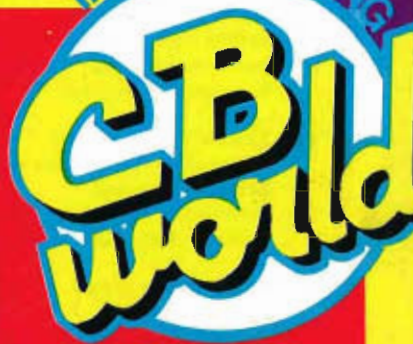


CB

Citizens' Band

Britain's Leading CB Monthly

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The big WAGNER BASE STATION

reviewed in this issue



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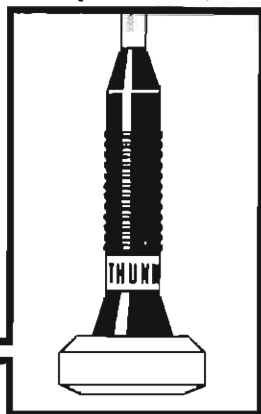
**COPPERSTIK
ANTENNA**
big twig-
big value?

Reference Section-
details of over one
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rigs and twigs

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CITIZENS' BAND

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ABC Cover this Month

We feature in glorious colour, the Wagner home base and, inside you will find out what Chris Peterson thinks about it . . . which reminds me!

There was this not-too-clever Viking warrior who, on his various pillaging trips to our fair shores never seemed to pick up any decent loot for 'her indoors'. She, apart from being a handsome woman, was very short-sighted but, he felt, worth pleasing. Her greatest desire was to own a British-made stainless steel sink and this he promised to loot for her. On his next raiding trip he visited a little coastal village but as usual he was last off of the long boat and by the time he landed all of the best gear had gone. Well, he hunted around what was left of the place and all he could find worth having was an 'almost new' bricklayer's hod. This he packed in his loot sack and took off home. Here his little wife waited for the warrior's return. He gave her the pillaged present and ducked - but to his surprise she was thrilled with the gift. Which only goes to show that A HOD IS AS GOOD AS A SINK TO A BLIND NORSE . . .

Thanks to Julie of North London who is as mad as we are . . .

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UPDATE

CB Licences

Up to the end of November just over 36,000 of you had paid out the hefty sum of £10 for the honour of carrying a piece of paper that allows you to use an FM CB without having to look over your shoulder or worry about the door bell ringing. Breakers

have been ringing in to say that the licence reminder is often followed up with a visit from Busby and that one or two have been caught out when the official, after taking a close look at their equipment, has had some pretty strange things to say about antennas. Many breakers have either written in or

phoned to ask what changes in the specs for twigs are to be expected. The short answer is that I don't know of any proposed changes. And I'm pretty sure that the man who calls to check on your licence doesn't either. If you are running a legal twig built to HO specs — then leave it up and stay on channel. After

all that's what you paid out the £10 for.

Some changes are in the wind but, by and large, these relate to equipment that we already know to be illegal to use. Update Special this month takes a close look at these proposals and how they will affect the CB scene.

Chris Adam-Smith

Maggie Mobile

Sitting on my desk at this very moment is a British built and British designed CB radio and a handsome little devil it is too. You can judge that for yourself from the photograph.

It is the Maggie Autoscan 5000CB and has been long awaited. Made by Maggie Electronics Ltd. it is possibly the first in a new breed of CB radios and is certainly the first all new rig on the market this year. Maggie is a small British company who seem to know exactly what they are talking about and we will await *Chris Peterson's* comments on the rig performance with great interest and hope to bring them to you next month. If you are impatient you can get more info on the rig direct from Maggie at PO Box 35, Andover, Hants SP10 2LG or phone 0264 66361.

CAS



Band Aid

CB Aid is a new scheme set up in Leicester to install rigs in the homes of disabled people who can't afford a phone. The first recipient was John Thompson of Amstey Heights, Leicester. Mr Thompson, who is recovering from open heart surgery, says his new rig is 'a new lifeline'.

Greville Janner MP, who presented Mr Thompson with his rig just before Christmas, said: 'Christmas is a bleak time for people who are lonely or in need — especially those who are cut off from communication through disablement or ill-health. CB Aid is a marvellous idea — I believe it will spread like wildfire across the country.' **KW**

Crossword Winners

When the great and good Editor tried his latest crossword out on me I nearly fainted. 'They won't be able to do that' I cried, 'It's far too difficult.'

How wrong can anyone be. As each post brought more and more correct entries my little face went a shade of deeper crimson. How could I think that our readers couldn't do it?

Just to rub salt into my very sore wounds, it was me who had to check the entries. There were thousands of them, and very few had mistakes.

It was the taxi world's answer to Emerson Fittipaldi who dug out the winners.

Yes, our very own *Mack The Hack* parked the cab, put the NO HIRE sign up and sidled into the office. Delving deep into the piles of entries he plucked one out and pronounced it the winner.

The entry was a joint effort by Ron and Chris Rees of Stevenage, Herts who, for their efforts and extreme cleverness, win a Maxcom 4E. Next out of the pile was Mr I Cunningham's entry. He comes from Milton Keynes — so quite understandably that's where I've sent his prize — a Maxcom Speakeasy Unit. The third, fourth and fifth prizes were one year subscriptions to the august journal you are now reading. The lucky winners are Miss L Hillier of Cheshunt, Herts, Mr

Steven Angus of Montrose in Bonnie Scotland and Mr WT Johnston of Wilton, Salisbury. Well done you lot. Hard luck to those of you who got it right but didn't win. By the way, what was the answer to 3 down?

KW



934 News

BEE WARE have announced that there will be a short delay on the release of their 934 rigs originally intended for release in December of last year. The rigs will now be available at the end of February and can only be obtained from recognised Grandstand dealers.

Also available around that time will be their LA83, a purpose built piece of technical wizardry for converting 27 meg rigs to 934. This will cost somewhere in the

region of £150 and again will only be available from approved dealers. If you want more information on either of these products either as a consumer or prospective agent you should contact Bill Dewhurst at Bee Ware, Rippon Way, Rippon Road, Harrogate, North Yorkshire, HG1 2AU . . . by letter only. Bee Ware see this as a fresh start at CB and are determined that their product will only be handled by reliable and technically qualified distributors.

CAS

Nice to Meter

Lovely Rita the meter maid has brought a new product to my attention. It's a Sabtronics frequency meter that's portable, battery or mains operated and fairly cheap. The meter, called Model 8000, has a nine digit display and it's capable of measuring frequencies between 1Hz and 1GHz accuracy.

Frequency is covered in

three ranges and three gate times are provided. The 8000 has two BNC inputs and a sensitivity control. Sensitivity ranges from 20mV at 10Hz to 35mV at 1GHz.

All in all the 8000 costs around £155. If you're interested and you would like a full specification write to Black Star Ltd, 9A Crown Street, St Ives, Cambs, PE17 4EB. Tel: (0484) 62440.

KW

Community Help

We are always happy to carry news items of CB working in and for the community.

The happy photograph shows Albatross — Eric Phipps — chairman of the Plumpton based 10.30 CB Club presenting some of the toys, bought from club funds, to the children of Cuckfield Hospital in Sussex on Christ-

mas Eve. The happy looking little lad is Matthew Spendiff — everybody should have at least one Teddy Bear!

The 10.30 Club has undertaken a number of events for charity including an 80 hour marathon modulation in aid of Colwell Radio at St. Francis Hospital. A well done job and good PR for Cbers everywhere.

CAS



Chic CB!

If you are shopping early for next Christmas or looking for a present for a Cber Tarmeco have an answer for you. The sweatshirts, worn here by our cleaning lady Nora, come in a range of colours and both children and adult sizes. Priced from £6.49 to £7.99 including post, packing and VAT the company offer

various designs and will be happy to hear of your requirements. We particularly like the CB motif because it publicises your hobby without a scream . . . Kev says it's tasteful! Tarmeco can be contacted at Ivanhoe, Nyetimber Copse, West Chiltonon, Pulborough, West Sussex, RH20 2NE or by phone on 07983 3757.

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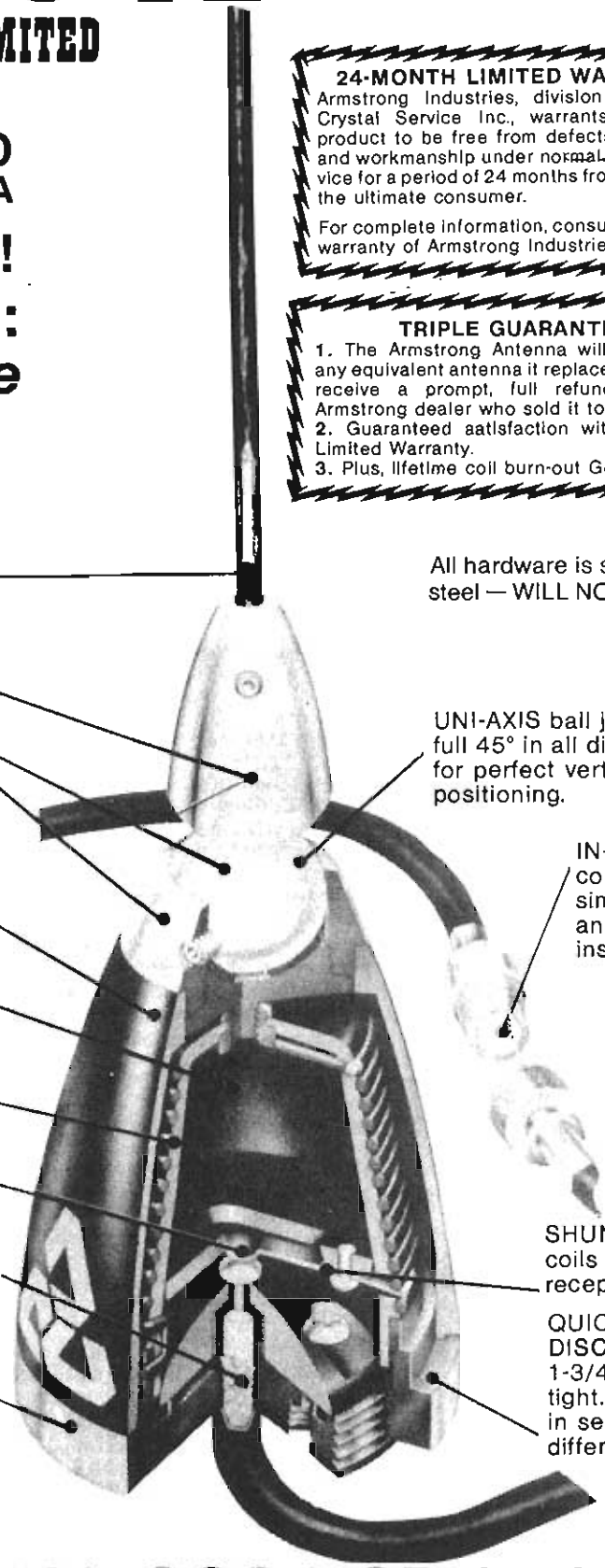
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UPDATE

Special

Keith Townsend takes a very close look at new legislation proposed to support the implementation of the Telecommunications Bill . . .

Anyone who has been involved with CB for any length of time will be aware that it has been a constant source of rumours. For three or four years prior to legislation claim was followed by counterclaim as to the eventual date of legalisation and the form in which it would come. Matters have been no better since legalisation, as various interests, anxious for change, have voiced conflicting opinions as to the future of the service. Home Office threats of severe penalties for illegal operation have been met with repudiation by the devotees of AM and sideband, whose claims have, in turn been denied by a whole host of dignitaries from the Home Secretary down.

At last it is possible to offer precise information as to how the government see the future development of CB. Publication of the new Telecommunications Bill, due to become law sometime during 1983, gives us the opportunity to study a number of Home Office proposals which are likely to have a profound effect on the way in which CB and a number of other radio services develop.

Part five of the Bill has the effect of making a number of amendments to the existing Wireless Telegraphy Acts, as the government tries to make life harder for radio pirates of all types.

The '82 Act

The first effect of the Bill, in conjunction with the Criminal Justice Act 1982, will be to increase the maximum

penalties for a number of offences such as using radio equipment so as to cause interference to other services, or in order to relay false or misleading information to the recognised emergency services. These and other offences, previously the province of the Magistrates' Court, will now be triable in higher courts which in turn is likely to result in more severe penalties being imposed.

One of the major provisions of the new legislation will be to confer upon the police the right to arrest without warrant, anyone committing an indictable offence under the 1949 Act. In practice this provision would permit the immediate arrest of anyone caught using, for example, an AM or SSB rig on 27MHz. Arrest will also be possible where the police officer merely believes that such an offence has been committed.

The manufacture and importation of CB rigs which do not conform to Home Office specs has been illegal since time immemorial and whilst this provision has, until now, applied only to rigs it is possible that new legislation will include burners and even some forms of aerial. The new Act will make it illegal to 'sell or offer for sale, let on hire or offer to let on hire, or indicate (whether by display of the apparatus or by any form of advertisement) one's willingness to sell or let on hire'. It will also be an offence to have illicit equipment 'in one's custody or control'.

Close Examination

So let's examine this clause in more detail, since it will obviously have a very profound effect on CB. Firstly the new Act creates serious difficulties for your local CB dealer, who will not only be liable to prosecution if he sells an illicit rig but also if he advertises such goods for sale. Neither is he likely to be very willing to accept your AM rig for repair since, if it is found on his premises he will once more be in trouble. Neither will you find your favourite magazine carrying adverts for much of the gear currently on offer. The

Act does not specify exactly what types of equipment it will be illegal to sell. This will be the subject of a 'Statutory Instrument' at the discretion of the Home Secretary, though Home Office sources suggest that it will include equipment other than just transceivers. Manufacture and importation of any goods prohibited under such an order will, of course, be illegal, whether or not it was previously permitted.

The powers of seizure of equipment under the Wireless Telegraphy Acts is to be considerably increased. At present illicit CB equipment can only be seized on behalf of Customs and Excise if it was imported. In practice this applies to virtually all rigs which do not meet British specs, though some anomalies exist. Under the terms of the new Bill any transceiver which has been installed, or is being used, without a licence will become liable to forfeiture and its owner liable to arrest if he refuses to give it up. It should be carefully noted here that this provision would apply also to legal FM rigs where they are being used without a current licence.

This section has the effect of clearing up a previously difficult area of enforcement in which a number of Chief Constables, unsure of their exact legal position, have, in the past, instructed their forces not to seize any CB equipment. Having seized any radio equipment the Police or the Radio Interference Service department of British Telecoms will have the right to hold it for a period of six months from the date of seizure in order that it may be used as evidence in any legal proceedings which may

follow. Should they then wish to secure its permanent forfeiture they must apply to a Justice of the Peace for the appropriate order within that six months. Any goods which are forfeited under such an order then become the property of the Home Secretary. Although the right of appeal against a forfeiture order will exist it is difficult to see what such an appeal would achieve in the case of restricted goods, given that total forfeiture is unlikely to be demanded in the case of a legal FM rig.

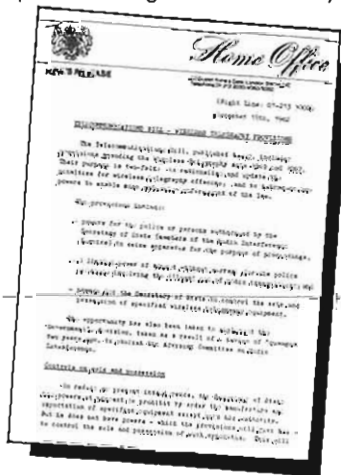
It will be some months before the Telecommunications Bill becomes law and the provisions outlined above become enforceable and, as yet, no decision has been taken about precisely which types of goods will be subject to these provisions. A great deal has been printed lately about the possibility of a common European CB service and, in the light of this discussion the Home Office has intimated that any order to be made would be unlikely to include equipment likely to form part of this common standard. Common Market and CEPT clearly show that whilst there is some disagreement as to the precise details of such a standard the various authorities concerned are presently thinking in terms of an FM only system, possibly using all or part of the band of frequencies originally adopted in the United States by the FCC.

It will doubtless be some time before the precise details of any prohibition are available, so at the moment it is difficult to say exactly what effect they will have on the radio spectrum in general but even at this stage it is plain to see that the Home Office intends to make far greater use of the police in dealing with offences under the Wireless Telegraphy Acts and that running any kind of illicit transmitter, be it CB or pirate pop station will become a risky business once the new law is in force.

Whatever the result of the discussions which the Home Office ensures us it wishes to undertake before making a decision as to the precise nature of the types of goods which will ultimately be forbidden to us, we will keep our readers fully informed.

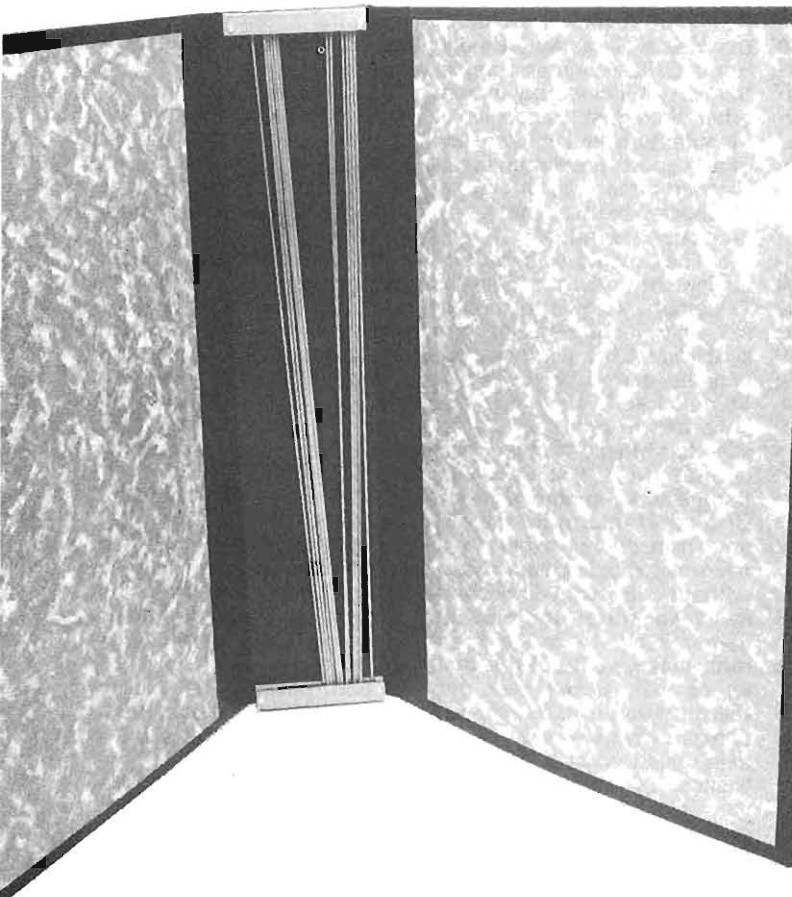
Every effort has been made to ensure the accuracy of this report based on information currently available but ASP do not accept any liability for the author's interpretation of the proposed new legislation.

CB



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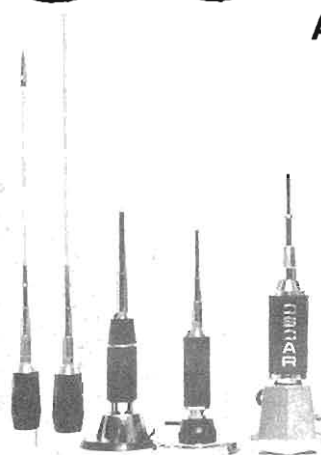
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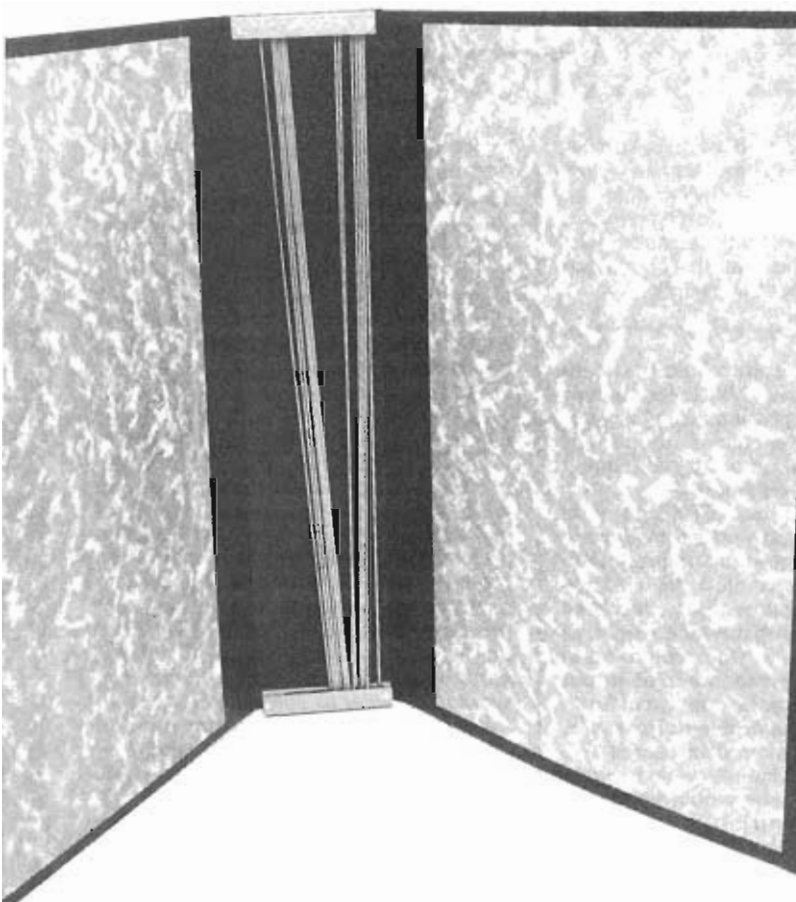
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breakers out there who have had some first hand experience with ol' Thor and his hammer might drop me a line... should make for some enlightning reading!

SA

Lots of readers write in to ask the best CB rig to buy and then end up by giving me a choice between their two particular favourites! An impossible task, as so much depends on how they want to use it — mobile or home base — and how much or how little they can afford. Over the next month or so we hope to bring you our top five rigs 'n' twigs reviewed over the past year which may help when making that choice. However, no matter what we say you all have your own favourites as does Scott McLeish from Ayrshire.

Q Could you tell me which rig to buy. The two rigs to pick from are the Rotel RVC240 and the York JCB 863.

The York is in stock at Woolworths priced at £45 dropped from an original price of £90. Why has the price dropped so much and what is the difference in performance between the two rigs?

A First it depends on how much you have to spend and how much the Rotel is on offer for. Secondly which rig attracts you the most and third, have you tried either. The last point is probably the most important. If you have friends that use CB then look around and ask if you can try out their rigs. Most breakers are so proud of their own particular rig that they will be only too happy to show them off.

We haven't reviewed either rig in the magazine for performance — you may think that strange but when you remember that there are over a hundred on the market and we can only do two or three a month — all I can say is that both rigs are popular and that both use the proven Cybernet chassis.

Price drops are another matter. Many of the big stores overstocked themselves with rigs and are getting rid of them and that is to the consumer's benefit. Some high street stores are getting out of CB altogether and, while stocks last, you can pick up some bargains. In these cases, as we always warn you, be sure you can get the rig serviced should it ever go wrong.

SA

Les Hasings of Donderry in Cornwall is a confused person — let's see if I can unconfuse him!

Q I want to set up a home base but I get confused about all of the instructions I read. For instance — the article I read says put your antenna up as high as possible and then goes on to say — keep your coax as short as possible. How does one achieve this? The only way I can think of is to put the antenna on a chimney stack, fasten the rig to the ceiling and get up the ladder if you want to make a copy!

A Les, that is one interpretation of the instructions but take my word for it, it is not the best one.

Quick answer — Antenna as high as possible within the legal limit. Coax — just use enough to get the rig where you want it. In other words don't be afraid to cut off what you won't be needing. Great coils of the stuff all over the place, because you bought too much, will only bring you grief — for a start you might trip over it!

A Junior Breaker, Gareth Costello from Cheshire has a quickie...

Q My rig is SWRed properly but at times it doesn't read anything. Then I fiddle with the meter, rig and twig and it works again so what can the trouble be?

A If it all works OK after a little fiddle then it is almost certainly a faulty connection somewhere. Check the coax connections on the antenna lead and don't forget the patch lead as well.

SA

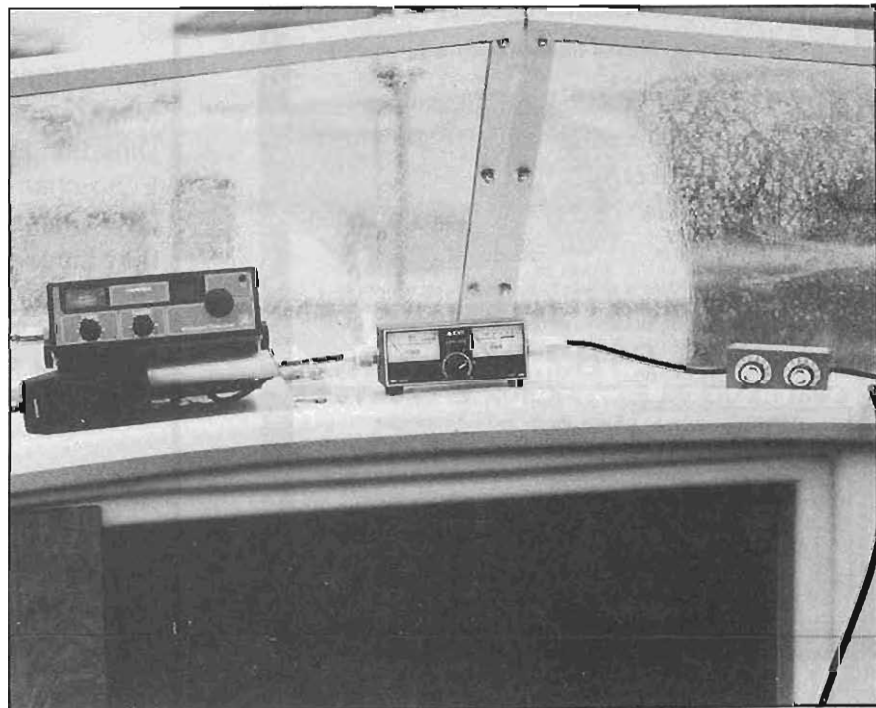
A quickie from a JB, young Gary Voysey, on the Isle of Man.

Q Could you help me with my SWR problem? I have a small DV27 fixed to the gutter mount of the car and I cannot get the SWR down below 2:1 or 2:5 on all forty channels.

A You could try putting the antenna in a different place, say on the roof of the car but the DV 27 can be difficult as it is really designed for the lower frequencies. If you can get them right they are super antennas even though they are illegal.

SA

A rig, SWR meter and matcher in position.



And so to the last question for this month which comes from Treble Two in Norfolk.

Q As a dedicated touring caravanner considering adding CB to my activities, and having read all about SWR in your magazine I am puzzled.

Having tuned my antenna for using the car solo, will I have to retune it when I hitch the caravan on, and vice versa, or do you think a safe average reading can be arrived at to suit both conditions?

One more point, if settled on site I wish to mount the same antenna on the caravan, will I have to tune again?

A You may well have to retune it but it is easy enough to test out. If there is only a marginal difference then you are OK. Mack the Hack who also pulls a caravan never had to alter his — just mount the antenna as far away from the 'van as possible ie roof or front wing.

I am faced with the same problem when switching the CB from car to boat and, to save fiddling about with the antenna length and mucking it up for the return to the mobile, I use an antenna matcher. Saves a lot of trouble.

SA

Well that's it again for this month and I won't repeat my plea not to send SAEs. We cannot deal with personal replies but the stamps come in handy so if you want to send 'em, thanks! To all of those that ask about back numbers — like Mr. Evans of Birmingham — please see the ad in the mag! Apart from the dates mentioned most issues since that time are available.

SA

Problems should be sent to CB Q & A, Citizens' Band, 145 Charing Cross Road, London WC2H 0EE.

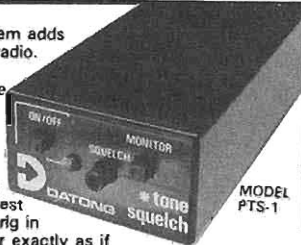
PRIVATE CHANNEL?

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The Datong Tone Squelch System adds a whole new dimension to CB radio. As well as being an interesting hobby CB now fulfils its promise as a useful low cost communications accessory for small businesses, farmers, families, emergency groups, etc.

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The result: the rigs are silent between calls and everyone can concentrate on the job in hand without interruption.



TECHNICAL

PTS-1 works by sending one of sixty four continuous tones during every transmission. At the receiver the Tone Squelch opens only if the correct tone is present. (The actual tone is automatically removed before the signal reaches the loudspeaker so the intended user never hears it). This technique offers the best possible immunity to interference—the range of the set is not reduced in any way.

Model PTS-1 comes with a connecting lead that must be wired to the rig's power supply, microphone input and loudspeaker link. Sometimes suitable connections may be assessable at an accessory Selcall socket but normally six soldered connections will need to be made inside the transceiver. Full instructions are supplied, or ask your local dealer

Unit price: **£45.99** (including VAT)
(Note—a unit is required for each radio in the group).



LOW-COST SELCALL

(see feature in "Citizens Band", February 1983)

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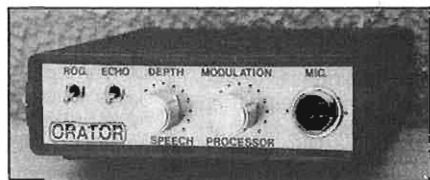
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TWONG

SEE THIS GUY! HE A BOODLING! HE FELL OUT WITH HEAVEN 'COS HE'S DEEF, ALSO 'COS HE DUMB, ALSO 'COS HE LEARNED OUT TOO FAR OVER THE EDGE!! BUT NOW, HE DOWN HERE WITH US... WOTSMORE...

... HE GOT THONGY EARS THAT CAN PICK UP C.B. ON ALL CHANNELS!... WOTSMORE... HE CAN SEND ON ALL CHANNELS!... WOTSMORE... HE REAL NIEVE, HE DONT KNOW FROM BOO! WOTSMORE... THAT'S SHANKS'S BEAR COMIN' IN THE BACK DOOR!!

AND SO ALL THE LOCAL CEBBIES TAKE OUR HERO TO THEIR HEARTS AND CARRY HIM OFF TO A SECRET EYEBALL...

... HIS BLADDER BUSTING WITH NEWCASTLE BROWN...

SOON OUR HERO RUNS OUT OF PATIENCE AND WITH A GREAT LEAP IS ON HIS WAY...

ON HIS WAY TO THE OFF-LICENCE THAT IS 'COS HE'S ALSO RUN OUT OF BOOZE!

RIGHT THEN! FREEZE, YOU TRANSSUBSTITUTE HIPPI GIT!
 WOT'S YOUR NAME?
 WAYS MY RADIO KEEL GOIN' THONG?
 C'MON YOU! WOT'S YOUR KNU NAME, EH?
 FOR THE LAST TIME WOT'S YOUR ACK!

THONG!
 BEEZ
 STRAIN
 ZZZAP

... WHICH HE THOUGHT WAS DELICIOUS, AN' THEY GAVE HIM THE Q-CODE... THE TEN CODE... AN'... EVERYTHIN'!!

SUDDENLY OUR HERO GOES INTO ACTION, HIS BRAIN BUSTING WITH NEW C.B. KNOWLEDGE...

... WHERE THEY GAVE HIM ADVICE... AND FRAGS... AND INFORMATION... AND INSTRUCTION... AND NEWCASTLE BROWN ALE... AND A LITTLE BOOK BY RICHARD NICHOLS, CALLED C.B. RADIO...

BY GEORGE!! WE THINK HE'S GOT IT!!

... BUT THEN ONE VOICE IN PARTICULAR REACHES THONG'S EA... UM... THINGS!

BREAKER, BREAKER! MAYDAY, MAYDAY! HELP! SOME GUY IS TRYING TO TRANK ME! HELP! MAYDAY, MAYDAY!

HAN! SOUNDS LIKE A JOB FOR...

... BATMAN OR SUPER (C) OR ONE OF THEM TYPE GUYS!

NEWCASTLE BROWN ALE

... BUT THEN ONE VOICE IN PARTICULAR REACHES THONG'S EA... UM... THINGS!

HAN! LOOK! THIS GOODLUCK! SON, LETS AVE SOME PUN!

HAN! SOUNDS LIKE A JOB FOR...

AND SO OUR HERO COMPLETES HIS FIRST MISSION, AND ANOTHER TANKER OF NEWCASTLE BROWN ALE CONTINUES UNDELAYED TO SLAKE THE DRY THROATS OF ALL US C.B. FREAKS! HAH!

C.B. TRIUMPHS AGAIN!!

WITH UNERRING ACCURACY OUR HERO HOMES IN ON THE SOURCE OF THE PROBLEM!

ACK!

POK!

TEK THAT!

C'MON, SON! DADY'S GIVIN' SHOU YOH A COU LOU!

Equipment Review



SCANNER IN THE WORKS

This month Andy R Giles has been playing with an extraordinary scanning receiver, the Bearcat 250 FB. It may not pick up CB, but it can receive almost everything else.



People who use CB often go on to become interested in some of the other aspects of radio and most amateur radio retailers say that the second buy for most CBers is a general coverage (0-30MHz) receiver.

This then opens up the world of international radio because these sets can pick up signals from all over the globe. Foreign broadcasting stations, ship-to-shore messages, amateur stations talking to their counterparts in other countries, these are only some of the transmissions that can be listened in on with a decent receiver. And many listeners become so hooked on the hobby that they go on to become radio amateurs themselves. I have nothing against that side of the hobby but I've found that listening to people who are thousands of miles away does not make them any more interesting. I have never understood the eternal quest for DX. Boring people are just as boring when they are foreign and their constant insistence on spelling everything slowly and phonetically does not make for interesting conversations. Local contacts with people who are willing to chat for a while interest me far more than talking about rigs and antennas with someone in Palermo. Similarly, when I'm listening around, I always prefer to listen to local transmissions rather than stuff from abroad; I like to know what's happening in my area, not in Botswana.

That long preamble should explain why I have chosen to review the Bearcat 250 FB scanning receiver this month. It is a VHF/UHF receiver and so it can only receive relatively local signals but it has such a wide frequency coverage (66 to 512MHz in 6 bands) that the signals that it does receive are extremely interesting. Before carrying on with this review, I should confess that after playing with this set for several weeks I liked it so much that I bought it — something I don't do very often!

The Bearcat 250 FB is a scanning receiver. This means that it has numerous facilities that make eavesdropping a lot easier — such as SCAN and SEARCH. These two functions warrant a full explanation because they are similar and easily confused.

Scan

The Bearcat 250 FB has 50 memories that can be used to store frequencies and these can be accessed in several ways. The simplest is probably to enter the number of the required memory with the calculator style keypad on the front panel. Punching in 2 then 3 will recall memory 23 and so on. Another way of checking the memories is to press the MANUAL button. This advances the memory in use by one for every press so 50 presses would be needed to check all of the memories. The most interesting way to check the frequencies held in the memories is to press the SCAN button. This works like an automatic MANUAL button and causes the set to run through the memories sequentially. Whenever the set encounters a signal, it stops scanning and listens. When the carrier disappears, scanning resumes. One of

the worst aspects of monitoring several frequencies is having to listen to long periods of silence on one channel in an attempt not to miss anything but at the same time not knowing if anything is happening on any of the other channels. A scanner overcomes this problem by listening to all the channels in turn and only stopping when there is a signal present. That is the basis of a scanning receiver and there are several crystal controlled sets on the market that cover the air band or one of the amateur bands and these usually offer this basic facility. The Bearcat 250 FB however, has several refinements that improve this function immensely.



The 50 channels (memories) are arranged in banks of 10 and any bank or combination of banks can be scanned. This saves time when only a few of the 50 channels are to be checked. There is also a LOCKOUT facility. If there is a frequency that is constantly busy, the scanner will always stop when it reaches that channel. That's fine if you want to listen to that transmission but it makes having a scanner a bit pointless because it would never get to scan past that channel. The LOCKOUT function overcomes this by making the scanner skip whichever channel has been locked out. When the channels are examined with the MANUAL button, the ones that have been locked out show an L on the LED display. Any number of channels can be locked out but they can be readmitted to the scan sequence by just pressing the LOCKOUT button again.

Another important feature is the PRIORITY facility on channel 1. Whenever the PRIORITY button is pressed, the set will scan as usual but it will also check the frequency stored in channel 1 every two seconds or so. Even if you are listening to a signal on one of the other channels, the PRIORITY function will override it and switch you to channel 1 if a signal appears there.

There is also a SPEED button that controls the rate of scan. The slow speed is approximately five channels per second and the higher one is almost three times as fast. One of the problems with scanning, especially at high speed, is that sometimes the machine is too quick for the signal. There is often a delay between one user letting go of his microphone and the other person replying and in those few fractions of a second most scanners race off to look for the next signal. The Bearcat 250 FB also does this but it can be asked not to. The DELAY button causes a D to appear on

the display of the channel that it has been used with and that channel then has a built-in waiting time of approximately two seconds, which is long enough for most people to reply.

When in the SCAN mode, the Bearcat 250 FB can also be made to count the number of times that a signal is detected on a particular channel. There is a button marked COUNT and whenever it is pressed, it starts a counter for the channel that is in use. Each time that a signal stops the scanner on that channel, the counter adds one to the number that is displayed on the LED readout and so it is very easy to see which frequencies are the most popular.

Searching

Scanning the frequencies stored in the 50 memories is the easy way to keep in touch with the happenings in your neighbourhood, if you know the correct ones to put into the memories. It is possible to listen to your local police station, fire brigade station, ambulance depot, bus depot, water, gas and electricity board depots, Post Office radiotelephones as fitted to the best people's cars, in fact there are an almost unbelievable number of interesting transmissions that the Bearcat 250 FB can pick up. Unfortunately you are NOT allowed to listen to them. Here in Britain we are all limited by the Wireless Telegraphy Act of 1949 and it makes it quite clear that it is an offence to listen to anything other than authorised broadcasting stations, licenced radio amateurs and now of course, licenced CB operators. Contrary to popular belief, it is not acceptable to listen to your local constable chatting to his talking brooch if you do not disclose what you hear to anyone else. **YOU ARE NOT ALLOWED TO LISTEN AT ALL!** This means that you have to be very careful when using a Bearcat 250 FB because it is quite possible to inadvertently come across a signal that should not be listened to and if you accidentally overhear a transmission that you are not entitled to hear, then you must not pass on the contents of that message.

So how do we fill up the 50 memories with frequencies that we can scan at our leisure? The answer is to use the SEARCH facility. This allows the user to set an upper and lower limit on the part of the frequency spectrum to be searched and then the set automatically looks for signals in that part of the band. For example, if I wanted to find signals in the 70cm amateur band, I would punch in 432 LIMIT then SEARCH. The set

would then check every frequency in that band, starting either at the top and working down or at the bottom and working upwards, depending on whether I had pressed the UP or DOWN SEARCH button. While it is searching, the LOCKOUT and DELAY buttons still function and so spot frequencies can be delayed or locked out. Whenever a signal is found, it can be entered into one of the memories for scanning later or it can be ignored. With the aid of the SEARCH facility it is very easy to find a specific signal that you want to listen to. Naturally there are some bands where this function should not be used because they contain assorted forbidden transmissions.

Searching can be carried out at high or low speed and there is an additional feature that makes finding signals even easier. When the upper and lower limits have been set, it is then possible to press the STORE button. This again causes the set to examine the entire band but it will also remember all of the signals that it finds. This makes it possible for you to leave the machine looking for transmissions while you nip out for a packet of fags and a quick half. When you return, you have only to press the RECALL button and the faithful Bearcat will show you all of the frequencies that it stopped on while you were out. These can then be entered into the memories for scanning. If you do not know the exact frequencies that you would like to scan, the SEARCH button will soon sort out a few for you.

Birdies

Birdies are internally generated signals that are produced by the micro-processor, radiated through the case and then picked up by the antenna. All frequency synthesised circuits generate birdies but fortunately the Bearcat 250 FB can be programmed to ignore them. Simply disconnect the antenna, press the STORE button and then allow the set to run through one complete search of the range. When it had finished, press MANUAL, reconnect the antenna and resume normal search operation. The birdies will be skipped automatically.

Auxiliary

The AUXILIARY function on the Bearcat 250 FB is a really useful feature. There are two terminals (AUX and GRND) on the back of the cabinet and they allow you to remotely control a cassette recorder. When the /AUX button is pressed, a small red dot appears in the lower right-hand corner of the display. This indicates that the AUXILIARY facility is in operation for that channel. Then, whenever the Bearcat 250 FB detects a signal on that channel, the AUX terminal on the back provides a closed circuit that will turn on most remotely-controlled battery operated cassette recorders. The audio can be taken either from the extension speaker socket, in which case the internal speaker will be disconnected, or from the tape socket, which allows the internal speaker to remain on for monitoring while recording.

The AUXILIARY function enables

you to keep a complete record of all the signals that have appeared on a particular channel (or channels) without the need for somebody to stay with the machine to operate the recorder. The two terminals can also be used to trigger other low current devices such as a buzzer to warn of a signal on a special channel. This is a very useful feature that I use quite often.

Time

As with almost every other item of today's electronic equipment, the Bearcat 250 FB contains a clock. Whenever the set is turned off, the time is displayed automatically and to find out the time while the set is on, just press the button marked TIME. It couldn't be easier.

MPU

As you will probably have guessed from its multitude of facilities, the Bearcat 250 FB is controlled by a micro-processor unit. These little black gadgets have found their way into all sorts of unlikely electronic devices, even my washing machine, but fortunately there are still some people around who can outwit them and fooling the ones in scanners has now become quite a popular pastime. The MPU in the Bearcat 250 FB has been programmed to allow the set to operate in six bands:— 66-88, 146-148, 148-174, 420-450, 450-470 and 470-512MHz but several ingenious people have discovered that it is possible to make it cover far more of the spectrum. One method is to press 1 4 6, then LIMIT. Then 1 4 6 again and then LIMIT again. The press STORE, then open and close the squelch and then press MANUAL. Now press 1 7 4, then LIMIT, then 1 7 4 again and then LIMIT again. Finally press SEARCH, then RECALL, then SEARCH again and the set will search from 146 MHz down to 133MHz. It will then jump down to 91 MHz and search down to 0 MHz.

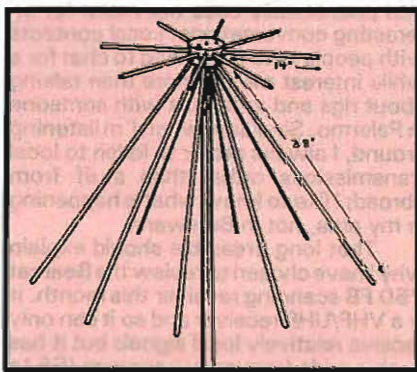
The same process can be used to search above 512MHz by substituting 5 1 2 for 1 4 6 in the above procedure. The set will then search up to 999.999MHz. This massive coverage, 0-1000MHz, may seem to be too good to be true and of course it is. The display may show those figures but the receiver cannot cope with such an enormous slice of the frequency spectrum. For instance, it will not cover the CB bands, but then, who would want to scan them? By using the technique that I have just described, I have found that the Bearcat 250FB will pick up signals way outside the ranges quoted by the manufacturer but I have not yet been able to define the exact limits of its coverage, mainly because I don't have enough test equipment to put signals above 500MHz.

Antennas

The Bearcat 250 FB is supplied with a small telescopic antenna and this is adequate for most purposes but there is also a socket on the back for an external one. This accepts the standard car antenna type of plug and because the set works

on 12V as well as the mains, it can be used in a car, a mobile mounting bracket is supplied. A spare plug is also supplied so that a base station antenna can be plugged in but because the set covers such a large range of frequencies, there is only one type of base antenna that can be used with it. This is the discone, so called because the original design called for a solid disc with a cone on top of it. Modern discones use a number of rods to make up the shape of the cone and the disc and as a rule of thumb, the more rods, the better the antenna.

Discones are vertically polarised and omnidirectional and they can operate over a surprising range of frequencies, typically 50-500MHz. As a receiving antenna for use with a scanner, the discone cannot be beaten and for those who are able to transmit in the VHF/UHF bands, this antenna can also be used for transmitting. It has the same gain as a half-wave dipole, which is not as much as some of the others, but it offers the convenience of covering several bands with one antenna.



The discone shown in the illustration is a particularly nice one. It is called the 'Revcone' and it has 16 radials, which is good when you consider that some have as few as six. It is well made and moderately priced at £24.95 including post and VAT. We have been using one for several weeks and it has performed very well and we would like to thank the distributors, *Garex Electronics of 7 Norvic Road, Marsworth, Tring, Herts HP23 4LS (Tel: 0296-668684)*, for the loan of the review sample.

Warning

I have used an assortment of scanners over a period of years and I have become hopelessly addicted. It's the sort of hobby that leads to sleepless nights and angry wives so do not venture into this field if you are not prepared for the ear-bashing that you will almost certainly receive, not only for spending a fortune on a scanner, but also for staying up so late that you are fit for nothing when you do eventually get to bed. We would like to thank *Radio Shack Ltd. of 188 Broadhurst Gardens, London N.W.6* for the loan of the Bearcat 250 FB, which is currently on sale for £258. If you are bitten by the scanning bug, you should check out the Bearcat 250 FB. It certainly struck me as good value for money.

CB



Medicman delves into his giant postbag and brings you all of the latest and the best in that favourite hobby of QSLing . . .

COMMUNICATION THE QSL WAY

Well, what a super response to our first QSL article, it certainly has fired a lot of imaginations and revived some of the well established QSLers. Thank you all for making me so welcome to *Citizens'Band Magazine*, it's certainly good to be sharing QSL news and views with you all.

Last month we looked at the basic pattern of QSLing, and from quite a few of your letters your main concern is getting in touch with a good printer. We had some details in from a fellow breaker by the name of **Timothy Waspe** of 15, **Westridge Road, Portswood, Southampton SO2 1HP** who started drawing QSL cards as a pastime, and whilst being unemployed at the time he thought it would be a good idea to help him become self-employed. The result is what I am sure will be a collectors series of especially fine QSL cards. Most are intricately drawn, some taking Timothy up to 22 hours each, and all he charges for this original artwork is £10. Timothy can also arrange for the cards to be printed in up to four colours, and the end results are truly striking. For a full price list Tim would appreciate a stamped addressed envelope.

From **John Founder** of the **COBRA INTERNATIONAL DX GROUP** come details and a sample club pack containing a colourful Membership Certificate, I.D. Card, a selection of Club QSLs in various colours, specially printed club QSL envelopes, an unmounted rubber stamp, club stickers, applications for other clubs and many other enclosures all offered for a membership fee of £6.50.

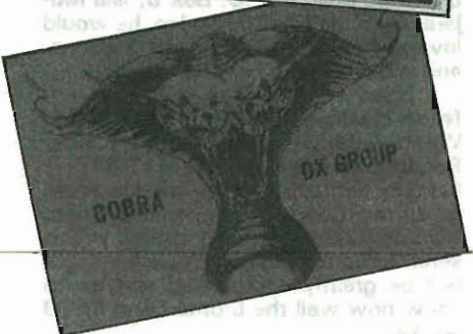
One name that will become quite familiar to you will be that of **Andy Cookson**, President of the **PAPA BRAVO INTERNATIONAL DX & QSL CLUB** of P.O. Box 48, Preston, Lancs PR1 4AB. Andy recently sent me the latest selection of his 'Cookys QSLs', some full colour cards of a very colourful nature. If you would like details of these

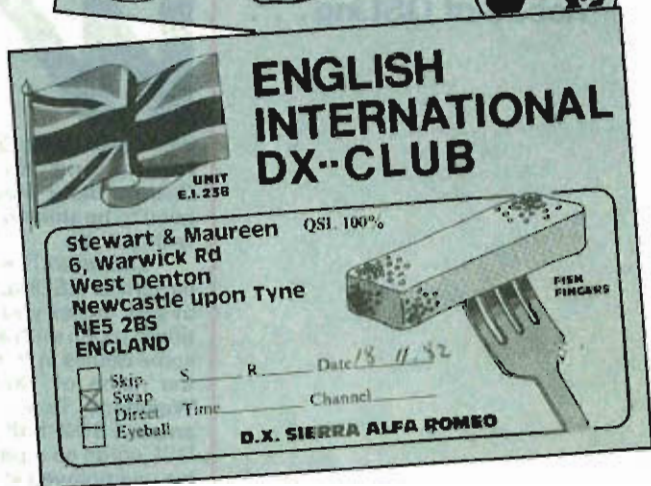
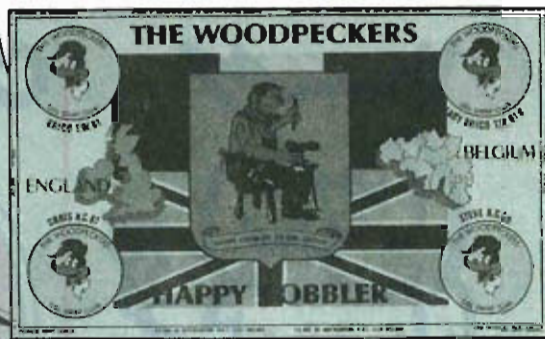
QSLs or of this excellent club a SAE would be appreciated.

Let's get straight down to the old Postbag now, first out are some superb Sundown cards, a collectors item from **Kevin and Noeleen Sutton** of 13, **Atkinson Street, Woodville, New Zealand** who QSL with full colour club cards of the **KANGAROO WHISKY QSL SWAP CLUB OF AUSTRALIA, SUPER CARDS**, and some additional personal cards — quite a package. From **Cassiope** and **Afgan** alias **Peter** and **Bridget** come some nice personal cards, and club cards from **TWCBA**. A QSL to them at 33, **Quarry Road, Tunbridge Wells** will receive a 100 per cent reply. Nice to hear again from my old friend **Ian Macdonald** who runs the **INDIA MIKE INTERNATIONAL DX AND QSL GROUP** from P.O. Box 7, **Falmouth, Cornwall**, he will reply to every QSL, and enclose details of this Sideband club.

Jumbo Jet, John Thoroughgood of 11, **Scotts Terrace, Hetton Le Hole, Tyne & Wear DH5 9HZ** sends a large QSL package, and asks for a special mention for his two favourite clubs — the **SIERRA VICTOR INTERNATIONAL** and the **DRAGONRIDER**, he has special personalised club cards for both of these and many others, an excellent QSL — well worth a swop. By coincidence the next QSL was from a lady known to quite a few of us oldies, **Night Angel** — **Jackie Cooper** of 95, **Greenoak Crescent, Stirchley, Birmingham B30 2TD**, a great lady with some great QSLs, and always a happy letter. Jackie asks also for a mention for the **Dragonrider** — so they must be good! **THE DRAGONRIDER QSL CLUB** is a free club which can be joined just for the cost of an SAE, it is run **David Shepherdson** of 3, **Tarn Villas, Cowpasture Road, Ilkley, West Yorkshire LS29 BRH**, a rubber stamp is available if required at £4.

Carol and **Colin** of 11/18 **Wyncroft Lane, Matson, Gloucester, Glos.** ask for a mention, and they enclose quite a selection of their home-produced cards, including one of the **REDWOOD COUNTRY QSL CLUB** of





Fort Bragg, California, run by Gene Chelburg, a really nice guy! From Gwil and Ann of the **WELSH CHARLIE BRAVO SIDEBANDERS CLUB** P.O. Box 2, Barmouth, Gwynedd, North Wales come details of the club roster which is now available in a very well produced form at £2 including postage and packing, the Charlie Bravo is one of the better sidebanders clubs with a super club package, including a fully mounted rubber stamp at £6.50. From Wendy Gilbert Tongue Tied of 107, Howdles Lane, Brownhills, Walsall WS8 7PJ comes the latest in her series of gold-blocked QSL cards. Included are some really first class cards of unique quality, drop Wendy a QSL for full details of these excellent cards.

BIG BEN DX CLUB member Daryl Smith of 7, Avon Road, Chilton Estate, Aere, Harwell, Oxfordshire sends a monster QSL package, with lots of QSLs depicting his favourite club — Big Ben run by Jim Glavin down there at P.O. Box 14, Godalming, Surrey GU7 1PS. Jim puts a tremendous effort into the running of Big Ben, I believe there membership numbers are into the 1200 mark, quite an achievement, and I am sure you would not be disappointed if

you joined this one at just £6.00.

Geoff — Spannerman writes from 22, Newthorpe Common, Newthorpe, Nottingham NG16 2EE, he has been into QSLing for some time now, and has progressed to tape-sponding which is a lazy-man's way of writing letters I suppose, you just jabber away into a cassette tape-recorder and send your message to your correspondent. Actually it is very personal and rewarding way of keeping touch with your contacts, especially the overseas QSLers. Geoff's favourite contact is Bert Turner of the **NEW ZEALAND AND WORLD-WIDE QSL CLUB**, their address is P.O. Box 4112B, St Lukes, Auckland, New Zealand if you are interested — all QSLs will receive a reply. I am a member of this club, and it has a very exciting package, but you must be prepared to wait for about two months while it comes Surface Mail — Air Mail is too expensive.

Had a nice letter from Chris Darlington, President of the **HAPPY COBBLER QSL SWAP CLUB** of P.O. Box 99, Northampton NN2 6HU. Chris has arranged a QSL Swap-Club meet at the Billing Aquadrome and some 20 European clubs are coming over for it. the

date is set for *Saturday March 12th*, and if you want any more details, drop Chris a line. Chris enclosed proofs of the new 4 part QSL cards they are producing in collaboration with three Dutch QSL Clubs, very attractive indeed. Also from the Happy Cobblers comes more from their superb range of full-colour QSLs. It's a sobering thought that QSL-wise there were just a few of us in England two years ago and we were very much the poor relation in the QSL world, but here we are now designing producing cards which must be regarded as World-leaders in design and quality.

Had an unusual QSL from Miguel Lizarraga Bolio of P.O. Box 8, Isla Mujeres Q. Roo, 77400 Mexico, he would love to hear from any British Stations, and will answer every one received.

Need your help on this one — a fellow disabled CBER by the name of Sea Witch — Barbara Jones of 233, Langer Road, Felixstowe, Suffolk IP11 8EC — her only contact with the outside world is via radio and QSLing, that's where YOU come in. I want each one of you to send Barbara a QSL to cheer her up, it will be greatly appreciated and go to show how well the brotherhood of CB works.

Had a nice QSL in from De Meyer Bruno of Corneel Smitslei 37, 2210 Borsblik, Belgium, he promises a 100 per cent answer to all who QSL. Eric Bartlett-Love of 119 Chetwode Road, Tadworth, Surrey KT20 5PJ writes in asking for a mention as he is a newcomer to QSLing, and is a middle-aged dad wanting all the help he can get! — He will have his own personal cards ready by the time you read this, so drop Eric a card, I am sure he will reply to all.

Dare I print this one? — Kinky Knickers (Whew!) alias Linda of P.O. Box 13, Merthyr Tydfil, South Wales sends a colourful QSL for the Gentlemen only please! A package from The Admiral — Steve of P.O. Box 5, Stornaway, Isle of Lewis, Scotland PA87 9QX contained a huge pile of beer-mats, having thought the word must have gone round that I am a habitual drunk (I'm teetotal really), I delved deeper into this mysterious QSL package and found that Steve is an avid collector of beer-mats and would welcome not only straight QSL swaps, but will swap the said commodity as well. Fancy a USA contact? — Black President Unit 143 of P.O. Box 14, Madison Illinois 62060 is a keen CBER aged 29 anxious to make contacts over here for correspondence about CB. He uses a Teaberry Stalker 15CB through a Moonraker 4 Antenna and gets out thousands of miles. Do write, he is unemployed at the moment and has lots of time on his hands. Some very nice cards in from Paul and Lyn of P.O. Box 30, Plymouth, Devon. Paul has expertly printed his own cards which are better than some I have seen from some so-called professional firms. If you would like details or swap QSLs, Paul would be happy to hear from you.

Had some really striking dramatic QSLs in from Peter Michalak of P.O. Box 16, A-1023, Vienna, Austria, he returns a good QSL, so don't forget to enclose some swap cards (floaters) and some picture postcards. Does Dan Dare mean anything to you? Going back a few years how many of you old men out there used to read the EAGLE Comic? — I had a card from The Mekon alias Alf Jackson of 15, Coaster Steps, Southend on Saa, Essex SS1 2ST, a really attractive card from the stable of D Currie Printers in Consett Co. Durham. Heard from Vic Harding — Dinky — of P.O. Box 4046, St Kilda, Dunedin, New Zealand, he sends some nice personal cards and enclosed a note from my old friend Tracy W Ward, President of the well-known GUMBOOT QSL CONTROL of P.O. Box 4127, New Plymouth, New Zealand 4601, South Pacific. Tracy has always QSLed 100 per cent, and will enclose details of the Gumboot in every case.

In the coming months the name of



Mick Marks will be surfacing from time to time, Mick runs the very popular Anglo American Magna Carta International Sidebanders Club from 10 Tolcame Road, Newquay TR7 2NQ. This club has quickly become one of the leading UK clubs due mainly to the time and effort put in by Mick. As Mick produces some of the best, if not the best, CB-QSL Rubber stamps it is little wonder that the Anglo American Club rubber stamp is one of the largest on the market, a real beauty! Mick has a catalogue of all his stamps at very reasonable cost. A QSL to Mick should enclose a stamped addressed envelope for your copy of this intriguing catalogue, essential to all serious QSLers.

We are currently receiving details of new clubs at the rate of about six per month, and have about 120 different British QSL Swap Clubs on file as this issue goes to press. Consider the length of time CB has been going in the States and offset this against the 100 plus USA-QSL clubs we have on file and you will see we are well over saturation point in this Country, so unless you can offer something really special in the way of a QSL Club, you have little chance of reaching the magic membership figure of 1000 — so be warned! We will however be pleased to give prospective clubs a mention, and follow their progress or otherwise.

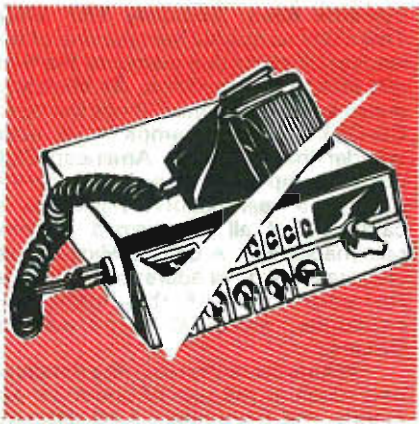
That's it for this month and don't forget if you have a new QSL, or any QSL news and views, write to Mike Newbold, THE MEDICMAN at 124, Hillcross Avenue, Morden, Surrey SM4 4EG, and we will do our best to give you a mention. Take care out there!

CB

Citizens' Band Magazine List of New QSL Contacts

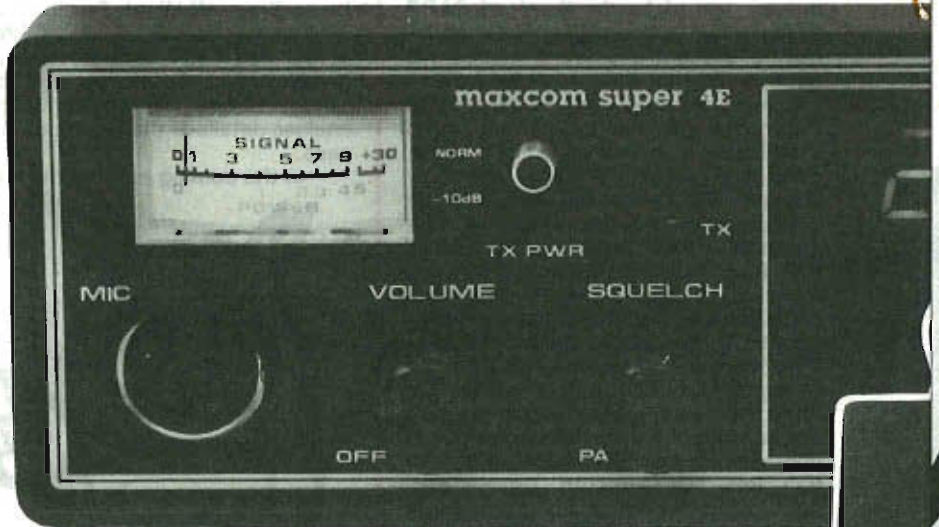
- | | | | |
|--------------------------------------|--|---|---|
| MARTIN — <i>Thunderbird</i> | 9, Lincoln Gardens, Twyford, Reading, Berkshire RG10 9HU | LAWRENCE JENKINSON — <i>Man of Fortune</i> | 76, Fenby Avenue, Darlington, Co. Durham |
| STEVEN — <i>UK 1553</i> | 27, Macaulay Avenue, Whitecross, Hereford HR4 OJJ | ANDREW HUNT — <i>Scaramander</i> | 3 Johnson Terrace, Morley, Leeds LS27 8QR |
| T COOK — <i>Bulldog</i> | Lyndhurst House, Durham Road, Chilton, Ferryhill, Co. Durham. | TERRY — <i>Mike Tange 22</i> | P.O. Box 13, Merthyr Tydfil, South Wales. |
| NORMAN McDANIELS — <i>Blue Macs</i> | The Lodge, Waverley Crescent, Plumstead, London SE18 7RT | PHILLIP GIBBONS — <i>Wheelspin</i> | 19, Bromley Gardens, Houghton Regis, Nr Dunstable, Beds. |
| JOHN — <i>Magic Horse</i> | P.O. Box 25, Poole, Dorset | JIM MAGEE — <i>Straw Dog</i> | 16, Donegore Gardens, Belfast, Northern Ireland BT11 9NA |
| PER — <i>Tango Whiskey</i> | P.O. Box 77, Grenaa 8500, Denmark | JOHN — <i>Pocket Watch</i> | 68, Ovenden Green, Ovenden, Halifax, Yorkshire |
| BEVAN MANNIX — <i>RO 3427</i> | 44, Oregon Drive, Murupara, Bay of Plenty, New Zealand | MARK PILKINGTON — <i>Quicksilver</i> | 12, Hillside Close, Harwood, Bolton BL2 4DB |
| T.W. JONES — <i>Taffy-T</i> | 18, Labumam Road, Stowheath, Wolverhampton | MICHAEL BARLOW — <i>Mighty Weed</i> | 36, Lylleton Crescent, Cubley, Penistone, Sheffield |
| SIMON NANGLE — <i>PB 610</i> | 10, Dampark, Dunlop, Ayrshire KA3 4BZ, Scotland | W SHELDON GRAHAM SIMPSON — <i>Red Rooster</i> | P.O. Box 303, Gweru, Zimbabwe |
| PAT BOYLE — <i>Kickstart</i> | 9, Priory Road, Southsea, Portsmouth, Hants | DAVE BURLEY — <i>Daytripper</i> | 11, New Smithy Drive, Thurlestone, Sheffield, South Yorkshire |
| PETER EVANS — <i>Papa Romeo Echo</i> | 90, Caecoed, Llandybie, Ammanford, Dyfed SA18 3UG, South Wales | | Driftwood, Dockeys Lane, Torcross, South Devon |
| DAVID J PRESCOTT — <i>Snapshot</i> | 58, Carroll Crescent, Ormskirk, Lancashire L39 1PZ | | |

Rig Check



Yet another Maxcom. Here we take a close look at the Super 4E — an updated version of the popular standard 4E — and find out just what is so different about it . . .

MOBILE MAXCOM



I took a trip out to AM Telecommunications last week to pick up the subject of this month's check and to find out first hand what kind of operation they were running. Food, drink and PR people do not impress us here at CB very much but the men at Maxcom certainly did. Behind the sales talk and the obvious pride in their product was an air of certainty that they are in CB to stay. To prove this they are launching a new rig this year and have given a face lift to the Maxcom 4E reviewed here. I learned first hand of the investment they are

making in CB radio and saw a fair example of their competent 'after sales service' — a very important factor when you realise the hard work a rig is put to and the knocks it often takes. They listened with a patient interest to the comments the magazine's rig expert had made about the filtering system of the Maxon chassis and promised to comment on the matter at the earliest possible date. We await those comments with interest. I pointed out that many of the readers have carried out Chris Peterson's modification and are now happy with the improvement on



4E



what was already a value for money product.

So now to the Super 4E from Maxcom. You will note immediately that there is a cosmetic difference on the fascia panel to that of the standard 4E. Apart from the new name a green LED has replaced the red one. This is a small point but, to my mind, a good one, although it is largely a matter of personal taste the green LED seems easier to read and has a more pleasant look about it. The only other difference that I could detect was the inclusion of an additional power lead.

The front panel of the black box features a volume on/off switch, squelch, PA switch, illuminated power meter, a hi-low attenuator switch and a TX light. The green channel display is on the right above a sturdy channel selector switch. The mike is situated on the front left hand side. On the back of the box are the extension speaker and PA sockets together with the standard PL259 connection for the antenna.

The handbook is comprehensive and contains a lot of useful information including schematic and block diagrams. However, it does not mention anything about SWR and we can't help thinking that this is an oversight by Maxcom. Many first time CBers will have little to no idea about the importance of SWR and a few notes here, before they go on channel, could save a lot of aggro when they do!

Installation

Fixing the rig into the mobile, as with most Maxcoms, was a piece of cake. here that extra power lead came in very handy to us. We are constantly changing rigs in the test vehicle and those leads are forever going astray. It should also benefit the breakers who frequently remove the CB from the car and set it up indoors as home base.

The Super 4E is a smallish rig measuring 134 x 190 x 55mm and it fitted easily into the dash board compartment. The SWR was exactly the same as for the previous rig tested so it was only a matter of minutes before we were on channel.

On the Road

The test vehicle is now fitted with an Armstrong TAK 10 which, as previously reported in the magazine, is one of those antennas which tend to give an edge to any CB rig.

The 4E was a popular rig and using this lightly re-dressed Super it is not difficult to see why. It is cheap but the lack of a large price tag is not reflected in the rig's mobile performance. Good copies were maintained for seven miles going away from a base station in some rugged countryside that finally defeated that breaker. Mobile to mobile was adequate with four mile copies coming as clear as a bell. The incoming mod is very bassy — not good for my particular hearing equipment. Plugged into an extension speaker, as is so often the case, this presented no problems. That bassy sound is quite popular with many breakers which is just as well as it is prevalent on most of the Maxcom range. TX was reported as good in tone and high in poundage from most stations copied.

Conclusion

A good to middling budget priced rig for a first time buyer or for those who require an extra rig if they are fortunate enough — or unfortunate depending on your point of view — to run two or more vehicles. A straight forward, no frills little performer who's popularity is its best recommendation.

RIG REVIEW DATA PANEL

Model Maxcom Super 4E
Distributor AM Telecommunications
Typical Price £40

Features	Yes	No
PA Facility	●	
External Speaker Jack	●	
TX Indicator Light	●	
RX Indicator Light		●
PA Indicator Light		●
S/RF Meter	●	
Hi/Lo Power Switch	●	
ANL/NB Switch		●
CH9 Switch		●
Variable RF Gain		●
Mike Gain		●
Delta Tune		●
Tone Control		●
LED Channel Readout	●	

Facilities

	Superb	Good	Fair	Poor
Ease Of Controls		●		
Built In Speaker			●	
Microphone Location			●	
Cabinet Construction		●		
Quality Of Control Switches		●		
Channel Indicator Readability		●		
Mounting Bracket		●		
Hand Book/Instructions		●		

Specifications

Modes Of Operation	FM Only
No. Of Channels	40
Weight	—
Dimensions	5 3/16 x 7 1/2 x 2 1/4 in
Supply Voltage	13.2 VDC
RF Output Power	4 watt
Frequency Stability	In spec
Swamping	Good
Sensitivity (RX)	Good
Spurious Emissions	In spec

CB VERDICT

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

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

CB

JUNIOR BREAKERS



There was a massive response to our first section specially written for Junior Breakers. Here are the winners of the Battleships Competition and some extracts from the many letters received . . .

Hi Junior Breakers and many thanks for all of your letters which we will deal with a little later on. First off I expect you are keen to know the results of the Battleships Competition and to find out who the lucky winner of the Maxcom rig is. There were hundreds of entries and some of you came so close to sinking the whole fleet. Three of you tied for first place with a total of 29 points out of a possible 32. Not bad really. Those three names were placed in a hat and a pretty young lady plucked out the name of the lucky winner who is . . . Master **Andrew Gargano** of Morden in Surrey . . . well done Andrew. Second prize, a Maxcom Speak Easy unit goes to young **Carol Taylor** of Perthshire in Scotland and third prize, also a Speak Easy unit — although this prize wasn't listed we thought that all three with 29 points should be rewarded — goes to **Stephain Gubby** of Kingston-on-Thames. The four runners up were **Fay Leversha** of Hatfield, **James Bateman** of Hull, **Paul Watts** of Kent and **Simon Stuckley** of Andover. All prizes will be winging from the Charing Cross Road within the next couple of days.

The answers were as follows. A3, A5, B2, B4, C2, C3, C5, D1, D3, D4, E1, E3. If you were unlucky this time do not despair because as soon as we can invent another fiendish competition tough enough to tax your brains — other great prizes are waiting. Thunderpole antennas for instance . . .

Letters

Thanks for the many letters that you sent in to us. Special thanks to **Speedboat** of Northampton who suggests a whole page of letters and that the page

be restricted to 7 to 16 year olds — he also reckons that a competition every six months would be reasonable. **Matt Armitage** of Leeds and his pal **Red Fox** who made some useful suggestions and enclosed a drawing of the Editor — rather handsome we thought! Also to **Merlin** of Dyfed in Wales and **Red Kite**, also from that part of the world — who feel that we should have a couple of pages on CB language for new JB's. **Ricky** of South Yorkshire sent in a suggestion for a 'strangest handle competition' and a comment to the effect that CBers shouldn't have to buy a licence — presumably because, like a lot of other breakers, he doesn't feel that there is any return to the service for the money! **Colin Marks** of Birmingham feels that the real future for CB is on 934MHz and that many people expect too much of CB. Colin also feels that AM and SSB users shouldn't be fined so heavily. We are sure that many older breakers will echo some of these young thoughts. A special thanks to lil'**Merlin** for the hand made badges now upon my wall!

Finally, thanks to **Super Gran** for her letter about a local JB/CB club — details of which are on the clubs page of this issue.

Tip for the Month

If you got a hand held for Christmas — save your pocket money or persuade Dad to buy you a set of nicads and a charger. This will not only save you a lot of money on your CB hobby but will also save you a packet on running model cars etc.

Keep the letters coming — mark them **Junior Breakers Page** — and any young lady JB's . . . we would like to hear from you as well . . . only the boys wrote in last month. See you soon. **CB**

Mack Chat

We are afraid of' Mack has been plagued a good deal by 'squeakers' of late — he sets up his portable couch and takes a closer look . . .

If you are fortunate enough not to have heard a squeaky on the bands you have not missed much. But I believe that at any one time or another you can hear them in most areas and on any channel but mostly on the breaking, mobile, or emergency channels.

But who are these squeakeys, what are they, why do they do it? When you talk of squeakys I suppose you can put those individuals that whisper, play music, or just put up blank carriers in the same class. I'm not a psychiatrist so I'm not qualified to say if they require psychiatric treatment but I would like to guess as to what goes on in their minds whilst indulging in these anti-social activities. If I'm wrong maybe someone out there could put me right. When someone squeaks they obviously have something to hide and do so by trying to disguise their voices. It's obvious they fear that they will be recognised when they pick on an individual or group on the air and voice their opinions with strange noises. They seem to be trying to play a game. They're saying — 'try and guess who I am, I bet you can't find me, I'll abuse you on the channel so that you get wound up and will want to argue with me.'

In most cases they are right and the other breakers, although they might tell the squeaky to clear off or behave, enjoy the game. If they really objected to the squeaky's behaviour then they would ignore them completely. Then the squeaky might go away. I say might because some squeakys are very persistent, it's these that I feel sure could need medical attention. I can only guess why they do it — they must be lonely people who are not very good conversationalists and maybe are often ignored when using the channels in a normal voice. Perhaps they need company so CB is to them a way they can get the attention of the other breakers — even if it means being offensive and abusive in return.

Maybe some are just trying to show off and do so in the company of mates after a glue sniffing session and believe it's a good bit of fun to try and wind up other more serious breakers. It's this sort of squeaky that voices obscenities to others, hiding behind the mike of the radio. Each squeaky that does so believes he is so clever and original but they are not, squeaking has been going on for years and nothing they do is new.

There is another sort of squeaky that picks on just one individual on the channels, now it seems to me that this sort of squeaky has a grudge against his victim and follows the poor person around the channels harrassing him or her whenever they are heard on the air. Is there a cure to this squeaky problem? Yes, and it's simple — switch off — but this means you let them win and this is what they want. The other answer is ignore them totally. If you don't recognise that they are on the channel they will go away although they might try other methods first such as jamming the channel with blank carriers or playing music. But I have proved that if they are ignored the squeaky has no way of knowing if his signals are getting through, so they soon get fed up and hoppit. But give any indication that you



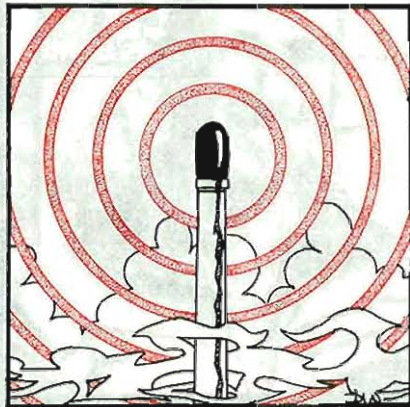
know they are around with any remark and they will persist in their activities.

There is another argument that I continually hear on channel these days and at times I have also been involved. It starts when a breaker from another channel comes on the side or 'QSKs' and will ask one of the breakers to 'Turn off your boots, you're bleeding over all my channels'. The reply could be a negative at times but the first station will insist that boots are in use but fail to realise that the fault could be in their own rig. As I have mentioned before, some people like to tweek up their rigs and by doing so could subject the rig to become unstable in the TX and RX mode. You must realise that when a rig leaves the manufacturers it has been tuned to maximum permissible legal specifications. I know you can tweek up the modulation and power on some rigs but by doing so you tend to upset things that could cause interference to other users. I have been accused at times of using more than the legal permissible power. In return I ask the accuser what rig they own and in most cases it is one of the cheap and nasty types or an illegal one that suffers from poor adjacent channel rejection. Any station that insists that I am running illegal power is invited to come and inspect my set up and see for themselves that I don't use boots on 27MHz. My rig is a Uniace 200 with a Leson TW 232 base mike that has a built in pre-amp, and the antenna a GAP %. Yes, I know the antenna's illegal Mr Home Officer but the legal ones cause TVI and I have tried most of the others. Also I use the GAP for the H.F. amateur bands. Tunes up a treat on 10, 15, and 20 metres. Power out shows about 5 watts at the rig end of the coax and I can hear stations 25 miles away in normal early morning conditions and they can hear me. So who needs boots?

Whilst on the subject of illegal operation and I mean illegal rigs, boots, and such.... Going through the motions of Parliament at the present time is a new bill that will mean heavy penalties for the users and owners of illegal transmitting equipment. Although these new laws will cover CB it is also an attempt to clamp down on other illegal TV or broadcasting stations. To what degree it will affect CB is not yet known but it could mean that dealers will not be allowed to sell or display illegal equipment and if you are caught even owning such illegal equipment you could be fined up to £1000 and the equipment confiscated. Even if the equipment is capable of being made to operate illegally you can still be done. The full situation of the new laws and their penalties will be covered in full in this mag in the near future.

Mrs Beal of Sussex wrote to me recently asking why she can't get a copy of the book 'Storm Front' by Phillip Finch which I wrote about back in April '82. I have been in touch with the publishers — Sphere — who say that it is now out of print, so I would suggest that you try to get your local library to obtain a copy if they can or hunt around secondhand bookshops in your area. Maybe another breaker has a copy that they can loan or do not want any more, if so post it to me and I'll forward it.

Antenna Review

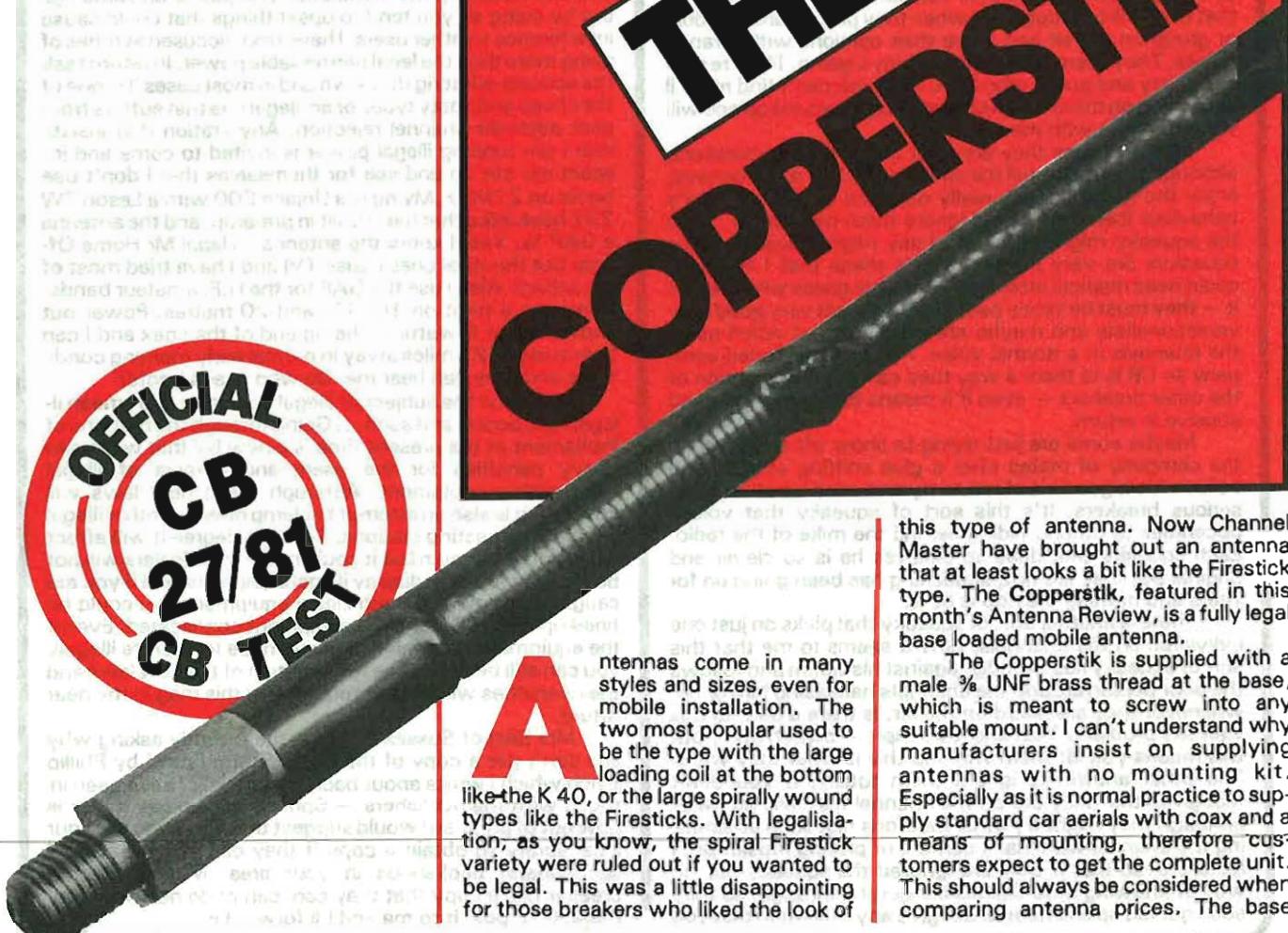


This month Brian W. Wright takes a look at the Copperstik mobile antenna and finds it familiar in appearance . . .



BIG 'N' BEEFY

THE COPPERSTIK



Antennas come in many styles and sizes, even for mobile installation. The two most popular used to be the type with the large loading coil at the bottom like the K 40, or the large spirally wound types like the Firesticks. With legalisation, as you know, the spiral Firestick variety were ruled out if you wanted to be legal. This was a little disappointing for those breakers who liked the look of

this type of antenna. Now Channel Master have brought out an antenna that at least looks a bit like the Firestick type. The Copperstik, featured in this month's Antenna Review, is a fully legal base loaded mobile antenna.

The Copperstik is supplied with a male $\frac{1}{2}$ UNF brass thread at the base, which is meant to screw into any suitable mount. I can't understand why manufacturers insist on supplying antennas with no mounting kit. Especially as it is normal practice to supply standard car aerials with coax and a means of mounting, therefore customers expect to get the complete unit. This should always be considered when comparing antenna prices. The base

ANTENNA REVIEW DATA PANEL

SPECIFICATIONS

Model	COPPERSTIK
Type	Base Loaded Mobile
Length	1.5 metre
Frequency Range	27MHz
Max Power Handling	—
Impedance	50 Ohms
Cable Supplied	None
Mounting Details	¾ U.N.F.
Supplier	Channel Master, Evesham, Worcs.
Typical Price	£12.95

loading coil on the Copperstik is close wound and about 12 mm in diameter by 55 mm long. The whip is constructed from a fibreglass rod, over which is fitted a copper braid similar to the outer braid on a piece of coaxial cable. The whole thing, whip, coil and part of the bottom brass fitting, is covered in a length of coloured heatshrink sleeving. The colours of sleeving available are red, royal blue, clear copper, yellow, black, white or green. When mounted on the car, the Copperstik does look at first glance a bit like a Firestick — as I am sure it is meant to — the whip being about 9 mm thick, a little thinner than the Firestick maybe, but similar. The Copperstik requires a very secure mounting to the vehicle, as not only is it quite heavy, but it also has quite a high wind resistance due to its thickness. If a mag-mount is used it needs to be a good strong one or you may end up dragging the aerial along the road by the coax.

On Test

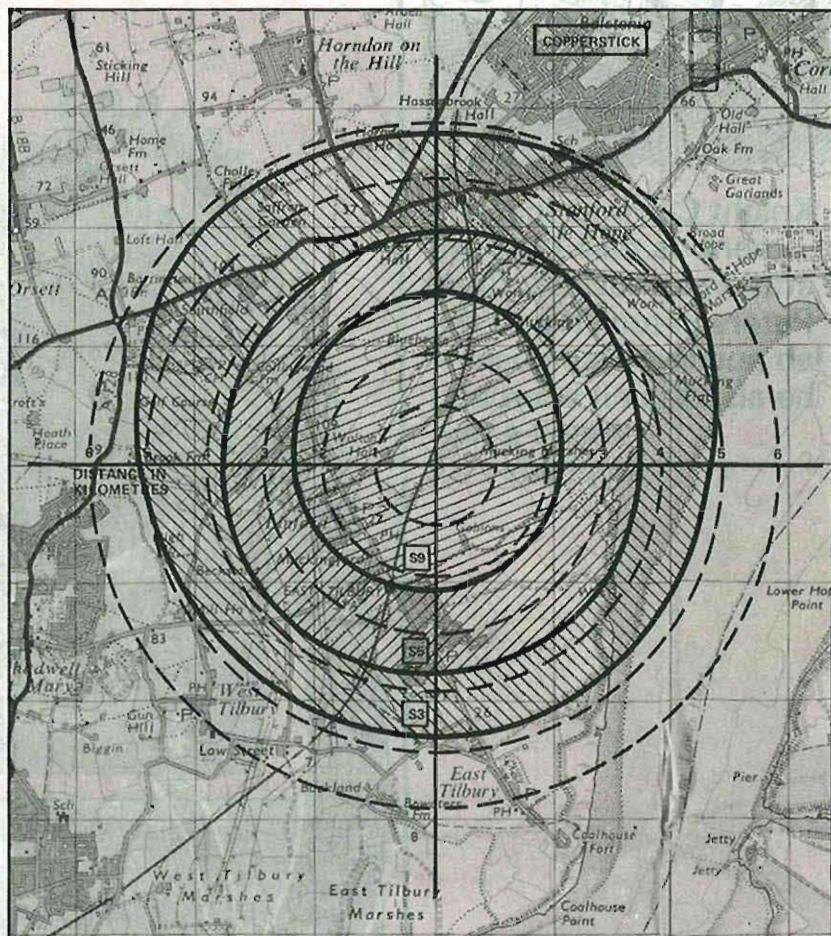
After mounting the Copperstik on the boot of the vehicle, the SWR was checked and found to be between 2.5:1 and 3:1 across the 40 channels. No instructions were supplied and as the antenna appeared to be too long, after checking on channel 1 and 40, it was gradually cut down in length. The lowest SWR reading obtainable was about 1.8:1, which isn't the best. The Copperstik gave an average performance as you can see from the test pattern obtained. We experienced some difficulty in maintaining contact at the limits of our usual test route as the signal went down to S1 on occasions. Many antennas tested maintained S3 or above in these locations. The performance may have been better however if we could have reduced the SWR to a better level.

Although the Copperstik is of simple construction it is well made and should stand up to a fair amount of rough usage and to all weathers. The one piece sleeving from top to bottom, with a plastic cap on the top, should keep out any water and retain the appearance of the antenna.

We did expect a better performance from the Copperstik, being a large aerial with what is effectively a copper whip, but we would consider this antenna to be a reasonably good performer. Priced at £12.95 it isn't going to break the bank and is pretty good value for money, especially if you already have a suitable mounting and coax. It certainly does look different from the average legal twig. If colours turn you on, you can even have a different colour for each day of the week, providing of course that you have the green shields and like it to show.

We would like to thank Channelmaster for supplying the review sample.

CB



REVIEW VERDICT

Performance	XXX	Installation	XXX
SWR Adjustment	XX	Instructions	—
Construction	XXXX	Value	XXX

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

The Tests

We have used our standard procedure to assess the efficiency of this antenna. Just to bring new readers up to date this involves two tests; one static and one mobile. Our test sample is fitted to a stationary mobile and a second mobile follows a pre-arranged route that orbits the stationary test vehicle, sending and receiving signal reports at measured intervals. This is then repeated with the test antenna on the mobile test vehicle and the signals are sent and received between a stationary vehicle. A standard rig and antenna is used in all the tests. With the results obtained we are able to draw up the radiation pattern shown here. This is simplified to make the results more easily understood. The antenna is also subjected to a series of 'lab' tests to assess their durability, quality and construction, etc and finally we hand it over to a panel of CBers for comment.

Rig Review



Knight Communications sent us their big base station for review. Chris Peterson took it into the lab and into his house — he also took it apart and found a few surprises . . .

THE WAGNERS ROLL BY KNIGHT



Time to get up and on channel!



The Wagner base station must be about the biggest rig we have reviewed to date. Smothered in switches, knobs and dials, it is a gadgeteer's delight! How many of those knobs and switches actually serve a useful purpose is another matter that we shall come to later . . .

Despite the Germanic name, this is a Japanese product, though the standard of construction would do credit to either country! The main cabinet is of metal construction, substantial and well put together. It measures some 430mm wide, 130mm high (plus feet) and 330mm deep plus knobs and sockets. The front panel is black plastic with white legends for the controls.

Starting at the top left hand corner of the front panel, we find a large red LED digital clock display. Immediately below it is a headphone jack-socket. This is a mono socket, but Tandy do a suitable adaptor to allow stereo headphones to be used here. Alongside the headphone socket is a bank of pushbutton switches. From left to right these are

PA, CB, Noise Blanker, Hi-Lo power, and finally the Forward switch for the built-in SWR meter.

Going down one more row, to the bottom left hand corner, there is a standard four-pin locking mike connector. Next along is the on/off auto switch. In the 'AUTO' mode this allows the digital clock to switch the rig on at a preset time! Next along are a pair of switches that allow the setting of the clock and auto functions. One further to the right is a 'sleep' switch that automatically switches the rig off after 59 minutes! Finally there is a dimmer switch which dims the clock display only. It appears that about the only function missing is one to make the early morning tea!

The channel display is a red LED device next to the clock display. Immediately below it is a large knob for channel selection. Alongside this is another knob with a large rotary dial reminiscent of a 1950's portable radiol

is not merely cosmetic. The interior workings are nearly as complex as that imposing front panel. Just how necessary such complexity is, is a moot point! There seems little doubt that in common with many Far-Eastern products, the PC board is a 'universal' design that can be assembled to any required mode of operation. Of necessity, this approach tends to produce complex circuitry compared to a dedicated FM design. Pure FM designs are arguably simpler than comparable AM designs, and indisputably simpler than SSB! However, the sheer volume of production in the Far-East tends to produce economic advantages that outweigh those of simpler design. In other words it is cheaper to produce a single, complex, but universal board than it is to produce several dedicated to FM in smaller numbers. Much of the circuitry in the Wagner reflects this approach.

The heart of any CB rig is the syn-

on virtually any nearby frequency. Any Hams out there should find it very simple to convert this rig to the 10 meter amateur band! The 36 MHz reference crystal is fine tuned in the receive mode by a varicap diode controlled by the clarifier control.

The receiver input signal is tapped off from the transmitter PI filter circuit in the usual manner. Since the VCD is running at 38 MHz instead of the conventional 16.9 MHz, the image frequency will be 21.4 MHz (2 x 1st IF) ABOVE 27 MHz instead of below it, ie 49 MHz instead of 6.2 MHz. Now the receiver is fed from the transmitter output filter which is a LOW-PASS filter. In other words it will reduce frequencies ABOVE 27 MHz, for example 49 MHz, whereas frequencies BELOW 27 MHz (such as 6.2 MHz) will be little affected and the image rejection should be improved as a result of the approach adopted by Wagner. In all honesty it has to be said that image rejection isn't usually a problem with CB rigs, nevertheless this is a refreshingly original approach, and however slight the advantages, it is to be commended.

Going back to the receiver chain, the incoming RF from the TX filter is split two ways. One path is the main receiver chain, and the other is the noise blanker circuit. Taking the main receiver chain first, the RF amplifier is a dual-gate MOSFET. One gate is fed with input RF, the other is fed with a combination of RF gain control and AGC. Effectively the RF gain control limits the maximum gain but still allows the AGC to reduce it further. The first mixer is a relatively crude NPN transistor, with the LO injected into the emitter. Unusually, the mixer output is not tuned. Instead it is resistively loaded and capacitively coupled into an emitter followed buffer. The emitter follower provides impedance matching into the 10.7 MHz ceramic roofing filter. It also provides the means of applying noise blanking. Instead of being biased from a supply rail, it is biased from an FET switch.

Going back to the front end of the receiver, the second path taken by the RF consists of a simple NPN transistor RF amp tuned at both its input and output. A second resistively loaded transistor amplifies the 27 MHz RF further, and it is then fed to a two diode noise detector. Noise appears as amplitude 'spikes' on the RF envelope. These spikes are detected and used to mute the receiver momentarily. The theory is that a moment of silence (typically only a few hundredths of a second long) is less objectionable than a crackle. A proper noise blanker is not simple. If the 'crackle' is detected at the audio stage, then it is too late. By the time the crackle is detected, it is already on its way to the audio amplifier! The correct way to do it is the way Wagner have done it, using a separate RF strip to detect the noise. In this way the blanking can be applied as the noise reaches the parallel stage in the main receiver chain.

In this case the detected noise is used to momentarily switch on a JUGFET, which switches OFF the emitter follower buffer in the main IF strip which is



This is a clarifier, or fine tune control for the receiver. Slightly above the clarifier to the right are a pair of warning LEDs, one for TX, the other for the PA mode. To the right of the LEDs are a pair of meters. The first is a TX power/signal strength meter, and the second a built-in SWR meter.

Below the meters are grouped the main controls. In the middle, from left to right of these are RF gain, squelch, and the SWR calibrate control. Below these are volume and tone controls. Finally on the extreme right hand end of the cabinet is a relatively large loudspeaker.

Moving to the rear of the cabinet we find a standard SO-259 antenna connector, a 5-pin DIN socket for connecting a tape recorder, a 2 pin DIN socket for an external loudspeaker, and finally a 3-core mains cable for power.

The instruction manual supplied was concise but clear, and contained a circuit diagram.

Technical Analysis.

The complex nature of this rig compared to many others that we have examined

thesiser. Instead of the usual 7137, this rig uses a uPD2812 PLL chip and 3 crystal oscillators! The uPD2812 is no longer manufactured according to most reference books on the subject. Presumably Wagners are sitting on a stock pile of them!!! The IC has an on-chip oscillator circuit, and this is used in conjunction with an external 10.24 MHz crystal feed the internal reference divider. The VCO runs at 10.695 MHz ABOVE the required frequency, ie 38.29625 MHz on channel 1. The programmable divider in the PLL ic cannot operate at such a high frequency, so the VCO output is mixed with a 36.6162 MHz reference crystal oscillator to produce a 1.68 MHz output. The 1.68 MHz is within the capabilities of the IC, and it is this signal that is fed to the programmable divider.

This may seem a very long winded way of producing the required frequencies compared to the ubiquitous LC7137! However, it makes it very easy to make the rig operate on alternative frequency bands. All that is necessary is a change of the 36 MHz reference crystal to make the rig operate

where we came in...! Incidentally, noise blankers cannot and will not eliminate FM 'hash'. They are there to eliminate noise such as ignition crackle, electric drills and other impulse type noise!

The second mixer follows immediately the 1st IF filter and is another simple NPN transistor, though this time base injection is employed. The second IF is amplified by another NPN transistor before being split two ways. One feed goes off to a pc1028H limiting amp and quadrature detector ic. The second feed goes to another amplifying transistor whose output is rectified to provide AGC voltage. ACG is applied to all stages except the first IF buffer and the final AGC detector.

Moving over to the transmitter, this again is a more complex circuit than usual. Since the VCO runs at a higher frequency than required for transmission, a 10.695 MHz oscillator provides a mix-down signal. The mixer is a JUGFET, with VCO applied to the gate, and the mix-down signal applied to the source. The output is double tuned into another JUGFET buffer amplifier stage.

Heterodyne transmitters can produce lots of spurious outputs unless special precautions are taken. Wagner are obviously well aware of this, hence the complexity of the mixer stage. The JUGFET mixer helps here. The double-tuned transformer and JUGFET buffer (to minimise loading on the double tuned circuit) are also clear indications of the problems this sort of circuitry can present to a designer. Herein lies the reason for the choice of VCO frequency on the high side. This means that any spuri that get through will be above the transmitter frequency, and will therefore be substantially attenuated by the transmitter output filter.

Audio is handled by a uPC1181H ic which provides drive for the loudspeaker and mike filtering. There appears to be little in the way of limiting or AGC on the mike amp. Loudspeaker switching is achieved by a relay rather than the more usual contacts on the mike PTT switch.

A fairly standard sort of power supply provides 13 volts from the mains and a small extra PC board in the back contains the SWR detector circuitry.

The internal standard of construction is very high, both the PLL and associated circuitry and the SWR circuitry are enclosed in shielding cans.

Lab Report

The power output at 240 volts input was 4.2 watts, and the attenuator reduced this by 9dB. This is fractionally high in power, and slightly higher again in the low power mode, but within normal measurement tolerances.

The transmitter was exceptionally clean. Although a number of harmonics could be observed (just!) on the spectrum analyzer, they were all -79dB or better, ie 'in spec'. Transmitter frequencies were all within 50 Hz of nominal, exceptionally good! However, the deviation gave some cause for concern. Although with the standard mike it

stayed within the limit at $\pm 1.06\text{KHz}$, when the signal generator was applied, it appeared to go on deviating without limit. The $\pm 3.67\text{KHz}$ figure recorded represents the most the signal generator could supply rather than the limit of the transmitter! This is all very well, unless you fit a power mike. Careless use of the gain control could make you very unpopular with your neighbours, and this aspect of the rig could use closer attention by Wagner.

Moving on to the receiver, the sensitivity measured 0.2uV PD for 10dB S/N. At minimum RF gain this reduced to 10uV. These are very acceptable figures. S9 corresponded to a signal level of 130uV PD, as opposed to a standard 100uV, and a specified 50uV! Still its relatively accurate compared to some we've seen. With the RF gain at minimum, S9 corresponded to 14mV. Max squelch level was 1mV at max RF gain, and at minimum RF gain the squelch couldn't be opened when fully up. This represents a very reasonable range for this control.

The SWR meter was reasonably accurate around 1:1, but became increasingly inaccurate away from this figure.

Generally a satisfactory performance, but it really needs better limiting on the mike amp.

On The Air

In view of the high quality of construction and interesting design, we were expecting the performance to be above average, and we weren't disappointed.

Most of the stations we copied were complementary about the modulation, and the rig was generally nice to operate. The LED channel readout didn't quite line up with the window which slightly spoiled the otherwise high standard of finish.

The receiver performed extremely well. Swamping and cross modulation were almost totally absent. The only time we noticed any swamping at all was in the presence of a signal giving over S9 with the RF gain turned right down! Since this represents a signal level of over 14 mV (14,000 uV!). I think we can forgive it that one!!! Like many other FM rigs it does tend to get a bit noisy when the bands are crowded. The AGC is level operated rather than noise operated, and doesn't help much under these circumstances.

As expected the clarifier proved almost totally ineffective obviously being a hangover from SSB operation. Unfortunately the clarifier is very close to the channel selector switch, and it is easy to grab the wrong knob by mistake! In contrast the noise blanker seemed more effective than most we have come across.

Conclusion

This rig is well made and soundly designed. It offers a lot of novelty features, but don't be fooled by the gimmicks: it performs better than average. It has been an enjoyable rig to review, and one that will be returned with some reluctance. There aren't an awful lot of rigs we say that about!

GB

RIG REVIEW DATA PANEL

Model Wagner Home Base
Distributor Knight Communications Ltd.
Typical Price £150

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

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

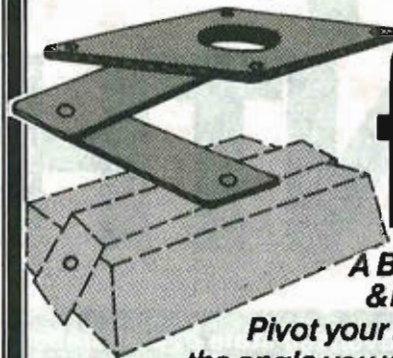
Specifications	
Modes Of Operation	FM Only
No. Of Channels	40
Weight	—
Dimensions	430x130x330mm
Supply Voltage	240 VDC
RF Output Power	4W
Frequency Stability	Good
Swamping	Good
Sensitivity (RX)	Good
Spurious Emissions	In Spec

CB VERDICT

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

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

PIVOT RIG



R.R.P.

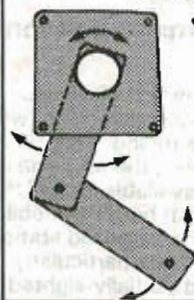
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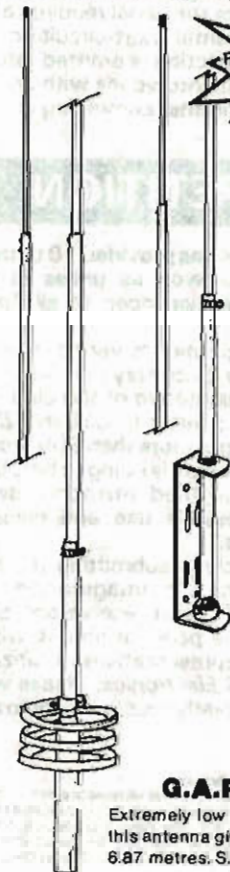
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Bremi 3/5 amp Power Supply	£13.75 (B)
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Sirtel Echo Mile (A)	£19.99
Channelstar (D)	£21.95
P.A. Horn (A)	£3.45 Jack Plug 25p
Dial-a-Match (B)	£9.15 2ft & £13.95 4ft GAP 27½ (D) £14.99
P&P A = £1 B = £2 C = £2.50	
(D = £5 Collect from nearest Rail Station)	

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G.A.P. 27Mhz. ½ wave

High performance, low angle of radiation, easy installation and reliability have made this antenna a winner. We have sold nearly 20,000 in the U.K.!! Radiator length 5.5 metres. No ground plane radials. S.W.R. better than 1.3 to 1. S.O.239 socket. The antenna is also available as a ¾-wave.

G.A.P. 27Mhz ¾ wave

Extremely low angle of radiation is the reason why this antenna gives that extra range. Radiator length 8.87 metres. S.W.R. adjustable to better than 1.3 to 1 across the band.

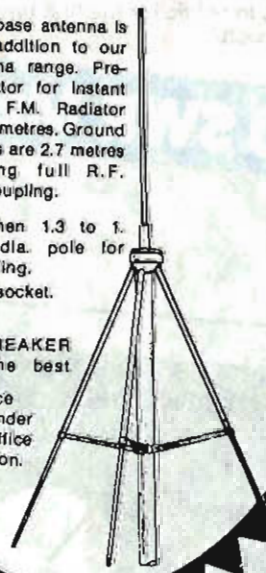
THE SKYBREAKER

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APRIL
ISSUE WILL BE ON SALE
FRIDAY
18
MARCH

NEXT MONTH

The articles mentioned are in an advanced state of preparation but circumstances may affect the final contents

Oh, to be in the Charing Cross Road now that April's here . . . April is the new young lady in the copy room . . . and young Kevin's fancies are on the turn. We've all had words with him about it and I've tried, Heaven knows I've tried, but April's like that . . . But what is there in store for you in April?

Chris Peterson — our resident rig wizard — will be taking a close look at the all new British designed Magpie Autoscan 5000CB. A brand new rig for '83 — don't miss this one.

Brian W. Wright will be testing out a new antenna and as a bonus he may well have a poke around inside of a neat little mobile rig from Wagner.

Mike Newbold — *Medicman* will be bringing you the latest from the QSL scene.

And — last but not least — young **Mack the Hack** will be levitating in print, in public for the first time. Hot air — geddit?

Twong marches on into a brand new series of adventures drawn especially for *Citizens' Band* by the fabulous **John Richardson**. We will also be running a special feature on cordless telephones. From enquiries received following our last mention of these soon to be legal gizmos it is apparent that many breakers are interested in this area of communications and we aim to give you what you want.

Among your other favourite expert exponents of CB journalism there will be a competition . . . ? Well maybe, but only if you are very very good and place a regular order with your newagent. This month's competition is a little different and allows you to do something for the disabled and visually handicapped many of whom have found a lot of comfort in the CB radio service.

10 SWR Alarms to be won by CB Clubs

The SWR 07 Alarm from P G Electronics emits an acoustic signal when the aerial needs re-tuning. This "audio" SWR meter, the only one of its kind currently available in the UK, is suitable for use with both CB mobile transceivers and home-based stations, and should prove to be particularly useful to blind and partially-sighted operators. Use of the SWR 07 Alarm will not only help improve the operation performance of the station but also reduce the risk of damage to the transceiver arising from aerial malfunction. Whenever the aerial requires a re-tune, an accidental short-circuit occurs, or a connection is omitted, etc., the SWR Alarm intervenes with an audible warning that something is wrong.

COMPETITION

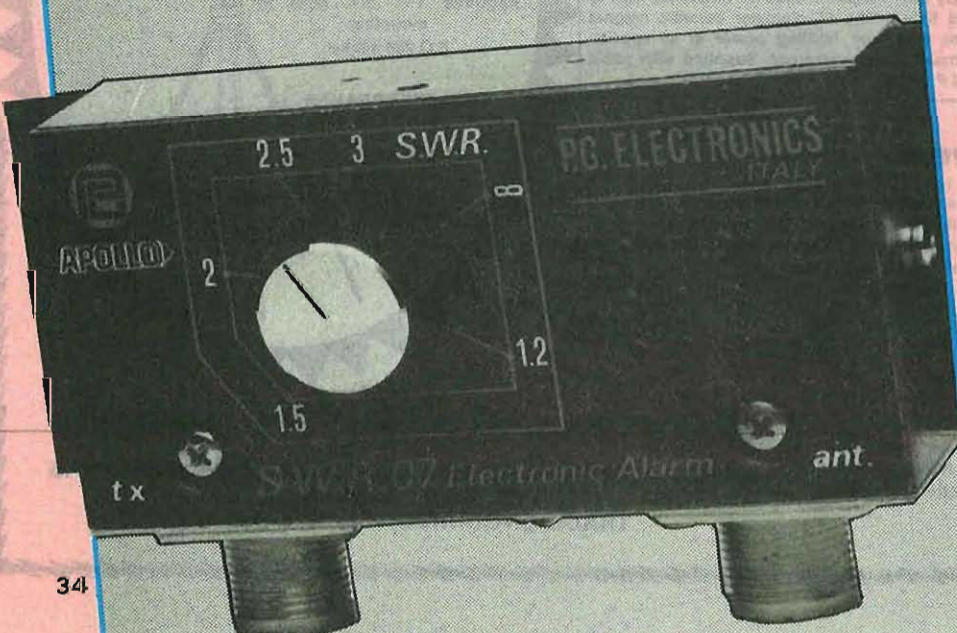
P G Electronics has provided 10 of these devices to be won as prizes in this special competition open to all British CB Clubs.

The competition is very simple. All that the Club Secretary, or other appointed representative of the club, has to do is write a letter to *Citizens' Band* describing, in not more than 300 words, what his or her club is doing to help blind and partially-sighted members derive the fullest-possible use and pleasure from their rigs.

The 10 clubs submitting the best letters, indicating imagination and enterprise, will each receive one SWR 07 Alarm. The panel of judges will be drawn from representatives of *Citizens' Band* and P G Electronics. Please write your entries clearly 'cos we have to read 'em all!

Don't forget the rules.
No employees of ASP are allowed to enter . . . seems a pity really . . . All entries must be here by second post Friday 18th February '83. The Editor's decision is final and don't forget your name and address. Entries to: SWR Competition, Citizens' Band, ASP Ltd., 145 Charing Cross Road, London WC2H 0EE.

10 SWR METERS TO BE WON





A hefty postbag again this month with letters coming in from Orkney to Littlehampton. Your say, your way — on channel 9, copper wire antennas, monitoring, complaints and bouquets . . .

quo in perseus i pers. uo in perseus. uo in us. du
 icit dicend Praec' icit dicend Praec' icit dicend Praec' icit dicend Praec'
 l salar' grand' ar le gran' it salar' and Auc' salar' grand'
 an n' ente p' movente p' ate an' venter an' mc' ente p'
 ccede mus si' de mus si' m' conce' ccede mus si' ede mus si'
 'ate post in m' te por' n' mon' est a l' 'ate post in n'
 eret a' duce' ret ab' duce' h' liceret' e' h' n' ret ab' h' s' duc'
 ecag' onylar' ecag' eronylar' at' ecag' onylar' at' ecag' onylar'
 se alliciat et sti' se alliciat et stiady' se alliciat et stiady' e' allic' t' stiady'
 oficis in alia' i' profic' summ' oficis in alia' e' oficis' a' sumi'

uo in perseus quo i' us. di' erseus: in perseus di'
 icit dicend Praec' icit di' 'raecli' nd Prae' icend Praec'
 it salar' and Auc' l salar' nd Au' ce grand' grand'
 ate an' venter' an' n' propt' ovente pro' ente p'
 conce' ccede mus si' move' mus' i' move' is si' n'
 est a l' 'ate post in m' d' post' non de' t' in m'
 liceret' e' h' n' eret a' ice ha' i' abbis' duce' han' s' duc'
 ecag' onylar' at' ecag' lar' at' age' eronylar' at' ili' ronyli'
 se alliciat et stiady' se alli' stiady' e' alliciat et stiady' no' t' et si'
 oficis in alia' s' i' profici' a' sum' oficis' immu' a' alia'

Blowing in the Wind!

Dear CB,
 I wrote to you some weeks ago about the Thunderpole antenna, which I found to have a faulty coil winding after being subjected to high winds and gales. I see now that the makers have a Mk2 version which improves the coil winding. Perhaps others with the Mk1 version have noticed this fault. I also mentioned that I use a Skylab Uk antenna and I hope to read a report on this in a future issue as I have found it to be the best legal homebase antenna.
Deerhunter,
Fife.

Freeman and Pardoe have indeed brought out a Mk2 using some of the improvements suggested by our reviewer. The Skylab? . . . we hope to cover that antenna in a future issue!

Dolores And Sense

Dear CB,
 I have just been reading your December issue and noticed a *Back Chat* letter headed Long Shot. Well I'm the breaker in the Orkney Isles who copied *Dolores* in Sennon Cove on August 15th. Yes, I was using two pieces of copper wire in the loft as a form of antenna. It only goes to show you don't believe everything that you read. I've been using the form of two pieces of wire to copy other breakers down in Cornwall as well as a breaker on the French coast using the handle of *Meatchopper*.
 My rig is a Uniden 100 and I have no burner or side bander. If you aren't fully convinced, I've enclosed some photo copies of QSL cards including one from Dolores . . . so don't blame it all on little Kev!
Hugh Skinner
Kirkwell
Orkney

Thanks Hugh, we would like to know a little more about your antenna if you have the time. . .

Yes — Nine Nine Nine!

Dear CB,
 Why all the fuss about channel 9? When once I was requesting assistance — on channel 9 — in London, I received no answer and so I used the landline to phone the emergency services.
 As said before, channel 9 is not a substitute for the 999 service so why do so many people insist on keeping it as an emergency channel? There are landlines every two or three hundred yards in London. So I think channel 9 should, by law, be made an emergency channel in the country and suburban areas but banned in London, as we need more channels.
 I am sure many people will agree with me.
Sparks,
Lewisham,
London.

Well, do you?

Long Sighted

Dear CB,
 I am writing to ask if you could tell me what distance the longest eyeball is over? I live in Birmingham and my handle is Jail Brake and there is a breaker called Gold Digger — who is on the Beacon Hills — who I copy every morning. He is on the highest point and the distance between us is about 8 miles and I think that this is the longest eyeball by road. I would also like to know if an eyeball has ever been done before in this way and, if so, over what distance. This one was done using car headlights and I confirmed by counting how many times he flashed his lights. We did this about 7.15 to 7.30 am on Monday 20th December.
Jail Brake,
Birmingham.

First record attempt that we have heard of for a long distance eyeball. . . no doubt we shall hear more. . .

Money & Morons

Dear CB,
We at SSE, as a firmly established company, have always believed in fair trading, wholesale and retail. Alas a lot of larger wholesale companies think that undercutting Joe Bloggs down the road, is the thing to get trade going and some companies have actually sold at or below cost price to beat 'matey' down the road. The public, bless their 'earts, have had a right old buying spree, because these large wholesalers, mainly those who imported vast quantities of FM rigs, had a 'fright' when the market went quiet for a couple of weeks and decided amongst themselves that CB was at an end. What 'rubbish' and then promptly unloaded thousands of FM rigs at half the normal trade price. We didn't get caught but many did.

We know of two companies who refused point blank to buy off of these so called large wholesalers because they damaged their trade. We wonder if they are members of CIBTA. CIBTA we believe is something to do with 'fair trading'. Enough of trading. . . *now to the public*. . . Dear mums and dads, brothers and sisters, there are a minute bundle of morons out there bucket-mouthing and swearing to your loved ones and generally messing up decent breakers conversations, these 'brats' as we call them, probably don't know what an AM rig was or that the breakers who used AM/SSB were and still are a very respectable bunch of people. The Brats have bought rigs for £19 a time (cheaper than a car radio) and descended as low as they can get.

Now if the old boys from the AM days can't stand it surely its about time they stuck together — get your tape-recorders going, get names and handles and report them. Why should these wallies kill it for you? If it wasn't for the AM boys we wouldn't have FM and everyone who's a radio fan should know the AM boys put a lot of time and effort into getting CB in the first place.

The retail trade has taken a slump in the South, dozens of shops have been forced to close indirectly by these Morons. We believe it will take time to clean up CB but with your help we can and will. . .

H.J. Owen M.D.;
Surrey Sussex Electronics,
Dorking.

Cable Fable

Dear CB,
I would like to use the letters page of your magazine to put to your readers a few points on two items that will affect both CB radio and amateur radio in the coming 12 months.

The first is regarding the advent of cable TV in this country. This system will use high level composite video and audio signals across the complete frequency range of 5 to 440 KHz. This range houses most of the popular amateur bands and, of course, 27MHz CB. The problem arises from the permitted external radiation limits, and I quote from the specifications, "Radiation

Limits: Maximum permitted equivalent radiation level from individual components within non-broadcast bands equals +11db/uV/m at 10m or a radiated power of $2.5 \times 10^{-11}W$ (25pW)"

A footnote to this specification states, "This is a compromise value and may not protect from system interference all services operating within the bands specified". This has caused concern with the University of Bath School of Electrical Engineering's Chris Morcomb and, with John Wilson of the RSGB. Both have submitted a report to the Hunt Committee on cable TV, that radiation from "leaky co-axial cables" anywhere near these levels will lead to the end of amateur radio, CB radio and other similar systems.

This opinion is echoed by other users of this part of the radio spectrum, and one can see the problems that may arise by looking at the American radio scene, where amateurs have been forced to close their stations because of interference to and from the US cable system.

There are at present two types of cable transmission system under consideration. The first is the "all-American" coax cable system, with all the problems of TVI and interference to users in that part of the spectrum. The other is a hybrid fibre optic/coax cable system that is distributed via a fibre optic 'main' and the houses are connected by coax to it. This means that interference can still be caused, but only locally. (!) Probably the best system is the all fibre optic type as pioneered by British Telecom, but whether we get this superior system or not, the decision lies with the Government, and after seeing their handling of the CB in question, I do not have much faith in the outcome.
J.E. Burtenshaw,
Littlehampton,
W. Sussex.

Hi Modelmaker — please give my regards to Actual Ace if you catch him on channel.

Bouquets & Barbed Comment

Dear CB,
Firstly, I am writing to ask if it is possible to order backnumbers of CB magazine, and specifically the issue of February 1982 which contained a report on the Amstrad CB901 which is the rig I currently use?

And now for a slight niggles, about your *Disgracefully Sexist* advert for the London Home Computer Show, in this month's issue. "TAKE ALONG THE WIFE AND KIDS INDEED" . . . and the assumption that any computer buying would be done by a mere man!

Many of us are more than capable of driving *ourselves* to the show, and of buying our *own* computer bits (or should that be bytes?) from our *own* wages, and not what you assume ie, that we should spoil what sounds like a good show by following behind some man who knows less about the goodies on display than the 'wives' and 'kids' . . . (well, at least the ad got that bit

right!) . . . Having moaned about your tasteless ad, I look forward to going up to the show sometime over the weekend, and would like to congratulate you on a really good magazine.

Ms Sue Parker
Bath, Avon.

I have passed your comments on to the person concerned Sue — hope you enjoyed the show. See ad for back numbers.

Recruiting Drive

Dear Sir,
May we through your Magazine inform readers about RADEN which stands for The Redditch and District Emergency Network. The Network has been formed for 1 year and monitors on channel 9. Like so many other organisations we also work with our local police and council giving help when needed with functions.

Our equipment consist of Home Bases, Mobiles and Handhelds — which become useful in searching of Estates where mobiles cannot obtain easy access — for example, in cases of missing children.

Unfortunately we can only cover 6 hours per night 7 nights a week the hours being between 6.00pm till midnight, those of our members who are at home do try to keep a cover during the day.

So if any responsible adult over the age of 18 who lives in the Redditch area reads this and feels that they would like to join us they can contact me on Redditch 26158. We also have a fortnightly eyeball for RADEN members to which any prospective monitor would be most welcome.

Our policy is never to answer any calls on channel 9 unless it is a 10.33.

Thank you in anticipation.

Louise Hood (Mrs),
Public Relations Officer,
56 Mordiford Close,
Winyates West,
Redditch,
Worcs. B98 0LD

We get lots of interesting letters that deserve an airing in this column, unfortunately the writers often omit their names and addresses. . . please include them on all letters for publication — we will not publish them in full if you request us not to.

CB



Letters intended for publication should be addressed to: Backchat, Citizens' Band, 145 Charing Cross Road, London WC2H 0EE. Letters not containing a name and address will not be considered for publication.



CLUB NEWS

There are football clubs, golf clubs, night clubs, gentlemen's clubs and CB clubs. Of course, by far the most interesting are CB clubs . . .

Down in deepest Somerset, or Zomerzet — if you listen to the natives, there is, surprise, surprise, a CB Club. Not just a run-of-the mill club, but a rather special one. They're called Juliet Lima Sierra and if you want to know more about them, read on . . .

Juliet Lima Sierra

We've just started a junior branch of our club — we held our first meeting in November and it was a great success. The first part of the afternoon was given up to correct usage and talks on CB — after which we had a few entertainments.

The branch began as the result of a weekly junior link-up which my son, Robert Bailey, started with the adult breakers.

The branch is being run by junior breakers for juniors — they have their own committee. Adult breakers are on standby for assistance. The junior secretary, Taffy, will be writing from time to time to let you know how the club is making out.

At our first meeting we had a presentation of cheques. The money was raised by one adult, Windslammer, and his son, Roof Rack, by holding a 24 hour link-up. These cheques were for the sum of £183 each. One went to the Royal United Hospital, Bath, for the baby intensive care unit. The other went to the Junior Club to give them a start. The Junior club have decided to adopt the baby unit as their fund-raising activity.

Anyone wanting to join the junior club can write to me at the address below. The membership fee is £2 a year, ages 0-16 years.

**Mrs Bea Bailey,
50 Cornwall Road,
Shepton Mallett,
Somerset,
BA4 54R**

Club news from Kennington in Kent could well contain a kaleidoscope key kontributions. Komprendé . . . ?

27 (CB) Club

May I take this opportunity to tell you how the Club has been going over the past year. We raised over £600 to enable the local handicap school to enter a team in the mini olympics. We raised this by holding a Fête in the summer and also our member Ice Man had all his hair cut off for the charity! Although as a rule, the Club does not get too involved in charity work and raising money, but we all felt that this was a most deserving cause. Also we feel that the public are fed up with hearing about CBers raising this, and CBers raising that in the press and so we try and keep our charity activities on the quiet. We believe that your magazine is the right place to let people know what we have done as it may give other Clubs ideas on how to help people.

We also have a very active monitor service that go around local horse trials and sit at the jumps and relay information back to our control who pass this information on to the commentator. The group also cover sponsored walks and in fact anywhere that two-way radio is required. This service puts over the good side of CB to the public and comments from people who we do this for are very favourable. The service has quite a few bookings for 1983 already.

Another event we run is a skilled driving competition, Clubs from all over the South come to Ashford for the day and test their skills on our course against each other, and in the afternoon we have an inter-Club competition, awarding trophies to the best Club team. The next event is planned for March and anyone who would like details is welcome to contact me.

We are also a member of the Kent Police Citizens Observer group. Although this group is still in its infant stage, the idea is that when the Police require us they contact us with a description of the missing person or other details and we inform breakers via the landline and rigs.

Lastly. The Club meets in the upstairs Functions room of the Victoria Hotel in Beaver Road at Ashford every Friday at 20.00hrs. One week we have a meeting and the next we have

a social or a convoy to other Clubs to play darts etc. . . . Breakers of all ages are most welcome although I point out that we are a serious CB Club not a disco type Club. We have members on all modes, AM, FM, and SSB.

P.A. Wood
102 Grasmere Road,
Greenacres,
Kennington,
Ashford,
Kent. TN24 9BG

Finally, a quick request to all you QSLers . . . Roy, Founder and President of the Lima Tango DX Group offers membership at reasonable rates.

Write to Roy at the address below for details

Roy, i-LT-001,
PO Box 17,
Lowestoft,
Suffolk.
NR32 5ET

GB

CLUB DIRECTORY

ENGLAND

AVON

ELITE BREAKERS CLUB
Chairman: Johnny Reb,
106 Smyth Road,
Ashton, Bristol, BS3 2DP
Meet: White Horse, West St, Bedminster.
Fris 8pm

CHESHIRE

COUNTY CB BREAKERS
Chairman: Big Potter,
63 Hardcastle Road,
Edgeley, Stockport,

Cheshire. SK3 9DB
Meet: County Cabaret Club.
Thurs 8pm

CLEVELAND

COMPANION SWAP CLUB QSL UK
Chairman: Bookkeeper
1 Southfield Cottage,
Gt Steinton,
Stockton-On-Tees,
Cleveland. TS21 1NA
Meet: 'Dukes' Comrade Club, 26 Duke St,
Darlington, Co Durham.

NORTHANTS

ROMEO DELTA CLUB
Chairman: Jump Jet,
38 Castle Hill,
Rothwell,
Nr Kettering, Northants.
Meet: Rifle Band Club, Rothwell.
Fortnightly Weds, 8pm

TYNE & WEAR

MOONBASE MODULATORS CBC
Chairman: Helldriver,
27 Tyndal Gardens,
Dunstan,
Tyne & Wear. NE11 9EK

SPITAL MODULATORS ASSOC.
Chairman: Mercury,
c/o Third Floor, 59 Hunters Road,
Spital Tongues,
Newcastle-upon-Tyne,
NE2 4ND
Meet: Spital House Club, Fris 7pm

SPITAL ROUNDTABLE BREAKERS CLUB
Chairman: Benwell Lad,
263 Wingrove Avenue,
Newcastle-upon-Tyne.
Meet: Duke of Edinburgh, Snow Street.
Thurs 7.30pm

021 BREAKERS CLUB
Chairman: R Brewster,
21, Kingfisher Drive,
Chelmsley Wood,
Birmingham, B36 ORD
Meet: The Hunters Moon, Castle Bromwich.
Mons 7.30pm

JORVIK BREAKERS CLUB
Chairman: Gordon Louth,
4 St Philips Grove,
Clifton, York.
Meet: Caravan Club, Shipton Road, York.
Second and fourth Tues in the month, 7.30pm

CHANNEL ISLANDS

THE TWENTY BREAKERS CLUB
Chairman: Red Rum,
TBC Club, E&G Arms,
St Sampsons,
Guernsey, Channel Islands.
Meet: TBC Club, Alt Tues & Weds, 8pm

1 KILO ALFA DX CLUB
Chairman: President James O3,
PO Box 1,
Kilkeel,
Co Down,
Northern Ireland.
Meet: Third Fri of month, 8pm
God knows where.

NORTHERN IRELAND

1 KILO ALFA DX CLUB
Chairman: President James O3,
PO Box 1,
Kilkeel,
Co Down,
Northern Ireland.
Meet: Third Fri of month, 8pm
God knows where.

SCOTLAND

ABERDEEN

THE BON ACCORD BREAKERS
Chairperson: Velvet Lady,
9d Alexander Terrace,
Tilly Drone,
Aberdeen.
AB2 2QT
Meet: The lounge of The Carlton, Castle Street,
Aberdeen.
Tues at 7.30pm

DUMFRIES

WITH VALLEY BREAKERS
Chairman: Grouse Bester,
Oughtons Restaurant, High Street, Dumfries.
Meet: At the above, Alt Sundays 7.30pm

WALES

MOUNT VIEW MODULATORS
Chairpersonette: Mrs Pamela Butts,
30 Woodfield Terrace,
Penrhiwceiber,
Mountain Ash,
Mid-Glamorgan,
South Wales.
Meet: Park Hotel, Penrhiwceiber.
Every Wed, 7pm

CITIZENS' BAND CLUB DIRECTORY REGISTRATION FORM



CLUB NAME ()

CHAIRMAN ()

Secretary ()

PR Contact ()

Contact Address ()

. (Tel No.)

MEETING PLACE, DAY AND TIME ()

.

No. of members

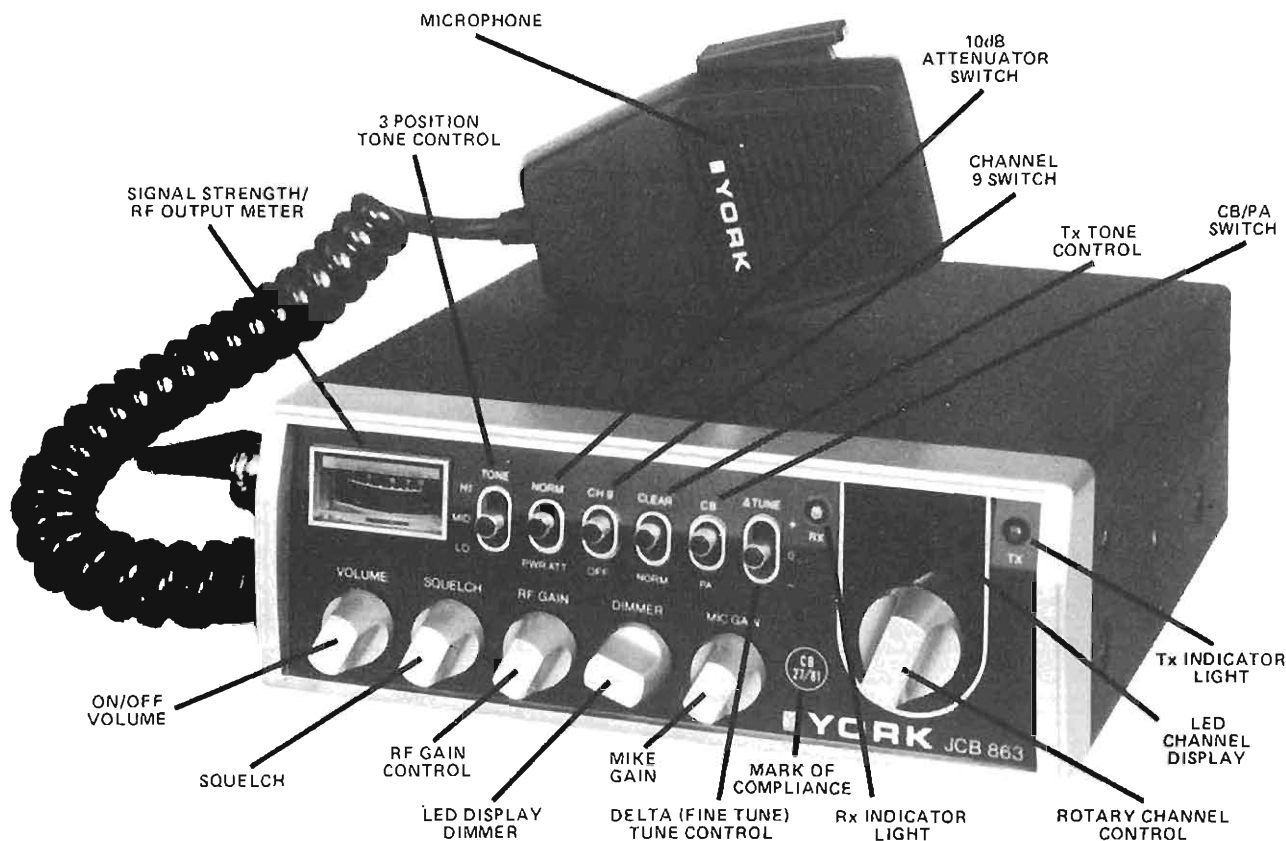
Position in club

Fee/sub etc (Committee members only please)

Please mark (*) information that may be published.

Citizens' Band

REFERENCE SECTION



SQUELCH

For anyone who has never used a rig before, this is probably the control that is the most difficult to understand. It exists to remove the background noise, that hissing sound that you can hear when there isn't a signal present. Nothing happens when the squelch knob is turned slowly clockwise, until it reaches a point just above the level of the background noise. Then, suddenly, the noise will totally disappear and you will hear nothing at all until a signal that is stronger than the background noise is received. This signal will cause the squelch to *open* as you will hear it, but as soon as it disappears, the squelch will *close* again and no sound will come from the rig. Care should be taken when adjusting this control because the higher it is set, the stronger the incoming signal has to be in order to open it. For the best results, the control should be left at the position just past the point where the background noise vanished. It will then let through any signal that is stronger than the background noise but not the noise itself.

RF GAIN

This is a variable attenuator that cuts down the amplification which is given to incoming signals and the more it is turned, the less the gain of your rig. This helps to prevent overloading when you are talking to someone who is very close by.

SIGNAL STRENGTH/RF METER

This is a dual function device that shows the relative strength of the signal you are receiving and of the signal you are transmitting. The S-Meter is usually calibrated 1-9 and the nearer to the 9 the needle is when you are receiving a

signal, the stronger that signal is. If someone asks you for a signal report, all you need to do is quote the number that is indicated on your S-Meter. This will give them a good idea of how well you are receiving them but you should remember that this is a *relative* indication and another rig under exactly the same circumstances could well give a reading that is 2 or 3 points different.

The same applies to the RF Meter. It also gives a *relative* indication of the power, you are putting out and it doesn't give a reading in watts. When you have properly tuned your antenna, you should note the position of the needle when you transmit, it should be around the 8 mark. If it suddenly moves from this position when you are transmitting, you should immediately re-check your antenna as there will almost certainly be something wrong with it.

NOISE BLANKER

These two functions are often combined on one switch and although they operate differently, they both exist to cut down interference. Most ANL systems work reasonably well but an NB is a far more efficient device that will remove almost all of the crackles and pops that are caused by interference.

LEDS (RX TX)

The appropriate one of these light emitting diodes lights to show if you are transmitting or receiving.

PA/CB

This switch turns your rig into a low power public address amplifier when it is set to the PA position. There is a socket on the back for an exten-

sion horn type speaker to be plugged into and anything you say into the microphone will be amplified and broadcast through the speaker.

MIC. GAIN.

This control alters the amount of audio from the microphone used to modulate the outgoing signal. When it is set to minimum, you are transmitting a blank carrier regardless of whether you speak into the microphone or not but when it's set to maximum, your signal is at almost 100% modulation.

HI/LO

This switch cuts down the output power of your rig so that you can conform to the rule on the back of your licence that says that you must reduce your power by 10 dB if your base station antenna is more than 7 metres above ground level.

CHANNEL SELECTOR

This is the knob that you use to change channels.

CHANNEL INDICATOR

This window displays the number of the channel in use. Most sets use LEDs for this display but some manufacturers prefer to use liquid crystal or fluorescent type displays. Displays will normally be bright red, orange or green and visible in all but the most direct sunlight.

CH 9 PRIORITY

This switch allows you to go immediately to channel 9 without having to use the channel selector.

FM RIG CHECKLIST

MOBILES

NAME	ADDRESSES	MODEL	NO. OF CHANNELS		RETAIL PRICE
				SUPPLY VOLTAGE	
ALBA	Alba (Electronics) Ltd, Bull Lane, Edmonton N18	CBMI 40	40	13.8VDC	TBA
AMSTRAD	Amstrad Consumer Electronics, 1-7 Garman Road, London N17	CB 901	40	13.8VDC	£89
AUDIO LINE		341	40	13.8VDC	£106
AUDIO LINE	CB Radio Centre, 337 Kenton Rd, Harrow Mdx	340	40	13.8VDC	£80
AUDIO LINE		342	40	13.2VDC	£149.95
BARRACUDA	Helfords Motor Accessory Shops	GT 868	40	13.8VDC	£70
BARRACUDA		HP 940	40	13.8VDC	£85
BINATONE	Binatona House, Beresford Av, Wembley, Mdx	BREAKERPHONE	40	13.8VDC	£99
BINATONE		ROUTE 66	40	13.8VDC	£79.95
BINATONE		6-STAR	40	13.8VDC	£100
BRAEMAR	Gamlitex Overseas, 348 Kings Rd, SW3 5UZ	BRAEMAR	40	13.8VDC	£TBA
COBRA	Mura (UK) Ltd, High Rd, Willesdon, NW10	21 X FM	40	13.8VDC	£79
COLT	Shellpost, 183 The Rock, Bury, Lancs	295	40	13.8VDC	£80
COMMTRON	Roger D, 831 Mansfield Rd, Notts	CB40F	40	13.8VDC	£70
COMMTRON		CXX	40	13.8VDC	£69.95
CYBERNET	Goodmans Loudspeakers Ltd, Downley Road, Havant, Hants PO0 2NL	BETA 1000	40	13.8VDC	£70
CYBERNET		BETA 2000	40	13.8VDC	£85
CYBERNET		BETA 3000	40	13.8VDC	£100
DNT	Radiotechnics Ltd, Grove Way Bel Royal, St Lawrence Jersey CI	M40FM SPECIAL	40	13.8VDC	£100
ELFTONE	4 Beresford Av, Wembley, Mdx. HA0 1YA	ELCB 6000	40	13.8VDC	£TBA
EUROCOMM	Zycomm Electronics, Ripley, Derbyshire	EURO 40	40	13.8VDC	£69
FIDELITY	Fidelity Radio Ltd, Victoria Rd, London NW10	CB 1000M	40	13.8VDC	£70
FIDELITY		CB 2000M	40	13.8VDC	£90
FIDELITY		20001 FM	40	13.8VDC	£70
GRANDSTAND	Bee-Ware Ltd, Ripon Way, Harrogate, N. Yorks	BLUEBIRD	40	13.8VDC	£90
GRANDSTAND		HAWK	40	13.8VDC	£80
GRANDSTAND		GEMINI	40	13.8VDC	£122
GREAT	Brittania Trading, Northern Rd, Sudbury, Suffolk	GT 868B	40	13.8VDC	£65
HARRIER	Dixons Photographic Ltd.	CB MOBILE	40	13.8VDC	£49
HARRIER		CB X	40	13.8VDC	£89.99
HARVARD	Harris Overseas Ltd, Harvard House, 14-16 Thames Rd, Barking, Essex	400M	40	13.8VDC	£80
HARVARD		402 MPA	40	13.8VDC	£69.95
HARVARD		H403 GOOD BUDDY	40	13.8VDC	£50
HARVARD		420M	40	13.8VDC	£100
INTERCEPTOR	Chelsea CB Centre, 73-77 Britannia Rd, London	INTERCEPTOR	40	13.8VDC	£80
INTERCEPTOR		TC400	40	13.8VDC	£95
INTERCEPTOR		ONE HANDER	40	13.8VDC	£100
JOHNSON	Star Warehouse, Chalk Farm Rd, London	JOHNSON	40	13.8VDC	£50
JWR	Wolfe House, Norse Rd, Bedford MK41 0LF	M2	40	13.8VDC	£60
JWR		M3	40	13.8VDC	£90
KAISER	Kaiser Electronics Neuwottrasse 21-25, Waldorf Baden, W. Germany	UK 40	40	13.8VDC	£TBA
LADYLINE	Market Drayton, Salop	QUASAR	40	13.8VDC	£80
LAKE	Roger D, 831 Mansfield Rd, Nottingham NG5 3GF	MANXMAN 850	40	13.8VDC	£32.50
LAKE		MANXMAN 950	40	13.8VDC	£37.50

REFERENCE

On the following pages you will find listed just about all of the CB rigs available for use on UKFM CB. We have split the reference section into three parts; mobile base and portable to make individual rigs easier to find.



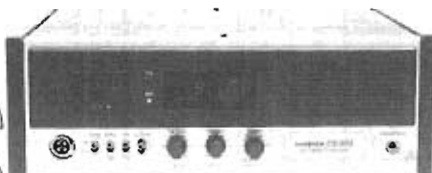
SQUELCH	NB SWITCH	ANL SWITCH	MIKE GAIN	RF GAIN	TOPE CONTROL	S/RF METER	S/RF LED R/O	HI/LO OUTPUT	PA FACILITY	EX. SPEAKER JACK	TX IND. LIGHT	RX IND. LIGHT	CH 9 SWITCH	MIKE POSITION	COMMENTS
•				•		•				•	•	•	•	FL	ALBA
•				•	•		•			•	•	•	•	SL	Report Feb '82
•			•	•	•			•		•	•	•	•	SL	AMSTRAD
•					•					•					AUDIOLINE
•			•		•					•					Report Feb '82
•					•					•					AUDIOLINE
•				•	•					•				FL	Great GT868 chassis
•			•	•	•			•		•	•	•	•	FL	Cybernet chassis
•			•		•					•	•	•	•	-	Report Feb '82
•										•				FL	Report Dec '81
•			•	•	•			•		•			•	SL	BINATONE
•				•	•					•				SL	BINATONE
•					•					•	•			FL	Colt, MidInd, Maxcom lookalike
•				•						•	•			FL	COLT
•					•					•			•	FL	COMMTRON
•				•	•					•	•			FL	COMMTRON
•						•				•				SL	Ultra compact performer
•				•	•		•			•	•	•		FL	CYBERNET
•				•	•	•		•		•	•	•	•	FL	CYBERNET
•				•	•					•	•			FL	Report July '82
•				•	•					•	•			FL	DNT
•					•					•		•	•	FL	ELFTONE
•					•					•				FL	EUROCOMM
•					•					•				SL	FIDELITY
•			•	•	•			•		•			•	FL	Report March '82
•			•	•	•			•		•			•		FIDELITY
•					•					•	•			SL	GRANDSTAND
•				•	•					•	•			SL	GRANDSTAND
•	•			•		•				•	•			SL	GRANDSTAND
•					•			•		•	•			FL	Same as Johnson rig
•					•					•	•			SL	Report Feb '82
•			•	•	•			•		•	•	•	•	SL	HARRIER
•					•					•	•	•	•	FL	HARRIER
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•			•	•		•				•	•	•	•	FL	INTERCEPTOR
•				•	•			•		•	•			FL	Great GT868 chassis
•					•					•	•			FL	JOHNSON
•					•					•	•			FL	JWR
•					•					•	•			FL	JWR
•					•					•	•	•		FL	KAISER
•				•	•			•		•	•			FL	First marine rig
•				•	•			•		•	•			SL	LADYLINE
•				•	•			•		•	•			SL	LAKE
•				•	•			•		•	•			SL	LAKE

considerably from CB shop to CB shop!

REFERENCE

BASE STATIONS

BASES



NAME	ADDRESSES	MODEL	BASES		
			NO. OF CHANNELS	SUPPLY VOLTAGE	RETAIL PRICE
DNT	Radlotechnics Ltd, Grove Way, Bel Royal, St Lawrence Jersey CI.	B40	40	240VAC	£TBA
DNT		B2740	40	240VAC	£TBA
DNT		B5040	40	240VAC	£TBA
FIDELITY	Fidelity Radio Ltd, Victoria Rd, London NW10	CB 300M	40	240VAC	£TBA
GRANDSTAND	Bee-Ware Ltd, Ripon Way, Haregate, N. Yorks	BASE	40	240VAC	£220
HARRIER	Dixons Photographic Ltd.	CB HQ	40	240VAC	£130
HARVARD	Harris Overseas Ltd, Harvard House, 14-16 Thames Rd, Barking Essex	H407	40	240VAC	£125
HARVARD		H401	40	240VAC	£149.95
JOHNSON	Star Warehouse Chalk Farm Rd, London	XK 2000	40	240VAC	£99
JWR	Woolfe House, Norse Rd, Bedford	DIPLOMAT	40	240VAC	£194
MIDLAND	Plustronix Ltd, Hempstalls Ln, Newcastle-under-Lyme, Staffs.	76-200	40	240VAC	£150
MURPHY	Murphy Electronics, Wembley, Middlesex	BASE	40	240VAC	£100
SPIRIT	Martello Sound Ltd, Heywood Way, Ivyhouse Lane, Hastings, Sussex	SPIRIT	40	240VAC	£100
WAGNER	Knight Communications Ltd, Unit 19 Brittanie Estate, Leagrove Rd, Luton LU3 1BJ	BASE	40	240VAC	£150

PORTABLES

NAME	ADDRESSES	MODEL	PORTABLES		
			NO. OF CHANNELS	SUPPLY VOLTAGE	RETAIL PRICE
BEAR	Air Bear(UK) Ltd, Wortley, Sheffield	RHB 35	3	BATTERIES	£44
BINATONE	Binatone House, Beresford Avenue, Wembley, Middlesex	LONGRANGER	40	BATTERIES	£59.95
DNT	Radlotechnics Ltd, Grove Way, Bel Royal, St Lawrence Jersey CI	HF 12/3	3	BATTERIES	£47.55
ELFTONE	4 Beresford Av, Wembley, Middx.	CB30	2	BATTERIES	£TBA
ELFTONE		P-3	3	BATTERIES	£TBA
HARRIER	Dixons Photographic Ltd	WT1	2	BATTERY	£25
HARRIER		WT2	40	BATTERY	£59.99
HARVARD	Harris Overseas Ltd, Harvard House, 14-16 Thames Rd, Barking Essex	0-2-0	2	BATTERY	£20
HARVARD		410T	40	BxAA cells	£69.95
HARVARD		10-4 CONVOY	2	BATTERY	£19.95
HARVARD		H6	2	BATTERY	£29.95
KAISER	Kaiser Electronics Nevrottsstrasse 21-25, Waldorf Barden, W. Germany	CBX40	40	BATTERY	£TBA
MAXCOM	A.T.M. A.M. House 9a Olds Approach, Tolpits Lane, Watford Herts.	7E	3	BATTERY	£TBA
MIDLAND	Plustronix Ltd, Hempstalls Ln, Newcastle-under-Lyme, Staffs.	75-720	40	12VDC	£119
TANDY	Tama Way Tower, Bridge St, Walsell	TRC1001	40	BATTERY	£59.95

HAND HELDS

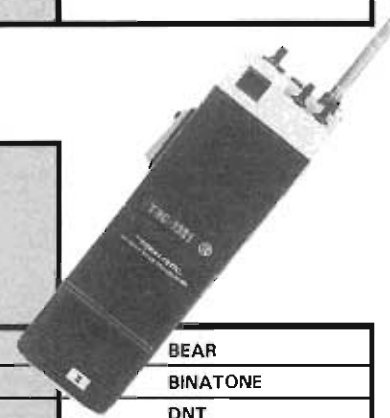


It's much more fun breaking from home when the car's too cold to start - and it saves petrol!



SQUELCH	NB SWITCH	ANL SWITCH	MIKE GAIN	RF GAIN	STONE CONTROL	S/RF METER	S/RF LED R/O	HI/LO OUTPUT	PA FACILITY	EX. SPEAKER JACK	TX IND. LIGHT	RX IND. LIGHT	CH 9 SWITCH	MIKE POSITION	COMMENTS
•					•		•			•				FL	DNT
•					•		•			•				FL	DNT
•				•	•		•			•			•	FR	DNT
•			•	•	•		•	•	•				•	SR	Report May '82
•			•	•	•		•		•	•	•			FL	The most expensive base!
•			•	•	•		•		•	•	•		•	FL	Report May '82
•		•	•	•	•		•	•	•	•	•		•	FL	Report May '82
•			•	•	•		•	•	•	•	•		•	FL	New base from Harvard
•			•	•	•		•	•	•	•	•			FL	Cheapo base
•	•		•	•	•		•			•			•	-	JWR
•			•	•	•		•		•	•				FL	MIDLAND
•			•	•	•		•		•	•				FL	MURPHY
•			•	•	•		•	•	•	•	•			FR	SPIRIT
•		•	•	•	•			•	•	•				FL	WAGNER

Why not get out and about with a portable rig? Not only is it fun, there's fresh air too.



SQUELCH	NB SWITCH	ANL SWITCH	MIKE GAIN	RF GAIN	STONE CONTROL	S/RF METER	S/RF LED R/O	HI/LO OUTPUT	PA FACILITY	EX. SPEAKER JACK	TX IND. LIGHT	RX IND. LIGHT	CH 9 SWITCH	MIKE POSITION	COMMENTS
•											•			-	BEAR
•							•		•	•	•			-	BINATONE
•														-	DNT
•														-	Report June '82
•														-	ELFTONE
•														-	ELFTONE
•														-	HARRIER
•											•			-	HARRIER
•														-	HARVARD
•					•									-	Report April '82
•											•			-	HARVARD
•											•			-	HARVARD
•						•			•	•	•			-	HARVARD
•						•			•	•	•			-	KAISER
•							•		•	•	•			-	MAXCOM
•							•		•	•	•			-	MIDLAND
•					•		•		•	•	•			-	TANDY

ANTENNA CHECKLIST

Here's a brief intro

Name

All antennas have a number or name. Or both. Here we tell you what it is.

Construction

Most mobile antennas are made of stainless steel and most home based ones are made of aluminium. This is not always the case though. There are fibre glass mobiles

The Home Office specs for CB antennas are lean and bordering on the mean. Still within that basic framework manufacturers have come up with some good designs. This newly laid out antenna checklist should help you

NAME	ADDRESSES	MODEL	CONSTRUCTION	LENGTH	MAX POWER	TYPE	MOUNT	PRICE RANGE
ALLCOM		DPA 2LUK	AL	1.5	100	M	-	E
AMSTRAO	Amstrad Consumer Electronics, 1-7 Garman Rd, London N17	CBA 1500	SS	1.5	-		Various	C
ANTENNA INC.		12510 Telecomm	SS	0.9	-	M	3/4ths	D
		Super Persuader	SS	1.5	-	M	Mag	F
		MR511	SS	1.2	-	M	Mag	G
		M710	SS	1.5	-	M	3/4ths	G
		AS M125	SS	1.14	150	M	3/4"	C
		AS M128	SS	1.14	150	M	-	C
ANTENNA SPECIALISTS	Antiference Ltd. Aylesbury, Bucks HP19 3BJ	AS M131	SS	1.14	150	M	gutter	D
		AS MR 440	SS	1.2	100	M	mag	D
		AS MT 178	SS	1.2	160	M	mag	D
		AS M510	SS	1.2	200	M	3/4"	D
		AS M2000	SS	1.5	150	M	3/4"	D
		AS 9812	SS	1.2	160	M	mag	D
		IC 85	SS	1M	-	M	mag	D
		IC 80	SS	1M	-	M	mag	E
		IC 15	SS	1	-	spring-based mag trunk	C	
ANTLER	Shakespeare. Performance Antennas, Batton Rd, Market Drayton, Salop	IC 20	SS	1 1/2	-	M	roof	D
		IC 30	SS	1	-	M	gutter	D
		IC 40	SS	1 1/2	-	M	mirror	E
		IC 80	SS	1 1/2	-	M	mag	D
ARCHER	Tandy Corp., Tame Way Tower, Bridge St, Walsall, W.Mid.	21-904	SS	0.5	50	M	3/4" snap	D
ARMSTRONG	Stateside Trading Ltd., Audley Ave, Newport, Shropshire.	SAM 10	SS	1.06	1,000	M	surface	F
		SAM 20	SS	1.06	1,000	M	surface with spring	F
		TAK 10	SS	1.06	1,000	M	boot lip	F
		TAK 20	SS	1.06	1,000	M	boot lip with spring	G
		MAG 10	SS	1.06	1,000	M	magnetic	G
		MAG 20	SS	1.06	1,000	M	magnetic with spring	G
		BDY 20	SS	1.06	1,000	M	side & fold over & quick disconnect	G
		PEC 20	SS	1.06	1,000	M	side & fold over & quick disconnect	G
		TAK 101	SS	1.06	1,000	M	boot lip illuminator	G
AVANTI	Avanti, 132 Penistone Rd Nth, Sheffield, Yorks.	AV 241 (Moonraker)	SS	1.22	-	M	stud	D
		AV 241 T	SS	1.22	-	M	trunk	E
		AV 241 M	SS	1.22	-	M	mag	E
		AV 241 MM	SS	1.22	-	M	super mag	G
BADLAND	Badland, Roeten Ind Est, Providence St, Lya, Stourbridge.	B10	SS	1.22	-	M	mag	G
BANDIT	Bandit, Rougham Ind Est, Bury St Edmunds, Surrey.	810	SS	1.42	-	M	mag	G
		815	SS	0.61	-	M	mag	F
		815	SS	1.22	-	M	mag	F
		820	SS	1.42	-	M	mirror	F
		830	SS	1.42	-	M	drill-thru	E
		830	SS	1.22	-	M	drill-thru	E
		840	SS	1.42	-	M	various	D
		840	SS	1.22	-	M	various	D
		850	SS	1.42	-	M	various	D
		860	SS	1.22	-	M	various	D
				860	SS	1.22	-	M
C. BRIT	C Brit, Unit 3, 5 East Lane, Wembley, Middx.	Stingray Whiplash	AL	1.5	500	B	pole	H
			SS	1.5	25	M	3/4"	C
CT INTERNATIONAL	CT International, CTE (UK) Ltd Unit 3, Mitcham Ind Est, B5 Stratham Rd, Mitcham, Surrey.	MG27	SS	0.91	-	M	mag	C
DIAL-A-MATCH		Rubber Duck	R	0.3	-	M	3/4"	C
		530 (Cherokee)	SS	0.61	-	M	-	F
		531 HBF	SS	0.61	-	M	-	F
		531 SMF	SS	0.61	-	M	-	F
		540	SS	1.22	-	M	-	E
		541 HBF	SS	1.22	-	M	-	E
		541 SMF	SS	1.22	-	M	-	E
		520 (Halfbreed)	SS	1.27	-	M	-	E

duction to the world of antennas and what we tell you in our checklist.

and stainless steel home based antennas.

Length

The longer the better is always my motto. As long as it's not over 1.5 m. Otherwise it's illegal. We tell you the exact length.

Maximum power

This is given as a guide only. The law allows for a maximum

two watts. However, the higher the maximum power figure given the sturdier the antenna will be.

Type

It's no use buying a home base antenna if you want to use your rig from the car. We tell you which are which Mobile or Base. At the moment the number of mobile

antennas far outweigh the number of home based ones. But there are more and more home base antennas coming onto the market.

Mount

The majority of mobile antennas are held in place by a magnet — these are called mag mounts. Others are attached by means of a clamp

to the boot or edge of the roof. Some are drill-through antennas which are just the same as normal car radio aerials.

Home based antennas are poles, tripods or gutter mounts. Tripods are free standing and gutter mounts are attached in a way similar to trunk or bootmounts.

Key:	C: £10 - £14.99	G: £30 - £39.99	AL - Aluminium	B - Base
Price Bands	D: £16 - £19.99	H: £40 Plus	FG - Fibreglass	
A: £1 - £4.99	E: £20 - £24.99	Construction	Application	Note: Prices are given as a guide only.
B: £6 - £9.99	F: £25 - £29.99	SS - Stainless Steel	M - Mobile	

NAME	ADDRESSES	MODEL	CONSTRUCTION	LENGTH	MAX POWER	TYPE	MOUNT	PRICE RANGE
DIGITEK UK LTD	179-181 Streatham Rd, Mitcham, Surrey	Falcon 27	SS	1.5	-	M	various	D
DIXONS	Dixons Photographic	Harrier	SS	0.9	-	M	Mag	D
HOT ROD 200	Hot Rod 200, Stateside Trading Ltd, Audley Avenue, Newport, Shropshire	FM UK	SS	1.27	-	M	3/8ths	B
FREEMAN & PARDOW	Freeman & Pardow, Tything Rd, Arden Forest Ind Est, Alcester Warwick	The Invader	AL	1.5	250	B	pole	E
		The Thunderpole	A1	1.5	500	B	pole	F
K40		K40	SS	1.4	500	M	various	F
CB SERVICES	97, Crab Lane, Harrowgate, N. Yorks HG1 3BQ	Bullwhip	SS	1.5	-	M	various	C
		Knucklebuster	AL	1.5	-	B	-	D
MIDWEST		Dial-a-tune	SS	0.61	500	M	various	C
		Dial-o-tune	SS	1.22	-	M	various	D
MOCOM	Mocom, Moto Communications Ltd, 140 Sandy Lane, Camphill, B'ham	Revco	SS	1	-	M	various	B
MOTOROLA	Motorola, Taylors Rd, Stotsold, Hitchin, Herts.	EC108M	-	1.5	-	M	-	F
PAN INTERNATIONAL		Pen Mobile 200	SS	1.26	-	M	clamp	-
PANORAMA	Panorama, 73 Wadham Rd, London, SW 15 2LS	CB27	-	1.22	-	M	mag	B
PRIDOW		KT40	SS	1.5	-	M	trunk	C
SHIRA		SYS 206M	SS	1	-	M	mag	C
		SYS 203C	FG	0.75	-	M	trunk	C
		MA 62	-	0.91	-	M	-	C
SIRTEL	Sirtel, 24 Alfrie Sq, off Maxwell Rd, Woodston Ind Est, Peterborough.	GP Messenger	SS	1.5	-	B	clamp	E
		GP Signal Keeper	SS	1.5	-	B	tripod	F
SMC	Oscar, South Midlands Communications, Osborn House, Totton, Southampton, SO4 4DN	Oscar Base CBA 11GP	SS	1.5	-	B	-	F
		Oscar Base IIVIS	SS	1.5	-	B	-	F
		Oscar IICM	SS	1.2	-	M	mag	D
		Oscar IICE	SS	1.2	-	M	foldover base	B
		Oscar IINE	SS	1.5	-	M	'pull-up' foldover base	C
		Oscar IISE	SS	1.5	-	M	'locking-coffer' foldover base	C
Oscar TMCAS	SS	1	-	M	trunk	B		
SPYDER		Spyder	AL	1.5	-	B	pole	B
TAGRA	Europasonic (UK) Ltd, Britannia Works Building, Sherbourne St, Manchester	T40	SS	1.4	500	M	various	E
THOROBRED	ZL Communications, Cantley, Nr Norwich, Norfolk	251	SS	1.5	-	M	various	C
		Z27	SS	1.5	-	M	3/4"	B
		Locktune	SS	1.5	-	M	various	C
WITCHSTICK	CJM Motor Factors, Hill Farm Ave, Loeveston, Watford, Herts. 09273-73646	Witchstick homebase	AL	1.5	-	B	-	E
WTA ELECTRONICS	111 Cromer Rd, Halesdon, Norwich, Norfolk	Wot Pole	AL	1.5	-	B	pole	C
		Wot Mag	SS	1.5	-	M	mag	C
VAN ORDT	Van Ord, Knight CB Specialists, 204 Dunstable Rd, Luton, Beds.	Audio King AK0-100	SS	1.5	2000	M	3/4"	G

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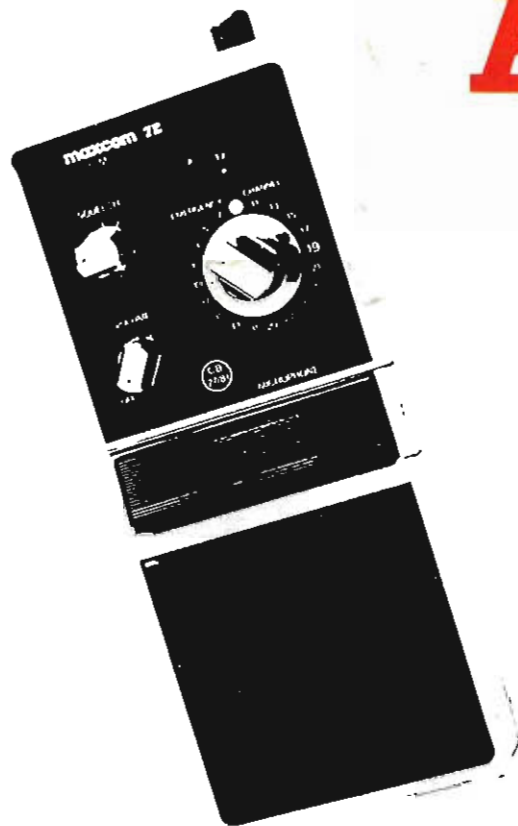


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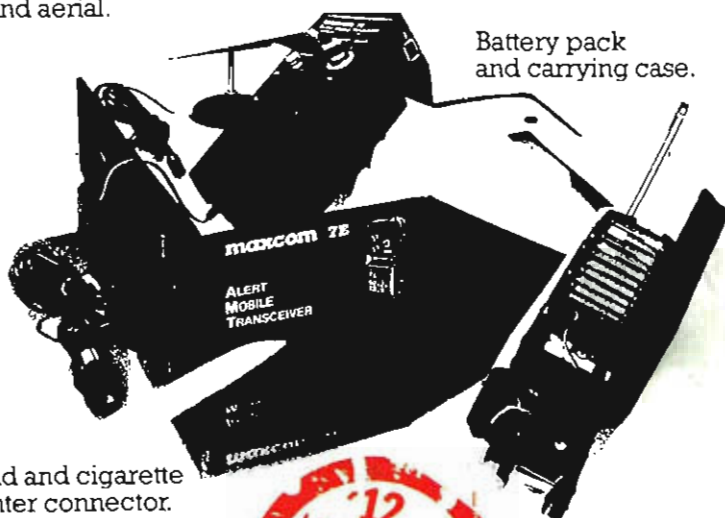
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