

# CB

AN ARGUS SPECIALIST PUBLICATION

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# CB

## CITIZENS' BAND

### CONTENTS

<b>Update</b> News and stuff	6
<b>Back Chat</b> Bouquets and brickbats – the usual load of things beginning with 'B'.	8
<b>Maxon Magic</b> Two new CEPT sets on the test bench – and very nice they are too.	10
<b>Over the Air</b> Shepherd Man reports on the latest fundraising events.	14
<b>QSL</b> David Shepherdson rifles through another bundle of specialised cards.	16
<b>Lady Breakers</b> Filly gets to grips with the problem of parking.	21
<b>Mobile Music</b> A look at what's happening on the in-car entertainment front.	22
<b>Teaming Up</b> A brand new 3-channel handheld investigated by Saul Wright.	24
<b>Data Sheet</b> A close look at the LC7130 phase-locked loop IC.	31
<b>CB Bench</b> Just what do these rig doctors get up to? We find out.	34
<b>Aviation Airwaves</b> The second part of our series about 'CB in the sky'.	36
<b>Poppy Run</b> A report on the Richmond to Brighton cycle race.	40



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**DNT SCANNER 40**



**NEW PR 27 GB**

This unit has just received type approval — RTD No. 3715 — and features Volume, Squelch, Ch. 9, and 19 switch, variable power output, PA scan mike. Channel free Indicator, Noise blanker and electronic scan search.

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CB 27/81

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CB 27/81

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CB 27/81

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PLEASE CHECK YOU ARE ORDERING YOUR RADIO FOR THE CORRECT REQUIRED FREQUENCY

PR 27 GB Radios with this symbol beside them are on the New Cept (European) frequency

# HAM INTERNATIONAL

## HAM VOX2 MINI SPEAKER

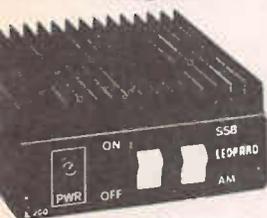
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- SIRIO 2012 ..... £70.00 + £3.00 p&p
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To comply with recent legislation we wish to point out unless a base antenna is marked legal in our advertisement it should only be used for the 10 meter amateur band frequency (28.00-29.70 MHz).

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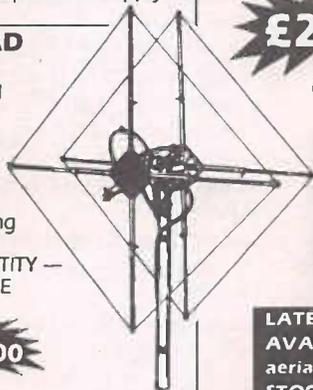


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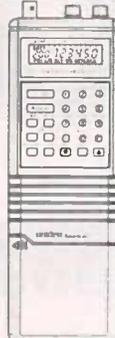
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- Extra wide bandwidth - 2 MHz
- High efficiency coil
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- Available in black

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# UPDATE

## Communications Big Bang

### Communications Big Bang

Liberalisation of telecommunications markets in the UK has led to incredible demand for mobile communications, Trade and Industry Secretary Lord Young said in a recent press statement.

Speaking at a London ceremony held by Racal to mark the 250,000th subscriber to its Vodafone cellular network, Lord Young said:

"Telecommunications is a fine example of the

programme of liberalisation and privatisation which we embarked on in the 1980s. In particular, mobile communications has seen dramatic falls in installation waiting times and equipment prices since then. On top of this have come incredible growth in systems coverage, numbers of subscribers, numbers of calls, growth in

equipment availability and, increasingly, a wider range of new services.

"Cellular radio, though the brightest, is not the only star. Radiopaging is growing fast, Band III is making progress and Telepoint may be the next leap forward. The truly mobile personal communicator may be just over the horizon. That will be the big bang indeed.

"These possibilities are due just as much to the development of a market led and enterprise telecommunications culture as to the advance of technology."

Lord Young warned that the growth in usage has inevitably led to some capacity shortcomings:

"Together and separately we need to find ways of coping with the problems that success and growth bring given that the radio spectrum is, inevitably, a fixed resource.

"One such way of coping will be through the introduction of the pan-European digital cellular radio system. It was the London summit back in 1986 which, under the Prime Minister's leadership, gave the political impetus to get development underway. Seventeen countries are now committed to providing the first pan-European mobile services in 1991.

"The growth in the cellular mark is a tribute to the competition between Cellnet and Racal-Vodafone. In a statement last year, Industry Minister John Butcher made clear that the Government would continue to keep under review the opportunities, after the Pan European System has come on stream, for licensing one or more further national cellular radiotelephone operators in non GSM spectrum. The spectrum planning challenges involved in accommodating one or more further operators are considerable but, as part of the review, we are considering the technical possibilities.

"You must not assume you will not one day face extra competition in this market. But I am sure you will agree that a competitive market is the best market.

"What I now look forward to is not just the 500,000th subscriber on UK cellular systems but the 500,000th UK subscriber on the pan-European system.

"From market strength comes wider European opportunities. With its unique experience of large scale cellular growth the UK is well placed to benefit from the wider European liberalisation opportunities. Go out and do it again, this time on the European scene."



### Editorial

Well well well. February already. Isn't it strange how time flies when you're trying to have fun? It's my birthday on the 10th, if anyone's interested. A Gibson 335, batteries for my Maxcom 7E or a six-pack of Special Brew wouldn't go amiss.

The really good news is that, with the introduction of the CEPT frequencies, a lot of

new equipment is in the pipeline. Even better news is that prices seem to be quite reasonable. Apparently, all the rip-off merchants have fled the field and it's now down to the good old boys.

Among this month's load of goodies, you can read about the aesthetically pleasing Maxon rigs. At the time of going to press, we learn that the 1000 has just received type-approval and we are hopeful that its big brother, the 2000 will also be legal in a short time. Our kindly suppliers of these radios, Sharman's Wholesale, are sticking to the letter of the law and will *not* be supply anyone with the 2000 until it is all legal and above board. As they both belong to the same family, we mention the latter merely as a 'taster' for what's to come.

*Samuel Bevil*

## New from Nevada

Nevada of Portsmouth recently introduced a new SWR and Deviation meter for the UK. The WD-202 sells at £19.95.

"Deviation" is the word used on FM to describe the level of audio or modulation on transmission. It is quite a complicated matter to measure "deviation". For this reason units have been expensive and confined to the "Rig doctors" or service departments - however the WD 202 now puts this measurement within the grasp of the CB radio enthusiast.

Using the meter it is possible to check that microphones and the rig are set correctly and not "over deviating". Over-deviation is one of the prime causes of "Bleedover" or interference to other users.



## Charges for Type Testing

The Department of Trade and Industry recently announced that it intends to charge manufacturers, suppliers and importers for type approval testing of radio equipment submitted from 12 December 1988.

All applications for type approval which are postmarked from 12 December will require advance payment.

Charges will range from £650 for testing low power receivers, up to £8000 for certain combinations of maritime equipment. These charges are intended to reflect the true cost of testing which until now has been paid through licence fees for users of radio equipment.

All radiocommunications equipment manufactured in the UK, or imported here, must be type approved by the Department or by one of three approved commercial testing centres. This ensures that equipment complies with appropriate performance standards and does not

cause interference to other radio services.

Full scale fees will be charged for retesting but DTI's Kenley Radio Technology Laboratory can carry out pre-test assessment on a repayment basis.

Details of testing conditions and fees can be obtained from: (For fixed links) Department of Trade and Industry, Radiocommunications Division, Room 309, Waterloo Bridge House, Waterloo Road,

London SE1 8UA. Telephone: 01-215 2099; (For all other equipment) Department of Trade and Industry, Radio Technology Laboratory, Whyteleafe Hill, Whyteleafe, Surrey CR3 0YY. Telephone: 01-660 8456.

## Knights of the North East

It's always a pleasure to see other journals about CB, as that's what it's all about - communication. So, it was particularly pleasing to receive a copy of 'CB News' from Knights, of Queen Street, Kirton-in-Undsey, South Humberside (0652-648378). They are not a publishing organisation but manage to produce a handy, informative newsletter, which is packed with CB news, views, details of equipment for sale and a monthly, updated price list. More details from the address above.



**Knights**  
ISSUE 2 - NOVEMBER 1988

**CB NEWS**

NEW SAT 9:30-9:30  
MONDAY 10:30-9:30  
TUESDAY 10:30-9:30  
WEDNESDAY 10:30-9:30  
THURSDAY 10:30-9:30  
FRIDAY 10:30-9:30  
SAT 9:30-9:30  
SUN 9:30-9:30

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**BACK AGAIN**

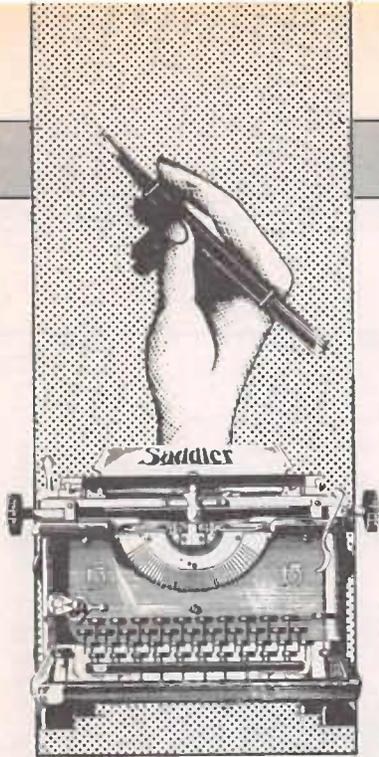
... as they made the SWR meter ...  
... the SWR meter ...  
... the SWR meter ...

**CHRISTMAS IS COMING**

... the SWR meter ...  
... the SWR meter ...  
... the SWR meter ...

**NEWS**

... the SWR meter ...  
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# MAGNUM FORCE

## Past Present and Future

Dear Mr Coxwell, I am sorry I did not read your first article on CB Past Present and Future but I certainly will as I part with neither my copies of CB or Ham Radio Today. I literally have boxes of radio-related magazines. The second part of your piece certainly caught my eye, in particular regarding the fors and againsts the use of SSB. I actually wrote to the RSGB about the fact that they use the 11 metre band on all modes for an amateur novice licence. Your reference regarding a registered registration fee by those who are really interested in long-range DXing interested me because I, like many others, wish to get away from the delta keyers, wallies, bucketmouths, DJs and non-licensed operators. I have paid my licence since CB became legal and, personally, I think I have been ripped off. With the sunspot cycle coming in, SSB is causing havoc with FM operation and I am lucky if I can get two operators out of 40 channels.

I most certainly miss the pre-legislation days when one could even have a conversation with a New York taxi driver. Perhaps the idea of a registration fee of £5 with an authorised call sign would encourage many – like Magnum of North Humberside – to go for their amateur licences.

I, for one, would welcome the idea of using SSB, AM, FM and CW and it would also help us having passed the second paper and now striving hard to obtain the first paper. It would obviously give many CBers the chance of that long DX.  
**Whiskey Sierra 96,  
Staffs.**

## Buck Up, Magnum

I wonder where Magnum of North Humberside (December Backchat) got the idea that if he obtained an Amateur Transmitting Licence he would be ignored because of his previous CB operation.

I can assure him that nothing could be further from the truth. To my knowledge, in this area, the vast majority of operators who have joined the amateur radio ranks since the early 1980s started on 27MHz. Furthermore many amateurs also hold CB licences. From 1982 onwards I operated CB despite having a full amateur licence and only left 27MHz when all my CB friends had obtained amateur licences!

Over the whole country, I would estimate that during the past seven or eight years, well over 75% of newly-licensed amateurs gained their interest in communication among the

CB fraternity.

The only point to remember is that CB language and Amateur language differ. For example: your name is your "handle", not your "personal", and we have "QSOs", not "copies".

So, Magnum, if you want to use a multimode, why not join the radio amateur ranks where you can not only use FM but AM; SSB; CW; Teletype; AMTOR; TV; SSTV and facsimile quite legally, furthermore at a far higher power on many more wavebands than is allowed on CB.

Take the Radio Amateurs Examination and the morse test and get the best of both worlds: Amateur Radio and CB.

One final thought: If you don't tell, how would other amateurs know that you started on 27MHz!

**Brian Kendal, G3GDU,  
Sussex.**

## Clear Channel Nine

So Brandybird wants non-mobile breakers to revert back to channel 14 to contact their various copies (December Truckstop) and not to use 19 as a breaking channel. She blithely says that channel 19 should be left for mobiles only.

Channel 19, like channel 14, is a breaking channel and is not meant to be hogged by truckers who only succeed in wiping each other out. There is no reason why mobiles cannot break on channel 19 and then move off to another 'window'.

I use channel 19 as a breaking channel only. The reason for this is that,

in Swindon, channel 14 is known as the 'children's channel' because of the music playing, infantile chat and generally obnoxious, foul-mouthed behaviour that occurs on it. If the DTI would like a recruit to their ranks based in Swindon, I would gladly join.

One thing Brandybird is right about is the large amount of foul-mouthed truckers that now exist. She should come along and earwig on the M4. I have been a breaker now for 7½ years and standards have gradually declined to an all-time low.

Oh for a purge by the powers-that-be.  
**Therapist,  
Swindon.**



### Hams Not Snobs

I wish to reply to Magnum (Back Chat, December). He says that he would be ignored by Amateurs if he became one because he is, or was, a CB breaker.

What utter nonsense! I was, and still occasionally am, a CB breaker and no Amateur has ever hinted that this was not acceptable. I was in at the beginning of CB – and somewhat ahead of the legal ones – and my reason for moving on to ham radio was because of the absolute ruining of the channels by idiots.

Since becoming an Amateur, I've been on the committee of the local amateur club and am now the Secretary.

We, as a club, have three members who are SWLs and CB breakers, eight members operate both CB and ham. By the way, a welcome to the Bedford club is extended to all people connected with radio.

Back to the comments from Magnum. Amateurs have welcomed CB breakers on the band because they have shown that they are willing to put a bit of effort in learning about their hobby and are genuinely interested in better operating. This is appreciated by the Amateurs. I suggest that Magnum seeks out his local Amateur club and join. All possible help to pass the RAE will be given by the members, I feel sure.

One day all this so-called animosity between the factions will cease – in fact, I don't believe there is any anyway. You'll always get the snob, but you'll find them in all walks of life.

Magnum, you pass the RAE and I will definitely ratchet with you. Until then, I am waiting in anticipation for a G callsign, Magnum.

### SSBers Clear Off

I have been operating radio for many years now and, over that time, have attained the Amateur Radio A Licence. However, having recently married, my interest in CB has been rekindled in the form of base to mobile with the XYL. I have purchased two CEPT radios and use them often. However, to my annoyance, I find local stations using SSB on our new frequencies.

Why, when they can use 26 – 26.995MHz and the channels between CEPT channel 40 and UK81 channel 1, do UK stations use frequencies which interfere with legal operators?

Surely they are drawing attention to themselves using these channels for SSB use, especially in areas with lots of legal operators.

Come on chaps, leave our 80 FM channels clear and work the DX on the thousands of spare frequencies below and slightly above.

**UK 31,  
Wiltshire**

### Ham and CB

With regard to Blunderbus's last letter, it is obvious that a few points were missed.

Point 1: The callsign mentioned – G1f6A – is this a new G sequence being used?

Point 2: Being licensed to use linears on 2 metres is legal but it states quite clearly in the CB licence that it is illegal to use linears on CB.

Point 3: It is apparent that the said so-called Ham obviously gets more entertainment from CB than from his 2 metre wallies who squat on the North London repeater and refuse to move.

As for comments on radio knowledge, we use a non-technical service but 95% of operators have the knowledge to set up a complete station, either mobile or base. If there was no interest, half of the manufacturers of antennas, SWR meters and other ancillary equipment would go out of business.

**A Reader,  
Hornchurch.**





If nothing else, the Maxon 1000 and 2000 are just about the prettiest rigs we've seen in a long while, especially when they're lit up. But we're getting a bit ahead of ourselves here – a word or two before you rush out to buy one wouldn't come amiss. These rigs probably won't be on sale until a few weeks after this issue appears on the

bookshelves. We understand that the first shipments from the far-East are running a little late, and at the time of going to press, the 2000 had still to receive its type-approval certificate.

However, we can safely assume that all will be well – it should be – 18-months of hard work went into their design which, apart from anything else, demonstrates that they're not

simply a hasty re-hash of an existing design, cobbled together to meet the CEPT specs.

Now for some more bad news – the 2000 model seen here was an early non-functioning prototype, so we couldn't carry out our normal range of tests. However, we've got a pretty good idea of what it can do, and if it works as well as its stablemate, the 1000, all

# MAXON MAGIC

Two very interesting CEPT rigs for your perusal this month. They're the Maxon 1000 and 2000; new up-to-the minute designs with a host of novel features, as Saul Wright has been finding out

should be well.

### Maxon 1000

Enough of the disclaimers, on to the business in hand. First the Maxon 1000. When it reaches the shops it should retail for between £60-65. For that you get a very compact (115 x 25 x 195mm) rig, finished in dark green, which despite its size has a useful range of facilities. These include *sequential* channel selection via a pair of 'up/down' buttons; *last channel memory*; PA, full LED channel display with Rx/Tx signal strength bargraph and provision for an external S-meter.

Some of the 1000's design points are well worth noting: first the very unusual mike socket. At first glance, it looks as though someone has tacked it on as an afterthought. That's clearly not the case as there's plenty of room for one on the side panels - the usual place for rigs of this size. No, it's quite deliberate and intended to make it easier to use when mounted overhead - in trucks etc. It's a good place for normal under-dash mounting too, as the mike plug doesn't protrude from the side of the cabinet where it invariably gets in the way, or more often, reduces the useable length of the cable.

Here's another neat idea - PA

switching is on the squelch knob, it cuts out one more button which on a super-clean design like this would only clutter the front panel. In fact there are just two buttons - for channel selection. These are both backlit with green LEDs, so they're easy to find at night. If you're feeling flush, for another £10 or so you can buy a mike with the up/down buttons built-in. This will be available as an optional extra on both the 1000 and 2000 models. It's well worth the extra as it makes this a truly easy-to-use rig, especially on the move at night when you've plenty of other things to think about.

Last channel memory is an important feature on rigs with sequential channel selection like these. Unlike a conventional rotary channel selector, which is effectively a *mechanical* memory, the channel setting is lost when the power goes off - the Maxon 1000 has a third power lead, which, when connected to a permanently live terminal in the car, will ensure that the rig comes back on to the last channel selected.

### Maxon 2000

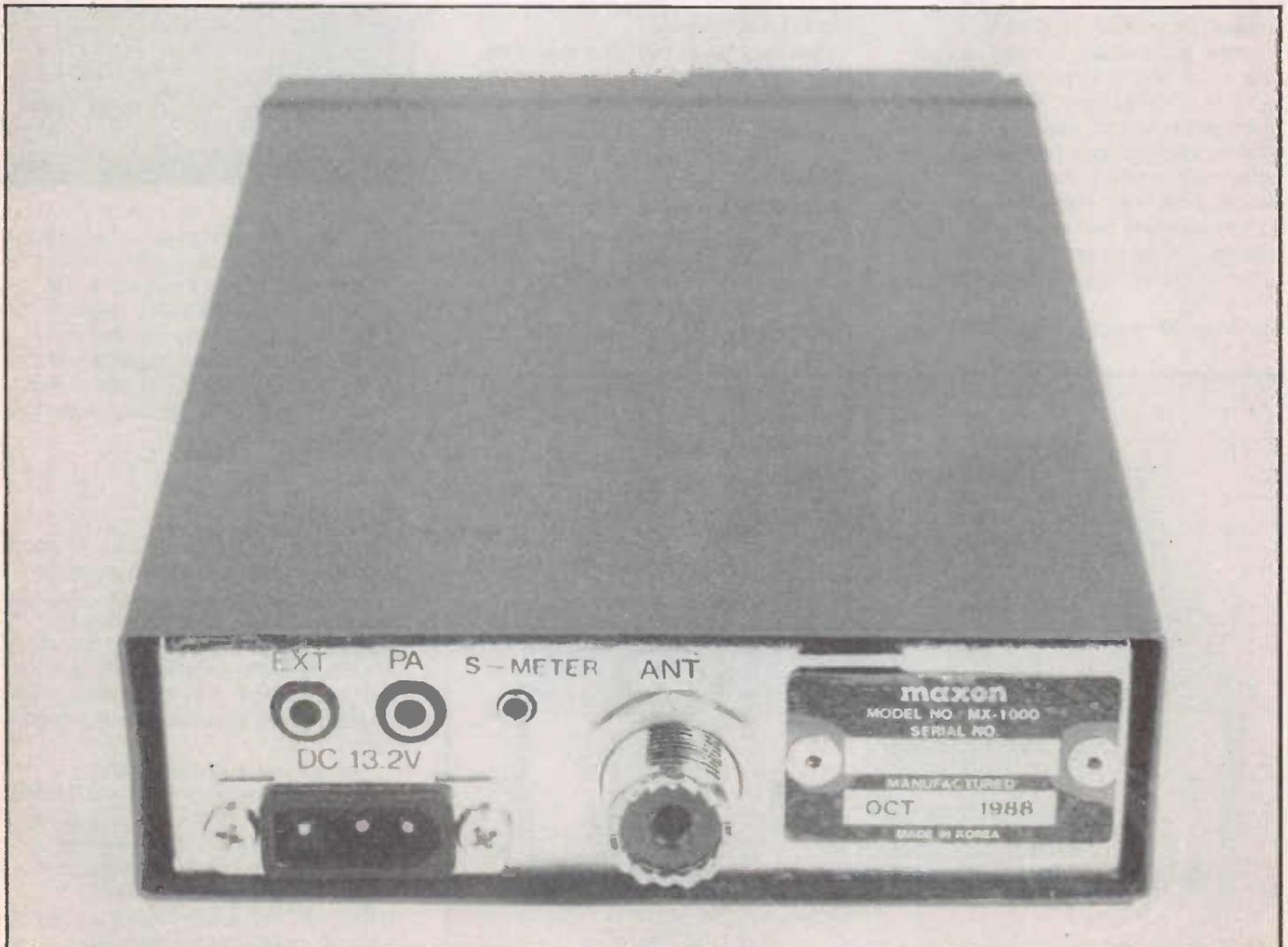
This is our favourite - it's also finished in dark green, but it's a little larger all-round at 145 x 45 x 205mm. When it

### CB Specs

Make/model:	Maxon MX-1000
Channels:	40 FM CEPT
Facilities:	last channel memory, sequential channel selection, angled mike socket
Controls:	rotary volume & squelch, channel up/down buttons
Displays:	2-digit LED channel display, 4-segment Rx/Tx signal strength/RF output
Mike socket:	standard 5-pin
Power supply:	13.2 volts DC
Dimensions (mm):	115 x 25 x 195
Price range (£):	60-65
Supplier:	Sharman's, 3 Bury Road, Manchester, M8 8FW. 061-834 9571

### CB Verdict

Tx Quality:	[ ] [ ] [ ] [ ] [ ]
Rx Quality:	[ ] [ ] [ ] [ ] [ ]
Ease of use:	[ ] [ ] [ ] [ ] [ ]
Construction:	[ ] [ ] [ ] [ ] [ ]
Value for money:	[ ] [ ] [ ] [ ] [ ]





arrives in the shops the 2000 will cost a very reasonably £80-85. There's a full set of secondary features, operated by a row of natty blue push-buttons. These include a two position (local/Dx) sensitivity control, channel 9 priority, channel scan. Other less glamorous but nonetheless important features are: PA, bargraph signal strength display and provision for an external S-meter.

In spite of the rotary channel selector knob, this rig has a sequential channel selection system as well. The knob is a clever 'cosmetic con-trick' - it's spring-loaded and only turns a few degrees either side of the centre position. Turn to the right and the channel numbers go up; to the left they go down. The same optional mike, with built-in up/down buttons, can be used with this rig.

Some good design points worth

drawing your attention to include the ganged volume and squelch controls. Easy to use, and it saves a lot of fiddling about. The backlit control escutcheons on the volume and channel change knobs look good at night, but, more importantly, make it easy to find controls in dimly-lit surroundings. Anything that makes mobile CB rig operation at night, has to be applauded.

Like the Maxon 1000 this model has a last channel memory facility, using the same three-wire power feed system.

### In Use

Unfortunately, a full test report on the Maxon 2000 will have to wait for another day. The 1000 more than makes up for this, though. It's a superb little rig, received audio is clean and crisp - the squelch is just right, not too harsh, and

### CB Specs

Make/model: Maxon MX-2000  
 Channels: 40, FM CEPT (awaiting type approval)  
 Facilities: PA, last channel memory, sequential channel selection, channel 9 priority, local/dx RF gain, channel scan  
 Controls: rotary volume squelch, channel selector (see text), push-button lo/dx, ch9, scan, PA/CB  
 Displays: 2-digit LED channel display, 5-segment LED bargraph signal strength/RF output, illuminated control escutcheons  
 Mike socket: standard 5-pin  
 Power supply: 13.2 VDC  
 Dimensions (mm): 145 x 45 x 205  
 Price range (£): 80-85  
 Supplier: Sharman's, 3 Bury Road, Manchester, M8 8FW. 061-834 9571

### CB Verdict

Tx Quality: See text  
 Rx Quality: See text  
 Ease of use: [ ] [ ] [ ] [ ] [ ] [ ]  
 Construction: [ ] [ ] [ ] [ ] [ ] [ ]  
 Value for money: [ ] [ ] [ ] [ ] [ ] [ ]

not at all slushy. Reports on transmitted copies were most favourable - the mikes supplied with these units are apparently a cut above the average - certainly sound quality is better than usual. Output power measured just a notch below the legal limit so it should compare favourably with any other rig in its class.

### Summary

The Maxon 1000 looks like a very good deal for anyone with space problems and truckers - in fact anyone using an overhead mount. It's neat, compact, easy to use, and very easy to live with. What's more the price is right - even with the optional channel switcher mike (highly recommended), it's still a good deal.

The 2000 is instantly likeable - a really good-looking piece of equipment for a change. If it works as well as it looks then this should be a winner amongst those looking for those little extras, like channel scan and Ch 9 priority. It's well worth buying a channel switcher mike with this rig as well.



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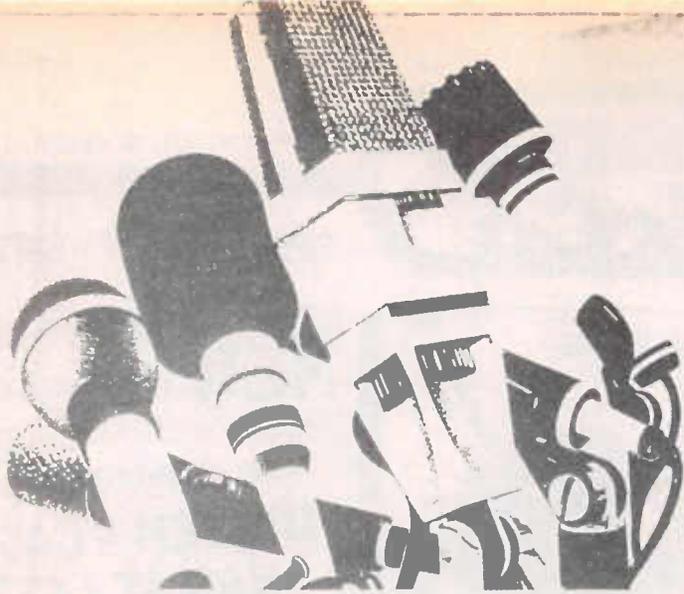


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# OVER THE AIR

**With a little help from his friends, Shepherd Man tells of some good times**

Before I start, SACB (Scottish Association of CB Clubs) have changed their contact address to: PO Box 1, Glasgow, G69 6EF. Thanks to their Chairman, Tony Jaconelli, for this information.

At the time of writing this article I have just arrived home from a visit to the Solway Pirates Weekend Eyeball, and I am suffering from a cold. Yes, I have heard all the jokes about 'laying in the wet grass', 'keeping your socks on' etc. It wasn't so much either of these but, more like moving from party to party each and every night after the main entertainment was over (that's my story and I'm sticking to it, just in case my wife decides to read my article!). Bunny (Scottish Connection) will be rendering an account of the whole event for the magazine so I am not going to dwell too much on the subject. Except to thank the Solway Pirates and all those who attended for a great weekend. It would be impossible to mention all those I met but here are just a few: Silver Arrow (George), Red Devil (Hugh), Lucky Dip (Tom), Beerman (Ken), Welshman (David), Compo (Alex), K9 (Dave), Whisky Foxtrot One, Rust Bucket, Whisky Lass, John (Green Falcon), Paladin (Brian), Despatcher (Jimmy), Linda's Mum (hello mum), Superduck (Gary), Taff & Eileen and, as promised to

my mate Ken - hello to the W.B. CB Club in Manchester. See you all again in '89 if not before.

On the way back from Scotland we chanced to stop off at the Knutsford Services on the M6 (Southbound) and came across 'M6 CB Services' run by Don & Barbara. They have a wide variety of goodies on display and they have a very good 'on site' back-up service. They are very happy to fit a complete set up into your vehicle or repair sets etc. whilst you enjoy a break at the service area. Their hours are 8.30am - 5pm Monday to Friday so give them a shout on the 19 FM.

Well done to Chris (Grizzly) from the Cross Breakers CB Club. So far he has raised over £2,000 in aid of the Meningitis Trust through his sponsored hair and beard cut. Anyone who still owes Chris for sponsorship can send cheques and postal orders to him c/o PO Box 15, Radstock, Avon. The Warwick 88 Eyeball has raised a total of £1,351.34 which has been donated to the Childrens Ward, Warwick Hospital. The club would like to extend their thanks to all those who have helped to make this possible. The Cheltenham Eyeball has so far collected £400 through their 1988 Event and this will be going to C.L.I.C. (Charity). Ron & Gethyn send their thanks to everyone.

At the beginning of September '88 I went to the Sierra Tango Eyeball in Rhyl. It was a shame about the weather although the evening's entertainment was very good and the two lady singers managed to get John (Snowie) up on the stage before removing some of his clothes. The Club then went on to present a cheque for £300 to the Alder Hey Childrens Hospital. This was collected through a sponsored slim and 24-hour modulation. Stan (Badges) was also there to help raise cash with a 'guess the weight' competition. And he was covered from head to toe with all sorts of things. Stan, Fender Bender and Painter Man are all members of the

Greater Manchester Breakers Club - and have been ardent supporters of charity work over the years. I would like to say hello to Ron (Jolson), Brian (Grasshopper), Joe (Maverick), Phil (Sea Hawk) and, of course, not forgetting Lady Pam, the Eyeball Secretary.

A slight change in other arrangements left me with the chance to spend the best part of a weekend in Somerset at the Sunrisers Eyeball. Although it is 'officially' only on for one day (Saturday), many breakers turn this into a full weekend event. Many will, I am sure, already know Keith (Shutterbug), Graham (Rambler) and Cliff (Quickfire) to name but three of this very fine group. But, if you don't, then you can mostly find them at Eyeballs etc 'in the bar' (it's the best place to do business). The Group always make everyone welcome and it is an event not to miss in 1989. So, before I mention some of the breakers that I met and let you read the following report of the event given to me by Keith and Graham, I would like to thank Mike (Highways) for the ice cold shower that he treated me to early Sunday morning and point out that revenge will be mine in 89 - 'good buddy'.

My thanks to: Big Daddy (Coventry), TT & Mosquito (Surrey), Beachcaster and Moby Dick (Brighton), Legionnaire (Middlesex), Centurion (N Wales), Nurse and Blue Star (Staffordshire), Uncle Stan and Twiggy (Newport), Dragster (Birmingham), Bountyhunter (Worthing), Ironfist (Cornwall), Breakdown (London), Snooker Cue (Southport), Kon-Tiki (Wirral), Tranny and Little John (Birmingham), Smuggler and Polka Dot (Southampton), Super Six (Kirkcudbright), Cake Maker and Game Keeper (Cornwall) and loads more besides. And a late bit of news for all those who intend to go along and support Mercia QSL Club with their charity fund raising event this year (1989). Zoe (Lady Godiva) from Shepton Mallet has offered to ride the white horse *naked* at the event to help the club raise money. Go on Zoe, I dare you!

## Third Annual Sunrisers Eyeball

*On the 1st of October 1988, the day dawned bright and sunny, although a little frosty. Many had travelled down the night before to make a weekend of it, and although the official opening wasn't until 10.00am even more breakers had started to arrive at Home Farm, Burnham-on-Sea, Somerset by 8.45am. Those who had camped out over the Friday night were by this time wandering around some with sore heads and others with the desire for tea or coffee.*

*Many club, charity and trade stands were already pitched up and ready to serve the breakers on what turned out to*

be a warm day (not bad for Somerset in October), whilst the Sunrisers' members and friends were kept busy helping with the many duties and enquiries, as well as greeting the new arrivals. In fact, we ended up with around 34 stalls and stands, and around 1,000 breakers attending during the day. Stations from South West Scotland, South Cornwall, Devon, Kent, North and South Wales, the North of England and the South Coast. So there was plenty to do and plenty of people to meet.

The pace started to slow down around 4.30pm which gave the Sunrisers the chance to sit down and rest before the evening's entertainment began. For that, some 600+ breakers packed into the large campsite hall aptly named the 'Night Owl Bar'. The first thing on the agenda was a game of bingo with the first prize being a holiday for two in Spain. Peter, our host, soon found out that instead of one winner, he had two. Although we had agreed on a tie-breaker, Peter's generosity shone through as usual and he declared both winners. So four people are destined for a break in the sun (don't forget the QSL cards). The winners were (1 SR 358) Richard (Bounty Hunter) and his wife Dot from Sussex, and (1 SR 000) Ivor (Ace Pilot) and his wife Beryl, from Gloucester. Now all that remains is to find someone to run channel 38 in Gloucester whilst Ivor is away! The winner of the bingo line prize went to Dot (Mars Bar) from Kingston in Surrey, who won a mobile FM CB rig.

Keith and I (Graham) were presented with a lovely cake decorated with a 'spade and loo roll' (shades of our DXing trip to Scotland) courtesy of Cliff (1 SR 138), who was rewarded with a special T shirt in black with 'the message' on it - so keep your eyes open and try and spot it at next year's events.

This made way for the hot meal supper and the chance to chat as well as the opportunity to dance to the group called "A Taste Of Honey", and sample the delights of Peter's well-stocked bar. The evening ended at around 12.30am with many people tottering (more like staggering) off to various beds, with, we hope, memories of a good '88 Eyeball. And for us it was good to see so many happy faces. I have this feeling that Lyn (Purple Heather) from Northampton won't forget a certain item of underwear again or if she does she may decide to keep quiet about it!

Our thanks go to all those who helped to make the whole thing a success. All those volunteers, members and friends. To PW 01 (Slim Jim) who spent the whole day recording nearly everything on video. Peter and his bar staff, John and Zoe, the owners of Home Farm and all of our CB buddies who came along and joined in the fun. Hope to see you all again at the 4th Eyeball on the 7th October 1989.



**Sunrisers DX Group**

My thanks to both of them for that report on a great event. And I would like to mention those who worked on the T-shirt and sweatshirt stall at the event. They were collecting donations for the Spastics Society, whilst a young lady was sitting in a bath full of custard in a shop in Stratford-on-Avon. I am sorry I don't know the final total, but they have asked me to thank everyone for the support.

One of the most basic and fundamental parts of CB life can be found in the world of DXing so I was very pleased to receive the following report from Stuart (Joe 90 - WDX 01) which I am sure many readers will find interesting. Many CBers may misunderstand the context of the word "DXing" to mean 'the use of SSB'. But, in all fairness, great distances can still be achieved through legal frequencies when given the right conditions.

### **1988 Welsh DX Expedition**

For the third year running (I've been for six) two English CB DX stations have ventured into the Welsh outback with the intention of having some good DXing. WM41 (WDX 141) Road-runner (Brian) and myself WDX 01 (WM104) Joe 90 (Stuart) enjoyed almost two weeks catching the skip from two locations in Wales from the 1st to the 12th of August 1988.

My sister lives with her family 14 miles north of Carmarthen, Dyfed, on a smallholding 900ft above sea-level (on the side of Llanllwni mountain). It was here that we set up our base consisting of the Whiskey Mike caravan for Brian and a large frame tent for my family and myself. The mountain itself reaches a height of approximately 1260ft above sea-level and can be reached about 1 mile further up the road. But even this is not the highest point in the area, as the

Llanybyther mountain is 1300ft above sea level.

Brian arrived at Llanllwni base late on Sunday the 31st July, direct from the Warminster Eagles eyeball, while I drove down with my family early on Tuesday the 2nd of August. On the morning of the 3rd at 05.30 BST, we had our first joint DX session, of which we spent a lot of time saying hello to contacts from previous years. Thursday the 4th was a more lively session with Tetrion (John from Guernsey) and AD407 in Holland being contacted. Friday the 5th brought many more good stations out of the woodwork including WV00 - Puzzle (Arnold) and Bright Spark (John) who were in the Shaftsbury, North Dorset area.

Brian, unable to get out of his bed on Saturday the 6th missed some excellent contacts. These included DOC 23 - Bald Eagle (Norman) at Bala, North Wales, Onchan Man (George) from the Isle of Man as well as many others from Somerset and The Malvers.

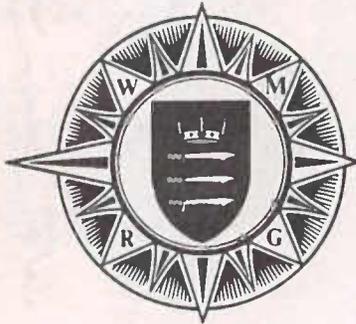
Early evening on Saturday the 6th we decided to drive the one hour's journey to the Black Mountain north of Swansea, for an all-night session. We set up our antennas in a quarry 1900ft above sea level. Brian went on to work his two metre band whilst I made contact with GC 01 (Fred) who was in Telford, Shropshire but who lives in Rustington, Sussex (8 miles away from my home QTH). For this we were both on 934MHz band. From 02.30 BST on Sunday the 7th, we jointly worked ch 40 FM Mids (CEPT) making some good contacts, one of the best being Freddie Fly (Consett, Co Durham) although we did manage to reach other stations in The Mendips, Blackburn, Chorley, Manchester, Saddleworth Moor, Harrowgate, Ramsbottom, Sheffield, Bolton, The Mermaid, Leek, Birkenhead, Halifax, Macclesfield and KS 199 (Frank) in Korso, Denmark at S +20 and

# Welsh D.X. Expedition

Brian

1988

Stuart



THE  
BLACK  
MOUNTAIN

1st-12th August

MYNYDD  
LLANLLWNI

Road Runner  
W.M.41



Joe 90  
W.D.X.01

THERE AIN'T NO MOUNTAIN HIGH ENOUGH

R Q5. We finally decided to call it a day by around 09.00 and drove back to the base camp, although we did stop off at one of the rivers along the way to watch the fish swimming around.

Before we left Llanllwni base on Monday the 8th using our mobile equipment we made contact with 'Space 584' at Vejen in Denmark at S 5 - R 5. Some other good copies for the day went to Tartan Lad (Dave) in Dumfries, Scotland (210 miles) at S 3 - R 5, CDX 12 (Jack) and his XYL Maureen in Oldham, Lancs. Also stations in Preston, Liverpool and another copy to Tetron in Guernsey. Later that same day at 13.25 BST we had an excellent QSO mobile-to-mobile with DT29 at Blokhus, North Denmark, who was on his holidays from his home in Germany, and later that evening we worked a station in the Shetland Isles.

The following day we found ourselves chatting to Ramadam (Ron) from Stevenage, who was mobile on holiday at Serignal Plage in the South of France. Followed later on with a copy of Highways (Mike) who was at Tartan Lad's QTH in Scotland. At 06.22 on Wednesday we had a nice QSO with WL 30 Merchant Seaman (Ken) who was on a light ship 30 miles from Guernsey. This was followed by a fairly quiet period when we both began to nod off (it's all those early mornings) when the peace was shattered by that noisy WE 42 Muddler (Dave) who was on Salisbury Plain in Wiltshire.

Into our base location later came PX Johan from Gronigen in Holland at a S 5 - R 5 (I had spoken with Johan on the

31st of July while mobile at Salisbury, Wiltshire on my way home from the Warminster Eagles Eyeball). One of our final QSOs that evening was with PACB 04 from Saltsburg, Austria, at a S +10 - R Q5. This made putting the 1/2-wave up at the base well worthwhile. We said our goodbyes on the 11th and gave a friendly warning: "We'll be back in 1989".

To mark this historic trip the WM 41 and myself have had produced a special "Welsh DX Expedition" QSL card, and all those who QSO'd with us and sent QSL cards have been sent on of these limited cards by return. Our grateful thanks to each and every station that we worked and we are both looking forward to 1989.

I would like to say a special thanks to Stuart, Keith and Graham for sending in the reports - and I hope to see you all again later this year. So, to finish off for this issue I have been handed a piece of poetry by 'Snap-Happy' (Jean) whilst in Scotland. I was sorry to hear that she hadn't been too well of late, and I hope that she is feeling better now.

## CB Prayer

The Home Office is my shepherd I shall watch out.  
They filleth my mail with Court Orders,  
They maketh me modulate on full channels.  
They taketh away my linear amplifier with which I have made many long copies.  
They reduceth my modulation.  
Yea, though I walk through the valley of

skip.

I shall fear for all breakers, for thou art with me.  
Their monitoring stations and staff watch over me.  
Yea, though my antenna height runneth over  
Surely skip and inspection shall follow me all the days of my life,  
And I shall live in fear of prison for ever

...  
Please don't forget to send in any details of 1989 events, club news, items of interest or 'funny' stories that you may have to me c/o: PO Box 429, London SW19 2UU.

## Early Dates for 1989 Events and Eyeballs

**7th May:** The Cheltenham Eyeball at the Swan Inn, Coombe Hill, Cheltenham, Glos. Contact: PO Box 135, Cheltenham, GL50 1AA.

**10th/11th June:** WDX & OSL Group 2nd Eyeball. At the Worthing Rugby Football Ground, Angmering, W. Sussex. Contact: PO Box 404, Worthing, W. Sussex BN14 7EB.

**16th July:** Mile Oak Eyeball (7th South Coast) at Portslade in Sussex. Contact: PO Box 161, Portslade, Brighton, Sussex.

**17th September:** Warwick 89 Eyeball at the Warwick Racecourse. Contact: PO Box 105, Warwick CV34 5GX.

**7th October:** 4th Annual Sunrisers Eyeball at Home Farm, Burnham-on-Sea, Somerset. Contact: PO Box 7, Bridgwater, Somerset.

# COMMUNICATION THE

# QSL WAY



## More names and addresses from QSLers all over the world, courtesy of David Shepherdson

A few months ago I asked for any clubs, or individual QSLers in either the Isle of Man or the Isle of Wight to get in touch regarding my including an "Island Special" within these pages. At the time of writing there has been no response whatsoever from these Islands. Are there no clubs or QSLers left on them? I'm getting a far better response from the various Scottish islands and will be using the info received from them in a forthcoming issue shortly so please keep it coming in.

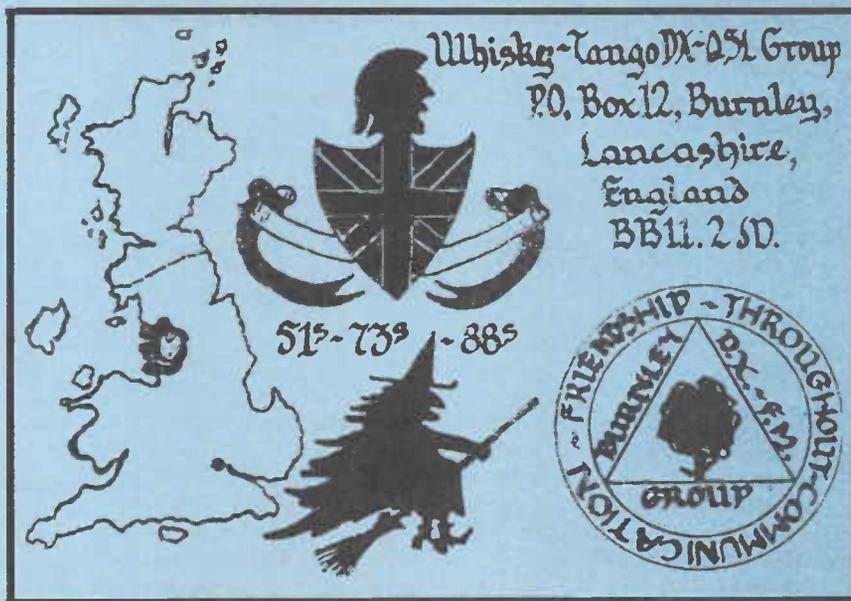
I've some details in from the British Bulldogs QSL Swap Club of Wolverhampton now. Membership to this Club costs £7 and 10 personal QSL cards, *not* club cards, but your very own personal ones. For your £7, your package should consist of your BB Unit no, certificate, ID card, club stamp, embroidered patch, various cards from the President (*Robbo*), the Vice President, the Secretary and the Treasurer. In addition you should also get a club pen, key fob, 20 club cards (*Currie*), 20 club seals, exchange QSLs and invites, viewcard of Wolverhampton, welcome letter, club roster and "Extras as available". There is also a mini-package which costs £4 plus your 10 personal QSL cards which is as above but excludes both the club stamp and patch. Club extras available include the stamp at £3, the patch at £2.50 and club cards at £3 per 100. Payment can be made by cash, UK postal order or UK cheque, and made out to the Club itself. If sending cash, do remember to wrap it up securely; between a couple of cards is a good idea, and it is always best to

send cash via Recorded or Registered Post for your own safety.

One club with some changes which has been brought to my attention is the Tripe City Breakers of Accrington. The Club is now run by Colin (*The Southerner*) and Margot (*Flying Haggis*). The Club now has various Currie cards available for members; afraid I can't say how much membership is as I haven't an up-to-date form to hand. Details, cost etc. available by sending a SASE (Self Addressed Stamp Envelope) to the Club asking for whatever info you require. Martin (*Blunderbuss*) who used to run

the club has handed it over to Colin & Margo to concentrate on designing Heidi cards. By the way Martin, your DR Number is not 3159 but 1965. Dragonrider 3159 is actually a lady from your neck of the woods, however; Christine (*Impulse*).

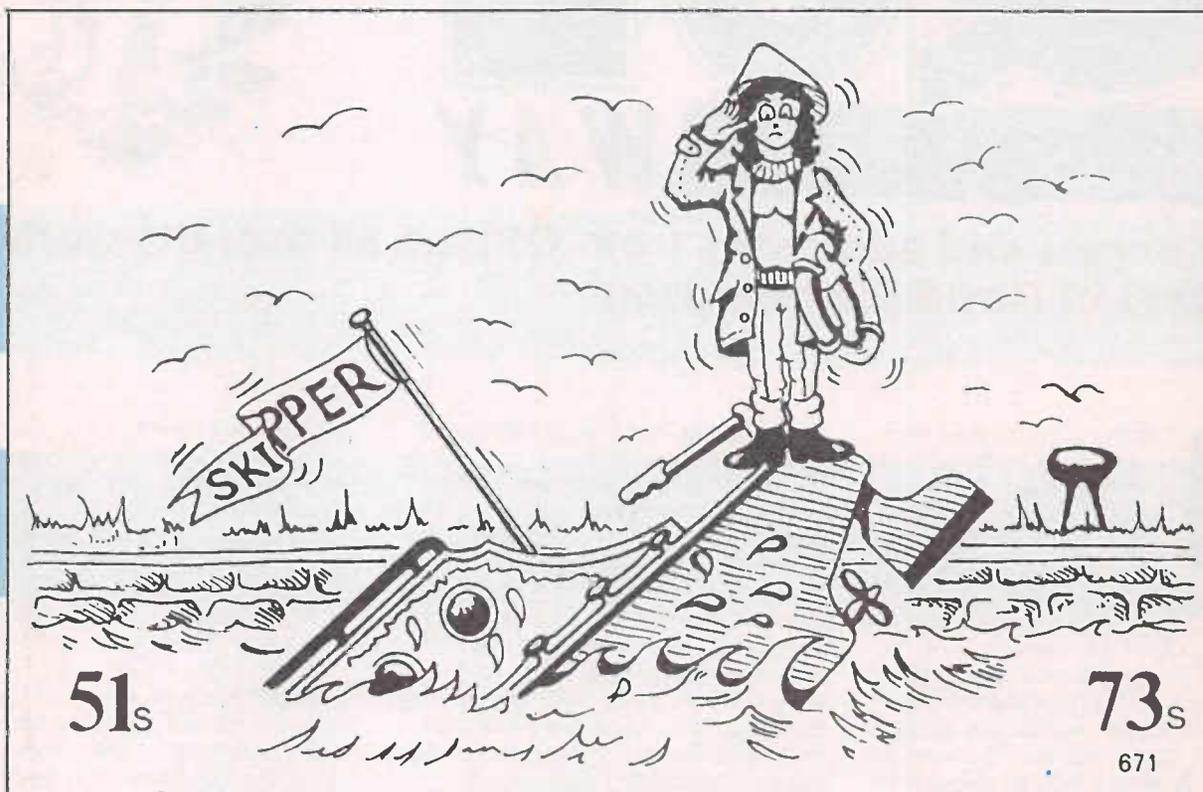
Another club which has recently changed to Currie cards is the Whisky Tango DX QSL Group, again of Burnley. Membership costs £1 (cash) plus between 5 and 10 of your personal QSL cards, each signed and dated showing your return address, plus one extra made out to the Club for their files. Also



a large SASE stamped with two first-class stamps (UK). Your return package consists of exchange and committee's cards, your WT unit number, certificate, welcome letter, club invites and exchange invites for other clubs, local tourist info, 20 club QSL cards and 10 stickers. Extra available include club stamp at £2.50 and club QSLs (Currie) at £3 per 100. Further details etc. from Brian (*Keepnet*) at the club address. When writing to this or any other club or QSL service/firm, always remember to include return postage if you expect a reply.

### QSL Services Addresses:

Charlie Cards	26 Edward St, Hartshorne, Burton-on-Trent, Staffs., DE11 7HG.
Currie Cards	89 Derwent St, Blackhill, Consett, Co Durham, DH8 8LT.
Ensign Cards	58b Market St, Ashby-de-la-Zouch, Leics.
Vine Lodge (Labels)	11 Mill Lane, Butterwick, Boston, Lincs, PE22 0JE
Scottish C.B. Newsheet, C/o 'Arnail', Patison, Neilston, Glasgow, G78 3AT (One year's Subscription £2.70)	



### QSL Club Addresses:

British Bulldogs QSL	PO Box 84, Wolverhampton, WV10 9DL
Tripe City Breakers	PO Box 14, Accrington, Lancs, BB5 6JL
Whisky Tango DX QSL	PO Box 12, Burnley, Lancs, BB11 2JD
Sea Dragon/North Sea Buc	PO Box 2, Sheringham, Norfolk, NR26 8TY
Solway Pirates CB & QSL	PO Box 15, Kirkcudbright, DG6 4DH
Voice of Amsterdam	PO Box 32063, NL-1003 HB Amsterdam, Holland
Kilo Mike	PO Box 1, Kirby Muxloe, Leics, LE9 9DP
Tango Papa (83) Cutty Sark/WBC Meeting	PO Box 13, Southport, Lancs. Dave Bradshaw, 16 Bradenham Avenue, Welling, Kent, DA16 2JG
Swooping Hawk CB Club	27 Newell Hill, Tenby, Dyfed, Wales, SA70 8EN

*When writing to any QSL club or firm, always include return postage to assist with their reply, it does help. Please also mention that you saw their name in the CB mag, thanks.*

A request in from *The Stud* (sorry, can't read the signature) of Ashby-de-la-Zouch who asks if I could ask you that when you let *me* know about any forthcoming events that you know about or are planning yourself, would you also let him know as he is also compiling a list of forthcoming events for 1989. Please remember that my list is for inclusion in these pages and is therefore biased towards QSL swop meets and eyeballs, and also included within my own club's package where possible. *The Stud's* list is for any type of CB-associated meeting and will be taken around the various Eyeballs which Ensign Cards attend and will be given out at these events. Thanks in advance for any help that you can give to both myself and *The Stud*. Don't forget, you can also QSL *The Stud* and his family or a SASE to Ensign will fetch costs and details of their hot-foil card printing service. Another quality hot-foil printer is Charlie Cards; again a SASE asking nicely will fetch you costs and details.

## QSLer Addresses:

The Stud	80 Ridgway Road, Ashby-de-la-Zouch, Leics.
Pat ( <i>Skipper</i> )	TSB 26, PO Box 26, Prestwich, Manchester
Martin ( <i>Blunderbuss</i> )	PO Box 14, Accrington, Lancs, BB5 6JL
Christine ( <i>Impulse</i> )	66 Healywood Road, Burnley, Lancs, BB11 2LP
Broeder Tuck	Hugo Verriesthof 2, NL-5216 VL Hertogenbosch, Holland
Bally ( <i>Karate Kid</i> )	127 Staveley Road, Leicester, LE5 5BU
Brian ( <i>Broadsword</i> )	1 Annstead Farm, Beadnell, Chathill, Northumberland, NE67 5BT



Talking about Charlie Cards, I've just pulled one from the pile which has amassed during the latter part of last year and this is one from Pat (*Skipper*) of Manchester. Nice one Pat, the card reminds me of Ken (*Sea Dragon*/North

Sea Buccaneers Club's President) of Norfolk. If anyone wrote to Ken during the middle of last year and had to wait, or is still waiting for a reply, Ken sends his apologies but illness has meant that many things had to be put to one side

until he recovered. All the best to Ken and the two clubs. Membership of the *Sea Dragon* is free, just send five personal QSL cards each showing your return address and a SASE stamped for 100 grams, about 9in. by 6in. is suitable. The NSB costs £4 (Cash/UK Postal Order only) in return for which you can expect your unit number, ID card, certificate, (XYL/M free), club stamp, 25 club QSL cards, President's card, Vice Pres's cards, club stickers, pen, key fob etc. The Club is a DX-only group and the cost of membership may have changed from the £4 as the form I have is rather dated, so if you are interested, please get in touch with the club for an up-to-date application form, but don't forget a SASE for the club's reply.

As some of you may know, I took a couple of weeks off last year and had my first holiday for over seven years which I spent touring parts of the Scottish Highlands. One part I had hoped to get to, but failed, was the South West area of Dumfries and Galloway. This is where the Solway Pirates CUB & QSL Club hangs out. It is both a QSL club and a CB social club. Membership to the club costs £5 (UK), for which you receive the following items: your unit number, membership certificates, ID card, five club QSL cards, five DX certificates, 10 envelope stickers, club pen, pin-on badge, car sticker and key fob. XYL/M membership costs an extra £2. Extras available from the club include embroidered patches (£2), log books (£2), mounted club stamp £1.60), club QSL cards (£7 per 100) etc. All prices plus P+P (£1 max) unless ordered at the same time as joining, in which case it's free.

A DX club with a few changes going on is the VA DX Group, that's the Voice of Amsterdam from Holland. Membership now costs \$3 (US) or equivalent.

Events are always a popular venue for QSLers, both new and old, and this year looks like being another good year for Eyeballs all over the country. There are also various ones on the Continent though I regret that I do not hear much of these. Those I have heard of already this year include the Kilo Mike in June Kirby Muxloe, the Tango Papa in May at Southport, the "Big Meeting" in April at Stanley and, just in, the Cutty Sark/WBC in April at Cliftonville, Margate. If you are organising a forthcoming event that you think would appeal to the readers of this magazine and would also benefit from the publicity offered, please get in touch as soon as possible! Even the broadest outline info is welcome, ie: date, time, venue, entry fee (if any), contact address etc. The sooner that you let me know, the sooner I can include your details in the column, and also within my own club's information sheet.

I think that it's time that I fitted in another Browse Through a Club's Package, this is not a "Club of The

**QSL**

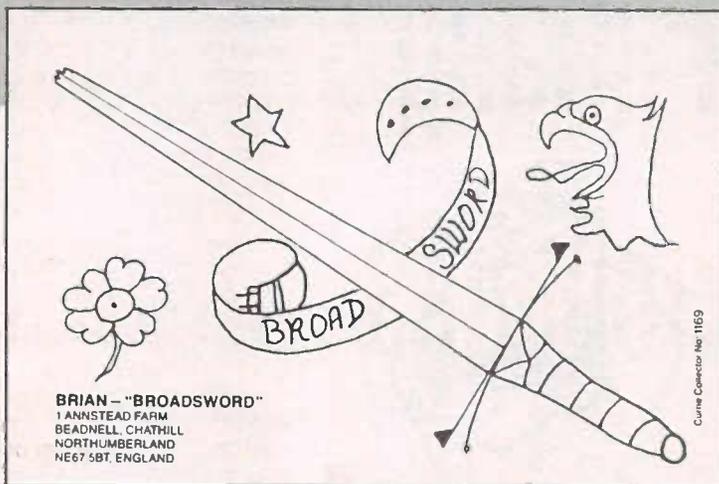
# THE STUD

ASHBY-DE-LA-ZOUCH



*THE ONE AND ONLY STUD is  
returning to the paddock to QSL*

G. C. Frost & Co., Ashby — 412239



Month Slot" but a more detailed look at what you get when you join a particular club. This time it's the turn of the Swooping Hawk CB Club of Tenby, South Wales. The club offers two packages, one costs £5 and postage stamps to cover 300 grams or £2 and a large SASE stamped to 200 grams of weight. The difference between the packages is the club stamp and a "surprise item!". In both cases, you should also send 10 personal QSLs, or five view cards which must, of course, show your return address. The package I have for review is, in fact, the bigger £5 one. In case anyone is wondering, I do actually have a sample package spread around me, I'm not going just from an application form! Your £5 (and 300

grams of postage) gets you a very substantial amount of goodies starting off with your unit number, ID card and certificate for the Swooping Hawk. I've actually also got one for the Kilo Papa (affiliated to the SH) as well, but you are supposed to ask for that! Then there's loads of SH application forms for you to pass on, and a number of other clubs' forms which the SH club is happy to recommend. A mounted club rubber stamp (which gives a nice clear impression unlike one or two I can think of), a number of exchange QSLs, a postcard of Tenby and area, a number of Robert's own cards which are in the Currie Collector Series for those collecting in that series. A number of club sheets (letter-headings), some 9 x 15cm envelopes on which the club stamp has been impressed in ink, a number of photocopied sheets which range from "Tips to Successful QSLing" through club extras price list to welcome letter and Q- and 10-codes along with a phonetic alphabet. Also there's an envelope absolutely overflowing with about seven different types of club stickers, five Club "Do Not Bend" stickers, five club cards, a couple of sheets of QSL addresses; over 300! One thing which did let the package down, I felt, was the news sheet though, to be fair, it was the very first issue and I'm sure that it will have improved by the time you read this. Oh yes, I said earlier that there was a surprise item, but if I told you what I got, that would spoil the surprise for you, but it's not bad! Before I forget, there is also free membership available for your XYL/XYM with a unit number and ID card included.

That's it, out of room once more, if you want a mention then please drop me a line direct to 3 Tarn Villas, Cowpasture Road, Ilkley, West Yorkshire, LS29 8RH and NOT via the mag as this can take several months to get to me! Any news of forthcoming events are always welcome, the sooner the better please and if you want a reply, then please don't forget a SASE or similar.

## Forthcoming Events:

**April** - Co Durham Big Meeting, Stanley Youth Centre.

Contact: PO Box 5, Consett, Blackhill, Co Durham.

**April 8th/9th** - Cutty Sark/WBC Meeting, The Falcon Hotel, Ethelbert Road, Cliftonville, Margate, Kent. 50p admission per day.

**May 20th** - Tango Papa Charity Eyeball, The Floral Hall, Southport. Contact: Eyeball 89, PO Box 13, Southport.

**June 10th & 11th** - Sea Smugglers 2nd Int. Card Swap at Granville Hotel, Sea Road, Bexhill on Sea. Sat 10-4, Sun 10-2 (50p per day) Sat night Ent (£1). Contact: PO Box 139, Bexhill on Sea, E. Sussex, TN40 2AF.

**June 18th** - Sheffield Charity Gala, British Steel Sports Ground, Bawtry Road, Tinsley. Contact: Derek (Roadrunner), PO Box 275, Sheffield, S2 5HY.

**June 24th & 25th** - Kilo Mike Eyeball at Kirby Muxloe Sports Ground, Ratby Lane, Kirby Muxloe.

**W**e felt like CIA agents, standing around hands on hips, walkie-talkie strapped to waist, barking out orders and generally throwing our weight around. Admittedly, we were only organising the parking at a local school country dance, but it *felt* good. You know what they say, power corrupts and all that.

Still, looking round at my team on that cold, windy Saturday evening, it was hard to escape the feeling that they were unlikely CIA agents – or any other sort of agent. They looked all wrong.

Tim – a sixth form pupil at the school – was sitting on a wall swinging his legs and chewing a piece of grass. Peggy, a parent, was struggling to keep her hairdo intact (the wind was winning, but I didn't have the heart to tell her). Oily Rag from the garage was wearing filthy oil-stained dungarees and cackling lewdly whenever the wind caught hold of one of the ladies' flared skirts. And Joe, a local farmer, was picking his teeth and staring fixedly at the moon, as if he were about to turn into a werewolf or something.

A sorry lot. Time to take charge.

"Now look," I said severely. "We're here to do a job, right? We've been asked to sort out the parking and sort out the parking we will. So stay sharp."

"But Filly, there are no cars," objected Tim.

"There are no cars yet", I corrected. "Someone is bound to drive over on a ghastly night like this, and when they do we are going to have to direct them to the playing field, avoiding ditches, trenches and other hazards in the process. Remember, the car park is out of bounds because it's being resurfaced. Now, everyone to their stations."

"To their what?" queried Peggy, mystified.

"The places where I told you to stand," I said irritably. Good heavens, the CIA didn't have these problems. "We will keep in touch using the walkie-talkies, OK?"

"Brilliant," said Tim, stroking his walkie-talkie admiringly. I looked at him with approval; at least he was entering into the spirit of the thing.

I had been lent the walkie-talkies in order to test them out for one of our local farmers, who knew nothing about radio technology but thought they might be handy for keeping all his workers in touch on his farm. I had volunteered to help with the parking because it seemed like a good way of trying them out in a real-life situation.

I get these ideas. Usually when I'm sitting curled up in an armchair by the fire eating hot buttered crumpets.

I surveyed my team, preparing

# Lady Breakers

# Parking Problems

**Filly tries her hand  
at the tricky job of  
parking cars – aided  
by CB, naturally**

reluctantly to leave the shelter of the main gates. "Is everyone clear what they've got to do?" I barked.

"I've got to wave the cars through the gates and tell Tim they're on their way," said Peggy, looking doubtfully at the deserted road outside the school.

"I've got to direct them round the

biology department's goldfish ponds and makes sure they drive on to the playing field and not into the caretaker's kitchen garden," said Tim.

"I've got to make sure they don't knock over the football goalposts and direct them across to Joe," said Oily Rag.

There was a pause.

"Joe?" I said. Joe jumped and tore his gaze from the moon.

"I've got to show them where to park and then show them the way to the school hall," he said. "Lovely moon tonight."

"I suppose you're not a werewolf, are you, Joe?" I asked him cautiously. After all, my job was to oversee the operation, which would mean wandering around a dark playing field at night . . .

"No, just mad," Joe said cheerfully, and departed for the field, followed by Oily Rag and Tim.

It was still early and no cars had started to arrive. My team started telling each other jokes over the air until I told them to stop. It was very cold. I decided it would be a good idea to have a trial run, with the team directing me in my car slickly and efficiently (I hoped) to my parking place. This decision had nothing whatsoever to do with the fact that it would be nice and warm in my mini . . .

I drove up to the gates and had to sound the horn twice to attract Peggy's attention. She was chatting to the caretaker who had come out to see how we were getting on. She waved me through, with much unnecessary gesticulating (I thought), and I steered my way through the grounds, only narrowly avoiding the largest of the fishponds. Tim panted up and explained, apologetically, that Peggy had forgotten to tell him I was coming.

He called up Oily Rag, only to meet with silence and, finally, ribald comment from Joe. "I can see him doing physical jerks to keep warm," Joe informed us, chuckling. Muttering to myself, I drove on, and almost drove over Oily Rag who was doing press-ups. Unrepentant, Oily waved me in the direction of Joe, who was standing looking miserable by the hedge. He looked neither mad nor unusually hairy, so I drove up to him and told him despairingly that the whole thing was a shambles.

"Don't worry," said Joe consolingly, "The British always come through in a crisis." Our walkie-talkies crackled. It was Peggy. Twenty cars were queuing up at the gates . . .

Did we come through? Well, half an hour later forty cars were tidily parked along the edge of the playing field. But we hoped the games teacher wouldn't notice the slightly drunken angle of the goalposts. And the goldfish will never be the same again . . .

# Mobile Music

Terry 'Scoop' Bentley brings us the latest news from the world of in-car entertainment.

## Panasonic Preview H-Bombs - And More . . .

This is the sort of item some magazines would shove great big 'STOP PRESS!', 'SCOOP!' and 'EXCLUSIVE!' screamers all over. We're more modest than that but it's pretty crucial stuff, so prick up your ears . . .

New in-car audio products from any of the major Japanese brands are always going to interest somebody. New lines from Panasonic, whose F and G series units have been winning acclamation, awards and approbation right, left and centre since their respective launches, have to be downright riveting for everybody - not

least their competitors.

We've just been given an advance briefing on Panasonic's planned introductions up to the year end. Full details of features applicable to individual models are not yet available as we go to press but what we have been told is enough to suggest that the company are set to emerge as a dominant force during 1989, extending their range to blanket the field from top to bottom.

Of huge significance in marketing terms must be the three-model H series. The **CQ-H03**, **CQ-H05** and **CQ-H07** are well-specified yet relatively inexpensive radio-cassette machines pitched a notch below the mid-level G

series range. Though not quite cheap enough to run head-on against the crude 'budget' contenders from the less prestigious off-brands, the H sets will be priced very competitively relative to other quality makes. All include the effective 'Alphatuner' synthesiser tuner section first heard of in the upmarket F series (in this application, we believe, with 24 station preselections). As you would expect, other features pile on as you go up the range - the HO7 has Dolby noise reduction and a tape search capability, for instance.

The H series is being phased in over a three-month period. The leading variant, the HO7, should become available during November and will sell for around £200. You can expect to see the £170-ish HO5 in December, and the HO3 is scheduled to reach the dealers' shelves in January '89, with a tag of as little as £120. That must sound more than a little scary to some of Panasonic's rivals.

The other introductions are some distance upmarket. They may not sell in such large numbers but they do have considerable technical allure. There are four units to consider, two of them designed to be installed as a package.

If you have around £1,000 to spend you might well be tempted by the **CQ-F60/CX-DP11** combination, offering a highly sophisticated radio-tape unit in conjunction with a 12-disc CD autochanger. The F60 is what Panasonic term a 'three-face' unit, closely akin to their range-heading F75. Though in this case there's a





**F**irst impressions are often misleading – the **Maxi 90UK** looks for all the world like a simple, 3-channel, hand-held, walkie-talkie. In fact it's considerably more sophisticated than the packaging, and even the instruction booklet implies. To begin with, it's programmable for all 40 UK FM channels, and far from being a humble *walkie-talkie*, it has a full 4-watts output, which puts it into a rather different league, as far as range, and hence usefulness, are concerned.

It's a sturdy, rugged design, clearly not a toy, and at just under £40, definitely not to be dismissed as such. The **Maxi 90UK** is a genuinely useful tool, and its light weight and small size make it ideal for serious outdoor work. Moreover it's designed for continuous duty, so don't forget to add on the cost of a set of re-chargable batteries – keeping this rig constantly fed with alkaline cells would probably require permission from your bank manager . . .

The alleged 40-channel coverage deserves some explanation, especially as the more sharp-eyed amongst you will have already examined the photographs and noticed that the channel-selector switch only has three positions. Unlike most simple hand-helds, which usually rely on plug-in quartz crystals (to set receive and transmit frequencies), the **Maxi 90UK** has a PLL chip, similar to those used on full-spec rigs. The designers have reasoned, quite rightly, that in most circumstances, three channels are perfectly adequate. However, there are situations when the three factory-set channels may be unsuitable – due to local conditions – and may need to be changed. On lesser rigs this means buying a new set of crystals; on the **Maxi 90** it takes no more than a few moments and simply involves re-arranging a set of plug-in connections on the main printed circuit board.

**Nevada**, (the importers), or any of their dealers can re-set the channels on

the spot, free of charge. Alternatively anyone capable of wielding a screwdriver, and armed with a modicum of technical know-how and commonsense can probably do it for themselves – a set-up table for all 40 channels is included in the instruction booklet. Incidentally, it also includes a full set of circuit and PCB diagrams, invaluable for service engineers.

Now for a quick run-down of the controls and connectors – it won't take long, there's only a handful of them. The PTT bar is on the left-hand side; on the top panel there's the on/off-volume and squelch knobs, and on the right hand side is the three-channel selector switch. There's only one socket, a 2.5mm jack for the mains charger. The antenna is a 10-section stainless-steel telescopic item, extending some 50-inches. The electret microphone is situated just below the speaker grille. And just to round off, the outfit comes complete with a shoulder strap that attaches to a couple of buckles either side of the cabinet.

The **Maxi's** power comes from a set of ten 'AA' type cells, as mentioned earlier, it would cost a fortune to run it on alkaline cells – the economical alternative is re-chargable ni-cads. These can be supplied with the unit, a set from Nevada costs £12.50; a suitable mains charger will set you back a further £7.50. This brings the realistic all-up cost to a £60 or so. Pretty reasonable, many less powerful hand-helds cost as much, without batteries.

### In use

Not surprisingly it doesn't take long to familiarise yourself with the controls – about 30 seconds if you're a bit slow on the uptake . . . Providing you're happy with the pre-set channels (8, 18 and 38) simply extend the antenna, turn on the power and start talking, or listening. The bit about extending the antenna is

# TEAMING UP

**Back to basics with this neat, compact 3-channel, and deceptively powerful hand-held from Team. Saul Wright puts the Maxi 90UK through its paces**





important and the instruction book warns that the output stage could be damaged if it's not. A quick look at the circuit diagram confirms that there's not a great deal of protection against an untuned load, so take heed.

The on/off-volume control needs no explanation but the somewhat strange squelch needs a line or two. The one on our sample, at least, seemed to be have an unusual amount of 'lag'. The odd thing is that it works well enough in practice, with incoming signals, but setting the noise threshold, in the absence of a signal, takes a little while.

### The Results

Four watts the book says, and four watts is pretty well what you get, judging by the range of our test sample. Unfortunately there's no provision for an external antenna, so we couldn't easily hook it up to a power meter. So, with the customary pinch of salt, and taking into account the natural optimism of specification sheets, we're prepared to bet that it's probably putting out at least 3.5-watts, maybe a little more, which is quite healthy.

Audio quality on receive is crisp, thanks mainly to the good-sized speaker. The receiver's sensitivity, compared with a mobile rig, connected to a decent antenna is most impressive – during our tests the Maxi was able to pick up just about everything the mobile was receiving, with equal clarity.

The quality of transmissions from the Maxi was good too. The use of an electric mike, as opposed to a crystal microphone, or, as is more usual, the loudspeaker, paid dividends. It's difficult to give a categorical assessment, or meaningful comparison of range on a handheld. They are intended for use in a completely different environment to the average mobile rig. With this in mind, the Maxi gives a very good account of itself. We managed a mobile to Maxi contact of nearly two and a half miles in fairly flat open country. In a semi built-up area the same rigs managed to keep in touch for just over one mile. The Maxi is unlikely to find itself used for such extreme distances; though marshalling a fete, car-park, or managing an outdoor event is unlikely to ever tax it fully.

### Conclusion

The Maxi 90 is a good halfway house between the all-singing, all-dancing multi-channel handhelds, and cheapo walkie-talkies. There's a couple of niggles – external mike, antenna and speaker sockets wouldn't have come amiss, and a carry case would help it to keep its looks longer – it's likely to lead a fairly tough life. Its range of facilities are intended to be useful, rather than eye-catching, and at around £60 all up, it won't break the bank.

### Specifications

Modulation:	FM
Frequency range (MHz):	27.60125-27.99125
Channels:	3-preset, (coverage of all 40)
Power output:	3.5-4 watts RF
Power supply:	12 volts DC – 10 × 'AA' cells, (15 volts)
using alkaline cells	
Sensitivity:	20dB SN-N/N
Audio output:	600mW
Weight (kg):	0.4 (ex batteries)
Dimensions (mm):	190 × 75 × 55
Typical Price (£):	39.95 (ex batts & charger)
Distributor:	Nevada Communications, 189 London Road North, Portsmouth, Hampshire, PO2 9AE. (0705) 660036

# SHARMAN'S WHOLESALE



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# SHARMAN'S WHOLESALE

# SHARMAN'S WHOLESALE

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# SHARMAN'S WHOLESALE



## CAPTAIN SPARX

# UNCLE CHAS

### Captain Sparx salutes a character who (almost) organised Citizens' Band – and generated a flood of tall tales

I have a feeling that a statue of Uncle Charlie – as impressive as The Statue of Liberty – will one day be erected near The Golden Gate Bridge in San Francisco. Hand-held

transceivers will pick up signals as clear as a bell from its scenic gallery, ie the statue's 'starched collar,' whilst special medals will be given to all visitors flashing a monitor's affiliation card.

Uncle Charlie was the original symbol of CB radio in the USA which, by the way, celebrates its thirtieth anniversary in 1989, ie with the first commercially marketed transceiver or rig, by the Vocaline Company. Early models, using valves (or vacuum-tubes as the Yanks call them) rather than transistorised circuits, were heavy and expensive. The Vocaline, for example, cost around \$500, the Kaar IMP was around \$350.

'Uncle Charlie' symbolised the Federal Communications Commission (FCC) or, to be more precise, the Safety and Special Services Division which had the chore of controlling CB, this task being akin to King Canute attempting to de-pollute the North Sea by whistling at it. The Division was headed by a certain Charles A. Higginbotham whose mailings to CB users inspired the thought that a certain 'Uncle Charlie' was looking after kindly characters wishing to operate 'clean and polite.' However, the strain imposed on somewhat slim administrative resources grew intolerable as CB radio (Class D) licence applications flooded in, from just over 25,000 in 1959 to almost 575,000 in 1975. By the later 1970s, it took around ten weeks to process the average application, whilst over-anxious citizens clogged the telephone switchboard with enquiries.

Eventually, some genius dreamed up a scheme whereby CB purchasers licensed themselves – after all, the

Americans work out their own income tax codes. The idea was that a temporary licence, legal for 60 days, came with the transceiver when purchased, the purchaser then 'registering' with the FCC for a permanent licence. In case bewildered or over-busy enthusiasts thought this document was a mere guarantee of merchandise quality, the FCC issued a friendly reminder that neglecting to submit a licence application could result in legal action, running up to a year in prison and/or a fine of \$10,000. Even so, at least a quarter – and possibly closer to one third of buyers – risked the legal action.

Here, as Perry Mason might have said, is where the peanut butter sandwich glues up the dentures. On the one hand, the FCC – identified as 'Uncle Charlie' – took legal action from fines to equipment confiscation yet at the same time had insufficient resources even to attempt to 'control CB'. About 100 brave gents were assigned to CB policing, these sometimes braving life in the suburbs in unmarked cars (the plain wrappers of CB jargon) crammed with detection gear. At times, the meanly-funded members of the Uncle Charlie Radio Cavalry might have wished the rapid disinventing of CB for it proved to be the source of 50% or more of all complaints received by the FCC in relation to radio and television interference and abuses. One could perhaps understand why operators were forgetful about call-signs, use of which was required by FCC codes. After all, a recent newspaper report in Britain suggests that some folks in this fair land do not even know where Britain is on a map (maybe they've been driving on the M25 for some hours, an experience likely to disorient anyone!).

Many of the complaints were more serious, relating to greatly overpowered

equipment. When a CB magazine reported a Five Thousand Watt Bust as evidence of such misdeeds, local CB users were hardly comforted by comments that in some circles, 5,000 watts would have been considered sheer modesty or a sign that an enthusiast had run out of cash. This 'anything you can run, I can run bigger than you can' approach may have helped the evolution of the Channel Master, a now virtually disappeared species of middle-aged and possibly overweight humanity, whose permission had to be sought before any lesser locals spoke into the power mike. The Channel Master – a sort of Judge Roy Bean of CB radio – had his own ways of keeping people in line, plus some ultimate deterrents in the shape of signal jamming devices. In the face of these CB barons and bravados, the well-mannered fellows employed by the FCC were accused of being timid, reluctant to raid the hard guys and nut cases.

My own view, as a humble student of the esoteric arts of American CB radio, was that these friends of Uncle Charlie had too much to handle. A government agency, the General Accounting Office (GAO) went into the problem, partly because so many users of CB channels for orderly business purposes were abandoning the service, around a third, in fact. According to this agency's report, CB operators, though assigned to specific frequencies and required to use low powered equipment were 'using 84 different frequencies assigned to government agencies and other mobile radio users, and using high-powered transmitters which frequently interfere with television reception and other electronic facilities.' So, if you think CB life in Britain has elements of the chaotic, just be grateful you do not live in those US urban areas where CB roves strong and free, at least until an



interested neighbour appears with an axe.

Yet the real picture of life – CB Kids, Lids and Chaos-Creators versus Uncle Charlie and the forces of law and order – has always been confused. Some official crime fighters have sought to soft-pedal the many examples of CB use by ordinary people to help combat crime. Though such stories might do well adapted to movies on the 'Crime Does Not Pay' pattern, they might at the same time alert the crooks. Similarly, mobile (in-car) CB has reportedly helped reduce car speeds and thereby accident rates, as the 'influence' of a patrol car is considerably multiplied by reports of its presence albeit far away and out of sight. In any case, mobile use of CB – crooks and drug smugglers apart – has remained remarkably close

to the original road-user/driver service concept, as foreseen by General Motors in the early Detroit traffic experiments. Most major problems of the medium have related to urban life and what might be called the mind-boggling aspect of modern life. If you went out on a US patrol this very day, you might well encounter an illegal operator explaining that he uses his 7,000 watt rig to repair the hole in the ozone layer!

Some time ago, I wove a few strands together to produce some yarns of a FCC Florid Signal Chaser. Frank Baldetti – prematurely bald at 35 or so, but with a flourishing monkish fringe of brown hair – was an amalgam, not specially based on any single character. Yet his adventures, in trying to catch up with paperwork, educate the over-enthusiastic CB user, protect the public

and avoid physical assault, were remarkably close to those of Radio Investigation Department inspectors in Britain. Among Frank Baldetti's tasks, I recall, was that of running to heel a character who seemed to think his views on morality should be heard on local domestic radio, television or even, so it was said, the clock radio in the kitchen. Baldetti's necessary detection and on-site recording of the offending signal was much complicated by a loudly-spoken lady with an untidy dog, convinced that the FCC man was a private detective employed by her suspicious husband.

When at last, he convinced her of his life with Uncle Charlie, the lady burst into tears, somehow mistaking Frank Baldetti as a social worker with plenty of time on his hands. Frank, who now helps invent things with an advanced consumer electronics company, observed that anyone working on the CB end of FCC operation soon became aware that America had plenty of neurotics. Flying saucers seemed to be a preoccupation of some 'boom and bust' operators who thought that Big Rigs rather than telepathy were most likely to contact emissaries from inquisitive planets.

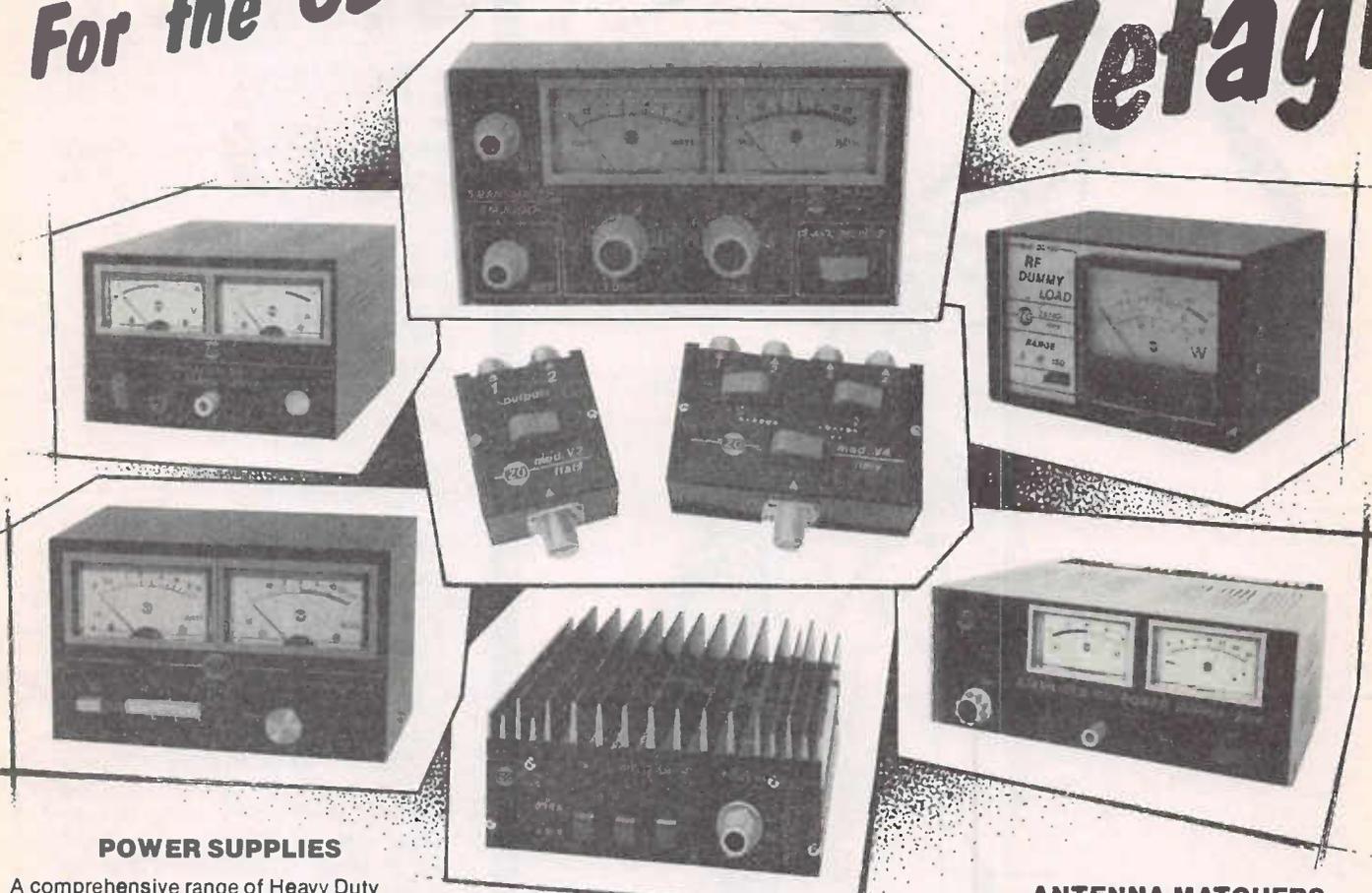
Most rule-breakers responded to a metaphorical flea in the ear, though: Frank felt that Citizens' Band was on the whole much maligned. Back in the 1970s, he predicted: "We have a number of people whose tendency is to make eccentric use of something. At least, their eccentric use of CB radio stops them from being eccentric with more hazard items."

Now, of course, we have home computers, hacking, designer drugs and other preoccupations. Indeed, many CB radio users, on both sides of the Atlantic, would say that despite lingering abuses (and especially in some high spots – estates, etc) the medium is more promising these days. Sophisticated mobile-to-base etc operations are widely available, if you have the cash. Maybe some yuppie explains to cocktail party guests that the CB in the corner is kept for the servants! The Uncle Charlie aspect of early times has all but gone, though personal radio is still in great and creative use. If the FCC – like the Department of Communications (DOC) in Australia and the Radio Regulatory Department here – did not in the end affect real control on CB, this might have been a truly impossible task anyway. As Frank Baldetti, friend of Uncle Charlie, observed halfway through his milk shake, "We could have employed someone to get a grip on CB radio . . . only General Custer never came back from the Little Big Horn."

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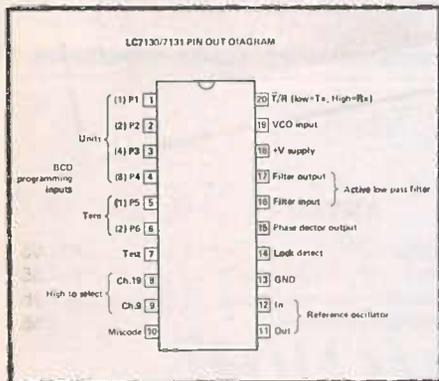
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**T**he LC7130/31 phase-locked loop I.C. is one of the later ROM types from Sanyo, to be found in many American, European, and now British CEPT radios.

Many countries now require the use of such "unmodifiable" devices in newly design CB transceivers.

The integrated circuit is capable of dividing a 16MHz signal from the VCO directly, without requiring the use of a downmixer stage, and the VCO in radios using this device therefore run 10.695MHz below the required channel carrier frequency to give the desired local oscillator signal for reception. Earlier designs had left the VCO running at the same frequency on transmit, and employed a separate 10.695MHz crystal oscillator to get the necessary 27MHz for the transmit chain. Many of these newer ROM devices however have a "Transmit/Receive" pin which causes the N-code to be shifted somewhat, allowing the 10.240MHz reference signal to be used for this purpose (crystals are relatively expensive). The same oscillator can feed the PLL itself, the transmit mixer, and the second mixer in the receiver. The PLL chip holds the oscillator itself, requiring just a 10.240MHz crystal and associated trimming components.



Radios using the LC7130 therefore have the output of the VCO feeding the PLL input directly, with a tap taken from the 10.240MHz reference oscillator to feed the transmit mixer. Programming is 6-pin BCD, with channel 40 represented as all zeros (see accompanying table). Because the basic reference frequency for the phase detector is 5kHz, the N-codes step by two for each channel. The transmit/receive switching pin alters the values by 91, giving a VCO shift of 455kHz. Table 2 shows some of the N-code values. Two dedicated pins (8 and 9) allow instant selection of channels 9 and 19 when taken high (usually by a front panel switch).

Being a new PLL device, the LC7130/31 incorporates an active low-pass filter for insertion between the phase detector output and VCO input. Older circuits relied on discrete networks to couple the two together. There are two digital outputs from the PLL: lock detect on pin 14 and miscode

# DATA SHEET

## LC7130

on pin 10. The former signal goes active if the loop is out of lock, the latter if the inputs to the programming pins do not constitute a valid channel code. Both pins are often tied together to disable

the transmitter, and sometimes the receiver as well. On the 7130 these pins go HIGH to indicate an out-of-lock or miscode condition; on the 7131 they go LOW.

**Table 1. BCD PROGRAMMING**

Channel	Tens			Units		
	2	1	8	4	2	1
1	0	0	0	0	0	1
2	0	0	0	0	1	0
3	0	0	0	0	1	1
4	0	0	0	1	0	0
5	0	0	0	1	0	1
6	0	0	0	1	1	0
7	0	0	0	1	1	1
8	0	0	1	0	0	0
9	0	0	1	0	0	1
10	0	1	0	0	0	0
•						
•						
•						
•						
38	1	1	1	0	0	0
39	1	1	1	0	0	1
40	0	0	0	0	0	0

**Table 2. N-CODES IN ROM**

Channel	Receive	Transmit
1	3254	3345
2	3256	3347
3	3258	3349
4	3262	3353
5	3264	3355
•		
•		
•		
•		
38	3338	3429
39	3340	3431
40	3342	3433

**Example:**

Channel 4. N-Code for receive is 3262, which when multiplied by 5kHz gives a VCO frequency of 16.310MHz. This figure is 10.695MHz removed from the channel carrier frequency of 27.005MHz to give the first I.F. During transmission the N-code is 3353, which gives a VCO frequency of 16.765MHz. This is mixed with 10.240MHz from the reference oscillator to give 27.005MHz.



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**A** streak of light shone through the workshop window onto the snow outside. Travellers struggled to get their cars to go the way they wanted, and now slew off at an angle, and the office building across the street was brightly lit as its hundreds of occupants returned after their New Year's break.

Inside the radio workshop, Danny sat at his bench, with a soldering-iron inside a small metal box. With a satisfied grunt he clattered the iron back to its rest and examined the piece of paper next to him.

"That should just about be it," he said quietly to himself. At that moment the door was flung open, and a snow-covered Ritchie appeared, warmly wrapped-up in scarf, hat, coat, and gloves.

"Happy New year!" shouted Ritchie in a cheerful voice.

"Happy New Year too!" replied Danny, standing up to help his assistant with his snow-clad clothing.

"Don't you just love it when we get real thick, heavy snow in January?" asked Ritchie.

"You bet I do," replied Danny. "I may not be outside enjoying it, but there's something nice about being inside looking out on it. All we want in here now is a log fire!"

"What's with the early start?" inquired Ritchie. "Loads to do?"

"Oh no. In fact it looks like being a very easy day." He indicated a lone radio waiting on the 'For Repair' rack. "This is just a little device I decided to build to help us with our work."

"What is it?"

"It's for checking microphones. Here, get your things off, we'll have a nice warm drink, then we can have a talk. There's no need for us to start on that set too early, so we may as well have a leisurely look at this gadget, if you want to that is. Want some rum in your coffee?" Ritchie nodded.

"The boss been supplementing your salary or something?"

"No, worse luck. He always drops us a bottle in around this time every year. Can't say it isn't welcome on a morning like this."

The duo slowly went about the important business of mixing rum and coffee, then Ritchie pulled his chair over to join Danny at his bench. He peered inside the half-open metal box with interest.

"What's it going to do for us then?"

"Well, I've decided I've had enough of keep holding test probes on microphone plugs while I try to test the thing to see if it works, so I had a search around the spares cabinet and found a few bits to build this." Danny carefully extracted the drawing from which he had been working from under a few off-cuts of wire, and handed it to Ritchie (Fig. 1).

# CB

## BENCH

### Once again, we venture into the strange world of the rig doctor

"Hey, this is a pretty neat idea. The jacks allow jumpering to cater for all the different microphone wiring schemes, right?"

"That's right Ritchie. I found four connectors to use for the microphone to plug into, and whilst they don't cover every type of connector ever used, they should at least help us with most of the commonest these days. I paralleled all the pin 1 points together, pin 2 together and so on, and wired these to those jacks down the left. A few plug-to-plug leads then allow easy connection to the test circuitry. The two L.E.D.'s can be used to show the receive and transmit switching on the PTT switch."

"What's the meter for?"

"That's for checking the microphone insert itself. It won't give an absolute indication that it works perfectly, but it's sufficient to detect open and short circuits. I did think about building a little amplifier in and actually having the meter register audio output, but decided I wouldn't bother just yet. I may add it sometime in the future." Danny paused, looking at his assistant expectantly.

"How's the wiring coming along then?" asked Ritchie.

"Nearly done," came the reply. "I just have to connect the meter," said Danny, picking up the soldering-iron once again. There was a few seconds silence as Ritchie watched Danny at work inside the device. "Right, would you pass me that microphone from the end of the bench please Ritchie?" asked Danny as he rested the front panel of the instrument down onto the base.

"Thanks. What we do when we want to test a microphone is just use this unit."

"Right. Let me see if I can follow all of this."

"Okay. First, connect the microphone to its matching connector. This is from a

Uniden radio, so I connect pin 1 to common, 2 to audio test, 3 to transmit, and 4 to receive." Danny linked the appropriate jacks on the front panel as he spoke. The green L.E.D. lit up. "That shows that the receive line is good," he stated with authority. He pressed the 'Zero' button and adjusted the knob for full-scale on the meter. "Now pick-up that microphone and hold the PTT bar in." Ritchie did as he was instructed. The green L.E.D. became extinguished and the red lit up in its place. The meter swung across to about three quarters of full scale. "The red light," added Danny, "shows that the transmit line is okay. The meter shows that there is about the right resistance through audio line, so the microphone insert and wiring are probably good."

"Why only probably?" queried Ritchie.

"Well, the winding is alright, but the diaphragm could be jammed, or something like that. The meter shows only that the electrical circuit is good. For a more complete test, I included that extra switch and coaxial socket." Danny pointed to these items on the schematic.

"I was wondering about those," answered Ritchie. "What do you intend using those for?"

"For connecting an oscilloscope or audio millivoltmeter." The technician picked up a coaxial patch cord and joined the newly constructed box to the oscilloscope on his bench. He then made a few adjustments to the 'scope controls.

"Now throw that switch and talk into the microphone." As Ritchie did so, he observed his voice waveform on the tube of the oscilloscope.

"Hey, not bad! How does the meter built-in to the unit help though?"

"Well," replied Danny, "I chose the parts so as to get the right range of resistance readings on the scale. There

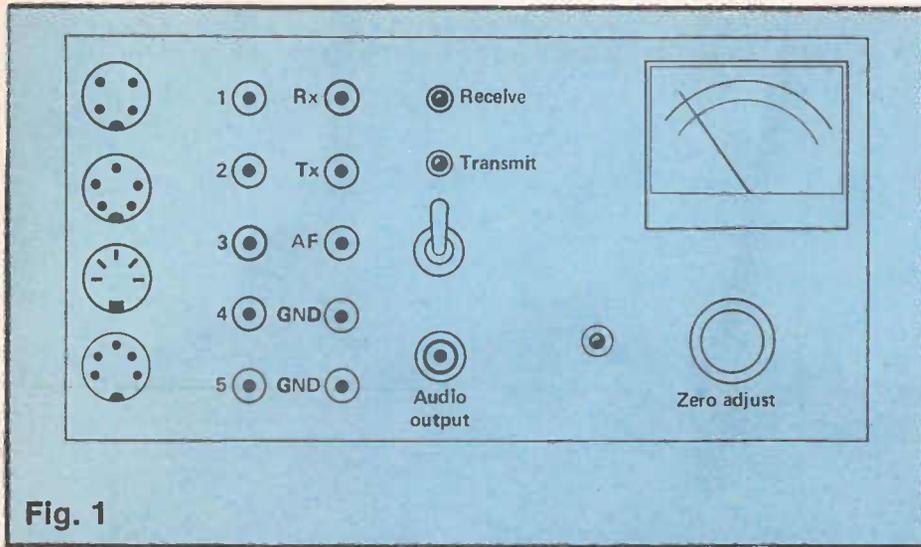


Fig. 1

happened to be a spare ten milliamp meter laying around, so that was ideal. With a nine-volt battery we need a total resistance of 900 ohms to get ten milliamps flowing. Okay so far?"

"Yep."

"That's why we have a fixed resistance of 470 ohms, and a variable of 500, to allow for adjustment as the battery ages and deteriorates. The internal resistance of the meter is around 50 ohms. Now let me ask you a question. What total resistance do we need to get a half-scale reading?"

Ritchie thought for a moment.

"Half-scale is half a milliamp, so we'll need double the resistance," he muttered quietly to himself. "That's 1800 ohms," he added, a little louder.

"Good. We have 900 inside the meter circuitry already, so half-scale is a resistance in the microphone of 900 ohms. Agreed?"

"Yes."

"Now do the same for quarter-scale and three-quarter scale readings. What

are the external resistance values required?" Ritchie busied himself with pencil and paper for a couple of minutes.

"300 and 2700 ohms," he announced to the world in general.

"Very good," commented Danny. "Just the figures I got. With the scale marked in this way most microphones should read somewhere in the top half of the scale. If you get a much higher resistance reading, you must have a broken circuit, or faulty microphone insert. Dirty switch contacts are a common cause. If the needle shoots all the way across to full-scale, there's a short somewhere."

"I see," said Ritchie. "It's just a very rough ohm-meter then?"

"You've got it. I purposely used standard jacks for the patch panel so that regular test leads can be used if other tests are required that need the connection of better test meters." Danny reached up to the shelf above him for a piece of paper. "Here's my original

drawing of the unit," he added (Fig. 2).

"I suppose you could also use this for finding unknown microphone connections," said Ritchie.

"Yes, you have L.E.D. indicators, and a rough ohm meter, so it shouldn't be too difficult. It is extremely easy to just open the back of a microphone to see what color wires go where however."

"What else needs to be done to finish it now?"

"We've just about done it really. You could find a piece of thick paper, mark up a new scale and stick it over the existing meter scale if you like. Start by marking off every hundred ohms at the top of the scale and increase the steps as the marks get too close together. Here, use a calculator." Danny passed his calculator over to his assistant for the necessary computations. "Just add 900 to the resistance value you want, then divide the result into nine. That should give you the corresponding current through the meter."

Ritchie sat punching buttons, and carefully marking a new scale as Danny tied all the wiring together in the new instrument and screwed the panel on. Half an hour later the unit was completely finished, with its brand new scale safely under the plastic meter cover.

"A job well done," commented Danny. "And it's only 11 o'clock. How about a refill of coffee?"

"Good thinking chief," replied Ritchie. "As there's only the one set waiting for repair, what say we have a go at it together?"

And so the happy pair worked through their only repair of the day. The snow continued falling outside, which, as Danny very optimistically put it, probably means lots of output stages to fix because of damaged antennas. Happy New Year!

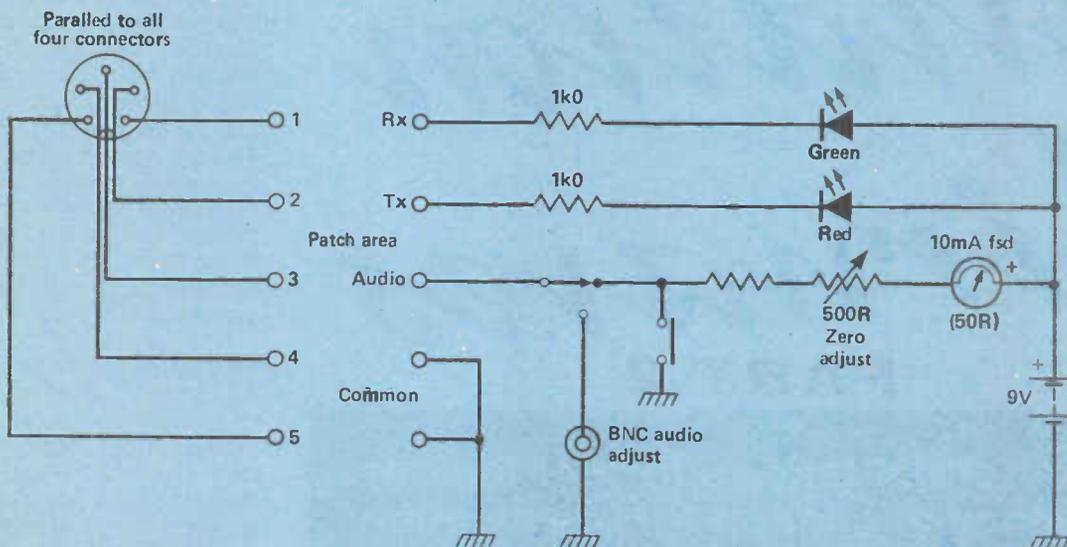


Fig. 2

**L**ast month we considered the uses of: the Very Low; Low and High Frequency wavebands for aviation. Today we look even higher in frequency to the VHF, UHF and microwave bands.

In the VHF waveband, the aeronautical allocation covers a spot frequency of 75MHz and from 108 to 136MHz. These are used for three distinct purposes: Instrument Landing System; VHF Omni Range Beacons and Air-to-Ground Radio Telephony.

### **Instrument Landing System (ILS)**

ILS is the current internationally approved radio aid which enables aircraft to make a blind approach to a runway through cloud or fog. Depending on the particular installation it can provide guidance down to 500 ft; 200 ft or right onto the runway.

The principle of operation is that a beam is radiated which is modulated by two tones, 90 and 150Hz, such that if the aircraft is on the correct course, it will hear each tone at the same level, but if the aircraft is not on the centre line, one tone or the other will predominate.

The course information is provided by two transmitters, the first of which is situated in line with the runway at the upwind end. This is known as the localiser and radiates the azimuth signal on a frequency between 108 and 112MHz. The radiation pattern on the aerial is such that, to the approaching aircraft, 90Hz will predominate to the left, 150Hz to the right and on course, both will be equal. So accurate is modern equipment that, at the point where the aircraft touches down, the course will be within 12 inches of the actual centre line

of the runway even though the transmitter may be two miles away!

Vertical guidance is provided in a similar manner by the Glide Slope transmitter operating at a frequency of around 334MHz. With this, 90Hz predominates above the correct approach angle and 150Hz below. The equipment is located in a cabin situated

to one side of the runway, level with the point where the aircraft touch down.

Distance to run information is provided by two marker beacons situated approximately four miles and three quarters of a mile from the touch down point. These radiate a vertical beam on a frequency of 75MHz. More recently, this has been augmented at many airports by DME (which will be described later) which gives a direct distance to run readout in the cockpit.

In the aircraft, the ILS signal may be displayed directly on a meter but is more commonly connected to the Flight Director or navigation computer which may be used to control the aircraft during automatic landing.

In the early days of CB, there were frequent reports of breakers causing interference to airport communications. Invariably it was VOR which suffered, for the fourth harmonic of all legal and illegal CB frequencies falls within the band allocated to localiser transmissions.

When, as was quite common in the early days, rigs had been "tweaked up", the harmonic output could be considerably increased. The result of this was that at airports such as Gatwick, where the approaching aircraft pass low over a public road, the harmonic from a rig on that road could be sufficient to cause severe interference to the localiser transmission.



# *Aviation Airwaves*

## **PART 2**

**Brian Kendal takes a further look at frequency allocation for the aviation industry**

The author knows of several occasions when this caused an approach to be discontinued and the aircraft make a further attempt to land later.

A further problem which has arisen more recently is that some of the illegal FM broadcasting stations operating in the adjacent FM broadcast band do not restrict the bandwidth of their transmissions sufficiently, their sidebands spreading across and interfering with reception of the localiser.

### **VHF Omni Range Beacon (VOR)**

VOR operates on frequencies between 112 and 118MHz. This equipment radiates directional information from which the aircraft installation can determine its bearing from the facility. VOR is the internationally recognised short range en-route aid and is used to delineate airways and reporting points.

The principle of operation is that the transmission is modulated by two 30Hz tones whose phase difference corresponds to the bearing of the receiver from the facility.

With the navigational information being derived from the comparison of two equal modulation frequencies, the question must arise as to how these can be differentiated. This is achieved by radiating the first as a 30Hz amplitude modulation whilst the second is impressed as a frequency variation of a further 9960Hz amplitude modulation of the carrier.

Within the aircraft, the indicated bearing may be indicated on: a compass-type display; as a left-right indication compared with a predetermined course, or connected directly to the flight director or navigation computer.

### **VHF R/T**

The waveband from 118 to 136MHz is dedicated to air to ground communication and is the one which most owners of scanning receivers are familiar.

Although many channels may seem to be quiet, this is a characteristic of VHF communication, for although a transmission may not be audible for more than a few miles at ground level, due to their height, aircraft may still be within line-of-sight at two hundred miles or more. Under such circumstances signals are strong, even though transmitter power levels are quite low. Typically airport transmitters radiate 5 – 10 watts and airways equipment only 25 – 50 watts. The power radiated from aircraft is typically 5 – 25 watts.

In order to suppress background noise and distant transmissions to and from airports sharing the same channel, the receiver muting level is usually set



quite high, typically 3 microvolts, which corresponds to about S8 on most S meters.

### **Distance Measuring Equipment (DME)**

Continuing our journey through the frequency bands we next come to DME which operates on channels between 960 and 1215MHz.

The purpose of this equipment is to provide the pilot with indication of his distance from the facility. It is normally co-located with VOR (thus providing both bearing and distance) or in conjunction with ILS to provide distance-to-run on the final approach path.

In operation, the aircraft interrogates the beacon by radiating a series of pairs of precisely spaced pulses. On receiving these, the beacon delays by 50 microseconds and then radiate a series of pulse pairs on a frequency 63MHz removed from the interrogation

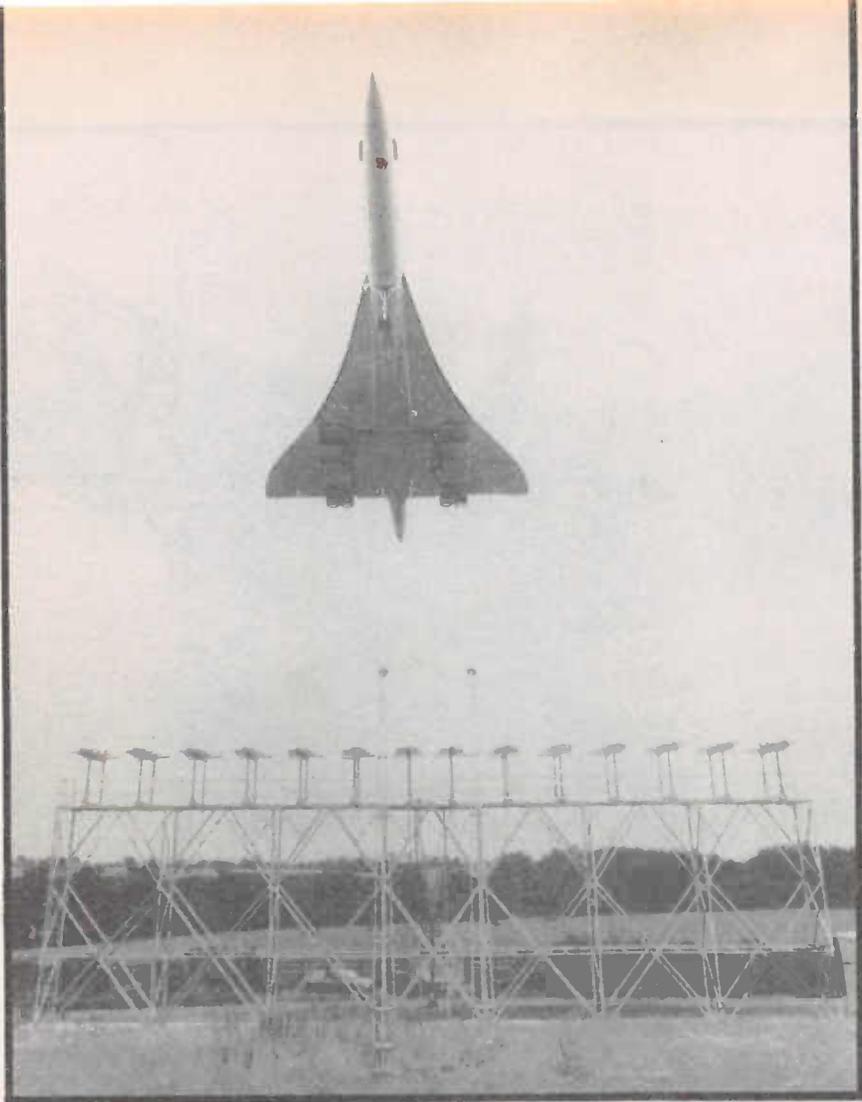
frequency.

These are received by the aircraft and from the time delay between transmission and reception, the distance from the DME station may be derived. As with most other modern aids, this may be displayed directly or connected to the navigation computer.

### **Radar**

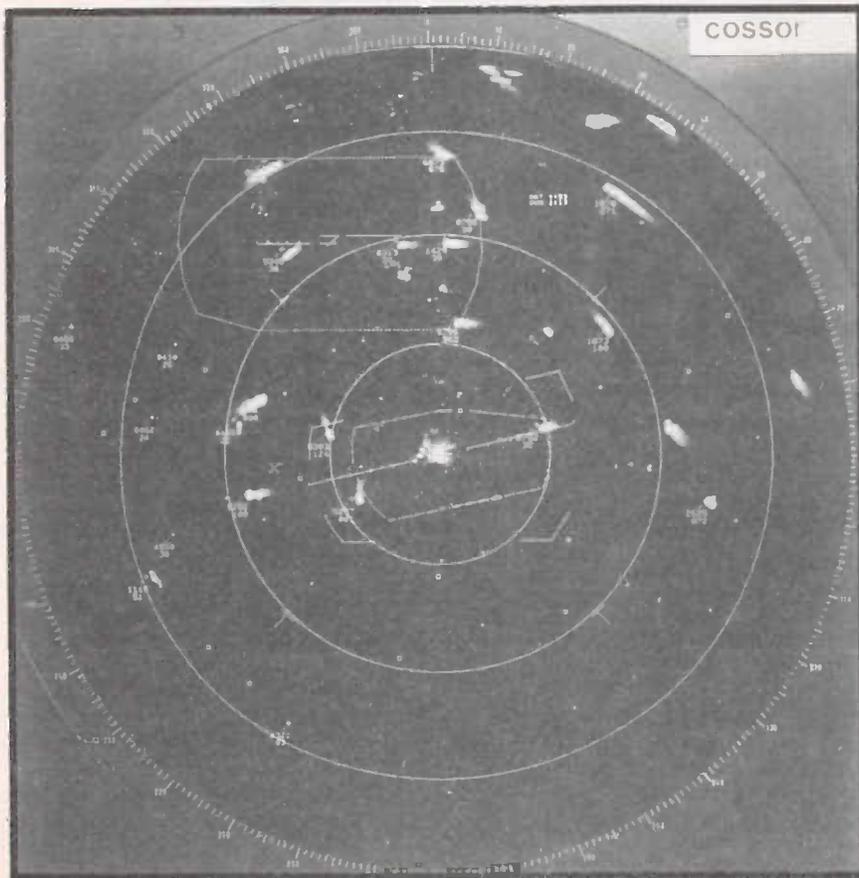
The general principle of radar is well known, i.e. that a pulse is radiated which impinges on the target which in turn reflects it back to the radar station. From the bearing of the radar aerial the direction of the target may be determined and from the time interval between transmission and receiving the reflected wave, the range. This is known as Primary Radar.

Three bands of frequencies are normally used for Primary Radar. These are known as L Band (about 1300MHz); S Band (about 3000MHz) and X band (about 10,000MHz). There are also a



few installations on other frequencies, notably the Q Band (35GHz) ground movements radar at London (Heathrow)

Airport. L Band equipment is used for long range surveillance. The output signals



from a chain of stations covering the United Kingdom are relayed to London Air Traffic Control Centre at West Drayton near London where the plots are combined in the computer to make a single radar picture of the whole of United Kingdom Airspace. Each controller is then able to select the section of the overall picture which he requires, even though the signals may have originated from one, two or even three different radar stations.

The S Band radars, which normally have a range of about 60 miles, are situated on airports and are used by the airport controllers to monitor traffic in the vicinity. They may also assist aircraft to make a descent in poor weather by giving directional instructions and advising of the height at which the aircraft should be at any point of the approach.

X Band Radars are used for two separate purposes. Some equipment is designed for similar purpose to the S Band radars whilst others are specifically configured for ground movement control. Such is the accuracy of the latter that the AR18X equipment, manufactured by Racal, will detect a briefcase left on the runway at a distance of three miles.

## SSR

A second type of radar is also in general use in which a series of pulses from a radar station are received by a receiver on the aircraft, which then transmits a series of pulses in reply. This is known as Secondary Surveillance Radar or SSR.

As the aircraft returns are not a result of reflection, the signal strengths are high enabling a considerable decrease in radiated power.

Furthermore, by coding the interrogation and the aircraft reply, a limited exchange of information is possible without effort on the part of controller or aircrew. Typically this may include the aircraft identification and flight level.

Secondary radar stations are co-sited with primary and the returns are displayed on the same screen as the primary returns.

All SSR stations operate on the same frequencies, the interrogations being on 1030MHz and the aircraft returns on 1090MHz.

On our journey through the aeromobile radio spectrum we have missed one or two systems such as Microwave Landing System on 5GHz and Doppler Navigation System on 13GHz. However, each of these is such complexity that it would justify an article on its own.

Even so, I hope that these two articles have provided an enjoyable introduction to the fascinating subject of aviation electronics.

# TWONG

JOHN RICHARDSON

LOOKIT OUR HERO, TWONG! HE HAVIN' SOME NECTAR! LOOKIT HIS DEVOTED FAN, RAG-DOLL! SHE GONNA SNEAK A LYL KISS! SHE COOL, SHE PURTY.....





Look out, Brighton, the Marshal's in town

1988 marked the sixth consecutive year of the Poppy Run charity cycle ride in aid of the Richmond Home for Disabled Ex-Servicemen and, to the credit of all those who both help and support the ride, they have raised around £10,000 over the years. Many clubs and individual breakers give their time year after year which makes for a very popular day and, to coincide with the ride, the Oscar Delta CB Club held a

weekend-long sponsored copy in addition to carrying out other duties.

The club mainly responsible for the whole event is the 2LO Radio Club. However, assistance from the following clubs etc. made sure that the 42 riders had a safe journey from Richmond (Surrey) to Brighton (Sussex): Dalmation BC, Claygate Village BC, Oscar Delta CBC, Hotel Charlie Group, Hotel Mike's, Manor Breakers CBC, Breaker-way



As well as the charity cycle ride, it was also

CBC and the Caterham Valley Breakers. Many of these breakers were out on the course long before the 9.30am start on Sunday 14th August and many did not get finished before 4pm.

The course winds its way out of Surrey via Reigate with a main stop at Earlswood Lakes before heading towards Sussex and Brighton through Cuckfield. There are a number of checkpoints along the way with a superb backup from the Red Cross, complete with ambulances. The riders and supporters are supplied with sandwiches and drinks for refreshment along the course and, as you would expect with a CB event, there were all sorts of bikes, including tandems.

Eccles (Ken), Chairman of the 2LO, explained that a lot of work goes into the event prior to the day. For instance, Bended Knee (Bob) handles the publicity, Silver Top (Mick) looks after the teams marking the route, Sue (Gypsy) has contact with the police and sea-front area, whilst M.I.S.C. (June), Rosco (Jimmy) and Mistress (Martha) sort out the food. But he adds: "These are only a few of the many who help - and to everyone I would like to say a



Chance to sample the delights of Brighton

# POPPY RUN '88

## Shepherd Man reports on the sixth Poppy Run charity cycle ride

special 'thanks' as, without them all, there would be no event".

I caught up with the riders at Earlswood Lakes, just the other side of Reigate, and they all seemed to be in good spirits, even though some were tired. One or two required repairs to their cycles and the chance of a rest. Then off we all went again, down the well-signposted course, passing checkpoint after checkpoint until we hit Brighton. Finding somewhere to park was a problem, as you would expect on a sunny day – it was packed. The first riders had already arrived and these were the special cycle club riders plus a

few breakers. The finish line was about one-third of the way along the seafront road with a special section set aside to welcome the riders. A radio link was maintained and backed up by Amateur radio. Amongst those who were given the task of 'clocking in' the riders, was Blue Eyes (Alice) from Middlesex. This lady has been a great supporter of many charity CB events over the years and, although she is in a wheelchair, it never stops her.

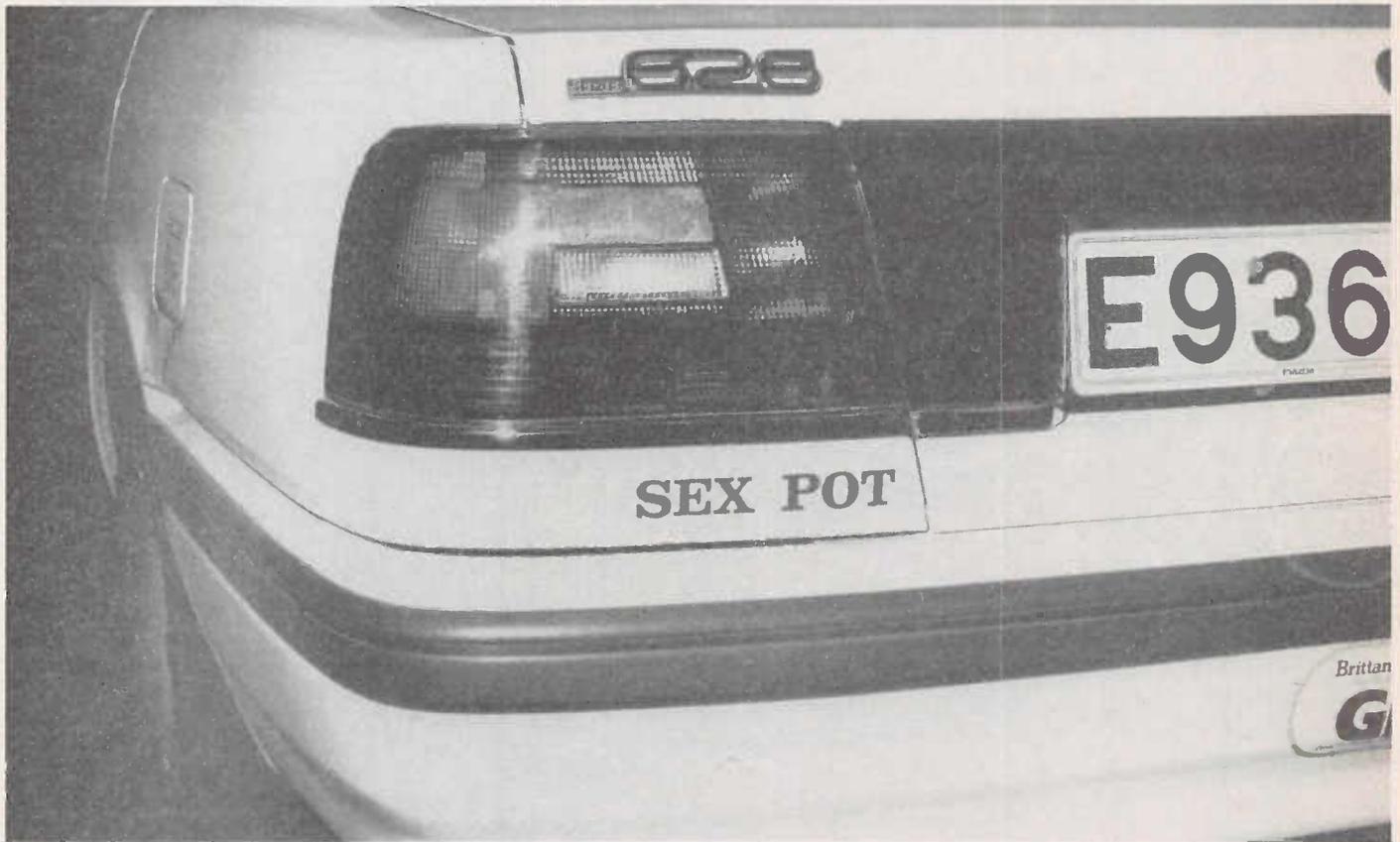
It seems that some of the usual riders could not make it this year which reduced the numbers taking part, although everyone remarked on how

much they had enjoyed the event. Special thanks should go to the mobile marshal station which radioed for an ambulance to take a young boy to hospital, after he ran out in the road between two coaches and was hit by a car. None of this had anything to do with the ride, but it does prove once again that CB and its users can, and do, help with emergencies.

By about 4pm, the stragglers had reached Brighton and all, bar one or two, had completed the sixty-plus miles dodging some heavy traffic. It is clear that although this ride started as an event to help raise money for a very worthy charity, it also turned into an Eyeball, as well as a chance to sample the delights of the south coast. As the riders and cycles were loaded into vans and cars, many of those present made their way back to a country pub for a relaxing evening.

The 2LO would very much like to hear from anyone who would like to take part in next year's event as well as anyone who pledged sponsorship money for the copy over the weekend. Please contact them via: PO Box 50, East Molesey, Surrey KT8 9QH and mark the envelope "Poppy Run".

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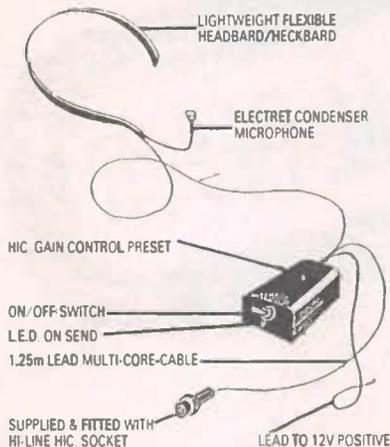
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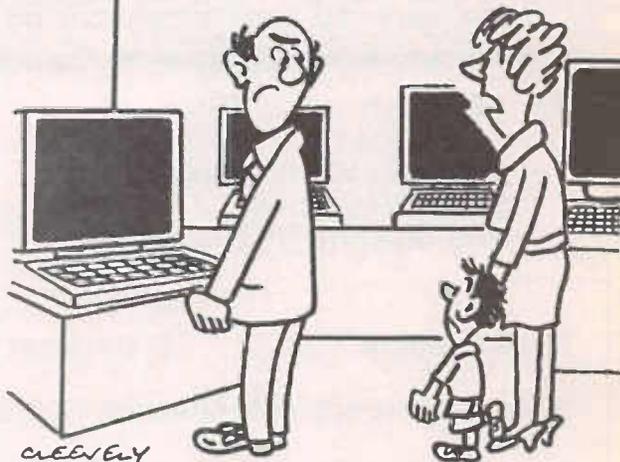
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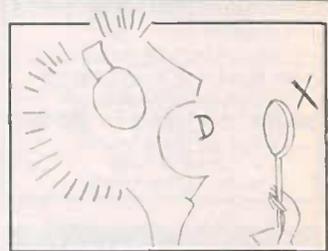
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