

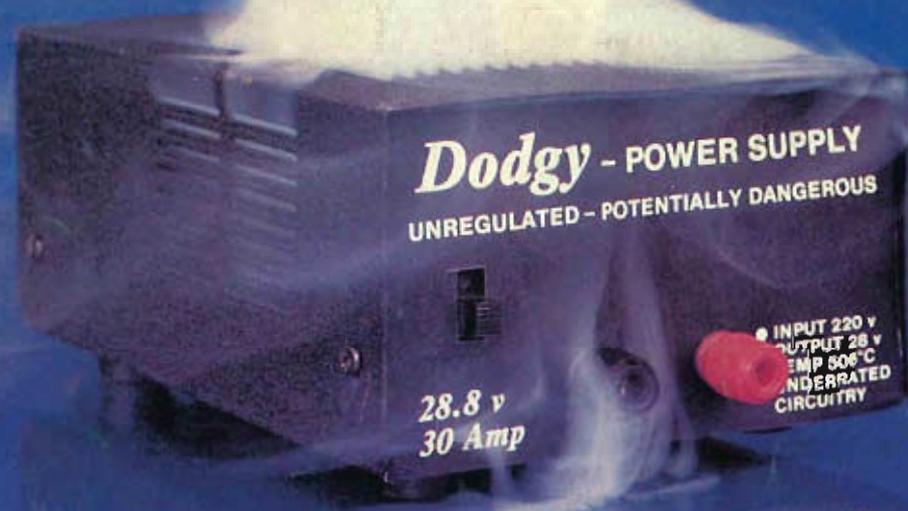
CB RADIO

VOL. No. 3 ISSUE No. 27
SEPTEMBER 1982
70p MONTHLY
IRISH REPUBLIC £1.06



THE
SHOGUN RIG
ON TEST

IS YOUR
POWER SUPPLY
SAFE?



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The British Breakers Mag.

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"No ifs, ands, or buts! The K40 Antenna from American Antenna would have to be just about the best antenna around."

CB MAGAZINE: "Introduced in October, 1977, the K40 quickly became the top seller and in mid 1978, became the number one selling antenna in the nation."

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ANTENNA SPECIALISTS: "... truck driver and CB'er for 10 years ... 50% further than my M410 'Big Momma'."

—J.H. Collett, 207 McFee, Bastrop, LA

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—H.R. Castro, VRB, Monserrate D-67, Salinas, Puerto Rico

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—John A. Blum, Box 446, Zellenople, PA

SHAKESPEARE: "... I've been a CB'er for three years and the K40 is the best I've ever had. Better in reception and transmission than my Shakespeare."

—H. Bachert, Jr., 15 King Rd., Park Ridge, NJ

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—Jerome R. Brown, 7800 S. Linder, Burbank, IL



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CB RADIO

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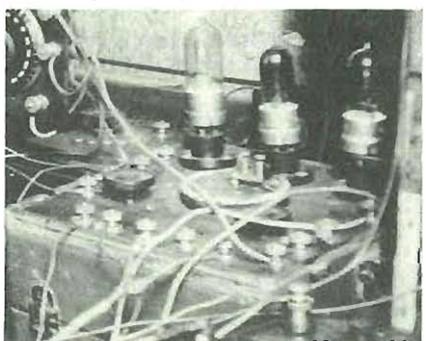
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Editor..... Paul Carter
Editor's Secretary..... Maureen Kelsey
Secretary..... Lenie Kazymka
Advertising..... Bridget Atkinson
Editorial Executive..... Sue Sharp
Photography..... Colin Downes
Production Manager..... Andrew Lawrence
Production Assistant..... Steve Evans
Production..... Alan Booth
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TEN 251 THOROBRED Antennas to be won

This is the first CB competition to offer **TEN** first prizes. That gives you 10 chances of winning one of the popular Thorobred 251 mobile antennas which normally sell for over £20.00. This competition is free to enter and is open to anybody, regardless of age. So, if you are looking for a new twig but resent paying for it, try your luck at winning one by writing a sticker slogan for CB.

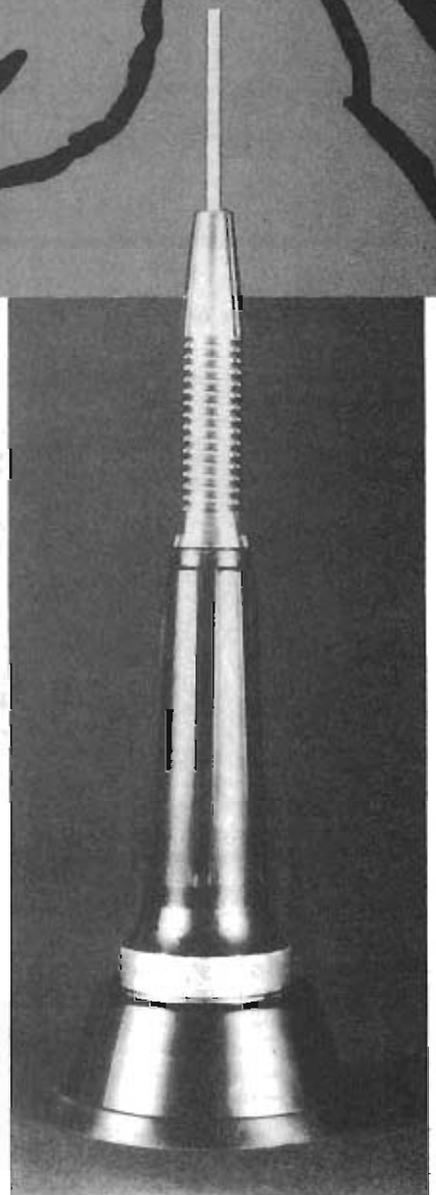
Now, sticker slogans need to be short messages which can be used on car or window stickers that really get a message across. Two prime examples of sticker slogans that said it all and really made an impact were 'I♥NY' and 'Windsurfers do it standing-up'. Just a very few words describing a city and a sport.

The 10 people who think up the best 10 slogans (in the opinion of the judges) which describe CB will each win one of

the prizes. These antennas have been kindly donated by OCT of London and Grantham.

Here are a few rules and guidelines to help your entry.

1. All entries must be on a postcard and sent to CB Radio Magazine, Tudor Works, Beaconsfield Road, Hayes, Middx. UB4 0FL.
2. All slogans must be original and must not have been used on a sticker before.
3. All slogans entered in this competition become the property of CB Radio Magazine.
4. All entries must be received prior to 30 September, 1982.
5. The winners of this competition will be decided by the judges, whose decision is final.
6. The judges reserve the right to disqualify any entry for any reason.



CB 4 UK

A sticker slogan example.

Come in number one

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You can appreciate something of that quality just by handling a Midland rig. Ask your C.B. specialist to show you the Midland "Precision Series", or send the coupon to us and we'll get more literature to you.

Pictured is the Midland 4001.

Features include: C.B./P.A. switch, numbered channel selector as well as green digital display, Squelch control, On/Off volume control, TX L.E.D., R.F. Gain, Low Pass/Filter switch, Mike Gain, LO/DX switch, Channel Normal/DIM switch, A.W.I. indicator, S/R.F. meter, mounting bracket and microphone included.



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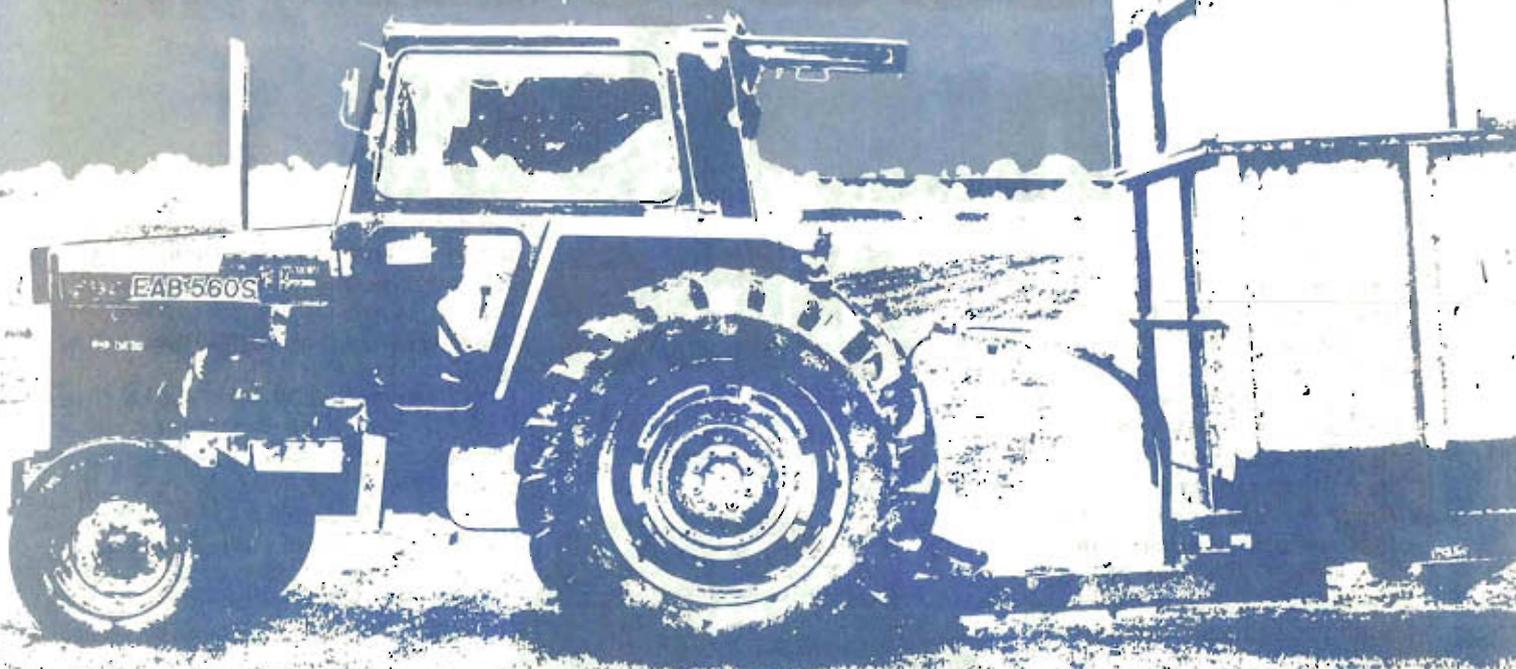
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Please send me details of the Midland "Precision Series".

Name _____

Address _____

Down on the farm



At CB Radio Magazine, we are always keen to follow up the more practical uses of CB, so when we heard of a farmer using CB as a communications system, I made an appointment to see Mike Saunders, on his farm in Worcestershire.

The perverse fate that usually sends atrocious weather when writers are 'out in the field' for once got it wrong and the two-hour drive to Mike's farm just outside Worcester was sunny and hot. The Vale of Evesham has some beautiful countryside, so it certainly made a change to rattling up the motorway to one of the Midlands' grimmer cities!

Arriving at The Grange was a bit of a shock. As a town-girl born and bred, my mental image of a farmer is of a grizzled, elderly man eking out an existence with a handful of livestock and a few fields. So I was unprepared for The Grange to be a very modern house and for Mike to be driving a Porsche rather than the traditional Land-Rover.

It's no wonder that Mike needs a communications system, since he certainly isn't farming on the scale I imagined above. Mike's farm covers 1,000 acres, 500 of which is barley and wheat and 500 acres of grass for grazing and silage. The farm also has 500 cows, 200-230 of which are milking at any one time, giving between 1,000-1,400 gallons of milk a day. The farm really consists of three smaller component farms combined into one

and it's obvious that farming on this scale, whilst bringing increased wealth, also brings bigger problems for the farmer. The organisation of such a large area and the practical problems of getting the right staff in the right place at the right time makes Mike an administrator rather than a farmer. This question of getting the right people in the right place is where CB comes in.

A rig in the Porsche

Mike Saunders hadn't ever considered using CB until he was given three through a chemical company promotion at his farm suppliers. It didn't take him long, though, to discover the potential and he now has an impressive line-up: a Grandstand base station in his kitchen; an Amstrad in the Porsche; a Grandstand mobile in his farm pick-up; rigs in both his tractors; a Harvard hand-held in the loading shovel and his manager's set which follows the manager whether base or mobile. He expects to be using more hand-helds during harvesting, too. The farm uses channel 5 for its own communications.

Mike has no doubts now about the suitability of CB for his farm. He can easily find out the location of one of his tractor drivers, for example, by putting out a call for Tractor Jack, or he can call his manager in a few seconds rather than drive round the farm

looking for him. (The manager's handle is Cider Maker, which, incidentally, is no idle boast as he makes hundreds of gallons of 'home made' a year!). With just farm contacts, they have no problems with range since they are working within a limited area and, in fact, they often use the attenuators to avoid using the whole channel for a larger area.

The other big advantage is that it's good for staff. A lot of a farm worker's day can be spent in solitude in a noisy, lumbering vehicle and although tractors have improved to include sound proofing and radio/cassette players, it can be a lonely 10 hours a day during harvesting. A CB keeps the driver in contact with his workmates and anyone else on channel in the area - and he can get on with his work at the same time. CB also means that a driver, perhaps in an isolated field, having an accident or becoming involved in an emergency can have help to hand in minutes or can ask for the 'boss's' advice and get an instant reply.

This 'security' is an added bonus for the farmer, too. In Mike's area other farmers are beginning to use CB and a network of farmers can provide a back-up system for each other.

Practical CB

Obviously, everyone on Mike's farm had a lot of fun when the sets were introduced and it's provided an extra

dimension to everyone's social life. However, CB in the area is developing into a practical and useful tool. Mike's example has encouraged other farmers to try it too and Mike thinks that when yet more see CB in action and realise its potential, its use will grow, especially when the cost and ease of use is compared to that of other communication alternatives. And it's not



An article from *Modern Farmer*, published by Mossey Ferguson.

just 'down on the farm' that CB is in operation, Cider Maker's daughter, Bo Peep, works for the Ministry of Agriculture in Worcester and regularly passes on information — during my visit she was talking to a farmer about the required dates for some apprentice courses for farm workers.

Mike has had to make some adaptations to make the equipment entirely suitable. He has made a 'collapsing joint' for his K40 antenna on the farm truck so it will fold down to go into tractor sheds without doing terminal damage to the antenna. He has also devised a mike holder which is very ingenious. He has fixed a flexible goose neck (like a base mike) to the dash of the truck with a magnetic disc on the end that the rig mike will attach to. This brings the mike and cord away from any controls and much nearer the operator's mouth — and makes the PTT button much easier to operate. A useful suggestion for non-farmers, too.

The supplier

Before leaving, I went around some of the farm with Mike and saw their CB system working. Grass cutting was in operation and the two tractor drivers were co-ordinating through CB the dumping and collecting of full loads and the delivery of empty trailers for the next load. It certainly streamlined the process as each tractor could be in the same corner of the field at the same time to swap load without one waiting for the other. It also meant the driver of the loading shovel knew when to expect the next load.

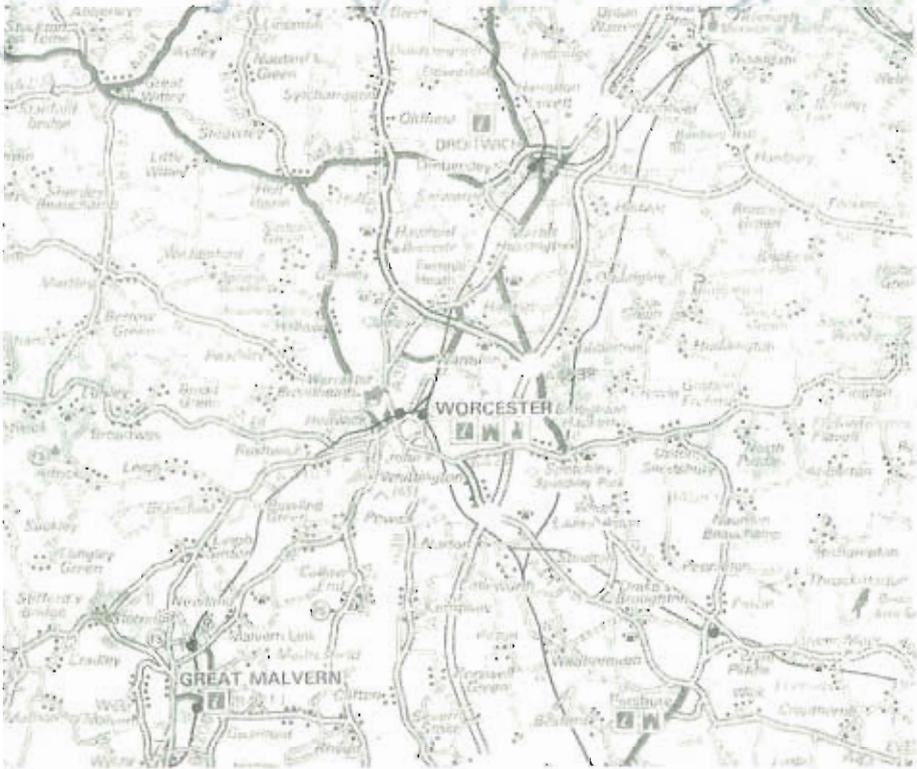
On the way home, I called in at Mid-



A selection of CB goods on display at Midlands Shires Farmers Ltd.

land Shires Farmers Ltd. (MSF), a very large distributor to the farming community and the company who supplied Mike Saunders's sets. I spent some

using CB just as a business tool to being CB enthusiasts and MSF have many customers who come back to update and improve their original



The Vole of Evesham, where Mike Saunders farms.

time talking to Keith Wright about CB and MSF. Most of the MSF depots stock CB, starting with very small stocks which have expanded to meet demand. They carry a basic range of base stations, mobile rigs and handhelds and also have a selection of accessories and antennas.

Sales of CB at MSF fluctuate but the popularity of CB is illustrated by the fact that in one week six farmers came in and bought four sets each. Many of their customers have gone on from

equipment.

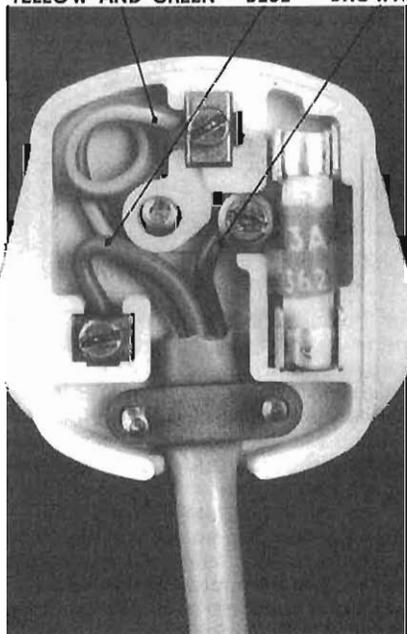
Mike Saunders and his fellow farmers are fortunate in living in an area that is lightly populated, so they are not at the mercy of bleedover from very close stations and the wallies that seem to delight in spoiling town CB. The farmers are reaping the practical benefits of the legalisation of CB and give an indication to the rest of us just how useful it can be.

SS

A FATAL ERROR



YELLOW AND GREEN BLUE BROWN



The correct way to wire up a 13-amp plug. Notice how all the wires are trimmed to the correct length except the Earth, which has been looped and that there is no bare wire showing. The cable clamp has been tightened over the outer core and the correct-value fuse has been fitted.

The truth about Ian Beeston

A considerable amount of publicity was given recently to the death by electrocution of a 15-year-old boy from Rogiet, near Newport, Gwent. The reason that Ian Beeston's death was given so much publicity is that he was using his CB radio at the time. In the eyes of the average Fleet Street journalist, this is a more-than-ample opportunity to imply that all CB equipment is dangerous and was, without a doubt, the cause of Ian's death. This was not the case.

Live casing

In this particular instance, the casing of Ian's rig became live due to a badly-wired 13-amp plug. If the plug had been wired correctly and the fault had been in the power supply, either the main fuse in the plug or the internal fuse in the power supply would

have blown, provided that the chassis was correctly earthed.

The plug on Ian's power supply had been wired in such a way as to make it become live if the connecting cable was pulled. Whoever wired up the plug for Ian, made three drastic mistakes. Firstly, the cable clamp was not tightened over the outer shelling of the cable. In fact, it was not sufficiently tightened at all. Secondly, far too much of the insulation had been stripped from the live wire and, thirdly, the earth wire was not of sufficient length to be the last wire to be pulled from its connection. The culmination of these three faults resulted in the earth wire coming away from its post and coming into contact with the badly-trimmed live wire, making the whole of Ian's power supply, rig and antenna set-up live. The lesson to be learned from Ian's death is to pay attention to detail when dealing with mains-powered appliances.

Is your power supply safe?

Whilst on the subject of power supplies, we thought that it would make sense to repeat some of the points made about their safety in recent issues of the magazine. It is essential that when buying a power supply, the following points should be observed. Firstly, ensure that the unit has a three-core flex terminated with a three-pin plug which has been fitted with the correct fuse. Secondly, the power supply should be rated at 240V - not 220V as is often the case. The third point requires actually opening up the supply and looking at the components. For this we recommend reading Ted Rule's FM Feedback article published last month in which all the technical details are given. Also take a glance at Over The Counter, which featured power supplies last month also. Particular power supplies to avoid are those made by the Phi-hong Company in Taiwan.

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Rig Test



The Shogun PLL CB Transceiver by F. C. Judd

The Shogun is a 40-channel CB FM transceiver for mobile operation and fully meets the UK specification for CB radio equipment. It can, of course, be used as a base station set with an external 13.8-volt regulated power supply having a current availability of not less than 3 amps constant and 5 amps initial surge. The Shogun employs phase lock loop frequency control and has LED readout for channel indication, signal strength and transmit power output. The front panel is, therefore, devoid of meters and aside from the channel selector has the usual controls found on CB sets, namely: a combined PA-CB-NB (noise blanker) switch, a delta tune switch, rf power switch, high 4W or low 0.4W plus variable controls which are for audio volume, rf gain and squelch (Fig. 1A). The microphone socket is on the right hand side (looking at front panel) and at the rear is the SO239 antenna socket, two miniature jack sockets for external loudspeakers and a six-pin socket for connection of a selective calling system (Fig. 1B).

One thing can be said of the Shogun - it is compact; an important factor when under the dashboard space is at a premium. The set is, of course, supplied with a microphone with integrated press-to-talk switch and also mounting brackets for in-car installation as in Fig. 1B. The Shogun circuitry is fairly conventional which on the receive side resolves into a dual conversion super-het system capable of providing good selectivity and very good rejection of second channel breakthrough. On the transmit side high frequency stability is insured by the PLL circuitry and low harmonic content during transmission by the extensive output stage filtering. A selective calling system (sel. call) which is an additional unit, of course, can be connected to all Shogun sets, hence the

reason for the six-pin connector at the rear. Selective calling is a facility mainly for business purposes and enables a base station to call others collectively or individually on agreed channels. It operates on the principle that only the tone code(s) used will open up the audio thus only the out-station(s) fixed or mobile being called will actually hear the call. The system works in reverse in that base out-stations or mobiles can use selective calling to alert a main base station which may, of course, have more than one set receiving on different channels and each with a selective calling system coded as required. A station listening on the chosen frequency hears only the coded call and no others. Further details of this system are available from the Shogun UK distributors, tributors.

Performance (Objective)

The Shogun was tested both subjectively and objectively which is the only way of obtaining an assessment of performance as a whole. The latter form of testing may be better understood by non-technical readers and it simply means - how does a piece of equipment behave in practice as opposed to how do the electrical performance parameters compare with those claimed by the manufacturer and in the case of CB with the Home Office MPT 1320 specification?

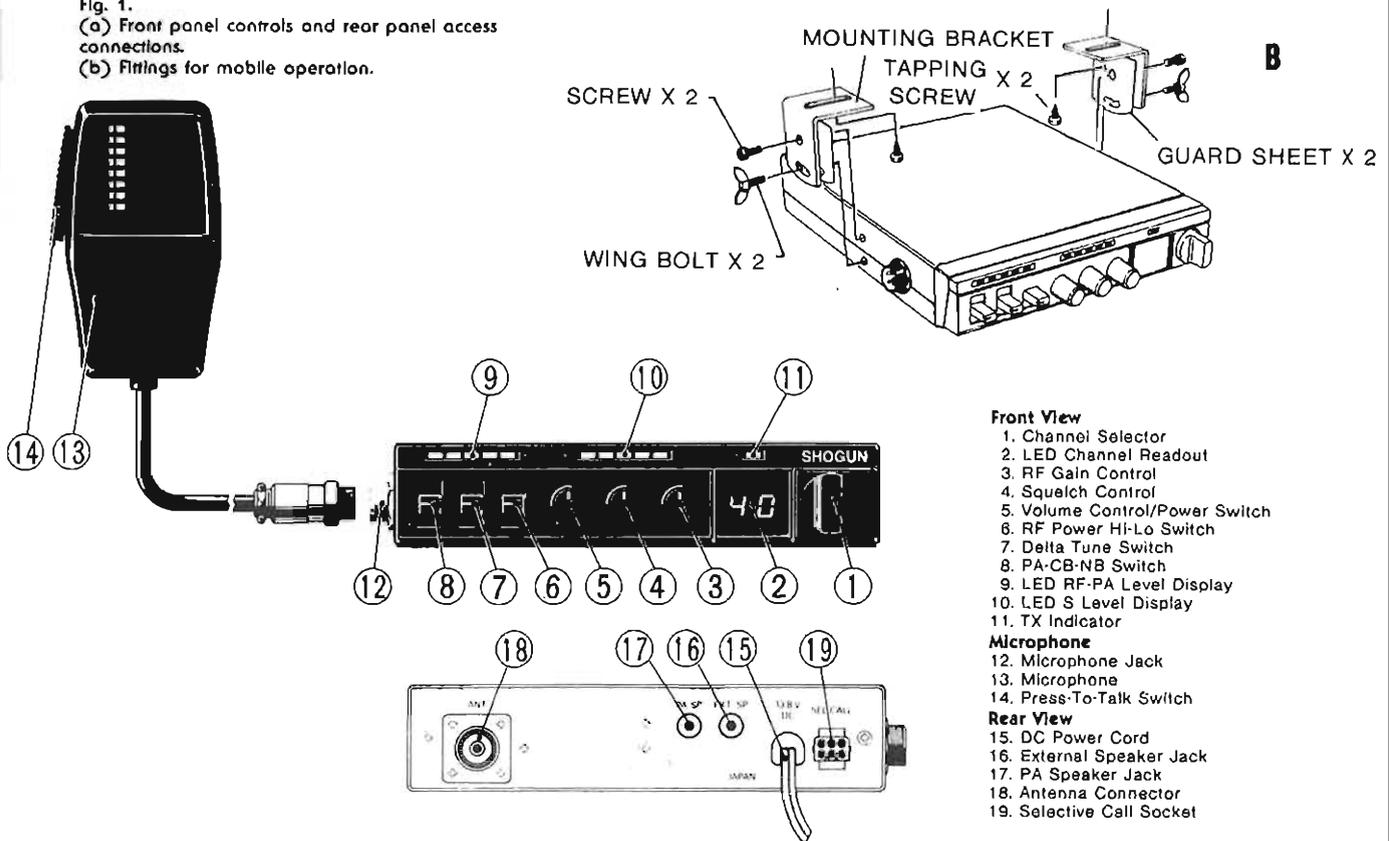
Practical testing on the Shogun was carried out under both base station and mobile conditions using in each case an antenna that complied with the HO requirements. The base station antenna used was a Ringline 27 at a height of 21ft. and the mobile antenna a Falcon 27 gutter mounted at car roof height. On purely functional aspects the following observations must be made. The LED signal level and power output indicators are

fine when the set is used indoors, equally so the channel number LED's but in a car, on a bright, sunny day, the luminosity is barely visible or not visible at all. This is the case with all LED-type indicators. Liquid crystal displays (LCD's) are better in bright daylight but are not visible in the dark. The optimum form of indicator is, therefore, a meter which can also be illuminated.

Many CB sets, including the Shogun, have the mic sockets on one side, usually the left. If the set has to be mounted to the left of the steering column for mobile operation the mic cable can become a problem as most operators hold the mic in the right hand when driving. This could, of course, be overcome by having an extension mic lead, this being secured at some point to the right of the steering column. By far the best place for all CB set mic sockets is on the front panel. For base station operation the foregoing comments do not apply.

We now come into the realms of electrical function but still from an objective point of view. The noise blanker (combined with switch PA-CB-NB) was found to have virtually no effect on ignition or other pulse-type noise. Even when a received signal was in the S1 region and might have been readable but for slight ignition noise, the noise blanker proved to be ineffective. Operation of the noise blanker switch was also found to modify the setting of the squelch control. The squelch control adjustment, as factory pre-set, was such that when the panel control was set to the 'just off' position, a signal strong enough to light the S1 signal level LED did not lift the squelch circuitry into a pass signal mode. However, there is provision for adjusting the onset of the squelch control by means of an internal pre-set potentiometer (VR4) and

Fig. 1.
 (a) Front panel controls and rear panel access connections.
 (b) Fittings for mobile operation.



- Front View**
1. Channel Selector
 2. LED Channel Readout
 3. RF Gain Control
 4. Squelch Control
 5. Volume Control/Power Switch
 6. RF Power Hi-Lo Switch
 7. Delta Tune Switch
 8. PA-CB-NB Switch
 9. LED RF-PA Level Display
 10. LED S Level Display
 11. TX Indicator
- Microphone**
12. Microphone Jack
 13. Microphone
 14. Press-To-Talk Switch
- Rear View**
15. DC Power Cord
 16. External Speaker Jack
 17. PA Speaker Jack
 18. Antenna Connector
 19. Selective Call Socket

re-setting this had the desired effect.

It is important with the Shogun, as with all CB sets, to ensure that the antenna used is well matched and tuned to give the lowest possible VSWR at band centre. If the antenna has a mis-match so that the impedance presented to the feed cable is low then the Shogun will indicate a power output of around 5 watts. It should not be operated in this condition. If the impedance mis-match is high then the power output will fall to

around 3 watts. Providing the VSWR is in the region of 1.2 to 1 at band centre and not exceeding 1.5 to 1 at band ends then four of the red power output LED's will light up on all channels.

Although the Shogun adjacent channel rejection is well beyond the required -70dB the following observations may prove enlightening to all CB operators. This test involved using the set mobile and receiving an audio sweep tone signal at full modulation from a base station test transmitter

running 4 watts output with its antenna at 21ft.

Distance of mobile from base transmitter	Overlap on adjacent channels
½ mile (880yds.)	nil
¼ mile (440yds.)	nil
220yds.	just audible signal
100yds.	fully audible signal
50yds.	completely blocked

As far as the Shogun is concerned this performance is, in fact, very good as other CB sets tested have shown

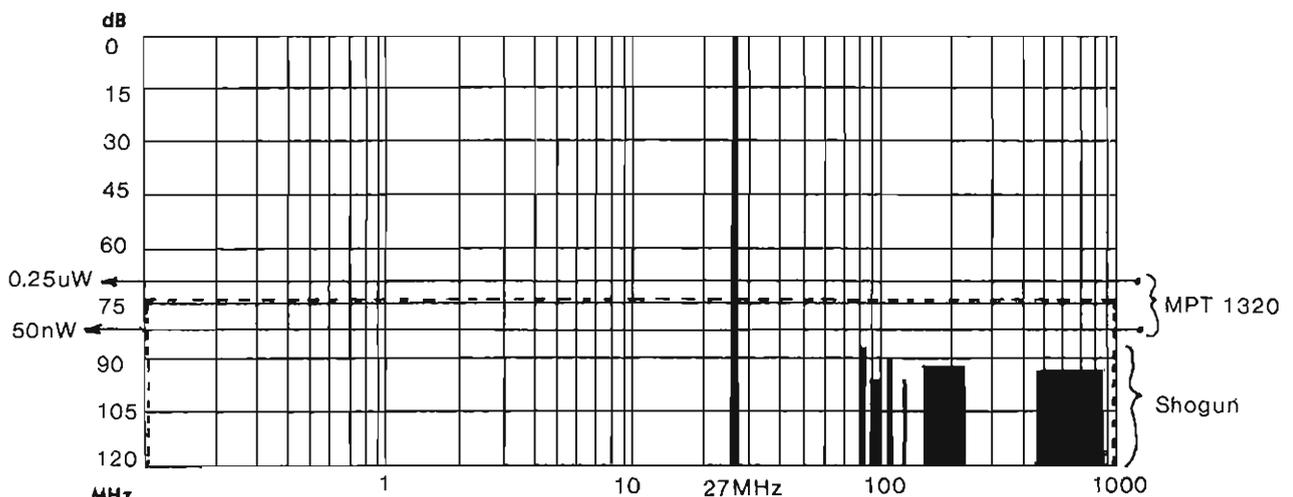


Fig. 2.
 Analysis of harmonic and spurious signal level with the set in transmit mode (see text).

UK FM CB

Rig Test

complete adjacent channel blocking at much more than 200-300 yards.

Performance (Subjective)

The general performance specifications of the Shogun are shown in Panel 1 and these are easily met, including the squelch lift requirement of 0.5 microvolts (after adjustment as previously noted). The manufacturers have paid careful heed to the MPT 1320 requirements and the actual performance related to this is given in Panel 2. There is little need to comment upon this except to say that the Shogun more than complies on all points although some tests carried out were taken beyond the required limits. For instance, frequency stability at ambient temperature over a period of 30 minutes on transmit into a dummy load showed a deviation of not more than ± 10 Hz. Overall frequency deviation did not exceed ± 180 Hz from the designated frequency on any channel with the set operating at either the nominal 4 watts output or the attenuated output of 0.4 watts. For the benefit of those who cannot appreciate the figures given in decibels and concerned with harmonic content on transmit, the graph Fig. 2 may prove more enlightening. The line marked 0.25 microwatts is the MPT 1320 limit of level for harmonics or other spurious signals between 100kHz and 1,000MHz. The dotted line shows the Shogun to be well within that limit. The second line marked 50 nanowatts is the MPT 1320 limit for the specified frequency bands between 80 and 862MHz. Again the Shogun is well within the specified limits. For those who have never seen an overall audio frequency response of a CB set, transmit through to receive, the audio sweep readout (Fig. 3) shows how relatively narrow the audio bandwidth really is. The response shown is related to 1,000Hz (0dB) as indicated by the central marker. The response shown is quite consistent with the Shogun performance in this respect.

Summary

Electrically, the Shogun has an overall performance well within the limits imposed by MPT 1320. It warrants full marks for compactness and adequately set deviation thus ensuring ample modulation and speech quality consistent with accepted standards for narrow band FM radio communication. The lack of visibility of signal and power level indication by LED's in bright light cannot be considered as poor design. Such devices are popular by virtue of novelty. The PA facility of mic talk-through to an extension speaker is not necessary for normal use although the majority of CB sets have this facility. It would appear to be a throwback to original USA designs. The squelch control circuitry might warrant improvement in order to (a)

SHOGUN SPECIFICATIONS

General

- | | |
|---------------------------|--|
| 1. Circuitry: | 24 Transceivers, 2 FET Transistors, 42 Diodes, 6 IC's 12 LED's |
| 2. Frequency Control: | PLL (Phase Locked Loop) Frequency Synthesizing System |
| 3. Channels: | 40 Channels |
| 4. Mode of Operation: | FM |
| 5. Power Source Voltage: | 13.8V DC |
| 6. Operating Temperature: | -20°C to +50°C |
| 7. Speaker: | 3in. Dynamic, 8 ohm |
| 8. Microphone: | Dynamic 500 ohm |

Receiver Section

- | | |
|--------------------------------|--|
| 1. Receiving System: | Dual Conversion System |
| 2. Sensitivity: | FM: Less than 0.5uV for 12dB SINAD (0.3uV nominal) |
| 3. Selectivity: | 5kHz minimum at 6dB down |
| 4. Adjacent Channel Rejection: | More than 60dB |
| 5. Audio Output Power: | 3W at 4 ohm, 1.8W at 8 ohm (10% distortion) |
| 6. Squelch Sensitivity: | Threshold; less than 0.5uV
Tight; 1,000uV to 10,000uV |
| 7. Spurious Rejection: | More than 60dB |
| 8. AGC figure of merit: | More than 60dB/-15dB |
| 9. Signal Meter (S9): | 30uV to 300uV |

Transmitter Section

- | | |
|---------------------------|---------------------|
| 1. Modulation System: | FM (F3) |
| 2. RF Output Power: | 3.3W : 3.8W |
| 3. Modulation Capability: | Less than 2kHz (FM) |
| 4. RF Meter: | 5th LED |

Panel 1.
General specification of the Shogun.

obviate the small delay in activation (checked with a 27MHz band sweep transmitter) and (b) to eliminate the pop that occurs when the control is set to the off condition.

Otherwise the Shogun can be considered as having a performance comparable with its somewhat-higher-than-average retail price but which on most points is superior to the run-of-the-mill CB sets. The Shogun retails at £99.00. The price complete with a sel. call unit is £148.50. The sel. call unit has a calling code capability of 2,560 codes over 40 channels. The Shogun CB transceiver is distributed in the UK by Sunrise Products - Japan, Colliers Farm, Freith, Henley on Thames, Oxon RG9 6NR.

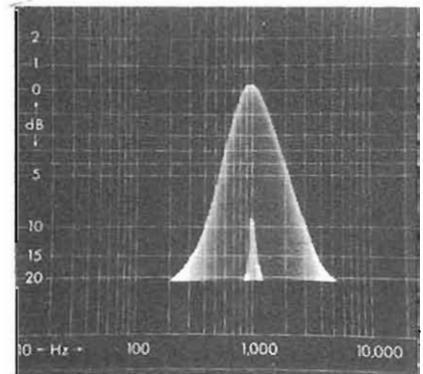


Fig. 3.
Audio frequency response (typical) transmit through to receive. Ref.: 1,000Hz - 0dB.

Panel 2. Test results v MPT 1320 requirements.

Transmitter			MPT 1320		Results		
			Unit	Limit	CH1	CH20	CH40
Power Output	No mod	—	Watts	4	3.9	3.9	3.8
Frequency tolerance	No mod	—	Hz	1500	±10 average		
Adjacent channel power	Mod 1.25kHz	±10kHz	dB	60	-62		
	1.5kHz dev +20dB		dB	60	-62		
Modulation distortion	at 1.25kHz	Dev full	%	5	3% THD		
Audio frequency response	Ref. 1,000Hz	300Hz	dB	—	See Fig. 3		
		2,500Hz	dB	—	sweep response		
Max deviation	1.5kHz +20dB		kHz	2.5	< 2.0		
Current consumption	Transmit	All channels	Amp	—	1.25 to 1.3		
		Receive	Amp	—	0.3		
Harmonic and other spurious radiation on transmit	No mod	100k-1,000MHz	uW	0.25	-73.9dB		
		80-85MHz	nW	50	-88dB		
		85.4-104MHz	nW	50	-96dB		
		108-118MHz	nW	50	-90dB		
		135-136MHz	nW	50	-96dB		
		174-230MHz	nW	50	-93dB		
470-862MHz	nW	50	-96dB				
Receiver			Unit	Limit	CH1	CH20	CH40
Sensitivity	-12dB SINAD	—	uV	0.5	Average 0.22uV		
S/N	—	—	dB	40	Better than 50dB		
Distortion	—	—	%	5	Less than 3%		
Squelch	—	Threshold	uV	1	Less than 0.2 when adjusted (see text)		
Audio frequency response	Nominal	300Hz	dB	—	See Fig. 3		
		2,500Hz	dB	—	sweep response		
Audio power output	—	—	W	2	Average 3W		
Current consumption	Max audio sig. No audio sig.	—	Amp	—	0.75		
		—	Amp	—	0.3		
Adjacent channel rejection	—	±10kHz	dB	70	Better than 70 (see text)		
Noise blanker	-12dB SINAD	—	dB	—	See text		
Intermodulation	-12dB SINAD	-6dB	dB	70	Better than 80dB		
Spurious radiation	—	—	nW	20	Agreed		

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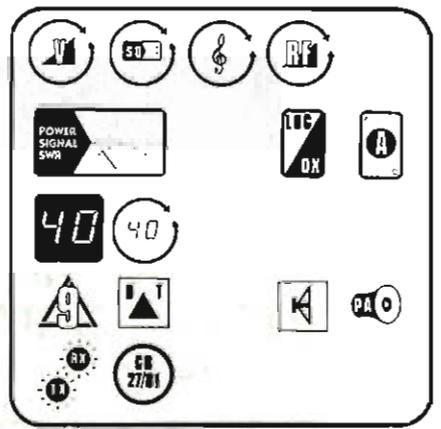
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Already the British summer is starting its decline, the warmer weather deserting us on the northern hemisphere for its annual visit to the south. Migrant birds are feeding themselves up for the long journey to the winter sun, closely followed by the rich and famous. Meanwhile, back at home, the hours of daylight are diminishing and nights are becoming colder and longer. What better excuse could you have for buying a new home base rig to alleviate the boredom of winter evenings. That is, unless you actually prefer to watch Crossroads or re-decorate the dining room. In order to help you choose which rig meets your requirement, we have compiled the following guide. Prices have been omitted as by some careful shopping some bargains are available. However, you must remember that to enable your friendly CB store to be able to offer any kind of after-sales service, he must make a profit!

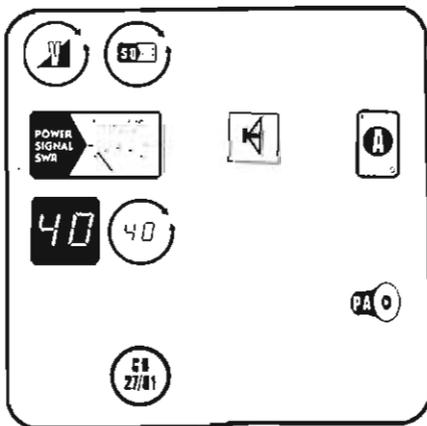
Fidelity

CB 3000FM The top-of-the-range Fidelity home base has been designed along completely different lines from its competitors. The sloping fascia is finished in silver with six push buttons and six rotary controls. A multi-function meter is positioned on the left of the fascia whilst a clear LED numerical display is on the right. Features include:

- LED channel indicator
- Channel 9 switch
- SWR meter
- Headphone socket
- Tape output socket.



FIDELITY



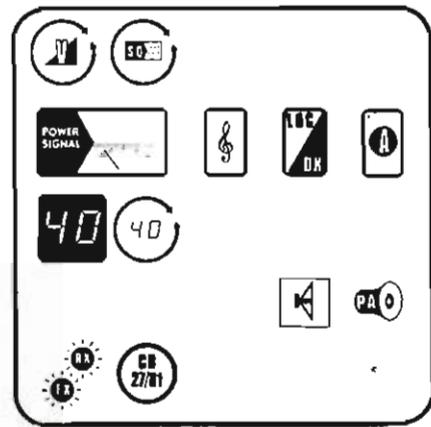
Realistic

TRC-3000 Distributed by the Tandy Corporation of America, the Realistic

TRC-3000 Navaho is a basic but functional set. Three rotary controls are supplied for volume, squelch and channel select. Other features include:

- Digital channel Indicator
- LED modulation indicator
- Headphone socket.

BASE STATION



DNT

B40 FM Very compact unit which is basically a slightly larger mobile unit with legs and a built-in power supply.

Features Include:

- DX-LOC switch
- Hi-Lo tone switch
- Channel free Indicator
- Volume and squelch controls
- S/RF meter
- LED channel display.



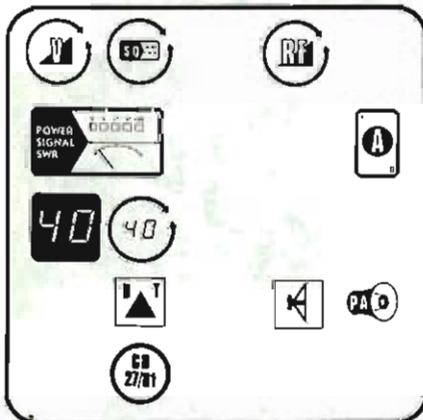
Murphy

CBH1500 The Murphy base station has been cosmetically designed along the same lines as the Yaesu amateur radios, although far more basic in capability. The fascia panel

includes controls for volume, squelch, RF gain, Delta tune and channel select. Switches are provided for power, attenuator, SWR and calibration.

Other features include:

- Separate S/RF and SWR meters
- Larger-than-average speaker
- LED numeric display.

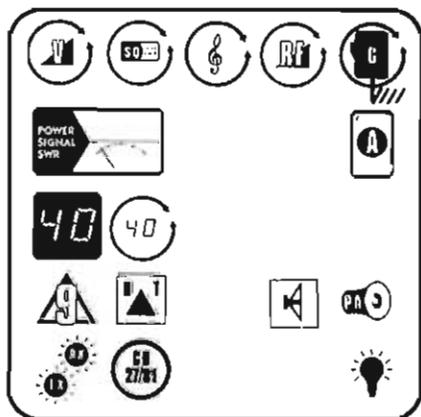


ON REVIEW

MIDLAND

76-900 This set has already been featured in depth by us but just to remind you, it includes the following features:

- AF gain (volume in disguise)
- Squelch
- Delta tune
- RF gain
- Mike gain
- Tone
- PA gain
- Headphone socket
- LED channel display
- SWR meter
- Much, much more.



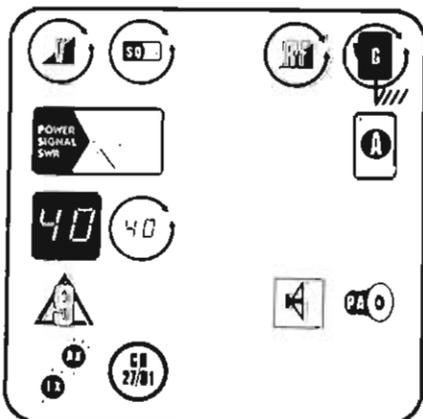
BASE STATION

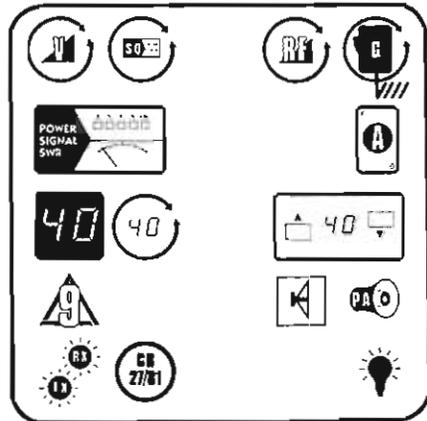
Harvard

M401 One of the many successful Harvard transceivers on the market. Its rugged and practical design still retains a certain amount of style. Rotary controls for volume, squelch, RF gain, mike gain and channel select. Other features include:

- Signal RF meter
- LED numeric display
- Internal power supply
- Channel 9 facility
- Headphone socket
- SWR meter.

HARVARD CB





Mega

Mega

BS100 Although not actually on the market at present but to be released very shortly, the Mega BS100 has one distinct advantage over the others. It is designed and built in Britain. The teak and black leatherette trim is immaculately finished as is the circuit board which has been based on the Motorola PLL synthesizer 145151. Features:

- RF gain control
- Built-in clock
- Internal power supply
- Built-in SWR meter
- Headphone socket.

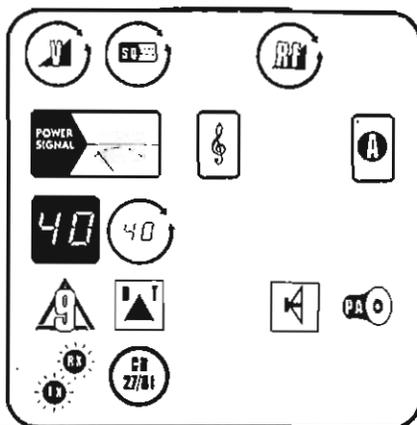


ON REVIEW

Harrier

CB HQ The top-of-the-range model from Dixons which features the following accessories:

- LED numeric display
- Signal/RF meter
- Squelch, RF gain and volume controls
- Channel 9 facility
- Headphone socket
- TX/RX indicators
- Internal power supply
- Hi/Lo tone switch.



GLOSSARY OF SYMBOLS

	Channel Change: Push Button		Channel 9 Select Switch
	Extension Speaker Facility		Public Address System
	634MHz UHF		Panel Light Dimmer Switch
	Volume Control		Squelch Control
	Tone Control		Radio Frequency Gain Control
	Microphone Gain Control		Signal Strength/Power SWR Meter
	Tone Switch		Local/Distance Switch
	Attenuator Switch: Front or Back Panel		Amount of Channels
	Channel Change Control		Channel Change on Microphone
	Delta Tune Switch		End Transmission Signal (Roger, Etc.)
	Transmit/Receive Indicator Lights		27MHz FM

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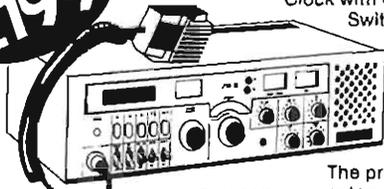
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OVER THE COUNTER

Home base microphones

To complement this month's feature on home base stations, we thought it relevant to devote *Over The Counter* to base station microphones.

Due to the extended length of home base cables it is essential that a home base microphone should be as easy to use as possible. Factors that contribute to this are:

1. The microphone should have an omnidirectional response pattern so that the user does not have to bend forward towards the microphone when speaking.

2. The microphone base should be heavy so as not to slide across the bench when it is operated.

3. The PTT switch should be fairly large and have a light touch. A locking switch is also an advantage.

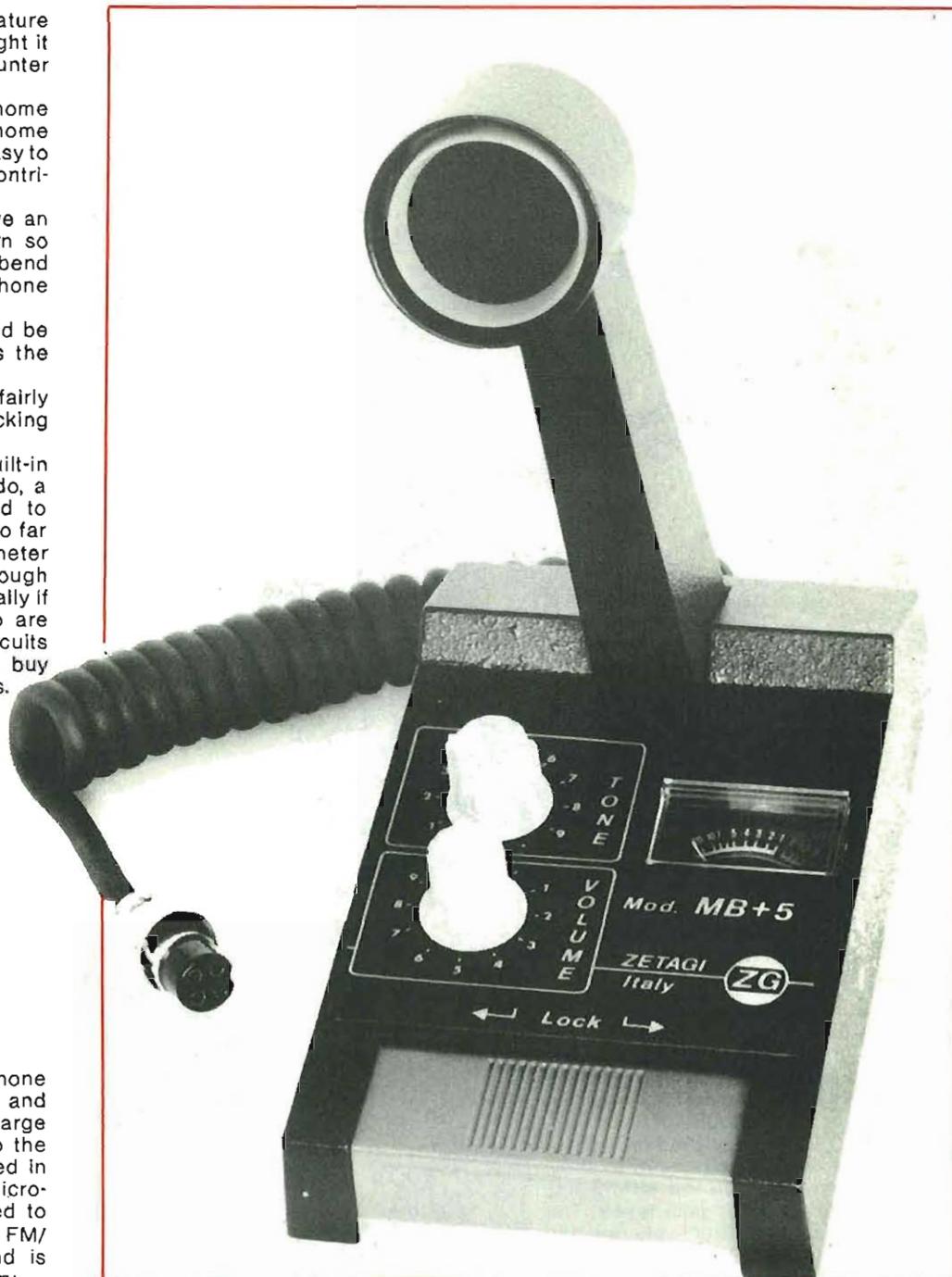
4. If the microphone has a built-in pre-amplifier, as most of them do, a gain control should be supplied to prevent over modulation. It is also far easier to check this if a VU-type meter is supplied. A tone control, although not essential, is an asset, especially if maximum clarity is required; so are built-in compression limiter circuits which save the user having to buy separate speech processor units.



Italy

Zetagi

MB+5 A quality power microphone with tone and volume controls and integral VU-type level meter. A large locking PTT bar is positioned to the front of the unit which is finished in textured stove enamel. The microphone's pre-amplifier is designed to give maximum speech clarity to FM/AM and SSB transmissions and is powered by a standard 9V battery.

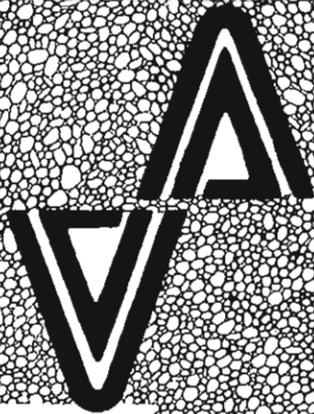


OVER THE COUNTER

Turner

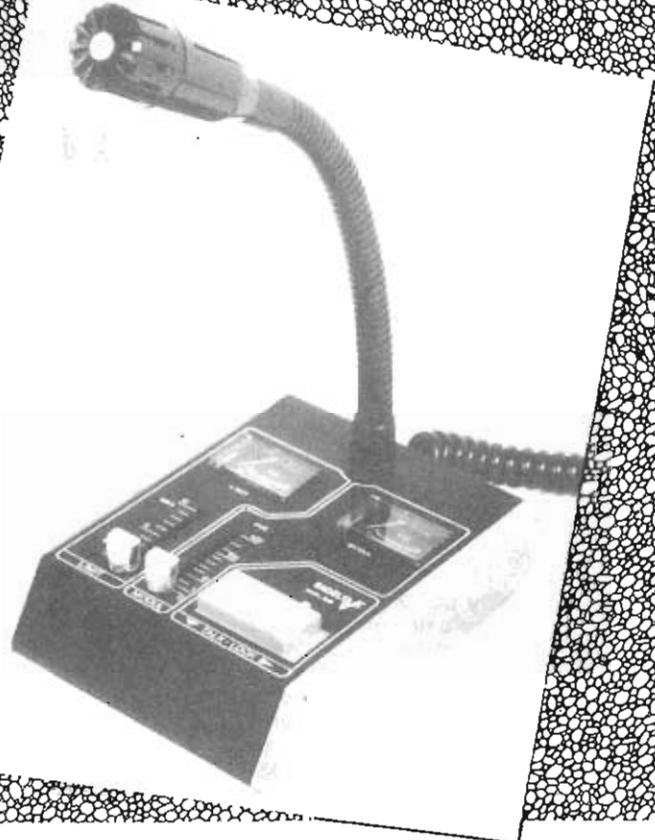
EX 500 The Expander 500 is a pre-amplified base station microphone featuring separate volume and tone controls and a dual purpose meter for reading both audio input and battery condition. The Expander 500 has a six-wire cable which makes it compatible with all transceivers and a booklet listing the wiring deviations is supplied.

The compression pre-amplifier prevents over modulation and the resulting distortion that can occur when mouth to mike distance or voice level varies during transmission. The sliding tone control adjusts bass and treble for maximum speech clarity. The element housing tilts up or down to ensure correct receiving angle. It also features a lockable PTT switch and frequency response has been tailored to the voice, 200-4,000Hz.



Sadelta

Three home base microphones bear the Sadelta brand name, the MP-20, MP-21 and MP-22. All three have two slider controls for limit and modulation and have their elements mounted at the end of a flexible 'goose neck'. The MP-20 is the basic model, whereas the MP-21 has a VU meter to show modulation level and the MP-22 has both modulation and limit levels. The microphones are attractively finished in black and orange and are powered by a PP3 battery.



OVER THE COUNTER

Tandy

All 290 UK branches of Tandy stock the Realistic CB base station mike (Catalogue No. 21-9031) which features an easy-adjust mike element and locking talk-bar for continuous talking, leaving your hands free to pursue other activities. A gain control is provided and the microphone is fitted with a 4ft. coily lead. Power is provided by a 9V PP3 battery.



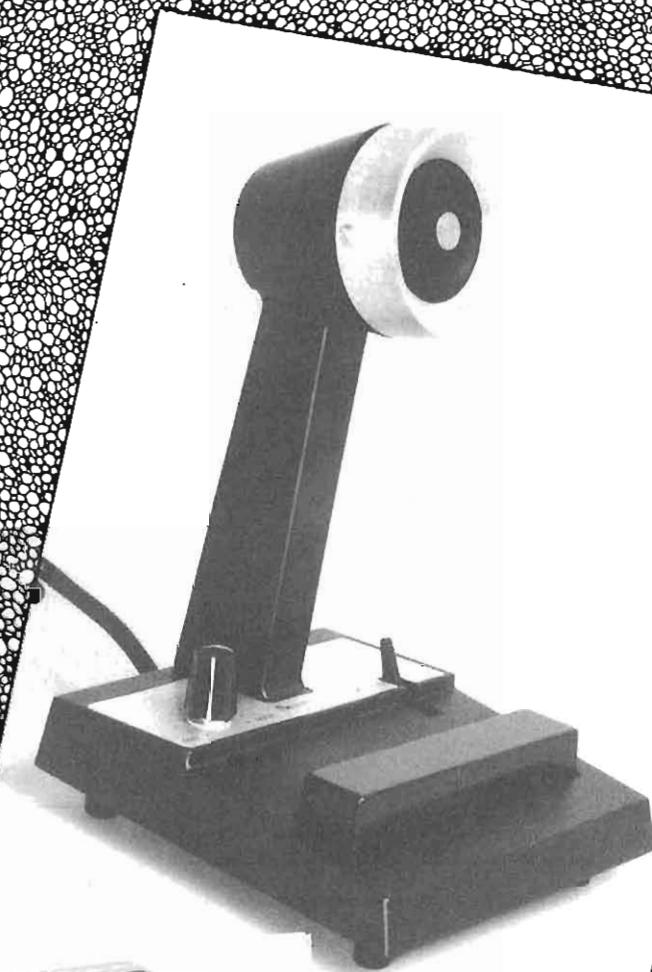
Leson

DT-262A An amplified speech compression microphone powered by a 9V battery. The omnidirectional element is fully wind shielded and mounted on a flexible 'goose neck' to allow precise positioning. The amplifier, which is of the compression limiter type, is fitted with a gain control to prevent over modulation and, as can be seen from the photograph, the large central PTT bar has an independent locking switch.

OVER THE COUNTER

Skipmaster

SK-42000 A base station microphone of rugged construction with built-in speech compression amplifier. A rotary control is supplied for gain adjustment, as is a lockable PTT switch. Frequency response is rated at 200-5,000Hz and microphone element has an omnidirectional response pattern. The SK-42000 comes complete with wiring instructions for use with electronic and relay switching transceivers.



provided with controls for volume and tone. A dual purpose meter is also provided to show audio output and battery condition. In common with most dynamic microphones, power is supplied by a 9V battery.

TW-232S A versatile, omnidirectional base station microphone with incorporated speech compressor amplifier, fitted with a high-quality dynamic element to ensure high modulation level capability. The special lock switch allows comfortable modulation over long periods of time and, along with the exceptional voice clarity, makes the microphone suitable for local and long distance communication.

TW-232 DX An improved version of the TW-232 featuring a new acoustically-designed element housing and a new microphone cartridge with a radio communication-adapted response curve. The incorporated tone control allows easy pre-emphasis adjustment for FM use and the microphone has reliable shielding against high frequency field strength.

Ham International

Big Puncher A high-class base station microphone with built-in speech compression pre-amplifier. The microphone is of the dynamic type and is

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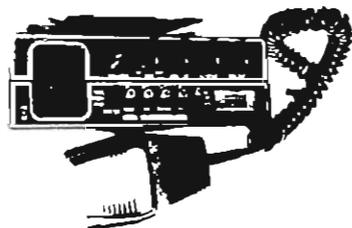
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Add-on kit for MK1 users to convert to the MK2 (box not required). SET-99ADN £3.39

MULTIPLEXER Are you using several front-end add-ons? This unit splits the microphone signal in up to 8 directions for feeding various extras and also contains a 6-input mixer for recombining the add-on signals onto 1 line. An extra 2 skts reqd for each-to-from direction. SET-132-LS £11.60
MUSICAL CALL SIGN Program your own individual 8-note call sign. Push-button operated for use when you want. SET-121-LS £14.23

ROGER TWO-TONE Two-tone gong-like sound automatically activated at the end of transmission. SET-126-LS £12.31

SIGNAL COMPARATOR Uses special 3-colour LED's to give a visual indication of speech level. Also compares microphone levels with levels from other units such as Roger Bleeps, etc. Helps avoid overmodulation and cross-channel breakthrough. SET-129-LS £16.70

SIMPLE REVERB Enhances the spacious quality of your transmission and at full control can produce that 'Monster-from-the-Deep' effect. With control over balance, echo and duration. The

response from listeners is astonishing! SET-122-LS £20.39
SINGLE ROGER Gives a single beep of a preset duration and pitch when the microphone switch is released at the end of transmission. SET-127-LS £10.07

SPEECH PROCESSOR Dramatically improves the intelligibility of speech signals. We are making many sales on this directly because people have heard it on the air! SET-110-LS £11.77

VOICE FILTER For limiting the frequency bandwidth that reaches the rig from the microphone, helping to reduce background noise. Six selectable ranges plus by-pass. SET-131-LS £12.97

VOICE OPERATED SWITCH Release your hands for other things, let your voice do the switching for you! SET-123-LS £13.80

POWER SUPPLY From the mid-range of 13.5 volts, can be set anywhere between about 11V and 15V at approx 300mA. Ideal for driving all these various CB add-ons! (Mic skts not reqd). SET-130-LS £13.85

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4-pin chas plug	PLG-SP4 46p
4-pin line plug	PLG-LP4 62p
5-pin DIN 180° skt	SKT-KS 18p
5-pin DIN 180° plug	PLG-KP 34p
Std jack skt mono	SKT-US 20p
Std jack plug mono	PLG-UP 18p

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Rig Test

Binatone Route 66

Binatone

Another rig from one of the leaders in expensive consumer electronics, Binatone. This set's main feature is its simplicity since it only has a basic range of controls and as such is at the cheaper end of the price range. However, the rig is manufactured in Japan, which is a plus since the Far Eastern manufacturers, Japan has a better reputation than some of the others.

Since Binatone are very experienced in consumer electronics, the rig is attractively presented and, of course, there is full back-up and guarantee.

GUARANTEE to readers and manufacturers

Any information printed as a review bearing this guarantee will have been carefully obtained and based on facts.

The equipment tested will have been inspected to ensure it has not been tampered with or modified to improve its performance in any way. Any faults and/or modifications will be noted and depending on the severity reported on. Equipment for testing that was found to be seriously faulty will not be reported on and the manufacturer will be asked to supply a second item for testing.

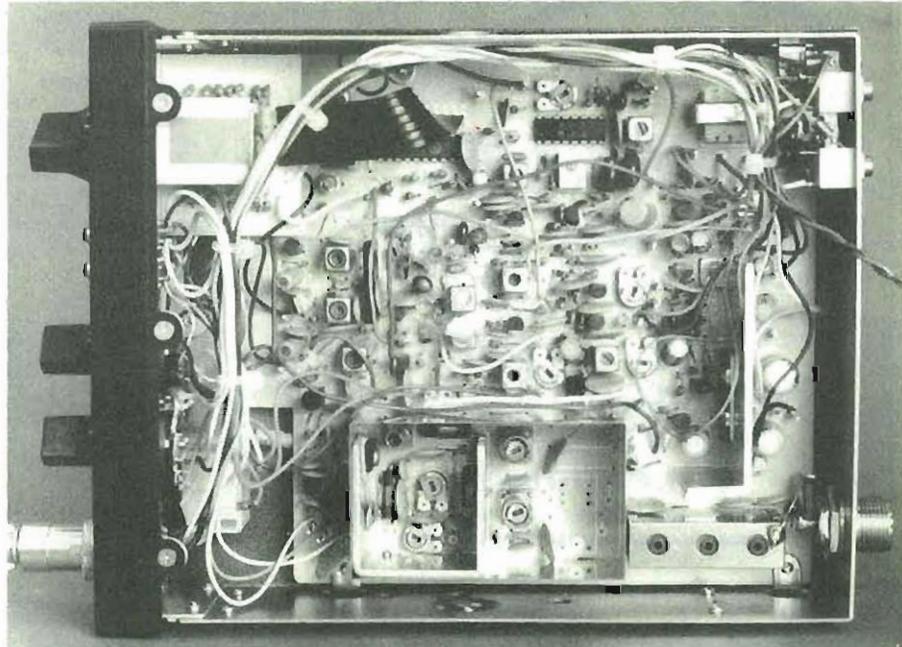
In all instances care will be taken to avoid misprints or errors. However, if a misprint does ever slip by, the following issue will have an update and the correct information.

Microphone

The microphone is the standard 'coffin' style which is found supplied with the majority of rigs. It connects to the rig with a four-pin lockable screw-ring plug.

Construction

The construction, like most sets, is the standard two-piece (top and bottom) cover plus chassis design. It is finished with black flecked stove enamel paint which is very hard wearing. The front panel is a black plastic moulding with brushed chrome escutcheon. The controls are of the flat-sided type and are easy to grip. Also on the front panel is the microphone input socket which makes it far easier to plug the microphone in and out, as most rigs tend to fit the socket on the left-hand side of the case which makes it less accessible. The meter is rear illuminated with black background and red and white lettering which was found easy to read at night while mobile. Other items on the front panel are the standard controls, volume, squelch, channel selector switch and display, CB PA switch, TX (red) and RX (green) lamps. The only peculiarity of these lamps is that the RX lamp fails to extinguish when the TX lamp lights up, i.e., the set is put to transmit. The only other control on the front panel is the high-low power switch, which is a great advantage for ease of access as most rigs tend to



hide them on the back panel. The rig comes supplied with a comprehensive instruction manual, which excludes a circuit diagram. The internal construction was found to have a few problems which we felt needed highlighting; a capacitor is mounted between pins 13 and 18 of IC 4 and one of the legs was not insulated and could very easily cause a short circuit to pins 15, 16 and 17 of this IC. The other problem was the loud speaker wires had no clips to take the strain if the top cover was opened too far and the wires pulled taut, which would result in the terminal strip being torn off and permanently damaging the speakers.

Transmitter test

Test equipment available:
Two Racal 9081 signal generators.
Racal 9009 modulation meter.
Racal 9301 milli-voltmeter.
Racal 9917 and 9024 frequency counters.
Marconi TF 2501 RF power meter.
Bird 43 RF power meter with load.
Marconi TF 893 AF power meter.
Marconi TF 2337 Distortion meter.
Levell TG 66B audio generator.
Solartron CD 1400 scope.
IE DS 50/2 power supply.
Keithley 130 digital voltmeter.
Hewlett Packard spectrum analyser.

Power output

This test is to check that the power output of the set conforms to Home Office specification MPT 1320 and also gives the user of the set sufficient power output for normal use over a reasonable power supply voltage range in both the high and low power settings.

Power Output and Attenuation

Atten.	10.8v	13.8v	14.8v
High	2.5W	3.7W	3.9W
Low	0.4W	0.45W	0.5W

The results taken in the high power position reflect the results of most rigs tested but on low power the results taken at 13.8 volts and 14.8 volts exceed the maximum figure specified in MPT 1320.

Temperature stability

This test is to check that the rig stays on the correct frequency for a reasonable change in environmental temperature 48°F to 68°F.

Temperature stability

Temp.	CH1	CH20	CH40
Should			
be	27.601250	27.791250	27.991250
48°F	27.601200	27.791210	27.991220
68°F	27.601140	27.791150	27.991160

The temperature stability of this rig was very good, drifting a maximum of only 60Hz over the temperature range and the frequency accuracy of the rig was approximately 50Hz low at 8°F to 110Hz low at 68°F. These are not bad results and would not be noticed while the rig is in normal use.

Modulation

These checks are done to test the ability of the rig's modulation circuit to give good modulation over a range of different input levels and frequency.

Modulation			
Input Level	Input Frequency		
0.6mV	500Hz	1125Hz	2500Hz
2.5mV	0.6kHz	0.4kHz	0.5kHz
6.0mV	1.6kHz	1.1kHz	1.2kHz
25mV	1.9kHz	1.8kHz	1.3kHz
60mV	2.1kHz	2.1kHz	1.5kHz
250mV	2.3kHz	2.3kHz	1.6kHz
	2.5kHz	2.5kHz	1.8kHz

The results of this test show that the frequency response is good but is

SPECIFICATIONS	
General	
Frequency Range:	27.60125 - 27.99125 MHz
Number of Channels:	upto 40 P.L.L. frequency synthesizer
Type of Emission:	F3
Source:	13.8V
Dimension:	162(W) x 58(H) x 210(D) mm
Weight:	1.5 kgs
Microphone:	Dynamic Microphone (600 ohm)
Speaker:	Built-in speaker (3 inch, 8 ohm)
Antenna Impedance:	50 ohm
Transmitter	
RF Output:	4.0W max.
Frequency Deviation:	±1600 Hz (within)
Spurious Emission:	over 50m & 0.25µW
FM Deviation:	max. 22.5 KHz (within)
Audio Response:	200 - 3,000 Hz within +0dB -6dB
Current Drain:	0.9A with CHLED, TX-RX indicators at 40 ch.
Output Deviation between Channels:	within 0.2W
Receiver	
Circuit System:	Double Super Heterodyne
IF:	1st 10.695 MHz 2nd 455 KHz
Frequency Stability:	within 1.5 KHz
Sensitivity (O.S. Sensitivity):	less than 0.5µV at 20 dB O.S.
Sensitivity (12 dB SIND):	less than 0.5µV (1KHz dev. 1 KHz)
S Meter Indications (S-9):	100µV ±3 dB
Tight SO:	10µV ±5 dB
Sensitivity Difference between Channels:	within 3 dB at 12dB (SIND)
Frequency Deviation:	within ±1.6KHz
Band Width:	4 KHz at -6dB
Selectivity:	-60dB at ±10 KHz
Audio Response:	300 - 3,000 Hz within +3dB -6dB
Distortion:	Distortion less than 10% at 30% modulation (1 KHz) at 500mW audio output
Max. Audio Output at SSG Input 100µV:	over 3.5W
Current Drain: (no slg.)	within 0.35A
PA Output:	over 3.5W

slightly bassy. Unlike most sets, the modulation has been set to the maximum allowable MPT 1320 which means you should not get any complaints about your signal being undermodulated.

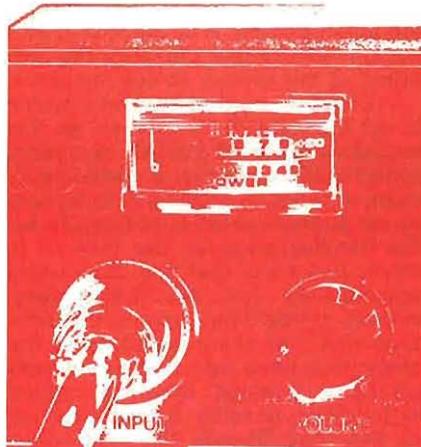
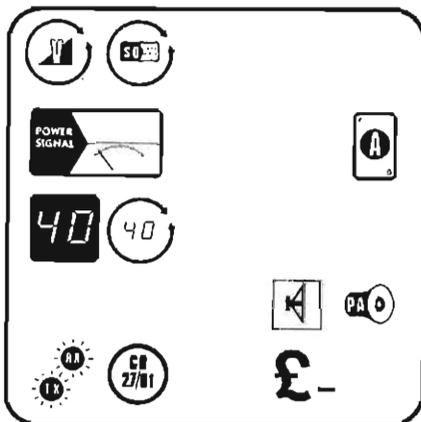
Receiver tests

Audio output

To do this test the loudspeaker is replaced by a Marconi TF 893 AF power meter and a Marconi TF 2337 distortion factor meter connected across it.

Measured Distortion	
1 watt	2.0% distortion
2 watts	2.9% distortion
3 watts	16% distortion
4 watts	26% distortion

The results of this test are slightly better than some of the rigs we have



tested previously but we do not think the improvement is great enough to be noticeable other than to a trained ear.

Squelch level

The usable range of the squelch was found to be .14 microvolts threshold and 8 microvolts full muted. It was found when used in areas where there were a high number of breakers that it was difficult to shut the squelch.

Receiver sensitivity

This test is done to check the ability of the set to receive weak signals.

Sensitivity	
10dB quieting	0.24µV
20dB quieting	0.70µV
30dB quieting	2.00µV

Results of this test show this rig to have an average sensitivity compared against all the other rigs we have tested.

AM rejection

The AM rejection measurements done on this set gave a result of 35dB. This reading is below average but does not affect the operation of the receiver unless there is a high level of AM interference nearby.

Adjacent channel rejection

This test is done to check the rig's ability to reject interference from a strong station either one channel higher or lower than the set is tuned to. The result of 130 microvolts for 3dB degradation is average but could cause problems if you have any breakers living close by.

S meter reading

S Meter Reading	
1	0.5µW
3	2.2µW
5	4.3µW
7	6.2µW
9	30µW

This test is done to check the calibration (or sensitivity) of the rig's signal strength meter.

These results seem to be fairly average and reflect the setting of most rigs.

Summary

This is a nicely-presented rig in the medium price bracket and is well packaged with a handbook. It also has the advantage of having the microphone socket on the front panel but on applying for a service manual for a Binatone Route 66, it was found that the service manual bore very little resemblance to the inside of the rig. The only real problems found whilst using the rig were the adjacent channel rejection and lack of sleeving in the microphone plug. This caused intermittent operation if the microphone lead was pulled or shaken about. NB. This could be cured easily by sleeving the screen inside the plug.

Binatone



Readers Write



Dear Sir,

After reading 'Implications' in the July edition of CB Radio, re. the death of a CB'er, Mr. M. Bailey, whilst transmitting, I would like to ask you to print the following on Readers Write page.

As a non-electrically minded breaker, I would like to ask this question.

Is it possible to manufacture a voice operated (throat mike) for a mobile CB rig, so hands do not have to be taken off the steering wheel whilst transmitting?

Are such mikes already made and, if so, can someone supply the name and address of the maker and, possibly, the cost as well.

I am sure that this one item could cut down 'motorway wobblers' and 'roundabout rockers' and increase road safety quickly. Hoping one of your readers can supply the answer before there is another accident.

Many thanks,

Wildgoose (E. Bartlett-Love)
Tadworth, Surrey

You'll be pleased to hear that 'Vox' systems do exist where the rig automatically goes into the transmit mode on reception of an audible signal. How many times do you cough when you are driving? Seriously, though, I'm certain that Vox will help to eliminate most hazardous driving manoeuvres.—Ed.

Dear Sir,

Reference Whiskey Bravo 103 (Phil) Worcester's letter in July's edition. As a long-standing member of the Jolly Roger DX Club, I must protest most strongly at the way he refers to our club. True, we don't own 27.485 or any other frequency but the other DX groups in this area respect it and we theirs. Other stations do use this frequency but usually make a contact and QSY to another. We are a club of long standing and perhaps the first DX club in this country to really start the ball rolling for international membership on a large scale and now have an international membership of approximately 4,000 members with new members coming in weekly plus the 100-odd members in the UK. So, as you can see, we are not just a bunch of idiots but a very serious DX club. The club has used 27.485 LSB since its birth two years ago and the two Presidents and Founder Members, JR00 John and JR01 Tony, contacted the international Sandbagger and Papa Whiskey DX groups based in the USA who both use the same call frequency and asked if there would be any objection to our club using 27.485 LSB. The reply was negative and now all three groups work together quite happily. One other request. Would the stations in St. Helens, Merseyside and Scotland please stop using our call signs as it is very confusing for our international members and frustrating for UK members to hear other stations prating our very respected call signs.

The official Jolly Roger DX Club is based in Cheltenham, Gloucestershire: PO Box 47, Cheltenham, Glos. GL51 0UG.

Jolly Roger 40 (Martin)
Cheltenham

(This letter has been edited for reasons of space). The problem of specific frequencies and their club use is a vexed one. As both correspondents have pointed out, no one owns a channel, so we can only ask breakers to use common sense and courtesy.—Ed.

CB'ers at work and play

It is difficult to read anything about CB these days that does not mention those who bring it into disrepute, such as the overpopulation of the adherents by bucket mouths and wallies.

Unfortunately, not only are they useless members of society but worse, they do damage to those who are trying to act in a responsible way that is out of all proportion to their numbers. This makes it all the more refreshing to hear of breakers who do the opposite.

In my own 20, I have heard of two groups of very keen breakers who by their actions do nothing but good for themselves and CB's reputation.

I don't suppose either of these groups is original in its actions but I do know that the type of use to which they put CB and their attitudes get far too little publicity. It is, therefore, with some pleasure that I take up the invitation of this journal to say my piece.

The first group that deserves praise is our local EARS Club. They, as this magazine reported a month or so ago, raised funds by means of various activities in order to provide a rig for use by the patients at the local hospital for the handicapped. On the face of it, one would think that this action was praiseworthy but no, there were, indeed, critics! The basis of the criticism was that some members of the committee were told that this wasn't on as it enabled them to collect money then, possibly, spend it on rigs for their own friends. The real praise comes in when it is told how the hard-working committee members tackled this. They decided that fund raising for charitable purposes should go on but that the choice of recipient would be left for a more qualified third party.

Approaches were made to the local Lions Club, who after a suitable briefing on the various aspects of CB agreed to nominate those they knew to be people who would benefit from having a CB and were not in a position to obtain one for themselves. I think this was brilliant as it prevented the club from coming under fire and at the same time got a responsible organisation like the Lions working towards the betterment of CB's reputation.

Most 20's have Lions or Rotary near them and it is certain that all of these organisations know of a deser-

ving cause or individual who would profit by having a rig. I speak for all members of the EARS Club who are proud of their actions when I say that they will be well pleased if they hear of others copying.

The second group I will mention may not be original either but they have found for themselves a use for CB that, to my mind, epitomises its real purpose.

Anybody who happens to 'earwig' on channel 39 in Bracknell at exactly 1100 hours will hear the chimes of the hour from a grandfather clock. The Boilerman comes on channel and starts to call up an obviously-prepared list of breakers. He then controls copies of the next hour in an inimitable and genial way that has made him a legend in his CB lifetime.

What he is doing is running a 'net' of OAP's and disabled persons which brings them companionship and real help in a very practical way. One has bedding plants to give away, another can't get to the shops and wants a loaf of bread, others want to let it be known that a pensioners' outing is on the next day. In fact, this hour's exchange of news, views and useful information has created a very real self-help community in a way that has just not been possible by any other means.

At 1200 midday the chimes come on again and the channel is vacated so that they do not get accused of hogging it. However, it doesn't end there because the chances are that a number of copies have been arranged for other times of the day between individual breakers.

My name for this net is George's Happy Hour and it's quite a revelation to hear it. Here is a group of breakers who have found a new purpose in life through CB. Nor do these good folk think they have the exclusive right to the channel because if another breaker outside the net accidentally gets in, he or she is asked to move up or down or join in. This polite and simple attitude has won them dozens of new friends who look forward to having a brief chat with these older ones normally outside their circle and has earned for George's net assistance in a hundred ways they never really expected.

I hope over the years to come I will be allowed to report similar activities. I am not going to pretend that the uses found and reported on these pages will be the only ones or even the best but we do want to hear about them so that we can spread the good news. It will show the buckets and wallies up for the useless idiots they really are.

Broken Spring
Bracknell

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Readers Write



Dear Sir,

I was interested to read two of your letters featured in the July edition of CB Radio and their comments of distant CB reception from Scotland to Cornwall and Co. Antrim, NI to the UK.

The phenomena by which this two-way communication took place is known as Sporadic E and is very common during the May to August period each year. Unfortunately(?) It is impossible to predict with any degree of certainty when such Sporadic E openings will occur. Readers may recall during the days of BBC 1 on 405 lines the interference that was suffered during the summer months - pictures wiped out with lines, herringbones and background Spanish voices. That, too, was caused by Sporadic E.

Above the Earth's surface are several reflecting layers within the ionosphere which give cause to reflect radio signals, to absorb or to merely allow their passage straight through and into space. These layers are known as D, E and F1, F2 layers. The D layer is closest to Earth and absorbs medium frequency signals (such as Radio Luxembourg, etc., during the daytime). At night, however, when solar radiation ceases, so does the absorbing effects of the D layer (which disperses). This allows such signals to pass upwards to the E layer (some 70 miles high) which in turn reflects the incident signals and thus Radio Luxembourg on 208m. appears after dusk. The CB signals at 27MHz are relatively high in frequency and normally pass through the D and E layers. The highest layers are the F1 and F2 which during daylight are about 200 miles high. These give really distant communication and are used for international SW broadcasting. Depending on the state of the solar cycle (i.e., sunspot activity) this can allow worldwide communication - if solar activity is high - and hence Stateside breakers can be worked from the UK.

The E layer as mentioned above is normally transparent to 27MHz signals. At the prescribed summer times there occurs very intense patches of ionisation that can reflect high frequency signals (sometimes above 100MHz in good openings). These ionised patches allow 27MHz signals to reflect at relatively sharp angles enabling a southern breaker to work a Scottish breaker (but rarely at distances under 500 miles via this 'skip' condition). As will be appreciated, the signal hits the E layer patches at an angle and reflects Earthwards (not unlike a mirror). Thus there will be a considerable gap between the end of a breaker's ground wave (normal direct coverage) and the area that receives his reflected sky wave. It would be 'normal' during such Sporadic E

conditions to communicate at between 500-1,500 miles via a single hop reflection. Since the Sporadic E-ionised areas tend to be in large patches, it follows that signal reflections are selective (i.e., tending to favour a specific area/direction). With variations in the Sporadic E characteristics, so skip conditions can alter during an opening and bring new areas into skip communication.

The UK breaker can, therefore, expect during the summer-time to 'enjoy' distant communication via Sporadic E and during higher periods of sunspot activity (which peaks every 11 years) distant international communication - always assuming there is someone out there to hear you in our unique CB allocation! A single hop Sporadic E signal will roughly encompass that area that is heard in the medium wave band at a given location after darkness during the summer nights.

The writer has considerable experience of the Sporadic E phenomena, having been an active TVDX'er for over two decades. Unusual Sporadic E receptions have been Jordan; Baku, USSR (on the Caspian); Nigeria; Canary Islands; a 10-watt relay in Iceland; San Juan, Puerto Rico and Moncton, New Brunswick, Canada - with TV screen reception. The location, at Romsey, S. Hampshire, is in a valley!

Yours sincerely,

Jolly Roger (Roger Bunney)
Romsey, Hants.

The occurrence of long-distance FM copies has resulted in a certain amount of disagreement over which phenomenon actually caused them.

Our own research, aided by the excellent knowledge of our technical advisor, Fred Judd, indicated that a condition called tropospheric propagation was the cause. (See Long Distance Information, August CB Radio Magazine). The above letter from Roger Bunney coincided with a telephone call from BBC Radio Scotland which also claims that the dreaded Sporadic E is to blame.

To resolve this difference of opinion, we are contacting an independent radio body for the undisputed truth. The results of our findings will be published as soon as possible.—Ed

Dear Sirs,

Congratulations are in order. Firstly to Mr. Harris, of Selsdon (alias Mallard), whose letter in your July issue proved more than a match for my usual apathy and, secondly, to your good selves for printing the item without comment. Somehow, I cannot imagine something as sociable as CB becoming a platform for anarchy in the UK!

With regard to Government involvement in CB, I can do no better than refer Mr. Harris to your May 1981 (yes, 1981!) issue and the article entitled '27 AM - No Future?'. In particular the following extract, worth consideration in retrospect:

"The blame for illegal use of 27MHz is placed on the shoulders of the user! But is that really true? If it wasn't for

the years of back pedalling and stalling churned out by our Government, would 27MHz operation exist?

"If, in the mid-70's, 27MHz FM had been legalized would there be any implementation problems or doubts? No... probably not, after all then the subject was practically unheard of and illegal use was indeed minor. Instead of playing a compromise, reversal of policy, the authorities could have led the way.

"Now, illegal use of 27 AM has become part and parcel of a vast minority of the British population's life style..."

All this has been borne out by events.

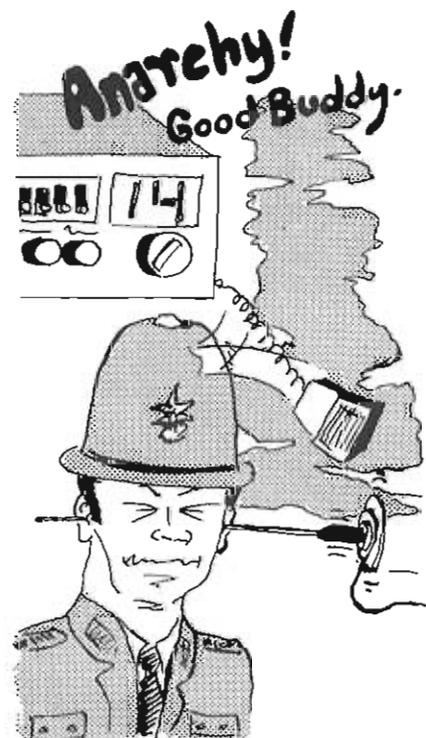
To close on a serious note, would all the legal FM breakers in the Reading area who have recently acquired either AM or multimode rigs (yes, you are conspicuous!) please keep the following 'Straight 40' channels clear:

- 02 - unidentified paging;
 - 12 - unidentified paging;
 - 15 - Battle Hospital paging (i.e., take it up two, not one);
 - 21/22 - Basingstoke Hospital paging;
 - 24 - Royal Berks. Hospital paging;
- as by not doing so you may well be putting lives at risk!

Apologies for hogging the channel. Take care ALL breakers, we're gone.

The Piano Player (Eric Tarrier)
Pangbourne, Berks.

Thanks for the warnings, Eric. I hope that all the breakers in your area have the same amount of perception and sense of social awareness as you.—Ed.



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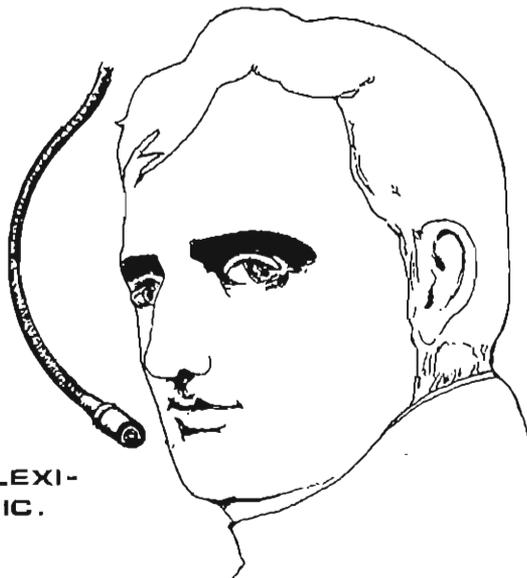
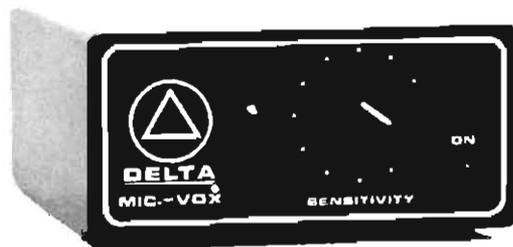
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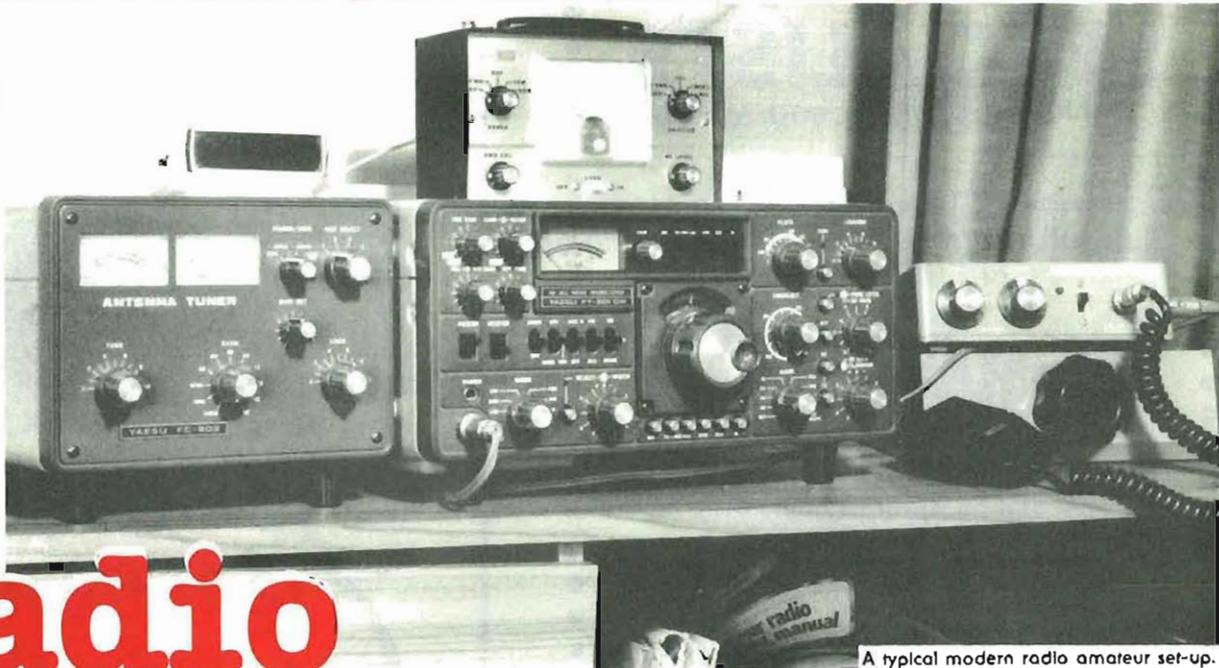
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An Introduction m a t e u radio



A typical modern radio amateur set-up.

A history lesson for 'non-hams'

The role of the amateur in the development of the radio services and technology available today cannot be underestimated. Although there has been a certain amount of animosity between CB'ers and radio amateurs, it has been easy to forget or disregard the fact that without an amateur radio service there certainly would never have been a CB system. (On the other hand, it could do 'hams' some good to remember that not all would-be radio users want to be hams too!)

Over the next few months, we shall be taking a look at the amateur radio scene - not in enough detail to sit the City and Guilds Exam, admittedly (we'll leave that to those qualified to teach it) but to present amateur radio 'the hobby' as it is now and to maybe whet your appetite to find out more.

A history lesson

The speed in which it has developed is one of the most startling aspects of radio. Less than 100 years ago, the first experiments were being conducted that were to result in a communications technology that is literally greater than world wide. Around 1887, Heinrich Hertz (Recognize the name?) was involved in a series of experiments with waves. He and subsequent workers did not associate 'Hertzian waves' with the beginnings of radio.

In 1889, Sir Oliver Lodge applied electricity to a Leyden jar capacitor (a glass jar whose walls are separated by two linings of tin foil). This was a primitive condenser storing an electrical charge - a charge which when released through a wire loop produced a faint spark in a circuit a few yards away. This experiment in 'high

frequency' had the greatest effect when circuits of the same size or 'tuned to the same frequency' were used.

If you have so far stuck with me through the history lesson, we now come to one of those few men in history who combine a spark of genius with a practical ability to combine different theories into a single result. Guglielmo Marconi (1874-1937) left college unqualified at 20 to develop his work in radio. Regarded by his family as an experimenter or inventor of trivia, he worked on the results of Hertz, Lodge and Loomis and within five years had clarified their work. He developed frequency selection, which was a considerable breakthrough as his earlier work had been devoid of any sort of tuning. His 'syntonic' system permitted a transmitter to work at a defined frequency. The epic transmission came on 12 December, 1901 when Morse signals were exchanged between Poldhu in Cornwall and Newfoundland.

Marconi proved an able businessman, too. His patent No. 7777 of 1900 became the subject of protracted litigation. Although the origin of the idea was Lodge's early experiments, Marconi's subsequent work and patent defined tuning so closely it was almost impossible for other companies to avoid infringement.

In a way, Marconi's almost amateur, unqualified approach to radio has typified its later development. Although nowadays electronics or electrical experts work on communications, many of the earlier discoveries were made by amateur radio operators keen to open up the potential of their hobby.

The authorities act

In true British fashion, the official recognition of amateur radio was the 1904 Wireless Telegraphy Act, which required that all receiving and transmitting equipment be registered and made provision for the experimental use of such apparatus.

Amateur operators organized themselves into the Wireless Society of London in 1913 to specifically cover their interests. (This became the Radio Society of Great Britain in 1922). The popularity of this nowadays-primitive hobby can be seen in the fact that some 1,000 experimental permits had been issued under the Wireless Telegraphy Act by 1914 - using three-letter call signs. By this 1914 date, the United States had already issued licences allowing unrestricted use of "200 metres and down" in an effort to clear the earlier congestion of radio frequencies. "Two hundred metres and down" was regarded by professional communications engineers of the time to be worthless for anything other than short-distance working.

Of course, all of these early stations used home-built equipment (no commercial apparatus was available for quite a few years to come) and used spark transmitters and crystal receivers, although experiments were being made to get over the restrictions of Morse.

War strikes

All British stations were closed down and there was a complete ban on all receiving and transmitting by amateurs in 1914 on the outbreak of the war. It took a long campaign, until

1920, to get British amateur licences with the more recognized call signs issued. The introduction of valves and the development of reliable voice transmission made radio operation more popular and wavelengths of 1,000 and 440 metres were used with the provision of below 200 metres like the USA.

The twenties are famous in radio circles for the collaboration between the American and Commonwealth societies resulting in the use of short wave for long distance, low power working. American stations were heard in Britain and vice versa and two-way contacts followed. Eighty-metre operation gave the longest span possible - Britain and New Zealand. The enthusiasm of the operators meant that existing barriers were constantly being broken and shorter and shorter wavelengths were being used.

Once again, the British authorities reacted in a way not unfamiliar to its critics. In the mid twenties an attempt was made to bring in a ban forbidding international working by British stations. Apparently, the authorities were alarmed by the success of amateurs in opening up the world to radio com-

munication but the ban did not last long, although it prevented the signal CQ by British stations until 1946.

Amateur licences were again withdrawn in 1939 and were not reinstated until 1946. Many people who had gained radio experience through 'hobby' radio were used in military communications. Many new to radio before the war trained in its use in the services and carried on after the end of hostilities.

Killer TV?

There was a possibility in the 1950's that amateur activities might well be curtailed by the emergence of television. The problem of operating both amateur stations and a domestic television service without interference was largely solved by amateurs themselves. As CB'ers know, this is still taken very seriously and part of the City and Guilds Exam covers interference and its prevention.

More recently there have been several exciting developments within the amateur radio field. The rapid growth of radio communications has opened up large parts of the spectrum for professional and amateur use and there

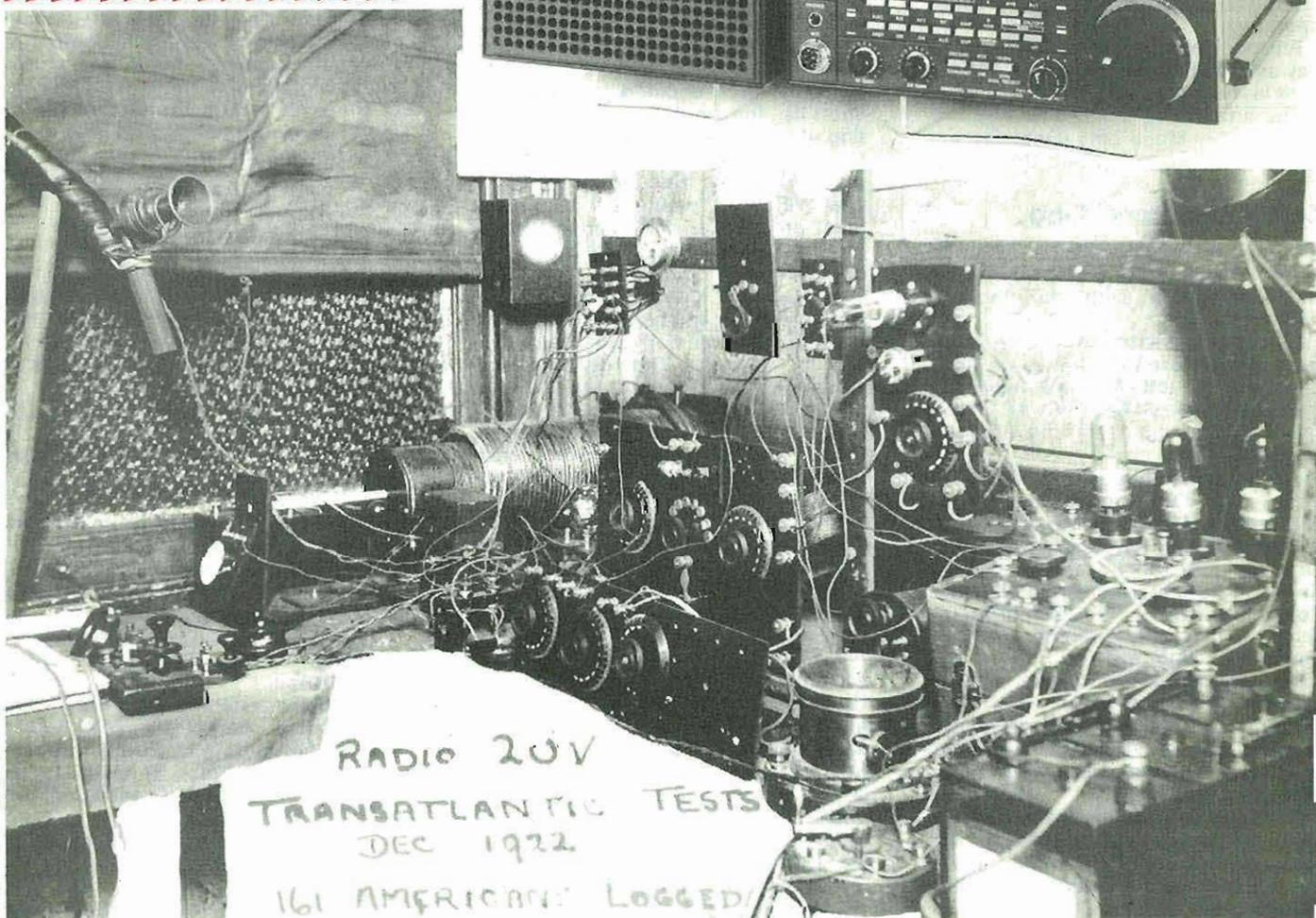
are still those who experiment on the very fringes of current knowledge. The link between professional and amateur, although strong, has almost blurred as the two often collaborate in fields such as radio astronomy and propagation.

In December 1961, 'orbital satellites carrying amateur radio' (OSCAR's) extended amateur radio facilities. Coupled with this extension is the greater range of modes of transmission - television, Morse, speech and teletype.

Amateur radio operators internationally have restrictions on what modes, frequencies and power can be used under certain conditions and hams are not given a *carte blanche* to operate indiscriminately. All operators take an exam to test their technical and procedural ability and there are restrictions covering many aspects of their hobby. To follow this up, next month we shall look at the British licensing system and how it works. In starting by looking at the history of amateur radio, we can place the rest of it in context and perhaps see why such restrictions were originally made.

SS

Since the inception of radio at the beginning of the century, the equipment itself has developed from the original spark transmitters through valves to the transistorized, LED'ed, micro-chipped wonders of today. Large picture taken 1922, small picture 1982



CLUB SPOT

Crazy Bull Breakers' Club

Just a short paragraph to let you know of our existence.

Only having been formed four months, our numbers are small but growing all the time. We are based in the Norwich 20 and have eyeball meetings once a month which is soon planned to be fortnightly. Our aim is to raise money for charity by holding barbecues, car hunts, etc. and our newsletter is published monthly, free to members.

Any breaker interested in joining us or wanting a copy, call any Crazy Bull member on the 14.

10-10 and 73's.

Super Trouper

Lady Margaret Breakers' Club

Our club was formed recently and our eyeballs are held every Wednesday in the Lady Margaret brown bottle shop, Southall, Middx.

Disco's have proved very popular with our members and it is the intention of the Club to introduce a wide range of social activities.

Club membership is £2.50 and most of our members come from the Southall, Northolt and Greenford areas. Hopefully we will be able to raise funds for local and deserving charities.

All local breakers are welcome to pay us a visit any Wednesday, 7.30pm until last orders.

Yours faithfully,

Mona Lisa (Debi Clarke)
(Club Secretary)

Castle Breakers' Club

I thought I would fill you in on some more information concerning the Castle Breakers' Club here in Tonbridge.

Since we last wrote to you, when we were at the Rose and Crown, we have changed venues. We now have our meets at the Teen & Twenty 18+ Club on a Sunday night starting approximately 7.00pm.

We have now nearly 350 members in our Club. Our Committee consists of Operator (President), Tape Measure (Vice-President), Davy Crockett (Treasurer), Splinter (Social Secretary) and Keyring (Club Secretary). On the Sub-Committee we have Smiler (Merchandising Officer), Labrador, Polecat, Apollo and Night Minder.

Membership is £3.00 per annum (under 16's is £1.50) and members are charged 25p per week. Visitors are charged 50p per visit (25p for under 16's) and we welcome visitors as much as members.

Our Club is a social club where we have raffles and lots of things for everybody to do. At the moment, we are trying to get some teams together to challenge other clubs for games

like darts, pool, cribbage, table tennis, football, etc.

If anyone wishes to write to the Club, would they please do so c/o 65 Hectorage Road, Tonbridge, Kent TN9 2DJ, enclosing a sae, where we will be pleased to reply.

Well, that's about all for now, so 10-10 till we do it again.

Keyring (Club Secretary)

Centurion 100 Breakers' Club (Swindon)

I write a column every week called 'The CB Scene' in our free local paper, 'The Messenger'. They produce 50,000 copies every week. Most of the paper is full of adverts but I get the column in, that's the main thing. I have been doing this now since June 1981. About that time I became unemployed and still remain so. I do this column purely voluntarily as a hobby. The only support I get is my wife, Crystal Control and she has now learned to type since helping me. I eat, sleep and talk CB and I could not be more dedicated to it. Which brings me to the formation of this legal CB club. Many breakers called me up and wanted to know if there was an FM club around (How I hate those words). My answer was always the same, AM clubs have now extended their welcome to the new FM breakers and you may join but the reply to me from some of these breakers was 'I'm not interested in AM, disco's or heavy drinking'. So I decided to take on a short list, the words FM were now getting at me. After two weeks' research I decided to call the cards in the CB column: the venue, Eascott Hotel, Swindon, Wiltshire, Tuesdays, 7.30pm, you must produce an FM licence to join. The basic idea was to form a citizens' band club for breakers who have accepted the legal frequencies but this in no way implies that we agree with the Government policies referring to AM band. The response was overwhelming, I chaired the meeting and the Constitution was accepted provisionally. The house was full, all those who attended on the night joined. The Constitution was then finalized by the members over a two-week period. The members then elected the Committee for the 12-month period. A lot of our members have AM SSB sets including myself but like good citizens we have them wrapped up. We do support all demo's, AM, SSB, FM, in fact a better improved CB service. Because we are a legalized club we cannot be ignored by the media any more. We are now a voice. I am glad that FM did not enter in the new club name because, after all's said and done, a breaker is a breaker and if he is on AM as long as he remains a decent breaker I will use my Delta Tune (if I have one) to pull him out of my box to ratchet jaw and so will many of our breakers in our club. The

membership is restricted to 100 breakers. In the event of over-applicants then a second club would be formed, this would be known as the Centurion 200. In the event of a second club being formed, two members of the existing Committee must serve on the committee of the new club. This automatically means that two new Committee members be elected to fill the vacant posts. The second club must hold allegiance to all times to the founder club and so on. This has been drawn into our Constitution. The idea of a small club - it's more personal. We will be holding dances when members request them.

I do love a good old ratchet, sorry about that. I'll sign off with the Committee: Vice-Chairman Hot Air, Secretary Girl Friday, PRO Big Mal (that was my job but I resigned as I do too much writing, only to be elected as the new Chairman), Welfare Andy Pandy (who is doing a real good job, Aphrodisiac Entertainments) and, of course, Treasurer Tiger's Eye (he has just become a proud owner of a new Maxi - strange that), Crystal Control, my XYL, is in charge of the door and two Club members are Trustees, they are Xamit and Telephone Man, they check Club books.

10-10, catch you again.

Rollerskater (Club Chairman)

PS. You can eyeball me but I can't eyeball you. I'm in the Peter Chipendale British CB book, page 84, under the Plymouth banner. I'm the one scratching with my right hand in the centre of the picture with the blonde girl in sunglasses (Crystal Control, who is my XYL) holding my arm.

The Alfa Bravo Charlie International DX Group

Any DX station who would like a free membership and call sign, please write to this address, Billy, PRO, PO Box 84, Liverpool and you will receive free QSL cards and a life-time membership. Please enclose a sae.

Billy 26 ABC 03

The South Wales Federation of Citizen Band Operators

I am writing to inform your readers that the South Wales Federation of Citizen Band Operators is still in existence and still fighting for AM, FM and SSB to FCC specifications.

We meet fortnightly on Sundays at the Bier Kellar, Blackwood, Gwent, 4.30-6.00pm.

Any clubs requiring further information, please contact the NEW Secretary, Peggy Sue (Mrs. Peggy Tapper), c/o 38 Amroth Walk, St. Dials, Cwmbran, Gwent NP44 4NQ, tel. Cwmbran (06333) 66879.

Thank you for your assistance in this matter.

Yours faithfully,

Peggy Sue (Secretary)

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Llanelli CB Centre

21 Station Road, Llanelli
Dyfed, Wales

CLUB SPOT

Sefton Breakers' Club

The Sefton Breakers' Club was formed in February 1982 by a few of the remaining members of the now defunct FBI Club. Our current membership now stands at 150 members and there is a small waiting list.

As the club meetings are held on licensed premises (the Marine Football Club, College Road, Great Cosby) members have to be aged 18 years or over to be admitted. 'Closed' meetings for members only are held on the first Tuesday of each month when members enjoy a free raffle - items like a rig or other CB equipment are offered as prizes - and we have found that the over-18's generally have a very responsible attitude towards the correct use of CB radio.

On recent club nights, we have had a video film night (strictly legal) and a demonstration by amateur radio enthusiasts - both very enjoyable evenings.

A few members will shortly be studying for their RAE exam by attending a night-school course to be held (probably) at Southport College.

The overall atmosphere is one of friendship and goodwill towards fellow breakers both in the club meetings and on the air. Most of the breakers use FM but there are still a few of the die-hards who like to keep in touch with life on the AM frequencies and they still hope that AM will be made legal in the near future.

The club has its own PO Box number so that members can QSL other stations when they make contact. We have also organized some work for charity, i.e., donating 50p per head towards a school for physically handicapped children to replace some equipment which had been damaged by fire. One of our members (Jobber) donated a rig to a school for the physically handicapped to put them 'on the air'.

Any truckers who are away from home, etc. and in this area will be made very welcome at the club for a few relaxing hours and any other clubs who wish to contact the Sefton Breakers' Club may do so by writing to PO Box 1, Liverpool L22 4RT.

73's and 88's.
The Magpie (Public Relations Officer)

Rattlesnake United Breakers' Club

This is a new CB club in Felsted and it is open to anyone in its immediate surroundings. We could do with as many members as wish to join but we are only just getting off the ground and don't have a specified meeting place (yet!). We hope to have a club newsletter fairly soon and so any enquiries and applications should be sent to me at Trewint House, Chelmsford Road, Felsted, Dunmow, Essex CM6 3LS and we will be in touch as soon as possible.

Thanks for your attention, 10-10.
Golden Bullseye (P. C. Isbell)
(Club Secretary)

Eastbourne Breakers' Club

The Eastbourne Breakers' Club, as we are known, has now been formed for about two years and we now have over 1,000 members of AM, FM and SSB breakers. We meet at the Kings Country Club in Eastbourne on alternate Sundays.

Membership is still open, subject to certain minor conditions but all visitors are made to feel welcome whether they are CB users or not. The meetings start at 7.00pm and go on until 10.30pm or so. There are facilities for at least 1,200 people in the large club room upstairs and there is a large licensed bar and a griddle bar serving all kinds of snacks during the evening.

Admission is 50p to members and only £1 to visitors. We have a first-class disco, 'live' entertainment of some kind and a very good raffle at every meeting. The entertainment varies from meet to meet but is usually either a comedian, a film or a band. We have various fancy dress evenings from time to time which seem to be very popular. We have a club newsletter, which is produced by one of our members, with details of local CB activities and future events. Over the last six months or so the club has been involved in considerable charity work for a local home for physically and mentally handicapped children. They are trying to raise £20,000 for a hydrotherapy pool. The Eastbourne club has been joining in with local CB clubs and between us all have raised something like £1,000 by various means. Some events have been sponsored pub crawls, bed pushes, give up smoking, etc. and a couple of our members have only recently returned from a successful two-week CB hitch hike around the coastline of the country. Other events planned are beach parties, exchange eyeballs with any other interested clubs (please could they get in touch with the address below), treasure hunts and many other interesting things yet to be arranged. We get visiting breakers from many places such as Hastings, Essex, Uckfield, Lewes, Heathfield, London, Folkestone, Surrey and many other places.

We have also recently had a new committee in the club, full of new ideas and it is our objective to give everyone who comes in through the door a night to remember.

Many thanks and hope you can oblige.

The Settler (N. M. Jay)
Club Secretary
c/o 10 Upperton Gardens
Eastbourne, E. Sussex

Pirate Breakers' CB Club

I am writing to let you know of our

club, The Pirate Breakers' CB Club. We meet on alternate Mondays at our new venue, The Rhydyfelin and District Labour Club. We hold disco's and film shows after our meetings and also arrange treasure hunts for our members.

We have been going for nine months and have 230 members, ages ranging from nine to 76 years.

10-10.

Mother Nature (Secretary)
Pontypridd, Mid Glam.

Kings and Queens Breakers' Club

The Kings and Queens Breakers' Club is a relatively small group consisting of about 40 members, with hopes for more in the future.

We eyeball every other Saturday night at the Kings Arms brown bottle shop in Martham (Fungus One). Meetings are held in a friendly, good-natured atmosphere and a wide range of topics are discussed. With no membership fees being paid, all club decisions taken are made within the club and not by one person.

Finally, thanks go to all those who have supported our functions through the months for club funds.

10-10.

Compo and Flaming Star
Gt. Yarmouth, Norfolk

Dorset Nob Breakers

We are the Dorset Nob Breakers and now have a new committee. We have been going for a year now with meetings once a month. We, the new committee, have decided to meet twice monthly for a social evening plus some events to keep everybody interested.

I, as Secretary, and our Social Secretary, are interested to know what other clubs do to keep their clubs going. We've had disco's, fox hunts, etc. but feel there must be more unusual things to do. Please would you write to the address below if your club does unusual or silly things and help us to keep all our CB'ers happy.

Thank you,

Olive Oyle (J. Cullis)
78 West Bay Road
Bridport, Dorset
DT6 4AX

The Epsom 100 Breakers' Association

We are writing to inform you and other breakers that a CB club was formed about six months ago for the local breakers of Epsom.

The aim of this club is to promote CB. The Epsom 100 Breakers' Association will promote it in all forms and for the good of the community.

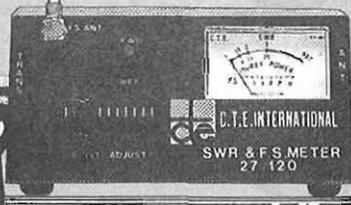
We have waited to inform about ourselves because we wanted to be on a sure footing. The club meets alternate Sunday evenings. We are restricted to 100 members due to our venue.

Yours truly,
GT (PRO)

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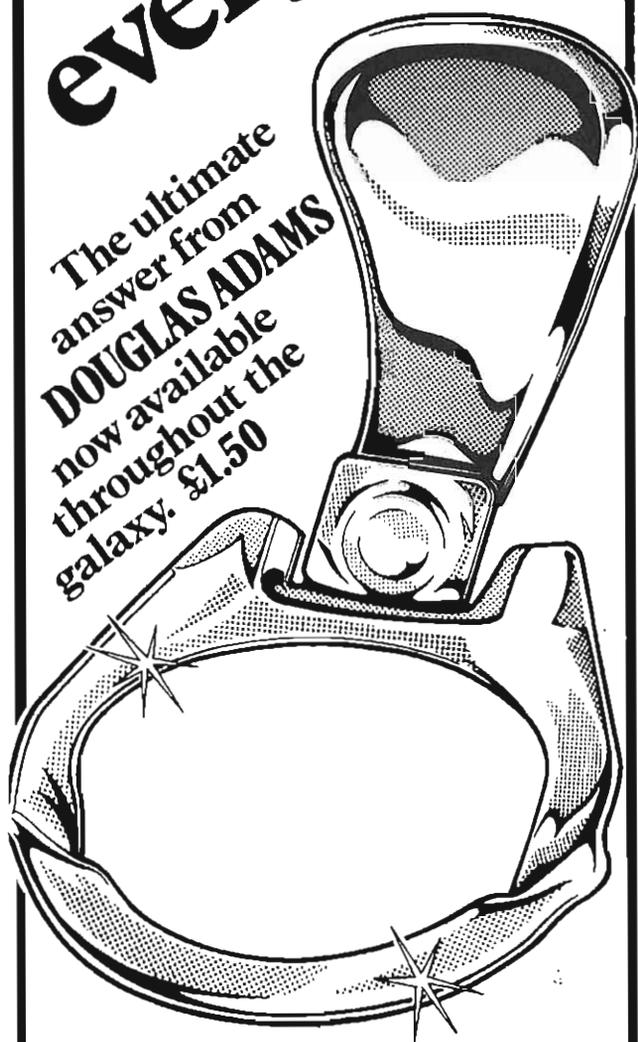
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Pan Books

Round Up

Open day at Braintree

Bert and Ann, at Braintree CB, Essex, recently held an open day to mark their appointment as distributors for the wholesalers OCT. This expansion of their business means that they now stock Bremi, Lemm and Thorobred ranges in addition to their normal ranges.

Local breakers and clubs were originally invited along between the hours of 11.00am and 4.00pm but started turning up at 9.30am and not eventually leaving until well after 6.30pm. Not only was this an informal way of Braintree CB showing off their 1,800+ lines but it also gave them the opportunity to raise some money for charity. A gold K40 antenna was raffled and a substantial sum was raised for a local 'Disabled on Channel Campaign', which helps put housebound people on the air.



The Armstrong Illuminator

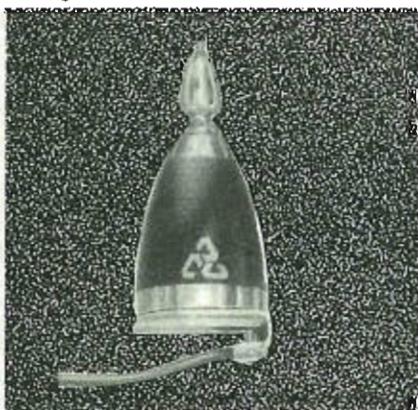
An item which has been available Stateside for some time and has now appeared in CB shops in England is the Armstrong Illuminator Antenna.

As the name suggests, the loading coil illuminates on this AM/FM antenna when it is connected to a 12-volt DC power supply. Rather than running the risk of flattening the battery, it's probably best if the Illuminator is connected to either side or brake lights.

Another nice feature about the Illuminator is that it will not illuminate unless a good earth contact is made. A bad earth contact will result in bad transmission quality so this indication is worth having.

Although the Illuminator is obviously a bit of a gimmick, it is certainly one of the better ones.

The Illuminator is one small part of the Armstrong range which, after a long absence, has recently re-emerged onto the British CB scene.



Weekendaway

Jet Promotions are organising a Breakers' Weekendaway on 9 and 10 October at the Silver Sands Holiday Village, Great Yarmouth. The programme of events includes DJ's, bands, sports, films and surprise attractions over the weekend. A round table will be held to discuss the latest CB issues.



Yo, ho, ho, etc.

A nautical flavour to Round Up this month. Binatone is sponsoring this year's Round Britain Race and is also providing CB equipment for a trimaran separately sponsored by Information Technology Year. The trimaran is called IT 82 and, apart from all its sophisticated marine communications equipment, it has a Binatone Long-ranger 40 fitted.

The Binatone Round Britain Race left Plymouth on 10 July but the photograph was taken with the boat at the National Electronics Centre at St. Katherine's Docks, London. The photo shows Nigel Irens (co-skipper), Partap Lalvani (managing director of Binatone) and girls from Binatone and from the Cancer Research Campaign which is being supported by the race.



The weekend includes self-catering accommodation, transport, entertainment and use of the Holiday Village facilities, including bars, restaurants, games room, swimming pool and shops. The cost per person is £17.00 and special arrangements can be made for club bookings.

For more information, contact Gill at Jet Promotions, 115 Arnison Avenue, High Wycombe, Bucks. Tel: High Wycombe 31260.

The Talisman Appeal

Breakers in the Sunbury area are collecting towards a fund for a local breaker who suffers from the extremely rare Buegers Disease. This disease affects the circulation and ultimately causes gangrene resulting in amputation. Noel Parsons needs to go abroad for micro surgery which could prevent further amputation.

Local breakers have had a sponsored pram push, network and fancy dress disco. Although their fund raising is going very well, they are obviously in desperate needs of further funds. Anyone wishing to contribute can contact Mark Munson, The Talisman Appeal, 11 Kempton Avenue, Sunbury on Thames, Middlesex and donations can be made through Abbey National Building Society, Walton on Thames Branch, Account No. RS853 4678.



Ahoy, there, etc.

Carrying on the nautical image, Tom McClean is attempting to cross the Atlantic in a 'mini' yacht, accompanied by a CB. The yacht is only 9ft. 9ins. long and Tom has built the vessel himself. He is no stranger to rugged conditions as he is an ex-parachute and SAS soldier and has already rowed across the Atlantic solo in 1969. This crossing is estimated to take 45-50 days to cover the 2,500 miles.

Using the handle Giltspur Flyer, Tom will be reporting back to 'Giltspur Base' in Southampton when conditions permit. As you can tell by the

names, the occasion is being sponsored by Giltspur Ltd.

The photo shows Clare Francis launching the boat.



Confessions of a CB enthusiast

Part 7 from Videostar
(Raymond E. Orr)

Last month, I outlined my brief flirtation of monitoring on channel for emergency and assistance calls. I'm still doing this and having a fine old time weeding out the false calls of jumbo jets crashing into the local Co-Op supermarket and those who genuinely need assistance! These mental midgets are becoming a bore and, although I love a 'wind-up' as much as the next breaker, do everyone a favour and keep them off channel 9.

The CB accessory market is growing every week and it never ceases to amaze me the latest gadget that you can wire into a rig. There are five-tone beeps, Space Invader beeps, echo chambers, scrambler systems (that make FM breakers sound like side-banders!), not forgetting the new 'voice synthesizer' to tell you what channel you're on. All these devices are fine providing they're used sparingly. There's nothing worse than trying to have a sensible copy with a breaker who sounds like he's shouting into a mike at the other side of the Albert Hall! With a 'bathroom' echo and a hissing channel, it always has the same affect on me - and we all start rushing to the smallest room in the house! I'm still nervously thinking of putting a rig in there. However, developing an ejector seat to get rid of those who overstay their welcome (and modulate too long) is holding up the project! Where was I? Oh yes, accessories. I have yet to discover anything (apart from a SWR meter) that serves any useful purpose. However, one item is starting to loom up on the horizon - the only trouble is that it costs just under £150.00! I'll not keep you in suspense, it actually is the latest development from Sunrise Products in Japan - the 'Shogun' slim-line CB rig complete with Sel. Call faci-

lity. You probably know by now that selective calling enables your rig to remain totally silent until it receives its own coded identification beep, then it springs to life. Ideal for leaving in the house on standby and all you need to do is push the code send button and this opens up the channel at home. This is the first rig to have this facility built in as standard and as you need at least two to make it work, it may be a year or two before I can come up with £300.00 or so to join the realms of the CB snobs!

There is no doubt that CB radio is helping people rediscover the great outdoors and, to be honest, I'm no exception! With the good weather we had the other week, I decided to leave the world of CB behind for a day and blow the dust off my dusty (and rusty) bicycle and we both took to the train from my local station. Why, you may ask? Well, CB is certainly one of the most recent developments in the world of communications in this country and one of the oldest forms started when the canals were built all over Britain in the 18th century.

I retrieved the bike from the guard's van left the station and cycled to the canal terminus which had been cut short by a motorway of all things! I've always had an affection for old forms of transport and, on reflection, cycling along the canal towpath wasn't such a good idea after all! By now, you're probably asking yourself what on earth this has got to do with CB. Well, I did take along my Tandy hand-portable unit to liven up the journey so that I wouldn't get too bored. I didn't have too long to wait before I had my first copy using pedal power and, surprisingly, the person I copied and eventually eyeballed had managed to install a CB rig on his bike, with the twig mounted on the rear mudguard. The power supply was the most interesting achievement, as this involved suspending a standard 12-volt car battery from the crossbar and that's no mean achievement (especially if

you intend cycling with it in place)! If you don't believe me, just try it yourself!

The rest of the day passed fairly uneventfully with interesting local copies and not having been on a cycle for a number of years, I was nearly turning into a physical wreck. To be honest, I hadn't noticed that the canal towpath was starting to get narrower and narrower.

Whilst passing a small village, some 20 miles from my starting point, the towpath started to clear - the trouble was, not sufficiently to see a brick lying in the middle of the path...! All right... I'll get to the 'meat', the bike and my very expensive nearly-new CB hand-portable ended up in the drink! The shock of landing in the canal was nothing compared to the dismay of seeing the rig slide slowly out of view into the canal! It took some three minutes to locate the rig on the bottom, all I had to do was trace the line of bubbles on the surface. Duly found and thrown onto the towpath, my bike then floated away! By the time all my bits and pieces had been safely recovered, I thought about trying channel 9 for assistance but on turning the rig on, all I heard was a 'glugging' sound. Either the local REACT (UK) monitors had sore throats and were trying some form of 'communal faith gargling' or my rig was seriously out of commission! After getting all the stuff that happened to be floating away together again, there came the next problem of how to get home, still a further soggy 12 miles away. However, that's another story and my case comes up next week!

However, you'll be pleased to know that after being left in a warm room, the rig dried out and two days later was as good as new. So a round of applause for Tandy's workmanship and the rubber duck award to myself for getting carried away. My local shop suggested that I treat the innards to a dousing of contact cleaner and with this duly done things are now back to normal. On the other hand, I got a cracked rib for my troubles and had seven X-rays at my local hospital! Some people reading this column have suggested that they think all these stories are invented - honest, they're not! I must be CB's only walking disaster area. Next month, I'll tell you how a stolen K40 aerial (mine) got the local CID on their toes!

10-10.



Radio direction finding on 27 MHz

Part 3 by F. C. Judd

Details for the construction of a DF loop antenna for 27MHz were given in Part 2 published last month. For those who feel that making such a loop antenna is too difficult, there are, of course, two or three commercially-made DF loops available, one of which is mentioned in this article. However, for the benefit of those who may have attempted making the design featured in the previous article, some further information is included. Firstly, the polar pattern obtained with this or a similar loop antenna is shown in Fig. 1. The solid line pattern (A) is the perfect theoretical cosine pattern of a typical loop antenna whilst the dotted line (B) pattern is that actually obtained with the published design. As will be seen, the 'nulls' are quite sharp as should also be the case with any of the available manufactured loops such as the Whitehorse Communications model UFO shown in operation in Fig. 2.

The function of a DF loop and some notes on use generally were dealt with in Part 1. Essential aids to

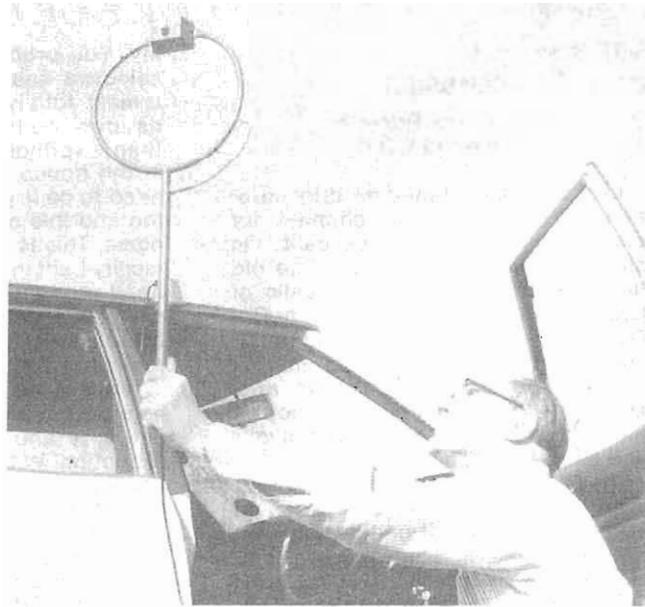


Fig. 2. The Whitehorse Communications 27MHz DF loop model UFO in operation.

successful radio direction finding are (a) a compass mounted on the loop, (b) Ordnance Survey maps of the area of operation, (c) a 360° protractor between 6in. and 8in. diameter and (d) a group of two but preferably three operators each with a DF loop when spread is necessary for determining a transmitter location.

Compass mounting and loop check

An accurate compass with calibration to at least 5°-intervals is essential. Providing there is no iron or steel used in the construction of the loop or in the stand on which it may be set then compass bearing correction may not be necessary. With this in mind a DF loop with compass should not be operated too close to a motor vehicle. The compass is mounted at the bottom of the loop, at the centre and with the North indication on axis through the loop, i.e., at right angles through the loop as shown in Fig. 3. This diagram illustrates alignment within the loop antenna described last month but would apply to the UFO loop shown in Fig. 2 or others of similar construction. Compass North is now aligned with

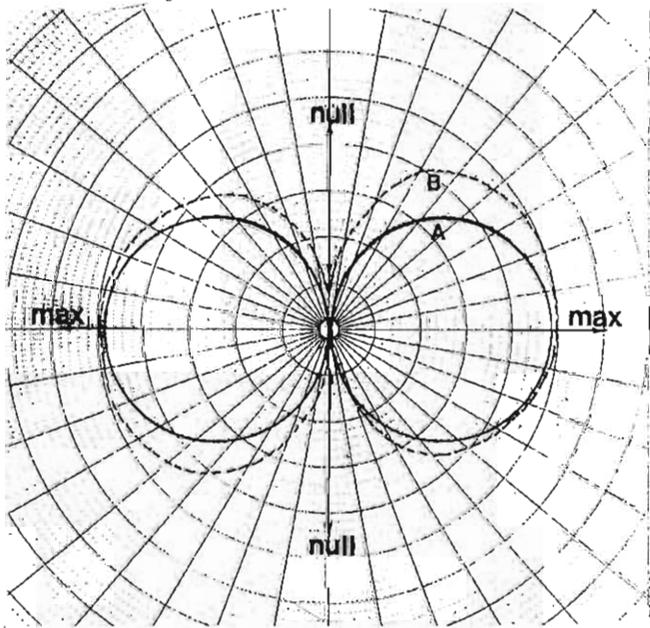


Fig. 1. Polar response pattern of the radio direction finding antenna described in last month's issue of CB Radio Magazine, Radio Direction Finding on 27MHz (Part 2).

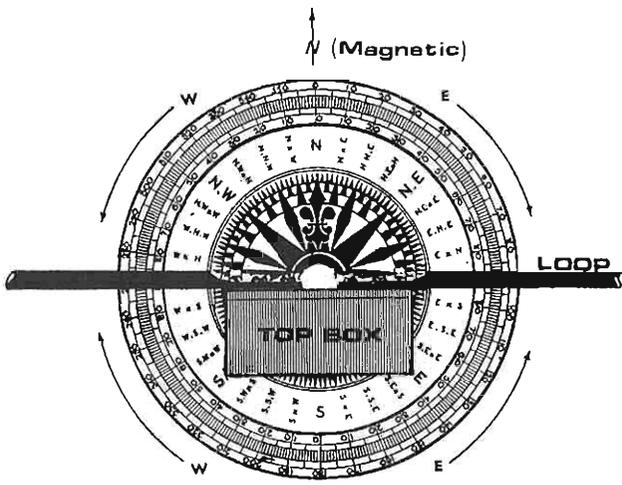


Fig. 3.
Alignment of a compass with the axis of the loop antenna described in Part 2 (last month). See text.

one of the two 'nulls' of the loop response pattern as in Fig. 1.

The next step is to check the loop for accuracy with a transmitting station at a known location by taking bearings from different points at distances of around two or three miles. Either arrange for the station at the known location to transmit for short periods at regular intervals or co-operate with a mobile transmitter with you, to call for transmissions when required. If the loop is tuned to the frequency of operation it can be used for transmitting over a distance of two or three miles. It is essential, however, to check VSWR with a meter in series with the output from the CB set and the loop co-axial cable. Exactly as one would do for the setting of VSWR when adjusting the tuning of a normal antenna except that the tuning control of the loop is used to obtain minimum VSWR.

The diagram Fig. 4 illustrates the method of checking from different points spread over a wide arc, the wider the better. This diagram does, in fact, show the test results obtained with the prototype of the loop described last month and which is shown in Fig. 5 set up on a tripod camera stand with compass fitted as dealt with earlier. The circled points 'X' in Fig. 4 show the points from which bearings were taken to 'fix' the otherwise known location of the transmitter as indicated by the large dot and arrow pointing. Each bearing cuts close enough to give a 'primary' fix well within the ringed area having about one mile diameter and with each bearing crossing at around 300 yards just South of the pin-pointed location. In fact, from that position the antenna of the station could be clearly seen. It must be remembered that radio direction with simple loops of this nature cannot be 100% accurate and this depends in the first place on the nature of the terrain, reflection of signals from other conducting media such as buildings and even large trees, either of which can influence the sharpness or even the angle of a null with respect to the compass bearing. The bearings as illustrated in Fig. 4 are to within better than $\pm 5^\circ$ and even that kind of accuracy only comes from practice and the sharpness of the nulls obtained.

Working with a Survey map

From now on, we will use distances in kilometres as most of the popular Ordnance Survey maps have a grid with 1km. squares. This series has a scale of

1:50,000 or approximately 1¼in. to 1 mile and there are 204 sheets which cover the whole of England and Scotland. The area covered by each is 40km. by 40km. There is also a series with a scale of 1:20,000 or approximately 2½in. to 1 mile.

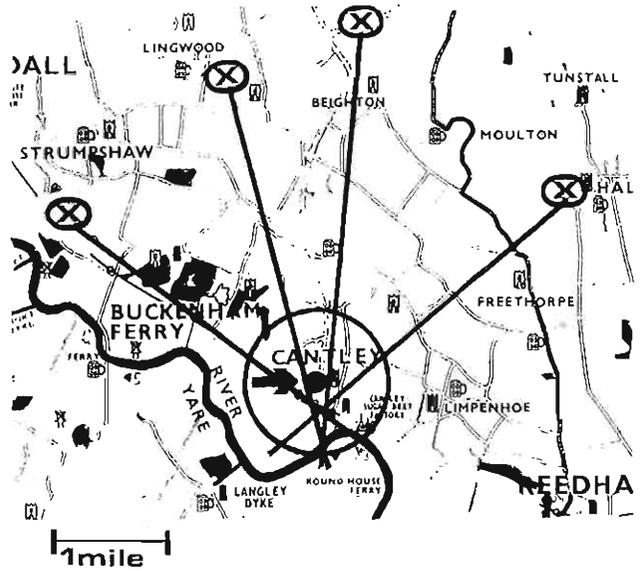


Fig. 4.
Initial testing of a DF loop antenna with the aid of a fixed station at a known position. See text.

In the example given in Fig. 6, the otherwise unknown location of the transmitter (or the Fox) is shown by the circled 'F'. As far as the map is concerned that location is in grid square Easting 05 and Northing 18 although by using square sub-division we can get closer than that by mentally dividing the square into tenths. So 'F' is at approximately 05(3) 18(3). The main grid reference letters for the section of map used for illustration is TG, so the full map reference for 'F' would be TG 053 183 and which gives a position to within about 100 metres.



Fig. 5.
The CB radio 27MHz DF loop set up on a stand and with a compass attached. Photo taken during test trials hence the reason for the special field strength meter that can be seen.

Radio direction finding on 27MHz

So far, however, we don't really know where 'F' is at all. He is within radio range, i.e., his signals are strong enough to be picked up by the loop antenna and so cannot be more than a few kilometres distant. The procedure for team work, when location is needed quickly, is to have three operators with loops and spread out more or less as shown by X, Y and Z who must also be able to communicate with each other to pass bearings. We will take 'X' as control. Station Y takes a bearing but can, of course, obtain two nulls, one being on a bearing reciprocal to the other. However, the bearing(s) Y obtains is 55° magnetic, as indicated by his compass or it could be the reciprocal of this which is 235°. So as far as Y is concerned the station is either North East or South West of him. But remember, he has taken a compass bearing and the loop itself only responds to a true bearing.

For practical purposes in radio direction finding we have to allow for the difference between magnetic and grid (true) North and which for simplification can be taken as 10°. To obtain the TRUE bearing SUBTRACT 10° from the MAGNETIC bearing. So station Y will pass to control X the

bearing information on 'F' as either 45° or 225° TRUE. Now control X takes a bearing and gets 110° magnetic (reciprocal being 290°). He subtracts 10 to obtain either 100° or 280° TRUE. Even without a protractor, X can see that the reciprocal of 280 from him and 225 from Y will not meet. Only the bearings 45° and 100° will cross as the illustration shows.

Control uses a protractor first centred on Y to obtain 45° from him and then 100° from himself. These two cross just outside the square containing 'F' but if used alone would provide a 'fix' about 1km. East of the true position of 'F'. So now Z is called for the bearings he has obtained which translated to TRUE are 355° or 175°. The latter would not meet the others already plotted so it must be 355° from Z which crosses the other two bearings a little West of 'F'. The bearing lines have formed a triangle around 'F' and which in radio direction finding is known as a 'cocked hat'.

We can now put 'F' at the approximate centre of the triangle and control will have plotted his map grid position as 053 183. The next move is for X, Y and Z to get as near to the North, South and lower East corners of the square 18-05 as possible. In the first part of the exercise the bearing errors were in the region of \pm about 5°, the position error being between 1/2-1km. from distances of 5-6km. A new 'fix' can now be taken from a new position at a distance of less than 1km. and even with a 5° error either way the fix obtained should be to within less than 100m. The process is repeated as before but now we can quickly establish where TRUE bearings should lay so no time need be wasted with reciprocals. Three bearings taken simultaneously by X, Y and Z can be plotted and the new fix obtained in a matter of minutes.

Although the first part of the DF exercise may appear (on paper) to be complicated and time consuming, it is possible, with practice and planned operation with a team of three, to obtain the first or primary 'cocked hat' position or fix within a few minutes. The longest time involved in the exercise as a whole would be that taken up whilst X, Y and Z are moving to the secondary positions for taking new bearings.

The only problem when working very close to a transmitter is that the received signals will be very strong and may not 'null' properly. If the set has an RF gain control, as many have, this can be used to attenuate the signal. The alternative is a screened potentiometer that can be connected or switched into the loop feed cable at the set end. This will do the same thing, i.e., reduce the signal sufficiently to obtain a reasonably sharp null.

A simple switchable attenuator will be dealt with next month including some notes on radio direction finding single handed. Meantime, there may be enough summer weather still to come for a 'Fox-hunting' exercise or, maybe, you have an irresponsible CB operator you want to have a word with but don't know where he is!

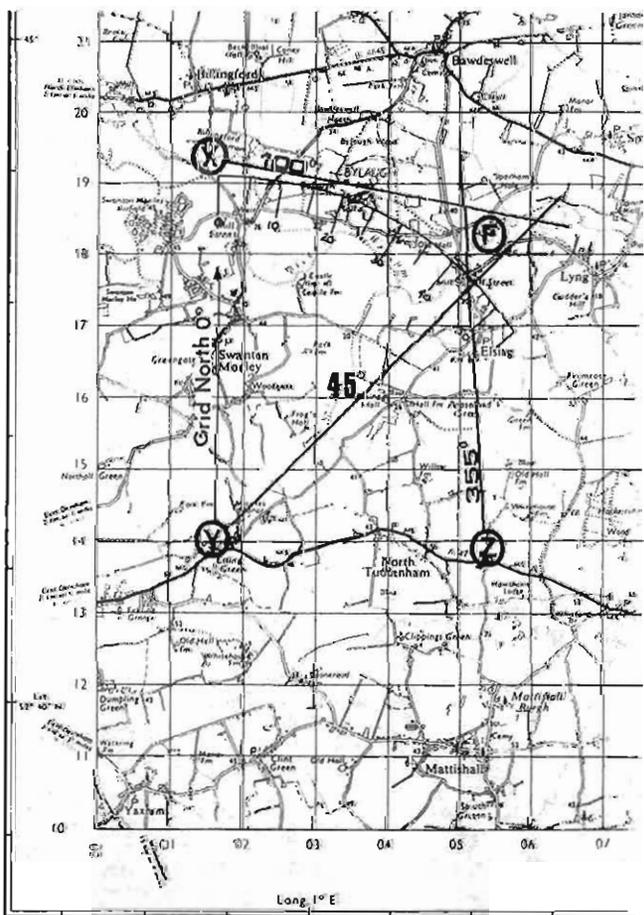


Fig. 6. Section of Survey map with position (otherwise unknown) of transmitter 'F'. This illustrates how bearings are plotted to obtain the primary fix within the triangle formed by the crossing bearing lines. See text for detailed explanation.

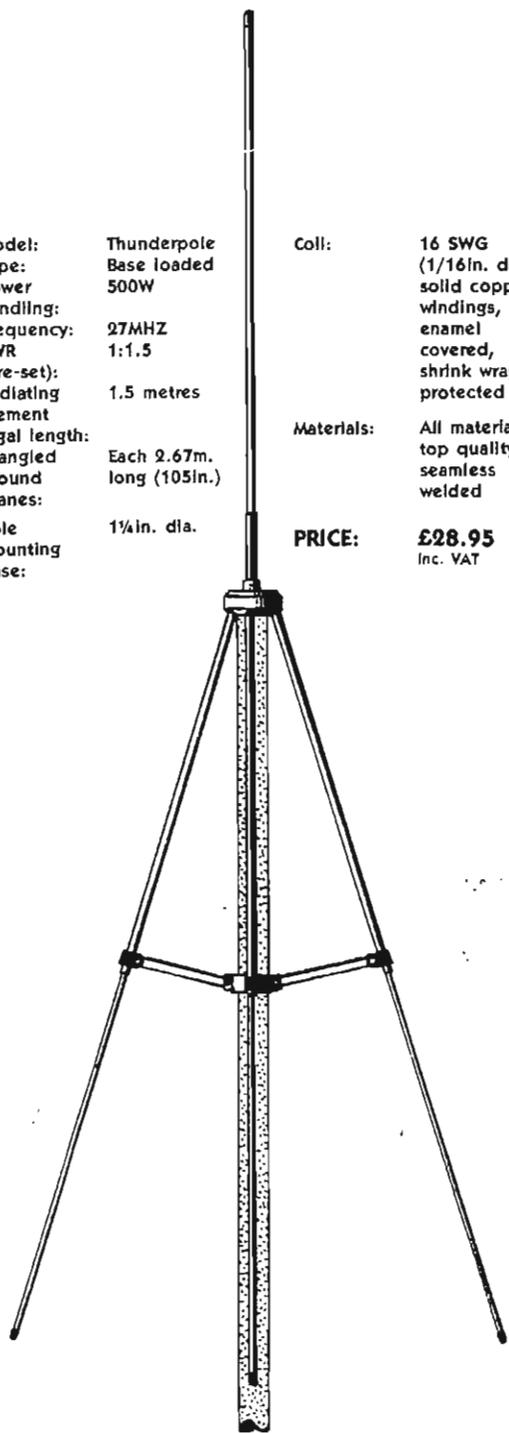
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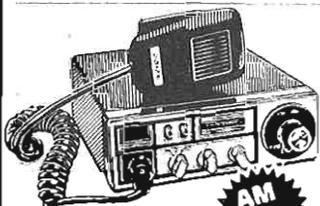
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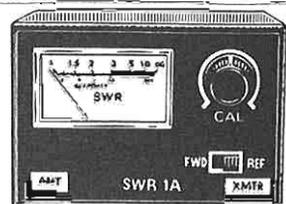


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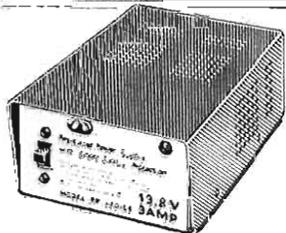


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Monitoring - good or bad?

The first in a look at the UK monitoring services

One of the more persuasive arguments for the introduction of a legal CB service was the help it could give on a national or local scale with accidents and emergencies. In fact, some organisations felt that the use of illegal CB was so widespread that an effective system could work any way - the largest of these, THAMES, has expanded rapidly to cover both systems and is now one of the biggest monitoring systems in the country.

As a magazine, we have always extended as much help as possible to the main organisations, both in editorial and practical ways (like free stands at our Shows). In addition, we try to cover editorially the smaller, more local, organisations who send in their news and almost every Round Up has information on these groups. Apart from obviously thinking that this is the sort of thing our readers want to read, we do it also in a social sense; that is, we think that it is an aspect of CB to be encouraged.

But now the honeymoon period for CB has finished and we are left to take a more objective view of CB and the results it has had. We are all aware that the legal CB system we have is less than ideal and there are indications that the monitoring services are not to be excluded from criticism. At the magazine, we are getting more and more adverse comments on the organisation and effectiveness of these services, so starting this month we shall be looking at the emergency monitoring systems and trying to gauge their success. We'll kick off this month by looking at REACT (UK).



REACT (UK) has been in the fortunate position of being able to draw on the experience of other REACT organisations throughout the world, particularly America. For breakers, not familiar with REACT, a brief history follows.

Radio Emergency Associated Citizens' Teams were established in 1962 in the USA to provide a volunteer service to monitor CB frequencies for emergencies and road traffic help. They campaigned for the official introduction of channel 9 and have dealt over the years with literally millions of emergency calls. They liaise very closely with the official emergency services and in many areas provide almost blanket coverage. Because of the success of REACT in the USA, their example has been copied in other countries like Canada and, more recently, Britain.

REACT (UK) is organised nationally by REACT headquarters in the Midlands but individual teams have complete control over their constitution and organisation. Teams report back through their chairmen to area controllers, who in turn report back to HQ. REACT is financed by members' subscriptions and local teams are responsible for their own finances and fund raising.

REACT was formed in this country before legalisation and was one of the pressure groups pushing for a legal CB system. They were opposed to the original 928MHz suggestion and contributed their opinions to the discussion document released. Although keen to be operating, REACT would only organize a supporters' club before legalisation and would not operate teams or monitor the AM system. This insistence on legal operation continues today, where REACT monitors must be licensed, use legal equipment and not use linear amplifiers. REACT feels that full co-operation with emergency services can only be achieved by being totally legal. There are now over 200 teams under the REACT umbrella, all organized on similar lines and sharing a common training programme.

REACT is not exempt from criticism. I have heard comments that its organisation is too rigid and that communication from the national organisation down through to the teams is less than good. Team members are entitled to be informed and to play an active part in the running of REACT since they pay a membership fee to join and regular subscriptions. However, it's fair to point out all the monitoring organizations are relatively new and are still feeling their way. REACT is also confident of eventually being able to provide a 24-hour coverage but looking at its teams and particularly the state of CB at the moment, I think this is being overly optimistic. The face of CB will have to change considerably before this is possible.

REACT also produces a newspaper called The REACTer which has news from the teams, training programmes, product news, new team listings and a team directory.

The fairest way of judging a monitoring organization is to look at one of its teams and see how they operate. I spent some hours with the Chairman of REACT West Drayton, going to a committee meeting and sitting with a monitor through her 'stint' on channel 9 and I think I have seen a fairly typical REACT team in operation.

REACT West Drayton was formed in November 1981 and was officially registered on 7 December 1981. It took some time for them to collect members and become operational, so it was 1 February before they went on the air. They have 38 members, of which 32 are active and cover a cross-section of people including a businessman, a fireman, a disabled man and wife and a GPO engineer. At the moment they monitor channel 9 from 6.00pm to 1.00am and some spots during the day, giving a total of 49 hours a week. Since the area borders on the M4 near Heathrow Airport, they are in a good position to help with road traffic accidents on the motorway.

The team has a definite policy and attitude towards its purpose. A lot of this is reflected from its Chairman, Dennis, who has strong views on both CB and monitoring organizations. The team is firmly of the opinion that they are not policemen and cannot get involved in any situation until asked to. They are very conscious that they are there as monitors only and cannot act outside or instead of the law. This also includes their attitude to the legion of people who find it good fun to modulate, whistle, swear, play music or key the mike on channel 9. Although plagued by these people, as are most London teams, they know they cannot do a lot more than to politely ask them to move.

As a team, Dennis says, their aim is to "get on quietly with the job". This low profile policy has been reviewed recently so that the team can exhibit at local fetes and shows. This has brought them some new members and put REACT in the public eye a little more.

On the whole, they are satisfied with REACT (UK) and regard it as a figure-head and spokesman for the whole organization - and Dennis agrees they are the only people in a position to negotiate with the Government and emergency services. They are pleased to see REACT push for an officially-recognized channel 9 as their practical experience shows that it is badly needed.

In its early days, the team went to see the local police, explained their aims and intentions and gave the police a list of their members. It was a useful meeting and has helped forge a good relationship with local emergency services.

West Drayton is again typical of all REACT teams in that it has a monitoring schedule, monitors' logs to record incidents and a regular programme of team meetings, training meetings and executive meetings. Training is based on the REACT guide and all members go through training before going on air and they are not



REACTer April 1982

Monitoring

PRIORITIES ON EMERGENCY CHANNEL 09

It is obvious that some calls should be regarded as a higher priority than others, therefore the possibility can occur of two mobiles endeavouring to call in two different Emergency Calls each of a different priority, and the list below is designed to help the Emergency Monitor Operator decide which call should take priority:

PRIORITY 1: Direct danger or immediate threat to life, requiring urgent attention.
Eg: Road Traffic Accident (RTA); Serious Fire, Serious Medical Emergency (Suspended Breathing, Heart attack, severe loss of blood), Boat on Fire or sinking.
(Note: Mobiles should not 'overcall' irrespective of the Emergency whilst a Monitor is already dealing with a Priority 1 Call. However mobiles with a Priority 1 call can 'overcall' any other Emergency call in progress.)

PRIORITY 2: Potentially dangerous or Hazardous situation to life or property, where prompt action is required to prevent occurrence of a Priority 1 situation.
Eg: Lost Child, Vehicle broken down in dangerous location, Smoke emitting from building, Boat out of control.

PRIORITY 3: Routine assistance to disabled vehicles
Garage/AA/RAC/Relay Lisson.
(Move off Emergency 09 Channel as soon as possible).

PRIORITY 4: Travel Directions/Advice
(Move off Emergency 09 Channel as soon as possible).

Dealing with the Statutory Emergency Services

When telephoning the Statutory Emergency Services to pass your Emergency call, consider the following points:

- 1) Fully identify yourself - Eg: "This is NUNEATON REACT EMERGENCY MONITOR ON NUNEATON 383005, and I require ..."
- 2) Practice and use a friendly but authoritative approach to the Emergency Control operator, and be ready to use the Phonetic Alphabet fluently if required.
- 3) Ensure ALL relevant details and information has been obtained from your caller BEFORE ceasing the Emergency Services as a three-way conversation is not conducive to efficiency.
- 4) Have your Team Chairman write to all your Fire/Police/Ambulance/Coastguard stations, introducing REACT, informing them of your existence in their area, and to expect calls from REACT MONITORS. If need be, fully explain the REACT operation, and arrange a meeting.
Special Note: In certain areas more than one Police Force/Fire Brigade/Ambulance Service will serve your designated monitoring area find the boundaries so that delays will not occur.
- 5) Arrange team visits to your local Fire/Police/Ambulance Controls to study how they work, and meet the controllers who will be taking your calls.
- 6) Contact your local Council/Borough/County Emergency Planning Officer to inform him of REACT, and what assistance your team can offer in an emergency.

From The REACTer,
the newspaper of Radio Emergency Associated Citizens' Team.

included in the monitoring schedule until they are confident that they can cope. New members also receive a 'starter' pack giving details of REACT nationally and locally.

REACT at work

West Drayton team meets once a fortnight in a private room at a local pub. To make sure the meeting stays reasonably organized, it is run on formal lines through the Chairman. Minutes are also taken. On 8 July, at the Chairman's invitation, I attended a meeting to see how the team runs in practice rather than theory.

Before the meeting got under way there was the informal chat usually found on any similar occasion. Monitors were particularly discussing bleed-over problems and the local 'phantom whistler' who was blocking channel 9. Subs and logs were handed in as people arrived and a notice board was put up. Monitors' logs are forwarded on to REACT (UK) for collating into national statistics.

The meeting opened with apologies for absence, passing of minutes of the previous meeting and individual officers' reports. Attendance was a little sparse because of the holiday season and illness but attendance is usually

good. The new schedule was discussed as it had to allow for holidays and training for three new members was arranged. After the routine matters, there was more open discussion and some important subjects were raised.

The first of these was the local fire service were now accepting emergency calls originated through CB. It was regarded as very encouraging that people are taking CB seriously generally and the monitoring services in particular.

The Chairman also outlined another encouraging meeting he had with an officer from the local Borough Emergency Planning Department. Dennis was shown round the Emergency Planning Control Room and contingency plans were discussed for flooding, nuclear war and civil disorder. The Planning Department was interested in REACT and the help it could give in grass roots communications in a time of crisis. Officers of the Department will be going to future meetings to give a talk and an invitation was extended to REACT members to attend local authority training periods and seminars.

Superficially the meeting is run formally but there was plenty of opportunity for individuals to put their point

Monitoring - good or bad?

and although the Chairman and Executive run the team they can be (and have been) disagreed with - with the result that on a vote a decision went against the Chairman.

REACT on air

A few days later, I went to see Chris, a West Drayton monitor, at her home. She has been with REACT since January and monitoring since the group started operating in February. She is on regularly in the early evening and sometimes 'unofficially' monitors during the day as she is a housewife. She signed on at 7.00pm with "Zero One Two on" and after being acknow-

ledged by the monitor going off duty, she talked to me about monitoring generally and her feelings specifically.

The bleedover from local operators was very bad on that evening and this is one of Chris's big problems. Since she cannot use more power or a more effective antenna, it is something she has to tolerate but, as she says, "At times, if anything came over, I'd never hear it". Chris is also rather disappointed with the FM service and feels that several things need sorting out before it will be really useful. Top of her list is more channels, followed by less restrictive antenna regulations, an age limit or closer control by par-



Chris on duty.

ents of children and she firmly believes that a lot of the bad behaviour is caused by over crowding. Chris does follow up her criticism with the comment that although the system has its faults, it is the only legal one we have, so it is a shame to see it abused.

Chris has any details she may need to hand, including emergency phone numbers, a guide to types of emergencies and how to deal with them. She is currently adding the Hazchem (chemical hazard) symbols to her book and trying to learn them at the same time. She likes belonging to REACT and finds the West Drayton group very supportive. She feels confident to cope with most emergencies but thinks she could have done with a bit more initial training.

7.13pm and there is an emergency in the background. Too much bleedover and too many local breakers talking on 9 for Chris to deal with it but it is picked up by another, unidentified, monitor. During this emergency and for the next 15 minutes, there is a continuing argument between some breakers using channel 9, a THAMES monitor and the Area Deputy County Controller for THAMES. It was difficult to make out exactly what was going on, although it was clear that the DCC was trying to get breakers to clear the channel and reprimanding a THAMES monitor at the same time. Unfortunately, the THAMES DCC allowed himself to be drawn into an argument with both parties and the resulting chaos effectively blocked the channel for some time and

reflected on THAMES very badly. Once again, in the background there was a specific call for REACT but Chris had no hope of getting through and was unable to discover if it was an emergency. I can only hope the above situation was exceptional!

After things had quietened down a bit, Chris spoke to me about her motives for joining an emergency monitoring service. Chris is disabled and needs a crutch to walk - she feels she is giving something back to the community that has helped her. At 7.25pm fairly loud music is being broadcast on channel 9. Chris comments that this is not unusual, a few nights ago a breaker transmitted bagpipe music for 30 minutes, children's nursery rhymes for 10 minutes and talked for a further 15 - blocking 55 minutes of Chris's 60-minute stint. In an emergency, Chris gets reporters to repeat their information at least two or three times to ensure that she stands some chance of getting the information.

7.32pm - loud, unidentified noises being deliberately transmitted plus a few kids seeing who could outswear the other. 7.37pm and the music's back again. Chris says, ironically, that "Sometimes there's more going on on channel 9 than 14". 7.45pm, even louder music. 7.52pm, Chris politely asks some breakers to leave channel 9 and reminds them that it is an emergency channel. Surprisingly they seem to go. Chris hopes gradually that people will learn about them and says that whilst people are coming to REACT and are prepared to pay to join, they hope they are getting the more responsible people who want to join, although she wryly admits that all the organizations have their 'wallies'.

At 8.00pm, she acknowledges Zero Two Zero and has a welcome cup of coffee. The team originally experimented with two-hour duties but found them too long and has standardized on an hour. I asked Chris if she gets discouraged by the level of misuse on channel 9 and she said that "Every night I go on and hope it's going to be better - and it isn't. It could be nice but we could get more response on 14 than 9 at times. None of the emergency groups will be accepted until the situation is sorted out." Chris puts some of the blame quite firmly on the parents who have just bought their children a rig without any thought of training them in its use or seeing how they use it.

I left Chris's very depressed. No one could pretend that REACT offers a perfect service but it is manned predominantly by very sincere people like Chris who sit there and accept the abuse of channel 9 and the insults aimed directly at them in the hope that they can offer some service. Some hope!

Next month, I hope to spend some time with THAMES in a similar manner to REACT and give them a chance to reply to some of the criticism lately aimed at them.

SS



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NEWS REVIEW



Did you know that CB radio Interferes with dogs? Well, this is the kind of rivetting piece of information that you can expect to find in News Review occasionally. Apart from this little gem, you can expect to be kept up to date on the good and bad publicity given by the national and local press to CB events and activities. As far as this month's coverage is concerned, a broad band of topics is covered, most of which lean towards the more favourable aspects of CB activity.

Sun

Citizens' bang

CB radio fans were warned recently not to use their rigs near a new oil well on Lord Romsey's Broadlands Estate in Hampshire. Stray signals could detonate explosives used in tests, we were informed by the Sun. In this age of high technology, though, it's hard to believe that explosives experts are not able to protect their explosive charges from spurious radio signals from CB and all other types of radio equipment.

Birmingham Evening Mail

CB club steps out for girl

Members of a Birmingham CB club walked to Stratford-upon-Avon and back recently to raise cash for a 23-year-old member with multiple sclerosis.

The Midway Breakers Club, of Bordesley Green, hoped to raise £1,400 through sponsorship for Miss Kathy Munce, of Small Heath.

Kathy (Lady Gold) has suffered from multiple sclerosis for eight years but it is only in the last year that she has suffered paralysis and lost her sense of balance. She is at present enquiring about a cell implant operation that has helped other sufferers in Germany.

Manchester Evening News

Huge hunt but boy was hiding

A seven-hour search for a five-year-old was called off after the boy was

A CB set for Silver Pin makes a dream come true



A NINE-year-old handicapped Ipswich girl's dream came true on Saturday night when she was presented with a CB radio set by members of the Thomas Eldred Breakers' Club.

Paula O'Flaherty, a pupil

at Thomas Wolsey Special School, suffers from highly brittle bones. Her "handle" is Silver Pin because of the large number of silver joints in her body.

Club chairman Mr. Pete Prentice said giving the £70 set to Paula was his club's first charitable effort. They hoped to do more.

Paula's had been the most deserving of five similar

cases which had come to the club's attention, he said.

Because of her condition, Paula, of Shenstone Drive, finds it difficult to go out, especially in winter, when a fall on the ice would mean a broken limb.

A CB enthusiast, she was delighted with her present, which will allow her to make new friends.

Matthew Harrison



found hiding under a table in his own bedroom.

Police with tracker dogs, CB enthusiasts, the clientele of local pubs and local residents all joined in the search for Matthew Harrison, of Warrington. He disappeared after having been sent to bed for misbehaviour by his mother. When the boy's sister was sent to bed later, she said he wasn't in his room. His mother then raised the alert.

About 300 people turned out to search for Matthew, who was missing for seven hours before being found under his bedroom table.

His father, John Harrison, said that the house had been searched before the hunt began. Matthew must have sneaked back into his bedroom without being seen.

Western Daily Press

Rules for breakers

CB users in West Somerset face a clamp down by the District Council. Its planning committee is being urged to approve a set of 10 guidelines covering the use of aerials on houses and in gardens.

The rules have been drawn up by Planning Officer Mr. Colln Russell and, if adopted, will mean CB enthusiasts will need to apply for planning permission in some cases.

Consent will be required for aerials that stand more than 59ins. above the ridge line of a roof and for all free-standing aerials more than 9ft. 9ins. tall.

Sun

Shocking pets collar blasted

A collar which can be used to train dogs by giving them electric shocks has been condemned by vets.

The collars, which can deliver painful jolts by remote control, could be a cruel menace, they say. The collars can also be activated by stray RF signals such as CB and model aircraft.

The new method has been described by a spokesman as a more efficient and lasting training programme, despite criticism by the BVA.

East Anglian Daily Times

Newspaper picture led police to CB thief

A picture of a thief which appeared in a local newspaper the day after he raided a house, led to him being jailed for six months. On 12 May, Peter Adam Pryke entered a house in Canhams Road, Great Cornard and stole CB equipment worth £600.

The next day, his picture appeared in the Suffolk Free Press as part of an article featuring members of the Bilston Breakers' Club.

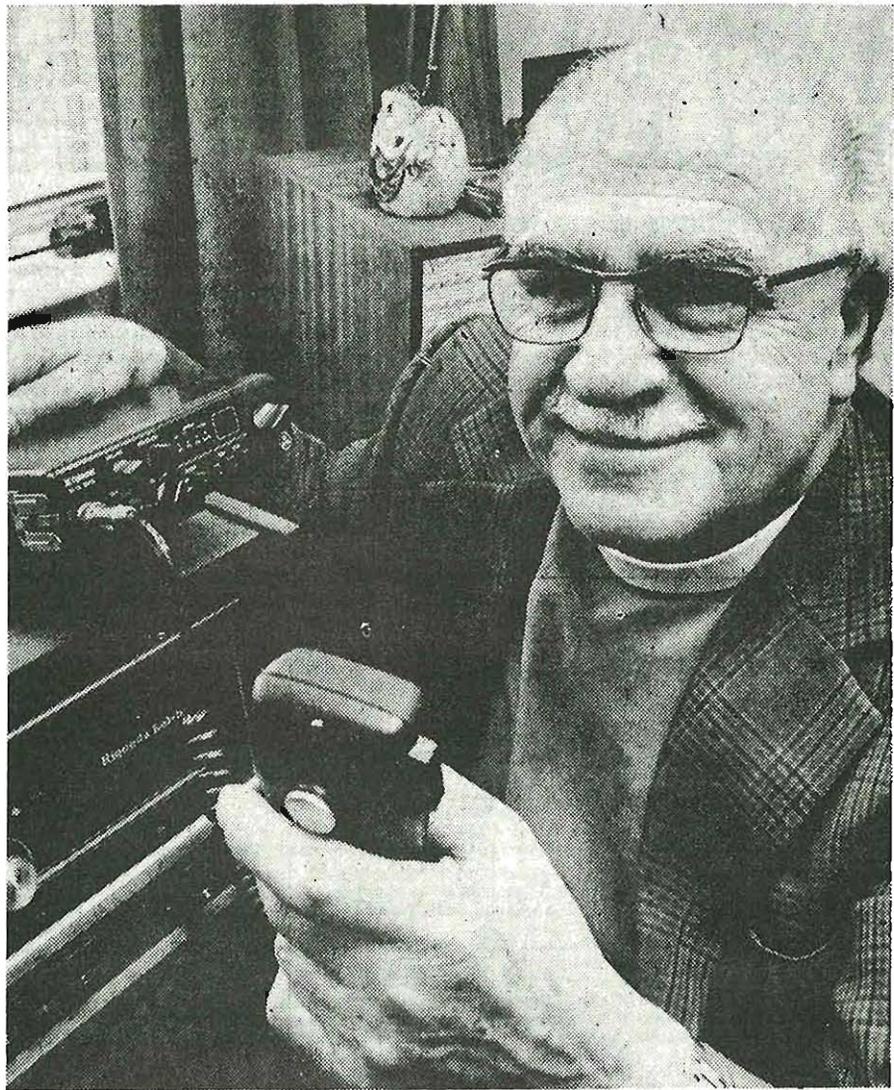
A Canhams Road resident recognized Pryke as the man he had seen acting suspiciously near the house that was raided the previous day.

In front of Sudbury Magistrates, Pryke admitted stealing the CB equipment and was jailed for three months plus another consecutive three months for breach of suspended sentence.

Birmingham Evening Mail

Man dies as 'idiots' jam line

A Birmingham man died after 'brain-



Rev G at his home in Bradford-on-Avon

Tuning in with the CB Minister

CITIZENS Band enthusiasts in Wiltshire have

less idiots' jammed the CB emergency channel. The man, who lived in Chemsley Wood, tried to raise help over his CB when he suffered a heart attack but four breakers blocked his call by singing and shouting.

A member of the CB Aid organisation was monitoring channel 9 but was unable to hear the man's plea for help. When the man's son arrived home, he had collapsed and was dead by the time he reached hospital. A spokesman for CB Aid said that they were plagued by 'brainless idiots who insist on trying to block emergency calls'.

Northern Echo

CB boys rig up marathon talk-in

been surprised to learn the identity of a new breaker on the airwaves using the handle The Rev G.

He is the Rev Gordon Green, aged 70, of Bearfield Congregational Church, Bradford-on-Avon.

Mr Green became a CB fan when his family bought him a set for his car in case of emergencies.

He is unable to get

about much and officiates at weddings sitting down. His children were worried he would be unable to summon help if his car broke down.

He said: "It is marvellous. I regularly talk to other disabled people and many youngsters. It's much better than television."

He is now planning a sermon on Citizen Band and hopes some of his new friends will attend.

CB radio enthusiasts are planning a charity attempt on the world non-stop transmission record.

Members of the Darlington Foxtrot Mike CB club, with help from the Quacker Breakers, will make the attempt at Croft Aerodrome during August. Big Brewer and Plate Layer will take part in a sponsored modulation due to last a full week. They will spend the time talking on their rigs to other breakers, gaining sponsors along the way. The cash raised will go towards the purchase of a mini-bus for disabled athletes in Darlington.



FREE RADIO

All good things come to an end!

This series of articles has been running since last December and has covered many aspects of the 'pirate' radio scene in this country and abroad. As I said in the very first article, we are a CB radio magazine and as such don't want to get too involved in other subjects, although the articles have pointed out the similarities between free radio and illegal CB.

However, the subject has come to a natural end, as it's not really within the scope of this magazine to go into further detail. So time to say 'Thank you'. The series could never have been written without Stuart and Andy of Airsounds and Spectrum Magazine. This magazine is highly recommended for anyone wanting to stay in touch with the free radio scene and get the latest information. Available at 5p per copy plus a sae. Write to 36 Nottingham Road, Lowden, Notts. NG14 7AP for copies and more details. Many thanks also to Magic Sam and the lads at Zodiac plus all those who gave up time and sanity to prepare and man the Free The Airwaves stand at the 1982 CB Show.

To finish up, here's an as-up-to-date-as-possible regular station listing. I ought to emphasize that listening to unauthorized transmissions is, of course, illegal. However, what people get up to in the privacy of their home with their radio dial is none of my business. Short wave stations are not listed as they tend to come and go very rapidly (with notable exceptions like Kryton around 6276kHz) and many of the SW stations heard in Britain are of Continental origin.

PS. I might still be back with free radio news if something dramatic happens!

SS

Birmingham			
132.4kHz/227m	County Radio. Address not known. Also uses 97.5MHz FM.	Sun.	
94.2MHz FM	EST, Box 943, 190 Monument Road, Birmingham 16.	Sun.	Reggae and black music
94.2MHz FM	Radio Star. Address not known.	Sun.	Reggae and Rastafarian-type
94.2MHz FM	Roots Radio. Address not known.		
London			
117.6kHz/255m	Radio 255, 61 Whitton Walk, London, E3.	Sun. 12.00-15.00	Rock and oldies
128.0kHz/238m	Radio City, 68 Goldhurst Terrace, London, NW6.	Sun.	Pure rock 'n' roll
127.6kHz/235m	County Radio, 87 Carshalton Road, Sutton, Surrey.	Sun. 12.00-20.00	Soul-type
132.3kHz/227m	Radio Jackie, West Molesey, Surrey.	Sun. 08.00-19.30	Local radio-type
135.9kHz/222m	Radio Floss, BCM Box 539, London, WC1.		
140.4kHz/214m	Radio Comsat, BM Box AMY, London, WC1.	Sun. 12.00-15.00	New Wave and punk rock
142.2kHz/212m	Southern Radio, Box 220, 8 Blenheim Park Road, South Croydon.	Sun.	Mixed
FM stations			
89.8MHz	Parkside Radio, 32 Victoria Road, Salisbury, Wilts. SP1 3NG	Sun. 11.00-18.00	Soul, jazz, funk, rock
90.4MHz	Radio Alpha, 268 Hayling Road, South Oxhey, Herts. WD1 6QA.	Mon. 20.00-23.00	Soul, jazz, funk, rock
		Thur. 20.00-23.00	
90.4MHz	Thameside Radio, 1 Grosvenor Parade, London, W5.	Sun. 19.00-23.00	Mixed
90.45MHz	Alicia Restaurant, 1 St. Barnabas Road, Woodford Green, Essex.	Sat. 23.00-02.00	Rock, heavy metal
90.45MHz	Radio Phoenix, 1 St. Barnabas Road, Woodford Green, Essex.	Sat. 20.00-23.00	New Wave
92.2MHz	Radio Invicta, 8 Southampton Row, London, WC1.	Sun. 12.00-18.00	Soul, jazz, funk
92.5MHz	Radio Atlantis, o/o 36 Nottingham Road, Lowden, Notts.	Sun. 13.00-16.00	Mixed
92.55MHz	South London Radio, 66 Southway, Shirley, Croydon, Surrey.	Sat. 18.00-03.00	Mixed
92.65MHz	Liberation Radio, 6 Townfield Road, Hayes, Middx. UB3 2EJ.	Tue. 19.00-23.00	Mixed
92.75MHz	Radio Telstar South. Address not known.	Sun. 19.00-21.00	Rock
93.1MHz	Alpha International, 32 Victoria Road, Salisbury, Wilts. SP1 3NG.	Altern.	Mixed
		Sun. 15.00-19.00	
94.1MHz	JFM, 2 Mitcham Road, London, SW17.	Sun. 10.00-20.00	Soul, jazz, funk
94.45MHz	London Music Radio, 32 Victoria Road, Salisbury, Wilts. SP1 3NG.	Sat. 20.00-23.00	Mixed
94.45MHz	Radio Zodiac, 13 The Chase, Crawley, Sussex.	Sun. 15.00-18.55	New Wave, punk rock, R&B
94.45MHz	Uptown Radio, 134 Eastworth Road, Chertsey, Surrey.	Sun. 19.00-22.00	Mixed
94.6MHz	Radio Horizon FM, 28 Comber House, Comber Grove, SE5.	Sun. 19.00-24.00	Soul, jazz, funk
		Wed. 20.00-24.00	
103.8MHz	DBC/Rebel Radio, 286 Portobello Road, London, W10.	Fri. 18.00-24.00	Reggae, R&B, early black music
103.8MHz	Open Access Radio, Box 103, Caledonian Road, London, N1.	Wed. 18.00-24.00	Mixed
103.8MHz	South West Radio. Address not known.	Sun. 11.00-15.00	Mixed
Midlands/Merseyside			
97.6kHz/312m	Radio Xanadu, 169 Wallasey Road, Liscard, Merseyside.	Sun. 19.00-22.00	
112.5kHz/266m	Radio Caroline North, Flat 2, 7 Oral Road, Wallasey, Merseyside.	Sat. 11.00-19.00	Rock and New Wave
112.5kHz/266m	Radio Elenora, 71 Ashville Road, Wallasey, Merseyside.	Mon. and	
		Tue. 18.00-24.00	
112.5kHz/266m	Radio Veronica Leics, 133 Fairfax Road, Leicester.	Sun. 23.00-02.00	Sun. eves.
124.2kHz/240m	Radio Veronica, 3 Palm Grove, Cloughton, Birkenhead.	Sun.	Weekends
124.2kHz/240m	Radio Wombat, 28 St. Andrews Road, Cloughton, Birkenhead.	Weekends	Irregular
138.6kHz/217m	Station M, 77 Cromarty Road, Old Swan, Liverpool 13.	Sat. and	Rock
139.6kHz/214m	Jackie North, 1 Yew Tree Lane, West Derby, Liverpool 12.	Sun. 11.00-17.00	Testing at nights, Derby
161.8kHz/186m	Radio Freedom, 21 Victoria Road, Salisbury, Wilts.		
94.6MHz FM	KDA Radio. Nothing else known.		
97.2MHz FM	Radio Veronica, 3 Palm Grove, Cloughton, Birkenhead.		Stereo
98.0MHz FM	Wirral Alternative Radio. Nothing else known.		
103.5MHz FM	Radio Nova Leics, 91 Scalpay Close, Leicester.		400W stereo
Other areas			
Eastbourne			
96.3MHz FM	Radio Albatross, 131 The Diplocks, Hailsham, Sussex.	Sun. 19.00-21.00	
96.3MHz FM	Radio Liberty, 224 Sevenoaks Road, Eastbourne, Sussex.	Sun. 19.00-22.00	
96.3MHz FM	Radio Zeta, 28 Clyde Park, Hailsham, E. Sussex.	Sun. 21.00-22.00	
Hertfordshire			
90.2MHz FM	Radio Lion, 32 Victoria Road, Salisbury, Wilts.	Sat. 10.00-13.00	Rock and pop
South Coast			
103.7MHz FM	RBL, PO Box 38, Pont De Briques, France.	24hr.	Stereo
	PO Box 319, Edenbridge, Kent (English service).		
Southern Scotland			
140.8kHz/218m	Radio Nova International. Address not known.	Most eves.	Mixed
Wiltshire			
93.7MHz FM	Castle Radio, 21 Victoria Road, Salisbury, Wilts.	Sun. 19.00-22.00	Mixed
Lots of Irish stations can also be heard in Britain.			

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A look at Thames in Monitoring - Good or Bad?

Part 2 of An Introduction to Amateur Radio

Signed
The Editor

FM FEEDBACK

FM FEEDBACK

FM FEEDBACK

FM FEEDBACK

FM FEEDBACK

Part 3 by E. A. Rule

Standing in our local CB shop the other day, it was with interest that a customer was heard complaining that the rig he had just bought suffered from severe 'bleed over' and that he wanted it changed for one that didn't! Like so many operators, he felt that the rig was faulty. Although in some cases this may be true, in general the 'bleed over' problem is due to limitations caused through the use of a low voltage supply in receiver design. The reasons for this are very complicated and it is not proposed to deal with them here as the problem was dealt with in some detail in a recent series in CB Radio Magazine. However, due to this design limitation, it is very unlikely that any receiver operating from a 12-volt supply will be much better than any other, unless it has been specifically modified by the importer to overcome the problem.

The problem is made much worse than it need be because so many operators are using high power linears. In the writer's opinion, this is unsocial behaviour and to be greatly discouraged. It is impossible in practice to have vast numbers of stations operating close together without mutual interference because of good technical reasons which are to do with the TOTAL signal strengths presented to a receiver. The first stage in a CB receiver receives ALL the CB band signals at the same time and the combined signal strength is much higher than any individual signal. It is this combined signal strength that causes the overload and the more stations on and the stronger they are, the worse the problem will become. The only practical solution is to use the minimum of transmitter power which enables you to maintain contact and also to use the minimum RF gain at the receiver which enables copy to be achieved.

You just cannot have perfect communication on a crowded band any more than you can expect unrestricted speed on crowded roads. There is a pile up in both cases!

Last month we dealt with the problems of certain power supplies. The Board of Trade has also been

looking into this and found that a large number of the power supplies which are imported are not suitable for the UK market and/or are dangerous to use. There has already been a child badly burnt by a faulty supply. British manufacturers have to comply with the UK safety regulations and this is one case where a British product could well be the best. The Board of Trade is taking action against a number of these imports as in some cases the power supplies are potentially lethal. It may be worth reminding your dealer that he is responsible if the equipment he sells is dangerous and that a prosecution could prove very expensive.

Another problem being aired at the present time is in the interference caused to the police and other services. Much of the blame for this has been aimed at the CB user. The writer has been a fully licenced amateur operator since 1948 and would like to point out that amateurs have used much higher power and a much wider band of frequencies for many years without any such problem. In the writer's view this is not a problem due to the CB operator but arises because the technical standard of the CB equipment available is very low compared with that available for amateurs. A comparison of prices will reflect this viewpoint. CB power supplies cost around £12/£15 whereas amateur ones range around £45/£60. The same applies to rigs. Similar specification rigs would be: CB £30/£120, amateur £200/£500. Also the amateur operator has to pass a technical examination before being allowed to operate and this means that some understanding of the technicalities involved is present should interference problems be encountered. The average CB'er is non-technical and has to depend on the honesty of the specification published with the rig and may not know how to proceed if interference problems arise but in the main the writer believes that most of the present problems of interference to other services arise because of equipment which is built down to a price. Many of the linears on the market (apart from being illegal) generate large spurious signals and these can cause quite serious interference problems. The statement that lives could be lost is not, as some think, a bluff by the Home Office. It regrettably is only too true and don't forget it could be your life or the life of your child at stake if, for example, an ambulance misses the message because of interference.

The writer is surprised by the number of CB magazines (including this one) who constantly state that they do not encourage illegal operation of any sort. If this is true, why do they publish reviews and other details of illegal rigs, etc.? If the public at large heard of these things, they would not be encouraged to do the very thing the article is telling them not to! This also applies to advertising. Why are importers and manufacturers allowed to advertise and sell goods that it is illegal to use? It's no good saying that the airways should be free for all to use

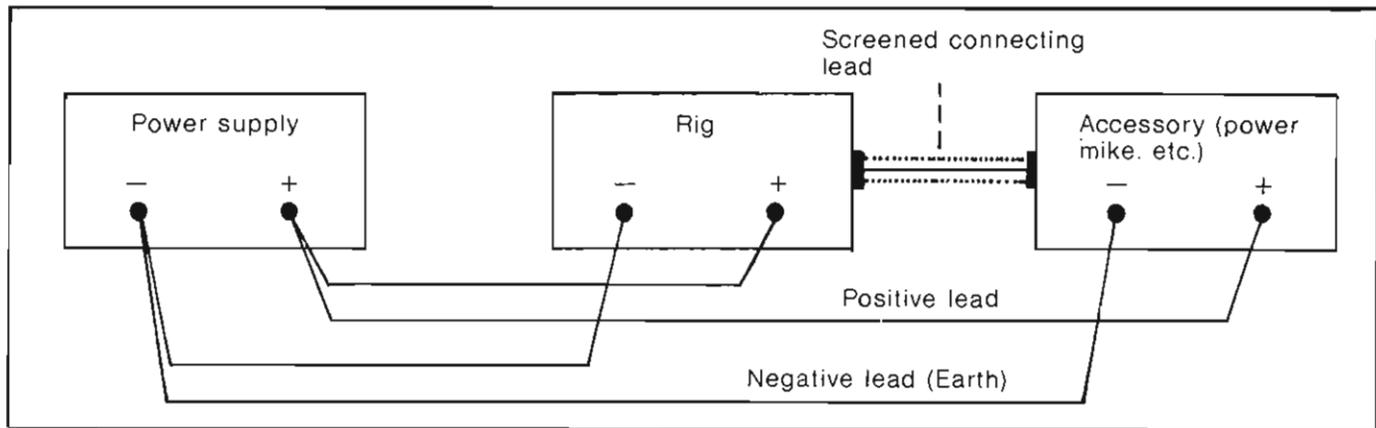
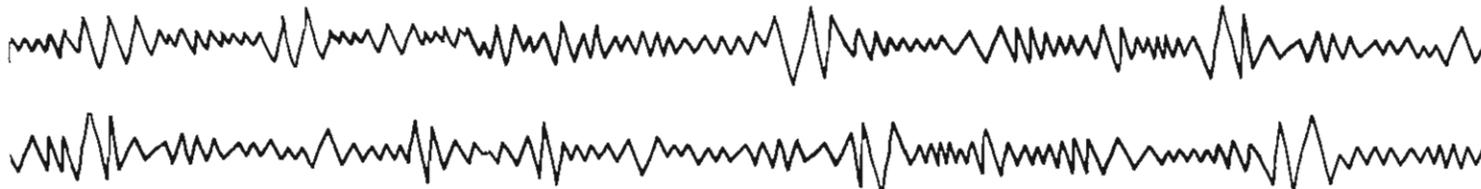


Fig. 1. Showing normal method of connecting on accessory.

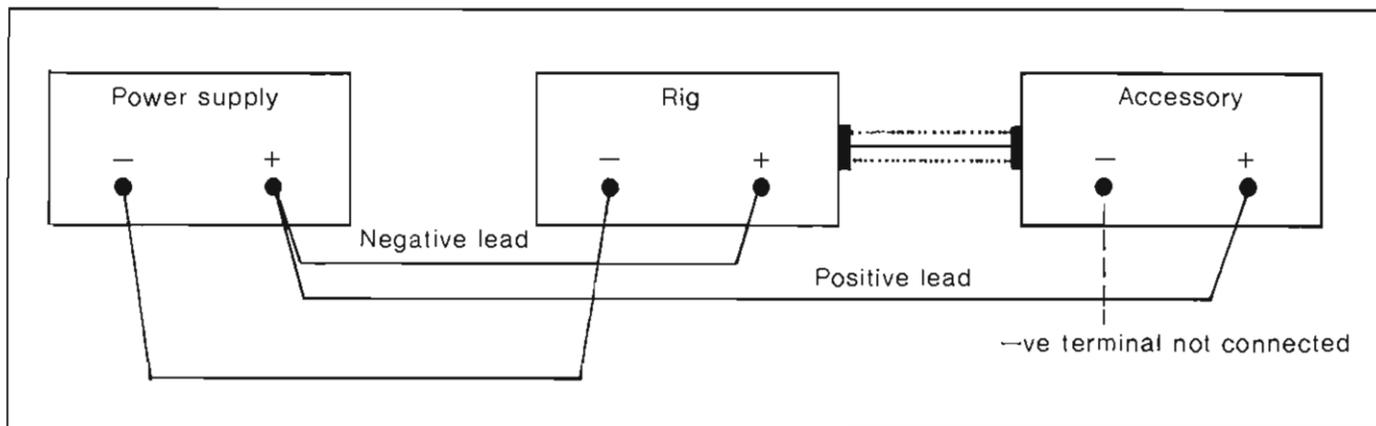
in any way they want and ignore the existing laws, because this type of attitude cuts two ways. Treat others as you expect to be treated yourself. In other words, if you expect to use other people's frequencies without regard for the interference you cause them, you must expect the same in return. Laws and regulations are made to bring about order and to ignore them only leads to situations where nobody is the victor and everybody loses. CB radio could take a leaf out of the amateur radio book here, for amateur radio has existed as a very enjoyable pastime on a world-wide basis for very many years, simply because the operators kept to the regulations laid down and have always kept their own house in order. CB radio has its limitations and if you really want to work DX it's well worth the effort to pass the amateur radio exam and obtain a licence which will enable you to transmit SSB, AM, FM, FSK, TV and many more modes at power up to 400 watts PEP using multi-element beams without any height restrictions AND IT'S ALL LEGAL but then, that would take the fun out of it . . . !

Coming back to the question of interference again, there has been a lot of press lately about FM

v AM regarding interference. This is interesting because the unmodulated carrier wave of both modes is EXACTLY THE SAME. So either system will produce exactly the same amount of interference! The difference between the two systems only comes about when they are modulated. Taking interference to a hi-fi system, for example, when you switch your carrier on the signal could cause the audio from the hi-fi system to sound distorted but it is only when you start to modulate it that on AM your voice will be heard and possibly recognized whereas on FM nothing will be heard. With interference to a TV receiver, both FM and AM will upset the picture contents by the same amount but again the AM modulation is more likely to be recognized. All carrier waves, no matter how they are modulated, have the same interference potential, so don't be misled by current arguments. A carrier wave by any other name is STILL a carrier wave.

Normally it is the harmonics of the carrier wave frequency that cause the interference to TV and other services and to help prevent this a good quality LOW PASS filter should always be used. A good one will cost about £15/£20 and have a rejec-

Fig. 2. Suggested alternative method of connecting accessories.



FM FEEDBACK

tion of harmonic frequencies in the UK UHF TV band of round 70dB. The cheaper filters are not very good and should be avoided. However, there is no magic cure and sometimes even the best filter available will not cure the problem. The recent series on interference published over many months by CB Radio Magazine will be found most helpful in overcoming this problem. The series ran from April 81 to September 81 and back copies are still available. Covering all aspects of interference as well as construction details of many practical filters, the series was based on many years of experience obtained by amateur radio operators the world over. All good practical advice.

The main thing to remember about interference is that it can be cured. Sometimes this can only come about after many hours of frustrating investigation but if you want to be able to operate at any time without causing upsets, you must persist until a cure is found. The first thing always is to make sure that none of the equipment in your own house is effected. If this is free from interference, you can demonstrate to anyone that your own house is not affected by your transmissions. This demonstration can be very disarming as it implies (without you saying so) that it's not your fault but the fault of the complainant's equipment. If you do not feel that you have the technical skills required for locating the source of interference, ask someone to help you. Clubs are well advised to form a special group within the club who can give advice on this problem. A set of different types of filters should be purchased by the club for trials by members so that only the ones most suitable for each particular case need be bought by that member from the club's stock which, of course, must be replaced to maintain the availability of a good range of filters. It also helps if a 'third party' acts as a go between, this will avoid any conflict of interests between the operator and complainant.

Recently, there was a comment that a transmitter operated near to petrol pumps which have a digital read-out display could cause the display to give the wrong readings due to RF getting into the pumps' electronics. The writer assures you that a much bigger display is very likely if you transmit near a petrol pump! RF fields can induce very high voltages into nearby objects and it is very likely that a spark could be created between the pump nozzle and your vehicle. Need we say more! Even operating just outside a petrol station could cause a fire but never, never operate your rig while taking on petrol. It could be your last contact.

A similar thing can happen when near a quarry if blasting is going on. Many explosives are detonated by electrical means and a strong RF field can (and has been known to) set the explosive charge off prematurely with possible loss of life. Gas terminals are another area where you should not operate. Most of this is common sense but it's surprising how easy it is to forget when you are mobile. If naked lights, etc., are forbidden, *then so is transmitting.*

Some letters have been received recently regarding the use of accessories with CB transceivers. In the main these work satisfactorily but in some cases there have been difficulties. All audio circuits can be upset if RF gets into them and although it is generally realised that hi-fi, etc., is effected it is not commonly realised that accessories are also effected. As the accessory is often much closer to the rig, it is easier for RF to get into it. The cures are much the same as for a hi-fi system but there is one area where trouble can occur and this is when the same power supply is being used both for the rig and the accessory. Fig. 1 shows the normal way of connecting up a microphone pre-amp for example. Fig. 2 shows an alternative way. Note that the earth return lead between the accessory and the power supply has been left out. This is because the rig's microphone socket will have an earth return already fitted (microphone common) and the accessory will get its power supply return via this. If the original earth direct to the supply is also used it causes an 'earth loop' which can inject large amounts of RF DIRECTLY into the microphone socket and prevents the accessory working.

It's not unknown for RF to get into a power supply and upset the voltage regulation, perhaps causing trouble under certain conditions only. SSB, for example. When you have a clear case of individual items working OK but not working together (assuming, of course, that they should do) then suspect RF getting in as the prime cause. Where indoor antennas are in use this problem may be insurmountable due to the very large RF field present. The effect of RF may range from a very mild distortion of the audio modulation to one of no modulation at all or strange noises (not to be confused with certain types of operator). If reducing power or putting the rig onto a dummy load cures the trouble it is almost certain that RF getting into the audio circuits will be the cause. One point of interest is that often identical rigs and accessories will not always react the same way, so don't be misled just because your mate, who happens to run the same gear, hasn't got any trouble. He could just be lucky.

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Parliamentary

Review

STOP PRESS

The two members who will join Dr. James Merriman on the Independent Review of the Radio Spectrum were announced on 19 July by the Home Secretary. They are Air Vice-Marshal Arthur Foden, of Raca, formerly Assistant Chief of Defence Staff (Signals) and Mr. Phillip Vine, *Inter alia* Chairman of the New Towns Staff Commission.

Two major topics have predominated Parliamentary discussions in the House of Commons this month, the first of which has already been given much coverage both in the House of Commons and by the specialist and national press – the problem of faulty power supplies imported from the Far East. The other is concerned with the number of licences issued to radio amateurs.

The Home Office has issued a news release inviting organisations concerned with private sector communications to submit evidence with reference to the future re-allocation of VHF bands I and III which at present cater for 405-line TV, following the formation of a body to review the radio spectrum. The review body was set up on 15 June by the Home Secretary, Mr. Whitelaw, to whom they must report by June 1983 with an interim report on bands I and III by September this year.

Faulty CB equipment

On 25 June, Mr. John asked the Minister for Trade what steps he is taking to advise purchasers of citizens' band equipment which is imported in a sub-standard or dangerous condition, or to restrict imports of such equipment in such condition; and if, in particular, his attention has been drawn to the products of the Pihong Manufacturing Organisation of Taiwan in this connection.

Dr. Vaughan: I shall reply to the hon. Member as soon as possible.

Radio amateur licences

Mr. Stanbrook asked the Secretary of State for the Home Department what is the current length of the delay in issuing new radio amateur licences after application; why cheques enclosed with applications are cashed immediately on receipt despite the delay; and if he will either obviate the delay or defer encashment of cheques until the issue of the licence.

Mr. Raison: The current delay is 3½ months. Between 1978 and 1982, the demand for amateur radio licences has increased approximately four-fold. It is, however, our hope in due course to reduce the delays in this area of licensing. It is Government accounting policy that all receipts should be banked promptly and we are unable to agree to an exception in this case.

Faulty equipment

On 29 June, Mr. John asked the Minister for Trade what steps he is taking to advise purchasers of citizens' band equipment which is imported in a sub-standard or dangerous condition or to restrict imports of such equipment in such condition; and if, in particular, his attention has been drawn to the products of the Pihong Manufacturing Organisation of Taiwan in this connection.

Dr. Vaughan (pursuant to his reply 25 June 1982): Following action by my Department, purchasers of citizens' band equipment have already been warned

about dangerous imports, including Pihong units, by the trading standards departments of local authorities in whose area these goods have been sold. Warnings have also appeared in most national newspapers and on television programmes such as Nationwide and Thames television news. Suppliers of Pihong citizens' band equipment are being prosecuted by the Greater Manchester Council; other local authorities are also considering prosecution. I hope that most supplies of dangerous CB equipment have now been removed from the market. The Consumer Safety Act does not contain a power to prohibit unsafe imports but it is an offence to supply within the United Kingdom any goods that do not comply with safety regulations.

Amateur radio licence figures

Mr. Colvin asked the Secretary of State for the Home Department what is the total number of amateur radio licences currently issued in the United Kingdom.

Mr. Raison: Thirty-seven thousand eight hundred and forty-seven, as at 31 May 1982.

Mr. Colvin asked the Secretary of State for the Home Department how many applications for amateur radio licences have been (a) refused and (b) issued by his Department in each year since 1975.

Mr. Raison: The number of licences issued is as follows:

	Numbers
1975	4,853
1976	5,232
1977	2,069
1978	2,570
1979	3,195
1980	5,170
1981	7,340

Figures are not maintained for the number of applications refused but are likely to be less than 10 for the whole period.

Mr. Colvin asked the Secretary of State for the Home Department what is the average length of time taken to process applications for amateur radio licences.

Mr. Raison: Approximately 3½ months at present.

Successful prosecutions

Mr. Grist asked the Secretary of State for the Home Department how many successful prosecutions for use of illegal citizens' band equipment have been made in the last three months to date.

Mr. Raison: No central record is kept of the number of prosecutions pending.

Mr. Grist asked the Secretary of State for the Home Department if, further to his answer of 18 February, Official Report, c. 192, his Department is now in a position to estimate the numbers of (a) owners and (b) users of illegal citizens' band equipment.

Mr. Raison: I regret that it remains the position that the information available to us does not enable us to make a reliable estimate.

DX QSL

INTERNATIONAL

CLUB SPOT



OK, here we go again. Charlie Hotel's room service at your beck and call.

Friendship via DX and QSL'ing is an amazing thing. It never fails to intrigue me how complete strangers, possibly of a different race, colour and belief, can strike up an acquaintance via the medium of radio and its related hobbies. All it takes is a common interest and bingo, you're away. Over the last few years, I reckon DX'ing and QSL'ing have contributed far more to international harmony and understanding than politicians and ambassadors could ever hope to do. Through DX'ing/QSL'ing, I have true friends spread right across the world and I consider myself lucky and privileged to be in this position. I'm sure lots of you feel the same way. Of course, it always helps a great deal if you are a conscientious and courteous radio operator and as far as QSL'ing is concerned you maintain your good name and reputation by QSL'ing 100% 1.4.1 and always include a few spares in your envelope. Mind you, your spares may not necessarily get out and about in the way that you intended. I received a card and nice letter the other week from Alan SSB Unit 170 which illustrates this point beautifully. Here's part of the letter, showing what I mean:

Dear Chris,

I just found your card today in the glove box of my car. I don't know how long it's been there. I have returned my QSL card today. I may have already QSL'ed with your station months ago. I just don't know. Better late than never.

I don't know how on earth my card ended up in the glove compartment of a complete stranger's car over there in N. Carolina but what the hell! Alan is obviously a genuine and concerned QSL'er and I've received another nice card for my collection.

As the saying goes, "We're not strangers, only friends that haven't met".

Peter Virgo, of Connecticut, sends across his greetings to all UK DX'ers/QSL'ers and a big thank you to his special UK pal, 26 WW 40 John of Stockport, Cheshire. Peter is kept up

to date with UK CB activities courtesy of John, who kindly posts out to him each month the current issue of CB Radio Magazine. A very kind act which is much appreciated by Peter. Incidentally, Peter was originally a native of Plymouth but has lived Stateside for the last 25 years. When the skip is running, Peter is able to make contacts all over the UK but, as we all know, the skip can drop out just as quickly as it can drop in. It is during these 'out of season' periods that Peter enjoys his QSL'ing most of all. Some UK QSL swaps would be greatly appreciated by Peter, especially from Plymouth and he promises a genuine 1.4.1, return. Check the QSL list for Peter's full QTH.

I've received a special request from Alan Greathead, of Forton, Lancashire, asking for help to enable him to try and trace Station Mike Delta 28, operator Michael, based somewhere in Cornwall. Around the beginning of May, Alan, operating as Station Tango Whiskey Delta, made contact with Mike Delta 28. They had themselves a nice 10-minute QSO and were just about to exchange AD's when a Brazilian station zapped onto the frequency and began calling Alan via his Tango Whiskey Delta call sign. Alan suggested to Brazil that he take a standby and hang on in for just a few moments while he and Michael exchanged co-ordinates but no go! Each time Michael tried to exchange co-ordinates, Brazil got excited and wiped him out. A strange situation, almost the reverse of normality! Understandably, Alan was very annoyed about the whole thing, both at the Brazilian's poor radio technique and terrible lack of courtesy and also at the fact that he eventually lost the Cornish station without AD's being exchanged. It may not sound a lot, Lancashire to Cornwall but Alan considered it a very fair copy and so do I. Have a bash at UK DX work and you'll see what we mean. Anyway, the point of all this meandering is, if either Mike Delta 28 or any of his pals are reading this article, please drop me a line. I will then pass on your AD to Tango Whiskey Delta and you can both confirm your nice QSO via QSL.

As I mentioned last month, club rubber stamps are very important. Along with QSL cards, they generally are the first notification one gets of a DX/QSL/SSB group but, perhaps even more important, due to the fact that it leaves a lasting impression with you is the name of the group. Chosen well, a name not only gets mentioned on the frequency but also helps to form a picture of the group's views and policies regarding its role in life. In this respect it's obviously very important that the correct name is chosen. Some good examples of excellent group names are these internationally-famous radio groups: Night Owls Radio Club (USA), British Sideband Network (UK), Illegal Frequency Operators (USA), Outbanders Radio Group (USA) and Sunderland Skip Shooters (UK). No doubt is left in your mind as to the intentions of these groups or where their allegiances lie. Another name which slots into this category quite nicely is the Bandit DX Club International of Hants. No worries about misinterpretations with a name like that. Since the forming of the group early last year, membership has grown quite well. There are now well over 400 UK Bandits and at the last count at least 200 International Bandits. The group offers to its members the usual sort of club package items including cards, rubber stamps, log books, certificates, etc., plus something rather special. Available to members is a cassette recordings library containing recordings of Bandit QSO's. A touch of class about that.

The Bandits are a DX group which believes that active participation on the 11-metre DX band is far more enjoyable and much more preferable to sitting in some pub and talking about it. Must say, I agree with them. Sidebanders in the Hants area looking for a decent DX group to get involved with could well do themselves a favour and contact the Bandits. Further info is readily available from Bandit 001 Tony, PO Box 16, Southsea, Hants PO4 8EP.

One last word before I shift my thoughts Stateside. It may or may not mean much to you but several Free Radio stations have had their post box

DX/QSL Clubs Monitoring Frequencies

Britannia Int. Sidebanders, Leeds, England 27.855 LSB.
 Outlaw Int., Alabama, USA 27.615 LSB.
 Bandit DX Club, Havant, Hants, England 27.895 LSB.
 Mission Control SSB Club, Pasadena, Texas, USA 27.820.30 LSB.
 Woodpecker DX Group, Hereford, England 27.585 LSB.

Genuine 1.4.1 QSL'ers

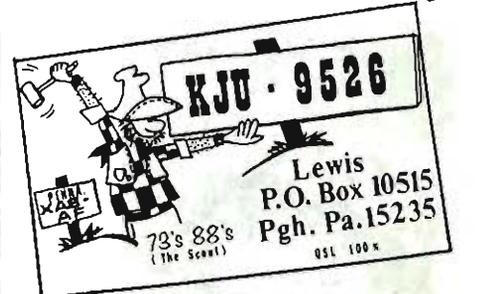
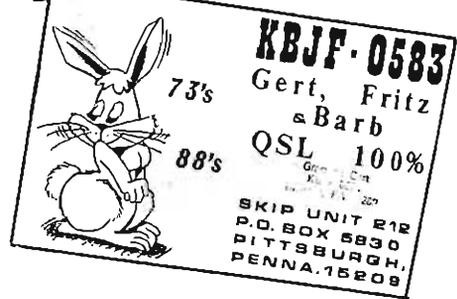
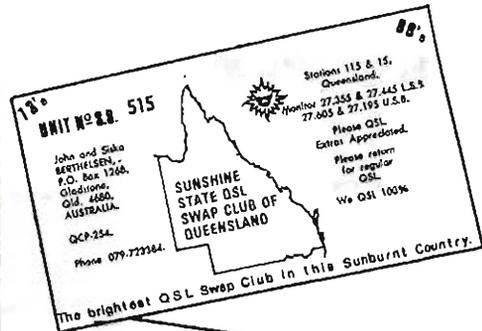
Steve Weglaz (Polish Eagle) 4 Bosworth Highfields Killingworth Tyne & Wear	Andrew (CDX20 Batman) Shaw & District Breakers Club 8 Fraser Street Shaw, nr Oldham Gtr Manchester
Neil (Tango Mike 01) 30 The Drive Dysart Road Grantham Lincs NG31 7PR	Mark Geary (ACDC 01) Creagh House Doneraile Co. Cork Ireland
Kosmokot PO Box 2137 5600 CA Eindhoven Netherlands	John & Siska Berthelsen (Sunshine State 515) PO Box 1268 Gladstone, QLD 4680 Australia
Gert, Fritz & Barb (Unit 212) PO Box 5830 Pittsburgh Penn. 15209 USA	Lewis Watson (The Scout) PO Box 10515 Pittsburgh PA 15235-0515 USA
Peter Virgo 116 Dirlenzo Heights Derby Connecticut USA 06418	

Worldwide DX'ers

Hello to all of you readers in the United Kingdom. This is Ian Shrader of the Sandcastle Club back with some more overseas addresses for you. The DX'ing has been pretty good over here lately. We don't get a chance to catch much DX from Europe or the UK. Did have a nice QSO with John 26WW40 in England and Sean the 29 Shamrock 438 over in Carlow, Ireland. Over here in Washington State, in the evening we pick up a lot of DX from Australia, New Zealand, Phillipines and Japan. I have been talking with Brian the Unit 737 or the Sandcastle 459 down in Tasmania quite a bit lately. Also have

had a few QSO's with Keyn Asada over in Kobe, Japan. He is the IWA 555 and a lot of Stateside stations have talked with him. The nice thing about DX'ing is you never know what will turn up in the Post Office Box. A lot of the Australian stations have been sending patches, photos, post cards, etc. Today I got a beautiful tea towel from Don the Echo Romeo 13 down in Richmond, Victoria, Australia and Brian has sent me many gifts from Tasmania. I got a piece of taffy from Calum Anderson up in Glasgow, a wood carving from Henry Suhendra in Indonesia and, well I could go on and on. I hope to hear from you in the United Kingdom. Please send your QSL card and IRC to Ian Shrader, Box 167, Pacific Beach, Wash. 98571.

Don (Echo Romeo 13) 288 Mary Street Richmond Victoria 3121 Australia	Tony (73 Echo 007) Box 2163 Paramaribo Surinam South America
Brian Osbourne (737) Box 528 Devonport Tasmania 7310 Australia	Bernard Unit 101 Box 374 Cowla NSW 2794 Australia
Henry Atwood (Sandcastle 715) Sierra Madreweg # 7 Willemstad Curacao Neth. Antillies	Henry Suhendra JLN Kupang Indah 1/3 Surabaya Indonesia
Abdulla (Sandcastle 613) PO Box 19400 Khietan Kuwait	Doddy Hariawan PO Box 142 KBY Jakarta-Selatan Indonesia
Theresa Frey (Sandcastle 289) RR1 Box 29 Basco Illinois 62313	Made Rihayana (Sandcastle 721) JLN Patimura 53 Denpasar Bali Indonesia
Dindo Catral (KDC 101) 41 La Paz Street Bauan Batangas Phillipines	At (Sandcastle 712) Box 758 Devonshire 4 Bermuda
	Mosbah Salam (Sandcastle 697) PO Box 77 Beirut Lebanon



Opposite page:
 The Bandit DX Club card.
 Above:
 1.4.1 swappers' cards, units KJU 9526, KBJF 0583, SS 515 and 1 IR 39.

raided by the Home Office and the contents confiscated. There are similarities between 11-metre DX stations and Free Radio stations, so be careful. A post box does give a nice feeling of safety and assurance, unfortunately this can and often does lead to complacency. The moral is try and remember how you acted before you acquired a post box number. Walls have ears or something like that!

OK, enough of the horror stories. A sure sign of greatness and 'having made it' in this world is when an organisation becomes well enough known to be recognized by its initials only. If I should say 'KIT', I'm sure 90% of world wide DX'ers/QSL'ers would instantly say 'Tom Sowden - Keep In Touch - New York'. Since Tom first kicked off KIT back in October 1979, it has grown to be one of the best-liked and most-respected clubs going. KIT membership now stands at around 800 members spread over 47 different countries including some rare and highly-collectable QSL locations such as Russia, Hungary, Poland, Saudi Arabia, Uruguay and so on. It's KIT's proud claim that there is a club member on every continent.

As Tom says, "I plan to make it one of the biggest and best clubs in the world for my members". You may say talk's cheap but if Tom says he'll do it -

well, he'll do it. It won't be an idle boast. Tom works 101% for KIT and does it all by himself. No Vice-President, no PRO. No nothing. Naturally, Tom is helped by his wife, Ellie but that's all.

It is because of this very personal involvement with KIT that Tom manages to keep in touch with so many members. KIT is very important to Tom, he'll do anything for the club and its members. The only trouble with this set up and Tom admits it, is that in order to keep in touch with so many members personally, delays will inevitably occur - but only minor delays, I hasten to add.

Tom and Ellie have been happily married for 15 years and have a smashing family consisting of Tommy Jr, Elizabeth, Patricia, Timothy and, last but not least, Sean Patrick Sowden (Tom's Irish connection coming out here!). Sean, by the way, was one year old on 26 July and is a real chip off the old block. Sean was born seven weeks premature, went down to 3lb. 13oz. and at one time had all kinds of tubes and needles sticking into him but like Tom, Sean is a fighter and came through it all real strong and shows no signs at all now of his bad start to life. Apart from his family, his Cadillac and KIT, the other big love of Tom's life is collecting rock 'n' roll rec-

ords from the 50's and 60's, both single artists and groups. Tom also collects all items pertaining to these artists, such as magazines, gum cards, photos, etc. To date he has a wonderful collection of over 10,000 45's, 500 LP's and about 350 78's. Tom, as you can guess, is a bit of an authority on these matters and is always willing to talk and write on the subject.

One of the nice things about Tom and other KIT members is that it is often very possible to enter into a group QSO via the club frequency of 27.785 LSB. Tom is a very keen 11-metre DX operator, his station comprising of the following equipment:

Radio - a Realistic TRC 449, fully modified from 26.365 through to 28.045 AM LSB and USB.

Mikes - a Turner +2 desk mike and an Astatic Silver Eagle.

DX QSL

INTERNATIONAL

CLUB SPOT



Amplification is courtesy of a Sonar BR21 (50-200 watts). All nicely rounded off by a Shakespeare big stick about 75ft. up. Tom also possesses an Antenna Specialist 4-Element Beam which by the time you read this will, hopefully, be erected and operational.



In Tom's opinion, this set up isn't too clever but it seems pretty good to me. Either way, it must do the business. Since he started DX'ing in 1978, Tom has had QSO's with 83 different countries around the world and has, in

fact, as an Alfa Tango member, won 11 of the 15 DX awards available to Alfa Tango Group members. Not only is Tom a keen DX'er but also a great QSL'er. To date, he reckons to have sent out over 13,000 personal QSL cards. In fact, Tom's was one of the very first QSL cards I ever received and I've still got it after all this time. Since then, I've managed to acquire just about all of Tom's cards, including KIT club cards, his personal King Valium card (Sundown 766), Dirty Doodler card 953 (part 3 of four-part), Sundown card 821 and Sundown photo series 16. Real collectors cards. Although Tom always QSL's 100%, he unfortunately cannot return 1.4.1 to those QSL'ers who send about four or five of their cards and their friends' card and request a similar return. Anyone who would like one of Tom's cards is very welcome to it and I know he would never deny anybody ONE if they went to the trouble of writing and asking for it but with such a large family and a Cadillac to feed, Tom has to limit his postage and other costs to a sensible level in order to guarantee a QSL to everybody. At the rate which Tom gets through his cards (about 100 per week) I think you'll see the logic behind Tom's statement.

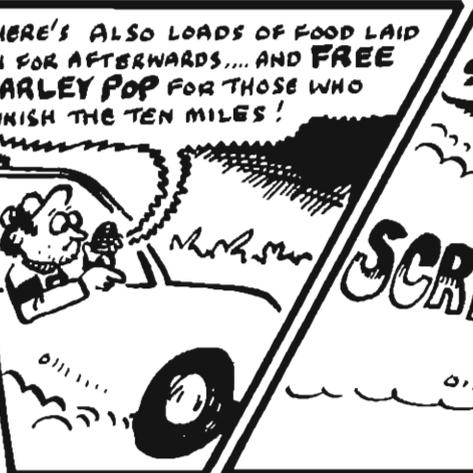
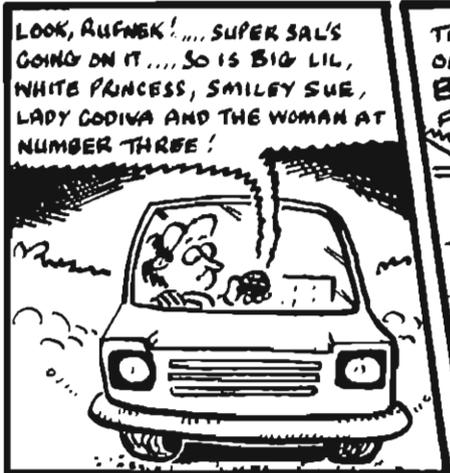
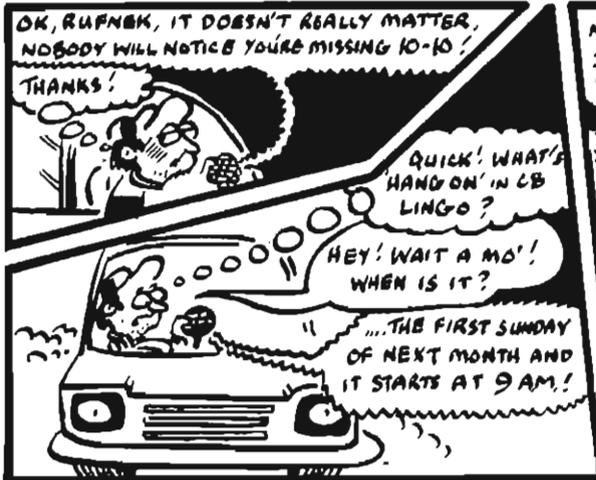
Not only does KIT offer friendship around the world but also a decent club package. In this day and age of soaring costs, KIT membership fee is a pleasant surprise. Total cost is only US\$5 plus 10 personal QSL cards, signed and dated. Air mail postage is \$3 extra. Basic package consists of Unit No., KIT Certificate, QSL's, post cards and tourist info, if requested. Also available are two rubber stamps (Stamp 1 \$2, Stamp 2 \$3), KIT patch \$2, personal KIT Sundown Club cards at \$55 per 1,000 (plus \$9 postage) and a whole host of extra items including New York stickers, banners, decals, T-shirts, sweatshirts and caps. A wonderful array of NY goodies. For the benefit of UK members, there is a KIT Chapter over here, run by The Duke. Not, I hasten to add, Jim 'The Duke' Glavin, of Big Ben fame but a similarly-handled CB'er. Unfortunately, due to business commitments, I cannot reveal The Duke's full name and AD but that's by the by. There are about 250 English KIT members these days. By the way, I'm KIT 049 GB. The membership of the English Chapter is very varied, ranging from a well-known pop star in a very famous top group who have had many world-wide No. 1's, right down to the ordinary bloke in the street (me?). Several UK members are disabled and, unfortunately, house-bound and it is in these situations that KIT world-wide friendship blossoms. As I've already stated, I can't give out The Duke's AD but anyone interested in joining KIT, just drop me a line and I'll forward your letter on. No bother for me at all.

OK, bits and pieces department coming up. Next month, I'll be telling you about the very progressive Papa Bravo DX/QSL Club of Preston, Lancs and by way of a complete contrast a super club from Bali, Indonesia - Barong Bali International. I'm desperately looking for an original mike to suit an old 19 series transmitter Mark II. Can anybody help? Last but not least, still got a few sets of DX hints and tips left if anybody wants them. OK, folk, I'm in my finals now, so till next month, I'll give you all these 19's, 27's, 37's, 92's and so on. Don't know what they mean but they sound just as good as the other lot!

Best regards, take care, ta, ta.
Charlie Hotel Unit 25, clear.

News, views, comments, QSL requests and swaps to Charlie Hotel, c/o 3 West Street, Sunderland, Tyne & Wear SR3 1EU.

Keep In Touch, New York		Tom, KIT # 001, P.O. Box 61, Richmond Hill, New York, USA 11419.			
	Star Rating	Yes First Class	Fair Second Class	Third Rate	No
1	World Recognition	★			
2	Distribution	★			
3	QSL Response Time	★			
4	Club Stamp	★			
5	Club QSL Cards	★			
6	DX Unit Number	★			
7	Wall Chart	★			
8	I.D. Card	★			
9	Club Roster	★	Combined with log box		
10	Club Patch/Badge	★			
11	DX Log Book	★			
12	Club Accessories	★			
13	Club Information				★
14	Tourist Information	If requested			
15	Cassette Swap				★
16	Club Postage	★			
17	Life Membership	★			
18	Discount XYL Membership	★			
19	Value For Money	★			
20	Overall Presentation	★			
Total Star Rating		17			2



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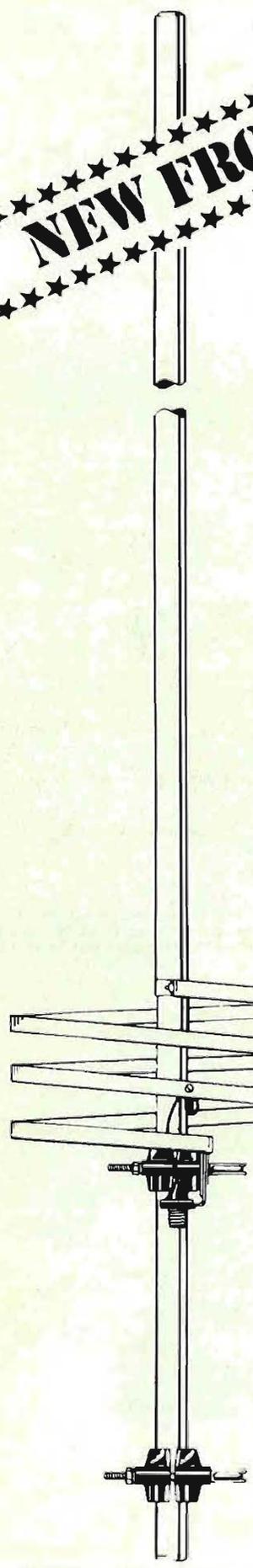
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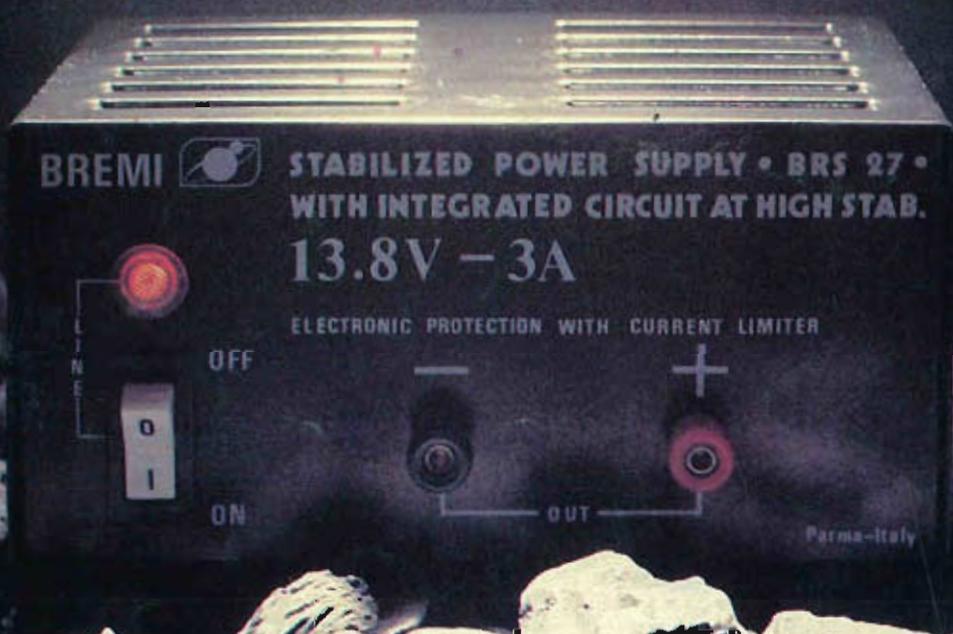


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