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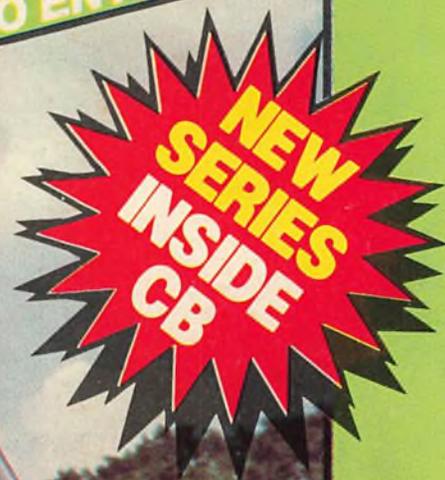
JANUARY 1981



50p

Citizens' Band

THE MAGAZINE FOR THE TWO-WAY RADIO ENTHUSIAST



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The eyes and ears of
the CB scene

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Base Station Power Supply project
R/C Modellers and CB

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MACK CHAT READERS LETTERS

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By Noel T. Smith

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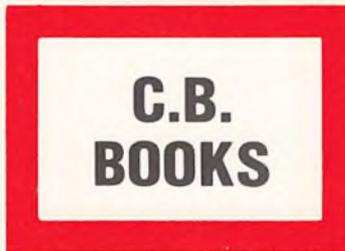
Kneitel

CBers' SSB HANDBOOK

By Tom Kneitel, Editor of CB Radio/S9 Magazine

Prepared by the famous "TOMCAT" of CB Radio/S9 Magazine and a leading CB communications authority, this book familiarises the CB operator with sideband — a rapidly growing aspect of CB communications. It explains in layman's terms what sideband is, how, when, and where to use it to increase communications' range and enjoyment from CB radio. It even tells how to buy the equipment to get the most for your money and how to build some experimental antennas to expand output.

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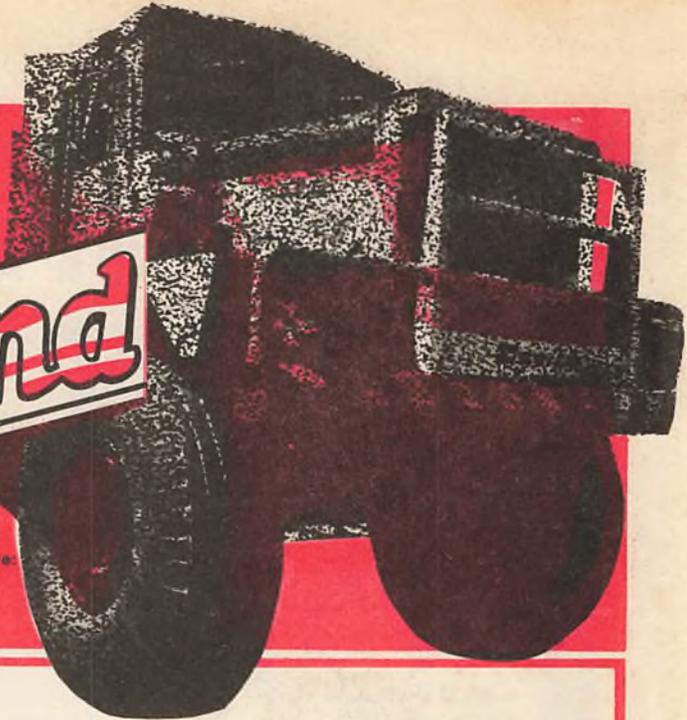
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Volume 1 Number 2

CB Citizens' Band

Editor:
Rick Maybury
Group Art Editor:
Paul Wilson-Patterson

Advertisement Sales Executive:
Roy Perryment
Managing Director:
T.J. Connell



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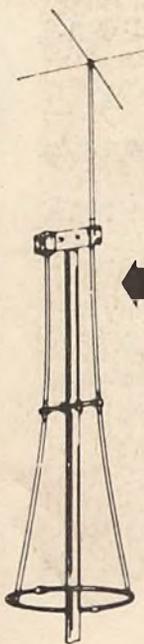
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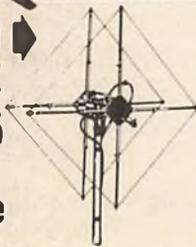
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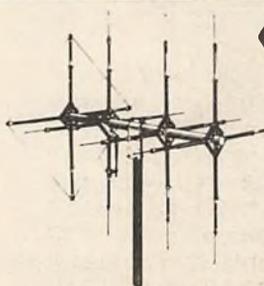
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EDITORIAL

Firstly, thank you for picking up issue number two of Citizens Band, I hope you make a habit of it. Seriously though, many of you have commented on the first issue and I'm happy to say they were almost unanimously favourable – those that were not have been noted and we'll try harder next time. One of the major observations on the first issue concerned our policy of not duplicating material, by that I mean we are trying to avoid repetitious articles on slang, codes, American rules and regulations and generally keep our contents as original as possible. With this in mind we have decided to 'specialise' on certain subjects. Our technical background allied with our overseas connections in Australia, North America, Holland and Germany enable us to keep in touch with developments all over the world. To this end we are able to publish articles and reports on CB equipment plus a regular monthly project aimed directly at the two-way radio enthusiast. Of course this does not mean we will ignore the UK CB scene, in fact we confidently predict our coverage will be second to none. As you may have seen last month we have the most comprehensive list of CB clubs and starting next month we shall have reports from clubs up and down the country. Our roving reporters should be in attendance at all the major demonstrations and our close ties with official bodies etc enable us to bring you the very latest news on the legalisation front.

OK, enough trumpet blowing, time for a look at what's on offer this month. In the centre pages you'll find part one of our new regular series 'Inside CB'. Not everyone knows, or wants to know how a radio communication system works but we hope to bring some of the more baffling aspects of the technical side of CB down to earth. Our project this month is a very stable Base Station Power Supply. For less than £20.00 and a little know-how you can put this unit together in just a couple of hours and end up with a high quality power supply that would cost considerably more to buy over the counter. From the phone calls we received last month we know that the idea of presenting a project is very popular indeed. On the Soapbox month's this is a well known R/C modeller they are one section of the population that have a genuine grievance with CB, see what Pete Christy has to say on the subject.

I could go on but I'm sure you'll read the rest for yourself. I sincerely hope you'll pick us up next month, until then it only remains for me to say: Stay Lucky. (I refuse to say Breaker Break and all the high numbers, I'm sure we can come up with something better than that. How about it?)



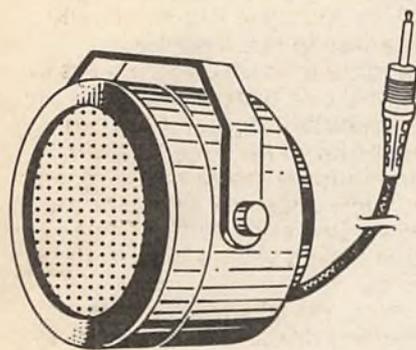
Rick Macey

UPDATE

News from the world of CB

Coming Soon

We are quite privileged here at CB to receive press releases from a number of American CB manufacturers. By far the most prolific is Firestik who bombard us with news of forthcoming products. This month's offering is a very impressive miniature



weatherproof speaker. Frequency range for the 'Speak-Easy' is an impressive 300 to 10kHz which makes it ideal not only for CB but FM and AM car radios. Being weatherproof the Speak-Easy can be mounted almost anywhere on cars, vans, even motorcycles. We haven't got a price as yet but you can be sure that one company in Shepperton will be offering this device for sale in the next few weeks.

Strange Customs

Sharp-eyed readers may have noticed a little item in the national press a couple of weeks ago concerning the annual tally of seizures of contraband by the gentlemen from the Customs and Excise. Amongst the tons of marijuana and thousands of pornographic magazines there was a little note about some two and a half thousand illegal radio sets. It's a fair bet that most of these are CB rigs, what we want to know is what are they going to do with them? We know one or two people that would offer them a fair price!



Mick and Steve Dingley at Globe Communications

Cheap And Cheerful

Waltham Forest is rapidly becoming the North East London centre for CB accessory dealers. One new CB accessory shop, opened within the last two months has already gained a reputation for the lowest prices in London. Globe Communications, well known locally for TV aerial installations have an impressive range of antennas, test equipment, mikes and all manner of bits and pieces, all well below normal prices. The shop is run by

Mick Dingley and Jack Glover and ably assisted by Jim Wild and Mick's son Steve. Globe are also specialising in CB antenna installation, they know a thing or two about installing TV aerials after all. You can find Globe in Hoe Street, Walthamstow, number 110 to be precise, and that's about half a mile from Walthamstow Central station. Why not drop in and have a look, we're sure you'll be impressed. Don't go on a Saturday, though, you can't get near the place!

New Shop

Possibly the most unpronounceable name we've ever seen, that's the place where you'll find Jason Ekelectronics. John Barrett is the guv'nor and if his price list is anything to go by, he has a pretty impressive selection of goodies at very reasonable prices. Now for the address: it's Freepost, Amlwch, Gwynedd, LL68 9BR.

Oops!

The SWR Meter project has been very successful but there was a couple of small points to watch out for. The capacitor C5 on Fig 1 was shown back to front. The 35 gauge wire we specified for T1 may be a little difficult to obtain, substitute 28 swg and decrease the number of turns to 36.



CB stocking fillers

With just a few days to go before Christmas (depending when you buy this mag of course) you may be interested in some new lines from good old Wintjoy down there in Shepperton.

First away is one of those rather annoying sound effect generators variously known as 'Tweety Birds' or 'Lazars'. This one is actually called 'Fun Tones' and comes in two styles, single or double tone. These very neat little units fit to almost any PA system (etc) with just three connections to battery and microphone. Sound effects include American Police type siren, 'Star Wars' laser gun effects and up to fifteen equally irritating noises. They're all guaranteed to lose you friends on channel and upset the local constabulary if you attempt to substitute a Fun Tone for your conventional motor horn. Prices for these units are: £8.50 for the single tone and £10.00 for the double. Add VAT to both of these prices.

Now the rest of Wintjoys offerings are somewhat unusual in that they are CB accessories accessories. Confused? Well, read on. In the picture opposite we have (deep breath): Official CB Notebook £1.75, Official CB Logbook £1.50, Stick It Up Kit 50p, CB Rubber Stamp 65p, CBER's Kneeboard £1.25, The Complete CB Copy Kit (kit containing a selection of items) £1.75, CB Stationary 65p, and our favourite, the Official CB Crossword Book for Big Dummies and the Official CB Colouring Book, 50p each. The last of these items, the colouring book actually has a rather good cardboard cut-out rig for the kids to make. All ideal stocking fillers and legal too! All of these, many more similar goodies can be seen at Wintjoy Ltd, 103 High Street, Shepperton, Middlesex.

New Books

No less than five new CB books have been sent for review this month. They are all of American origin and are all published by Hayden, one of America's largest technical book publishers.

First away is CBER's Wordbook (ISBN 0-8104-0765-5, £2.45). You can pretty well guess what this book is all about, it's another CB dictionary. Not really too much to say about this one. It's very American and generally not very applicable to this side of the Atlantic-enthusiastic dictionary collectors only.

Number two is a lot more promising. This is called CBER's Factbook. It comes from the pen of one Noel T. Smith (ISBN 0-8104-0787-6 £2.99) and is a competent guide to all aspects of CB operation, installation and procedures. Again this book is heavily biased towards the American CB scene. Quite frankly it is a subject that has been covered so many times before, but it may be of interest to 'first timers' who are still a little vague about some of the finer points of CB.

Third book comes from Tom 'Tomcat' Kneitel and is called CBER's SSB Handbook. (ISBN 0-8104-0857-0, £4.25). This of necessity a very specialised book dealing with all aspects of using single sideband CB equipment. As most of you will know, SSB modulation can be used to communicate over very long distances and is a subject that has been largely ignored this side of the big pond. Many of the techniques used in SSB communication are more akin to Amateur Radio so this book may well be of interest to the many 'hams' who use the slightly higher frequency 28MHz (10 metre band).

Now for book number four. This is called Practical CB Radio Servicing and is written by R. R. Freeland (ISBN 8-8104-0869-4, £5.35). This book is spoilt by the rather outdated technology used to illustrate the techniques employed in fault-finding and repair. Many of the circuits shown use valves and discrete transistors. In its favour it does explain in a very down-to-earth way how to isolate tricky faults. The book is quite technical in nature and would only be of interest to someone with a good grounding in electronic theory.

Lastly we have book number five, the best of the lot. This is called Modern CB Radio Servicing and is written by Marvin Hobbs (ISBN 0-8104-0865-1, £4.60). In contrast to the previous book this one is bang up to date. It deals with modern micro circuit techniques, covering transceiver alignment, troubleshooting and a very good section on fault-finding microprocessor/digital-based rigs. All in all a very worthwhile addition to the electronically disposed CB enthusiast.

All of these books are available from NIC, 61 Broad Lane, Tottenham, N15 (phone 808 0377).



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- SOUTHAMPTON: Anglesa Car Radio Ltd, 23-27, Church Street, Shirley, Southampton, 0703 779013-4
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Mack chat

Mack The Hack has had a busy month. Find out here what he's been up to in this month's Mack Chat.

I'VE HARDLY BEEN out of my home base 20 since the first issue of 'Citizens Band' appeared on the newsagents shelves. I opened my copy and found myself staring at a very good likeness of me at the head of my column. 'Oh gawd,' I cried. My XYL came over to see what had driven the blood from my face, leaving me quite faint. Looking over my shoulder she casually remarked 'That's a nice picture of you in the magazine.'

I have visions of all the nasty 'breaker takers' with my picture taken from copies of CB (*I hope they buy them - Ed*) plastered on the dash of their mobiles. Written underneath would be something like 'Must be taken alive. Reward, of one new pair of jackboots, new batteries for CB monitor, and a written chitty for permission to grow a Hitler-type moustache to the apprehender of this naughty CBer.'

But fear not fans and readers, since going to ground I've grown a beard, had contact lenses fitted, dyed my hair, and had one inch chopped off my leg so that I now limp.

Saturday, 15th November, 1980, at 11.40 am. CB for me stopped being a toy and became a life-saving instrument.

I was mobile on the 'Super Slab 4' (M4) west bound heading for the 'Birdcage.' It was raining, and I was doing about 45 mph. On the East-bound side of the slab the traffic was tailing back about a mile from the Chiswick elevated section due to roadworks. About a quarter of a mile ahead on the East bound side, I saw what looked like clouds of smoke, and as I approached this was what I saw:

The smoke came from a coach. People and smoke were pouring out of the coach. The front of the coach was embedded in the rear of another coach. People were on the motorway, some walking some running, others just standing around. Unidentifiable objects were lying in the

road. I felt for an instance completely helpless until, sub-consciously, I found my mike in my hand. "One four, one four for a 10-33" . . . No reply except for about 3 pounds of 'skip.' Damned skip. "One four, one four for a 10-33." Still nothing, change to channel 9. "10-33, 10-33, channel 9 . . ." My modulations fell on deaf ears. Where were all these breakers that were supposed to monitor the channels for 10-33s? Back to channel 14 and I heard with a 10-1 signal. "The breaker with the 10-33 come back."

"One four with a 10-33 do I have a base station with land-line?" The other breaker came back a little stronger "Base station . . . Heston, give me 10-33 details" I found myself breathing normally again. "10-33 on Eastbound super slab, coach crash about 1 mile from elevated section. Do you copy?"

"10-4 breaker I copy that dialling 999 now."
And that was that.

I stayed on channel 14 but I heard no more as by now I had put some distance between myself and the 10-33.

I don't know the outcome of my 10-33, but high numbers to the breaker that took the call. No handles were exchanged and if that Heston breaker copies this I would appreciate to hear from him about the outcome of this incident via this mag.

Rumours

"Copy, copy on ya loose goose, let's clear the breaker channel, take it to one six that a Rodger?"

"Er." Hesitation.

"Negatory take it to one seven."

"Yea Roger see you there."

"Copy on one seven?"

I go back puzzled.

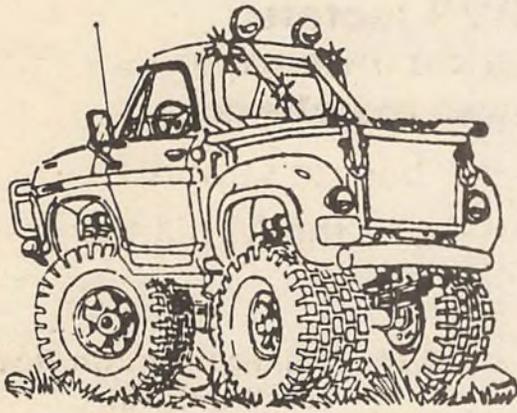
"Copy loose goose what was wrong with one six come on?"

"I hear that channel on six is the 'Gay people's' breaker channel in this area, that a 4?"

I know we hear lots of rumours on channel about all sorts of things, but that one I nominate as 'Rumour of the month.' I thought he sounded like a nice boy.

Hey Ed, how about a rumour of the month spot??
(*You got it, Mack - Ed*)

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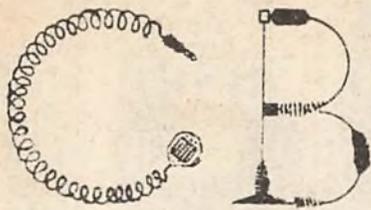


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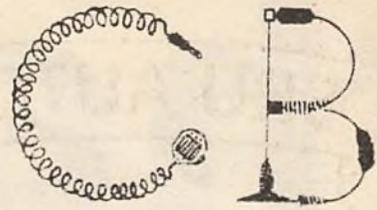


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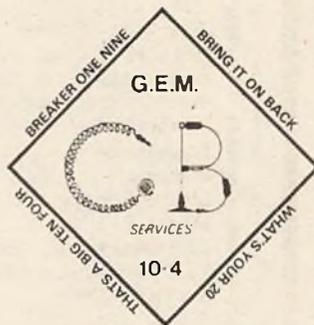
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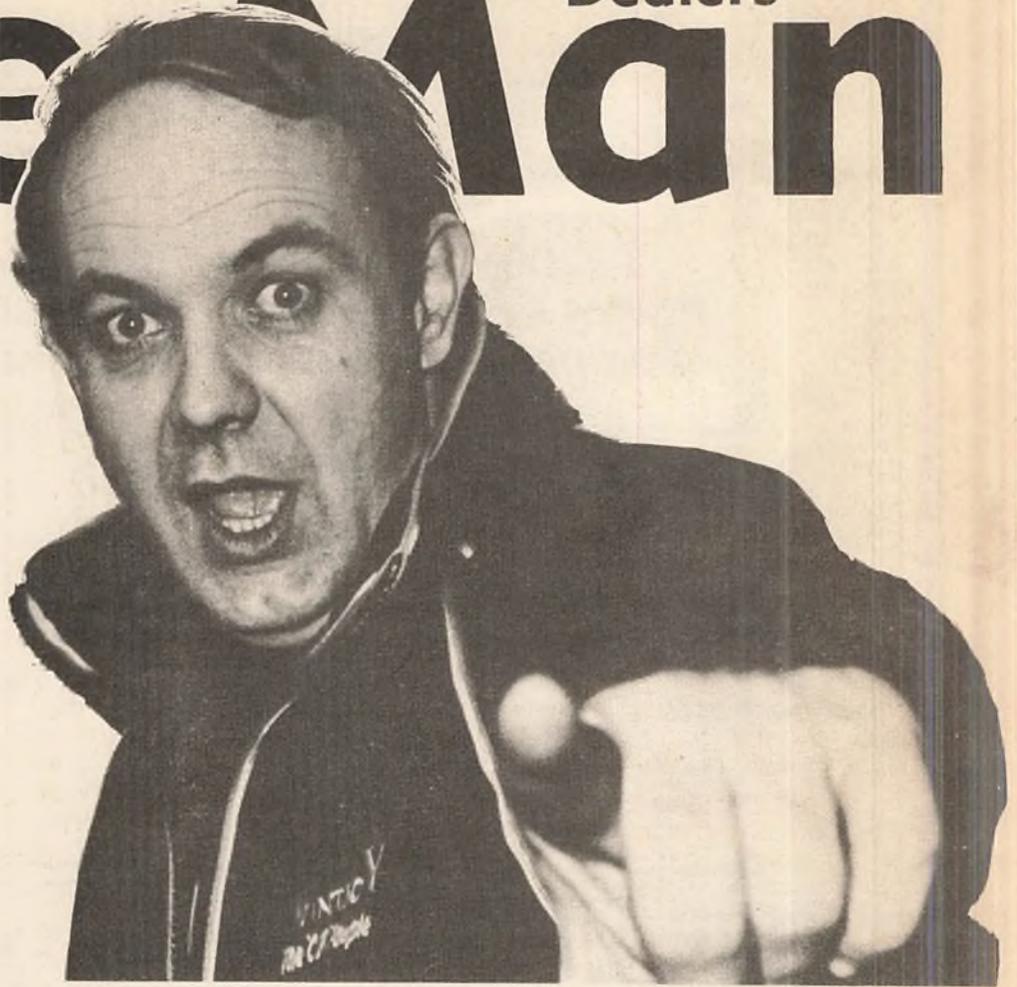
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Talkin' To the Man

Accessory
Dealers —



If anyone in this country is qualified to talk about CB accessories it has to be 'Gentleman' Glyn Hall of Wintjoy Ltd. We managed to get Glyn into the CB office long enough to ask him a few questions.

CB. Tell us about Wintjoy Glyn, when did it all begin?

GLYN. Wintjoy was born in November of last year. We had our first birthday on November the 11th. That just happened to be Rhodesian independence day, it's called some other name now, but we don't talk about that.

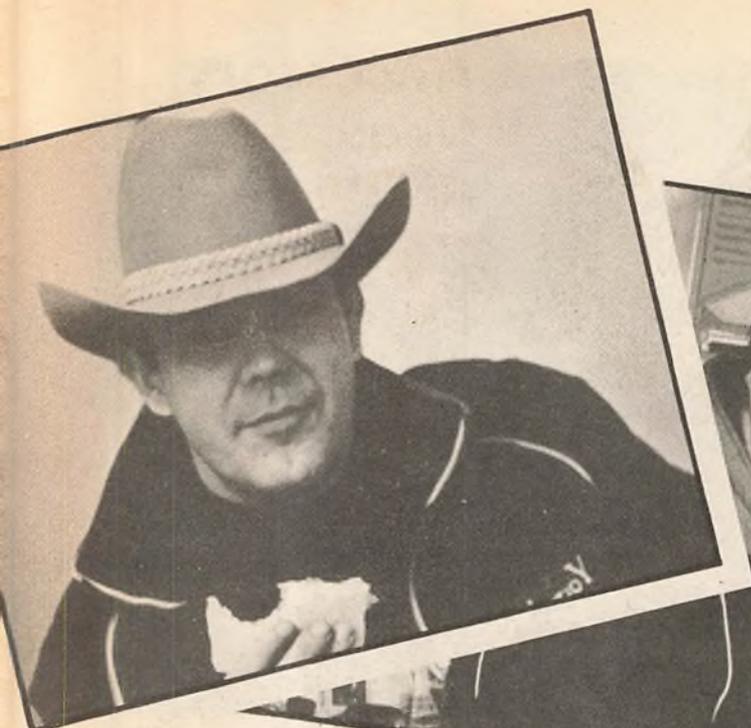
The idea came after a few trips to the continent when I was wheeling and dealing out of the back of a car, selling CB accessories. I hasten to add it was only accessories. At that time CB was a big rip-off, so I decided to do something about it.

CB. What was the first accessory you ever sold?

GLYN. A DV27 I believe. I brought it from a dealer in this country for the princely sum of £12.50 trade. The trade price is considerably lower these days, obviously (*modest grin on Mr Hall's face*). I sold it for £15.00 because I felt £18.50, which was the going price then, was a bit high.

CB. How has the accessory scene changed over the past year or so?

GLYN. It's changed a great deal. The market and the competition has become stiffer, which can't be a bad thing. Virtually every type of accessory is now available in this country. There's some very, very good products coming into this country from the USA and the continent. Equipment is starting to creep in from Taiwan and Japan. Although they haven't got the best name in the world, some of their stuff isn't too bad.



JR or GH?

CB. What impact has the CB scene in this country had upon the equipment manufacturers?

GLYN. A lot. One example is the Elenco monitor that was a special offer in your sister magazine Hobby Electronics. The production line had in fact stopped. The first Elenco monitors in the country were the last batch made. The large orders gained from the special offer made the Elenco company re-start their production line.

CB. How much of your equipment is actually made in the States?

GLYN. I would say around 80% of my stock is made in the USA. I've tended to keep away from the cheaper lines, basically because I've found the reject rate far too high. As much as 50% on some products.

CB. Are any of your products made in this country?

GLYN. There are people who are looking into it. At the moment British companies cannot compete with prices. Just recently I was offered a test meter for £30. I was already getting a superior meter from the States for £7.00. I think this illustrates exactly what I'm saying.

CB. Do you think there is a place for British manufacturers of CB equipment?

GLYN. There definitely is. But they are going to have to re-think their strategies. Instead of talking about thousands they must think in hundreds of thousands. think big.

CB. What is the most popular piece of equipment that you sell?

GLYN. At the moment, it's the Firestik antenna.

CB. What's the most impressive accessory you sell, from the technological point of view?

GLYN. I suppose the scanners from Realistic, I've got some very big receivers. (*Boasting again*—Ed.)

CB. How about telling us which antenna you think is the best on the market.

GLYN. This is a question I get asked in my shop time after time. I think it should be re-phrased to; 'Which is the best for me?' If you think about it, a Mini with a seven foot Firestik does tend to look a bit odd. You've got to decide exactly what you want. Do you want a disguised antenna or one that really gets out? The choice is up to the individual.

CB. OK, but which one has sold the most?

GLYN. Without doubt the DV27 and the K27, both from HMP.

CB. How about base station antennas?

GLYN. I'd say the Starduster is the most popular for outdoor use. Indoors it's the Firestik, well you should know that from last month's *CITIZENS BAND*. The Shakespear Big Stick is also very popular.

CB. what are the most frequently asked questions.

GLYN. Um, well there's two really. The first is general advice on antennas. The second is basically suppression of interference. This is not just on CBs but radios, TVs and Hi-Fi's. This is one side of CB that I feel has been a bit neglected. As the CBer becomes more conscious of what CB is really all about they have tended to become perfectionists and want to get rid of noise and static caused by the car's electrical system. We have sold dozens of copies of a cassette tape that helps identify the different types of interference. Everything from windscreen wiper motors to; I think they call it 'Interference from television', 'I don't want to call it ITV 'cos I'll get shot. In the States I believe some TV sets can actually interfere with CB. Over here there's all sorts of new accessories designed to get rid of just every kind of interference. Some new 'stackable' TVI filters have just arrived. If you can't get rid of the problem with one you just clip another one on top. We've got suppressors for Hi-Fi's, spark plugs, compressors, windscreen wipers, you name it we can suppress it. There's not much noise you can't get rid of these days.

CB. What percentage of your customers ask if you sell rigs?

GLYN. We get a lot of requests for CB rigs, basically they are the uninitiated, they tend to not know where to go, because we are an accessory dealers they feel we might sell gear.

CB. Do you ever receive complaints or criticism about the fact that the equipment you sell is used to break the law?

GLYN. So far I've only had one complaint, and that was tongue-in-cheek, (I think). It was from the Editor of a well-known electronics magazine, one of your competitors actually. He called me immoral.



Brigitte, Debbie and Glyn, does he bribe them to work for him?

CB. Are any of your customers Radio Amateurs?

GLYN. Yes. Radio Amateurs or Hams tend to regard the CB market as a source of cheap accessories. Their hobby overlaps to a degree with CB. Much of the equipment can be used in both applications. For instance a PL259 VHF/UHF plug costs upwards of 75 pence in amateur radio shops, most CB shops charge less than 50 pence.

CB. How about the 'Radio Modellers, any comments on their problems?

GLYN. I've a very good relationship with the R/C modellers in my area. I've spoken to them, via their shops. Generally, if there is a problem they will phone me or drop in and say: 'CB'ers are causing problems'. I usually get in touch with one of the local CB clubs, tell them what the problem is and generally it's cleared up straight away. It's very rare in our area and we are trying to avoid problems.

CB. What effect has the Open Channel document had on your sales?

GLYN. Not a lot, people have tended to say they'll stick with CB on 27 megs because it's the frequency that they know. Overall I suspect that sales have increased, mainly due to the growth in the number of shops selling CB accessories. They have seen that CB is

here to stay. For some unknown reason October was very quiet, all of the dealers I've spoken too have noticed this, sales are picking up again now though.

CB. How do you see CB on 928 MHz?

GLYN. I don't quite honestly. I've seen documented proof from the States on the cover-ups made by manufacturers regarding the health hazards. By cover-ups I mean people being paid out of court settlements etc, and quite honestly, 928 to me stinks.

CB. How about the alternative proposal for 41 to 49 megahertz?

GLYN. The 49 meg band isn't really in contention here. The National Committee (NATCOLCIBAR) is looking at 41 to 47 megs. 49 megahertz is widely used in the States for very low power walkie-talkies. Most of the existing test equipment used will work on this frequency. I'm quite open about this proposal.

CB. What is the greatest problem, from your point of view, in selling CB accessories?

GLYN. None really. Basically I've kept my house clean, I think that's been respected by the authorities, I've haven't really been bothered at all. I've got a very good working relationship with the Customs and Excise, ie I pay my VAT on time. I've had a couple of visits from

them. One was over a legal amateur rig that I imported. The company I had paid duty to had gone bust and I had to re-pay the duty. The other visit concerned the Customs and Excise who were rather upset over one of their fellows being nearly run over. As it involved another dealer, they wanted just to see his invoices, it was all quite amicable.

CB. How do you see the future?

GLYN. I see a nice future for 27 megs. I reckon there's just over one million breakers on channel at the moment.

CB. What are your plans for Wintjoy?

GLYN. Well, we have just started a new distributing network, that starts in the new year. This will involve a greater number of our dealers being able to offer trade prices throughout the country, rather than having to come directly to our Shepperton HQ.

CB. We've heard that you're actually exporting to the continent.

GLYN. Yes, we're the sole UK agents for Firestik. There is only one other agent on the continent and at this point in time our prices are better than his. We actually export to other places as well, Africa, and Iceland.

CB. Thank you Glyn Hall and good luck with Wintjoy.

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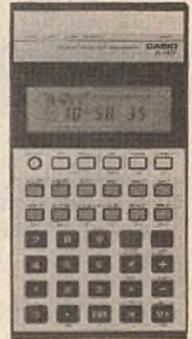
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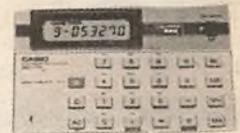
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CONSTRUCTION

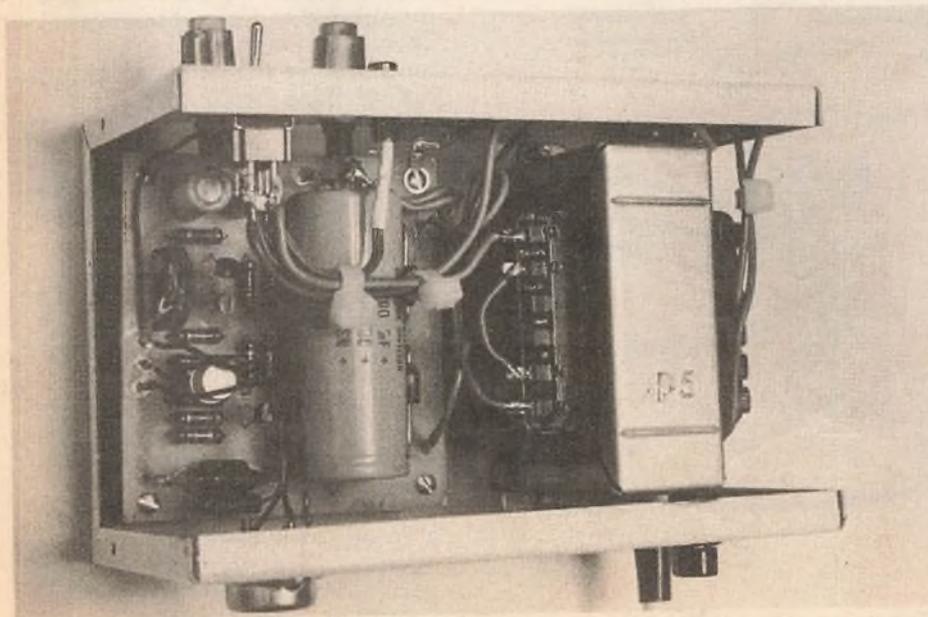
The circuit diagram is shown in Figure 1.

If you have had some experience constructing electronic projects, then you could possibly mount most of the minor components on tagstrips and use direct point-to-point wiring. Another popular method is to mount the components on Veroboard – which will be familiar to most electronic project constructors.

However, the easiest method, that virtually eliminates errors, is to mount the components on a printed circuit board as shown in Figure 3.

The components are inserted into their respective places on the printed circuit board according to the component overlay shown in Figure 2. Insert the components from the side opposite the copper tracks, gently bending the leads as necessary so they fit without strain. Solder the leads in place and then cut off the excess lead wire. Make sure that each soldered joint is secure and properly made – not a 'dry' joint which is unreliable.

It is best to start 'loading' the



Inside the CB PSU showing the mains transformer.

printed circuit board with smaller components – the resistors, diodes and transistors.

The diodes and the transistors are 'polarised' and require the leads to be inserted as illustrated in Figure 2. The correct orientation of the diodes and transistors is marked on the component overlay and you can identify the appropriate leads from the drawings before inserting them.

The 5 watt resistor, R4, and the two small electrolytic capacitors, C2 and C3, should be mounted next on the printed circuit board as they are quite bulky. Leave C1 until last of all.

The three electrolytic capacitors are also 'polarised' and need to be correctly oriented before being inserted and soldered to the printed circuit board. Refer to the component overlay and the component drawings to ensure you put them in the right way round.

All the major components, along with the printed circuit board are mounted in an aluminium box before being finally wired together. This is for safety and convenience as well as giving the whole assembly a neat appearance.

You could, if you wished, wire everything together for a preliminary test at this stage, much as shown in Figure 2. Full current could not be drawn for very long however, as the power

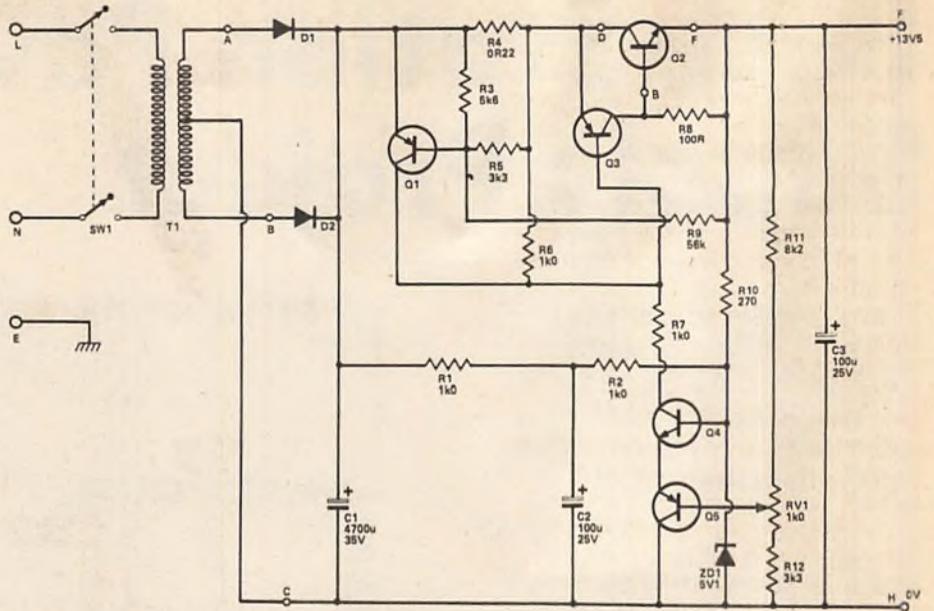


Figure 1. Circuit diagram of the CB PSU.

transistor (Q2) would get very hot.

A simple folded aluminium box was used for this project as it is inexpensive and anything more fancy would be a lot more costly. You can suit yourself on this score, it's not difficult to fabricate a similar box yourself using simple tools and methods.

Final wiring is done once all the major components – transformer, switch, terminals, power transistor, etc. – are assembled in the case.

ASSEMBLY

The case should be drilled first. Positioning of the major components and printed circuit board is not critical. The power cord enters through a hole in the rear of the case, drill this hole to accept a suitable size rubber grommet to prevent chafing or cutting of the power cord. For safety, clamp the power cord inside the case and terminate it to a terminal block as illustrated in Figure 2.

The power transistor, Q2, is mounted on the rear of the case together with a small heatsink. This is needed so that the temperature of the transistor does not increase too much during operation.

The power transistor, Q2, will have to be insulated from the case and heatsink with a mica washer and insulating bushes.

To aid heat conduction, a thin smear of silicon grease should be applied to the case area beneath the heatsink, and on both sides of the mica washer.

When the power transistor and heatsink are assembled, check that the case of the transistor (collector connection), or the emitter and base leads, are not shorted to the chassis.

With the major components assembled into the case, they should be wired together according to Figure 2. Make sure

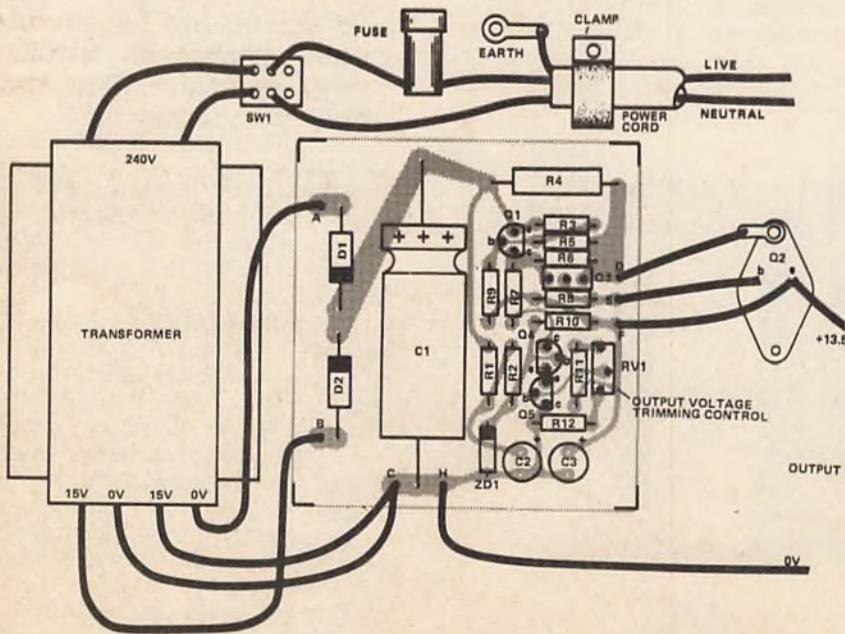


Figure 2. Overlay diagram showing component positions.

you correctly indentify the base and emitter connections for the power transistor Q2.

With everything checked, and when you're sure it's all correctly connected, connect a multimeter to the output terminals set it to a suitable range (like 30 volts or 50 volts), and turn the supply on.

If all is well, the output voltage should read somewhere between 12 and 15 volts. Adjust the output voltage 'trimming' control (see Figure 2) on the printed circuit board so that the output voltage is somewhere between 13 and 13.8 volts.

If, then you switch on, everything isn't all fine and dandy, switch off fast and check the wiring carefully again.

Also check that the components on the printed circuit board are all in their correct positions and that the transistors are all correctly oriented. Check again the connections to the power transistor Q2.

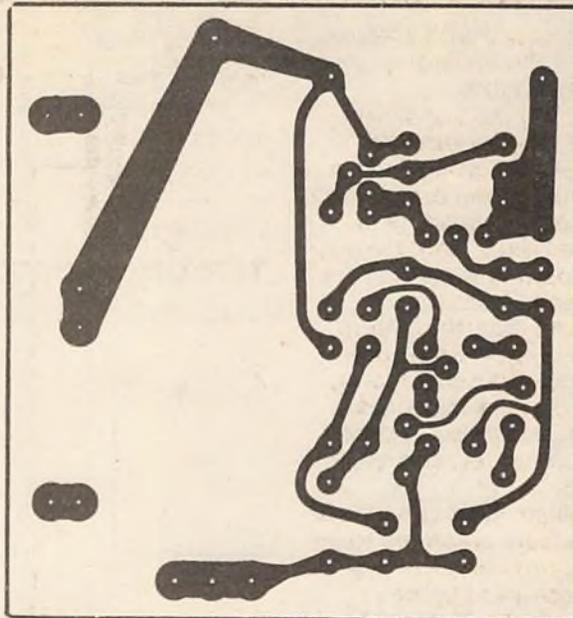


Figure 3. PCB foil pattern for the PSU. If you wish to use a ready-made item for this item see 'Buylinea' for details of a supplier.

Parts List

Resistors all 1/2W 5%

R1,2	1k
R3	5k6
R4	0.22 ohm 5W
R5	3k3
R6,7	1k
R8	100
R9	56k
R10	270
R11	8k2
R12	3k3

Potentiometers

RV1 1k preset

Capacitors

C1	4700µ 5 V
C2,3	100µ 25 V

Semiconductors

Q1	BC558
Q2	2N3055
Q3	BD140
Q4	BC548
Q5	BC558
D1,2	1N5404
ZD1	5.1V 300mW

Miscellaneous

Transformer (see Buy-lines), fuse and holder.
Case, 3 core flex and plug

SPECIFICATION

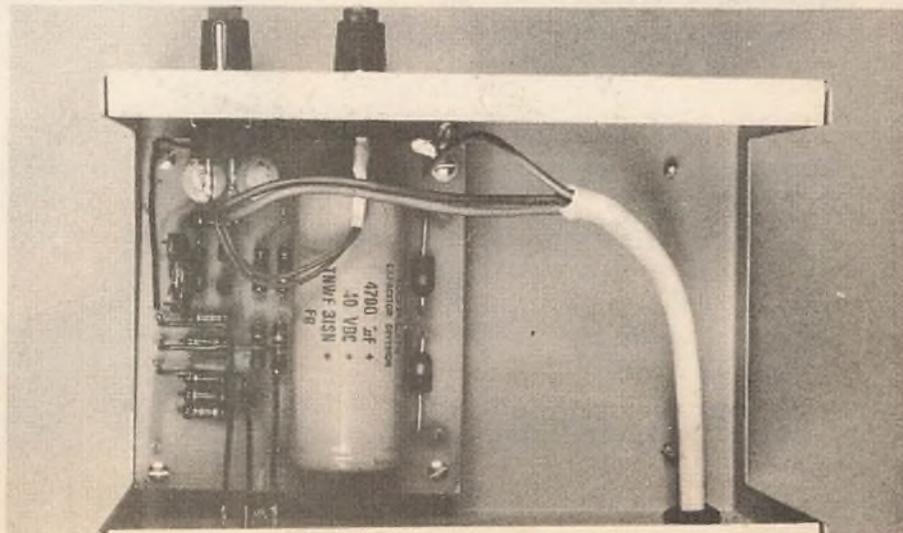
NOMINAL OUTPUT VOLTAGE13.5VOLTS
ADJUSTMENT RANGE12V-14.5V
NOMINAL OUTPUT CURRENT0-3 AMPS
LOAD REGULATION 0-2.5A150mV
RIPPLE @ 2A0.8mV
SHORT CIRCUIT CURRENT1A

Buylines

A complete kit of parts is available from Magenta Electronics for £19.95. Contact them at 98 Calais Road, Burton-on-Trent or phone 0283 65435.

WARNING

This project is mains powered and should not be attempted by anyone not completely familiar with electronic construction techniques.



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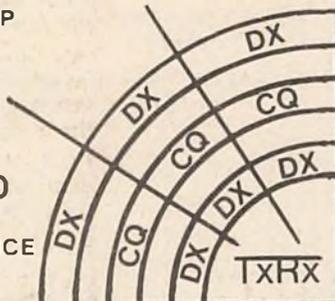


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INSIDE CB

Ever wondered what goes on inside a CB rig? Wonder no more, we have taken the lid off the Jaws Mark II CB transceiver to see what goes on. This very popular little rig uses state-of-the-art technology and is well worth a look. If you want to know how CB works then don't miss this important regular feature.

EQUIPMENT REVIEW

Something different next month. We have been putting the 'Defender' multi-purpose test meter through its paces. This little box of tricks will measure SWR, RF Power, percentage modulation and a host of other critical factors. See what we think of it next month.

CHANNEL CHECKS

Next month we begin a series of short and simple little circuits and ideas for technically orientated CBers to try out. Over the next few months we will have TVI filters, RF power meters, RF probes, loft antennas, in fact dozens of simple little gadgets and circuits that can be built for just a few pence—sometimes for nothing.

MIKE REVIEW

Next to antennas the microphone must be the most popular kind of accessory. In next month's CITIZENS BAND magazine we take a look at some of the many different kinds of mikes and which ones are worth having as well as a few hints and tips on which ones to avoid.

PRE-AMP PROJECT

Another really useful circuit for you to build. This time it's an antenna pre-amplifier, designed to pull in those really weak stations. This little circuit is one of the most efficient ever published and won't cost a fortune to build. How can you afford to miss it?

Circumstances may affect the actual contents

REGULAR FEATURES

As usual our friend Mack The Hack will be giving us his view of the month's happenings. Our very popular 'Backchat' feature will have some of the best letters and of course CB Soapbox gives someone, with an axe to grind, a chance to publicly voice their opinions. Keep up-to-date with the best CB Club Directory ever published and we'll be telling you all about the latest products and happenings right here in CITIZENS BAND.

Anatomy Of A C

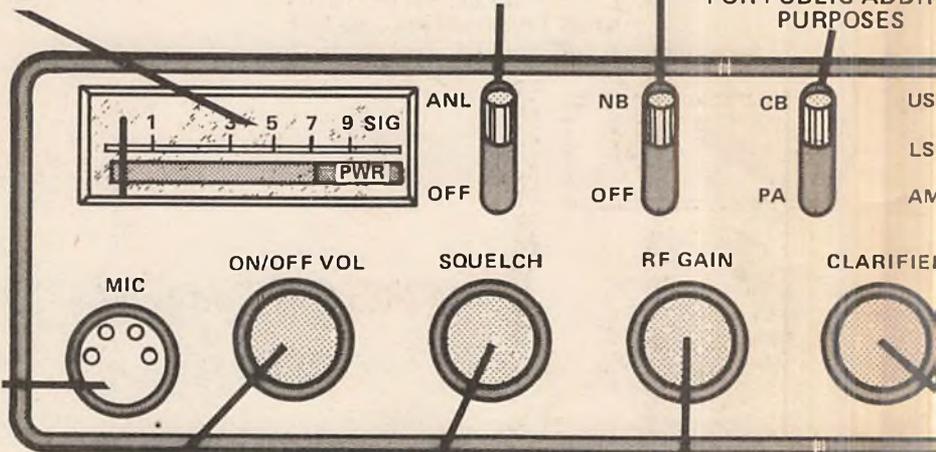
S- METER
 SIGNAL STRENGTH AND
 RELATIVE POWER METER
 THIS SHOWS THE RELATIVE
 STRENGTH OF RECEIVED SIGNALS
 ON AN ARBITRARY SCALE OF
 0-9. ON TRANSMIT IT WILL
 SHOW RELATIVE OUTPUT
 POWER AS EITHER
 GREEN (OK) OR RED
 (OVER MODULATING)

NB SWITCH
 NOISE BLANKER
 CONTROL FOR
 ELIMINATING
 IGNITION NOISE
 ETC.

ANL SWITCH
 AUTOMATIC NOISE
 LIMITER FOR
 ELIMINATING
 BACKGROUND
 HISS

CB/PA
 THIS SWITCH
 ENABLES THE RIG
 TO BE USED PURE
 AS AN AUDIO AMPLI
 FOR PUBLIC ADDR
 PURPOSES

MIC
 MICROPHONE SOCKET.
 SEVERAL DIFFERENT
 TYPES OF SOCKET ARE
 USED, THE ONE ILLUSTRATED
 IS THE COMMON 4 PIN DIN



ON/OFF VOL
 SIMILAR TO ON/OFF VOLUME
 CONTROLS FOUND ON
 ORDINARY CAR RADIOS

SQUELCH
 THE 'SQUELCH' CONTROL IS
 USED TO ELIMINATE
 BACKGROUND NOISE.
 WHEN CORRECTLY SET THE
 RIG WILL ONLY RESPOND
 TO SIGNALS THAT ARE
 LOUDER THAN THE
 BACKGROUND NOISE

RF GAIN
 RF GAIN IS USED TO
 SET THE OPTIMUM
 OUTPUT POWER OF
 THE TRANSMITTER
 POWER IS NORMALLY
 REDUCED WHEN TWO
 STATIONS ARE CLOSE
 TO ONE ANOTHER
 TO PREVENT
 'SWAMPING'

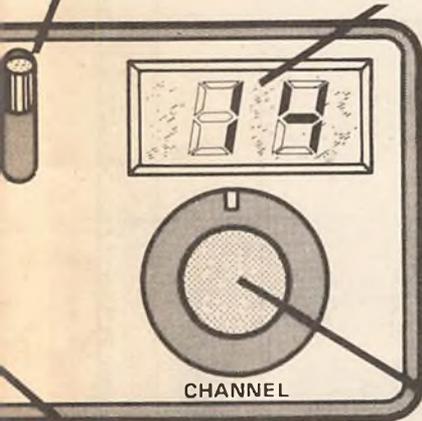
Inside CB

CB Rig

Presenting the first in our new series 'Inside CB'. This month we look at controls of a typical CB rig.

USB/LSB/AM
THREE POSITION
SELECTOR SWITCH
UPPER SIDEBAND,
LOWER SIDEBAND OR
AMplitude MODULATION

CHANNEL INDICATOR
A TWO DIGIT SEVEN SEGMENT
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INTERNAL OSCILLATOR
TO ENABLE THE SIGNAL
TO BE CORRECTLY
SIDE-MODULATED

CHANNEL SELECTOR
USUALLY A ROTARY SWITCH
THAT WILL ALLOW ANY
ONE OF 40 CHANNELS
TO BE SELECTED

Every month we shall be describing as simply as possible some of the bits and pieces that go to make up a CB system. We begin this month with a brief outline of some of the most commonly found controls on a CB rig. The rig shown is not based on any particular make but is an 'idealised' and simplified version of several different types. To cover as many aspects as possible we have decided to present our rig as a single sideband model, this differs from a normal AM only rig in that it has a upper sideband/lower sideband selector switch and a clarifier control.

Some of the terms and abbreviations we use may be unfamiliar to you but you should be able to pick them up as we go along. Some of the more obscure terms are listed below in table one.

Next month we shall be taking the lid off our rig and see what's inside.

REAR PANEL

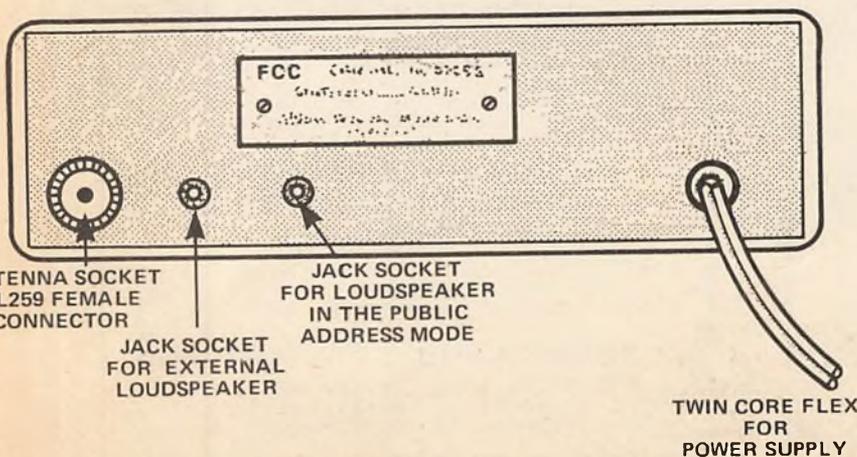


TABLE 1

ANL	Automatic Noise Limiter
DIN	The international standards for electrical connectors
LED	Light Emitting Diode
LSB	Lower Sideband
NB	Noise Blanker
PA	Public Address or Power Amplifier
PL259	A standard UHF type plug
PWR	Short for Power
RF	Radio Frequency
USB	Upper Sideband

BACKNUMBERS FROM

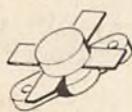
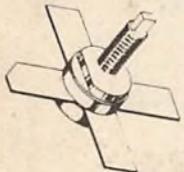


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Equipment Review —

Disguised Antennas

Our roving test reviewers have been trying out two of the most popular disguised mobile antennas somewhere in Europe. Green Frog, HTG and Squiddly Diddly have come up with some surprising results as you can see.



The M10 fully extended. Note the lack of loading coil. The only way to tell this from a conventional car aerial is to measure it!

For reasons that are fairly obvious the most popular kind of accessory these days is the disguised or 'non-sus' antenna. Most of you will probably know by now that the most efficient type of antenna are those where the physical length is a fraction of the wavelength of the transmitted signal. Without doubt the best antennas are either a $\frac{1}{4}$ or a $\frac{1}{2}$ wavelength long. This means that a CB aerial would have to be something like 5 metres for a half-wave antenna and two and a half metres for a quarter wave. This is obviously a little impractical for a mobile antenna, particularly under low bridges. To get around this problem the antenna manufacturers adopt techniques known as matching and loading. Very simply this means that the length of the radiating element or whip can be kept reasonably short by using a coil of wire to electrically simulate the additional length. The coil of wire is actually quite critical in construction, too many or too few turns can cause the aerial to be mis-matched. This leads to a high standing wave ratio (SWR) which can, in extreme circumstances, lead to a 'blown' RF output transistor.

In most cases a loading coil can be fitted quite easily to an antenna. A variety of methods are

used, ranging from 'top loading' where the coil is at the top of the whip. Centre loading — you guessed it, to 'base load' where the coil is at the bottom of the antenna whip. In both cases the coil does tend to be rather obtrusive and a fair indication to any would-be thief that the vehicle has a CB. It also happens that a solid metal or fibreglass whip is like a red rag to a bull when it comes to that strange breed of people who derive pleasure from snapping aerials.

With this in mind the antenna industry set about designing antennas that would look like conventional car aerials. To get round the necessity for two aerials (one for the normal car radio and one for the CB) the disguised antennas had to be dual purpose. To achieve this a disguised antenna must employ a 'splitter box' which allows the antenna to be used simultaneously by both car radios and CB. All of these constraints mean that a disguised or non-sus antenna will never be as efficient as a purpose built CB aerial. We have decided to look at two very different examples of disguised antenna and see how well they perform. We think that the results are pretty surprising. All of our field tests have been carried out under controlled conditions 'somewhere' in Europe.

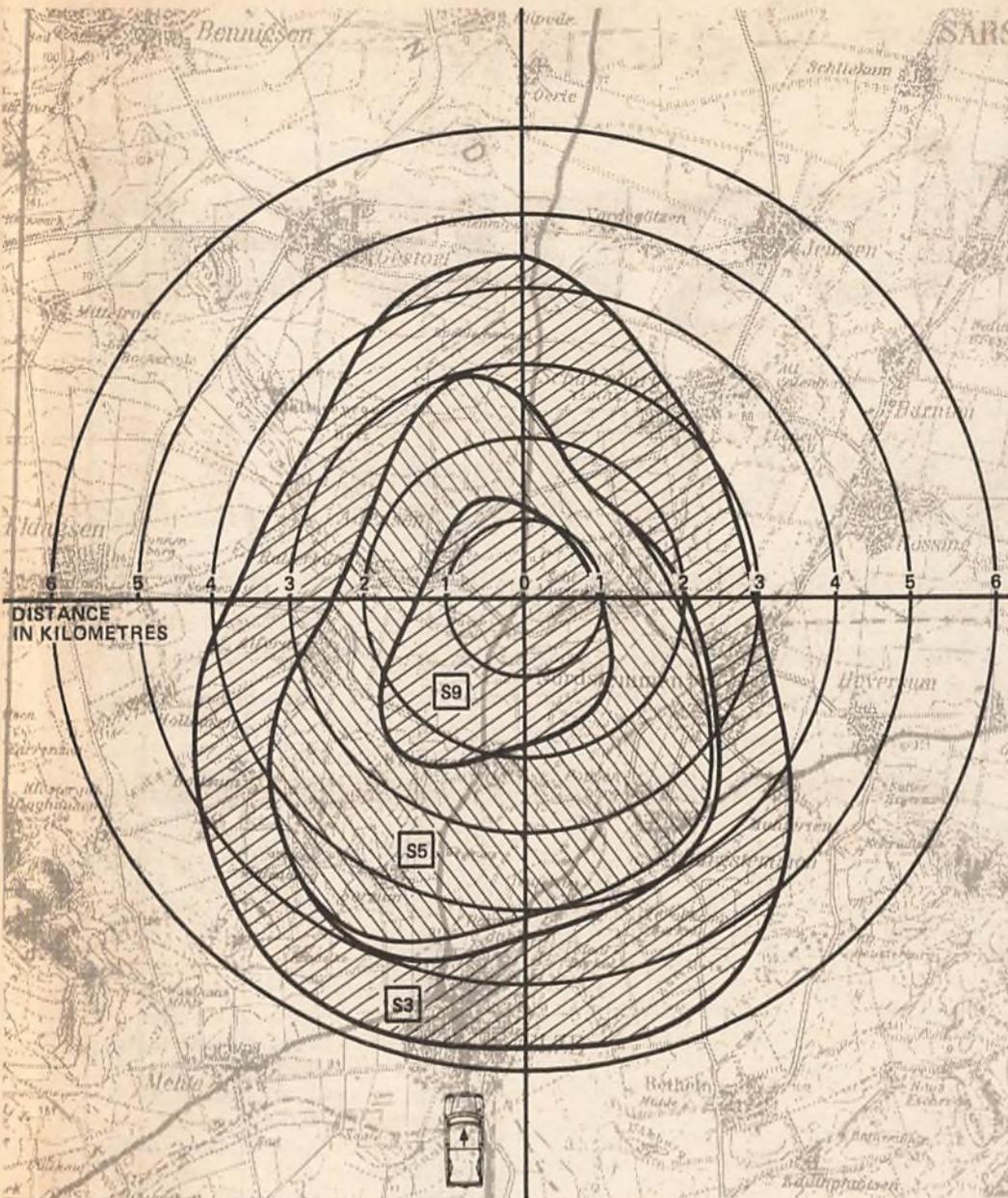


Fig. 1. Radiation pattern for the Sparkomatic antenna

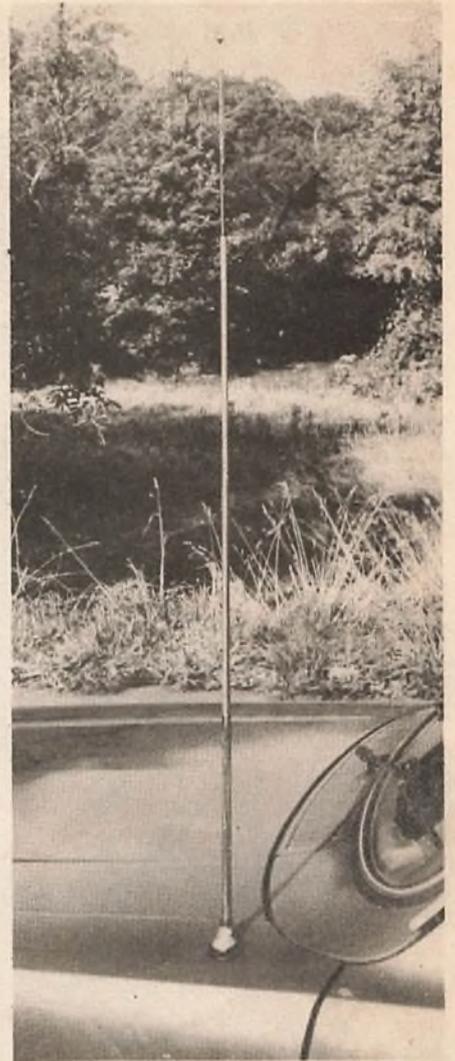
SPARKOMATIC

This is a top loaded stainless steel telescopic whip that comes complete with fixing kit, splitter box and very comprehensive instructions.

Looking at it from a distance it is hard to tell it from an ordinary car aerial, the only give-away is the rather thick nature of the telescopic tubing which does not reduce to a single rod at the top. Instead, the top section of the whip is made out of grey plastic (sometimes black) tubing that houses the loading coil. Adjustment for SWR is made by twisting a threaded knob on the top of the coil. When the adjustment is complete it can be locked in position

with a locknut. We found that the antenna would produce consistent SWR readings of 1:1 (allowing for 10% accuracy of most meters) in all common locations on a car body. The only thing to remember with this and other telescopic antennas is that the whip must be fully extended if the SWR is to remain constant. Damage can be done to the rig output stage by using the antenna half retracted. In the normal car radio mode this antenna was every bit as good as a conventional car aerial. Fitting is almost universal and once installed its rugged construction should give years of trouble-free use.

In use the Sparkomatic gave



The Sparkomatic antenna in position. You can just about see the thick loading section.

consistently good results. In comparison with a $\frac{5}{8}$ th helical antenna like a DV 27 you must expect a 10 to 15% reduction in range. Within a five-mile radius (say) there would be no discernable difference. Over five miles the antenna becomes increasingly 'deaf'.

M10

This disguised antenna is again stainless steel telescopic but this time the matching or loading coils are built into a little box in the coax lead. Adjustment for SWR is made on two 'trimmable' coils in the box, a specialised tuning tool is supplied with the antenna. From an aesthetic point of view this device does look *exactly* like an ordinary car aerial (it's a few inches longer than most but we suspect it is really an ordinary car aerial). All of the clever stuff is carried out inside the little split-

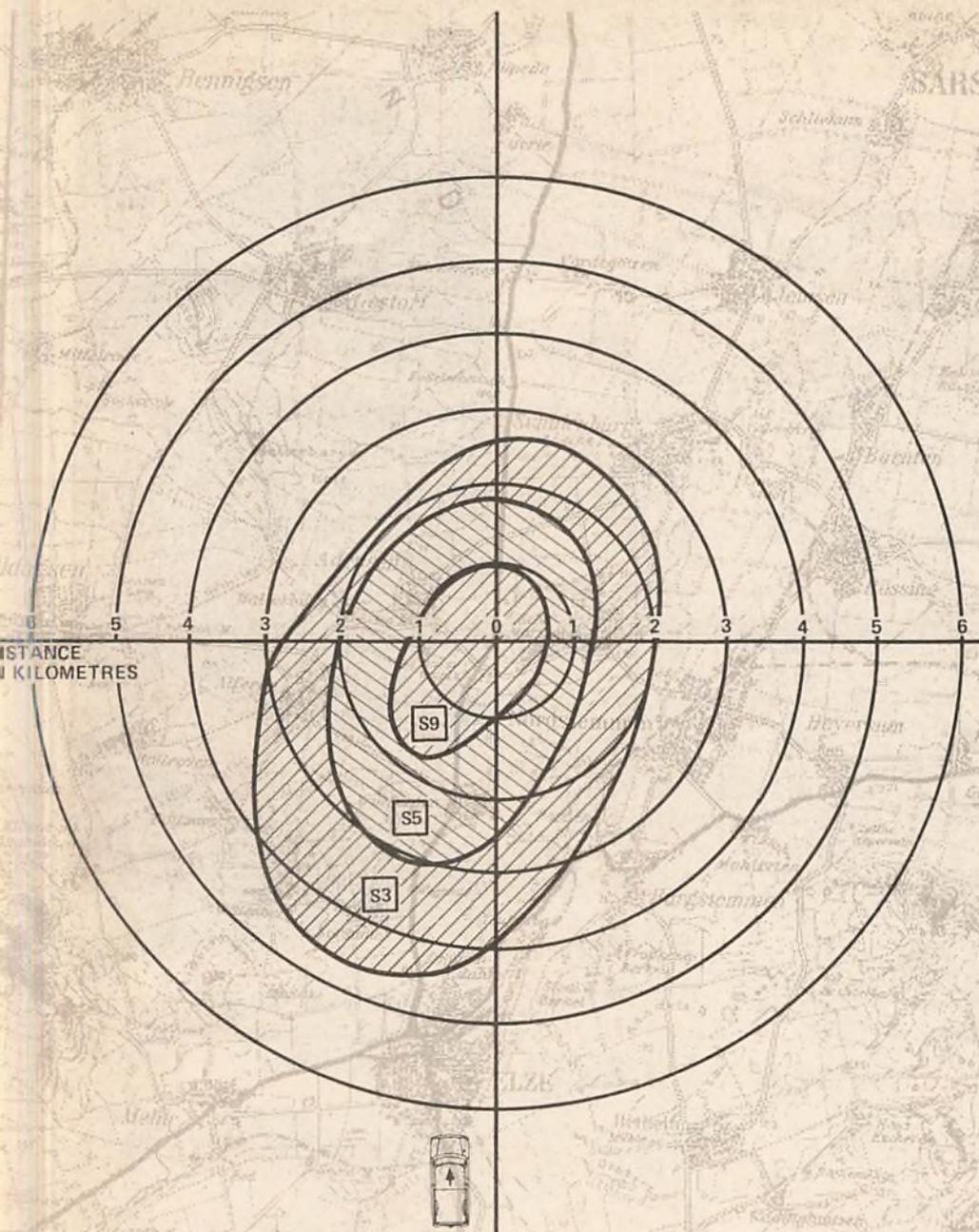


Fig. 2. Radiation pattern for the M10 antenna

How the tests work

As you can see from the two figure diagrams our tests are carried out over a 6 kilometre radius. In the centre of the map is a stationary mobile (the same car is used for both tests) fitted with the antenna under test. A second mobile fitted with our standard DV27 antenna and test rig cruises the area in a circular pattern. At pre-determined points during the test, signal reports are passed between the mobile and base stations. We have simplified the results to make them more easily understood. As you can see from the diagrams we have only used three different S units. S 9 indicates maximum signal strength. S 5 is

for an average 'copy'. And S 3 indicates a readable but noisy copy. Although two-way communication is possible with S readings of 1 and 2 we felt that in general these tend to be unreliable and prone to breakup and fading. The distinctly lobal radiation patterns are due to the mounting position of the antennas on the car body. For a circular radiation pattern the antennas would have to be mounted in the centre of the roof. In the case of retractable telescopic antennas this would be impractical so we have opted for the more common nearside front wing position which we felt would be the most popular place on most cars.

ter/matcher/loading box. Installation on any part of the car body produced no problems. When adjusting SWR we did find that the adjustment was very critical and could be upset by a car door being left open for instance. In the AM/FM car radio mode it worked very well (slightly better on FM than the Sparkomatic). The CB mode was another story. Compared with our standard DV 27 it showed a 25% drop in range on our test site. Compared with the Sparkomatic it was at least 10 to 15% reduction in range.

CONCLUSION

The implications are clear. If you want a really non-sus antenna and are prepared to put up with the relatively poor performance then the M10 fits the bill. If you are looking for something with a little more 'urge' then the Sparkomatic is for you. Remember though, both of these aerials work well within a three- to four-mile radius. This is the most practical distance for reliable communications at readable volume levels. The radiation patterns are roughly similar, and are what we would expect from antennas of this nature.

TEST DATA

SPARKOMATIC

Price	From £16 to £24
Supplier	Most of the larger accessory dealers
Length	42 inches (full extended)
Ease of Installation	As normal car aerial
Reliability	Good solid construction
Strength	Top section could be damaged. On black topped coils you are advised to paint them silver.
Security	Can be locked in the retracted position. Key supplied.

TEST DATA

M10

Price	£16.95
Supplier	Wintjoy
Length	48 inches
Ease of Installation	As normal car aerial
Reliability	Very good
Strength	As good as conventional telescopic antenna.
Security	Locking device fitted. Key supplied

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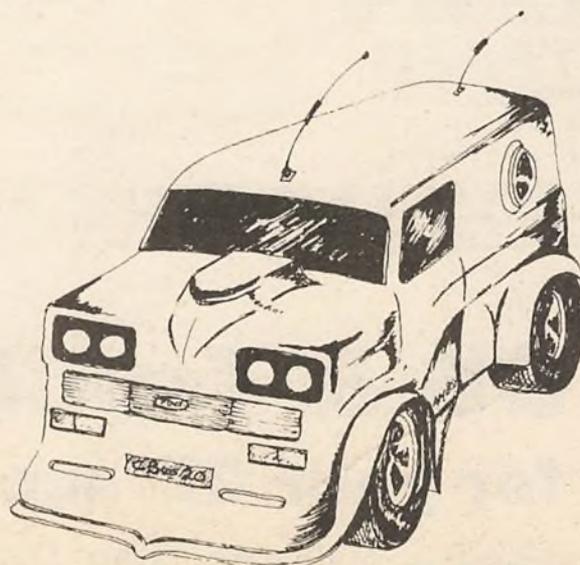
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CB ACCESSORIES

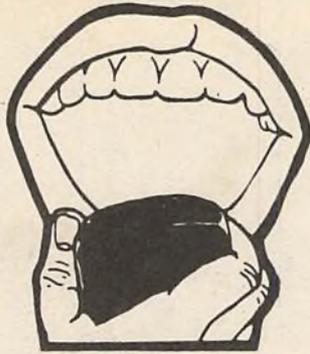
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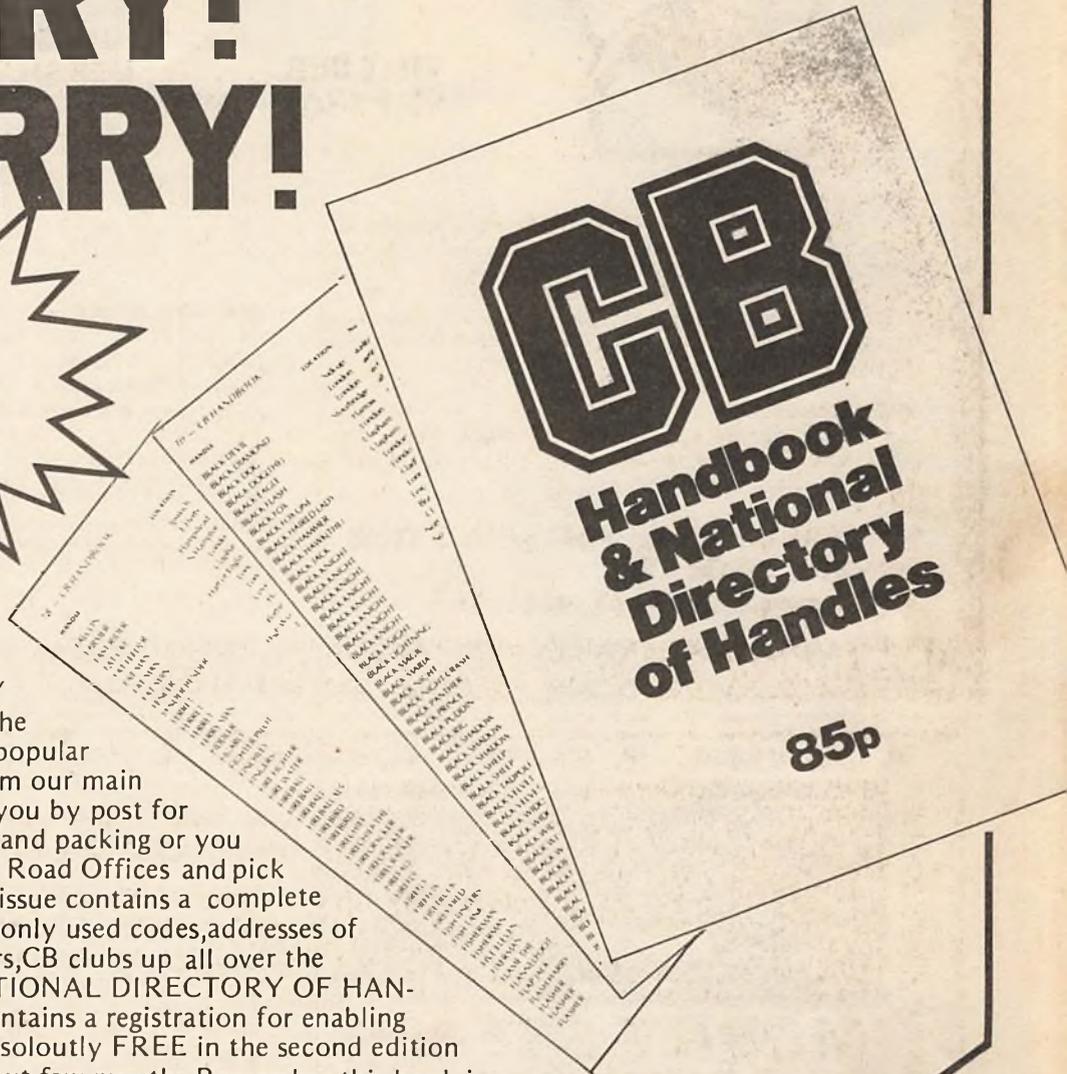
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CB Soap

Pete Christy looks at CB

Judged from recent headlines alone, you might be forgiven for thinking that the CB issue was virtually settled. Add the announcement that Radio Control was getting a new allocation on 35MHz, and you might think that one of the main objections to 27MHz CB had been overcome. You might also think that the moon is made out of green cheese, but that's up to you!

Unfortunately, reality bears little resemblance to the headlines. As is so often the case, when you study the fine print you find a very different story. Most CB enthusiasts are now aware that 27MHz is not an empty band. It is occupied by a large variety of 'official' users, from plastic welding machines, through paging systems, to about 100,000 Radio Control Modellers. Some CB'ers are aware of the potential hazards of this mixture, and make a genuine effort to avoid interfering with legitimate users. The vast majority exist in a state of blissful ignorance, and, as always, there is the lunatic fringe. Their sole purpose in life seems to be to cause as much aggravation to everyone else as possible.

About the lunatic fringe we can do little. However in writing this article I hope to dispel many of the myths, and leave some of that vast majority a little less ignorant than before.

A Little Knowledge . . .

Let me start by re-iterating: Most R/C modellers are not anti-CB. Many wouldn't even object to CB on 27MHz *PROVIDED* suitable alternatives were made available for existing users. The present alloca-

tion for R/C is from 26.96 to 27.28MHz, plus a UHF band that we will come to later. The 27MHz allocation accounts for CB channels 1 to 28 inclusive, **WITH NO GAPS!** Near most of the big cities there is already considerable congestion, even without CB.

"But CB doesn't interfere. Rubber Duck says so, and he's tried it . . ."

Well, if Rubber Duck was on channel 7, say, and the model was on yellow/green split it probably wouldn't. But if he'd tried channel 18 you would have needed a big shovel and a plastic bag to collect the model in.

"So what? The modellers have got 35MHz now . . ."

Not quite true. Some time ago it became apparent that 27MHz was likely to become hazardous for R/C operations. Modellers' representatives in the form of the Society of Model Aeronautical Engineers (SMAE) and the Model & Hobbies Trade Federation (MHTF) made approaches to the Home Office about the possibility of a new allocation. Initially the response was not encouraging. Our negotiators were persistent, however, and just over a month ago we heard that the Home Office were to make a new allocation in the 35MHz band. There were snags, however. The new allocation was being made on the grounds of safety, and is to be **EXCLUSIVELY** for model aircraft. No boats or cars are to be permitted in the new band. Secondly, it is a very small allocation. We were hoping to get the Continental standard allocation from 35.010 to 35.00 MHz. What we have been offered is 35.010 to 35.150, significantly less. Finally the price to be paid for this is that

The R/C Modelle

box

we are losing half our UHF allocation. ie 35MHz is reckoned to be compensation for the loss of the UHF allocation, not for the loss of 27MHz. The UHF situation is something of an oddball, which we will come to later.

More to the point, no starting date has yet been fixed for the introduction of 35MHz, although there are indications that January 1981 is likely. The point is that we can't move in, until the existing users have moved out. There are quite a few existing users, and some of them are using very high power levels. At present 35MHz is more hazardous in some areas of the country than 27MHz. One or two modellers who have tried to 'jump the gun' have found this out to their cost. Some others have been 'done' by the Home Office as well, so the CB fraternity needn't feel unduly singled out!

As already indicated, the new allocation is very small, less than half the existing 27MHz band. This means that only 'Narrow Band' equipment capable of safe operation at 10KHz channel spacing will be suitable for conversion to the new band. If the older wideband equipment is modified, there will be insufficient space for an adequate number of channels. Nearly all the equipment currently manufactured is capable of 10KHz operation, and can be modified to the new frequency at a cost of around £10. However this sort of equipment has only been introduced in any quantity for about the last 12 to 18 months. Consequently, the majority of equipment currently in use is of the wideband type. To modify this equipment to narrow band opera-

tion and then to 35MHz is likely to cost around £70 to £80. In the case of older equipment this may not be economically worth while.

The upshot of all this whilst a new band away from 27MHz is in sight, it certainly isn't in use yet. Furthermore it is likely that 27MHz will remain the 'bread and butter' end of the R/C market for some considerable time.

Incidentally, there is a moral in this situation for those who feel that the only way to get CB legalised is by sheer weight of illegal operation. The modellers have achieved this new allocation through pure negotiation, with little illegal usage of the desired band. There is a strong feeling in many quarters that the Government wouldn't have dug its heels in for so long on the CB issue, had it not been for the cowboys pirating on 27MHz.

"But we can hear their R/C transmissions and switch to another channel..."

The truth is that most CB'ers wouldn't recognise an R/C transmission if it hit them on the head. I have overheard conversations blaming the raucous buzz of a digital transmitter as a 'Home Office jamming device', a 'Home Office direction finder', in fact just about anything except a legitimate transmission. In fact it is unlikely that a CB rig would pick up a radio control transmitter until it was less than a mile away, by which time the damage would be done. This also raises one of the points as to why 27MHz is such a lousy choice for a CB service anyway.

The ideal length for a radio aerial is either $\frac{1}{2}$, $\frac{1}{4}$ or $\frac{5}{8}$ of a wavelength long. At 27MHz these work out at 18 feet, 9 feet and 22 feet respectively! Not very practical lengths to have on a car! You can make aeriels shorter than this resonate at 27MHz, but there is a price to be paid. Firstly the aeriels are less efficient. Secondly, and more importantly in this case, the radiation angle increases.

The radiation angle is the angle between the ground and the maximum signal out of (or into) the aerial. Figure 1 illustrates the problem. ▶

ers Story



The relatively high radiation angle of a 3 or 4 foot loaded whip works to the advantage of the modeller by outting the maximum field strength up in the sky, where the model is. Unfortunately the CB rig in the car is also putting most of its signal up into the sky, where the model is. Since the average CB rigs puts out about 4 watts compared to 1/2 and 1 watt for an R/C transmitter the only conclusion is all too obvious. Note also that although the model is in an optimum position to receive either transmitter, the R/C transmitter is in the CB rigs' 'dead zone' and will almost certainly be inaudible, unless they are very close. Interestingly enough, if the R/C modeller in Figure 1 was another CB'er he would also be in a relatively dead area. As far as reception is concerned, this high radiation angle also makes the receiver more sensitive to 'skip' coming from the sky than to other local ground based transmitters. This situation is fine if you're trying to talk to someone in Italy, but not much good for talking to someone 2 miles down the road.

This is where the 5/8 whip comes in. It's radiation angle is almost zero, so most of the signal goes out and comes in along the ground. However a 22 foot long pole on a car is just a little bit impractical. It is possible to reduce this length by winding the aerial into a helix and producing a 5/8λ helical aerial, but this usually involves a considerable loss of efficiency.

To summarise then, due to the physical characteristics of 27MHz aeriels, it is unlikely that even a well intentioned CBER would be aware of an R/C operator on his channel until far too late. Further, the characteristics of practical aeriels at this frequency are far from ideal for short range communications.

"So what about this UHF allocation? Why don't they use that?"

I have a sneaking suspicion that the bright spark who decided 459MHz would be a good allocation for R/C is the same one who decided to allocate 928MHz for 'Open Channel'!

At this sort of frequency aeriels tend to become rather directional,



not a desirable feature for an R/C system. Also transmitters and receivers become more complex. This usually means bigger, and thirstier. Whilst this doesn't mean much at the transmitter end, it can be something of an embarrassment at the receiver end. The size of the receiver and its associated batteries can be critical in a small model.

Despite this, recent developments in communications engineering have started to make this band practical at last. At least two manufacturers are now producing commercially viable UHF radio control systems. Problems still remain however.

Although the range in the air of these systems can be several miles, the ground range can be as little as 50 yards. Large Models have been known to run out of range before the wheels leave the ground. Although the receivers are not unreasonably large, they are still too big to put in really small models. There is also a problem in helicopters, as the flybar required to stabilise the rotorhead is almost exactly 1/2 a wavelength long, so you have an almost perfect reflector whirling around at 1000rpm right over the receiver! Finally the cost is about double that of a comparable 27MHz outfit.

So for twice the cost of a conventional system, you get something which might not be suitable for very large models, very small models, helicopters, boats or cars! Needless to say, no-one has been killed in the rush. Nevertheless, for some types of model this equipment is very suitable, and the ranks of satisfied UHF flyers is slowly but steadily increasing.

Due to the present rate of increase in technology, the problems are steadily being overcome, and before long I expect the UHF gear to become as accepted as 27MHz. Unfortunately the developments that have at last made UHF practical for model control, have also made it practical for a host of other uses. The modellers thus find themselves 'owning', but hardly using, a prime piece of desirable spectrum! This is a situation that could not be expected to last for long! Sure enough the an-

nouncement that modellers were to get 150KHz around 35MHz was accompanied by a statement that they were to lose the use of 450KHz of space at 459MHz. Many modellers feel that this is hardly a fair trade, especially in view of the fact that the Government's failure to sort out the CB issue means that 27MHz is a very dodgy proposition in some areas!

"Alright, but models crash for all sorts of reasons. Why blame CB?"

True, there are any number of reasons why a model will crash. The most usual being pilot error or structural failure. Both these are usually obvious to observers. Radio failure is rare, but not unheard of. However, if a radio dies in flight, it is usually still dead when you pick up the wreckage. When a model goes berserk in the air, but the radio still functions perfectly when recovered, modellers tend to get suspicious of Outside interference.

"So perhaps it was skip, or a paging system."

Paging systems don't move around. Also they always stay on the same frequency. It is possible for one channel to be affected by a pager and very rarely two at any particular flying site. Local modellers will know about it, however, and avoid using it. Skip just isn't a problem to modellers. R/C models have to be operated within sight of the transmitter.

If you can't see it, you can't fly it, right? So assuming someone with good eyesight is flying, the most distance you are likely to find between the receiver and transmitter is about 1 mile. Going back to fig 1, remember that the model is in the optimum position to receive the transmitter. (In practice air range is invariably 3 times the ground range or greater.) A typical transmitter will put out 1/2 to 1 watt. I have yet to observe a skip signal anything like strong enough to swamp out a model control transmission under normal operational circumstances. That's not to say it is impossible, just so unlikely as to be beyond reasonable consideration. If a model is brought down by interference it must be local and it must be strong. That doesn't leave many possibilities, does it? Add the fact that pocket

tuneable monitors are readily available, and believe me, when CB fetches a model down we know exactly the cause. We also frequently know *who* the cause is.

"So where do we go from here?"

Well, the Government have frequently stated that they have no intention of allowing CB on 27MHz. To reverse this policy now would involve a u-turn of mammoth proportions, and we all know the Government's position on u-turns, don't we?

Anyway there are excellent reasons for putting CB somewhere else. The aerial problem previously mentioned is one, and skip is another. Skip doesn't occur much above 30MHz, except under freak conditions. As far as interference to other services is concerned, the most crucial factor is transmitted power. The less power you need to achieve adequate range the less chance there is of breaking through onto other nearby equipment, eg TV's, Police radios, etc. The more efficient the aerials, the less power you need. The average car radio aerial is 3 to 4 feet long. At what frequency does this equal $\frac{5}{8}\lambda$? Well it's around the 200MHz mark, which isn't a million miles from the frequency favoured by the CBA. If you used about 5 watts at that frequency, the efficiency of the aerials coupled with the freedom from skip should give reliable communication over ranges well in excess of that currently experienced on 27MHz. The technology for this frequency is readily and cheaply available. 49MHz has also been favoured by some groups. Skip shouldn't be a problem, but the aerials won't be as efficient as at higher frequencies. It is also uncomfortably close to the old 405-line TV transmissions, which won't cease for a year or two yet. Around 450MHz has also been quoted. Again no real problem, but the cost of the equipment is starting to rise at these frequencies. As for 928MHz, forget it! The equipment will be very expensive, and the performance dubious.

The main argument in favour of 27MHz for CB is that it is an international standard. Unfortunately even that isn't true. About the only European country where a 40

channel AM/SSB rig is legal is Italy. In Holland its 22 channels FM only. Germany is 12 channels, 1/2 watt AM or FM plus a recently announced extra 10 channels FM only. The German police have been known to pull straight 40 channel rigs out of a car and destroy them on the spot! Makes our Customs men look pretty civilised, doesn't it? The Dutch Post Office recently announced that they were considering a ban on CB between midday and midnight, because of the enormous volume of complaints of TV interference!

We could have had colour TV in this country in the early sixties if we had been prepared to adopt the inferior American system. Fortunately wiser council prevailed and we now have in Europe a colour TV service that runs rings around the American version. (I'm speaking of technical quality, not programme content!) I see no reasons why we should adopt the technically suspect American CB system. Just because it is first, doesn't mean it's best! The main argument in the Government's 'Open Channel' document against 200MHz and 400MHz CB systems was alleged TV interference. The argument was considerably weakened by lack of comparable interference figures for present and extrapolated illegal 27MHz usage. Such increased illegal usage is inevitable in the absence of a realistic alternative.

Finally a word of warning. As I said at the beginning of this article, modellers are not generally anti-CB. However we are very much against the continuing interference with our legitimate pastime. About a year ago, persistent malevolent interference caused by a few modellers in West London to track down the offenders. It wasn't very difficult. The car registration numbers, and in some cases addresses, of the offenders was passed on to the relevant authorities. The result was a minor blitz in the West London area. Although only about half a dozen of these nuisances were caught, it was enough to keep the airwaves quiet for nearly a year. We are a fairly tolerant lot, but if pushed we can be just as big a nuisance to illegal CB operators as they are to us. ●

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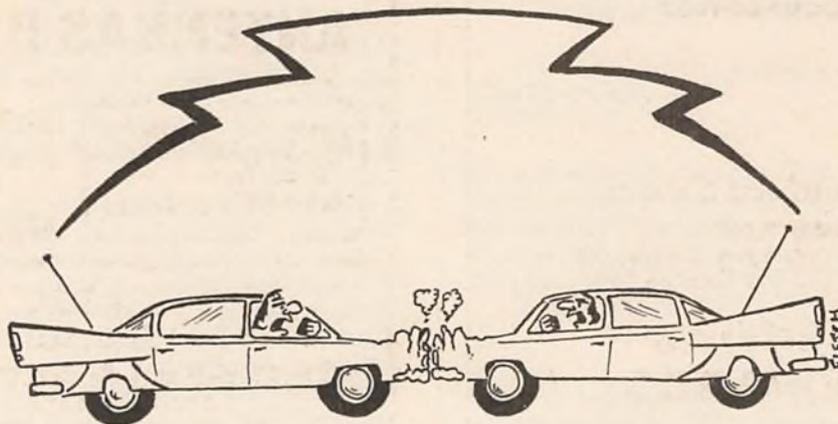
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Backchat



Welcome to the first page of Backchat. This was meant to be an ordinary letters page but looking through some of the other CB mags it appears that letters are often used as an easy way to fill pages. Backchat won't be like that at all, we will reply, through these columns, to every letter we publish. Hopefully we can help you, our readers, by answering a few of your most frequently asked questions.

So here we go with our first letter which comes from Stephen Wood.

Dear CB,
As a newcomer to CB radio I would be grateful if you could explain why some rigs have more than 40 channels. I have seen advertisements for 80, 120, 240 and even 360 channel rigs. I was under the impression that the American FCC regulations allowed only 40 channels between 26.965 and 27.405 megs. Even if you count the sidebands as extra channels, the maximum would only be 120. One last thing, how about a feature on Scanners?

Stephen Wood
Sheffield

You're right when you say that sideband operation counts as 120 channels ie 40 AM, 40 USB, 40 LSB. This can be doubled to 240 channels by the use of the so-called 'high channels'. This effectively shifts the frequency of operation up by one megahertz. The 360 channel rig you've seen probably has a switchable option for either AM or FM operation on the non-SSB channels. The only problem with fancy rigs like these is finding someone with similar equipment to chat to.

Your request for an article on scanners has fallen on clairvoyant ears. This is a feature planned for the March edition - look out for it.

Letter number two is the statutory 'congratulations' letter, well, we're excused one. Aren't we?

Dear Sir,
I really must give 'CITIZENS BAND' a big ten-four and wish you all the high numbers for the future.

It was really good to see a British CB mag which didn't comprise entirely of US rules, regs and slang (unlike one I could mention).

Thinking about it, why not a month by month dictionary of English related slang?

Oh yeah, before I go down, I just wondered if you could include my Handle in the next Handle Directory. Anyhow, 'fraid it's a 10-10.

This 'eres the INVADER going down . . . we're gone!

Thanks for the comments, we are trying to avoid as much irrelevant American material as possible. Your Handle has been deposited in the appropriate box for inclusion in the next Handbook. If any other Breakers would like to register their Handle please try to use the printed form in the back of the present Handbook as it makes life easier for the compilers.

We couldn't resist just one more 'nice' letter, we promise we'll print any critical letters if we get any. K. J. Shurely has this to say:

Dear Sir,
Apart from bringing to your notice the existence of our Club, we wish to extend to you the heartiest congratulations on the publication of your most excellent new CB magazine.

We are primarily supporters of CB Radio on 27mghz, from that position we are determined not to be moved.

We see no earthly sense in a UK system based on an entirely useless frequency and with equipment that has serious communication and health problems, apart from which the expense would be so prohibitive as to remove it from the reach of the average citizen, not the conceot of CB as we see it.

We as a Club will continue to fight for 27MHz as a World Wide frequency and acceptance of the already excellent equipment and FCC regulations, if in the future there were to be a major disaster in this world of ours, we see an international

frequency as a considerable saviour of lives.

Those that argue that British industry should have been given a chance to participate in the coming boom in CB equipment, can only blame the negative attitude of the Government, who have done everything in their power to frustrate the wishes of the people, we hope that Mr Whitelaw will now make the only sensible decision and Legalise CB on 27mhz, NOW.

We remain

Yours sincerely,

Andover 27 Club
K. J. Shurely

As you will see, the Andover 27 Club is safely tucked up in the Club Directory. We still have plenty of space for clubs if they want to get themselves registered. Starting next month we'll have some reports from around the clubs. If any of you want to send us a few lines on your own club then please be our guests.

Dear Sir

I have just read your mag and I'm highly impressed. It is well presented and covers most aspects of CB for both enthusiasts and beginners like myself. However, I think I have 'battered' you up enough, so I'll come to the point (that's alright, I was enjoying it - Ed.). I have an ONC in Electrical and Electronic Engineering but my electronic knowledge is very limited indeed. However, I am quite enthusiastic about trying your project on the SWR meter. I must point out that this will be my first (and hopefully not the last) electronic project that I have attempted. All the parts have been listed in the mag OK and I have written away for everything I need bar one thing, the PCB. You seem to have omitted this for some reason. So my question is this: Will any PCB do or do I need one with a foil pattern as shown in your mag? If the latter is required where do I get one or how do I make one? I await your reply with a red face and a soldering iron at the ready.

R. Gillespie
Coatbridge

An interesting point. Possibly we didn't make some of the details clear enough. This project, like all of the other projects that will appear in CB should only be attempted by people with a good grounding in electronics. That's not to say you have to be an expert, but a little previous constructional knowledge would be useful. Now, about the PCB, I must tell you that only the one we specify will do, anything else just won't work. There are two ways of going about obtaining one. The first is to make it yourself. It's quite easy but we recommend you read some of the articles in our sister magazine Hobby Electronics explaining how to do it. The second method is to buy one ready made, several companies will do this for you, again look at a copy of Hobby Electronics for addresses.

Our last letter this month really sums up the purpose behind our CB Soapbox feature. We intended from the start to make this available to anyone with something to say. We don't always agree with what is said but then we're not here to moralise. The Ancient Mariner would like to comment on last month's Soapbox, so who are we to refuse.

Dear Sir,

I have a great deal of sympathy for, and a whole lot of interest in the subject of CB in the UK. I must say that I enjoyed your December issue greatly.

I read Keith Townsends CB Soapbox article with interest. I support his general view. Strength to his arm, whoever he is.

It's a great pity that his criticism of Civil Servants was allowed to go into print. It's always dangerous to generalise and seldom accurate. His article would have been no less effective without these comments.

I am a civil servant, had I been impartial on the subject of CBER's, his ponderous remarks would not have influenced me in his favour.

I'm afraid it's 'Negatory' to that part of his epistle, but hopefully a 'Big Four' to my general message.

Can I take this opportunity, through your magazine, to urge 'Good Buddies' to keep their ears on for breakers in breach of common sense useage of the airwaves. I am concerned when I hear a bad choice of Handle, often ambiguous and sometimes offensive. Thankfully I have not heard bad language too often. It should be remembered that the efforts to have CB legalised could be in jeopardy because of a few. It's the Football syndrome again. Keep it clean, polite and sensible and 'cut the coax' of those who don't.

Good luck with your magazine, I'll be buying it again.

Ten. Ten.
Ancient Mariner.

What can we say? Our offer for anyone to use our CB Soapbox still holds good. If you have something controversial to say then write to us at our usual address.

That's all for this month. Keep your letters coming and we'll do our best, space permitting, to answer as many as possible.

C-Beasties

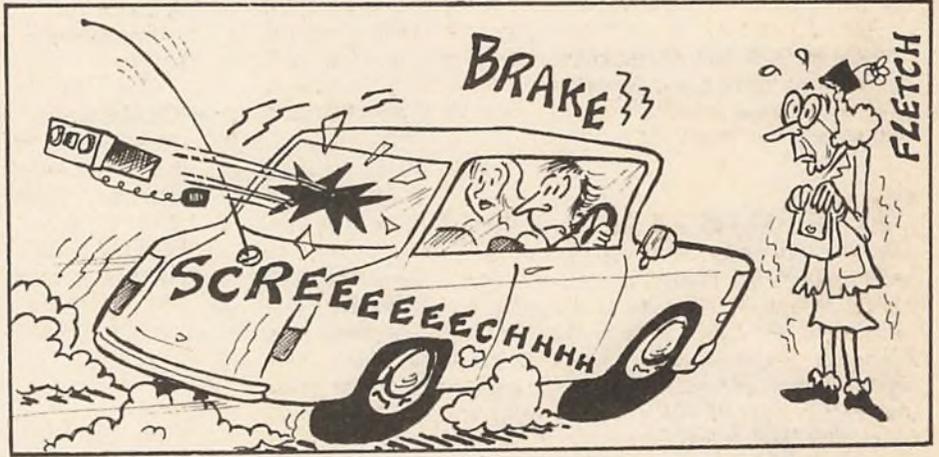
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GBA

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Secretary: S. J. Battersby (address
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Chairman: F. W. McKeown,
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Chairman: P. McGuinness,
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Chairman: Ted Cheneler,
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UBA (NE)

Chairman: B. D. Low,
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Barnehurst, Kent DA7 6RP

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Secretary: G. Bunce,
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WESTON BREAKERS CLUB

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14 after dusk)

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Tenders are invited from Companies or Individuals for the supply of the following items for delivery to Coventry June/July 1981.

Quantity 145 Units AM/FM Synthesized mobile transmitter/receivers with minimum 250-channel capability on 80-84 MHz for transmit and 97.6-102 MHz for receive with random selection of transmit and receive channels.

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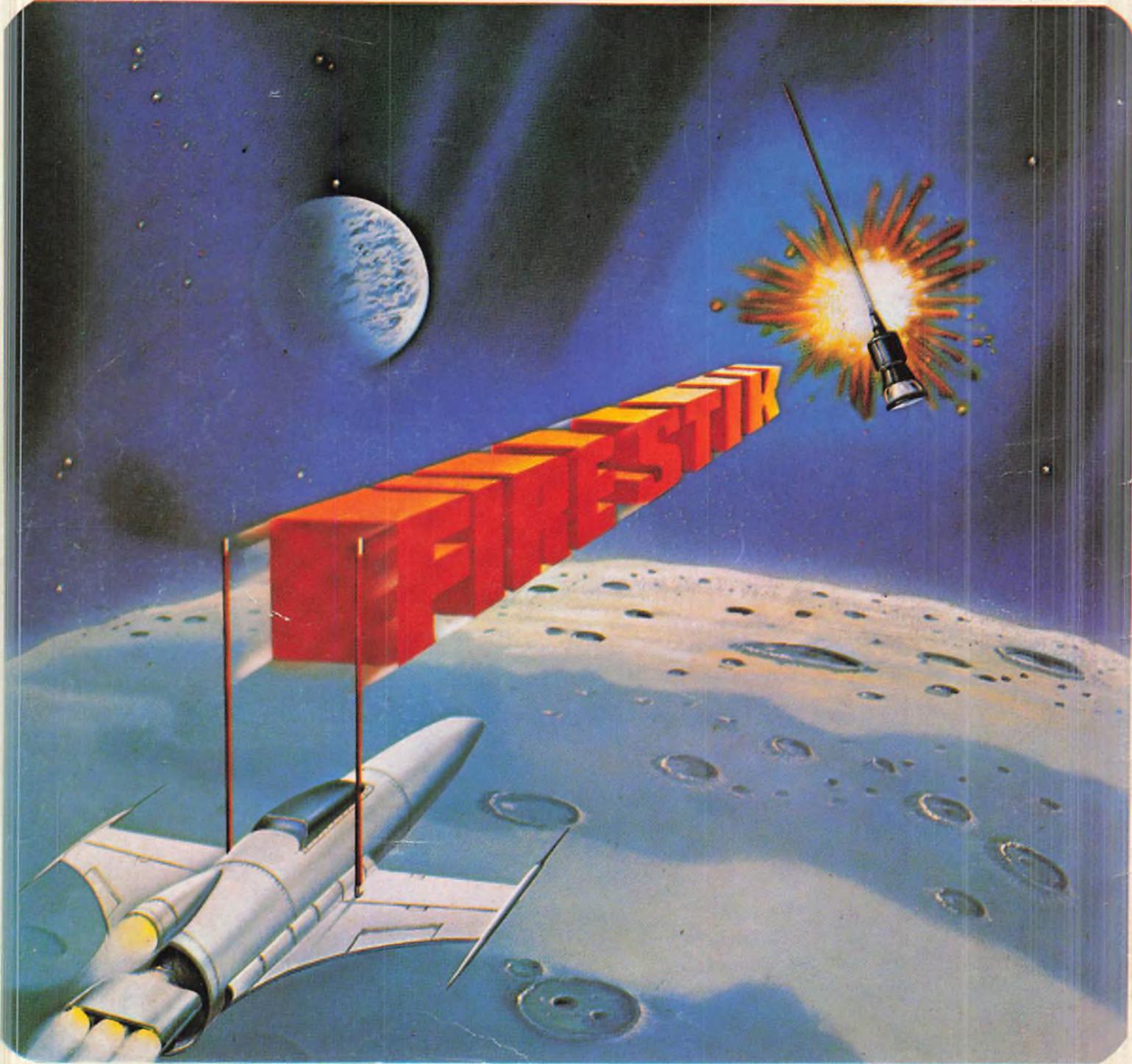
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