Practical CB

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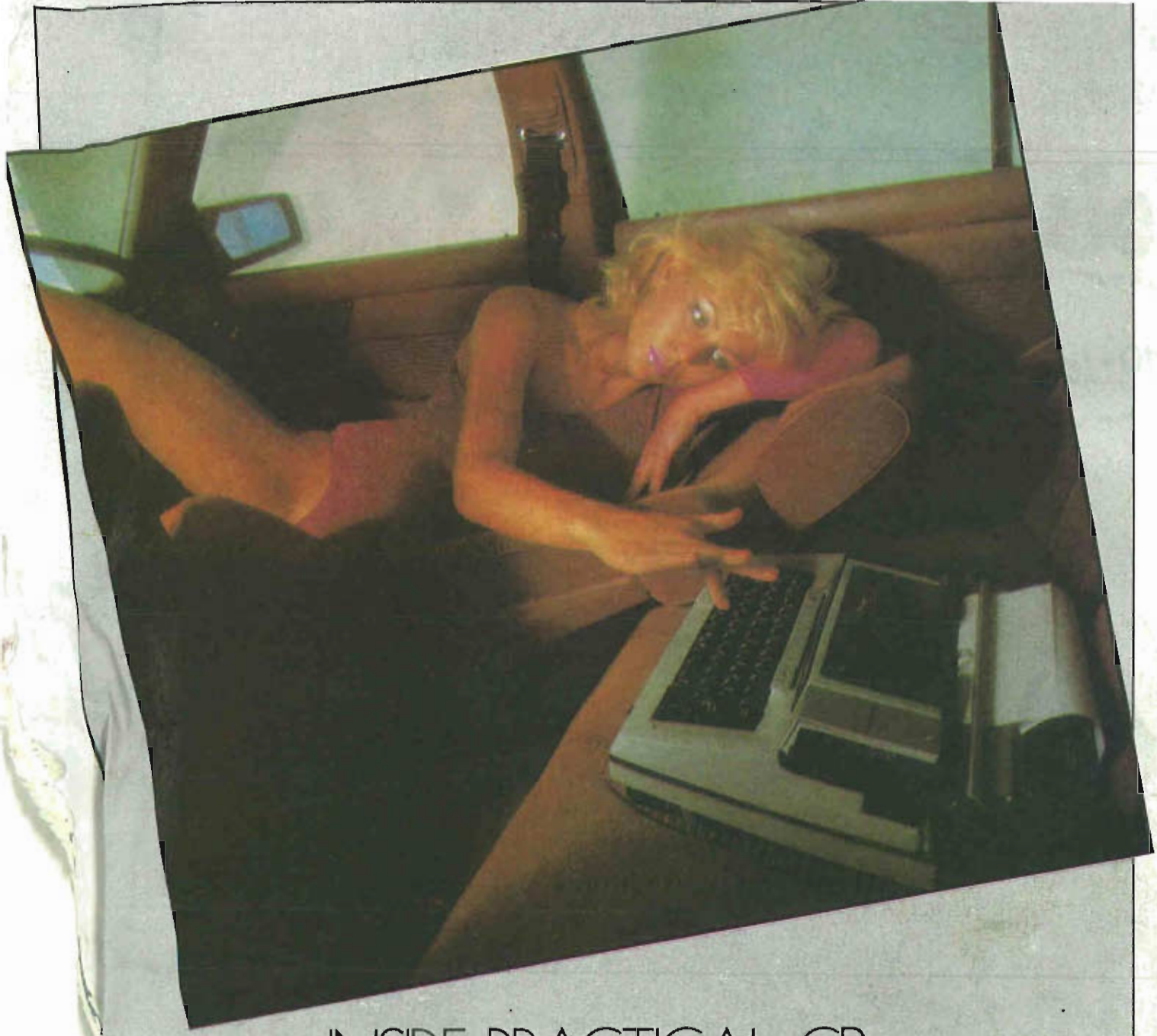

INSIDE PRACTICAL CB

the time you get your grubby little nds on *Practical CB*, citizens' band radio ll have been legalised — just — and 'll probably be thinking about buying a . Of if you haven't yet mastered the go, a CB radio set.

On the other hand, you'll have already en on channel for a time (albeit illegally) d are wondering whether you should nge your AM illegal rig to the now-alised FM type. Well, first of all, you rtainly **should** change, because nsmitting on *AM* is a crime. But condly, why don't you try it? FM I mean. *Practical CB* is timed to appear on alisation day — November 2, 1981 — d inside you'll see information, specifications and prices of many of the *latest legal* equipment to help you decide what you want. But before you buy, read *Practical CB* first. Discover what CB can do for you, how much fun it can be and even how it can help save lives. It is a radio that should find a home in everybody's car and home, because it's a call for help if needed, and it means you can talk to passers by, neighbours, and even order your goods from the local shop, assuming the aforesaid shop is fitted out with CB.

If you look **really** closely, you'll find a word in the magazine title — practical. Yes, that's the one. Now, that means we've gone all DIY and well, practical, and inside are features on fitting rigs to your car, to your home, and antennae to your chimney and car bodywork. In fact, everything you need to get started properly.

CB is going to soar in popularity now it's legalised. Here you'll find all the information you need in order to get started. Plus, there's a lot of expert information of interest to the already-experienced breaker. And if you're still looking for something else, there's a special feature on amateur radio. But that's another story.

CHRIS DRAKE

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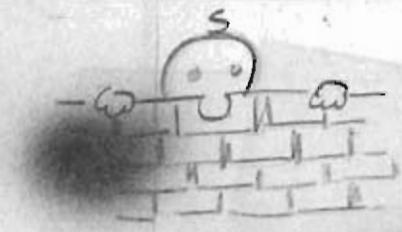

WATCH THIS SPACE!

Why what's it doing?

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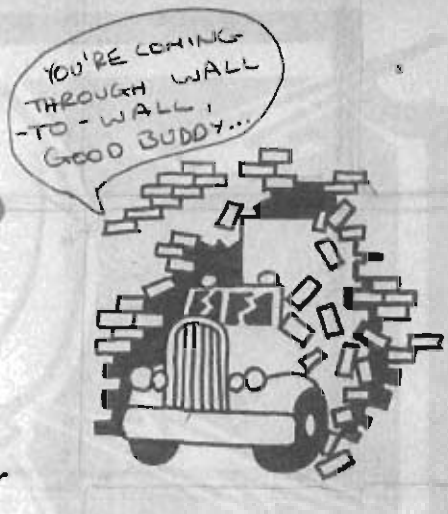

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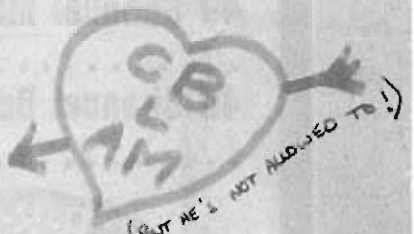

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Q&A

IF YOU DON'T ASK YOU DON'T GET

I am the owner of an AM CB rig, and now that "breaking" is legal, I would like to know if I can have my gear converted to FM.
BIG DADDY COVENTRY.
The quick answer is no. The basic technology involved in an AM rig is so different from that of an FM set, that conversion is impractical and could cost more than a new rig. However, rumour has it that there is a market for second-hand AM gear which can be used in other countries. If some enterprising firm could come up with an economic rig conversion there is plenty of trade waiting. We hear that there is already one outfit in this business.

How do you convert frequency to wave length? I am always getting confnsed, especially when talking to hams.
RANGER, GLASGOW.
The answer is quite simple. Divide the frequency (or wavelength) you want to convert into 300,000. In this way 1500 metres becomes 200kHz. Similarly Radio One on 1053kHz becomes 285 metres. Get it?

I have been trying to get into elementary radio theory and am rather puzzled by "Ohms law" which is very important in this subject. Could you explain it to me please?
BANGER BERT, LLANDUDNO.
Basically, the law revolves around three variable components — voltage, current and resistance, or V, I, and R. The equation from which all problems are worked out is R = V/R, which can be transposed to read V = I x R or I = V/R. If, therefore, any TWO components (or values) in a circuit are known, then the third can be worked out.

My mate says that buying co-ax for antenna feeds is a waste of money, and ordinary flex is just as good. Is this right?
SIDEWINDER, PRESTON.
Tell your mate he's way out, Sidewinder. Co-ax is the correct impedance (or resistance, if you like) to match your rig, and the brading absorbs electrical interference.

I have just had my AM rig stolen from my car, is there anything that I can do about it?
EX-BREAKER, LIVERPOOL.
Short of calling in Shoestring, no. Quite apart from the fact that your rig is probably long (and far) gone by now with little chance of recovery, the Old Bill would probably take more interest in your illegal activities than in assisting you to trace your equipment. Write it off to experience, get an FM rig and insure it!

How can I "fuse" my rig if not taking the power supply from the normal car fuse block?
BLUE SUEDE SHOES, NORTHAMPTON.
*In the first place, the power supply for rigs **should not** be taken from the fuse-block as this gives rise to electrical interference from other components of the motor. As you have already done, power should be taken direct from the battery, and an in-line fuse should be inserted. This is usually a plastic pod, about 1½ inches long containing the usual type of fuse, is sprung-loaded for access, and is just wired in series with the positive power lead to the rig.*

As the girl-friend of a CB enthusiast, the only objection I have to breaking is the American slang, not to mention the cheap imitation American accents. We are British, proud of it, and don't have to sound like Yankee truckers! Can anything be done about this stupid habit?
BOBBY'S GIRL, ASHTON-UNDER-LYNE.
Couldn't agree more. Unfortunately, when CB came to this country, all breaker terms were American and to many, the accent went with the chewing-gum. However, a good solid, patriotic, British lingo is in the process of evolving and given a little time, CB will be as English as the House of Lords.

I am experiencing interference from my car's electrics despite using screened leads on my twig. How do I suppress my car?
BIG EARS, WALTHAMSTOW.
The main sources of electrical interference on motor cars emanates from spark plugs, distributor and dynamo. But first get one thing straight: you don't suppress interference, you change its frequency so that it doesn't interfere any more. To do this, you buy small bullet-shaped units to insert in the relevant car circuits and there are now special "suppressed" plug-leads on sale. But be warned — you might have to try several suppressor units before finding the right one for you.

I keep hearing the expressions "connected in series" and "connected in parallel". Is this important?
HOBO, PERTH.
We should say it is, actually . . .
*Connecting in series is like putting up the Christmas lights — all strung together one after the other, and if one bulb blows they all go out. Parallel connection on the other hand, involves connecting each bulb separately to **both** sides of the circuit. Voltage-wise, you can light 20 12 volt Christmas tree lights from the mains if in "series" because their voltage-capacities are **added**: if they were connected in **parallel**, each bulb would get 240 Volts!*

Just before CB was made legal, I was "broken" by the law and my case comes up in the fairly near future. As CB is now authorised, can this go in my favour? Alternatively, how can I fight the case?
JOHN BALMER, WEYBRIDGE.
*Well, John, we're not lawyers, but we can offer advice in the light of experience of other cases. Firstly, no subsequent legislation can excuse breaches of the law made prior to the passing of such legislation. If, as I suspect, the authorities have irrefutable evidence of your installing and using CB equipment (sighting, recording, etc) there is not a great deal to fight **with**! The best you can do is to obtain the services of a good soliciter who can at least ensure that whatever punishment is handed out is in line with, and certainly not in excess of, that prescribed in similar cases in your area. Certainly, taking the line that "there are two million others at it" will do you no good at all.*

I am considering getting myself a sideband transmitter for CB use. Firstly, how do they get 140 + channels from a basic 40-channel system and what are the advantages.?
LONG JOHN, CHELMSFORD.
Firstly, John, having at last got your legal status as a breaker, consider that you will remain illegal if you are going sideband! Having said that, the way it is done is to split the 40 channels of 10kHz each into three channels of 3kHz, and 3 x 40 = 120 with a few tacked on at the top and bottom of the CB band. That is very basic, but each 10kHz channel then has an upper, and lower sideband with a "straight" channel sandwiched in between. As for the advantages, sidebanders enjoy a greater degree of selectivity, and, it is said, four times the power.

As I am using a lot more electricity from my battery now that I have got a CB rig, I would like to mount an ammeter to give some indication as to the condition of my battery. How do I do this?
TEDDY BEAR, NOTTINGHAM.
Fitting an ammeter won't necessarily indicate your battery's condition, only what is going in our out. It may, on the other hand, indicate the "need" of the battery by the degree of charge — 30amps end it is just about clapped! To fit one, the mainlead from the positive side of the battery should be cut, with the battery disconnected, of course! A VERY HEAVY DUTY twin cable should then be connected to the cut ends and taken through to the driving compartment, and attached to the terminals of the ammeter WITH ADEQUATE INSULATION. Should the reading be inverted when you start the motors (shows charge when it should be discharged) disconnet the battery again and reverse the connections on the ammeter.

I am a little confused by the terms RF, IF, and AF as used in radio. Could you explain them to me please?
FAT HERBIE, BARNET.
The three terms are Radio Frequency, Intermediate Frequency and Audio Frequency, and refer to the three basic frequencies as used on radio transmitters and receivers. RF is the transmitted frequency (in your case 27mHz) which has electro-magnetic and electro-static components — the "carrier" for your speech. Intermediate frequency is that which, having been mixed with the output of a local oscillator to provide selectivity from interference in your receiver, is changed to audio frequency in the domodulator.

Since my husband got himself a CB rig, he spends all night chatting up his pals, and less and less time on me. Is there anything I can do to regain his affection without depriving him of his new toy?
FRUSTRATED, HULL.
Apart from calling any male member of the Practical CB *office, I would suggest a new nightie, a visit from the Avon Lady, and connect his base rig to the bedside table — on your side.*

As there will almost certainly be more FM users than AM users now that CB is legal, will a guy with an AM rig be able to talk to another with an FM buzz-box? For that matter, can someone with a 40-channel rig talk with a side-band breaker?
ROCK-ON TOMMY, BIRMINGHAM.
The answers to your questions are, unfortunately, no. The modulation envelope for FM is entirely different from that of AM, which makes them completely incompatible. As for a straight channel user talking to someone on the side, this is impossible by virtue of the fact that the straight user is occupying about 10mHz of band, whilst the sideander is using only around three.

I want to fit a CB rig to my Honda motorcycle. Could you please advise on the best way of doing it?
TON-UP, BRIGHTON.
Fitting rigs to bikes can present physical problems, but as the metal mass of the machine acts as a ground plane (perhaps not as effectively as the flat roof of a car), reasonable results can be expected. I do have personal reservations when it comes to the safety aspects of bike breaking, as riders require two feet and two hands to make biking work. As bikes very in design it would be impossible to advise on methods of fitting, but it should be fixed to the rear, NOT to any glassfibre feiring. In fact, you could do worse than copy police motorcycle methods — next time you get stopped by one, ask him.

If we could answer several other queries that have arisen on the subject of ground plane, it would get the pile of letters in our in-tray down a bit. Owners of glassfibre boats have a problem when it comes to fitting rigs, as there is very little metal to act as a ground plane. Nevertheless, a couple of square feet of metal would be sufficient, or even mounted near the water. This method of fitting, if possible, would provide the best possible ground plane as water is of uniform conductivity, which is ideal.

Strangely enough, the ground itself does not act as a good plane, principally because earth is not of uniform conductivity and some form of earth mat or metal sheeting is required to provide this.

I have been considering using my base rig as a baby alarm, thus enabling my wife and I to visit neighbours in the evening. Is this feasible?
D. COCKERHAM, WORTHING.
Apart from the fact that it is illegal to leave a child under the age of 12 in a house unaccompanied by an adult (even if you are next door!) — yes it is feasible. But even if this system were adopted within the house, it would be an expensive baby alarm as leaving the transmitter switched on for long periods of time would empty a 12 volt battery or use a great deal of current — quite apart from not doing the rig a lot of good! Furthermore, you would need some form of "bleeping" device as used by the police to ensure that the channel remains open. Apart from driving you up the wall in the course of an evening, it would probably wake the baby anyway. On the other hand, you could train junior to switch on the rig when he cried!

My mate got broken recently and the guy from customs said that it was up to my mate to prove that he didn't buy an imported CB. Surely this is wrong, and it's down to customs to prove that he did buy an imported rig?
BIG D., BURY.
Sorry to tell you this, but your mate is wrong. When it comes to Customs and Excise, the law is not the same as in other spheres where the burden of proof is on the prosecution. Seams unfair, I know, but that's how it is.

I am a senior citizen who has taken up breaking as a retirement hobby. Unfortunately I live in a council house which has no garage, and my antenna is always being vandalised. My CB equipment is insured, but with a £7 excess, it isn't worth claiming for a £10 twig, as I would only get a couple of quid back. Is there nothing that can be done about this?
OLD JOE, NEWCASTLE.
This is a difficult one, as short of sleeping in your car to protect your property, or calling the law — who would probably arrive too late — there is very little that can be done. One answer is to cut your losses and buy either a mag mount (or a gutter mount) that can be easily removed at night, or go the whole hog and get yourself one of the retractable twigs. I know it is wrong that you should have to go to this expense, but in an imperfect world, that's life.

I drive a Ford Escort in club rallies and was considering the use of CB as a means of communicating with my service crew. Would this be a viable proposition?
W. TOMLINSON, BRISTOL.
It depends largely on several things. Firstly, as you can only reasonably expect a range of five miles on direct wave, your service crew would have to be within that radius. It is possible that you could contact them over a greater distance, but not with any degree of certainty. Secondly, if the area in which you are competing is reasonably flat, and there are no tall buildings in the vicinity, you would probably get reasonable contact; hills and especially mountains are death to direct waves. Lastly, if other drivers or spectators have the same idea, the channels could get a little overcrowded. The quick answer to your question is yes — but within certain limitations.

I have just taken up base breaking, and with a king-sized antenna strapped to the chimney, I am more than a bit worried about TVI, and getting "done" for it. Is there anything I can do about it?
WORRIED, LEICESTER.
A very commendable attitude, if I may say so — even if you are looking after your own skin! People are really very approachable. If you were to go round all of your neighbours and explain, quietly, to them that you will be transmitting on a certain night, and that if they get any interference, would they be kind enough to let you know so that you can rectify the problem, I think you'll find they will respond. What gets people's backs up is the inconsiderate burke who blasts away without so much as a by your leave.

What's wrong with us breakers? Just because me and my mates dress trendy and got rigs and that, older people treat us like dirt. So we don't work, but we paid for the rigs out of us national assistance which is more than they can say about their houses! So it gets a bit noisy at night after the disco finishes, but the cops soon sort that out because they are always waiting for us. They watch us all the time. We think older people are just jealous. Live and let live that's what we say.
NO HANDLE SUPPLIED.
You got it in one, live and let live. And you aren't doing a lot of that either! If you are claiming the freedom that allows you to do your own thing, you must allow others the same privilege. They aren't jealous of you, they just despise scruffy layabouts who have nothing better do do than annoy people. If the police are protecting the interests of these older people — which probably means anyone over 30 — they have every right to expect such protection. They, after all, are making their tax and rate contributions to society, which is more than you and your mates are!

Why is everybody getting so uptight about the government allowing the use of FM instead of AM? What difference will it make so long as us breakers can get on the air?
BOMBER, LEEDS.
Mainly because none of them have got FM modulated sets! Primarily, the authorities claim that there is more interference to other radio users from AM CB than from all other sources put together, and that the use of FM will drastically reduce this problem. There are numerous advantages to FM modulation, one of which is that the "capture effect" ensures that when several signals are present on a frequency, if there is sufficient gain, the strongest will dominate. This is not the case with AM; FM "capture effect" allows the same channel to be used by many more stations than would be possible with AM.

Do the police have the right to stop motorists, even if they are not driving under the influence of drink or in a dangerous manner? Having done so, do they have the right to search cars?
SILVER BUCKLES, MANCHESTER.
Yes, they do, on both counts. The police are empowered to stop any vehicle in order to check the roadworthiness of the said vehicle. They also have the right to search a car if they have reason to suspect the implication of the owner in illegal activities. No complaint can be legally upheld for persons so detained but not charged with any specific offence.

As the mother of two (under-25) sons who have CBs, I am disgusted with all the filthy language that I hear over my son's sets. Is there nothing that can be done about it?
MRS MARY SAVAGE, CAMBRIDGE.
In any organisation, there are always the few who spoil it for the many, and CB, unfortunately, is no exception. Let me stress that we at ***Practical CB*** *are no prudes, being quite capable of a few quiet four-letter words in times of stress, but even we are appalled by the blatant use of obscenity by the younger generation in the streets. This I put down mainly to bravado and very often those who use it are disappointed if someone doesn't challenge them about it! The use of foul language over the air, on the other hand, is something else, as it involves hiding behind the anonymity of a microphone, and in my book are no better than dirty old men who make obscene phone calls. It may be illegal, but let's be realistic, the legal aspects of CB haven't worried some breakers in the past, and this particular aspect is hardly likely to worry some of them now. The answer does not lie in trying to instill a sense of responsibility in those who participate in this type of language, as they don't know what a sense of responsibility is. No, the only way of dealing with this disgusting habit (and it is a habit) is to either report it to the authorities and/or report it to the local CB association. These are responsible organisations who really care about the image of CB, who are aware that the movement has to earn the respectability and acceptance of the general public that it seeks, and who can deal with dirt-talkers much more effectively than the law.*

I would like to keep in contact with my home by CB. Will this be a heavy drain on batteries?
BIG BOPPER, MANCHESTER.
I presume you mean ***constant*** *contact with your home base, Big Bopper. The answer depends largely on how much actual transmitting you intend to do, as this is the side of breaking that takes the juice. Thanks to the transistor, receivers draw very little in the way of amperage, and if your talking-type contacts consist of very little more than brief and occasional conversations, you will use very little electricity. As a compromise, you could have a "one way" channel, in that the base rig, driven by mains or mains transformer, could remain switched on all the time, whilst your mobile rig would only be activated when you require to make contact.*

My problem is that I can't charge the battery on my rig fast enough. I have an AM/FM sideband rig with a "boot" and I can only get abont an hour's breaking before I run out of power. Can I charge two batteries at the same time from my alternator? If not, what else can I do?
LONE RANGER, CHELTENHAM.
Throw the boot in the Avon or stop talking so much. If by simultaneous charging you mean just taking a pair of leads from your alternator and "banking up" the second battery, the answer is no. However, Lucas market a unit called a 4BD Split Charging Diode which was designed for caravan users who have a similar problem to yours. Basically, this gadget allows both batteries to "draw" what power they need according to their relative charge conditions.

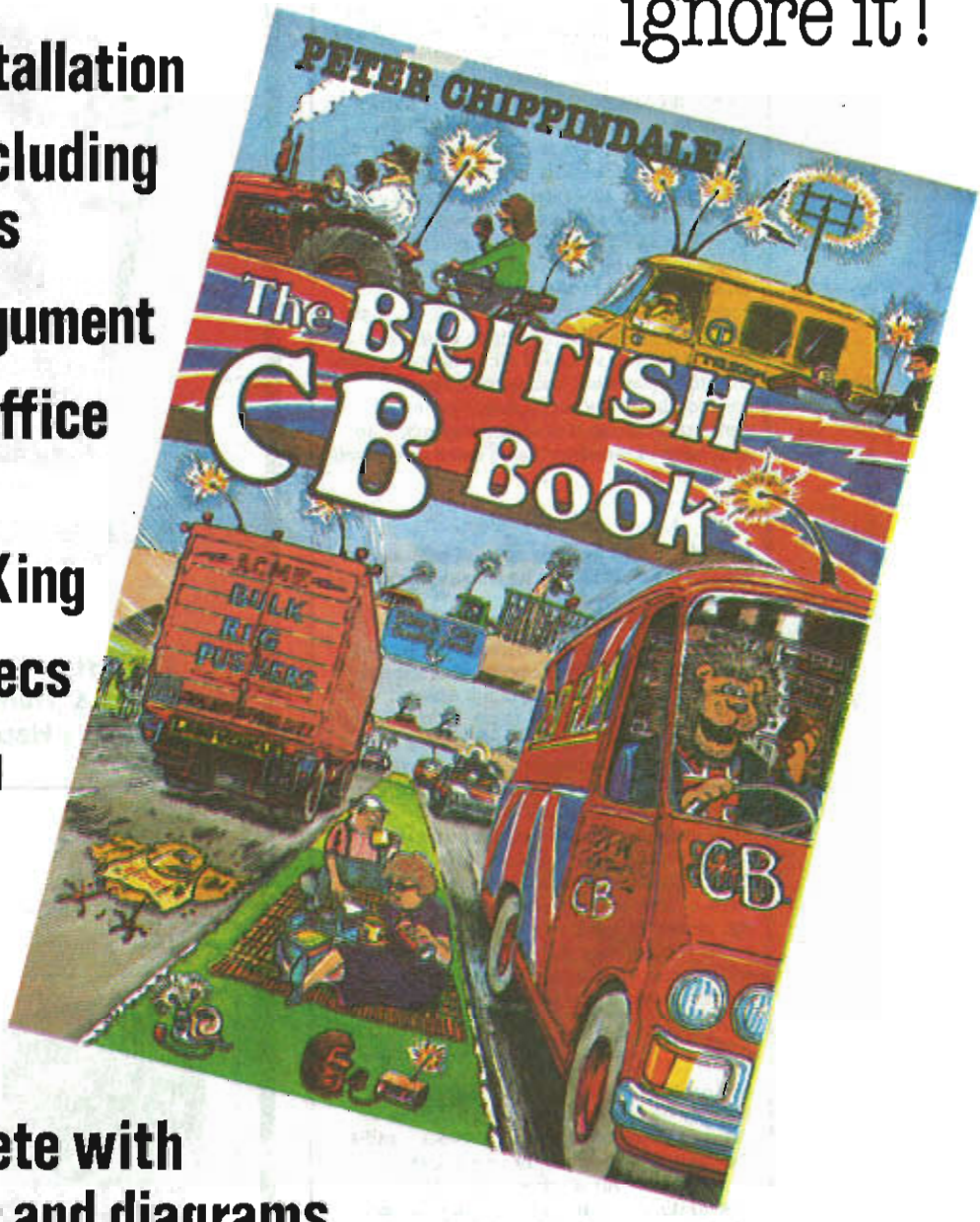
IT'S HERE

From the people who brought you 'The Big Dummy's Guide'...

THE BRITISH CB BOOK

Beginner or expert, you cannot afford to ignore it!

- Equipment & Installation
- British slang including towns and cities
- AM v FM - the argument
- How the Home Office got it wrong
- Sideband and DXing
- Complete FM specs
- The law and you
- Home Office 900 Mhz tests



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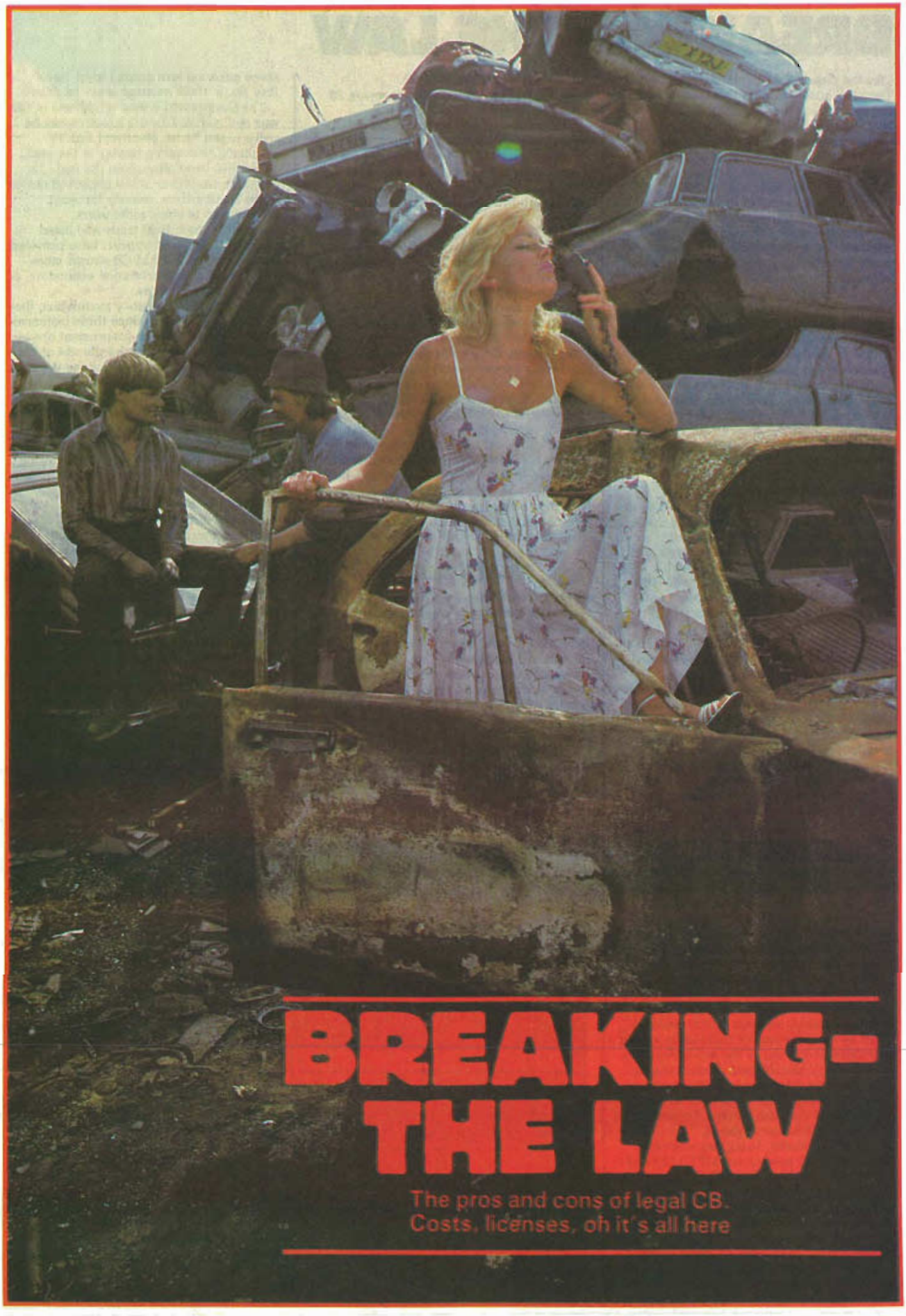


BREAKING-THE LAW

The pros and cons of legal CB.
Costs, licenses, oh it's all here

BREAKING-THE LAW

Like the proverbial reluctant virgin, the Thatcher administration had been blowing hot and cold on the subject of CB for so long that legalisation, when it happened, appeared more as an acknowledgment of fact rather than the granting of official permission.

From complete rejection in 1980, receiving the blessing of officialdom is a U-turn completely unrelated to current governmental policy. But nevertheless, it went some considerable way towards a control and standardisation of CB that was impossible to impose in its lawless state.

On the principle that in any negotiation, agreement is reached through a compromise of conflicting arguments, British breakers have emerged from the frey with most of their flags flying; the fact that frequency modulation (instead of amplitude modulation) has been prescribed might have been a blow to the heart for breakers, but it is a wound that time alone can heal. Unless the government change their minds again . . . Unlikely at the moment.

Perhaps the greatest source of frustration has been the inability or reluctance on the part of the authorities to publicise advance information as to the precise details of the laws they had envisaged with respect to CB. It wasn't as if legalisation was unique, as some 61 countries have already hacked their way through the jungle of legal process to emerge with a reasonably acceptable solution.

It must be remembered that, inasmuch as the operation of CB equipment was illegal until November 2, so too was the manufacture, importing (prior to September 4) and marketing of the said equipment. The difference as far as the manufacturers were concerned was that, apart from maintaining their professional integrity, it was a damned sight easier to conceal a rig in a car than it was to hide a factory!

Annoying though this government reticence may have been to those intending to use CB, manufacturers were reluctant to get themselves tooled up either out of uncertainty or ignorence of the required equipment specifications. Coupled with this the Home Office proposed CB frequencies differed from those recommended by the EEC which provided manufacturers with the time-consuming headache of developing different integrated circuits for the UK market. The knock-on effect of this was a temporary shortage of these circuits and at the same time an estimated increase in demand from two to six million rigs. It created a market vacuum which could be filled by unscrupulous or technically misled exporters at one end of the production line, and similarly misinformed dealers at the other. And as the average British breaker's technical background terminates on the other side of the push-buttons, he wouldn't know the difference anyhow!

The legal citizens' band frequencies as listed in HMSO publication MPT 1320 and MPT 1321 (available from HMSO price £1.90 each) are as follows:

1. 27.60125 to 27.99125mHz, broken down into 40 channels of 10kHz with a maximum frequency error of plus or minus 1.5kHz. Maximum RF power output must not exceed 2 watts ERP and maximum frequency or phase modulation is plus or minus 2.5kHz with an audio bandwidth of 300 to 3000Hz.

2. 934.025 to 934.975mHz, carrying 20 channels of 50kHz spacing with a maximum frequency error of plus or minus 9kHz. Maximum RF output in this band is restricted to 8 watts, with plus or minus 5kHz maximum frequency or phase modulation-frequency deviation. Audio bandwidth remains between 300 and 3000Hz.

In layman's terms, this means that the 27mHz band, for instance, starts at 27.60125 and extends for 0.39mHz (or 390kHz) to 27.99125. Within this 390kHz-wide band are contained 40 channels all of which are available for CB use. None of the 40 channels must overlap its neighbour by more than 1.5kHz, and the amount of space occupied by a channel in its frequency excursion will be confined within 5kHz (or plus or minus 2.5kHz of the carrier). The audio band-width of 300-3000Hz will effectively cut off any speech outside these limits.

The individual breaker will no doubt be relieved to learn that he has no control whatsoever over these limitations, as they are built in to the equipment; the only variation at his command is the output, unless you count the high degree of technology required for switching the rig on and off!

SMALL CHOICE

On the other hand, he *does* have considerable latitude when it comes to the choice of antenna but these too, are governed by government specification. For a start, no antenna must exceed 1.5 meters in length, and this includes helically-wound twigs in an unwound state. The use of centre-loaded and parasitic-aided aerials is banned, as are top-loaded antenna if they radiate at the tuning coil.

Antenna must not extend higher than seven meters above ground level, but if they do, a 10dB antenna must be fitted.

The Government's view on the use of CB was outlined by Timothy Raison when he spoke to the Radio, Electrical and TV Retailer's Association earlier in the year. Of the two band allocations (27 and 934mHz), the higher is the preferred choice of the Home Office, causing the least interferance to other radio users. Laboratory tests, field trials and listed complaints, it would appear, have provided hard evidence that AM CB causes more than double the interference emanating from all other sources.

The choice of frequency modulation, they say, will drastically reduce these instances of interference and the government are of the opinion that authorising the use of FM *now* is the quickest way of solving the immediate problem. "Commonality" (whatever that is) — with Europe is a valid argument, but this is not within reach at the moment. And although any other solution will take years to implement, Mr Raison is of the opinion that the spectrum allocation and authorised power limit for UK breakers is more generous than anywhere else in Europe.

The authorities will require CB equipment, as marketed in the UK, to conform to certain technical standards with regard to interference under section 10 of the Wireless Telegraphy Act — and a standard mark of compliance is recommended in the specification. Failure to comply, says Mr Raison, will result in the issue of notice under section 12 of the Act, prohibiting sale of unmarked equipment. With regard to conversion of rigs from AM to FM at an economic cost, this would, apparently be welcomed by the Home Office; it is understood that Customs and Excise would "look as sympathetically as possible" on the conversion of

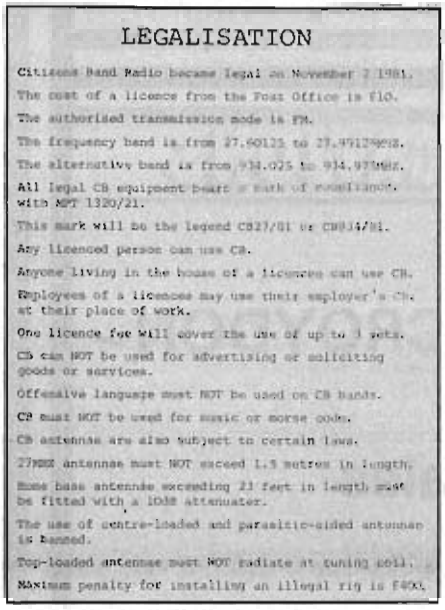
OFFICIAL CHANNELS — 27MHZ BAND

Channel number	Frequency	Channel number	Frequency
1	27.60125	21	27.80125
2	27.61125	22	27.81125
3	27.62125	23	27.82125
4	27.63125	24	27.83125
5	27.64125	25	27.84125
6	27.65125	26	27.85125
7	27.66125	27	27.86125
8	27.67125	28	27.87125
9	27.68125	29	27.88125
10	27.69125	30	27.89125
11	27.70125	31	27.90125
12	27.71125	32	27.91125
13	27.72125	33	27.92125
14	27.73125	34	27.93125
15	27.74125	35	27.94125
16	27.75125	36	27.95125
17	27.76125	37	27.96125
18	27.77125	38	27.97125
19	27.78125	39	27.98125
20	27.79125	40	27.99125

OFFICIAL CHANNELS 934MHZ BAND

1	934.025	11	934.525
2	934.075	12	934.575
3	934.125	13	934.625
4	934.175	14	934.675
5	934.225	15	934.725
6	934.275	16	934.775
7	934.325	17	934.825
8	934.375	18	934.875
9	934.425	19	934.925
10	934.475	20	934.975

BREAKING-THE LAW



LEGALISATION

Citizens Band Radio became legal on November 7 1981.

The cost of a licence from the Post Office is £10.

The authorised transmission mode is FM.

The frequency band is from 27.60125 to 27.99125MHz.

The alternative band is from 934.025 to 934.975MHz.

All legal CB equipment bears a mark of compliance with MPT 1320/21.

This mark will be the legend CB27/81 or CB934/81.

Any licenced person can use CB.

Anyone living in the house of a licencee can use CB.

Employees of a licencee may use their employer's CB at their place of work.

One licence fee will cover the use of up to 3 sets.

CB can NOT be used for advertising or soliciting goods or services.

Offensive language must NOT be used on CB bands.

CB must NOT be used for music or morse code.

CB antennae are also subject to certain laws.

27MHz antennae must NOT exceed 1.5 metres in length.

Home base antennae exceeding 23 feet in length must be fitted with a 10dB attenuator.

The use of centre-loaded and parasitic-aided antennae is banned.

Top-loaded antennae must NOT radiate at tuning coil.

Maximum penalty for installing an illegal rig is £400.

equipment which they might otherwise have seized. This is the nearest that breakers are going to get to the amnesty that was spoken of for some time, *as no way would the Home Office sanction the use of any equipment other than FM.*

Having outlined the rights of breakers, Mr Reison touched on the rights of the general public with regard to interference to their radio and TV reception. Radio interference, even if caused by an authorised transmission source, is an indictable offence under the Wireless Telegraphy Act, and if emanating from an unlicenced source, can be viewed more seriously.

The allocation of a 934mHz CB band came as a surprise to many, but the Australian equivalent on 477mHz has proved to be extremely popular down undar. Transmitting on 934mHz, however, will effectively eliminate any skip effect and confine the range of CB equipment to its direct wave or line-of-sight. The reason for this is that a 934 transmission will pass straight through any ionised layer, will not be reflected back to earth, and unless a breaker has the power and the not inconsiderable luck to hit a satellite, his signal will lose itself in outer space!

Over the past two years, uneducated predictions of licence fee varied from £5 upwards, until the true cost of £10 was announced. There can be little doubt that a high proportion of this fee will be absorbed in the administrative cost of issuing licences by a no doubt small army of civil servants, but if the estimated figure of six million breakers is reached, the Exchequer will be in receipt of some 60 million pounds per annum. Additionally, the VAT incurred by another four million breakers spending (on average) £100 apiece plus 15 per cent tax, would put an extra 60 million pounds into the Chancellor's coffers. This would be largely a one-off windfall due to the initial onrush of new breakers, but nevertheless represents a total cash inflow by the authorities of something approaching 120 million quid by the end of 1982.

Despite the recession and resultant cutback in public services, it is not unreasonable to expect that the Home Office will spend at least some of its new-found wealth on monitoring, detection and general policing of CB bands — a service already in existence in the United States and a subject that officialdom appears singularly reluctant to discuss! Taken at face value, monitoring would appear to be another example of blatant bureaucracy if not official harrassment, but would in fact be a double-edged weapon. To cite a few examples, users of linear amplifiers vastly exceeding the permitted power output and bleeding over other breakers; owners of faulty rigs which interfere with other HF radio systems and those who use CB as an opportunity to voice their obscene language with impunity — these undesirable elements can be reduced by official control.

One fact of life remains, however, that although CB has become legal in the UK, there remain vast numbers of breakers for whom the illegal status has not changed — those who will continue to use AM rigs.

Although there may be cause for sympathy for the frustration, impatience and even the enthusiasm of long-standing breakers in the face of the foot-dragging attitude of HM Government over legislation, many will no doubt resign themselves to buying a legal rig. The number of FM users will increase rapidly, not only for moral reasons but also because FM rigs will be easier to get. AM users could well find themselves somewhat isolated because they'll be unable to communicate with FM breakers. Furthermore the supply of AM rigs and spares will become increasingly difficult, mainly becausa UK stockists will have less need to resort to back door imports in the face of a lucrative market for FM gear. It should be clearly understood that in no way can a breaker conceal the fact that his rig is amplitude modulated, as mode-identification by monitor is so easy it isn't true!

Subject to any amendment to the law the penalties, even as they stand, are severe. For that matter, it may come as something of a surprise that listening to *any* transmission other than the BBC or local radio is in contravention of the Wireless Telegraphy Act. For starters, **a fine of up to £400 and/or three months imprisonment can be imposed, just for the installation of an illegal transmitter**, and similar punishment can be evoked for each occasion **that it has been proved that the equipment has been used!** Having paid that debt to society, together with court costs that can mount up, Customs and Excise are then empowered to impound any vehicle in which illegal gear has been fitted, and can impose further penalties. A breaker who fits an illegal rig in his car, therefore, and uses it on only three occasions, could get done for the maximum penalty of £1,600 in fines, £75 costs, a year in the slammer, and *still* have to settle his account with Customs and Excise. Customs men, incidentally, enjoy a privilege in that unlike the police they require only a writ of assistance issued by the local customs office to enter premises in the "persuance of their duty." For that matter, the law relating to illegal importation requires that the onus of proof should lie, *not with the prosecution, but with the defence.* Offanders are, in fact, guilty until proved innocent! Detection of transmissions, seizure of imported rigs and subsoquent prosecution of the offander are tasks shared between three orgenisations — those of the Post Office (as agents of the Home Office), police, and customs.

Existing legislation also imposes certain limitations on the use of radio and it is inconceivable that breakers would in any way be excluded from these constraints; as already mentioned, abusive or obscene language is one of them. Similarly, broadcasting music contravenes the Act (not to mention involving those responsible in litigation under copyright in a civil action) just as does advertising or any other context for gain. Admittedly most breakers use CB in its original context as a personal radio contact system but the authorities do have an obligation to protect those who pay them heavily for the privilege of using radio transmitters (such as taxi firms) and they guard their monopoly of broadcasting jealously. Any breaker, therefore, who fancies himself as a DJ on 27mHz, boosting trade for his local chippy in return for a free fish supper, and running a radio controlled mini-cab fleat "on the side", could justifiably expact a little official opposition.

DOUBTFUL BENEFIT

Perhaps the best advice that can be given to those new to citizens' band radio is not to take any! Certainly, the only way to ensure that you avoid any unknowing excursions outside the law is to learn all about CB from official, legal or well-informed sources. There are plenty of fellow-breakers who will give you the doubtful benefit of their equally dubious wisdom, but most of their knowledge is based solely on hearsay. As far as the government is concerned, CB has only just been born; only now can UK regulations be formulated. Any of the previous so-called "rules" understood by the majority of breakers are those applicable in other countries. A little knowledge, as they say, could be a dangerous thing.

Buy a known-brand rig from a recognised dealer, and fit it (or have it fitted) in accordance with the instructions, and then insure it. Do not be tempted to invest in expensive, complicated and often legally doubtful power-boosting devices that will empty your pocket, not to mention your battery. There is a lot more to operating a radio link than pushing a button and talking. So much more in fact that others in the communications business have to pass exams before they are allowed to transmit. It follows, therefore, that there is a skill that you must learn about and exercise if CB is to enjoy the acceptance it craves.

Beware of the pitfalls. There are Japenese rigs available — both AM and FM which have been imported through the Isle of Man. Although free of restrictions from Customs and Excise, *both types are legal to own, but illegal to use* by virtue of the fact that AM remains illegal anyway, and FM types will not necessarily bear the official mark of government approval. And remember, the moment you mount one of these rigs in your car or put a mains plug on it, you have "installed" it.

With the exception of certain districts near London and the West Midlands, the authorities kept a very low profile with regard to pre-legal CB. Now that they have acceded to the popular demand for breaking (and in effect kept their side of the bargain), they will expect breakers to do the same.

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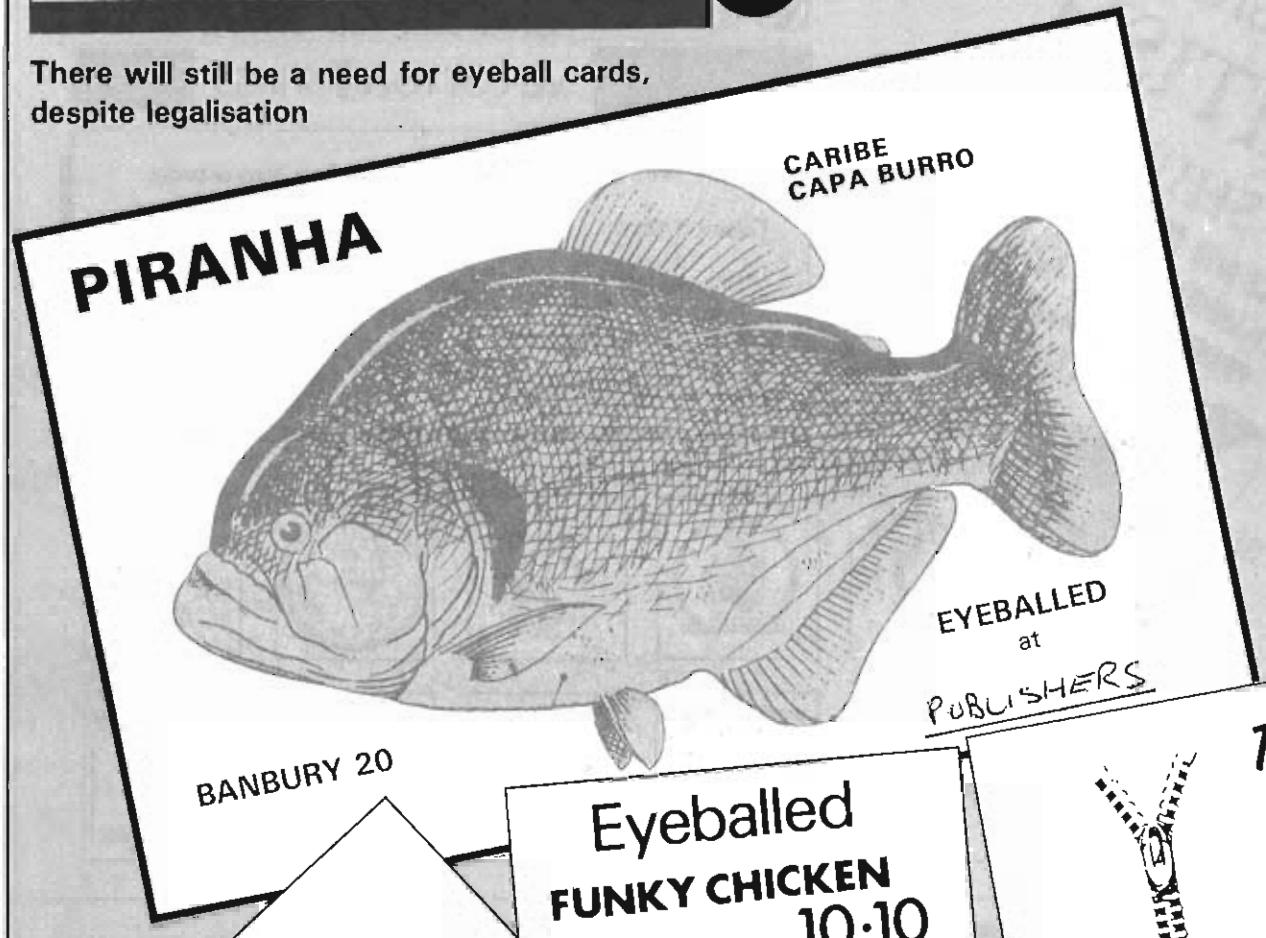
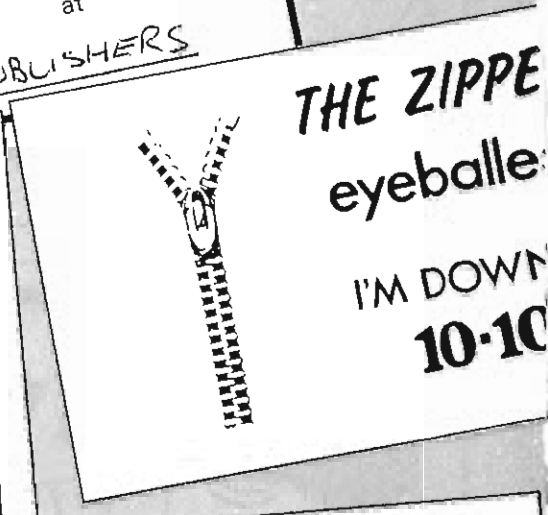
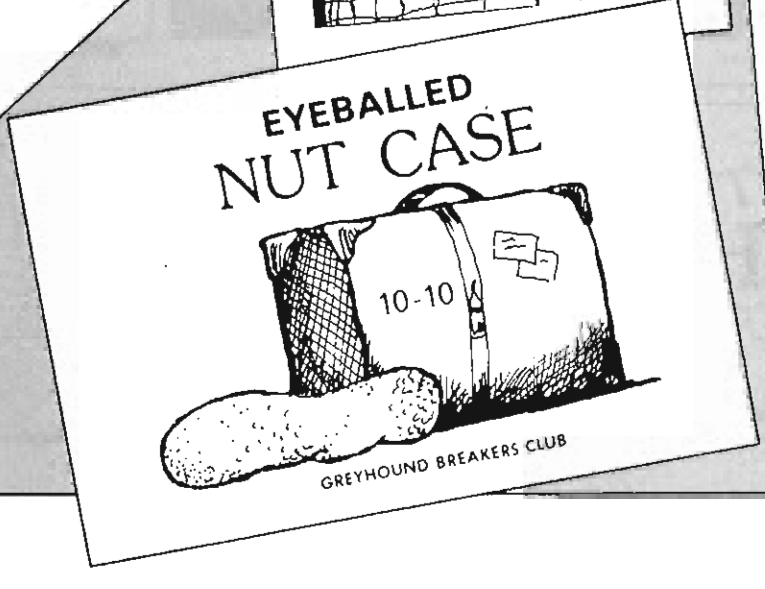
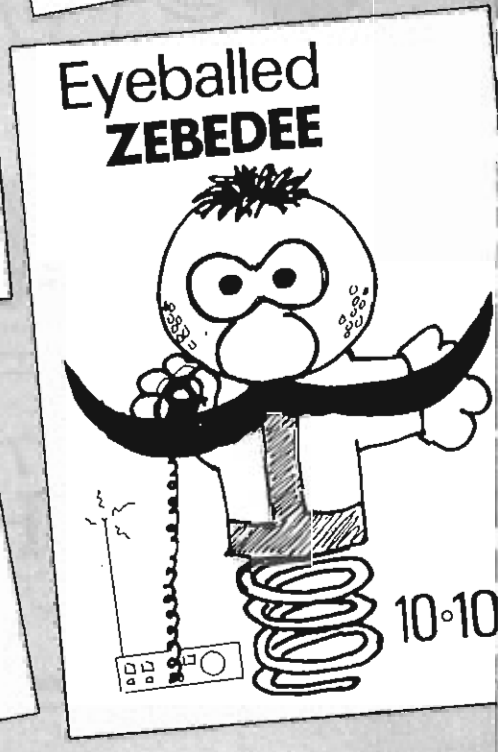
CARDS

There will still be a need for eyeball cards, despite legalisation







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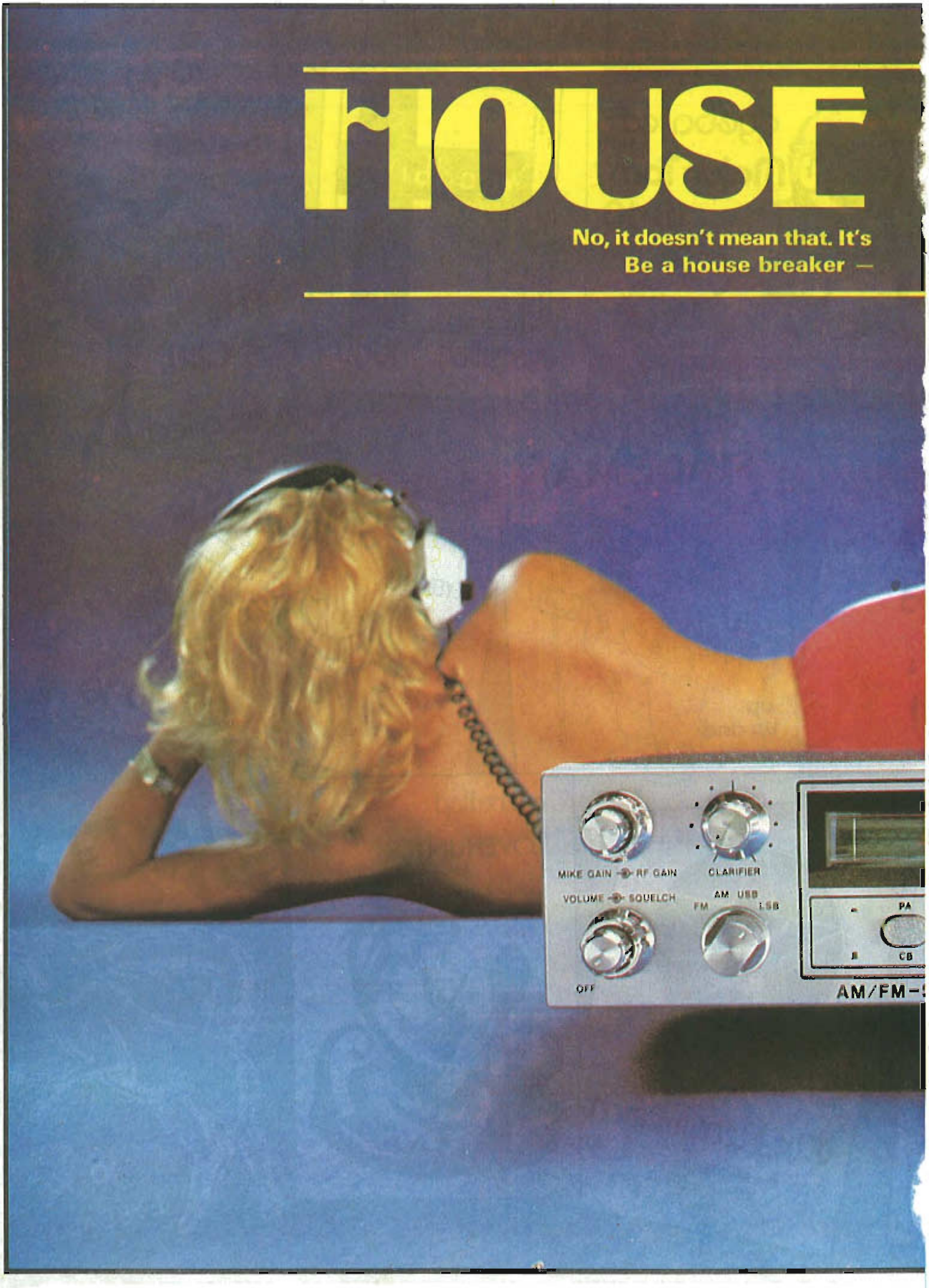
HOUSE
No, it doesn't mean that. It's
Be a house breaker —
MIKE GAIN
RF GAIN
CLARIFIER
VOLUME
SQUELCH
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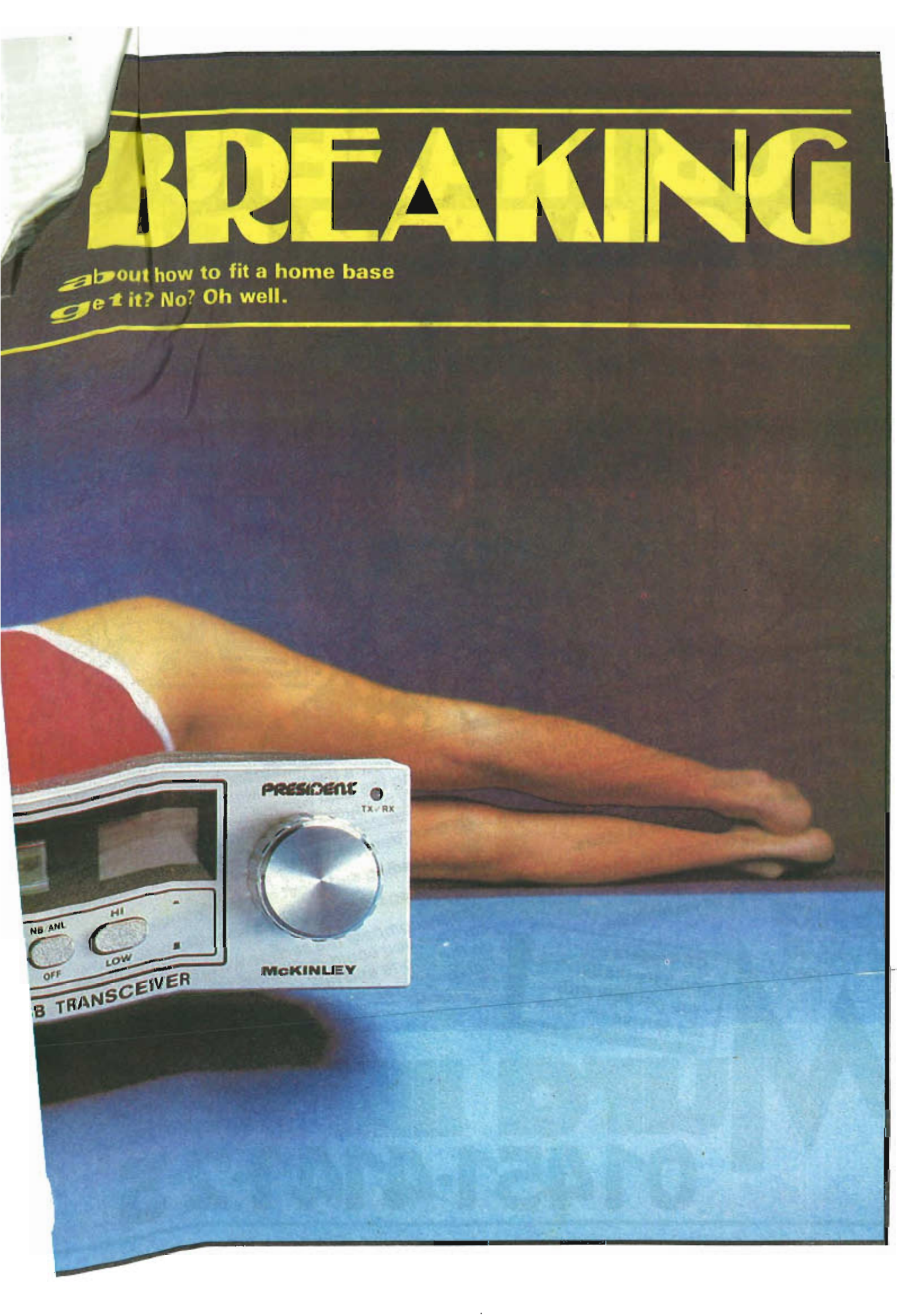
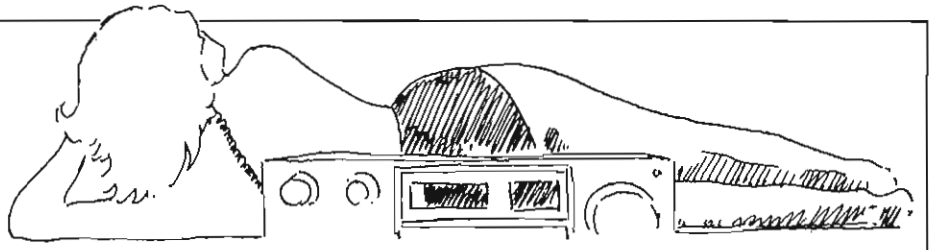
BREAKING

about how to fit a home base
get it? No? Oh well.





HOUSE BREAKING

IF you talk to that elusive person — the man in the street — about CB he will either spit in your eye or conjure up an image of some leather-clad youth, bombing around the countryside in his customised car with sparks flying off the end of his Firestik.

Certainly, many members of the public would be surprised to learn that not all breakers find it necessary to do their jaw-jacking on the move — there ARE those who prefer to remain as close as possible to home, beauty and Nescafe. Before receiving all the benefits of legality, breakers no doubt found more security in being 'of no fixed abode', but happily they can now share the same degree of domestic comfort as those leisure-friends dedicated to Monopoly, home brewing, or sex!

Apart from a tendency to repetitious contact with other local base stations, indoor breaking has all the advantages that are lacking in mobile operation, with few, if any, of the disadvantages. For one thing, any base rig being operated on an upper floor of a house has an immediate head-start of some 15 feet in elevation over a mobile — and even more if his antenna is mounted on the roof; and as the bulk of CB contacts are of the 'line of sight' variety, this will give owners of the simplest rigs a greater range, especially when talking to stations in a similar situation. A home base can provide one of the basic *raison d'etre* of CB — the facility to contact the family at any time and from any local location.

Just like installing CB in a motor car, setting up a base rig requires careful consideration, although it does not necessarily incur as much work. If only to avoid confrontation with the family over the conflicting proprieties of CB and *Star Trek*, the use of an upstairs room is recommended. Furthermore, if batteries and their attendant smells are to provide the power supply then the spare room would be even better. Apart from anything else, once all your energy, money and attention is directed towards CB, marital harrassment will probably result in you sleeping in there anyway!

A further advantage of an upstairs rig location is the correspondingly shorter length of co-ax between the rig and the antenna; more co-ax means more resistance, and more resistance means less power from the antenna.

Integral unit

Whether or not you are by inclination a tidy person, or one who has to be knee deep in rubbish before clearing up becomes a necessity if only to get from one side of the room to another, neatness of CB equipment is desirable. Equipment should be contained on a table as close as possible to a mains socket and if possible, near to a window to allow for battery ventilation. If you are using your mobile rig, together with an SWR meter, speaker and mike, build a small unit to keep it all together.

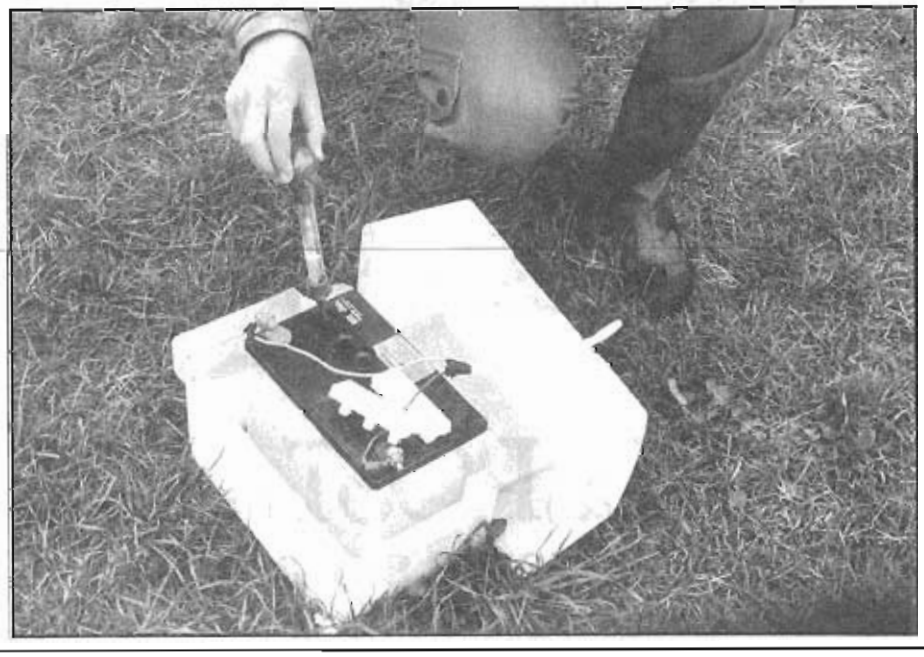
You will need something to hold the speaker in an upright position any-way, and if all your gear is contained in its own unit the chances of bits of it being swiped off the table when the good lady has a go with the Pledge will be drastically reduced. And if you do a good enough job she might even class it as an object *d'art* and polish the damned thing! As mentioned before, antenna leads should be as short as possible, just as mains leads should not clutter the floor, waiting to entwine themselves round the ankles of the unwary.

An additional radio component that should be fitted to your system must be an interference suppressor. Mobile breakers may well interfere with other radio systems — particularly TV which is ultra-sensitive to such phenomena — but at least *their* interference is momentary as they drive past. Home base breakers, conversaly, are not moving anywhere, and if they are causing TVI to their neighbours, then they are probably doing it all the time. TVI suppressors are available, aren't that expensive and do a lot for community relationships, apart from avoiding the wrath of your offspring if you splash your transmitter all over Tiswas!

Unless you have been fortunate enough to acquire a base rig which you plug straight into a 13amp power socket, you have only two choices of power source — a 'power pack' which transforms 240volts AC to 12volts DC, or batteries. Although a mains transformer might be a costly item, its purchase should be considered with a view to convenience, cleanliness, lack of smell and the fact that you will require mains electricity to run a battery charger anyway. Acquiring a transformer is a matter of consultation with a qualified electrician, as any old unit will *not* suffice and you require one with at least a three amp regulated DC current which carries 12-14 volts.

Ripped off?

The alternative of a battery-powered rig will necessitate the purchase of a charger (unless you prefer to go walkies every week with 15 lbs of lead battery to the nearest garage and get ripped off at 50p a charge) and in this respect, mobile breakers have the edge on their home-loving counterparts.



Regulated power supply equipment, plus "other" equipment.

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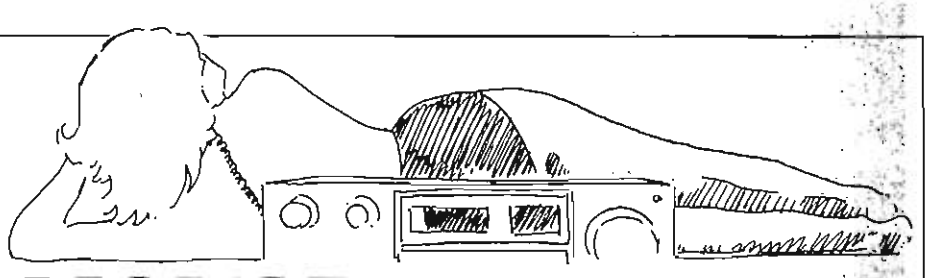


HOUSE BREAKING

A car dynomo — and especially an alternator — will charge a battery at whatever rate is required, up to 30amps, dependant upon the need of the battery. A domestic battery charger, on the other hand, has a maximum output of just a few amps, irrespective of whether the battery is flat or only partially discharged. The charge life of a 12volt battery varies according to the rating, but the average car type has a 60ampere-hour capability in that you can draw one amp for 60 hours, or 60amps for one hour — and all points in between. Transistors might have vastly reduced the power needs of radio equipment, but transmitting requires a great deal more power than receiving and a rig can be a very heavy drain on a battery power supply.

It could be said that the choice of power supply is dependant upon the amount of time you intend to spend actually transmitting, any power boosters such as linear amplifiers that you have fitted, and whether or not you are working on a straight channel ur side band rig. Boots are notorious for absorbing power (without necessarily increasing range) for instance, and although using side band does provide a little more power and a great deal in increased selectivity, I would recommend the use of a mains transformer, whilst also reminding you of the illegality of side band use!

If on the other hand, you opt for less air time, a straight rig and even less bucket-mouthing then a little investment in a battery charger is for you. Unlike motor car charging equipment which is left very much to its own devices, domestic chargers require attention, and a few words of advice on the subject would not go amiss. Many of them, for instance, have an automatic cut-out which operates when the battery has been fully charged — they may even include a meter which will give an indication of charge rate. You should, nevertheless, know how to test the charge condition, and this can only be done with the help of a hydrometer — unless you want to go to the expense of buying a professional condition indicator, which does exactly the same job, but ten seconds quicker. A hydrometer consists of a float in a tube, with a bit of rubber tubing at one end and a bulb at the other. Acid is sucked out of the battery by compressing the bulb whilst the tube is inserted in the cell housing, and the level at which the float is suspended in the liquid denotes its condition. The acid, or electrolyte, of a fully charged battery has a high specific gravity, whilst that of a flat one is low. High sg will cause the float to ride high in the hydrometer, as opposed to a low sg which will let the float sink lower. It's as simple as that!

Boil over

Whilst on charge, the cell covers on a battery should be removed to allow gases that form (as a result of the charging process) to escape and near which smoking is definitely not recommended. Acid level should be just above the top of the plates — but not higher, as excess liquid can 'boil over' on charge and topping up should be done with distilled water. The fact that I have always used the stuff out of the tap without any detrimental effect on my batteries is purely coincidental — it must be the flouride! Any acid which does come in contact with the skin should be washed off quickly with plenty of water; battery acid is not concentrated, and although immediate washing is advisable, your hand won't drop off if you wait five minutes before doing it! It does, nevertheless, have a pretty rapid effect on furniture, carpets and other fabrics, so if you don't want any additional aggro, keep it away from the wife's favourite Axminster. An even better idea is to make or buy a plastic container for you battery which will ensure your marital compatibility!

So far we have discussed everything pertaining to home base operation with the exception of THE most important part of the equipment — the antenna. No matter how good or how expensive the rig, it will only be as good as its aeriel array, and there is a wide choice available, each with its own particular characteristic.

Basically transmitting and receiving antennae work on exactly the same principle and can be broadly put into two categories — directional and *OMNI*directional: this means that an antenna radiates either all of its power in *ONE* direction, or distributes it in *EVERY* direction like the proverbial pebble in the pond transmits waves. For dedicated contact — where the location of the answering station is known — the directional antenna is obviously the best suited. Unfortunately, breakers receive calls from every point of the compass, and are therefore faced with the dilemma of lower power from every direction instead of greater power from a specific direction. One answer of course, is to have two antennae, an omni for listening out and a directional twig with a swivel base for orientating when answering. Electrically motivated directional units are available for those who want to go that far.

Choice of antenna

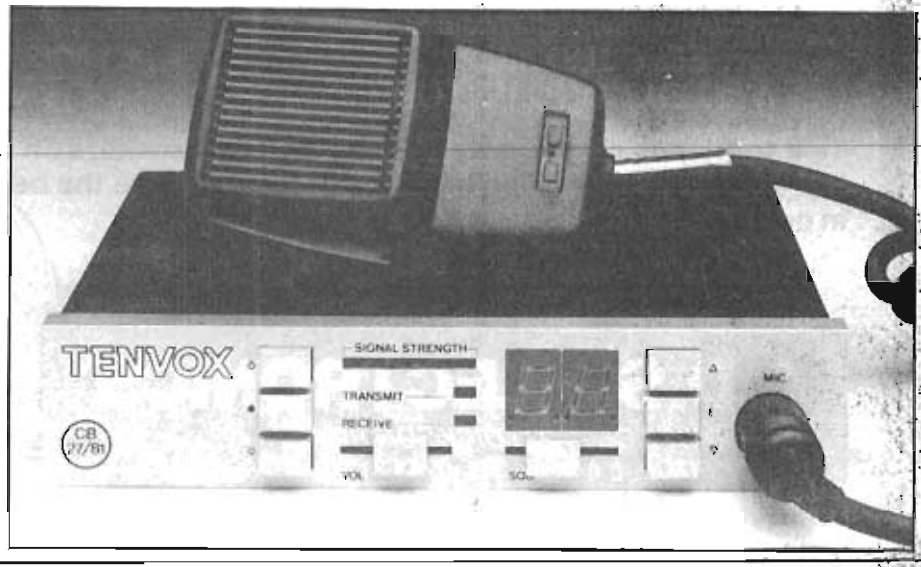
Within the two basic antenna types are a multitude of arrays that range from a piece of wet string to a parabolic (or dish) reflector, and your choice is limited only by what you are prepared to pay, and the physical constraints of your house and garden. But perhaps the greatest consideration must be given to the fact that although a transmitter emits two waves — sky and ground wave — the bulk of CB contacts will be on ground wave, and any twig which restricts power on the sky wave to the advantage of ground wave must give better results in a CB situation. This is not to say that skip working should be ignored, as the most amazing distances can be spanned with a little bit of help of the reflective ionosphere!

One antenna which provides adequate service for many breakers is the ¼wave vertical which has the added advantage of being an indoor or outdoor type. Basically it is a vertical pole, with three radial components which can act as a tripod stand if used inside. Conversely the unit can be fixed to a pole for outside use or mounted in the attic and its one dB gain will increase your transmitting power by about 1:2. In effect the radial elements replace the car which normally acts as the ground plane in a mobile rig. Even better 'gain' can be achieved by going up to a ½wave vertical antenna, and the tried and tested DV27 can give good results.

Individual antenna choice is governed by limiting factors of price, type of rig, location and dimension availability, but be assured that no matter what parmutation of circumstances surround your base rig, your friendly neighbourhood breakers' supplier will find a twig suitable for just your requirements.

Of one thing you can be sure, with the rig safely installed within the confines of your home, no longer will your beloved equipment be at the mercy of every tatty car-thief who's out for the soft touch. If you're going to be ripped off, it's going to be done by a *professional* housebreaker!

Like most CB sets, this all-British Tenvox 27mHz FM radio which will be available early in 1982, can double as a house base. Price will be around £97 plus VAT.



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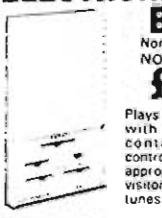

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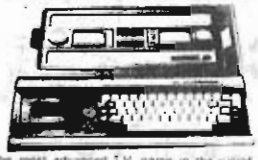

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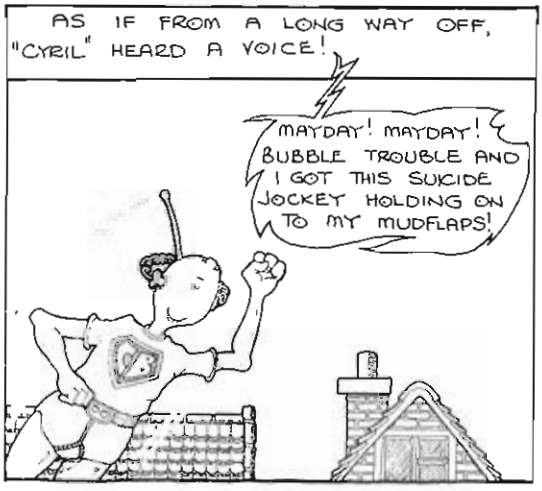
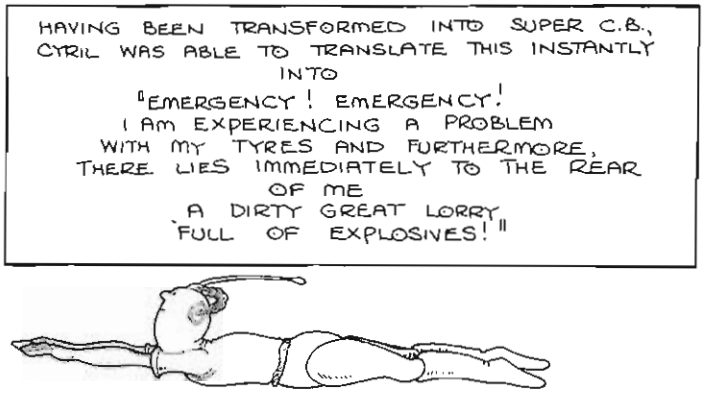
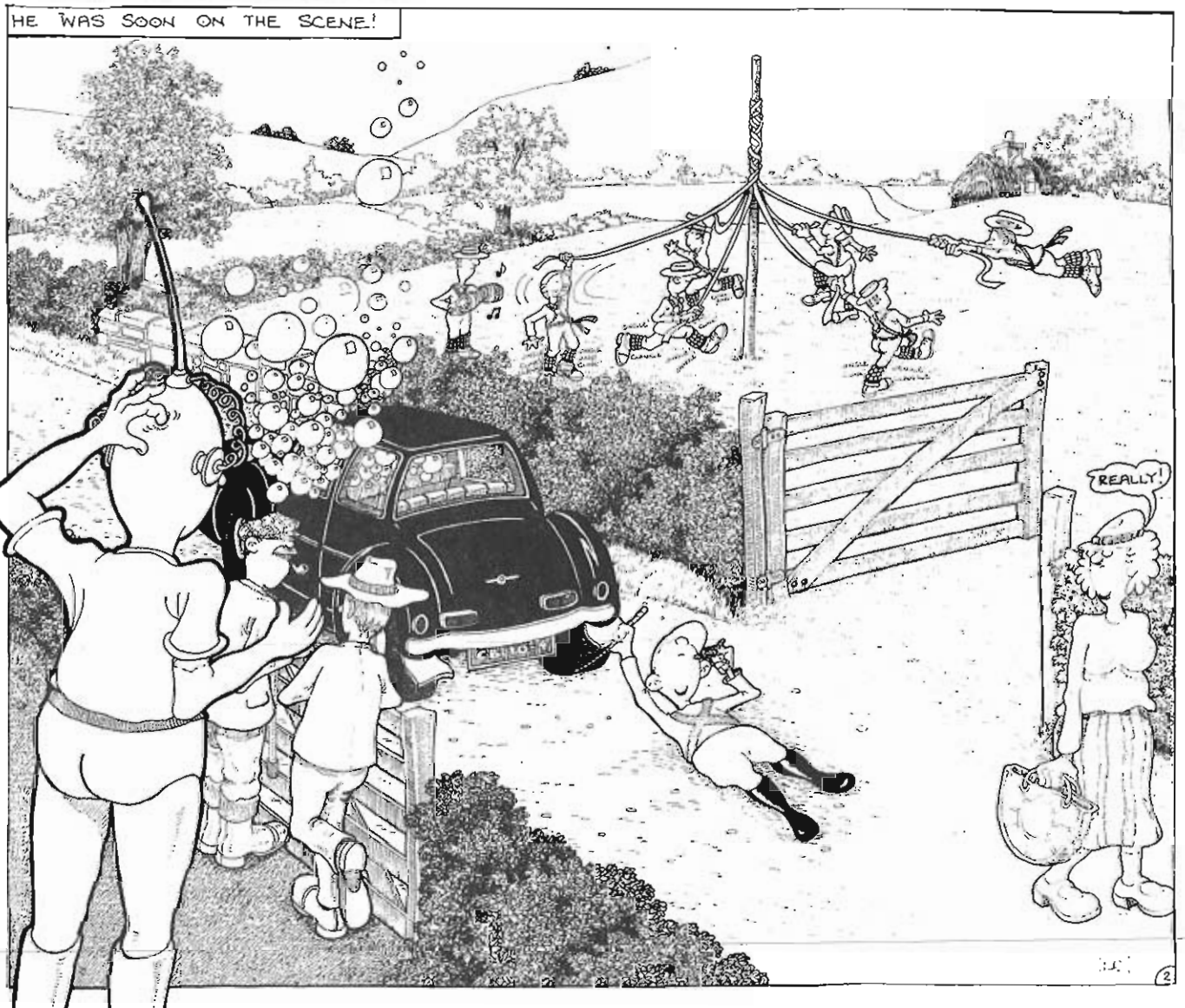
IT BEGAN WITH A STRANGE AND VERY INSISTENT ITCHING IN HIS LEFT EAR!
THIS ITCHING GRADUALLY SPREAD UNTIL CYRIL WAS FORCED TO STOP THE CAR!
SKRICH
AND · THEN · THINGS · REALLY · STARTED TO · GET · INTERESTING!
THE ITCHING STOPPED! SUDDENLY! AND CYRIL HEARD A VOICE!
CYRIL BUTTERWEASEL! YOU HAVE BEEN CHOSEN!
CHOSEN FOR WHAT?
YOU ARE THE NEXT IN THE LONG LINE OF SUPER HEROES
BLIMEY!
SMOOTH
HENCEFORTH WHEN ANY BREAKER IS IN TROUBLE YOU WILL BE TRANSFORMED INTO SUPER C.B.! AND IT IS YOUR BOUNDEN DUTY TO HELP!
COO! ME A SUPER HERO!
THE REST OF CYRIL'S DAY WAS SOMEWHAT LESS EVENTFUL!
REALLY SIMPKINS! THIS JUST ISN'T GOOD ENOUGH!
LATER THAT WEEK, CYRIL WAS TO DISCOVER JUST WHAT ALL THIS SUPER HERO BUSINESS WAS ABOUT!
CYRIL! WHAT ARE YOU DOING IN THERE?
THAT'S WHEN ALL HELL BROKE LOOSE!
CYRIL?







"HO HUM! YOU CAN'T WIN 'EM ALL!"

THE END

AM VS FM VS 934

Forget the legality of the question — which is the best of the three? It's elementary, says John Nelson.

Now that Her Majesty's Government have at last got round to legalising CB on FM at 27 and 934mHz, it's a good time to take a look at what the various varieties of alphabet soup in the form of AM, FM, UHF, HF and the rest are really all about. There is a fantastic amount of misunderstanding abont what they all imply and what the difference betwoen them really is.

So let's start by taking a look at a few meanings; we might even ask what a radio wave is anyway? Well, we can answer that one in one of two ways — we can either go into pages of equations on fields, wave propagation and the Lord knows what else, or yon can settle for something a bit simpler in the shape of an analogy.

Imagine getting hold of a length of string. We tie one end to a fence post and then welk awey from it clutching the other end; it ought to be about thirty feet long, or, just to get into the spirit of the thing streight away, let's call it ten metres or so. Now, let's imagine shaking the free end gently up and down at some appropriate rate. You should be able to obtain a pattern veguely resembling Fig 1.

Assnming that the neighbours haven't started staring out of the windows yet, you can try waving the end up and down at a steady rate of, for example, once per second. Further assuming that a howling gale or the family dog don't disrupt the experiment, a more or less static wave pattern should be seen to form in the rope. And should you be able to enlist the servicos of an assistaot, you could ask him (or her) to measure the distance between the highest and lowest points of the rope as you do the waving (Fig 2). By the way, you have now become what an electronic engineer would call an "oscillator". Congratulations!

Fine, you may say, but what's all this got to do with radio? Well, believe it or not a radio wave behaves in some ways like your piece of rope; a radio transmittor of any sort does something like the seme job as your right arm was just doing, and the two basic paremeters of o radio wave are exactly the same as we just saw the rope demonstrate. When you regulated your waving to a rate of once per second, that meant that the **frequency** of the wave in the ropa was one cycle per second: one cycle per second, in electronic terminology, is a frequency of 1Hz (the Hz is an abbreviation for Hertz, which was the name of an early German radio pioneer). So if you could wave the end of your rope up and down at a rate of ten times per second, the frequency of tho wave would be 10 cycles per second or 10Hz. Should you be some kind of superman and somehow manage to whip the rope end up and down **two hundred thousand** times per second, the frequency would obviously be 200,000Hz or, as it tends to be written, 200kHz — the "k" being an abbreviation for kilo which, as in kilometre implies one thousand. Now although this sounds like a frightful rate to weve anything up and down, it's really a low frequency in terms of radio. It corresponds to what used to be sonorously known as Long Weve, and actually 200kHz is the frequency of the BBC's Radio 4 long wave transmitter at Droitwich.

Let's crank the frequency up some more and pump the old right arm up and down **one million times** per second. Obviously, the frequency would be one million cycles per second and since, in the metric system (used in radio since it all started as wireless — no old-fashioned stuff here, mate) one million is signified by mega or "M", this frequency can be written as one megahertz or 1mHz. It sounds like one hell of a rate, but it's still only somewhere near the top end of the medium wave band — no great shakes in radio terms if you consider that every time you make a telephone call over any distance, your voice is being carried on radio waves with a frequency of ten or fifteen million million cycles per second (which, if you're interested, is written as 10 or 15gHz, the "g" standing for giga).

So if we decide to increase the frequency to 27mHz — ie the end of the rope would be waving up and down 27 million times a second, although your arm muscles would probably be emitting smoke and flames at this stage of the proceedings — we're getting on to familiar ground. We can actually forget the rope and our poor old right arm at this stage and mentally substitute a radio transmitter. 27mHz, or 27 million cycles per second of the wave, actnally corresponds to a radio wave at the top end of what is grandly known to engineers as the **HF** Spectrum end to the rest of us as that bit of radio space containing waves classified as **high frequency** or **short wave**. On the other hand, 934mHz is quite a bit higher in terms of frequency, and this order to "shake" is known as **Ultra High Frequeney** or **UHF**. We'll look at the differences between them, particularly in the area of how they get around (or propagate) in a minute.

THAT DREADED WORD

Let's just pop back to the garden and speak nicely to our assistant, who we left standing there with the ruler — remember we asked him (or her) to measure the distance between the highest and lowest bits of the wave we generated in the rope. At this stage, we'll just note that this distance stays more or less constant for a steady rate of shaking (or constant frequency, if you want to sound a bit more technical about it) since it'll be useful later on. Now before your assistant either nods off or freezes to the spot, you can ask him to measure the distance between successive crests of the rope (Fig 3) and we'll note the interesting fact that the faster you do the shaking bit, the shorter this distance gets. This is an Important Thing, since what the assistant has just measured is known in the radio world as **wavelength**. In the early days of wireless almost everyone thought of wireless waves in terms of wavelength, and most old redios have dials solemnly marked in metres. Now this is all very well for low frequencies like long and medium waves (which is why a long/medium wave transistor radio still often has a dial calibrated in this way) but as yuu go up in frequency, or you want to think in terms of channels (like the GB FM channels, for instance), it becomes a whole lot easier to switch your thinking into **frequency** instead of wavelength. As a matter of interest, 27mHz corresponds to a wavelength of about 11 metres, and 934mHz to a shade over 30 centimetres — just like the piece of rope, the faster the shake, the shorter the wavelength. But to express the difference between a frequency of 27.550mHz and one of 27.560mHz in terms of wavelength would need an awful lot of figures, which is why at higher frequencies (or if we're thinking of channels) we use frequency instead of wavelength as our basic descriptive tool. The two are related by a simple equation, but it doesn't matter for our purposes.

Okay — so 27mHz and 934mHz refer to frequency. What's this got to do with AM or FM? Well — not a lot!

Obviously we can, given suitable technology, generate radio waves at 27mHz or 934mHz or any other mHz we like, but how do we use them to tell someone something? Lots and lots of mHz by themselves won't be a whole lot of use (unless, perhaps, we turn them into Morse code by switching them on an off, but that's not much good if we want to tell the wife we're on the way home for tea in as long as it takes to say the words, and she might not know Morse anyway). Somehow, having got our radio waves, we have to be able to put our speech on to them in such a way as to be able to transmit our voice and receive it intact at the other end.

Which is where the dreaded word **modulation** comes in. To a musician it meaus a chauge of key, but to a radio engineer it means modifying some parameter of a basic radio wave of whatever frequency in such a way as to convey information on it, or with it. Even turning it on and off and making like Samuel Morse with, it counts as modulation, although you wouldn't perhaps think so at first. There are heaps of ways of modulating a radio wave, but we'll confine ourselves to the top chief ones for our purposes. These are signified by the initials AM and FM, and there are no prizes for guessing what the M stands for!

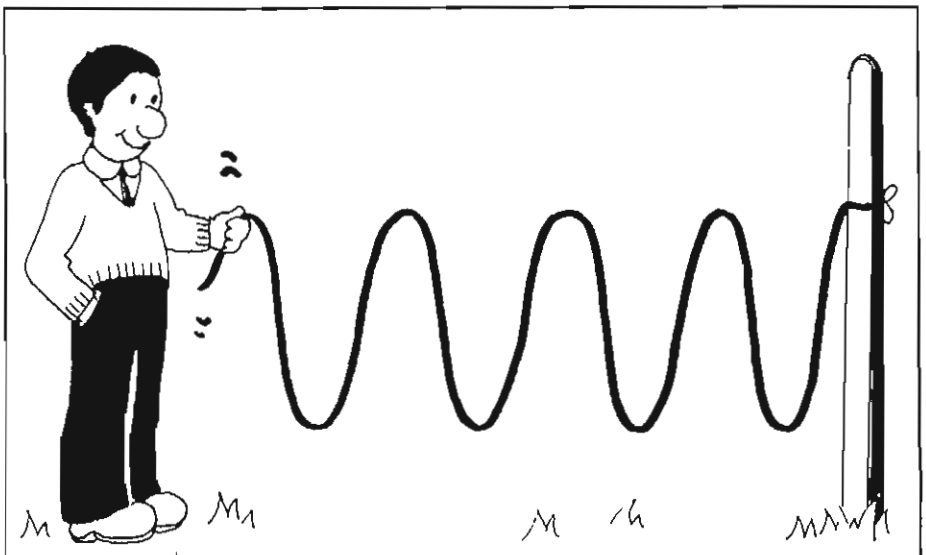
Time to go back in the garden. Thinking back to our experiments with the rope, we could have a little think and then say to ourselves "well, we could shake harder or softer" which is varying one parameter, (Fig 4) or we could say "then again, we could vary the actual **rate** of shake" (fig 5). Suppose we wanted to signal to the assistant that we were cold and wanted some refreshment; we could do that by actually starting to shake the rope to get their attention, assuming that the assistant knew that a shook rope meant that you needed something. Let's also say that we could shake slowly for beer and faster for coffee, or softly for tea and harder for rum and coke. In other words, we can convey information (assuming everyone agrees on what the information means) by doing something to the basic shake of the rope.

EVER SO SIMPLE . . .

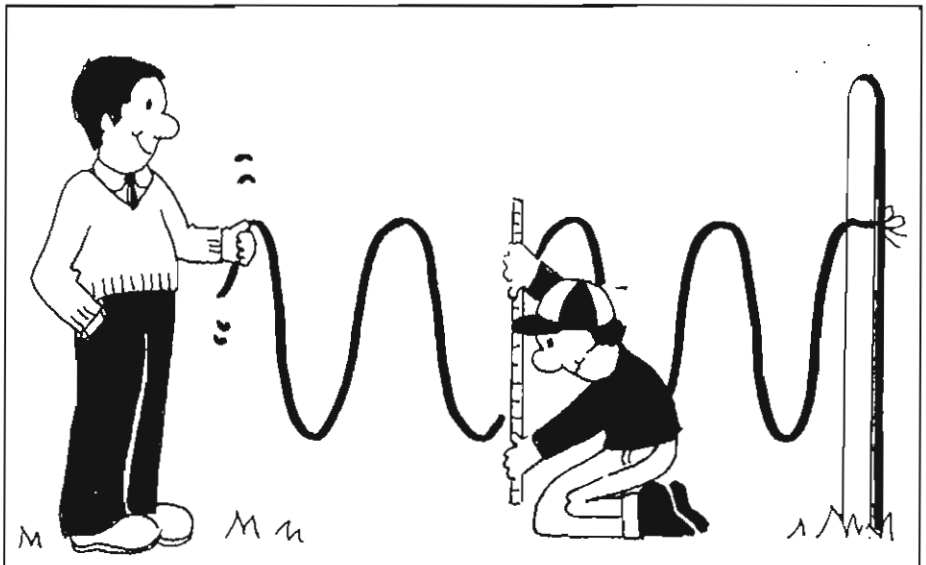
So let's go a stage further and think what would happen if we could put our voice actually on to the rope in some way. Assuming you and your assistant spoke the same language, you could say what you wanted — dead easy. Whether or not you get it is outside the scope of this article . . .

If we now stick those concepts together, ie we cause some parameter of the basic rope shake, or radio wave, to vary in accordance with our voice, hey presto! We're getting there.

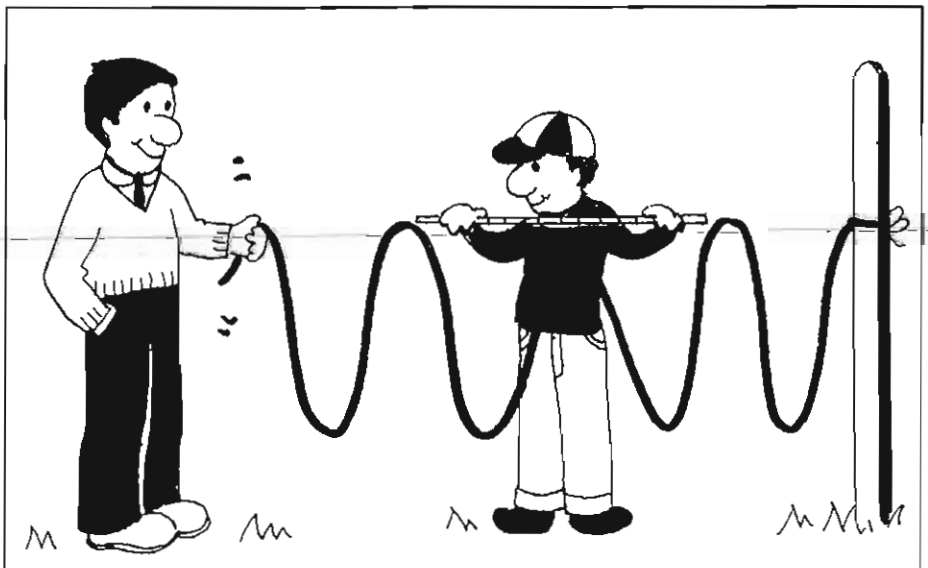
So let's pretend that we can vary the amount of up-and-down in the rope in accordance with the patterns of our voice. When you whisper — not much shake. When you shout — very vigorous shakes. Now it ain't so easy with a rope, but it's pretty simple with a radio wave, and if we feel like being posh we can say that we are varying the **amplitude** — that's to say the amount of up-and-down shake — in the wave. Gentleman, we have just discovered amplitude modulation, or AM. Amplitode modulation is really nothing more than a grand way of describing what we just did with the rope when we varied the strength with which we shook it. With a radio wave,



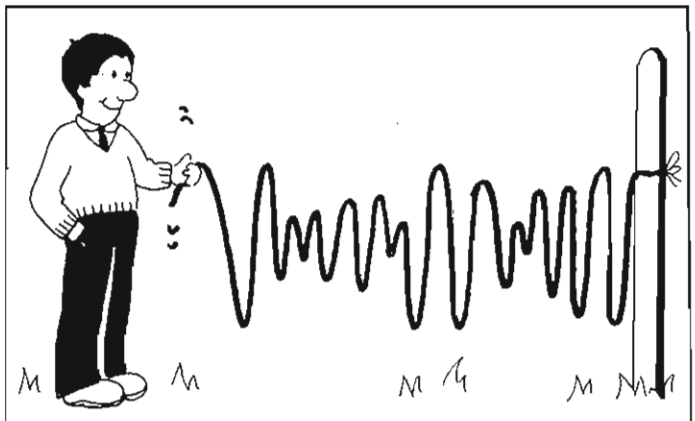
If you don't mind looking stupid, you could try this home experiment. It helps you understand what a radio wave is.



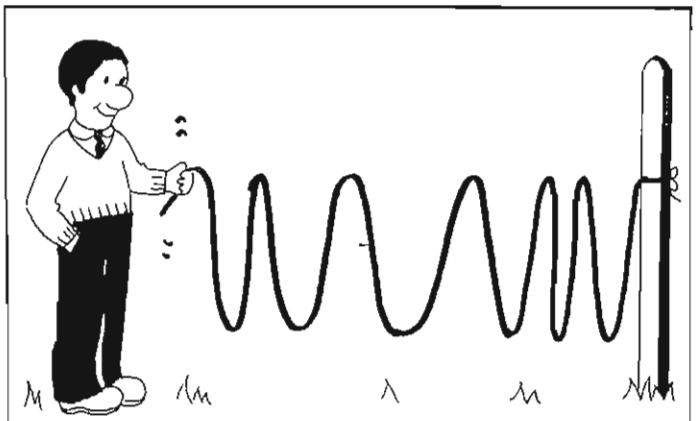
The distance between the highest and lowest point of the rope is called the amplitude.



By measuring the distance between the waves you get the wavelength, or frequency in modern terms.



Varying the amplitude like this (remember it's a radio wave) means you're getting amplitude modulation. AM in other words.



And by varing the rate of shake (as it were) you get what's known as frequency modulation. Or FM to put it another way.

AM VS FM VS 934

you could say (although the purist engineer won't like it) that you vary the power in it. It's nearly true, and purists tend to be boring anyway.

The Beeb's long and medium wave transmitters (actually, they refer to them rather quaintly as "senders" — how splendid, chaps) use AM, as did the illegal CB sets of yore. Reducad to its essentials, what happens is that the sound waves you make when you say something get turned into tiny electric currents by the microphone. These get **amplified**, in the same way as your record player or tape recorder amplifies the signals form the pickup or tape head, and they're then made to vary the **amplitude** or the up-and-down shake in the basic 27 or 934mHz or whatever. It all happens in o bit of circuitry called the modulator, and it's ever so simple . . .

Having said that, FM is even simpler! FM stands for Frequency Modulotion, and it's really just what it says it is. Back to the garden; remember how we could also vary the rate of shake of the rope — like when we noted that the slower we shook it, the longer the wavelength got. FM is just like that. If we take our basic 27mHz radio wave, which is a constant frequency (remember that MHz is a measure of frequency, and that in radio transmitters it's important that the frequency stays more or less put so you don't clobber someone else's conversion or splatter all over the Archers) and then vary that frequency by a small amount around the basic frequency in sympathy with your dulcet tones, you've got yourself FM. Here again, whether you're a CBer or the BBC on their VHF transmissions, you take the sound waves from the microphone, amplify the resultant electric currents a bit and then apply them to the part of the transmitter that determines how many mHz it's supposed to generate in such a way as to wobble the frequency about either side of the main frequency. This is known in the trade as **deviation** (hmmm) and in e CB set it's about plus and minus 3kHz. At 27mHz, this is a pretty small shift in frequency, but it's plenty to transmit basic speech. It isn't enough for super quality stereo music, so a broadcast transmitter uses a lot more than 3kHz — this is why the BBC FM VHF transmitters are 2.5mHz apart and CB channels are 10kHz apart . . .

The important point to note before proceeding any further is that with FM you vary the basic radio frequency and keep the amplitude constant, whereas with AM it's precisely the other way about. If you're doing both at once, you've got a bum transmitter. It's important to vary one parameter at a time and stick to it, because the receiver has rather different circuitry to recover the speech in each case, and it'll confuse the poor thing if you present it with modulation it wasn't designed to cope with. This is why you can't resolve AM with an FM rig, and FM with an AM rig — well, not very well, anyway.

So, after all that, which is best? Well, it rather depends on what you want, but one interesting fact emerges from that last statement. When your neighbour fires up his electric drill, or you fire up your car engine, you'll notice a fair amount of interference on an AM set — that's to say an ordinary LW/MW broadcast radio or an illegal CB AM rig. This is because sparks from any moving contacts, spark plugs, lightning or what have you generate a broad band of radio waves, which you'll hear as crashes and bangs in an AM receiver because it can't tell the difference between Radio 4 or Ratchet Jaw and your local friendly thunderstorm. However, an FM set is a bit different. Because it isn't a bit interested in the amplitude of the signal it's receiving but only its instantaneous frequency (in fact any FM set with pratensions to Goodness employs a sneaky piece of circuitry called a **limiter** to make jolly sure it's insensitive to variations in amplitude) any assorted crashes and bangs get creamed off early in the circuit before the bit that turns tha wava back into sound waves — grandly known as the **demodulator** — does its thing. So en FM signal, provided there's enough of it to get **limited**, is absolutely quiet — there's none of tha snap, crackle and pop from any sources of electrical interference that sound pretty horrible on an AM set. This is one reason why many professional users of mobile radio went over to FM years ago, as did the amateurs on the VHF and UHF bands. It's also the reason the BBC use it for their high quality stereo broadcasts on VHF. Try listening to Radio 4 on long wave and then turn to an FM tuner; you'll realise why those who want some peace and quiet use FM. It's truly excellent for mobile use.

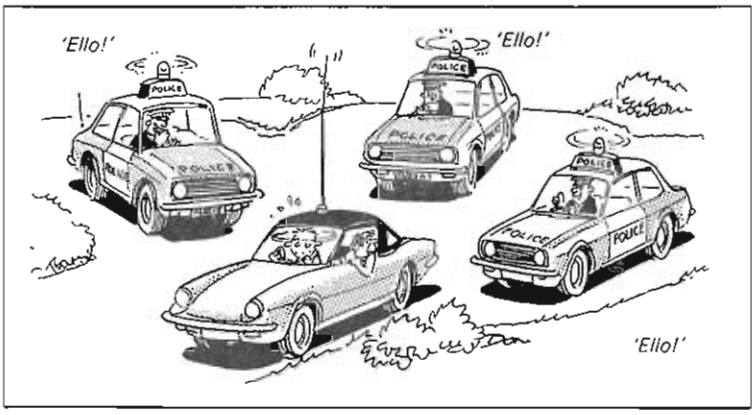
Let's kill once and for all the nonsense about AM somehow "going further" than FM, or that there's something somehow inferior about FM. This really is the biggest load of electronic cobblers known to mankind, and those twits who say AM "goes further" are (a) kidding themselves, (b) following a rather outdated fashion, and (c) technically incompetent. As we've seen, the way in which you put information on to a radio wave has *nothing whatsoever* to do with its basic frequency — 27mHz, 934MHz or whatever — which is the *only* factor determining how it will "propagate" or get around. Some of this particular moonshine comes from the fact that to demodulate FM is a little more difficult than to demodulate AM and that some early FM receivers were a little deficient in this area.

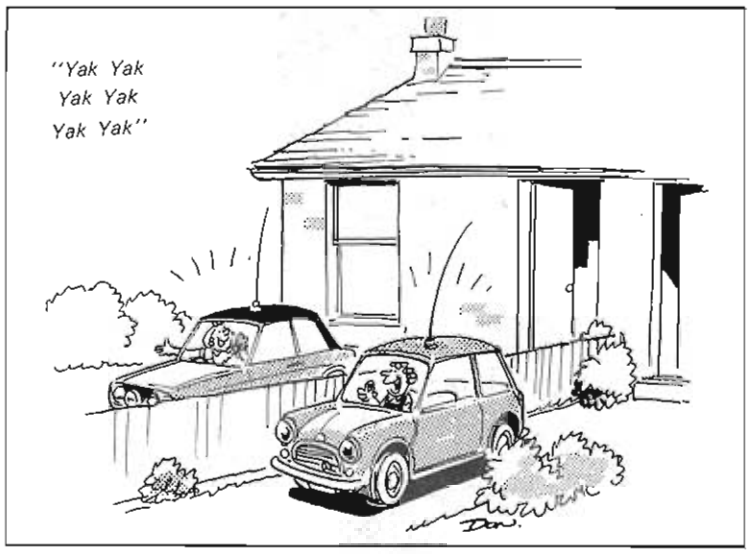
5 TO 20 MILES

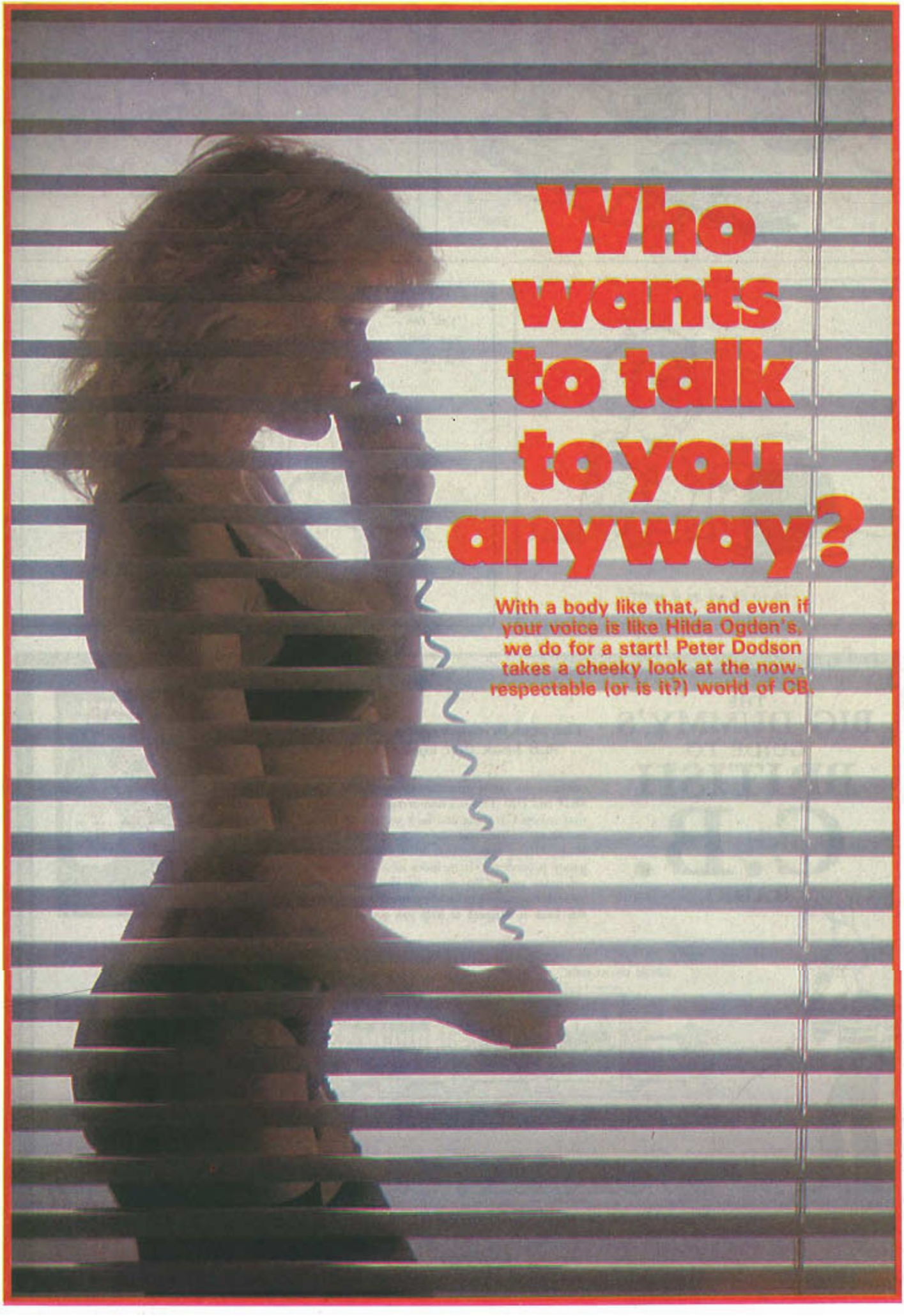
It's the frequency which determines the range (obviously factors such as transmittar power and aerial height do too, but they'll be the same whatever modulation you use) and the type of modulation has nothing to do with it. The only exception would be some exotic modulation systems which most certainly don't concern us here, and it's only true for them because they spread the basic frequency all over the place. For FM and AM — no sir!

27mHz, whether it's AM or FM, probably has a range under normal circumstances of 5 to 20 miles, depending on the aerial in use more than anything else. "Skip" ranges don't count, since they're (a) dependent on propagation and (b) aren't what CB is intended for — if you want to yack round the world, do the job properly and get an amateur licance instead of faffing about and playing at it on a band that'll be useless for worldwide communication anyway in a few years. 934mHz will vary very much depending on where you are. If you're up on a hill, it'll probably get you 15 or 20 miles; it will also depend on how good the receiver is and what sort of antenna is used. For mobile use in town, don't expect more than a couple of miles.

The other big hangup with AM, by the way, is that it tends to clobber TV sets, hi-fi, etc, a lot harder than FM does. It's a bit beyond the scope of this article to explain why, but you can take it as the gospel truth. Please note, by the way, that I'm not writing this from the point of view of the CB user — AM or FM. In other words, I have no AM or FM bias except from a purely engineering point of view, and if I thought AM was better for CB, from a technical point of view, I'd say so. No one is giving me a rake-off for being biased towards FM; the thing is that my bias is a technical and engineering one based on facts.







Who wants to talk to you anyway?

With a body like that, and even if your voice is like Hilda Ogden's, we do for a start! Peter Dodson takes a cheeky look at the now-respectable (or is it?) world of CB.

We all know that thee are some people who can't talk to eech other — and there are some who just won't talk to each other. An there are a few miserable buggers who couldn't give a damn!

That's where CB will probably change things. Those aforesaid miserable buggers just might fit e fig into their cars, and then be forced to talk to somebody, even if it's in answer to a cry for help, or to someone who's telling you that your rear lights aren't working!

In eny case, the Post Office's sickly advertising slogan which goes something like "somebody, somewhere, wants to hear from you," will undoubtedly help the CB cause.

In accordance with the original concept of CB as a limited-range personal contact system (but contrary to a belief widely held by many inexperienced breakers), open channel does not offer world-wide communications at the press of a button. With a straight rig, ungarnished by the sophistication of sideband facilities, radio contacts are often distorted, frequently grotty and on occasions conversations could be held with infinitely more ease if shouted out of the window.

If you consider two breakers on the M6 travelling at a speed in excess of 70mph in opposite directions; the aggregate distance they accumulate in two minutes might put them out of range of each other before they could say "Hey you in the baby Dagenham, give us a handle!" Conversely, if they were travelling in the same direction (but hopefully in their respective carriageways!) there wouldn't be much point in one breaker telling the other that it's "clean 'n' green on the big slab" bacause he already knows.

And as a motorist with the average sense of responsibility — which isn't saying very much — negotiating traffic these days is hazardous enough even if paying due care and attention to the task in hand. Just how a breaker can expect to drive the entire length of the North Circular at the rush hour, changing channels and rabbiting on about "Roger-D good buddy, what's your ten twenty c'mon?" without spreading his motor over the back of a bus, I'll never know!

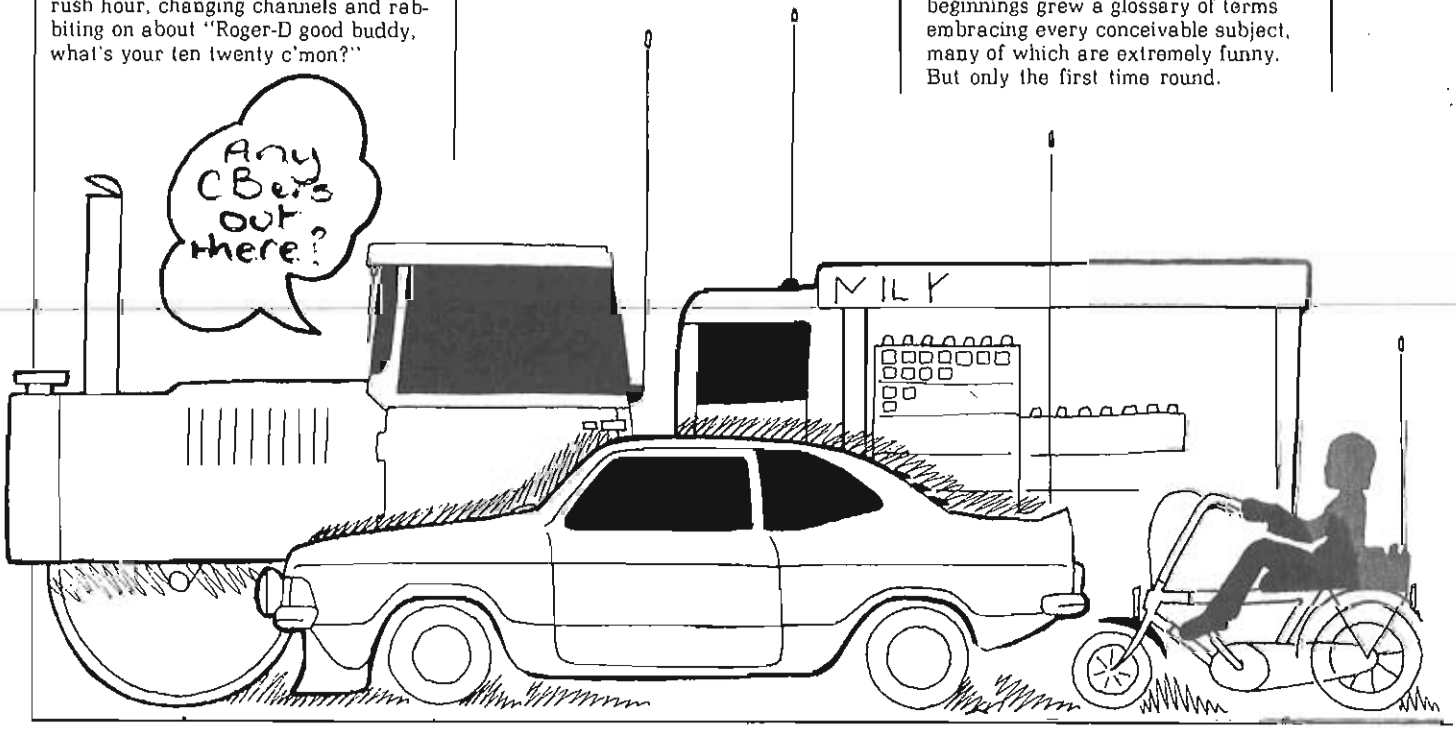
The authorities view the advent of CB with the now-familiar embarrassment of being caught with their official trousers down. Having originally dismissed open channal use as a passing phese, the massive popularity with whicb CB was welcomed in the UK completely overwhelmed them — let alone the limited monitoring resources at their disposal. In its infinite but often confusing wisdom, HMG has managed to produce the usual package of compromised legislation which pleases few but saves their Ministerial faces. Although I sympathise to a certain extent with the impatience of breakers who acquired their AM rigs a couple of years ago, I cannot in all honesty extend similar sentiments to those who have bought AM gear in tha last six months in the full knowledge that FM would be the legal requirement; it's a bit like buying a horse and cart then moaning because you can't take it up the M4. I heve, however, been reliebly informed that there WILL be a trade-in market for AM rigs, so the usual adverts in the technical press can be expected — "For sele, AM CB equipment, one owner from new, never raced or rallied. Willing to exchange for FM rig and heliograph."

Saves the embarrassment of spelling!

But legislation HAS provided an escape from the ridiculous situation whereby a breaker could park on any High Street, flagrantly transgressing the Wireless Telegraphy Act whilst simultaneously being done six quid by some sadistic battle-axe for parking on a double yellow line! But in contrast to the slender chanca of prosecution taken by breakers, the guys who really took a calculated risk were those who supplied CB equipment long before it was made legal. Quite apart from the fact that they were sailing so close to the wind that it just wasn't true, they had no definite indication that CB operation would EVER come within the law; es recently es 1980 the Home Office claimed that there was "No possibility of introducing a CB-type service in the UK due to interference problems". Big business is not given to odds-on bets when it comes to high finance, and I must be forgiven for thinking that maybe they knew something that the rest of us didn't!

Uaers of CB equipment are drawn from just about ever strata of society. Having said that, it must be admitted that the preponderance of breakers feel more at home with leather jackets and page three of the *Sun* than leather briefcases and the *Telegraph*. It may be true that silvery-tongued eloquence isn't everything, but thera are breakers who, to my certain knowledge, have a better understanding of the language of CB than they have of the Queen's English. Not, I hasten to add, that prolonged conversations of highly technical or academic content are conducted on CB bands, but even if they WERE, using a speech medium protects breakers from the rigours, not to say-the embarrassment, of spelling! Indeed, having exchanged handles, ten twenties and established the fact that both parties are using identical Jap rigs, there isn't a lot to talk about. Unlike Amateur DX operation, where conversation with foreign nationals gives an unlimited choice of topic, being five miles away from your correspondent doesn't give a great deal of scope for environmental exchenge — not even the weather!

And when it comes to CB language, the novice has a great deal to learn. The terminology is based on the principle of never calling a spade a spade, never using a couple of words when ten would suffice, and beats Cockney rbyming slang into a cocked hat for confusion. Originally invented as a way of avoiding any accusation of complicity in evading law-enforcement agencias, the langauge and its translation have been so well publicised as to render any plea of ignorence completely unacceptable. From these small beginnings grew a glossary of terms embracing every conceivable subject, many of which are extremely funny. But only the first time round.



It is perhaps this American mode of conversation that gets up the noses of CB critics more than anything else. Admittedly it was the Yanks who first brought CB to the world, but with the possible exception of bubble gum and TV films, we British have nearly always withstood the pressures of any trendy influence from the United States. "Overpaid, oversexed and over here" is still a traditionalism many hold dear!

For one thing, the diverse local dialects of the British Isles can be difficult enought to understand without the added complication of a superimposed Texas drawl. And what could sound more ridiculous than a gradely lad from Bolton emulating John Wayne with his "negatory on my handle old buddy, I repeat this is Blue Grass Fly down and gone!"

And before leaving the subject of language, there hes been a marked increase of late in the use of the profane variety on channel. As an acknowledged expert in the use of bad language in times of stress, I cannot justifiably condemn the practice on moral grounds. I do, however, understand that it causes distress to breaking bishops, nuns on the side and others of a sensitive disposition. It also gives me an inferiority complex in that my sons now know more swear words than I do, and the budgie is so confused that it has stopped talking altogether.

"What could sound more ridiculous than a gradely lad from Bolton emulating John Wayne . . ."

Seriously, the practice of using obscenities (if you will forgive such a pompous term), on crowded streets is bad enough, but to hide behind the anonymity of a radio set is despicable, and the CB movement has no use whatsoever for those who feel that they must dump their filth on the airwaves, just for the hell of it!

The original concept of CB as a form of personal contact undoubtedly has it's benefits — although with a couple of million breakers tuned to the same frequency I would hesitate to call the system "personal". Certainly, any attempt to whisper the most intimate thoughts to your loved one over a CB rig would be prone to interruption from some heavy breathing breaker who would blurt out "— and ten-four on THAT, big buddy" just as you get to the juicy bit!

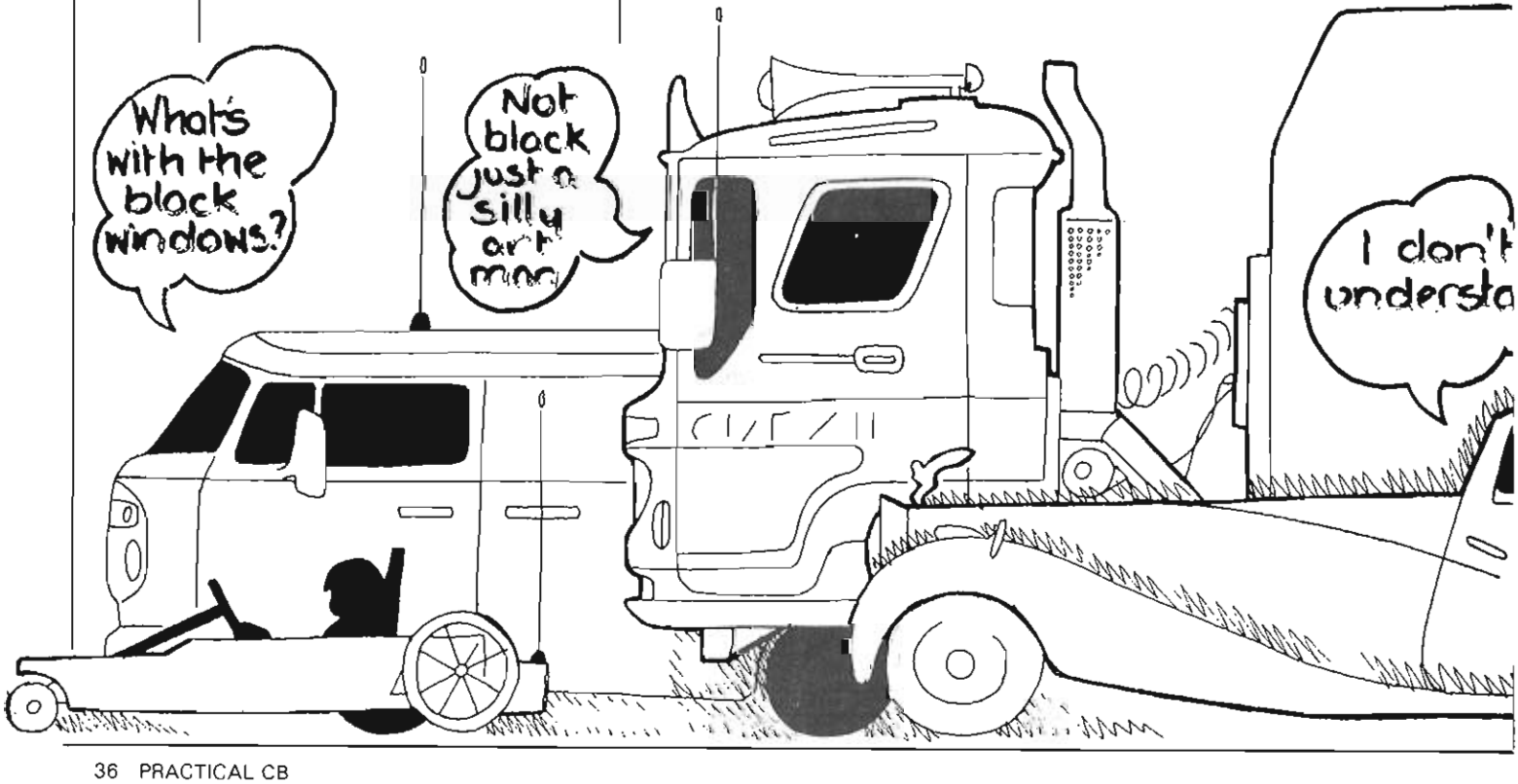
In real terms, CB offers little in the way of financial remuneration to the motorist. It might save you some of the hassle of traffic jams, but is no guarantee against apprehension by the strong arm of the law, should you be driving in a manner likely to cause a breach of the peace. Police cars have a disconcerting habit of NOT being where you have been told they are lurking, and before you can say "ten-four on the bears" there's a little blue light flashing in your mirror and you are getting the old chat about "— and how's Mr Hunt this morning?"

"Causes distress to breaking bishops, nuns on the side and others of sensitive disposition."

Similerly, in the event of an emergency, CB is not an insurance against all misfortune: a channel nine call to the effect that you have broken down can eesily attract mechanical predators who will further intensify your immobility by removing the wheels as well! Furthermore, a plea for help in the event of impending actual bodily harm at the hands of a bevy of heavies is not likely to summon much, if any, help. On the other hand, the threat of being sexually assaulted by six Amazonian blonde honies will summon a score of eeger breakers only too anxious to lend a helping hand — or anything else for that matter, but who is going to shout for help in a situation like that!

Although official short-wave redio communication has been adopted by organisations as widely diversified as construction firms and motor clubs, the cost IS high. CB may not offer the same quality of equipment and signal, but it does provide a partial solution to problems that hitherto didn't have an answer — which is a nice way of saying that it's better than nothing! To quote a few examples, a rock climber hanging by his crampons to a craggy mountain would welcome a word from his sponsor, even if it is only to administer the last rites: skiers, yachtsmen, even those afloat on the Broads are, by the very nature of their hobbies, prone to danger, but are singularly isolated when it comes to making someone happy with a phone call! And as has already happened in the States, ladies of the night use the broadcasting espects of radio communication to their considerable advantage in attracting custom — not to mention a drooling escort of voyers! Who knows what the future will hold if the principles of CB are extended to the ultimate conclusion and domestic conversation as we know it ceases to exist. But although the confrontation with bank managers and mothers-in-law will be a thing of the past, the problem of maintaining the birth rate with a 27MHz rig is one which will demand all the technological expartise at our command — and STILL won't be so much fun!

On the technical side, CB rigs are installed for a variety of reasons, only one of which is an interest in radio communications. I must admit to a sneeking suspicion, prior to leglislation, that many of the younger element of breakers joined the ranks by virtue of the fact that it WAS illegal, and they derived some perverse pleasure



from acting illagally and so building for themselves the image and mystique of the outlaw. This action in itself would be sufficient to pull the birds, if not actually reducing them to a suitably permissive disposition. That, in the end, must be all down to the individual breaker's personal charm and those interested in this aspect should note that few girls nowadays will surrender their virtue for a Coke, 20p worth of chips and a bit of rock salmon!

The know-how necessary for the installation of a CB rig is confined to the practical application of a screwdriver and a reasonable familiarity with self-tapping screws. You also require tha ability to bore holes in motor cars without benging the drill right through the bodywork and endangering any vital organs — be they your own or the car's: en added asset is enough knowledge of basic electricity to understand that, unlike plumbing, you don't string all the bits together like radiators! There ARE more sophisticated electrical aspects such

"Gentlemen who hail from Littlehampton tend to keep very quiet about it."

as eerth returns and correct polarity connections, but these are dealth with adequately elsewhere.

At this junctura, I would ventura a word about linear amplifiers, more commonly known as burners, foot-warmers, boots and in Ireland, wellies!

Before fitting one of these components, you would be well advised to consider that having increased your output phenominally (without necessarily increasing your range), they will also drain your battery, and incur the intense displeasure of your fellow breakers by bleeding all over them — and many other users of HF as well! There has already been a classic case of this neture up north, when a breaker wes using a boot that gave him no less than 1,000 wetts from his base rig, right next door to an ambulance station, with dire results. His activities were, thankfully, curtailed by action on the pert of the local CB associetion, who leant on tbe offender with enough muscle to convince him of the error of his weys! And in the absence of official control, local CB influence of a responsible nature can be of incalcuable value of open channel wants to achieve the respectability it seeks. The use of burners, I might add, is outlawed in the States, and there is a growing movement among British breakers to have them banned here as well. If a marginal improvement in power and a deal of selectivity is all you want, go side-band — join the elite of breakers and effectively halve the number of scroungers who turn up for a drink should you inadvertently mention on channel the fact that it's your birthday!

No self-respecting feature on citizens band radio would be complete without some reference to the all-important subject of "handles". During the pre-legal days of CB, an obvious naed for both identification and self-defence brought about the adoption of bizarra code names by breakers, and the choice was dapendant upon a variety of criteria that ranged from their professional calling to individual physical attributes — or lack of them. "Opposite Lock" denotes an avid interest in rallying, whilst "Big John" could be interpreted as a statement of fact or an indulgence in over-wishful thinking. Similarly, geographical location features in many code names, although this is not a practice favoured by lady breakers from Bristol, and gentleman who hail from Littlehampton tend to keep very quiet about it!

By and larga, CB enthusiasts are orientated towards communications SYSTEMS, rather than being concerned with the theoretical and technological aspects of the subject. Whilst preparing my meterial for CB 81, I spent e lot of time on the premises of a well-known Cheltanham CB supplier, and I had ample opportunity of studying his clientele. With the confident air of the communications expert they would prattle on about the relative advantages of various components, neme-dropping little gems such as power mikes, base-wound antennas, SWR meters and

"He sniffed, poked a clinically lethal finger in his ear and said: Well, er. It boosts the old signal up, don't it?"

all the multifarious junk that an astute trada throws up to tempt the gullible. And when i asked one of these acknowledged spacialists, resplendent in bis leather gear, studs, cowboy boots and acne, how a linear amplifier actually worked, he sniffed, poked a clinically lethal fingernail in bis ear and said:

"Well, er, it like boosts the old signal up, don't it?"

"Yes, it does, but HOW?"

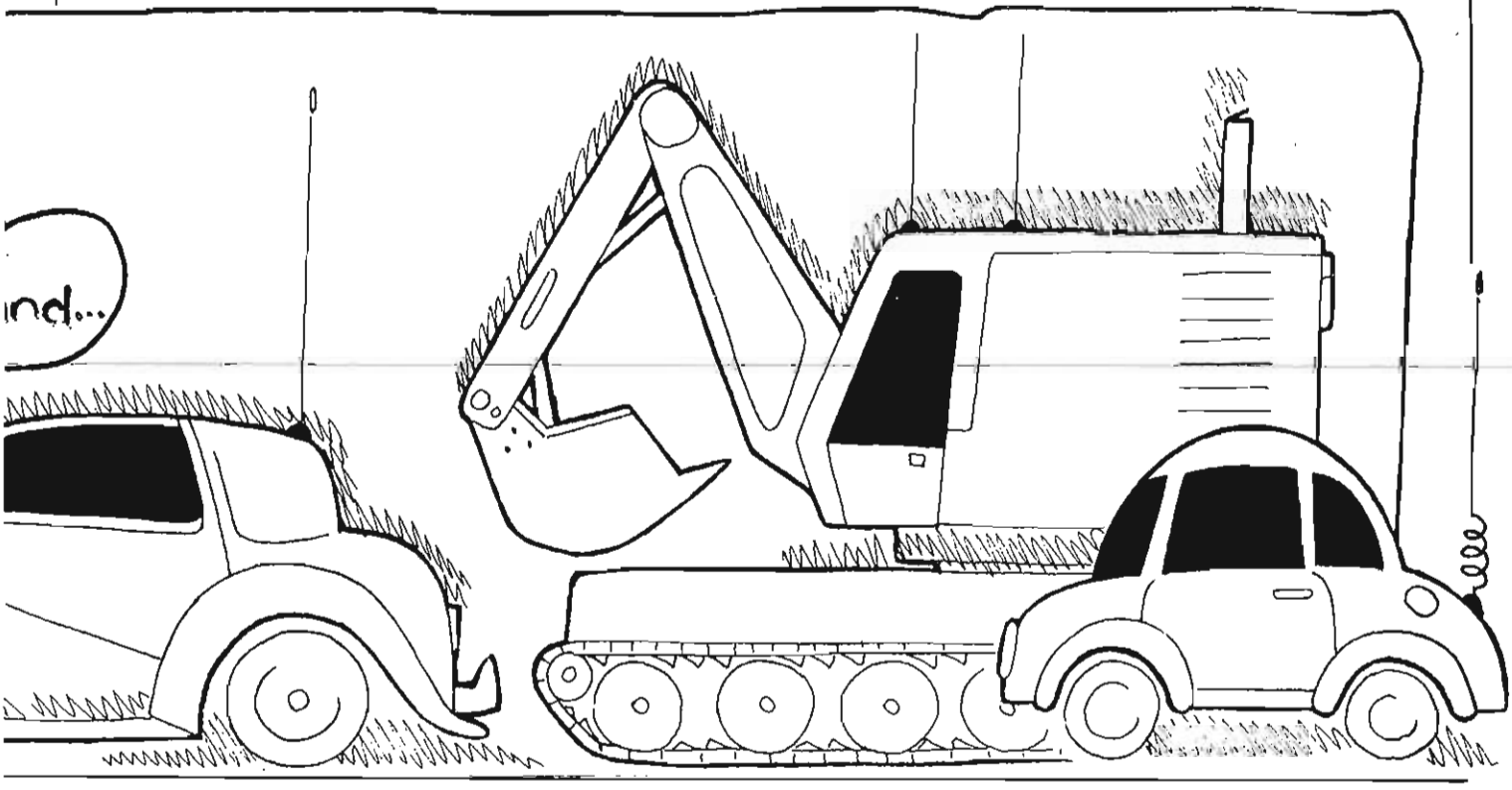
"S,'like this, innit, it like loads the old waves an' that."

Further questions proved equally fruitless, and I reminded my friend that he was now a responsible, licensed breaker, authorised to operate under the Wireless Telegraphy Act.

"Listen, mate —" be said, somewhat ruffled, " — you gotta telly licence?"

"Yes, of course I have."

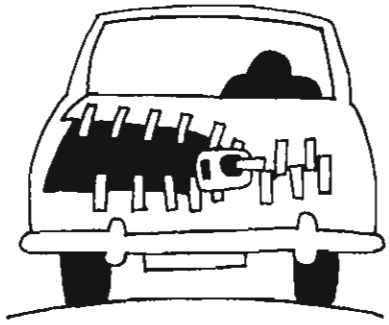
"Right, tell us 'ow the bleedin' fing works den!"



CEEBEESPEEK

A

Ace	The MAN; important breaker
A little help	Additional power
Affirmative	Yes
ANL	Automatic Noise Limiter
Alligator station	Big mouth/incessant talker/a radio station that transmits but doesn't receive



B

BTO	Big Time Operator
Baby bear	Young policeman
Back door	Last vehicle in a line
Background	Interference
Back to you	Awaiting your reply
Bailing out	Leaving the highway
Base station	Rig based in one location, ie at home
Bareback	Driving without CB
Barefoot	CB without an amplifier
Barley pop	Beer
Barnyard	Truck with livestock
Basement	Channel One
Bean store	Restaurant/service area
Bear	Policeman
Bear bite	Get a ticket
Bear cave	Police station
Bear in the air	Police in aircraft
Bear in the bushes	Speed trap
Bear taking pictures	Radar trap
Beaver	Female
Big circle	North Circular Road
Belly up	Overturned vehicle
Big brother	Home Office, police, GPO
Between the sheets	Sleeping
Bible	Log book
Big daddy	Home Office, GPO
Big four	Yes
Big slab	Motorway
Big switch	On/off switch
Bird cage	Liverpool/Heathrow Airport
Black box	Hearse
Black water	Coffee
Bleed over	Breaking into other channels
Blood box	Ambulance
Blue light	Police car
Blue note	A5 road
Bodacious	Receiving well
Bone box	Ambulance
Booh tube	Television
Boots	Linear amplifier
Boot rest	Accelerator pedal
Brain bucket	Crash helmet
Breaking up	Signal cutting out
Brew	Tea
Bring it back	Call for e reply
Bubble trouble	Puncture
Bucket mouth	Obscene talker
Bull jockey	Someone who talks nonsense
Bumble bee	Motorcycle
Bumper jumper	Vehicle following close behind

C

Can	CB rig casing
Cancer stick	Cigarette
Camera	Radar trap
Carpet crawler	Kid
Cash register	Toll bridge/road
Cement mixer	Noisy engine
Channel jockey	CBer
Charlie's Angels	Police woman
Check seat covers	Look at lady passengers
Chew and choke	Restaurant/service area
Chick	Woman/girl
Chicken box	CB rig
Choke and puke	Motorway service area/road cafe
Chopped top	Short antenna
Chrome dome	Roof aerial
Clean	No CB in car
Clean and green	Clear ahead
Clip joint	Hairdressers
Co-ax is ringing	Call for a specific CBer
Coffee pot	Restaurant
Come back	Your turn to talk
Confetti	Snow
Convoy	Line of vehicles in CB contact
Cool it	Slow down/watch out police
Copy	Receive
Copying the mail	Listening to other breakers on the CB
Coupon	Speeding ticket
Covering ground	Speeding up
Cowboy	Flashy character
Crank your handle	What's your handle?
Cruising	No particular destination
Cutting loose	Stopping transmission
Cut the co-ax	Signing off

D

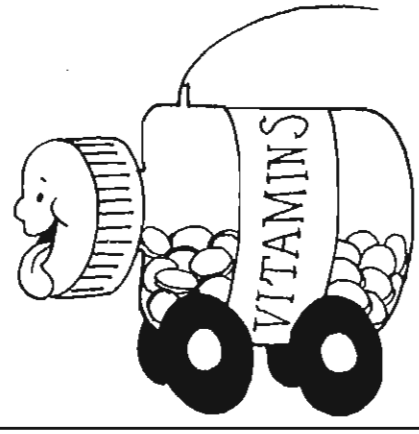
DDT	Don't do that
DX	Long distance
Dagenham dustbin	Ford car
Dandruff	Snow
Dead wheel	Flat tyre
Diesel digit	Channel 19
Dog biscuits	Decibels (dB)
Do it to it	Drive very fast
Do you copy	Do you read me
Don't feed the bears	Don't get caught speeding
Double 88's	Love and kisses
Down	Stopping transmission
Down and gone	Stop transmission and switching off
Down on the side	Stop transmission and standing by
Driving on the peg	On the speed limit

E

Ear ache	Problem with antenna
Ears	CB radio or antennas
Ears on	CB switched on
Easy chair	Middle vehicle(s) of three or more
Eighty-eights	Love and kisses
Envelope	Unmarked police car
Evel Knievel smokey	Police on a motorcycle
Eyeball	To meet another CBer in person/to see another CBer

F

Fancy seat cover	Pretty girl
Feed the bears	Get a speeding ticket
Feet	Tyres/linear amplifier
Fender bender	Accident
Final	Last transmission
Fireworks	Police car with flashing lights
Five by five	Good signal
five finger discount	Stolen goods
Fixed station	Base station
Flap jaw	Constant talker
Flaps down	Slowing down
Flicks	Cinema
Flip flop	Return trip
Flop box	Bedroom
Flop stop	Overnight stay
Flyboy	Speeding driver
Footrest	Throttle pedal
Foot warmer	Linear amplifier
Four	Abbreviation of 10-4
Fox hunting	Home Office trying to catch CBers/waisting time
Front door	First vehicle in a convoy
Front end	First vehicle in e convoy
Full of vitamins	Big engine/strong signal
Full sails	Driving very fast
Funning	Joking
Fuzz buster	Radar detector



G

Galoshes	Linear amplifier
Gang plank	Bridge
Garbage	Interference
Garbage mouth	CBer who swears
Get a transfusion	Stop for petrol
Give it a message	Speed up
Get horizontal	Go to sleep
Getting out	Good signal
Gimme five	Wait a few minutes
Go breaker	Go ahead speak
Go-go juice	Fuel
Going down	Turning off CB
Going down on the side	Signing off but still listening
Going into the sunset	Heading west
Goldilocks	Woman with blond hair
Good lady	Female good buddy
Goodies	CB accessories
Get a copy	Do you read
Got my foot on it	Speeding up
Got your ears on	Is your CB on
Gravel agitator	Hitch-hiker
Greasy	Icy road
Greasy side up	Overturned vehicle
Green apple	Inexperienced CBer
Green light	Road clear of police
Grizzly	Police
Grounded	Driver outside vehicle
Gypsy	Owner/driver trucker

H

Hammer back	Decelerate
Hammer down	Accelerate
Handle	CB coda name
Hang out	Monitor a channal
Hang ten	Speed up
Hash	Interference on channel
Heater	Linear amplifier
Hen fruit	Eggs
Henry's	Ford vehicles
Hiding in the bushes	Hidden police vehicle
High rider	Truck driver

Hole in the wall	Tunnel
Home free	Arriving at destination safely
Home on its back	Camper
Home port	Base location
Home 20	Base location
Honey bear	Police woman
Horizontal	Asleep
Hot foot	Linear amplifier
Hot load	Cargo carried in a rush
Hot stuff	Coffee or tea
Hump	Mountain

I

Ice box	Jail
Idiot box	Television
In a short	In 5 minutes
In the dog house	Under the bonnet of a vehicle
In the hole	Stopped or arrested by police
In the mud	Bad transmission
In the pen	CB not in use/parked up
Indians	Neighbours who have TVI (television interference)
Instamatic	Police radar

J

Jabber Jaw	CBer who talks too much
Jack it up	Accelerate
Jaw jacking	Taling on CB
Joy juice	Alcohol
Juice	Fuel
Juice stop	Patrol stop
Jump down	Switch to a lower channel
Jump up	Switch to a higher standard
Junk buzzard	Tramp
Junk yard	Place of employment

K

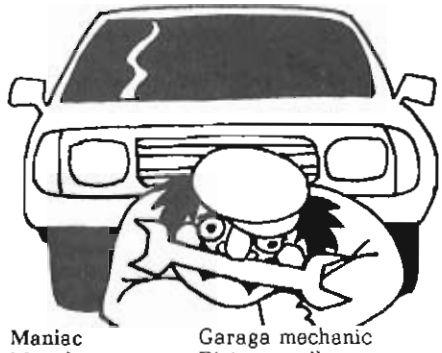
Keeping between the ditches	Driva safely
Keyboard	Dials on a CB radio
Keying the mike	Pressing tha mike button
Kicker	Linear amplifier
Kiddie can	School bus
Kidney buster	Rough ride
Knocking on your back door	Coming up from bahind
Knuckle buster	Fight
Kodak	Polica radar
Kojak with Kodak	Police with radar

L

LSB	Lower sideband
Lady breaker	Female CBer
Land line	Telephone
Lay it on the floor	Accelerate
Lay over and listen	Stop transmitting but still listening in
Left	West
Left shoulder	Behind you
Let it go	Accelerate
Let it roll	Accelerate
Lettuce	Money
Lie sheet	Lorry driver's log book
Light footing it	Driving at the maximum legal speed
Lights green	Road ahead clear of police
Linear lungs	CBar with loud voice
Little box	Linear amplifier
Little mama	Short antenna
Living dead	Driving too close to vehicle in front
Living space	Home
Loaded for bear	CBer who has police radio listening equipment

M

MOL	My old lady
MOM	My old man
Mafia squad	Tough group of truck drivers
Make a trip	Change channels
Making the trip	Sending out a good signal
Mama	Wife
Man in white	Doctor



Maniac	Garage mechanic
May day	Distress call
Maxi taxi	Bus
Meany men	Home Office/GPO etc
Meat man	Butcher
Meet waggen	Ambulanca
Meeting twenty	Meating place
Micro bus	Van
Midnight	South
Midnight shopper	Thief
Mike	Microphone
Mike fright	CBer narvous about using microphone
Mixerologist	Barman
Mobile	Vehicle/CB radio
Mobile mattress	Car pulling a caravan
Mobile rig	CB in vehicle
Modulating	Talking on a CB radio
Modulation	Voice/conversation
Monitor	Listaning to the CB
Moonlight	Drive along back roads to avoid police
Motbball	Annual CB convention
Motion lotion	Fual
Motivate	Move
Motoring on	Driving on
Motor mouth	Someona who talks too much
Mouthpiece	Microphone
Move	Vehicle driving along
Movie camera	Vascar
Movies	Police with Vascar
M20	Meeting place
Mud	Coffee/interfarenca on channel
Mushy	Bad signal

N

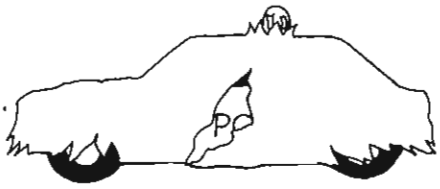
Nap trap	Motel rest area
Natives	Local CBar
Nature call	Halt
Negative	No
Negative contact	CB called does not respond
Negative copy	No answer/answer is not understood
Negatory	No
Nerd	Twit
Nickel bridge	Toll bridge
Night crawlers	Police are everywhere
Noise blanker	Part of a CB that halps to reduce interference
Noise limiter	Basically same as abova
Ner' bounder	Vahicle heading in a northerly direction

O

OK	Sign off
OM	Old man/husband
OW	Old woman/wife
Oasis	Truck stop/lay-by cafe
Oil burner	Vehicle with smoke coming from exhaust
On skip	Faint signal
On standby	Listening in
On the by	Listening in
On the fly	Driving fast
On the peg	Driving at maximum legal speed
On the shore	On the side of the road
On the side	Listening in
One armed handit	Petrol pump
One eyed monster	Television
Open season	Police everywhere
Other half	Husband/wife
Out	Stop transmitting
Out stripped me	Passed by a very fast vehicle
Out to lunch	Not answering
Over modulation	Talking too close to the microphone

P

P&Ds	Pick-ups and deliveries
PC	Printed circuit
PTT switch	Push to talk switch on microphone
Pajama wagon	Truck with sleeping facilities
Pan handlers	Nurses
Pants on fire	Getting stopped for speeding
Parking lot	Traffic jam
Party hat	Lights on roof of a police vehicle
Pause for a cause	Rest area
Peak power	Maximum wattege
Peaked up	CB redio putting out more then standard watts
Peanut whistle	Low powerad CB set
Pedal down	Speed up
Pedal pusher	Cyclist
Peel off	Turn
Peppers	Police
Peg leg	Driver who kaeps braking when not necessary
People car	Bus
Persuader	Linear amplifier
Photographer	Police with radar
Pick a clean one	Change to a channel with less interference
Picnic	Drinking perty
Picture box	Police radar
Picture taker	Policeman with radar
Pigeon	Person who is caught speeding
Pigeon plucker	Policeman pulling in speeding motorists
Piggyback	Small trailer
Pinball machine	Vehicle with flashing light
Pink panther	Unmarked police car
Pitstop	Layby cafe; rest area
Plain brown wrapper	Unmarked police car
Plane pit	Airport
Pokey	Prison
Polaroid	Police radar
Polo mint	Roundabout
Porcupine	Vehicle with several entennas



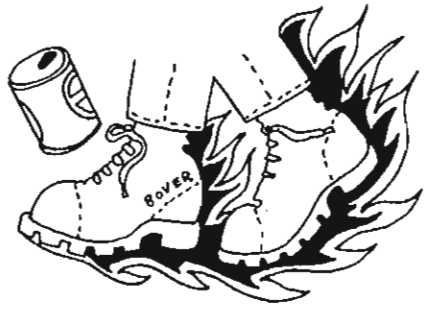
Portable can	Tanker
Portable rig	CB that can be carried or moved with own antenna and power source
Potato juice	Vodka
Pound meter	"S" meter
Pounds	Meter reading in "S" units
Press some sheets	Sleep
Press cooker	Sports car
Prime time	Time spent with wife or girlfriend
Prefessional	Truck driver
Pulling the plug	Turning off the CB
Pump	Linear amplifier
Pushwater	Petrol
Pushmobile	Vehicle moving very slowly
Pusholine	Petrol
Put your shoes on	Turn power up/amplifier on

R

RF	Radio frequency
RVM	Rear view mirror
Ratchet jaw	CBer who talks a lot on chennel
Rack	Bed
Radio	CB radio
Rag top	Convertible car/soft top
Rags	Bad tyres
Rain locker	Shower room
Read	Hear
Reading the mail	Monitoring
Rebeund	Return journey
Red box	Ambulence
Redneck radio	CB conversation using only CB slang
Reefer	Refrigerated lorry
Rembrandt	Painter and decorator
Rent-a-bear	Private security guards
Rib	Wife
Ride shot gun	Be a passenger
Rig	CB truck
Rig rip-off	Stolen CB set
Right	East
Ringing your bell	Someone's calling you
Rinky Dink	Small CB radio
Rip strip	Motorway
Road tar	Coffee
Roger	Yes/affirmative
Roger D	Message received and understood
Rodger dodger?	Do you understand?
Roller derby	Accident; wrecked car
Roller skate	Small car
Rolling	Moving
Rolling bears	Police on the move
Roundy-roundy	Roundabout
Rubber duck	Lead CBer in a line of two or more vehicles
Rubber lips	Someone who talks too much
Ruhber neck	Slow down to look at accident
Rude dude	Reckless driver
Run out of road	Accident/wrecked vehicle
Runner	Police cbase car
Running a boot	Use of linear amplifier
Running bear	Police on the move

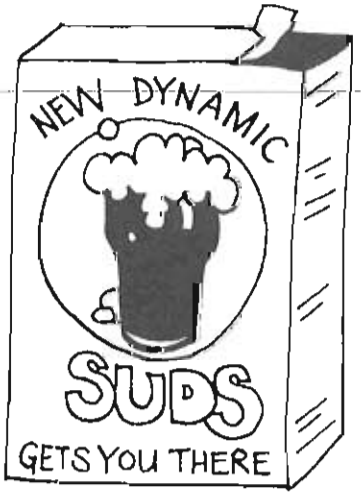
S

"S" Meter	Meter which meesures level of signal
SSB	Single side band
SWR	Standing wave ratio
Saltmines	Place of employment
Salt shaker	Road gritting vehicle
Sand bagging	Monitoring; listening in on a CB radio
Sand blaster	Road gritting vehicle
Sandbox	Bathroom
Say again	Repeat tha transmission
Set of doubles	Truck with trailer/artic
Seven threes	Sign off
Seventy three	Best wishes
Shack	Room where CB set is installed
Shaking the windows	Receiving clear signal
Sheep herder	Hopeless driver
Shim	To boost power of CB radio above normal
Shoe box	Car/ven



Shoe burner	Pedestrian
Shoes	Linear emplifier
Shoot the hull	Speak/talk
Short short	Soon/rest room stop
Shot down rig	Sub-standard CB set
Shoulder boulder	Abandoned vehicle parked on side of road
Shovel coal	Accelerate
Show off lane	Overtaking lane
Side door	Overtaking lane
Silly side	Single side bend
Sinking ship	Vehicle running low on fuel
Singing waffles	Radial tyres
Sit on it	Be quiet
Sit rep	Location report
Sittin' by	Stop transmitting to allow another CB to use channel
Sixes and eights	Best wishes
Skate jockey	Driver of small high performance vehicle
Skating rink	Slippery road
Skin clock	Watch
Skins	Tyres
Skip	Communication reflected by ionosphere
Skipper	CBer who transmits
Sky bear	Police helicopter
Sky hook	Base station antenna
Slab	Motorway
Slanty eyed	Japanese vehicle
Slaughter house	Channel II
Sleep it off tank	Jail/prison
Sleeper	Truck that has a sleeping compartment
Slider	Between channels/ sliding bracket for CB radio
Slip and side	Slipper road
Slop	Bad fuel
Smashed	Overpowered by e stronger signal
Smoke	Police/London
Smoke city	London

Smoke 'em out	Speed slightly to bring police vehicles out of hiding
Smokey report	Police location
Smoke signals	Police in area
Smoke screen	Police radar
Smokey bear	Police
Smokey beaver	Policewoman
Smokey dozing	Parked police car
Smokey on the ground	Policeman on foot
Smokey's trackin'	Police using redar
Snafu	Situation normal all fouled up
Snake	"S" curve on road
Snake den	Fire station
Sneaky snake	Hidden police vehicle
Sniper	Hidden radar trap
Snooperscope	High atenna
Snoreshelf	Bed
Socks	Linear amplifier
Soda fountain	Truck carrying bottled gas
Sore foot	Flat tyre
Sou' bounder	Vehicle headed in southerly direction
Sounding choice	Clear reception of signal
Spaghetti bowl	Motorway intersection
Sparky	Electrician
Spin out	Spin/skid
Splat hat	Crash helmet
Splash	Spill over from one channel to another
Splashed on	Interrupted on channel by someone breaking in
Splatter	Interference on channel
Split	Motorway intersection
Spring water	Beer alcohol
Square wheels	Parked up
Squelch	Unit which cuts out interference on a CB
Stack	Exhaust on a diesel vehicle
Stage stop	Truck stop
Stand by	Hold on/wait
Stick	Mobile CB antenna
Stomped	Overpowered by a stronger signal
Strangle	Turn off
Strapped for time	Late
Streaker	Speeding sports car
Streaking	Full speed
Strip her	Unload truck cargo
Stroller	CBer with a walkie-talkie
Struggling lane	Left hand lane
Stuffy	Congested channel
Sucker brakes	Air brakes
Suds	Beer
Suicide cargo	Dangerous cargo
Suicide jockey	Truck driver carrying a cargo of explosives



Sunbeam	Comedian
Super cola	Beer
Super slab	Motorway
Superstructure	Bridge
Sweep the leaves	Last CB vehicle in convoy
Swimming pool	Pond/lake
Swindle sheet	Truck driver's log sheet
Swinging beef	Frozen meal in a refrigerated lorry

T

TR switch	Transmit/receive switch
TVI	Television interference
TX	Telephone
Tags	Number plates
Tailboard artist	Someone who thinks he drives perfectly
Talking skip	Talking to someone at a great distance due to a reflectad signal
Tar	Coffee
Tear drops	Onions
Ten bye-bye	Sign off
Ten code	Abbreviation code
Ten four	Yes
Ten pounder	Excellent reception
Ten roger	Message received
Ten ten	Stopped transmitting but monitoring
The man	An official
Thermos bottle	Milk tenker
Thin	Weak signal
Thin man	CBer who gives a weak signal
Thread	Wires on a CB set
Tbrees and eights	Best wishes/sign off
Throw a shoe	Get a flat tyre
Throwing	Transmitting
Tiger in tank	Linear amplifier
Tin bender	Sheet metal worker
Tooled up	Boosted CB set
Toothpicks	Telegraph poles
Top of the shop	Channel 40
Tractor	Lorry without a trailer
Trading stamps	Money
Training wheels	Provisional licence
Trampoline	Bed
Transceiver	Combined radio transmitter and receiver
Travelling zoo	Truck carrying livestock
Truck 'em easy	Drive safely
Truck on	Move on
Truck train	Tractor pulling two or more trailers
Tuck it in	Move into the left hand lane
Tuned up	CB putting out more than 4 Watts
Turkey	Friendly insult
Turkey area	Rest area
Turtle	Slow moving vehicle
Twelves	Company present
Twenty	Location/position
Twin huskies	Dual antenna
Twin mamas	Dual 9ft antennas

U

URO	Unidentified rolling object
USB	Upper sideband
Under the hump	Tunnel
under the thumb	Unable to pass
Undressed	Unmarked police vehicle
Used food van	Dustbin lorry

V

Voice check	Radio check
VOX	Voice operated relay

W

WT	Walki-talkie
Wagon train	Parade
Wagon wheels	Leyland, Nr Preston
Walked all over	Overpowered by a stronger signal
Walked on	Interruptad by someone breaking in
Walking with boots	Using linear amplifier
Warden	Wife
Washboard	Bumpy roed
Water hole	Rest area
Wearing socks	Using linear amplifier
Weight watcher	Weigh bridge worker
Wierdy	A home-made CB set
We're clear	Sign off/road ahead claar of police
We're down	Sign off
What are you wrapped in?	What kind and colour of vehicle are you driving?
What kind of copy?	Request for a meter reading
What's your eighteen?	What kind of truck are you driving?
Whip	Rod for mobile antenna
Wide side	Empty lane on right
Will you 10-88?	Will you marry me? (Foolish statement)
Wind whipper	Long CB antenna
Window shopping	Looking at pretty girls
Window washers	Storm/cloud burst
Wiped out	CB signal overpowered by stronger signal
Wood pecker	Carpenter
Word nut	Student
Work twenty	Place of employment

X

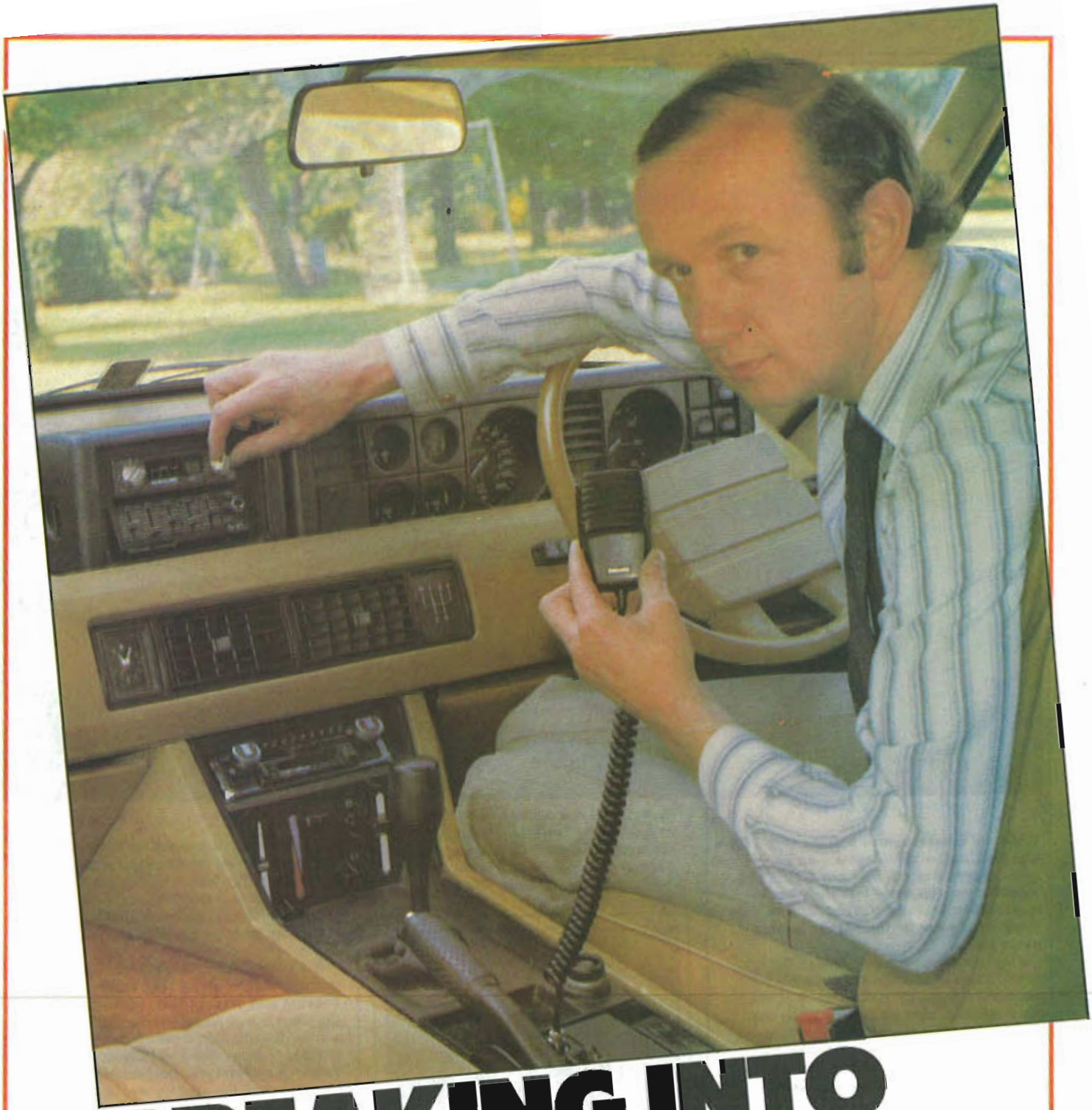
XL	Unmarried woman
XY	Spouse
XYL	Ex young lady
XYM	Ex young man
XYN	Male
X rated roadway	Trucks prohibited
X ray machine	Police radar

Y

YF	Wife
YL	Young lady
Yo	Yes
You got it	Permission to speak on channel
Youngville	Children on channel
You're looking good	Clear reception

Z

Zoo	Police station
Z's	Sleeping



BREAKING INTO BIG BUSINESS

CB is big business. Here, Practical CB talks exclusively with Bill Leech, Marketing Director of Radiomobile, who says they plan to have about seven per cent of the British market before the end of 1981.

Although CB is now well known, it's still a cult. From now, a thorough promotional campaign is needed to educate the newcomers to CB. "It's not a specialised hobby. It's easy to understand and everybody will find a use for CB radio. It is also fun." Chris Drake visited the Radiomobile offices to talk with their top management.

Radiomobile top management. From left to right: Peter Ratcliffe, Marketing Manager; Bill Leach, Director and General Manager; Peter Wilding, Technical Director; Roger Mercer, Radiomobile's consultant.

While we breakers were battling to get CB legalised, and while the police and government were slapping our wrists and sneaking our rigs away into their back rooms, another, more staid battle has been going on. It's one battle that the public never saw.

This battle was going on behind the closed doors of nearly all of Britain's big electronics firms. Until now, many of the big companies have denied implicitly that they have been involved with something as illegal and irresponsible as citizens' band. "Nothing doing at the moment, old boy," some have said. "Just keeping a weather eye open, old chap," say others.

But underneath it all, board meetings were being held, market research carried out quietly and unobtrusively, some of it professionally, and some not so thoroughly.

But let's not beat around the proverbial. ALL firms who have anything even faintly to do with radio, are interested in CB. It's too good an opportunity to miss. With several million breakers already operating in the UK (or even a lowly million, according to one big company) there's a multi-million pound market to be had — especially by the firms who get into the shops first with their rigs and accessories.

And that brings to mind another question. Wouldn't it have been worthwhile for a big company to formulate their marketing, package their rigs and research/develop CB rigs *in secret*, in order to be one of the first on the market?

"Of course it would," says Bill Leech, Director and General Manager of Radiomobile, well known for their in-car radios and tape player combination units. "Because a large firm like ourselves would need three to four months for testing CB radios, setting up the manufacturing and distribution. Anybody who can get in quicker than that might be accused of illegally testing CB rigs, and that's something we have not been prepared to do."

"Anybody who can get in quicker than that might be accused of illegally testing CB rigs, and that's something we have not been prepared to do."

Bill Leech.

Bill Leech added that Radiomobile had probably lost a "major opportunity" because they refused to be concerned with CB when it was illegal to test rigs. Of course, Radiomobile were among the select number of firms who had licences to research and test rigs for possible sale in the UK when the activity was legalised.

The problem was, said Mr Leech, that there were around a-million rigs in use in the UK. "And that's about £50m worth of business, just waiting to be followed up after legalisation.

"If the illegal market had not existed, all the legal makers would begin on the same date and all would have an equal chance at the market. As it is now, anyone who can get in first will capitalise greatly. Naturally this situation is going to favour the smaller firm, who simply imports and markets the sets."

Bill Leech said that Radiomobile did not even consider testing CB units "under the counter" because they had so much at stake if anything should go wrong. At present they are involved in microcomputer applications which are part-financed by grants from the Department of Industry, and there is further co-operation in the Carfax system. So far, said Mr Leech, Radiomobile had spent £¼m on Carfax. "Some good reasons why we did not dare risk going into CB before being allowed to do so," he said.

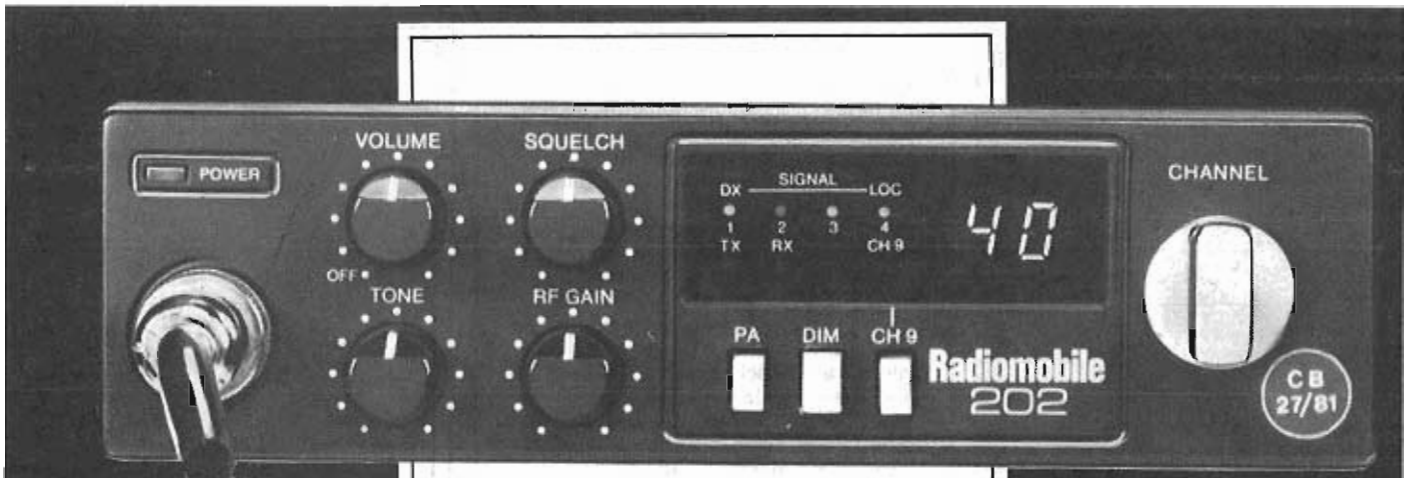
It appears that the legalisation date delay was decided upon in order to give British industry a chance at keeping up with foreign competitors in the UK market. "But it's not working in practice," he commented. "There is no way that in four months — from the date we were allowed to start testing, to legalisation — we can come out with a good range of CB radios that will compete with the best the rest of the world can offer. In general terms, British industry needs about 26 weeks between conception and shop window." He added that 18 months is the proper time scale for a product as new as CB radio.

Of CB's affect on the existing telephone system, and on currently available mobile telephone use, Peter Ratcliffe, Radiomobile's Marketing Manager, commented: "Briefly, the telephone is private, and distance is no problem, so the telephone will still be as popular as ever. As for the mobile telephone business, they have a range of 25 miles, whereas CB is restricted to about 12 miles. Again, mobile telephones are private which means they'll retain their popularity with business executives, salesmen, in fact anybody who wants to keep their conversations private."

"However, says Bill Leech, "we anticipate that 20 per cent of CB buyers will be businessmen." He said that since legalisation, the "breaker's" profile was changing. In the 27AM period, most buyers were in the 16-25 age group. But since legalisation, things are changing — there will be many more over-25 year olds buying rigs and there will be a lot of use by security firms and other semi-commercial organisations. Not to mention REACT and their emergency monitoring service.

"The telephone is private and distance is no problem, so the telephone will still be as popular as ever. As for the mobile telephone business, they have a range of 25 miles whereas CB is restricted to about 12 miles."
Peter Ratcliffe.

The new CB201 from Radiomobile. It is a full 40-channel FM rig with LED channal read-out and it comes complete with a dynamic microphone, brackets and detailed fitting instructions. Price should be about £90. Radiomobile are also expected to launch a range of accessories including a base station conversion package.



Our extremely stylish new CB202 mobile unit will certainly start the professionals talking.

They'll probably mention the squelch tone, the RF gain and LED channel read out. And they may go on about the 4 digit LED S/RF power meter and the transmit, receive and power-on indicators all with dimmer control.

Then of course there's the PA function, the integral speaker with external speaker jack, the PA speaker jack and 40 channels to choose from. We could go on and on.

So why not join the professionals?

The complete package comes with Dynamic microphone, mounting bracket and comprehensive instruction manual. And because we've had 35 sound years behind us, you'll find our experience built into every unit. That should give you something to talk over. Er..10.10.

Also available: the CB201. Ask your dealer for details.

At last, CB to start the professionals talking.

Radiomobile

Goodwood Works, North Circular Road, London NW2 7JS. Telephone: 01-452 3333.

Radiomobile were announcing at least two rigs to the UK market — one is pictured on these peges, along with specifications and prices. More are to be added soon. At whom will Radiomobile aim their rigs? "We will retain our in-car entertainment imege of providing equipment for the top end of the market. Our rigs are well-styled and of good quality. At present we are not anticipating selling to the lower end of the market, although depending upon demand we might re-think that policy," said Mr Leech.

Peter Ratcliffe thinks that the biggest disservice to CB is the American-based lingo. "What we must put across is that CB is for everybody, not a select channel for experts. And it's not just an extension to the ham bands either. The jargon is fun and fairly useful but to some people it's a deterrent and it could limit the sales of CB equipment.

"We've also got to tell the public that the lingo is not a language — once you've got over the two or three necessary terms and phrases, it's easy. And with legalisation there shouldn't be any need for the jargon anyway." Mr Ratcliffe agreed though, that many breakers will still operate on the AM band, and illegal users will need some form of code to protect themselves. So it looks as though the lingo witl hang around — at least for a while.

Radiomobile's thinking behind the sbifting market for CB is that prior to legalisation, about 75 per cent of breakers were in it for the fun, probably because it was an illegal activity. These people will grow up eventually.

After legalisation, this market will die out over a pariod of time, but it will be offset by the expected growth in the FM legal market. "AM is a cult at present," said Peter Ratcliffe, "and it's helped along by tbe illegality of the thing. Mind you, the police seem to have adopted an overwhelming indifference to illegal CB users anyway."

"If we can sell 25,000 rigs a year, the business will be viable. But we think we can sell as many as three to four times that figure next year" — Bill Leech.

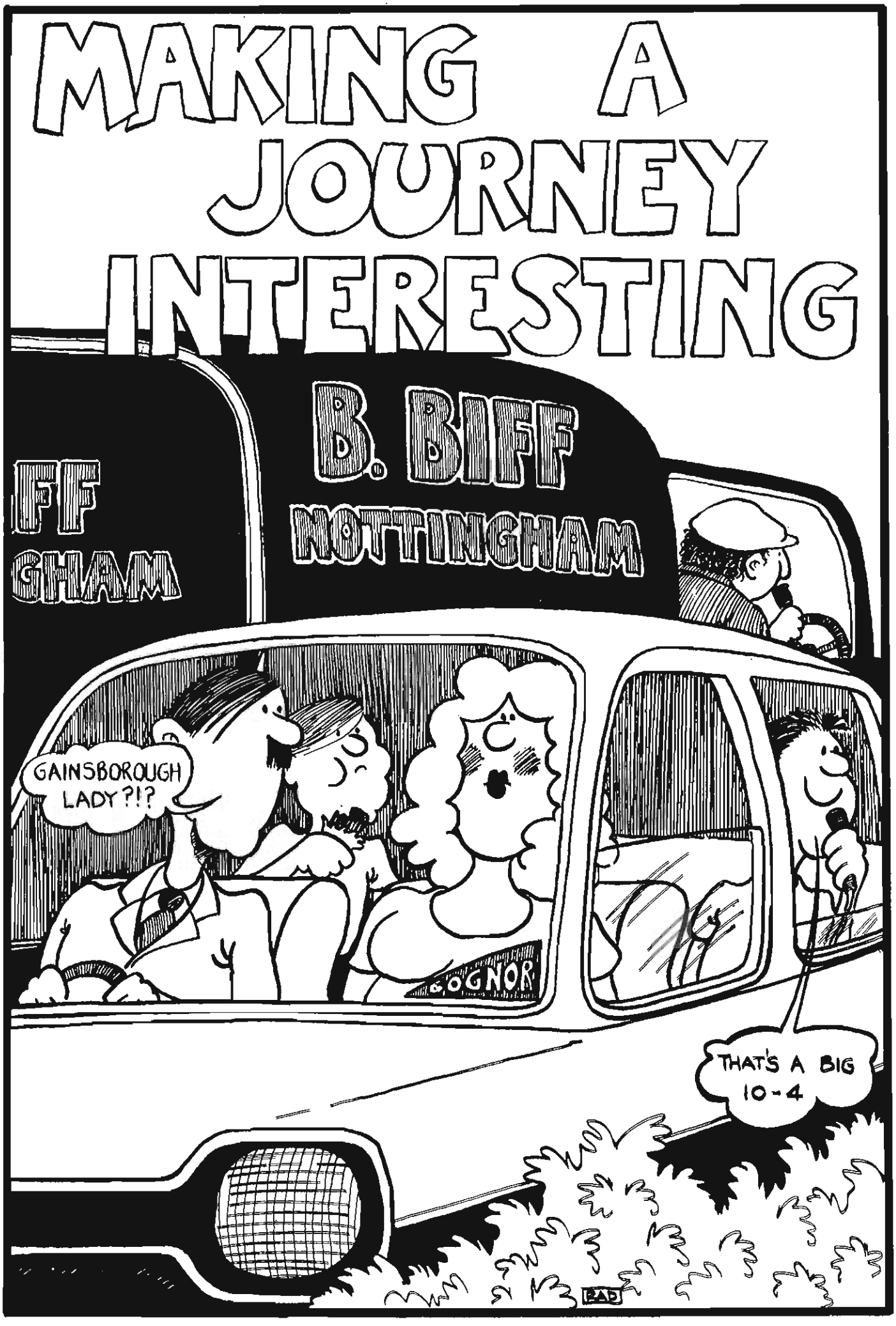
Radiomobile's new CB202, conforming to MPT1320. Controls include squelch, tone and RF gain. There's an LED readout, four-digit LED S/RF power meter, transmit indicator, and dimmer control. Features include PA function, external speaker jack. Price is expected to be around £120.

The market will remain fairly static for a wbile, but then increase by about 20 per cent over the next few years, and finally settle to a figure just below this level. Radiomobile plan to capture between seven to 10 per cent of the legal market in the first year of operation. "If we can sell 25,000 rigs a year, the business will be viable," said Bill Leech. "But we think we can sell as many as three to four times that figure next year."

Radiomobile's research is still continuing over which market sectors will be interested in CB in years to come, and at present they are working on what they are calling a "Desk Top Pack". This is a base station conversion, custom designed and fairly sophisticated with a brightly designed package. This, as with Radiomobile's other rigs, is manufactured in Japan to the firm's own specifications and design, and at the moment the London company don't plan to manufacture their own in the UK. But that doesn't mean they might want to gat out of the market once the initial rush is over.

Said Bill Leach: "The CB market will be there for a long time and it will need a lot of support. We are there to help provida that support." And they're talking about big money. If there were a million illegal rigs being used before legalisation (and we did say IF — there could be many more) then at £50 a time, that's £50m minimum. Radiomobile will be selling their rigs to the upper end of the market, and at £100 upwards.

Now, at £100 a time, 10 per cent of a million-strong market comes to around £10 million . . .


MAKING A JOURNEY INTERESTING
B. BIFF
NOTTINGHAM
FF
GHAM
GAINSBOROUGH LADY?!?
BOGNOR
THAT'S A BIG 10-4
BAD

Real oddballs, these Jones people. Ten minutes after the first pocket calculator was introduced on News on Ten they'd bought the prototype for their youngest. Imported e whole stack of skateboards from the Stetes and sold them for a tenner a time down Catford Market, and TV gemes? . . . well me and Mabel are still trying to figure out why they pay a licence fee to the BBC when the 22in colour spends most of its time doubling as a squash court, Wemhley stadium or a Mertian invaders battlefield!

There are one or two bits and pieces in the kitchen that would make a 747 flight deck look out of date. The kids' bedroom? Well, "Beam me up Scottie", that's all I can say. Wouldn't be surprised if they did, too . . .

And when this Citizens' Band thing came in we had *that* many "Ten-four Good Buddies" coming across the music centre that I had to send our Mabel to the eye specialist, what with TVI and all those "eyeballs" she seemed to have a fixation with. Still, we're only their next door neighbours and not the type to chatter too much, but this friend of ours seems to know them quite well. Doesn't miss a single trick does this chap, so we'll leave him to take up the story of the Joneses . . .

"Come away from that mirror, Justin," said the short, balding Hitler-faced father of this effeminate 14-year-old. Hitler-face began to have doubts about young Justin a couple of years before, when he wanted to follow in his sister's footsteps. No, not to where you might be thinking, but into hairdressing. But no matter how much mickey teking tbere was, Justin just flapped his right hand and threw a tantrum.

"Come away and get into the car," Hitler-face repeated. Hitler-face had a real neme naturally enough. Jones it was. Well, it hed to be really didn't it? Mind you, it helped now and again — Jones is a faceless name and when Pa Jones used his CB he thought it wes good enough (or bland enough) to keep the bears awey from his front door. That was in the bad old days of illegal CB, of course. Nowedays everything's above board; Hitler-face has the regulation FM rig in his tatty Mark 1 Escort, and it belps keep the kids quiet when on the big slab, or some such other long journey.

Keep them quiet, did I say? Well, not so much quiet, but at least out of the reech of Pa's flailing arms during one of his frequent demonstrations of how to take a corner Roger Clarke-style. And out of his hair (such as it was) when he tried to concentrate on his driving. Despite his liking for the latest phases and crazes from America, Pa Jones was still what he preferred to call himself, a private person. He liked to "think", did Hitler-face.

Anyway, Justin eventually tottered into the Escort, followed by younger-still Vergil. Yes, we know what you're thinking. It's as bad as Donald and Nigel isn't it . . .

Pa Jones locked the two in the back and gave them the CB rig to play with. There was a special slider mount at the back end of the centre console and it made it much easier for anybody in the car to use the radio — good idea really. Now, Pa Jones was taking his two sprogs to the coast for a day or two. Booked into a back-street bed and breakfast place, they were. Typical of the Joneses. Nothing so flash like the Metropolitan on the sea front, end anyway the Metropolitan didn't have CB, whereas Mr and Mrs Hammond's BB semi-detached was all fitted out.

Into the front seat went Ma Jones, now rather ohese and with no reel interests in her life except the dahling children, elthough she did dabble with the home base rig now and egein. "They say I've got a sexy voice," she told Hitler-face once. "But you know I wouldn't go out for an eyeball," she added, noticing the twitching moustache that gave Pa Jones his nickname.

Ma Jones arranged the road maps over her extensive lap, slotted the "999 places to eat for around £5" into the glove box and prepared for the journey.

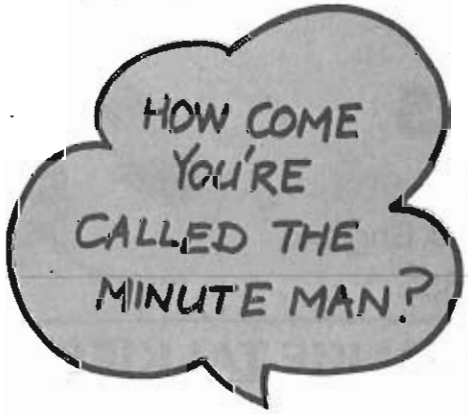
"You won't need those," said Hitler-face. "With this CB you just cen't get lost. You just call the nearest trucker and he tells you where to go."

"Yes, I'm sure," seid his wife, stifling a grin. "But what happens if you're really lost, miles from anywhere? Don't forget we're on FM now end the range isn't so great."

"Well, we've just got to make sure we don't get really lost," Pa Jones finished that conversation quickly, and Ma Jones retained her unassailable position as chief map reader. "And don't forget that those truckers probably won't understand you unless you talk in their lingo," she went on. "I know that plain English is being used more and more, but the truckers still talk in their own language," said Ma, now getting into the swing of nagging her lesser half. "Thay won't reply if you don't ask them properly," and Pa Jones grinned at this, having studied the long list of lingo terms in the magazine *CB81* fairly recently.

The kids meanwhile were keeping to themselves, moving up and down the weveband, listening to other peoples' conversations on the rig. Over the rig came this gem. "1-4 for a copy." "Hello there good buddy. You've got the Rainmaker here. Come back with your handle." "Nice to hear you Reinmaker, you're meking it with Minute Man." "Roger D, Minute Man. Say, how come you're called the Minute Man. Com'on?" "That's a Rog, Reinmeker. It's a handle the wife gave me . . ." Heh heh.

Asked Justin: "What did that meen?" Answered Pa Jones: "Oh nothing. Probably means he's always seying to his wife 'I'll do it in a minute' or something like that." Sidelong glances between Ma and Pa.



Absolutely nobody bothered to answer Justin's appeal for intelligent conversation. Morel there somewhere.

Ma Jones had spoken into the mike once or twice, but she didn't enjoy the experience. Either. No, it was that she suffered with what is commonly called Mike Fright. OK, she would pick up the mike, key it in and call for a copy, but if somebody answered the obviously female voice, she would lock up and hand the mike to Justin, or even little Vergil who was usually more intent on giggling at it rather than talking into it.

Pa Jones tried to cure his wife of this obvious fault in her make-up. Mental make-up that was. "I used to suffer with that," he said. "Other drivers would see my Firestik and over the rig I'd hear someone ask 'Who's that in the baby Dagenham?' or something along those lines." Pa Jones went on that it was just a matter of experience. Once you'd dona it, the second time was easier. "And that applies to many things," he chuckled at Ma Jones. "Anyway, if someone called, I would not be able to pick up the mike and answer them. Whet would I say? I've got nothing to say in any case, so why begin a conversation in the first place?" Pa went on confidantly, relishing the moment of superiority over his very deep pile "seat-cover."

All this tima, the rig had been left on so the family could listen into the motorway conversation — Channel 11 was used in tbis perticular area as the transport channel. Suddenly, a cheerful voice broke in wall to wall (er, sorry, door to door) clear. "You got tbe Old Timer from Lace City. Looks like I've just seen a Baby Dagenhem tbat gets used by Gainsborough Lady. She's not driving though. Everything looks fine and dandy from here. Keep your boot locked and your tyres checked."

"Why, that's me," shouts Ma Jones. "That's my handle. Had it registered with the club a few weeks back. I wanted to be Lady Godiva but someone had alreedy got it." A big truck loomed by at eround 70 and Ma Jones declared: "That's Old Timer all right. Lives in Nottingham — they call it Lace City you know." Everybody was looking at Ma Jones who, they thought, bad never said more than a few words into a mike without crumbling with fright. Now the truth was out — sbe was a secret breaker! Probably spent all her time on tha base station chatting up passing drivers. Hitler-face looked even more like Hitler than before, wondering how she knew Old Timer, by sight, emong other things . . .

Hitler-face snatched the mike away from Vergil who had managed to persuade the whole thing into his mouth although there seemed pl enty of room despite the Mars bar that was already there!

"Yankee Doodle Dandy with a quick word for Old Timer, We've got Gainsborough Lady on board end she just learned another book of truckers' terms. Keep it waggling." A loud chuckle came back, but they couldn't be sure it was Old Timer. At any rate he didn't reply. Nowadays nobody really wastes time on the CB with idle chat or unnecessary goodbyes. Pa Jones softened a bit. "You know what we call CBers with nothing to say? We call them Speaking Clocks because they simply ask you the time and

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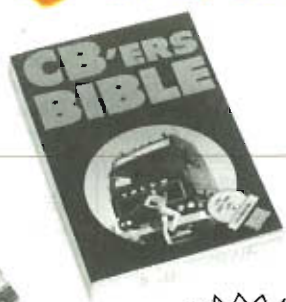

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sometimes how far away you are."

Ma Jones warmed to the chatty Pa Jones. 'I reckon CB will save a lot of lives on these motorways. Not only because it will get help quickly, but because it helps people stay awake. There's an old truck driver I met (slit-eyed look from Hitler-face) who said that it sometimes happens that you get drowsy when you're driving long distances, and you don't notice that you're drifting off. But with CB you're either listening to people, or talking to them, so that should help keep you awake."

As they approached one of the motorway access points, Pa Jones switched to the local community channel, a new idea started by community minded people who thought it would be a good idea to give visitors a little information about their particular town. A voice came through loud and clear: "If you want to come into town, there are car parks at ..... and ..... which are just off the High Street." There followed more information about traffic conditions, road repairs and major events followed. At least it kept the kids quiet for a few minutes, and naturally enough, they looked forwerd to their free town map and CB services information sheet which would be given out as they left the car park.

Now, this community channel will develop quite gradually over the next year or two and talks are going on at council levels between officials and CB clubs about what services might be provided. At the moment it seems likely that there will be general information about local services, specific informotion on local events, and well, it'll act like a sort of electronic welcome mat.

Local breakers are offering help to visitors already, of course, and switching off the rig in Pa Jones's Escort, young Justin said in his high pitched voice: "I read the other day that in America there's a television set tube in the dashboard and a man offers information as you go along."

"Isn't that dangerous?" asked Ma Jones.

"No, not really," said Pa Jones. "Anything that needs sustained attention, like route maps, won't get screened while the car is in motion."

A bleep from the CB rig. "Road traffic warning. Switch to channel 10." Many new CB sets were being fitted with a facility that enebled immediate interruption for traffic warnings. Pa Jones switched to Channel 10 and was informed of a speed restriction, some 10 miles ahead, due to road repairs. Alternative routes were offered as expected.

Justin ran up and down the channels again, just to see what was going on — if anything. The dial touched Channel 25 . . . "Here I am again, good buddies. Ratchet Jaw at your service. The weather's fine and the channel's mine, here's modulation throughout the nation, plenty of chat about this and that, so don't be soppy, 1-9 for a copy."

"Ugh," said Justin. "Old Ratchet Jaw has been going on like that all day. He just won't get off 25."

"That's called an Alligator Station," said Pa Jones. "That means somebody who talks all the time, and doasn't allow anyone to get a word in edge ways."

"Isn't he boring though?" said Justin, switching away to 26 and 27, and catching the tail end of a call for a meeting between two people. ". . . an eyeball? You've got a really sexy voice and my home 20 isn't too far away from you, Foxy Lady."

"That's a Roger, Camel Dung. How about the Scabby Parrot Tuesday evening?"

"Receiving you wall to wall, Foxy Lady. Catch you there."

"I'm hungry," said Virgil. "OK then, we'll call ahead for a cafe or snack bar to order some sandwiches," said Pa, grateful that someone else had brought up the subject of food. More end more roadside snack bars end transport cafes are being fitted out with rigs, so that truckers and other trevellers can call ahead for food.

On their way, Virgil turned the dial to another channel where disco music was being played. This particular channel was being used by a record and tape shop in a nearby town, and they obviously considered that playing records all day through their transmitter, interspercing discs with the odd commercial, was good business.

An emergency message broke through the music and Pa Jones moved to Channel 9 to get more details. Just a short distance ahead, a car had gone off the motorway, as a result of a burst tyre (apparently) and a following trucker had called for help via REACT, the monitoring agency. The police were on the scene in double quick time, probably as a react of the REACT call. The message Pa Jones tuned into advised them to slow down and avoid the slow lane for a few miles.

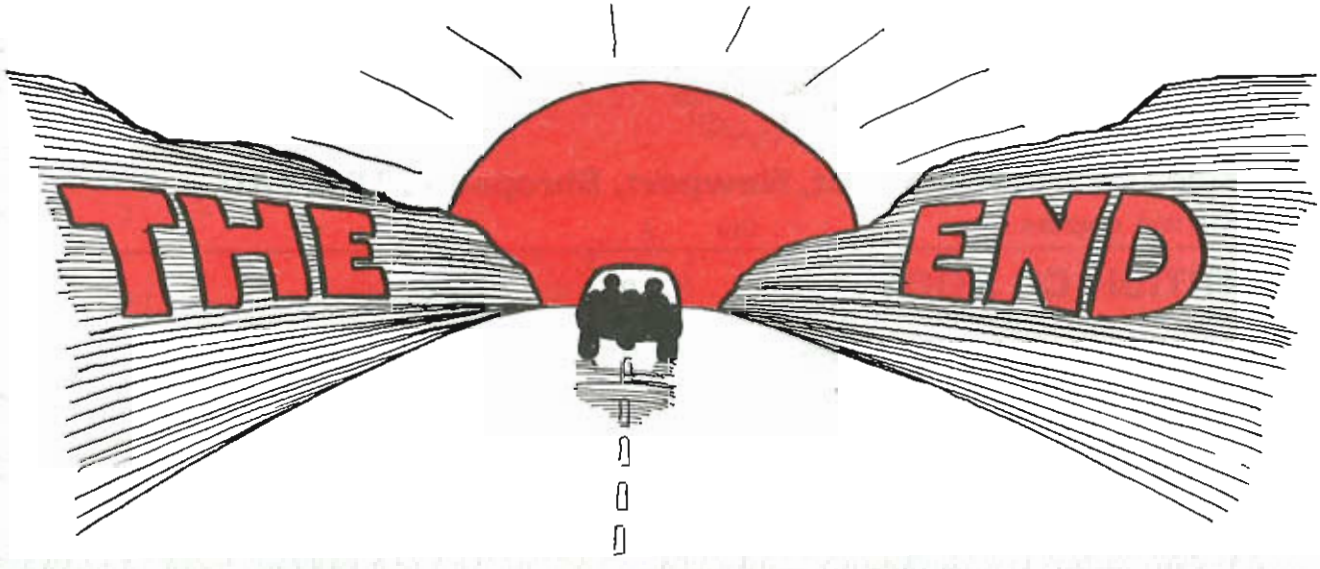
Ma Jones, who had been dozing for a few minutes, suddenly came awake at the sound of the emergency signal. "Bet he was glad someone had a CB rig in their mobile. They did some research in America some years ago and discovered that on an average, CB saved 17 minutes in getting help to the scene of accidents. There's no better publicity for CB than that." Ma went on to explain how REACT teams were being formed throughout the UK. "And not before time," she said. "If there hadn't been so much dithering about whether or not to have CB in England, we could have had REACT teams years ago."

"Seems to me this bar of chocolate might go to the first one that tells me what REACT stands for," said Ma Jones. Justin laboriously recited the answer — Radio Emergency Associated Citizens' Teams. Ma handed over the chocolate, pointing out it was only fair she gave some to his brother. "That's all right," said Virgil. "Pa said I could have 50p if I learned what REACT stood for!"

Reaching their destination, a few miles out, Pa Jones wondered why the journey had gone so quickly. Must be the CB, he thought. Picking up the mike, he called the bed and breakfast ahead, warning them of the impending arrival of four hungry and tired people.

"I heard they had fitted their home up with a rig," said Me Jones. "And the owners take turns at the rig, calling their friends, the locel shops for provisions, and receiving calls from visitors like ourselves.

"I've made them promise to let me take an afternoon's turn on the rig. Sitting on a hillside at five in the morning's not for me. Give me a nice cuppa — or a G and T — en armchair and the rig and I'm happy." Well, we suppose it's a nice alternative to heavy metal music end glue sniffing . . .



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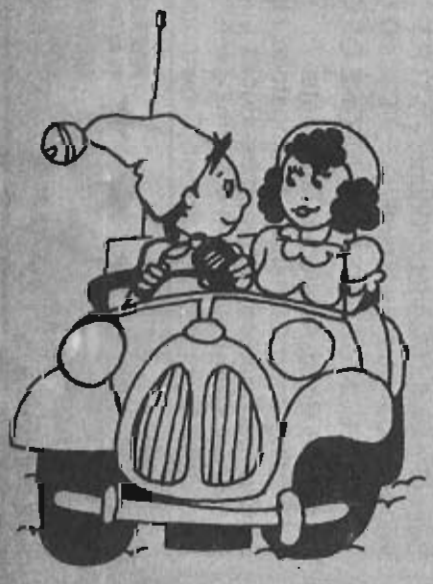
PHONETICS, CODES, NUMBERS, INSULTS — IN FACT EVERYTHING EXCEPT WORDS. ALL YOU NEED TO KNOW ABOUT TALKING ON CHANNEL THE PROFESSIONAL WAY

Here are a few hundred words on how not to use words. As it were . . . What we mean to say is: talking in numbers isn't necessarily talking in riddles. I mean, it figures, doesn't it? Oh hell. Let's start again. Er, oh yes. Talking in numbers. You see, it cuts down the chatting time doesn't it? And anything that eliminates misunderstanding has got to be a good thing.

Ten-codes, phonetic alphabets and number codes were all introduced to cut down transmission time, and to prevent the aforesaid misunderstanding. On these pages you'll find a list of 10 and 13 codes, plus the phonetic alphabet, figure pronunciations and other information desirable (if not necessary) if you're using CB seriously. It would definitely come in handy if you plan to go into amateur radio . . . but that's another story. And you'll find that particular story on page 88!



"We want a 10-81. What's your name, love?"

PHONETIC ALPHABET

LETTER	PHONETIC	PRONOUNCED	MORSE
A	Alpha	Al-fah	.—
B	Bravo	Brah-voh	—...
C	Charlie	Char-lee	—.—.
D	Delta	Del-ta	—..
E	Echo	Ek-koh	.
F	Foxtrot	Foxs-trot	..—.
G	Golf	Golff	——.
H	Hotel	Hoh-tell	....
I	India	In-dee-ah	..
J	Juliet	Jew-lee-ett	.———
K	Kilo	Kee-loh	—.—
L	Lima	Lee-mah	.—..
M	Mike	Mike	——
N	November	No-vem-bah	—.
O	Oscar	Oss-cah	———
P	Papa	Pa-pah	.——.
Q	Quebec	Keh-beck	——.—
R	Romeo	Roh-mee-oh	.—.
S	Sierra	See-air-rah	...
T	Tango	Tang-go	—
U	Uniform	Yew-nee-form	..—
V	Victor	Vik-tor	...—
W	Whisky	Wiss-kee	.——
X	X-ray	Eks-ray	—..—
Y	Yankee	Yang-kee	—.——
Z	Zulu	Zoo-loo	——..

PRONUNCIATION OF FIGURES

0 — Zero. 1 — Wun. 2 — Too. 3 — Thuree. 4 — Fower. 5 — Fyve. 6 — Sicks. 7 — Sev-en. 8 — Ate. 9 — Niner. 10 — Wun-zero. 11 — Wun-wun. 500 — Fyve hundred.

Note: When describing a number, use the word "figure" and make sure similarly pronounced figures (ie, five, nine) are distinguished by the above recommended pronunciations.

10 CODES

As you might have realised by now, on this page is the 10-code. What you might not have noticed is that different magazines (etc) print slightly different versions of this code which even by its existence must be absolutely accurate and consistent if it's going to work at all.

Here we publish what we consider to be the correct 10-code. Mind you, although codes are not so desirable as they were before legalisation, there is still a demand for them. It cuts down transmission time, for instance. Also, it provides an amount of privacy for your conversation, considering that CB is an open medium. Apart from all that, a good many people will be using codes for a long time to come. It means you will be able to talk confidently, and understand others who use it. And there's nothing more embarrassing than getting involved in a conversation with somebody who uses the 10-code fluently, when you haven't a clue!

10-0 Take care/caution.
10-1 Poor reception.
10-2 Good transmission.
10-3 Stop transmission.
10-4 OK. Message received.
10-5 Pass message on.
10-6 Busy — stand by.
10-7 Out of service.
10-8 In service — open to calls.
10-9 Repeat message.
10-10 Message completed — waiting.
10-11 You're talking too fast.
10-12 Visitors present.
10-13 Advise weather/ conditions.
10-14 A party at . . . . .
10-15 Dusturbance.
10-16 Collect at . . . . .
10-17 Urgent business.
10-18 Anything for me?
10-19 Return to . . . . .
10-20 My location is . . . . .
10-21 Phone me.
10-22 Come personally.
10-23 Stand by.
10-24 Assignment completed.
10-25 Get in touch with . . . . .
10-26 Disregard message.
10-27 Moving to channel . . . . .
10-28 Identify yourself.
10-29 Time up for contact.
10-30 Illegal use of radio (!?)
10-31 Crime in progress.
10-32 Radio check.
10-33 Emergency!
10-34 Trouble here, help!
10-35 Confidential info.
10-36 Correct time is . . . . .
10-37 Breakdown at . . . . .
10-38 Ambulance needed.
10-39 Your message delivered.
10-41 Change to channel . . . . .
10-42 Road accident.
10-43 Traffic jam at . . . . .
10-44 Message for you.
10-45 Anybody within range?
10-46 Assist motorist.
10-50 Break channel.
10-53 Accident — road blocked.
10-60 Next message number?
10-62 Can't copy — use phone.
10-63 Network directed to . . . . .
10-64 Network clear.
10-65 Next assignment/message?
10-66 Cancel message.
10-67 All units comply with . . . . .
10-69 Message received.
10-70 Fire at . . . . .
10-71 Proceed with message.
10-73 Speed trap at . . . . .
10-74 Negative/no.
10-75 You are causing interference.
10-77 Negative contact.
10-81 Reserve hotel room for . . . . .
10-82 Reserve lodgings.
10-84 My telephone number is . . . . .
10-85 My address is . . . . .
10-86 Advise telephone number of . . . . .
10-89 Radio repairs needed.
10-90 I have TVI.
10-91 Talk closer to the mike.
10-92 Adjust your transmitter.
10-93 Check my frequency.
10-94 Give me a long count.
10-95 Transmit dead carrier 5 seconds.
10-96 Subject is mental.
10-97 Check (test) signal.
10-99 Mission completed, secure.
10-100 Going for a pee.
10-200 Police needed at . . . . .
10-400 Drop dead.
10-1000 Homosexual.

"This is a 10-1000. Anybody on 10-22?"

13 CODES

How to insult somebody without infringing the libel laws or the obscene publications act. The 13-code is in general use throughout America, of course, but in this country it hasn't caught on as well as it might. Mind you, we can think of a good many CBers that deserve a choice selection of the 13-code! I mean, how would *you* deal with a "Wally" who just wants to know the distance, signal strength and what rig you're running? There ought to be a breaking code that asks for intelligent conversation — how about a 7-code, all questions along the lines of: Anybody know anything about cars? Women? Sex? Plumbing? And other things like: Directions needed to (town name), or where's the nearest CB club? And so on. Anyway, here's the 13-code for the time being.

13-1 All units copy, and think you're an idiot
13-2 I copy, but I'm ignoring you
13-3 You're beautiful when you're mad
13-4 Sorry 'bout that big fella
13-5 Up yours
13-6 OK I goofed, but we're all human
13-7 If you don't copy don't blame me, 'cos I'm producing 3,000 watts
13-8 You sound so illiterate. Were your parents married?
13-9 Are you running AM?
13-10 I'll help you, but how did you get here in the first place?
13-11 Try blowing your nose — it might clear your ears
13-12 You have foot in mouth disease
13-13 Has someone stolen your antenna cable?
13-14 Now I know what an antenna with "less than unity gain" sounds like
13-15 If you're running only 130 milliwatts, how much did you pay for your licence?
13-16 Isn't it about time you replaced that tired mouse running your generator?
13-17 The only reason you're able to go horizontal is because your antenna's fallen over
13-18 If I could read you, I'd be tempted to answer
13-19 Are you talking into the back of your mike?
13-20 What's that clicking noise? Is your upper plate loose again?
13-21 Bloody hell. Are you being paid by the word?
13-22 If you had talked for another few seconds, you'd be eligible for a broadcasting licence.
13-23 You make more sense when you're smashed
13-24 Either my receiver is out of alignment, or you're on channel 28.
13-25 I could get a better signal from a piece of damp string.
13-26 Hey, a fabulous signal. Hang on until I arrive in your driveway so I can copy what you're saying.
13-40 Shut off and give me a land line so I can find out what you want
13-42 Either my speaker is u/s or you're out of your tree
13-43 That was a beautiful 10, now try it again with your mike connected
13-44 Love the tone. Now I know why the makers discontinued that model.
13-45 Your transmitter must be faulty, because there's smoke coming from my speaker
13-47 How close do you want me to get before you read me?
13-50 Can you drop down to 250khz?
13-51 You've tried upper and lower sidebands. Now you're satisfied, will you please go QRT so we can use the central slot?
13-52 Only one good thing about hearing you on single sideband. You're only half as offensive as you were on AM

"10-34, anybody"

Q CODES

The Q-code is the international code, used by hams and amateur radio enthusiasts, but more recently by CB operators, especially when talking skip, DXing.

Unlike other codes, those on this page can be used as questions or answers; so QRA could be "What's your handle or 20? or "My handle or 20 is . . .". It's a good idea to have a copy of the Q-code (and the other codes for that matter) pinned up on a notice board or on the wall behind your transceiver, for an at-a-glance reference.

Anyway, there are seven major points to remember when transmitting and they are:

1 Transmission should be kept uniform to prevent misunderstandings.
2 Use clear and concise, and consistent speech.
3 Keep your message simple.
4 Develop a speech style — use known repeat phrases and maintain consistency.
5 Learn and use the phonetic alphabet.
6 Same with the 24-hour clock.
7 There are standard phrases used by breakers. Use them.

In answer to the question: Are you receiving me? You could say something like: Wall to wall, etc, etc. But why not use the Strength Code? It goes like this:

Strength 1 Intermittent. Very poor.
Strength 2 Poor, barely intelligible.
Strength 3 Difficult to read.
Strength 4 Clear. Fairly readable.
Strength 5 Loud and clear.

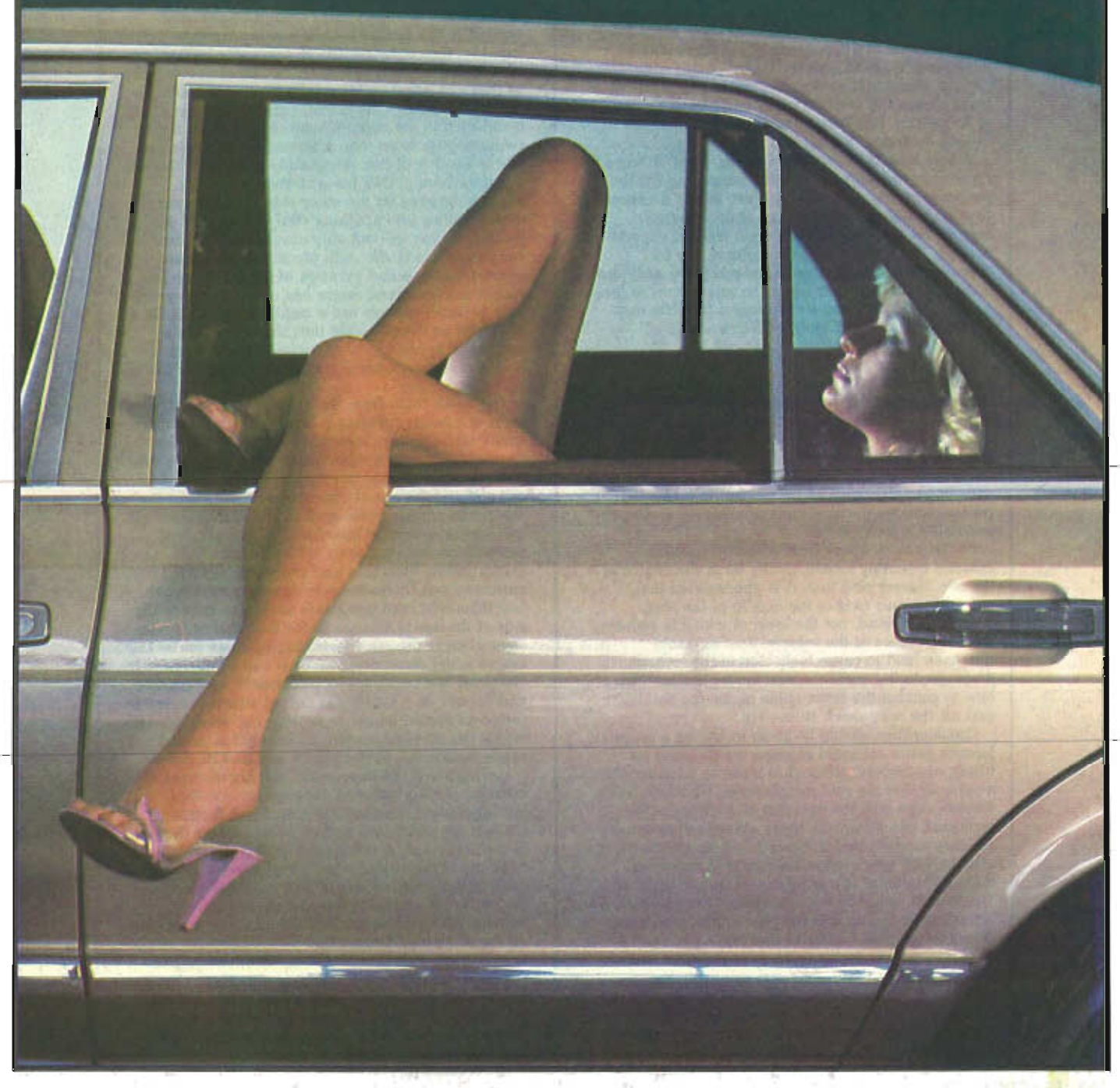
QSO	Communication with/ contact.
QSP	I will relay message.
QSX	Listen to (name) on channel. . . .
QSY	Change frequency.
QSZ	*Send each word more than once.*
QTH	Location.
QTJ	What is your speed?
QTN	What time was your departure?
QTR	What is the correct time?
QTU	What are the hours your station is open?
QTV	Shall I stand by for you on channel. . . ?
QTX	Will you keep your station open for further info?
QUA	What news of (name)?
QUD	Did you get emergency signal from (name)?
QUF	Did you receive distress signal from (name)?
QUM	Is the distress signal finished?
QUO	Shall I look for (name)?
QUR	Information on survivors wanted.
QUS	Have you spotted wreckage survivors?
QUT	Is position of incident marked?

QRA	Your station number?
QRB	How far away are you?
QRD	What's your destination and where do you come from?
QRE	What's your ETA?
QRF	*Are you going back to. . . ?*
QRH	The frequency varies.
QRL	Are you busy?
QRM	Interference from other stations?
QRN	Natural interference/static.
QRO	Increase power from transmitter.
QRP	Decrease power from transmitter.
QRQ	Transmit at a faster rate.
QRS	Transmit at a slower rate.
QRT	Stopping transmission.
QRU	Have you anything for me?
QRV	Are you ready?
QRW	Shall I tell (name) you're calling him on channel . . .?
QRX	Stand by. Call back later.
QRZ	Who is that calling me?
QSA	Readibility of message.
QSB	Fading signal.
QSL	Acknowledge receipt.
QSM	Repeat the last message.
QSN	Did you read me on channel?

"This is a QRB"

MOUNTING JOY

Well, yes. You'll find joy mounting a CB Rig in your car, that is. Peter Dodson goes all technical in this step-by-step picture guide.



MOUNTING JOY

What's that? You know all about fitting rigs to cars? Oh you do, do you? Well then, ignore the next few pages, and I hope the bleedin' thing blows up in your face and it serves you right for not perusing these words of wisdom (they make toothbrushes don't they?) before you started.

Now, the rest of you line up against the wall. No, face this way, Nigel. And no, that's not what we meant either, Wendy. Anyway, if you're all ready, then I'll begin. This is the story of how to fit a citizens' band radio to your car. Or in the words of the prophet, nail a rig to your mobile.

In the old days, when men were men and women were mens' in any case, it was a case of if there was a technical thingie to do, then it should be left to someone who knows about those things. In other words, every man to his trade. But since the advent of greed, ordinary people are doing other peoples' jobs! I mean, I even saw the editor of this esteemed (or is it steaming?) publication making his own cup of tea. Perhaps the secretary had told him to go away or something. Heh heh. They say that familiarity breeds contempt. Serves you right, I say ...

Where was I? Oh yes, Big jobbies. Now, fitting a rig to your car isn't really a big jobbie, but for the purposes of this particular literary gem, I'll assume that each and every one of you is an ignorant beggar. So, ignorant beggars read on, and experts needn't. But that's where we came in, isn't it? Anyway, there's bound to be the odd (very odd) hint or tip that'll tickle your fancy, so even if you're the proverbial expert, you should find a few bits and pieces to add to your inestimable reservoir of knowledge.

The first, and possibly the most important stage in the installation is to plan the entire operation thoroughly. Having waited all this time for the legalisation of CB, a day or two spent in consideration of the best ways of mounting and wiring the various components won't make that much difference. Running amok with a Black & Decker without pre-planning can only result in a less than professional standard of workmanship — and in all possibility a leaky motor!

For technical, apart from cosmetic reasons, antenna mounting should ideally be in the centre of the car. Having said that, it is appreciated that positioning your twig in the middle of the roof presents problems, not the least of which is reducing the resale value of the vehicle. Roof-mounted antennae tend to cause leaks due to the lack of drainage on flat surfaces, and incurs the problem of how to conceal the co-ax cable under the headcloth and all the way down to the rig.

Consideration should be given to buying a magnetic base or gutter mounted antenna which takes no fitting whatsoever, although it must be admitted that a cable across the roof disappearing through a rear window does lack the neatness of a through-the-bodywork job. Mind you, these antenna systems are not only vandal-proof if removed when not in use, but also do NOT give a clear indication to intending thieves that there is a wireless set on the other end. The bootlid would be my next choice for antenna mounting, or failing that the rear wings, well away from the ignition system of the car.

Wherever you decide is the best place for your twig, remember that a long and relatively heavy antenna, when presented with wind-speeds (often in excess of 70mph) will put considerable stress on whatever it is attached to, and a backing plate on the underside will spread this stress over a wider area.

Having decided where to mount the antenna, sit in the driving seat and figure out just where to mount your rig. For obvious reasons, it is impossible to generalise as the dash configuration of every car is different. The criteria to be considered include easy access on the move, a minimum of sight-line change, the availability of metal to attach the rig to, and its security against flailing arms and legs — even under erotic circumstances! I have mentioned metal as the best mounting material in the knowledge that many cars have plastic facias which might suffice, but the glorified cardboard used by some manufacturers certainly wouldn't. For reasons best known to themselves, pre-legal breakers have hitherto felt compelled to conceal their rigs in glove compartments or under the dash. Although this is no longer necessary, it should be considered as an effective anti-theft device in addition to, and certainly not instead of, adequate insurance. The problem with car component thieves is not just the value of the rig, but the damage they do getting at things!

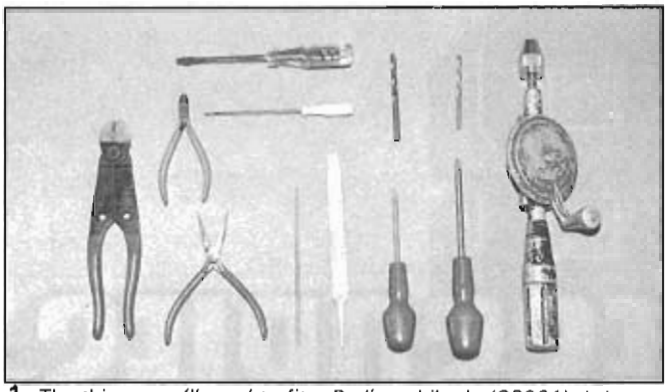
TIME FOR ACTION

The basic planning stage having been completed, the time has come for action. This should preferably be taken in a garage. Apart from your personal comfort in the face of Britain's unpredictable weather, the consequences of rainwater infiltrating the plug on a mains extension can be as spectacular as they are lethal — especially if you are holding a drill at the other end! For that matter, the gauge of metal used in the manufacture of cars these days requires little more than a screwdriver to pierce, and a hand drill can adequately cope with the job.

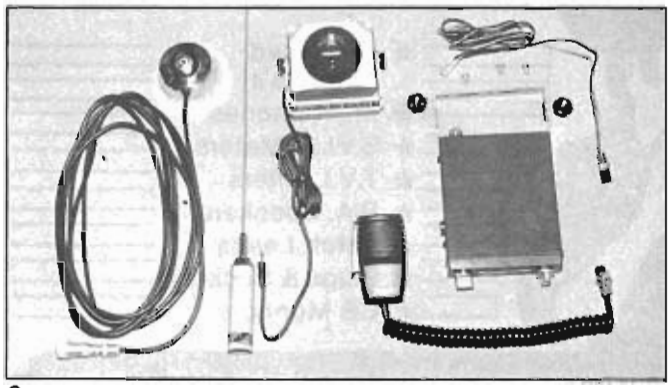
Before boring ANY holes in your motor car, explore the area on the other side to ensure you aren't drilling into anything vital. An X made of insulating tape will not only ensure that you are banging a hole in the right place, but also guard against that dreaded gyration of the bit which has ruined many a proud motor car and reduced strong men to tears! Always use a small bit first to make a pilot hole on the principle that if you've made a mistake, it is considerably easier to make a small hole bigger than a big one smaller. A circular file is best for this job.

The co-ax cable from the antenna is made up of a layer of plastic, covering a layer of copper mesh or braid, which in turn contains a waxy core in the centre of which is a thin copper wire. And it is this thin copper wire that is attached to the antenna at one end and the aerial connection on the rig at the other. The copper braid acts as a shield to ward off extraneous electrical interference. In most cars, access from the boot area (which would accommodate both boot and rear wing mounted antennas) can be made under the rear seat squab, and the aerial lead concealed under the trim at the side of the car to emerge under the dash ready for connection to the rig. Merely hiding co-ax under the carpet is not recommended, as it can be damaged by continual foot-pounding by passengers, can get wet and doesn't do a lot for the carpet either. If possible, the co-ax should be cut to provide just enough length to suit the purpose, as any excess that is looped will cause resistance to the signal and loss of power.

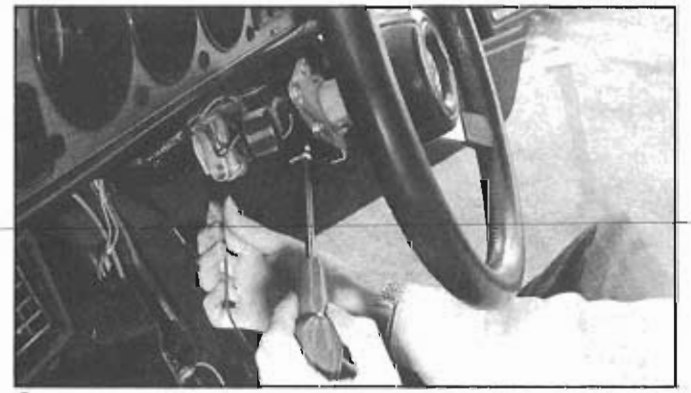
Having given the impression that my mistrust of mankind is all-consuming, through my constant introduction of anti-theft devices, I will further confirm my suspicious nature by suggesting the use of a slide mount. A throwback to illegal days when rapid rig removal was a matter of survival, these components continue to act as a safeguard in that the entire rig can be removed from the vehicle without the inconvenience of detaching or attaching all the electrical connections individually. As can be appreciated, a slide mount consists of two halves — the upper or static part which is attached to the car, and the lower or mobile half which is fixed to the rig. But before installing the static bit, connections to the antenna and battery must first be made to the appropriate connectors.



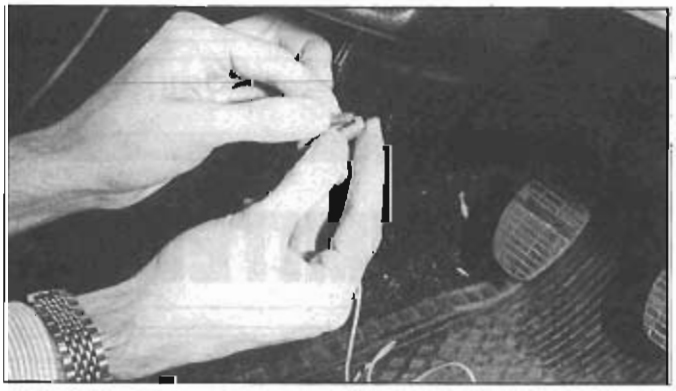
1. *The things you'll need to fit a Radiomobile rig (CB201). It is possible to get away without a professional crimping tool, wire snips, but it makes the job a sight easier. All these tools are to be found in most kits, apert from the scriber, possibly. Use a pencil instead.*



2. *Radiomobile kit CB201, which does not include the mag mount antenna or adjustable-angle speaker. The rig itself comes with mounting bracket, microphone, screws and tilt adjuster. You can mount the rig under-dash or top-dash style, and even sideways if there's a handy console or deep door pocket.*



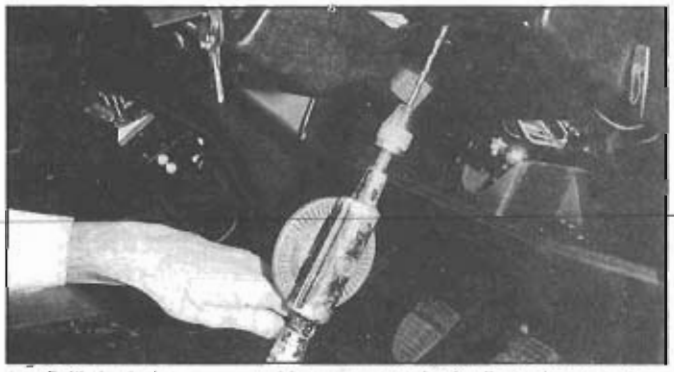
3. *We took the power lead from under the fascia, using a spade connector although a soldered joint to the fuse is probably a better idea. As with other in-car radios etc, an in-line 2 amp fuse is provided in the kit. This Radiomobile rig is negative earth only.*



4. *Here the earth lead is connected to the steering column mount, although of course, it can go anywhere where there's a good chassis connection. If there is any doubt about where to fit these leads, Radiomobile provide detailed instructions with every kit. Route any wires tidily.*

5. *Now we come to fit the rig. Decide where the radio is to go, bearing in mind the other components around it, like the bonnet release, your legs, and does it prevent you from using the tray under the dashboard? Offer it up temporarily to make doubly sure.*

6. *Work out where the mounting holes will go. Here we use a drill as the guide. Check there are no wires behind the fascia before you begin to drill the holes. The result here could be a nasty short, blown fuses, and at worst burnt out instruments!*



7. *Drill the holes , making sure you don't slip and gouge the paintwork or other trim. In some cars there is a wiring loom immediately behind the fascia panel, so beware! Check also, that you can get your hand behind the panel in order to tighten up the mounting screws.*

8. *Here, small screws with nuts are provided and they should be tightened well so they don't rattle loose. Self-tapping screws can be used, but they're not recommended for this reason alone. A supporting plate should be used (not provided) if you are mounting to a plastic console.*

MOUNTING JOY

Power connections should be made direct from the battery (which eliminates most of the ignition and other interference sources) along a length of co-ax (which will eradicate any that are left). The power co-ax should reach into the battery *but not connected at this stage* with the braid ready to connect to the negative pole, and the inner wire to the positive one. Access through the engine bulkhead, if not available through an existing rubber cable access, should be suitably protected by a grommet. Do NOT merely bore a hole and stick the co-ax through it, as vibration will soon cause the sharp metal of the bulkhead to cut its way through the power cable causing at least a short if not a fire!

You are then left with the power and antenna cables ready to connect to the static half of the slide mount and it would be convenient at this time to also attach the leads from the SWR meter for reasons which will become apparent later. But first a word about electrical connections. It is understandable in your haste to get on the air and flushed with confidence having got thus far in the installation process without screwing up the whole thing, that impatience may tempt you to take short cuts. Resist it. A plastic tape botch up will disintegrate either in time or on the first occasion that the sun shines long enough to make the inside of the car hot, and the use of bullet or spade connectors which squeeze on with pliers is the ONLY way to do the job properly.

Co-ax connectors, I must admit, are slightly more complicated to fit than the bullet type, and entails the use of a soldering iron. Using one of these devices successfully is something that improves with practice, and the novice usually finds that he will melt away a couple of yards of solder and still not glue the bits together. The secret is a hot iron and the pre-heating of the joint, rather than the haphazard dropping of solder in the vain hope that some of it will stick. The connectors used for co-ax enjoy the somewhat mysterious title of PL259s and an explanation of how they are fitted would be made easier if you have one before you, and it can be seen that the unit separates into sections, namely the sleeve and connector. Firstly, strip an inch of the plastic covering from the end of the co-ax, then comb back the bared braid. You will be left with an inch of waxy core and half an inch of this should be carefully cut away to reveal an inner wire. Push the sleeve over the prepared section of co-ax to await final screwing down, and insert the bared inner into the connector, gently pushing it up the hollow tube. Holding your soldering iron against the end of the tube, touch the solder against the end of the iron, and, with luck, a neat bead of the stuff will seal the end and hold the wire inside it. All that remains to be done is to screw the sleeve down, and snip off the surplus braid that pokes out from underneath it. It is important that the braid is trapped under the sleeve, as this forms the return part of the circuit.

RIG POSITION

Having connected your cables to the static mount, it should be attached to the position of your choice (either directly, or by using the fixing bracket that is usually provided), which will be dictated by the contours and general geography of your dash. Again check before you drill to ensure that you are not carving your way through the heater, and bolt or self-tap the static slide mount half in place.

The next task must be to attach the power and antenna terminals on the rig to the equivalent positions on the "mobile" half of the slide mount, and with the help of God and a following wind you should be able to slide the rig into position having effectively connected it to the necessary power and antenna sources that make it work, after first fixing the rig to the mobile slide mount. This may, but hopefully won't involve drilling holes in the top of the rig casing. But if it does, extreme care should be exercised to ensure that no damage should be done to the printed circuitry, or that no nut or bolt comes in contact either.

ANTENNA

Now is the time to make that final connection between the power leads and the battery, to switch the rig on and marvel at all the little lights! It is also the time to mention the mysterious SWR meter that was casually introduced earlier, and which is the only indication (apart from the apparent deafness of fellow breakers) that your signal is going out. In effect your rig has to be matched to your antenna, and this is done in an area free of urban influences such as tall buildings, gas holders, swing bridges, power lines and erections of similar ilk.

Meanwhile, out in an unrestrictive area, put the switch marked "Fwd-Ref" to "Forwards", tune to channel 20 and press the mike button. Turn the knob on the SWR meter to give maximum reading, then release the mike button; switch to "reflected", push the button again and you should get a meter reading below 2:1. Anything in excess of this figure indicates a need for antenna adjustment, and this can be checked by testing on channels 1 and 40. As a rule of thumb if the reading is higher on channel 40, you will have to shorten your antenna. On the other hand, if it is higher on channel 1, it would need to be lengthened.

On some twigs like the DV27, antenna adjustment is simply a matter of moving a slider at the tip. Conversely, on a Firestik, it involves peeling back the plastic covering and actually cutting the wire underneath. But be warned, this type of permanent adjustment should be done a little at a time with frequent SWR checks in between snips. Excessive pruning could necessitate the long and expensive haul back to the shop with six inches of twig in one hand and a cheque book in the other!

At this stage in the proceedings you are, no doubt, champing at the bit — anxious to enjoy the fruits of your labours. I would urge you, nevertheless, to have a final check that you haven't forgotten anything vital. Now, how about a licence?

"TRIMMING IN" THE AERIAL

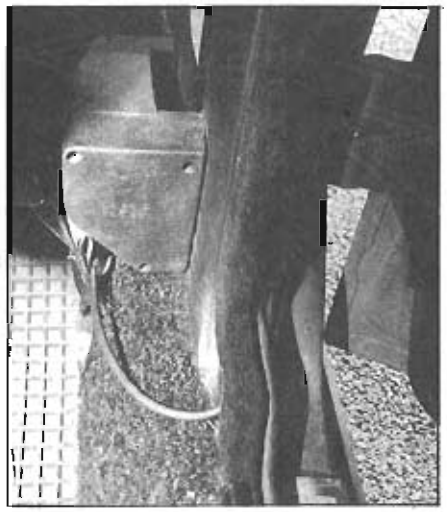
Radiomobile's range of CB accessories is fairly wide, and includes the pictured external speakers and magmount aerial. Needless to say, the aerial has to be SWR trimmed, and so an SWR meter will be needed. They don't cost much, and of course you could buy an in-line "permanent" meter which can mount under the fascia, to the parcel shelf, or anywhere that is away from damp and undue vibration.

As you will see from the pictures, the element in the magmount is able to slide up and down (an inch or so) and is tightened with an Allen key. The output of the Radiomobile CB201 transceiver is 50 ohms. Now, the aerial has to be adjusted to present the same impedence in order to get maximum power transfer from the transceiver to the aerial. To obtain this, connect up the SWR meter (not shown in the pictures) and move the aerial element up and down slowly. On our meter there are two dials. The left hand dial shows the power from transceiver to aerial, and the right hand one shows the power reflected back to the transceiver. So adjust the aerial element (the long thin thing that sticks up!) until you get the *minimum reflected reading.*

If you've followed all the instructions and obtained the optimum aerial adjustment via the SWR meter, there is no reason why you shouldn't now be getting the best reception from your CB radio. If there is any doubt about fitting, always follow the supplier's instructions, and even if you're still puzzled, there is always somebody on hand at their head office to help out with technical and other general enquiries. For further information on Radiomobile products get in touch with their head office at Goodwood Works, North Circular Road, Cricklewood, London, NW2 7JS. Telephone: 01-452 3333.

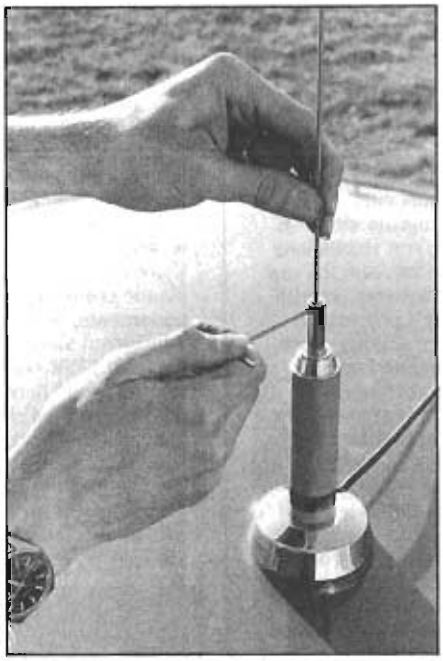
MOUNTING JOY

9. *The rig goes into position, and the side knobs are tightened. Note how the rig's front fascia lines up neatly with the switch panel above. Some manufacturers believe that CB will eventually be seen in all cars, so the car makers will provide mounting apertures a la radios.*



10. *Radiomobile's kit does not include this magnetic mount aerial which is SWR trimmed with this neatly worked out system using an allen key at the base. The aerial (also available from Radiomobile) is simply screwed securely into the mag mount base section, and the cable . . .*

11. . . . *is tucked into the rubber surround or in some cases behind the windscreen surround. The ultimate, of course, is to take it through the roof panel, but you'll find it difficult to remove the roof lining, and re-fit it afterwards. Unless you're an expert, that is.*



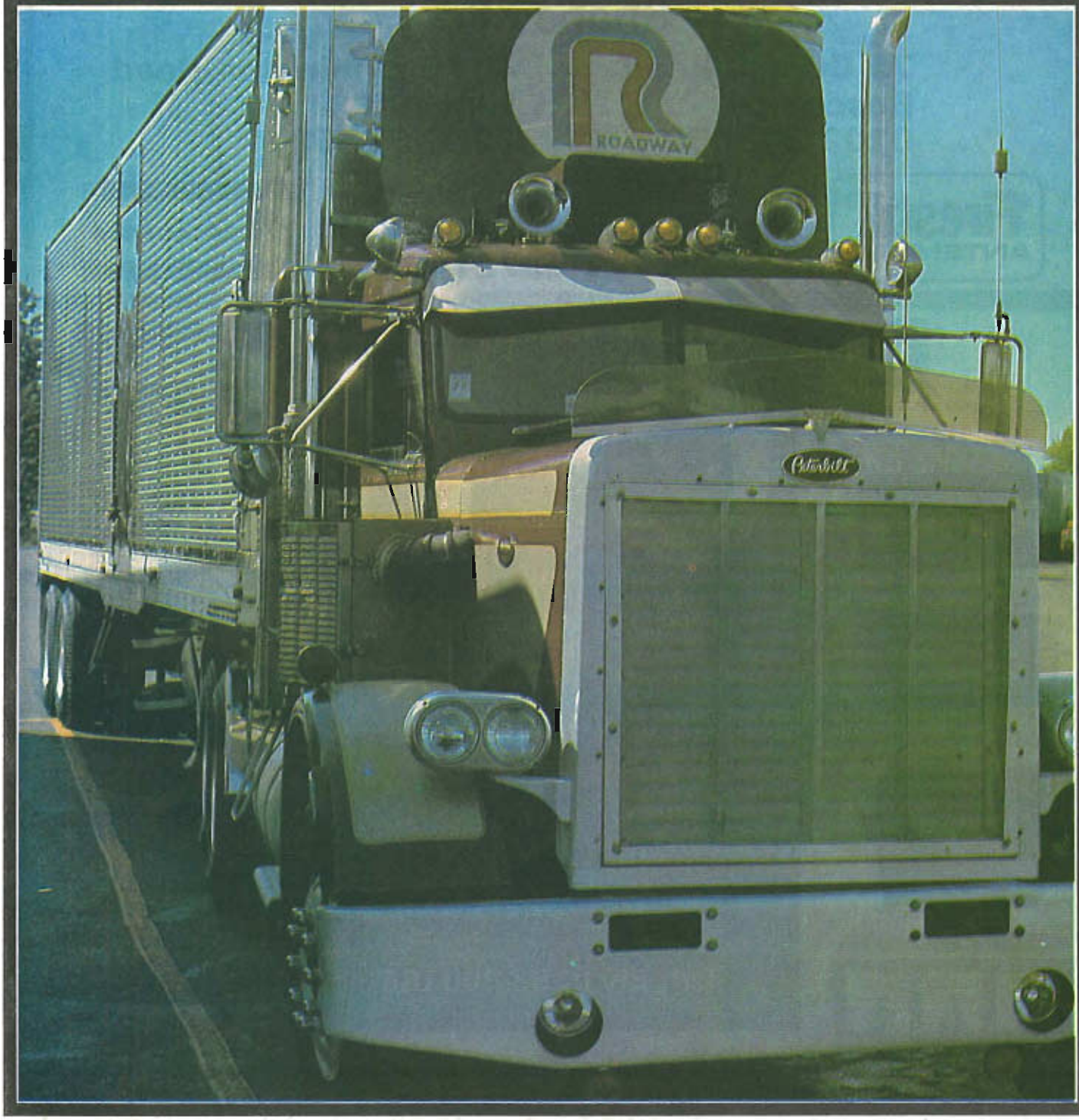
12. *This picture shows the cable being led down the surround and behind the safety belt reel before it goes towards the rig. Take the cable under the carpet, if you can, avoiding any sharp edgas, damp, and places where it might chafe against your feet under the carpet!*

13. *The cable co-ax screw-fits into the rear of the rig. Remember this cable connection juts out and you should make sure there is nothing to foul against it under the instrument panal. This is the time to connect up the speaker and power leads, by the way.*

14. *The finished product. It looks good, and was fitted in under an hour. The instructions explain any problems you might have, and here tha microphone (which connects up the side of the rig easily) is being checked. The Radiomobile-provided mike mount finishes off the job perfectly.*

15. *Although there is a speaker in the base of the rig, we thought we'd fit a Radiomobile external speaker to improve reception. Here it is mounted on the parcel shelf, and angled so that it faces directly at the driver. There is a speaker connecter in the rig.*

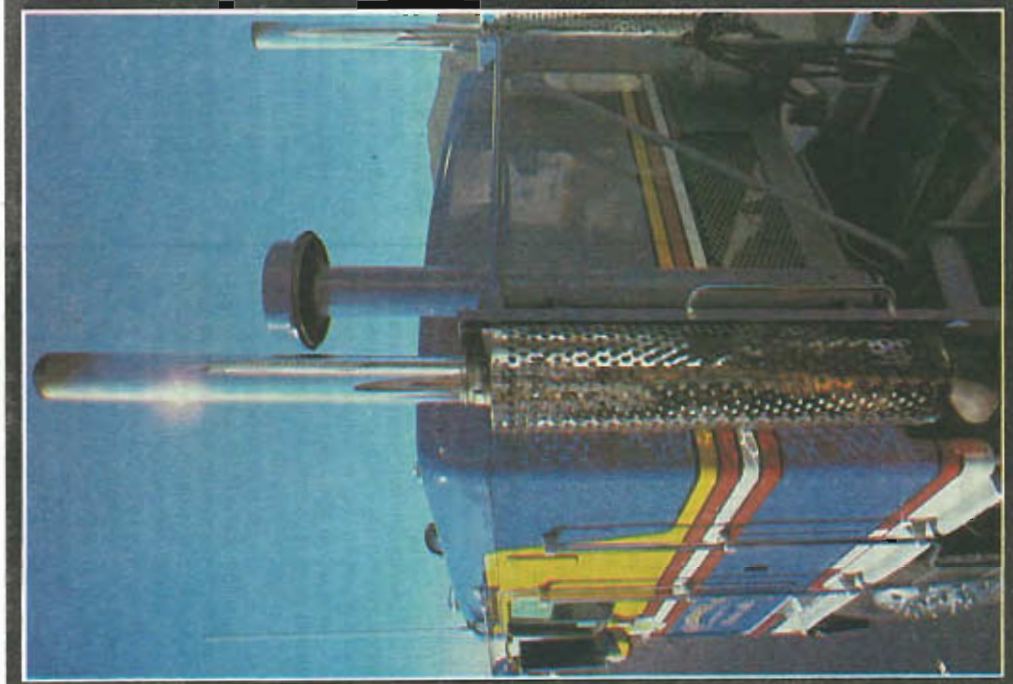

TRUCKER'S
ALIBI
DINER
Coca-Cola

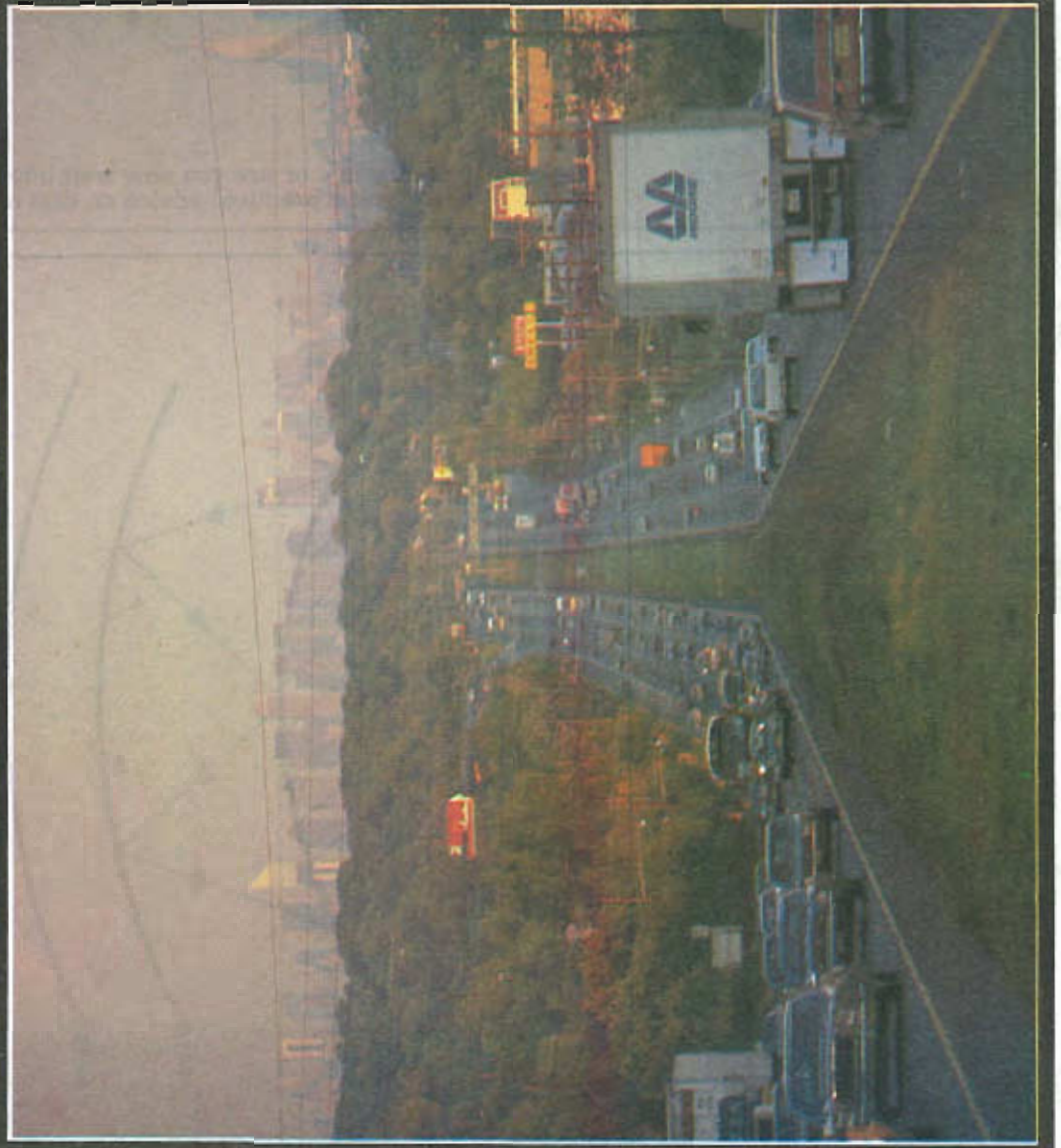

ROADWAY
Peterbilt

WHERE IT ALL STARTED...

It was a certain Mr Al Gross who pioneered citizens' band radio in the United States; he helped develop a "portable two-way radio" before the Second World War and was later involved with the U.S. Army, improving communications between combat forces, and indeed within them. There was also a use for this type of communications system in counter-intelligence work, of course, but we haven't been able to find out much about that part of the business . . . for some reason . . .

The picture shows Al Gross with the original 1938 radio. At present he is a specialist engineer with Parson Peebles-Electric Products Inc of Cleveland, Ohio.





ANTENNAE

Just starting, or are you now well into FM CB? Whatever the case, here's some practical advice on that all-important antenna. By Peter Dodson.

● PETER DODSON looks at antennae suitable for home and base stations, and explains the principles of wave propogation.

Although it might appear unusual — if not downright promiscuous to conduct your love-life in such a manner — there is nothing like keeping a little dish in the back-yard.

Otherwise known by its almost obscene title of parabolic reflector, this product of advanced technology represents the ultimate in directional reception of minute radio signals from sources as remote as the moon or even the stars, and *not*, as might be suggested, appliance of science!

Having said that, there must be very few breakers in the UK who can afford to have an erection of such dimensions on or about their premises, (and even fewer on their car roofs!), and who must settle for a less sophisticated form of signal collection.

Basically, the properties of a receiving and a transmitting antenna are identical and represent *the* most important part of a breaker's equipment; without a good antenna, the best rig in the world is worthless. Antennae are sensitive in the extreme, in that although their size and the impedance of the feed wire must match the equipment they serve, physical dimensions must be kept within practical limits. In this respect, any compromise in design applies less to home base breakers than it does to mobiles, in that the range of antennae suitable for fitting on the roof of a house far exceeds those that can be attached to the top of an Escort!

One of the main divisions in antenna types is that of directional or omni-directional properties. And whereas the fitting of a directional aerial to a car is inpractical but not impossible, its installation on a base station is not only easier, but can also enhance the success rate of the operator. The choice between the two types is dependant upon the requirements of individuel breakers. As their names imply, directional antennae receive signals from one azimuth only, omni-directional areials reflect signals from *all* directions, albeit at a correspondingly reduced level of power. The immediate advantage to the base breaker, therefore, is that he has the space to mount both an 'omni" for contact and a directional antenna for subsequent improvement of signal quality.

By comparison, the mobile beaker must accept a considerable amount of compromise to his antenna system by virtue of the physical space available to him. He is, to all intents and purposes, restricted in antenna choice to the various types of monopole or "whip" aerials of less than a wave-length, as 34 feet of twig would make for big problems under bridges, not to mention lashing everybody to death in a high wind. Some, on the other hand might get to like it!

Having, in a way, put the cart before the horse by considering the practical application of antennae before the theory, a simple explanation of how a complex radio wave departs from, and arrives at, an antenna, together with the properties of the various types, would not come amiss.

Every transmitter radiates three waves, called sky, direct and ground waves. The direct or "line of sight" wave has a limited forward range compared with the skywave.

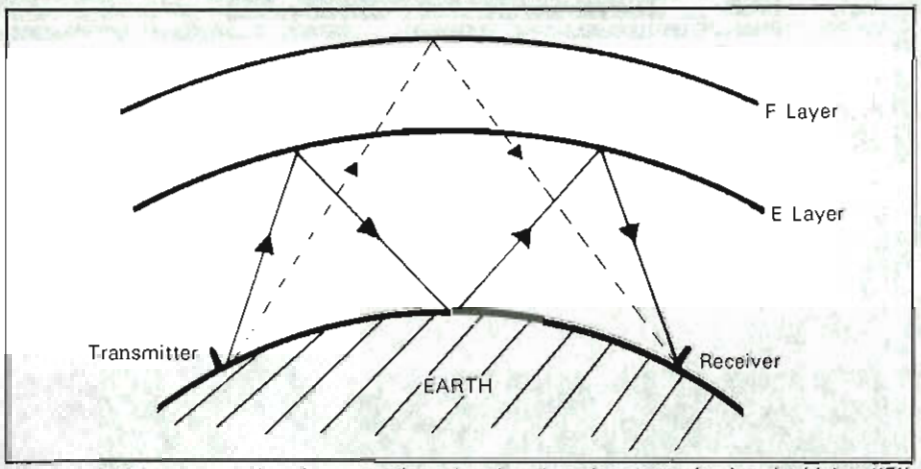


Fig 1: Example of "multi-hop" propagation, showing the advantage of using the higher "F" ionised layer to reflect a wave in preference to power-absorbing lower "E" layer.

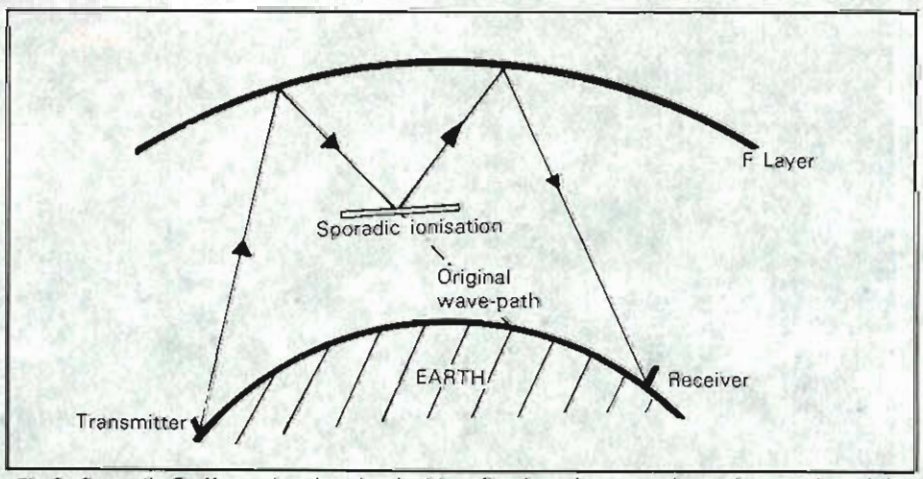


Fig 2: Sporadic E effect, showing the double reflection of a wave due to interruption of the original downward path, giving a forward extension of range.

but which nevertheless carries the bulk of CB traffic. Skywave on the other hand, can provide CB contacts over phenomenal distances by the use of a frequently talked about, but often little uuderstood facility known as "skip". Skip working is achieved by "bouncing" a transmitted wave off an ionized layer high in the sky known as the ionosphare. These layers of ionized gas, of which there are several, form, disperse and combine according to the temperature at different times of the day have reflective properties with regard to radio waves, and vary in their degrees of absorption according to the frequency of the transmitted signal. Broadly speaking, the lower layers reflect the lower frequencies whilst higher layers reflect higher frequencies. (see fig 1). Having returned to earth, a transmission will "bounce" back to a layer, down again, and continue in this menner, losing power at each bounce, until all the electrical energy has been dissipated.

Any receiver in the "pool of ilumination" or locatiou where the wave-front touches the earth, will be in a position to hear the transmission, although one which has bounced more frequently will be that much weaker. It follows therefore that a signal which bounces fewer times by reflection from a *higher* layer will arrive in a stronger condition that that which has made more hops on its journey. There is, however, an upper limit of frequency beyond which the ionosphere will not reflect a wave, and the higher CB band of 934mHz falls into this category. Transmissions on this frequency continue to emit both direct and sky waves, but whereas the line of sight wave is of practical use, the skywave continues on its endless journey into outer space.

Apart from ionospheric reflection, there exist other means of propagetion, although few if any are so reliable. One of these is "Sporadic E" which can, (but not necessarily *will*) be of supplamantary benafit to skip working (see fig 2). This is brought about by the reflection *upwards* by spurious ionized matter of a reflected wave on its way earthwards, subsequent re-reflection downwards by tha original layer to arrive on earth considerably further forward than it would have been if it had followed its original path. "Ducting", or temperative inversion, on the other hand will affect users of 934mHz by causing ducts along which signals can pass over long distances.

Before leaving the subject of wave propagation, there is one further criterion that is considered relevant, and that is the sun-spot cycle. Occurring every eleven years, this predictahle phenomene is caused by "cool" spots on the sun which reduce ultra violet light radiation which in turn decreases tha reflective properties of the ionized layers. This results in a detrimental effect on radio communication, and as the last "peak" (time of optimum conditions) was in 1981, the next three of four years will bring problems to those concerned with long-distance radio operation. It will not, however, affect direct or line of sigbt waves.

There is a popular misconception that radio waves are transmitted like laser baems, flashing around the world from one point to another. In fact, a radio wave emitted from an omni-directional autenna spraads from the transmission source very

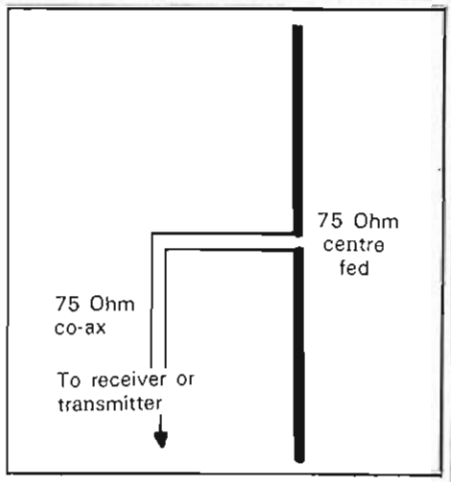


Fig 3: Vertical dipole with omni-directional properties.

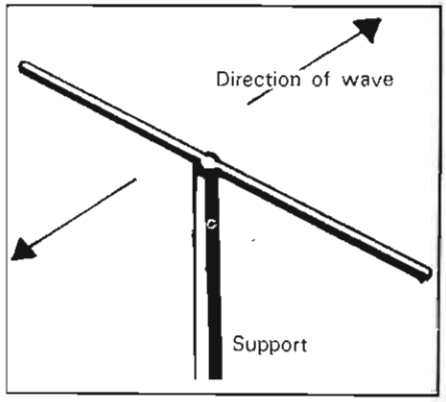
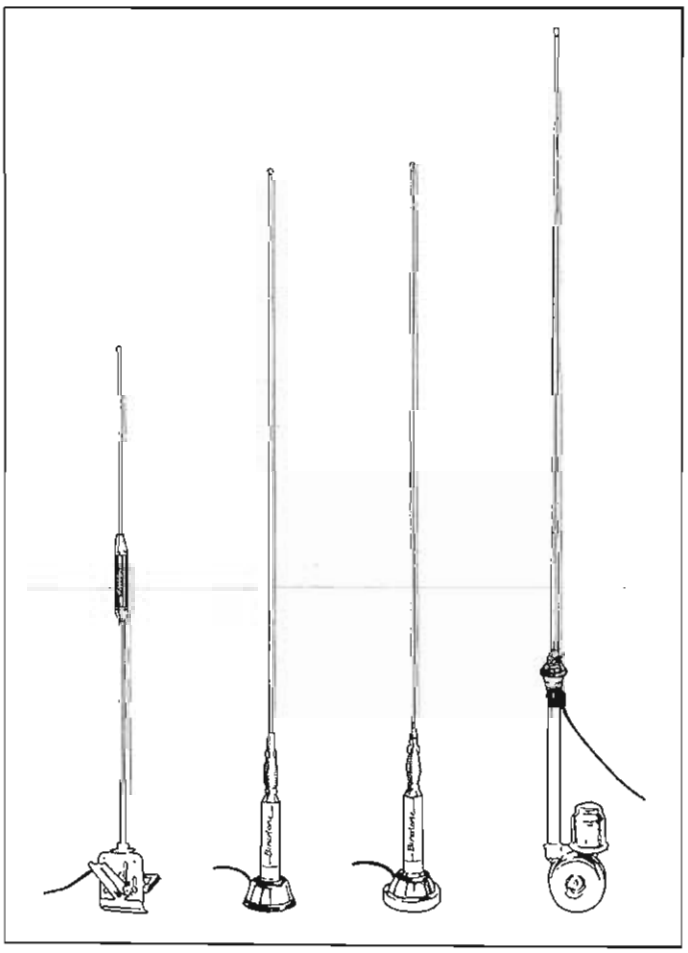
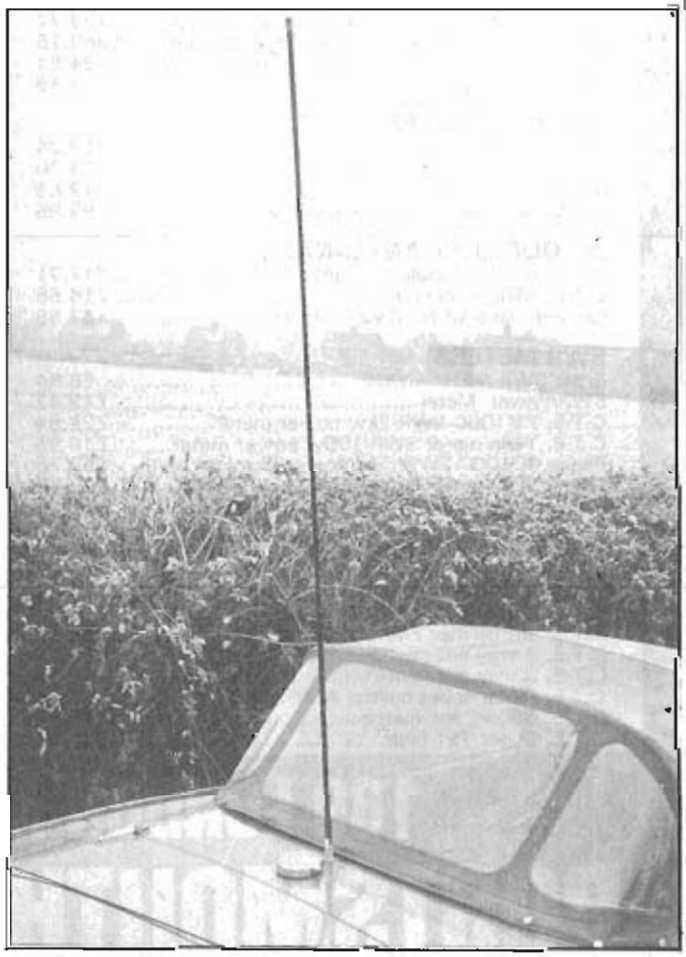


Fig 4: Dipole in horizontal position having bi-directional properties.



Four examples of Binatone mobile antennae.



like the ripples on a pond when a stone is thrown in. Similarly, the wave length or *frequency* can be equated to the ripples in that the distance from one wave top to the next is the wave length, and the closer the waves are together, the more *frequently* they will arrive at the edge of the pond. Just as a matter of interest, a radio wave has two components; electro-magnetic and electro-static, which are active at right angles to each other, travel at a speed of 3,000,000 metres a second, and give rise to the equation from which all frequency/wave length problems are calculated — namely that frequency is equated to velocity divided by wave length.

The range of available antennae is infinitely wide and can vary from a few inches of vertical monopole to a piece of equipment whose dimensions must be measured in hundreds of feet. However, as the terms of reference for breakers are bounded by the fact that their transmitting /receiving frequency is 27mHz (or 934), antennae must be of the correct size, being full, half, or quarter of the wave length.

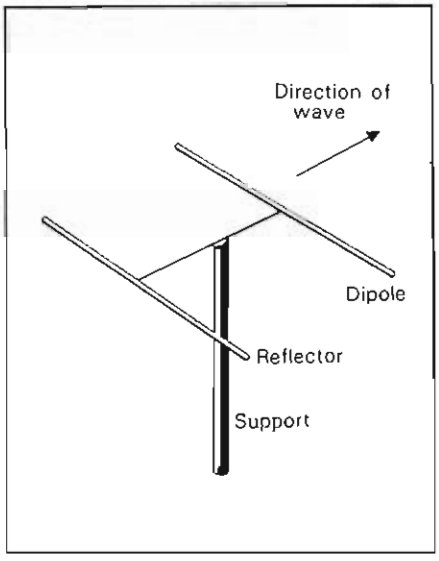


Fig 7: Uni-directional horizontal dipole with parasitic reflector.

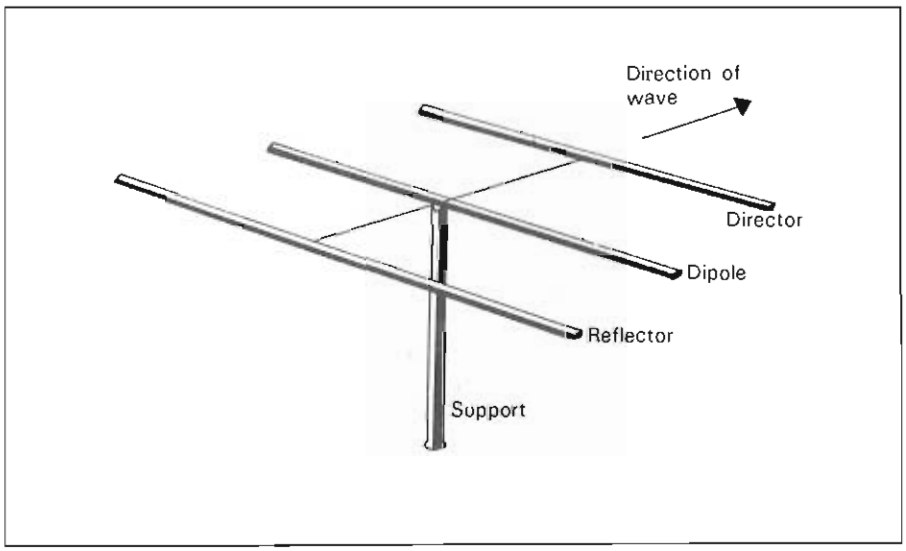
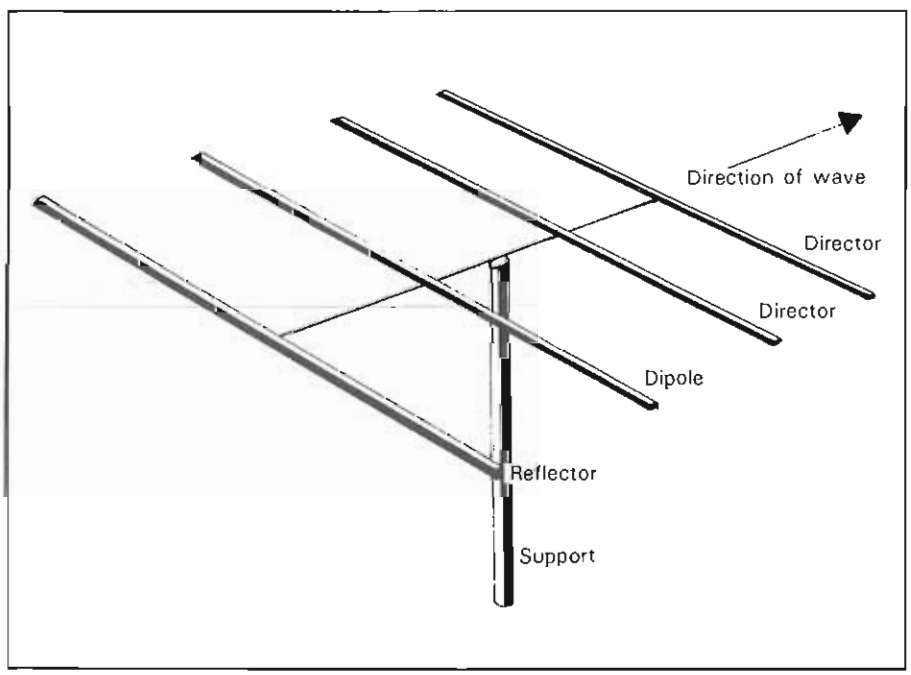


Fig 8: Triple element horizontal dipole with reflector and one director.



Yagi antenna, being a horizontal dipole with reflector and two directors

Furthermore, as the antenna system must be accommodated within the confines of a normal domestic situation or motor car, circumstances have demanded the use of the "dipole" or its derivatives. On the principle that the simplest things are often the best, so the dipole, in all its simplicity is the fundamental unit upon which many other systems are based, and against which *all* other aerials are measured for efficiency.

The principle of the dipole is that it is the shortest length of wire that will resonate (be in tune with) a given frequency, and it must be just long enough to permit an electrical charge to travel from one end to the other, *and back again* in the time of one radio frequency cycle. It is called, therefore, a *half-wave* dipole. Ideally, this type of antenna (see fig 3) should be connected (or fed) to the feeder co-ax in the centre, principally because of maximum power transference at that point. Whilst current in a half wave dipole is maximum at the centre and negligible at the ends, the voltages concerned are directly opposite, being at minimum in the centre and maximum at the ends. it follows that the lowest impedance (or radiated resistance), and therefore the most suitable connecting point is in the centre, being the region where impedance is about 75ohms, and ideally suited to match 75ohm impedance co-ax feeder.

Unfortunately, attaching a 27mHz half wave vertical dipole to a motor car presents problems by virtue of the fact that, although there is plenty of room aloft to accommodate one "arm" of the dipole, it would require a deal of ingenuity and some very big wheels to allow for the other one! The compromise is to use a monopole, whip or standard twig, which, in effect, is half of a dipole, the function of the missing "half" being performed by the reflective properties or ground plane of the car roof. On bumper-mounted twigs, this is supplied by the ground itself, and those with aspirations of using this type of antenna on glass-fibre boats will therefore have problems!

As "centre-feeding" the co-ax to the antenna system on cars is to say the least, impractical, the twig can be base fed using a matching device to couple 75ohm impedance co-ax to the 50ohm end-of-antenna impedance, but as this is just adding more compromise to the system, cannot make for peak efficiency. More common is the use of a quarter wave antenna such as a DV27, where impedance *is* 75ohms at the base, or a K40 5/8-wave unit, both of which carry the additional advantage of having less wire to deal with (see fig 4). There are, of course, other methods of dealing with the problems of excess wire, one of which is built in to a helically-wound twig such as a Firestik which simply coils it round a glass fibre rod. Alternatively it can be stowed in a neat compartment at the bottom of a base mounted antenna such as the M400 Starduster.

Home base breakers, on the other hand, do not have to cope with the constraints of space. Even those who, in the past, had felt reluctant to advertise their leisure-time pursuits, can now extend their collective erections ad infinitum — and put up bigger aerials as well! From a technical standpoint, not only are they in a situation whereby they can take full advantage of all the properties of the half wave dipole, home breekers can also avail themselves of the *directional* properties of this

fundamental yet highly efficient antenna system. As stated earlier, the dipole, when in a vertical position, is omni-directional in wave emission. If however, it is mounted *horizontally*, then it assumes the properties of a bi-directional antenna in that it will concentrate maximum power output in two (directly opposite) directions (see fig 5). What is more, the addition of a parasitic reflector, which is merely another rod parallel to the dipole, will suppress the unwanted directional emission, turning the antenna into a *unidirectional* unit (see fig 6). Those of more mature years might well remember this type of antenna was used for TV reception in the late 1940s!

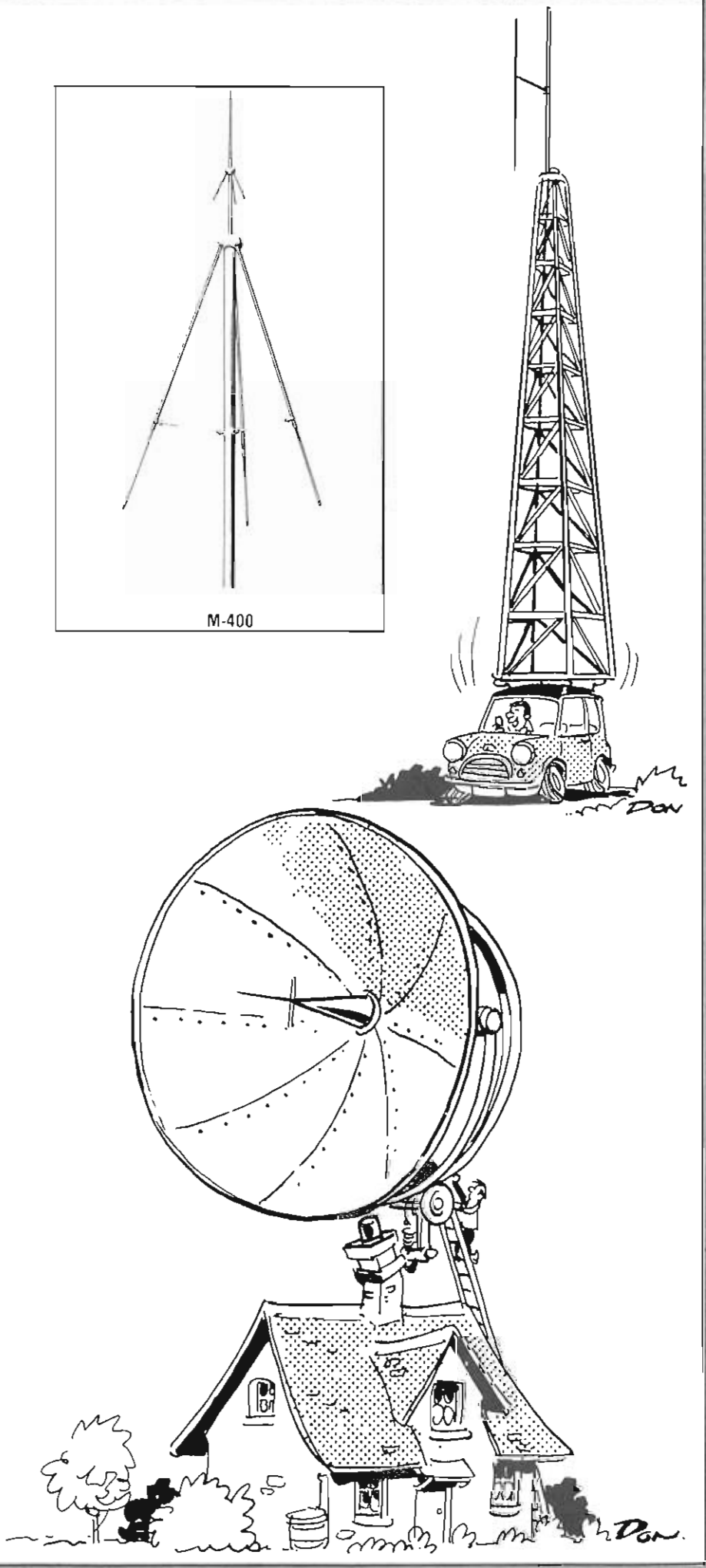
However, having gained the advantage of transmitting (and receiving) maximum power in one direction, the home-loving breaker is then stuck with the *disadvantage* of operating in that direction only. The answer is the acquisition of one of the rotating device on the market such as the three-element Shakespeare unit which, incidentally, is also fitted with a "director" similar in appearence to the reflector, and mounted on the opposite side of the dipole. Even more sophisticated is the ASP M201, which consists of a dipole, a reflactor and *two* "directors" estimated to produce around 5dB gain and is in effect a Yagi antenna belonging to the modern TV array family. It is nevertheless based on the fundamentals of the half wave dipole (see fig 7).

Even sitting on an orange box in the spare bedroom with a mobile rig and his twig stuck out of the window the base breaker has a height-advantage over his mobile mates. Nevertheless, the close proximity of bricks, morter and other domestic paraphernalia will offset some of the advantage he has gained. An antenna in "free space", fed by the minimum of co-ex has by far the greatest "gain", although its erection must be depandant upon the athletic capabilities of the individual breaker and his resistance to the effects of vertigo . . .

For those who chicken out and go for a loft-mounted antenna, any lack of dedication to the cause will probably be punished by an attack of "standing waves". Although usually applicable to users of frequencies higher than 27mHz, this phenomena *can* cause problems for breakers, emanating from large metal objects such as loft water-storage tanks. Standing waves are those reflected back along the feeder wire and which act in opposition to the outgoing transmission and which results in a dramatic reduction of power. Unfortunately, the detection of this problem is not easy without the use of a "probe" aerial to sense the condition, although when discovered, the remedy is often merely a matter of resiting the antenna.

But for those who have not only breved the elements, but bolted their thingies to the chimney pot as well, they can rest easy in the knowledge that they have taken every possible step in the production of maximum power output — until the wind blows! And in this respect, it is advisable to make financial provision for three eventualities: the replacement of your antenna should it disappear in a force eight gale, adequate compensation for your neighbour should it end up through his sitting room window — and the wife and kids, should you fall off putting it on!

M-400



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CB 27/81

LEGAL RIGS

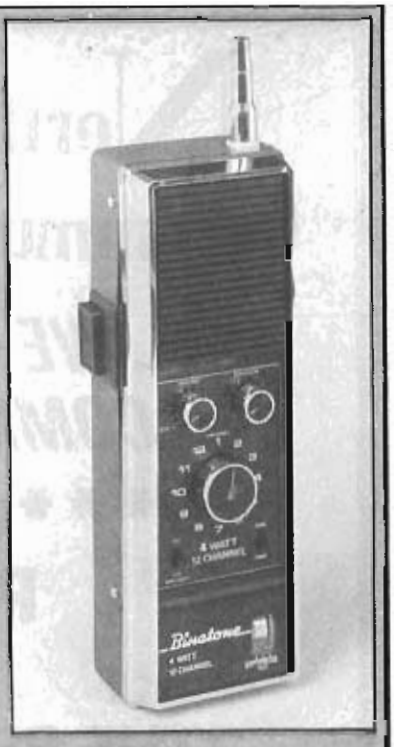
What's available right up to the present time. Prices, specs, and well, everything you want to know about these new products.

Now that all the hassle of CB legislation is a thing of the past, the problem facing not only new breakers, but also old hands changing over to FM is, What To Buy? Disregarding the many types of AM equipment that are on the market, and concentrating on authorised rigs, the choice is really quite wide. And when we speak of "authorised", we are referring to full compliance with government specification as contained in MPT 1320, with regard to modulation, channel spacing and everything that goes with these criteria. By and large, the average breaker is concerned primarily with the entertainment value of his rig, and not only the technical details. He should therefore be prepared, when buying CB equipment, to make exhaustive enquiries as to the legality of the gear with particular emphasis on the frequency range, the modulation and channel suitability.

The only CB rigs that are fully authorised will bear the stamp of approval as shown at the top of this page. And so, having regard for the normal precautions of making sure that whatever you buy is adequately covered by guarantee, let's look at what is being offered in the way of legal CB.

Amstrad have developed two in-car units "designed specifically to conform with every aspect of Government specification". Compact, in that their dimensions are similar to a car radio, the units are driven by a "positive" power lead and earth return — a method probably deserving of the disapproval of purists, who would rather see a twin lead direct connection to the battery to reduce electrical interference. The first of these units, the CB900, has LED indicators for channel monitoring, power and signal strength, also transmit and receive indicators, and sells at around £69.95. The CB901, on the other hand, incorporates everything that the 900 has, and is also fitted with a "Roger Bleep" unit, automatic squelch system, and will cost about £84.95. Both have an integral speaker and come complete with microphone and fitting instructions.

Binatone, well-known for their in-car broadcasting receiver and tape players, have also produced a wide range of CB equipment, concentrating at the moment on mobile rigs but with a base unit ready for marketing early in the new year. All these



mobile rigs are reasonably priced with their bottom-of-range unit costing £65.95. This is the 5-star model, number 01/8554, a conventionally shaped rig for under-shelf mounting. Next in range is the 01/8546 "Speedway" at about £80.

The Radiomobile range of rigs has also been produced in accordance with Government specification MPT1320, and their CB201 features LED channel readout, S/RF power meter, integral bottom mount speaker with external speaker jack. The unit is supplied complete with dynamic microphone, mounting bracket and full instruction manual at a price of £90. The CB202, at £120 includes the addition of squelch, tone/RF gain controls, 4-digit LED S/RF power meter, transmit power and receive indicators — all with dimmer control. The unit also boasts a PA function, integral speaker, all styled in satin chrome and black, and represents Radiomobile's top-of-the-range product.

"Direct from factory to you" bearing the official stamp of authorisation, for only £43 plus VAT, is the Johnson mobile transceiver. One of the cheapest rigs on the market, the distributors of this unit claim that it complies with official specification, and is available from Johnson Electronics, Star Warehouse, Camden Goods Depot, Chalk Farm Road, London NW1 — or Tel: 01-485 3918. It must be said that this particular rig has not been seen by anybody at *Practical CB*, but the press blurb definitely lists every specification as being in accordance with MPT1321.

Opposite page, top: Now coming to Britain — rigs you can hide away in the boot. The mike plugs into the dash, and all the controls are on the microphone itself.
Centre: Opposite page: Binatone's 40-channel Explorer, the basic model in an extensive range.
Top left: Autumn Products "PE Ranger" in kit form.
Top right: Binatone short-range walkie-talkie.
Bottom right: Sirtel "Searcher" rig.

Originating from the same source for a mere £25, the CB Phone-patch is available also. Originating from the Goldline accesssory firm, this unit can be fitted in one to two hours with simple tools, and enables a breaker to transmit from his rig to a 'phone, although its use is recommended more for base station use.

If you're a believer that British is best, then the Bedford firm of JWR are currently producing the set for you. At £65 including VAT, their M2 rig has the standard 40 channels with extension speaker jack. It also sports a PA facility and green LED channel read-out. Squelch is by manual control and a built-in attenuator is yet another aspect of this value-for-money unit. For £21 more, the M1 is available which, among other refinements, has a built in circuit protection facility. Firstly, the unit is a dual-polarity set, which means that not only is it impossible to damage the rig by putting the positive of the battery to the negative of the rig, but also that it will work which ever way you connect it up. Secondly, what is virtually a "dummy-load" is automatically connected to the output to safeguard the equipment if used without an antenna connected to it. This failsafe system will continue to operate for five minutes, by which time it is hoped that the fault will have been discovered! Both units come complete with microphone and fitting instructions.

BASE STATIONS LATER

"A name you know, a name you can trust" is the way Fidelity put across their sales promotion — and in the somewhat suspect world of CB sales, this can count for a lot. Fidelity equipment is made to their (and the Government's) specifications in the Far East and produced in three models, the CB1000FM, CB2000FM and the CB3000FM, the 1000 and 2000 being mobile units and the 3000, due on the market early next year is a base station. This practice of bringing out the "base" model in January is a reflection of what has been happening in other countries, as experience has taught manufacturers that breakers go first for a mobile, and only later (presumably after being frozen to their microphones during the winter months!) do they appreciate the value of a base rig).

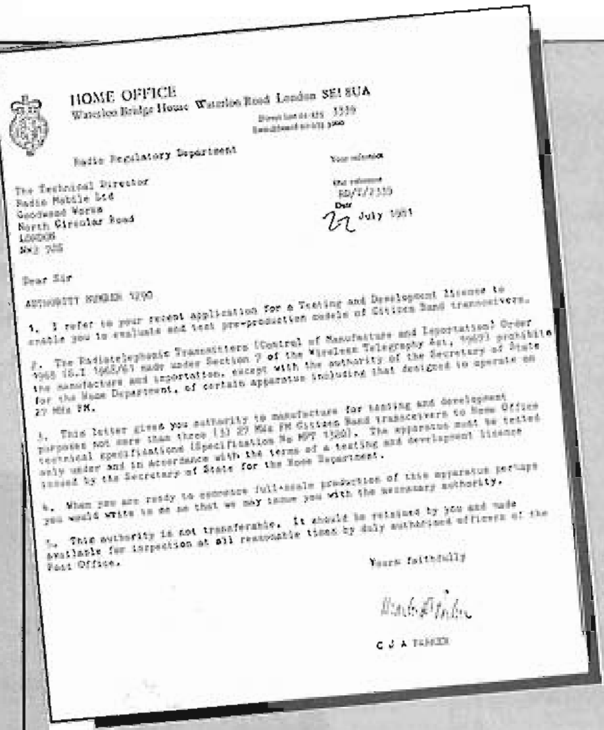
The CB1000FM is priced at £69.95 and is pretty well standard stuff with a rotary on/off/volume control and rotary squelch switch. Channels are indicated by the usual LED and the unit has a signal strength meter, microphone (with bracket) and rig fixing brackets *and* mains connecting leads are all supplied as standard. The antenna is also attached through an attenuator as per the official spec. On the other hand, the CB2000FM starts where the 1000 left off having a PA facility, LED dimmer, RF gain control and microphone gain control. But it does have one almost unique facility, and that is a panic button which automatically overrides any other channel selection to give instant access to the emergency channel nine. All this will cost £89.95.

On the other hand, for £110, give or take a pound or two, the CB3000FM when it comes out, will be a very attractive base rig indeed. Full UK spec, of slim design being 15 x 7½ x 3½in and made in silver, it has the look of a much more expensive set.

Autumn Products Ltd, of Letchworth, make something which may appeal to the

Fidelity CB2000FM mobile at £89.95. (Below)
Amstrad duo. The CB900 and the CB901. (Bottom)

LEGAL RIGS


HOME OFFICE Waterloo Bridge House Waterloo Road London SE1 8UA

Radio Regulatory Department

Your reference

Our reference RD/T/2330

Date 22 July 1981

The Technical Director
Radio Mobile Ltd
Goodwood Works
North Circular Road
LONDON
NW2 7JS

Dear Sir

AUTHORITY NUMBER 1290

1. I refer to your recent application for a Testing and Development licence to enable you to evaluate and test pre-production models of Citizen Band transceivers.

2. The Radiotelephonic Transmitters (Control of Manufacture and Importation) Order 1968 (S.I. 1968/61) made under Section 7 of the Wireless Telegraphy Act, 1967) prohibits the manufacture and importation, except with the authority of the Secretary of State for the Home Department, of certain apparatus including that designed to operate on 27 MHz FM.

3. This letter gives you authority to manufacture for testing and development purposes not more than three (3) 27 MHz FM Citizens Band transceivers to Home Office technical specifications (Specification No MPT 1320). The apparatus must be tested only under and in accordance with the terms of a testing and development licence issued by the Secretary of State for the Home Department.

4. When you are ready to commence full-scale production of this apparatus perhaps you would write to me so that we may issue you with the necessary authority.

5. This authority is not transferable. It should be retained by you and made available for inspection at all reasonable times by duly authorised officers of the Post Office.

Yours faithfully

C J A PARKER

do-it-yourself brigade — CB rigs in kit form. Again, full authorised specification is claimed, and the unit operates from 240V AC mains, 12V DC car outlet or from its internal power pack (including battery charger). Their press handout does say, however, that this unit in kit form is "for those with some experience of electronic construction projects, a complete kit is available so that you can build your CB ready to use". Price in kit form, ex-stock and as an introductory offer, is £49.95 (plus £2.50 PP plus VAT). if on the other hand, you aren't so clever with a soldering iron, built and tested sets are available in the shops or by mail order at £65!

Well-known distributor of CB accessories, the Peterborough firm of Sirtel have also marketed a fully authorised FM rig named the Searcher FM, incorporating an easy-to-read LED display and external speaker jack. The unit is compact (9in x 2½in x 5in) and weighs only three pounds.

Breaking on a budget appears to be the sales approach of many electronics firms as CB equipment floods onto the market, although most of it has crossed a couple of oceans before it made it to the UK! One of the biggest is LCL Imports of Dudley. For the breaker who doesn't want the hassle of choosing separate items and prefers his CB equipment handed to him like a Lego set, LCL can oblige with one of their package deals which include rig, antenna, SWR meter and patch leads for only £65 *including* VAT.

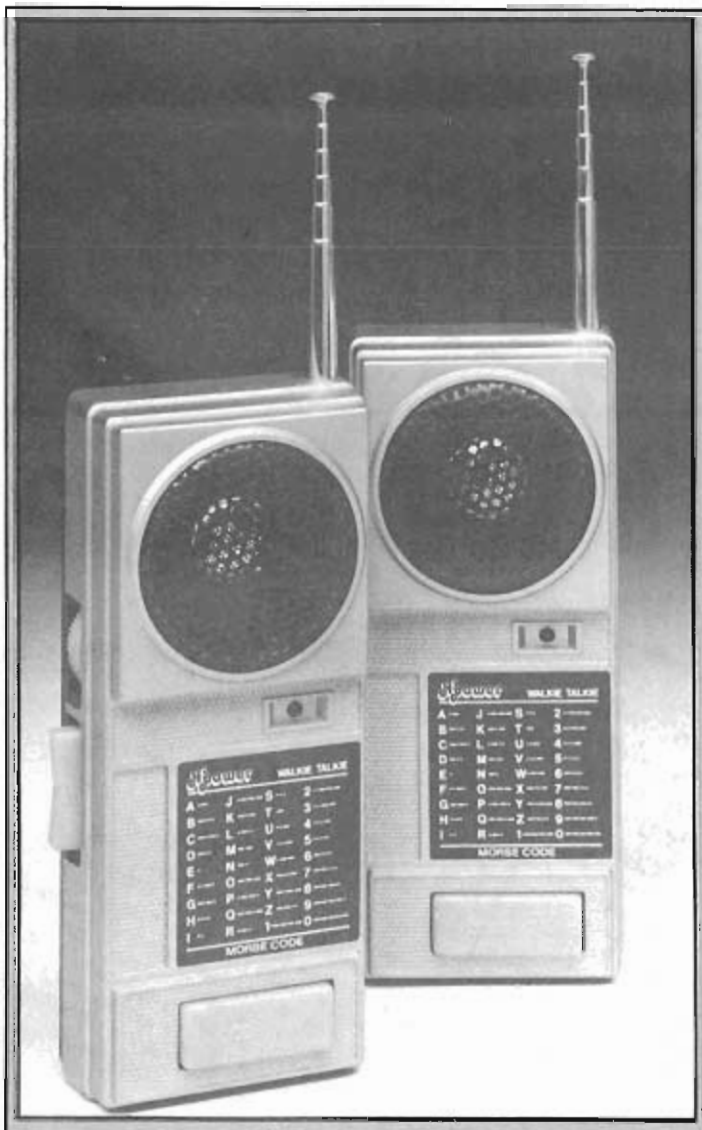
FULL COVERAGE

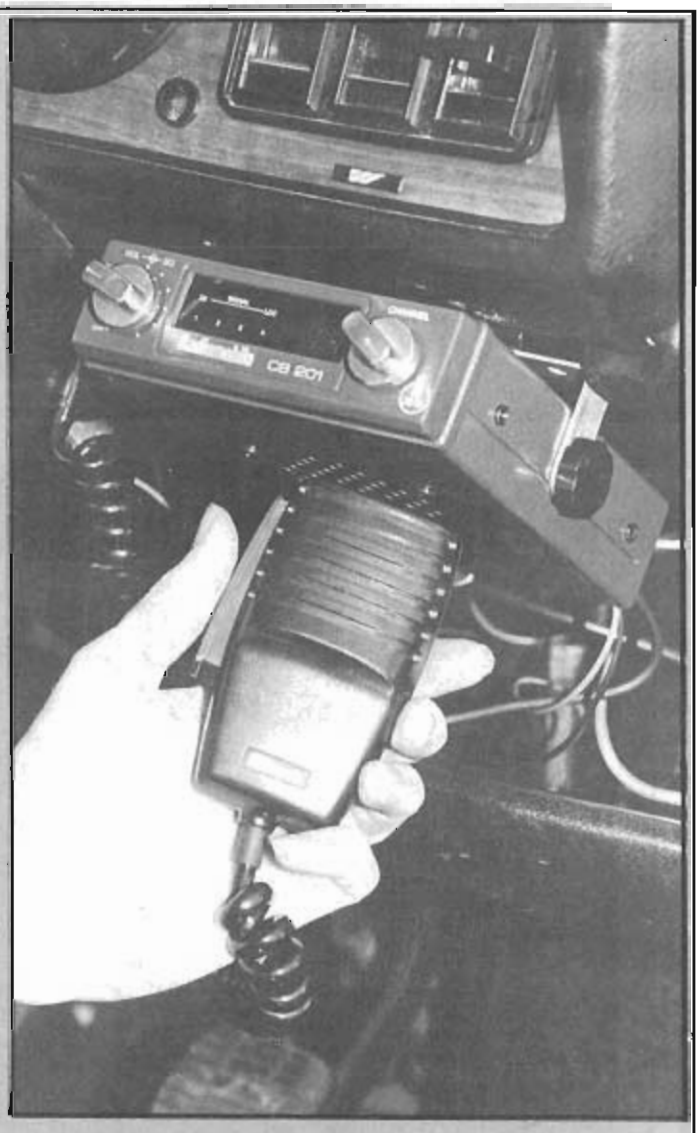
Lowe Electronics, of Matlock, has been stocked to the gutters for some time with rigs, including their TX22 22-channel set. Intending breakers should, however, take a good look before accepting one of these as rumour has it that they have only been authorised for use in Holland and France. Lowe also sell their top-of-the-range Belcom LS102 priced at £240, would you believe, but beware, apart from an FM mode, the model also carries the facility for SSB and AM — which makes it a little bit illegal. On the other hand, it also provides full coverage of the UK 10 metre band which makes it a very useful tool for amateurs and those with intentions of becoming one.

The Sheffield firm of Air Bear UK are also catering for the down-market customer with a 40-channel rig at around £49. Slightly cheaper are their 3-channel walkie-talkies, and they also sell a 10-channel hand-held kit that will, rumour has it, take a four watt booster. Again caution is recommended as the working frequency on these two hand-held units is not specified.

We have by no means mentioned all of the firms that are currently making authentic UK-spec CB rigs, as they are springing up all over the country as part of one of the biggest current growth industries. They are, nevertheless, the best known ones, and therefore have a reputation to keep. After all, it boils down to one thing — you get what you pay for in the end.

Top: Midland trio. A model 2001 at £69.95 shown on top of the 3001 rig at £79.95 and the 4001 priced at £89.95. Bottom: The Binatone 5-Star 40-Channel transceiver.





Top left: "Hi-Power" (but low range) 49MHz hand-held units.
Middle left: Radiomobile 202 40-Channel FM rig.
Bottom left: Binatone Breaker-Phone.
Top right: Radiomobile 201 transceiver fitted to vehicle with power-mike.

Why should I buy a rig?

What earthly use could it be to you? Can you ring your mother (again)? Talk to your "friend" when the other half's away? Keep in touch with the kids when you go out on the town? Make excuses to the boss when you go for that interview? These are just some of the questions that remain unanswered by Brian Charig.

WHEN you listen to experienced breakers talking over their rigs having what they call a "ratchet" you may wonder why you should in fact, buy a rig yourself.

The language sounds complicated, and they'll undoubtedly be using their special expressions that you cannot understand. Needless to say this can be rather daunting to the newcomer, but on the other hand there are a good many CB guide books available, and then a few days "on channel" will soon find you talking like the proverbial veteran. Eventually you'll come to realise that it is a very simple method of communication.

We could be rude, and say that it's really child's play, and that's what makes it so popular with the majority of citizens ... but we won't. Another way of looking at it is that it's a people's radio (instead of Citizens' Band) which means that it will find a use with everybody. Those "on channel" already know that CB can become addictive!

Why not try a friend's rig to begin with? They can be expensive and there's no point in investing your hard-earned shekels in something that just might (not probable though) not suit you. Looking at CB as a useful facility, it's a wonderful way of overcoming loneliness, and helping people make friends. Let's face it — the most popular people can become lonely at some time, and nobody has too many friends, have they?

People feel the need to communicate.

This has been proved by the many popular radio phone-in programmes that have started up in the last few years. Everyone has something to say, although these programmes involve people in a small way; you can speak for only a few minutes, and even then only when you have a point to make. The rest of the time you have to listen. But the need to participate is shown by the demands of the CBer.

If you telephone somebody they might be busy, and you are always worried about how much the call is costing you. With you use a rig, you can talk for as long as you like whenever you like, there is always somebody on channel willing to have a conversation. People from all walks of life are using CB even though they might well have been using illegal equipment until now.

'Breakers will often recommend a place to stop and eat'

Apart from the thousands of young people using this equipment there is surprisingly a growing number of senior citizens (ahem, Mature Breakers), and many housebound, disabled people, and the blind, all enjoy CB.

CB radio has helped the community in many ways, and has even saved lives. It means always having a friend, someone to talk to and if you are in trouble there is always a breaker willing to help. There is a great bond between good buddies (friends). Whether you have a "base station" (a rig at home) or a "mobile" (in your vehicle) the system is the same; there's always someone on hand to chat to or give help and advice. It might be necessary to call on the CB emergency services, or just to ask for directions. Breakers will often recommend a place to stop and eat, or you can ask a local breaker where you can put up for the night. A breaker might even come out and meet you, (have an eyeball) to show you the way. If you are going on a long journey and are bored by the honrs on the road, CB is a great pastime and a lot of fun! As you are driving along you might hear someone say eyeball! eyeball! This means they have spotted your twig (seen your CB antenna). Many of the breakers on our roads are pushing "big wheels" (commercial vehicles or trucks) and CB is of extra benefit to these people, who drive for many hours over long distances and through all kinds of

couditions, CB is a boon because they can help each other overcome difficult situations on the roods. They could be lost without their CB rigs.

Other groups of commercial business can benefit from using CB, such as construction workers working on large high-rise buildings. They would find the added safety factor if they used CB to communicate with each other. Small companies using vans for deliveries would also find the service both economical and useful. I can see the advantage to farmers who may have workers a long distance away, instead of somebody having to drive over to them they could be called over their two way radio and report whatever is necessary.

It has been proven time and time again that breakdown vehicles and ambulances have arrived at the scene of an accident a long time before the police have heard the call for help (before Smokey Bear has got his ears on in other words), because someone was using CB and called the emergency service promptly.

Motorcyclists are fitting themselves out with CB, and once again on the commercial side, especially in the big cities I can see messenger services benefiting from CB.

It is a well known fact that various fire stations and headquarters in the big cities, such as the telecommunications people and the police use equipment which can monitor CB freqnoocies. Of course nowadays this monitoring is simply to catch emergency calls, but before legalisation there were other reesons. That's not to say these "other reasons" are not being utilised nowadays!

Socially, CB is a good way of making friends and over the last four and a half years hundreds apon hundreds of clubs throughout the United Kingdom have been formed. These clubs have also been a great asset to the community.

There are a few people working their backsides off for the cause of CB; one of these is "Disco One", who with his lady wife "The Duchess" spend all their time working for the UBA (United Breakers Association). His name is Andy Donovan and he is the President and Director of the association. This organisation was formed to align all the clubs together under one umbrella to give it the strength to fight the cause. The cause is to have a legal waveband which works well and gives the same kind of transmission as the illegal waveband did earlier in the year.

There is another group working for the same cause and they are equally as enthusiastic. They are the CBA or Citizens' Band Association. President is James Bryant, and like Andy, James has been fighting the breakers' case for a number of years. With the support of these associations the thousands of CB clubs around the country have thrived and in some cases are bursting at the seams. Other organisations are listed elsewhere in Practical CB.

Many of these clubs work very hard to raise funds for charity. There are so many good causes for whom they work that they are too numerous to meution. For example they have raised money to buy guide dogs for the blind. They give parties for the elderly and for children at Christmas, as well as helping towards raising the money for the "Scanner Appeal Fund" at the famous Charing Cross Hospital.

Members of clubs have united in an effort to find lost children — and even adults. I can see what a great help CB would be in a national disaster, heaven help us if ever a need should arise! In times of need breakers everywhere will turn out in their thousands.

Always with my ear to the ground, it has come to my attention that a Pirate CB Radio Station has just come on channel. It's called "Radio 27" and is transmitting in London and the South. I am told they are using sophisticated and powerful equipment. The breakers themselves have only heard a test transmission (at the time of writing) which consisted of "News and Views on CB", although I understand that 5,000 breakers heard it. Of course it had its critics who said it might damage the cause of CB among other things. The majority of the clubs and their members were highly in favour of the breakers having their own pirate radio station which goes out on Wednesday nights between midnight and 1pm on Channel 38. I must warn you to turn down your gain (marked RF gain on your rig) as the power of their transmitter is so great that it could damage your rig. I am going to listen in next time. I feel it would be nice to have our own CB Breakers Radio Station.

'. . . an essential and useful piece of equipment, and . . .'

There are hundreds of CB shops springing up around the UK who can advise the would-be breaker on what type of equipment is needed to go with their set. But a great many good buddies buy their radios through contacts within their CB clubs. Among the many books published telling you how to use your equipment and how to install it, is one of the best I have seen on this subject, *CB '81*. This not only told you how to install, but showed you visually and clearly just how it should be done. Elsewhere in *Practical CB* you'll find detailed information on how to fit a rig to a car, and how to install a home base.

I hope this article has helped you decide whether you want to buy a rig. I personally feel that it is an essential and useful piece of equipment, and that there should be at least one rig to every family.

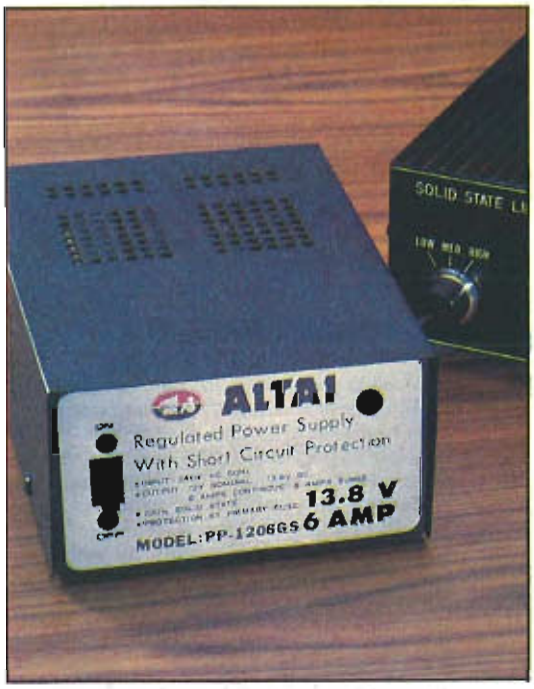
It is estimated that in Europe there are at least 16,000,000 two-way radio sets, and these are rising at an estimated 200,000 a year. These figures do not include the United Kingdom, though — nobody can give you a really true figure of how many breakers there are in this country or how many sets are being sold each week. But going on a rough survey on shops and clubs across the country, I estimate that 500 new breakers go "on channel" each week; before legalisation 180 got busted weekly. Don't miss out on a useful and fun hobby — join us!

Le me end by giving you "All the Golden Numbers." "Ten Ten till we do it again." "Whoosh over the Top." "We're down We're gone."

Brian Charig
Newsboy

ACCESSORIES TO THE FACT

Bits and pieces you can add to your legal rig

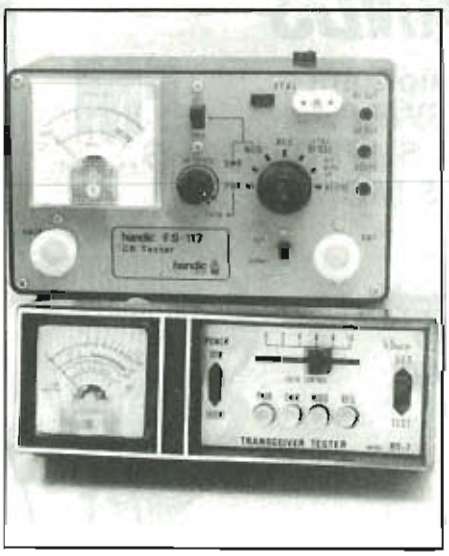


Left: The alternative to a car battery and trickle charger set-up, a 13.8v mains regulated power supply. This Altai item has the added safeguard of a short-circuit protection facility. Remember, if you do intend to use a mains transformer, make sure that it is a purpose-built CB unit, and not a left-over from your old train set!

Below left: Everything you'll ever need to know about your rig's performance at the flick of a switch — a Micronta SWR/power/modulation meter.

Bottom left: Variations on the same theme — two more forms of SWR meter.

Opposite page: A selection of desk-top microphones intended for base-station use.



Having fitted the basic essentials of your CB equipment, it won't be long, we guarantee, before you will want to turn your rig into a "super-rig" by the addition of the many and varied accessories (some are even termed as "improvements") that are available. Just as many, and almost as varied, are the distributors of these items, so you would be as well to choose a well-known distributor of CB products as many of them import equipment from countries with which we don't even have diplomatic relations, let alone recourse to guarantee-rights!

Among the best is Haces Ltd, also known as Home and Car Entertainment Specialists whose Howard True is no stranger to the offices of ***Practical CB***, and whose prices are quoted below.

Filter systems, which will affectively eliminate car-type electrical interference are available at £9.50 and comprise suppressor units for coil, distributor, ignition and generator (or alternator). And having improved your reception, transmitting can be made that much easier (if not better) by the addition of the telephone-type handset and clip-rest to replace the standard microphone at £13.45. This requires only the attachement of a plug to put you in business.

SWR metors for mobile use range from £8.00 to £12.00 in price. Easily fitted in-line to the antenna and powered from the car-battery, one of these units is essential not only for initial aerial tuning, but also for periodic checks on outgoing power. And on the subject of power, linear amplifiers (if you feel that you MUST fit one!), pushing out 25 watts are available at £25.75, but the 60 watt versions — a bit naughty for mobile use — come a bit more expensive. If, on the other hand, it is only a boost to reception you crave, for £1.595 you can get a car-battery powered pre-amp unit.

SECURITY KICK

Extension speakers can be bought for as little as £4.50. Conversely, the de-luxe £12.50 models have built-in amplifiers and fitting capabilities suitable for rear shelf, above and under dash positions or even on door-jambs if you want to give your ear-drums a real bashing! For external use, £6.50 will get you a bullhorn — and a lot of hassle from passing motorists!

On a security kick, the Kraco locking slide-mount is now on the market, which might not discourage the master criminal, but will certainly deter the casual thief and is certainly worth £3.95.

For those who want to listen to AM breakers on 27 MHZ (if only to hear how the other half lives!) it is possible to buy a converter for the standard car radio. Elenco market such a unit at £9.50 which is easily fitted to a domestic radio and converts the medium wave 5-16 slot to the 40 channels of AM CB. On the other hand, it is possible to "build your own" AM transceiver — not that anybody would — with crystals at £3.00 a pair (you need 8 to 16 of them) together with the necessary boards, but we won't go into that!

Like many other breakers who are initially satisfied with using their mobile rigs and antennae as base units, you will no doubt eventually get fed up performing the physical contortions necessary to performing the transition, and aspire to having separate rigs. Similarly, the bother, mess and smell of keeping (and charging) a 12-volt battery indoors will compel you (if not the good lady) to demand a mains-operated set (she should be so lucky!)

YEAR'S GUARANTEE

To this end, a new British power supply transformer by Fisher Karpack Industries has been marketed at £13.80, giving 3 to 5 amps output — adequate for a CB rig of any type. Futhermore, the unit comes with a 12-month guarantee, which is more than they give the highways authorities when they put up all the motorway overhead lighting.

Indoor breaking also offers an opportunity to use more sophisticated microphones. These range in price from £18 to £45 for an all-singing-all-dancing Handmaster home power-mike with gain.

tone end volume control. Similarly test meters vary in cost from £8.50 for a basic SWR job to a multi-test system at £23 with SWR, power matching and Field Strength capability end dual display to cover up to 10 watts. Mains-fed linear amplifiers unit, or cost as little as £23 for a 25 Watt unit, or £500 for one pushing out one kilowatt — 1000 watts — although for that sort of bread you will get a lot of grief not only from officialdom, but also the fellow breakers that you are bleeding over!

FINE TUNING

Better, really, to go for a really efficient antenna system. Most home twigs, like the GPA17, Silver rod, Stigma 4, 3-unit beams and Big Stick come already SWR'd, but still require a little "fine tuning" to match the rig. Aerial matching therefore is essentially a part of getting on the air, and units to assist you are readily available.

On the other hand, you are still using a mobile antanna in your home, for £6.50, you can avail yourself of a ground plane unit, especially if using twigs such as a DV27, DX275/8, Log 275/8 on a base rig. But for those unfortunate enough not to have a loft in which to mount an antenna, a window mount has been designed at £22.95, especially with high-rise flat dwellers in mind. So no matter where you live, there's no excuse — get breaking!

The announcement of legal GB triggered off a veritable landslide of CB rigs whose press releases positively oozed sanctimony in their compliance with MPT 1320! Not quite so prolific in volume were the claims of legally specified CB antennae. Nevertheless, Antiference of Aylesbury is one firm which can justifiably claim 25 years expertise in the business of building twigs "to professional standards". Made with high-grade materials and precision coil-winding, their units are subjected to rigid quality control for reliability and performance. Top sellers in the States for many years, their full range of twigs is now available at local stockists.

And on the subject of antennae, Firestik's new Diesel-stick has now hit the streets. A hand-adjustable twig, the unit requires only the turn of a lock-nut to alter its position, and it is rated to 1000 Watts. Currently in stock at Connexions of Maidenhead. Also new to the market is the Rebel antenna which is in many respects very similar to the K40 base job, but with one eighth gauge wire. Stainless steel as a basic material for twigs seems to be catching on in the CB world, as more and more of them are to be seen these days.

Sirtel of Peterborough have brought out no fewer than fourteen new products to welcome new breakers to the fold. Their DM307P power-mike, for instance, uses a standard 9-volt battery for power and has a built-in noise filter ideally suited for drivers of many vehicles. The firm also "does" an in-line fixed SWR meter, complete with mounting brackets and instructions.

Reduction of TVI features among Sirtel's products, along with a Power Reducer — a necessary item for those with base-station antennae fitted more than 23 feet above ground level, so being required by law to reduce output by 10dBs. Quoted as being one of the most forward-looking companies in the CB field, Sirtel also offer a unique opportunity to those with aspirations of owning a CB shop, for as little as £400, they will provide a "package" of accessories (not rigs!) to get the show on the road, and similar arrangements can be made for the number two package at £600 or number three at £1,000.

SHARP BREAKERS?

Based in Cambridge, the new company of EMU Systems is currently marketing a power-reducer at £16.50. Claiming to improve VSWR, reduce TVI and minimise swamping, the unit cuts the transmitted signal to 1 watt (and ¼ watt) without reducing the *received* signal. It also provides a dummy load facility, all with a typical VSWR of 1:1.1.

For the sharp breaker with an eye to sartorial elegance, Astrali (no relation to Rolf Harris!) are marketing the CB Vest — a sleeveless anorak-type jacket, suitably decorated with the "British CBer" badge. Lightweight in design (having only 8oz of polyester filling, the garment retails at around £20 including VAT.

And finally, in what must be a thieves' paradise of potential ripped-off rigs, Valor have produced their masterpiece of electronic wizardry in a "wail" alarm. Easily installed, their modest price represents an insurance against loss — that's the way they see it, anyway!

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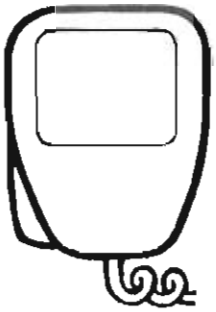

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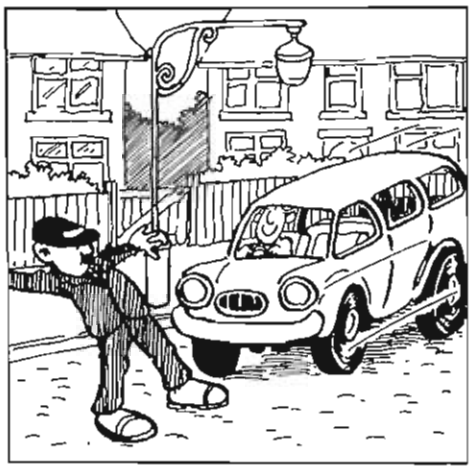
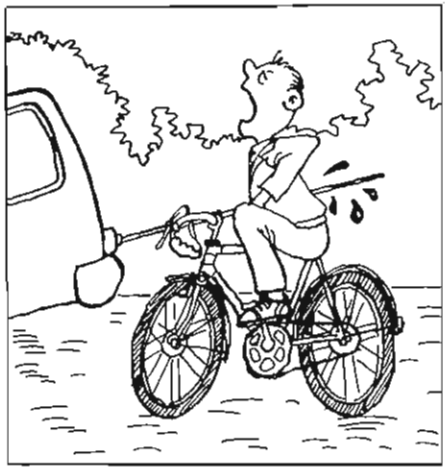




A barely believable story of one man's struggle against the inevitable. A lost Russian battleship, an ice-breaker that wasn't there, an oil rig where bears mated in mid-air. Oh it's all here. World copyright by the author Peter Dodson — who else would want it?

A friend in need, it has been said by those over-burdened with needy friends, is a pain in the ass! Taken at face value, this might appear to be a singularly uncharitable attitude to take towards one's fellow men, but having suffered to no small degree from the after effects of an unwanted, not to say ill-feted, association with a certain Randy Andy, any inherent humanitarian instincts I may have harboured in the past are now lost and gone for ever.

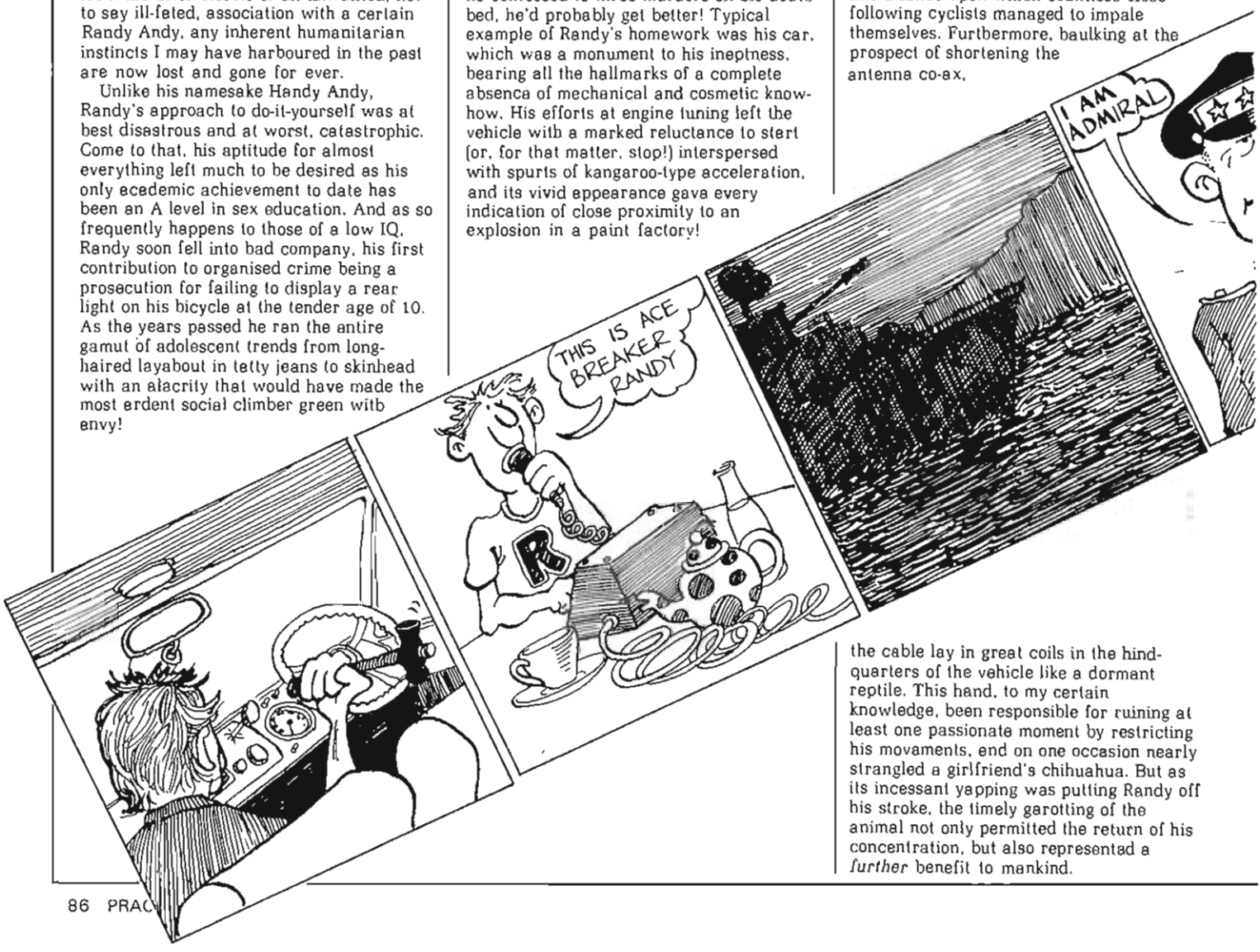
Unlike his namesake Handy Andy, Randy's approach to do-it-yourself was at best disastrous and at worst, catastrophic. Come to that, his aptitude for almost everything left much to be desired as his only academic achievement to date has been an A level in sex education. And as so frequently happens to those of a low IQ, Randy soon fell into bad company, his first contribution to organised crime being a prosecution for failing to display a rear light on his bicycle at the tender age of 10. As the years passed he ran the entire gamut of adolescent trends from long-haired layabout in tetty jeans to skinhead with an alacrity that would have made the most ardent social climber green with envy!

Handicapped though he was by his mental shortcomings, Randy's lack of application to the practical aspects of life was exceeded only by his extraordinary lack of luck; he was the sort of guy who would break a leg in an eye hospital, and if he confessed to three murders on his death bed, he'd probably get better! Typical example of Randy's homework was his car, which was a monument to his ineptness, bearing all the hallmarks of a complete absence of mechanical and cosmetic know-how. His efforts at engine tuning left the vehicle with a marked reluctance to start (or, for that matter, stop!) interspersed with spurts of kangaroo-type acceleration, and its vivid appearance gave every indication of close proximity to an explosion in a paint factory!

It was, however, trendy to the extent that it had been customised with raised rear suspension and "flames" coming out of the bonnet — only on Randy's car, they were for real! Detracting somewhat from the overall effect was an absence of the usual tractor tyres on the rear, and with standard wheels the car looked as if it had been driven off without first removing the axle stands! The resultant restriction of rearward vision has to date caused the demise of three pedestrians, 14 dogs and a traffic warden, which must have been Randy's first contribution to the improvement of the human race!

The frequent mechanical malfunctions that beset Randy's car as he went about his lawful (and unlawful) persuits was of course costing him dearly — in fact both the AA and the RAC had refused his request for membership renewal following a year when at least one of their road patrols had been on permanent 24-hour call-out solely for his benefit. He was, therefore, looking for some means of summoning assistance in his frequent hours of need, and as Citizens' Band radio had a distress facility, *that*, he decided, was for him!

And in the fullness of time, Randy installed his rig, which really had to be seen to be believed. Within his limited intelligence Randy followed the fitting instructions to the letter, correctly mounting his twig at right-angles to what, on a normal car, would have been the boot Ltd. Unfortunately, as the vehicle was an Estate, his K40 protruded from the rear like a lance upon which countless close-following cyclists managed to impale themselves. Furthermore, baulking at the prospect of shortening the antenna co-ax,



the cable lay in great coils in the hind-quarters of the vehicle like a dormant reptile. This hand, to my certain knowledge, been responsible for ruining at least one passionate moment by restricting his movaments, end on one occasion nearly strangled a girlfriend's chihuahua. But as its incessant yapping was putting Randy off his stroke, the timely garotting of the animal not only permitted the return of his concentration, but also represented a *further* benefit to mankind.

Randy's finel technological travesty concerned the rig itself. In the absence of self-tapping screws or nuts and bolts, and with only the welnut facie of his car to fix his rig to, he used the only method of attachement of which his limited brain power could conceive — he nailed it on!

It was about this point in time tbat Randy's annual holidays came up but having spent all of his bread on the CB gear, had none left to finance even a week at Butlins. Being not only of a generous disposition but also the owner of a little cottage neer Clevedon in Somerset, I offered the use of it to Randy in a moment of weakness and misdirected sympathy. And complete with girlfriend, sleeping bags, three crates of Newcestle Brown and the CB rig, off they went for a week in my West Country retreat which overlooks the Bristol Channel.

I have only Randy's word for what happened next — apart from sworn evidence provided by the Royal Navy, Protective officers of the Department of Customs and Excise and the United Nations Investigatory Committee — to neme but e few! It would appear that on the first night of their stay, with thick sea fog restricting thair movements and nothing bettar to do until bedtime, Randy took the rig out of his car and fixed it up in the kitchen to do a little home-type breaking. And for some considerable time he couldn't get any joy at all — a lack of success which was subsequently traced to the fact that when he neiled the rig in the car, he did some terrible mischief to ite innerds which changed the working frequency; whetever it was transmitting on I don't now, but it *wasn't* 27 megs!

Meanwhile out in tbe foggy Bristol Channel a gale-stricken Russian battleship was feeling its way along, with a bust radar and nearly all of the redio equipment up the chute. Its presence in thet aree might not have surprised British Naval Intelligence, but it would have given the Russian captein e shock, because he thought he was five miles outside Murmansk! Suddenly, over his hitherto silent radio receiver crackled the faint but heaven-sent words "This is ace-breaker Randy. Will *somebody* giva me a ten four c'mon."

As quick es a flesh, the Russian skipper seized the microphone. "Ice breaker, Ice breaker," he shouted, "vot is your position. Vot position are you in, ofer." Back in the cottage, Randy went wild with excitement, and his lack of knowledge of the terminology and procedure as used on the air did not deter him one bit from bouncing back "Roger-D good buddy. I'm sittin' at me rig with me feat up, it's been a heavy day here today."

"You are at the rig eh? How you read me, ofer."

"Treetop tall an' blowin' the doors off," drawled Randy in his best trucker style.

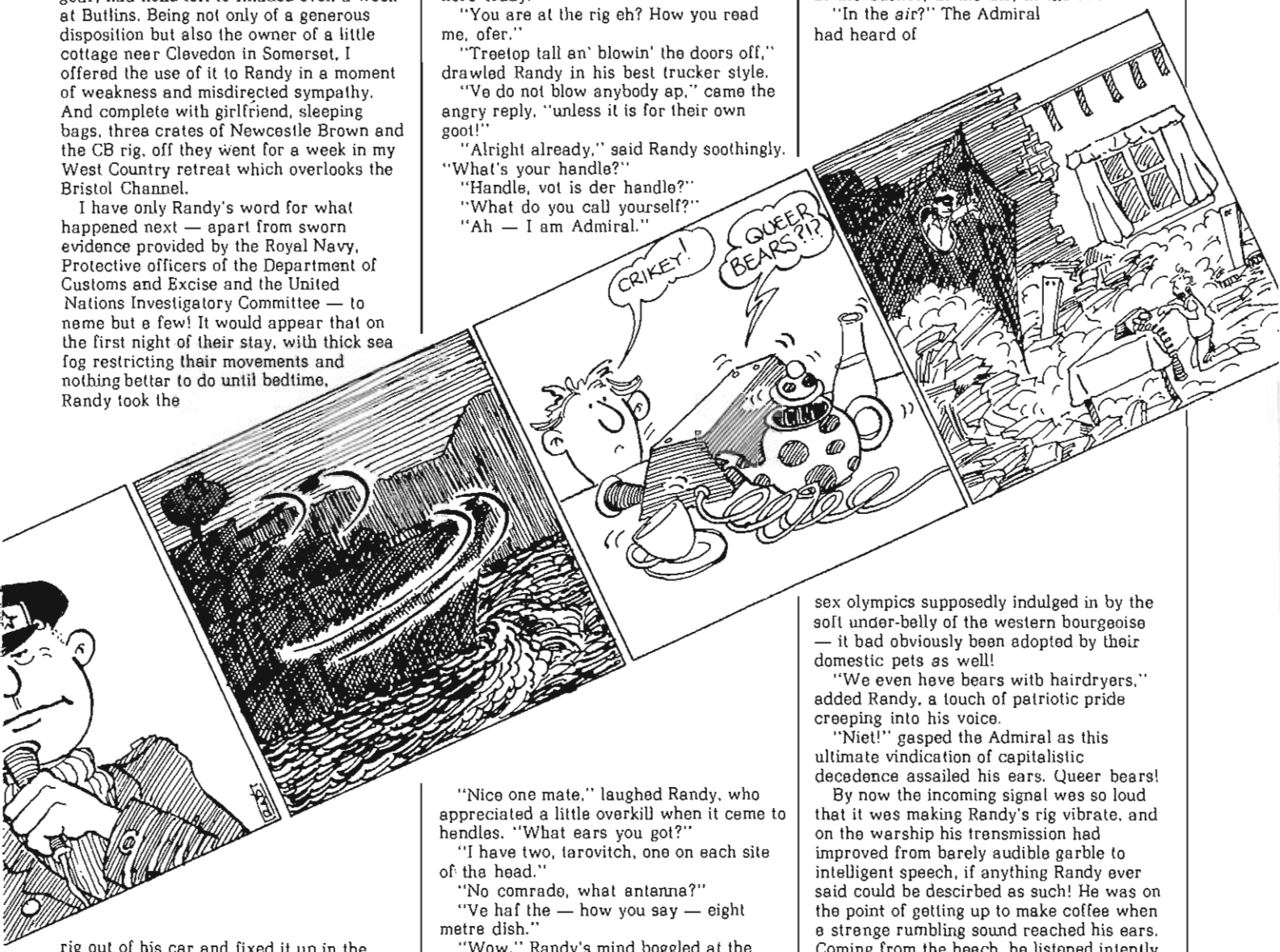
"Ve do not blow anybody ap," came the angry reply, "unless it is for their own goot!"

"Alright already," said Randy soothingly. "What's your handle?"

"Handle, vot is der handle?"

"What do you call yourself?"

"Ah — I am Admiral."



"Nice one mate," laughed Randy, who appreciated a little overkill when it ceme to hendles. "What ears you got?"

"I have two, tarovitch, one on each site of tha head."

"No comrade, what antanna?"

"Ve haf the — how you say — eight metre dish."

"Wow." Randy's mind boggled at the tougbt. "Howja get *that* on yer car roof man! You're putting me on — pull the other one!"

"I did not know thet you hef another one," said the Admiral. Obviously this was yet another Anglo-American imperialist ploy perpetrated by tbe CIA!

And so, the situation as it stood wes that the Russian Admiral, aboard a warship with a dish aeriel that couldn't be rotated, had to rotate his ship instead to keep in touch with what he earnestly believed to be some lunetic on an ice-breeker moored at an oil rig — and his only hope of survival. Furthermore he wes steering his ship on the beering from which Randy's inane prattlings were emaneting, so the "conversation", for what it was worth, had to be endured. Randy on the other hand was suffering under the misapprehension that he was talking not only with some Russien dissident breaker hungry for intellectual exchange with a free world, but with the only contact he could get, and wes determined to make the most of it!

"Might have to go down on the side, ol' buddy," said Randy after a while. "The bleedin' beers are restless tonight."

"You haf the breeding bears?" demanded the Admiral incredulously. Breeding rabbits on Echofisk was one thing — but bears!

"Affirmetive, they're at it all the time — in the bushes, in the air, in the . . ."

"In the *air*?" The Admiral had heard of sex olympics supposedly indulged in by the soft under-belly of the western bourgeoise — it bad obviously been adopted by their domestic pets as well!

"We even have bears witb hairdryers," added Randy, a touch of patriotic pride creeping into his voice.

"Niet!" gasped the Admiral as this ultimate vindication of capitalistic decadence assailed his ears. Queer bears!

By now the incoming signal wes so loud that it was making Randy's rig vibrate, and on the warship his transmission had improved from barely audible garble to intelligent speech, if anything Randy ever said could be descirbed as such! He was on the point of getting up to make coffee when e strenge rumbling sound reached his ears. Coming from the beech, he listened intently as it grew louder and louder. Then, with an almighty crash, the sitting room (MY sitting room!) well disintegrated to reveal the gaunt bows of the Russian war machine, still dripping. And as the dust settled and broken glass tinkled everywhere, Randy gazed in awe at the steel monster and uttered words thet would have done credit to any British Heed of State under similar circumstances. "Bloody 'ell" he said.

Even has he cowered beneath the towering hulk, a porthole opened above him, and Randy looked for the first time into the face of the Admiral. Struggling to meintain not only his dignity but also his composure at the very thought of the repercussions which would inevitably flow from breeching an Englishman's castle with a few million roubles worth of Peoples' Republic battleship, the Admiral cleared his throat. "Dosvidanya, big buddy," he said respectfully. "Ve are, how you say, coming in Wall to Wall!"

ACTING THE HAM

Fed up with the same old chat on 40 channels? Want something more exclusive, more intelligent conversation? A certificate on the wall and a number instead of a handle? Then try amateur radio, suggests John Nelson.

ONE of the many misconceptions knocking around the world of radio is that CB and amateur radio are somehow related. It's something the media almost never manage to get right, and an event such as a CBer managing to obliterate the bloggstown taxi service frequency inevitably gets reported as "Radio Ham Wipes Out Cab Company Airwaves" or some such junk.

Three points: (a) a "radio ham" is one of that breed of people who have passed the Radio Amateur's Examination and maybe a Morse test — he probably thinks of himself as a radio amateur, (b) the word "ham" is one of those nonsenses the media love to use as though that's how the fraternity think of themselves, whereas most of the amateur fraternity repress delicate shudders if you call them hams, (c) Tony Hancock has a lot to answer for.

The only similarity between CB and amateur radio is that they happen to make use of radio; apart from that, there's no point in trying to put them in the same mould. You wouldn't say that the broadcasting service was in any way comparable to the maritime mobile radio service, would you? In this article, therefore, we'll look at why they're different animals and also why, if you're interested in radio and want to find out more about how all the jolly little electrons whizz around inside the wires and enable you to talk from A to B, it's not a bad idea to think about getting an amateur licence.

In a sense, all the early work in radio (sorry, wireless) was done by amateurs, and their history goes back to the days when 2LO ruled the waves and then a bit before that. Originally, the amateurs operated in that bit of the spectrum we refer to today as Medium Wave, until the authorities of the day banished them to the short waves on the grounds that these latter were no good at all for "real" communication (in those days, it was thought that the secret of success for long-distance working, such as to His Majesty's Ships and to the more remote outposts of the Empah, was to use longer and longer waves and stacks of power). So the laugh really was on authority when the amateurs found that they could easily communicate all round the world using the frequencies

Yaesu HF transceiver. With a synthesized frequency range from 3.5MHz to 30MHz, this set can accommodate all of the amateur bands, including those on 10, 18 and 24 MHz scheduled for use in January 1982. The mode facility is AM SSB and CW with a power-output of 100 Watts, On top of the set is a Hansen FS5E SWR and power meter unit.

of short waves that no-one else wanted! To add unsult to injury, they were doing it with flea power. It must have been grent fun being an amateur in 1924, when it was possibla to talk to Australia from your rickety gardan shed when the professionals were saying "hrrumph — oh no my dear chap, can't be done".

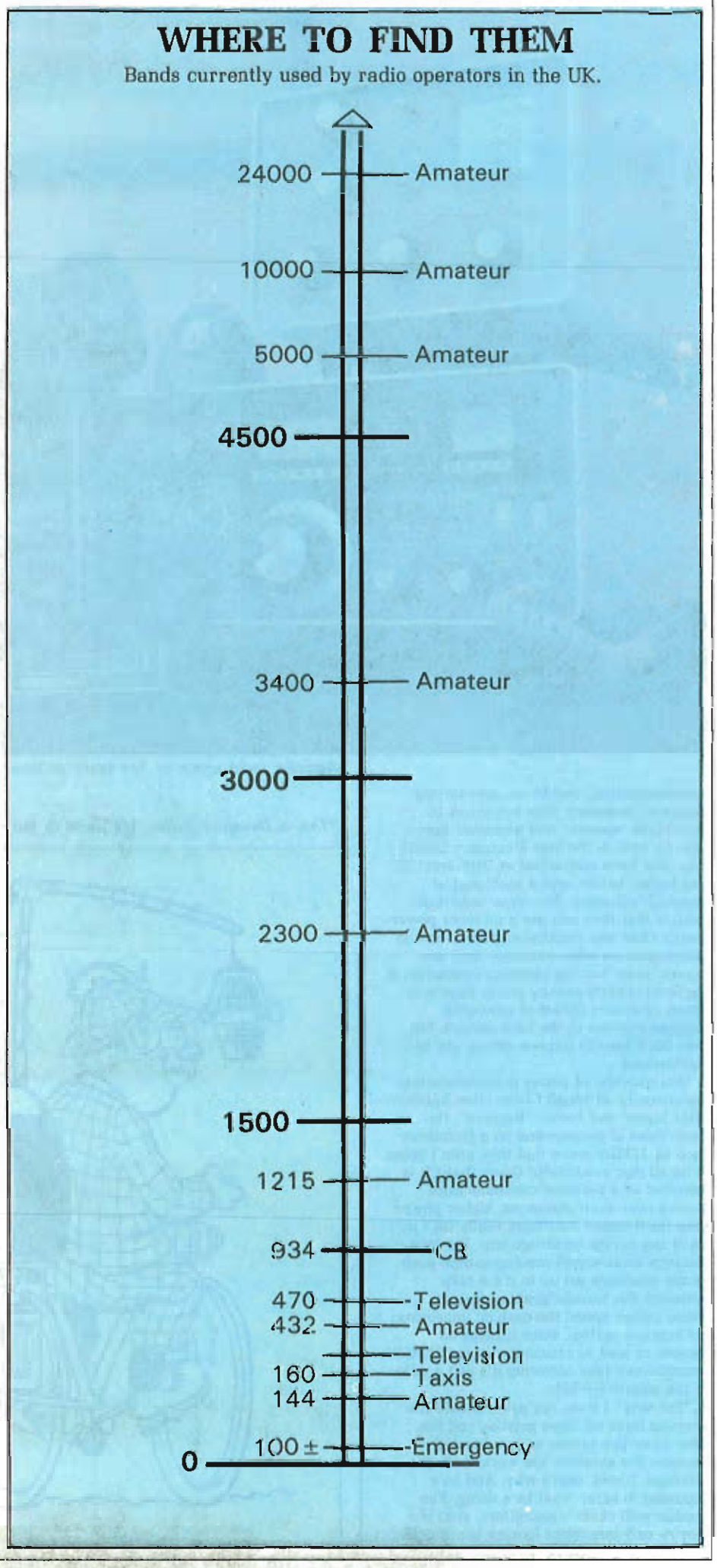
So the early amateurs were very much pioneers and make - it - out - of - odd - bits - and - pieces people, and to some extent that trend has continued in the amateur world up to the present day. It has been somewhat diluted by commercial factors, but it's here that the single biggest difference between CB and amateur radio has its roots, and all else springs from it. Most CBers aren't too bothered about how the nuts and bolts and transistors of their rigs work together to let them communicate, as long as they more or less do, whereas the amateur has to be if he's to get on the air at all. Well — that isn't quite true any more, because one can go out and buy all sorts of classy amateur radio gear and get on the air without so much as putting the mains plug on the rig, but that sort of amateur radio doesn't strike me, at any rate, as all that different from CB.

Mercifully, most amateurs still have stashed in their subconscious some memories of how it was in the early days and many of them get more kicks ont of scrounging, building, bodging, modifying and so on than they do from actually nattering to other amateurs.

In fact, there's a split in the amateur world, which is between those who like to make and mend and those who like to talk. The makers and menders also include the larger proportion of amateurs who spend time messing about with one or other area of interest, finding our more about it and maybe evan writing about it for everyone else's benefit. Tho talkers include those who like to chase DX and operate contests. There is a small slice of the latter who seem to view the amateur service as a personal radio communication system for them and their friends, and it has to be admitted that this version of it is practically indistinguishable from CB; somehow it isn't quite in the spirit of the amateor licence (but at least there is a licence . . .)

CB started in the forties in the United States as a "utility" — that's to say, a radio service intended for private use using low power gear. A frequency af 27MHz was chosen for some rather weird reasons, some of which were technically dubious at the time and with hindsight even more so; however, CB has stayed on 27MHz in practically every country in the world where it has been introduced. Channel arrangements very, but 27MHz, until the introduction of 934MHz in the UK and one or two minor exceptions, is the only band available for CB.

By contrast, amateurs in most parts of the world have about 14 frequency bands to use, and in the UK after January 1, 1982, there will be no less than 23 to play with. The reason that the amateur service does quite well for itself is that the amateur servica still commands a good deal of respect in the professional world; it's actually the "amateurs" who've shown the professionals the way in soma areas, so they get a pretty good slice of the spectrum. Because of the way in which high-frequency (ar short wave — they're the same thing) radio waves propagate, amateurs heve a lot of flexibility with their



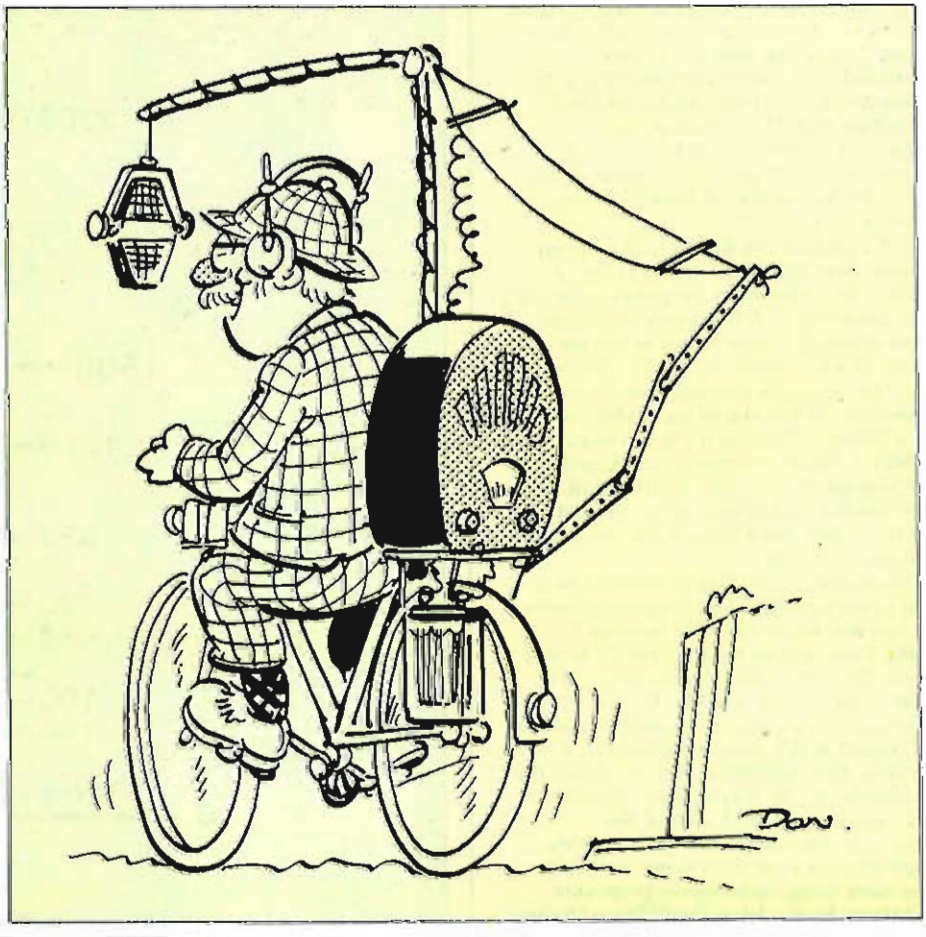
Amateur radio shack of Ted Wake of West Hendred, near Oxford.

communications, and by an appropriate choice of frequency they can speak to practically whoever and wherever they like. As well as the high frequency bands, they also have allocations at VHF and UHF and higher bands, and a good deal of quasi-CB nattering. The other important point is that they can use a lot more power than a CBer can (legally) and there are no restrictions on what antennas they use except those that the planning committee of the local council usually put in their way (many amateurs dream of whopping antenna systems in the back garden, but they don't usually happen unless you're a Californian).

This question of power is an interesting one actually; although CBers often hanker after bigger and better "burners", the basic rules of propagation on a frequency such as 27MHz mean that they aren't going to be all that much help! Given that CB is intended as a personal communication service over short distances, higher power than the licensed maximum really isn't a lot of use except as an ego trip. For long-distance weak-signal communication such as the amateurs get up to it's a help (although the knowledgeable amateur would rather spend the cash on improving his antenna system, since it helps on receive as well as transmit) but for 27MHz ground-wave type nattering it's just a pain in the electricity bill.

"But why" I hear you ask, "should the amateur have all these goodies and the CBer have flea power on two bands?" Because the amateur has worked for the privilege, friend, that's why. And he's supposed to know what he's doing. The trouble with radio transmitters, even if they're only innocuous looking boxes under

"This is Daventry putting the pedal to the metal. Do you copy c'mon?"

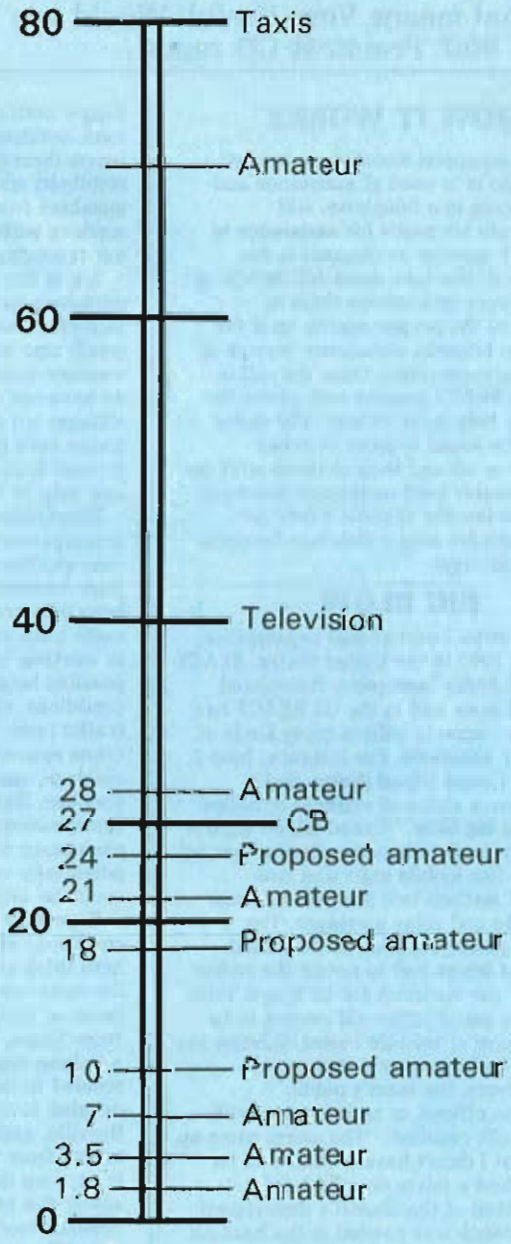


the dashboard of your passion wagon, is that they can cause one hell of a lot of problems if they're not either used and maintained properly or built in such a way as to satisfy the authorities that they're not going to cause major hassles to other users of the radio spectrum — some of whose messages might just be a teensy bit more important than the fact that you're on you're way to the pub. Authority isn't, believe it or not, just out to spoil your fun; there really can be big nasties. For instance, under certain conditions, it's possible for *any* transmitter to put some power out on a multiple of its proper frequency — to wit, in the case of a 27MHz transmitter, there might be some output on 54, 81 or 108MHz (there always will be a very tiny amount anyway, but sometimes something can go wrong, particularly with a transistor transmitter, and the tiny amount can easily become half of your 27MHz power).

Now it just so happens that frequencies around 108MHz are used by international agreement for the instrument landing systems found at major airports. If they get clobbered by spurious outputs from a CB transmitter, it doesn't need a vivid imagination to foresee the consequences; think on that one next time you're coming into Heathrow in a 747 in fog. It'll have its autopilot coupled to the ILS, which is recieving signals on 108MHz. Hopefully Ratchet Jaw isn't sitting in his car at Hatton Cross tube station telling someone that the weather's horrible with his bum transmitter. It hasn't happened yet, chaps, but I'd bet a week's pay that it will one day — and it ain't comforting.

NOT the general rule, but amateur hams appear to be using the area around the 28MHz region for teleprinter and satellite operation, while the full area up to 28MHz is utilised for voice work. Between 144MHz to about 1215MHz is widely used by hams with SSB, while above this — at the 3400 mark, computerised systems operate.

WHERE TO FIND THEM



The 10, 18 and 24MHz amateur frequencies will be in use as from January 1, 1982.

Radio amateurs are licenced by the Home Office. They're issued with a callsign that is unique to them, and they get a licence by passing the aforementioned exam. They know, or at any rate are supposed to know (personally I think the amateur's exam is too easy by half) about how to keep transmitters doing their thing on the correct frequency and how to stop any spurious output getting radiated. To some extend they are trusted to do the right things (although an amateur station can be inspected at any time by the Post Office and he can be closed down with no messing about if he isn't) and many amateurs take a great deal of pride in designing and building equipment that's every bit as good and works to the same sort of specification as professional geer, at a fraction of the cost. So the thing is that he's less likely to clobber anything because he ought to know more about his transmitter in the first place, but if he does and starts calling CQ DX all over Heathrow Approach, at least someone can say "right, what's his callsign? — G3XYZ? — right, go round and close him down pronto". I haven't a clue who Big Mac is, except that he sounds as though he's somewhere in Souf Lunnun, so how do I stop *him* in a hurry?

However, that's really a problem for the Home Office to sort out. The thing is that the amateur service is subject to exactly the same rules and regulations as any other radio service — even the call-signs fall in the same groups — and, like everything else, if you show yourself as knowing the rules and regulations and able to satisfy them — and let's reiterate that where radio transmitters are concerned, there's some reason for them — you're likely to get a few more privileges thrown in.

Like more modes, for instance. CB is allowed to use FM and FM only. Amateurs can use practically anything they like — AM, FM, SSB, CW, RTTY, TV (yes, television), facsimile and even computer-type data. They even have satellites and repeaters.

And the other big privilege, if you want to call it that, is of building your own gear from the ground up. If you're a CBer and you don't know much about radio and only want to be able to natter, it seems quite reasonable that your equipment should be "type-approved" — that's to say, to a design that's been checked by someone that does know about transmitters and their potential ailments and approved as being sanitery. Because the amateur does know about them, he's allowed to build his own, to whatever spec he likes provided that it complies with the conditions of his licence. The amount one can learn by doing this is truly phenomenal, and there's no feeling in the world quite like that you get when someone tells you that the equipment you've just spent a year licking into better-than-professional shape is putting a good signal into his receiver in Lower Slobovia and that is sounds fine. Mind you, there's also no feeling in the world quite like that you get when you've just spend a year etc. and the man says it sound appalling . . .

One could go on — but in the end it's better to have a go yourself. It's worth getting hold of a receiver that will tune the amateur bands (if you want to know what they are, any of the radio magazines or the Radio Society of Great Britain will tell you) and having a listen. You'll hear some interesting things and some boring things, but it just might give you a taste for something other than CB.

In case of EMERGENCY, how would you

REACT UK has been set up to monitor emergency calls. It's one of the ways in which the British Breaker can make himself useful. And that means Very Useful. Would you like to save a life? Practical CB report.

OK then, one of the main aims of CB radio is fun. And fun it certainly is, but what about the *usefulness* of CB? And when we say usefulness, we mean real practical help. Not yer actual cry for a gallon of petrol if you've run out on the way to work, but the sort of help that could save lives.

Already there have been reports of illegal breakers calling for help from the scene of road accidents (and so on) and in these circumstances, the police have turned a blind eye towards the rig in the caller's car. Now this is how CB can really help in a big way. And it will, because of the efforts of a recently formed organisation called REACT UK.

So, one of the more serious uses of CB is direct contact in cases of emergency. If you are out driving and come across an accident or are involved in an accident, to date the only way of calling the emergency services is via the telephone. Now, with the legalisation of CB we have a second line means of communication when help is needed. I stress the phrase "second line" for if it is available, the telephone can still be the quickest and most efficient way of calling help.

Although the Home Office has not legalised the use of channel 9 as an emergency channel, almost without exception CB clubs and associations across the UK have agreed that channel 9 is to be used only to obtain help; it is not to be used as a general chat channel. Likewise channels 8 and 10 should also be left free for the use of the REACT emergency monitoring organisations. CB radio is a two-way communication system, and in an emergency situation there will be a need for monitors up and down the country waiting for emergency calls on channel 9.

REACT UK is an entirely voluntary organisation, run and worked by volunteers. Individual teams agree to work a 24-hour monitoring system on channel 9 as part of their agreement with REACT's national headquarters. REACTers, as they are called, will be trained to help in all forms of emergency situations at any time of the day or night.

HOW IT WORKS

The CB-equipped motorist, or indeed anyone who is in need of assistance and has no access to a telephone, will communicate his needs for assistance to the REACT monitor on channel 9; the monitor will then take down full details of the emergency and convey them by *telephone* to the proper agency be it the police, fire brigade, ambulance service or motoring organisations. Once the call is made, the REACT monitor will advise the caller that help is on its way. The caller will then be asked to move to either channel 8 or 10 and keep in touch with the REACT monitor until assistance has been given, thus leaving channel 9 free for further calls for help which may be made at the same time.

BIG BLOW

REACT is an international organisation, formed in 1962 in the United States. REACT stands for Radio Emergency Associated Citizen's Teams and in the US REACT has been called upon to help in many kinds of emergency situations. For instance, June 3, 1980 saw Grand Island (Nebraska) devasted by a series of multiple tornados. During the big blow, "Grand Island REACT 2736" kept two stations monitoring channel 9 and put five mobile units and two additional stations into the field to assist with traffic and relay messages. The failure of power supplies on the island meant that teams had to power the radios by 12 volt car batteries for 36 hours. With telephones out of action CB proved to be the only form of reliable communication the islanders had for nearly two days.

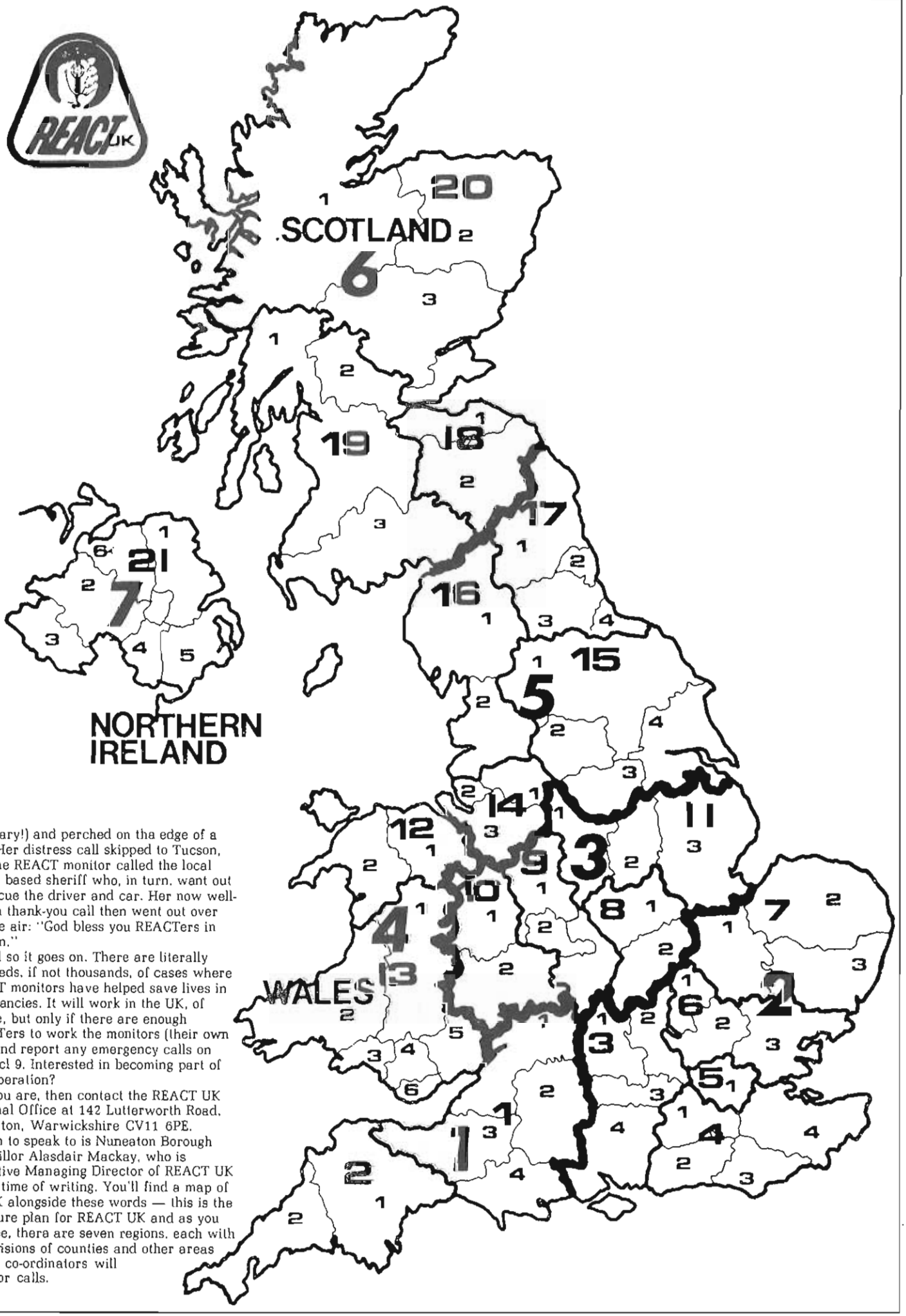
Mike Myers, the team's public information officer, in an interview with *Practical CB*, recalled: "The storm came up so fast that I didn't have a chance to be scared. I had a job to do, and I did it." Word arrived at the Sheriff's department that assistence wes needed in the hard-hit Capitol Hights area of the city. The Sheriff's department called in REACT. The team set up a field HQ and for four days helped with security of the area, provided food, hot drink and other necessities. Other teams throughout Nebraska State were mobilised and joined the 67 REACT members from throughout Nebraska, working with 71 local REACTers provided aid throughout the disaster.

We in the UK can, thankfully count ourselves lucky. We have very few tornados, and those we do have are very small; also we don't have the variety of weather there is in the States, but we still do have our own forms of emergencies. Villagas cut off in the winter due to snow, phone lines in isolated areas blown down through high winds, power failures etc. CB can help in this country too.

Eventually, it is planned to have every organisation capable of helping in emergencies (British Red Cross Society, St. John Ambulance Planning Officers have been negotiating with REACT UK over radio links which could be made available in wartime and other conditions. The list of possible help lines is endless — road conditions, traffic hazards, diversions, traffic jams, accidents, rail accidents, crime reports, missing persons, lost children, vandalism reports, hospital services, flood conditions, family emergencies, even down to relaying emergency family calls. Not to mention the potentially enormous amount of help that could be utilised by the police.

Reports of how REACT have helped in conditions of emergency have been arriving here thick and fast from America; one of the most recent is from Illinois, where Roy Jacob of McLean County heard a skip call from Texas. The caller told him there was a "plane down" hero, and because nobody seemed to be answering the call, Jacobs decided to notify the county sheriff at Beeville, and continued to relay messages to and from the accident until help arrived. It appears that at least one man's life was saved due to the quick call for help from breaker Jacobs.

Another call, this time in Arizona, came from a woman in Sandy, Oregon, whose car was stuck in a snowbank (this was in



February!) and perched on tha edge of a cliff. Her distress call skipped to Tucson, and the REACT monitor called the local Sandy based sheriff who, in turn, want out to rescue the driver and car. Her now well-known thank-you call then went out over tha the air: "God bless you REACTers in Tucson."

And so it goes on. There are literally hundreds, if not thousands, of cases where REACT monitors have helped save lives in emergancies. It will work in the UK, of course, but only if there are enough REACTers to work the monitors (their own rigs) and report any emergency calls on channcl 9. Interested in becoming part of this operation?

If you are, then contact the REACT UK National Office at 142 Lutterworth Road, Nuneaton, Warwickshire CV11 6PE.

Man to speak to is Nuneaton Borough Councillor Alasdair Mackay, who is Executive Managing Director of REACT UK at the time of writing. You'll find a map of the UK alongside these words — this is the structure plan for REACT UK and as you will see, there are seven regions, each with subdivisions of counties and other areas where co-ordinators will monitor calls.

··CLUBS··
ETC

AVON
BATH: Aque Sulis Club.
BRISTOL: Avon BC; Bristol BC; Bristol CBC; Holly Town BC; New Town BC; Pit Stop BC; West Country BC.
WESTON-SUPER-MARE: Weston BC.

BEDFORDSHIRE
BEDFORD: Delta Tango Group.
DUNSTABLE: Christian Buddies CBC; Oscar Charlie Club.

BERKSHIRE
BRACKNELL: Bracknell BA.
READING: Biscuit Town BC; Club 27; Slate City BC; 10-36 Club.
SLOUGH: Chocolate City BC.
WINDSOR: Windsor 20/27 BC.

BUCKINGHAMSHIRE
BUCKINGHAM: Buckingham BC; North Bucks BC.
HIGH WYCOMBE: Hillbillys BC.
MILTON KEYNES: CB Musketeers Club; Milton Keynes CBC.

CAMBRIDGESHIRE
CAMBRIDCE: Cambridge BC.
HUNTINGDON: Delta Echo Club; St Neots BC; Uniform Kilo Sidebanders Club.
PETERBOROUGH: Alpha Beta Sideband Club; Handbreak Club.
WISBECH: Whiskey Bravo Club.

CHESHIRE
CREW: Crewe BC.
LYMM: Canalside BC.
MACCLESFIELD: Silk Town BC.
NORTHWICH: Mid Cheshire Wheels Association; Smog City Breakaways Club.
RUNCORN: Boom City BC.
TARPORLEY: Big T BC; Tiny Town BC.
WARRINGTON: Red City BC; 10-4 Club; Warrington Breekaway Club.

CLEVELAND
STOCKTON-ON-TEES: Sedgfield BC.

CORNWALL
BODMIN: Jail BC.
BUDE: Surf City BC.
HELSTON: Rolling Road Club; 10-13 Club.
LISKEARD: Caradon BC.
NEWQUAY: 21 BC.
ST AUSTELL: Rocky Mountain BC; White Mountain CBC.
WADEBRIDGE: Camel BC.

CUMBRIA
BARROW-IN-FURNESS: Furness BC.
CARLISLE: Cerlisle Truckers Club; New Breakers Inners Club.
COCKERMOUTH: Solway BC.
SEASCALE: Country BC.

DERBYSHIRE
BUXTON: Spa Town BC.
CHESTERFIELD: Circus Town BC; Concrete Canyon BC; North East Derbyshire 10-4 Club.
DERBY: Colortown BC; Hazard County BC; Ram City BC; Western BC.
ILKESTON: Convicts BC; Ilkeston BC.

DEVON
BARNSTAPLE: Barnstaple BC.
EXETER: Roadrunner Club.
EXMOUTH: River Exe BC.
NEWTON ABBOT: Moorland Riders Club.
PLYMOUTH: Border BC; Port City Breakers SC; Singing Whaels Club; Sugar Bowl (Emergency) BC.
SOUTH MOLTON: Wool Ridge BC.

DORSET
BOURNEMOUTH: Bournemouth Independent BA.
CHRISTCHURCH: Beachcombers BA.
SHAFTESBURY: Three Counties BC.

DURHAM
BISHOP AUCKLAND: Bishop Auckland BC.
NEWTON AYECLIFFE: 5-0 BC.
STANLEY: Derwent Valley BC.

EAST SUSSEX
BEXHILL-ON-SEA: Northeye Pidgeons Club.
EASTBOURNE: Eastbourne BC.
HOVE: Kingswey BC; Tango Kilo Club.
SEAFORD: Seaford BC.

ESSEX
CANVEY ISLAND: Canvey BA.
COLCHESTER: East Coast BA.
GRAYS: Kent and Essex BA.
HARLOW: Breakaway 14/27 Club; GBA of Harlow.
LOUGHTON: Beech BC.
SOUTH OCKENDON: Breakaway Club; South Ockendon BA.
SOUTHEND-ON-SEA: South East Essex BA; Southend's Newly Organised BC.
STANFORD LE HOPE: Corringham and Stanford BA.
TILBURY: Sunnyside BA.
WITHAM: Essex CBC.

GLOUCESTERSHIRE
CHELTENHAM: Cheltenham Breakers; District Association; Jolly Roger DX Club; Trout Farm BC.
CIRENCESTER: Cirencester United BA.
DURSLEY: Diesel Town BC.
GLOUCESTER: Gloucester BC.
STROUD: Cotswold BC.
WOTTON-UNDER-EDGE: Wool Town BC.

GREATER LONDON
BARNET: Barnet BC.
BELVEDERE: Lakeside BC.
CARSHALTON: Breakers Town CBC; Cershalton CBC.
CROYDON: Croydon BC; Stickers Club.
EDGWARE: North London BA.
ERITH: Delta BC.
FELTHAM: Middlesex BC.
HARROW: Harrow and Wembley CB Group; Midnight BC.
HORNCHURCH: Cranham, Hornchurch and Upminster BC.
ISLEWORTH: Breakers and Takers SC.
LONDON, E: East London BC.
LONDON, N: Big Eyeball BC.
LONDON, SE: All BC: CB Radio Action Group; Club 27; Elite BC; South London Associated Breakers; 27MHz Club.
NEW MALDEN: Whiskey CBC of Great Britain.
RAINHAM: Rainham, Ilford, Goodmayes, Barking In Essex Club.
RUISLIP: 10-25 Club.
SHEPPERTON: Anchor BC.
SOUTHALL: West London BC.
SURBITON: Molesey Open Channel BC.
TWICKENHAM: Silly Breakers' Society.
UXBRIDGE: Hillingdon Borough CBC.

GREATER MANCHESTER
ASHTON-UNDER-LYNE: 10-5 Club.
BOLTON: Clog Town BC; GBA; New Untouchables Club; Twig Town Pirates Club.
BURY: Bury BC.
DUKINFIELD: Tameside Good Buddies Club; Tameside 99 Club.
HYDE: 99 Club.
LEIGH: Executive BC.
LITTLEBOROUGH: Tiger Town BC; Tiger Town Younger BC.
MANCHESTER: GBA Manchester; Eccles BA; 57 Club; Flixton, Urmston and Davyhulme GBA; North Cheshire BC; 10-4 Club of Greater Manchester; Trafford Breakers SC; 20-00 Club.
OLDHAM: Oldhem BC; Saddleworth Breakers CBRC.
STOCKPORT: Box Town BC.
WIGAN: Adult BA; Pier Town BC.

HAMPSHIRE
ALDERSHOT: Big A BC.
ALTON: Alton and District BC.
ANDOVER: Andover 27 Club; Test Valley BC.
BASINGSTOKE: Basingstoke BC; Popular BC.
EASTLEIGH: Eastleigh BA; Inter City BC.
FAREHAM: Meon Valley BC; Toad Hall BC.
HAVANT: Bandit DX Club.
LYMINGTON: Paredise BC.
PORTSMOUTH: Southern Breekers; Society SC; Victory BC.
SOUTHAMPTON: Alpha Bravo Charlie Sideband Club; Arrows BC; Big S BC; New Forest CBC; Southempton Breakaway and '79 Club; Southampton Crumb Snatchers Club.
WINCHESTER: Olde Capital BC; Round Table BC.

HEREFORD AND WORCESTER
BROMSGROVE: Bromsgrove BC.
DROITWICH: Droitwich BC; Wyre Forest BC.
EVESHAM: Wychavon BC.
MALVERN: Malvern BA.

PERSHORE: Plum Town BC.
REDDITCH: Redditch Area CBRC.
STOURPORT-ON-SEVERN: Stourport-on-Severn BC.
TENBURY WELLS: Hunters Heath and Orchard Town BC.
WORCESTER: Worcester CBC.

HERTFORDSHIRE
BOREHAMWOOD: First North London BC.
HEMEL HEMPSTEAD: Hemel Hempstead BC; Hemel Independent BA.
LETCHWORTH: Letchworth and District BC.
ST ALBANS: Brown Bottle BC; St Albans 27 BC.
TRING: Tring and District BC.
WATFORD: Bushey and Oxhey BC.
WELWYN: Welwyn and Hatfield BC.

HUMBERSIDE
BEVERLEY: Beverley and District BC.
BRIDLINGTON: Attic BC; The Original Bridlington BC.
COTTINGHAM: Castle Hill BC.
HULL: Bridge Town BC; Lockwood Arms BC.

ISLE OF WIGHT
FRESHWATER: Wight BC.
VENTNOR: Earthquake BC.

KENT
DOVER: White Cliffs BC.
HERNE BAY: East Kent BA.
MAIDSTONE: Mid Kent CBC.
SHEERNESS: Sheppey BC.
SITTINGBOURNE: Medway CB Radio (Emergency Monitor) Group.
TONBRIDGE: Castle BC.
TUNBRIDGE WELLS: Tunbridge Wells CB Radio Association.
WESTERHAM: Biggin Hill GBC.

LANCASHIRE
BLACKBURN: Open Channel CBC — North West.
BLACKPOOL: Blackpool BC; Over Wyre Wind Up Club; 10-4 Club.
BURNLEY: Copycats Club; Padiham CBSC; Pendle CBSC.
CARNFORTH: Crimson Water BC.
CHORLEY: Chorley Organised BA; Chorley United BA.
CLITHEROE: Cement City CB Supporters Association.
COLNE: Big S BC.
DARWEN: Darwen Sunday Club.
FLEETWOOD: North Fylde Moonlighters Club.
LANCASTER: Ginderella BC; Lune Valley BC.
MORECAMBE: Morecambe and District MC; South Fork BC.
NELSON: First Aid Post BC; Flag Town CBSC.
ORMSKIRK: Big O BC; Merseyside 27 Club.
PRESTON: Guillotine and Top Shop Breakers SC; Leyland and District BC; Ribble BA; Salwick BC; TX21 Club.
ROSSENDALE: Stag Valley BC.
SKELMERSDALE: Newtown BC.

LEICESTERSHIRE
ASHBY-DE-LA-ZOUCH: North West Leicester BC.
HINCKLEY: Hinckley BC.
LEICESTER: Barwell CBRC; Bees Knees CBC; Free Wheel Club; Gypsy Lane BC; Leicester Area BC; Leicestersbire CBC; Midlands CBC; South Leicester Area BC; Tiger Town BC.

LINCOLNSHIRE
GAINSBOROUGH: Gainsborough BA.
GRANTHAM: Active CBC; Fixit Club; Grantham BA; The Original Grantham BA; November Mike Club.
HORNCASTLE: Tom Thumb Club.
LINCOLN: Cathedral BC.
STAMFORD: Four Counties BC.

MERSEYSIDE
BIRKENHEAD: Merseyside CB Information and SC.
LIVERPOOL: Freedom Breakers; International Club; Liverpool BA; 20-00 Club.
ST HELENS: Bottle City BC; Concrete City BC; Grass Court BC; South West Lancashire BC.
SOUTHPORT: Amalgamated BC; North West CBC.
WIRRAL: Apollo CBC.

NORFOLK
DISS: Border BC.
KINGS LYNN: Kings Lynn BC.
NORWICH: Canary City BC.

NORTH YORKSHIRE
HARROGATE: Conference City MC
NORTHALLERTON: Northallerton and District CBA.
SELBY: Aire Valley BC.
SKIPTON: 27 Club.
YORK: Hamlet BC; Yankee Kilo BC.

NORTHAMPTONSHIRE
CORBY: Corby Town Junior BC; Side Bandits BC.
DAVENTRY: Daventry Breakaway Rubber Ducks Club; Daventry BC.
KETTERING: Kettering BC.
NORTHAMPTON: Foxtrot Charlie SSB DX Group; Northampton BC.
WELLINGBOROUGH: Wellingborough BC.

NOTTINGHAMSHIRE
MANSFIELD: Big Tree BC; Brook BC; Stag Town BC.
NEWARK: Airwavos BC; Country BC; Newark BC; Smoky Town BC.
NOTTINGHAM: Bread and Lard Original BC; Bulwell and Hucknall BC; Castle BC; Dixie Town BC; Leapool BC; Nottingham Area Club; Rising Sun Club; Roger Bleep Club; Selston and District BC; Tango Victor Club.
RETFORD: Bassetlow BC; Ferryside BC.
WORKSOP: Carlton and Langold United BC; Dukesville BA; North Notts BC.

OXFORDSHIRE
ABINGDON: Abingdon Jail BC.
BANBURY: Cake Town BC.
BICESTER: Bicester BC.
DIDCOT: Didcot and District 27 Club.
OXFORD: Dreem City Rebels Club; Oxford 18 Sliders Club; Quarry BC.
WANTAGE: White Horse CBC.

SALOP
SHREWSBURY: Brewery Town BC.
TELFORD: Telford CBRC.

SOMERSET
BRIDGWATER: Smelly Town BC.
CHARD: Chard and Ilminster BC.
CREWKERNE: Circle CBC.
TAUNTON: Apple County BC.
WELLS: CBA South West.
YEOVIL: South Somerset BC.

SOUTH YORKSHIRE
BARNSLEY: Barnsley BC; Boxer Club.
DONCASTER: Don Valley BC; Polo Town BC; Roman Road BC; 20-00 Club.
MEXBOROUGH: Mexico City BC.
ROTHERHAM: Braithwell Rig and Twig Club; CB 007 BC: Maltby Campaigners For Open Channel Radio.
SHEFFIELD: Dinnington & District BC; Dronfield CBC; Hope Valley BC; Outer City BC; 69 Club; Steel City Air Pirates Club; Steel City CBC; Yorkshire Elite BC.

STAFFORDSHIRE
BURTON-ON-TRENT: Burton-on-Trent and District RC; Chicken Chokers RC; Jet Set Club; South Derbyshire BC; Styx County BC.
CANNOCK: Chase CBRC; Leamore CBRC.
STAFFORD: Castle Village BC.
STOKE-ON-TRENT: China Town BC.
TAMWORTH: Square 4 CBC; Tamworth and Tame Valley BC.

SUFFOLK
BURY ST EDMONDS: Bury CBC; Moonshine BC; Polo BC.
IPSWICH: Anglia BC.
LOWESTOFT: Ness Point CBC.
NEWMARKET: Pony Town BC.
STOWMARKET: Eastern Counties OCC.

SURREY
CAMBERLEY: Woderick and Wax Town BC.
WOKING: Woking Centre BC.

TYNE & WEAR
NEWCASTLE-ON-TYNE: Newcastle City BC; Concrete City BC; West End BC.
SUNDERLAND: Sunderland BC; Sunderland North Side BC; Sunderland Sideband Society; Wearside BC.
WASHINGTON: Breakaway BC; CBRC — North East; Washington BC.
WHITLEY BAY: White City BC.

WARWICKSHIRE
ATHERSTONE: Hat Town BC.
LEAMINGTON SPA: Call Box CBC; North Leamington CBC.
NUNEATON: Heart of England GBC; Shaky Town BC.
RUGBY: Rugby Town BC.
STRATFORD-ON-AVON: North Cotswold CBRC; Shakespeare County BC.
WARWICK: Warwick and Leamington CB Organisation.

WEST MIDLANDS
BIRMINGHAM: Big 6 BC; Birmingham Smallheath Area CBC: Central Birmingham CBC; CB Specials Club; Crystal Set; Kings Norton CBC; Kitts Green BC; Midlands CBRC; North Birmingham CBC; Northfield and Surrounding Area Club; South Birmingham CBC; South West Region Birmingham Club.
BRIERLEY HILL: Sandwell Area CBRC.
COVENTRY: Muppet Town BC; OCC; Radford and District BC; WKCB.
DUDLEY: Dudley 200 CBC.
STOURBRIDGE — Black Country Breakers CBC.
SUTTON COLDFIELD: Falcon Breakers CBC.
WALSALL: Saddle Town BC.
WARLEY: Sandwell Sister BC; Smethwick United BC.
WILLENHALL: Clean Air Association.

··CLUBS·· ETC

WEST SUSSEX
BOGNOR REGIS: Coastal Area BA; Red Rump BC.
BRIGHTON: Big 4 Club; Brighton BC; South Coast Area BC.
CHICHESTER: Chichester District BC; Whiskey Tango Victor Club.
CRAWLEY: Crawley United BA.
HAYWARDS HEATH: Square Weald BC.
HORSHAM: Night City BC.
LANCING: College Town BC.
LITTLEHAMPTON: Arun BC; Southern Breakers Society SC.

WEST YORKSHIRE
BRADFORD: Bradford BA; United Breakers National.
BRIGHOUSE: Band Town BC.
HEBDEN BRIDGE: Five Bridges BC.
HUDDERSFIELD: Big H Luddites Club; Milk Town BC; Summer Wine BC.
KEIGHLEY: Aire Valley BC.
LEEDS: A64 BC; Breakaway BC; Circle City Breakers SC; Kippax and Garforth BC; Leeds GBA; Sleb Town BC; Yorkshire United BC.
PONTEFRACT: Queens BC.
PUDSEY: Little P BC.
WAKEFIELD: Wakefield CBC.

WILTSHIRE
SALISBURY: Lima Bravo Association.
SWINDON: Swindon CBC; Thames Valley 27 DX Club; Thamesdown Transceiver Club; Wroughton CB 361 Club.
WESTBURY: White Horse Town BC.

NORTHERN IRELAND

ANTRIM
ANTRIM: Lochneagh DX Group.
BALLEYMENA: Bann Valley CBC.
BALLYMONEY: North Antrim RC.
BELFAST: Belfast CBC; Green Acres CBC; Jolly Roger Club; Smoke City CBC.
CARRICKFERGUS: Kilo Foxtrot RC; Painted Island BC.
LARNE: East Coast Breakers CBC.
LISBURN: Lagan Valley CBC.
NEWTONABBEY: East Antrim CBRC; Whiskey Alpha BC.
PORTRUSH: Surf City BC.

ARMAGH
ARMAGH: Armagh RS.
CRAIGAVON: Craigavon CBC.

DOWN
BANBRIDGE: Bridge Town BC.
BANGOR: Kilo Charlie SC.
CASTLEWELLAN: Ballyward CBRC.
NEWRY: Kilkeel RS.
NEWTOWNARDS: Music City BC.

FERMANAGH
ENNISKILLEN: County BC; Lakeland Breakers CBC.

LONDONDERRY
COLERAINE: Bay City BC.
LIMAVADEY: Roe Valley CBC.

TYRONE
CLOGHER: Clogher Valley CBRC.
COOKSTOWN: Rainbow BC.
DUNGANNON: Dallas Breakers CBRC; Dungannon CBC.
STRABANE: Tango Delta BC.

SCOTLAND

ABERDEENSHIRE
ABERDEEN: Grampian BC; Granite City CBC.
ELLON: Ythan BC.
INVERURIE: Bennachie BC.

ARGYLLSHIRE
CONNELL: Campaign for 27MHz AM CB Radio.

AYRSHIRE
AYR: Ayrshire BC; Burns BC; Coyle BA.
DALRY: China Town BC.
DARVEL: Breaker Alley BC.
GIRVAN: Girvan BC.
IRVINE: Disneyland BC; Newtown BC.
KILBIRNIE: Garnock Valley BC.
KILMARNOCK: Kilmarnock K19 Club; 10-20 Club; Voice of Scotland DX Club.
KILWINNING: Beech House BC; Good Buddies Club.
MAYBOLE: Carrick CBC.
PRESTWICK: Seaheven BC.
SALTCOATS: Clyde Coast BC.
TROON: K19 Club.

BANFFSHIRE
BUCKIE: Thorn City BC.

CAITHNESS
WICK: Caithness BC.

DUMFRIES-SHIRE
DUMFRIES: Dumfries BC.

FIFE
KIRKCALDY: Kingdon BC.
LEVEN: CBA Fife.

INVERNESS-SHIRE
INVERNESS: County Area Breekers CBC; Highland BC.

KINCARDINESHIRE
STONEHAVEN: Bedrock BC.

LANARKSHIRE
AIRDRIE: Monklands BC.
BICCAR: Tinto CBC.
CLASCOW: Boulevard BC: Glasgow CBC; Clasgow CBC (two clubs); Creater Glesgow BC; Kilsyth BC; Kirkintilloch BC; Scottish DX Club.
HAMILTON: Circle Breakers CBC.

MIDLOTHIAN
EDINBURGH: Edinburgh CBRC.

MORAYSHIRE
ELCIN: Moray Breakers CBC; Radio City BC.

ORKNEY
KIRKWALL: Orkney Airforce BC.

PERTHSHIRE
AUCHTERARDER: Langtoon BC.
PERTH: Fair City CBC.

RENFREWSHIRE
GREENOCK: West Coast BC.
RENFREW: Renfrew and District CBC.

ROSS-SHIRE
CROMARTY: Northern BC.

ROXBURGHSHIRE
JEDBURGH: Border BC.

SHETLAND
LERWICK: Shetland BC.

STIRLINGSHIRE
LARBERT: Central Scotland CBC.

WIGTOWNSHIRE
STRANRAER: Red and Blue Club.

WALES

CLWYD
COLWYN BAY: Colwyn Bay Cruisers Club.
DENBIGH: Clwyd Valley BC.
RHYL: CB Popular Front: North Wales BC; 27 Coastline BC.

DYFED
NEWPORT: West Wales CBC.

GWENT
CWMBRAN: Cwmbran and District BC; Firaplace BC.
NEWPORT: Big K Club.
PONTYPOOL: Pontypool BA.

GWYNEDD
BANGOR: Dragon BA; Ogwen BC.
BETWS Y COED: Gateway BC.
CAERNARFON: Big C BC.
CEMAES BAY: West Mona BC.
HOLYHEAD: Black Cat BC; Free BC; Harbour BC; Pimpernell BC.
LLANDUDNO: Fugitives Club.
LLANFAIRFECHAN: Hazard County BC.
LLANGEFNI: Cefni BC.
PORT DINORWIC: Snow Town BC; Victor Oscar Whiskey Club.
PWLLHELI: Pen Lleyn BC.
TALSARNAU: Ardudwy BC.

MID GLAMORGAN
BRIDGEND: Bridgend BC; Rattle Town BC.
CAERPHILLY: Cheesey BC.
MOUNTAIN ASH: Dare BC.
PENTRE: Rhondda BC.
TREORCHY: Sandringham BC.

SOUTH GLAMORGAN
BARRY: Barry BC.
CARDIFF: Cardiff and District BC.
LLANTWIT MAJOR: Llantwit Major BC.

WEST GLAMORGAN
SWANSEA: CB Charity Club; Single Sidebend Club; South Wales Big 10-4 Club.

ISLE OF MAN
DOUGLAS: Isle of Man BC.

If readers want to get in touch with a particular club they can obtain the address from Bill Ridgeway, Citizens' Band Information Centre, 7 Sandringham Crescent, Harrow. Middlesex HA2 9BW. Telephone: 01-422 7570.

Area committees:

All Hampshire Committee.
Associated Midland Breakers Clubs.
Central Lancashire Co-ordinating Committee.
Confederation of North Weles Breakers Clubs.
European CB Federation.
Federation of South Wales Breakers.
Joint Committee for the Legalisation of 27MHz CB Radio.
Kernow United Breakers (Cornwall).
Lincolnshire, Nottinghamshire, Derbyshire and Yorkshire Area Committee.
National Committee for the Legalisation of CB Radio.
North Down CB Council.
North West Breakers' Association.
North West Coastal Federation (Cheshire).
Northern Association of CB Clubs (Doncaster).
Northern Ireland Breakers.
Northern Ireland CBA.
Red Rose Co-ordinating Committee (Lancashire).
Scottish CB Committee.
Ulster CB Council.
United Kingdom CB Federation.
West Scotland Federation of CB Clubs.
Yorkshire CB Action Group.

National organisations:

Association of FM Users.
Big Ben DX QSL Club.
Big Wheelers Association.
Britannia International Sidebanders Club.
British Sideband Network.
Citizens' Band Association.
English International DX Club.
Holland Duck Club.
International DX BC.
National Federation of FM Breakers.
Truckers of GB CB Radio Association.
United Braakers Association.
United Kingdom (International) Radio Group.
Yankee Mike International 100 DX Group.

D: EMERGENCY ORGANISATIONS

Doncaster Emergency Control Organisation (DECO).
Emergency Action Radio Service (EARS).
Long Eaton end District Emergency Radio (LEADER).
National Emergency Service (NES).
Radio Emergency Associated Citizens Teams (REACT) UK Supporters Club.
Radio Users Send Help (RUSH) (Brighton).
Traffic Help Accident Monitoring Emergency Service (THAMES).
Watchdog (Grantham).

Citizens' Band Association (CBA)
President: James Bryant, 16 Church Road, St Marks, Cheltenham, Gloucestershire GL51.

United Breakers' Association (UBA),
President: Andy Donovan, 50 Gaskell Street, London, SW4 6PJ.

Citizens' Band Information Centre,
Bill Ridgeway, 7 Sandringham Crescent, Harrow, Middlesex HA2 9BW. Telephone: 01-422 7570.

Citizens' Radio Information Service (CRIS),
Director: Mrs Louise Briscoe, 55b Brook Drive, Southwark, London, SE11 4TU. Telephone: 01-582 9479.

REACT UK Supporters' Club, (Radio Emergency Action Citizens' Teams),
28 The Coots, Stockwood, Bristol, Avon BS14 8LH.

British Sideband Network,
President: Albie Vickers, 15 Carman Walk, Broadfields, Crawley, Sussex.

Traffic Help Accident Monitoring Emergency Service (THAMES),
9 Selsdon Crescent, Croydon, Surrey.

English International DX Club
Lez Carroll, 225 Arnold Street, Boldon, Tyne and Wear NE35 9BA.

Clubs below affiliated to the UBA

WD40 Weymouth, Dorset; Dorset Knobs, Lyme Regis, Dorset; The Airwaves, Breakers of Poole; Titanic Breakers, Teignmouth, Devon; Ards Peninsula CB Club, Newton Ards, N. Ireland; The First North London Breakers, Borehamwood, Herts; The Jolly Breakers Club, Lowestoft, Suffolk; Dukesville Breakers Association, Worksop, Notts; West Coast Breakers, Greenock, Inverclyde, Scotland; WCBA Wallasey, Merseyside; Cheesey Breakers, Caerphilly, Glamorgan, S.Wales; Welsh Big Wheelers Association, Caerphilly, Wales; Ace Breakers Club, Woolwich, London; Surf City Breakers, Skegness, Lincs; Big A District Breakers, Lawerence Weston, Bristol; South Wales Big Ten Four Club, Manselton, Swansea; Apple County Breakers Club, Taunton, Somerset; Great Yarmouth CB Club, Caister-on-Sea; Gloucester Breakers Club, Gloucester; Oxford 19 Sliders Club, Kennington, Oxford; R and B Club Stranraer; New City Breakers, Milton Keynes; Pen Lleyn Breakers Club, Pwllheli, N. Wales; Bottle City Breakers, St. Helens, Merseyside; The Wizard of Oz Club, Oswestry, Salop; HUBA, Hemel Hempstead; DABS, Dunstable, Beds; Wind Up City Breakers Club, West Lothian, Scotland; United Breakers Association, Paisley, Scotland; Middlesex Breakers Club, Hanworth, Middlesex; Quarry Breakers (UK) CB Club, Oxford; South Derbyshire Breakers, Newhall, Derby; Shakey Town Breakers, Nuneaton; Hazard County Breakers, Kendal, Cumbria; Mid Tyne Breakers, Prudhoe; WGBA Port Talbot, West Glamorgan, S. Wales; Wool Ridge Runners, South Molton, Devon; Big Tree Breakers Club, Mansfield, Notts; Torridge Breakers Club, Bideford, Devon; Heathfield 20 Club, Heathfield, E. Sussex; TCBC Thankerton, Biggar, Lanarkshire; Carrick CB Club, Maybole, Ayrshire, Scotland; The DX 27 Club, Wetherby, W. Yorks; Moorland Riders Club, Tiverton Devon; Saddleworth Breakers, Lancs; Boston Breakers, Lancs; Soar Valley Breakers, Leicester; Invaders Club, Forfar, Scotland; Cotswold Breakers, Stroud, Gloucester; Lancaster City Breakers, Lancaster; Worth Valley Breakers, Keighley, Yorkshire; Abermole Breakers Club, Powys, Wales; Exeter CB Club, Exeter; Friendly Breakers Club, Chiswick, London, South Northants Club, Northampton; Gateway Breakers, Cornwall; North Coast Breakers, Barnstaple; Ram City Breakers, Derby; SCBC Southampton; Little River Breakers, Plymouth and District; The Plainsmen Club, Plymouth; Neptune Breakers Club, Plymouth; Port City Breakers, Plymouth; United Breakers Association, Wheels Association; SLAB 27, Black Fen, London; Crawley United Breakers Association; South Somerset Breakers, Sommerton, Somerset; Kings Road Breakers, Chelsea; Kent and Essex Breakers, Canterbury; United Breakers, Deutchland Germany (Bergin).

The above list of affiliated clubs is as of yet not complete, and a full list will be published later. If your clubs wants to become affiliated contact me straight away at : A. Donovan (Disco One), 50 Gaskell Street, Clapham, London, SW4 6PJ, or ring 01-720 7468, right now.

Your UBA card will be accepted in any of our affiliated clubs, and you will be made most welcome should you intend to visit them.

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