

# CB

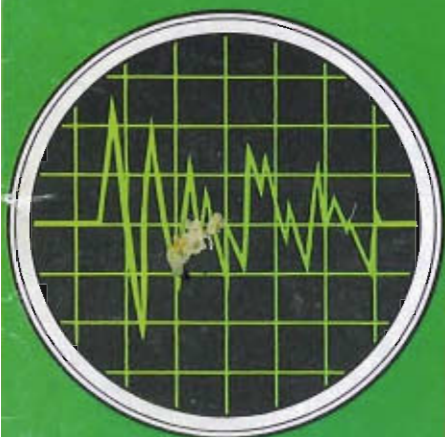
# Citizens' Band

Britain's Leading Communications Magazine

95p

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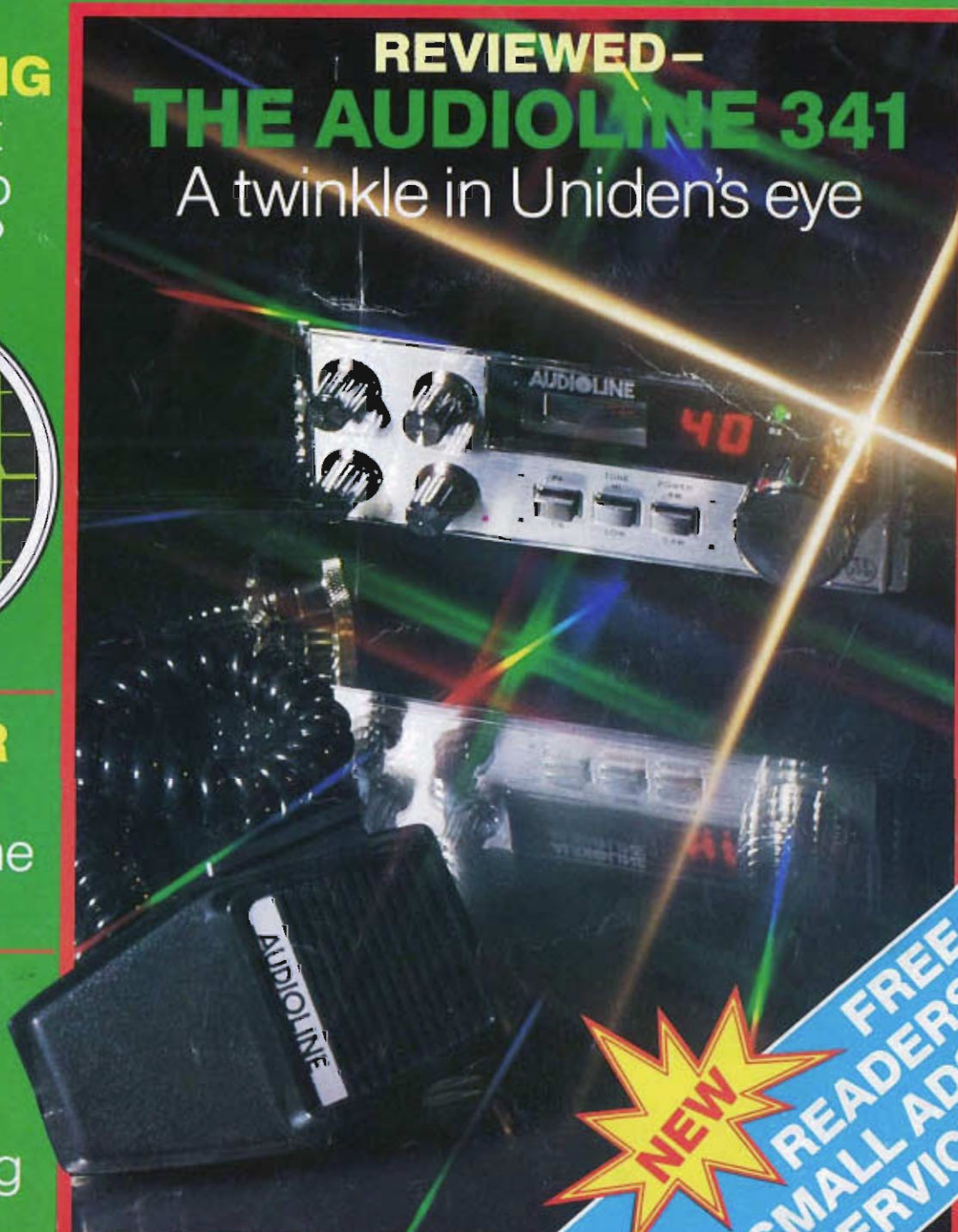
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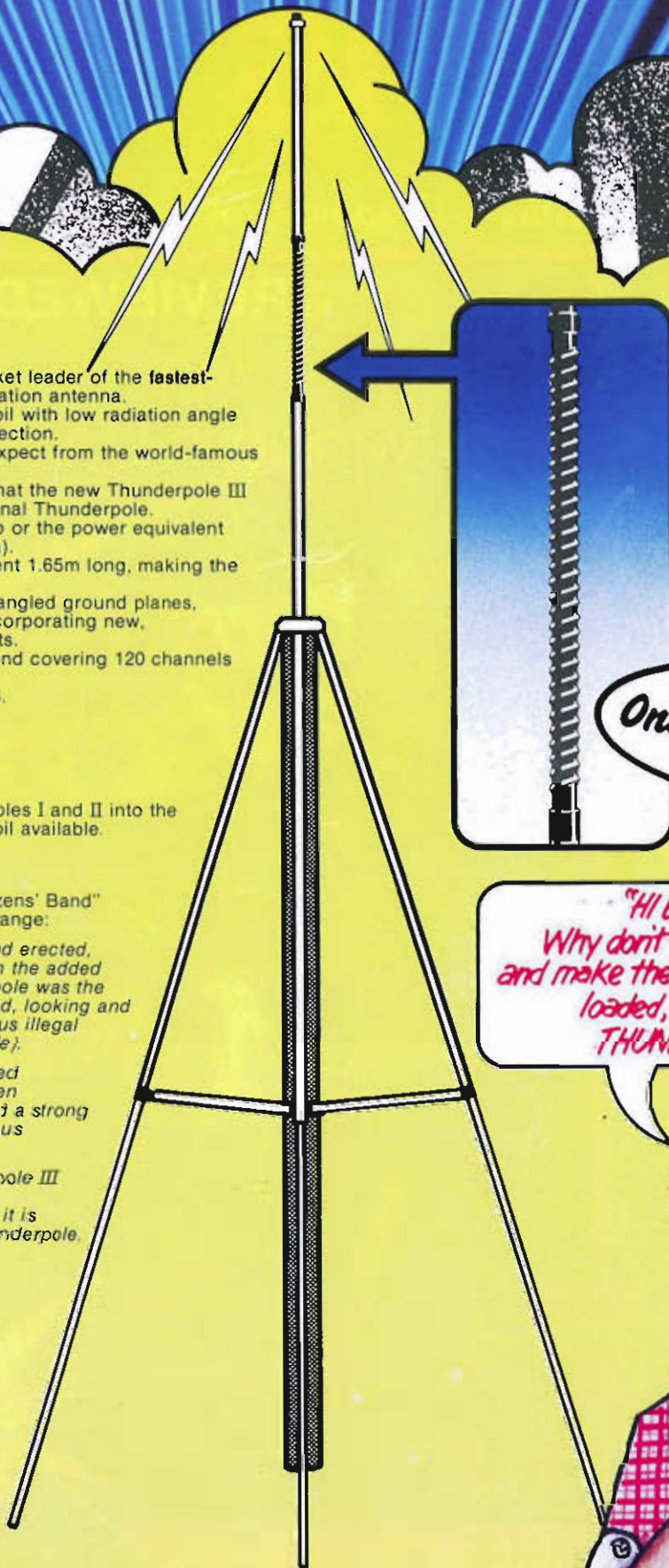
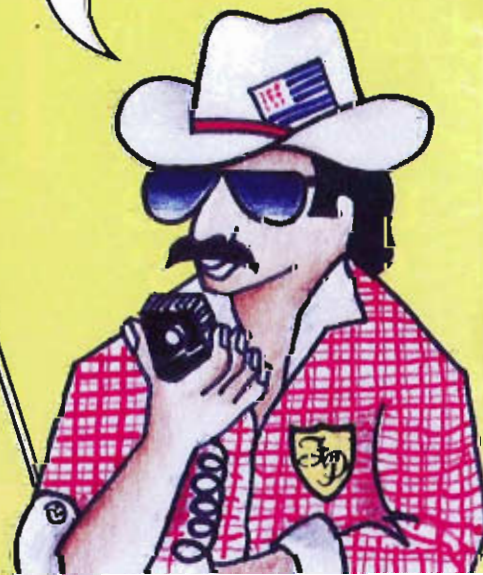
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WITH  
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WOUND  
CENTRE-  
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COIL

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One Step Ahead of  
the Rest!

"HI BREAKERS!  
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and make the trip with the centre-  
loaded, helically wound  
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Typesetting & Origination  
by Ebony Typesetting,  
Liskeard, Cornwall

Editor:  
Sue Sharp  
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Alec Gee

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T J Connell

# Citizens' Band

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### Cover This Month

The Audioline 341 shines away merrily on the front cover this month. Can Patrick Moore identify it through his telescope? He can read about it anyway in Rig Review.

August's gemette is the inspiration (?) of Andrew Crimbs. I take no responsibility for it. Once upon a time in China, there lived a poor busker whose only means of survival was to play his harp to the crowds. After a particularly good day, he went out to forget his misery in a local night spot. He arrived home a bit worse for wear and was greeted by his wife, who said "Where's your instrument, our livelihood?"

"Oh no," replied the busker, "I've left my harp in San Pan's Disco" . . . .

Andrew, that was terrible! I'll send you a highly desirable CB patch for your trouble and as a donation to the Rehabilitation of Andrew Crimbs Fund.

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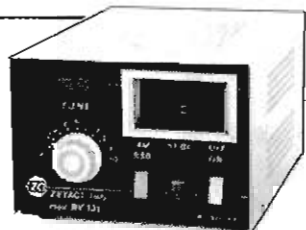
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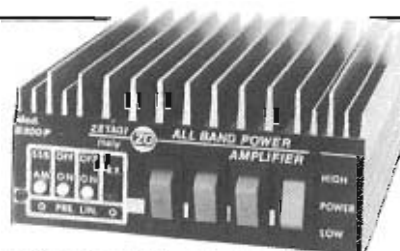
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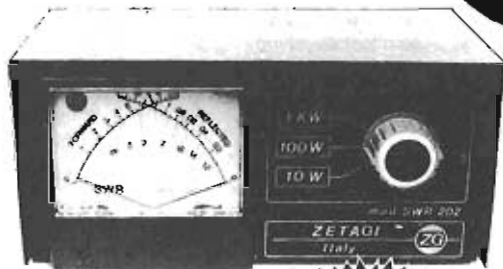


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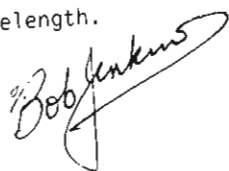
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If you do so, in addition to the £2 voucher, valid on any purchase worth more than £10, we will give you, absolutely free, either a CB Jargon Book or CB Log Book. Just state which you prefer.

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# UPDATE

## NEWS FROM THE WORLD OF CB NEWS FROM THE WORLD OF CB NEWS FROM THE WORLD

If you are a small print reader, you will have noticed, on page 3, that we have a new address. On the 2nd of July, the editorial department of CB moved lock, stock and barrel from the hurly burly of London to the more rural delights of Hertfordshire. Hemel Hempstead isn't exactly a sleepy little village, of course, and I am reliably informed by other A.S.P.ers that most of the requirements of modern living are available, but it will make a pleasant change to drive through the country to work, rather than struggle with the eccentricities of London Transport.

The move was, as could be expected, chaotic. In London, Citizens' Band occupied a neat little office that was self-contained. Everything we needed was to hand, with the important exception of McDonalds, which was only a short step away. As soon as we started emptying cupboards to pack, it became apparent that we had far more stuff than we thought and that the neat appearance of the office was a mask for the mess that lurked underneath. After some days of trying to pack sensibly we gave up, bundled everything into boxes - with the inevitable result at the other end. So, if you are expecting a letter from us, we promised to send you something or you

have trouble getting sense out of us on the phone, bear with us. Normal service will be resumed a.s.a.p.

Please bear in mind that if you have occasion to contact other departments at Citizens' Band; accounts or the photocopy service, our London address still applies, although the advertisement department is also moving to Hemel Hempstead.

Back numbers and subscriptions are available from the address listed in Reader Services.

Please make sure that you continue to send in your letters, news, views and questions to our new address — these are the things that make the magazine come to life and are very important to us. For those of you a bit too longsighted to read the small print, our new address is Citizens' Band Magazine, Wolsey House, Wolsey Road, Hemel Hempstead, Herts.

Elsewhere in the magazine you will find a reader survey, full to bursting with questions on Citizens' Band and your likes and dislikes. These facts are very important to us. On the whole, the magazine covers a good cross-section of subjects (at least I think so, but maybe I'm biased!) but we would like to check up on what our readers are most interested in and what we can do to improve your monthly read.

Just as important, the

questionnaire will also help us to identify areas where Citizens' Band is difficult to obtain.

So, please, if you have a spare five minutes, fill in the form and post it in. We will be putting all replies into a hat and drawing out three, who will receive a mystery prize for their efforts. Only forms that have been properly and fully filled in will be eligible.

One last point — about CB rather than the magazine. Whilst putting Club News together for this month, I added up all the money that clubs had referred to in their letters. You know, 'we donated £XXX to ABC', that sort of thing. The total for August was £4,700 for just one month, from just a small collection of clubs. I don't know about you, but I find this staggering. I can't think of any other section of the community, other than those that are specifically organised to raise money, that puts itself so wholeheartedly into helping others. This may not be a typical sum — this month's selection may be particularly high, I don't know. But I do know that thanks to the generosity of some ordinary people, who have CB in common, charities, hospitals and good cause are now nearly £5,000 better off. What can I say except well done?

**Sue Sharp**

### Kenilworth at it again Dear Update

I am writing to tell you about a forthcoming event in Warwickshire. You might remember last year we held a 168 hour modulation and this year we are intending to complete 350 hours in a non stop modulation. We hope to break our previous record and to raise a target of £1,000 for the Coventry and Warwickshire Cancer Treatment Fund C.U.S.A. Appeal (cavitron ultrasonic surgical aspirator).

The 350 hour sponsored modulation will take place at the National Agricultural Centre, Stoneleigh at Kenilworth, coinciding with the Town and Country Festival. The modulation will start at midnight on the morning of Monday, 13th August and will finish at 2.00 in the afternoon on Monday, 27th August 1984.

The event is being sponsored by Impact Graphics, a printers in Coventry and Toad's 20, a CB shop in Leamington who will provide the equipment.

Six modulators who belong to the Kenilworth Breakers Club will be providing the manpower and there will be two breakers on each eight hour shift.

Any donations would be greatly appreciated at this address; C.U.S.A. Appeal, P.O. Box 57, Coventry, West Midlands. CV51 7QQ. In return for all donations, we will send a special event QSL card and information about the appeal.

**Tim Beaumont,  
Kenilworth Breakers Club.**

## Brave Walker

Our photo shows John Bond, visually handicapped breaker of the Plymouth Flying Devils, setting off on an 855 mile sponsored walk and modulation to raise funds for the Devon and Cornwall Cavitron Fund. John, on the left, was sent off on his journey by Derv Mohan, neurosurgeon at the Freedom Fields Hospital and the chairman of the Cavitron fund.

The journey will cover Land's End to John o' Groats and back again. John's wife will be following the course and keeping contact with John via CB. It was expected that the trip would take 300 hours.



## Budget Breaker

If you're stuck with a broken van or have a heavy load to move and you're in the Cheltenham area, Budget Rent a Car have a new deal that could be of particular interest to you. From May all 22 of the vans and trucks rented from the Budget Cheltenham office will be equipped with a CB radio — the Lowe TX 40 to be exact.

The Budget office will also be equipped with a CB and, operating under the handle BRAC 20, will be offering a service to CBers in the area. Some specialised slang has even been developed; 'move yourself kit' for a Luton Van, 'potential rental' for an accident and that old favourite, 'square wheels'



for a breakdown.

Budget are offering CB in vans rather than in their cars because they feel that drivers for transport companies are already likely to have a CB and consider this an important factor in their working day — and would want a replacement vehicle to have one, and that D.I.Y. movers will find it useful in unfamiliar areas or for keeping in contact with a convoy vehicle. For non-previous CB users, a four page instruction and phrase book is included.

If the scheme works in Cheltenham, Budget hope to go national and have supported the idea with press and radio advertising in the area. (The radio ad even uses a name that is familiar to CB readers; Smart Alec!).



## Hedgehogs are back!

This time of the year sees the return of the humble hedgehog, now out of hibernation for the summer and feeding up for the winter. As regular readers will know, Citizens' Band has a particular affection for hedgehogs and sharp eyed breakers will see hedgehogs appearing frequently in Twong.

CB magazine is also a

member of the Hedgehog Preservation Society and we try to do our bit with our sticker, featuring Twong, a hedgehog and asking drivers to 'give a hedgehog a break'.

We still have some of these stickers available if you would like one. They are adhesive on the decorative side and are therefore best used stuck in a window — like a car, for example.

If you would like a free hedgehog sticker, then send a stamped, self addressed envelope to Hedgehog Offer, Citizens' Band Magazine, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. Ideally, the envelope should be at least five and a half inches deep and five inches long, or it will be necessary to fold the sticker and risk spoiling it.

**CB**



## GREY BEARD'S GLEANINGS

Hello there, it's the wheelchair warrior again! This month I have been kindly lent some antennas by Les Wallen Manufacturing, Sandwich, Kent to whom I am extremely grateful.

My favourite is 'the Super Modulator II', as this antenna gave a VSWR of 1.1:1 over all 40 channels.

The range of this 'twig' is a very pleasant surprise to me, as it was mounted at only 38 inches above the ground. The only reservation that I have is that, since the antenna is about 65 inches long, one tends to have problems entering shops, libraries etc. etc. The only alternative is to unship the 'twig' until after you have finished your shopping. If you are the outdoor type who enjoys DX-ing, then the 'Super Modulator II' is ideally suited to your needs. More news of Les Wallen's other mobile 'twigs' as soon as the weather allows.

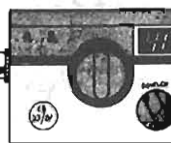
In a previous issue I reported on the Dial-a-Match antenna loaned to me by WTA Electronics of Norfolk. I am happy to report that after little experimenting with the positioning of the 'twig' improved the VSWR to around 1:1.2 over all 40 channels. This makes it an even better proposition since one can enter shops without having to unship. The range is necessarily less than that achieved by the Super Mod. II.

On the local (to me) scene, much is happening. Witton Lakes DX Club are holding a week long

sponsored modulation in aid of spina bifida; Sam's son is squatting up a pole with his rig after the world record and raising some money at the same time and the Blue Circle Club is hard at work helping to put housebound/disabled people on CB. They also run an ambulance on eyeball nights to transport disabled breakers in to the Club. Keep up the good work—write and tell me what is happening in your area for the disabled & CB.73's for now.

## The Grey Beard

## CB information SHEET No 1



### CB Information Sheets.

The Department of Trade and Industry have been updating the series of CB information sheets that are available for breakers and enquirers who have questions on CB and the British CB service.

Altogether there are eight sheets covering licensing, interference, frequencies and associated subjects and although they were published by the Home Office before the departmental change, these new ones are updated to include the recent licence changes and look far more attractive.

I thought all the sheets were useful and interesting but sheet 2 could be of particular interest for clubs and individuals who have trouble working out just what is legal and what isn't. This sheet on licencing conditions runs through popular accessories, like echo boxes, and facilities that can be used and has notes on the accessory in general.

These sheets are available from CB Information Sheets, Department of Trade and Industry, Radio Regulatory Division, Waterloo Bridge House, Waterloo Road, London, SE1 8AU.

### Bremi Review

If you read the magazine back to front, you may already have read about our antenna reviewer, Brian Wright, having a bit of trouble with SWRing in the Bremi C27S. Brian suspected that the top element was too short, and we contacted Bremi to

let them know about the problem.

After checking all the stocks in the warehouse, 400 antennas were returned to the manufacturers.

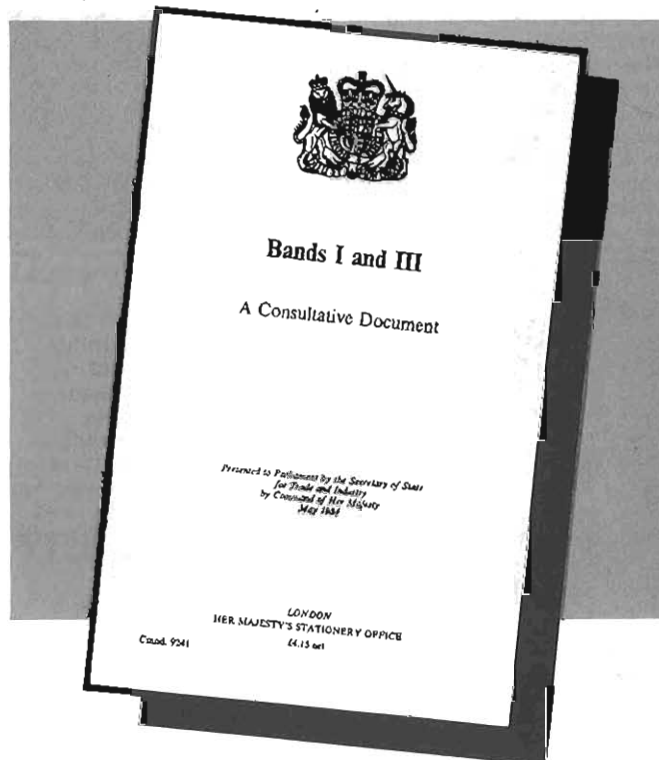
Apparently, the top element is OK, the fault lies in the top two turns of the loading coil that are touching and giving a false electrical length.

### Land Mobile Radio

The Department of Trade and Industry (them again) has published a consultative document on the future of the radio frequencies known as Band I and Band III which are currently used for 405 line black and white television services. At the end of 1984, these frequencies, 41-68MHz and 174-225 MHz, will be closed down for television transmission and will create one of the largest single additions to the spectrum for mobile radio in the country.

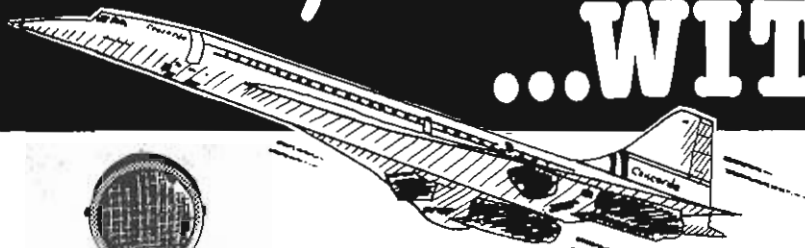
The document discusses suggestions for these new frequencies and what systems are practical for the mobile radio services, bearing in mind the rapid growth of radio users. The Government proposes that major operators should be companies offering communications services via multi-channel trunked radio systems, which should satisfy demand until the end of the century.

The paper, Bands I & III, A Consultative Document, Cmnd 9241 is available from HMSO, price £4.15.





# UP, UP AND AWAY... ...WITH DIALS



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**RELAX.** Rugged, but easy to handle pre-amplified mobile microphone. The FET-type audio amplifier circuitry has a characteristic of low power consumption by a 9V standard battery, but has also a unique feature that allows an extra power source. It incorporates a ceramic

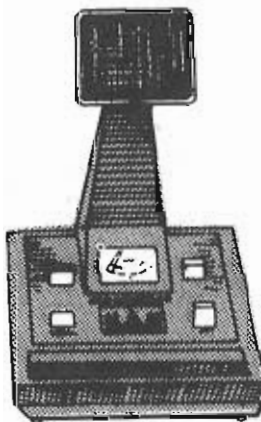


microphone element specially designed to be responsive to voice frequencies, thus resulting in outstanding voice clarity. Frequency response: 300-5000 Hz.

**Dials Price £17.95**



**HM014.**  
Standard microphone  
Ham International  
with 4 pin plug.  
**Dials Price £8.50**

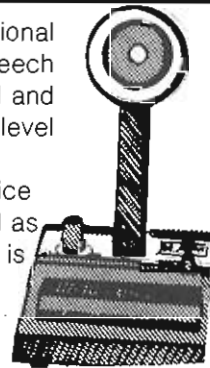


**BIG PUNCHER.** High-class base station microphone with built-in speech compression pre-amplifier. This dynamic type microphone is provided with volume and tone controls, and a meter for reading both audio output and battery condition. Powered by a 9V battery, but can be used with an external power source. A small trimmer enables adjustment of the maximum audio output to your transceiver, while the very responsive tone control allows microphone adjustment to the user's voice. Frequency response is 300-5000Hz. The BIG PUNCHER is universally wired both for relay and electronic switching.

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**TW-232S** . The TW-232S is a versatile, omnidirectional base station microphone with incorporated speech compressor amplifier. Excels not only by its rugged and elegant design, but also by the high modulation level capability. It is provided with a high quality dynamic element, and a special lock-switch. The extreme voice clarity makes this microphone very suitable for local as well as for DX-communication. Frequency response is 200-5000Hz. The TW-232S of almost legendary reliability can be used with all types of transceivers.

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Rosko's Harrier

## Higher and Higher

Peter, or the dreaded Rosko, as he signs himself, writes in doubt to ask about an unusual antenna arrangement . . .

**Q** Could you please settle a query for me. I have at the moment a Harrier CBX connected to a half wave antenna, but before this I used a 7' Firestik on a biccycin. Both seemed to work as well as each other and hit places such as Felixstowe, although the half wave is some 30' up a pole. I have been thinking of putting up a 9' Firestik with a ground plane of four DV 27s. Could you tell me if I would be better off using an ordinary groundplane or an enlarged one and if the DV 27s would help. The lot will be going up 40' above the house.

**A** Aerials must be considered in terms of both physical and electrical lengths. Although the half wave and the 7' Firestik are of different physical lengths they have similar electrical lengths and it is unlikely that one will significantly outperform the other in similar operating conditions.

Using biscuit tins as a ground plane is a total waste of time. The signal 'lobe' is dictated by an adequate ground plane and most commercial ground plane kits have legs of a quarter wavelength each. There is no further advantage to be gained from using four DV 27s - in fact the mind boggles at the thought!

From your location, you are best advised to consider the height of the antenna mounting, as height will usually offer a greater range, whatever aerial is used.

SA

Bob or Alpha Zulu, wants to know if he can alter cable length without altering performance . . .

**Q** Because the dashboard of my car is taken up with things like car radio, speedo and other useful things, I've had to invest in a remote rig and I have a Realistic Easy Rider stowed in the boot. Also fitted at the rear is my K40 on a boot lip mounting.

The distance between the two is about 1.5 metres. But to the point. Is it advisable to shorten the co-ax, bearing in mind that Realistic say to keep it as short as possible and American Antenna say not to modify the antenna in any way. The surplus cable is, at the moment, all bunched up. Do I lose any signal potential with it in this condition?

**A** In theory you will lose a little of the signal through connections and co-ax cable (this is called, not surprisingly, 'signal loss') but in practice, this is not usually significant and barely measurable at 27MHz.

By shortening the cable you won't be altering the antenna, unless for some odd reason the cable helps tune the antenna (which it shouldn't.)

I am inclined to say, although generally speaking cable should be as short as possible, leave well alone unless the cable is tens of feet long. You may well find at a later date that you want to move the location of the rig or antenna, or change cars. The only point to bear in mind is that the cable shouldn't be neatly wound into a coil but should be loosely bunched out of the way as coiling the cable can retune the system.

SA



The Realistic Easy Rider. Shorter cable, less signal?

## Gain or Loss?

Gordon Rogers of Dundee brings up a frequently asked question on the vexed matter of antenna gain . . .

**Q** At the moment I operate my mobile as a home base using a half wave dipole antenna in a vertical position. I want to buy a better antenna and use my dipole directionally. My problem is that, usually, only the illegal antennas show their dB gain rating and the legal ones often don't.

Could you please give me some examples of antennas and their dB gain and perhaps include the dB as one of the columns in the antenna reference section.

**A** I can't tell you the dB for a range of antennas or the ones you ask about in particular for the simple reason that I don't know them, although you could refer to the manufacturer for the figure if they publish it.

An antenna doesn't have to have a dB gain figure. The following quick explanation may show why.

For a dB figure to mean anything it must relate to some comparative figure. There are two basic ways of measuring this - a comparison against the performance of a dipole and against an isotropic radiator.

The most effective is against a dipole. For example, 3 dBd (last 'd' for dipole) is 3 dB gain over a dipole and since every 3dB equals an effective doubling of power, this 3 dBd gain antenna will radiate with twice the power of the dipole it is measured against, assuming the same output from the rig.

Some manufacturers measure dB<sub>i</sub> - gain against an isotropic radiator, which is a theoretical half wave hanging in free space. This is impossible to construct, making this comparison rather meaningless.

In fact, CB antennas can have a negative gain (i.e.) loss compared to a dipole since they are electrically shorter.

So you can see that gain, whilst desirable, is not essential, and the figures quoted for some twigs should be treated with healthy scepticism!

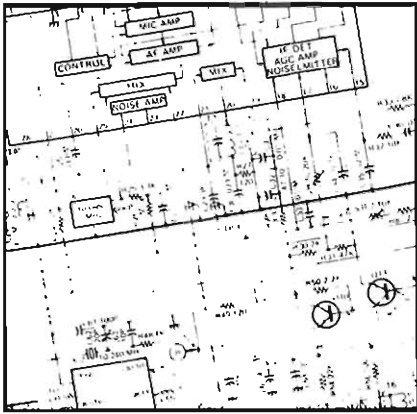
As a reference point, with the parameters of the British CB system, if 0 dB equals 4 Watts then 3 dB is equal to 8 Watts, 6 dB to 16 Watts and 10 dB gain gives a ten fold increase. As you can see, the equation is logarithmic and not linear. Conversely if 0 dB equals 4 Watts, then -3 dB = 2 Watts, -6 dB 1 Watt. From this you can see how the specs reach a 10 dB attenuation of 0.4 Watts.

As this isn't the first time this question has come up I shall ask the Ed. if she will consider an explanatory article.

SA

Problems should be sent to  
CB Q & A, Citizen's Band  
Wolsey House, Wolsey Road,  
Hemel Hempstead, Herts.

# Inside CB



Lou Franklin, president of CB City in Phoenix, Arizona, describes the ways in which your rig can gain extra, legal, 'talk power'.

# ALL ABOUT SPEECH PROCESSING

**H**ave you ever been watching your favourite TV programme when suddenly the commercials appeared and seemed to knock you right off your seat? Or maybe you've noticed now most AM or FM broadcast stations playing rock music always seem louder than other stations? Well, they haven't turned up the power or programme volume! Instead, they've applied a form of audio or speech processing. You too can take advantage of such techniques to make your CB or HAM signal appear louder and more powerful, and this discussion will demonstrate the basic methods, as well as pros and cons of each.

## Simplified Background Theory

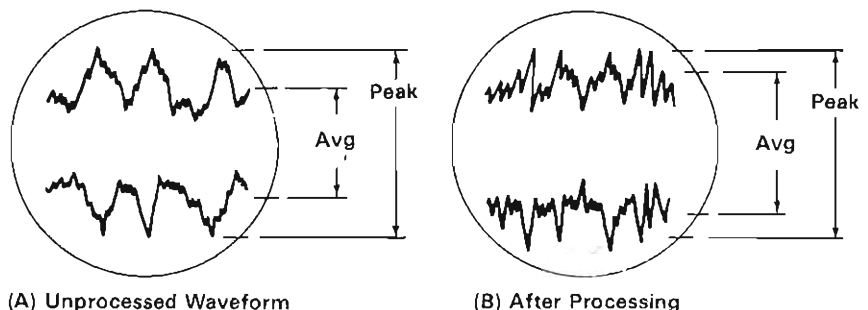
It's well known that the human voice is actually very weak when compared to other types of audio signals. For example, solid tone, which is a sine wave, has about twice the power to modulate a radio transmitter than does the average voice. Unlike the familiar sine wave with its regular repeating pattern, a human voice is a very complex waveform having many "peaks" and "valleys". The peaks represent the points of maximum

transmitter modulation, and the valleys the minimum.

The problem is that those sounds producing maximum modulation are not the same sounds that give the maximum "intelligibility" of the transmitted signal. ("Intelligibility" simply means how easily the voice can be understood, especially during weak-signal or heavy interference conditions.) These high-intensity, low-intelligibility sounds are the familiar "vowel" sounds we were taught in school: A, E, I, O, U. It is the *consonant* sounds, such as B, K, L, S, T, which actually give the voice its greater intelligibility. If we can therefore increase these consonant sounds *relative* to the vowel sounds, the overall *average* voice power will be significantly increased. This is illustrated in Figure 1.

We also know that the greatest amount of voice power of benefit to radio communications is concentrated in a rather narrow band of frequencies, from about 500-2500 Hz, with the most powerful centred around 1000 Hz. Women's Lib notwithstanding, the male voice is more powerful than the female voice because it contains more of the frequencies near the 1000 Hz median while the ladies' voices contain more of the higher frequency elements. If you've ever watched a

Figure 1: Effect of processing on RF or Audio Waveform



Note peaks are same intensity but (B) has higher average.



TV show or movie being filmed, you'd have seen that in a shot containing both men and women, the soundman always hangs the mike boom closer to the woman to keep the overall volume of the performers' voices equal. Thus an important part of speech processing in addition to reducing the peak-to-average power difference is to filter out all the low-power voice frequencies and concentrate only in the 500-2500 Hz range. This is also very important because it limits the "occupied bandwidth" of your signal. In other words, you don't want to be heard on three channels at once!

## Measuring Speech Processing And Its Effects

Since this discussion deals with power levels, it's not surprising that speech processing and its effects on intelligibility are measured by the familiar "decibel" or "dB". In its simplest terms, a change of "so many" dB means that the signal power has been multiplied (or reduced, for that matter) by a specific factor. Let's list a few of these typical power multiplication factors to aid our discussion:

- +3 dB — Power multiplied by 2
- +6 dB — Power multiplied by 4
- +10 dB — Power multiplied by 10
- +20 dB — Power multiplied by 100

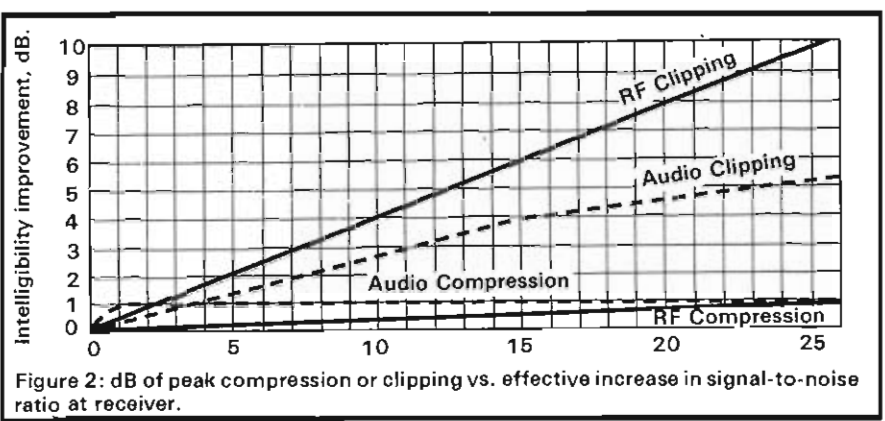
As an example, if your transmitted signal increased by +3 dB, this would be the same as doubling your power (x2). The difference to the person receiving your signal is just as though your transmitter power increased from 5 watts to 10 watts, when in reality this +3 dB increase *was the result of speech processing*.

There are two distinct Speech Processing measurements typically used:

- 1) Actual amount of processing applied to the signal, expressed dB;
- 2) Effective increase in intelligibility of a processed signal over an unprocessed one, expressed dB.

In the first case, if the power of the consonant sounds were increased ten times *relative* to the vowel sounds, this would be the same as saying that "10 dB of processing" was applied to the signal. Usually, the amount of processing can be adjusted by the operator with a potentiometer control in most speech processors; the amount of adjustment affects intelligibility and the degree to which the voice is altered from its unprocessed natural sound.

The true test is the actual increase in readability over an unprocessed signal, all other factors being equal. Thus to say that the processing adds "3 dB of intelligibility" is just like the power doubling of transmitted RF described above. The person listening to your signal can't tell the difference between a doubling of RF power or a doubling of *effective power* due to the speech processing. It's important to remember this point when considering the different processing systems



that you may apply to your CB or amateur rig.

## Speech Processing Methods

There are four basic systems that have been used to increase the "talk power" particularly of an AM or SSB signal. These are:

- 1) RF clipping
- 2) RF compression
- 3) Audio compression
- 4) Audio clipping

Let's briefly examine the pros and cons of each method as it might be used in the typical CB or amateur transceiver. The effectiveness of each has been summarised in the graph of Figure 2 which we'll refer to often.

### RF Clipping

As the graph clearly shows, this is by far the most effective speech processing technique. However it is restricted to SSB transmitters only. That's because the processing occurs in the actual IF stage of the transmitter, after the SSB signal has been generated, rather than in the audio stages. A typical system is shown in Figure 3; diodes are used to clip or "chop off" the high-intensity peaks of the RF waveform itself, resulting in a higher average power relative to peak power.

The previous graph of Figure 2 indicates that with about 20dB of RF envelope clipping, an incredible 8 dB improvement in signal intelligibility can result. This is equivalent to a power multiplication factor of *over 6 times*, which is about the same power advantage of SSB over AM in the first place!

We never get something for nothing, including electronics. Clip-

ping of any type, RF or audio, produces lots of "harmonics" or undesirable signals. No doubt you've already experienced this as "splatter" or channel "bleedover" interference. Just like overmodulation. Thus any clipper circuit must be followed by some kind of filter to prevent the clipped signal from being heard all over the band.

The disadvantages: cost and installation complexity. While RF clipping is the most effective, it's also the most expensive. And since the circuit must be installed internally in the IF stage of the transmitter, it takes a skilled technician to do it. Not your simple add-on Black Box!

### RF Compression

You may have heard this called by its more common name, "ALC" or "Automatic Level Control". Basically this is a simple feedback system identical in principle to the Automatic Gain Control or AGC circuits used in receivers: A small RF signal sample is picked off after the final amplifier stage and fed back to an earlier RF stage to control gain. Thus the stronger the incoming signal from the mic., the more the RF signal going to the antenna is reduced. The result is to keep the output signal level constant even though the input power of the operator's voice may vary greatly. This method is shown in Figure 4.

The true purpose of ALC is not really to increase talk power, but to prevent bleedover interference. When a RF SSB signal entering the final RF amplifier stage is too strong, the final is "overdriven" and results in adjacent-channel splatter. (This is the familiar "flat-topping" of signal peaks seen on an oscilloscope in a

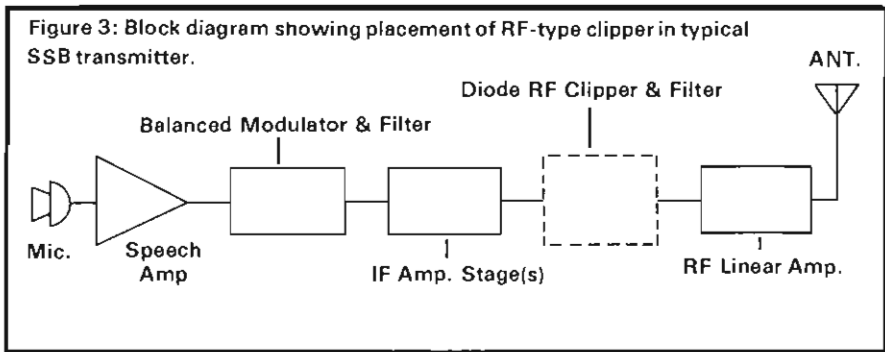
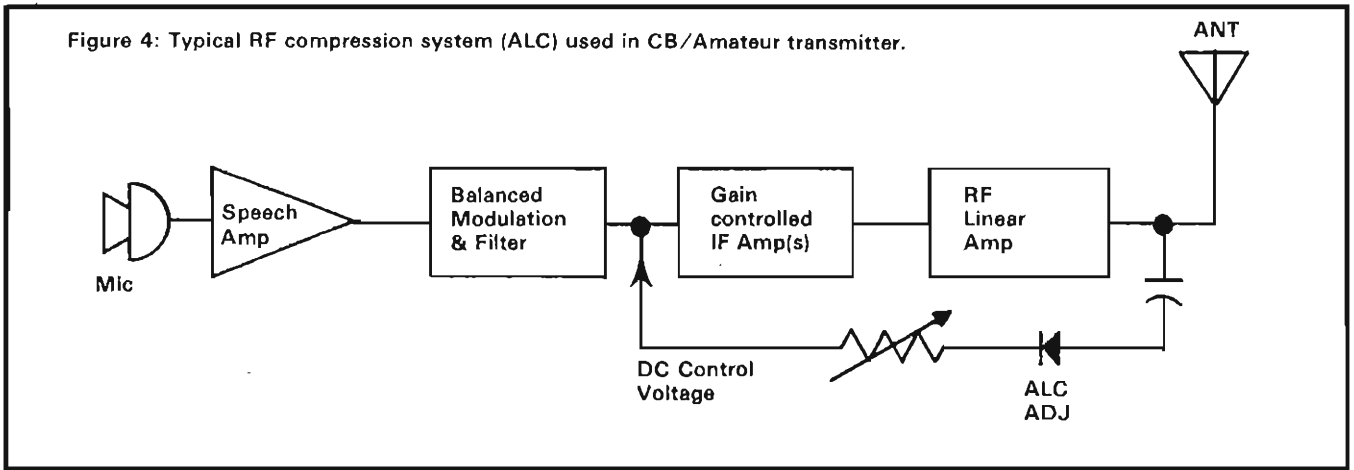


Figure 3: Block diagram showing placement of RF-type clipper in typical SSB transmitter.

Figure 4: Typical RF compression system (ALC) used in CB/Amateur transmitter.



misadjusted SSB rig.) And as shown in our earlier graph, this method only adds about 1 dB of intelligibility to the signal.

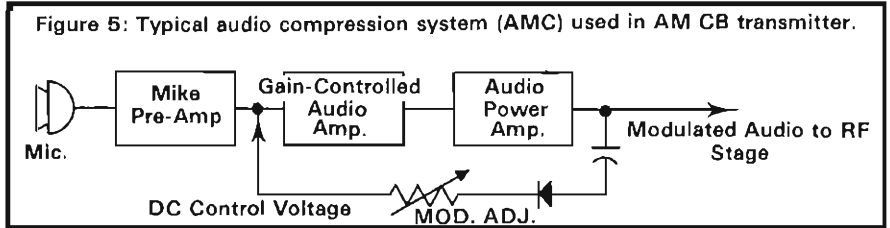
### Audio Compression

This is no doubt the most commonly-used system and is found in many popular power mics. This is exactly the same idea as in the ALC/RF COMPRESSION method, except that the sample signal is fed back from the last *audio* stage rather than RF final stage. The real purpose once again is not to talk power, but to prevent over-modulation on voice peaks and its resultant bleedover interference. The basic system is shown in Figure 5.

In the case of the Compression-type power mics., the voice signal has been made constant in level before it even enters the radio. This is done by amplifying the weaker voice elements in relation to the stronger peaks, and one disadvantage here is that such circuits are always very sensitive to any background noise or AC powerline hum in base-operated rigs. A listener may hear the kids yelling in the next room, or the operator's voice may sound very hollow if he's not speaking closely to the mic. In any event, the graph reveals that audio or "volume" compression adds almost nothing to the signal in readability, only about 1 dB.

An interesting variation of audio compression is the so-called "logarithmic" speech processor. In very simple terms, this is a "smart" processor which knows which voice elements to amplify and which to ignore. The stronger the incoming voice signal, the less amplification is applied, and vice-versa. You'll pay a big price for such a gadget too. As with regular compression circuits or power mics., the net increase in actual intelligibility is not that impressive. And they're very sensitive to the slightest background or AC powerline

Figure 5: Typical audio compression system (AMC) used in AM CB transmitter.



noise; thus, sophisticated noise-blanking and filtering circuits are required which partly account for the high price tag.

It's worthwhile to note at this point that many so-called "power mics." have no processing circuitry at all, not even compression. Instead they simply amplify *all* voice elements equally. As you realize by now, any system which does not actually change the audio or RF peak-to-average relationship does not do anything to increase your talk power.

### Audio Clipping

This is probably the simplest and dollar-for-dollar most effective technique; Figure 6 shows a basic system. The mike signal is first amplified to a level high enough to clip off the high-intensity, low-power peaks when applied to a diode circuit. At the same time the desired range of voice frequencies can be filtered to fit the required 500-2500 Hz band limits. The processed signal is then reamplified and adjusted to a level which will produce 100% of the AM/SSB transmitter and at the same time undesirable harmonics are removed.

Referring again to the graph of Figure 2, this method is the next best thing to RF envelope clipping but a lot cheaper, easier to install, and will work with an AM, SSB or FM transmitter. (Remember the TV commercials?) Using 15 dB of audio clipping, you'll get about 4 dB of real increased intelligibility. This represents a 2½-times power multiplication

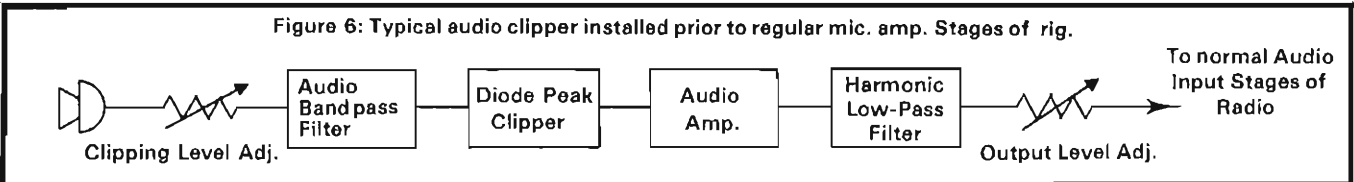
factor; a 4-watt CB sounds more like 10 watts! With the clipping increased to about 25 dB, another 1.5 dB of added readability results. At such high clipping levels the voice sounds unnatural but quite readable during weak-signal or heavy interference conditions.

Since clipping of any type produces harmonic bleedover, filtering is an absolute must! However this is easily accomplished by the addition of a few circuit parts which form a "low-pass" filter, just like the type used on your base antenna to help reduce TVI.

Another advantage here is that background noise and hum aren't nearly as noticeable as in audio compression circuits. That's because this method doesn't amplify the weak sounds in relation to the strong ones, but rather *reduces* the strong sounds relative to the weak ones. The difference is very subtle but the results are often a real increase in talk power!

Perhaps the greatest advantage of audio clipping is its price and simplicity. The circuit is connected in series with the mic. audio and can be added externally in a separate box, or permanently wired inside the radio if desired. The £10-£20 price tag makes it cheaper than most power mics. and as we've seen, more effective in producing a genuine power advantage. Our company (CB CITY INTERNATIONAL, P.O. BOX 31500, PHOENIX, AZ 85046 U.S.A.) is now offering such an accessory in kit or assembled form to those wishing to get the maximum performance from their CB or amateur rigs.

Figure 6: Typical audio clipper installed prior to regular mic. amp. Stages of rig.





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# TWONG

JOHN RICHARDSON

SOMEWHERE ON THE SUPERSLAB, A LOVELY TRUCKER CALLS HIS BUDDY...

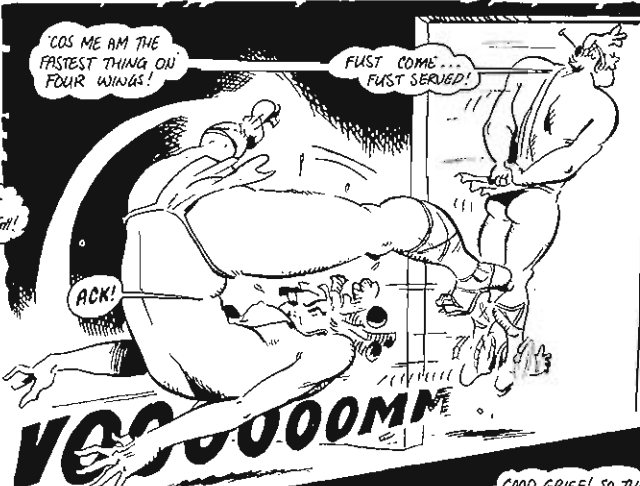
HI, CHARLIE! THIS IS MEGAPINT! IF YOU STILL WANT A JOB YOU CAN HAVE MINE WHEN I RETIRE THIS WEEK-END! C'MON!



TROUBLE WITH C.B. IS THAT YOU NEVER KNOW WHATS LISTENIN'...

HMM! ME, THE MIGHTY GODLING TWONG, DO FANCY A JOB ON BARREL-CHARIOT?

ME DO NOT FANCY CHARIOT'S CHANCES THOUGH!



'COS ME AM THE FASTEST THING ON FOUR WINGS!

FUST COME... FUST SERVED!

ACK!

VEOOOOOM!



GREETIN'S, MEGAPINT! ENJOY RETIREMENT!

WHO THE... WHO THE... WHO THE...?



HAH!

NOO ME AM A MIGHTY TRUCK DRIVIN' MAN! AN WILL BE FAMOUS! HE WILL HAVE BIG OL' C.B. REPUTATION! FOLKS WILL WRITE SAD OL' C.B. SONGS 'BOUT ME WHEN ME AM GONE!

NEEE

'CEPT ME IS IMMORTAL!

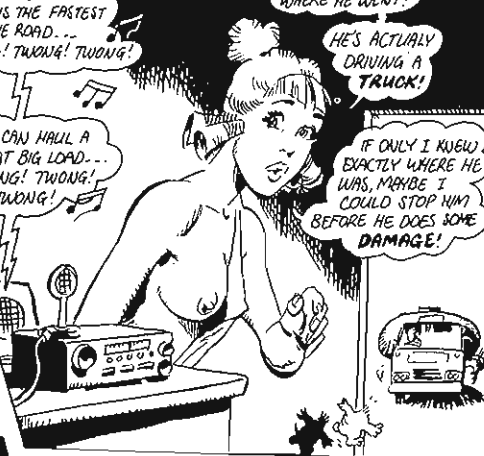
WHO IS THE FASTEST ON THE ROAD... TWONG! TWONG! TWONG!

ME CAN HAUL A GREAT BIG LOAD... TWONG! TWONG! TWONG!

GOOD GRIEF! SO THAT'S WHERE HE WENT!

HE'S ACTUALLY DRIVING A TRUCK!

IF ONLY I KNEW EXACTLY WHERE HE WAS, MAYBE I COULD STOP HIM BEFORE HE DOES SOME DAMAGE!



WHO IS FAMOUS... WHO IS BIG...

WHO JUS' FLATTENED AN OL' HEDGE-PIG

TWONG! TWONG! TWONG!

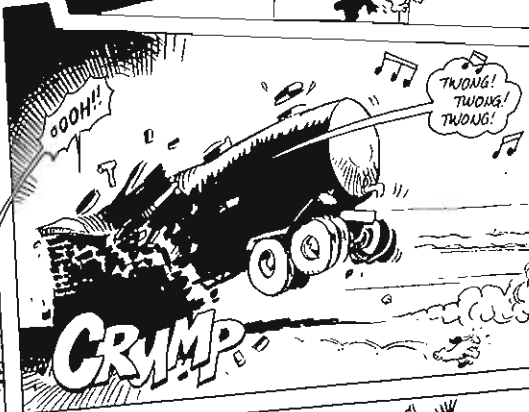
PERHAPS IF I CALL HIM AND BEG HIM TO COME HOME...



WHO AIN'T AFRAID OF AN OL' EARTHSUAKE...

WHO JUS' FOUND HE GOT NO BRAKES...

RAGDOLL TO TWONG, RAGDOLL TO TWONG, PLEASE COME AD...



CRIMP!

TWONG! TWONG! TWONG!



YOU WALLIE!!

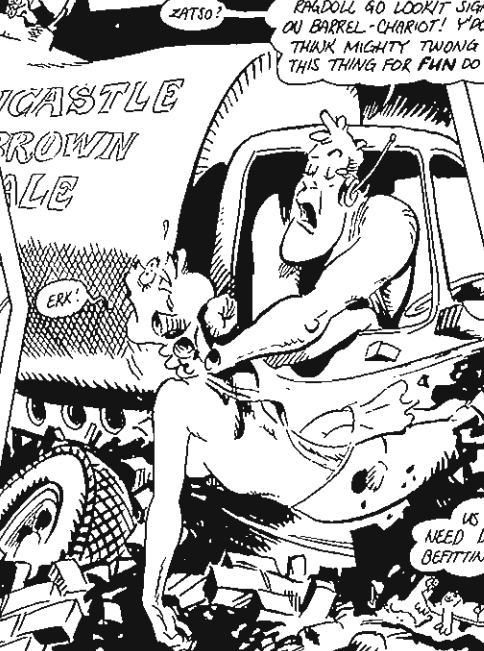
PHAW! ME NOT LIKE DRIVIN' BARREL-CHARIOT-THAT MAKE-HEAD-ACHE!

MEEBBS ME BETTER GO HOME FOR A VASE OF NEWCASTLE NECTAR...

WE DON'T HAVE A HOME!

THIS KHAZI WHICH WAS OUR HOME IS NOW A HEAPA RUBBLE!

THE ONLY GOOD THING TO COME OUTTA THIS IS THE FACT THAT ALL YOUR BOOZE IS MASHED UNDERWEATH THIS HEAP!



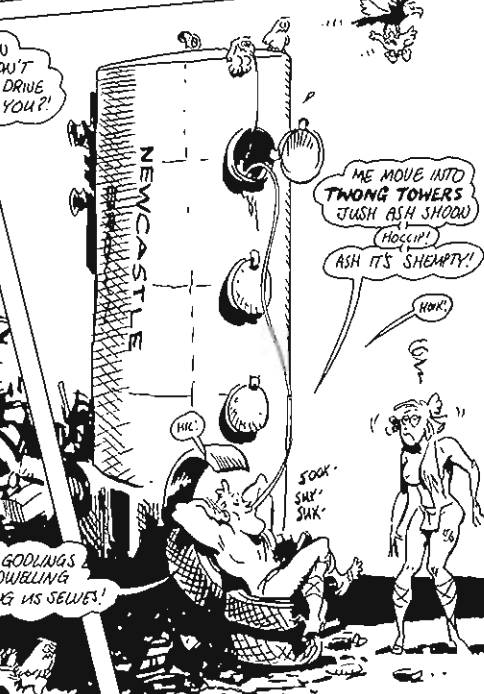
NEWCASTLE BROWN ALE

ZATSO!

RAGDOLL GO LOOKIT SIGN ON BARREL-CHARIOT! Y'DON'T THINK MIGHTY TWONG DRIVE THIS THING FOR FUN DO YOU?!

ERK!

US GODLINGS NEED DWELING BEFITTING US SELVES!



ME MOVE INTO TWONG TOWERS JUSH ASH SHODD

HOCCH!! ASH IT'S SHEPPTY!

HOK!

HIL!

SOOK SHY SAK



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# READER SURVEY

We work hard to make this the magazine that you want to read and we'd like to make sure that we are giving you what you want. If you have five minutes to spare, please answer these questions — most only require a tick — and return the form to us. The form folds to make an envelope and the first three forms pulled from the hat will be sent a surprise gift.

Please put a tick next to the answer or box that comes closest to your thoughts.

1 How many issues of Citizens' Band have you read in the last six months?

One  Three  Five   
Two  Four  Six

2 How many people read your copy of Citizens' Band?

One  Three   
Two  More than three

3 How did you obtain this issue of Citizens' Band?

Local newsagent  High St. newsagent   
At a travel point  (W.H. Smiths, Menzies etc)  
Postal Subscription  Delivered or held for  
collection by newsagent

4 If you buy it off the shelf, do you ever have difficulty in obtaining a copy?

Never   
Sometimes   
Always

5 How did you become a reader of Citizens' Band?

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Friend's copy  Recommended

6 How long do you keep your copies of the magazine?

1 month  6 months   
3 months  Longer (please specify)

7 When did you buy this issue of Citizens' Band?

20 July or earlier  28 July — 3 August   
21 — 27 July  4 August or later

8 Do you know that the publication date of Citizens' Band is the third Friday of each month?

Yes  No

9 If you are a regular reader, how does the magazine compare now with earlier issues?

Much better  Better   
No different  Slightly worse   
Much worse

10 Please rate the following regular features from 1 to 9, using 4 as average. Give 0 if you don't (or haven't) read it.

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Lady Breaker <input type="checkbox"/>	Mack Chat <input type="checkbox"/>
Back Chat <input type="checkbox"/>	Club News <input type="checkbox"/>
Reference Section <input type="checkbox"/>	Rig Reviews <input type="checkbox"/>
Antenna Reviews <input type="checkbox"/>	Accessory Reviews <input type="checkbox"/>
Phone Reviews <input type="checkbox"/>	D.I.Y. Projects <input type="checkbox"/>
93Forum <input type="checkbox"/>	Technical articles <input type="checkbox"/>
Features on communications in general <input type="checkbox"/>	
Reviews on communications equipment (scanners, communications receivers etc.) <input type="checkbox"/>	

11 Please name any subjects not covered in the magazine which you feel should be included.

12 Are there any subjects we cover that you feel should be left out?

13 If you have a CB rig, please give the make and model.

13a If not, do you intend to get one in the next six months?

Yes  No   
Please specify make and model if you have already made your choice \_\_\_\_\_

14 During the next year, do you plan to buy:

A 27Mhz rig to replace or supplement existing equipment   
A 934MHz. rig  A new or replacement antenna

Accessories. If so what? \_\_\_\_\_

15 What do you estimate your equipment to be worth?

£50 or under  £201-£350   
£51-£100  £351-£500   
£101-£200  Over £500

16 What do you estimate you have spent on CB equipment in the past year?

£25 or under  £51-£100   
£26-£50  over £101 (please   
specify if possible)

17 Are you a member of

a local CB club  a national CB   
organisation  
a British QSL club  an international QSL   
club

18 Do you find advertisements in Citizens' Band useful?

Yes  No

19 Do you look at the advertisements

regularly  occasionally  never

20 How many times have you written directly to an advertiser as a result of an advertisement in Citizens's Band?

\_\_\_\_\_

21 If you reply to an advertisement do you prefer to

cut out a coupon  phone   
write a letter  visit directly

22 How do you decide what equipment to buy?

On advice of a dealer  On impulse   
Through ads in CB  Through test reports   
On recommendation  in CB

23 Do you like the design and presentation of Citizens' Band?

Yes  No

24 If no to 23, what do you dislike?

25 Comments. Please give any further comments that you feel will help us to improve Citizens' Band.

Reader Profile

The questions in this section are of a personal nature and any replies are treated in the strictest confidence. If you would prefer not to answer these, we still value the help you have given us in filling in the rest of the form.

26 Age

Under 20  Male  51-60   
21-30  Female  Over 60   
31-40  41-50  Single   
Married

27 Income.

Under £5,999 p.a.  £10,000-£12,999   
£6,000-£6,999  £13,000-£14,999   
£7,000-£9,999  £15,000 and over

28 Which of the following newspapers do you read regularly?

The Times  Sunday Observer   
Financial Times  Sunday Times   
Daily Telegraph  Sunday Telegraph   
Daily Express  Sunday Express   
Daily Mail  Mail on Sunday   
Daily Record  News of the World   
Daily Mirror  Sunday People   
The Sun  The Guardian   
Daily Star

To post, fold at the arrows above and again on the dotted line A below, fold again at B and C, tuck B into the flap formed by C.

**CITIZENS' BAND SURVEY**  
Argus Specialist Publications Ltd.,  
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# AUTOSCAN 5000



# TOP RIG OF THE YEAR

'The technical performance is unimpeachable... the designers have got it right.'  
CB Magazine JUNE 1983



- Bleed-over virtually eliminated for most situations – 80dB (typical 100dB) adjacent carrier rejection
- Crystal clear modulation
- Instant return to breaking channel
- Beautifully styled
- British designed and tested in British conditions
- Guaranteed for 12 months

Mic control automatically searches for busy or free channel

### What CB Magazine said in April...

All in all, we have to say that this is the best rig we have tested to date.

At no time during testing was there the slightest evidence of swamping, blocking, cross-modulation, bleed-over in spite of 4 giant twigs within a 200 yard radius.

The transmitted audio quality was excellent, crystal clear with real punch to it making any sort of power or processor mike totally unnecessary.

Inside, you will find the kind of construction normally found in computers and professional equipment. A marked contrast to imported rigs.

The performance has been a revelation compared to anything we have seen before, and what's more it's BRITISH!

### ...and in June.

The technical performance is unimpeachable, with an exceptionally high degree of immunity to bleed-over.

The designers of the Magpie Autoscan 5000 have got it right and during our tests we could detect no signs of desensing, bleed-over or any other misbehaviour despite severe provocation.

### From the mailbag

J.W. from Sheffield

"... I must congratulate you on your Magpie. I did not think it possible to obtain anything of this standard. It has cut out bleed-over which here in Sheffield is one big problem..."

S.A.M. from Suffolk

"... My son brought an Autoscan 5000 for me to try... Breakers came in from all over the place and remarked on the 100% clear modulation. How soon can you let me have one?..."

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11CE Compact	10.35	2.00
11SE Pictured	18.85	2.20
11NE Slimline Folding	17.65	2.20

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TMCAS Trunk mount	9.20	1.90
SOWM Wing Mount	4.85	1.00
SOCA Cable Assembly	5.65	1.50



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SMC 585	Microphone clip adhesive.....	£0.30
FSP1	Extension speaker.....	£11.15
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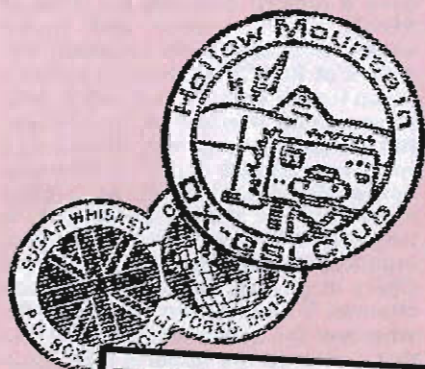






# COMMUNICATION THE

# QSL WAY



**H**i once more to Communication the QSL Way. Due to a breakdown in communications, a few printer's errors crept into May's issue. One was just a name change, but a couple of others were rather more than that. The membership fee for the *Deix le Gaulois Club* of France should have read \$18 (dollars) and not £18 (pounds)! The *Happy Cobbler's* £5 package was incorrectly printed as 'not available' but should have been 'Now available'. The name changed was the *Antequera DX Club* of Spain which ended up as the *Antenna DX Club!* Membership for £7 with 10 personal signed & dated QSL cards. The proof reader has been lead away in irons to the Golden Square dungeon to reflect on his crimes.

In the June issue I gave a rundown of some of the Dutch and Belgium QSL clubs who have replied to letters. This time I'd like to cover some of the German clubs about. I know there are more than the following list, but I have a long list of clubs, not only German, that either do not reply or the letters are returned marked 'Not Known'. The following are clubs which appear genuine and have replied. The first out of the pile is the *Brummie 2000* and for £6 (UK) and 15 personal cards you can get a certificate, ID card, unit number, club stamp, roster, pen, exchange cards and invites. Allow about 6 weeks for return of your package. Next is the *International QSL Swap Bridge Iserlohn*. For £5 (UK) and 25 signed personal cards you receive an excellent package consisting of your unit number, certificate, roster, 25 exchange cards, rubber stamp and other club invites. A colour club patch is available for £2. Karl uses a quality computer printer to produce the roster and some forms and returns your package in about a month.

The next is the *QSL-Swap-Club Atom-Romeo* of Castrop-Rauxel. For \$15 (dollars) and 50 QSL cards you receive a certificate, unit number, ID

card, XYL/M number and card, rubber stamp, pen, exchange cards and invites. For information only, send a QSL card with 2 International Reply Coupons (from your Post Office) requesting information. This applies to any overseas club if you just want info. For info from any UK Club you should send an S.A.S.E. (Self Addressed Stamped Envelope) with your request. Finally from Germany is the *QSL Swap Club Phantom* of Duisburg. For DM25 or \$13 (dollars) and 20 to 50 of your cards, you can expect your unit number, excellent certificate, club stamp, 1-4-1 swop on cards and exchange forms. Colour card holders welcomed, however, *Yo-to-05* doesn't speak too much English!

Staying in Germany a moment, if anyone has experienced any delay in receiving a reply from Berliner Bear of *Kaiserslautern*, Knut apologises but he has been on holiday touring England. From mid-May to the end of June the club has been closed, but by now Knut should be up to date. If you haven't received anything yet, then either drop him a line or write to the BB UK rep, Inge (Flowergirl) Milson at Malton. Moving down to Spain for news of the *Zodiac QSL Club*, Luis (Zodiac 001) tells me that he has a job in Tenerife and, although the club's post will be forwarded, there will be unavoidable delays for a while. Membership to the *Zodiac* is £2 (UK) and 5 signed and dated personal cards. In return you will receive your unit no., IC card, certificate, 5 club QSL cards, exchange and invites. A bit of news from the *Jamaica Beavers* of Belgium. Their package is available for £8 (UK) with 20 signed & dated personal cards. This can be obtained via the UK PR, Ray in Kent. The pack consists of unit number, certificate, ID card, badge, club stamp, roster, exchange cards and invites. If you send full cards, then you get fcc's back.

News from some of the established UK clubs starts with the information that membership of the *Outer*



*Hebrides DX-QSL Club* is now free for 5 personal cards plus an S.A.S.E. In return you receive 5 club cards, exchange cards and forms, ID card, certificate, club seals and log sheets. *The Britannia QSL Club* writes with the news of their new address. To join the club, 5 to 10 personal cards with an S.A.S.E. will fetch your Britannia number, stickers, Q codes, charts etc, tourist info, exchange cards and invites. **Andrew** is also the UK rep for the *Fatboy's Club* of the **States** and if you would like an FB number when you join the Britannia, just ask. A club stamp and stickers are available, S.A.S.E. for details.

A cry for help from **Tony** of the *Oscar Foxtrot Club* of **South Wales**. If a committee member of the *Echo November Int. DX Group* would like to get in touch with **Tony** they will hear something to their advantage. However, **Tony** will require proof that you are connected with the running of the

EN Group! *The Oscar Foxtrot Club* now has a rubber stamp on offer for £2 (UK). They are fully mounted with space for your unit number and they are made in the States.

Skipping up to **Scotland** for a couple more clubs with the news that for £2 (UK) with 5 or more personal QSL cards you can have membership of the *Hollow Mountain DX-QSL Club*. For your £2 you can expect your unit number, ID card, certificate, view-cards, tourist info, club labels, exchange cards and invites, welcome letter and an excellent club pen. (That means it'll writel) Right, heading North-East to just above **Aberdeen** we find the *Tie Fighter Group*. For £5 (UK) or \$12 (dollars) and 5 personal cards you can become a member of this young and well run club. For your money you receive your TF unit number, certificate, rubber stamp, 10 club cards, DX info, roster, pens, exchange cards and invites. **Nick** does

ask me to point out that the *Tie Fighters* were the (evil) Imperial Attack Craft from a certain set of films, which did their best to stamp out the glorious Alliance! (Sorry **Nick**, I couldn't resist that!). Whilst up in **Scotland**, I must just mention the RDX-LW Radio Convention held at Easter. The weather was super which may have caused the rather disappointing turnout in **Glasgow**. For those who did go, it was well worth the effort. The convention was well organised and everyone who went has admitted to enjoying it. My thanks to **Dougie** and all the RDX members who made me so welcome! Because of the poor turnout, it was decided that the money should go to the RNLI only, and not be split between two as planned. Many QSI & DX clubs from all over the UK were represented and also a couple from REACT were in attendance.

The speaker for REACT, **Len Kerr**, gave a speech detailing the aims of REACT, both present and future which was very well received. For details of REACT and how to set up a group locally, I'm sure an S.A.S.E. with a request for info can be sent to **Len**. But please do remember, REACT do a very important job and are a voluntary non-profit organisation so please make sure you enclose an S.A.S.E. To help REACT and other monitoring organisations who do so much to help CBers in general. Remember to keep channel 9 clear for emergency calls, whatever the equipment you use! OK, that's cleared the decks a little, time for a few QSLer names and addresses.

A Currie card from **Fred** (XJ6) of **Northampton**, a different gloss card from **Tim** (Black & White) of **Chichester**, a colourful 'Wizard' card from **Steve** and **Viv** (Mickey Mouse and Dreamer) of **Lancs**, a note from **Kevin** (Rebel) **McConnell** near **Salisbury** letting me know he's changed his handle from Plastic Carrot, one from **Stuart** (Merry Monk) of **Leeds**, a well designed club card from **Eric** (SB 07) of **Swansea**. An 'Earlybird' card from **Bob** (Familyman) of **Brighton**, a two colour card from **Malcolm** (Sputnik) **Hall** of **Derby** and from **Mike** (Doctor Jazz) of **Birtley** — a very nice Currie card.

News from **Des Currie** (Printers) of a QSL Appeal. This is for **Ghost Rider**, who has leukaemia. All cards received by **Norma** (Dark Lady) of **South Moor** will be auctioned with a reserve price of £1 per 100 on January 26th 1985 at **Stanley**. I'll give more details of the auction nearer the time and keep an eye on 'Update'. So please do your best and help young **Ghost Rider** and other leukaemia sufferers by 5 or more of your QSL cards to **Norma** at **38 Third Street, South Moor, Co. Durham DH9 7HA**. And please make them out to 'Ghost Rider Appeal'; if you send 2 or more cards and an S.A.S.E. you will get a special Currie card as a return QSL, or if you feel you can pass on some appeal forms, a supply can be obtained from **Norma**, but **PLEASE** do send an S.A.S.E. (4½" x 6") with a 16½p stamp on. Thanks, let's make this appeal a success. By coincidence,



### QSLer Addresses:-

- Mike Doctor Jazz
- Malcolm Hall Sputnik
- Bob Hinton Familyman
- Eric SB 07
- Stuart The Merry Monk
- Kevin McConnell Rebel
- Steve & Viv M. Mouse & Dreamer
- Tim Black & White
- Fred XJ6
- Len Kerr React Rep
- Roger White City Rebel
- Doug Tristar
- Jeannette & Becky
- Ray Russell
- Inge Milson Flower Girl
- James H. Byron Explorer
- Norma Ghost Rider Appeal
- David Shepherdson
- Currie (Printers)
- Earlybird (Printers)
- 118 Devon Crescent, Birtley, Tyne & Wear, DH2 1HP, UK  
PO Box 107, Derby, DE2 7SD, UK
- 12 Bede Close, Brighton, Sussex, BN2 2GR, UK  
PO Box 80, Swansea, SA1 1WN, Wales
- PO Box CR 10, Leeds, West Yorkshire, LS7 3DB, UK
- 2 Avondown Rd., Durrington, Nr Salisbury, Wilts, SP4 8ET  
PO Box 2, Radcliffe, Lancs, M26 9DD, UK
- PO Box 47, Chichester, West Sussex
- 33 Nicholls Ct, Thorpeplands, Northampton, NN3 1YP, UK
- 976 Dumbarton Rd, Dalmuir, Clydebank, G81 4LF, Scotland
- 5 The Close, Holt, Norfolk, NR25 6DD, UK
- PO Box 17, Westbury on Trym, Bristol BS9 2SB, UK
- PO Box 31, Saffron Walden, Cat Woman & Moondust Essex
- 36 Lee Road, Lewes, Sussex
- 17 Cherry Ave, Malton, Yorkshire, YO17 0DE, UK
- 725 Littlestown Rd, Littlestown, PA 17340, USA
- 38 Third St, South Moor, Co Durham, DH9 7HA, UK  
c/o the Dragonrider Club  
(For reply, please send SAE)
- 89 Derwent St, Blackhill, Consett, Co Durham, DH8 8LT, UK
- 43 Chiddingly Close, Brighton, Sussex, BN2 5GZ, UK





## QSL Club Addresses:-

Antequera QSL DX Club	PO Box 92, Antequera (Malaga), Spain	Phantom QSL Club	PO Box 460145, D-4100 Duisburg 48, West Germany
Berliner Bear DX Group	PO Box 2923, D6750 Kaiserlautern, West Germany	QSL Swap Club Atom Romeo	Postfach 18 22, D-4620 Castrop-Rauxel 1, West Germany.
Britannia QSL Club	Brickyard Cottage, Main St., Ticknall, Derbys DE7 1JF, UK	Roman City DX-QSL Club	5 Ernest Terrace, Chester-le-Street, Co Durham DH3 3HE, UK
Brummi 2000 Int. QSL	PO Box 1322, D-3492 Brakel, West Germany	Romeo Delta X-Ray Club	10 Wallace St., Rutherglen, Glasgow G73 2SA, Scotland
Cutty Sark QSL Club	47 Gurdon Road, Charlton, London SE7 7RP, UK	Scandinavian Skippers	Krogen 3, 8900 Randers, Denmark
Deix le Gaulois Club	PO Box 38, 2610 DIE, France	Scottish Int. DX Club	PO Box 19, Rutherglen, Glasgow G73 5PB, Scotland
Dorset Knights DX Group	PO Box 25, Poole, Dorset, UK	Sugar Whiskey QSL Group	PO Box 7, Goole, Yorkshire DN14 5RG, UK
Happy Cobblers QSL Group	PO Box 99, Northampton, NN2 6HU, UK	Tie Fighter DX Group	31 Strathburn Gardens, Inverurie, AB5 9RY, Scotland
Hollow Mountain DX-QSL	Inverlorn, Tainuilt, Argyll, Scotland, UK	Tripe City Breakers	182 Victoria Rd, Padiham, Burnley, Lancs BB12 8TA
Int. QSL Swap Bridge	Karlstrasse 22, D-5860, Iserlohn, West Germany	Warrior International	21 Oaklands, Langley Common Rd, Barkham, Wokingham, Berks
Jamaica Beamers QSL	Ray, 72 Courtenay Rd., (UK Rep)	Zodiac QSL Club	PO Box 168, Sant Felú de Guixols (Gerona), Spain
Metro City QSL Club	ME13 9LH	Zulu Whiskey Int. QSL	PO Box 13, Brighouse, West Yorkshire HD6 2SE, UK
Mike Lima (UK)	95 Greenoak Crescent, Sturchley, Birmingham, B30 2TD, UK	Dragonrider QSL Club	3 Tarn Villas, Cowpasture Rd., Ilkley, W Yorks LS29 8RH, UK
Oscar Foxtrot QSL Club	PO Box 24, Rossendale, Lancs., UK		
Outer Hebrides DX-QSL	191 Court St., Tonypany, Mid Glam, South Wales, CF40 2RH		
	PO Box 11, Stornoway, Isle of Lewis, PA87 2AA, Scotland		

\* When writing to ANY QSL club, please do help them to reply by enclosing return postage.

I've heard that **Bill (Scottish DX Club 001)** has donated several thousand QSL cards from his own collection to help to get the appeal off to a good start. Well done, **Bill**. To join the SDX, just send £6 (UK) and 10 personal cards for your membership package.

Details have arrived from **Martin (Blunderbuss)** Long about his **Tripe City Breakers QSL Club**. For 10 cards and a 6 x 4 S.A.S.E. with a 17p stamp, you can expect your TCB number, ID card, exchange cards and invites. A club stamp is now available, and a personalised cloth patch. S.A.S.E. for details please to **Martin**. From **Goole** in **Yorkshire** comes news of the **Sugar Whiskey QSL Group**. Membership of this club costs £6 (UK) plus 5 to 10 of your cards. In return you get your SW number, ID card, club stamp, mixed club and UJ stickers, 30 assorted QSL cards, Q & RST codes, CB code of practice and frequency chart. The £6 also includes one year's free use of the affiliated **Sierra Hotel QSL Bureau**. This is renewable yearly and you must arrange a supply of S.A.S.E.s. Full details are sent with membership.

From **Phil (WI 001)** of **Barkham** comes news of the **Warrior International Club**. S.A.S.E. for details to **Phil** please. A new club on the UK scene is the **Mike Lima (UK)** of **Lancs**. For 5 cards plus return postage you receive your ML number, ID card, certificate, exchange cards and invites. Another is the **Roman City DX-QSL Club** of **Chester-le-Street**. For 5 cards plus an S.A.S.E. you get a RC number, exchange cards and invites and extras

as available. The **Towerton Int QSL Club** is one that is completely new, to me anyway. It is based in **Blackpool** (hence the name) and for 5 personal cards and an S.A.S.E. you receive your TT number, ID card, number and ID card for XYL/M if required, exchange cards and invites for club seals. The final club for this month is the **Metro City of Birmingham**. President **Jackie** tells me that their 100th member will have received a free package of 20 club cards, club stamp and certificate. Also each 100th member receives a free certificate and 10 cards. **Metro City's** sister club, the **Dirty Devil's Postcard Club** offers membership for 5 picture postcards with your address on plus an S.A.S.E. For membership of the **Metro City Club** itself, 5 signed personal cards with an S.A.S.E.

While I was up in **Glasgow** at **Easter**, I met and had some words with **Chris Darlington** of the **Happy Cobblers Club & Custom Card Service**. He told me that all his customers, many of whom have been waiting since **November** last year for their cards have now received them. The reason for the delay has been that he had a fire in his office, which destroyed most of his records. Also, **Chris** handed over the running of the **Happy Cobblers** to **Fred (HC 80)** so that he could concentrate upon getting the cards out to people as the printer could only cope with two orders a week. So **Chris** is now back at the helm of the **Happy Cobblers DX-QSL Group**.

Anyway, I'm almost out of space yet again, so I'll close with the results

of this month's Club Poll with the top three UK Clubs as voted for by YOU, the readers of this column. This month, I'll do the top overseas club first, the winner of this is the **Scandinavian Skippers** of **Denmark** and for the UK top three, first, and a clear winner, is the **Dorset Knights DX Group** and tied for second place are the **Cutty Sark QSL Club** and the **Zulu Whiskey Int. QSL Club**. Remember, please do keep your votes coming in, I do need them. I want five names from you, your top three UK clubs, one overseas club, and a booby prize, one that you wouldn't recommend to anyone! As usual, the **Dragonrider Club** is exempt from voting so as to prevent cries of "cheat".

If you want a mention, then drop me a line at the DR club address, and I'll see what I can do, or if you have any praises, moans, comments etc, or votes, then send them to me! Also, any clubs wanting a mention, if I'm not a member, then I probably haven't heard of you, so drop me a line and see what happens. If you want a reply to anything, then please do enclose either return postage or an S.A.S.E. or if you'd like to become a **Dragonrider**, then just send 5 personal, signed cards, each with your full address on, a 9 x 4 (approx) S.A.S.E. with at least a 17p (for 100 grams of postage) stamp on and your full name and address. Thanks. And finally, remember that someone, somewhere, is waiting for the postman to bring a pile of QSLs!



## Rig Review



This month, Andy R Giles has been looking at a moderately priced rig from Audioline, the well known in-car entertainment specialists.

# Twinkle, Twinkle, Little

# Star

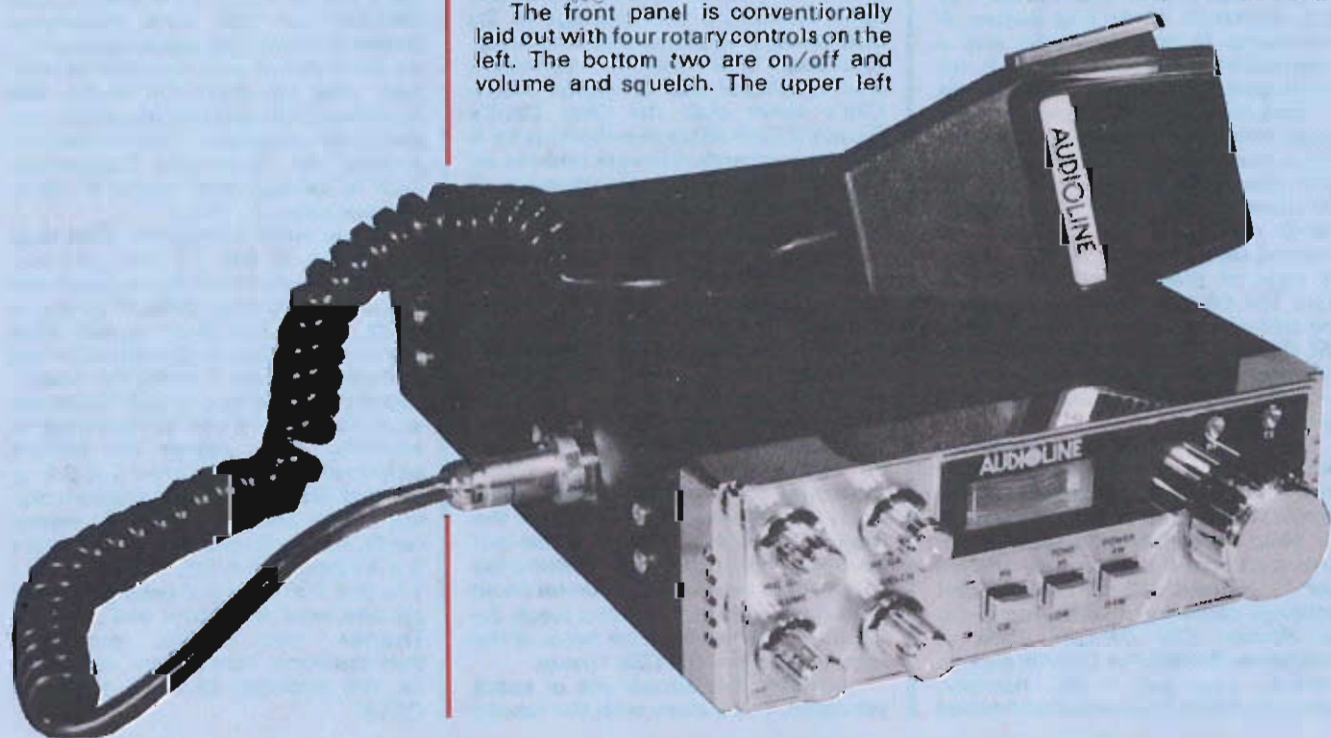
**A**udioline have a well respected name in the car radio and cassette business and it seemed a logical progression for them to take a crack at CB, and it must be said that they have done so with more sincerity than some other companies that were looking for a fast buck. With a range of three rigs to others to do all-singing, all-dancing for a competitive price and wisely left it others to do all-singing, all-dancing rigs whilst they concentrated on a servicable but reasonably basic rig.

The Audioline 341 is based on the Uniden chassis and is similar in features to the Uniace 200, only lacking the dimmer switch that is featured on the 200. Its styling follows the Far Eastern/American trend of a matt black case with a very shiny silver front panel with all the rotary controls and pushbuttons highly silvered too.

The front panel is conventionally laid out with four rotary controls on the left. The bottom two are on/off and volume and squelch. The upper left

control is the mic. gain, a misunderstood facility and rarely used properly by breakers when they have one. It reduces the amount of deviation that is superimposed on the carrier and a lot of the bad signals that we hear on the air would disappear if people backed off with their mic. gain controls.

Immediately to the left is another useful but underrated control — the RF gain. This attenuates the incoming signal and helps to stop the front end of the rig overloading and again is not







The 341 is very similar to the Uniace 2000

always used properly. But if you've ever lost the front end because the breaker you are eyeballing hasn't turned off his 1,000W linear as you get within spitting distance, you'll suddenly become aware of the advantages of this facility!

In the middle of the front panel there is a large, easy to read, illuminated signal strength/RF meter and directly under this, three push buttons. The left one activates the P.A. facility that allows you to shout at little old ladies on pedestrian crossings, a habit which fortunately seems to be dying out. The middle button alters the tone of the received audio, with the treble decreased with the button out (on low). The third button is the RF attenuator that reduces the power output to 0.4W.

To the right is the large i.e.d. display and the rotary channel selector switch.

The rare of the rig features the standard set of sockets; an SO 239 for the antenna, two 3.5mm jacks (one for the P.A. and one for an extension speaker) and a non-reversible three pin socket for the power lead.

Last, and quite definitely least in my view, is the microphone socket. Not on the front panel, it's located on the left hand side of the rig in what I think is one of the most inaccessible positions imaginable. I have had a few letters disagreeing with this, as the writers have a parcel shelf or mounting space on the right of the steering column, but I am still not convinced — personally I can't steer and key a mic!

This may make you consider its size carefully as it does add to the effective width of the rig when it has a side mic. socket and makes flush fitting into a dashboard almost impossible.

Inside the rig doesn't hold any real

The track panel holds no surprises



surprises. As I said earlier, the 341 is a Uniden in disguise and any comments that we have made in the past about the Uniden 200 hold good for this rig too. The synthesiser is the TC9119P, the Toshiba equivalent to the Sony 7137 which pops up a lot in British rigs, and a single transistor crystal oscillator provides the reference frequency.

A TA7310P i.c. doubles the buffered VCO output to achieve the final 27Mhz. and a conventional three transistor PR amplifier raises the output to 4W.

Lab results indicated a receiver sensitivity of 0.7 uV PD for 10 dB signal to noise and the fully turned up squelch required 7mV to open it. Playing around with the RF gain reduced the sensitivity to 180uV and the fully turned squelch couldn't be opened at all.

In one big respect, the 341 scored, as does the Uniden, over many other rigs by the results for bleedover and de-sensing. This chassis gives a particularly good performance in this area and lifts it above many other rigs. Coupled with a good squelch — a necessity in busy areas, the receive section on the Uniden chassis takes some beating, although it would benefit from the fitting of a noise squelch rather than the level type fitted. Audio performance was up to standard without being spectacular.

Apart from reservations about the mic. position and the rather bright presentation, this rig is well worth looking out for in the shops, especially as it can be found discounted. In its own way, it is a star, certainly with its receive capabilities and whilst the handbook does nothing to enhance the set, it is attractively and robustly packed and offers good value for money.

## RIG REVIEW DATA PANEL

Model **AUDIOLINE 341**  
Distributor **VARIOUS**  
Typical Price

Features	Yes	No
PA Facility	<input checked="" type="checkbox"/>	<input type="checkbox"/>
External Speaker Jack	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TX Indicator Light	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RX Indicator Light	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PA Indicator Light	<input type="checkbox"/>	<input checked="" type="checkbox"/>
S/RF Meter LEDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hi/Lo Power Switch	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ANL/NB Switch	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CH9 Switch	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Variable RF Gain	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mike Gain	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Delta Tune	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tone Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LED Channel Readout	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Facilities	Supert	Good	Fair	Poor
Ease Of Controls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Built In Speaker	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microphone Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cabinet Construction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality Of Control Switches	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Channel Indicator Readability	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mounting Bracket	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hand Book/Instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Specifications	
Modes Of Operation	F.M. only
No. Of Channels	40
Weight	-- --
Dimensions	160 x 55 x 217
Supply Voltage	13.8V
RF Output Power	4 Watts
Frequency Stability	in spec.
Swamping	V. good
Sensitivity (RX)	V. good
Spurious Emissions	in spec.

## CB VERDICT

Range	XXXX
Clarity of TX	XXXX
Clarity of RX	XXXX
Ease Of Controls	XXXX
Ease Of Installation	XXX
Performance	XXXX

We rate our samples on a scale of one to five. Five stars is the highest rating, three and four stars are good to average and one and two stars mean it's not doing so well.



# 93

# FORUM

**A great competition for all 934Mhz. operators. Read on and discover how to earn a Citizens' Band 934Mhz. Achievement Certificate.**

**M**ost UHF operators will know that the 934Mhz. CB service has developed in different way to that of 27Mhz.

Equipment has been sparse, it has taken a while to appear on the market and it has been expensive. This is in direct comparison with the early 27Mhz. days when equipment quickly became plentiful and cheap.

This has led to a different attitude on the part of 934Mhz. breakers, many of whom have turned to UHF to get away from the worst excesses of 27 megs. Listening to a conversation of 934 in many areas is almost like listening to amateur transmissions, they too concentrate on equipment, operating conditions and obtaining a greater understanding of the technical features of their sets.

The biggest excitement is when lift conditions are on, dramatically affecting the transmission and reception distance of a signal. Reports of over 200 miles are not unusual.

As 934MHz. seems to be working in an entirely different way, we at Citizens' Band are going to organise an entirely different type of competition. There isn't much in the way of prizes - it isn't a super-doooper 'grab the goodies and run' type with all sorts of stuff on offer but, we hope, a prestige comp., rewarded by a certificate that can be framed and gloated over.

## **Weekend**

We are nominating the bank holiday weekend of 25th, 26th and 27th of August as the competition period. In its simplest form, the object of the competition is to copy as many stations on 934MHz as you can over these three days. We're not putting any restrictions on the hours of

working, because there is no telling when lift conditions may fade in or out and many of you are night owls anyway.

Certificates will be awarded for the following categories;

- a) the furthest distance copied,
- b) the most stations copied (each station can only be counted one) and
- c) the highest number of points earned. Points will be awarded on a sliding scale; a certain number for copies within a five mile radius, more for those inside a twenty mile radius, etc. Exact details will be given on this next month.

The winner of category c will also win a Nevada power/SWR meter for 934Mhz., which has been most kindly donated by Telecomms of Portsmouth, now a leading UHF CB distributor.

## **Rules**

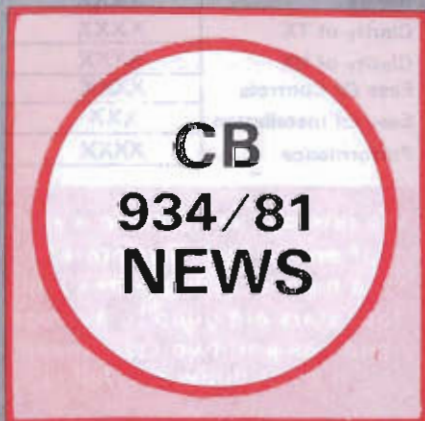
There aren't many rules and most of them are obvious.

Only stations logged over the competition weekend can be counted towards entries.

Stations can only be counted once, even if you speak to them on more than one occasion. The exception to this will be explained later.

Initial entries should be accompanied by a photocopy of the entrant's log book or record of contacts. It would be helpful if this were in recognised log book form, but this isn't essential.

Prospective winning entries will need to be able to produce QSL cards or some form of confirmation of contact for all copies logged, (i.e. letter, postcard or other form of verification). Contact with the same station more than once will be permitted if the second party operator has moved location - home base to mobile for example. This must be made clear on the QSL and log and it would be appreciated if the competition entrant should indicate the distance between the different copies; from the same second party. Distances of closer than





ten miles from the nearest copy of that particular breaker are not acceptable.

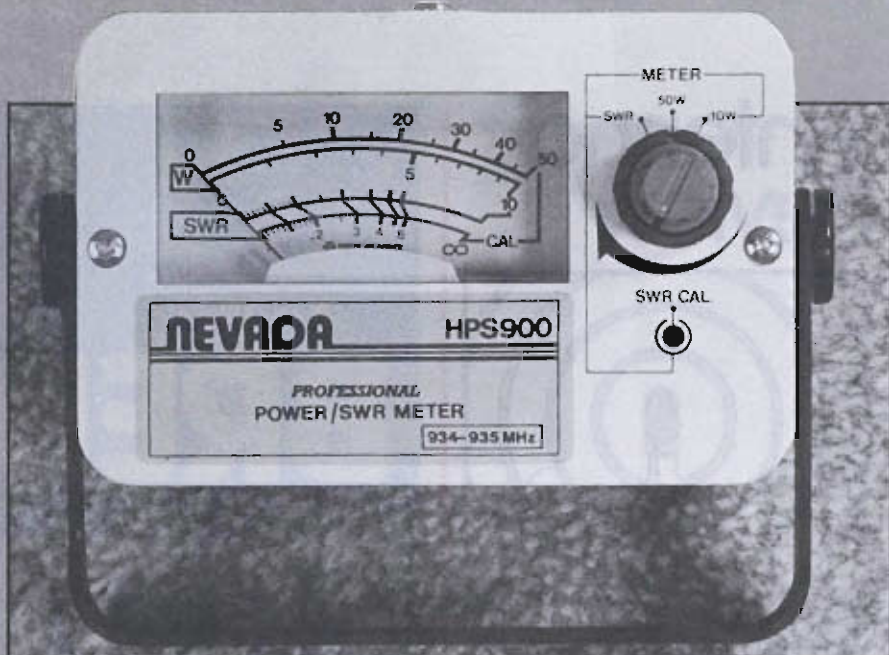
It would be particularly appreciated if operators contacted by competition entrants send confirmation of contact as quickly as possible to the entrant and co-operate as far as possible.

All initial entries are to be received in this office by Monday 10th September. Entries must include a copy of the log, the entrant's name, address, phone number if possible and an indication of the categories being entered for. Possible winners will be asked to forward QSLs etc. at a later date after initial sorting of entries.

The Editor's decision is final.

All entries are to be sent to 934MHz. Competition Weekend, Citizens' Band Magazine, Wolsey House, Wolsey Road, Hemel Hempstead, Hertfordshire.

We are as new to this competition as you, so there may be teething troubles. If any occur to us in time we will publish them in next month's issue of the magazine. Any others will be explained in detail when the results are announced.



As obvious as this may seem, only legal CB equipment intended for the British CB system will be permitted and it is emphasised that the power limitations are detailed on your

licence. Entrants should also be able to produce a valid, current CB licence.

Phew, if that lot hasn't put you off, good luck and we look forward to receiving your entries.

# CB Citizens' Band

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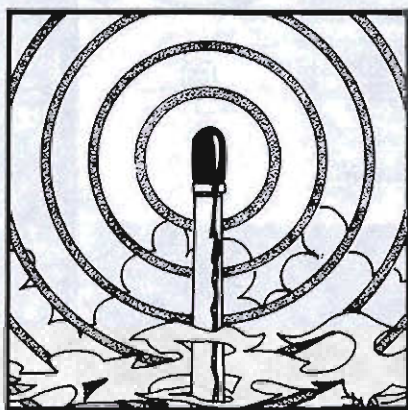
Signed

Date





# Antenna Review



Brian Wright turns his attention to an antenna with a famous name that is usually found on CB accessories rather than on a loading coil.

## BREMIS FROM HEAVEN



**T**he choice of a mobile antenna can depend on many things, such as whether it is to be roof, wing, or boot mounted for example. If the vehicle is kept in a garage, the height of the antenna could be important as even if the whip does bend when hitting the garage roof, continual severe flexing can damage the aerial or, more often, the loading coil or its connections. But probably the two most important factors that influence the choice of most breakers are price and performance — after all the antenna is the most important single item governing the operating range of system. As for price, naturally nobody wishes to pay more than they have to. The fact that centre loaded antennas are generally considered more efficient than base loaded ones is persuading quite a few breakers to change over to find out for themselves. They are finding that some centre loaded antennas are better than their old base loaded ones and that some are not, depending on the models

being compared. To help you in your choice we are this month featuring a centre loaded mobile antenna, the Bremi C27S from Bremi UK Ltd, Unit 6, Innage Park, Holly Lane Ind. Est., Atherstone, Warwickshire.

The Bremi C27S is supplied in a clear plastic sleeve with a printed backing card. This is worth mentioning because the two halves of the whip and the allen key, for securing the top whip, are stuck to the backing card with double sided tape. The tape ensures that none of the parts can fall out of the packet if the plastic sleeve gets damaged. There are probably many breakers who have got their new antenna home and found that an item, such as the allen key, is missing, having dropped out of a hole in the pack.

The base of the antenna consists of a fairly standard chromed hexagonal nut with the usual  $\frac{3}{8}$  UNF thread that fits most mountings. The unusually thick 6mm diameter 600mm long lower part of the whip screws into the hexagonal bottom fitting and is











**Philly discovers a bad case of mic. fright and in the most surprising person.**

**O**n Citizens Band radio, not everything is always as it seems. Appearances can deceive. And who could possibly have dreamed that I, Philadelphia Judd, would become the local Agony Aunt of the Airwaves? Philadelphia Proops, that's me.

It all started when my husband discovered that the new bloke in his office was a fellow breaker. After rushing him off after work for a pint and a convivial chat, he decided in a haze of alcoholic goodwill to bring him home to meet the wife. Me.

Well, his friend turned out to be a great hulking six-footer, all rippling muscle and sex appeal, like something out of Rocky III. He stood there on the doorstep next to my husband, who was already a little the worse for wear, looking at me with dark melting eyes, and I thought — well, never mind what I thought. The point was, there was something odd about him.

At first, I thought it was simply the fact that he was about three pints less drunk than his host, in fact quite sober by comparison. I lead the way into the front room maintaining a flow of easy conversation to put him at ease. He sat gingerly on the very edge of the sofa, and looked at me as if I was about to bite him. That was what was wrong! This glorious specimen of manhood, who should have been exuding arrogant self-confidence, was sitting in my front room looking like a hunted rabbit.

My curiosity was aroused, I sent the master of the house out to make the coffee and set about probing the mystery.

He conversed confidently enough, at first. We talked about his rig, his antenna, his car, and so on, and I was beginning to think that whatever was bothering him, it had nothing to do with my husband, me or Citizens Band. But then a chance question of mine turned him in a flash from relaxed visitor to shifty stranger. I asked him what his handle was.

He tried to bluff it out. Handle? he repeated. Oh yes. Handle. Well, he said, he'd had trouble with a handle, hadn't been able to make up his mind.

"How long have you been a breaker?" I asked, puzzled.

"Er — three months", he said, nervously.

"It's odd I never seem to have

# LADY BREAKERS

spoken to you on the air", I said. "What name have you been using?"

His face crumpled as I looked at him. "It's no use", he said, dropping his face in his hands. "I'm finished. I'm a failure". He looked up, tragically. "I've had a rig for three months. *And I haven't been able to speak a word.* Not to anyone!"

So that was it! A prolonged case of mike fright.

He told me all about it. He had bought the rig in the first place at the prompting of friends when he moved into the area. Good way to meet interesting new (female) friends, they had said, nudging each other. He had eventually bought one out of curiosity, played with it, taken it apart and put it together again, installed it, spent long evenings listening to it . . . and frozen every time he picked up the mike.

As he pointed out, twenty-six-year-old bachelors with all the advantages of knockout good looks, deep mellow voices and magnetic appeal are not supposed to freeze at the prospect of talking to females — anyone — over the air. So he hadn't told anyone, just invented ingenious excuses whenever anyone asked him how he was getting on with his rig, and allowed his mike fright to develop into an obsession. Walking into the house of two acknowledged denizens of the local CB community had, he said, finished him off.

Well, I know all about mike fright. I mean, we *all* know about mike fright. I can remember sitting in the car late at night clutching the mike with the sweat pouring off me, literally speechless. I told him all about that, and how everyone gets mike fright at first and that he was hardly the only one.

He was not an easy nut to crack — three months is a long time in which to develop a phobia like mike fright, but by getting him to talk to me and my husband with our cars practically side by side, on a little-used channel, eventually sorted him out. That first sentence is the hardest. His came out like gobbledegook, but after an hour or so he was managing to speak reasonable recognisable English, and even remembering to release the button on the mike afterwards!

So Philadelphia Proops, that's me. Got a problem? You know where to come . . .

**CB**





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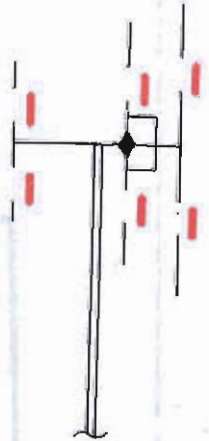


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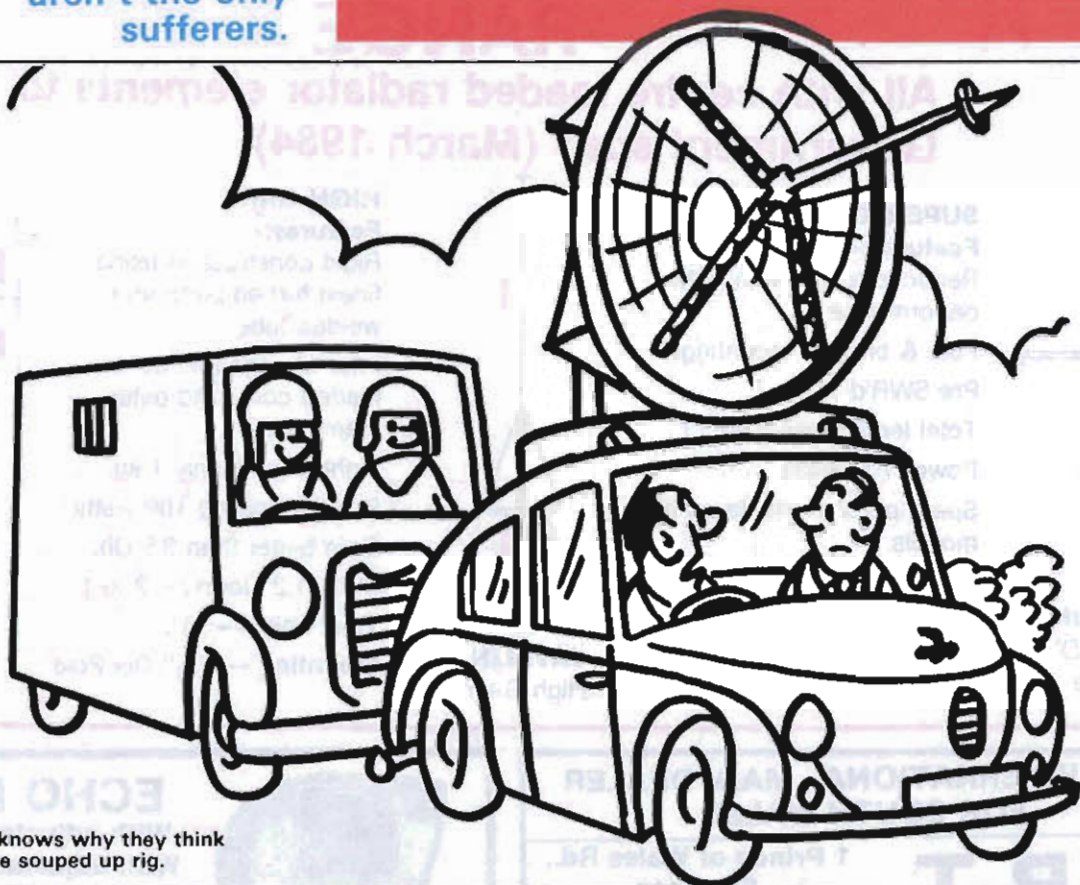
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Question of this month, and every month — why do the wallies get away with it? The Radiogram Kid discovers that we aren't the only sufferers.

# THE WRONG SIDE OF THE LAW



Heaven knows why they think I've got a souped up rig.

Long before most breakers were born, a comic book detective, Dick Tracey, used a wrist-watch TV-radio for two-way communication with headquarters. These days, everything he said would be heard by the scanner users, a growing lobby in the USA, and a hobby emerging here in Britain, too. In retrospect, it is somewhat amazing that Dick Tracy had no problems with wallies, rat-bags, bad-mouths and kicker-stickers. Even in the early days of CB, US style, there was plenty of evidence for that sort of thing. As for the Australian CB scene, bad mouthing got so bad that one worthy of CB-Land suggested that anyone caught cussing on the rig should be tarred and feathered, these proceedings televised as an awful warning to others. Unfortunately, the Australian TV networks did not take up the suggestion, though watching some examples of breakfast TV here may give you a similar feeling (i.e. of being tarred and feathered, especially around the ears). The DOC (Department of Communications) was much abused by the Australian breakers on account of its apparent inability to apprehend abusers of the world's

finest hobby. Indeed, so many breakers lost confidence in the DOC that they abandoned the habit of buying licences — that warning was lost on the UK authorities, though figures on CB licence *renewals* here are worth studying closely.

Yet CB's potential in Australia is well understood, despite the problems. Not so long ago, I listened to an Oz CB veteran unwind several miles of warm comment on urban abuses. Yet, just when I thought he would confirm he had chucked his rig into Botany Bay, he added "Mind you, I'd never go out of town without *my* CB." Once out in wallaby country, the mobile can still be your best friend.

CB, the wrong side of the law, has flourished in the USA. Affably known as 'Uncle Charlie' (after a guy who used to sign the mail) the Federal Communications Commission, or FCC, has responsibility for keeping radio/TV frequency use neat and sweet. 'The Feds' — enforcement officers — were a bit like 'The Untouchables', but not as untouchable as some of the bad guys.

Quaint as it must seem, the FCC's penalties are heavier for use of an unlicensed rig of the 27MHz AM

variety, than for employing kickers, sliders and other out of frequency gadgetry. Thus, the quiet fellow with the unlicensed equipment can be fined up to a thousand bucks, while the guy down the street, with a licence, but running more watts than you'd find in the average power station, will get off far lighter. Indeed, the CB fraternity in the US long complained that the FCC boys, in their plain wrappers, all too rarely chased the big loaders. Maybe that was because the heavy mob tended to use karate chops on anyone asking questions. CBers found with over-high antennas, and/or involved in skip communication, might be thought merely enthusiastic, but they could get hit with a \$100 fine on each count. Easy to spot a tall antenna, even if you are an overworked Fed.

The Feds' motors, by the way, were, and presumably are, sedans with large boots, since a lot of monitoring equipment has to be carried. No government licence plates are used, unlike most official vehicles, since the operation is strictly under-cover. An innocent-looking car radio antenna was designed for FM reception/transmission, as well as for CB operation.

Well, the Yanks were never short



on technology, know-how and all round CB genius. The problem, as far as the FCC was/is concerned, is shortage of funds, as provided by Congress. By the early 1980s, it was already being argued that CB ought to be de-regulated and de-licenced, i.e. that the authorities should give up trying to keep the CB frequencies neat and sweet for the ordinary citizenry. Naturally, such chat from the FCC aroused the fervour of those volunteers involved in Channel 9 monitoring. The argument continues, but the philosophy of the administration is hardly that of government spending of cash on such minor matters.

Tracking down illegal operators has never been a big problem, and, contrary to popular myth, a single vehicle could handle the task — though it was necessary to use several locations for 'triangulation' placing of the illegal operator's site. But as a CB journal sighed, back in 1979, the Feds were never trained as law enforcement officers, but were primarily electronic technicians. So it was a bit like asking Dixon of Dock Green to do the Starsky and Hutch bit. On the other hand, the Feds could always get a search warrant and the help of heavy-weight US marshals. That did not happen too often, and, one way and another, the kicker brigade were not at all discouraged.

## Search Warrant

A famous case in US CB history confirms this. It took two years, a lot of local citizens' action plus the services of two district attorneys to clobber a guy who was using a CB running five thousand watts. Two years of complaints, and all too modest FCC fines and warnings, had failed to move the gent, in one of America's pleasant southern states. By the time that the FCC took up a search warrant, calling at 6.30 a.m., the public interest was accelerating fast. If the FCC had not acted then, a few Congressmen would have gotten mail, as they say, in big red letters. When the CB press sent their roaming reporters to the noisy burgh, the press-men learned that the five thousand watt rig was not the biggest in town. Another Southern gent explained that elsewhere in town, there were rigs so powerful that the five thousand watt man had to ask permission before going on air. Presumably, he just enjoyed his hobby too often, and at times when folks were straining their brains with TV shows, or trying to.

When US CBers apply for a CB licence, they agree to abide by FCC rules, so that, in that sense, all licenced breakers agree to open their front doors to polite FCC engineers, asking details. Illegal users — ironically — can make life tougher on the doorstep, and by the time the FCC guy returns with his warrant, the illegal equipment can be moved to a neighbour who has no CB antenna, or, for that matter, criminal record. Yet, even

apart from all the bad guys with the bad breath, the CB situation has got chaotic through the proliferation of out of frequency equipment, ranging all the way from 26MHz AM to 28 MHz AM. Basically, the eager fellow with a desire to chat wisely on air, decided that they could get nowhere fast with the standard stuff, so they adapted the electronics.

## Amplification

There has never been any great problem in securing printed pages of advice, assuming local geniuses needed such instruction on adjusting frequency use. I recently spoke with a specialist writer who has produced, in the USA, learned leaflets on out of frequency work, and I gather that no-one has knocked at his door with an official rebuke. Such great-hearts do not consider out of frequency communication all that significant. CB's Big Big Problems, they say, have little to do with the 26 MHz or 28 MHz brigade, but spring mainly from all too massive amplification of chumps on the air. Here, as in much else, we should have learned from American experience. The new rules for British CB, introduced on the 5th March are welcome, but should have been given before 27 MHz FM was ever launched. Similarly, the use of amplifiers, completely regardless of other people's enjoyment of electronics, could have been curtailed had the powers that be been that interested. Well before FM CB was launched, stores were showing kickers from the USA: get one and amaze your friends!

So: what happens next? Will Dick Tracy, ace detective, give up his wrist watch rig, and go back to using carrier pigeons? Will desperate CBers give up on any form of reasonable communication, and use Second Class Post? To date, the licence fees in Britain seem to have gone into that bottomless pit known as the government's borrowing requirements, or maybe even our annual sub. to the Common Agricultural Policy.

When a disabled breaker gave up his legal rig recently, mainly through being threatened by idiots with a power mike, he asked, "What am I supposed to be getting for my ten quid a year?" A good question, since the threats to his well-being probably came from kids without any licence. Well, are we in a position to tell you exactly what you get for ten quid. Right . . . NOTHING. Or at least, nothing apart from the permission to use CB on 27 MHz FM. That's fair enough, since the government never intended anything else, but, here again, someone at the Radio Regulatory Department should have been uttering loud whispers in the direction of the Home Office. Much as any kindly fellow hates to say it, legal CB asked for all it got, because of the virtual absence of any rules pertaining to age of breakers, for example. Fourteen would seem all too low, for full operation, anyway. It might be better

to have a learner licence (£10 a year) and a full licence (£15-£20 a year), the transition from one to the other being after accreditation from an approved CB club or organization. Considerations of status would no doubt encourage serious study here, and a few incentives could be involved in the scheme, with monitoring involvement given only to full licence holders. Also a nice certificate could be provided to hang on the wall. US CB magazines abounded in pics of CB and other radio users showing off their shacks, plastered with official diplomas.

Any over-worked civil servant, pausing in his doughnut, merely to say, "it wouldn't work" may well under-estimate the potential. Britons have been keen on radio, in all its forms, since the hobby developed in the 1920s. Further, CB's potential for UK business was somewhat ruined by the lack of basic rules (and some attempt at enforcement) in the first place. Many readers of this magazine will know of nice folks, often in middle-age, or disabled, who gave up CB, after buying their first licence, simply because they were turned off by bad language and threats on air. These nice folks were eager about CB, and had they been able to develop the hobby, would now represent a market for more sophisticated equipment. As it is, they have dumped CB, at least for the time being. But they could be brought back into the hobby, if the state of CB is improved. Let's face it, most CB owners now want a decent, if not foolproof, system,

## Buffoons

In the USA, characters mistreating the CB air-waves are charged under FCC regulations, and for a long time, CB papers over there carried lively reports of their misdeeds. Names and addresses, as well as call-signs of the buffoons were printed, and no doubt, this was a form of fame that the wayward gents did not much like. We do not have anything like that in Britain yet, but it could come.

If all else fails, we might take up that Australian idea, and include tarring and feathering sessions on peak-time TV. It would be a whole lot more interesting than the party political broadcasts.

As for the new regulations on minimum age, and the ban on playing records or tapes on air . . . we shall see, and for that matter, hear. Will the authorities do more than provide rules and recommendations? Will they help keep kids off the air, and maybe imitate some of the FCC's detection programmes? When preparations for war started in 1938, radio hobbyists, including hams, were among the best recruits the services had. The government discovered that a creative interest in radio could be a mighty asset for a population in tough times. Maybe that lesson has to be re-learned, in a peace-time context. CB is too important to be left so much on the wrong side of the law.





**Cellular radio looks set to become the communications system of the future. Sue Sharp looks at what it is and how it works.**



# LISTEN TO

**T**he growth in communications and telecommunications services has never been so fast as in the past decade, as new technology has opened doors that, just a few years ago, seemed permanently closed.

Although equipment has been miniaturised and our understanding of radio has increased, a truly accessible and portable system that is constantly available has been out of our reach — and just as well many people would say. After all, who wants to be always at the end of a phone or transmitter and always at someone's beck and call? For the average person, this seems a curse rather than a blessing, but for businesses and vital personnel, like medical experts or computer staff, it can be essential that key people are instantly available.

It seems as if the search is almost over as cellular radio reaches its final stages of development and prepares for its introduction to Britain.

So what is cellular radio? The principle behind it is the utilisation of a limited range of frequencies at relatively low power that can be used in close proximity without cross-interference, because of the low power and the 'cellular' network of transmitters.

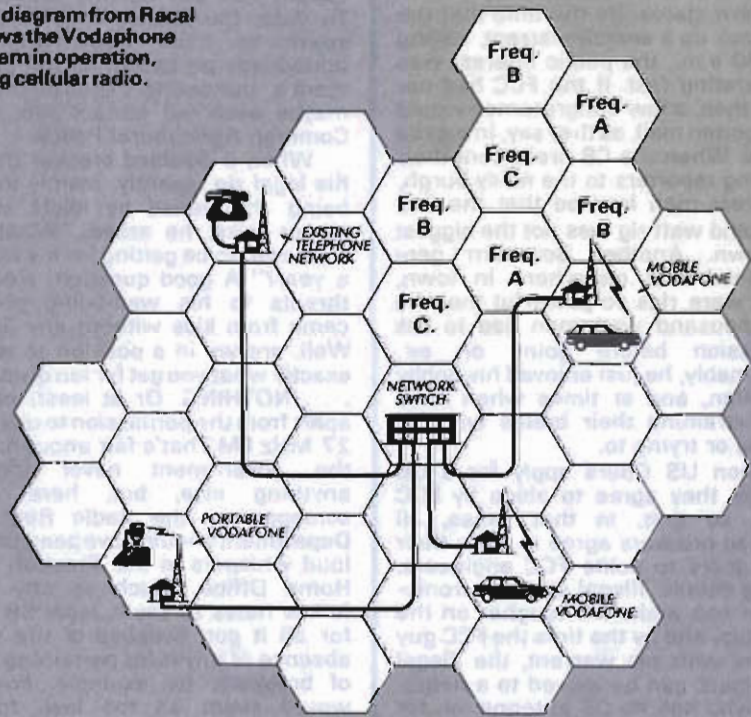
This is more easily understood by

looking at the diagram, which shows how a few frequencies can be used over and over again in a small area. This has great advantages in an already crowded radio spectrum and since base station power levels are put at 100W and mobiles between 0.6W — 10W (depending on their use) the interference factor is greatly reduced.

The area covered by a cellular radio service — and ultimately it is intended that all of this country and Europe as well as the United States and other continents will be served — is dotted with a series of transmitters and switching centres that will route transmissions from one 'cell' or division to another. This cell may well be on a different frequency to the one in which the initial call is being made but the switching centre will receive the radio transmission and send it on its way on its appropriate frequency to the recipient — who may be able to receive the call on a transceiver or who may be by a telephone. The radio equipment for the cellular radio user will automatically retune itself to the frequency of the cell that the subscriber is in as the user moves around without the radio operator having to touch the radio.

As you will have gathered, cellular radio can be used in the same way as any radio system with the transmission and reception of radio

**This diagram from Racal shows the Vodafone system in operation, using cellular radio.**





# the FUTURE



signals, but it can also work with the BT telephone system, placing all the facilities of the phone service within the reach of someone away from a telephone but with a radio. This means that services like data transmission also become available to people on the move — an increasingly important option.

The introduction of cellular radio into this country has not been smooth. The system has been working for some time in pilot schemes in America and Scandinavia but, as with most decisions taken over the radio spectrum in this country, there was considerable wrangling over how cellular radio would be operated and who would do it.

The government placed UHF frequencies in the low 900MHz. band at the disposal of the system and announced that two companies would be licenced to develop and market it. This was criticised as typical British conservatism when the States has hundreds of licenced operators and even the smaller European countries seemed more generous.

Many companies were excited at the thought of the cellular radio service, especially as research was coming up with some amazing figures; estimated demand by 1990 of 250,000 subscribers and an eventual total market for radio equipment of £300 million in this country alone. The American pilot schemes supported these figures and showed that there were enormous profits to be made.

As the race for licences heated up, so did the argument about the type of system to be used, supported by the companies that had developed them. As seems typical, there had not been any serious efforts for international standardisation and there is still a real risk that the service will result in a 'patchwork' way, especially in Europe where it would make most sense for

countries to work to a single system (and breaking both communications and trade barriers).

The Scandinavian countries of Norway, Sweden, Finland and Denmark have showed more sense and have together agreed on NMT, the Nordic Automatic Telephone system. The Netherlands, Belgium and Italy are also considering NMT. West Germany has gone for NETZ-E, the States has AMPS, whilst the giant Philips group have been pushing for the adoption of MATS-E and this has found favour in France. All these systems do basically same thing but with varying degrees of technical sophistication and cost.

As the British government has accepted in principle the CEPT frequencies for communications, they were under pressure to adopt one of the European networks and MATS-E in particular. But different schemes were preferred by different companies bidding for licences, depending on where their loyalties lay and the government were eventually put in the slightly embarrassing position of one company saying that even if their application were accepted, they wouldn't take up the licence unless their favourite network was also accepted.

In the end, a version of the American AMPS was decided on. TACS, Total Access Communication System, will be operated by a Securicor/BT company and a consortium headed by Racal. Racal have been the first to announce introduction dates and prices and it seems that the first cellular system will be operating in matter of months. They intend to cover 60% of the country in five years and 90% of the population when the network is completed.

The total capacity of the cellular radio network is several times that of

the projected maximum demand, in stark contrast to the existing radiophone/message handling services which have congested frequencies and a limited capacity, resulting in a two year waiting list to join the present 20,000 subscribers.

The government is hoping to stimulate growth areas of telecommunications and to provide industry with maximum expansion, especially for export. If proper Euro co-operation were reached this expansion includes world markets and figures like 12,000 new jobs in Britain are bandied about.

This sounds fine, but elements of it may seem familiar to you. Put 'CB' in to replace 'cellular radio' and we could all be whisked back three years to similar brave words. The truth is that although British companies are developing the British system, the initial research and components often come from the Far East (NMT originated in Japan) and there are still only long term plans for harmonisation in Europe. Companies do intend to manufacture in this country, on licence from companies based abroad but it is my guess that most of the equipment, one way or another, will be imported.

## Caution

Reports on the future of radio communications have been very optimistic about cellular radio and it is indeed a very sophisticated telecommunications system, combining both radio and telephone services. But a note of caution should be added into this rosy view of the future. Although our decisions are usually more cautious than the Americans, there may be lessons to be learnt from our Transatlantic cousins. The American system was deluged by eager would-be operators, lured by the prospect of handsome profits but the FCC were unable to decide if the service was radio or telephony and decided like Solomon to award half the licences to radio companies and half to telephone companies. This has presented legal and operating difficulties and after the initial hysteria, the American trade magazines are already beginning to suggest that the early, euphoric days are over, demand may be less than anticipated, and the licence to print money may have some strings attached.

As I said, the British are more cautious and it does seem that cellular opens up a bright future for personal communications, but we may well wish in five or ten years time things had been considered more thoroughly.



# Mack Chat

## Mack asks if we are expecting too much in wanting cheaper 934MHz equipment.

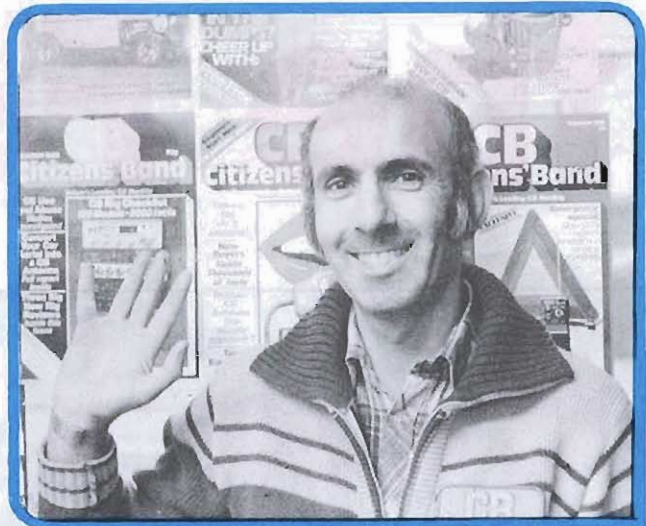
It's too expensive, say the many people that have visited me to view and evaluate my 934 CB equipment. Maybe when it becomes cheaper I'll get involved, they remark. But will it become cheaper? I doubt it, unless you are able to buy a second hand rig then you might save a few bob. As I have now spent my money I could be selfish and say 'I hope not' and also hope that there is not a surge of cheap rigs on the market. I don't think you will see a 934 rig under £250.

Another topical question is, are the current 934 rigs worth the price? People are quick to point out that for the sort of money one pays for a 934 rig, one could, if one desired, obtain an all-singing, all-dancing 2 metre multi-mode, and this is true. It has even been pointed out to me by dealers that the presentation of the current 934 equipment leaves a bit to be desired and that the finish of the equipment is a bit shoddy. In defence I would point out that the equipment for 934 had to be designed and built from scratch and modifications made along the way. I'm sure you will appreciate the fact that mass produced radio equipment is cheaper because of the large quantities involved. At the present, 934 equipment is almost hand built and has to be tested many times in the building process; therefore the price is high. I do not believe that the present equipment is a take-on, as some suggest.

There is one gripe that I do have and that is about some of the UHF antennas that are on the market. Apart from being illegal and expensive, they don't work. Some of the first 10 element beams that were for sale at around £35 were converted TV antennas that one could purchase for around £3.50 from any of your local TV stores. Some other manufacturers did build some multi-element beams — the price was a little lower, and one well known dealer really cut the price when he produced a ten element yagi for £12.50. Yet some people that have purchased these say they don't work or not as well as they should. That's not surprising really because we don't have any test equipment that we can purchase for this frequency and it's only now that SWR meters are appearing on the market.

As you already know, and I have told you enough times, I don't go much on QSL card swapping just for collecting. But it seems that I can't help but get involved in this QSL card scene. If you recall a few months back, there was an appeal made in this mag by Jim Longson of the Quarry. I had a card from Jim thanking all you people that kindly sent the menap lads Quarry 1 and Quarry 2 (Peter and Ernest) cards. Jim said that the lads have paper the walls of their rooms with the cards that were sent and the response was tremendous. The only trouble is that Jim has to answer your cards and it might take a little while.

From the 'Black Dog-Rhymer', also known as Des Currie came details of another request that you may have already read about in this magazine. Ghost Rider,



alias Stephen Grey, is an honorary member of Tool Town breakers club. He contracted leukaemia in 1983 and his brother donated bone marrow for a transplant operation in December that year. The NHS provided the staff but the cost of drugs had to be met from private sources. The Tyneside Leukaemia Research Association based at Newcastle University supplied funds for those drugs and also supports leukaemia research in N.E. England. Only enough money is raised to save 5 lives each year but there are about 20 people each year requiring marrow transplants. The Ghost Rider appeal want to help the other fifteen and you can help by sending 2 or more QSL cards made out to 'Ghost Rider appeal'. All these cards will be auctioned, and the auction followed by a disco will take place on Saturday evening, 26th January 1985 at the Miners Hall, South Moor, Stanley, Co. Durham. All are welcome. All cards should be sent to: 'Dark Lady' (Norma), 38 Third Street, Southmoor, Co. Durham DH9 7HA, England. If you send 2 or more cards and a stamped addressed envelope you will receive a special edition Currie QSL card. Now I believe that this is a good cause, so what I intend to do is send this organisation 10 of my own cards. As you know I don't give my cards to just any one so I may be big headed in saying that my cards are rare and should be highly collectable!

I would like to reply to G. Simpson of Lincolnshire whose letter appeared in the May issue of this mag. He said that he is angry about your letters referring to channel 9 and believes that we, the British FM CBers, should not be allowed to dominate the 27MHz part of the band that we have been allocated. I may be wrong but the impression that I get is that G. Simpson is a pirate and is using the illegal parts of the frequency. If this is so then surely he has no right to tell us, legal breakers who have a licence to operate on the 27 FM, what we can or can't do. If we are interfering with his AM or SSB transmissions to other foreign illegal stations then maybe he should write to the DTI and complain — I bet he wouldn't dare. It's these illegal DXers that should pack it in and stop interfering with our legal frequency. I dread what will happen on FM when the real DX opens again in a few years time.

A lot has been written lately about crystal filters for our rigs. They stop bleedover we all know and also stop a lot of other noises that one gets through the rig. So that's fine and it gives you a good receiver in your rig. But what about the transmitter? There is a very large number of rigs around that have been 'tweaked' and many that left the factories incorrectly tuned so that they overdeviate. You can hear a station that is, say, on channel 20 also on channel 21 and 19. I have found that with crystal filtering this tends to exaggerate this problem and there is no cure unless you can get everybody to turn down their deviation. I don't think they will because everybody wants to get out stronger than anybody else!





**One thing that can be said for our letters page, it really stirs readers into reaching for their pens! Bottle Basher and Mr. Simpson from earlier issues are both taken to task.**

### **Bottle Bashed**

*Bottle Basher has had his fair number of critics. Bob Mersh replies on behalf of the many readers who disagreed with him . . .*

The letter "Fighting Talk", from Bottle Basher from Rugeley, was so unbelievable as to prompt me to put fingers to word-processor and write to you! To comment by points:

1) The police aren't being convinced that AM is better. They are already using it, have been since the Second World War, and are now moving away from it for various reasons. It is a proven fact that AM and, even worse, SSB is likely to cause interference to domestic equipment such as TVs.

2) How the hell can increasing your power output cause less interference? If your neighbour's TV is suffering slight interference from your CB set, it will suffer more if you increase your power, not less. Also to suggest that if people could use a 12W linear, they wouldn't want 25 linears, is as silly as allowing everyone to own a pistol in the hope that they wouldn't want a machine gun.

3) One also wonders how on earth directional beam antennas will improve local channel overcrowding. Range at 27MHz is affected more by ionospheric propagation than by all the linear amplifiers under the sun and, therefore, as we are in a period of low sunspot activity, range will generally remain restricted to the usual few miles or so. If the man is talking about the physical dimensions of a beam, they are all larger than vertical antennas, by the very nature of their construction. If, however, he is talking about electrical beamwidth, I'm afraid that radiation doesn't work like that. It does not by-pass the breaker up the road just because you're pointing it to one side.

4) You could try campaigning for extra channels but I doubt if the D.T.I. will listen to anyone who makes such

fatuous claims and statements as from the likes of Mr. B. Basher. 27 MHz is eminently unsuitable for its intended purpose and, in the light of other more pressing claims to band space from professional bodies, I would expect the authorities to use this excuse to give the big thumbs down to any extension of the band.

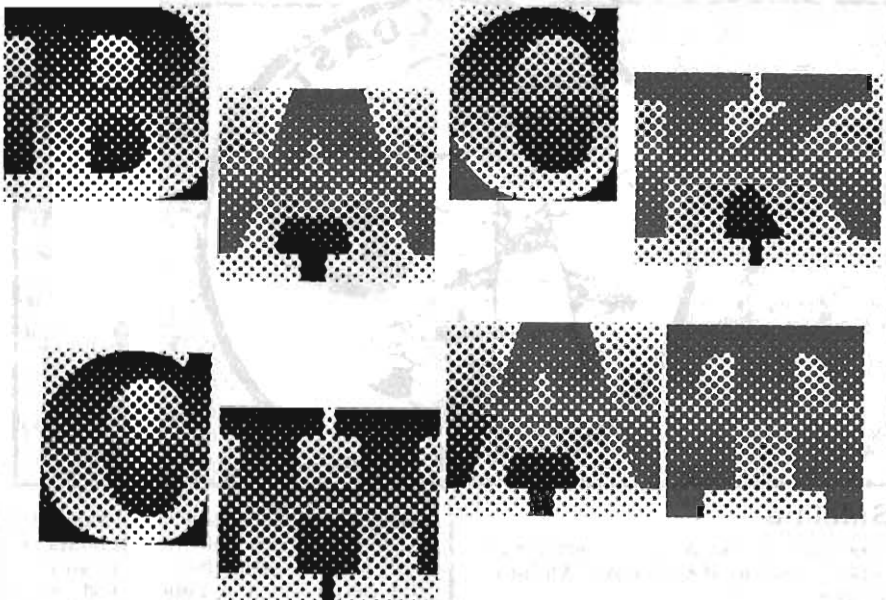
5) Friends of mine who have experienced CB firsthand in Germany and the USA tell me that, in areas of high population, CB does not work well due to channel overcrowding. As for the Italian scene, you're okay if you have a two kilowatt linear, a big mouth and don't mind elbowing everyone out of the way for a contact. I do not call that "managing well".

6) UHF units are not expensive, they are a realistic price — when you consider that the cheapest uhf ham rig is around the £300 mark. You pay your money and take your choice and, in my opinion, CBers expect too much from the cheaper, under £100 rigs. This is perhaps a legacy of the early black market days of illegal CB when good rigs could be picked up for much less, merely to clear a glut from the American market which had crashed. 934 MHz is much more suitable as a CB and can have much greater local range than 27 MHz.

7) Licence fees are not utilised for maintaining a monitoring service, for one does not exist. We have been campaigning, for years, for the authorities to provide such a service on the amateur bands, to no avail. They have limited staff, and greater priorities than policing CB or amateur bands.

8) Channel 9 law — fine, but who would enforce it, see point 7) above. Police involvement — they have enough on their plates, keeping abreast of crime, without having to listen to a bunch of half wits ruining channel 9.

Sorry, Bottle Basher, but having tasted illegalities doesn't give you the right to know it all.







## Sideline

*Next out of the bag is a letter from David Harding of Kent Open Monitors in Deal...*

In his letter in your May issue, Mr. Simpson criticises UK breakers for jumping on a frequency he wishes to use for DXing the world. He should examine his own conscience; he is doing the jumping, not us.

If he wants to DX illegally, he has a choice of the entire radio spectrum. We only want one minute space of it, and we have the right to be there. We have paid ten pounds for the privilege, and unless we wish to risk prosecution in this country, we have no choice but to use 27MHz.

I resent Mr. Simpson's sneer at those who, in his words, 'do good and organise'. Those of us, such as the members of the monitoring group to which I belong, are only interested in offering help to the community. This surely has more to commend it than Mr. Simpson's selfish pursuit of pleasing himself illegally.

I would suggest, if DXing is so important to him, that he considers becoming a Class A radio amateur, when the entire world will be accessible to him.

At least that will get him out of the hair of the licensed breakers, from whom he is unlikely to get much sympathy. CB is intended for short range communication, and DXing with it is a pleasurable sideline for only a minority of users.

## Helping Hand

*A regular correspondent of ours, although he doesn't always make it into print, Roger Large of Crewe in Cheshire, comments on the fund raising activities on behalf of the R.N.L.I. . . .*

I was glad to read in your May Update column about the planned coastal radio chain. I ask you to print this request that these good people do not just stop here but help the R.N.L.I. by setting up emergency monitoring stations all round the coast. Even old sheds can become properly equipped emergency control rooms and using the 999 service to inform the

appropriate emergency service, the coastguard can call out lifeboats as they are required. The R.N.L.I. work for the people by the people and are a totally independent charity with no Government intervention or funds.

As a CB user myself I know just how useful it can be, but R.N.L.I. members have to concentrate on the boats. CBers will have to use the radios for them.

## Help needed

*Eric Gray in Helmsdale, Scotland needs some help in obtaining an elusive item . . .*

I wonder if any of you readers could help me find a channel change knob for a Binatone Long Ranger hand held rig.

I would be willing to pay any costs and postage. Keep up the good work and let's have more articles on mods. and antennas.

*Please contact Eric Gray care of the magazine.*

## CB and the disabled

*John Marriss of South Humberside wants to point out the need for CB for disabled users . . .*

Since CB radio was introduced in 1981, it has meant a new kind of life for disabled people, especially for those that are housebound. If they get stuck or need someone to talk to there is always someone who will talk back — even if there are those who make fun of people less fortunate than themselves.

I have spoken to a lot of disabled people on the subject and they all have said that if it wasn't for CB radio they would go mad.

My plea to all CBers is that if you know a disabled person that has a CB, give them a call once in a while and check that they are OK or have a chat. Perhaps you could go round their house to visit or take them out for a walk if they cannot get out and about by themselves.

If you are disabled, and you are anywhere near Scunthorpe, my handle is Charlton and I wait to hear from you over the CB.

## Dead Duck

*Bald Eagle wants to agree with the editor (always a wise move, that, Mr Holland!)* . . .

On reading 'Update' in the May '84 edition, I can't help agreeing with you that a lot of people think that CB is a 'dead duck'.

CB a dead duck? Far from it. In the past two years I have been on channel, I've made more friends than in the past thirty-six years I've been on this earth.

On the serious side, if it had not been for CB as a means of communication, the latest Greenpeace demo against acid rain (up a 300 foot chimney in Yorkshire) would have not been the huge success it was. Equipped with walkie talkies they were able to communicate with the world's press from Britain, Spain, Denmark and Sweden who came along to get a first hand interview with the demonstrators.

I say that CB is one of the greatest things to happen since the invention of the radio. Long may it continue to be a part of the free world.

## Channel choice

*Catswhisker in Ormskirk, wants to get a word in edgeways about wallies and where we could put them . . .*

Who are these "wallies" people complain about and what do we do about them? Most breakers have in mind music-players and bucket-mouths but many would include children chatting (although some very young breakers work to a very high standard) and a few like Pathfinder One in your March issue would even include DXers (of which I am one!).

The constructive approach is to remember that not so long ago the government regarded *all* breakers as wallies but finally recognised the Citizens' Band. Why not do the same with the people we see as wallies?

In this area, "kids' CB" is largely limited to the channels on which walkie-talkies will work and is in any case very low power. DXers appear to operate in the very high numbers (35-40). Road users seem to use channels 19 and 27. 14 is the local calling channel with 9 for emergencies. Why not extend this and allocate say channel 2, 3 and 4 to music players and people who wish to emulate "pop pirates"? It might even result in better music and an alternative to BBC/IBA! How about reserving channels 5 to 8 for the housebound? It might also be useful to allocate channel 1 for testing, QSL reports and the like. This would still leave several channels for general use.

This would still leave open the question of bucket-mouths. How about allocating them to channel X?

**Letters should be sent to  
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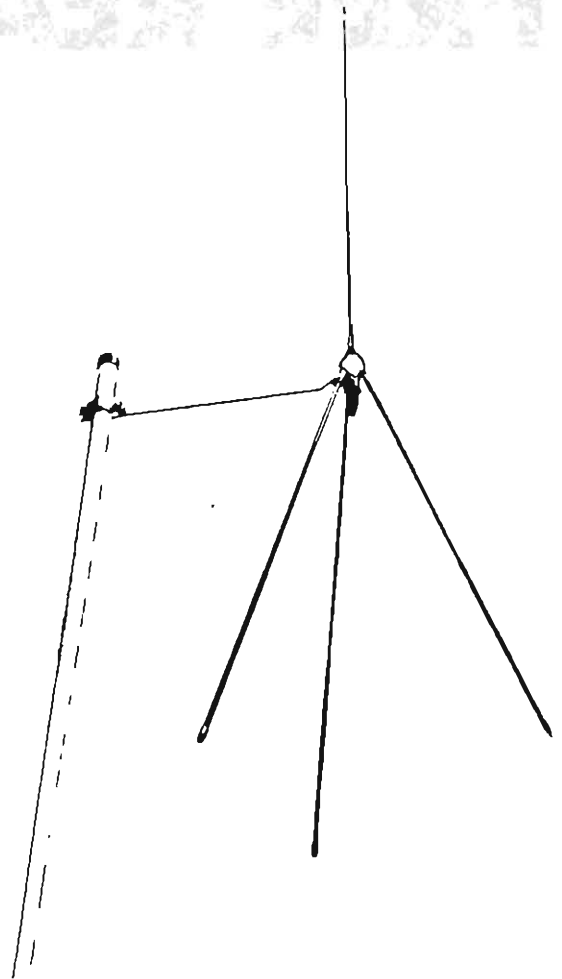
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7. All that is to be reproduced in the advertisement should be entered into the space provided on the form printed in the magazine. All advertisements must give either a telephone number and/or address for repliers to contact and this must be included in the wording of the advertisement. Advertisements must be 40 words or less. Telephone numbers normally count as two; exchange or exchange code as one, the number as the second.

8. Readers should write their advert. in **block capitals** or type it, underlining any words that are to appear in **bold**.

Name .....

Address .....

.....

.....

Telephone: .....

I accept the conditions listed above.

Signature .....

Send this form to:  
**Free Readers' Ads Service,**  
**Citizens' Band,**  
**Wolsey House, Wolsey Road,**  
**Hemel Hempstead, Herts.**

## ENTER YOUR ADVERTISEMENT HERE:




# CLUB NEWS

**Our apologies to those club members who have been waiting eagerly for a mention of their club. The postbag has been very full lately and it is taking us a long time to work through all the letters and cards. Here's this month's batch . . .**

## **Rising Sun DX Club**

Our group has been running for well over a year now and we are a well organised QSL and DX club with a very good club package.

Our aim is to spread peace and friendship throughout the world by all forms of radio and we already have many international members in Sweden, Spain and Italy. We would also like to thank Viking Radio, Shetland for their help and advice.

Full details about the club can be obtained by sending a stamped-self-addressed envelope to the club secretary at our PO box address.

Don, R.S. 07,  
Rising Sun DX Club,  
PO Box 3,  
Lampeter,  
Dyfed,  
West Wales,  
SA48 7LU.



## **East Surrey Breakers**

The E.S.B. club has been running now for over two years and has approximately 600 members. We meet once a week, when members can get together for a drink and chat and on certain nights, take part in competitions, dance to discos or listen to bands.

As well as the CB aspect, we also help with a lot of charitable events. In the past we have held a sponsored roller skate to Brighton in aid of a local old people's home which raised £400, raised over £1,000 to set up rigs for disabled and houseproud people, supplied a video for a special children's ward, helped with radio equipment for our local St. John's Ambulance branch, helped monitor a charity walk organised by the Mayor of Reigate — and I could go on!

We look forward to welcoming many more visitors who will hopefully become members. We meet at the British Rail Staff Association, Hooley Lane, Redhill, Surrey at 8.00p.m. on Mondays.

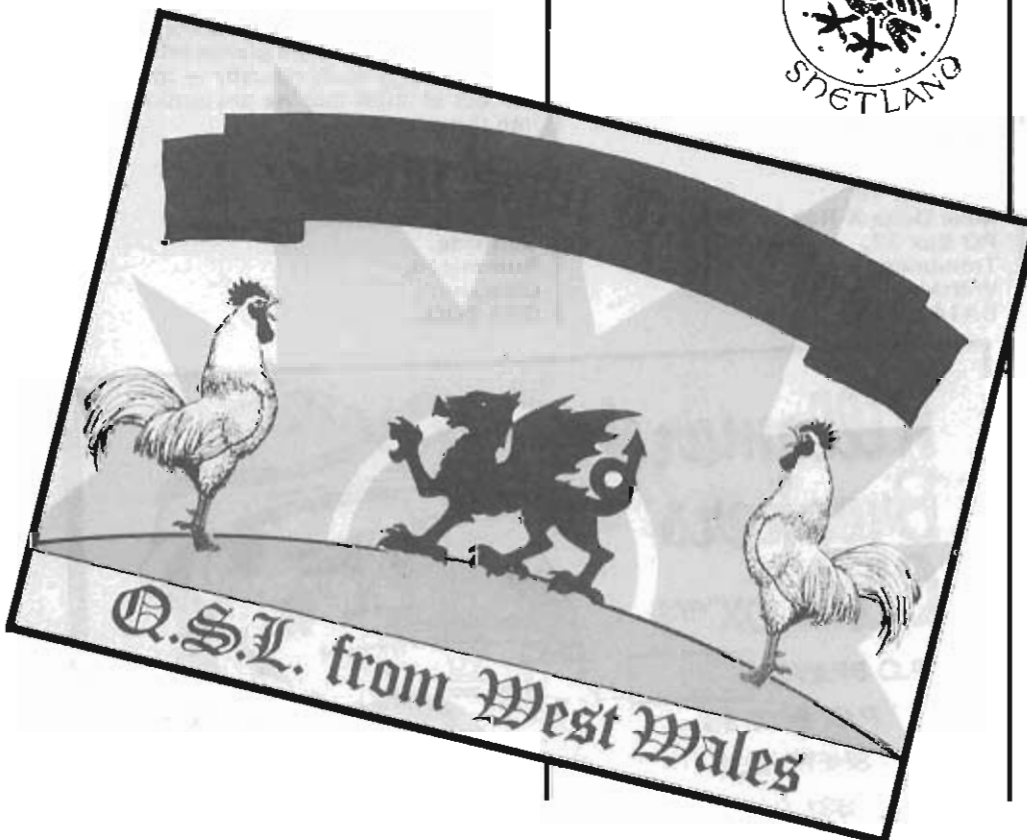
Claire Stout (Secretary),  
East Surrey Breakers,  
PO Box 101,  
Redhill,  
Surrey.

## **String Town Breakers Club**

This club has been in existence for three years and has 85 fully paid up members of the 380 who have been on the books at some time. Not a large number, but as two other clubs, one with over 500 members and another with over 1,000, have folded recently, we are reasonably satisfied.

We are located in Hailsham, East Sussex and also operate the Sierra Tango DX Club.

M. J. H. Parsons,  
S.T. 301 (Treasurer),  
String Town Breakers Club,  
PO Box 47,  
Hailsham,  
East Sussex,  
BM27 2PQ





## East Ayrshire FM Club

Our club was formed in August 1982 and has been going successfully since then. We have 90 plus members and their ages range from our youngest, at two years old, to old age pensioners — very much a family club.

We are involved in a big range of activities, have regular speakers and give aid to anyone that requires our special CB services. For example, in June we helped to monitor a mini-marathon being held by a local running club and in May we held an Eyeball Buffet Dance in one of our local hotels.

Our meetings are held at St. John's Primary School, I.F.E. wing, Cumnock at 7.15p.m. Any visitors are very welcome.

**J. A. Campbell (Bright Spark),**  
East Ayrshire FM Club,  
PO Box 3,  
Cumnock,  
Ayrshire,  
KA18 1QZ.

## Kilo Bravo Club

Chairman Oddleg, Vice-Chairman Texaco, the committee and all members of the Kilo Bravo Club would like to thank the many, many good breakers all round the country who have once again answered the Kilo Bravo call for donations to provide a heart monitoring machine and an infusion pump for the Sheffield Children's Hospital. We are very pleased to tell you that the machines have been purchased and are now in full use at the hospital's intensive care unit.

The sum raised to date is over £1,500 with still more coming in.

This year our fund raising took in an eyeball at Vicar's nightclub in Sheffield, at which the Kilo Bravos played host to breakers from all over the country. It was a magic night and must be rated as the biggest and best eyeball to date.

Our next endeavour was a sponsored ratchet which raised a lot of donations and we had marvellous support on the side from some great breakers.

Last year we raised £1,800 for the Wayne Little appeal and as well as Wayne benefitting, children's homes, special schools and disabled people around the country were put on the airways.

I would also like to mention a new venture for us, a long distance DX section which has 35 members at present. The membership fee is £5.00 for the year and interested breakers can write to our PO Box for more details.

**Doreen (Secretary),**  
Kilo Bravo Club,  
PO Box 96,  
Killamarsh,  
Sheffield,  
S31 8JZ.



## Mike Delta X-Ray 32 Group

Just a few lines to let you know about our group in the west of England, the Mike Delta X-Ray 32 Group. As yet we don't have a permanent meeting place, but meet in the CB City shop in Melksham. We are still finding our way around as we have not been formed very long and have a membership of 25 and a junior section that numbers 10. We also have two overseas members in Holland.

We like to think of our group as more serious CBers. We have helped in monitoring a fun run organised by the local Lions group and may be involved in a nuclear warfare exercise run by the local civil defence section.

**Bill MDX 19**  
Mike Delta X-Ray 32 Group,  
PO Box 32,  
Trowbridge,  
Wiltshire,  
BA14 8UJ.

## Burnside Breakers Club

As a relatively new club in the Strathclyde area, we are interested in raising funds for charity.

Last year, when we were formed, we approached the local maternity hospital in Rutherglen, asking their permission to collect on their behalf and this was granted. However we ran into a lot of red tape with the authority licencing board and we are still waiting for approval for a collector's licence!

Is it possible for your readers or clubs to help our imagination along on how we could raise some money — quickly? If you can let us know the magic formula then please tell us or we will end up in casualty — for the lack of effort that we are putting into this project!

**Ian Wallace (Secretary),**  
Burnside Breakers Club,  
78 Viewpark Drive,  
Burnside,  
Rutherglen,  
Glasgow,  
G73 3QQ.

**Killamarsh  
Breakers  
Club DX'ers**

**KILO BRAVO [ ]**

**P.O. BOX 96**

**SHEFFIELD**

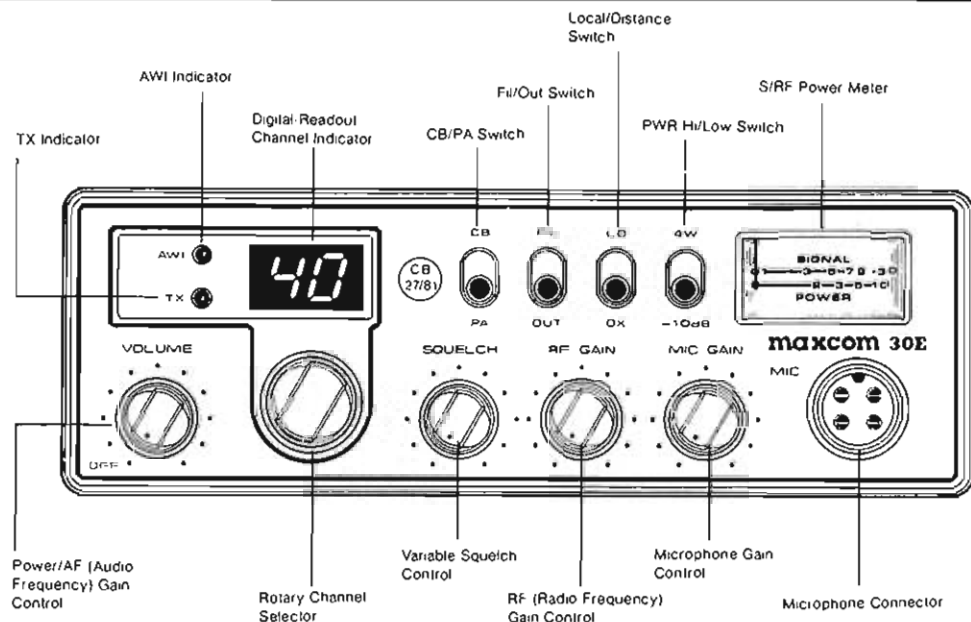
**S31 8JZ**

**73's and best DX!**

**QSL**

# Citizens' Band

## REFERENCE SECTION



### A CB SET AND ITS CONTROLS

#### VOLUME

Sometimes called *Audio Frequency Gain* control. Usually combined with the 'power on' switch. The volume control will only increase or decrease the loudness of the incoming signal — it won't alter the strength of it or affect the transmitted signal.

#### CHANNEL SELECTION

For choosing the channel you transmit and receive on.

#### CHANNEL INDICATOR

Displays, usually by LEDs, the channel you have selected. Some channel displays are of liquid crystal or fluorescent. The digits are normally bright red, green, orange or blue and visible in all but the most direct sunlight.

#### SQUELCH

The squelch control is used for quieting background hiss or the babble of distant signals. The control is turned slowly, usually to the right, until the background noise disappears. The squelch circuit will then only open to let through a stronger signal than those you have quieted out. As soon as the stronger signal goes, the circuit closes. Care must be taken not to turn the squelch control up too far, as then only a very strong signal will open it.

#### SIGNAL/RF METER

On most sets this is of the 'moving needle' type against an analogue background. Some sets do have a bar of LEDs that light up to show the strength of either the received signal or the transmission. It shows the *relative* strength, not a reading in dB or Watts. These meters cannot be 100% accurate and different rigs will give slightly different readings for signals of the same strength.

#### RF GAIN

This controls the reception sensitivity of the set. When decreased the set is less sensitive, and when increased the set is more sensitive to weaker signals. Reducing the gain helps prevent overloading when talking to someone who is very close.

Some sets, instead of having a suitable rotary control, have a flick two position switch marked *local* and *distance*. Full sensitivity is the distant position.

#### MIC. GAIN

Adjusts the sensitivity of the microphone amplifier circuit and controls the audio from the microphone that is used to modulate the signal.

#### CB/PA SWITCH

This switch turns your CB set into a low public address amplifier, when an external speaker is fitted into the socket on the back of the rig. Anything said into the microphone is amplified and broadcast through the speaker and not transmitted from the antenna.

#### TONE OR FILTER CONTROL

This can either be a rotary or flick switch. It controls the tonal quality of received signals in accordance with the user's preference.

#### POWER ANTENNA

Reduces the transmitter power from 4Watts to 0.4Watts. The attenuator should be used if your antenna is mounted more than 7 metres above the ground.

#### RX/TX INDICATORS

These light emitting diodes light up to show if you are receiving (RX) or transmitting (TX).

#### ANTENNA WARNING INDICATOR

This a warning indicator which is activated by trouble in the antenna system e.g. a bad mismatch or damage to the antenna or cable. You should stop transmitting if this lights up, and correct the problem.

Your set may also have the following controls . . .

#### CHANNEL 9 SWITCH

This is an 'over-ride' switch that will immediately select channel 9 without using the channel selector to find it. It is fitted to save time in an emergency.

#### DELTA TUNE

This is not a common feature on British sets, where frequency and stability are closely specified. It is a fine tuning device for tuning in stations that are operating slightly off frequency.

#### DIMMER

Works on the same principle as a domestic light dimmer, and reduces the amount of illumination on displays and dials on the CB set. A few sets have an automatic dimmer built in, which measures the lighting level through a photo-electric cell and adjusts the illumination accordingly.

#### ANL/NOISE BLANKER

The Automatic Noise Limiter or Noise Blanker is designed to reduce interference from a car's ignition system by desensitising the receiver slightly. If the ignition circuit is already adequately suppressed it will not make any difference.

#### CHANNEL BUSY/FREE INDICATOR

This is usually a LED that illuminates when a particular channel is in use or is free. This is gauged by the amount of 'traffic' on the channel which has to be at a certain level before the indicator is activated. Sets have either a 'free' or 'busy' indicator, not both.





This listing includes most of the rigs available for FM CB. Some rigs are still not on the market, but may be picked up second-hand or may be found in old stock at some shops. The prices quoted are recommended retail prices or typical price — they may vary considerably from shop to shop and area to area.

# MOBILES

RX IND. LIGHT	RX IND. LIGHT	CH 9 SWITCH	MIKE POSITION	COMMENTS	ADDRESS	NAME
•	•		SL	Report Feb '82	Amstrad Consumer Electronics, 1-7 Garman Rd., London N17	AMSTRAD
•			SL		Telecomms, 189 London Rd, North End, Portsmouth	AUDIOLINE
				Report Feb '82		AUDIOLINE
•						AUDIO LINE
			FL		K B & Co Ltd., 202 Cheetham Hill Rd, Manchester	COLT
	•		FL		Roger D, 831 Mansfield Rd, Notts	COMMTRON
			FL			COMMTRON
			SL		Goodmans Loudspeaker Ltd., Downley Rd, Havant, Hants PO0 2NL	CYBERNET
•	•		FL	Report May '83		CYBERNET
•	•		FL	Report September '83		CYBERNET
			FL	Report July '82		DNT
			SL	Report December '81	Fidelity Radio Ltd., Victoria Rd, London NW10	FIDELITY
	•		FL	Report March '82		FIDELITY
	•			Report September '82		FIDELITY
			SL		Bee-Ware Ltd., Ripon Way, Harrogate, N. Yorks.	GRANDSTAND
•			SL			GRANDSTAND
			SL			GRANDSTAND
•			SL		Telecomms, 198 London Rd, North End, Portsmouth	INTERCEPTOR
•			FL			INTERCEPTOR
•			FL			INTERCEPTOR
			FL	Great GT868 chassis	Star Warehouse, Chalk Farm Rd, London	JOHNSON
			FL		Roger D, 831 Mansfield Rd., Nottingham NG5 3GF	LAKE
			FR	Report April '83		LAKE
•	•		FL	Report March '83	Lowe Electronics, Matlock, Derbyshire	LOWE
		•	FL	Report November '82	Maggie Electronics, PO Box 35, Andover, Hants SP10 2LG	MAGPIE
			FL		AM House, 9A Old's Approach, Tolpits Ln, Watford, Herts	MAXCOM
	•		FL			MAXCOM
	•		FL			MAXCOM
	•		FL			MAXCOM
			FL			MAXCOM
			FL	Report Jan '84		MAXCOM



# REFERENCE



NAME	MODEL	RETAIL PRICE	NO OF CHANNELS	SUPPLY VOLTAGE	SQUELCH	NB SWITCH	ANL SWITCH	MIKE GAIN	RF GAIN	TONE CONTROL	S/R F METER	S/R F LED R/O	HI/LO OUTPUT	PA FACILITY	EX. SPEAK
MERCURY	10 40	N/A	40	13.8VDC	•				•		•	•	•	•	•
MURPHY	DS-602	£25	40	13.8VDC	•						•		•	•	•
MUSTANG	CB1000	£49.95	40	13.8VDC	•					•	•		•	•	•
MUSTANG	CB3000	£59.99	40	13.8VDC	•				•	•	•		•	•	•
NATO	40M	£69.95	40	13.8VDC	•			•	•	•	•		•	•	•
NATO	2000	£189.95	40	13.8VDC	•	•	•		•	•	•		•	•	•
OSCAR	OSCAR I	£85	40	13.8VDC	•						•		•	•	•
OSCAR	OSCAR II	£49	40	13.8VDC	•						•		•	•	•
REFTEC	934	£300	20	13.8VDC	•						•		•	•	•
RDEL	RVC 220	£50	40	13.8VDC	•						•		•	•	•
ROTEL	RVC 230	£70	40	13.8VDC	•				•	•	•		•	•	•
ROTEL	RVC 240	£90	40	13.8VDC	•			•	•	•	•		•	•	•
SIRTEL	SEARCHER	£40	40	13.8VDC	•						•		•	•	•
TANDY	TRC2001	£80	40	13.8VDC	•						•		•	•	•
TANDY	TRC2002	£70	40	13.8VDC	•						•		•	•	•
TANDY	TRC2000	£100	40	13.8VDC	•			•	•		•		•	•	•
TANDY	TRC1004	£79	40	12VDC	•						•		•	•	•
TANDY	TRC2003	£130	40	13.8VDC	•						•		•	•	•
UNIDEN	UNIACE 100	£69.95	40	13.8VDC	•						•		•	•	•
UNIDEN	UNIACE 200	£89.95	40	13.8VDC	•			•	•	•	•		•	•	•
WAGNER	9000	£59.95	40	13.8VDC	•				•		•	•	•	•	•
WAGNER	COMPACT 40	£25	40	13.8VDC	•						•		•	•	•
WESTERN	COMPACT 40	£34.50	40	13.8VDC	•						•		•	•	•
WESTWARD	P.T.2	£159.95	40	13.8VDC 240V	•						•		•	•	•



NAME	MODEL	RETAIL PRICE	NO OF CHANNELS	SUPPLY VOLTAGE	SQUELCH	NB SWITCH	ANL SWITCH	MIKE GAIN	RF GAIN	TONE CONTROL	S/R F METER	S/R F LED R/O	HI/LO OUTPUT	PA FACILITY	EX. SPEAK
AUDIOLINE	345	£139.95	40	240VAC	•			•	•	•	•		•	•	•
COMMTEL		£65	40	240/12V	•						•		•	•	•
DNT	B40	£TBA	40	240VAC	•						•		•	•	•
DNT	B2740	£TBA	40	240VAC	•						•		•	•	•
DNT		£TBA	40	240VAC	•				•		•		•	•	•
FIDELITY	CB 3000M	£125	40	240VAC	•				•	•	•		•	•	•
GRANDSTAND	BASE	£220	40	240VAC	•				•		•		•	•	•
HAM INT.	JUMBO	£254	40	240VAC	•		•	•	•		•		•	•	•
HAM INT.	CONCORDE II	£164	40	240VAC	•	•	•		•		•		•	•	•
HARVARD	H401	£149.95	40	240VAC	•			•	•		•		•	•	•
MIDLAND	76-200	£150	40	240VAC	•						•		•	•	•
UNIDEN	UNIACE 300	£149.95	40	240VAC	•			•	•	•	•		•	•	•
WAGNER	BASE	£150	40	240VAC	•		•		•	•	•		•	•	•
WESTWARD	P.T.2	£159.95	40	240V/12V	•						•		•	•	•

# MOBILES

TX IND. LIGHT	RX IND. LIGHT	CH 9 SWITCH	MIKE POSITION	COMMENTS	ADDRESSES	NAME
•	•		FR	Report July '83	E.M.S. Communications, Grove St, Wantage, Oxon LX21 7AD	MERCURY
•	•		FL		Murphy Electronics, Wemby, Middx	MURPHY
•	•		FL		K.B. & Co Ltd, 202 Cheetham Hill Rd, M/cr.	MUSTANG
•	•	•	FL			MUSTANG
•			FL		Roger D, 831 Mansfield Rd, Nottingham NG5 3GF	NATO
•			SL	Report January '83		NATO
		•	FL	Cybernet 134 chassis rep. April '82	S.M.C. Runbridge St, Totton, Hants SO4 4DP	OSCAR
			FL	Report Oct '83		OSCAR
•			FL		RF Technology, Leyton Ave Ind Est, Mildenhall, Suffolk	REFTEC
•			FL	Cybernet chassis	Rotel Hi-Fi, 2-4 Erica Rd, Stacey Bushes, Milton Keynes	ROTEL
•	•	•	SL	Cybernet chassis		ROTEL
•			SL	Cybernet chassis		ROTEL
•			FL			SIRTEL
•	•		SL		Tame Way, Tower Bridge St, Walsall, Staffs	TANDY
•			SL			TANDY
•			SL			TANDY
•			SL	Report Nov '82		TANDY
•			SL	Report Sept '82	Cravenminster Ltd, Unit 8, Ind Est, Llandudno Junct, Gwynedd	UNIDEN
•	•		FL	Report Feb '83		UNIDEN
•	•		FL		Knight Communications Ltd, Unit 19, Britannia Est, Leagrave Rd.	WAGNER
•	•		FL		Luton, Beds	WAGNER
•	•		SL		Western Electronics, Fairfield Est, Louth, Notts	WESTERN
			FL	Report Nov '83	Westward Electronics, The Mill House, Westward Tuckenhay, Totnes, Devon O86423 336/370	WESTWARD

# BASES

TX IND. LIGHT	RX IND. LIGHT	CH 9 SWITCH	MIKE POSITION	COMMENTS	ADDRESSES	NAME
•					Telecomms, 189 London Rd, North End, Portsmouth, Hants	AUDIOLINE
			FR	Report December '83. Also comes with telescopic antenna		COMMTEL
•			FL	Rewiew May '82		DNT
•		•	FR	Report May '82		DNT
•		•	SR	Report May '82		DNT
		•	FL		Fidelity Radio Ltd, Victoria Rd, London NW10	FIDELITY
•			FL		Bee Ware Ltd, Rippon Way, Harrogate, N Yorks	GRANDSTAND
•			SL		Telecomms, 189 London Rd, North End, Portsmouth, Hants	HAM INT.
•	•	•	FL			HAM INT
•			FL			HARVARD
•	•		FL			MIDLAND
•			FL	Reviewed August '83	Cravenminster Ltd., Unit 8, Industrial Est, Llandudno Junction, Gwynedd	UNIDEN
•			FL		Knight Communications Ltd, Unit 19 Britannia Est, Leagrave Rd, Luton LU3 1RJ	WAGNER
			FL	Report Nov '83	Westward Electronics, The Mill House, Tuckenhay, Totnes, Devon, Totnes, Devon O80423 336/370	WESTWARD



# REFERENCE



NAME	MODEL	RETAIL PRICE	NO. OF CHANNELS	SUPPLY VOLTAGE	SQUELCH	NB SWITCH	ANL SWITCH	MIKE GAIN	RF GAIN	STONE CONTROL	S/RF METER	S/RF LED R/O	HI./LO OUTPUT	PA FACILITY	EX. SPEAKER
DNT	HF 12/3	£47.55	3	BATTERIES	•										
KAISER	CBX40	£80	40	BATTERY	•						•		•		•
MAXCOM	7E	£49.95	40	BATTERY	•								•		
MIDLAND	75-720	£59.95	40	12VDC	•								•		
TANDY	TRC1001	£119		BATTERY	•						•		•		•
WESTWARD	PT2	£159.95	40	Int. Batt.	•						•		•	•	•

# PHONE CHECKLIST

NAME	MODEL	PRICE	FREQUENCY	RANGE	RECHAR. BATT.	IN USE LAMP	INTERCOM	AUTO DIAL	EXTERNAL ANT.	SECURITY CODE	HANDS FREE
A-PHDNE	TP125	£80	49MHz., 1.6-1.8MHz	230m	•	•	•	•			•
FIDELITY	WANDERER	£170	47MHz., 1.7MHz	200m	•	•	•	•	•	•	
FREEDOMPHONE	3500	£199	49MHz., 1.7MHz	200m	•	•	•	•			
HANDY PHONE	HP 1001	£199	49MHz., 35MHz		•	•	•	•	•	•	
MAXCALL		£116	49MHz., 1.7MHz	100m	•	•	•	•			•
MAXCOM	MCP150A	£89	49MHz., 1.6-1.8MHz	800m	•	•	•	•			
MAXCOM		£99	49MHz., 1.7MHz	200m	•	•	•	•			
PACER	7800	£149	49MHz., 1.7MHz	600m	•	•	•	•			
SUPERFONE	CT600	£115	49MHz., 1.7MHz	100m	•	•	•	•			
SUPERFONE	CT650	£199	49MHz., 1.7MHz	230m	•	•	•	•			•
SUPERFONE	CT505	£299	49MHz., 70MHz	1Km	•	•	•	•	•	•	

# PORTABLES

TX IND. LIGHT	RX IND. LIGHT	CH 9 SWITCH	MIKE POSITION	COMMENTS	ADDRESS	NAME
					Solid State Electronics (UK), 41 Twyford Ave, Shirley, Southampton (Tel: 0703 7803 780335)	DNT
					A.T.M., AM House, 9A Old's Approach, Tolpits Ln, Watford Herts	KAISER
					Plustronix Ltd., Hempstalls Ln, Newcastle-under-Lyme, Staffs	MAXCOM
					Tame Way, Tower Bridge St, Walsall	MIDLAND
					The Mill House, Tuckenhay, Totnes, Devon 080423 336/370	TANDY
			FL	Report Nov '83		WESTWARD

The range of telephones and communications accessories available to the consumer is increasing rapidly. Not all equipment is approved by British Telecom — so look for the tag with the green dot if you want 'BT Approved' accessories.

# CORDLESS PHONE

STANDBY	BATT. IND.	PRIVACY BUTTON	COMMENTS	ADDRESS	NAME
			Report Feb '84		A-PHONE
			Report July '83 BT Approved	Fidelity Ltd., Victoria Rd., London NW10	FIDELITY
			Report May '83		FREEDOMPHONE
			Report Aug '83	Thanet Electronics Ltd., Reculver Rd., Baltinge, Kent	HANDY PHONE
			Report June '83		MAXCALL
			Report Oct '83	Maxon Group, AM House, 9A Old's Approach, Tolpits Ln., Watford, Herts	MAXCOM
			Report May '83		MAXCOM
			Report May '83		PACER
			Report April '83	Superfone Communications, London NW2	SUPERFONE
			Report April '83		SUPERFONE
			Report April '83		SUPERFONE



# ANTENNA CHECKLIST

## The Citizens' Band Antennas

**Name**  
Lists antennas by name and model number and gives you, where possible, the name and address of the manufacturer or distributor.

**Construction**  
The majority of home base antennas are made of aluminium and mobile antennas from stainless steel, but fibre glass can be

The D.T.I. specs for CB antennas are now more liberal than those originally in force, with the base loading restriction removed to permit any type of loading as long as the antenna is 1.65m in length (or less) and no more than 55mm in diameter. This revised checklist now includes the many new antennas released after this change of heart.

CONSTRUCTION	LENGTH	MAX POWER	TYPE	LOADING	MOUNT	PRICE RANGE
AL	1.5	100	B	B	Pole	D
AL	1.5	500	B	B	Pole	E
AL	1.64	500	B	B	Pole	F
AL	1.64	500	B	C	Pole	C
SS	1.06	1000	M	B	Surface	F
SS	1.06	1000	M	B	Spring Surface	F
SS	1.06	1000	M	B	Boot lip	F
SS	1.06	1000	M	B	Spring Boot lip	G
SS	1.06	1000	M	B	Mag.	G
SS	1.06	1000	M	B	Spring Mag.	G
SS	1.06	1000	M	B	Side	G
SS	1.06	1000	M	B	Side, Fold over & Quick Disconnect	G
SS	0.5	50	M	B	1/8" thread	D
SS	1.22		M	B	Stud	D
SS	1.22		M	B	Trunk	E
SS	1.22		M	B	Mag.	E
SS	1.22		M	B	Mag.	G
SS	1.42		M	B	Mag.	G
SS	0.61		M	B	Mag.	F
SS	1.22		M	B	Mag.	F
SS	1.42		M	B	Mirror	F
SS	1.42		M	B	Drill Thru	E
SS	1.22		M	B	Drill Thru	E
SS	1.42		M	B	Various	D
SS	1.22		M	B	Various	D
SS	1.42		M	B	Various	D
SS	1.22		M	B	Various	D
SS	1.62	1000	M	B	1/8" thread	C
SS	1.38	1000	M	C	1/8" thread	E
AL	1.65	1000	B	T	Pole	E
SS	1.5		M	B	Various	C
AL	1.5		B	B		D
SS	1.5		M	B	1/8" thread	
FG	1.6		M	B	1/8" thread	
SS	1.5		M	B	1/8" thread	
AL	1.5		B	B	1/8" thread	
AL	1.6		B	CW	Clamp	
SS	1.5		B	B	Pole	
SS	1.5		B	B	Clamp	
SS	1.5		B	B	Clamp Tripod	F
AL	1.5	250	B	B	Pole	E
AL	1.5	500	B	B	Pole	F
A1	1.65	500	B	C	Pole	F
AL	1.5		B	B	Pole	D
AL	1.5		B	B	Bracket	C
AL	1.5		B	B	Bracket	D
AL	1.65		B	C	Pole	D
AL	1.65		B	C	Bracket	E
AL	1.65		B	C	Bracket	E
AL	1.65		B	C	Bracket	E
SS	1.65		M	C	1/8" thread	E

## na Checklist will give you the following information:

used in some models. The list tells you what material the antenna is manufactured from.

### Length

The legal maximum length of an antenna is 1.65m, base or mobile.

### Maximum Power

This is intended as a guide

only, as the law only permits an effective radiated power of two watts. The power rating will give some indication of sturdiness. Figure refers to watts.

### Type

Indicates whether a mobile or base antenna.

### Loading

Indicates the type of

electrical loading of the antenna; top, centre, bottom or continuously wound.

### Mount

This gives some idea of the mount or type of mount appropriate for the antenna concerned. Home base antennas are usually pole

mounted, but can be house gutter mounted. Mobile antennas are either mag. mounted by a strong magnet, attached to the car gutter or boot lid edge whilst others are physically attached in the same way as a car radio antenna. Mobile antennas with 3/8" thread usually will fit a range of mounts.



KEY	
<b>Construction</b>	<b>Loading</b>
SS — Stainless Steel	T — Top
AL — Aluminium	C — Centre
FG — Fibreglass	B — Base
<b>Type</b>	CW — Continuously wound
B — Base	<b>Price Bands</b>
M — Mobile	A — £1-£4.99
	B — £5-£9.99
	C — £10-£14.99
	D — £15-£19.99
	E — £20-£24.99
	F — £25-£29.99
	G — £30-£39.99
	H — £40 plus.

NAME	ADDRESSES	MODEL	CONSTRUCTION	LENGTH	MAX POWER	TYPE	LOADING	MOUNT	PRICE RANGE
HAM	Dials Wholesale, Unit 8, Block 2, Whitgate Indust. Est., Bathgate, West Lothian	Balcoster DV27	AL	1.2	200	B	C	Bracket	D
		DV27TW	FG	1.39	100	M	T		B
			FG	1.19	100	M	T		B
HOT ROD	Stateside Trading Ltd, Audley Avenue, Newport.	FM UK	SS	1.27		M	B	3/8" Thread	B
LES WALLEN MANF.	Pembroke Works, Ramsgate Road, Sandwich.	Modulator LC	SS	1.55	1000	M	B	3/8" Thread	C
		M.D.X. Long	SS	2.00	1000	M	B	3/8" Thread	C
		M.D.X. Short	SS	1.65	1000	M	B	3/8" Thread	C
		Mini M.D.X.	SS	1.10	100	M	B	3/8" Thread	B
		Mini 27	SS	1.40	500	M	B	3/8" Thread	B
		Thunderbolt	SS	0.83	200	M	B	3/8" Thread	B
		Saturn	AL	1.00	500	B	CW	Pole/wall	B
Exper	AL	1.00	1000	B	C	Pole/wall	F		
R.W. BADLAND LTD.	Roatan Trading Estate, Providence Street, Lye, Stourbridge, West Midlands (Lye 3160/5051)	Rabel 1	SS	1.5	500	M	B	3/8" Thread	
		Rabel II	SS	1.5	500	M	B	3/8" Thread	
		Rabel Raider	SS	1.6	500	M	C	3/8" Thread	
		Rabel Bullet	SS	0.61	50	M	B	3/8" Thread	
		Rad Devil	SS	1.52	500	M	CW	3/8" Thread	
REVCO	Telecomms, 189 London Road, North End, Portsmouth.	Revco	SS	1.0	100	M	B	Various	B
SMC	Rumbridge Street, Totton Street, Hants	Oscar CBA 11GP	SS	1.5		B	B	Mag. Foldover Base Pull up Foldover Base	F
		Oscar 11V11S11	SS	1.5		B	B		D
		Oscar 11CM	SS	1.2		M	B		C
		Oscar 11CE	SS	1.2		M	B		C
		Oscar 11NE	SS	1.5		M	B		C
		Oscar 11SE	SS	1.5		M	B		C
		Oscar 11ZE	SS	1.6		M	B		C
TAGRA	CB Radio Centre, 337 Kenton Road, Middlesbrough.	T40	SS	1.4	500	M	B	Various	E
VALOR	W.T.A. Electronics Ltd, 111 Cromer Road, Halesdon, Norwich (0603 47694)	Warrior 650	SS	1.52	1500	M	C	3/8" Thread	C
		Half Breed 520	SS	1.52	1500	M	B	3/8" Thread	C
		Half Breed 510	SS	1.2	1500	M	B	3/8" Thread	C
		Half Breed 500	SS	0.9	1500	M	B	3/8" Thread	C
		Dial-a-Match 540	SS	1.2	100	M	B	3/8" Thread	C
		Dial-A-Match 530	SS	0.6	25	M	B	3/8" Thread	C
		Rubber Duck 300	SS	0.36	25	M	CW	3/8" Thread	E
		Pro Am PLB 27	SS	1.52	200	M	B	3/8" Thread	D
		Road Hog 338	FG	0.9	1000	M	T	3/8" Thread	D
		Road Hog 335	FG	1.2	1000	M	T	3/8" Thread	D
		Road Hog 336	FG	1.52	1000	M	T	3/8" Thread	D
		Road Hog 337	FG	1.75	1000	M	T	3/8" Thread	D
		Road Hog 831	FG	0.5	500	M	T	3/8" Thread	D
		Road Hog 838	FG	0.9	1000	M	T	3/8" Thread	D
		Road Hog 835	FG	1.2	1000	M	T	3/8" Thread	D
		Road Hog 836	FG	1.52	1000	M	T	3/8" Thread	D
		Black Magic 333 1/2	FG	0.75	500	M	T	3/8" Thread	D
Black Magic 333	FG	1.2	500	M	T	3/8" Thread	D		
Black Magic 332	FG	1.52	500	M	T	3/8" Thread	D		
Black Magic 333 1/2	FG	0.75	500	M	T	3/8" Thread	D		
Black Magic 833	FG	1.2	500	M	T	3/8" Thread	D		
WTA	W.T.A. Electronics Ltd, 111 Cromer Road, Halesdon, Norwich. (0603 47694)	Wot Pole 1	AL	1.5	1000	B	B	Pole	B
		Wot Pole II	AL	1.5	1000	B	B	Pole	C
		Wot Stick I	SS	1.5	1000	M	B	3/8" Thread	A
		Wot Stick II	SS	1.5	1000	M	B	3/8" Thread	B
VAN ORDT	Knight Communications, Unit 19 Britannia Estate, Leagrave Road.	Audio King	SS	1.5	2000	M	B	3/8" Thread	G



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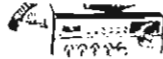
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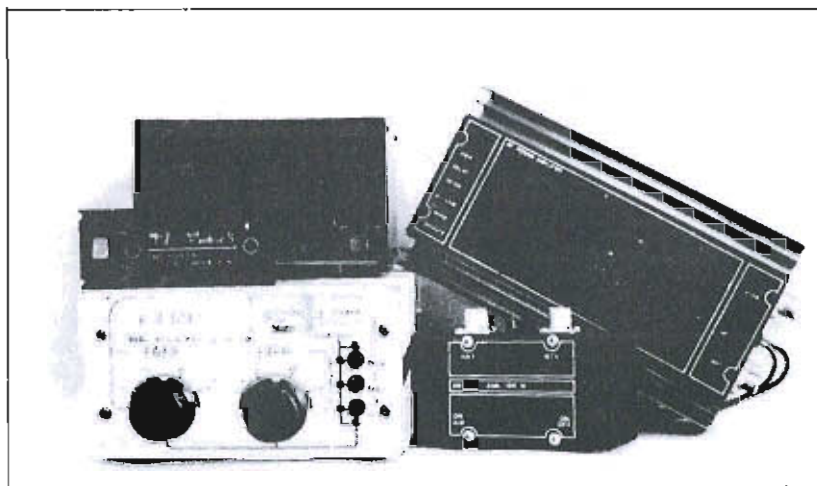
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