totally insufficient for this city, but at the same time, it is well nigh impossible to contact another station as little as a mile distant due to the skip problem.

We must also consider the inhabitants of more remote areas, who due to geographical problems, will require considerably improved reception facilities than those offered in the present system.

If a 1MHz facility is to be offered, we will be able to purchase equipment which is similar in design to 27MHz sets and therefore similar in price, with perhaps the exception that world demand will be smaller.

We will have a system with little or no skip, and clear reception facilities. Lets be honest; when a prospective breaker buys an illegal rig he knows all too well that there is always the chance that it will be 'removed' by authorities.

He should also know that his equipment probably causes acute TVI because of the limitations in the performance of his rigs.

If anyone really desires to DX, he can go for an amateur licence and at the same time, use a 41 MHz set for local communication.

Surely, therefore, if it transpires that 27MHz is not legalised the outcry will not be as loud as expected when it is known that the frequency offered is superior in practically every way.

I wonder what the UBA will do then. At present they have given themselves no

other option but to cry for an outmoded frequency.

IAN PATERSON (Red Lion)
Chairman GCBC

I have a few comments to make in reply to your Readers Write section. First of all the letter from Pink Submarine of Glasgow. The South Manchester Breakers club is the second oldest in Manchester and I personally have been trying for the past 6 months to bring our Breaker Channel down from 19 to 14 to leave 19 to the truckers. I have attended other club 20s to try to get them down to another channel but the answers were a big NO we will stick to 19. All I can say Good Buddies is I have tried. My aim was to an English breaker channel of 14 and an English truckers channel but I did get a yes from Leeds, Bradford and other Yorkshire 20s. The second point is the letter from Master Blaster, the best way of advertising CB radio is not making it foolish, the S.M.B.C. have been trying to get CB mentioned in the papers in the North West since we started last April. The first time we managed it was 31.12.80 and the second time we got a photo as well, this was due to 15 of our members pulling a 4½ ton V.W truck around Manchester for 7 miles to be exact, in aid of charity. As the lads pulled the truck, Cherokee who was steering the motor was giving a load of info to the public over a P.A. system (legal type on hire) all about CB radio by the time we had finished the public did know about CB radio and we had made about £500. This was done legally with a police escort so why don't you try something like this as I am sure you will benefit from it. Finally all I wish to say is the government can dilly dally all they wish because as I am sure all your readers who own illegal CB sets will agree that if they do not legalise CB radio on 27 MHz they will be wasting their time and ours, because the existing illegal CB users will not throw their sets away so 27 looks as though it is here to stay, legal or illegal. This is the feeling from most of our clubs in the North West. I have 400 members on our books and I know that we all want 27 megs. and nothing else.

10-10 C. DOHERTY

As for myself I am not bothered what channel I break on, but I often monitor on 19 for traffic conditions and accidents etc. and on occasion have been able to render assistance. I am now unable to do this for the reason stated.

I am not opposed to channel 19 being the highway of truckers channel, but surely it would be in the interest of all to use it, and clear it, as a breaker channel.

I wonder if the readers of CB Mag would like to comment as I am sure this is not a local problem altogether.

Take care, drive safe, catch you on the flip, Breaker Break.

SANDPIPER N.M. 106
Lincoln

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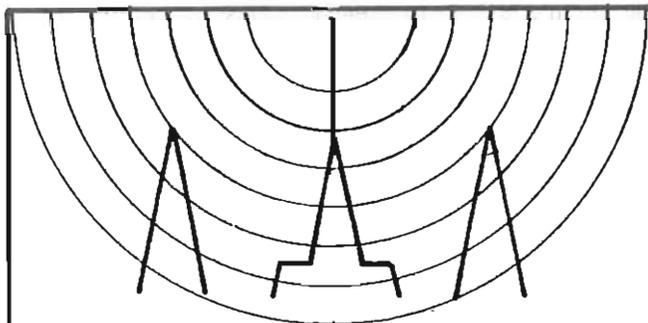
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Readers Write

Here is the USA channel 19 is normally regarded by truckers as their channel, it would not be unfair to assume that as professional drivers they do require a particular channel that is more or less their own. In the US where a second breaking channel is required 18 or 12 have been used successfully. The only problem with 12 over here is a damnable carrier which exists in most areas, totally blanking out almost all chance of a copy. The problem will resolve in time but to be sensible one four should be used only for establishing contact, then it should be cleared.

Dear Ed,

Over recent weeks I have heard a lot of talk being thrown around regarding 27 MHz receivers. I have heard from a fellow breaker that it is illegal to listen to 27 MHz broadcasts which originate from the UK.

If this is the case am I to believe that so long as you are listening to a 27 MHz from a country such as the USA or Italy there is no offence being committed.

A point has been brought up recently that it is not illegal to listen to 27 MHz broadcasts originating from the UK however it is illegal to act on information received from such a broadcast or to use the information in the commission of a crime.

I would be pleased if you could answer this question once and for all. Best wishes.
SLIPPERY SAM

Yes, it is illegal to listen to 27 MHz AM transmissions originating from within Britain, it is also illegal to pass on to a third party any information listened into on any frequency ie: Amature Radio, Police, Fire Brigade, Ambulance and so on.

ED

Dear Ed,

I don't know if the executive of the largest local club (Cathedral Breakers Club) has written regarding the breaking channels in Lincoln. A recent vote of approx 300 members agreed that channel 14 should be used in the city, and channel 19 outside the city limits, mobile.

We have one problem, however, a local minority group of truckers have chosen 19 as an exclusive truckers channel, and instead of clearing this channel when they get a copy, they block it with prolonged modulations, refusing to clear the channel when requested. Any other breaker trucker or whatever has great difficulty in picking up a copy on channel 19 due to this childish stubbornness.

Dear Sir,

I would dearly love to be a new breaker and I hope the information that you supply me with will help me solve the problem which I have, namely what equipment to buy. I heard from a friend that when it is made legal to transmit on CB it will undoubtedly be on 27 MHz FM and if I buy a rig

which used 27 MHz AM then I want to be able to use it. If this is rubbish I would value your considered opinion of two particular rigs. The Colt 210 and the Midland 3001. Thank you.

There is obviously a problem with much of what is said about legislation. The fact to remember is that any rig with AM will have been illegally imported and therefore even if possessing FM would still be illegal. Keep tuned for a report on which rig works the best, in fact you may find a review next month. Perhaps your friend was referring to the fact that on FM rig should reject AM signals and vice a versa.

ED

Dear Ed,

Just got your Feb. issue and on reading about the Birmingham demos prompted me to write regarding a few points of interest.

Firstly I would like to pick up on the Birmingham demo. It was said that Northerners have noticed a lack of London Club support at Northern rallies. Well I can say this is not only confined to CB Clubs. A few years back I was a member of the National Chopper Club (Chopper M/Cycle Club) and although London and Southern members outnumbered northern members, you would always find that the northern members would take the time and trouble to make the southern rallies, but when the northern section help a national rally only a handful of southerners would show up.

The Motorcycle Action Group hold mass rallies and some of them have to be seen to be believed. Thousands of bikes at a time ride through towns in a demonstration at government anti-biking laws and yet we hardly ever get a mention in the papers.

Also again, when a national M.A.G. demo is held in the north a mere few southerners show up. Isn't it about time southerners gave us Northerners a lot more support, be it M.A.G. demo's or CB demos. We are all in the same boat - the do gooders in government would like to see motorcycles as well as CB band given half the chance. They've already lumbered us bikers with a helmet law (hasn't a person a right to choose) and they've got silly things in the pipe line such as compulsory day glo vests, daytime headlights, etc. etc.

The papers refuse to give us coverage (MAG & CB) but all we want is freedom. We do no harm to anyone. Bikers and CB'ers are very similar in the way they are both persecuted.

I am now a member of the Motorcycle Action Group. We are trying to keep what little freedom we have left. As you know, bureaucrats and government killjoys poke their noses into everything and if they find anyone enjoying themselves without their approval they don't like it.

M.A.G. Member and interested in CB'er Fight for Freedom.

MARTIN GLENTON

Dear CB Radio,

Being fairly new to CB radio I have been trying to brush up on the 10 codes but am a little confused by the differences in various magazines e.g. 10-10 transmission completed or negative or fight in progress.

10-16 make pick up at or reply to message or meet complainant.

10-32 radio check or units needed or man with gun etc. etc. a classic example of this confusion is C.H. Tewkesbury's letter in issue no.4 where you didn't know what he meant by 10-16 which in your code is 'make pick up at ' but also means 'reply to message' in a different 10 code. Confusing isn't it, is there a standard 10 code? Which one is more common? Which do we use? It seems that more air time will be wasted by using 10 codes if breakers aren't sure of what is meant. Can you please throw some light on the matter and help me and many other breakers in their confusion.

Well my nickel's up, so three's and eight's.
CATFISH, Redhill, Surrey

10:10 TXMSN Completed or Negative
10:11 Talking to fast or On Duty
10:12 Visitors Present or Stand by stop
10:16 Make Pick Up At or Reply to message
10:17 Urgent Business or Enroute
10:18 Anything for us or Urgent or Comp. Assignment
10:19 Nothing for you R.T.B. or In Contact
10:22 Report in Person to or Disregard
10:23 Stand by or Arrived at scene
10:26 Disregard last info or Est. time of arrival
10:30 Does not conform to F.C.C. Rules or Illegal use of radio
10:31 Pick Up
10:37 Wrecker Needed or Suspicious vehicle
10:38 Ambulance needed or Stop Suspicious Vehicle
10:50 Break channel or Accident
10:77 Negative contact or Est. Time of Arrival.

Dear Mr. Rule,

Reference your article in CB Radio No.10 April 1981, Page 12.

Your diagram should show the SWR Bridge before the Low Pass Filter as any experienced Radio Operator will confirm.

The LPF will then eliminate any harmonics generated by the non linear devices (diodes) in the SWR Bridge.

As you have drawn the diagram you are perhaps creating a problem that did not exist previously, unless this is intentional?

From a legal user and experienced TVI investigation officer.

ANON, Birmingham

Dear Anon Birmingham,

In part 1 of Dealing with Interference Problems, the S.W.R. meter is shown after the L.P.F. to set up S.W.R. in the first instance and later in the article it will be explained that the S.W.R. meter should be placed in between the transmitter and the L.P.F. to deal with interference problems.

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27 AM - No Future?

Amplitude Modulation on 27 MHz is, and will remain, illegal.

To avoid the AM, FM, SSB argument, not to mention power rating and specifications, we must try to disassociate from CB as we now know it. It is somewhat true to say that the greater majority of present CB'ers know of little else other than AM operation, either straight forty or high and low multiples thereof.

However FM (Frequency Modulation) has been available for quite some time, it is not as some imagine an overnight invention, it's addition to many rigs was intended to enhance the equipment, increase sales by making the transceiver more sought after and of course give the user more satisfaction.

So whilst many British CB'ers are familiar with FM, few ever use it for anything other than an extension of channels. Of course there are some CB'ers that do put FM to more use, most tend to be base stations where initial contact has been established and the FM addition lends more privacy. Although in the light of government proposals I am sure that a thriving sideline will be AM-FM adaptors.

Without dealing in full with the history of CB and its involvement over here we now need to look at some of the background that has lead to the present unique and decidedly British situation.

Allocation of Frequencies

Our bureaucracy and the red tape that goes with it is designed to protect the interests of Britain and her subjects, as is any governments duty they must act and follow the course of such protective guide lines, normally for the benefit and good of all concerned.

Radio broadcasts are a very important part of our structured society and as such must be allocated and once allocated given protection. Any individual can understand that if the Fire Brigade or the Ambulance Service is to have radio as a means of communication then because of the services nature any interference must not be allowed.

Therefore it follows quite naturally that radio equipment must be capable of non interference to other services. Imagine the chaos that could be caused if the Gas Board could disrupt emergency calls to ambulances. Or if the Electricity Board were able to break over the Fire Brigade.

Radio Regulations are required, however the allocation of frequencies has

always been exceptionally guarded and structured so much so that whilst America has had a public or Citizens Band for over thirty four years, Britain still has not.

The American Answer?

With a citizens band the ideal is a service which offers the user range, usability, easy installation, simple operation and a reasonable price. 27 MHz has just that, the potential user can purchase a transceiver then armed with an antenna simple instructions and a basic meter, he can set up a radio station in his home, vehicle, boat or camper within the hour.

The service was ideal and would still be but for the dramatic increase in demand that came with the fuel crisis. By 1976 over half a million sets were being sold every month.

Motorists had become aware of the benefits CB could offer saving time in traffic, unnecessary journeys, avoiding speed traps and finding petrol.

With the increased demand came quick cheap manufacture and of course cut throat prices, quality was soon passed over in order to produce quantity, this resulted in a side effect and during this period of poor quality sets interference problems soared. But it was not just a quality problem that faced the F.F.C. (Federal Communications Commission)

one of the aspects of 27 MHz is the ability to skip talk using SSB operation (Single Side Band) the frequency properties are such that with an active ionosphere the signal is reflected and it bounces back to earth.

CB operators were now able to talk from one coast of America to the other, something that previously only amateur radio enthusiasts had been able to accomplish.

Hindsight is an amazing thing which unfortunately exists only as the word implies after the act. Given the choice again the FFC would undoubtedly not allocate 27 MHz to a citizens band service as can be seen by their original intention of a short range high quality public radio service has not been adhered to.

The British Problem

Apart from the reluctance to allow members of the public access to the airwaves the British bureaucracy faces added difficulties. Our country is smaller and on the whole more densely populated, thus a CB operator may have more potential to interfere with a greater number of televisions, Hi-Fi's and radios within a radius from his base. The equipment he is liable to interfere with also differs from it's counterpart. In the U.S. CB has been in operation on 27 MHz for over 20 years



One of the rigs currently available featuring AM & FM modes which will remain illegal.

thus all electronic items sold are and have been suitably protected from 27 MHz interference.

Another major and highly important factor is that linear amplifiers are outlawed in America and as such are not available other than on the black market. Their cost is relatively high and thus whilst such outlawing cannot prevent their use it does restrict it to only those with sufficient interest.

The penalty for use is also high, detection is easier whilst using boosted power, interference is also increased and as this alone is one very successful way of being caught. American operators using linear amplifiers ensure that their set up is correct and least likely to cause interference.

Interference is for the British CB'er, the thorn he has had to live with, it is a subject continually thrown up by opposition to CB. Interference to most CB'ers remains an unproven and unfactual smoke screen.

However the fact remains that because Britain is not prepared for 27MHz, interference does exist. Newspaper articles are often sent to us here at the magazine by CB enthusiasts wishing to discredit the damaging article. On investigation we have often been told that interference had actually happened. The papers are normally reporting correctly, but they have not been informed or haven't reported that the whole street of televisions that had reception blacked out, or the hospital that couldn't page anyone for over an hour, was due to one irresponsible idiot running a 1000 watt linear.

The Break Down of Respect

Can anyone honestly justify the illegality of talking to a fellow Briton on the airwaves?

Is it really a serious offence demanding a penalty of up to £400 and/or 6 months imprisonment?

British CB'ers can be excused for asking such questions, firstly they are valid and secondly we do live in a democracy. The problem that now faces the government is one of no respect.

The blame for illegal use of 27 MHz is placed on the shoulders of the user! But is that really true? If it wasn't for the years of back pedalling and stalling churned out by our government would 27MHz AM operation exist?

If in the mid seventies 27 MHz FM had been legalised would there be any implementation problems or doubts? No... probably not, after all then the subject was practically unheard of and illegal use was indeed minor. Instead of playing a compromise, reversal of policy, the authorities could have lead the way.

Now illegal use of 27AM has become part and parcel of a vast minority of the British populations life style. So much so that there is little incentive to change to a legal alternative, especially as at this date the alternative has not even been named as having X power X channels and X cost. Coupled with a possible delay of a further eight months, then one really cannot see an instant legal 27 MHz taking off.

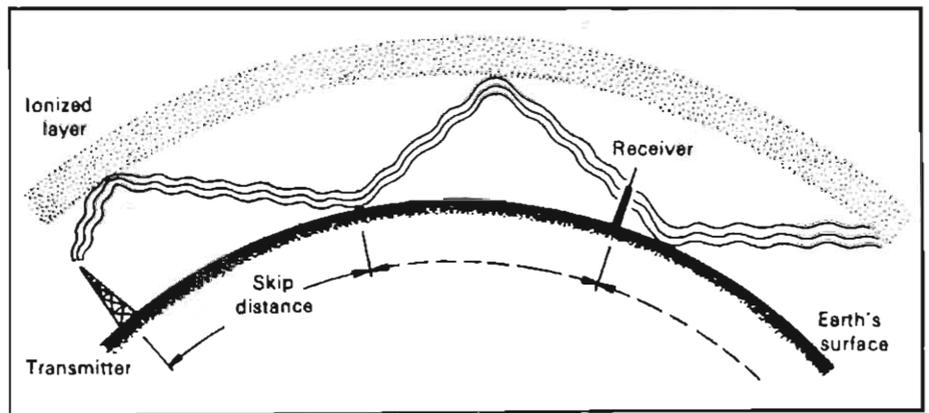


Diagram showing how radio waves are reflected back to earth from the ionized layer.

But what of AM?

Smuggled rigs are in abundance, no matter how much the authorities tighten up controls, there is always someone prepared to take the risk. There is a vast difference between transceivers that are smuggled or made available in this country. This difference we will deal with later in an article 'The Frequency Jungle' next month.

This is one of the major reasons why the British authorities want to wipe the slate clean and start with a totally new specification. Type approved equipment produced and manufactured to rigid specifications is less liable to cause interference. Undoubtedly if all the 27MHz AM equipment in existence was of a high standard and made to rigorous specifications, designed to interfere with no

other frequency then there would be no problem.

Our government could have simply legalised existing equipment, sat back, collected the licence revenue and put their brains into motion raising taxes elsewhere. Alas that is not the case, existing equipment is not the ideal, whilst more recent American transceivers and the larger top of the range rigs, are better manufactured, there is still a vast abundance of lesser equipment available.

Couple this to a poorly matched or badly sited, installed or erected antenna, then push amplified power through it and you have exactly what the government won't allow. An extremely volatile source of interference. In short as far as the government is concerned AM has no future.

JOH





The Law and You

A further look at the Wireless Telegraphy Acts 1949 & 1967.

Having established last month, that setting up a wireless telegraphy station by either installing or using equipment, is an offence under the WT 1949 Act unless a licence for such installation and/or use has been granted, we now need to look at the penalties for such WT offences.

Penalties and Legal Proceedings

Subject to the provisions of the Wireless Telegraphy Act 1949, any person committing any offence under this Act, shall 1) If the offence is under part 1 of the Act and consists in the installation or use, otherwise than under and in accordance with a wireless telegraphy licence, or any apparatus not designed or adapted for emission (as opposed to reception) or 2) If the offence is under section 5 or 8 (misleading messages, interception of messages and disclosure thereof of 1948 or in relation to the principal of the Act 1967) will be liable on summary conviction, in the case of the first such offence under the part or section in question to a fine not exceeding one hundred pounds, and in the case of any subsequent such offence under the part or section in question, to a fine not exceeding two hundred pounds.

Where an offence is in contravention, in relation to any such apparatus of any regulation made, or in a failure or refusal to cause any licence or authority to be surrendered. The offender will be liable on summary conviction, in the case of the first such offence, to a fine not exceeding ten pounds and in the case of any subsequent such offence, to a fine not exceeding fifty pounds. (As can be seen, this latter part is more directly related to licenced offenders.) In the case of any other offence, be liable on summary conviction to imprisonment for a period not exceeding three months or to a fine not exceeding four hundred pounds, or to both such imprisonment and such a fine and 3) Where a person is convicted of an offence under this Act consisting in any contravention of any of the provisions of Part 1 of this Act in relation to any station for wireless telegraphy or any wireless

telegraphy apparatus or in the use of any apparatus for the purpose of interfering with any wireless telegraphy, the court may, in addition to any other penalty, order all or any part of the apparatus of the station, or as the case may be, of the apparatus in connection with which the offence was committed to be forfeited to the Postmaster General.

(It should also be noted that the Act accounts for continued use) "Where the use or failure, or refusal continues after the conviction, it shall be deemed to commit a separate offence in respect of every day on which the use, failure or refusal continues".

'Wireless Telegraphy Act 1967'

(Technology is at present advancing at an extremely rapid rate, advancements are being made in every field and naturally this includes radio, therefore Acts like the WT 1949 Act have to be updated. In 1967 such an update was released. Now with the present situation new legislation will eventually be forthcoming but at this date all provisions and sections of both the 1949 WT Act and the 1967 Act and any subsequent updates are current).

Restriction of manufacture or importation of certain apparatus

1) Where it appears to the Postmaster General to be expedient that the provisions of this section should apply to wireless telegraphy apparatus of any class or description for the purposes of preventing or reducing the risk of interference with wireless telegraphy, he may by order specify apparatus of that class or description for the purposes of this section; 2) Where any apparatus of any class or description is for the time being specified by an order, a) no person shall manufacture, whether or not for sale, any apparatus of that class or description, and b) the importation of apparatus of that class or description is hereby prohibited, save with the authority of the Postmaster General.

4) The Postmaster General shall not make any order, or give any authority, or attach any term or condition to such an authority, unless the Board of Trade are satisfied that the order, authority, term or condition in question is compatible with the international obligations of the United Kingdom.

5) A person commissioned by the Commissioners of Customs and Excise may require any person possessing or having control of any apparatus of a class or description for the time being specified by an order under 1) of this section which is being or has been imported to furnish proof that the importation of the apparatus is or was not unlawful by virtue of this section; and if such proof is not furnished to the satisfaction of the said Commissioners, then, unless the contrary is proved, the apparatus shall be deemed to be prohibited goods and be liable to forfeiture under the Customs and Excise Act 1952.

For the avoidance of doubt the expression of "manufacture" includes construction by any method, and the assembly of component parts.

Forfeiture of Apparatus

Apparatus may be ordered to be forfeited (under sub-section 3 of the 1949 Act section 14) notwithstanding that it is not the property of the person by whom the offence giving rise to the forfeiture was committed and any apparatus ordered to be forfeited under that sub-section may be disposed of by the Postmaster General in such a manner as he thinks fit.

The court by whom any apparatus is ordered to be forfeited may also order the person by whom the offence giving rise to the forfeiture was committed not to dispose of that apparatus, except by delivering it up to the Postmaster General within forty eight hours of being so required by him; and if that person contravenes that order or fails to deliver up the apparatus, he shall be guilty of a further offence, deemed to be an offence under the same provision as the offence for which the forfeiture was ordered.

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- Stanley-Perth & Fife CB Centre, Perth Road Garage, Stanley, Perthshire. 073 882 291
- New, just opened - Horley CB Centre. 02934 74 997

Vultures on the Side

The 27 Club
 It appears that not all clubs show the same enthusiasm for 'Yellow Peril' last month we reported on the London to Tunbridge Wells Convoy and since doing so we have received numerous phone calls in all hours demanding that we print a retraction!
 Evidently the 27 Club of Bromley wish it to be known that they do not support Ms Box and that their demonstration to Tunbridge Wells was not to show her support.
 As editor I can see no grounds for any retraction by us and stand firmly by our reporter. Indeed I respect Ms Box's Tunbridge Wells as those who caught the BBC's early evening news would know, the demonstration was stated as being in protest of Yvonne Peril's recent conviction.
 If you require a retraction I suggest you try the BBC, he was after all sticking them!



Yellow Peril, the final story, the conclusion?

For the last two issues we have related the events leading up to the fine Ms Box, "Yellow Peril", received for her Citizens Band offences. The fine totalled £640, being made up of £200 for the first offence, £400 for the second offence and £40 court costs.

Ms Annette Box paid £200, an amount she deemed to be in line with other CB offences and the fines imposed. As a result the court levied a sentence of 9 weeks imprisonment, for non-payment of the outstanding £440.

At the time of our April issue going to press Ms Box was still free and awaiting the dubious pleasure of hospitality in Holloway Prison.

Arrested Friday the 20th

Since hearing the sentence of 9 weeks imprisonment Ms Box had been prepared for an almost imminent arrest, indeed it was expected that as our March issue hit the streets Annette would already be inside.

However not wholly undue to a recent prison wardens strike, there was evidently a back log of offenders and very little space. So Yellow Peril had to wait her turn, that chance came on Friday the 20th of March when Ms Box found herself arrested and on route to Holloway Prison.

The news of her arrest did not travel that fast, it received little press coverage, yet breakers from all over the country were collecting money to bail Ms Box out. Not least of which were the Tunbridge Wells Breakers who were behind Yellow Peril 100%.

Bailed Out

So it was that on Saturday the 28th of March at around two fifteen a gathering of some thirty breakers awaited the arrival of the Tunbridge Wells coach carrying their contingent and the money required to secure Ms Box's freedom. Some of those already waiting had come from Bury, not exactly half an hour down the road. Two thirty came and with it the arrival of the T.W. Citizens Band Club. Spirits were high and banners were proudly displayed, final donations were made and then the whole troop of some

eighty or more breakers descended on the main gate.

The Tunbridge Wells delegate was allowed in, cash in hand, then an expectant silence fell on the waiting crowd. For over half an hour the breakers waited patiently then a police Rover arrived and requested that the gathering move away from the gate and wait the public side of the barrier. Tension was high for just a few moments as no-one really knew what attitude the police would take to the banner carrying CBers. However the silence was broken and with it the atmosphere as the constable asked for and chatted to the organisers. The crowd settled back down to wait.

A few minutes away from three thirty and a cheer rose high as Ms Box emerged looking pale but healthy. As Annette approached the barrier a champagne cork popped and three cheers for Yellow Peril followed the bubbling liquid. Obviously touched by the welcome, Annette drank the celebration drink and looked

at her saviours.

She pushed back an obvious tear and said thank you as one by one various breakers shook her hand and commented, "You have done a lot to publicize CB", "It took guts but it's what CB needed", others simply said well done or welcome back.

Did the sentence work?

We asked if it was all worthwhile, had she now changed her opinion of CB? Ms Box replied "I am not sure about worthwhile, that place was" she cringed "but it certainly did nothing to deter future use, that's no way to discourage crime".

The only other reporters present were Councillor Richard Town from CBW and a chap from the Telegraph who asked if Ms Box was now off to use her CB Radio. Annette smiled and said, "Maybe".

So we wonder is the last part in the story of a young lady caught for using a Citizens Band transceiver?

JOH



K40



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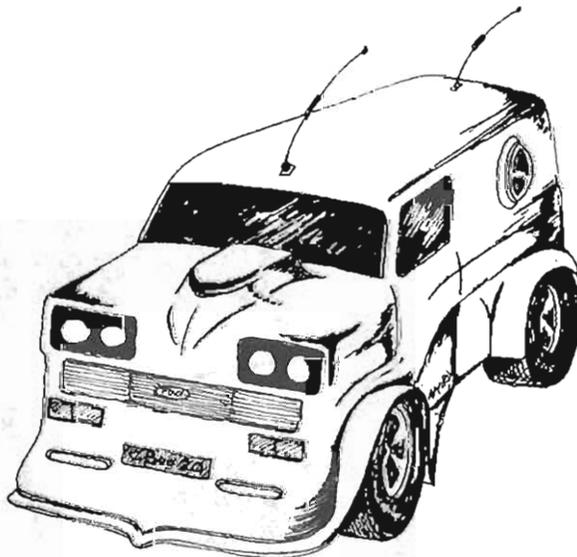
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DX QSL International Club Spot



The Norway Amateurs Club reviewed by the English International DX Club.

Hello everybody, a slight change of style and format this month.

Due to an amazing and ever growing amount of English International correspondence, the club president, Lima Charlie 1 is slowly becoming lost to the outside world. As L.C. likes to answer every letter personally he is finding it very difficult at the moment to write the DX QSL International Club review page and has therefore, in a fit of gay abandon, temporarily rested the responsibility for this pleasant(?) task upon my puny shoulders.

Whether this is a wise choice or not remains to be seen but Lima Charlie is happy about it, the Englishman is happy about it, so I suppose I'd better be happy about it!!

By the way this is Charlie Hotel Echo India 025 (local AM Greenfingers) busily scribbling away here.

Now that the formalities are over, down to business.

The club we have chosen to put the spotlight on this month is: The Norway Amateurs Club. Yes, I know we said an Australian Club, but they never sent their QSL's in time.

being most European and North American States, South Africa, Saudi Arabia, Hong Kong, Japan, The Faroe Islands, even three members from hard to get hold of Eastern Europe; from East Germany and one from Yugoslavia. Highly desirable and very difficult to acquire QSL contacts those two.

There are N.A.C.'ers resident in England Wales and Northern Ireland but strangely enough, none in Scotland. Apparently the first bloke to apply from Scotland, will be given an honorary membership. Now that's a canny incentive for those North of the Border. A FREE membership. The Scottish Postal Service will probably be knackered by now, trying to cope with millions of letters all going to Norway!!

Seriously though, Andy does a great job with the N.A.C. He is really beginning to make his mark world-wide.

In a German publication called coincidentally, C.B. Radio (any relation James?) a list of nine of the best DX QSL Clubs in the world was published.

Believe it or not the German CB Radio Magazine considered the N.A.C. to be one of the biggest, best and most reput-

able ones around. Based upon the number and quality of services and items available to club members I would think that their assessment is probably correct.

One of Andy's innovations is the registration of N.A.C. 100% QSL'ers. This is circulated to all club members and is open to all N.A.C.'ers. What it is, is a list of members who have promised to QSL 100% 1-4-1, not only does it give QSL'ers but also their special wants, e.g.:

I want to QSL with someone from Belgium Congo.

I want to QSL in cassette form and want contacts with members in U.S.A.

I collect stamps and want to swap world-wide etc.

A very good service and full marks to Andy for providing it.

The N.A.C. appears to be more than just the usual QSL swap club. There is a real feeling of comradeship and friendship amongst all N.A.C.'ers. This feeling is enhanced by the fact that Andy welcomes personal letters, cards, visits by any N.A.C. member. Everyone is treated as an old friend and an honoured guest. All correspondence is answered by either

The Norway Amateurs Club

This is a super club which was founded way back in March 1979 by Andy. Its headquarters are in Hinna, Stavanger, on the South West coast of Norway. Stavanger by the way, is a town roughly the same size as Aberdeen.

Andy, who is married to Lizz, lives with their three kids in what he calls a "One family house". He's a bit of an "Outdoors" freak. His idea of having a good time consists of getting out into the wilds of Norway and wandering around the lakes or when he feels up to it, giving a motorboat big licks down the fjords. Actually that one doesn't sound too bad.

Up to the time of writing, the N.A.C. has close on 1000 members. (The real figure is in fact much higher, due to the fact that XYL's may be registered free of charge under the same unit-number).

Their members come from just about every DX location imaginable, examples



Andy or Lizz. Nice one.

Indeed, such is the feeling of comradeship within the N.A.C., that I have been reliably informed by my spies that chapters are springing up in various odd spots world-wide, for instance in Bexbach, Germany, the local N.A.C.'ers arrange social evenings, and take part in CB competitions and meetings working as a co-operative unit.

Well, I could go on for ages about the N.A.C. but I'll finish here. A glance at the points chart will indicate how well organised and efficient the N.A.C. is. In conclusion, a quality and reputable club with lots to offer.

English International News

This last couple of months has really seen the E.I. take off and grow in membership. Up till the middle of February, English membership alone had grown to unit 241, foreign membership at unit 237.

Not too bad, we're pretty proud of these figures. But what we're even prouder of is the first recorded transcontinental DX between two E.I. club members. This was a memorable event.

Obviously we can't go into great details via the wonders of skip, Echo India 161 of England hooked up with Peter Hall of Brisbane, Australia, Echo India 16. That was some DX copy. It gave us a real thrill when EI 161 phoned us to let us know.

Actually as it happens, lots of English

Norway Amateur Club Star Rating					
	DX QSL Star Rating	Yes First Class	Yes Second Class	Third Rate	No
1	World Recognition	*	*	*	*
2	Distribution	*	*	*	*
3	QSL Response Time	*	*	*	*
4	Club Stamp	*	*	*	*
5	Club QSL Cards	*	*	*	*
6	DX Unit Number	*	*	*	*
7	Wall Calendar	*	*	*	*
8	ID Card	*	*	*	*
9	Club Poster	*	*	*	*
10	Club Patch/Badge	*	*	*	*
11	DX Log Book	*	*	*	*
12	Club Accessories	*	*	*	*
13	Club Information	*	*	*	*
14	Travel Information	*	*	*	*
15	Cassette Swap	*	*	*	*
16	Club Postage	*	*	*	*
17	Life Membership	*	*	*	*
18	Discount XYL Membership	*	*	*	*
19	Value for Money	*	*	*	*
20	Overall Presentation	*	*	*	*
Total Star Rating		16			

Plus one extra special recognition for having a club award.



members at the moment are getting some fabulous DX hook ups. They're really making the trip. We're hoping to describe

some of these hook ups in future issues. In the meantime all you Echo India DX'ers let us know about your hook ups.

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Come Back the Breaker

**Citizens Band Radio
Information Service
(C.R.I.S.)**
In the April edition of CB Radio we
printed a letter from C.R.I.S. but unfort-
unately omitted their address and phone
number.
To contact Graham and Louise Briscoe
either write to: 55b Brook Drive, South-
wark, London SE11 4TU enclosing a
S.A.E. or phone 01-582 9479 before
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Get legal copy on a fellow CBer in print.

Reading Breakers do you copy?

If there are any breakers who would be interested in forming a CB Club with a view to setting up a monitoring/control unit to cover Berkshire, Hampshire, Wiltshire and Oxfordshire areas, please contact c/o CB Radio Magazine.

"Spiderman"

Dear Sirs,

Recently while driving home one evening along a lonely country lane my car decided it was going to go on strike, and refused to offer any thing resembling motion.

Well, there I was, stranded in the middle of no-where, it was raining and starting to freeze, and to make matters worse, I'm disabled. The amount of mobility I have is on a par with the car. I was rather embarrassed and beginning to get worried, you can imagine how pleased I was to hear a local breaker - "Spiderman" - calling for a radio check. So, I gave him a copy and in about 5 minutes there he was, speeding right past me in the wrong direction!

Well, when you're giving your 20 over the airways, you try and make sure only the two of you know where you are. As it happens, it must have been a one-way conversation and by the time I'd explained to him again where I was I'm sure half of Doncaster knew. To cut a long story short, a 4 foot piece of wire connected across the engine did the trick. "Spiderman" then followed me back to my home 20 to make sure I arrived safely. So I'd like to take this opportunity to thank "Spiderman" for being a real "good buddy". I hate to think what could have happened to me without his help, and having explained just one of the benefits of CB can offer one, let's hope in this the "International Year of the Disabled" CB is legalised soon.

10-10 until I'm in the Sxxxx again.

SANTA CLAUS
Secretary North Country Breakers

Howlers

With reference to the howlers in paragraph 1 on page 20 (Three And What Breaker) of your Feb. 1981 issue, I suggest

that you print an appeal for readers to send in any airwave or installation CB - howlers that they did/copied/overheard, and make a proper collection of them and print them.

Going down.

BUCK ROGERS

Well how about it readers, it could make an interesting article. A sort of 'It will be alright on the Air!'

ED

Dear CB Radio,

I am fascinated by CB, but, as a complete newcomer, I don't know where to start. If any CBer or member of a club in the Glasgow area could contact me, I would be much obliged. My address is Kenny Pyles, 7a Crown Circus, Dowanhill, Glasgow, G12 9HB.

All the high numbers to you all. Cheers.

KENNY PYLES

"Is this the end of Bandstand?"

We hope by now that older readers of CB RM that took Bandstand have safely received Edition 14. As we stated on the Editorial Page of that edition (which was considered to be the worst edition we have ever produced), we are running into great financial difficulties.

This in mind Edition 14 will be the last one we will produce. But this is not the only reason for our closing down.

A small group of you have been constantly sending items for Bandstand (These few are going to have to suffer because of the lack of help from the rest.) But mainly due to the fact that we have asked in the past for printing and financial help— None has been forthcoming. We have been mainly relying on our advertisers (few as these are) but due to late payment of monies in this section we have had to dig deep into our own pockets most months to supplement costs. Our mailing address is closing down, again financial as the fees for this service are over £25 per year, plus an additional levy of 2p per letter collected. We asked ourselves is it worth renewing with so many other (better?) CB publications around.

If and this depends on you, the readers

we have had in the past, if we do carry on we will require help. Namely someone to come forward with a free printing system (a tall order!) or a usable Gestetner machine — this will mean a totally type written magazine — as without a photostat neither newspaper cuttings or photographs can be produced. If you can help write now.

If you do not receive Edition 15 this will be due to lack of printing help, financial backing, lack of funds, loss of present printer. If something along these lines does not transpire may we wish you "10-10 till we do it again".

It has been great being of service to you, and the many readers we have — many of whom we have considered as close friends.

If all else fails we will destroy your file card in our paper shredder to protect you all in case your names and addresses fall into the wrong hands.

"Is this the end of Bandstand?"

Best wishes

MIKE AND WENDY EVANS

Dear Mike and Wendy,

I am sorry to hear of your problems, your publication will I am sure be close to the hearts of many old breakers. For readers not familiar with Bandstand, I must explain. Bandstand was the first British CB Newsletter, its format being photostated A4 paper stitched to form a magazine. This was available almost a year before CB Radio Magazine hit the streets, I hope that we played no major part in your downfall and close by wishing you luck and ask 'Perhaps a club or two that remembers Bandstand may consider helping'.

Yours,

JAMES

'Keep Straight!'

Dear CB Radio,

Here's a quick warning to all you mobile breakers out there, keep your vehicle straight when transmitting, if you don't know where all the controls are find out before you take to the road. I passed a weaving car the other night, and sure enough he had a mike in his hand, you never know who's watching.

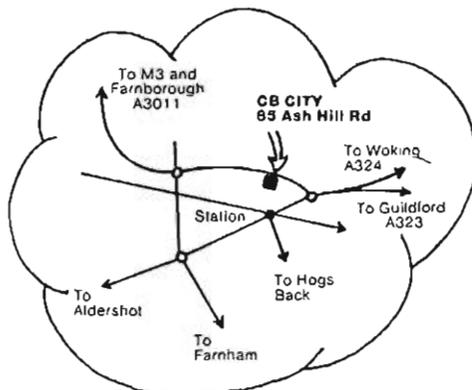
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ALAN ROGERS, KERMIT



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CB Radio – Project Three

Field Strength Meter for 27 MHz

by F.C. Judd.

One of the most useful accessories for checking radiation from any antenna and also for continuously monitoring your carrier whilst transmitting, is a field strength meter. The project presented here is not difficult to make, has high sensitivity and will tune over the whole 27 MHz CB band. The sensitivity can be used at maximum when monitoring radiation at distance, or reduced when working close to an antenna. A short plug-in antenna is used for pick up although this can be made much longer than prescribed to provide increased sensitivity. The meter itself, which has a 50 micro-amp movement is the most expensive item and must be handled with care.



Components List

Case	Aluminium die-cast box 114 x 89 x 55mm RSComponents type 509-945 (or plastic box same size lined with thin tin plate).
Capacitor C1	Variable air spaced Jackson type. 100PFd. Obtainable Bi-Pak their type No. 336.*
Meter	50 micro-amp. Bi-Pak type 1307. Meter face size 60 x 40mm.*
Diode D1	1N4148 or equivalent RF type.
Coil L1	(see text)

Fixed Capacitors

C2	47pFd silver mica
C3	10pFd silver mica
C4, C5	0.22µFd
Sensitivity Control	VR1 100K linear potentiometer
Resistor R1	4.7K ohms
Other Items	Antenna rod (see text) and insulated socket. Stand-off pillars (see fig. 6).

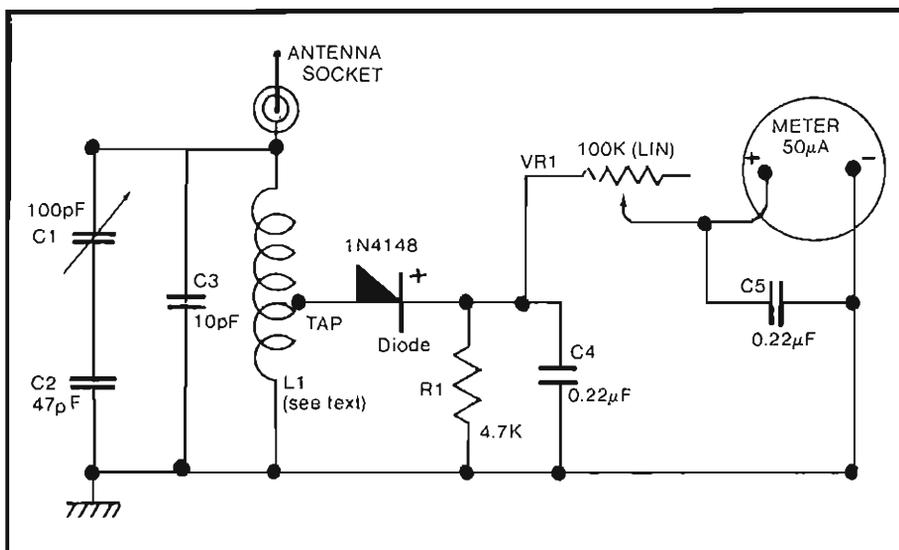


Fig. 1: Circuit diagram of the 27 MHz field strength meter.

*Bi-Pak Electronic Components. The Maltings, 63A, High Street, Ware, Herts SG12 9AD.

The Circuit

This is shown in fig. 1 and consists of a 27 MHz tuned circuit C1, C2 and C3 plus the tapped inductance L1. The short pick-up antenna provides a voltage feed (high impedance connection) to the top of L1. The tapping on this coil is a low impedance point to match the diode rectifier (D1) circuitry which converts the rf signal to low voltage DC that will be present across R1/C4 when the field strength meter is in use. The series variable resistor VR1, is the sensitivity control. This allows, more or less, DC voltage from the diode to the 50 micro-amp meter, depending on operating distance and power used for transmitting.

Construction

The meter may be housed in an all metal case or a plastic case lined with

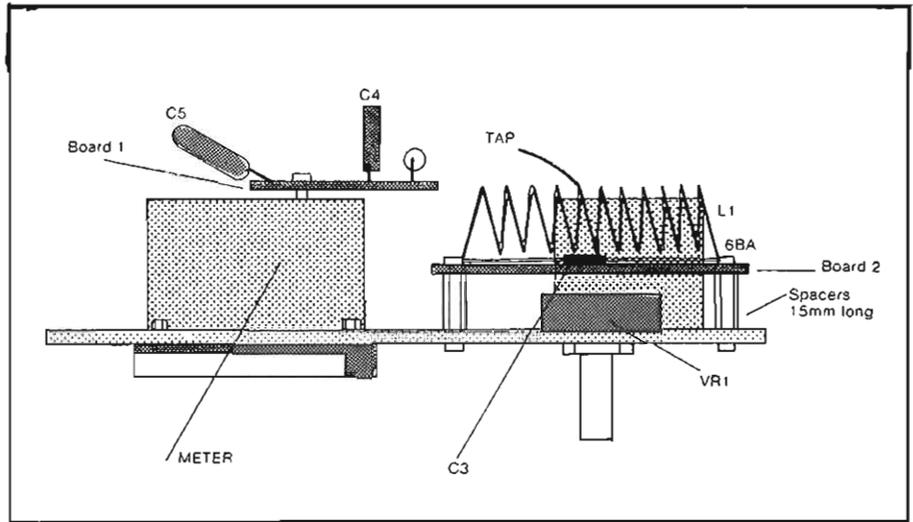


Fig. 6: Side view showing position of meter, circuit boards and sensitivity control VR1 etc.

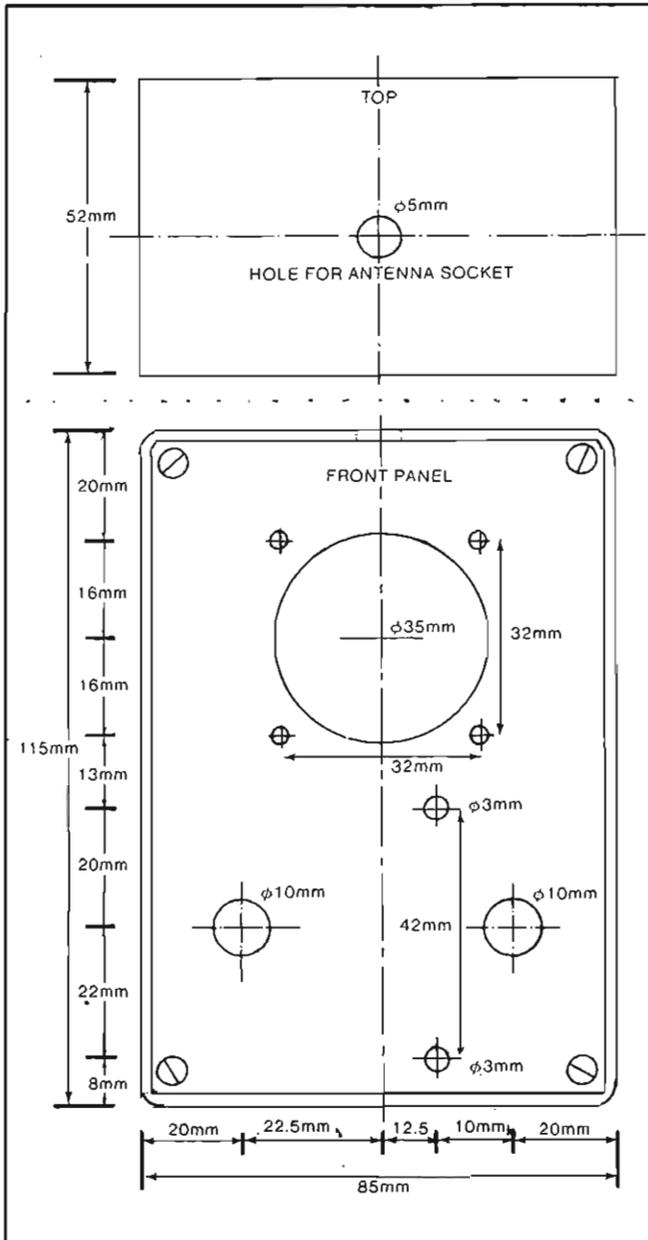


Fig. 2: (A) Panel layout (B) Location of antenna socket at top of box.

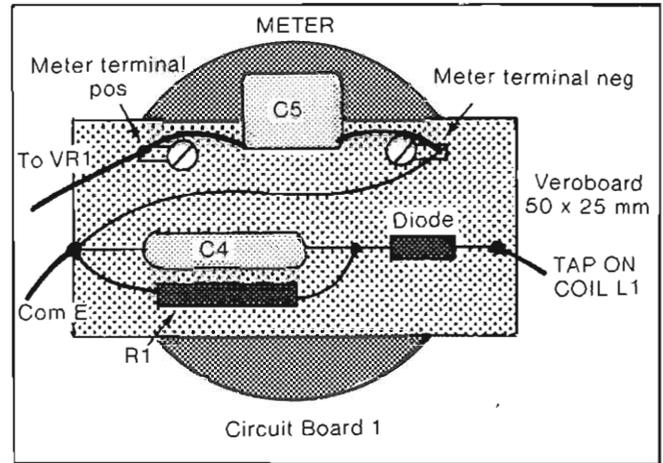


Fig. 4: Components and wiring on Board 1.

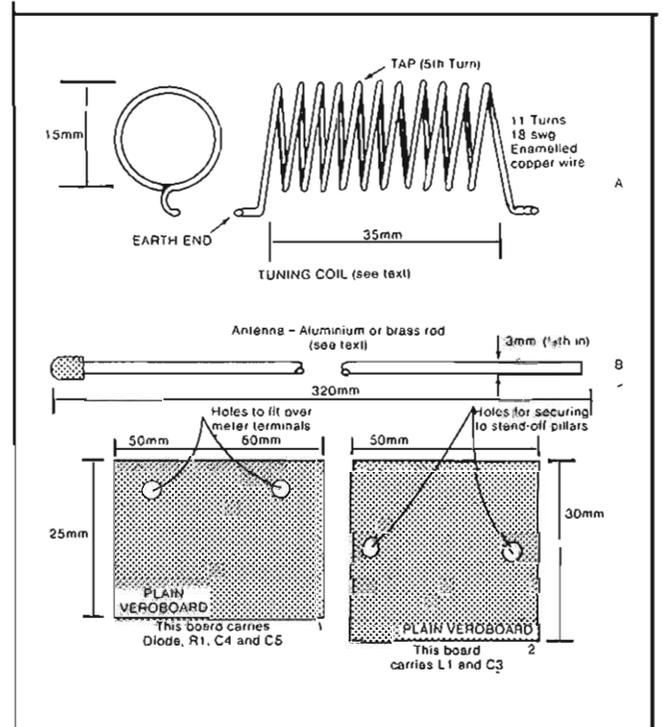


Fig. 3: (A) Details for tuning Inductance L1 (see text). (B) The pick-up antenna. (C) The two circuit boards.

CB Radio – Project Three

thin tinplate. A recommended case is a Diecast aluminium type 4½ x 3½ x 2¼ ins (114 x 89 x 55 mm). R.S. Components type 509-945. Details for panel layout are given in fig. 2A. Note that the pick-up antenna socket is mounted at the 'top' of the box above the meter (see photograph).

Details for the tuning inductance L1 are given in fig. 3A, the spacing between turns being about equal to the diameter of the wire used (18 swg). Note that the tapping point for the diode D1 is at the fifth turn from the earth end of the coil.

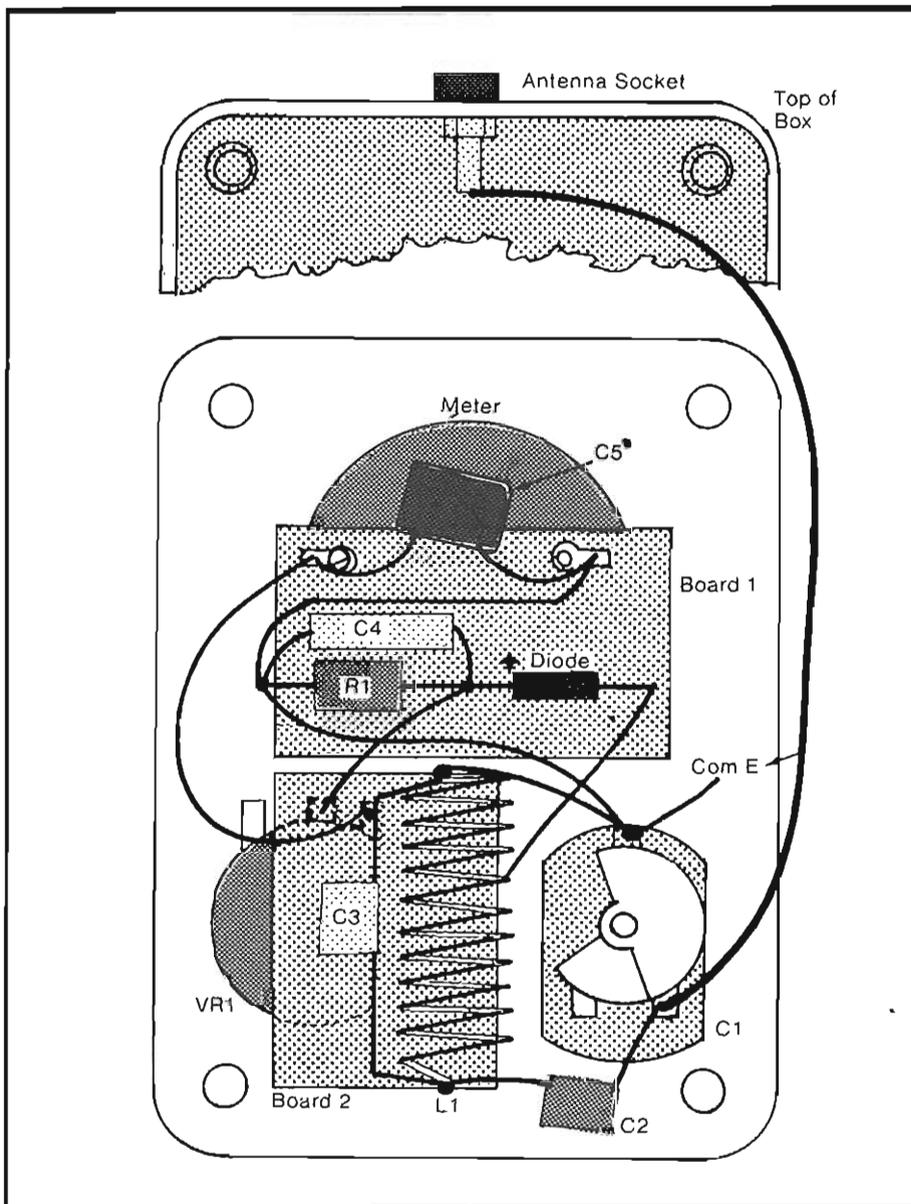
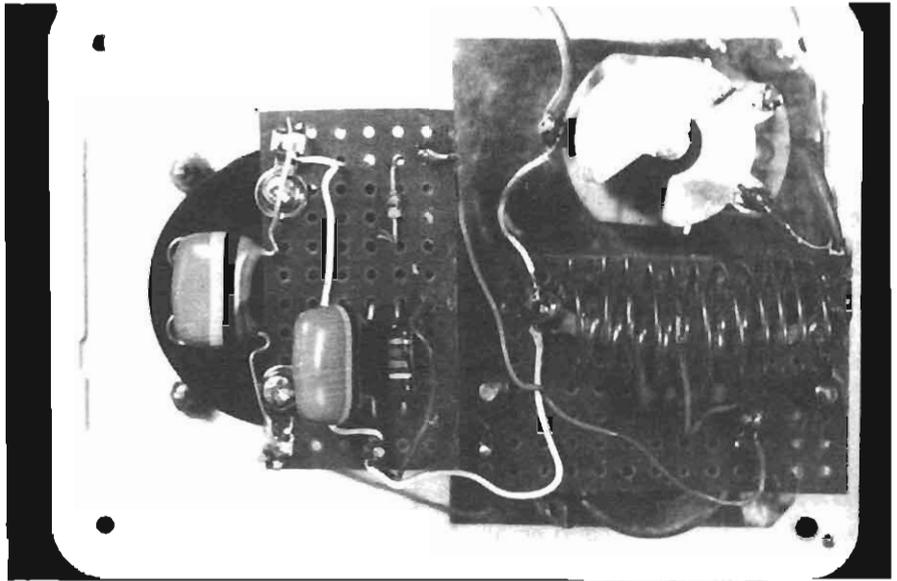


Fig. 5: Coil L1 and capacitor C3 are mounted on board 2 secured by stand-off pillars as in fig. 6. Diagram shows all wiring and connections.

The pick-up antenna in the prototype, as shown, consisted of a length of ½ in diameter aluminium rod although this may be brass or copper of about the same diameter. A longer antenna may be used to increase sensitivity and working range, in fact it may be worth while making two i.e., one to the length given and one about twice as long.

The few components for this project are mounted on two small pieces of plain punched Veroboard cut to size as shown in fig. 3C. The meter components R1, C4 and the diode D1 are mounted on board 1 which is secured to the micro-ammeter under its terminal nuts or screws as in fig. 5 (see also fig. 6). The circuit board 2 which carries the tuning coil and capacitor C3 is positioned as in fig. 5 and mounted on stand-off pillars as shown in fig. 6.

The antenna socket must be insulated from the metal case and may be any type designed for this which normally has an insulating body the socket itself being moulded in.

Virtually all the components for this project can be obtained from radio component dealers (see components list).

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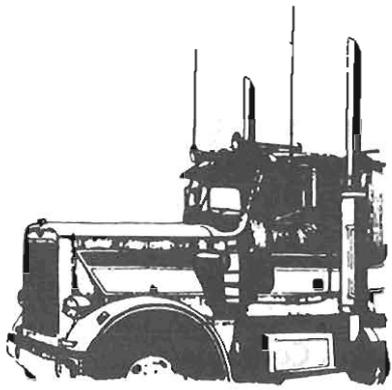
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JOH

SSB is where it's at

After reading the March issue CB Radio, I think it is absolutely imperative that you print the article you asked me to write regarding the Network. The article by the RSGB as printed on page 3 only goes to show that they simply have not done their home work. The supercilious and pompous attitude displayed in the article requires us to reply. These arrogant burks have gone too far. They are obviously unaware that the worlds radio amateurs are out numbered 5-1 by the worlds SSB 11 meter DX stations. At least an equal proportion of these operators are members of national organisations like our own who are dedicated to assisting and encouraging a good standardised operation of SSB stations in our own countries. To us our chosen hobby necessitates our serious approach towards the technical aspects of just such a hobby.

No technical expertise indeed, not only was it the CBERs development of the Phase lock loop that has lead the amateurs to benefit from such a modern form of frequency synthesis (there simply aren't enough of them in the world to have made if financially possible for it to have been developed commercially), but we have also had to get our hobby down to a fine art. The truth of the matter is that we have had to do from mobiles hiding in hedge rows up and down the country, what RSGB HF operators can do with full wave dipoles, beams and the like, from the comfort of their shacks old man. Is Mr B

O'Brien G2AMV really so ill-informed that he can really believe that CB is still the 10-4 good buddy thing most other CB magazines make it out to be, does he really believe that almost a million people in this country talk like that? The British Sideband Network is successfully proving every day the CB 11 metre band in this country is also a frequency for serious Radio Hobbyists.

As far as the rest of the points made in the statement they just do not hold water. There are many of us today holding CW nests (Morse Code) on 11 metres. Why the writer mentioned repeater operation in the article I don't know, that's on VHF, CB is HF, there is no comparison. As for the fact that amateurs build their own equipment, what was on pages 14 & 41 of the same issue of CB Radio if that wasn't self-build projects, then what is?

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Many of our members are amateurs (Licensed) some of them have recently received their G8 calls after encouragement from this network, I am sure that this statement by the RSGB has caused a great many red faces, not a few of them a stones throw from where I sit tonight. If truth, enlightenment and commonsense are what you're looking for, consider the RSGB, and then look elsewhere.

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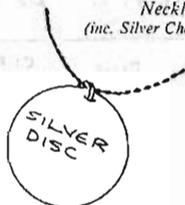
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