

ISSUE No. 9  
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# CB RADIO

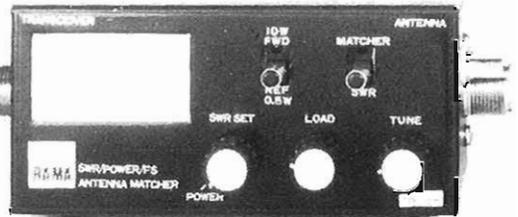


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# CB RADIO



The Bedford Demo



Win this rig, where? See page 10.



Yellow Peril, the inside story.

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## CB Radio Magazine

### British Breaker Productions

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### IMPORTANT

AS A MAGAZINE WE CANNOT CONDONE THE USE OF ILLEGAL 27MHz EQUIPMENT NOR IS THIS PUBLICATION INTENDED TO ENCOURAGE THE USE OF SUCH OR ANY OTHER ILLEGAL EQUIPMENT CAPABLE OF TRANSMITTING OR RECEIVING. WE DO NOT ACCEPT RESPONSIBILITY FOR ANYTHING PUBLISHED WITHIN OUR PAGES NOR ANY DAMAGE HOWEVER CAUSED. - IRRESPONSIBLE AREN'T WE!  
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# CB - The Rumour Game

## Legalisation fact, fiction or fantasy!

As the first British magazine on CB we must surely be able to claim that we have heard them all, before this magazine even existed in print, rumours of legalisation dates were flying along with frequency specifications and even licence applications, and all this was over a year ago!

Unfortunately for us we try to deal in fact! no fiction, something that is extremely hard to do when trying to plot the course our bureaucratic departments will take. This for a monthly mag is obviously made worse by our copy date, because dear readers, this was written when January had not yet seen its last sunset! So we won't ever claim to be the first to bring you the news. No that is what radio, television and newspapers are for. Nor will we hedgingly print rumours, no matter how strong. What is the point in having to retract the fantastic statement "by the time you read this CB will be legal" for readers if that is the case rest assured you will have already heard.

## Dateline January 30th

**Fact :** The Government still emphatically rejects 27 MHz AM

**Fact :** 930 MHz is the preferred government Open Channel frequency

**Fact :** 930 MHz recently received clearance from the Health Department

**Fact :** The National Radiological Protection Board have issued a statement which dismisses the allegations of health hazards at 900 MHz frequencies.

**Fact :** William Whitelaw said in a recent letter in answer to requests for 27 MHz to be legalised "I have noted the extent of support in favour of the use of the 27MHz band, however we did make it clear in the discussion document that the 27MHz band is not appropriate for a new facility in this country".

**Fact :** 27 MHz AM (Amplitude Modulation) stands little chance of gaining favour with our bureaucracy.

**Fact :** In late December the answer to the question of amnesty for 27 MHz users was **no**.

**Fact :** The NCFL (*National Committee for Legalisation of Citizens Band Radio*,

also referred to as *NATICOLIBAR* or the *Steering Committee*) are not fighting for 27 MHz. Instead their proposals for a 41-47 MHz (Band 1, black and white TV frequency) have been put forward in the strongest possible terms as the frequency for CB/OC. These proposals were ratified by the Parliamentary working party on CB.

**Fact :** The proposals for a 41-47 CB/OC have met with similar interference arguments from the RRD (Radio Regulatory Department) as has any and all other frequencies below 928 MHz

**Fact :** Low power general licences for 27 MHz modellers, metal detectors, garage door openers, etc. have not been issued with a licence fee since December the 21st 1980. Instead these low powered items no longer require licencing but will *continue* to operate on 27 MHz.

**Fact :** Aero modellers have been allocated *in addition* to 27 MHz a frequency of 35 MHz in line with European countries this is on a frequency range of 35.010 MHz to 35.200 MHz.

**Fact :** The Radio Regulatory's strangle hold on frequency allocations and the rigid licencing that has always existed in Britain is now loosening.

**Fact :** 930 MHz although preferred by Government and even if legalised soon, will take time to impliment. (Estimates vary but some believe two years).

**Fact :** There are more users of illegal 27 MHz equipment than the government is prepared to admit.

**Fact :** This number of 27 MHz users is growing daily and is now so vast that a decision on frequency allocations is rapidly becoming not the governments to take

**Fact :** France has announced proposals to legalise 27 MHz FM, 22 channels operating on 2 watts.

**Fact :** France was seen as a strong ally when proposing a 900 MHz frequency for Britain

**Fact :** Citizens Band/Open Channel *does not* require primary legislation to be introduced. Therefore legal CB/OC could come overnight!

**Fact :** At this moment in time the government does not know what it is going to do about 27 MHz CB as we know it! Let alone any publication magazine, journalist or any friend of a friend.

**Speculation :** Unless the British government announce something soon the Irish will beat our government to a decision on legalisation.

**Speculation :** That the Government will announce in February (now last month) their proposals to allocate 930 MHz to Open Channel public two way radio

**Speculation :** That at the same time William Whitelaw will answer a question in the House, announcing intentions to continue to look at an additional lower frequency

**Conclusion :** Our Government now stands alone with all the odds stacked against them, somewhere in the halls of the RRD a boffin is considering how to save face.

## What to believe

Legal CB on 27 MHz FM is long overdue we reported on this subject back in August (issue 3) when even prior to the release of the Governments Discussion Document the Netherlands had already instigated 'MARC' 27 MHz FM, 22 channels.

The simple answer as to who or what to believe is no-one.

Whilst many claim to know more than you it will normally be proved that in fact they often know less. Perhaps the longing for legal CB is the very reason for the abundance of rumours. For many a CB'r would dearly love to slap a firestick on their roof and swan around all night without having to turn into paranoiac vanishing acts at the hint of a smokie.

It's known as wishful thinking.

No, I am not going to be a hypocrite and leave myself an "I could be wrong but" get out. 27 MHz is not here yet full stop. No rumours no fiction, just fact.

ED

**COVERAGE OF THE  
ADJOURNMENT DEBATE  
AT THE HOUSE OF  
COMMONS WILL BE IN  
OUR APRIL ISSUE**

# The Radio Society of Great Britain

The RSGB have been asked to comment on CB.

The following is an extract from the Society's News Bulletin transmission of July 1979:

"During the past few months, the subject of citizens band radio has been given much attention by the media and RSGB is increasingly being asked for its opinion on CB.

As expected, the media are linking amateur radio and citizens band and regrettably much of what has been reported is both derogatory to amateur radio and inaccurate. The Observer published an article in which it said: 'Ham radio enthusiasts resent the intrusion and popularity of this brash new claimant for airspace'.

Comments in this vein suggest that amateur radio is 'opposed' to the introduction of a short-range personal communications facility.

The Society's official view of citizens band radio was given in the May 1978 issue of Radio Communication. In principle the RSGB is neither for nor against CB, although individual radio amateurs may have wide ranging views either way. The RSGB believe that if CB is introduced in the UK, it should be at VHF or UHF. Also implied is low-power 'type-approved' equipment using frequency modulation.

The Society is in contact with the appropriate people on this matter and is anxious to continue monitoring the media."

Below is a more detailed opinion, which has been sent to the authorities in the form of a brief submission.

## Current Comment

### Citizens' band

*The RSGB is aware of the numerous items that continue to appear on this subject in various publications both as correspondence and as feature articles. It is apparent that much of the material has been generated by those who will profit financially from the introduction of the facility rather than by potential users.*

*The Society is often asked to state its policy on a citizens' band. It is somewhat difficult to offer an informed opinion on a matter concerning which nothing definite is known. Understandably, no guidelines are available from the administration regarding the various possibilities, and it is in this context that the following statement is made.*

*This statement was first published in Radio Communication in November 1976, and since that time nothing has been published in this journal to warrant any changes to it.*

The matter of a citizens' band is under continual consideration by the Society's Telecommunications Liaison Committee, and the Council approves its present views which are:

- 1 The R.S.G.B. exists to safeguard the interest of its members and of the amateur service in the UK. The amateur service is a defined service in the Radio Regulations (Geneva 1976) and is accorded worldwide status in the same way as the professional services. A citizens' band facility exists only where a national administration is prepared to set aside spectrum space for this use.
- 2 While the RSGB may have no direct interest in a citizens' band facility by its present articles of association, it must, in the interests of its members, take heed of developments likely to affect the amateur service.
- 3 The major consideration affecting the introduction of any new facility is the ability of the administration to exercise complete and effective control. Anything less is not acceptable.
- 4 The RSGB is not opposed to the introduction of a short-range personal communications facility provided that its location in the spectrum and the equipment used are suitable. The 27MHz band as used in the USA and some European countries is probably one of the most unsuitable frequency bands that could be envisaged. There are three main reasons:
  - (a) its proximity to the amateur 28MHz band and the consequent availability of high-power equipment together with the ease of illegal operation in this band;
  - (b) the existence of long-distance propagation during part of the sunspot cycle, and
  - (c) the interference to television receivers, particularly those operating in Band 1.Having regard to equipment now available it would appear that a VHF or UHF/FM service with power limitation, crystal control and type-approved apparatus could be suitable.
- 5 Location of a citizens' band within an existing amateur service allocation is not acceptable to the RSGB. Further, if this facility is eventually allowed it ought to be located in a part of the spectrum remote from any amateur allocation to prevent illegal operation in an amateur band such as is now experienced in the USA.

## THE DIFFERENCE

The Government issued a Green Paper, in August on a potential Citizens Band called "Open Channel". There has been confusion between so-called "CB Radio" and the "Amateur Radio Service" which has been in existence virtually since the birth of Radio itself. It is sometimes suggested that the two are in conflict. However there is, in principle, no more conflict between Amateur Radio and CB than between Amateur Radio and the Public Telephone service.

The following points out some of the differences:

### CB

A personal Radio Telephone facility

Intended to be short range

No technical expertise required

Operator unidentified

Low-Power Transmitters, typically 0.1-3 Watt output

Operation restricted to one waveband

Only speech transmissions

### Amateur Radio

A serious technical hobby with a large element of self-training

World-wide propagation under the appropriate conditions

Amateurs are required to pass the City and Guilds Radio Amateurs Examination before the Home Office will issue a Transmitting Licence

Individual call-signs recognisable worldwide

Relatively High-Power transmitters, up to 400 Watt peak output

Operation on 15 wavebands (23 after 1982) throughout the radio spectrum

Amateurs are permitted to transmit speech, morse, slow-scan and fast-scan television, radio teletype, facsimile and data

Direct station to station transmissions

Uses commercially-built equipment

No technical development originated by users

Transmissions can be both direct and also via repeaters and amateur communication satellites; experimentally, via unusual propagation modes such as reflection from the aurora, meteor trails and the moon

Much amateur equipment is home-constructed - essential when commercial equipment is not of high enough standard or is unavailable.

Amateurs continue to make a significant contribution to the art of Radio Communication via, for example, research into propagation development of transmitters and receivers, special communication techniques, and the building of relatively low-cost but effective communication satellites

**APRIL ISSUE OF  
CB RADIO MAGAZINE  
WILL BE AT YOUR  
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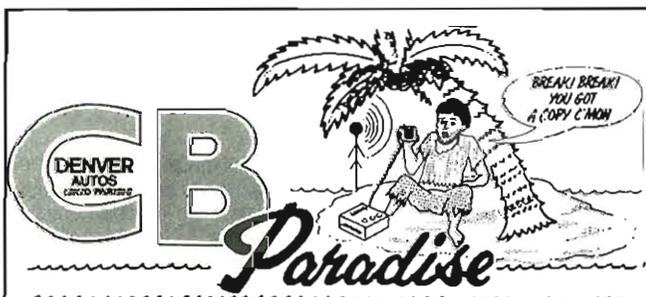
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10-10 Good Buddies.

# Club Spot

## South Somerset Breakers

Just a line or two to tell you good buddies that we have just started the S.S.B. (South Somerset Breakers) at Yeovil (Chopper Town) Somerset.

Our Club is interested only in getting the Government to allocate us a usable CB Band, and we are not interested in 928 v 27 MHz arguments. So we shall do all in our power (small though we are as yet) to help convince the powers that we are serious.

So when any of you good buddies are down this neck of the woods, give us a shout, we'll hear you.

All the high numbers 10-10.

Titanic & Tokyo Rose  
Chairman and seat cover

## The Grantham Breakers Association

The name of our association is the Grantham Breakers Association. This consists of three clubs at present, The Original Fifty Grantham Breakers, The Cruiser Club C.B., and the November Mike Club for Sidebanders. I am the secretary of the association and any one wishing contact with the other three clubs should write to me at this address: 8 Parklands Drive, Harlaxton, Grantham, Lincoln.

The Listener  
Grantham Breakers Association

## Aylesbury Breakers Club

This club is growing rapidly, and the meets get better every week. The committee consists of Maverick, Catweazle, Rag Doll and Digger, all of whom have done a good job in organising the club. The club meet once a week at the Buckinghamshire Yeoman, Aylesbury, on a Wednesday at 8.30 p.m.

All Breakers are welcome at the meeting and also anyone who is interested.  
Breaker Break.

The Ghost

## Hart of England C.B.

We are the Hart of England C.B. Club and are situated in the Nuneaton, Bedworth and Hinkley area which is Warwickshire and Leicestershire, even though we have members from all over the country  
10-10 till we do it again.

Secretary  
Hart of England CB Club

## Independent Top Valley Breakers Club

Our club is limited to a membership of

50, although visitors are welcome if they are CB members of other clubs. Our meet is on a Tuesday at 8 p.m. at this address: Bestwood Lodge Hotel, Bestwood Lodge Drive, Arnold, Nottingham. (Code name of hotel: The Faulty Towers).

We have adopted a childrens home, The Three Roofs. We will be inviting them to join us on our treasure hunts, hare and hound runs etc.

I intend to organise all local club secretaries to discuss each clubs activities, swap ideas, plan ahead and put forward members ideas, suggestions, etc.

10-10 till we do it again, we down we gone.

The Coachman

## British Sideband Network

The British Sideband Network was established to give a rallying point for all serious British SSB DX stations.

We are not a social club, but if your readers are committed to thoughtful consideration and responsible operation of SSB, we want to hear from them. Everytime a sidebander keys his mike he can be heard to be a representative of his country. We want to help set a standard of operation others and ourselves can be proud of. If your readers will write and send us a S.A.E. we will send them an application form and answer, and clear up any queries they might have.

B.S. Net., President  
Albie C. Vickers  
Unit 162

15 Carman Walk  
Broadfields, Crawley, West Sussex

## K 19 Club

Just a note to inform breakers in the U.K. of the formation of the K.19 Club in Kilmarnock and surrounding district.

We are at present raising funds for charity and petitioning the Home Secretary for legalisation on 27 MHz.

We would like to extend, through your magazine, a cordial welcome to any visiting breakers to our meetings which are held fortnightly on a Tuesday. Just break on 19 and ask for information.

In closing I would like to wish all breakers the golden numbers and go 10-10 till we do it again.

Pub Crawler  
Vice Chairman

## Guildford City Breakers

We have a Breakers Club going quite successfully.

We meet at the Rowbarge pub just off the A.3 near river, every Friday night. We have a raffle once a month of our choice. Golden Numbers.

10-10 See you at the Rowbarge.

The Duke

## The Amber Valley Breakers Club

We are the Amber Valley Breakers Club. When we first got the club underway, we held meets at various local barley pops on a Sunday dinner time barley pop session, but soon found interest growing rapidly that moved us onto further things.

Now we have a meet every Tuesday at the Cowboy Club where all breakers from other clubs are invited to come and eyeball us. At these meetings we have a disco and a raffle, also trying to give information on local meets, plus Buzby, Smokey and bust reports in the area.

Although the local is kept clean and we have not had any hassle from the local authorities, at this present moment we have had one or two rigs being lifted. These are not only going from outside barley pops, but even from home 20 drive ways. On this we have been working with the local smokeys and have managed to capture one of the culprits.

Must shoot you the numbers for now, so you've got CAVALIER and SWEET SUE down on the side and satisfied.

10-10 till we break again.

Cavalier, Chairman  
Sweet Sue, Secretary

## D.A.B.'S

Dunstable Association of Breakers is a friendly club which meets every Tuesday evening at the Dunstable football club.

The club was formed about 10 weeks ago, and so far have in excess of 350 members, some whom come from different 20's to join in with our happy meets.

We have raffles etc., and hold a Disco every other week. We have just had a very successful treasure hunt and are hoping to arrange some more goodies for the year ahead.

The club welcomes all Breakers so if you are in or about the Dunstable 20, drop in or give us a shout on 16.

Take care 73's, 88's.

Loving Spoonful  
Dunstable Association of Breakers

## Breakers Town

Just a quick letter to you, to tell you of a new club in Carshalton. The club is called Breakers Town C.B. club.

Our numbers are growing all the time. Any clubs, who wish to come down, are all welcome. There is plenty of seating room.

The club is in Stanley Road every Tuesday at 7.30 to 11 o'clock.

10-10 till we do it again.

Secretary Plaxton  
Breakers Town C.B. Club

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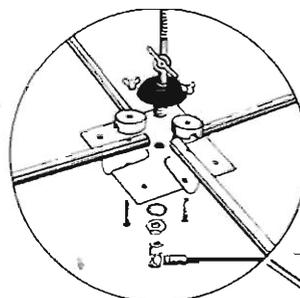
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# Club Spot

## T.V. Club

The club was founded in early 1980, and is the only serious DX Club in the Midlands.

We meet every Sunday morning at 10.30 a.m., we have no Disco's and only serious DX'ers are members. We have discussions, and visitors from amateur Radio Clubs, we organise competitions among ourselves, the furthest copy, the most unusual copy, etc. We have members that regularly speak to such far-flung places as Australia and Brazil (on 12 watts, would you believe?).

Any persons wishing to join must be serious CB enthusiasts, either experienced in DX'ing or with a willingness to learn. The membership is £5.00 per year, which includes a Tango Victor number, a badge, Club Roster, Wall Certificate, etc.

Please write in the first instance, to: T.V. Club, P.O. Box 17, Long Eaton, Nottingham, NG10 2DB, enclosing your personal name, your AM Handle, and a daytime or evening telephone number. The secretary will contact you, giving you the location of the next meet.

If you want a Disco type club with fancy dress etc., then this is not the Club for you.

Tango Victor 53 (Secretary)

## Farnborough Area Breakers

Perhaps you would be interested to hear about our C.B. club? We call ourselves the Farnborough Area Breakers, we have our meetings in a local pub.

We meet each Tuesday with a disco on the last Tuesday of each month. We usually have a raffle every week and a monthly 'rig raffle'.

The F.A.B.'s own attitude to the question of legislation for C.B. is one of "we've got it, it's fun, who cares!" We are a social club, not a political movement. However 80% of our members favour a 27 MHz system for this country, and certainly not 928 MHz which has been widely condemned. Our membership at our first meet in 1981 was around 550, not bad for three months.

F.A.B.

## Mid Kent CB Club

The club has been running for nearly a year now and has almost 600 members. We meet on Sunday evenings at the "Queens Head Hotel", High Street, Maidstone, Kent, starting at 7.30 p.m. All guests are welcome or you can become a member at the door.

The club arranges a lot of social activities, including parties, etc. and supports its members in court with a solicitor.

Any enquiries regarding the club should be sent to:- M.K. CB C, c/o Ten Four Telecom Ltd., 22, The Broadway, Maidstone, Kent. Tel: Maidstone 681719.

R.J. Luck, Director

## Bristol Breakers

We meet at Bartonvale Social Club, Barton Road, Old Market, Bristol. Barton Road is just off Midland Road. Our meetings are held every Friday evening from 8 o'clock onwards and any visitors to our club are very welcome.

We want as a club to bring CB right out into the open. We had forty people sign up as members on our very first eyeball. Any breakers are welcome. We will be running dances, disco's, treasure hunts and a lot more of different activities. We will also be doing a little fund raising for a local charity and we hope to put our image straight over to the public as not being all bad, and to impress them with the usefulness of CB in their everyday lives.

We feel if we could achieve this and win public support for CB, we would be able to show a really good cause for the speedy legalisation of CB.

We also aim to support other clubs demo's and visit their clubs and invite them to our to improve contact all over the country. Any club wanting to join this scheme should contact Avenger at: T.M. Fry, (Avenger), 9, Brendon Road, Bedminster, Bristol BS3 4PJ. We also have a local goodies shop with 10% off for all club members.

That's a good 10-4.

Avenger.  
(P.R.O.B.B.)

## Bats Breakers

Just a note to let you know that the BATS have landed!

BATS I hear you say! Well actually, we're the Breakers and Takers Social and we meet every Sunday evening at the Red Lion Pub in Isleworth. (I always knew that Sunday was invented for a reason).

We have stickers and T Shirts available we also arrange social evenings for not only the breakers but also their seat-covers. Convoys are arranged to other clubs and we would be more than pleased for other clubs to pay us a visit. We do our best for charity, as only CB'ers can.

All Breakers are welcome to join us so why not come along, but please come clean.

10-10 till we do it again.

SUPER RAT  
(Bats Breakers, Isleworth)

## Road Runner.

We break on 14 and we are known for our hospitality. We have at this moment of time 58 club members and this is growing day by day. Any breaker from outside will find a welcome here in Exeter.

We look forward to eyeballs galore. That's all for now, just a mention to all good buddies so you know we exist.

Hope the lights stay green and the white lines clean.

Playgirl,  
Road Runner, Exeter.

## N.W.C.B.C.

As secretary and general Dogsbody for the North West Citizens Band Club (or N.W.C.B.C. as we like to be known as) I thought I'd put pen to paper and let all the Good Buddies in the U.K. know of our existence.

We've been formed for 6 months and hav nearly 150 members. We meet once a month and move our venue each time. The area we cover is from North Liverpool to South Preston and Southport to Skelmerdale, but please note, even if you're from John O'Groats or Land's End you're always welcome.

We recently staged a Demo In Southport which had good support from all over the North West.

If any Good Buddies wish to join our Merry Band (Pun Ha Ha) please contact me at this address: 104, Duke Street, Southport, Merseyside PR8 5DE.

73's and 88's.

Vivien Blackburn (Secretary)

## M.C.B.R.C.

We are the original club here in the Midlands and are called appropriately "The Midland Citizens Band Radio Club". At the moment we have a membership in excess of 800, although this does not give a true picture of our support as we do not make wives and girlfriends join unless they would like membership in their own right. Also we do not charge the afore mentioned ladies at our meetings, members pay 30 pence and visitors 50 pence. The fee for yearly membership is £2.00. We meet every first Monday in the month at the "Woodhaze" public house, Blackhalve Lane, Wednesfield, near Wolverhampton. Doors are open at 7.30 and the room is quickly filled up, so an early arrival although not a must, is desirable if you want a seat.

Madeleine N. Parkes  
Membership Secretary

## The Dumfries Breakers Club

The Dumfries Breakers Club has been going for about 4 months. We started off with 11 members and at the last count the membership has grown to 60 plus.

We meet at Gordons Bar on the first Wednesday of the month from 7.30 p.m. onwards. With a meeting each Wednesday at a different location each time.

We are still trying to get properly organised, but hopefully one of these days we will make it.

We invited a member of the local press along to our first big meeting and got a very good coverage in the local paper. We have a solicitor finding out about the local in's and outs of the legal side of CB as for some weird reason the law regarding CB is different in Scotland.

If anyone wants to come to our meetings give us a shout on 25 and come on over, you are very welcome.

All the high numbers, 10-10 till we do it again.

IRON LADY (Secretary D.B.C.)

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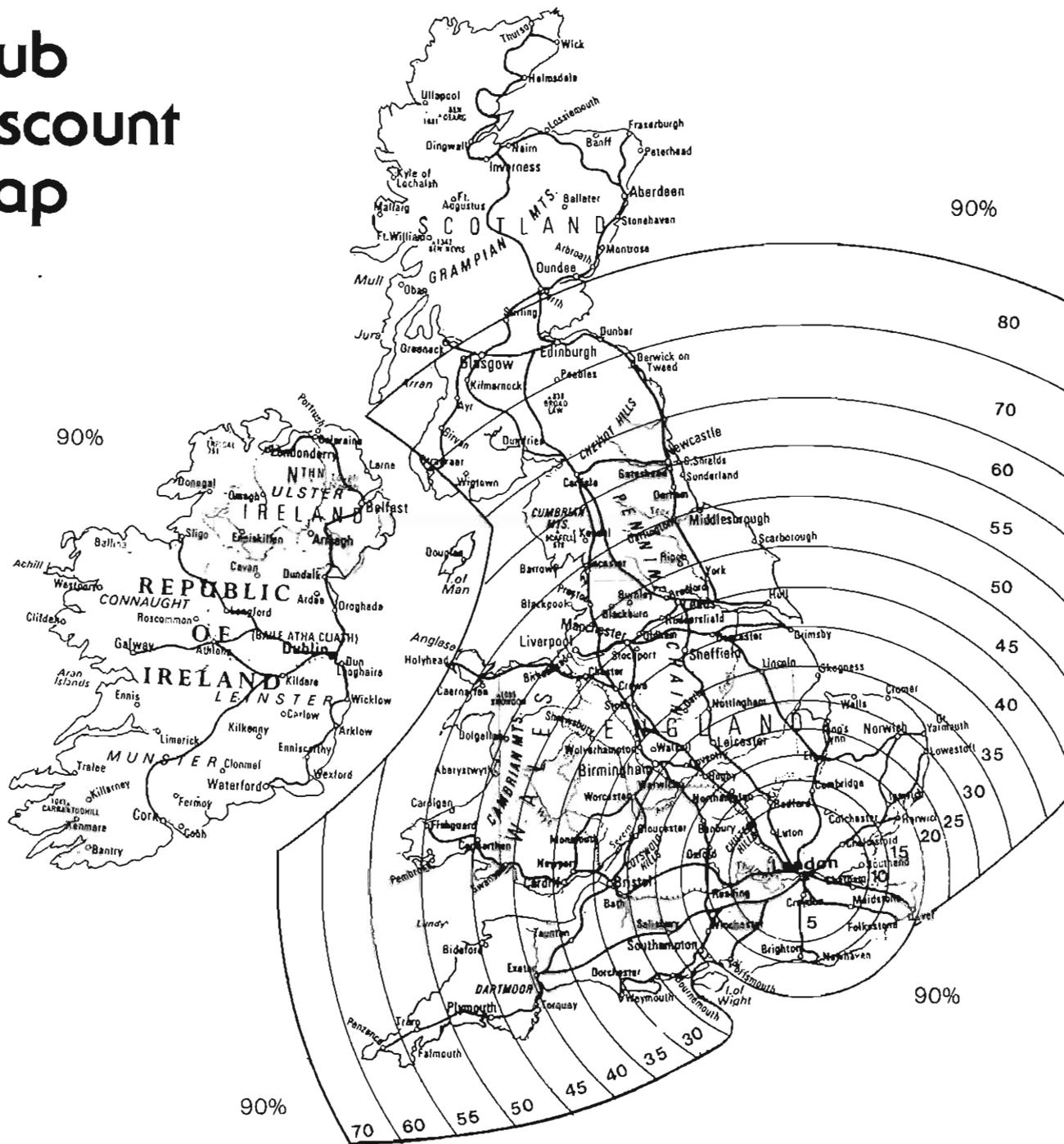
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# Antennas and Transmission on CB Frequencies

(VSWR and Antenna Performance)

by F.C. Judd, FISTC, MIOA, Assoc. IPRE. – Part 5

Although the performance of any antenna is closely linked with *Voltage Standing Wave Ratio* or VSWR, it is unfortunate that the relationship between the two is little understood and that far too much emphasis is placed on the latter. It is not vital that VSWR is maintained at an absolute 1 to 1 ratio, indeed such perfection is rarely if ever achieved. It is sufficient to ensure that VSWR is as low as can be possibly obtained, for example, less than 2 to 1 which indicates that the transmitter output, the feed cable and antenna are fairly well matched with each other.

There are reasons for high VSWR other than mismatch between feed cable and antenna and one may be a mismatch between transmitter output and cable. This is always a point worth checking with the aid of a power meter and dummy load which should of course have the same 'impedance' as the transmitter output (for most modern equipment 50 ohms). Any cable used to connect one to the other must of course have the same impedance. Co-axial cable of unknown or doubtful quality, or cable into which moisture has seeped can also result in a mismatch and/or high loss. It is false economy to use cheap cable of doubtful origin and if there is any doubt, some form of check should be made on the length to be used by connecting one end to the transmitter and the other to a dummy load. With a power meter in series with the load and both at the *far end of the cable* one can establish whether or not a power level reasonably close to that from the transmitter is being developed in the load. There should only be the few dB loss introduced by the normal loss of the cable.

## VSWR

Acceptable VSWR readings are always a debatable subject and very low readings e.g. close to 1 to 1 right across the band should be regarded with suspicion particularly when the feed cable is very long. Depending on its quality the self loss of the cable will absorb power reflected from a mismatched antenna with a resultant low VSWR reading at the transmitter end. Ideally the VSWR should be checked at *both* ends of the cable particularly when trying to establish the accuracy of match with the antenna. A typical VSWR readout is shown in fig. 1.

Really accurate VSWR and rf power meters are very

expensive. Meters incorporated in transmitters and the popular but relatively inexpensive Japanese made instruments for VSWR and/or power at present available should *not* be accepted as accurate. If possible such instruments should be checked with another of known accuracy.

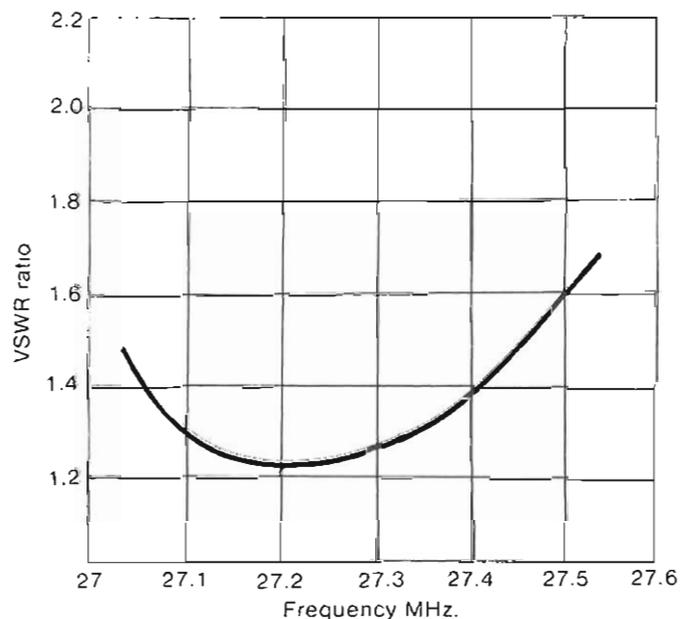


Fig.1: A typical VSWR curve for the CB band 27 to 27.5 MHz. Minimum VSWR will normally be at approximately band centre but will rise at each end.

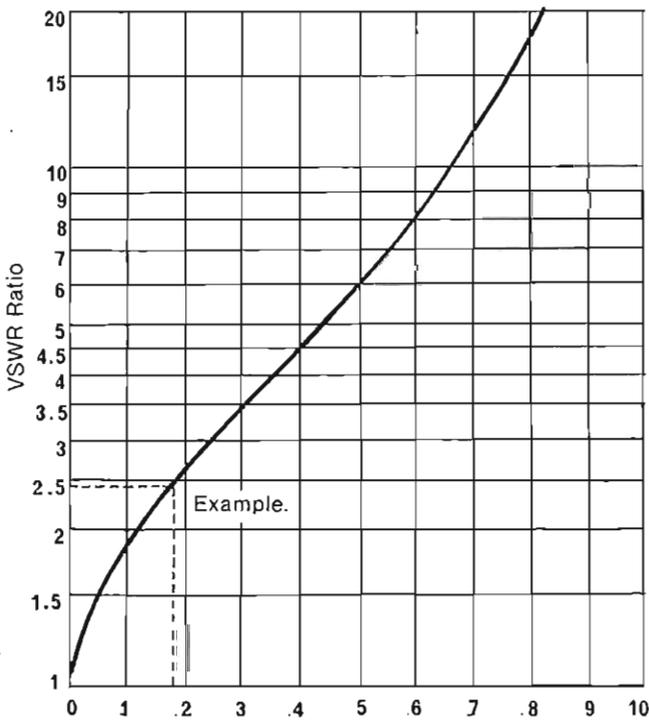
## EFFECT OF VSWR

Power lost in a transmission line is lowest when the line is terminated by an impedance with the same value as the characteristic impedance of the line itself and becomes greater with an increase in VSWR or, *voltage standing wave ratio*. This is due to the effective value of both current and voltage become larger as the standing wave ratio increases. The increase in effective current raises the relative losses in the line conductors and the increase in effective voltage increases the losses in dielectric associated with the line. The increased loss caused by a VSWR greater than 2 to 1 may not be as serious as many think. If the VSWR is actually 2 to 1 for

instance, the additional loss may not amount to more than about 0.5 dB even with long transmission lines.

The graph fig. 2 shows the amount of returned (lost) power for various degrees of VSWR. However, the natural loss of the transmission line should be taken into account when checking VSWR as illustrated by fig. 3. It should be noted also that when line loss is high but assuming a good match, the additional loss in dB caused by standing wave tends to be constant regardless of the line loss itself. The reason for this is that the amount of power reflected from the load is reduced anyway because with high line loss, little power actually reaches the load in the first instance. As an example, if the line loss is 6dB then only 25% of the power fed into the line from the transmitter will reach the load. If the VSWR due to mismatch at the load were 4 to 1 then 36% of the power reaching it would be reflected. But only 25% of the original power has actually arrived at the load the real reflected power will be  $0.25 \times 0.36 = 0.09$  or 9%.

This return power is further attenuated (by the line) by 6dB so that only  $0.09 \times 0.25 = 0.0225$  or a little over 2% actually arrives back at the transmitter output. This would result in a low VSWR at the transmitter end of the cable, in this case about 1.35 to 1. On the other hand with very low loss lines a high VSWR may increase power loss by a large amount although the total loss may still be relatively small by comparison with the



Reflected Power as a fraction of total Forward Power.

Fig 2: Reflected power and VSWR. The example shows that for a VSWR of 2.5 to 1 the reflected power due to mismatch is nearly 2 tenths of the total forward power. This means that if the transmitter power is 20 watts then 4 watts of that power is returned from the antenna if the VSWR is 2.5 to 1.

power actually reaching the load. A VSWR of 10 with a line having only 0.3 dB loss would cause an additional loss of about 1 dB.

### Cable Loss

Cable loss can be checked by measuring the power into a "Dummy load" at the end of a cable and comparing this with the measured power being into the line at the transmitter end (see fig.4). If we assume 10 watts into the cable and 9 watts coming out into the load then the loss in dB is  $10 \text{ Log}_{10} P_2$  where  $P_1$  is the power from the

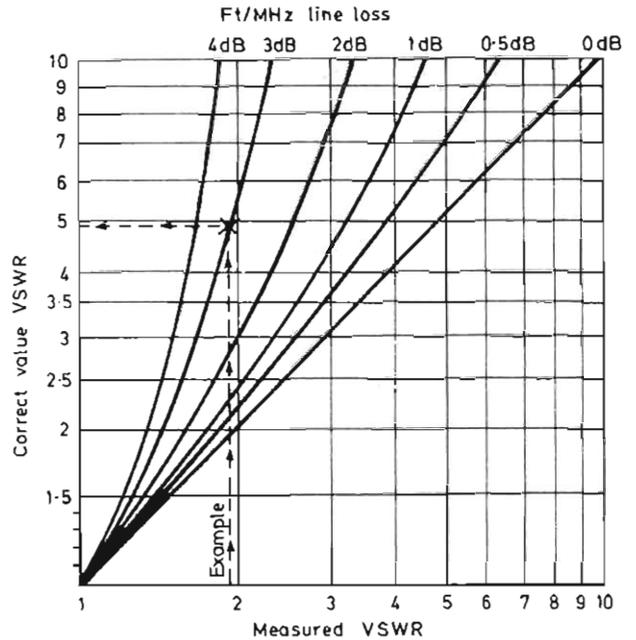


Fig 3: Correction to be made to a VSWR reading to compensate for cable loss. Example: Measured VSWR is 2 to 1 with a normal cable loss of 3dB. The real VSWR is 5 to 1.

the transmitter which is 10 watts and  $P_2$  the power into the load at cable end which is 9 watts. The loss in dB is therefore  $10 \text{ log}_{10} \frac{9}{10} = 0.457\text{dB}$  or less than 0.5dB which can be considered as negligible. By the same token with a cable of given length and a known loss of say 3dB the power lost at the antenna would amount to half of what was fed into it at the transmitter end. We can work this backward knowing that of 10 watts originally fed to the cable only 5 watts reaches the antenna. Therefore  $10 \text{ log}_{10} \frac{5}{10} = 3\text{dB}$ . As power lost in cables and also due to mismatch etc. is relatively low in terms of decibels, the table fig. 5 of power loss and gain in dB

Power ratio (- dB)	dB	Power ratio (+ dB)
1.000	0	1.000
0.977	0.1	1.023
0.995	0.2	1.047
0.933	0.3	1.072
0.912	0.4	1.096
0.891	0.5	1.122
0.871	0.6	1.148
0.831	0.8	1.202
0.794	1.0	1.259
0.707	1.5	1.413
0.631	2.0	1.585
0.562	2.5	1.778
0.501	3.0	1.995
0.398	4	2.512
0.316	5	3.162
0.251	6	3.981
0.199	7	5.012
0.158	8	6.310
0.125	9	7.943
0.100	10	10.000
0.079	11	12.59
0.063	12	15.85
0.050	13	19.95
0.039	14	25.12
0.031	15	31.62
0.025	16	39.81
0.019	17	50.12
0.015	18	63.10
0.012	19	79.43
0.010	20	100.00

Fig.5: A useful Decibel table giving positive and negative power ratios to dB's.

# Antennas and Transmissions on CB Frequencies

may be found useful. It is only necessary to know the ratio of the powers concerned. The same table can of course be used for determining the relative power gain between one antenna and another. For example if a dipole actually radiating 10 watts of power is replaced by a beam antenna with 6dB gain, what would be the effective radiated (ERP) of the beam? The power ratio

for 6dB is 3.981 or say 4, so the ERP from the beam would be 10 x 4 or 40 watts.

The next of this series of articles will deal with checking an antenna for matching by VSWR measurement, siting a base station antenna for optimum performance and making the best of mobile antennas.

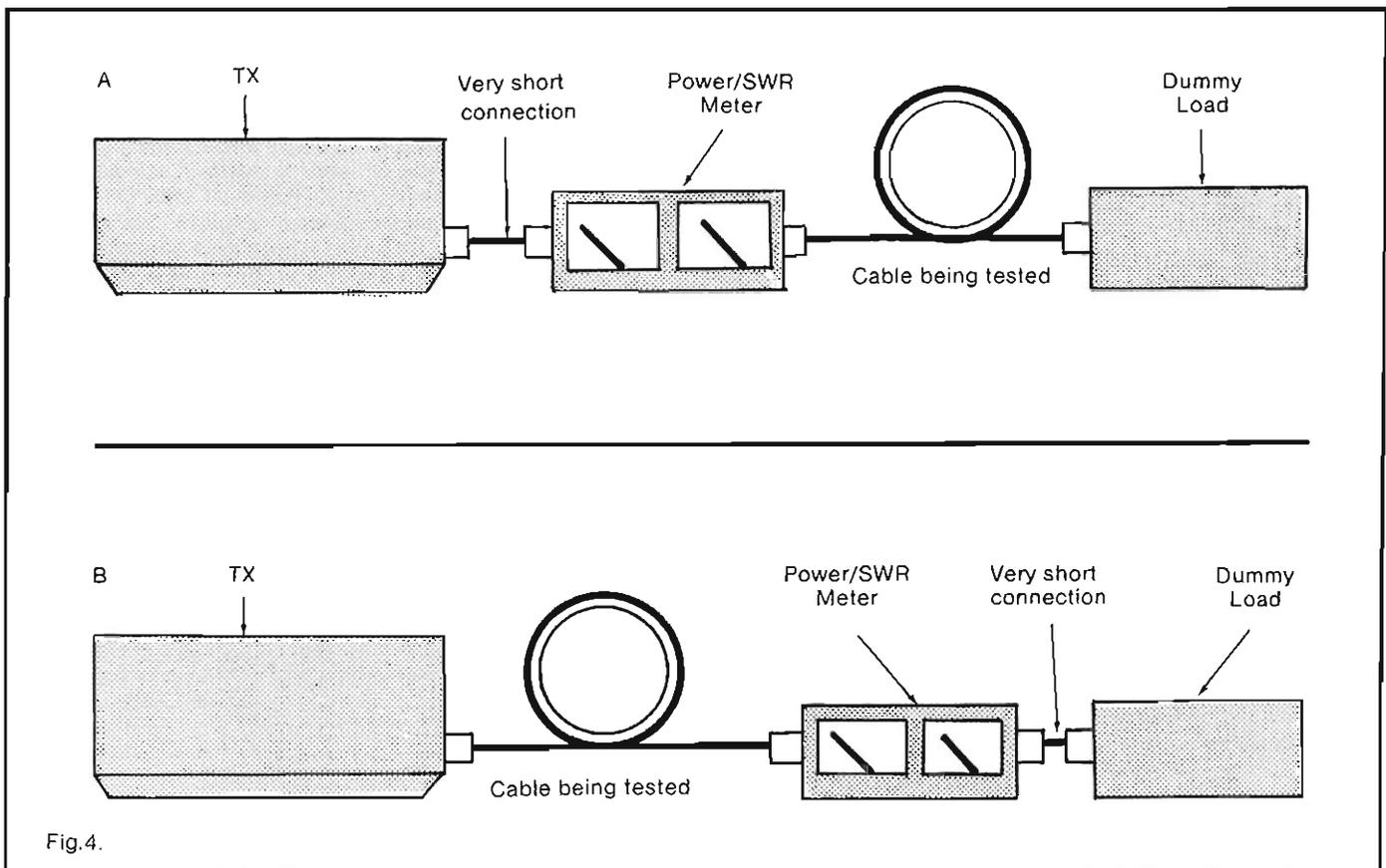


Fig.4. How to check a length of cable for power loss. First measure power going into cable with Dummy Load or end of cable. Then measure power at end of cable going into Dummy Load. With say 10 watts going in and 9 watts coming out the loss is 1 watt or just under 0.5dB (see text).

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# News Review



## What the papers say about CB.

There is still a constant stream of news articles reaching my desk, concerning CB radio. They fall mainly into four categories:

- 1) General coverage, like the 'Stars' CB Radio Campaign.
- 2) Good deeds, fund raising, police cooperation, and the like.
- 3) Complaints, these normally take the form of a letter to the Editor, and
- 4) Scandal, let's face it everybody likes a good scandal don't they? Or do they?  
CPD

### Leicester Mercury Clean-air campaign

"Already many good time girls use the illegal CB radio system to attract custom in other parts of the country", stated the 'Mercury Correspondent' but the Leicester-shire Breakers are not pleased that their frequencies are being misused. "We are here to stamp out any misuse of this band" says 'The Duck'. "The people who use CB in Leicester are very dedicated and want to see it legalised. Misuse like this will only harm the cause, and we will not allow it".

The Leicester Breakers are monitoring the air waves in the area, and are tracking down anyone abusing the system, via a specially formed 'swat squad'. This is the type of responsible action that keeps CB out of trouble and aids the campaign to legalise CB, said the clubs spokesman.

### Western Daily Press M4 Rampage.

This month my attention has been drawn to the disturbance caused by forty nine irresponsible soccer fans at an M4 service station.

Several articles appeared in the daily and local press most of which tell the same tale but with slightly varying details.

The incident happened at the Aust services on the M4 motorway, near the Seven Bridge. 400 members of a Citizens Band Radio club were holding a meeting in the restaurant when the trouble started. Apparently a coach load of West Ham fans stopped at the services on their way back to London after a match at Swansea.

The coach driver, Mr Philip Leppard, of Basildon said, "Some of them wanted to go to the toilet so I pulled in to the

services and told them to make sure they behaved themselves", whilst the fans were in the restaurant they were reported to be "horsing about, singing and laughing", as they were leaving a group of motorcyclists walked in. Then the soccer fans went mad, throwing crockery and glasses, children covered under tables to avoid the missiles. Seven of the restaurants plate glass windows were smashed and several people were injured.

When the police arrived 49 fans were arrested and detained overnight. Five of the fans received fines totalling £850, two of the fans were juveniles. Whilst the CB'ers were not involved in any of the trouble some papers did quote them as having played a part in the ensuing fight. Quite contrary to this the CB Club had merely been reluctant observers.

### South Wales Argus Battle of the Airwaves.

A half page feature on CB appeared in the South Wales Argus, which I found to be both negative and inaccurate. The first paragraph reads "As the battle over the controversial citizens band radio for the U.K. continues to rage, there comes the warning of possible disastrous consequences if "Breakers" do not change

their tune!" What disastrous consequences? According to the writer Meryl Rees, the warning comes in the discussion document (covered in our issue 3). The reporter sees interference as a disastrous consequence. The author mentions in this article that "Most of our industries remote control devices are on wave bands used by CB users who have no real idea that their messing about could cause a remote control crane to drop a 40 tonne load". Well, I can inform you, on good authority, that permission would not be given to operate any industrial machinery with a remote control operated by a radio frequency susceptible to interference from CB or indeed any other radio control devices. (i.e. Radio controlled aircraft operating on 27 MHz)

This kind of inaccurate information not only destroys the credibility of the article but convinces the more gullible members of the public of the imaginary dangers of CB radio. In other words reporting fiction not fact.

"Heavy Lifter", a member of the Gwent Breakers Club is quoted as asking "Why should we in this country be different from the rest of the world who have legalised CB on 27 MHz, used properly CB on 27 MHz causes few problems, it's fairly cheap and accessible to everyone,

## Battle of the airwaves

by Meryl Rees

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yet if the government legalise CB on a much higher frequency, the cost will soar and price most people out of the market, what's the use of this?" The answer to this, is, in the sentence of the question. To ensure that CB is "used properly" the government think that CB equipment must be expensive and that the less sensible users will be put off by the high prices. Of course this is not necessarily true and is contrary to the true intention of CB radio.

## Daily Star CB Campaign.

The Daily Star have really taken to CB Radio in a big way. Their first article, a quarter page with a photograph, which is big for daily coverage, describes CB Radio as "The latest craze in Britain", but we all know that it is more than a craze. "It's the talk of the school playground, and the pub. It's cheap, fun, fascinating and helps save lives". So I'm not altogether sure if this is the image the more serious breaker is going to appreciate, it is certainly not good enough reason for the Government to legalise it immediately, but a ploy by the Star to attract the public to CB before an in depth lesson into the potential of a 2 way radio system?

The breakers have reputedly given the campaign a "Big 10-4", by phoning the "Star" to congratulate them on their stand for the cause. They estimate that there are 250,000 British Breakers, a figure that most would quote at not far short of 500,000.

A petition is also supplied with the article, although somewhat vague, (i.e. it doesn't specify a frequency or an amount of channels, nor the type of operation, i.e. AM or FM), it is however, a constructive effort to persuade the government of the need that exists for CB.

Apart from the romanticised, rather childish start to the article, this is the type of national press coverage we require, and I'm sure that the more serious second half of the campaign will appeal to a larger slice of the public, although I'm not so confident that legalisation will come quite so soon as the "Star" makes out. They were expecting an announcement within three days of their article, which appeared in mid January!

Join the great Daily Star campaign to make CB legal

# GIVE HIGHWAY RADIO A BREAK



IT IS the latest-growing craze in Britain, sweeping the country from Brighton to Bradford. Women are forsaking bingo for it. Husbands are creeping out of their beds in the early hours to listen. It is the talk of the school playground and the pub. It is cheap, fun, fascinating and helps save lives and combat loneliness. It is Citizen's Band radio. And it is against the law. The Government has promised to make it legal, but that new legislation is a long time coming. And on present plans, when the law is changed, it will be a fiasco. The Daily Star believes that Whitehall should stop messing about and make CB radio legal NOW—in a sensible way. Read all about it. Then — if you agree — fill in the campaign coupon at the bottom of this page.

ON THE AIR... A CB user chats to a friend, and keeps an eye open for the police

## Bury Free Press Citizens Banned.

"Breaker, breaker, I'm ringing your bell, Country Cruiser", Ten Four. You're coming out of the windows, good buddy".

This is more like it, an accurate, informative and interesting account of CB radio. The first and last descriptions being rare in press coverage, although their optimism for legal 27 MHz Open Channel is on all accounts a little bit premature, if 27 MHz is to be at all. Their prediction that "Citizen Band radio will be legalised on 27 MHz, and an announcement to that effect will be made within the next few weeks" comes from Mr Mike Braband, chairman of the Eastern Counties Open Channel Club, who also sits on the working committee advising the government on CB. He informs us that "The government, after pressure, has admitted that CB in this country is completely out of control, and that they are losing out on licence fees, Import Duty and V.A.T." I'm more inclined to think that the last three reasons are more likely to persuade the 'power that be' to change their plans.

The article shows a photograph at a bridge just outside Bury covered with CB Graffiti, the local clubs claim that they were not responsible for the artwork. Unfortunately this action produces the kind of publicity coverage that spoils the "Good Buddy" image and convinces

people that CB is just another Craze.

## Lancashire Evening Post Hospital 'No' to CB Cash

The 'Preston Royal Infirmary' has turned away £560 that was raised for a valuable "Blood Pump" machine because it was donated by CB radio enthusiasts. A spokesman for the intensive care unit, for whom the machine was intended, Dr Prab Saltpecker said, "Personally we welcome the kind gesture that the CB people have made, but I am an officer of the State and I cannot accept the money from an organisation that is not legally recognised". "It is a technical objection, but I am hoping we can resolve it in the next couple of weeks".

## North Wales Weekly News Citizens Radio Enthusiasts take to sea waves.

Fourteen members of the CB Cruisers Club of Colwyn Bay braved the elements to take a dip in the sea for charity.

The dip, on New Year's Day, lasted as long as 15 minutes and raised £200 for the Gwynfa Childrens Home, in upper Colwyn Bay. Further events planned by the breakers include, a parachute jump, a treasure hunt, and various discos.

## Daily Express (Scotland) Fines on CB Pirates Vicious, says MP.

Fines totalling £355 were handed out to seven CB'ers by Sheriff Douglas Grant at Ayr. His action was later condemned by Mr David Lambie, Labour MP for Ayrshire, as being "Completely out of Touch", he added "the stupid and vicious fines are particularly disturbing when a great many MP's are currently deeply concerned over the extremely lenient sentences being handed out for some really serious crimes".

Solicitor Mr Robert Logan, appearing on behalf of one of the breakers, said that the law was likely to be changed next month, and that following a directive from Strathclyde's Chief Constable there was unlikely to be any further cases.



**Citizens' radio enthusiasts switch to the sea-waves**

THERE was a cold shock for fourteen members of a Colwyn Bay club on New Year's Day. They took a swift dip in the sea, but it was all in a good cause.

The stalwart fourteen were members of the C.B. Cruisers' Club of Citizens' Band enthusiasts and their dip was sponsored to make money for the Gwynfa Children's Home in Upper Colwyn Bay.

The icy dip, with some members staying in for about fifteen minutes, could raise as much as £200 for the home. The club has already raised about £100 for Gwynfa from a recent pram race.

Further events planned include a parachute jump, a treasure hunt and discos.

One comment from a New Year's Day dipper: "It was cold but a good laugh. And it was in a very good cause."

C.B. Cruisers' club members took a collection among the many people who gathered to watch the cold dip, and this money, will be added to the sponsorship money when this is all received.



# The Law and You

## CB Radio Magazines Central Information Bureau.

Firstly we must start by accepting three factors, one, that CB'ers exist, and are deemed law breakers, two, that they do get caught and three, that every citizen is entitled to legal representation. A fourth factor that we will deal with at a later date is that every single occupant of the British Isles has legal rights, even if or whilst breaking the law.

### Legal Representation

One of the problems facing the legal profession when approached by a 'busted' CB'er, is unfortunately a simple case of no information.

Because there is no specific legislation to deal directly with CB no guide lines as yet have been laid down and no statutes pertaining to CB cases are published or available.

Therefore a solicitor is faced with a lot of ground work to cover in order to tackle a CB case. Firstly he must study the context of the charges brought against his client, these must then be related to and appraised with the Acts under which the charges will be brought.

Only then can the solicitor start to prepare his clients defence, if indeed one can be found. For in many instances the CB'er will often have admitted his guilt.

In such cases all is not totally lost, for even when pleading guilty, legal representation can help to lighten the penalty. Here the solicitor acts as a restraint on our judicial system and hopefully ensures that the judgement is not overly harsh or un-just. To do so he requires facts and details from previous cases of a similar nature that may help him to form a guide line to the expected judgement.

### The Central Information Bureau

As a magazine on an illegal activity we are often asked to comment on the legal situation. To this end we have made available, to our readers, in the last issues the facts as we know them. This in itself is however not enough, for knowing ones legal rights and standing up for them can often be two totally different things.

Regardless of any legalisation, unless on 27 MHz AM, which is exceptionally unlikely, there will continue to be prosecutions for 27 AM CB offences. Amnesty being the only way for pending or future prosecutions to be wiped clean. This is not on the cards and has unequivocally been stated as not an action the British Government will take as regards citizens band.

Whilst we cannot condone the use of any illegal transmitting or receiving equipment we do appreciate that its use does take place and that the subject of representation remains for most a grey area.

Therefore we have decided to set up a Central Information Bureau **for Solicitors**, the object being that solicitors can contact us for background information on the subject and case histories which will, we hope, supply them with a foundation on which to base their clients defence.

### You can help others

If you have been prosecuted for CB offences you can help those who will follow. We need to know when and where your case came to court and what the result of the case was.

If you are about to be or are facing a CB related prosecution then you should contact your solicitor and ask him to contact us. We will then supply him free of charge our CB Fact File which will help him to help you. We stress that the fact file is intended only for use by solicitors and is available only to them, it is not for general circulation.

Cut out, photostat or copy the details onto a sheet of paper, fill out your details and return this form to CB Radio Magazine, Tudor Works, Beaconsfield Road, Hayes, Middlesex.

Your name (not handle) .....

Date of offence: .....

Precise wording of charge .....

Date of court case ..... Your plea, guilty/not guilty

Name & location of court .....

Result of hearing .....

Fine if imposed £ ..... court costs £ .....

What happened to transceiver and/or accessories .....

Were you represented and if so by whom .....

Who was prosecuting and/or gave evidence against you .....

Describe briefly circumstances of your 'bust' .....

.....

Were Police/Customers/Post Office or Home Office involved .....

Did you receive receipt for goods detained .....

Were you told you were under arrest and if so what charge .....

Was a search warrant shown to you .....

# Skip Master

# THE ULTIMATE in POWER



## MODEL 150

**Frequency Range:** 1-30 MHz

**R.F. Output:** 150 watts AM 190 watts SSB with 4 watts drive. Optional selectable power switch allows 1/4, 1/2, 3/4, or a maximum output setting.

**Input Power:** Transmitting, 13.6 VDC 20 amps  
Standby, 13.6 VDC 20 mills.  
With preamp on 44 mills.

**Description** Stable solid state circuitry provides a minimum transmitted power gain of 45 times. No tuning required. Will work on any signal of 1 watt or more. Automatic switching, using RF from your transceiver, no internal connections required. Long life solid state LEDs. Silicon transistor pre-selector provides an approximate gain of 10 decibels on received signal.



## MODEL 100

**Frequency Range:** 25-30 MHz

**RF Output Power:** 100 watts with 4 watts RF drive. Optional selectable input attenuator allows 1/4, 1/2, and 3/4 power selections

**V.C.C. Requirements:** Transmitting - 13.6 VDC 17 AMPS  
Standby - 13.6 VDC 20 Milliamps

**Circuit Description:** The amplifier utilizes a pair of dual emitter RF devices running in parallel. A highly efficient L-pi tuned network provides unequalled stability over the entire operating range. This tuned circuit virtually eliminates TVI problems, harmonic suppression 60 db or greater. The amplifier is fully biased operating class AB1 for excellent SSB transmission, reverse polarity protection protects all circuitry by destroying fuse. Pre-amplifier utilizes J-FET device. The preamp is a tuned circuit which eliminates instabilities and interference from other RF sources. The pre-amp is capable of improving the signal to noise ratio in many excitors.

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IMPORTED AND SUPPLIED BY THE BIGGEST AND BEST



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# After the West Ham Visit

The Severn Bridge Eyeball, let's set the record straight!

"... and when you apply the current through that pin, then pin 7 goes high and the chip enters a read mode..."

"... no, only two weeks, in fact I'm not really used to it..."

"... put Sellotape on the bodywork where you want to drill for the antenna hole, centre punch it, and the the drill won't slip..."

Snatches of conversation that typify a CB'er's eyeball, but in this case an eyeball with a difference, because this was the Severn Bridge Eyeball, a bi-monthly event that is rapidly gaining nationwide fame among Britain's CB users. The night that CB RADIO's Severnside correspondent, Zodiac, was there, over 600 breakers turned up! Exaggeration? Certainly not, because Rank Motorway Services who own the Severn Bridge Aust Services had permitted the breakers to hire for the night their 1000 seater 'Chepstow Room'. A charge of 25p was levied at the door to cover the £100 a night hire charge, and takings amounted to £144 between 9.00 p.m. and 2.30 a.m.! The 600 breakers in the Chepstow Room did not include those who stayed around the concourse (mostly on the Space Invaders) and those who went into the public restaurant, who must have pushed the final figure up over the 700 mark! Such were the numbers that some police officers were posted to keep a watchful eye, but were simply not needed in their official capacity. They did however take the opportunity to use the occasion to improve relationships, and ended up discussing CB with groups of breakers – to the benefit of both sides, one hopes!

How did all this start? To answer that question we have to go back to April 1980, when South Wales breaker Gunrunner perched up on a bit of high ground to engage in that favourite Severnside breaker's past-time of copying across the Bristol Channel. At the same time a Bristol breaker, Landcrab, had a similar idea, and positioned himself on a hill outside Bristol. Of course, the inevitable happened, and Gunrunner and Landcrab met on the airwaves, and established a sound relationship. After many copies, an eyeball was suggested, and both agreed to meet. But where? Neither was too familiar with the geography of the other's home locality. Both, however, knew where the Severn Bridge was, and they decided to meet at the Aust Services.

Gunrunner and Landcrab got on well together, and a firm friendship evolved. They agreed to meet regularly, and each mentioned casually that the Aust Services was a good place for an eyeball to other breakers that they met, with the result that the numbers of breakers attending started to grow, eyeball by eyeball. Eventually 200 CB enthusiasts could be found every other Saturday night, with the numbers increasing all the time. The management of the Services began to notice that their takings were going up on alternate Saturday's, and the place seemed busier, somehow! Eventually they found out what was going on, and to

their great credit, they set aside half of the restaurant for the use of the breakers, who had proved themselves to be of exemplary character. (Don't you wish the government had that sort of business sense?) The public of course still used the other half of the dining area, and towards the end of 1980 were treated to the bewildering spectacle of a CB fancy dress party, with breakers dressed as their handles! Smokie Bear seemed to accept the situation also; the restaurant is frequently used by the motorway police for refreshments at all hours of the day and night, and if they knew what was going on they certainly gave no indication of it – until the night that the West Ham supporters arrived.

In January, West Ham played away at Swansea, and after the match and a night of Welsh booze a coachload of West Ham supporters arrived at Aust on their way back to London. It appears that the attitude of arrogant incivility displayed by these hooligans defies description. They chose as targets for abuse anybody who happened to be in their way, and the breakers, naturally incensed at seeing their easy-going gathering and the friendly Rank staff being disrupted and insulted, naturally objected. The result was savage violence culminating in injured breakers and wantonly smashed furniture and catering equipment valued at £500. The police were called, and the breakers dismally regarded the episode as the end of the Severn Bridge eyeballs. The police acted swiftly and powerfully, but directed their attention to the intruders, arresting 39 West Ham supporters, most of whom eventually found themselves in court and were fined hundreds of pounds.

That night and the following day the breakers helped the Rank staff clean up the mess. Profuse apologies were made to the management, and there was a genuine offer to pay for the damage. Rank's declined to accept the offer, and far from banning any more eyeballs, said that the restaurant in which they met was duplicated in another part of the building – the Chepstow Room – and was largely unused. They offered the breakers the use of the room with its panoramic view of the Bridge and the Severn Estuary against a backdrop of the distant Welsh mountains for their Saturday night eyeball for a room rent of £100 per night.

Gunrunner and Landcrab considered the offer, and agreed – with their fingers firmly crossed in case the West Ham episode had discouraged the breakers. They had to work fast to organise things, and decided that they would form "Associated Breakers" – not a club, but merely a social register of breakers attending the Severn Bridge Eyeballs. The idea also was to give each breaker using the Chepstow Room free membership of the association, issuing each one with a serially numbered 'handle card', which would provide each member not only with some

form of identification, but to entitle the holder to discounts on various purchases, and a list of co-operating retailers is being produced. Together with the card, each breaker was to receive a duplicated sheet setting out the aims of Associated Breakers, and a few simple hints on CB technique and on-air etiquette. The sheet also stressed that Associated Breakers was not a national body, but applied solely to the Severn Bridge eyeball participants.

A lot of work was indicated, getting the cards printed, the information sheets duplicated, and actually filling the cards in and maintaining a register. However, once the system was running it would be a case of show your card, pay your 25p and you're in!

The big night was Saturday, 24th Jan, 1980, and Gunrunner, Landcrab and a few helpers had hopefully numbered up 400 cards. A table was set up by the door to the Chepstow Room, and at 9.00 p.m. the first breakers were admitted. From that moment it was bedlam! Far from being discouraged it appeared that every breaker in the area had turned up! Landcrab and Gunrunner began recording handles and issuing cards, and collecting the 25p's, a process in itself that didn't take long, but resulted in long queues and a 25 minute wait! It wasn't long before all 400 cards had been issued and extra cards were hastily produced and serially numbered. The last card was issued at 2.30 a.m., and as the last breakers drifted away, Gunrunner massaged his writer's cramp stricken wrist, looked at Landcrab and said "God – what have we done?" Landcrab grinned back, "We thought we might just cover expenses; I never expected anything like this!"

It is envisaged that the next eyeball won't suffer from the queueing problem, as most of the breakers already have their cards and will be admitted readily upon production of the card. Newcomers will of course be able to get their cards upon arrival. The eyeballs are to take place every other Saturday night, so you can work it out using Jan.24th as a starting point. It is apparent now that money will be left over, and it is planned to hold a public ballot among the breakers to select a charity to which the cash can be donated. The Association is to be strictly non-profit making – and the receipt books are freely available for sceptics to examine!

The eyeball has a powerful atmosphere of comradeship and shows every sign of continuing indefinitely. Both the police and the Rank Motorway Services staff seem to regard the event as a harmless get-together, and the very existence of the eyeball underlines the ridiculous situation that exists in this country today. Remember the Discussion Document? The genius at the Home Office who wrote it said, "... there is no great upsurge of public demand in this country for such a personal radio service..." Maybe he should have been at the Aust Services on the night of January 24th 1981!

ZODIAC, Area Reporter

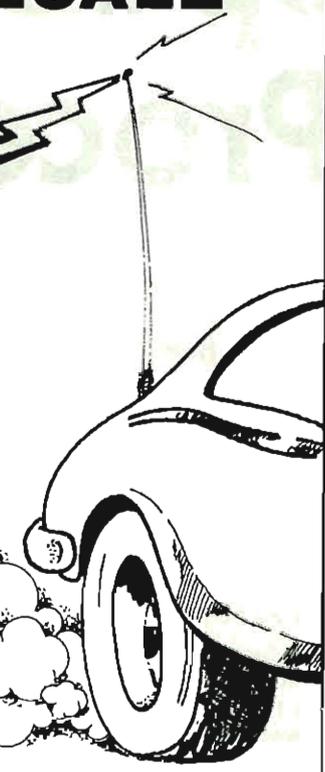
**CITIZENS BAND . . . THE NEW WAVE . . . CITIZENS BAND**  
**STREET LEGAL CB WHOLESALE**  
 (NOTTINGHAMSHIRE)

Main agents for: SKIPMASTER, BURNERS,  
 TURNER MIKES AND MUCH MORE.  
 Our prices are never bettered -  
 You've tried the rest now try the best.  
 Example: DV27 £5.00 complete with plug  
 (our retail price)  
 Retail outlets required throughout the  
 Midlands.

**90 STOCKWELL GATE**  
**MANSFIELD**  
**Tel: (0623) 651965**



**BREAK!**  
**BREAK!**  
 I got my ears on!  
 Have you been  
 down to  
**STREET**  
**LEGAL**  
 (WHOLESALE DISCOUNT)  
**CB SHOP**  
 yet?  
 c'mon.



# CB RADIO

# ACCESSORIES

**THE LARGEST**  
**DISTRIBUTORS OF**  
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**and best selection of**  
**CB Radio Accessories**



# Speech Processors

by E. A. Rule – part 4

During the past few months we have looked into the various requirements for a speech processor and have covered Filtering of the speech frequencies, how the peaks are removed so that the lower average level can be increased, and the need for good signal to noise ratios to be maintained through the system. The next important requirement is to maintain the distortion as low as possible throughout the complete system.

As far as the transmitted power is concerned, distortion is like any other signal, it requires power! Therefore, as the total amount of power is limited by the maximum power output of the transmitter it follows that any power used in transmitting distortion is less for transmitting the important speech waveform, (the same applies to unwanted noise).

Consider a poor microphone amplifier, let us say that this has around 10% total distortion. When the signal from this stage is passed into a speech processor we know from the discussion in part 2 that the limiting action introduces distortion. Therefore, our distortion of 10% will be further distorted! If our original signal was, say, 500Hz, the 10% would most likely be made up of

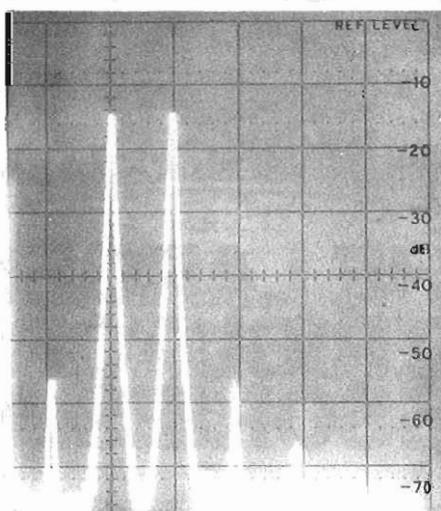
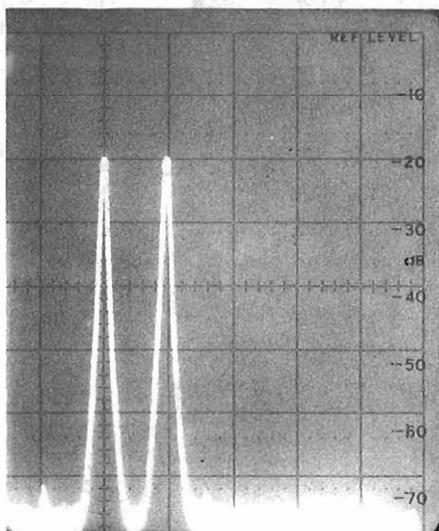
2nd, 3rd, 4th, 5th, 6th, etc. harmonics. Each of these frequencies would now be distorted in turn by the limiter action, which we know from part 3 fig 8d can add a further 17% or so to each one, we will leave you to work out what the final amount of distortion will be, but it sounds pretty horrible! More so, when you consider the fact that we are not just using a sine wave but a very complex speech waveform. Also the non-linear action of the limiter will introduce intermodulation distortion, Fig. 9.

This is where each frequency beats with the others and produces even more!! i.e., if we have say 400Hz and 700Hz present and pass these through the non-linear limiter we will get (amount many others) 400 plus 700 equals 1100., 700 minus 400 equals 300., 700 times 30 equals 210kHz, etc. etc., think what that will do to the bandwidth of the transmitter! With a speech waveform and its complex frequency relationship you can just imagine what the final signal would sound like, and in fact this is one reason why so many speech processors sound so terrible.

So now you know why it is important to get any distortion as low as possible before the limiter stage. A

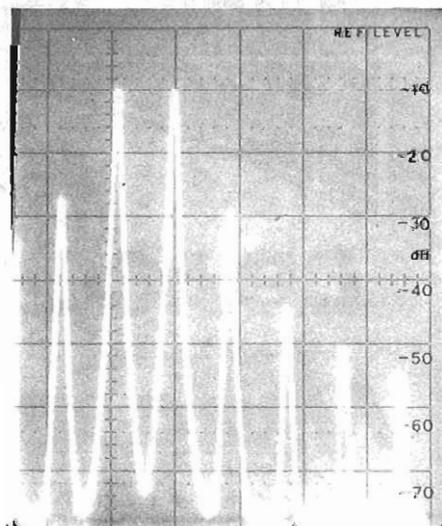
Fig 9.: Actual photographs taken from a spectrum analyzer showing how intermodulation distortion increases rapidly once the threshold of limiting has been reached. These spurious signals must be reduced by the high frequency filter so that the final level of distortion present is at an acceptable level.

Input signals of equal level at the threshold of limiting. Note that the main intermodulation products are around -52dB.



Increasing the input by only 5dB, note the rapid increase in the level of intermodulation, now at around -42dB. Also note extra signals being generated.

Increasing the input another 5dB, note the even more rapid build up of intermodulation products, now around -17dB. Also the number of spurious signals have increased, all adding to the total distortion.



good speech processor will be designed to Hi-Fi standards and have a distortion content of around 0.1% or less before processing takes place. The use of good quality microphones also helps and regrettably most of those supplied with the average rig are very poor with a high distortion level, which can be made very much worse by blasting the microphone with your breath. Speak across a microphone, NOT into it!

A well designed speech processor will have filtering built into it and the remaining distortion at its output will be relatively low. However the stages following it must not add any of their own and should also be designed for low distortion. Any harmonics introduced after the processor filtering will NOT BE REMOVED and the result will be a much wider transmitted bandwidth with the signal splattering into adjacent channels. As we now have greatly increased 'talk power' resulting from the use of a processor it is possible in practice to slightly reduce the actual audio signal fed into the transmitter. By doing this it will avoid over driving the input stages and any distortion that may arise.

What to look for when choosing a processor? First, it should be designed for a basic distortion of less than 0.1% before processing takes place. It should also have a basic signal to noise ratio of at least 60dB. The speech frequencies below 300Hz should be filtered out before the limiter stage and all frequencies above 3000Hz MUST be filtered out after any limiter stage.

Finally, always use it in the manner intended by the manufacture. Do not try to get more out of it than it was designed for as this will reduce its effectiveness, not increase it. Only use it when the going gets tough, do not leave it switched into circuit all the time, remember.

someone else may also be trying to make a contact on the same channel further afield and more power than is required to make good copy only increases the risk of interference, and of course, the risk that the processor they have to switch in is better than yours!!

One final point regarding distortion, even if we start off with say 0.1% and none is added by any later stage, the fact that the processor will increase the lower average levels relative to the peaks of the speech waveform will bring about an increase in the distortion, i.e. if the average gain is increased by 15dB (5.6 times) relative to the peaks, then as our peaks represent 100% our original 0.1% will be increased to 0.56%. It follows from this that if we are blasting the microphone with our breath and causing it to distort the signal the amount of distortion created will be increased by the same amount as the extra talk power gained! In other words, the final transmitted signal can only be as good as the signal fed into it, and every effort should be made to keep this as clean as possible. All unwanted signals waste power and increase transmitter band width.

\* Please note last month, insert diagram 5 where 6 was and vice versa, text still reads the same. Apologies for the errors. ED

**THIS IS THE LAST PART IN THE SERIES  
'SPEECH PROCESSORS'  
NEXT MONTH  
THE FIRST PART IN A COMPREHENSIVE  
SERIES - 'DEALING WITH INTERFERENCE  
PROBLEMS'**

## CBers "20"

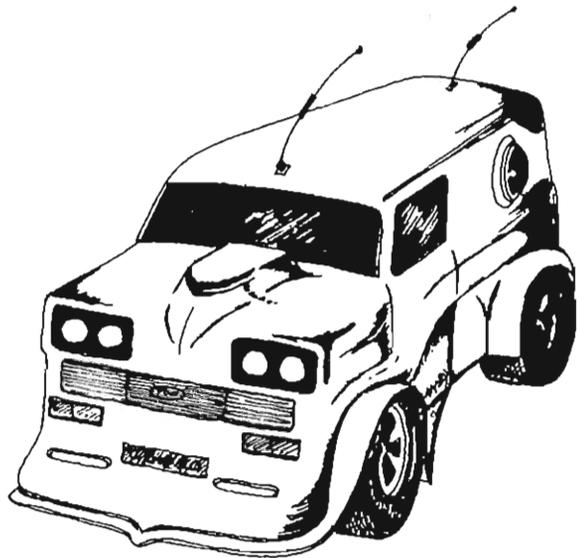
**HIGH STREET SERVICE STATION, 314 HIGH STREET, ALDRSHOT  
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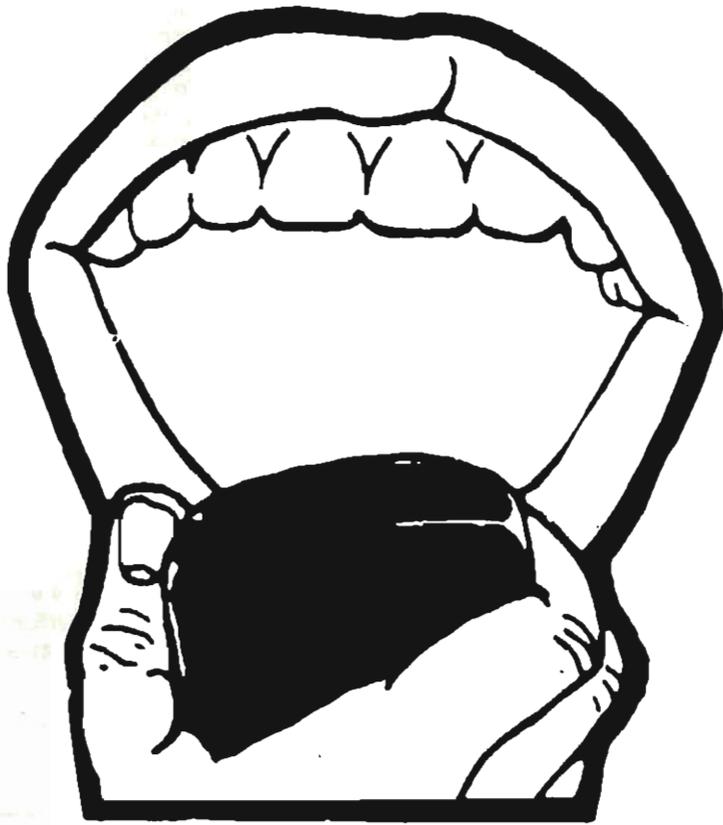
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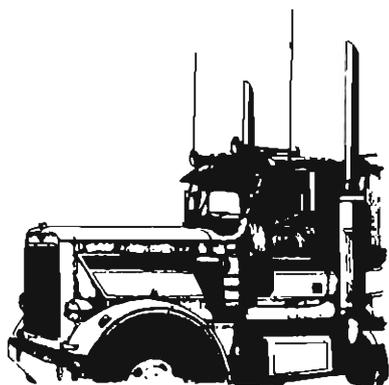
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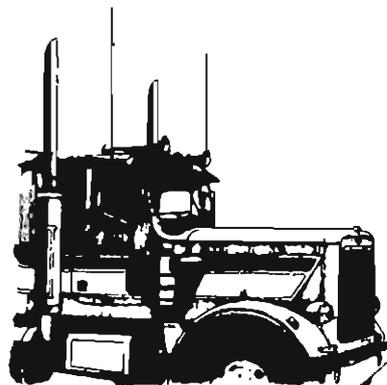
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### Features

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### Specifications

- Model ..... M2000
- Whip ..... Tapered 17-7 PH stainless steel. Full 60" length.
- VSWR ..... 1.5:1 or better, Channels 1 through 40.
- Cable ..... RG-58U, 17' with in-line (1/2" dia.) miniature connector.
- Connector ..... PL-259.
- Mount ..... Trunk lhd, no holes or roof mount (3/8" hole).
- Total Height ... 65".



M2000



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ASC 550 . 556

### Features

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- Solid brass connections imbedded in base. Can't break or shake loose.
- True 3/8 wave professional design for best possible fibre glass performance.

### Specifications

- Model ..... M-516
- Whip ..... 4' fibre glass, 3/8 wave.
- VSWR ..... 1.5:1, all 40 channels.
- Cable ..... 23 1/2' RG58U coaxial/in-line miniature connector.
- Connector ..... PL-259.
- Mount ..... Side body, polycarbonate/solid brass insert.
- Total Height ... 52".

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- Static ball tip for less noise.
- Stainless steel shock spring minimizes damage from obstructions.
- Ample 17' coax cable with attached connector.
- Mounts securely and easily on any flat metal surface. Waterproof design. Requires 3/8" hole.

### 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".



M-125



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# Readers Write

Dear Sir,

We are always reading or hearing about the Steering Committee, are they really fighting for us, of course not for if they were they would have everybodys support but they haven't. Disband this so called committee and put people in there who know what they are talking about, people who support C.B. as it is known, not your so called Open Channel rubbish. I would think that kids in a junior school could think of a better name than that. O.K. a small minority do not want C.B. as it is known anyway, so therefore go and take your R.A.E. and go on two meters if that is what you want.

The C.B.A. along with the committee want a frequency totally different so therefore they and their attitudes do not belong in the C.B. world.

If you wish to join any club in the fight for C.B. as it is known even in France now, you must join people that support you and not those who pretend to. You might not like some of the things that are said about people like the U.B.A. but at least they are fighting for what the majority of us want and I think they are doing well. I must add however our club is not part of the U.B.A. but we do believe in some of their ideas and I personally do support them.

One of the biggest arguments is interference, but with today's technology, this can be overcome, and since radio control aircraft have been given another frequency what's the problem?

There is no point in having a system that is totally different from the rest of the world. While our government is cutting back on spending in most sections including, National Health, Housing, employment etc. etc. there are others like the P.O. who are spending ridiculous amounts of money running into thousands, tracking down a few CB'ers.

So come on all you bureaucrats and people in high places earning high wages, think about what we the general public want, be on our side for once and make a new year's resolution 'Legalise CB Now' and that's a big 10-4. We are not asking for you to give us CB because it is already here, what we want is to be able to use it without looking over our shoulders all the time. Is that really too much to ask for?

For this is CB Country.

73's for now.

MOONRAKER - WHISKEY 9

Dear CB Mag,

There is over 100 breakers in and around Grimsby. We are all writing letters to Mrs. Thatcher, Mr Whitelaw and our MP, Austin Mitchell to arrive on the 27th Jan. and the 27th Feb. If nothing comes of it we will write on the 27th of every month, for ever if necessary. We have been spreading the info through truckers and anyone we contact on CB from other areas.

We have rung the CB clubs we have numbers for, but that isn't many. I am sure someone who works for a CB mag. knows someone who owns a rig, will you please ask them to spread it around.

This is Cobra One, on the run, I'm gone.  
COBRA ONE

Good Buddies,

I have been a breaker for nearly two years, and at last it has happened. Like with everything, familiarity breeds contempt. I thought it would never happen to me.

Today, while driving along the A48 in the Vale of Glamorgan, I glanced in my rearview mirror and could see I was being pursued by a 'Smokie' in an Escort Van. Not thinking anything was wrong, I lifted off the old gas pedal, to legal speed, and then all of a sudden, there was flashing lights and sirens - advertising.

Having pulled over, I got out of the car and was confronted by 2 policemen. One spoke to me, while one went to the nearside door, opened it, and said, "What radio is in your car?" I said nothing and the 'Smokie' said, "This is a CB radio and it's illegal for it to be installed in your car", but he did not check to see if it was installed, i.e. connected. He then cautioned me.

He then said he would have to confiscate the CB, and I replied that the police have no authority over CB radio, so he returned to the police vehicle saying he was going to call the Post Office.

I then sat in my car, waiting for the Buzby's. After about 15 mins. a police mobile arrived, and yet another 2 policemen.

I was approached by one of the new arrivals who said that he was in the position to act as a customs officer, and take the CB.

I said that if he would issue a receipt or an official seizure form, I would hand over the CB. as by this time, being outnumbered, except for my wife. I was told I would have to go to the local police station for such a receipt. This I did, with one police vehicle at my front, and one at my rear. When we arrived at the bear cave we were surrounded by police, and still trying to be awkward, I refused to give them the CB, one of the policemen said that he had the authority to impound my car, until such a time when a customs officer was available, which could be up to a week (Sus law section 66).

Feeling that by this time there was little else I could do, I handed over the CB., disconnecting the aerial and keying the mike first.

We then entered the police station, and were cautioned once again, and asked the usual questions to which I said I had "No Comment". Things now seemed to become a little heated. The P.C. questioning me left the room and returned with another P.C. clutching some very familiar pieces of paper, trying to assure me of their legal position.

One of the mobile police then asked me when we were expecting to be made legal, and saying that he was all for CB, though not on 27 MHz. I left the police station less my Stalker 9.

Please could you print this letter for other breakers to learn from my experience, and to show that even if you think you know your rights, it doesn't always work in practice.

RED MAX (Bridgend)

Dear CB Radio,

I have something interesting to tell breakers that have rigs that go down to low band, which is 26 MHz. Some may already have found out that you can DX (Skip talk) on this

quite easily by answering back.

The reason that you can D.X. on this band is because it isn't a generally used frequency, so it's very silent all day long, like 27 MHz is at night, and the D.X. operators on this band have high powered burners that push out their signal and pull yours in.

I would like to stress that you do not need a burner or a large expensive antenna to do this type of DXing.

The same rig and mike but a firestick ¾ on a whiskey base when home base.

If any dealers would like more information on this or just a good copy, then give me a break.

SADDLE TRAMP (Northampton)

Dear Ed,

I would be grateful if you could print this letter in your Readers Write column. I am not going to get involved in the Legalise 27 MHz, just legalisation is all I would like.

I have been an amateur radio enthusiast but fancied something less 'stuffy'. C.B. for me is what radio communication (personal) is all about.

It's fun, it's useful and relaxing. I have seen people writing into mags saying "CB whilst driving is a dangerous preoccupation. You cannot drive and talk".

How about radio Hams then, they have been doing it for long enough, what is their accident rate, does a Ham pay higher insurance, is he a bigger risk because he talks and drives, I think not. As for all the kill-joys who don't wish for CB, why for heavens sake, if you do not want CB, don't buy one, but also why spoil other peoples pastimes. I do not want to smoke, but I do not stop my wife from smoking. As a part time fireman in our village I can see great benefits for a good CB service. It can be of real use to the community as a whole, but I must emphasize only to those who wish to use its facilities. Anyway I won't get tied up in a lot of CB talk, although I can if needs, thanks for the space.

10-10 Breaker Break.

THE WOLFMAN

P.S. One thing I would like to mention. A certain individual who has been using my handle in Northants has caused me an awful amount of hardship. He knows who he is and I would be pleased if he would refrain from his foolish practices. He will be the sort of person who the Buzby boys will quote in court, giving CB a bad name. Thanks

Thanks again.

THE WOLFMAN

Dear Ed,

I am fairly new to CB. I bought my 40 channel rig just before Christmas and have used it many times. I have taken you up on the issue of writing to Mrs. Thatcher, Mr. Whitelaw and my MP to ask for legalisation of CB.

I work for a national break down service and we use a R.T. which has saved life, so if more people had CB I am sure a few more lives could be saved.

Anyway must run, hope to catch you in London at 1981 CB Show.

Breaker Break. Good Buddie.

STAR RIDER

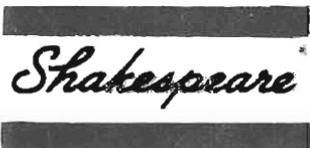


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CB MASTER DEPT. Ex 19

# Readers Write

Dear Sirs,

On the subject of Breaking Channels I would like to emphasize the following. Channel 19 is used throughout the country by mobiles to exchange 10-13's and 10-33's. This is known nationally as the 'Diesel Channel' or 'Truckers Channel'. In spite of its name this is not a channel exclusively for lorry drivers but is used by anyone who is travelling, for obtaining up to the minute road reports, or it can also be used by anyone who simply wants a copy.

There are however some towns where 19 is used as a breaking channel. This is O.K. for small towns provided that they realise that 19 is used nationally as the Diesel Channel and provided that they do not interfere with this.

As the number of breakers increase by the day, towns near the motorways, which still use 19 have been experiencing difficulty in making a copy due to the extensive use of 19 by mobiles, mostly lorries travelling on the motorways. These towns have as a consequence agreed to move to another channel, (14 in most places) for two reasons:

- 1) So as not to interfere with the truckers channel.
- 2) To increase their chances of making a copy without being 'walked on' by the truckers (or in some cases by hospital beepers).

Unfortunately this 'word of mouth' agreement has not been adhered to in places like Northampton, Derby, Bradford and central Manchester where breakers have been shouting at mobiles to 'clear the breaking channel'. This has given rise to an unfortunate clash between locals and out of town breakers.

This problem must be solved now because this clash of interests in certain areas is beginning to overshadow our real fight, which is the one to have CB Radio Legalised.

R. BOWEN.

Dear Sir,

I don't have a car or licence to drive but I do believe in freedom of people when it harms no one.

I have written to my P.M. about CB without much effect. I think CB should be European not national. If a German goes to France and uses CB he is breaking the law if he is not a citizen of France. The CB law and frequencies should be E.E.C. wide, governed by E.E.C. regulations. I have written this to the President of the E.E.C. but as yet I haven't had a reply and do not really expect to get one either.

Perhaps if all readers who believe in free speech leading to a better life should write to get the CB Rules out of national hands and into E.E.C. hands.

JOHN D. DILLON

*France has legalised on 27 FM with a higher power than Germany, (although we have now heard that no licences have been issued in France to date). I doubt if a German would have problems with the French authorities as his receiver operates on .5 of a watt which is lower than the French 2 watts and therefore your example should be reversed, i.e. a high powered French rig into Germany where the legal maximum power is low.*

ED

Dear CB Radio,

I had a lovely weekend the other week. Everything went wrong with the wheels, the final stage tranny of the rig popped, and to cap it all I broke down in light rain on my way to the club, M.K.C.B.C. (Plug, Plug).

Anyway hundreds of people passed me as I tried to wave down some assistance,

(rig knackered so I couldn't call anyone up), when a motor pulled in and a bloke got out to see if he could help. His handle is 'Frisbee' and he rushed me back to the club in time for the meeting to start.

It goes to show that breakers are a helluva breed when it comes to helping someone so here's my thanks twenty-seven million fold to 'Frisbee' of M.K.C.B.C.

10-10.

KENWORTH KID

Dear Sir,

Busby busted me last March in the Gillinghame 20. I'll give a brief run down. I went on the side about 6 miles from my destination, stayed at that place for about 20 minutes. As I drove out low and behold Busby and 2 smokies in 2 patrol cars, each car had 3 whips. There wasn't any GPO's van to be seen or I assume it was well out of sight or Busby was riding shotgun with smokie.

I was given a choice by Busby to deal with it there and then i.e. give him the rig and all relevant info. or go with smokie to the station and wait for H.O. and Customs.

As I was working at the time I decided to co-operate, not knowing at the time they had no power to take the rig.

When I went to my club they had a whip round and raised the whole £80 to pay the fine.

All the power to your good buddies.

We're gonna back on down.

We're on the side.

We're gone bye bye.

ZODIAC, UBA Croydon  
J. FISHER

Dear CB Radio,

Here's a very simple but highly practical idea for all CB base station buddies who would like to feel truly secure in the knowledge that until CB is legal in the U.K., Buzby will not be knocking on the door, even though normal communication is in action.

This very cheap and easy-to-install 'clicking system' is based on similar methods which were used during World War Two to prevent enemy destruction of radio stations which were sending vital coded messages back home. This idea was used by myself and several student colleagues when we'd ran a pop pirate radio station back in the 1960's. Basically, it prevents anyone with direction finding gear from getting a narrow 'fix' on a radio transmitter. A broadly spread signal can be detected, but it is usually so wide that the signal can only be traced down to within 3 miles or so, it is so scattered as to give readings in all directions!

The procedure is very simple and is as follows: The room, shed, loft, garage or out house to be used for a base station must be first cleared of all carpets, furniture and fittings leaving four bare walls and a window area. Cover the ceiling, walls and floor with overlapping strips of wide aluminium kitchen foil, held in place with lengths of masking tape. Ensure each sheet overlaps other sheets by at least 1 inch. Tape the edges where they overlap. Ensure all walls, ceiling floor and any alcoves are completely covered with foil (except windows of course). Cover the inside of the door, and connect the door foil to the wall foil with a suitable length of bared copper wire. Ensure the wire is long enough to allow the door to open and close. Next after checking every inch of bare wall, ceiling and floor is covered, connect a length of bare copper wire to floor foil and either connect it to the nearest central heating

pipe or cold water pipe or run the wire outside to an earth spike made from a 3 foot length of 1 inch copper tubing, driven into wet ground.

Next, all carpets, furniture and fittings can be replaced, being careful not to snag the foil. Choose a table, desk or bench of suitable size to hold the CB gear and site it near the window. Arrange the gear neatly and run all power/battery leads round the back to their respective supply points.

The final step is the antenna. For proper efficient operation of this system, the antenna must be installed within the room, approximately dead central. (A whip type is ideal, especially if about 6 foot in length). This can be suitably hung vertically from the ceiling with cord and anchored with another cord and some weight. The feeder (coax) is fitted to the rig via an SWR meter, power applied and the antenna adjusted to read minimum SWR as usual. Everything is then ready and complete.

The idea as described is being used by quite a few base station buddies in our area, to great success, since we first started the ball rolling. A technically minded friend of ours tried to locate our 'Home 20' station using similar direction finding gear to Buzby, and he got a good signal of up to 10 miles away, but so widely spread it was hard to define the exact direction within an area of about 3 miles square! The nearer the station he got, the wider was the detecting area, until at 1 mile away, he was picking us up at all points of the compass! The principle of the device is very simple. With the radio gear and antenna being sited within what is basically a Hardi-These shield (after the two French pioneers), the normal OMNI-Directional wave front transmitted from the antenna is reflected and scattered 109 times by the foil lining of the room, before emerging through the window area and into the air outside, where its spread is greatly magnified due to it being released into free air-space. Radio energy thus scattered cannot be traced to within an area less than (1 wavelength x 10) sq.km., which in the case of a wavelength of 27 MHz is about 110 sq.km., which is really wide! In practice however, this is a lot less but tests carried out show that the narrowest directional antenna can only locate such a set-up base station to within about 3 miles!

In conclusion, we wish all base station buddies lots of luck installing this device, so until CB is legalised, you really will be "Foiling" the fuzz!

10-10, all the best.

WANNOVER, TOOP-EYE  
and ROUTE ELSIE



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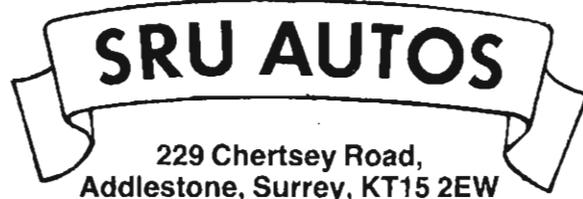
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# Parliamentary Review



## A look at what is said about CB in the House of Commons

The slow methodical wheels of Parliament are turning, inch by inch, we're leading towards a decision on whether Britain will have Open Channel. The tension is mounting and rumours are spreading, some say we will have a definite decision within two weeks. I even heard it reported that someone was given a CB licence form instead of a TV licence form in a local post office, but unfortunately most of these rumours are not based on fact but mere heresy. There has, in fact, at the moment, been no definite date of a decision or an announcement made, so it leaves us only one alternative, sit back and wait whilst our honorable, and right honorable friends in the house churn their way through the pro's and con's, the forms and petitions, the technical details and opinions in their own proper and organised manner and hope that all their deliberation is productive.

CPD

### How many on 27MHz

**Mr Wall** (MP for Halton Price, Conservative) asked the Secretary of State for the Home Department what is his estimate of the number of citizens band radio sets now in the United Kingdom operating on a 27 MHz frequency.

**Mr Raison** (Secretary of State for the Home Department) I would refer my Hon.Friend to my reply to a question by the Hon.Member for Broomsgrove and Redditch (Mr Miller) on 18 December 1980. (From issue 7)

**Mr Raison** told the House that 331 people had been prosecuted for unlicensed installation, and/or use of 27 MHz radios during the first 9 months of this year. He added that 325 were convicted and six acquitted. He then said "I cannot give much regard to people who complain about the fact of this disparity". Mr Raison continued, "At present, use of 27 MHz is illegal. Wherever you are you must not use it".

### Where is 27 MHz legal?

**Mr Wall** asked the Secretary of State for the Home Department if he will list the countries in which citizens band radio is legal; and which frequency each country allocates to citizens band radio.

**Mr Raison:** Citizens band radio is not a service which is required to be registered internationally with the International Telecommunication Union. We are, however, aware from our consultations with other administrations that most countries in Western Europe authorise some form of citizens band radio at frequencies around 27 MHz as do, inter alia, Australia, Canada, the United States of America and Japan. As far as we know, at present only Australia and the United States of America

have assigned frequencies for this purpose in additional bands: 476 MHz and eight paired frequencies at 462 and 467 MHz respectively. Both Northern America and most countries in Western Europe have expressed an intention to introduce an additional facility around 930 MHz in due course.

### How much response to the Green Paper

**Mr Lambie** (MP Central Ayrshire, Labour) asked the Secretary of State for the Home Department what representations he has received to the Government's discussion paper on the future of citizens band radio: and when he expects to bring forward proposals to legalise citizens band radio.

**Mr Raison:** Representations have now been received from about 30,000 individuals or organisations, 18,000 of these being represented by signatures on a single petition. As to when a final decision will be announced, I refer the Hon.Member to the reply my Right Hon.Friend gave to a question by my Hon.Friend the Member for Coventry, South-West (Mr Butler) on 18 December. (From issue 7)

**Mr. Raison:** answering for the Secretary of State said: "Primary legislation would not be required to introduce the service. Final decisions about the choice of frequency and the introduction of the service will be taken as soon as possible after the public response to the discussion document has been analysed".

### Prosecution Financial Sum?

**Mr. Lambie** asked the Solicitor-General for Scotland if he is now prepared to issue guidance to procurators fiscal on prosecutions involving citizens' band radio users.

**The Solicitor-General for Scotland:** Neither the Lord Advocate nor I have any intention of issuing guidance to procurators fiscal on prosecutions involving citizens' band radio users.

### Public security safe at 900

**Rev. Robert Bradford** (MP for Belfast) asked the Secretary of State for the Home Department what account was taken of the interests of public security when deciding, in principle, in favour of the introduction of a personal short-range radio system in the United Kingdom, as outlined in the Green Paper on Open Channel.

**Mr. Raison:** The decision to favour in principle the introduction of Open Channel radio was taken after consideration of all the relevant factors affecting the public interest.

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# Vultures on the Side



Yellow Peril the true story Part 1 Bust 1 Currently Sentenced to 9 weeks Imprisonment.

Back in the dawn of time when CB Radio Magazine was being hatched, there were needless to say CB'ers. Not vast numbers all over the country as there is today, but small knots of hard and fast, dedicated CB'ers convinced that the crime they committed by talking to one another was trivial.

One such area was Tunbridge Wells where a young lady known as Yellow Peril qualified as one of those dedicated breakers. Today her story has been talked about and passed from breaker to breaker in a sort of CB'ers chinese whisper, so much so that one hears of endearing tales of bravery and exaggerated reports of assault on members of our police force that bear no resemblance to her story.

Now with her impending imprisonment in Holloway it is about time the facts of her crime were reported in her own words.

JOH

## The early days

Cast your mind back to the days when, if you heard a breaker on channel it was the highlight of the night and more often than not one would drive towards each other in a bid to keep the conversation going. Well that's how CB was when I first started. However by January many a good evening was spent modulating with other breakers in my area and we soon became a select few that increased gradually, each new breaker becoming a part of a small Tunbridge Wells network.

At the time the law was not something that CB'ers really knew nor considered, each knew what they did was illegal and that was about all. Of course there was the odd score floating around of detector vans and impending Home Office swoops, but by the light of day they remained merely rumours. Some CB users were possibly put off from further use of 27 MHz by such rumours, some were so paranoid that they would stay off the air at the merest hint of a smoke.

Myself? Well I took it all with a pinch of salt, I enjoyed CB and anyway who had ever met or heard of a CB operator being caught.

## My first encounter

Somehow I had formed this mental picture of mobile vans stacked full of radio equipment and grey shadowy figures pouring over radar scopes in a calculated pincer movement, closing in on the unsuspecting CB'er.

Then flashing lights and black maria's as the illegal radio operator is carted away hand cuffed to a burly officer. Don't ask why, I don't think I ever consciously thought about it, but that would sound to me like a feasible way an illegal CB'er would be caught.

Not so! For late one evening, and here I had better introduce myself as a hair dresser by trade, or should I say hair stylist, I own Sweeny's, a salon in Tunbridge Wells that specialises in mens hair. Known by most as Annette I also answer to Yellow Peril or Ms.Box.

But back to Sweeny's, the reason for the name dropping is that it was here that I first encountered the 'Vultures' as this magazine delicately puts it. I often work late and this particular evening I was cutting a young man's hair, I guess it was around eight thirty or a quarter to nine, when two police officers walked in. This is not unusual for me as quite a few of the lads in blue often come for a hair cut.

Naturally I said 'Hi, 'wana hair cut?'. The answer was polite but stern, "No", the officer continued "We have a Post Officer employee with us he is waiting outside", here I had begun to expect what was coming and said "Bit late to deliver post, isn't it?"

The officer ignored my remark and continued in a polite monotone "No, he believes that you are in possession of, and use a C - B", (this was said with a slight pause as he referred to a clip board). "He has reason to believe that you have one of these radio's and he wants to take it out of your vehicle".

As I have said, I do tend to take life as it comes and although the adrenalin had risen, I replied "Okay when I have finished cutting this blokes hair", as is my way I shrugged off the slight feeling of impending doom and began to joke and laugh with my customer. He was from New Zealand and Australia had only recently

legalised 27 MHz. We joked quite loudly of slow British democracy, stupid laws that protected nothing and made it illegal to talk to a fellow citizen on CB.

To a waiting police officer time drags when one is indirectly being made to look foolish and it soon became apparent that one of the officers was quite agitated. Now in a much sterner tone he commanded that I leave my customers hair unfinished and remove the radio immediately. He was obviously in no mood to argue the toss so I apologised to my client and accompanied the officers to my car, a bright yellow Porsche sporting a Hy-gain electric retractable.

## A desperate transmission

Waiting outside was a burly Post Office official showing no form of identification. He spoke slowly and deliberately, as if making his words sound more weighty "I am now going to remove your transmitting equipment, open your vehicle please".

On impulse I took a sudden dislike to what was happening and opening my vehicle I jumped in and promptly locked both doors from inside. Now secure inside, I grabbed the mike and for some stupid reason, still unknown to me, I actually started transmitting on one-four, with the three of them looking on. Until now I am sure that they had no evidence as such to bring against me. However I soon changed that as I demanded the breakers clear the channel and informed a base station of what was happening to me and that the Buzby was in the area.

At this moment a hand came through the window and began to grasp at me. In my haste I had not noticed the partly open window, so I began to wind it closed, it was unfortunately a police officers hand. Yes! The already agitated one.

I signed off and being a martyr to the end said something like "save the ship, I'm going down now this is Yellow Peril, Annette Box being busted". Then as calm as you like I began to disconnect the rig, I noticed the hand slowly extracted from my closed window and saw the expression of rage etched on the owners face.

But even that did not deter me as I stuffed the microphone in the glove box wrapped the loose wires round the rig, jumped out and planted the CB transceiver firmly in the Buzby's sticky little mitts.

"You're under arrest" the voice of authority, a much annoyed voice I might add, accompanied a firm grip on my arm. I remember thinking how hard I had closed the window and marvelled at the officers stamina as unflinchingly he held me even as the Buzby demanded the microphone.

The officers grip still remained vice like as I reached in and extracted the microphone. Still trembling with rage the officer then began to force me towards the police vehicle. I protested that full responsibility for my shop, its contents, my dalmation dog and my customers still unfinished hair cut, must be taken by the officers and that I would not move or be arrested until I was assured of this. The other officer calmed his outraged partner and I was allowed to finish my clients hair, lock up the shop and take my dalmation with me to the station.

The journey to the station could make a story in itself, my dog ran riot through the vehicle which was a traffic control type with bollards, beacons and road lights stacked up inside. Most of which were left unstacked by my dog along with knocking off both officers hats and licking their faces in a friendly doggie type gesture which neither seemed to appreciate.

## A total farce

At the station the duty sergeant was summoned and a detailed account of my arrest and in particular, assault on the arresting officer, was given. To which I replied that I was in my private property and it seemed to me that the grasping hand intended to molest me. The sergeant winced and dropped the charge before it started. All three officers then looked at the Post Office official, his name was John Ridd and mumbled something about called in his partner one John Garrick.

Now the realisation that no-one really knew what they were doing began to dawn on me as we waited for the other GPO employee to arrive this second employee appeared quite promptly and I got a chance to take a long look, he was in comparison a small slight framed man and was soon to be dubbed "Robin" with the first Buzby standing alongside they made a right pair and so came their handles "Batman & Robin".

Now with our dynamic duo formed the questions began "Are you aware that you were using a radio transmitter contrary to the Wireless Telegraph Act 1949?" I replied yes and then gave my name, address and occupation. I declined to say when, where and from whom I had purchased my rig, along with denying knowledge of the identity of some fifteen handles that were quoted to me. At this point Batman whipped out a note pad and began to take notes, of what I know not. But being me I said "You don't mind if I take notes do you?"

This request was not taken or treated seriously by them so I began to answer with negatory, Ten one good buddy and similar CB type phrases, all in the name of a wind up! It was not long before both

caped crusaders ran out of questions, they looked at each other in frustration and decided to give up.

I asked for, and was reluctantly given, a receipt for my transceiver, all it said was, confiscated one CB radio transceiver, a date and a scrawled signature which was illegible. All this was thrown literally (or should I say illiterately) on a plain headed scrap of paper.

That was it, full stop, and I was told I could now go.

## Definitely 'Vultures on the Side'

Rather ignominiously I was pointed in the direction of the door, by now you should realise that I am not meek mannered Miss push her around, so I demanded that seeing as how I had been whisked here they could jolly well take me back to my shop.

Surprisingly enough Batman offered me a lift, naturally I accepted and was even more surprised when having jumped into the Mini I spied a President Veep 40 channel CB transceiver mounted on the dash. My first question was obvious "Do you use it to transmit?" The answer was "No". However I picked up the microphone and depressed the transmit key and the needle moved! My second question was answered as I traced coax from the rig to a mag mount on the rear floor behind the seat. The carpet had been pulled up and the antenna was sitting on

bare metal. I personally had no doubt that the whole set up was capable of wall to wall 27 MHz transmissions. Checking with the vehicle registration centre via a friend I was informed that the Mini was registered to the Post Office as a detection vehicle.

## Annette Box: Sentence: 9 weeks imprisonment

**Yellow Peril heard nothing of her first offence until the summons for her second CB bust arrived.**

**She was fined £200 for this first CB offence. There was no charge of assault brought.**

**She was then fined £400 (the maximum) for the second CB offence and ordered to pay £40 court costs.**

**Total CB fines £600 + costs = £640.**

**Ms Box paid £200, a sum she considers to be fair and just, having looked at other fines for CB. She has now refused to pay the other £400 and as a result must serve 9 weeks imprisonment in Holloway womens prison.**

Due to the backlogue of convicted persons waiting to be admitted to Holloway Prison because of the recent strike by Prison Officers, Yellow Peril alias Annette Box, is still awaiting the pleasure, so please, resist flooding the prison with mail. yet.

*Part two: the second bust next month.*



Yellow Peril outside the police station.

# DX QSL International Club Spot

The Sandcastle QSL Swap Club of Washington, U.S.A.

Hi readers, Lima Charlie 1 reporting yet again on DX QSL clubs throughout the world. You may have missed me last month but I thought it only fair to let the Delta Tango Club provide you with their own information in, we hope, an unbiased fashion.

Due to the increase in circulation this magazine now has, many of you will not know of me so I had better introduce myself.

Hello again, my name is Lez Carroll and I am the founder and President of the English International DX Club which was covered in full back in issue 4. The Club was founded in 1979 and since then we have built up a large membership and I have personally joined and tried a vast number of other QSL clubs. Hence I think I qualify as a reasonable judge of what a club should or shouldn't do and as to whether it's worth joining or more importantly VFM (value for money).

Well down to business, we are still receiving good QSL's from this country but please if you are having QSL cards printed remember to have your address put on the card or at least stick of labels, otherwise other stations will not know where to send you their QSL's and we don't always check them before passing them on.

## The Sandcastle Club

Well this month it's the first USA club and it's the SANDCASTLE QSL SWAP CLUB, it is situated in Pacific Beach Washington, West America, that's very close to Mount St. Helens which erupted recently and made the news. The President of the club is called Ian Shrader, his family came from Scotland many years ago, and made their home in the States, Ian formed the club way back in the sixties and is one of the leading QSL Swap Clubs in the USA. The Sandcastle Club has a very good club package, Ian has many QSL cards of his own which are designed and made by the famous 'Sundown Custom Cards' of Indiana, USA. My remarks on this club are brief, a fine club to be a member of and all I can say is it must be another ten out ten for this club. There is not much one can say when reviewing a really good club and it's a shame they can't all be as good. Anyhow, keep your letters coming, we do answer all letters but please be patient as myself and the XYL get bogged down from time to time, all the good numbers your way from Lima Charlie 1 QRT on the side.



Sandcastle QSL Swap Club					
	DX QSL Star Rating	Yes First Class	Fair 2nd 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 Certificate	★			
8	ID Card	★			
9	Club Roster	★			
10	Club Patch/Badge	★			
11	DX Log Book				★
12	Club Accessories				★
13	Club Information	★			
14	Tourist Information				★
15	Cassette Swap				★
16	Club Postage	★			
17	Life Membership	★			
18	Discount XYL Membership		★		
19	Value for Money	★			
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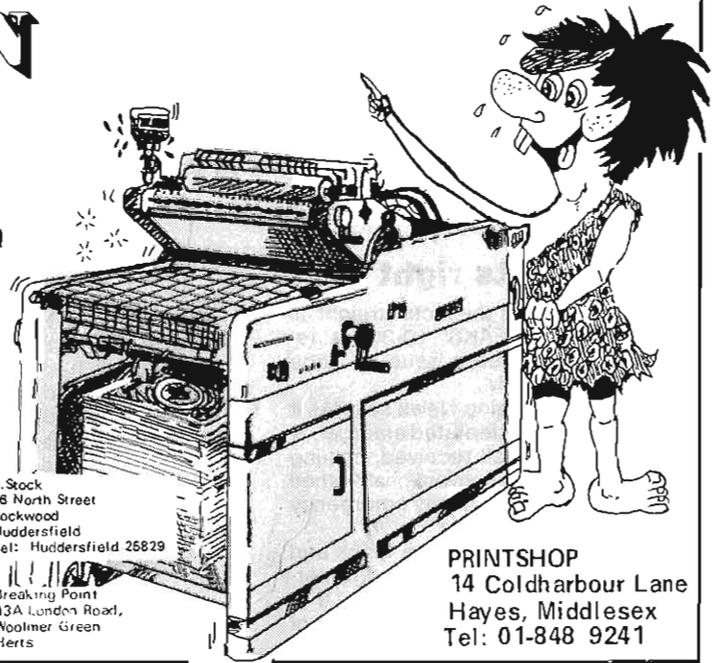
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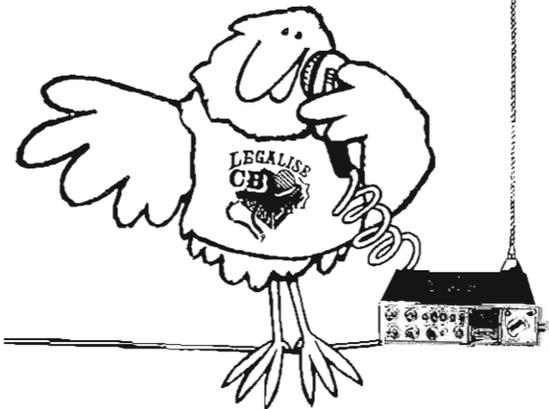
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# Come Back the Breaker

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## Put the facts right

I would like to put the facts straight as regards 'FIRESTREAKS' 10-33 as reported in your January issue on page seven 'News Review'.

The Watford Evening News said "As it turned out the CB orientated emergency call was the first call received, coming long before any other conventional method could have as the motorway emergency phones were out of order".

I don't dispute that CB is a quick and efficient method of despatching an emergency call. However I know as a fact that the emergency phones were not out of order on that particular day. I actually saw the accident and used an emergency phone to report it!

Naturally the operator took the facts and did not tell me whether the accident had been previously reported by CB or not. Personally I think the road side phones on the M1 are above a reproach and a very good means of summoning assistance. However the M4 is perhaps a different story, there CB should be instigated at once.

10-10, keep'em guessing?

SOMEWHERE UP NORTH

## Thank you Mad Mole

It seems that this issue of our Come back the Breaker spot is almost completely occupied by us, the magazine. However there is a good reason. We must offer our personal thanks to the breaker who ran slap dap into a bundle of February's issue of CB Radio. Perhaps I should explain, just over a thousand sheets of paper from our last month's issue fell off the back of a lorry!

No, they weren't stolen, that was the month before, 'January's' issue, but that's another story.

The magazine was in transit a distance of some two miles to our collators when a separately wrapped bundle of sheets, the overs that wouldn't fit on a palette, decided to jump out of the truck and adorn Northwick Park Hospital's grounds.

Within ten minutes of this mishap a breaker phoned us and gave us a heart attack telling us all the magazine was blowing around Kenton. I don't know if you have ever seen a thousand loose bits of paper floating down a road, but they do a remarkably convincing impersonation of sixty six thousand sheets.

Having recovered from our heart seizure on hearing that the quantity lost was only one thousand, we promptly tried to phone the Breaker back, however Buzby had seen fit to adapt his phone boxes to out going calls only. Perhaps he needs the money to help pay for the cost of catching a CB'er!

Thank you Mad Mole, and there's some complimentary tickets to the National Ten Four Exhibition, a free subscription and some stickers waiting for you.

10-10, Stay Clean.

ED

## Postal Demo Acknowledged

In our January issue we printed an article designed to catch some of the new year feeling and get our readers to write to their MP and the Home Secretary asking for legal CB. At the same time we suggested that a letter to the Iron Lady at No. 10 would not go amiss and

would help to draw her attention to the subject. The illegality of CB is for some a good reason for not disclosing their identity in such a postal request. So whilst we assured our readers that no system exists to use your name and address, or pass it on to any authority interested in stopping the use of illegal 27 MHz equipment, we did offer that those not wishing to believe or those more cautious could write c/o CB Radio Magazine. Many of you accepted this offer and have written care of us, as a result we have been receiving acknowledgements of your letters. A handful of which are reproduced of this page.

## The Medicman do you copy?

Just like to say thanks for the compliment. your letter is now framed for all to see.

10-10.

CAROLE



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New, just opened - Horley CB Centre. 02934 74 997

# CB Radio - Project One

## A DIY Antenna Checker

by F.C. Judd

This novel antenna checker is not difficult to make and is a valuable accessory for making sure that power is actually present in an antenna. Power meters, most of which are combined with a VSWR meter, will of course indicate that power is going into an antenna but do not necessarily prove that power is actually being radiated. The CB Radio antenna checker will not only carry out this latter function but also show that voltage and current distribution on an antenna is correct which is important to ensure efficient operation. Antenna checkers of this nature are very popular with radio amateurs although the design presented here is rather more sophisticated than those generally used because it provides both visual and audible indication.

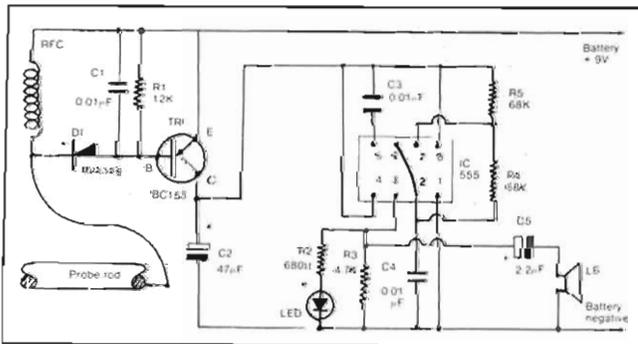


Fig. 1: Theoretical circuit of the antenna checker.

### How the circuit operates

The theoretical circuit is shown in Fig.1 and consists basically of a diode RF rectifier and switching transistor which turns on an IC555 audio oscillator. The latter drives a small loudspeaker and a light emitting diode (LED). When the probe of the checker is held near an antenna that has power applied and is radiating the loudspeaker gives a loud audible tone and the LED becomes illuminated.

The circuit operates as follows. Radiation picked up by the probe rod is rectified by the diode (D1) the output from this being a small negative DC voltage which is applied to the base of the PNP switching transistor TR1. This transistor then conducts and supplies a 9 volt positive potential (from the battery) to the IC555 which functions as a low frequency oscillator. The output from this IC is therefore a tone signal of about 1000Hz with enough power to drive a small loudspeaker which

COMPONENTS LIST	Antenna Checker
BOX	ABS plastic type. 120 x 65 x 40mm RS Components type 508-920
CIRCUIT BOARD	Print veroboard hole punched. 55 x 65mm
LOUDSPEAKER	Mini type 8 ohms 56mm diameter Bi-Pak type 1916
LED	(red) Any standard type LED or RS Components type 586-475
TRANSISTOR (TR1)	Type BC158
DIODE (D1)	IN4148 silicon diode or equivalent
IC555	Any standard 555 IC plus 8-pin DIL holder
RF CHOKE (RFC)	Repanco type CH6 5 micro-henrys
CAPACITORS	
C1, C3, C4	0.01 $\mu$ Fd. Polyester or similar
C2	47 $\mu$ Fd electrolytic 12 volt working
C5	2.2 $\mu$ Fd do.
RESISTORS ( $\frac{1}{8}$ or $\frac{1}{4}$ Watt)	
R1	12K
R2	680 ohms
R3	4.7K
R4, R5	68K
PROBE ROD	100mm long by 6mm diameter aluminium rod
OTHER ITEMS	Battery connector and lead (for PP3 battery) RS Components type 488-034 4BA bolt 10mm long with nut and 4BA soldering tag Insulated wire for connections
NOTE:	All the above components should be readily available from Radio Component dealers.

makes the tone audible and which also causes the LED visual indicator to illuminate.

### Construction

The circuit board layout is shown in fig.2 but please note that the actual components are on the opposite side of the board. There is little by way of wiring and those with experience of small "electronics" projects of this nature should find little difficulty. Double check all components and wiring before connections are finally made to the loudspeaker, the LED and the battery when assembly is completed.

The circuit board, the miniature loudspeaker and the PP3 9 volt battery are finally housed in a small ABS plastic box (see components list) for which drilling details are given in fig.3. Note that the hole for fixing the probe rod is at the top of the box nearest to the LED. The probe can be made from 6mm ( $\frac{1}{4}$  inch) diameter aluminium rod and this is drilled and tapped at one end so as to

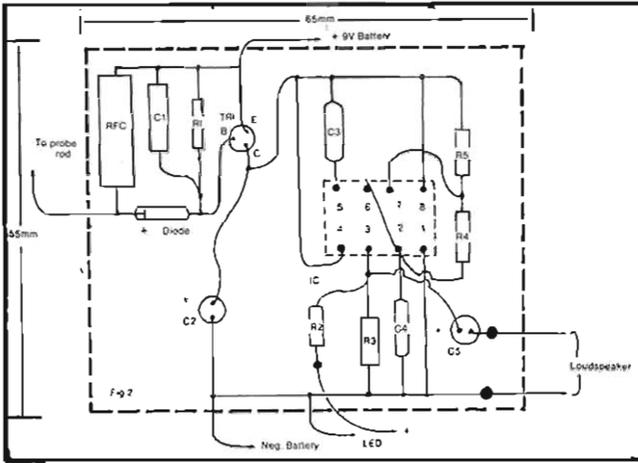


Fig.2: Layout and wiring of components on Veroboard circuit board. Note components are on reverse side of board.

screw onto the 4BA bolt which goes through the top of the box. A solder tag under this and inside, provides for connection to the circuit board.

The general assembly within the box is shown in fig.4. The battery fits in at one end behind a cardboard separator which is used to prevent the circuit board from moving. The loudspeaker is secured in position with adhesive (Evostick or similar) and the circuit board is mounted above this. Be sure to place a piece of thin cardboard between the underside of the circuit board and the loudspeaker to prevent wiring touching the loudspeaker body. Further details concerned with assembly are illustrated in fig.5 which also shows the battery plug connections. The photographs show other aspects of construction.

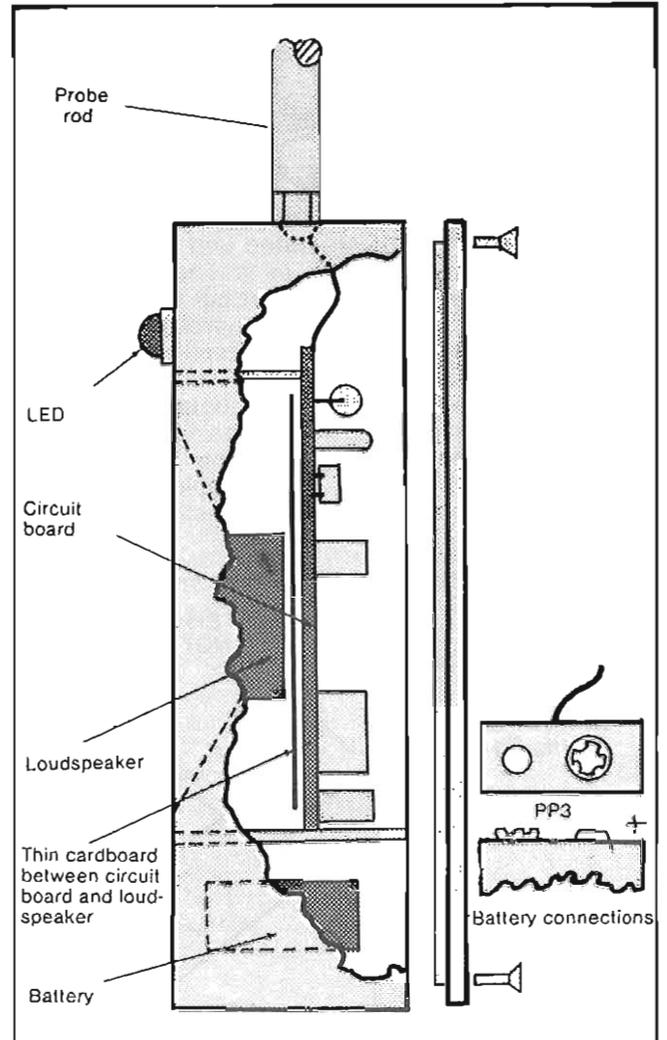


Fig.5: Side view of assembly. Note thin cardboard spacer between circuit board and loudspeaker body.

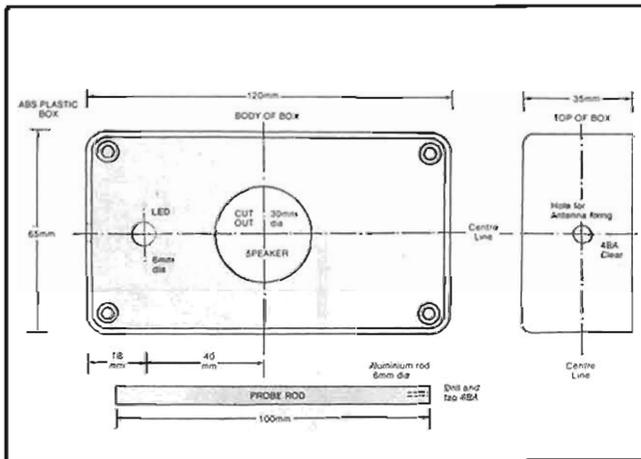


Fig.3: Details for holes in box.

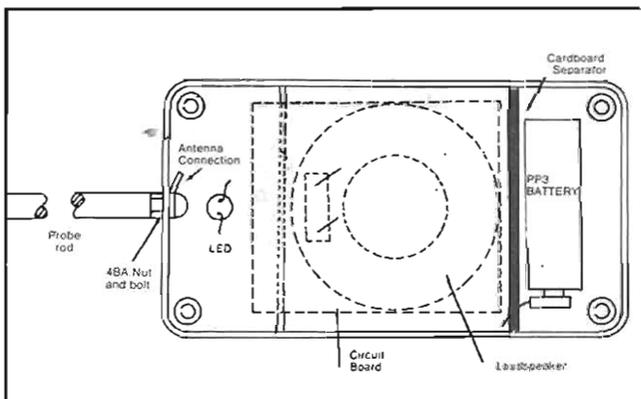
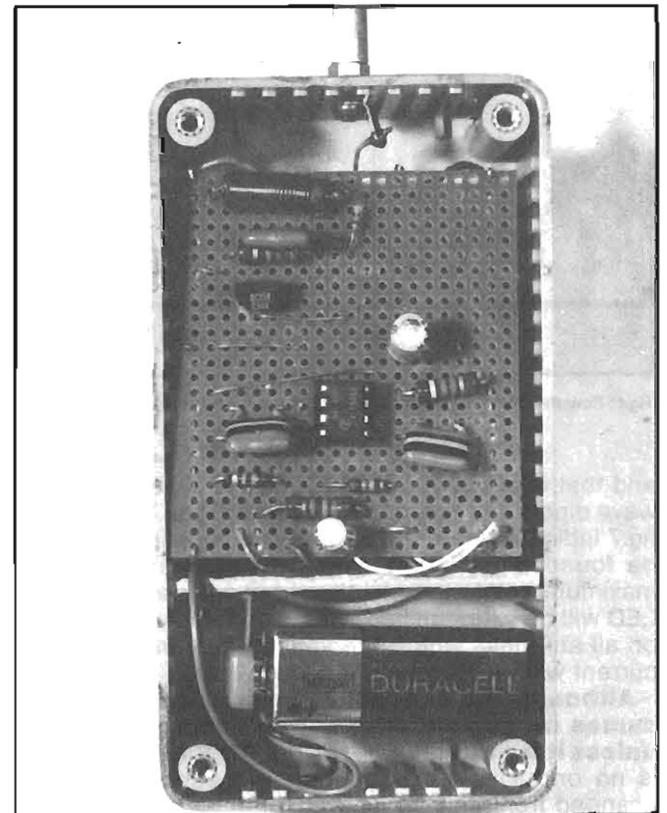


Fig.4: Assembly detail. Circuit board is above loudspeaker.



continued over . . .

# Project One

## The Checker in use

The antenna checker is used with its probe rod fairly close to an antenna being tested and which must of course have power applied to it. The checker will respond to power levels as low as about 1 watt. Hold the checker so that the probe rod is approximately 3 to 4 inches away from the antenna being tested as illustrated in fig.6. When moved along to an RF voltage maximum point the checker will emit a continuous tone and the LED will also be illuminated. Voltage maximum points are in different places according to the nature of the antenna as shown in fig.7. For example, most typical mobile CB antennas have only one voltage maximum

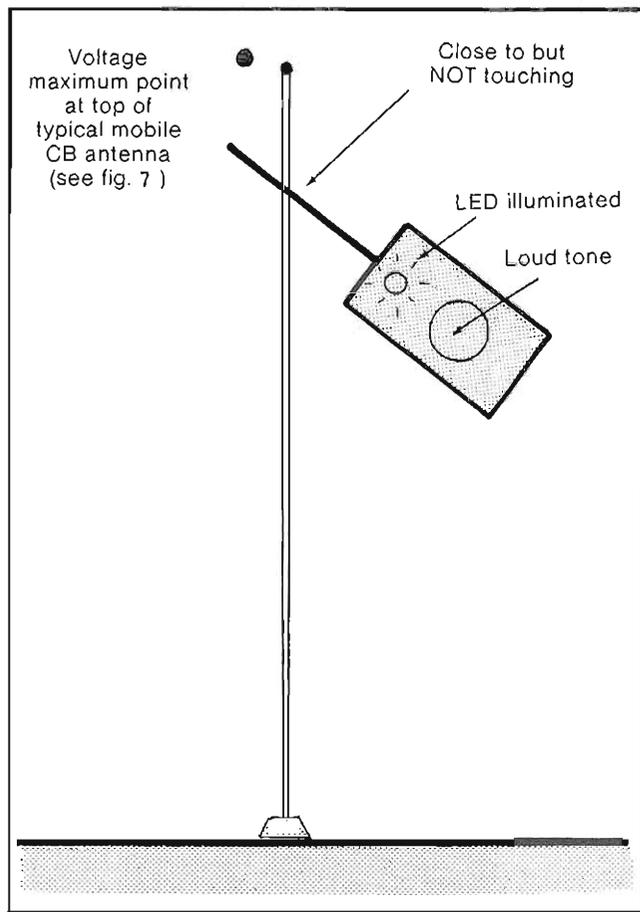


Fig.6: How the antenna checker is operated near an antenna (see text).

and that is at the top of the antenna, whereas a half-wave dipole has two, one at each end. The large dots in fig.7 indicate where the voltage maximum points are to be found on different types of antenna. At *current* maximum points the checker tone will cease and the LED will be extinguished. This is quite normal because on all antennas where the voltage is at maximum the current will be minimum and vice versa.

**Although the checker is battery driven it consumes no current whatsoever from the battery unless it is actually operating.** For this reason there is no on/off switch although the battery should be changed from time to time or if the voltage becomes less than the rated 9 volts through continuous use.

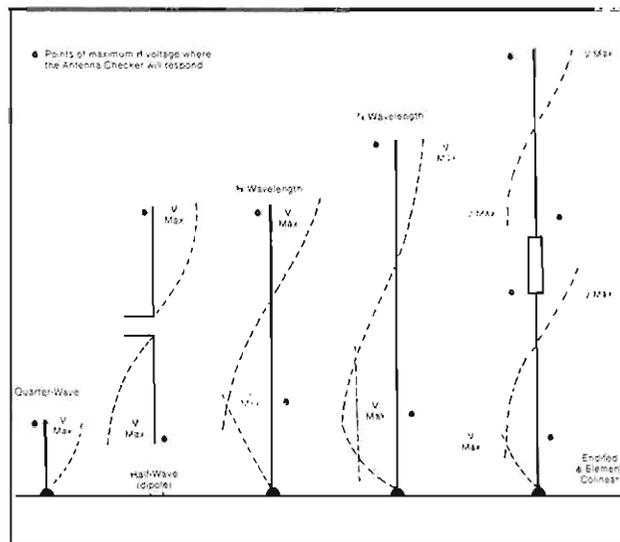
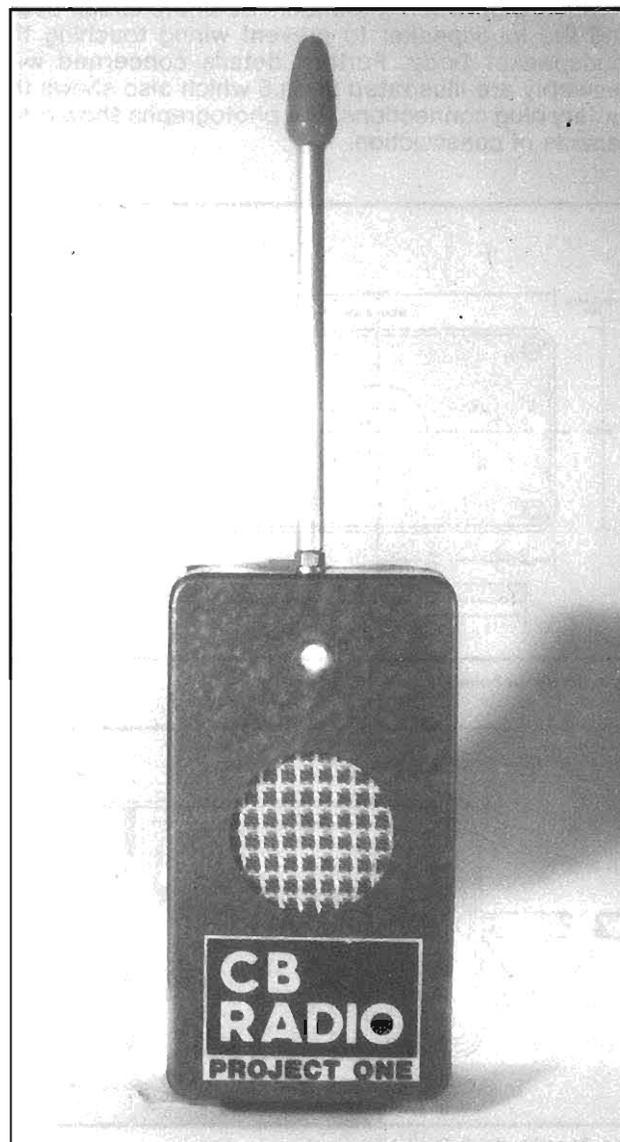


Fig.7: Voltage and current distribution of RF power in various commonly used antennas. Large dots indicate points where the antenna checker will respond.



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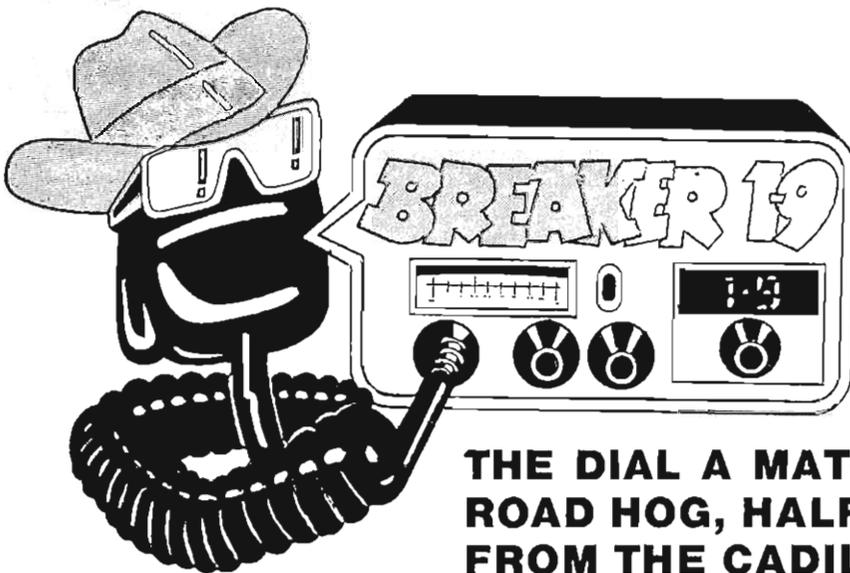


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# Bedford Demonstration

## How not to make friends and influence people.

On Saturday 24th January, Breakers from the Bedfordshire area gave a perfect example of how not to stage a demonstration. The demo was due to start at 1 o'clock at the Market Square in Bedford's town centre and was, we were told, to take the form of a march.

When I arrived on the scene, 10 minutes early, a convoy of cars were already circling the market square, plastered with banners, headlights on and their horns blaring above the bustle of the market traders and week-end shoppers. Inevitably the shoppers and the residents from around the square were not to keen on the breakers disturbing their lunchtime peace, and complaints were soon pouring into the local police station. Within minutes a squad car, and two motorcycle riders arrived and started breaking up the convoy, which had already brought traffic to a standstill, funneling the offending vehicles down the embankment, words were exchanged between the front runners and the police officers. The police demanded immediate dispersal of the vehicles.

However the breakers dispersed only to meet up again at a nearby car park, where they proposed to leave the cars and proceed on foot.

The police informed the would be protesters that they could not hold a demonstration without the permission of the area Chief Constable who would give them an organised route and a motorcycle escort if necessary, and whilst they were there they warned the driver of a Bedford van that he had better change his rear tyres in the near future because they were illegal. This caused much alarm in the CB camp as the assumption that the police were going to start busting people travelled through the crowd. In the following discussion, the police officers made it clear that they had given the van driver some personal advice about his tyre situation and that it had nothing to do with their demonstration although they must insist on the gathering of some 100 breakers, being disbanded and organised properly at a later date.

## Did it achieve anything

From my brief visit to Bedford it was made clear to me that CB is very popular in the area, the immediate recognition of the signwritten van at several places away from the demonstration soon made us feel at home. Although at the moment the Bedford Breakers (not a club) are having trouble with the police, who reportedly have been ripping radio sets from offending vehicles without the proper authority. The demonstration has unfortunately, by its disorganisation, only served to show the local press and public alike that CB'ers are exactly what the authorities have been saying "trouble makers", which I am sure was not the intention of the

demonstration. It is necessary to hold demonstrations, but organised and responsibly carried out so as not to give a bad image of CB users.

Here are a few points to help you.

- 1) Arrange a club meeting to nominate an organiser.
- 2) Involve other local Breakers Clubs.
- 3) Decide what form of demonstration would be most suitable.
- 4) Get permission from the Chief Constable and ask for his help in planning the route.
- 5) Ensure that your protesters act in an orderly and sensible manner.
- 6) Notify the press, including us and ask for coverage.

Bearing these few points in mind will help ensure that your demonstration gets the message across and doesn't tarnish the 'Good Buddie' image.

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A Police Officer explains the situation.

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