

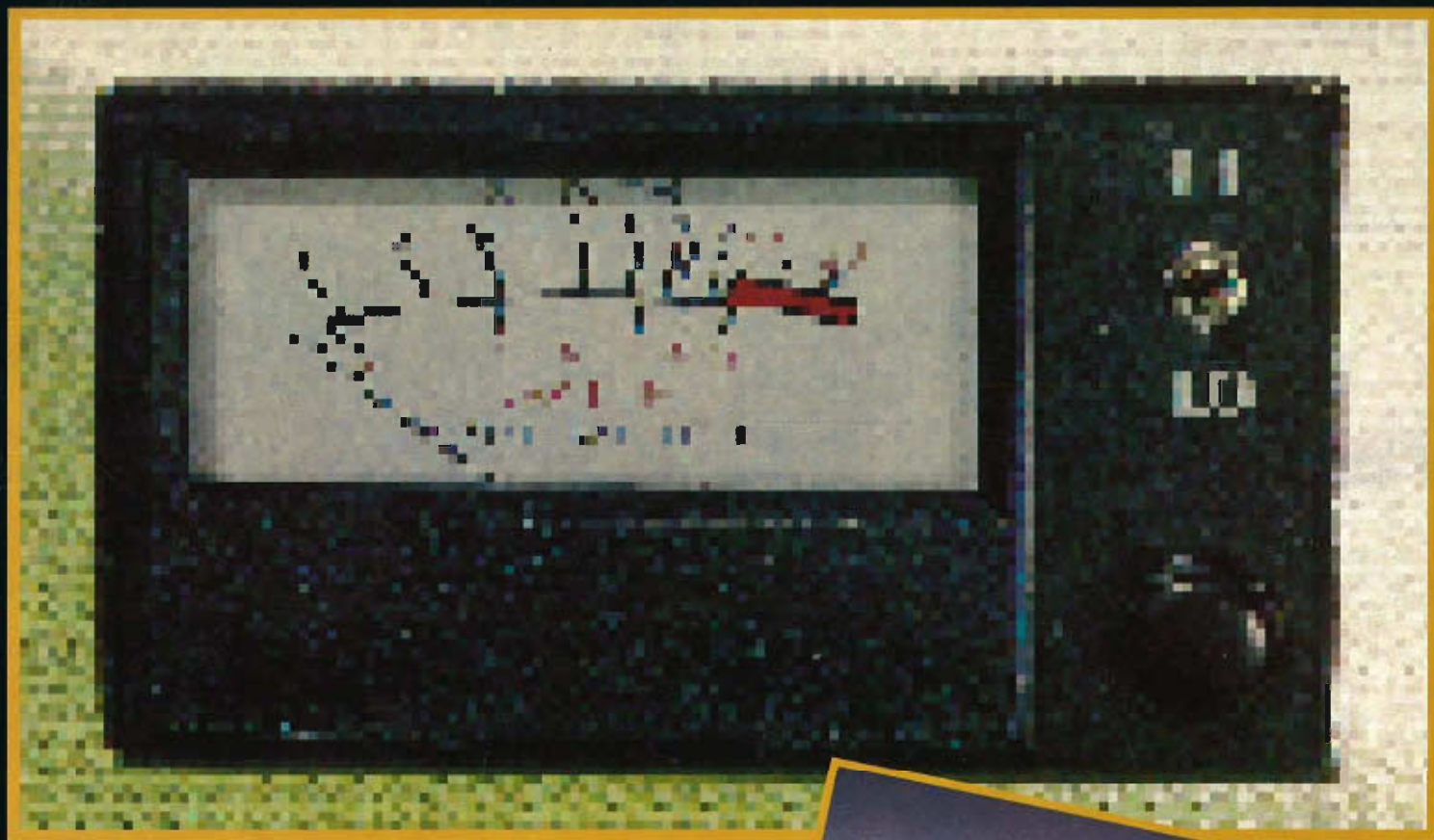
CB Citizens' Band

Britain's Leading Communications Magazine

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CLEAN UP YOUR SIGNAL

**Interference
and its causes**



A TIME FOR CHANGE

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regulations!**

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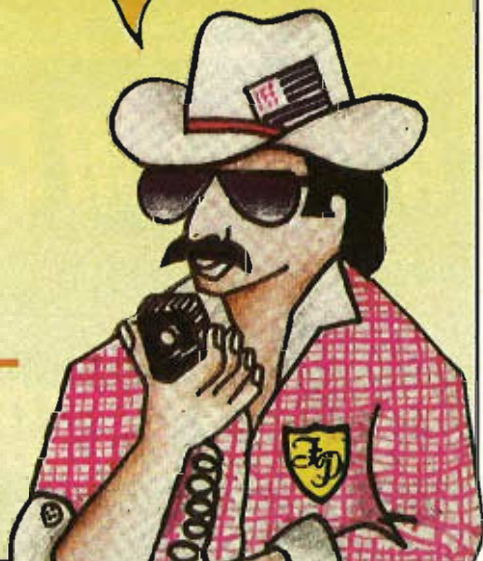


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Best!



CB Citizens' Band

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AUGUST 1986 VOLUME 5 NUMBER 9



Inside this month

Keith Townsend looks into the many causes of interference — and possible cures

Editor Eamonn Percival
Group Editor Sue Sharp
Ad Manager Dave Gaddesden
Copy Control Eileen Wheeler
Designer Footprint

Normally published on the third Friday of the month preceding cover date.

Citizens' Band Magazine A.S.P. Ltd., 1, Golden Square, London W1R 3AB. Telephone 01-437 0626. Typesetting and origination by Characters (Reading) Ltd., Reading, Berkshire. Printed by Loxley Brothers Limited, Aizlewood Road, Sheffield S8 0YS. Distribution by Argus Press Sales and Distribution Ltd., 12-18 Paul Street, London EC2A 4JS.

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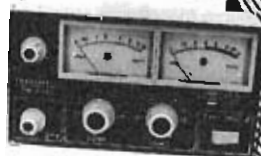
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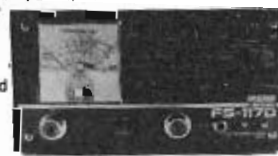
C.T.E. Azzura 27 Marine £24.72
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Allow £4 post/packing on all antennas listed

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(Incl. p&p)

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3/4 wave sigma II type superior base ant. With 5.5 dB gain. Length 9.1 meters. The highest gain vertical ant. on the market.

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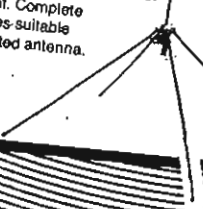
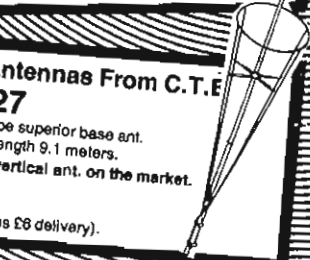
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An extremely efficient ant. Complete with loaded ground planes suitable as a lot of outdoor mounted antenna.

£15.96

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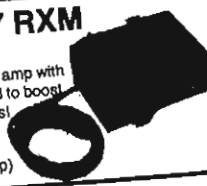
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Cybernet Service Manual	£6.00
Uniden Service Manual	£8.50
C.B. P.L.L. Data Book	£3.95
CB De-Luxe Log Book	99p
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NEVADA TC27 RXM Mobile Pre-amp

This is an extremely low noise amp with over 20dB's of gain - designed to boost reception on even the best rigs!

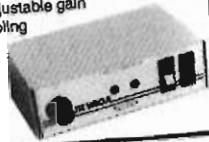
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TC2

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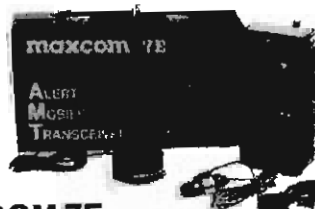
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£69

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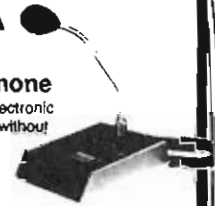


NEW SADELTA MB30 PLUS

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A new microphone with all the electronic features of the "Bravo Plus" but without the meter and slide control.

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The H404 is an economical unit offering many additional features and a good quality receive/transmit section limited number only.

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Base Station

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RADIOTECHNIC RT852

An exciting new set from Radiotechnic featuring a new squeeze design that combines both noise level and carrier level control; extremely low cross modulation; superior sensitivity; improved mixer and filter design a set we can thoroughly recommend.

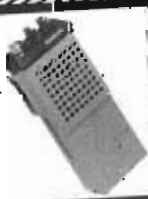
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POWER: 70 - 100 W AM/FM
140 - 180 W SSB

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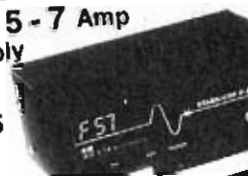


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THE 1986 CATALOGUES

Dear Breaker,
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UPDATE

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

Editorial

Hopefully, by the time you read this, summer will have arrived. At the time of writing (first week in June), it's not even on the horizon and the West End of London is not the prettiest sight in the world on a dark, rainy day. Then again, Sheffield's not up to much either. But I digress. What I meant to say was that summer is the time for the usual range of mass eyeballs. You know the sort of thing — everyone at the bar and not one person talking about CB! We've heard of a few so far and we try to report every one we get to find out about but as the summer looks like stretching on to (dare I say it) September, details about eyeballs for this time of year are patchy at the moment. If you know of any — even if you're not the organiser — let us know so we can let everyone else know. We promise to try and get out

to as many as possible but, as you all know, many do clash with each other on the same weekend and it's obviously not possible to cover every single one. However, if you've enjoyed any particular one, write and let us know.

Staying with clubs and individuals, we intend to try and squeeze in more details and information about clubs but, again, our manpower quota does not permit us to be everywhere at the same time. In the past I have received many invitations to drop in and see a particular club on a club night but this has not always been possible. Does one of your club members own a decent camera and can he take reasonable snaps? If so, why not cajole him into snapping a few club personalities or group shots and send them to us? We can't promise to use them all but there is always the chance your face may appear in the mag one day.

When sending shots in, please try to remember to give as much information as possible to accompany the photos (names, handles, information about the club etc). The photos should preferably be black and white but good, clear colour is acceptable.

Now, with the new FCC frequencies on the way next year, surely the time is right to start thinking about updating the current licence regulations. If some of the rules were "relaxed", the ideal time to do it would be when the new frequencies are adopted, so this month Keith Townsend puts a few ideas forward. Let's hope somebody listens! Elsewhere in the magazine, we take a look at some of the various accessories available and what they are capable of, and we look at some of the causes and cures of interference. Hope you like it!

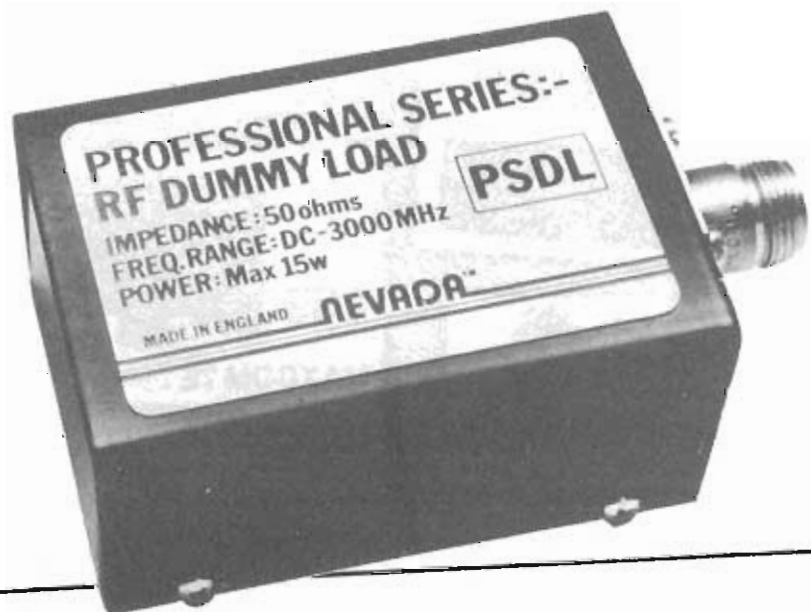
Eamonn Percival

Get a Dummy, Dummy!

Telecomms of Portsmouth recently introduced a new British-made dummy load with a specially extended frequency range — up to

3,000MHz! Part of the Nevada range, the unit is suitable for both 27MHz and 934MHz equipment. Telecomms say that they feel the dummy load is manufactured to such high standards that it will be

adopted by both amateur and professional users alike. Maximum power is 15 watts, impedance is 50 ohms, the frequency range covers from DC to 3,000MHz and it retails at £29 including VAT.



National REACT Appeal

REACT United Kingdom recently launched a national appeal for action in respect of CB abuse. Their official statement of appeal reads as follows:

"We, REACT United Kingdom, being a national voluntary communications service with special and specific interest in CB radio, offer to act as administrator for a national appeal on behalf of all CB users in all parts of the UK. To make such an appeal on an individual basis would not be productive and, further, a properly presented and collated appeal, together with indexed support documents from all CB users would offer maximum impact.

We therefore appeal to all CB user groups, clubs, independent monitoring groups etc to complete our official national appeal form and return it either to your local REACT contact or to REACT UK, Rotherwood Cottage, Dale Road South, Darley Dale, Matlock, Derbyshire. Please clearly mark your envelope "National CB Appeal". This is every CB user group's opportunity to do something positive and constructive on the matter of CB abuse, and lack of protection from CB abuse.

Please note that the distribution, collection of signatures, return of forms, collation, indexing and other administrative tasks inherent in this major appeal means that we envisage presentation of the documents in March or April next year. It is essential that we receive your forms by 31st December 1986 at the latest."

Unfortunately, space does not permit us to include the accompanying statement of appeal and signature sheet which REACT UK have also produced. We therefore suggest you write to the General Secretary at the address above for forms and documents.

Grey Beard's Gleanings

Hi there, it's me again. First of all, in the May edition I wrote that the use of a beam antenna for receiving only was legal. For all those of you that pointed out my error, thank you, the Editor really enjoyed melting the "phone wires! It is, of course, illegal to use a beam at all for CB (UK) FM operation. Okay now? Watch out for more of the same!

Things are really hectic again here at the "Gleanery", it seems as if everyone has suddenly discovered my address again! If you have ever sent me a QSL, please send another one as it would appear that between the deprivations of my old dog and the necessary reshuffle when I was confined to bed for 7-8 months, my collection has suffered almost total wasting away! Please don't forget the SASE (Self Addressed Stamped Envelope) or at least two 2nd class stamps, please.

Thank you to everyone who wrote about their handhelds, it would seem that, although every model has its fans, my original choice is as close to most people's ideal machine.

I am delighted to hear that so many chairmen/women are taking the wheels outside now that winter has finally gone (fingers crossed!). As I have said many times before, don't be tempted to tap into an electric powered wheelchair's electric system. You are almost bound to invalidate any guarantee that exists, if not it will mean that your next repair will cost a lot more than you think, after you've been "meddling"! It's almost bound to overload the system, damaging the wiring etc not to mention the drastic reduction in overall range between full charging sessions.

My friend "Perspex" writes to ask me to tell him of good illegal twigs that he can fit to improve his range. Sorry old mate, you'll have



to try elsewhere for that type of information. I will say though, don't be misled by claims of really fantastic gain expressed in dBi, these can't really be proved, practically, at least. See previous antenna articles in CB by the acknowledged experts.

I would like to hear from all you hardworking CB Club Secs/PROs with fundraising activities on the go. It is a good thing to let other clubs know of the different ways of fundraising. Who knows, they might have run out of ideas/steam and just need a little boost to get them going again.

To end this month, I will tell you of a lady about whom I made several mistakes in the past, who finally caused me to get mixed up in a heated discussion about the number of ladies that run CB shops! Anyway, she is

still speaking to me, and tells me that she is currently in a position to supply antenna mounting equipment by Thorobred, of most special interest to disabled people is the "flat bar mirror mount" with 3/8" thread and an S0239. The price is £6.95 plus P&P.

Lyn White (Ms) can be found at The CQ CB Shop, 1, St James Rd., Gravesend, Kent, DA11 0HF. Thanks for the nice thoughts Lyn.

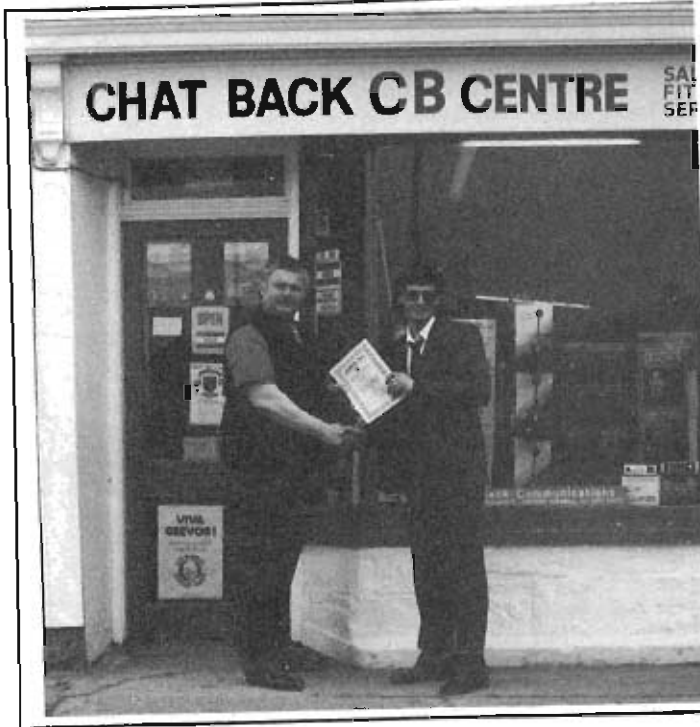
Well it's that time again folks, keep the letters coming in, after all, I need you to tell me what you wish to know about I probably won't know either but there is always someone out there in CB-land that does. You can guarantee it if I get anything wrong!

The Grey Beard



UPDATE

**NEWS
FROM
THE
WORLD
OF
CB**
**NEWS
FROM
THE
WORLD
OF
CB**
**NEWS
FROM
THE
WORLD
OF
CB**



Ultimate Communications

Pictured here are Dave Proud (left) being presented with the Nevada Dealers certificate by Phil Jeffery of Telecomms. Dave runs the very successful Chatback CB Centre in Camborne, Cornwall, and has recently rocketed to the Number One spot in Telecomms' 934MHz Dealer League when he successfully negotiated and supplied 13 Cybernet Delta 1 transceivers plus Nevada antennas to the British Telecom Goonhilly Down Satellite Earth Communications Base in Halston. Apparently, they were dissatisfied with their BT Bleeper System! After extensive trials, they settled for 934 MHz in order to communicate with their maintenance engineers around the site.

New 934 Club

A brand-new organisation has just been formed catering for 934MHz users. The Personal Radio Club of Great Britain 934MHz is aiming to represent the main stream of 934MHz users in the UK. Based in Southampton at the moment, they have already had a massive response for membership from the south of England, but they would also welcome enquiries from other 934 operators

anywhere else in the UK.

The club tells us that they are looking for those operators who may have an extra bit of free time to help as club representatives from their local areas who may then co-ordinate local points of view to the Club's magazine, the first issue of which is due out shortly.

The PRCGB aim to represent the voice of the users of this band to the DTI in how they wish the 934MHz band to be

protected and developed. They say they wish to generate a much more open dialogue between users, the DTI, the Press and radio magazines.

An introductory letter, detailing the aims of the Club, will be sent free of charge to those users who are interested in joining the Club. Please write to: Honorary Secretary, 41 Twyford Avenue, Shirley, Southampton SO1 5NZ.

New from Newnes

Radio and Electronics Engineer's Pocket Book by Keith Brindley (ISBN 0-408-00720-6): This is the 16th edition of an invaluable compendium of facts, figures and formulae for anyone interested in radio and electronics. It has been completely redesigned and revised into a smaller, easier-to-use format and covers just about everything

the enthusiast would wish to know. Tables, diagrams, listings of all sorts are included in a very well-laid-out style. Everything from A (Abbreviations) to Z (Zener diodes) is covered — the book also includes a superb easy-look-up index. We thoroughly recommend this book to anyone involved in electronics or radio in any shape or form. *The Radio and Electronics Engineer's Pocket Book* is published by

Newnes Technical Books, Bridge House, 69 London Road, Twickenham, Middlesex. Recommended retail price is £5.50. Also from Newnes comes the *Practical Electronics Handbook, 16 Bit Microprocessor Handbook, Oscilloscopes — How to Use Them, How They Work and Op-Amps — Their Principles and Applications*. Again, details from the address above.

European CB Federation Congress

The European CB Federation Congress, held in Steyr, Austria on 26th and 27th April 1986 was attended by Brian Babbington (President of Natcolcibar), Peggy Tapper (Admin Secretary of Natcolcibar) and David Tapper (Vice President of Natcolcibar). During the Congress, the two-yearly elections for the President took place and Peggy Tapper was unanimously elected as Secretary General of the ECBF by all countries present.

Peggy has been Meeting Secretary for ECBF since April 1983 and was elected third Vice President the following year. She feels that the position of Secretary General will be a challenge as there is a lot of work to be done in Europe but also added that her job as Admin Secretary of Natcolcibar must be the priority. A lot of the work of the two positions overlap and they should compliment each other, she feels, and says that while working for CB in Europe, it is being done for the UK and vice versa.

The address for Natcolcibar is: Mrs Peggy Tapper, 38 Amroth Walk, St Dials, Cumbran, Gwent NP44 4NQ. If any club or individual is interested in finding out more about Natcolcibar, Peggy says that she will be pleased to hear from them but that a SAE would help speed up a reply.

Arrow's New Aim

Arrow Electronics recently announced that they have been appointed sole UK distributors for GDN/ISAM of Switzerland, who market the Hotline Range of communications equipment from scanners to handheld transceivers with names like Kenpro, Standard, Alinco, Bearcat, Pace and others.

The new catalogue, Hotline International, costs 50p and is available from Arrow Electronics Limited, 5 The Street, Hatfield Peveral, Chelmsford, Essex. Telephone (0245) 381673 or 381626.

Help Save a Life

The Sierra India Group of Scunthorpe have organised a Mass Gathering for Sunday 24th August to be held at Quibell Park, Bruvy Wood Lane, Scunthorpe. All proceeds will go towards funding equipment necessary for a doctor at Newcastle Infirmary to perform liver transplants for small children and babies. At present, it costs a staggering £250,000 per child to go to the USA for this type of life-saving

operation.

The event will include sideshows, races, local business stalls and CB stalls — lots of fun for both children and adults. All clubs are invited to enter their own 'CB Queen' to become 'Queen of CB representing the Liver Transplant Fund'. The Gathering will begin at 10am and finish at 8pm; tickets cost 50p (adults), and 25p (children over 5 and senior citizens). Children under 5 gain free entrance.

The group have, in the

past, saved the life of a young boy from Hull, and their Chameleon Disco has also raised over £1,800 for different charities. The Chameleon Disco, incidentally, would also like to offer their services — at a cost of expenses only — to any club raising funds for charity.

The Sierra India Group and/or Chameleon Disco can be contacted via: Leader One, c/o 166 Cottage Beck Road, Scunthorpe, South Humberside, or telephone (0724) 853256.

Sunrisers Eyeball

Another eyeball to be held this year takes place on Saturday 4th October at the Home Farm Caravan Park, Burnham on Sea. The event is being organised by the Sunrisers DX Group and begins at 10am, finishing at midnight.

There are overnight stands available for caravans or tents, and tickets cost £2.50 (adults) or £1.00 (children). The ticket price also includes a pig roast. If any clubs or groups require space for stalls, they should write to: 1SR14 Keith, PO Box 7, Bridgwater, Somerset.

SCANNERS

A VHF/UHF Listener's Guide

Peter Rouse GUTDKD



Scanning the Latest

Scanners by Peter Rouse (ISBN 0-85242-8804):

Scanning, as many of you know, is a growing hobby amongst radio enthusiasts and it is nice to see such a well-researched book solely about scanning on the market. Well, it's not solely about scanning — it also takes in peripheral information about radio receivers and transmitters, antennae and frequency allocations. It also includes some very informative photographs, diagrams and tables plus a review of currently available scanners and accessories. *Scanners* is published by Argus Books Limited, 1 Golden Square, London W1R 3AB and costs £7.95.

Calling Potential Hams

A Radio Amateurs' Examination course is to be held at Paddington College in London commencing 16th September.

The RAE course at Paddington is perhaps rather different to the normal run of RAE courses. Not only does it cover the syllabus for the City & Guilds RAE exam, but also makes use of the College's facilities to allow students to carry out practical

experiments in the electronic theory covered. The aim is to provide an elementary grounding in electronics as well as an Amateur Radio Licence. The course is pitched at the student with no previous experience of radio or electronics. Over the past few years, the course has maintained an RAE pass rate close to 90%.

Because of the extended scope of the course, attendance is required twice a week during term time, between mid-September

and the examination itself in May (30 weeks).

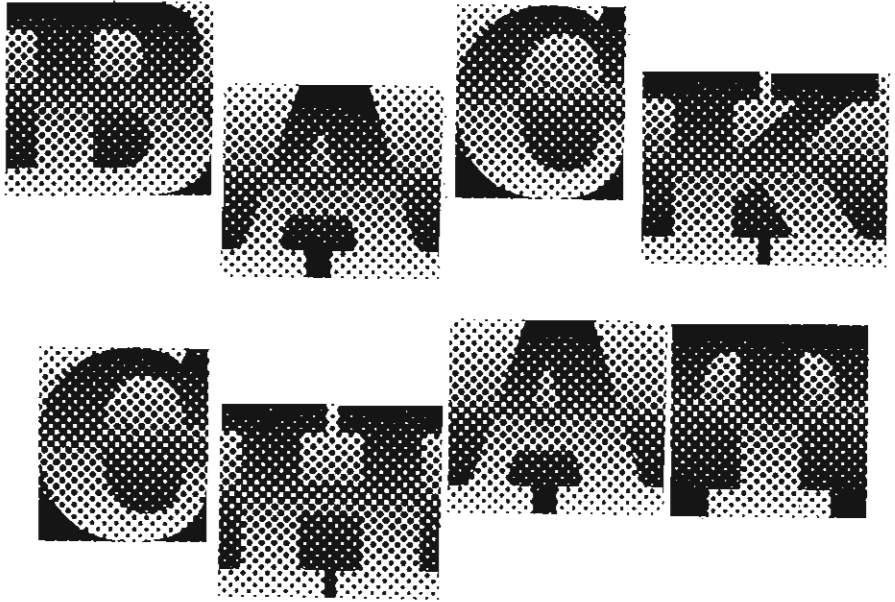
Enrolments are on 8th, 9th and 10th September between 1pm to 4pm and 6pm to 8pm at Paddington College, Paddington Green, London W2 1NB.

Enrolments can also be taken during the first few weeks of the course.

The course tutors are David Peace (G4KKM) and David Hunt (G6MFR). For further information, contact Paddington College on 01-402-6221 or David Peace on 01-892 7585.



More news, views and opinions from you, the readers



Hands Off 934!

Mr Rowthorn from Southampton has a few ideas about business use of CB...

Well, it didn't take long for the business users to muscle in on 934MHz (Back to Business, January 1986). When, campaigning for the legalisation of CB, I tried to raise support amongst businesses in this area, they did not want to know. Now they have realised the potential of radio, they want to take over 934MHz which is essentially a personal communications system.

If they don't want contact with other users, instead of filling the channels with electronic gimmicks, business users and the powerful PMR industry should get off their backsides and campaign to update and overhaul the present near-useless PMR system to provide them with professional facilities that they require at a price they will pay. So hands off 934!

Apathy — But Who Cares?

Tony Bevington, chairman of BCBC, wonders who really cares about the state of CB...

The letter from Dogsbody in the April issue amazed, depressed and annoyed me but I must admit it didn't surprise me at all. As chairman of British Citizens' Band Council and ex-chairman of Natcolcibar I am only too well aware of the dedication, sacrifice and effort that has been made by a few on behalf of the many and it seems as if the many are not interested.

When I was involved with Natcolcibar, myself and other members travelled hundreds of miles both in the UK and abroad, paying the majority of our expenses from our own pockets, to try and improve the lot of CB. Dogsbody, being unable to indulge in nostalgia, has missed out on the only segment of CB history that is of any credit to the CBer, history that is of course still in the making.

The problem then is the same as it is now: apathy. Why complain about the lack of dedicated representation? Take it from me, the people are still there to do the job, the only trouble is that they are exhausted with having to do it underfunded and alone. They are burned out with fighting CB's battles unsupported. After all, let's face it, the generals in an army are only strong as the forces they have behind them. Neither of the CB representative bodies in this country could claim to have the required strength of membership to make the authorities sit up and take notice of their arguments and demands. In fact, in retrospect, this weakness was their downfall as they are unable to sway authorities' minds with a massive show of force in demonstration. Only once did they succeed, and then legalisation became a catastrophe.

I sincerely believe that for CB to be cleaned up and to have a representative body that can speak for the consumer, giving them value for their licence fee and an effective system, we have to start again. Firstly at the grass roots on a county level with clubs forming into an associated body to speak for CBers in their county, then expanding out and allowing the associations to be part of a national association made up of representatives from county level. The only trouble is that, yet again, we come to the crunch; whatever is done will require sacrifice and dedication by a few and in light of the situation as it stands at present I doubt they exist. And if I'm right, then the history of CB will tell how CB gradually declined until abuse and misuse prevailed when the government stepped in and withdrew it and re-allocated the frequencies to a group that would be less trouble and far more lucrative. Don't say it couldn't happen, you wouldn't let it, because CBers can't even get together to stop the abuse, and poor old Dogsbody and a few like him won't be able to do much! The future of CB lies in the users' hands I wonder how much they really care?

Plea for Help

From Scotland, the Diver writes asking for help in tracking offenders. . .

On reading your Back Chat letter in the May issue of Citizens' Band, about an ex-wally having callers at his door for playing music on channel 19, I thought I would tell you that we have a couple of dozen 'breakers' up here who are also abusing CB in the Firth of Forth area. They do this every day and yet no-one seems to get a visit from the DTI man.

Although a few years ago, when rigs were illegal, Busby wasn't long in catching hundreds of breakers in the Edinburgh area alone, now that people are paying for the use of CB they do not seem to be policing the channels at all. Is there anyone on this area who can do something?

Unfortunately, we don't know of any specific tracking groups in that area. Perhaps any of our Scottish readers know better. If you do, write and tell us and we'll pass the information on.

No Air Traffic

All the way from the Phillipines, The Grasshopper hopes to one day talk to us. . .

I am in the US Navy, stationed at Subic Bay in the Phillipines. It was just over a year ago when I started receiving your very informative magazine and I now go through it from cover to cover.

CB radio traffic is not as congested as in England here, nor it is as congested as my home in Louisiana, Being here, I've communicated with Indonesia, Australia, Okinawa and mainland Japan. As I said, no traffic problems here!

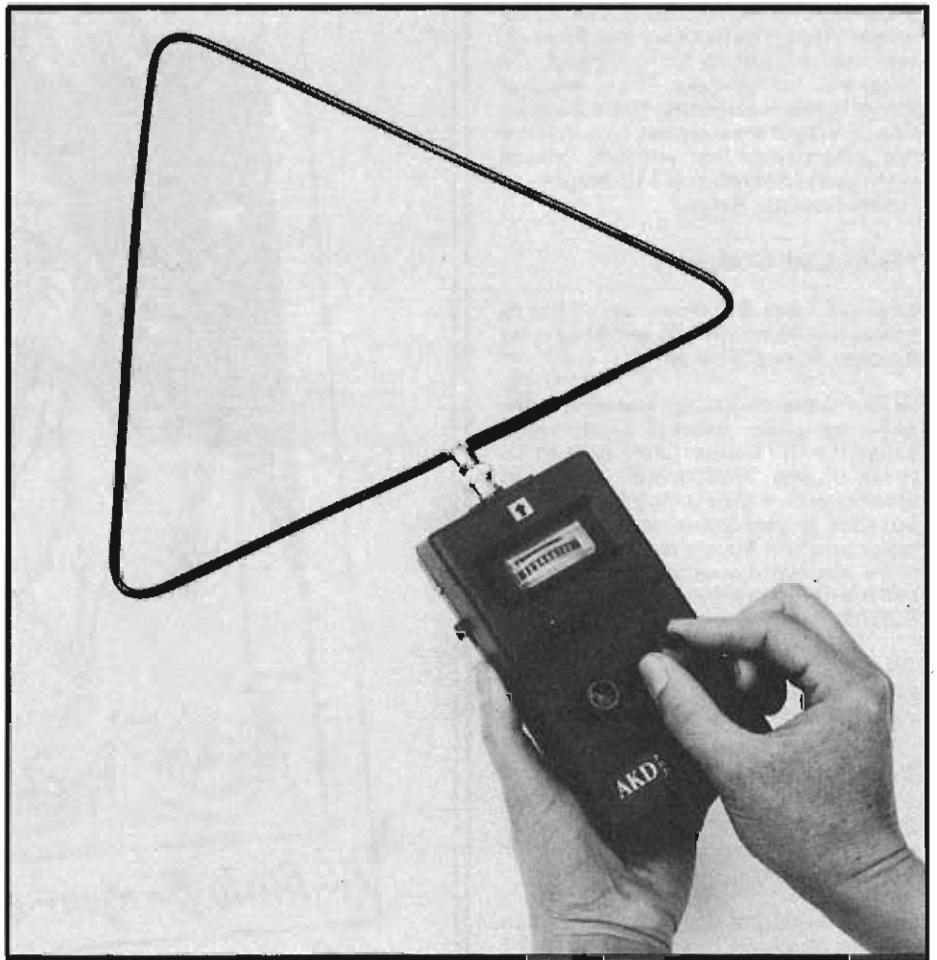
Please continue to print the truth because CB radio can be a great source of enjoyment, especially when your voice reaches out to those distant stations, My handle is Grasshopper. I know you are on the other side of the globe, but, who knows, maybe one day when the skip is just right I will be able to say hello to a CBer in England.

Monitoring Confusion

Ian Oliver, National Officer of Monitoring Service of Great Britain (Voluntary Organisation) wishes to clear up some confusion. . .

We are led to believe that some breakers are confused over the monitoring groups MSGB and MSGB Ltd. Some people believe that they are, in fact, the same monitoring organisation. I would therefore like to make it clear that we are a two *totally* separate organisations and the MSGB Ltd was formed after a breakaway from the original MSGB and that we, the original MSGB are members of Nacolcibar, and proud of it.

We should make it clear that we ask our members to comply fully with the law governing the use of CB radio, as do other voluntary monitoring organisations. And that our only aim is to assist others.



DF units required urgently for the Firth of Forth (see third letter)

Death of 934

John Smith from Staffordshire is a bit worried about the recent proposal for a personal radio service. . .

I am replying to the item in June about the proposed PR service. The author asked if we had any thoughts about it. Well, I would say that, in its present format, it means the death of 934MHz CB.

To me, it seems more like business PMR — single calling channel, access to channels only by digital calling, no access to channels already in use, no scan of channels etc.

What we were given as 934 CB was for hobby users — and it was totally British. Then CEPT looked at it and thought it was a good frequency for Europe so we moved by 12½ kHz to come into line with them. Now they want the Japanese system which is not for hobby users at all. If they want a business radio system, then let them go elsewhere. I remain opposed to it as are, I think you will find, many more 934 operators.

Shut up Big T

Roadliner (GRO3) from Dursley has an odd complaint against our own trucking correspondent, Big T. . .

This is a strong complaint about the suffering we breakers in the Gloucester area have to endure in the mornings on channel 38. It is, in fact, the Telford

Terror, Big T and his sidekick the Telford Badger.

We GRs cannot have a quiet talk with our local breakers because we get this horrible sound coming out of Telford. It's a horrible gurgling sound. In fact, it's Big T heading south — singing! It's quite frightening and most of our breakers run with fright.

Do any other good breakers around the UK suffer this fate?

Hmmm . . . a strange one this. Unfortunately, Big T was unavailable for comment at the time of going to press so we really can't give you a straight answer this time around. Perhaps he's in some recording studio somewhere making his new album "Gurgle Along with Big T". Seriously though, we'll ask him when he's back off the road.

Monitors Working Together

Mr B Wright of the Solent Monitoring Service has a few words to say about monitors — and also gets in a plug for his group. . .

Regarding recent coverage and comments on monitors, as President and Founder Member of the Solent Monitoring Service (formerly Portsmouth area), I can only praise the monitors who do a good job and stick it out, putting up with all the abuse and foul language. So, come on breakers, be fair. We do our best so why don't we all try and work together as we do with Southampton REACT and stop back-

stabbing and mud-slinging. We would all get on a lot better if we did. After all, we are supposed to be good CB breakers. Incidentally, if any breaker living in the Hampshire, West Sussex, Isle of Wight area wishes to join us or our emergency first aid unit, please write to the Secretary at 115 Swanmore Road, Havant, Hants.

Hello Old Codger

Skyliner, from Somerset, would like to see a few lines about a rather special breaker from that area. . .

In Burnham-on-sea in Somerset, we have an elder breaker on channel called the Old Codger (Jim). He was 83 years of age in May and is a great breaker with a great many friends. Is it possible to give him a mention in your magazine? He buys it regularly, as I do and I am sure he would be thrilled to see his name in print. Jim's call sign is BCB26.

OK, just the once, we'll make a special exception for a special breaker. Hi, Jim, it's nice to hear about you.

Attention Green Stag

Butterfly and Red Admiral from Mablethorpe, Lincs, are on the lookout for Green Stag. . .

We are writing to you to see if you can help us. We have been trying to find a breaker with the handle Green Stag. He sent us a QSL card but forgot to put his address on it.

He came from Royston, Yorkshire, and the card had a picture of Barnsley Town Hall on the front. We have tried other breakers from that area since 1983 but without success. Perhaps he will see this in your letters pages and will realise we have done our best to get in touch.

Scottish CB Newsheet

Bunny from Glasgow has some interesting news for Scottish breakers. . .

I am producing a Scottish CB Newsheet, the first copy of which will be available in September and which will be free of charge. Thereafter, each copy will cost 35p, being published every two months.

As this is a new publication, I need the support and information from Scottish CBers to make the newsheet interesting reading. Please send in your information under the following categories:

1. Dates and locations of future events.
2. Club News.
3. Big Wheelers.
4. Information about past events.
5. Letters.
6. Any other Scottish CB information. *The above information will be free of charge.*
7. Sales and Wants. *All information must include handle, address and/or phone number, at the cost of 5p per word.*

All information (plus cash if applicable) should be sent to: Scottish



Hello Old Codger (left)

Newsheet, c/o Arnail, Patison, Neilston, Glasgow G78 3AT. All cheques or postal orders should be made out to "Scottish CB Newsheet", crossed with your own name and address on the back. All information for the first issue must reach me by 20th August 1986.

Safety first

Mr C H Phillips of MK Electric Limited of Edmonton offers some helpful advice on plugs. . .

We were interested to read the feature on plugs on page 28 of your May issue, which on the whole contains good advice. There are however two technical points which should perhaps be noted.

The author cites BS 1363A as the safe standard for plugs, but this of course the standard for *resilient* plugs. Plugs manufactured to BS 1363 are perfectly safe though if the user anticipates rough treatment BS 1363A might be preferred.

Incidentally, BS 1363 has been revised (January 1st 1985) and from January 1987 it will be a requirement of this standard that all plugs shall have sleeved line and neutral pins as an additional safety precaution. After that date any 13A plug not having sleeved pins would not conform to BS 1363.

Having said that, it should be noted that plugs sometimes appear on the

market labelled BS 1363 which in our view are not at all satisfactory. These items are usually of 'rogue' foreign origin. It is still a wise precaution to buy plugs only from a reputable manufacturer.

The other point is that it is not true to say that welded or one-piece fuse clips are better — riveting and/or screwing is preferred by the major manufacturers though again it is the quality that matters. Silver plated fuse clips are a necessary feature of a well-designed plug.

The point about earth wires coming loose and touching the live pin is well made, though on a well-made plug the cable clamp should make this impossible. But the type of accident described can be minimised if an earth leakage circuit breaker is used in the circuit. These devices (nowadays called RCBs) will shut off the current within one fortieth of a second if it passes through body to earth. Anyone using electrical equipment — especially hobbyists — would be very wise to have one fitted. It doesn't cost a lot, and can save your life if there is an electrical accident.

**Letters should be
addressed to: Back Chat,
Citizens' Band,
1 Golden Square, London
W1R 3AB**



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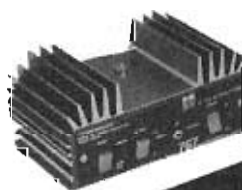
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TELECOMMS

making sure that the joint was cleanly soldered.

Result: the SWR is still well into the red and I can see no obvious reason for it. Please can you tell what else, if anything, is likely to be wrong?

A From your description, Nighthawk, I would guess that the water has gone deeper than is immediately obvious. Although the main body of the cable may appear to be dry it is very likely that water has seeped between the various layers of the cable and is affecting the way in which it delivers power to the antenna. Once coax has become wet inside there is little that can be done about it and the only real solution is to replace it with a new length.

To avoid the problem from recurring at a later date you would be well advised to fit the new cable in such a way that any water which might get in has to try to run uphill. The easiest way to do this is to make a large loop in the cable, close to the antenna and to cover the connection in something water repellent, such as grease or underseal.

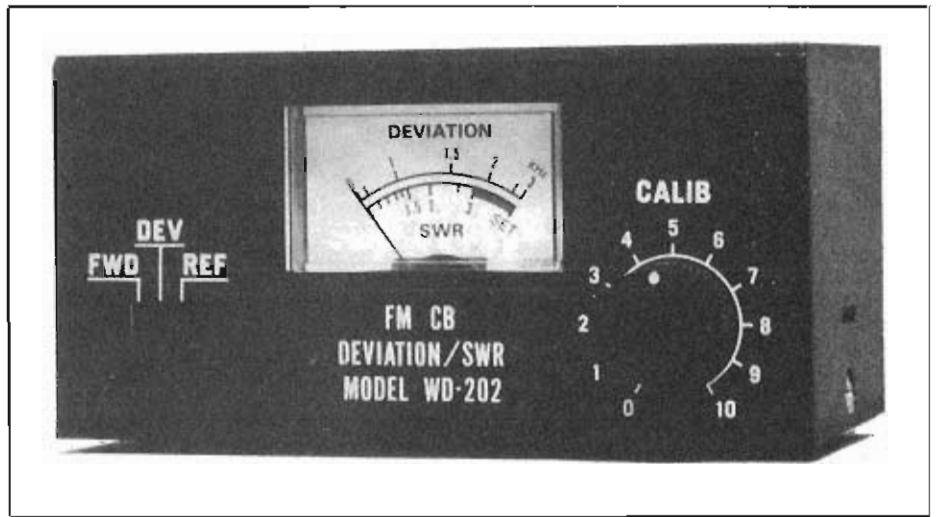
Television Topics

Mr A Thompson writes from somewhere in London because he is suffering a rather peculiar form of television interference and wonders whether or not it might be down to CB . . .

Q On various occasions, usually late in the evening, I have experienced what I believe to be some form of interference to television reception and though I know little or nothing of CB, I understand that it can cause such problems in certain circumstances. In my case the interference, which is intermittent but has, on occasions, gone on for up to two hours, is to the sound and takes the form of what seems to be badly distorted speech which obliterates the sound track of the programme I am watching.

Please can you tell me firstly whether what I am hearing is likely to be the result of a nearby CB transmission and secondly what can I do to try and eradicate the problem, which first appeared about six weeks ago? I have consulted a television engineer, who assures me that there is nothing wrong with my set.

A You are correct, Mr Thompson, in suggesting that there are circumstances in which CB can cause interference to TV reception but the same can be said of all forms of radio transmission and it is absolutely impossible to offer you a categoric yes or no on whether your particular problem is related to a CB transmission. From your description, though, I am pretty certain that you are suffering the effects of some form of radio transmission. Your explanation of intermittent, garbled audio suggests that the source may be some form of single sideband transmission and although use of this mode is not permitted under the terms of a CB licence, some



SWR problems — see third letter

CB stations are operated in this manner, whilst a number of other radio services use it legally and it is equally possible that your problem might come from one of these services, though the timing does tend to suggest some form of hobby transmission, rather than a commercial service. Whatever its source, there are numerous reasons why a radio signal might break through onto a TV set and although an engineer has pronounced yours fit and healthy this does not preclude the possibility that some part of its innards are not adequately shielded against unwanted signals, or that your aerial system does not have some deficiency.

You will perhaps gain a better understanding of the problem by obtaining a copy of the recently published *Guide to Better Television and Radio Reception*, which may be obtained free of charge from any Post Office. From this booklet you will see that you are entitled to call upon the services of the Radio Investigation Service, who can offer expert advice. They will, however, make a charge of £21 for visiting your home, unless you can direct them to the source of an illegal transmission, in which case no fee will be charged.

Unwanted Signals

Paul, from Upper Weston, is suffering from a mystery signal . . .

Q I have an Audioline 341 and a Midland 4001 plus a Thunderpole 111 antenna, but I am getting a constant full-scale signal on channel 40. Could it be my antenna?

A No, I don't think the problem lies in your antenna, Paul. It sounds to me like something being generated very locally, possibly even from your own house. A friend of mine had a similar problem but traced it to a capacitor having gone on his refrigerator's thermostat. You don't mention whether or not the problem occurs with both rigs. If it is only with one, then it could be a

faulty cpu, but this problem is very unlikely to occur on both rigs so it sounds like an electrical appliance is at the root of the problem. If it's not coming from your own house, you could try and borrow a handheld and walk around the area to try and locate the epicentre of the interference.

CB in Stereo

John Wood, who revels in the title *Werewolf* and haunts the Glasgow area is creating a few problems of his own . . .

Q Having invested a fair amount of money in a quality hi-fi unit, I was amazed to hear my own voice coming from the speakers whenever I use my CB rig, even when the hi-fi is switched off. Please can you identify the trouble and suggest a possible cure?

A The fact that your interference occurs when no power is being delivered to the speakers points straight to the speaker leads, John. They seem to make quite a good 27MHz antenna and although altering their length would cure the difficulty, it might also affect the performance of your hi-fi system. The alternative is to disconnect the speaker leads from both ends and fit ferrite beads as close as possible to either end. If this fails, try wrapping the ends of each lead a few times around a ferrite ring and the interference should cease.

Problems should be sent to:
CB Q&A, Citizens' Band,
1, Golden Square,
London W1R 3AB

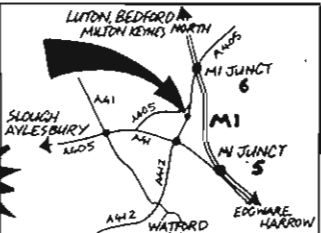


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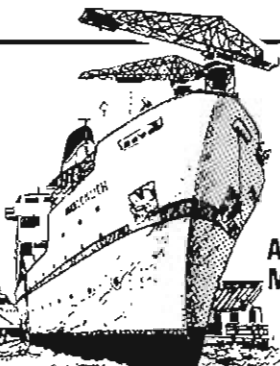


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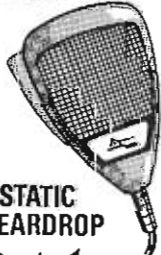
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REGULAR RG58 - typical loss

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at 4 watts in this means 1 watt out
at 100 watts in 25 watts out.

MINI RG8/U typical loss 1.5db per

100' @ 27mhz
at 4 watts in this means 3.3 watts out
at 100 watts in 72 watts out.

As you can see from the above between 2% and 3 times improved power output using MINI RG8/U. MINI RG8/U is exactly what it sounds, it's low loss coax with power loss quality of RG8 or RG213 but its thin and flexible like RG58 so you can run it mobile or round corners easily. Made specially for us in the States it has 95% copper shielding, multistrand centre core and weather resistant silver vinyl jacket.

80p per metre

PL259 CONNECTORS 70p EACH - CAN BE FITTED ON IF SPECIFIED.



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JUST ARRIVED - Super low loss RG8/U from the USA. Highest quality coax ever - approx. 95% copper screen 0.7db loss per 100' @ 27 mhz. Guaranteed the finest available heavy duty cable in the UK! Specify super low loss RG8/U when ordering.

£1.05 PER METRE

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Many of our customers in the far flung and wind blown extremities of the British Isles have badgered us to restrict the world's most durable base station antenna, so here it is again! Made in their famous Shakespeare fiberglass factory, the world's largest incidentally, it is manufactured to exacting standards of engineering and reliability and then individually quality tested. It also has a built in safety factor denominated by tough USA laws, it is insulated to withstand 14,500 volts!
The Super Big Stick has a gain of 7.65 db, power capacity of 1 kilowatt and measures just 18" in length with no additional hoops or necks. The fiberglass finish also prevents build up of moisture and contaminants thus giving a stronger, cleaner signal.

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867 ST. ALBANS ROAD, GARSTON, WATFORD.

Enquiries: VISA/ACCESS orders phone 0923-661673.
All prices quoted include post & packing. Overseas orders add 20% (£ Sterling only please)

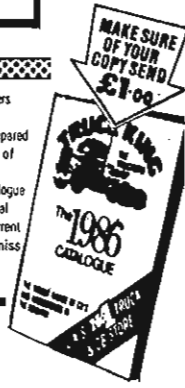
QTY	ITEM	£

Name _____ Address _____

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updates and additions plus some special offers available ONLY TO OUR CATALOGUE CUSTOMERS. Our new catalogue being prepared now will also be sent to you absolutely free of charge when available. This will be a much extended bumper edition of the present catalogue carrying a host of new lines plus some special surprises. Send £1.00 cheque/P.O. for the current catalogue now and make sure you don't miss out in the future.



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Shakespeare

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ARRIVING SHORTLY —
PLEASE ORDER NOW
TO ENSURE SUPPLY**

EXPORT 200

One of the great little mobiles, stands just over 2' tall but can handle 300 watts. Heavy centre load ensures maximum long distance output. Complete with plug, cable, adjustable DV base, turnable tip 3db gain, reviewed recently in this magazine and rated a 5 star performer. Can be gutter mounted by coupling up with the specially designed Lemm gutter clamp.

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**CLAMP
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EXTRA**

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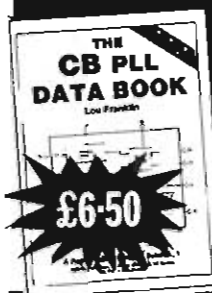
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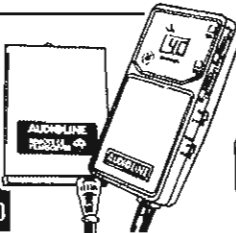
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Make your own base station from a mobile unit. Base housing features built in power supply operator and SWR meter.

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AUDIOLINE
342**

£66.00



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Supplied with full wiring instructions, totally eliminates white noise in between transmissions. Allows open squelch without hash and hiss giving clear long distance copies and more enjoyable monitoring, does not decrease sensitivity. Normal squelch function is still retained and can override noise squelch.

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MAXCOM 7E

A really versatile hand held 40 channel 4 watt unit, complete with its own carrying case it can work off either its own 12v power load from a car cigar lighter or from standard or rechargeable 1.5v batteries (not supplied). Its telescopic antenna detaches to fit into its own magnetic base for mobile use. Ideal for any form of outdoor activities, emergency mobile use and can be quickly and easily swapped between vehicles.

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1.25 volts AA size

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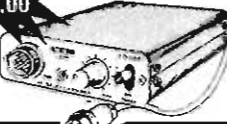
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The most powerful echo unit available! Top quality Japanese unit features include LED level indicator for maximum performance, earpiece so you can check your speech quality. If you want to upgrade your 'talk power' don't miss the ultimate DX unit! Supplied ready wired (Please quote your CB make and model when ordering).

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26 page book includes PB010 chassis (COBIA 148GT-DY, SUPERSTAR 3601, PC999, GRANT) and PB042 (JACKSON) in one complete book. Also applicable to Stalker 9FOX export and American AR-144 type chassis. Written by Lou Franklin. This is the only service manual in existence. Complete specs, voltage measurements, stage gain measurements, theory including detailed PLL description, complete alignment instructions and layout, block diagram. Special addition describes modifications and improvements for each chassis. Large 11" x 17" schematics for each chassis.

CYBERNET SERVICE MANUAL £6

24 page book includes PCM001S, PTBM12104X, PTBM131A4X, PTBM133A4X, PTBM12104X Models Cobra GTL150, 148GTL-DX (Ike), Cpt 220FM, 320DX, 1200DX, 1600DX, 2000DX, 2400 Excaltor, Falcon 2000, Ham International Concorde II, Concorde III, Jumbo III, Multinote III, HyGam 2795, 2795DX, 8795 (V), Intek 1200FM, Lafayette 1800, 2400, HB870AFS, Midland 7001 export, Mongoose 2000, Nato 2000, Pacific 160, Palomar 2400, 3000, Starline DX, Superstar 2000, 2200, Thunder 2000, Thruster 747, 777, 797. Written by Lou Franklin. This is the only service manual available for these radios. Complete specs, voltage measurements, theory, PLL charts, alignment instructions and layout, block diagram. Large 11" x 17" schematics of each chassis.

We are pleased to offer this month 3 special purchase books at great price savings. All 3 titles are published by the highly respected NEWNES TECHNICAL LIBRARY and all 3 deal with the various aspects of British CB, its uses and installation and its servicing. The authors are all experts in their field and this series is highly recommended as being both informative and excellent value for money.

QUESTIONS AND ANSWERS — CB RADIO by FRED JUDD, 102 pages.

Covers around 150 of the most common queries regarding both 27MHz and 934 and its uses and procedures including working range, AM & SSB use, deviation, ERP, controls on CB, speech processing, handholds, sensitivity, selectivity, linears, harmonics, TVI, db gain, VOX, selcall CB specifications and what they mean, setting up home base and mobile switch, ignition interference, propagation, antennas, and CB selection, codes of procedure, 10 code, phonetic alphabet, RST and Q code, QSL cards. Glossary of technical terms plus many helpful diagrams and illustrations. An invaluable and clearly written reference handbook. PUBLISHER'S PRICE **£3.95** — AVAILABLE EXCLUSIVELY FROM US AT **£1.95**

THE UK CB HANDBOOK by ALAN AINSLIE, 150 pages

A more technical and in depth coverage, especially well illustrated and highly recommended. Comprehensively covers CB background and history in the USA and UK, AM and FM comparison, Principles of Radio Communication inc. propagation 27 and 934 with comparison, antennas, coax and impedance, CW and SSB, Mobile CB, controls, installation, setting up SWR and SWR problems, mobile antennas, antenna theory, mounts, co phasing, Interference ignition TVI and reception problems, and how to locate and suppress. Home base, installation, antennas, masts, 934 MHz covers installation and antennas. Accessories, matcher, meters, power makes, base mikes, processors, linears, preamps, speakers, 10 code, D code, phonetics, CB lingo, db table. PUBLISHER'S PRICE **£4.95** — AVAILABLE EXCLUSIVELY FROM US AT **£2.95**

SERVICING UK CB RADIO by MICHAEL TOOLEY, 259 pages

This book is the only publication dealing exclusively with the principles and practice of servicing UK CB and is intended for both hobbyist and professional engineers. It covers, stage-by-stage, typical CB circuitry including many representative IC circuits and block diagrams in a clearly explained, easy to follow manner. Other chapters examine all aspects of setting up a workshop, detailing all essential equipment, plus performance testing with comprehensive fault finding charts and diagnosis. Details of synthesiser, transmitter and receiver alignments and modulator stages are given plus a useful reference section with component symbols and colour codes. An invaluable reference work for anyone interested in the interior workings of British CB equipment. PUBLISHER'S PRICE **£14.95** — AVAILABLE EXCLUSIVELY FROM US AT **£8.95**

Shakespeare





A celebrity comes to visit Filly's village — and she gets an invitation

You know how rumours spread round country districts like wildfire? You only have to listen to the Archers to see how everyone in a village always knows everybody else's business, usually before they know it themselves.

This ancient and arcane means of communication has been known to villagers since the Domesday Book, and probably hundreds of years before that. Country folk don't need crude telephones or Citizens' Band to spread

LADY BREAKERS

their news, oh no. All they have to do is...aha, thought I was going to let the secret out, didn't you? You townies stick to your radio frequencies, I'll just pop down to see Madge at the post office and find out who's been up to what in the last half hour or so...oops, that's torn it, the secret of centuries is out!

Well, anyway, added to our normal lines of communication, we've now got Citizens' Band to add a new dimension to village life. Not that it can beat Madge for sheer speed, but now we can keep in touch from our front room or cars. And sometimes, we get news earlier. Take the recent visit of the Celebrity...

We have an eccentric playwright, who seems to write one play every ten years or so, who lives in a rambling cottage down an overgrown lane. There's normally a kid or two hanging about at the entrance to the lane, Celebrity spotting, ever since the great day two years ago when a certain well-known stage and film actor paid a visit.

Our playwright is very cunning, and has devised various ingenious ways to smuggle his better-known visitors past Madge and the kids into his cottage. But recently he made a very big mistake. Apparently thinking he was getting out of touch with the modern world, he bought a CB rig, in the naive belief he would be safely anonymous on the crowded airwaves.

We were fist alerted when the postman saw the tell-tale antenna on the roof. But even without the antenna, we would have caught on. Perhaps his chosen handle, Hamlet, might have had something to do with it.

There was great excitement for miles around the day Hamlet casually mentioned to his breaker friend the Vicar that he had invited Titania for the weekend. Titania! That was a handle unknown to us. Titania, Queen of the Fairies in *A Midsummer Night's Dream*! Had to be a famous actress! We speculated wildly — well, we don't get much excitement out in the sticks. Could it be Dame Anna Neagle? Glenda Jackson? Gasp — could it be Joan Crawford herself?

The day of the Arrival approached. From hints dropped to the Vicar from time to time (he fondly imagines his handle, the Shepherd, disguises his identity), we were able to follow Titania's progress. The local shops

were cleaned out of instant camera film. Kids who had previously scorned autograph hunting as cissy, descended on the hapless newsagent, demanding autograph books.

The great day dawned. There was nobody to be seen in the vicinity of the lane all morning — come on, who's going to admit these days they're impressed by a famous face? But within ten minutes of the car driving up the main street — a Ford Sierra, bit disappointing that — everyone within a five mile radius know about it. And everyone knew, enviously, that the Shepherd had been invited over for dinner.

You realize, of course, that by 'we' I don't mean *me*. I live in the real world, trivial village affairs leave me unmoved. Beside Northern Ireland, the Bomb, terrorism, what can a visit to a village by a mere film star matter? So it was sheer coincidence that I should decide to go for a summer stroll that evening, and that my path should happen to take me across the fields in the direction of Hamlet's cottage, I never had seen Hamlet's antenna, I was quite interested in the brand he'd chosen, and whether it was likely to interfere with anyone's television reception...

Before I knew it, I was standing at the hedge that ringed the cottage. And before I could retreat, a voice hailed me.

"Ah, Filly! Don't run away! I've been meaning to introduce you. Harry, Filly's a fellow writer, and something of an expert in CB matters. Perhaps she could advise about a low pass filter..."

It was the Vicar, sitting with Hamlet and an elderly lady in the garden, sipping drinks. I waited, my face frozen in a horrible grin, for the ground to open up and swallow me. It didn't.

The pleasant-looking lady came to my rescue.

"Hello, dear, won't you come in and join us? I was hoping to meet some of Harry's neighbours. I'm Harry's mother, by the way. So you use this CB radio too? You must explain it to me.

"I'll try," I said, smiling gratefully at her and taking the seat she offered. I was suddenly feeling extremely cheerful. I might have made a complete fool of myself, but it would fall to me to tell the village about my drink with the Celebrity the next morning. And to see the looks on their faces when I revealed the identity of Titania...



David Shepherdson comes up with more cards, name and addresses

COMMUNICATION THE QSL WAY

Well, this month I would just like to start off with something just a little different! One of my local regional daily papers has started a campaign with which I find myself in full agreement; the bringing back of the Yorkshire Ridings! So, please note my address has changed to take account of this, and I am also going to take the liberty of altering any other Yorkshire addresses in these pages too!

I've had a letter from Martyn of the Ham International Club (HI). Martyn has asked me to mention that the Club's PO Box is *not* closed although some bright spark in his local Post Office has decided otherwise. Martyn has had words about this and, hopefully, all has been sorted out by now. Martyn has also asked me to remind members of the HI that if you have passed the Radio Amateur's Exam would you please let him know as he likes to be aware of this and also so that Skeds may be arranged. Membership of the HI Club is open to all owners of HAM International Radios and costs £3. For this you will receive your HI Unit No, ID card, 10 club QSL cards and labels, engraved badge, etc. Also included is free use of the Club's PO Box, until January when the renewal fee is due. For anyone who wishes to continue to use the PO Box, there is a £3 annual contribution. Club extras include a club stamp at £3, club QSL cards at £5 per 100 and an embroidered badge at £1. Payment can be by cash, or UK Postal Order or cheque (made out to the club).

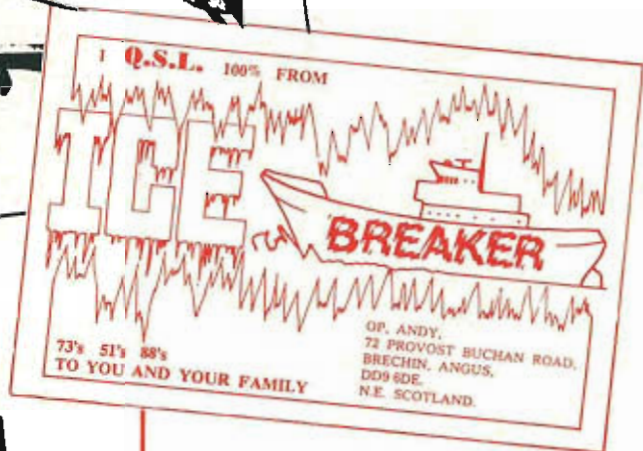
Moving down to Farnborough DX Group International which I have been asked to point out is a PO Box Group. Any QSLer is welcome to join this group. To obtain details, please drop Tony (*FD 001*) a line and ask, but please don't forget a SASE (Self Addressed Stamped Envelope). Tony has also asked me to give a mention to Mary (*Zodiac — FD 212*) and Dave (*Blue Label — FD 213*) who also send out a great pack.

Now, I've been asked to mention that Jim Broome (*Stagecoach*) of Northumberland died last year and, though I have mentioned this in these pages since, and many club newsletters have also made mention of this, many people are still sending QSLs to Jim's widow and this is of course, upsetting for her. So please, if you do have any of Jim's old floaters laying around, please *do not* pass them on, thanks. If, however, anyone should wish to obtain Jim's old cards, to make up a set perhaps, some may still be available from Peter (*Big Daddy*), QSL Manager for the Great British QSL DX Club in Consett for a 25p stamped SASE. If you are interested in membership to the GBQDC, again, drop Peter a line, with SASE of course and ask for an up-to-date application form.

From Bradford, another one in that Riding, hails a bundle of cards and a letter from John and Janet (*Jet Liner and Silver Star*) asking for a mention. No sooner said than done, mind you, you can't see the date of their letter! From Andy (*Ice Breaker*) comes a set of his new cards and a request for a mention. Well, Andy, as it's your first anniversary of you starting QSLing this month, okay then. From the North Riding of Yorkshire comes Terry (*Rawhide*) with news of a local group of 50 breakers who have got together to share the costs of a PO Box and QSL cards. The Group, which goes by the name of the Sierra Mikes, also meets every fortnight at the Ship Inn, Muston and hold raffles; all proceeds from these go to various charities. Any breaker who is visiting the area is more than welcome to go along and say hi! For anyone interested, my atlas shows Muston as being on the A 1039, just south-east of Filey.

From Tony (*Gunfighter*) of Cornwall, comes a letter praising the Yorkshire Rose DX QSL Club which is run by Mike (*Doc Pepper*) in Bradford. Membership of this excellent club costs £6 with 10 or more of your own QSL cards for which you receive your unit no, ID card and certificate, mounted stamp, 10 club cards, seals, a club pen

and key fob, log book, roster, exchange QSLs etc. Tony recommends this club wholeheartedly and extra details can be obtained by writing to Mike at the Club address, enclosing a SASE. Now, an apology here; if you dropped me a line during March/April this year, via the magazine, and you put return postage in and I haven't replied, or you haven't seen any mention of you or your cards, then sorry, but due to a postal dispute in London, and the Leeds Regional Sorting Office also playing silly beggars, I didn't get any of them, nor my own copy of the magazine which is sent to me from London! So, all I can suggest here, is try again! Also, can I ask you make sure that you put a stamp on it, I've just had a notification of an Eyeball in June, only three weeks before the actual date, with 22p postage due! Perhaps if the sender had put some postage on it, I may have received it in time for the June issue; as it was, it came far too late.



QSLer ADDRESSES:-

Mary (*Zodiac-FD 212*)
 Dave (*Blue Label*)
 Peter (*Big Daddy*)
 John & Janet (*Jet Liner & Silver Star*)
 Andy (*Ice Breaker*)

Terry (*Rawhide*)

The Parkers

Marlene Maginnes

Carloe (*Horseshoe 35*)

Paul (*SL 001*)

Cliff (*Quick Fire*)
 Tony (*Gunfighter*)

Eve (*Kon Tiki*) et al.

Eddie (*Star Gazer*)

PO Box 20, Farnborough, Hants.
 PO Box 20, Farnborough, Hants.
 PO Box 5, Consett, Co Durham.
 34 Parkside Terrace, Cullingworth,
 Bradford West Riding of Yorkshire.
 72 Provost Buchan Road, Brechin,
 Angus.
 PO Box 1, Filey, North Riding of
 Yorkshire.
 1 Cemetery Rd, Hatfield, Doncaster,
 South Riding of Yorkshire.
 Flat 3, 12 Newbridge Road, Bath,
 Avon.
 GVB, PO Box 266, Maidenhead,
 Berks.
 PO Box 205, Leith, Edinburg,
 Scotland.
 PO Box 9B, Luton, Beds.
 35a Roskear Rd, Camborne,
 Cornwall.
 SB32, PO Box 12, Hoylake, Wirral,
 Merseyside.
 PO Box 12, Waterlooville, Ports-
 mouth.

Okay, from Luton comes news of a local group who hold various events for charitable purposes such as a 24 hour sponsored modulation for a Special Baby Care Unit at their local hospital. They also have regular fortnightly meetings on Monday evenings at the Angel Inn, Toddington, Bedfordshire, and anyone in the area is more than welcome to pop along and meet the group. This info comes from Cliff (*Quick Fire*) who is the Secretary of the club. The club also has an excellent club QSL card done by Ensign. Oh yeah, the name of the club... It's the Sierra Bravo DX & QSL Group; nearly forgot!

Some while ago, I asked if anyone had any recent info on the Metro City Club and so far the only info I've received is that it now costs £4 to join, but this was sent not from the club, but from a member of the MC, Paul (*SL*

001), who says he no longer has the club's address. Other updates on info requests, include the information (taken from the Newsletter of the ABC Club of Cheshire, with their permission) that Happy Cobblers/Custom Cards have been declared bankrupt with debts of over £5,000 and no chance of any QSLer who has lost money after ordering cards getting a penny back! Another printer mentioned in the same newsletter is the Preston-based D'zine who have also closed.

A letter and some cards in from West Germany inform me that an old friend there has started up his own club. For \$13 (US) and 20 of your own QSL cards, *not* club ones please, you can get membership in the International QSL DX Club *Tango*. The package you will receive consists of your Tango Unit No., ID card, a club stamp, roster, assortment of cards, 10 club cards, other clubs' forms, stickers and a couple of surprise items, with XYL free. For info only, please send \$1 or 2 International Reply Coupons (or IRCs for short). These IRCs are available from your local Post Offices.

For anyone either new to QSLing, or just not sure, an IRC is the same as a SASE as used in the UK. These items cost, at the time of writing, 55p having just gone up by 20p each! But when exchanged for stamps, they are only valid for the minimum postage required to send a 20gr letter by Surface Mail, so for Europe two are required, and for the States, Australia and so on, five or six would be quicker as that should cover Air Mail. From Eddie (*Star Gazer*) of Portsmouth comes a bumper bundle of cards, both club and personal. These range from POMA's like the Big Ten card (85/3776) to a good B&M Card (anyone know who this firm is?) showing an excellent reproduction of a LMS train.

A change of address now from Marlene Maginnes (*Mermaid*) who recently moved from Ireland to Bath and would love to hear from you. Someone else who has a new address is Carol (*Horseshoe*) who has decided, for various reasons, to use a club's PO

QSL GREETINGS FROM EVE





Four more handy projects from readers

HINTS & TIPS

Always in touch

JW, from South Glamorgan, offers some advice on how to have CB wherever you go. . .

With reference to your hints and tips features, perhaps I could tell you about the CB in our house. The homebase rig is an Audioline 345 set which we find very satisfactory, after trying several others. The microphone is a Citizen desk mike which we have had for years, since we started CB in fact. It is also, we find, very good.

Always being one to try and maximise the uses of CB equipment at my disposal I have been using this setup for the last few years with no snags cropping up. I already had the main components for this system for some time so, whilst out of work for a period and not having too much money to spend, I set about to see if it could be done.

An old stereo speaker box was gutted to accommodate two 3" diameter speakers from old broken portable radios. One of these is connected via a long lead to the PA outlet on the back of the rig and controlled by the PA switch at the front, obviously. The other 3" speaker is connected via a simple on/off switch mounted on the old stereo speaker box to the speaker inside the Audioline, thereby allowing me to switch the speaker on or off from the lounge.

The standard microphone which came with the rig is fitted to the old

speaker box via the usual 4-pin mike screw socket, which has a multicore extension cable passing through the hole drilled through the skirting board and wall into the kitchen, and into a 4-pin socket in an old antenna switch box. This small metal box was also converted by removing the three SO239 aerial sockets and substituting them with three 4-pin mike sockets and wired so both mikes are always 'on'. Also, the Citizen desk mike is connected to this box and a multicore patch lead is connected from the single outlet side of this box to the mike socket on the front of this rig.

Consequently, if I am having a conversation with somebody on the rig whilst sitting in the lounge (probably with my Yaesu receiver on), the wife can also join in, if so minded, while she is in the kitchen or vice versa. She also uses the PA mode to call us (the kids and myself) when a meal is ready!

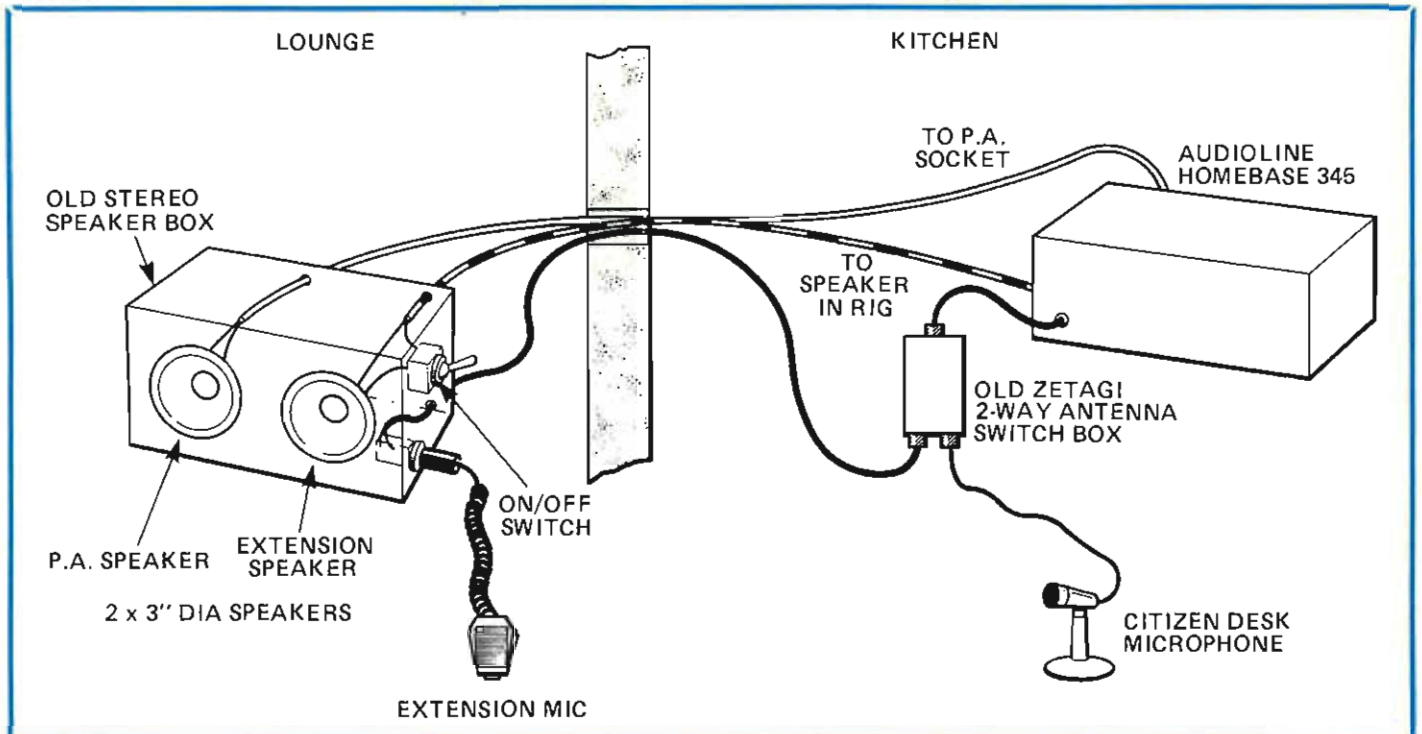
Back to Front

"Badger" from Essex writes with a handy hit. . .

I have a simple modification for those rigs that have the hi/low switch on the back panel of the rig which enables the switch to be used from the front of the rig — this is especially handy when mobile.

The materials needed are only

Below: If you have to speak to the missus, see first letter



3mm x 10mm bolts, six nuts, four washers and a strip of metal 2mm thick, 10mm wide and 264mm long. The tools required are a drill with a 3mm bit, centre punch, hammer, spanner to fit nuts, screwdriver and two small files — one flat and one round.

The dimensions shown in the diagram are for a Transcom GBX4000 rig but can be altered to suit any rig with a pushbutton attenuator switch situated on the back of the rig.

The first job is to remove the top cover from the rig and mark it out as shown in the diagram, using the centre punch to accurately align the drill. Then elongate the two pairs of holes to make slots 3mm wide by 8mm wide and then clean up any burrs. That is all that needs to be done to the top cover at this stage.

Now, take the metal strip and mark and drill three holes at 22mm, 55mm, and 160mm from one end. Bend the strip to an L-shape with the short "leg" having the 22mm hole in it. Now, thread a nut onto one of the bolts and pass the bolt through the hole in the short leg and thread another nut onto

the bolt to lock it. This allows the length of the bolt to be adjusted later.

Next, take the two remaining bolts, put a washer on each and then push them into each of the slots in the top cover from the inside. Place the last two washers on the bolts, followed by the L-shaped metal strip so the short leg with the adjusting bolt in it will hang over the back of the rig. Using the remaining nuts, put two on each bolt and tighten them down so the metal strip will slide smoothly back and forward on the cover.

Now, replace the cover on the rig and adjust the rear bolt so that it will operate the pushbutton when the metal strip is pulled out from the front of the rig. To finish the modification off, a knob of some sort should be fitted to the metal strip. I hope you will find this useful as it has been working perfectly on my old Transcom rig for the last five months with no trouble at all.

The Right Mike

"Cowboy" from Scotland offers an idea on mike matching. . .

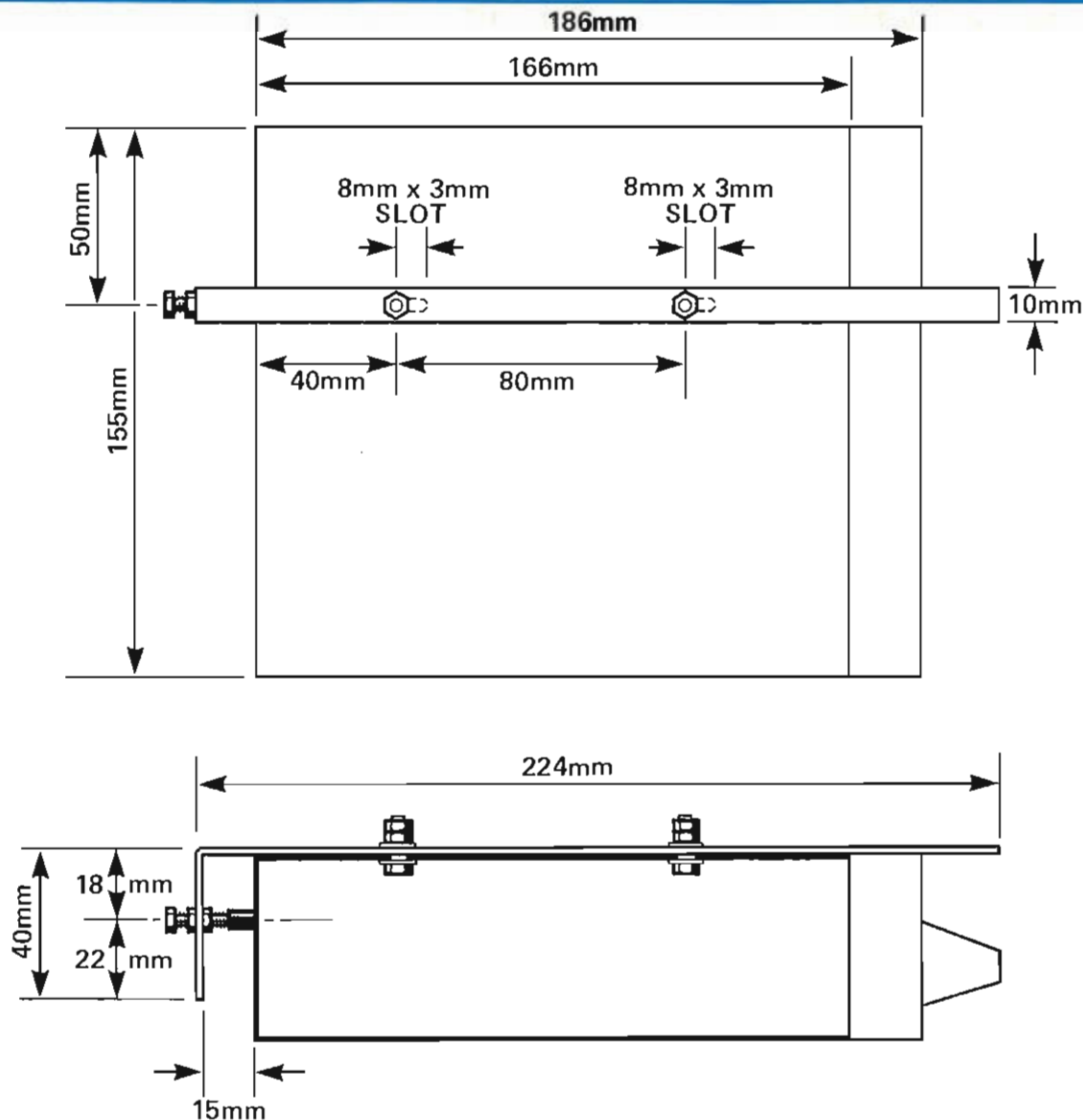
About a year ago, I came up with the daunting problem of wiring up a new standard or power mike to my rig. It took about three hours of testing and re-soldering to finally manage to get it working. After tackling this problem, I started thinking about how to wire up the new mike easier and quicker than before.

The following method can, unfortunately, only be used on electronically switching rigs — so, if yours is relay then it's back to the drawing board! The reason for this will become apparent later.*

The new method consists of "jumping" pins together on the CB mike socket and noting what happens.

Pins 1 and 3 joined = TX activated
 Pins 2 and 3 joined = RX activated
 From this: pin 3 is common to both; pin 1 is TX wire; pin 2 is RX wire, leaving pin 4 as the mike wire.

With the above information and that supplied with the new mike, you should be able to work out how to wire in the mike. This method will not work with relay switching mikes because there is no easy way of finding the RX wire as it is activated whether the mike is connected or not. Overall, this is a



Above and side view of "Back to Front" modification

relatively easy and inexpensive way to get around the problem of wiring a new mike to an existing CB rig.

* To check whether your rig is electronic or relay switching, just disconnect the mike from the rig while it is on. If you can still hear the hissing noise, then it is relay switching. If you cannot, then it is electronic.

TVI Cure

Samuel Moore, from Suffolk, has come up with a cure for TVI. . .

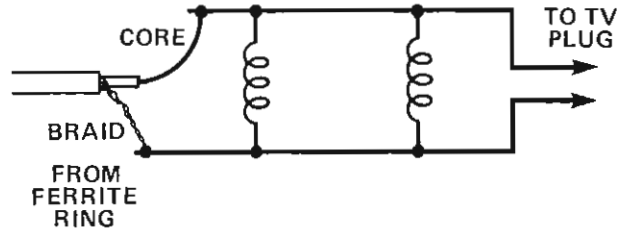
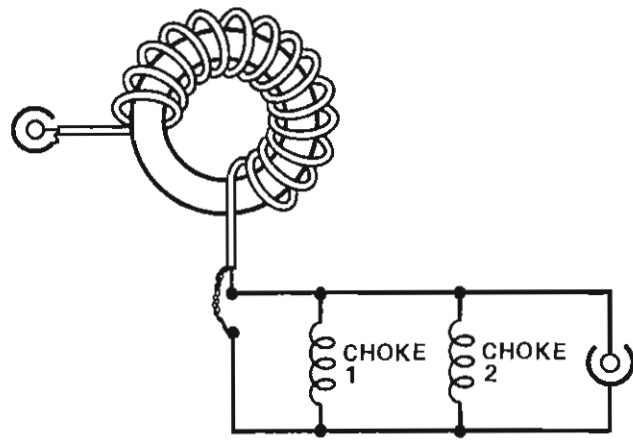
Now the DTI are charging to investigate TVI, I am enclosing two circuits which will completely cut out TV interference — even if the breaker is delivering an illegal 100 watts.

One is connected to the back of the rig, the other in the TV set coax. I have tested these circuits and know they work and hope they will be of interest to other breakers.

Connect in CB coax — maximum 100 watts

C1 and C2: 5pf silver mica 350v.
 C2 and C5: 82pf silver mica 350V.
 C3: 150pf silver mica 350v.
 L1 and L2: 7½ turns swg tinned copper wound on 3/8 copper wire wound on 3/8 9.5mm drill shaft, spaced one wire apart.

Two SO239 sockets, metal box, nuts, bolts etc, solder tags and solder. Connect between rig and SWR meter or between SWR meter and antenna. Providing SWR was correct in the first place, this may lower SWR slightly — normally 2-1 or below. Ensure that no components come into contact with metal box except tag and earth side of SO239 sockets.

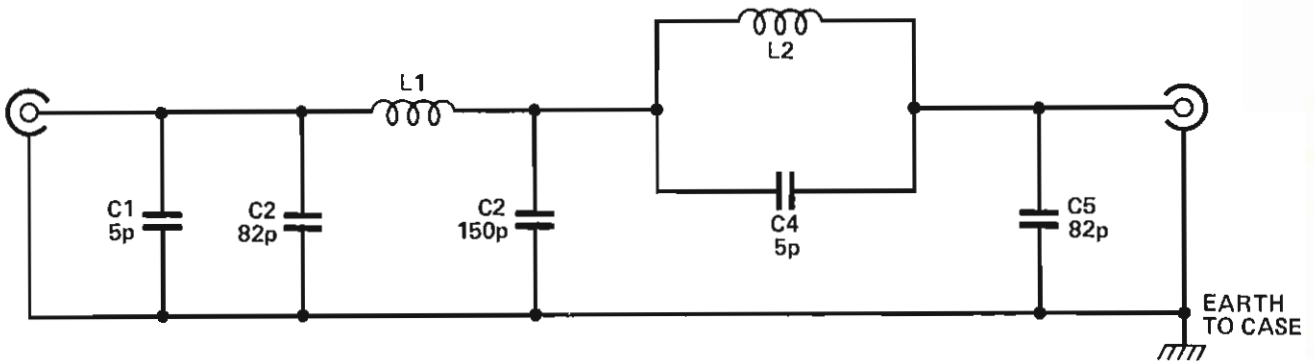


Eliminate TVI via TV aerial lead (see below)

Connect in TV aerial lead

One ferrite ring (1" inside dia).
 Approx 1 yard thin TV coax (750 ohm).
 One length of tinned copper wire 16 swg.
 Two sections of Paxalin board, double copper.

Two female TV sockets.
 One metal box.
 15 turns of coax through ferrite ring.
 Chokes 1 and 2: 7½ turns spaced one wire thickness apart.
 First choke is soldered on top of copper board and second choke on side of copper board.



Eliminate TVI via CB coax (see above)

Mack Chat

More about 934MHz from
Mack the Hack



really should go, I kept telling myself, as recently I've been a bit shy of eyeball events. So I plucked up courage and early Sunday afternoon of 18th May found me motoring towards Markyate and the Herfordshire Moat House Hotel for the 934MHz Club UK annual general meeting. I only write a page a month in this mag bringing you the CB gossip that I hope you like to know about, yet when I attend any eyeballs I am burdened with the 'wrongs' that may have been published in this mag. But I am used to it by now and at this AGM I got 'stick', lots of 'stick', mostly with regards to seven words and a question mark that was printed on the cover (bottom left corner) of the June issue. "934 to go? Threat to UHF CB" it said. I was asked the same question I asked our Editor when I first saw it. "Do you know something that I don't know?". Of course anyone reading the mag though would have grasped the meaning of this headline.

Nonetheless I still enjoyed the AGM, eyeballing the many voices that I copy on the 934 box. During the reports given by the committee members, a pair of rigs were produced which operated on the proposed personal radio service and a demonstration was given on how the rigs identify a call and select a clear space on the frequency. Most were impressed, but a few voiced their fears about the future of the present 934 CB system. They were assured of its safety for the immediate future. Of course the longest discussion was about cellular interference being received on the 934MHz CB. A report was read to the effect that the DTI feels the blame lies with the 934 CB equipment. It was also agreed at the AGM that too many complaints to the DTI could start an inquiry by the DTI into what equipment we are using. As was stated by the club chairman, rumours are doing the rounds of a station being told to take down beams with more than the legal amount of four elements, but this is only a rumour. Also, it should be pointed out that if we 934 users were to become 'troublesome' there is nothing stopping the powers that be from taking away the 934 from us and they would not be

obliged to give us anything in its place.

Sometimes I wonder if I go on too much about the cellular phone problem, but as the chat at the AGM showed and any time on the 934 channels will prove, you will always find people discussing the subject and looking for answers. Some people blame pre-amps yet I know of some stations that still pick up the tones or speech of the phones at times without preamps. Could the fault lie in the quality of coax, or maybe it's in the badly fitted plugs? Now what about antennas? Of course the more gain an antenna gives will affect the amount of interference one receives. Recently a new station has appeared on the frequency. The owner of the station has facilities for testing antennas and his claims so far have been staggering. One antenna from a batch of a well-known make was found to be 80MHz high from 934 and others as much as 60MHz out. He told me that much of the equipment he has tested has been, in his opinion, totally unsuitable for 934.

At the present this is just one man's claims but I have been discussing these claims with another station who also has the facility and equipment to conduct similar tests and I hope in the future to give you the results. But, as you are aware, news travels fastest over the airwaves. With all the moaning and groaning that goes on about the mobile phones, I sometimes wonder if they secretly enjoy the interference that is received. It's a common topic for conversation — not that there is any shortage of topics that are discussed on the 934.

I know of an answer to the interference problem; no it's not to switch off or sell up! I have suggested this many times before and, from my experience, I know it works — at least 99.999% of the time. Flat-side or horizontal polarisation antennas do not pick up cellular interference. My directional beam is mounted in this plane and when it is used to communicate with other flat-side stations, it is far superior to vertical polarisation. Yet the majority of stations, just do not seem to be interested in this method of operating. I keep asking them why and the im-

pression I get is that they will only change when the others do so nobody, it seems, wants to be first. As for a horizontal omnidirectional mobile or homebase antenna, one has been found. BH 172 (Brian) tells me that a station was experimenting with an Allgon 3129 mobile antenna (reviewed Oct 85). When a station that was being copied switched to flatside, it was found that there was an increase of two 'S' points on the signal. Yet more evidence that flatside is better. Whilst going on about antennas, do you remember Grandstand and their 934 transverter? I used it once, it worked and worked even better when fitted with a decent 27 rig. The price being more than a straight 934 rig of the time it was no surprise that they fell by the wayside. Do you also remember the antennas that Grandstand produced? I recall the little ¼ wave homebase; how ridiculous it looked on top of a twenty-foot pole but it worked. They also produced a four-element beam and a mobile magmount ½ over ½ over ¼ colinear. Do you wonder what happened to these antennas? Well I can tell you; they have just been bought by Selectronics of Canvey Island and are being offered at a greatly reduced price. For the ¼ wave base, mobile magmount, four-element beam and five metres of coax with 'N' type plug on one end, these items will cost you just £15 the lot, plus post of course. On some Sunday mornings I take myself, my two dogs and my MT370 934 handset to our local hill (298 ftASL). With the MT370 and its rubber duck antenna I can copy most of the stations that I do from home, but from this hill their signals are stronger. What I am trying to do is to find how far I can work with the handset to another station also using a handset. Until this evening, the best was from this hill to KE 21 (Colin) in Swanley, Kent — a distance of 19 miles. However, whilst writing this and listening to the radio, Brian (BH 172) was on Epsom Downs. Contact was established from my garden to Brian, both with handsets on low power, a distance of approximately 30 miles. But I feel sure that I will better this in the future.

CB ACCESSORIES — FOR A VERSATILE SETUP —

With the multiplicity of CB accessories on the market, Paul Coxwell takes a look at what's available — and just how useful they are

There is a great variety of CB accessories at stores all over the country and by mail order, from cheap gimmicks like neon lights for the top of your antenna right up to expensive high current stabilised power supplies, and beyond. Some of these may be classed as almost essential for anyone using CB, some are useful extras for the keen enthusiast or add versatility to your station, and some are a downright waste of money. Unfortunately, many of the "useful" add-ons are not fully understood by the majority of breakers, and are often not exploited to their full potential, or in many cases actually make things worse if not used correctly.

Power supplies

Every home-based user must have a power supply of some description, if only a battery tucked in a corner somewhere. Of course, if you're using a purpose-built base station the power section is taken care of for you, so there should be no problem. But, for many people, the extra expense of these units is not justified when a mobile set and separate power supply will work just as well, and in some cases better. Most of the bottom of the range PSUs (Power Supply Units) are rated at around 3 amps. This is perfectly adequate for any standard rig along with virtually any accessories, except linear amplifiers. It is one of those unfortunate facts of life that some of the cheap imported PSUs are not very well designed, and when called upon to deliver their rated current do not do a very good job of it. Sure signs of this are all your lights going dim on transmit, and a low-pitched hum going out on air with your voice (though this is not the only cause of these problems). I think this may be the reason that some people say they need a larger supply for their rig; what they really need is a *better* supply, not necessarily a higher-rated one. The specifications of most of the legal UK sets give maximum current figures of around 1.5 amps, and in practice the sets don't draw anywhere near this amount, unless the output has been "tweaked-up".

Other items which seem to cause confusion are "overload protected" and "current-limited". These units have a couple of extra transistors in them that will lower the output voltage of

the supply if you try to draw too much current. Because current and voltage are so closely interrelated, this reduction in voltage causes the current to be limited to a certain value. This type of circuit helps provide protection both for the rig and the power supply itself.

A good current-limited unit should be able to withstand a direct short indefinitely without damage or overheating.

A final reminder with regard to power supply matters, which I'm sure you've heard dozens of times before,



but some people just don't seem to get the message. Fuses are incorporated for protection, so *use them*. Would you rather lose an 8p fuse or £5 worth of circuitry in your rig? 3 amp fuses in your mains plug please, and 1.5 or 2 amps in-line to your rig. If you really must, a 3 amp is alright, but please no 35 amp car fuses and silver paper. If you can afford a rig, power supply and antenna then surely you can afford a few spare fuses that may help save that equipment one day. The same applies to mobile installations, only there is an added hazard here. Car batteries will deliver hundreds of amps if shorted, so if you don't have any fuses in-line, the next best thing happens — the wiring acts like a fuse and drips molten plastic over everything as it gets red hot and maybe starts a fire. Just ask anyone who's dropped a wrench across a car battery.

SWR/power meters

Now everyone knows all about SWR and power meters don't they? Power, SWR and associated subjects must surely be one of the least understood areas with the average CBER. There are so many myths and legends flying around about SWR that everyone knows them, so they must be true, right? Wrong.

The SWR meters that most CBERs use are fine for their intended purpose, that is adjusting antennas for minimum reading. But the actual figure you see on that meter should not be taken as an absolute 100% accurate SWR value. If your meter says your SWR is

1.05:1 then I suggest you don't believe it. It's probably more like 1.2, or 1.5 or even more. Cheap meters are just not made to be that accurate. The calibration of your meter, the length of your coax and a whole load of other factors can affect what you see on the meter. Contrary to popular opinion, the length of coax does *not* affect the SWR

**"There are so many
myths and legends
flying around about
SWR..."**

at your antenna, only the apparent reading at the rig end of your cable. In fact, if you're trying to adjust an antenna that is a long way out, the best thing to do is connect your meter at the antenna end of your cable, if your plugs and sockets allow. The only place you need be careful about affecting operation by altering the length of coax, is on certain mobile-type antennas which are supplied with around 17 feet of cable and a crimped-on plug already attached. Don't cut the coax!

The same inaccuracies of SWR meters also apply equally to power meters. Yes, even those nice-looking meters from Italy are only 10% accurate on their power ranges, so when the dial says 10 watts, the actual power may be anything between 9 and 11

watts. If someone has been inside the meter, it's quite likely to be far more than 10% out. Some people like to think they're putting out more power even if they're not (like those breakers who must have the meter on the rig clicking off the top of the scale on transmit).

A good quality, accurate meter is going to cost you as much or more than you would pay for a rig. Don't get me wrong, I'm not saying these boxes are no good; they are perfectly alright for approximate measurements. What I'm saying is that you shouldn't treat the results you get as if they'd come from laboratory equipment. A good compromise is to take your meter down to your local service workshop and get them to calibrate it against a professional unit.

Matchers

This would seem a good place to mention ATUs (Antenna Tuning Units) or matchers as most breakers call them. Installing a matcher does not magically make your antenna radiate more efficiently. Nothing you do at the rig end is going to improve the efficiency of your antenna. By the way, most people don't put the matcher in the best place anyway — it should ideally go right at the base of your antenna. The coax is matched to your rig no problem, it's the antenna to coax matching that needs adjusting. If you're wondering how you're supposed to adjust it at the antenna, see your meter and key the rig all at the same time, then remember what I said about SWR above. The best place for your SWR

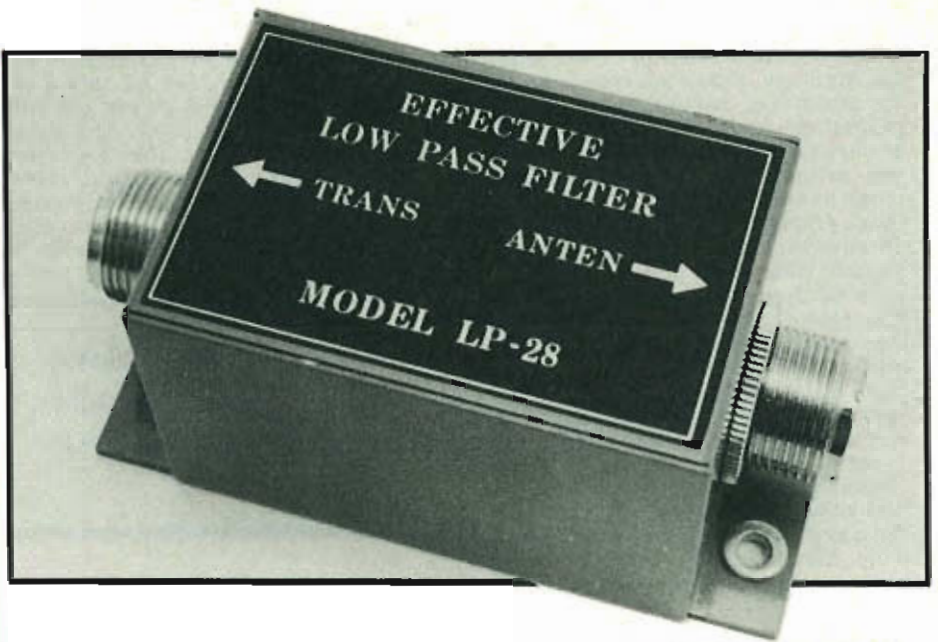


meter is up at the antenna too; but make sure you insert it *before* the matcher (Fig 1). Bearing in mind that the length of feeder from the rig to the SWR meter/matcher is unimportant, why not use a short patch-lead and take a rig outside with you? (Not if it's raining of course). So long as all your connections are good, there'll be no problems in connecting up through the longer feeder. Make sure you provide adequate protection against the elements for your ATU if you do mount it outside.

Dummy loads

Having mentioned good connections on coaxial cables, it is worth describing a very simple way of checking your connections. Connect one end of your cable to be checked to the output of your SWR meter, and link the meter to your rig through a short patch-lead. Using a barrel connector (socket-to-socket) connect the other end of your cable under test to a dummy load (Fig 2). Key to the rig, and read the SWR just as you would normally. If you have anything other than a negligible reading, then check your joints. Just to make sure, disconnect the cable being tested, and try the test again with it connected the other way round. If the new reading is substantially different from the first, check your soldering!

On the subject of dummy loads, these are very handy little items when it comes to troubleshooting, and they're nice and cheap as well. If you ever find you don't seem to be transmitting properly, one of the first things to do is disconnect your antenna, and connect a dummy load in place of it. This will let you see if there is a fault in the rig or whether it's just an antenna/cable problem. If this test shows that your rig is working correctly, reconnect your coax, and try the dummy load up at the antenna end of the feeder, as described for testing cables above. If you have any joints part way along your feeder the same technique can be applied to pin-point the problem. Remembering that your meter is not fantastically



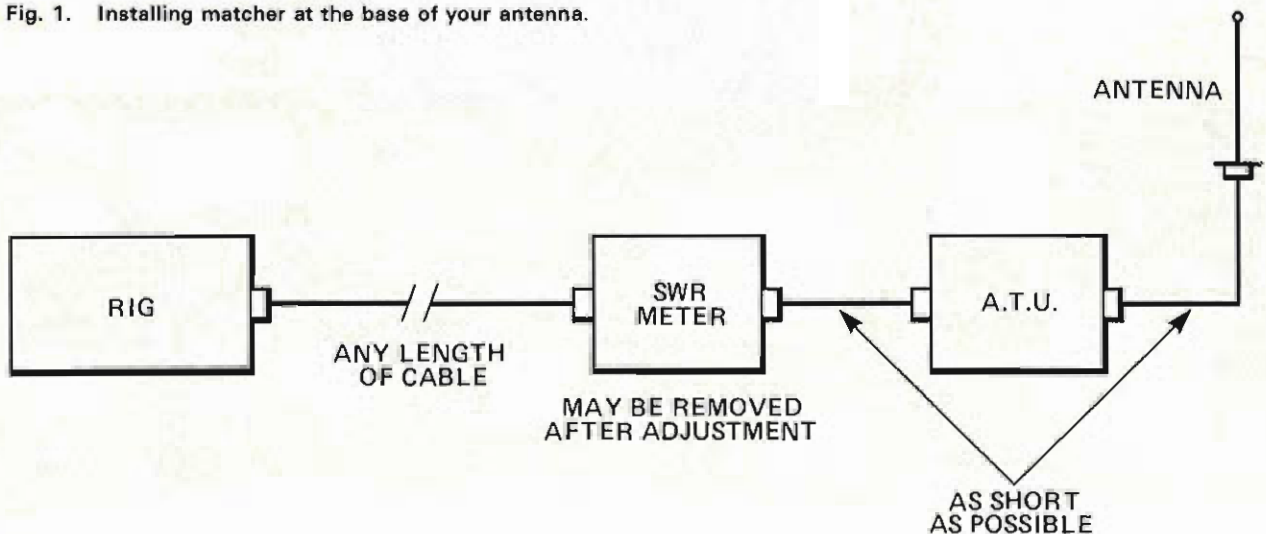
accurate, if you hope to get a reasonable result from measuring the output power of a set, feed through the power meter into a dummy load, not your antenna. All in all, the dummy load is one of the cheapest and most useful pieces of small equipment to have, so if you don't have one, go and get yourself one.

Low-pass filters

Low-pass filters deserve a mention, as these are very misunderstood. The ideal low-pass filter for CB would pass frequencies up to around 30MHz with no attenuation (reduction in level), and totally remove all frequencies above 30MHz. In practice of course, such a filter does not exist, but we can get close to this ideal with only a very small amount of loss at 27MHz and high attenuation above 30MHz. The amplifiers in rigs work at a fundamental frequency around 27MHz, but the way this circuitry works means that signals are also produced at twice, three times, four times that frequency and so on. These signals are at a much lower level

than the 27MHz signal, but can still be strong enough to cause problems. These signals on multiples of the fundamental are called harmonics, and if allowed to radiate from your antenna could cause interference to a number of other services. 54MHz for example (second harmonic) was used for television in this country until recently. Rigs have filters built-in to help reduce the level of these unwanted harmonics, but sometimes these filters do not provide sufficient attenuation, so additional filtering connected externally may help. As well as harmonics, other spurious signals may also be generated, as modern rigs use several different frequencies inside to provide you with all the necessary channels. Inserting a low-pass filter will reduce or prevent interference if the problem is due to harmonic signals from your transmitter, but unfortunately where television is involved the interference is often due to the TV receiver being unable to cope with strong signals nearby. Under these circumstances, a low-pass filter will do absolutely nothing to help cure TV1.

Fig. 1. Installing matcher at the base of your antenna.



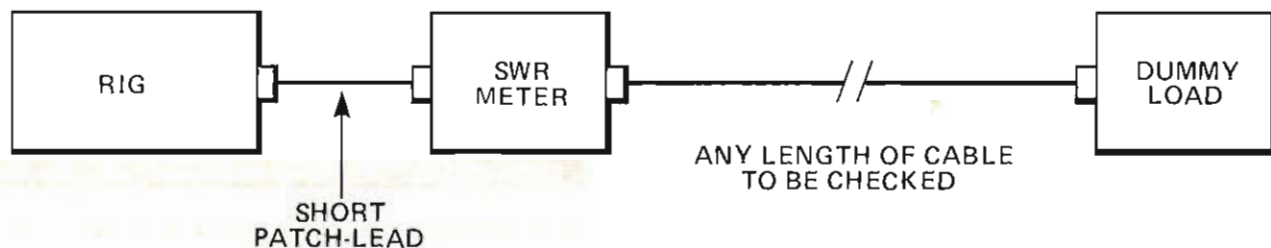


Fig. 2 Testing connections on a length of faeder

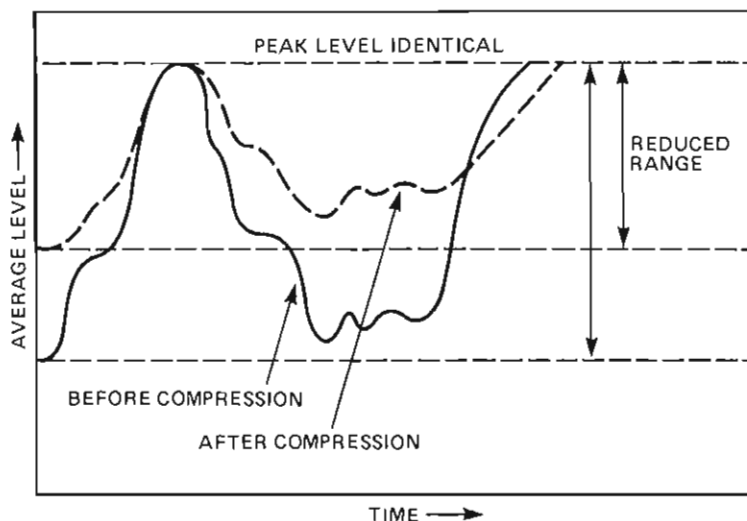
Pre-amps

To most users the best advice on pre-amplifiers is don't bother. Modern rigs are very sensitive, and you would probably be better-off spending the money on a better antenna, or pushing your existing antenna higher up. That will help your transmission as well. Pre-amps are useful if the only problem is a very weak signal, but if you can't hear the guy the other side of the county because of fifty other stations on the channel, adding amplification won't help. It will boost his signal yes, but it will also amplify all the garbage you don't want too, so you're no better off than when you started.

With FM anyway, there is a tendency for signals to remain clear and readable right until they disappear into the natural background noise, so you won't notice anywhere near as much difference adding amplification to an FM signal as you would with AM or SSB. One other point regarding pre-amplifiers — I'm sure you all know about bleedover, particularly if you're in a built-up area with a dozen people around you on the block on the air all day. Preamplifiers for CB are broadband, meaning they amplify the complete CB band all at the same time. Turning up the gain on your preamp is going to boost the strength of those interfering signals too, so if you have slight problems without extra gain, you'll have bigger problems *with* it. As a sideline to this, next time you're having bleedover problems why not try turning your RF gain back a little? You've got the control there, so why leave it on full all the time? If it's a very strong signal interfering, or the person you're trying to listen to is already a very weak signal it may not help, but it's worth a try.

Power mikes/speech processors

No doubt everyone has their pet station down the road, where the operator uses a power mike turned up full! Microphones with straight amplifiers built-in do little to improve the quality of your transmission, and serve merely to keep battery companies in business. In fact, on the whole they make your transmitted signal worse, particularly if you're one of the many people who have the thing turned up way too high. There's plenty of sensitivity in the rig



Above: Fig. 3. Effect of compression.

to provide all the gain needed, and only people with very quiet voices or who have to whisper late at night will benefit from power mikes.

A far better system is speech compression. This involves adjusting the gain provided at any given instant to keep the average level constant. Have you ever noticed the way commercials on television seem much louder than the rest of the program? Commercials are recorded with a lot of compression, which keeps the average sound level at a much higher level that it would otherwise be. A similar type of circuit is used in the Automatic Level Control of cassette recorders (Fig 3). Keeping the average level fairly high can help get your voice heard through noise or other interference on channel, but this is another device that has far more impact used on AM/SSB than on FM. Speech clipping is another way of accomplishing this, but involves slightly different circuit techniques.

Echo chambers are entirely different, and in professional communication terms are definitely a gimmick. Some people find they can be heard better at the limits of range using an echo unit, but this is probably due to the fact that some echo units also incorporate a degree of compression as already described. Like power mikes, a lot of echo units are turned up far too high. If only these people would tape a conversation and listen to themselves, they

may get the message and back-off slightly.

Another mike add-on that is increasingly popular lays across the borderline of being a useful extra and a gimmick. Roger bleeps in their design have a purpose — to signal the end of a transmission. On FM, once again, these devices are somewhat superfluous as the end of an over can usually be heard, unless you're in a very noisy environment or have the squelch set tight. These bleeps are most useful with SSB where it is possible to think someone has finished talking, when they've just paused for a moment or two. The 5-tone, slide-tone and exploding bombs are most definitely gimmicks.

I've tried to cover some of the more usual items found laying around the average CBers station, and hopefully pointed you toward using these devices more effectively, and to understand the way these black boxes work a little better. Obviously each device could well have a great more said about it, and there are several items I have not mentioned, because they in themselves warrant several paragraphs of explanation, such as selective-call units, and other more complex units that most breakers do not use. But remember, the accessories you hang on the back of your rig can make as much difference to your overall set-up as the rig itself.

There are drawbacks to almost everything these days, and it does not take long to discover that once you become involved with CB the drawback is the perverse ability of RF energy to make its presence felt in all sorts of places where you might reasonably expect not to find it. Television sets, radio receivers covering other parts of the spectrum, hi-fi and stereo systems and even the domestic vacuum cleaner all seem to be among those items which spend their leisure moments eavesdropping on your small part of the band, waiting to respond to every depression of the microphone key. Clearly the problem is not confined to CB, with all other forms of radio transmission subject to a greater or lesser degree of breakthrough, depending on its allotted slice of the spectrum but CB does seem to come in for more than its fair share of stick, perhaps because it represents the most commonly encountered form of transmitted energy in the average domestic environment.

Over the last few years this single fact has led to innumerable arguments between neighbours, most of which might have been avoided, and also the occasional lighter moment, such as that provided by the householder who could not be persuaded from the view that the vagaries of his rather aged central heating system were the res-

“... persistant interference to domestic reception of radio and TV has many possible causes...”

possibility of his CB-owning neighbour. No amount of logical argument would convince him that replacing the worn-out time clock would do more to regulate its operating hours than the removal of the nearby transmitter. Against this, I am reminded of the story, common among breakers a few years ago, of the preacher who received some support from an unexpected source. It seems that he had just about finished delivering a hellfire and damnation sermon by assuring his congregation that their sins would surely find them out, when his pause for effect was interrupted by a voice from the speakers dotted around his church, which said “You betta believe it, good buddyl”. As for the vacuum cleaner, those who doubt should talk to the engineer from the BBC World Service who, upon receiving the unusual complaint, was sufficiently intrigued to go out and investigate the matter himself. He assures me that a quick examination of the offending implement revealed a winding which was serving to rectify the RF being generated by a nearby transmitter. The audio being provided by the sympathetic resonance of a cover plate.

STOP INTE

As with most electrical equipment, interference can manifest itself in m



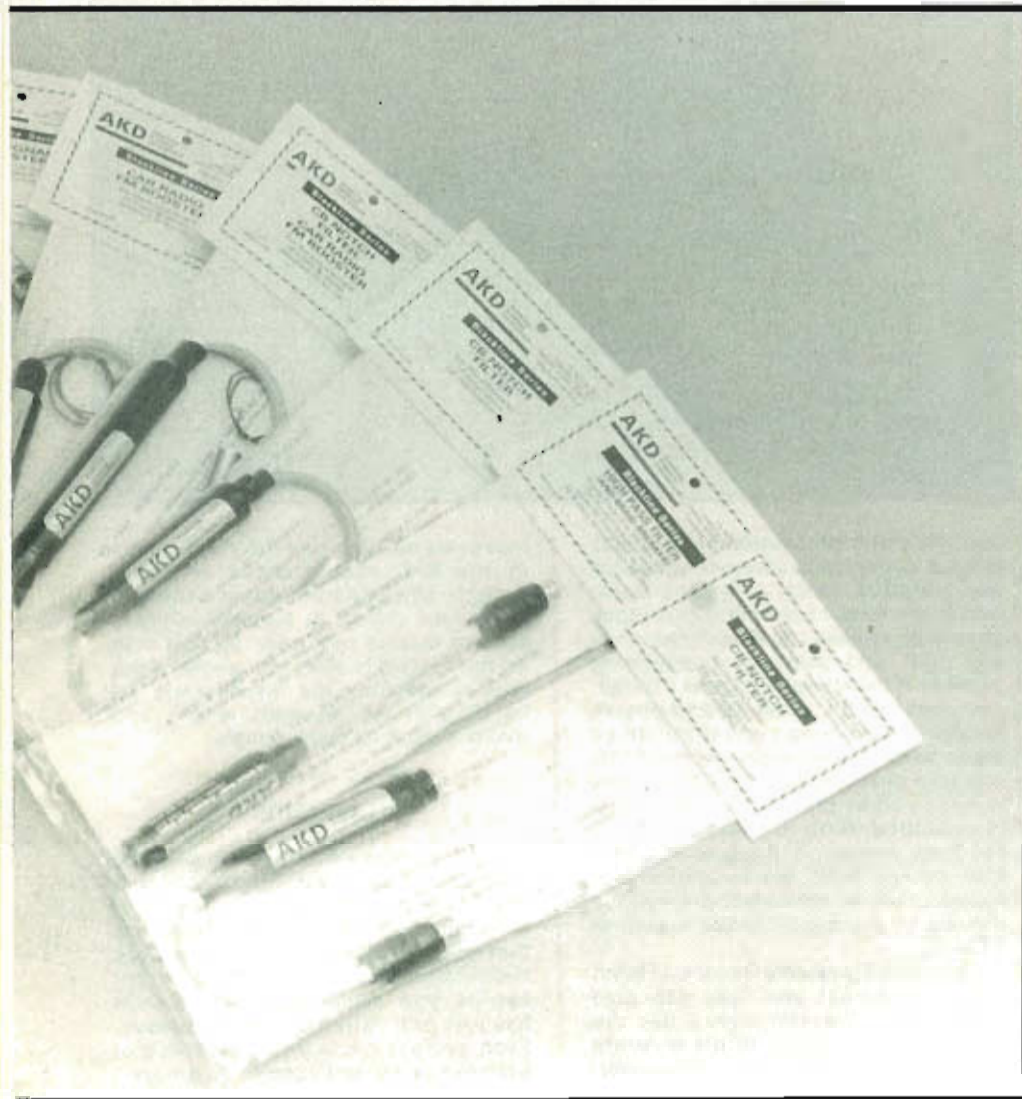
Despite these occasional diversions, the breakthrough onto one frequency of a signal intended for reception on another can have serious consequences, especially if the affected frequency is being used by the emergency services or, perhaps even worse, air traffic control. In establishing any form of transmitting station we should be especially aware of the possible radiation of harmonics, which fall on frequencies which are a direct multiple of the originating frequency. Although they are likely to get weaker with each succeeding multiplication, it is wise to realise the potential problems of harmonic radiation when we consider that airport instrument landing systems use frequencies around the fourth harmonic of those for which

we are licensed. Because the simple insertion of a low pass filter, effectively preventing radiation on frequencies much above 30MHz, will usually cure this type of problem at a stroke there can be no excuse for this form of interference and harmonic suppression is a matter which should always be attended to at the time of installing your rig.

Potentially less harmful but no less irritating, persistant interference to domestic reception of radio and television broadcasts has many possible causes, not all of which are the responsibility of a nearby transmitter operator. Of course we have a responsibility to ensure that we do not cause unavoidable breakthrough and correct installation of properly aligned equipment

INTERFERING!

any shapes and forms. Here Keith Townsend gives us a few hints and tips.



will do much to meet this responsibility. At the same time, the fact that all television transmissions in this country now take place at ultra-high frequencies means that they are far less likely to suffer the effects of harmonic radiation from CB and perhaps this is one strong factor in favour of the use of 27MHz.

Almost the most common problem appears to stem from incorrect antenna siting. Although they are designed to respond to an entirely different set of frequencies to those we are using, there is a limit to the amount of unwanted signal that the average TV or radio aerial can cope with and the effects as they struggle to decipher the incoming picture in a strong unwanted RF field can be quite impressive, with zig-zag lines and fuzzy picture quality

often accompanied by quite startling changes in depth of colour. Such an effect can be particularly noticeable in areas where poor television reception is the norm, as the degree of wanted signal may not be sufficient to fight its way through even the most modest of barriers set up by an intervening signal. In cases like this, even a masthead preamplifier offers no help, as it is unable to distinguish between the two competing fields.

Where FM transmissions are concerned, it is most unlikely that a television set will detect any meaningful audio, though an FM broadcast receiver may well do so. The result of either an AM or SSB transmission, on the other hand, might well become audible at the receiver, as the result of over-

modulation in an AM transmitter, or of non-linear output of the final amplification of an SSB transmitter and one cannot help but speculate that this thought might have been uppermost in the minds of those who originally decreed the use of FM, given that CB was bound to work in close proximity to other domestic equipment.

Whilst the audio content of an AM signal might be intelligible to a television viewer, it is likely that although television transmissions make use of vestigial sideband an SSB CB signal would remain unintelligible because the TV set is designed to respond to a much wider signal. Whereas each CB channel is 10 kHz wide, it takes almost 10 MHz to transmit both the sound and vision content of a colour television signal. In any case, if you can hear, rather than see, the results of television interference, it is a pretty safe bet that you are listening to an unlicensed station, unless of course the culprit is not CB at all.

Unfortunately not all of the blame for broadcast interference can be laid at the door of the nearest transmitting station. I say unfortunately because if that were the case then making sure that our signals were "clean" would be all that would be required to ensure trouble-free viewing. In reality, much

"Not all of the blame for broadcast interference can be laid at the door of the nearest transmitting station"

of the blame for breakthrough must, in at least half of all reported cases, lie with the receiving station. It is only too easy to install a television aerial and to blithely assume that it will continue to give of its best for evermore, forgetting that rain, wind and oxidation can all combine, over a period of time, to reduce its efficiency and the effect need not even be noticed until some new element, such as a nearby transmitter, is introduced.

Another problem is the fact that there is currently no minimum standard of immunity to nearby RF fields imposed upon the manufacturers of television receivers and although there is much talk of future legislation to improve matters, many popular makes of TV set fall well below an acceptable standard in this respect. It is of paramount importance that where such problems are suspected they be handled with tact. It can be very difficult to suggest to a viewer that the reason for his impaired reception lies within his own equipment and perhaps the most compelling argument in your favour will be the ability to demonstrate the fact that your own television is unaffected. It is always worthwhile using your own receiving equipment to conduct tests at the time you install

the rig and to follow these up with periodic tests to ensure that no problems develop.

Hi-fi and stereo equipment provides its own set of problems and there is little that can be done to cure them at the point of transmission. Most cases of breakthrough occur as the result of a signal being detected at either the mains or speaker leads, the length of which may be causing them to resonate at 27MHz, from where it is rectified by the amplifier and then carried, along with the normal audio output, to the speakers. Alternatively, the offending signal may be detected before the amplifier stage but this is far

"The prevention and cure of radio frequency interference can become one of the most fascinating aspects of the entire hobby. . ."

less common. A simple test of the signal's entry point is to vary the volume whilst the interference is present. If the volume of interference remains more or less constant, you may be sure that the signal is entering via one or other of the leads and the trick is to earth the interfering signal before it can be heard. Although altering the length of the offending lead would change its resonant length and probably ensure that it no longer responded to 27MHz transmissions, it might also imbalance the hi-fi system by affecting the impedance. A more practical method is to fit disc capacitors to the speaker terminals and connect them to earth, thus preventing the unwanted signal becoming audible. Although one lead to each speaker may, in some cases, run to earth it is still advisable to cover them all with capacitors, since the set may include a feedback circuit. In cases where the speaker leads are above earth RF chokes fitted in series with the leads should keep any unwanted RF out. Like all good installations, the entire hi-fi system should, of course be efficiently earthed and the use of screened speaker leads may be necessary, if not already fitted, in some cases.

Where domestic entertainment equipment includes record decks and one or more tape decks, as well as perhaps an FM broadcast receiver, the inter-connecting leads can act as the entry path for interference and the precise cause is not always easy to find. It may be necessary to disconnect each section in turn, including its power feed line, to find out which is responsible. All such leads are usually shielded but, should you come across any which are not they should be replaced with good quality shielded lead, using braid as the shield rather than coiled wire, which, far from curing breakthrough, can actually induce it.

Ferrite beads fitted to the cartridge leads of turntable arms should ensure that they do not conduct interference



and the same precaution should also extend to the leads connecting record and playback heads in a tape deck, whilst the clips connecting cartridges should be checked to ensure that they are tight and that no oxidation is present. If the system includes a broadcast receiver the same care to ensure an efficient antenna system should be taken as with a television set and this includes ensuring that the CB antenna is not so close that the wanted signal is swamped. Both this stage and any FM tuner present in the system might also benefit from the inclusion of a high-pass filter, which will prevent the ingress of any signal in the region of 27MHz.

Most hi-fi systems include at least one preamplifier and they can give great rise to breakthrough. Often the only effective cure is to place ferrite beads to the base of each transistor, though this task should not be undertaken by those without experience, as it is only too easy to damage the transistor. In particularly severe cases, internal transistors may be entirely swamped by the presence of an unwanted signal and the only short-term cure may be to reduce the transmitter output.

Breakthrough

Other forms of domestic equipment susceptible to RF breakthrough include public address systems and, more common these days, electronic organs. In almost all such cases the problem is similar to those affecting hi-fi systems, in that it can usually be traced to one or more of the leads connecting either the mains power or speaker. In either case, the same

measures which cured the interference in the hi-fi should prove effective, though, since line impedance is likely to be less critical in a public address system than in hi-fi gear, all that may be required is to alter the length of the wire introducing the interference, so as to alter its resonant length and make it deaf to your signals.

Prevention

The prevention and cure of radio frequency interference can become one of the most fascinating aspects of the entire hobby but the simple truth is that no matter how many times you are successful, nor how many different causes you discover, nature always has just one extra trick up her sleeve. Even professionals with a lifetime of experience never cease to be amazed at the lengths to which RF will go in order to make its presence felt and each new electronic gadget that comes onto the market brings with it either a fresh set of problems or an extension of the existing ones. Beside radio, computers, luminous watches, automatic garage door openers and even some of the more sophisticated telephone equipment all account for a proportion of the general rubbish floating around in the air, just waiting to be trapped in the web of wires, diodes and transistors without which we would all have to relearn the arts of conversation and dancing! For every cure there is a fresh problem and no matter how many times we return to this subject, we will never cover them all. Let's just hope that we all manage to prevent more than we are obliged to try to cure.

RDS

— THE FUTURE?

Progress, as they say, consists of swapping new problems for the old ones. Or to put it another way, the latest technology is basically a bundle of components held together by a hire purchase agreement. During 1987, pockets will be emptied with the prospect of new kinds of radio, especially RDS due in England from September 1987 — and going national as soon as possible thereafter. Radio Data System (RDS) has been quite a time coming, but will be welcome all the same, especially as it helps the car/truck driver to keep in touch. For one thing, the RDS receiver will automatically tune to the best signal available, thereby cutting down that British hobby activity of tuning with one hand whilst hurtling down the M1 (that is, when the M1 is in any shape for a quick hurtle).

In due course, automatic tuning to station type — music, news, sports, etc — will be facilitated, together with a sixty-four character display for a range of data/computer link services. Initially, an eight-character display will be available to provide identification of the station 'chosen' by the RDS set. Time broadcast by the radio will always be correct with automatic adjustment for summer (BST) and winter (GMT) time. Especially useful will be the monitoring of information on channels other than those tuned into, for rapid channel changing when important traffic news is broadcast. All of these aids are facilitated by the use of an inaudible digital signal, added to VHF/FM transmissions, and which will 'instruct' RDS radio sets.

Despite being somewhat strapped for cash, like the rest of us, the BBC has invested around £400,000 in the launch of the RDS. No-one is saying whether an extra licence fee is proposed but on balance, few would resent paying something for the facility. RDS has taken around ten years to develop, the European Broadcasting Union being involved. Unlike the shambles that CB became, in terms of a European system, RDS will be standardised, though individual nations will vary their own service (input/choice). In fact, RDS seems likely to become a truly international system, and in this respect, the Brits seem to have some-

Could it be that the wonderful new Radio Data System was first a gleam in the eye of Citizens Band? Sure it was...

**by David Lazell
(The Radiogram Kid)**

thing that even our Japanese friends don't. So any unkind words hitherto addressed to the Beeb are herewith withdrawn.

Something approached RDS is already on offer, via equipment from Philips. Among facilities offered in Philips radio models are auto-tuning, autostore programme search and CARIN in-car data systems. Of course, all this falls short of the full service to be provided from September 1987. Philips, however, will be among the European companies active in marketing equipment from the beginning of 1988. Sony is also reported to be planning a product launch.

As mobile computer links become part of the RDS service, so we may expect other surprises, and in some cases, fruition of bright ideas around when CB was young. It is sometimes forgotten that, more than fifteen or twenty years ago, CB magazines in the USA were anticipating something like RDS. On-board radio could automatically slow cars approaching traffic hazards, through radio beams switched on when there had been a crash. These radio beams would be radiated from the side of the road, attached to lighting standards, for example. There was also talk of a magnetic system buried in the road, turned on when police requested a slow down in traffic. However, it seems unlikely that any motorist we've met would agree to buy a car that could be slowed down to 10

mph by a gent he didn't even know. CB monitoring groups in the USA and, no doubt, elsewhere were interested in the next generation on in-car radio communication, such is represented by RDS. Given adequate resources, RDS could develop into a two-way medium, in any case, even apart from computer and teletext links. Here, as in much else, the hold-up has been in securing international agreement on standards. It's said that RDS has taken ten years to develop, because of the problems of securing such agreement. The boffins were ready to shoot ahead with the gizmos, pronto.

Will the humble truckers abandon their humble CB for the new RDS? The answer is almost certainly 'No'. As a long-distance driver put it to me, there ain't nothing more calming on a dark night than a voice that's specially for you — and who knows the best way from A to B. That kind of information will be widely available on RDS which might mean that the truckers' neat secrets get blabbed around more than somewhat. Given what happened in the USA during the Great Gasoline Shortage, it would be just repeating history.

In an ever uncertain world, RDS ought to be a great success. True, sets may cost somewhat more (one figure is an extra £30) than conventional receivers, but they will offer a new dimension of information, and pleasure. There are also plans, by another source of data, for computerised map databanks on board, so that a driver could key instructions for dashboard display of traffic routes anywhere in Britain. This will save Ma in the back seat struggling with the excellent road maps you got from the mail order company. Such is the build-up to the new 'Intelligent' or 'Smart' Radio, that waiting lists may even be in view, which would be a lot brighter than anything we achieved for CB radio. Which should cheer many CB businessmen; could it be that RDS will trigger a revival of intelligent CB, too? Won't folks want to tell people up and down the motorway how great they consider RDS to be? As any veteran CB psychologist will tell you, 27MHz is at its best when you can grab the mike and tell complete strangers how happy you are with *all* the technology.



A sideways look at what was brewing and bubbling ten years ago — and if it works today

CAPTAIN SPARX ON THE WAVELENGTHS

During World War Two — when blokes in espionage were giving birth to what became CB radio — the BBC lifted the national spirit with an early morning record programme called 'These Were New Ten Years Ago'. Today, of course, one's ears are subjected to earnest discussion as to whether Nelson's Column should be privatized and whether the Yanks should be allowed to buy it. In short, bring back the old records.

Looking back at what was new in CB ten years ago i.e. in the halcyon months between mid-1976 and mid-1977, one is impressed by the High Hopes flourishing on both sides of the Atlantic. Most of us had jobs in those days, too, which helped purchase the goodies advertised in the fat CB magazines in the USA. What's just ahead in the privatization of the Post Office was anticipated in Idaho, where a postman used his mobile CB to inform his clients that there was indeed something in his little sack, so they could wait around. As about one third of his constituents had CB, they could ask whether it was worth waiting for. Sometimes, the mail looked so bleak that, according to a press story of 1976, the potential recipients went on vacation. Well, I've sometimes waited 'til noon for my first class delivery but never thought of a holiday in Switzerland while it was en route.

Meanwhile, the Neighbourhood Watch schemes — now promoted in the old country — were taking off in the USA. In Aspen, Colorado, potential recruits to the Watch programme were contacted by the traffic warden slipping an invite under the windscreen wipers. The fact that such paperwork from a distance may bring heart attacks to nervous drivers is neither here nor there. At any rate, the Aspen police were keen to train volunteers, and to build up rapport. This was necessary in view of an Associated Press survey report which suggested that CB users sometimes reported police cars for speeding after mere civilians going

faster than the 55 mph speed limit. Otherwise, CB users were thought nice people. Oddball stories about relationships 'twixt police and public were never hard to come by, and the brouhaha relating to radar speed traps (and on-board devices to counter same) had more fiction than the tales of the Arabian Knights who, alas, had no CB.

One nice yarn relates to the editor of a hobby radio mag who was flagged down by a police car. Seeing that the journalist was going at a mere trickle, he wondered how come he was getting a ticket. However, the policeman announced that he was merely conducting a survey as to folks' opinions of CB, and seeing the antenna on the roof, thought the ageing gent a good prospect. Sounds a bit like a Community Enterprise Scheme of the mid-1980s, of course, but you have to come by honest information somehow.

Many Police Departments — and indeed other authorities — were wondering how CB could be used to apprehend criminals and fire-raisers, for example. Problem was the natural excitability of some users. A New York mobile patrolman summed up the problem in a neat comment ten years back. The biggest drawback to the potential of the CB user, he drawled, was the 'over excitability' of users when faced with a real emergency. There was far too much dramatic emphasis in reporting accidents. Well, as they used to say in some places in Britain, purple prose is a lot better than mere cussing.

Meanwhile, real-life drama was being captured onto video, via movies and TV programmes that related to the CB boom. To list these would make this magazine seem like a movie poster, but we must refer to one of the best films of the ilk, 'Citizens' Band' (Paramount Pictures) which was being made in California about ten years ago. Although given little screen release in Britain, it appeared on home video, I believe, and may still be around. Worth finding, as it was a piece of real life Americana, halfway between a better soap opera and the world of P T

Barnum. Star of the film, Paul Le Mat, certainly had a lot of faith in the production; as they say of Errol Flynn, you don't see stuff like that at the Odeon these days.

While films and TV shows suggested that CB was Man's Biggest Friend, there was growing consternation in the Monitoring Camp. A head of steam was built up by an article published in 'S9 Hobby Radio' Magazine in November 1976, asking 'Should We Dump Channel 9?'. Tom Knieta, one of the best known experts on CB/sideband etc, raised the question in view of the widespread abuse of the monitoring channel. In that, he opened the veritable floodgates of letter-writing in the USA, as mail arrived by the bucket-load. Of course, it was impossible to generalise; monitoring was effective according to local conditions and what time local bucketmouths rolled off their sofas. There were some marvellous ideas like that for a 'secret' monitoring channel, which would seem definitely sci-fi and working on telepathy. To ask "how would you know where the secret channel was?" one would merely reply that you drove with sealed orders in the boot. That is, assuming they (and the car) had not been stolen.

Sign of the times was the comment that CB users were interested in Neighbourhood Watch Schemes on account of the amount of CB gear that was stolen. One of the ads for CB equipment ran the headline: "This

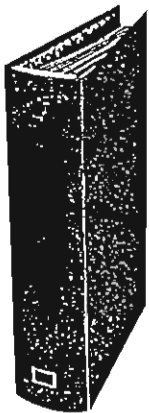
Year Over Four Million People Will Buy CB'. Yep — but how many more will pinch it? As some gent stole the rig from my 70-year-old Ma's motor somewhere in Wales, you will see that the USA approach soon came to Britain.

Upstairs in the effete and well-carpeted saloons of the FCC, there was a mood of abandonment, namely, an abandoning of CB to its own devices. From 1st January 1977, the humble four-dollar-a-year licence was abandoned and so was, for all real purposes, any evident interest in CB control. True, there were busts for such gents as ran 500 or even 5000 watt rigs (real examples) but on the whole, the Citizens were left to sort it out for themselves. Even so, the move from the old 23 channels to 40 channels was greeted with jubilation and, no doubt, more theft. CB magazines grew large and bulky with advertising pages so that it was not unusual to find a mid-1970s magazine with upwards of 160 or more pages. You could pass a merry evening looking at the ads. One ad for an antenna mount said that it had been tested on an aircraft flying 140 mph. The copywriter was seemingly unaware that some terrestrial CB users drove that fast when they went to the supermarket Saturday morning. Another approach in advertising was to emphasise science. A nice ad for rotors, antennae and suchlike referred to "Dual Parasitic Excitation". This sounded a bit like the press report of a real life shoot-out down south when

two CB users fell out and decided it was time to reach for the gun. Rumours abounded as to the FCC outlawing power mikes, which must have upset advertisers of the same. At any rate, advertising referred to clarity of the signal rather than power *per se*. In any case, it was apparent that anyone eager to live a good clean life on the lines of Horatio Alger should move into Sideband. SSB was reportedly claiming some 15% to 20% of total CB interests, and 'S9' reprinted a wordy pledge described as "The Sidebanders' Creed". It could have been written by Abraham Lincoln had he not been busy eating three Shredded Wheat at the time.

Most of the later travails of CB in Britain were thus foreshadowed by the US activity. Still, a 1976 magazine noted the advent of interest in Britain, and the formation of the Citizens' Band Association of St Marks, Cheltenham, was warmly noted. However, there was seemingly amazement that any truckers were around in Britain seeing that in the popular American mind, Brits went around on horseback and sometimes in armour. I came into the CB scene somewhat later. I was still struggling with agoraphobia at the time, and thought that CB might be therapeutic. As they used to say in the golden days, "You could get a lot of input just knowing that someone out there was listening to what you said on the air — and waiting just to spit in your eye."

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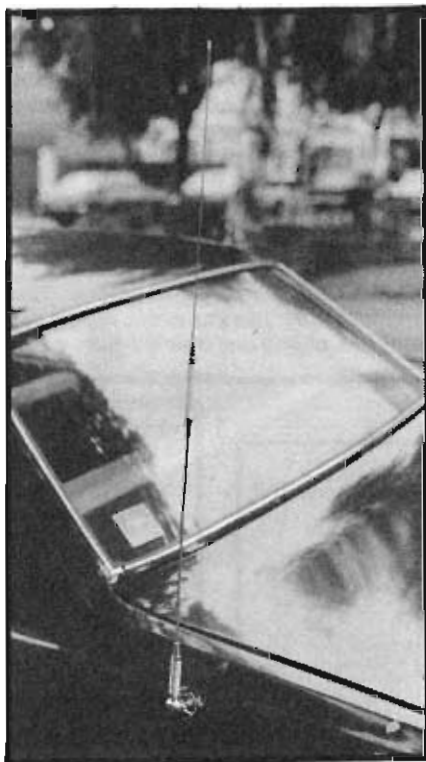
A TIME FOR CHANGE

Consider the sheer number of different radio transmissions taking place at the same time and you could be forgiven for wondering why we do not suffer a far greater degree of interference than actually happens. Imagine, then, the task faced by those charged with satisfying the ever-increasing demand for frequency allocation, as they attempt to slot new services into an already crowded spectrum in such a way that they do not unduly affect each other.

Apart from the need to ensure uninterrupted enjoyment of television and radio programmes, they have the far more important task of ensuring the proper functioning of those services which contribute to our safety. Not only must the everyday emergency services, such as fire, police and ambulance, be able to respond instantly to radio traffic but aircraft have to be guided safely through our crowded skies and it does not require much imagination to envisage the likely result of any serious disruption of ground radar, instrument landing systems, or any of the various frequencies used for voice communication between aircraft and the ground.

Besides these there are also literally hundreds of "non-essential" services, such as gas and electricity repair vans, AA and RAC patrols, TV repairmen and even the ubiquitous black cab, on which we all have to rely on from time to time, all needing to make regular use of their own slot in the radio spectrum.

Additionally, there are invariably a dozen or more potential new services, each petitioning for a slice of the available spectrum and each believing its own claim to be stronger than all others. Before licences can be issued for any new frequency allocation, the DTI's boffins must first examine the likely result of harmonic radiation on those existing services likely to be adversely affected and, even if all looks well, they probably also have to find new slots within an acceptable part of the band for any of the existing services likely to be displaced by the new allocation. Sounds complicated? I



With the CEPT frequencies due to be introduced next year, Keith Townsend thinks it might be a good time to look at the regulations

reckon it must appear at times like a game of three-dimensional chess, with all the same penalties. If it has proven difficult to shunt just a relatively small number of users around in order to allow us the use of the same CB channels as our European neighbours, imagine the problems which lie in store as the emergency services are obliged, as they soon will be, to give up their occupancy of parts of the FM broadcast band.

Is it, then, any wonder that, like all other radio services, CB is governed by a comprehensive set of rules and licence conditions, many of which are aimed specifically at reducing the likelihood of interference to other users of the spectrum? Over the last few years, a great deal of criticism has been levelled at what some see as unwarranted restrictions and although experience has shown that mistakes were made in drafting the original rules, a lot has since been done to put matters right and the process goes on.

A clear example of this process was the recent broadening of antenna specifications, arguably the source of most heated debate ever since legalisation. Although there was some slight justification in the claim that siting the loading coil at the base of the antenna would attenuate harmonic output, there are far more efficient ways of suppressing this form of unwanted radiation and so centre and top-loaded antennae were ultimately sanctioned, bringing with them an apparently minor modification to the permitted overall length. I say apparently minor because although the change only permitted a small increase in total length it put the official seal of approval on many popular antennae, such as the K40, previously fractionally outside the law.

Not that the process can ever really be regarded as complete. As the pace of technology increases, so the need for constant revision of the rules governing the use of all sections of the radio spectrum come under ever-increasing scrutiny and perhaps another area of antenna regulation that would bear further consideration is power-to-height ratio. It is an open secret that height equals power and that the greater the height, the greater the potential area of any resultant interference. But the existing regulation is ineffective, in that it takes no account of terrain, obliging the breaker who lives in a valley to transmit a lower level of power, simply because his antenna is more than 7 metres above ground level, than those on the highest peaks, who can merrily put out the full 4 watts, merely by keeping just below the arbitrary height level.

It is even arguable that this single regulation is the direct cause of much interference to television reception, as locating a CB antenna at around 7 metres high on the average two-storey home puts it just where it can do the most harm, in the same horizontal plane as the inevitable television aerial. Perhaps the removal of this rule would induce more operators to site their antenna just that little bit higher, where informed opinion assures us it would have less effect on television reception.

"There appears to be no clear-cut rule as to how many sets your licence entitles you to hire out. . ."

Whilst I am in philosophical mood and given that we cherish the hope that your favourite monthly is avidly read in the highest of circles, what now of the archaic restriction of three rigs to a single licence? If it were ever really justified, and that must be debatable, surely conditions have now altered so much that it has become entirely irrelevant? Although some forms of commercial licence specify the number of sets which may legally be installed, there can be little need for such a rule being applied to 27MHz, where all are supposedly welcome and where in-band interference is only of importance to those experiencing it. Would it not now make sense to do away with the numbers game and licence individual users, rather than a given number of rigs? Who do you know that can use more than one rig at a time anyway?

Which leads me neatly onto my next hobby-horse, namely the right of a so-called hirer to operate a rig under the terms of a licence issued to the person from whom he is deemed to have hired the rig. Never was such a regulation so ill-conceived. I wonder just how much genuine licence revenue has been lost over the last five years through sets being passed from friend to friend with the comment that if caught the current user may claim to have hired the rig? I know of no case in which such an assertion has been challenged but cannot help wondering just what might have proved acceptable as evidence of genuine hire? The more so since it is not even necessary to inform any official body that such an arrangement has been entered into, with the result that although the issue of licences was partly intended to provide an accurate record of the location of every station, supposedly hired rigs might be absolutely anywhere, in absolutely anyone's hands.

Even then, there appears to be no clear-cut rule as to how many sets your licence entitles you to hire out, since if only three are in your possession you would appear to be complying with the rule by holding a single licence. Not that there was ever much danger that all of your hirers would be approached by the authorities at the same time.

The obvious drawback to my last suggestion, however, concerns those visiting our shores. As things stand, unless they are fortunate enough to find someone willing to hire a set to them, they are obliged to purchase the

same twelve month licence as you and I, regardless of the fact that they might only be in Britain for a few weeks. Surely the forthcoming introduction of a common standard demands at the very least the issue of a low-cost, short-term licence for visitors, or, better still, proper reciprocal licensing arrangements which would allow breakers from all of the countries participating in the standard to travel freely from one to another, safe in the knowledge that their domestic CB licence was sufficient to ensure their continued legality. This, along with the fact that breakers of all nations would no longer be obliged to argue their case with the Customs officers at every frontier they crossed, many of whom appear to have only the haziest understanding of what was and what was not permitted, would go a long way to improving international relations. Ask any international trucker.

Another major change which has taken place during the last five years was the requirement that all CB licensees be over fourteen years of age. Originally misunderstood by many youngsters. It merely ensured that the youngest among us were subject to the same restrictions and responsibilities as the rest. Some change was necessary, as the original rule, under which anyone who could sign their name was eligible to hold a licence, took no account of the fact that the very young could not be legally bound by their licence conditions, as nobody under the age of ten could be prosecuted in a court.

Choice

The subsequent choice of fourteen as the minimum age might have appeared somewhat arbitrary but it was a logical decision, since it brought CB licences into line with those of other services. It was never expected that this move would significantly reduce the degree of abuse present within the band, precious little of which came from the under-fourteens, so perhaps the time has come to consider giving the relevant authority the absolute right to revoke the licences of those found abusing the band and to ensure that they make no further transmissions. If such a regulation were introduced and then, more crucially, properly enforced, perhaps we would begin to see the end of the type of abuse which has done so much to damage the reputation of our hobby.

Another cause deserving of re-examination is undoubtedly the status of channel nine. Despite the obvious advantages of a properly regulated emergency channel the Radio Regulatory Division felt able to do no more. At the last review of licence conditions than alter the CB Code of Practice to include the suggestion that emergency traffic should take priority on nine and, in the circumstances prevailing at the time it is doubtful whether they could have done more. Since then, however, the responsibility of the Radio Investigation Service has been redefined, with a greater emphasis having been placed on its role as a law enforcement

"All in all the future of CB has never looked more promising than it does today . . ."

agency and, if my last suggestion were ever adopted perhaps the time might come when they were able to offer a greater degree of protection to those selfless enough to spend large parts of their own spare time being prepared to help others. A really effective emergency channel would, more than any other single factor, help to restore the reputation which the wallies have so assiduously sought to destroy.

Perhaps these are simply the dreams of a romantic optimist and perhaps not. Official attitudes toward CB took a dramatic turn from the day that the Department of Trade and Industry came into the picture. Gone was the old Home Office attitude, which apparently regarded anything to do with the subject as little more than a single step from heresy and against which not only the fact of legalisation but also the manner in which it was accomplished had to be contested as though any victory, however small, would spell the end of the British way of life. In its place has come an atmosphere of trust, of open discussion in which suggestions made by responsible user groups are carefully examined from all angles and in which many recent changes have come about as the direct result of such suggestions. There is even a noticeable change in attitude toward those suggestions which have, for the time being, fallen by the wayside, as blank, unreasoning refusal has been replaced by an atmosphere in which departmental officials are prepared to fully explain their reasons for not acceding to any particular request, though not even they would claim to be infallible.

All in all, the future of CB has never looked more promising than it does today. The number of users has gone down from its early peak, as we all knew it would, leaving the band to those with a genuine interest in communication. At the same time, a more responsive administration leads most of us here to believe that great things are yet to come, though, before anybody gets unduly excited I should perhaps add that any real discussion of the possible legalisation of either AM or SSB ended long ago.

Like most scribes, I allow myself the occasional flight of fancy and maybe all of my dreams will never come true but don't hold your breath and, who knows? Perhaps next year, as European unity is finally achieved, I will be able to say 'I told you so'.

Our American chums occasionally take time off from polishing their big antennae, to mention the origins of Citizens' Band. These (they smile) were the allied intelligence-gathering innovations of the second world war, when self-respecting spies had a radio in every suitcase. True enough, that innovations in limited range short-wave radio came to help allied spies transmit intelligence to aircraft overhead, whilst not being much overheard by local soldiers sipping schapps nearby. So if you have ever wondered why the diligent guardians of respectable radio, ie the FCC in the USA or the RIS here, fail to apprehend the abusers of the medium, well, it's just that the chumps are using rigs designed for men of the OSS (forerunner of the CIA).

In natural fashion, the British yarn of 'what we did, radio-wise, in the war' has been obscured. Yet the Brits proved to be no slouches when it came to using radio on a top secret level. Indeed, the origins of some of today's new stories relating to radio intelligence monitoring, are in British planning some forty or more years ago. It's the kind of Truly Amazing Yarn that might astonish friends and relations on the rig this morning.

Ham and hobby radio, in various manifestations, was big in Britain during the 1930s, so the RAF wasn't exactly short of radio-minded recruits when the re-arming rush began in 1938. Radar, originally called 'radio-location', had been developed in relation to a growing civil aviation industry, especially in Britain, though it is obvious now that scientists had at least half-an-eye open to defence possibilities. Maybe they had seen Alexander Korda's movie on the book by H G Wells, 'Shape Of Things To Come', which had anticipated air warfare on the lines of that actually occurring a few years later. When the first RAF radar training school opened in 1936, in Suffolk, five radar stations had been equipped on the east coast, able to detect approaching aircraft at forty miles distance, and at a height of 15,000 feet. Within a year or so, the detection distance had been increased to one hundred miles, from a further fifteen stations.

By the time of the 'Munich Agreement', and Mr Chamberlain's notorious sheet of paper bearing Herr Hitler's signature, the detection distance was one hundred and fifty miles. Remember that at the time military aircraft achieved speeds of around 300 mph, on average. You only have to look at popular magazines of 1938, to see that articles on Air Raid Precautions and similar topic anticipated a now unavoidable war.

Yet hardly anyone outside of the radar establishment knew that a round-the-clock monitoring system was already in operation, from the south coast to Scotland. Britain might have been short of fighters, and of anti-aircraft defences in 1938, but the intelligence aspect was growing rapidly. Main short-coming of the system was its use of relatively long waves, up to ten meters and therefore confined to

FROM HOBBY TO RADAR

The original and most important Citizens Radio medium was something called radar . . . you might not be around now if the enthusiasts hadn't taken it seriously back in the 1930s

high flying aircraft, as distinct from low flying attackers as might be evident in war-time. However, a further radar chain, and using new technology, was installed just in time for the autumn 1940 blitz of British cities. Heavy enemy losses from that time can be explained, not only on the basis of brave flyers and good machines — but the essential radar intelligence which tracked the original massing of enemy aircraft beyond Cape Gris Nez. Size and projected flying paths of enemy formations meant the UK aircraft were in the right place, at the right time — and often with an element of surprise on their side.

"Ham and hobby radio, in various manifestations, was big in Britain during the 1930s. . ."

However, the original training centre in Suffolk was too inviting a target. It was moved to Yatesbury in Wiltshire, where, incidentally, the Royal Flying Corps had an airfield in the first world war. CBers might today pay some pilgrimage to Yatesbury, as it was the centre for some of the most secret radar training between 1939 and 1945 — and thus, important in the final victory in the air. Other specialist RAF radar training establishments were opened in Ayrshire and in London — not far from the Science Museum in South Kensington, which may be appropriate.

The RAF College at Cranwell, Lincs,

was also into radar, as one might expect, but one of the most astonishing aspects of this entire period was the arrival on these shores of great numbers of RCAF personnel, not to mention those Yanks who got into the war considerably before Pearl Harbour. A special RCAF training centre had been opened at Clinton, Ontario, and was itself quite an achievement, being erected, equipped and commissioned within months of the decision to go ahead. Assigned the code name of 'Problem', the Clinton operation was opened in 1941, in conditions of great secrecy. RCAF personnel came to Britain already trained, and in that respect the old country owes a great debt to Canada — heaven knows what we would have done without them.

Meanwhile, the headquarters of the RAF Technical Training Command was situated at the campus of Reading University, and specifically at Wantage Hall. Co-ordination of various training projects at technical colleges, as well as many Canadian universities, was performed here. This was no way like reading the latest on SSB, by the way. So rapid were the innovations in radar, that instructors often had to work from notes made by scientists, invariably Top Secret. Lack of textbooks had nothing to do with a cost-cutting programme in education, such as we know and don't much love today. Many of the notes etc came via the Tele-Communications Research Centre at Malvern, operated by the Ministry of Aircraft Production. Women were also used, increasingly, in radar work, from around 26 WRAF specialist trainees at the beginning of the war to a peak of around four thousand later. Any man who thinks that women don't understand the complications of CB radio might ponder on the know-how quickly absorbed by young ladies in WRAF uniform. Reportedly, these ladies were specially able in fighter interception work.

At the heart of the war-time advances in radar was the Magnetron Valve developed at Birmingham University by Professor J Randall and his team.

The Magnetron — using frequencies (shortwaves) down to ten centimetres — permitted a far more efficient radar, which could focus on objects like U-Boats and enemy convoys. A new anti-submarine radar was quickly developed to supercede the original Air To Surface Vessel Radar (ASVIC) which, though useful, was easily detected by U-Boat personnel, who thus disappeared complete with their craft long before Coastal Command turned up with the torpedos.

U-Boats were far less able to defend themselves against the new 'centimetric radar', and never developed counter-measures to a degree that helped them more than marginally. The war against the U-Boats had been specified by the government as the top priority, since Britain needed strategic war materials, foodstuffs etc delivered by convoys. So radar certainly proved strategically important here. Airborne radar came next on the list of priorities. First trial of a new airborne interception unit was made during night-time flying exercises in July 1940, just as enemy bombing of Britain was building up. Ground Control of Interception (GCI) gave a new flexibility of fighter control from radar stations (instead of operational control rooms) and soon a new Plan Position Indicator (PPI) provided rapid identification of oncoming aircraft location. As simulated in many war movies over the years, radar operators on the ground watched for blips on the skiatron, a cathode ray tube which showed the transmitter trace as a moving line on the screen. Enemy aircraft were shown as 'blips'. PPI showed this trace as a 'radius line' from the centre of the screen, moving clockwise and showing blips en route. With use of a location map to coincide with the area scanned on the screen, it

craft sorties in Western Europe. It was now possible to warn RAF pilots of Luftwaffe aircraft in the vicinity, also of their direction, approximate speed and so on. There's no doubt that the Luftwaffe was put at a great disadvantage. 'Offensive' and 'defensive' radar were two aspects of the same task, as in the attacks on V1 (flying bomb) and V2 (rocket) bases. Radar also greatly assisted shooting down of V1 (buzz bombs) after their launch but before crossing the English Channel. RAF Bomber Command came into radar fairly late on, but ultimately proved to be the most consistent user of radar-assisted attack techniques. From the spring of 1942, a radar set known as 'Gee' gave bomber navigators clear 'views' of locations and established their own situation vis-a-vis the target. Because the target location was so effective, Bomber Command was able to develop its Pathfinder Force sometimes using the so-called wooden aircraft, the Mosquito, to guide bombers on the 1000 Bomber attacks on the German heartland. The so-called 'Oboe' set — used with two ground stations — provided triangular guiding to targets. Among the many remarkable aspects of 'Oboe' was that its signal could not be jammed by conventional radio frequency jamming equipment. Range was limited to around 250 miles. The H2S Oboe set was of strategic importance in the 1944 'second front' invasion of Europe, permitting pinpoint bombing of essential targets from artillery concentrations to railway yards. Incidentally, another invention (IFF) permitted automatic identification of Friend or Foe, focussing attacks on enemy aircraft whilst permitting those belonging to the allies to continue on their way.

Secrecy

Oboe was developed with great secrecy. Trainees at Yatesbury Radar Training Centre were not permitted to enter the building where the set (for training) had been installed, unless their names were on an official approved list. Even then, they were not permitted to take their notes from the training area, even though there was a great deal of material to absorb for actual work. Sometimes, training in the so-called 'Type 9000' Hut went on round the clock. In these days of spies and rumours of spies, not to mention Vast Spy Scandals, one cannot help thinking that the security operations vis-a-vis radar, should be essential reading for those in charge of things today.

The Germans, fine engineers by any standards, were not chumps radar-wise, but had a run of what might be called bad luck. For one thing, a complete radar installation came into Allied hands in North Africa, and was carefully examined to ascertain best ways of destroying such equipment. In the end, use of rockets fired from fighters, followed by explosive shells, proved a deadly combination, and proved to be effective when used against radar installations prior to the D-Day landings.

The German radar system was largely neutralized from Heligoland to Brest, thereby depriving the High Command of essential information. It may be that the German military establishment looked to new weapons (the V series) to win the war — as they might have done. Recalling the terrible destruction of cities throughout Europe, no-one can rejoice at the success of bombers, as such, but those of us around at the time (as this writer was, albeit in short pants) had no doubt of the vital issues involved. Director of Radar at the Air Ministry during this epochal period was a relatively young man in his

"Secrecy was clearly the name of the game"

forties, Air Commodore C P Brown, CBE, DFC and Bar. Like many people in radar he had to work hard to keep his light under a 'bushel', since secrecy was clearly the name of the game.

After the war was over, some of the secrets were shared with a public that 'wanted to know the facts'. Some excellent articles were written, at the end of 1945, in 'The War Illustrated' by Captain Norman Macmillan, MC AFC. Radar could not make up for other massive logistics problems. For example, the Arnhem glider landings were assisted by a radar beacon, Rebecca-Eureka, but the brave project proved a disaster. It's worth noting that the human factor remained important here; though many aspects of the war may perhaps still be under wraps, one does not get the impression that 'guided missiles' represented a major interest, compared say with radar — where human input and interpretation was so essential for success.

As Britain worked to recover from the appalling economic losses of the war, the service personnel returned to their civilian activities, and, thanks to the Official Secrets Act, didn't say much about their war record. The very success of radar may have helped shape political attitudes, eg our slowness in joining the European Economic Community, since we felt that our island status was once more assured. Whilst our rocketry possibilities ended with Blue Streak, thereby depriving us of any but a minimal stake in European satellite launches (Ariane and all) it is true to say that radar established British know-how throughout the world. What we may lack today is not so much ideas, as resources to fulfil them. The 1930s generation that delighted to play around with radio was also the one that, to a large measure, saved Western Europe for democracy (and among other things, hobby radio today).

"CBers might today pay some pilgrimage to Yatesbury. . ."

was easy to define enemy aircraft situation at once. Operators soon related the blip to geographical location without any need to refer to a map of course; but that was the general basis of PPI radar. Coming in time for December 1940, you might say that PPI was a great Christmas gift with immense possibilities for home defence — and later offence against the enemy.

Beaufighters were equipped with airborne radar, known to the crew as the 'box basher', for rapid closing in on bombers, following original ground-based radio intelligence, sent to Beaufighters in the air.

By the end of 1942, offensive use of radar was being used for RAF air-



During my travels around our country, many breakers come on the side to ask me for information on the trucks that I drive, so to start this month's column I will try to give you a brief insight into the vehicles I drive.

The firm I work for run a small fleet of three artics and four-wheeler lorries with one spare trailer and one spare swap body. The trucks are all A registration Scania's which we have had from new and which are supplied and serviced by Ryder Truck rental who I believe are the biggest rental firm in the UK. Our artics are fitted with all the latest gadgets, eg electric window, heated mirrors and seat, night heaters and, of course, very comfortable beds. There is also a treble braking system to ensure a very high degree of safety. The trailers are Overlanders, dual-axle, 40 feet long with curtain sides and, fully loaded, can carry 22 pallets of the 40 x 48 size. Our maximum gross weight is 32 tons.

Our units rev to a maximum of 2,700 which is approximately 70 mph but, as most people know, the maximum speed allowed for motorway driving is 60 mph. There are ten forward and two reverse gears with fuel consumption at around 9 mpg but some of the larger engine units can only manage about 6 mpg. My own weekly mileage is about 1,300 miles or 2,200 kms. The road fund licence is well in excess of £2,000 per year and with the artics having 14 wheels at approximately £200 per tyre you can see it is a very expensive business. Hopefully the above information has enlightened some of our readers to what is involved with the trucks that are on our roads today.

Again this month I shall not be featuring a cafe or monitor so that I can devote the space to the two superb eyeballs I have attended recently. First I must thank my many friends down in the Cheltenham area for the invitation to their first eyeball held in May. Myself, my wife and many stations from the Telford area went down for the day. It was their first attempt but everything seemed to go very smoothly with a very good crowd and plenty of stalls and trade stands. Well done Cheltenham.

Our resident trucker, Big T, fills us in on the hectic life of big wheelers

On 24th May our club, the Telford Thunderbirds, held their second annual eyeball/dance at the Broseley Social Club where admission was by ticket only. I am pleased to say our 200 tickets were sold out a month before the do — breakers from 22 different counties made the trip to Shropshire with most of the top DX stations making an appearance, the farthest travelling breaker being Tennis Racquet from Cornwall. We had a smashing night and are already looking forward to next year's. Our one regret was that our old friend Tartan Lad, Dave from Dumphries, could not make it this year due to an accident he had had. Dave, your company was very much missed so speedy recovery my old mate. We hope to see you next year. On behalf of myself and all the Thunderbirds and Lima Novembers, I would like to thank each and every one of you who came to Telford for making it such a superb weekend.

The following day, Sunday 25th May, saw the Lima November spring Fayre at Madely Court Centre where over 1,000 breakers attended during the day — and, for once, the weather was kind to us. This was the Lima Novembers' fourth such event and each year it seems to get more popular — lots of hard work by the organising club has certainly made this (in my opinion) the best eyeball of the year and we look forward to another success in 1987. I have been asked by Momma Karen, Lima November 10, to say a big thank-you via this column to everyone for all their efforts and support in making their day such a success.

I have received a letter from one of Somerset's best known breakers Shutterbug (Keith) who tells me of his eyeball on 4th October, 1986 at Home Farm. All day tickets are £2.50, children £1, and this includes a pig roast at 7 pm — day tickets 50p per person on the gate. Home Farm is located one mile off junction 22 of the M5 — anyone needing more information should send a SAE to Keith, PO Box 7, Bridgewater, Somerset.

I would like to refer back to the eyeball we had at Telford. As I have already told you earlier on, many breakers came on the Saturday night and stayed over for the Sunday event so my wife and I played hosts to eight out-of-town breakers. Mick (*Rising Sun*) and a pal spent the night in my caravanette, Roy (*Leyland*) and Pearl (*Papermate*) from Halifax slept on the kitchen floor with Cliff (*Green Budgie*) from Milton Keynes sleeping in the front room on the settee. Dave (*Electron*) from Oxford turned up so was offered a bed on the front room floor. Late on Saturday evening we discovered that Barry (*Oddleg*) and Terry (*Texaco*) from Sheffield had nowhere to spend the night so they too were offered a bed at my house. We all arrived back at my 20 about 1 am, sat drinking tea and talking until about 2 am and as we had got another busy day in front of us, my wife and I decided to turn in for the night. At about 3 am I was awakened by some strange noises — to be more precise, bells chiming. It turned out that a rather tipsy Oddleg had tried to find his way to the toilet and was trying to get through the door of our grandmother clock! Next there were flashing lights outside the house — it appears that someone had stolen a car and abandoned it against a brick wall outside our house — there were three police cars and our guests sleeping in the caravanette outside about ten yards from the abandoned vehicle hid under the blankets! What else could happen? Next, there were two 'phone calls but, when Pearl picked up the phone, no-one answered, and finally someone knocked at the door but disappeared before we opened it — who it was we still do not know. Our neighbours have now put their house up for sale — I wonder why!

Big T

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Clubs, clubs and more clubs from all over the country

CLUB NEWS

Rising Sun DX Club

Way back in August 1984, you were kind enough to print a letter from the Rising Sun DX Club, sent by our social secretary RS07 (Don). I thought you might like an update on the club.

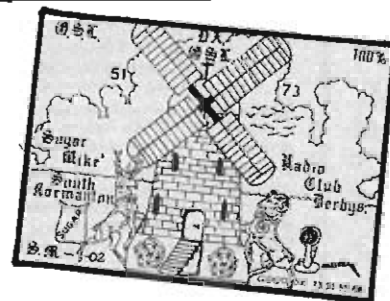
Membership is now over 400 and the countries involved have increased to 19. We have a comprehensive club package which includes a club rubber stamp, certificate and an up-to-date roster. We now have a club magazine and a new QSL card as well as the original club card.

Our chairman is RS01 (Dalesman) and our social secretaries are a husband and wife team, RS53 (Sodbuster) and RS54 (Silver Lady). We still have our weekly newsdesk on channel 4 at 22.00 combined with a general meet on the air.

The club is for all forms of radio and we hope that, by our actions, we are spreading peace and friendship throughout the world. We endeavour, as a committee, to keep in personal contact with all our members and to provide a good service for them.

If anyone requires any more details about the club, they can write to me at the box number and I will be glad to answer.

June (RS12),
The Rising Sun DX Club,
PO Box 3,
Lampeter,
Dyffed,
Wales.



Sugar Mike Radio Club

May I, through your excellent magazine, introduce the Sugar Mike Radio Club, which is based at the Shoulder of Mutton public house at South Normanton, Derbyshire. We have been in existence now for four months and already have a good set of local breakers as members.

We meet every Tuesday at 7.30pm at the 'Shoulder' and any of your readers wishing to join us will be made very welcome by our crowd. Visiting breakers pay 50p on the door and our yearly members pay £2 per year.

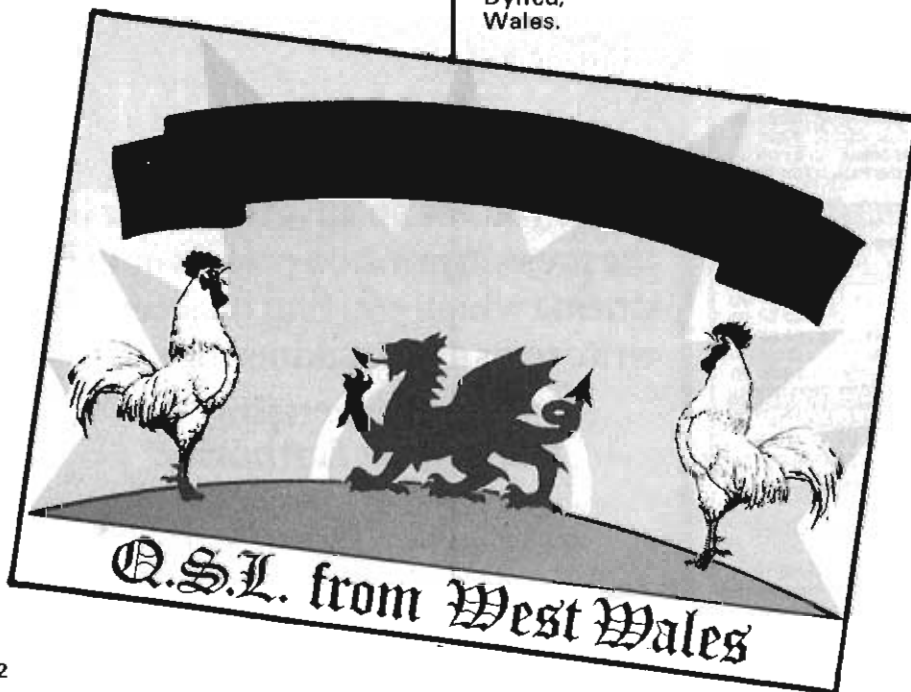
We are in the process of organising a sponsored mod for the handicapped in our area and all proceeds will be used to buy rigs and twigs etc to put these people on the air. Tell Big T, your trucking correspondent, to keep his ears open in the Derbyshire area because he blows smoke to us and we would welcome a mod from him.

Sugar Mike 02 (secretary),
Sugar Mike Radio Club,
Shoulder of Mutton,
South Normanton,
Derbyshire.

Sierra Bravo DX International Club

Just a few short lines to let you know of the existence of our club, the Sierra Bravo DX International Club. We are a new international club interested in maintaining peace and harmony throughout the frequencies. We are also very involved in helping the disabled and making sure they have a decent station with which to broadcast.

Ludovic — Unit 05 (secretary),
Sierra Bravo DX International Club,
PO Box 43,
Kirkcaldy,
Fife,
Scotland.



Steeltown Breakerways

As a reader of your magazine, and as secretary of the Steeltown Breakerways, I am writing to ask you if you could find a spot in the magazine for a few words about our club.

We started back in the AM days, when about 15 of us used to meet once a month in a pub out in the wilderness where our Firestiks could not be seen. When FM became the right thing to do, we started our own club called the Steeltown Breakerways, for that's just what we had done — broken away from AM.

We started with a good club by asking each new member to attend at least three times so we could be sure of their good intentions and because we wanted to do things by the book and make our club one of the best.

Last year we had 52 members. This year we have 110 and are getting new breakers wanting to join the club each week. We also have our own DX section called the Alpha-Lima and one breaker in the section received over 100 QSL cards in 12 weeks. We think this must be some sort of record.

The club also does a lot for charity in the town, with dances, fancy dress parties, eyeballs and lots of other activities. We occasionally put on bus trips for the members which gives us all a day out without the CB; sometimes it makes a change.

Lots of our members read your magazine every month and I feel they would get a thrill reading about their own club. Keep up the good work on an excellent magazine.

Club Secretary,
Steeltown Breakers CB Club,
PO Box 24,
Scunthorpe,
South Humberside.

Solway Breakers CB Club

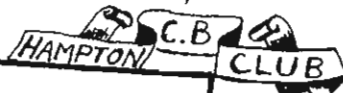
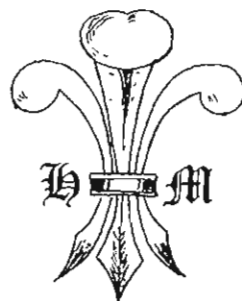
I would like to tell you about our club, the Solway Breakers (Maryport) CB Club, formerly known as the Queen of the Solway. We meet on the second Thursday of every month and some of the activities planned include darts, pool and dominoes competitions, outings and eyeballs. Anyone wishing to visit or join our club would be most welcome.

At the time of writing, we have around 50 members, but membership is still growing. Membership of the club costs £1 a year (overseas members receive lifetime membership) plus £1 a year for the use of the PO Box if required. Club QSL cards cost £2 per 100 and are in red and black with details printed on the back. The front of the card is a view of Maryport Harbour and was designed and drawn by one of our members. Anyone wanting more information about the club should contact the person below.

Babycham (secretary),
Solway Breakers (Maryport),
PO Box 4,
Maryport,
Cumbria.

Hotel Mike Dx Group

PO. Box 11,
Hampton,
Middlesex.
T.W.12 2R.L.

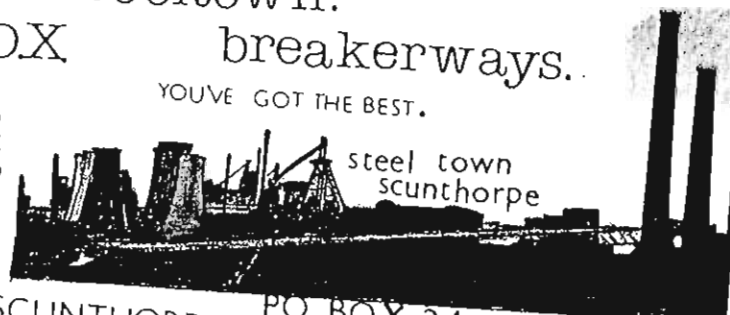


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Hotel Mike DX Group

Just a few lines to thank, through Club News, all the breakers who attended the mass eyeball at the Prince of Wales public house back in January. I am sure everyone there enjoyed themselves and we look forward to meeting you all again.

For anyone who took one of the meeting lists, could they please amend the dates; all those shown as members are socials and vice versa. We are still open for membership, which is £3 for the use of the PO Box, 10 club cards, club info, Q-codes and the like. Thanking all at *Citizens Band* and keep up the good work.

Knightrider
Hotel Mike DX Group,
PO Box 11,
Hampton,
Middlesex.

Glens Shamrock Radio Club

The Glens Shamrock Radio Club is just seven months old and, to date, have 25 members — and still growing. We have discos every fortnight for the young people in and around the Glens of Antrim, and all the members take an active part in helping the Senior Citizens as well as holding functions for various charities. We would be honoured to see our card or name in your excellent magazine.

White Tornado (chairman),
Glens Shamrock Radio Club,
PO Box 45,
Cushendall,
Ballymena,
Co Antrim,
Northern Ireland.

Shamrock
glens Radio

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CB Citizens' Band

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The following issues of Citizens' Band are still available as back numbers. The cost of each magazine is £1.50. This includes packing and posting. Please allow 28 days for delivery.

Issue	Major feature
July 1985	Amateur Radio
August 1985	Uniace 934
September 1985	John Butcher interview
October 1985	Plugs and cables guide
November 1985	Radiotechnic RT852
December 1985	The story of 934
January 1986	CB codes explained
February 1986	RIS Interview
March 1986	Test meters and tools
April 1986	New 934 Handheld
May 1986	Moonraker Major and Minor
June 1986	CB Installation
July 1986	Truckers and CB

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10th SEPTEMBER**

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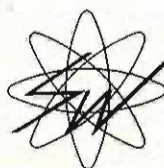
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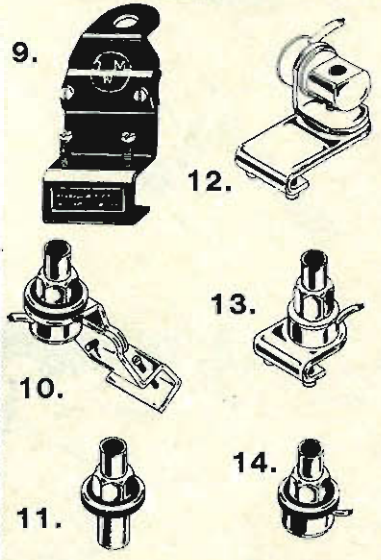
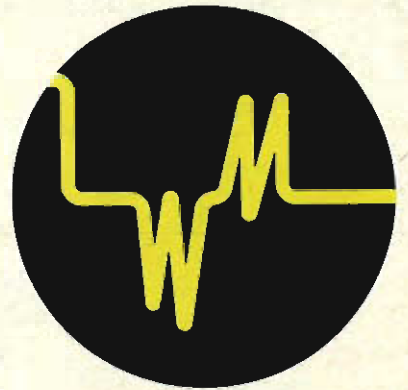
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