

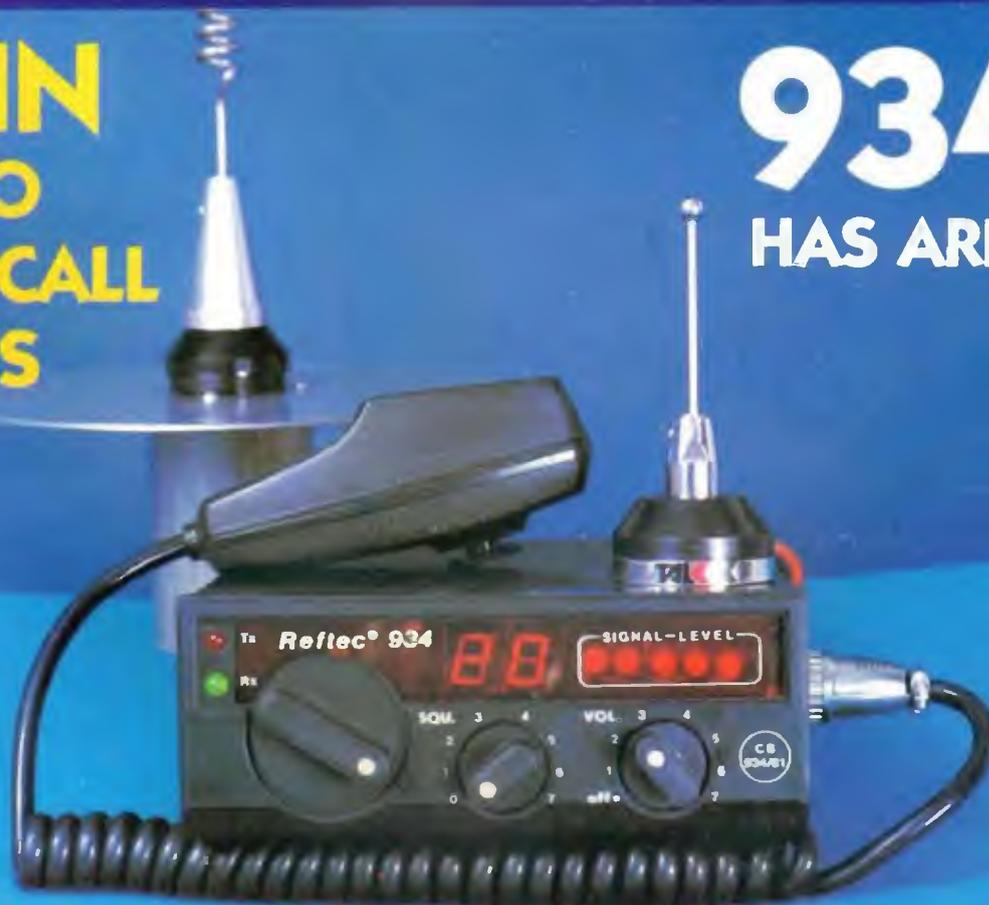
CB RADIO

VOL. No. 3 ISSUE No.28
OCTOBER 1982
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SELCALL
RIGS**

**934 MHz
HAS ARRIVED !**



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CB RADIO

934MHz
Here at last?

4



AM CB
Down and out?

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SUMMER TALES

The month of August is normally reserved by most people (including our publisher) for laying on the sun drenched beaches of exotic foreign countries. Hayes, where our humble offices are, is not exactly foreign, although many people have never heard of it and even though the sun is shining it has distinct difficulties penetrating the muck on the office windows. To say that I'm distinctly jealous would be untrue, I'm actually green with envy.

However while all you lot have been splashing the Ambre Solaire about and singing Viva Espana down at Margate some quite significant events have been taking place on the CB scene. It is difficult to say what exactly prompted all this activity but never the less it has happened.

934MHz

After much ado, and now you see it now you don't tricks, 934MHz CB equipment has now arrived, (full details and photographs appear later in this issue and on the front cover). My own prediction of "I don't think it will ever materialize" has proved totally wrong and lo and behold Reftec have actually done it.

I think that congratulations must be in order for Reftec, for despite the time lapse between their original announcement and the finished product being available, they are still first and more importantly they are a British manufacturer. I sincerely hope that the patient 934MHz customers support Reftec and amply reward them for their efforts.

More Government blunders

If you take a look at Parliamentary Review this month you will see that the powers at Westminster are once again meddling with the law on CB.

If this Government gets re-elected, which seems quite likely on present form and public opinion, they will be putting a Bill through Parliament which will drastically curtail the efforts of your local CB shop. Whilst this bill seems logical enough, banning the sales of equipment that is illegal to sell, does raise some very interesting points.

It is illegal for you as a 'straight' CBER to operate any kind of linear amplifier, however if you happen to be a licenced Radio Amateur you are perfectly within your rights to do so. If this bill gets passed your friendly CB store will not be able to sell you a set of boots but your Ham shop will.

Many of the CB rigs in this country are not quite up to specification making them technically "illegal". I wonder if teams of Home Office men will start testing this equipment to see

**COME IN &
SIGN FOR
CHANNEL**



whether or not it can be sold. In effect your CB shop will only be able to sell you what the Government deems legal. Think about it!

A channel 9 campaign

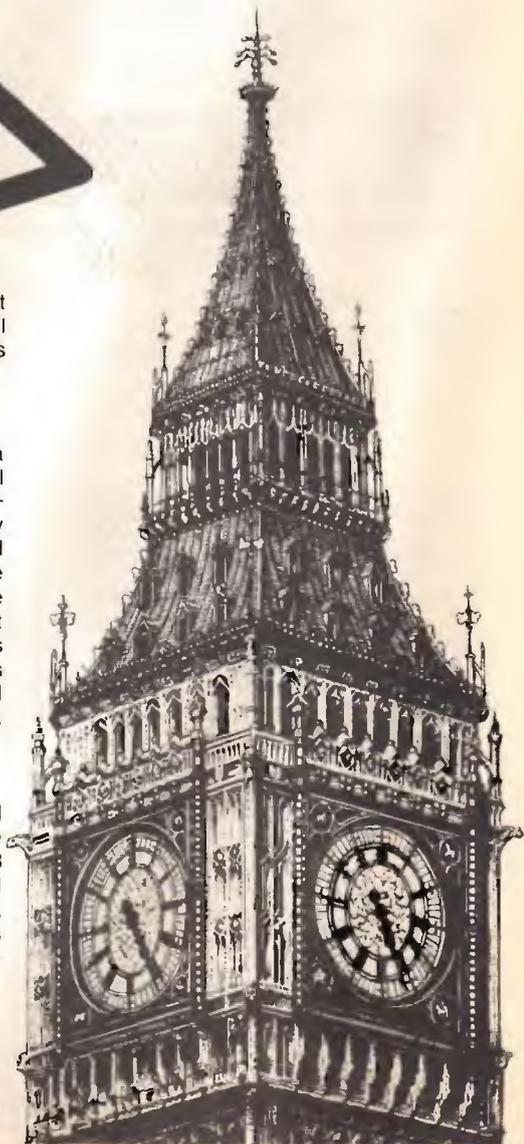
August has also seen the start of a campaign by REACT to get an official allocation of channel 9 as the emergency channel. If you feel strongly enough about this issue you can add your name to a petition which will be presented to William Whitelaw on the 2nd of November 1982 (yes, the 1st birthday of legal CB). Petition forms are available at all CiBTA members shops, and the address of your local CiBTA shop appears later in this issue.

Horrible headlines

A quick look at News Review will show you that as far as the press are concerned only bad CB news is CB news at all. In the case of the Sun and Sunday Journal front page headlines, it is CB that made the two incidents front page news, and CB which is the least important part of either story.

To all the Press

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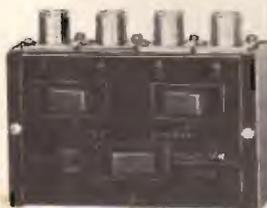


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The arrival of 934MHz CB

Ever since the specification for legal British CB was announced in April last year, there has been much speculation about what could be expected from the equipment detailed in the MPT 1321, 934MHz FM. Since breakers in this, and most other countries, have only been used to VHF equipment, they became wary of three main points. Firstly, as the technology for low cost VHF equipment was not yet in existence, was the cost of the equipment going to be far above their heads? Secondly, was it really possible to transmit and receive signals from an antenna only four inches tall? And lastly would it be safe to transmit 25 watts of microwave power at such a close proximity to the operator and/or passers by? Especially in the case of mobile use.

The answers to all three of these questions are answered in the following paragraphs.

Why has it taken so long?

The answer to this question, one that must have been on the tip of everyone's tongue, has to some extent already been answered in the first paragraph. The lack of technology available for the manufacture of low cost VHF transceivers. VHF technology does exist for P.M.R. and amateur applications where cost is not a prime consideration, but in any case these sets do not cater for multi channel facilities. So the 934 MHz CB transceiver has had to be designed and built from scratch, and tests to show how best to employ the sets have had to be made.

A question of height

The performance of 934MHz equipment like any other radio equipment is dependent on application. In particular, with 934MHz, antenna siting is of prime importance, this has obviously been considered by the Radio Regulatory Dept. Who have allowed VHF CB antennas to be mounted up to 10 metres high without attenuation, as opposed to 7 metres for 27MHz antennas. Bearing this in mind it should be said that 934MHz is not an ideal frequency for mobile use, and that far greater results can be achieved with base to mobile(s) and base to base use.

This would point to fact that the

majority of customers for 934MHz CB will be business users who are not too bothered by the lack of privacy given by a public service. Although it must be said that several CB clubs have expressed interest in VHF CB in order to gain a little peace and quiet in congested 27MHz areas.

A comparable service

When the Home Office decided on 934MHz as an alternative CB service their objective was to provide a service comparable to the 27MHz FM service. In order to do this the output power of the transceiver has been rated at 8 watts and an ERP of 25 watts has been allowed with an antenna gain of 5 db. Although in most applications the figure of 25 watts ERP will not be achieved due to the high cable loss incurred with VHF transmitters. The use of a high quality 'Heliac' cable will greatly reduce this loss although it is impossible to eliminate it totally. (Heliac cable is also very expensive).

VSWR adjustment for 934MHz is highly critical, unless you use a Discone or other broadband antenna, and the antenna intended for use with the particular rig will have to be matched and tuned specifically to the set. Thus there will be no swapping antennas at the merest whim, this will also make it difficult to move the rig from one vehicle to another. 934MHz is such a high frequency that it causes no interference to TV or radio broadcasts and no other radio services interfere with it, so there is a pleasing absence of background noise between or during transmissions. At present there are only 20 VHF channels, although this number is expected to be increased later, and it has even been suggested that 934MHz will become a European CB standard.

Reftec - the first manufacturer

R.F. Technology are, as far as we know, the only company in the world who are producing 934MHz equipment although there have been rumours that a far eastern version will be available shortly, however as I have already stated this is a rumour and has not so far been confirmed. This means that the availability of 934MHz equipment is likely to remain limited until a good indication of how much interest is going to be aroused has

been assessed.

Considerable orders have been placed by CB dealers with Reftec some of whom have already taken delivery of their order. So the sets should be available in your area within the next few months. Due to the lack of UHF breakers at present, dealers have been asked to circulate details of other users in a particular area when a purchase is made, so that the situation where a user has no-one to talk to is avoided.



Range

During my visit to R.F. Technology, based in Mildenhall in Suffolk, I was given a practical demonstration of the kind of service we can expect to get from the Reftec transceiver. The audio quality and speech clarity obtained from the Reftec installed in Managing Director Jeff Smith's car, was notably superior to that obtained with 27 MHz equipment, and neither of these qualities changed as we travelled further from base, with the exception of a few crackles brought in by physical obstructions, a symptom peculiar to mobile use.

At certain times during the test we were over 10 miles from Mildenhall, in countryside that was not particularly suited to 934MHz use (ie: at sea level in relatively flat terrain, with an RAF base and its large buildings between our mobile and the base station) even so we were still receiving clear strong signals. From these results it is fair to assume that using a base to base set up, a range of between 15 to 20 miles can be easily obtained if not exceeded.

Safety

When the 934MHz frequency was announced there was much speculation about the safety of public use of 934 MHz equipment. It has since then been given a clean bill of health by the Dept. of Health and Safety. Although, if people are going to be foolish enough to key the mike with the antenna poked in their left ear, it is possible that some damage to the eye may occur, but in normal use the antenna is at a safe distance from users and other members of the public. In fact at the 1982 CB Show at Wembley, Jeff Smith was demonstrating a UHF walkie talkie capable of achieving satisfactory results using only 0.2 watts, which is less likely to

cause retina damage than a 27MHz walkie talkie using 4 watts. Work on a 0.2 watt walkie talkie and a 934MHz base station is still going on, how soon they are made available commercially

depends entirely on public reaction to the mobile sets.

The retail price for the mobile set is £197 plus VAT and it can be purchased from your local dealer shortly.



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ANTENNA TEST REPORT

The SMC Oscar type 11SE mobile antenna by F. C. Judd



The Oscar 11SE mobile antenna can be body mounted or gutter mounted but is considered a little on the heavy side for magnetic mounting. It can also be boot lip mounted and bases for each form of mounting are readily available from SMC (South Midlands Communications Ltd.).

The Oscar 11SE has a high 'Q' base loading coil and the whip section meets the HO requirement of 1.5 metres in length when adjusted for tuning, etc. The antenna consists of three sections, the first being the base coil with standard SO239 socket fitting at the base to mate with gutter mount, body mount or magnetic fittings. At the top of the base coil is a hinged section that allows the whip portion to be laid flat when entering a garage or car port, etc. This otherwise locks the antenna whip section into the normal vertical operational position. The whip itself is in two parts each being linked by a coupler that at first glance might look like a small centre loading coil but isn't. This has been done to facilitate packaging the antenna for despatch through the post.

The Oscar antenna is extremely well finished with heavily-chromed base coil fittings and a stainless steel whip section.

Allen keys are provided for assembly and for the small amount of adjustment to length required to set the tuning and VSWR. The base coil is fully protected against entry of water with a modulated plastic cover tightly sealed with the upper and lower



metal fittings. Using a gutter mount the antenna was set up and tuned to resonance at 27.9MHz (band centre) by taking about 1in. off the bottom end of the upper portion of the whip, i.e., the section above the centre coupler. The VSWR readout obtained over the legal FM CB band is shown in Fig. 1.

Trials

Test trials carried by other magazines using the so-called 'contour' method of plotting signal levels at points around expanding circle distances give no true indication of performance since ground height and general environment are not taken into account. This is something I hope to illustrate later in a special article dealing with signal attenuation versus distance on 27MHz. The effect of the height of the ground above sea level is clearly illustrated in the signal strength versus distance readout taken over a single straight course and with the Oscar antenna operating mobile. The wavering curve (A) is the chart recorded variation in signal mainly consistent with the ground height ASL (curve C) over the distance shown. Some of the variations are due to built-up area, wooded area and overhead wires along the roadside, etc. This illustrates that one could easily be led into thinking that the S6 signal at seven miles

of 10^{-13} EMU and with a permittivity of 4. The general formula for ground-wave attenuation over distance is

$$E = \frac{E_0 A}{d}$$

where E is the received field strength, E_0 the unattenuated field strength at unit distance and A the attenuation factor. But here we go beyond the realms of practical evaluation. To return to the SMC Oscar 11SE mobile antenna, the design is such that

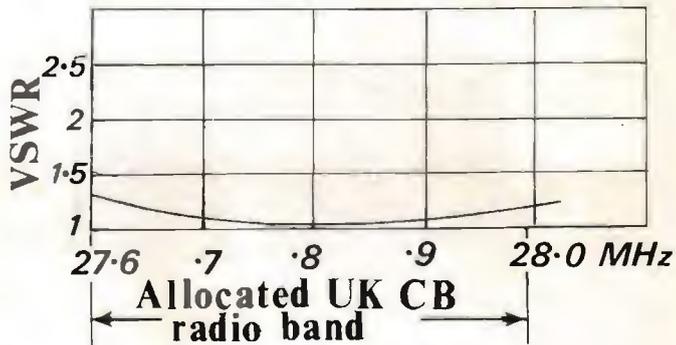


Fig. 1. VSWR readout from the Oscar 11SE antenna when tuned to resonance.

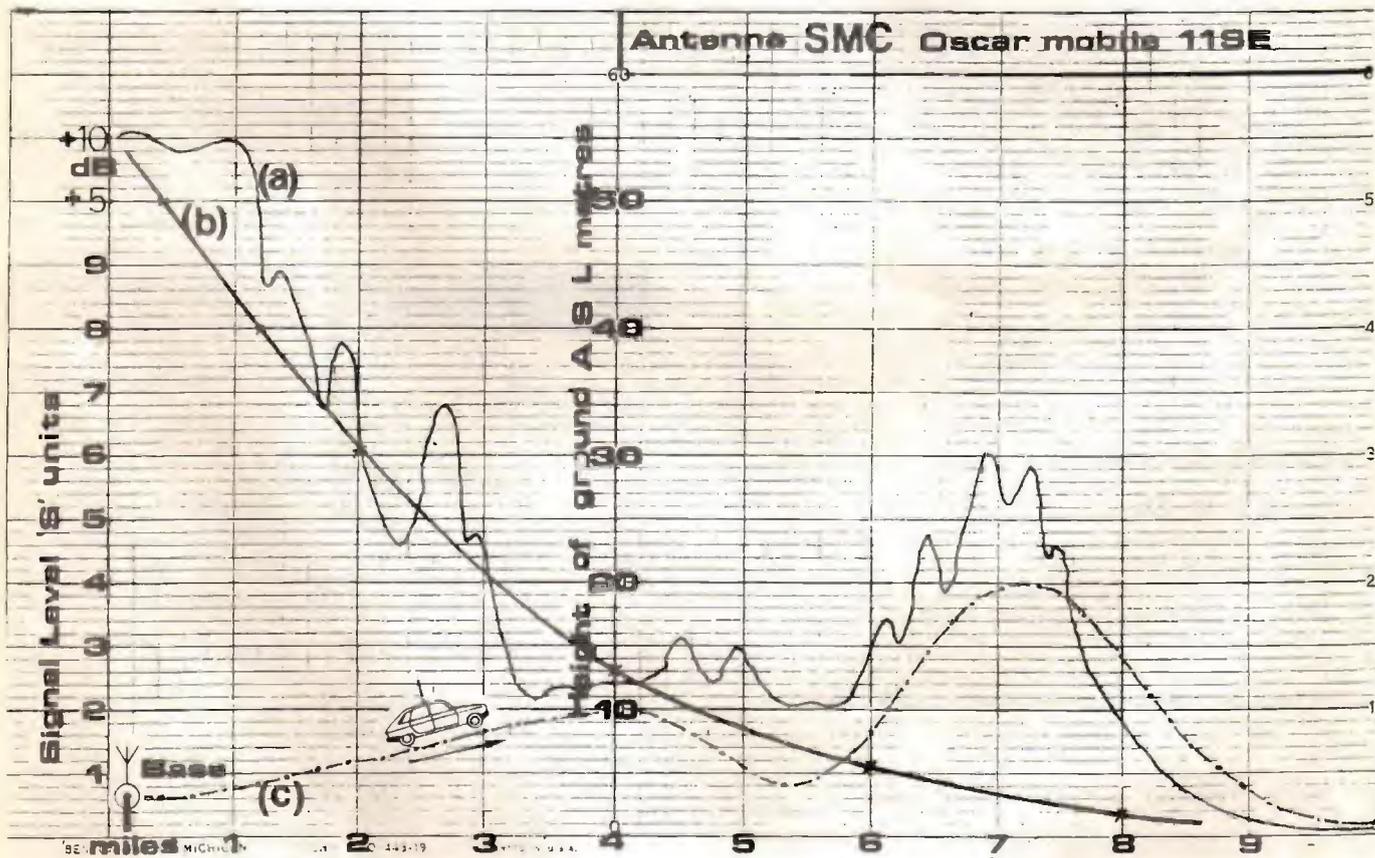


Fig. 2. (Curve A) Pen chart of signal strength over straight course and showing variations with height of ground above sea level (Curve C). (Curve B) Integrated attenuation v distance readout over level ground of good conductivity.

represented a good performance. This is only so by virtue of high ground. The integrated signal level versus distance and which is a much more accurate analysis of performance is shown by the curve (B). Ground waves in the region of 27MHz always follow this exponential rate of attenuation as distance is increased over a ground path that is perfectly flat and where the ground conductivity is in the region

it fully complies with the Home Office CB radio requirements and everything possible seems to have been done to make this antenna as efficient as the HO restrictions will allow. For optimum results such an antenna should be roof mounted. At a recommended retail price of £12.25 it represents good value. More SMC mobile antennas will be dealt with in a special feature, 'Mobile to Mobile,' coming shortly.

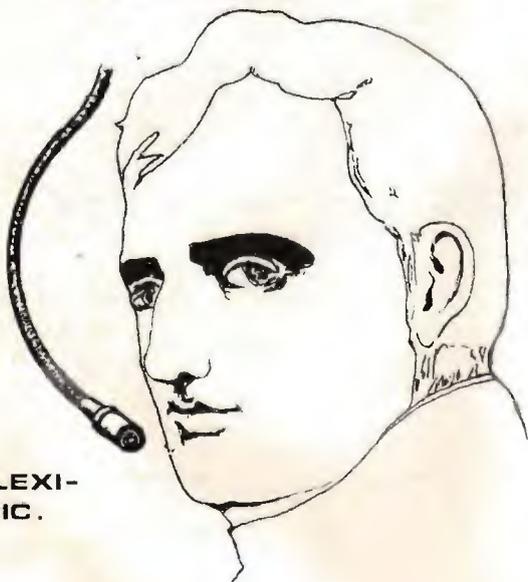
Further details of the Oscar 11SE and other SMC CB antennas available from South Midlands Communications Ltd., SM House, Osborne Road, Totton, Southampton, Hants. SO4 4DN.



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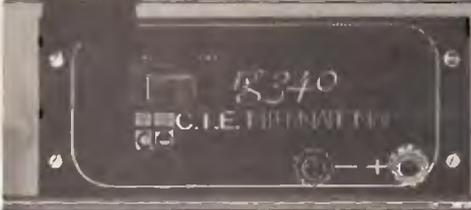
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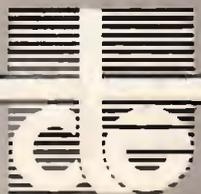
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| SHUTTLE 27 AERIAL | £21.00 | BOOMERANG AERIAL | £9.00 |
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Rig Test

Maxcom MX-21E

The Maxcom 21E is identical to the Maxcom 20E except for a slight variance in cosmetic detail. The 21E is finished in brushed aluminium and the 20E is finished in black. It is, therefore, safe to say that, technically, the two models will show the same performance characteristics.

Maxon in Korea, where these sets come from, is one of the world's major transceiver manufacturers under their own name - Maxcom - and various other trade names.

Microphone

The microphone supplied with the MX-21E is oblong in shape and comfortable to hold. Unfortunately, the construction of it is very flimsy and not of rigid construction but if treated carefully should last a long time. For connection to the rig it uses a five-pin din plug instead of the superior screwing lockable four-pin plug. It was found to come adrift a few times while being used in mobile conditions.

Construction

The construction of this rig is of a standard two-piece (top and bottom) system but unlike most rigs it is made of a hard-wearing plastic. This was found to cause a few RF problems as the rig radiated a local RF field around the rig. It was also possible to receive

a local station without an antenna connected.

The front panel is a silver plastic moulding with simulated aluminium finish. The controls on the front panel are as follows: on/off volume knob, squelch knob, channel change knob, channel 9 selector switch and 10dB selector switch, channel indicator and signal strength/power bar graph indicator, which lights up red. The rig comes in very good packaging with mobile mounting accessories and a very comprehensive operator/workshop manual.

The size of the rig (6¼ x 4¼ x 1¼in.) makes the internal construction very cramped and certain components were found to be assembled in very precarious positions. The only other problem is that if the black mobile mounting screws are screwed to the rig without the mobile bracket and rubber washer, the screws shorted out a resistor in the VCO unit. Make sure that the screws are never inserted without the bracket and washer.

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 rig conforms to Home Office specification MPT 1320 and also gives the user of the rig sufficient power output for normal use over a reasonable variation of power supply voltage in both high and low settings.

Power Output and Attenuation			
Amer.	10.8v	13.8v	14.8v
High	2.4W	4.3W	5.0W
Low	0.1W	0.4W	0.6W

It can be seen from the test results that the output power at nominal and high voltage exceeds the power specified in MPT 1320. Although these readings are high, it does not mean that all sets are at fault, as only one has been tested.

Temperature stability

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

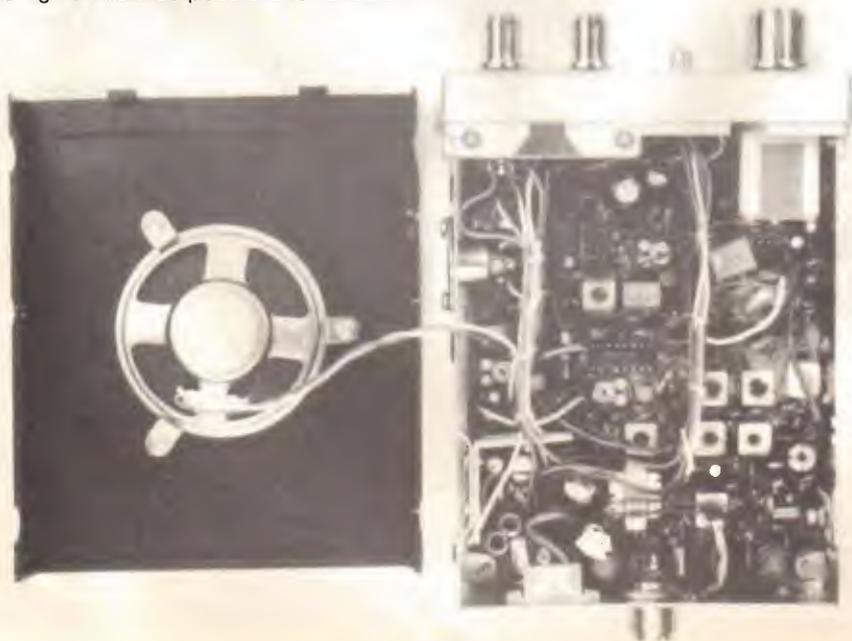
Temp. Should	Temperature stability		
	CH1	CH2	CH3
br	27.901250	27.791250	27.961250
48°F	27.901220	27.791230	27.961220
68°F	27.901240	27.791250	27.961260

The temperature stability of this rig was found to be very good. The frequency only drifted a maximum of 30Hz on channel 1 and 40Hz on channel 40. These results are better than expected considering how compact this rig is.

Modulation

This test is to check the ability of the rig's modulation circuit to give a good modulation level over a varying range

Input level	Modulation		
	500Hz	1153Hz	2500Hz
0.5mV	0.1kHz	0.1kHz	0.2kHz
2.5mV	0.2kHz	0.5kHz	0.5kHz
5.0mV	0.5kHz	1.0kHz	1.0kHz
25mV	1.4kHz	1.0kHz	1.0kHz
50mV	1.5kHz	1.0kHz	1.5kHz
250mV	2.5kHz	2.0kHz	1.5kHz



maxcom - 20E MX-21E

of different input levels and frequencies.

With the above results we found the modulation response tended to be slightly bassy and low in deviation as a maximum that can be achieved whilst using a normal microphone was 1.9 deviation. Although when driven with 250 millivolts maximum permissible deviation is achieved. From this we can say that this rig would benefit from having a power microphone fitted.

Receiver tests

Audio output

To do this test the loud speaker was replaced by a Marconi TF 893 AF power meter with a Marconi TF 2337 distortion factor meter connected across it.

Measured Distortion	
1 watt	2.2% distortion
1.5 watts	2.3% distortion
2 watts	6% distortion
3 watts	25% distortion

The results of these tests are average and reflect the results of the majority of rigs we have tested.

NB. We are still waiting to find a rig which gives us an audio output with distortion level between 1% and maximum 10% output.

Squelch level

On the rig under test the usable range of the squelch control was found to be .19 microvolts threshold and .8 microvolts fully muted. Difficulty was experienced in squelching out skip and channel noise in highly-populated areas.

Receiver sensitivity

This test is done to check the ability of the rig to pull in weak or distant stations.

Sensitivity	
10dB quieting	0.25uV
20dB quieting	0.41uV
30dB quieting	1.30uV

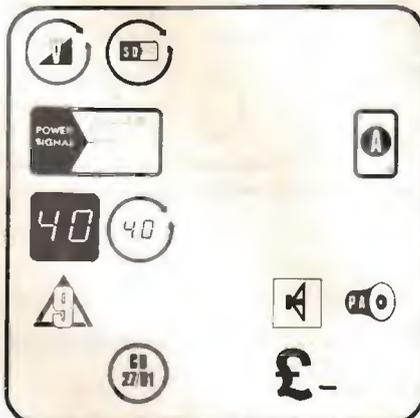
From the results of these tests we can see that this rig is sensitive and the results show that it has a very good ability to receive weak signals.

AM rejection

The AM rejection of this set was found to be below average as it was measured at only 30dB but it should not affect the operation of the set unless the user lives near a high level source of AM interference, i.e., neon shop signs, etc.

Adjacent channel rejection

This test is done to check the set's ability to reject interference from a strong station one channel away from the channel the rig is tuned to. The result of 300 microvolts for 3dB degradation is well above average. It has been mentioned that these tests do not show up bleedover problems, so we have now included in the tests two extra tests to check specifically for dense and bleedover. We do this by keeping the rig tuned to channel 20 and injecting a signal onto channel 1 or 40 and noting what level needs to



be injected to degrade the receive signal by 3dB. The higher the resultant figure, the less chance you have of suffering from dense or bleedover. As these are the first results we have taken, we cannot as yet make any comparison until more rigs have been tested.

S meter reading

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

S meter Reading	
1	22uV
3	12uV
5	6uV
7	180uV
9	370uV

SPECIFICATIONS

TRANSMITTER SECTION	
POWER OUTPUT	4 Watt Max (10dB Hi Lo Power Switch Provided)
EMISSION	Frequency Modulation
SPIRIOUS RESPONSE LIMIT	0.25uW MAX
MODULATION	FM, Deviation 2KHz MAX
RECEIVER SECTION	
CIRCUIT TYPE	Crystal controlled PLL
FREQUENCY	40 channels - 27.60175MHz Thru 27.99125MHz, 10KHz spacing
SENSITIVITY	Less than 1uV for 20dB (S+N)/N
SQUELCH RANGE	0-20uV
SELECTIVITY	60dB down at ± 10KHz
IF FREQUENCY	1st IF: 10.695MHz 2nd IF: 455KHz
IMAGE REJECTION	60dB typical
AUDIO OUTPUT	3.5W maximum at 8 ohm load
CURRENT DRAIN	250mA on stand by (no signal)
CURRENT DRAIN (MAXIMUM)	Less than 1.5A
ANTENNA	Nominal 8.0 ohms impedance
POWER SOURCE	Operates from nominal 13.2 volts DC, negative ground system
DIMENSIONS (OVERALL)	4.8(W) x 8.3(D) x 1.7(H) inches
WEIGHT	2.3 lbs

These test results are average and give a good indication for reference purposes.

Summary

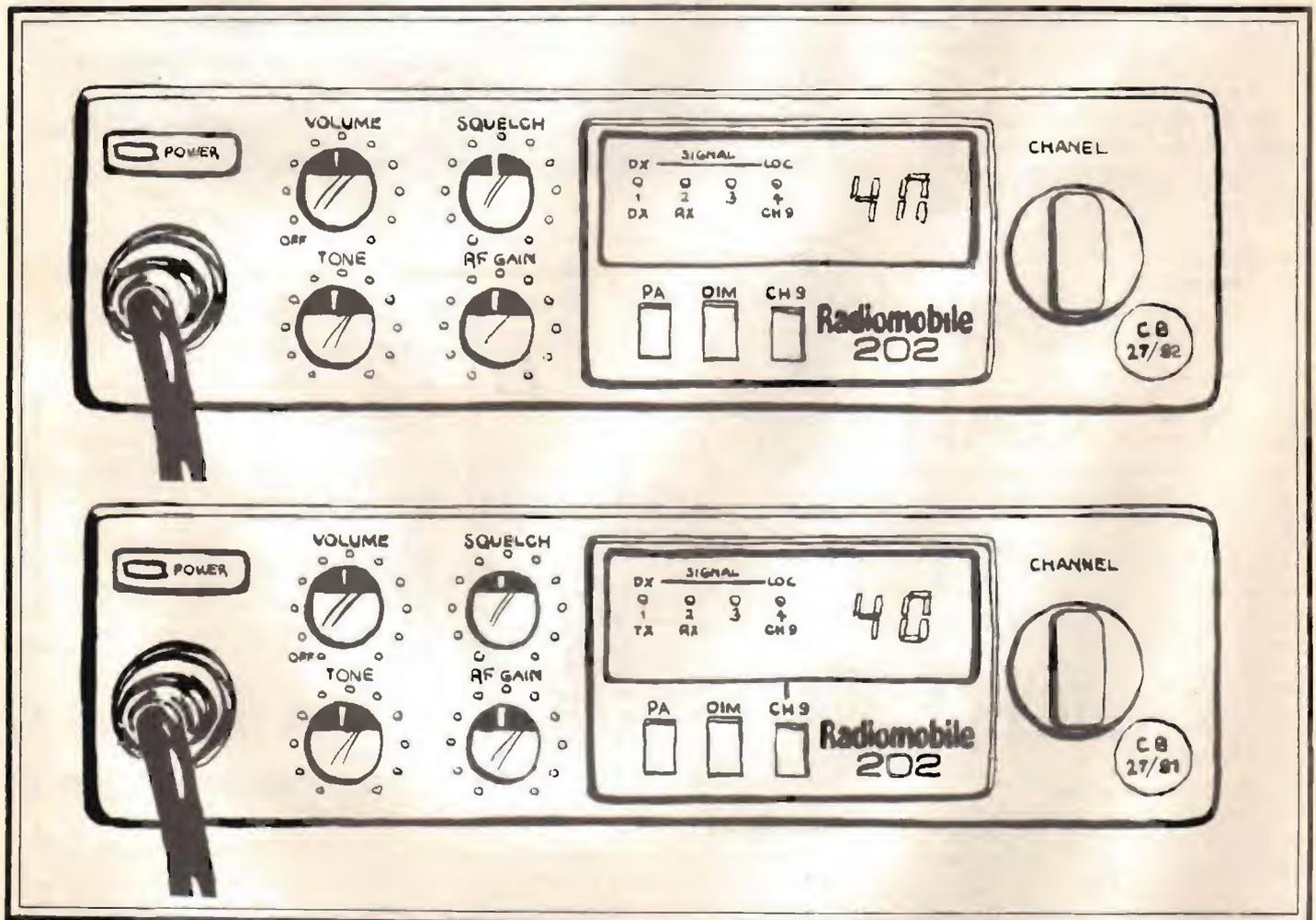
This rig is very attractive and compact, in the low price bracket and worth considering when buying an inexpensive rig. The main problems seem to be the microphone supplied with rig but, as mentioned, with careful use this can be overcome. They seem to sell between £35-£45 which makes it a very good buy for the money. Unlike most rigs, the power transistors and audio IC are held with metal screws so there is no problem with overheating.

SPOT THE DIFFERENCE AND WIN 2 SEL. CALL RIGS

The two pictures of the Radiomobile 202 rig are identical apart from 10 very minor differences. If you can locate these differences, ring them and either photocopy or tear out this page and send it (don't forget your name and address) to CB Radio Magazine, Tudor Works, Beaconsfield Road, Hayes, Middlesex UB4 0FL. Clearly mark the envelope Sel. Call Comp. All entries must be received no later than 15 October, 1982. The

winning entry will be drawn on 20 October and the winner notified.

The two rigs which we are giving away have been fitted with Cat Call selective calling units, giving you all the advantages of the phone without having to pay the bill. The Cat Call units were donated and fitted by Catswhisker's CB of Reading, who manufacture and distribute this particular unit.



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All our sets are legally imported, legal to own, duty and VAT paid, prices include postage, packing and insurance. NB – it is illegal to operate a rig that does not conform to MTP 1320 without a licence.



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OVER THE COUNTER

Add - on accessories

This month's Over the Counter concentrates on all those odd accessories that give you the edge on performance or add a bit more fun. Most of them are not that expensive so in these financially difficult days you can still afford to improve performance without buying a new rig.

Just one cautious note. If you are intending to stay 100% legal with your rig, remember that the licence says "all transmissions, other than selective calling or digital transmissions designed solely to identify the transmitter, shall be in plain speech only". That unfortunately means that some of the more fun items aren't strictly legal!

Low cost DMM's

Three new LCD digital multi-meters have been announced by Semiconductor Supplies Ltd., from Sutton, Surrey. These compact, rugged units with 3½-digit LCD readouts have carrying cases and probes and are guaranteed for one year. Prices range from £23.10 to £36.05 (excluding VAT).

Top-of-the-range model KD-55C has 28 measuring ranges including 10 amps dc and ac and has a foldaway stand for bench use. The display includes polarity, over range, low battery and overload indicators. Automatic zeroing is featured on all ranges.



V-Tronix APM

V-Tronix, from Poole, in Dorset, has developed an Automatic Performance Monitor specifically designed with CB in mind. This smartly-designed instrument will continuously monitor the performance of the rig and antenna system. The instrument not only measures the power developed by the transmitter and rejected by the antenna but also how much is available for use by the antenna. Until now such instruments have only been

available to the professional engineer but the V-Tronix APM is priced within reach of the average breaker.

Instead of using delicate meters, the APM employs a rugged LED Bargraph readout. Easy to read in the dark, accurate readout is ensured by the use of microprocessor circuitry. The case is constructed from corrosion-resistant aluminium that has been electro-chemically anodised for a tough but attractive finish.



Built it yourself

Phonosonics of Sidcup have a range of D.I.Y kits which include full instructions and the range is being updated month by month.

The more technical items include a multiplexer, which splits the microphone signal for feeding various extras, a speech processor, power supply, voice filter for limiting the frequency bandwidth and reducing background noise and a VOX switch for 'releasing your hands'.

Amongst the fun kits are a funny talker which adds a metallic quality to the voice, a musical call sign for programming an individual 8 note call sign, a Roger Two gong, a reverb unit for 'out of this world' effects and the good old Roger Bleep.

The kits range in price from £10.07 to £20.39.

A new electronics company formed in Hemel Hempstead is now taking orders for its Tripl-Ess speech processors. The two units have identical circuitry consisting of two-stage amplifiers and three-frequency filters, to ensure that the transmitted signal achieves maximum clarity. The MSP-1 is intended for mobile use and the controls are, therefore, minimal. On the front panel is an on/off switch with LED indicator, standard four-pin mic socket and a rotary volume control. Tone is adjustable from inside the unit. The HSP-1 is slightly longer with the inclusion of a rotary tone control on the front panel. Retail prices are £26.50 and £28.95 respectively.

FM Superkrunch

The FM Superkrunch has been designed with the intention of eliminating noise between transmissions peculiar to the FM system. The Superkrunch uses the latest microchip technology to monitor the audio output of the transceiver for background noise and then eliminates it. The result is the virtual elimination of hiss between signals and the redundancy of the squelch control. The British-built unit connects between the extension speaker socket on the transceiver and the extension speaker or headphones. Full instructions are supplied.



The AKD Blackline Range

Armstrong Kirkwood Developments have introduced a range of electronic accessories, all with a two year guarantee. The seven accessories all comprise of miniature circuitry within copper and aluminium tubing and finished in a tough, heat shrink casing.

The range includes an RF switched attenuator to prevent bleedover, costing £14.37, a signal booster that increases received signal strength, also costing £14.37, a car radio/FM Booster that fits between the car aerial and radio and enhances mono and stereo reception and a braid breaker which helps suppress radio interference borne down the coax braid.

The other three items in the range are filters; a high pass filter/braid breaker, a high pass filter with tuned notch and a notch filter. The prices are respectively £6.32, £7.25 and £7.50.

AKD are a British Telecom contractor and therefore make equipment to a very high technical standard.



Zenith Electronics

Based in East Sussex, Zenith Electronics is a British-based company specializing in the development of electronic equipment for the audio and instrumentation fields. Their most recent development, currently being marketed, is the P-202 speech processor which has been specifically designed for use with communications equipment, with the intention of dramatically improving the intelligibility of a voice signal whilst at the same time allowing the range to be increased for long-distance copy.

The P-202 provides an increase in signal output level and reduces the dynamic range of the signal - an essential feature in applications where a consistent high level output is required from a signal which varies in amplitude. The added 'talk power' of the P-202 speech processor can make the difference between a signal which is readable and one which is barely audible.

Also incorporated in the P-202 is an 'active' limiter circuit which is intended for use at the discretion of the user. The problems with distortion normally encountered with this type of circuit

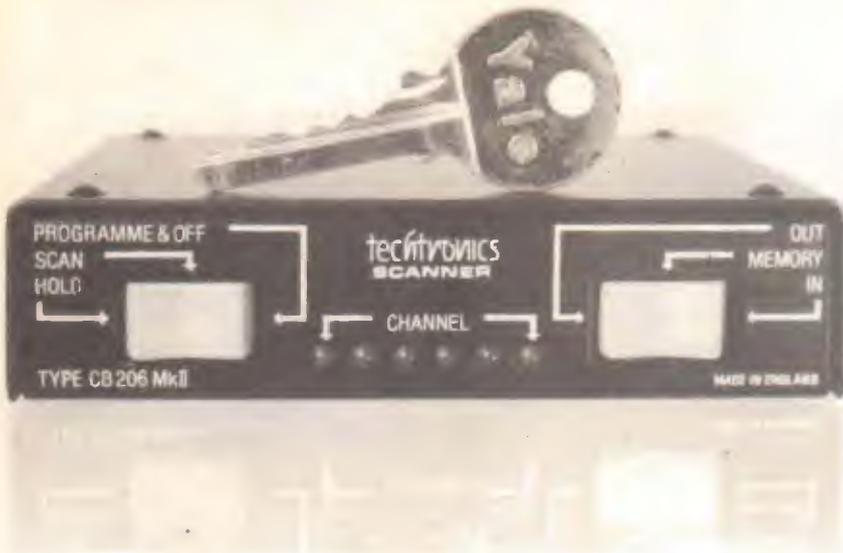


have been overcome to an acceptable degree with the Zenith.

Techtronics 206 Scanner

Techtronics Merseyside Ltd. has introduced a new scanner, the CB 206. The compact unit is designed to scan a predetermined selection of channels until it finds one that is being used. These channels are programmed via a 'lock-in' 'lock-out' type memory circuit and indicated by six red LED's on the front panel. Also on the front panel are two rocker switches, the left-hand switch has three positions: Hold, Scan and Programme (this position also switches the unit off). The right-hand switch operates the memory.

The CB 206 can operate on either AM or FM equipment and will automatically lock on to an active channel until it clears. A built-in delay allows up to four seconds of silence before scanning is resumed. Channel hold allows full-time monitoring of any single channel even during periods of silence. Normal CB operation is resumed when the CB 206 is switched off. The unit comes complete with full installation and operation instructions and retails at £34.95.



Delta Mic-Vox

Sight & Sound Electronics Ltd. is a British company based on the south coast and has for many years been engaged in the design and development of a wide range of electro/mechanical and electronic products for industrial and domestic markets. Its most recent development, however, is the Delta Mic-Vox.

The Mic-Vox enables the user to key the transceiver without the need to press the PTT switch on the microphone. The transceiver is actuated from RX-TX by speech as the message is relayed. A time delay is built in to allow for hesitation during transmission and a sensitivity control is provided to exclude reaction to background noise. The Mic-Vox is a compact, elegantly-designed unit finished in black satin steel.



Emu Systems have developed a high-quality sel. call device which can transmit and receive on two different codes, giving greater flexibility when more than two units are used. The receive code is programmed internally and the transmit code selected by three switches on the front panel. The unit also features a message-received light, indicating a call has been received in the user's absence.

The transmit period is particularly short: 100ms (= one-tenth of a second). This minimizes the possibility of another person transmitting over the code.

EMU SYSTEMS



Tripl-Ess speech processors

A new electronics company formed in Hemel Hempstead by breakers is now taking orders for its Tripl-Ess speech processors. The two units have identical circuitry consisting of two-stage amplifiers and three-fre-

quency filters, to ensure that the transmitted signal achieves maximum clarity. The MSP-1 is intended for mobile use and the controls are, therefore, minimal. On the front panel is an on/off switch with LED indicator, standard four-pin mic socket and a

rotary volume control. Tone is adjustable from inside the unit. The HSP-1 is slightly longer with the inclusion of a rotary tone control on the front panel. Retail prices are £26.50 and £28.95 respectively,

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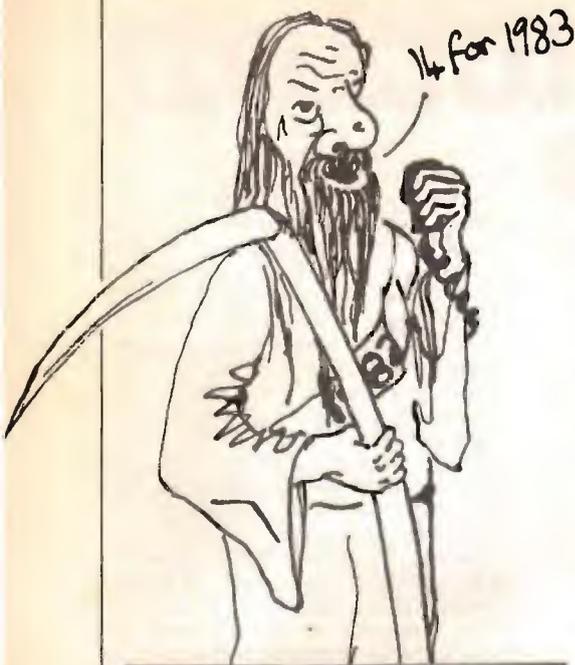
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An Introduction

m a t e u r a d i o



Getting a licence

Britain, like all other countries, insists that amateur radio operators pass an examination to demonstrate their technical competence before they are licenced. The British authorities, supported by bodies like the RSGB (Radio Society of Great Britain) do this "to ensure that operators have sufficient technical background to design, build, maintain and operate their equipment to high standards with minimum risk of interference to other radio services".

There are, of course, differing opinions on the necessity and standard of the examination. There is a school of thought that considers the exam outdated, particularly with recent technological developments but in direct opposition are those who consider that amateur radio has its own brand of wallies and a stringent (perhaps even more difficult) exam filters out the worst of them. In the middle are probably the majority who regard it as a necessary chore that has to be got through to achieve their ambition.

This argument aside, the exam has to be taken and passed. More on this later. What other conditions need to be fulfilled before a licence can be granted? The Home Office issues a booklet called 'How To Become A Radio Amateur' which lays out the conditions but basically they are:

- a) You must be over 14 years of age (there are no other restrictions covering age, sex or ethnic origin).
- b) You must be a British subject.
- c) You must pass the relevant examinations for the licence you require.
- d) You must pay the required licence fee - currently £8.00.

There are two forms of amateur licence available. Class A licence requires a pass in the City and Guilds

technical examination and a pass in the Post Office Morse test, which requires a standard of 36 words in three minutes without uncorrected error, not more than four corrections being permitted and 10 five-figure groups in 1½ minutes without uncorrected error, not more than two corrections being permitted. (The Morse examination costs a further £8.00).

On passing the Class A licence, the operator can use any of the available amateur bands. Call signs are issued to indicate the type of operator, e.g., G4ABC, G designating England, 4 a Class A operator and ABC the individual operator.

Class B licences require a pass in the examination but no Morse test is required. However, the operator is restricted to frequencies above 144MHz and cannot use Morse. Call signs are allocated which also indicate the type of licence held, e.g., G6ABC, where 6 denotes a B licence.

The Radio Amateur Examination is held twice a year and special arrangements can be made for disabled candidates.

The exam itself

The RAE covers the elementary theory of radio communication, knowledge of transmitting techniques and of operating procedures appropriate to an amateur. (The Home Office booklet has more specific details of the syllabus and sample papers can be obtained from the City and Guilds of London Institute).

We have reproduced some sample questions to show the standard required for the exam. As mentioned earlier, opinions differ on the exam but it's fair to say that whilst it isn't easy, it shouldn't be beyond the average per-

son who is interested enough to work towards a pass. People already having training or a great interest in electronics will probably find they only need to brush up on things like operating procedures but there are plenty of night-school classes run by experienced amateurs for the beginner. The RSGB will be able to tell you of classes in your area. There are also correspondence courses available although most would-be amateurs enjoy learning with people in a similar position rather than on their own.

Classes also usually include Morse if required and the RSGB transmits special Morse broadcasts of varying standards for 'students' to receive. Most amateurs say success in Morse is a matter of constant practice rather than Morse itself being difficult.

There are quite severe limitations for the operator to follow once he has his licence. These restrictions cover the location of radio equipment, who it can be operated by and the content of the actual transmission and, of course, power. Amateur radio users also have to be able to ensure they do not cause interference to other users (particularly radio and television).

All operators are required to keep a log book and all transmissions and receptions have to be logged with details of time and call signs of the operators involved.

Frequencies

The frequencies now available for amateur radio use have been extended considerably from the early days when amateurs were restricted to below 200 metres, as these frequencies were regarded as commercially unworkable. The wide range of frequencies also means that many different modes of communication are available. As well as the common voice or Morse communications, amateurs can also use on the appropriate bands television and teleprinter and some frequencies have allocations on the amateur satellite service.

For radio amateurs visiting other countries, most foreign authorities will accept the British licence as sufficient for operating in their own country.

Novice licences

There has been a campaign for many years to push for the introduction of a novice licence - in fact, the first reference in the Government reports in Hansard was in 1968. It has been a rather controversial issue as there are, as in all new ideas, pros and cons. Some are worried that the technical standards will drop and people with insufficient knowledge will be "messing with things they don't understand". Unfortunately, there are also a few rather narrow-minded operators

who think that since they had to do the full exam, why should others be able to operate, albeit on a limited scale, without doing the same amount of work.

In its favour, it could well increase interest and the numbers of radio amateurs. Many people are put off by the apparent difficulty of the RAE and easier conditions might encourage those who would otherwise hesitate.

Suggestions for the novice licence include:

- a) A low-speed Morse test.
- b) Restrictions on power.

c) The first part of the RAE, covering licence conditions and transmitter interference.

- d) Restricted frequencies.
- e) Morse transmissions only.

Although the Government has actively considered a novice licence, it is in abeyance at the moment because of the usual reasons: staffing levels, the delay in computerizing records, etc. However, without a concerted campaign by interested parties and the RSGB, it is likely to remain a dead duck.

SS

Ionization in the ionosphere is caused primarily by the:

- a) Magnetic effect of the earth.
- b) Magnetic effect of the sun.
- c) Ultraviolet and other radiation from the sun.
- d) Rotation of the moon.

The best method of eliminating TV set front-end overload caused by a 160 metre amateur transmitter is to:

- a) Use a high-pass filter on the TV receiver.
- b) Use a low-pass filter on the transmitter.
- c) Install a wave-trap in the TV set's feedline.
- d) Install sound bars on the TV set.

The third harmonic of a signal having a fundamental frequency of 7,000kHz is:

- a) 2,333kHz
- b) 16,333kHz
- c) 21,000kHz
- d) 28,000kHz

An amplifier has an input power of 1 milliwatt and an output power of 1 watt. What is the stage gain in decibels?

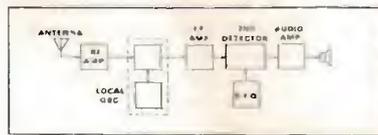
- a) 10dB
- b) 20dB

- c) 30dB
- d) 100dB

For a frequency modulated transmitter to have a modulation index of 5 when the highest modulating audio frequency is 15kHz, the peak deviation in kilohertz would have to be:

- a) 3
- b) 40
- c) 75
- d) 150

The block that is not identified in the following diagram is the:



- a) beat frequency oscillator.
- b) second oscillator.
- c) limiter.
- d) mixer.

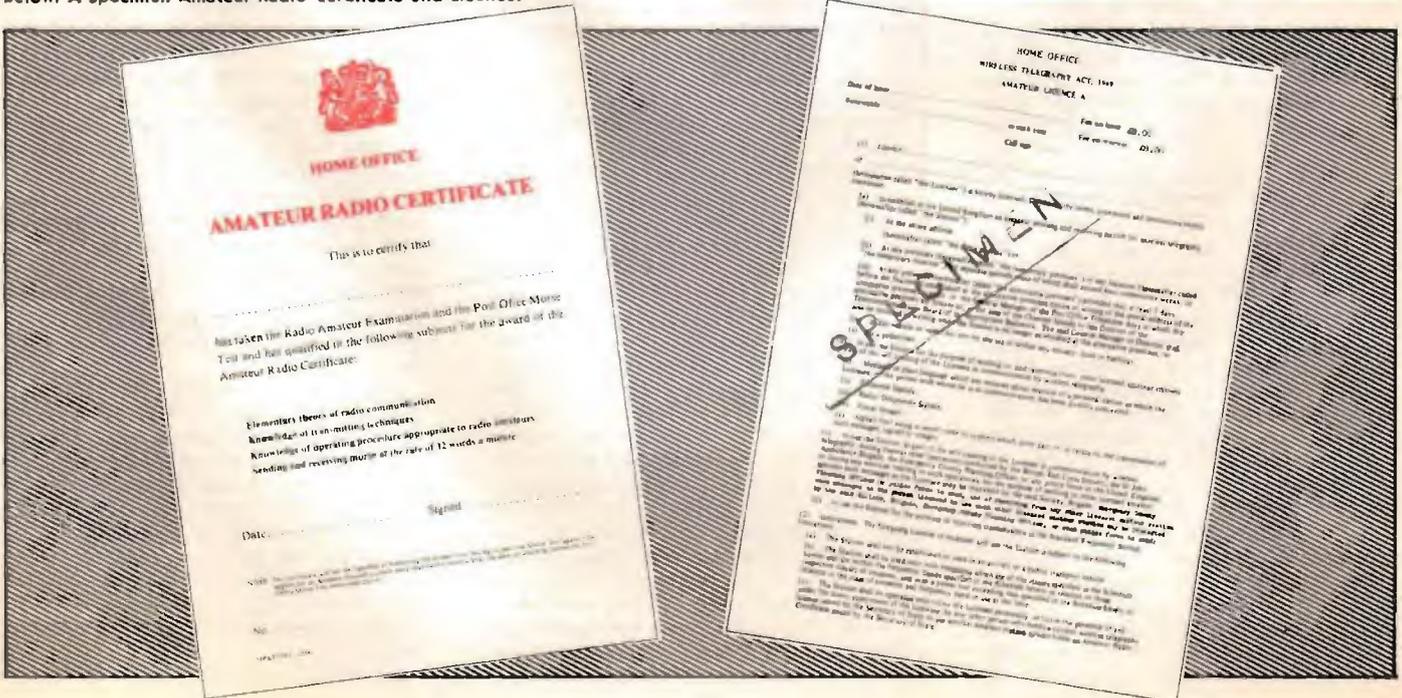
1.81 —	1.85
1.85 —	2.0
3.5 —	3.8
7.0 —	7.1
10.1 —	10.15
14.0 —	14.25
14.25 —	14.35
21.0 —	21.45
28.0 —	29.7
70.025 —	70.5
144.0 —	146.0
430.0 —	432.0
432.0 —	435.0
435.0 —	438.0
438.0 —	440.0
1240.0 —	1260.0
1260.0 —	1270.0
1270.0 —	1325.0
2300.0 —	2400.0
2400.0 —	2450.0
3400.0 —	3475.0
5650.0 —	5670.0
5670.0 —	5680.0
5755.0 —	5765.0
5820.0 —	5830.0
5830.0 —	5850.0
10,000 —	10,450
10,450 —	10,500
24,000 —	24,050
24,050 —	24,250
2350.0 —	2400.0
10,050 —	10,450
5755.0 —	5765.0
5820.0 —	5850.0

FREQUENCY BANDS IN MHz

Above. Sample questions from the City and Guilds RAE.

Right. The frequencies available to licensed radio amateurs. There are operating restrictions on many of these frequencies.

Below. A specimen Amateur Radio Certificate and Licence.



Readers Write



Dear Sir,

The August issue of CB Radio carried a letter of mine in its leading article with suitable comment added by SS under the heading 'Do We Deserve More?' I found the total result rather thought provoking and having sat back to consider the full implications have figured out that even if officialdom does not want CB to fail, it surely will if things carry on as they are.

It is with malice aforethought that I ignore 'buckets' and 'wallies'. Really they are what the good CB Bible says they are, 'foul mouthed idiots'. Short of passing laws which would be largely unenforceable anyway, there is little we can do about them without transgressing ourselves. So I guess we have to let them be and ignore them, otherwise we will be in danger of sinking to their level.

Ok, I have said my piece on that subject, so now let's be positive and have a look at what can be done to improve the chaotic situation in which urban breakers especially find themselves.

Without getting too technical we have to continue to press for more channels with all the persuasive powers at our disposal. Bearing in mind the limitations placed upon us our priority has to be to demonstrate that we are making the best use of what we have got and it simply isn't enough.

This means that all of us with an interest in CB have a part to play. Breakers must approach the use of their rigs with due regard to others and its limitations. At the same time they must not be afraid to spread their experiences around if they think they have discovered a new use, especially if it will be of real benefit to others. Having said that I agree with SS who added the rider to the effect that when all is said and done, it should still be fun.

The other side of the coin is the manufacturer. It would seem that most, not all of them, are afraid to improve the breed. I presume the main reason is that because of the intense price war they are reluctant to add anything to the production costs that would put them even at a few pence disadvantage with the competition. This is an attitude taken by the motor manufacturers in the decades following the Second World War when vehicles were very basic. The result was that owners soon wanted to make their rather drab motors brighter and added all kinds of extras. The problem was one of compatibility and it was found that many of these accessories were badly fitted, some didn't do the job effectively and worse many were downright dangerous.

It would seem we have a similar situation with CB in the UK. I maintain that many of these extras should be included in the rigs on the production line, but certainly a degree of standardisation among the manufacturers would make life easier for all. There is nothing technically against this and I will not accept the argument that it would put up costs, increased production that would follow naturally an improved product would take care of that side. Standardisation should bring in its wake simplicity which in its turn will mean reliability.

I am not saying that these are the only two approaches, but even if they were they alone would serve two purposes with which none of us would argue. They would certainly go a long way towards improving what we have got and also give more power to our arguments concerning the need for more channels as we could demonstrate properly that having made the best of what we have it still isn't enough! We must be able to show that even by using our restricted airspace properly it inhibits our ability to make a real service to the community. This is the most powerful argument we can have, so let's not ruin it by lack of thought and rank stupidity.

Broken Spring
Bracknell

Dear Sirs,

Further to the comments of one K. Bradford (August '82 Readers Write) I thought perhaps I'd better put him right on one or two points, as obviously he is too preoccupied with AM to recognise the legal FM system as being a more than compatible substitute for what we all wanted - 27MHz AM, FM, SSB.

1. As far as I am concerned having operated AM, FM and sideband since Spring '81', AM is now just about as dead as I've known it.

Mr Bradford goes on about AM being used on the continent, surely if there were sufficient traffic on AM in this country, he would not be able to hear so much of Europe? In my opinion AM is probably never to be legalised and as such should be left to the truckers who cause nobody any interference, and inevitable wallies who reckon they rule the world as soon as they get their hands on a 'big rig'. As for Sideband, the 'old-regulars' are still to be found, but even here we are faced with the problem of indiscriminate use, as discontented FM breakers turn to sideband and spend all day DX'ing on channel 68 USB (same frequency \pm 3-75 Kc/s as 14 legal FM!) In my area at least, the sideband community (particularly the members of the Tango Bravo DX group) seems to be a responsible bunch, keeping

their illegal activities to the early hours of the morning when FM is probably at its quietest and noTVI, hi-fi bleedover etc. can be given; so as far as I am concerned they can carry on quite merrily, but when they start to bleed over my *legal, licensed system*, then that is where I would have to draw the line.

2. As far as AM causing more interference, the very fact that AM rigs in general are of an inferior design to the legal rigs, means that more interference is bound to result. After about two weeks modulating on AM I had complaints from practically the whole neighbourhood, yet in eight months of legal FM, not a whisper!

3. Perhaps Mr. Bradford's advice on plugging in the antenna, or coming out of the mine shaft, could apply to him whilst using FM? Perhaps he chooses to feed his coax into wet string or a coat hanger, instead of an antenna?

If I started talking about twenty-mile copies on FM, down here I would be laughed off the air.

From my home 20 regular copies of around 60 miles from Portland Bill are easily obtainable with, I might add, a legal antenna. An 'S' reading of 7 on Dartmoor can be obtained from the Channel Islands initially every day. We get Scottish and other Northern Breakers coming across down here as well by the way!

4. I must agree totally with Mr. Bradford as far as filtering goes, but bleedover does seem to be more frequent on older equipment?

5. I would consider FM to be a superior system to AM, though not sideband. As far as FM having superior operators, no way. The situation down here is such that the wallies are fast destroying the morale of the other, more human-like breakers. Mike-keying, modulating for long periods on the 14, and music playing on the 14, as well as widespread bucket-mouthing are all too common everyday events here, and as such little protest is ever given, we're used to it. Such problems have escalated to such an extent that the local monitoring station, Station Delta Torbay, have gone to the lengths of placing appeals in a local newspaper for it to stop.

The way I see it, FM's here to stay, and when all the wallies have gone and sold their rigs to buy a skateboard the responsible breakers amongst us will be there to use the system as it was first intended to be used.

6. Why Mr. Bradford only uses 2 or 1/2 watts on AM is beyond me, perhaps because he finds that he causes TVI? Buy an FM rig good buddy and you'll find you get a lot less 'bovver' with the neighbours!

7. Finally, I could run rings round Mr.

AKD

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Readers Write



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Yours faithfully,

Matt Sanders
alias Thunderbird
TB05 Devon.

Dear Sir,

I wish by medium of this letter, to add my thanks to G.F. Wilson E.I. 909 (July Issue), for putting pen to paper, and putting forward his views (and mine) and I suspect the views of many others, who have experienced the joys of operating other modes of CB other than the legal FM. In my humble opinion your magazine would seem to be slowly becoming just another FM CB publication, with less and less informative articles on the other modes of operation of our hobby. If you would fall foul of the law, by bringing more articles of wider scope, why not state this in the heading on your live letters column, this would then save readers like myself, hoping upon hope that you will be widening your horizons to cover all aspects of CB. Granted you do give some support (two pages) to the DX scene, but this seems only to be a nodding acknowledgement to the existence of the AM and SSB scene (from which you will remember the legal FM was born).

In July's issue I counted about 34 photo's of FM rigs, but no AM or SSB ones. I know some were the same rigs photo'ed more than once. But I am sure you would agree that this has the faint scent of bias (or downright stink according to your views) against the other modes. If comment on AM, SSB operation does put you foul of the law, why not for example print a photo without your comments, of some of the equipment used by operators, other than £10 licence holders, to name a few examples Superstar, Multimode, Presidents, Cobra's, Belcom LS102, Sommerkamp, Drake, Yaesu. The list is not endless, but it does have the possibility of outnumbering the FM rigs, of which a lot seem to be different fronted Cybernet boards. If the future does hold plans for broadening your horizons, may I be so bold as to suggest you do it before Autumn sets in because by the first anniversary of legal FM, you would have become the knight in shining armour for FM breakers if you continue your present format. I hope in writing this letter, that you will realise that I am, in my opinion, writing an unbiased letter, which would give balance between AM and FM CB.

After all your mag has about 56 pages, can you say in all honesty half is devoted to AM and half to FM. An over simplification you may say, but it is a point worth thinking about when viewing your magazine as a whole.

Pasadena (AZ88)
Moreton
Wirral

Dear Pasadena, AZ88, as you will see I have had to cut the last ¼ of your letter in order to give you the length of reply you desire.

Yes I wholeheartedly acknowledge that without other modes of operation (ie: AM) there would be no "legal FM CB". However I'm sure this due has been paid more than once by us. We attended and reported on the demos, we were publishing CB Radio nearly 1½ years BEFORE legal CB, however, the Government ignored both you and us.

Fortunately for the Government FM use is now far more popular than AM and just a quick listen to straight 40 AM will confirm what I'm saying. According to our recent reader survey MOST of our readers are also now on FM. A simple lesson in economics will tell you that you have to give the readers what they want albeit to a certain extent. CB Gazette, which took a VERY pro AM stance, has been 'suspended' for the last couple of months which is a good gauge of what the breakers feelings are. I would have thought.

In our defence and having looked carefully at July '82' CB Radio (something which I would ask you to do), I can only find 31 pictures of FM rigs 25 of which appear in adverts. If I try to prevent our advertisers from printing the pictures they want I will only be tightening the noose around my own neck.

Editorially we published 19 separate features. 10 of these features relate to CB, AM or FM, 5 were specifically FM, 1 reported on illegal Free Radio 1. DX QSL is specifically AM and Rutnek is a pretty neutral cartoon. If you read the introduction you will also read about 46MHz CB which is highly naughty.

If you pick up a copy of ANY other CB magazine your eyes will be assaulted by record reviews, in car entertainment features, topless girls and pictures of goldfish. On this evidence my case rests.

ED

Dear Sir,

May I request that by way of your publication I bring to the notice of groups and individuals a one-day event to be held at this College on the 30th October, concerning the use of CB radio with the handicapped. We hope to present a series of sessions which will appeal to handicapped persons themselves, whether they be physically or mentally handicapped, to staff concerned with services for the handicapped, and more especially to members of CB groups who might see this as an introduction to community work with the handicapped in a voluntary capacity.

The sessions will review the work being done by emergency services, REACT and other facilities for the homebound, as well as showing how useful this communication aid is proving in the development of meaningful relationships between handicapped and non-handicapped people. Suppliers of equipment will it is hoped present items in an exhibition, and this will also demonstrate adaptations to the equipment which might be necessary for the physically handicapped.

Full details of the course can be obtained from me at this address:

Castle Priory College, Thames Street, Wallingford, Oxfordshire, OX10 OHE. I hope very much that anybody with information about the use of CB radio in this field will contact me and tell me something of their experiences.

R.S. Johnson
Senior Tutor
Oxfordshire

Dear Sirs,

Since legalisation I have read in your magazine and others several articles and letters concerning C.B.O.9. monitors.

I am appalled at the amount of rubbish that these so-called monitors can direct at their various organizations.

As the chairman of our local REACT team, I'd just like to say it is about time we stopped bickering amongst ourselves and started doing the job we volunteered for *MONITORING*.

Here in the south of Hampshire we work very closely with our local THAMES and other untrained monitors. Striving to provide a 24 hours monitoring service on C.B.O.9., do the monitor bashers offer a similar service? I fear not.

Is it not time to stop knocking each other's organizations and work together for the aim of nationwide coverage and the legalisation of 09 as the *EMERGENCY* channel.

CB monitors are not an emergency assistance team as we have one of the best emergency networks in the world including professional *PARAMEDICS*, we do not need CB amateurs. Their time would be better spent training every CB'er basic first aid.

Uniforms, well I've got a REACT tee shirt and jacket, my opposite numbers in THAMES have similar garb. Most of the breakers in our area wear ridiculous body warmers like the other uniform associated item, orange beacons on cars they mean nothing.

And finally the most provocative point of monitoring procedures signing on and off. What does it mean? Nothing except that you can't trust the monitors on your rota.

I hope this will put an end to an argument that can only ruin what we're doing. I look forward to hearing from any monitoring organizations in south Hampshire who want to work with us.

Do you monitor C.B.O.9. Do you?

Yours in REACTION

D.M. Cranvey
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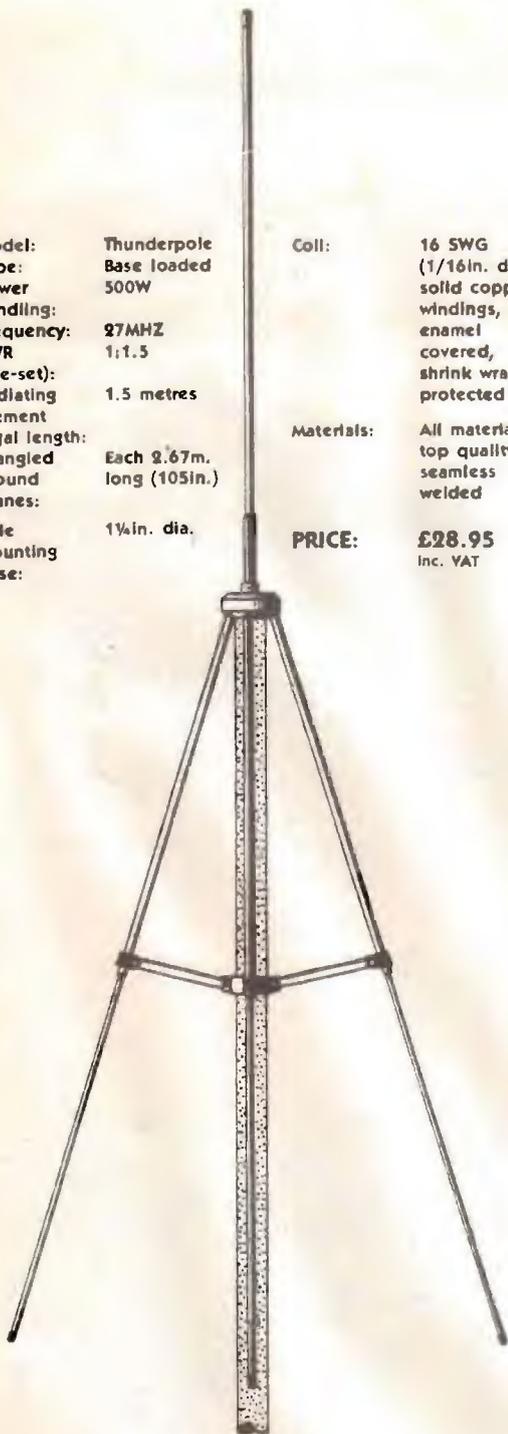
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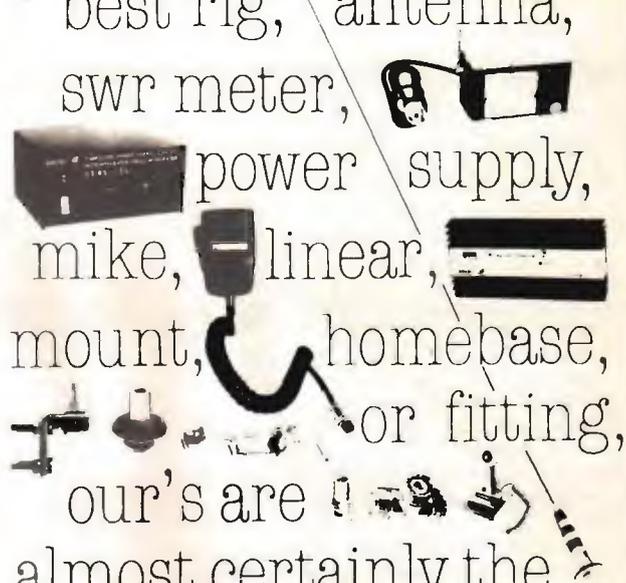
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AM "DOWN & OUT" SIDE

Listening to AM CB lately has been a nostalgic experience for anyone who has been a CB'er for over two years. Some long forgotten events have been happening - clear channels, no Italian skip blocking in the channels, a return to some sort of radio courtesy and a chance to actually get a copy on channel 14. To someone like me, who regretfully turned off their AM rig months and months (if not years) ago because of the level of misuse and over-use (the same set of circumstances that has happened in a quarter of the time on FM), it has been a pleasant surprise to switch on the old Midland 77-888 that has been slowly gathering dust on the sideboard and listen round the channels.

Of course there are still the same old wind-ups going on, still the occasional D.J. who wants everyone else to listen to his favourite record and still the people who need 100w to talk to their mate in the next street. But for all that an air of sanity seems to have returned to AM and talking to other breakers it seems to be happening all over the country - not just in my area. So what has caused this transformation?

It seems to me that there is one basic reason - less people are using AM. That may seem too obvious to mention but I think that's got to be the answer. I really don't believe that a large number of the breaking population on AM have collectively changed their habits. So why are there less breakers on AM?

One of the biggest reasons must, of course, be FM. Quite a number of breakers weren't happy breaking the law and were pleased to swap to a legal system. Some of the wallies moved too - they could upset people on a legal system, which reduced their risk and gave them a larger audience, killing two birds with one stone. A few breakers I know felt that they had fought and campaigned for a UK CB system and now they had it they should use it . . . and so on.

Another factor not always considered is that people go through phases of interest and that hobbies can have a limited life. So, for example, a breaker could come up on AM 2 - 3 years ago and find a total new world. New friends, social life, being part of a movement united by its illegality and aims and the feeling of belonging to something new. But a couple of years later the rig is only being switched on once in a while, the breaker doesn't go to his club anymore and although he has a couple of good friends, the house isn't full of breakers at all hours. Before you know it all his time and money is being respent on a new hi-fi



OUT OR ON THE SIDE?



system. There isn't anything wrong with this, it's human nature, but it does explain the decrease in AM breakers. Of course there are still plenty of breakers who have found a way of life but there certainly aren't enough new breakers to replace the old ones.

To test out my theory I went along to my friendly CB shop who have been known to sell the odd AM CB or three. Their comments confirmed what I had already worked out; they were lucky if they sold one straight 40 channel AM rig a week compared to a high of over 100 rigs a week eighteen months two years ago. Even rigs with high and low channels were not selling. From speaking to other breakers it seems that the second hand market isn't busy either.

According to the shop the rigs that are still selling, apart from a steady flow of FM sets, is the multimode rig. Sets with AM/FM/SSB, upper and lower channels and variable power output are selling through the shop at a rate of 4-7 a week, and remember these sets cost between £150 - £275 a time. So there is obviously keen interest in DXing and outbanding.

Once again, I was curious about who was buying the multimode sets. I was surprised to learn that the majority are bought by FMers, fed up with the congestion on the legal band and caught by the CB 'bug'. The fact that these sets are highly illegal to use (although any shop only sells sets that are legally imported, have VAT paid and only have the FM40 part connected) doesn't seem to deter the buyer!

It seems fair to say that DXing using AM and Sideband is here to stay. Going by the response to articles like DX QSL, the international DX scene has thousands and thousands of committed operators and whilst this number may not grow at an enormous rate, it is likely to remain fairly stable. Although the sunspot cycle which helps determine the amount of skip is on the wane DXing will always be possible so DXers will always be there. But there's no denying that AM is at nowhere near the level it once was.

Another good reason for the difference in AM could be that FM has provided an awful example and AMers are trying to do something about it. Most breakers would agree that there is a great difference in the attitudes of AM breakers and FM breakers. As mentioned earlier there is a greater feeling of unity between illegal CBers. With a lot of the wallies out of the way, the field is clearer for better operation and improvement.

So, AM, are you down and out or just on the side?

CLUB SPOT

Scarlet Town and District Breakers' Club

Breakers heading for South Wales, if you happen to be passing through or staying anywhere near Llanelli (You'll find Llanelli on the coast between Swansea and Tenby), why not, on a Tuesday night, call in on the Scarlet Town and District Breakers' Club, 7.00-11.30pm, at the Moonraker Night Club? We warmly welcome all breakers, AM, FM, young or old. We can offer you a great night with discussion groups, DX section, disco, live groups and video.

Who knows, you might pop in on a night when we're holding one of our special charity nights! This year we are hoping to buy our local hospital an incubator for new-born babies and to help a young handicapped boy with the costs of entering the Handicapped Games this year.

Hoping to eyeball you.

The Black Stallion (PRO)
Llanelli, Dyfed

TX21

TX21

As we haven't as yet been featured in your Club Spot, I thought I would write to you to tell you something about our club.

We are a serious breakers' club and our main objective is to see CB legalized on ALL MODES of 27MHz. We meet every other Monday evening at The Ley Inn, Clayton-le-Woods, Leyland which is in the Preston area.

Membership of TX21 CB Radio Club can only be achieved by being proposed by an existing member and seconded by another. A vote by the body of the club then decides whether that applicant can become a member or not. The minimum age is 21 years.

We do have social activities but as the age group we have is probably older than most clubs, we only go in for the odd parachute jump or two. Other than that, we restrict ourselves to serious drinking and excellent conversation.

We have a Post Office box to receive mail which is PO Box 21, Leyland, Lancs.

We are a member of Natcolcibar and support their fight for CB on a suitable frequency.

78's and 88's.

Chapter One (Secretary)
Clayton-le-Woods, Lancs.

Club 27 FM

I am writing to you as secretary of Club 27 FM.

It is a breakers' club set up as a family club and intended to have a healthy junior section.

The club is set up with the bias purely on FM breaking and any of its problems.

As I am sure you realise, any publicity for the club would benefit the club greatly.

Any enquiries regarding the club should be sent to this address: 14 Down Crescent, Ledbury Road, Hull, Humberside.

R. S. Boyce (Secretary)

Rebels On The Side

I am writing on behalf of a new CB club recently formed in the Crewe district called Rebels On The Side. Meetings are held every Thursday night at the Polish Club, West Street, Crewe at 7.30pm. We have no bias towards AM or FM but regard everyone as breakers and welcome them as such.

We shall be holding disco's, video shows, concerts, quizzes, talks and socials. We also intend running outings for ice skating, roller skating, visits to CB exhibitions and other events.

Membership is £1 a year, 25p is charged on the door for the first visit then 10p for each visit after. New members are all welcome, so please pay us a visit.

Hairy Squelch (Chairman)
Crewe, Cheshire

Breakers' Haven

Our club meets every Sunday at noon at the Kearsley Community Centre, opposite St. Stephens Church, Kearsley. Yearly membership is £2 and 30p a week, non members pay 40p a week. Members shall receive a newsletter every week. Any members from other clubs visiting shall be very welcome. Refreshments are available and a number of facilities are available.

10-10, bye, we're gone.

Spartacus, Andromeda, Saltydog

SAMBA

Just a quick ratchet to inform you that there are CB'ers in the West Midlands.

Our Club, SAMBA, short for Sandwell AM Breakers' Association, meets every Tuesday at the Waterloo Hotel, in Waterloo Road, Smethwick, West Midlands.

We hold disco's and film shows, alternating with modge night, when we discuss any problems or things that might interest our members.

We have only been at this location since January, after moving from another pub which was too far away.

We will be doing some charity work in the near future as we are getting more established as each week goes

by. We started off with a few people talking over a drink and have 60 members but a lot of members from other local clubs use our facilities and we average 100-plus turning up each week and are out-growing our present location. Any breakers passing are welcome, just give a shout on 14 and any local breaker will give directions.

Toby Jug (Chairman)
Smethwick, West Midlands

13-53 Club

We are a fairly newly-formed club who meet every Sunday evening at the Golden Lion in the Sydenham 20. The club's existing paid-up membership stands at 70 at the moment. New members are always welcome. The main aim of the club is charity fund raising for the disabled. We do this by holding fox hunts, raffles, fancy dress, weekend camps, convoys, etc., having a great deal of fun at the same time.

Catch you for an eyeball sometime, 10-10.

Riddle (Press Officer)
Sydenham, Kent

South Yorkshire Breakers' Club

I would like to take this opportunity to introduce your readers to the South Yorkshire Breakers' Club (SYBC).

Our membership is approximately 1,000 strong and growing weekly.

We meet each Monday at The Domino, Kimberworth Park, Rotherham between 7.30-10.30pm, each Tuesday at The Penguin, Shiregreen, Sheffield between 7.30-10.30pm and each Wednesday at Tiffanys, Main Street, Rotherham between 8.00pm and midnight.

We organize disco's, games, raffles, members' draw, quizzes, convoys, CB news, dances, fancy dress, etc. and our charitable interests include a colour TV which we donated to a school for mentally handicapped children.

We run our own handle registration service, of which I would be pleased to forward details to any interested breaker who sends a sae to 21 Jewitt Road, Kimberworth Park, Rotherham, S. Yorkshire S61 3HQ.

We have also established a club football team who will shortly be playing against Radio Hallam in a charity match for the mentally handicapped.

10-10 for now.

Rubber Duck (J. A. Dudhill)
Rotherham, S. Yorks.

**SEND DETAILS OF YOUR CLUB TO
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Rig Test

Communicators NI-440 DX

Made in Japan, the Communicators has been designed for those who want more than just a straight rig and, as such, represents good value for money. Larger than average (it is nearly as large as a home base), care should be taken, before buying, in assessing the amount of room you have for mounting purposes.

Microphone

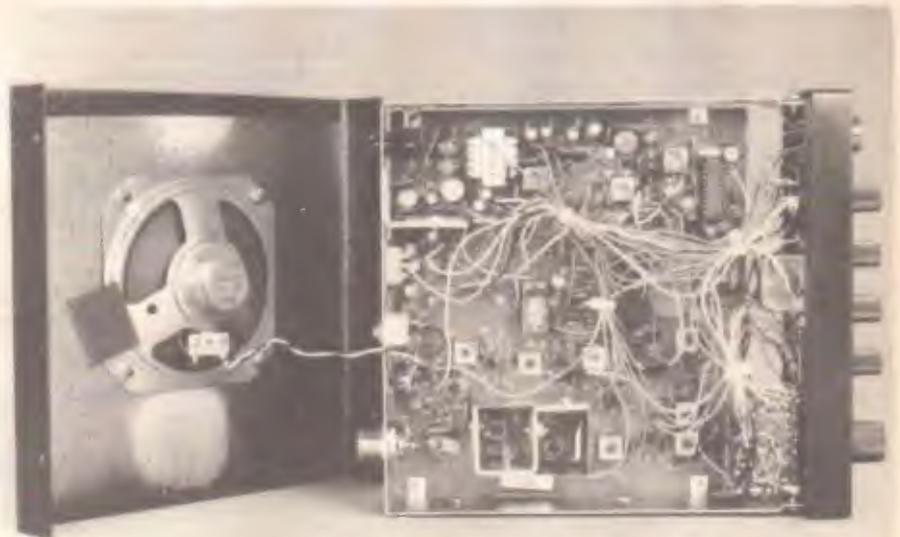
The microphone supplied with this rig is of the coffin-style shape but improved by having more rounded edges, therefore far more comfortable to hold and is fitted with the better, lockable four-pin plug.

Construction

The construction, like most sets, is the familiar 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 black plastic moulding with black anodised aluminium inset escutcheons. The meter is rear illuminated with a dark background with red and green lettering. Also on the front panel is a PA CB switch, a Roger Bleep on/off switch and a channel 9 override switch. The microphone socket is mounted on the left-hand side of the front panel. The five knobs on the front panel are for on/off volume, squelch, RF gain control, tone control and channel selector switch with display unit. The internal construction of the rig is very neat but is spoilt by the fact that the wiring was very untidy. This could easily be cleared up by using more cable clips. Also on the PCB a number of bad soldering joints were noticed, two of which, a part of the chassis earthing, were not making contact at all. This could lead to ignition interference being picked up when used mobile.

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 rig conforms to Home Office specification MPT 1320 and also gives the user of the rig sufficient power output for normal use over a reasonable variation of power supply voltage in both high and low settings.

	10.2v	13.8v	14.8v
High	2W	3.2W	3.5W
Low	0.3W	0.3W	0.4W

From these results it can be seen that in the high power position the rig does not give out maximum power permissible. In fact, at nominal volts the power is just over three-quarters of what it should be, i.e., 4 watts. It is quite possible that this set has been misaligned at the factory and that all the others are correct.

Temperature stability

This test is to ensure that the rig

stays on the frequency for a reasonable change in environmental temperature (48°F to 68°F).

Temperature stability			
Temp.	CH1	CH2	CH3
Should			
48 F	27.601250	27.791250	27.991250
68 F	27.601070	27.791060	27.991090
68 F	27.601030	27.791040	27.991040

The temperature stability of this rig can be seen to be very good, drifting a maximum of only 60 cycles over the temperature range. Unfortunately, the frequency accuracy was one of the worst we have so far tested, being a maximum of 220 cycles low in frequency right across the band. This frequency inaccuracy probably would not be noticed while the rig was in normal use but we feel it should be better.

Modulation

This test is to check the ability of the rig's modulation circuit to give a good modulation level over a varying range of different input levels and frequencies.

The results show that the modulation circuit has plenty of gain and good limiting although, like most sets, biased towards the low frequency end of the audio spectrum. Therefore, this rig would not benefit

from having a power microphone fitted. Three of the resultant figures exceeded the modulation level laid down in MPT 1320 by a small amount but could easily be brought into line by realignment.

Input Level	Modulation			
	500Hz	1183Hz	6300Hz	
0.6mV	0.4kHz	0.7kHz	0.6kHz	
2.5mV	1.5kHz	1.9kHz	1.3kHz	
6.0mV	2.4kHz	2.1kHz	1.4kHz	
25mV	2.8kHz	2.2kHz	1.4kHz	
60mV	2.9kHz	2.3kHz	1.4kHz	
250mV	2.9kHz	2.3kHz	1.4kHz	

Receiver test

Audio output

To do this test the loud speaker was replaced by a Marconi TF 893 AF power meter with a Marconi TF 2337 distortion factor meter connected across it.

Measured Distortion	
1 watt	11% distortion
1.5 watts	11% distortion
2 watts	12% distortion
2.2 watts	15% distortion

The results of these tests appear to be rather bad at the low volume end of the scale, where most sets tend to read between 1.5 and 5% distortion. This rig gives 11%, which is bad at low levels.

Squelch level

The squelch level with the RF gain control turned to maximum had a threshold of .25 microvolts and with the squelch turned to maximum (fully muted) a sensitivity of 15 microvolts.

When the RF gain was turned to minimum the squelch levels were threshold 60 microvolts and fully muted 13 millivolts. With a squelch range as wide as this, one should be able to squelch out most annoying signals and skip whilst modulating with local breakers.

Receiver sensitivity

This test is done to check the ability of the rig to pull in weak or distant stations.

Sensitivity	
10dB quieting	0.27uV
20dB quieting	0.32uV
30dB quieting	0.40uV

The above results show that this rig has above average sensitivity, very noticeable at 30dB quieting.

S meter reading

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

S Meter Reading	
1	0.4uV
2	1uV
3	2uV
4	3uV
5	4.8uV
7	10uV
9	30uV
+40	5mV

We can see from the results of this test that a 9-pound (S9) signal means that the station you are receiving is putting 30 microvolts of signal down your twig and this seems to be the level most rigs are set at.

AM rejection

The AM rejection measurements taken from this set gave a result of 25dB. This reading is below average, which means this rig will be susceptible to picking up interference in the car or any other AM interference.

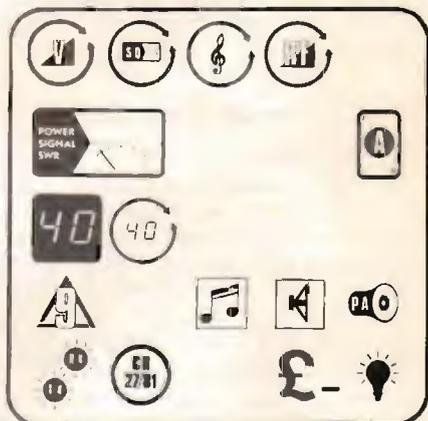
Adjacent channel rejection

This test is done to check the rig's ability to reject interference from strong stations one channel higher or lower.

Results measured were 450 microvolts for 3dB degradation which is well above average result. The bleed-over checks were not quite as good as the previous rig tested but as this was only the second rig we had tested it is early days to draw conclusions other than to say that the channel 1 and 40 readings should be as high as possible.

Summary

In conclusion, this rig is very presentable and has all the facilities one would expect to find with this type of rig. As mentioned, the only problems found with the rig were alignment and wirings. Hopefully, these faults do not reflect on all Communicators rigs.



Radio direction finding

27 Ohms
27 MHz

Part 4 by F. C. Judd

This is the concluding article on radio direction finding and although the procedure for locating a transmitter at an otherwise unknown position was fully dealt with in Part 3, there remained the problem of getting a reasonably sharp null when operating in close proximity to a station. That is when the receive signal is very strong. If the set has an RF gain control this can be used quite effectively to reduce the signal from the loop. The alternative is an attenuator coupled into the feed cable between the loop and the CB set.

A 'T' network attenuator

It is important when attenuating RF signals flowing in a cable of known impedance that the input and output impedance of the attenuator unit itself remains as near constant as possible to that of the cable and/or the equipment to which it is connected. Otherwise a single potentiometer could be used. A 'T' network attenuator can be designed for any standard line impedance and for any degree of attenuation below unity or 0dB. The basic circuit is shown in Fig. 1 together with the formulae for determining the three resistor values in a single 'T' network.

The input impedance represented by $Z_{o_{in}}$ will in our case be 50 ohms and $Z_{o_{out}}$ will be the same. The remaining requirement is to know by how many dB we wish to reduce the signal and from this obtain the factor K which is the voltage ratio $\frac{V_2}{V_1}$ of the required reduction in dB. This can be obtained mathematically or by using a voltage ratio/dB conversion table.

The total amount of attenuation needed for practical purposes with a DF loop need not be more than 25dB which taken in steps of 5dB from unity, i.e., 5, 10, 15, 20 and 25dB, will provide a useful working range. The voltage ratios or K factors for these steps are:

dB	$\frac{V_2}{V_1}$ or K
5	1.778
10	3.162
15	5.632
20	10.00
25	17.78

We now have real figures from which to obtain the values for R_1 and R_2 in a single 'T' network of which five will be needed for the five steps as above. Whilst the formula will give precise values for R_1 and R_2 (as in Fig. 1) real resistors with such values may not

be available, so we need to adjust calculated values to preferred and readily available values. For example, taking the circuit Fig. 1, we will assume that with an input/output impedance of 50 ohms an attenuation of 10dB is required. Each R_1 will, therefore, be:

$$Z_o \left(\frac{K-1}{K+1} \right) \text{ or } 50 \times \frac{3.162-1}{3.162+1} = 50 \times \frac{2.162}{4.162} = 25.9 \text{ ohms}$$

The value of R_2 will be:

$$\frac{2Z_o K}{K^2 - 1} = \frac{2 \times 50 \times 3.162}{3.162^2 - 1} = \frac{316.2}{8.99} = 35.1 \text{ ohms}$$

The nearest available standard or preferred values of resistors to these are 27 and 39 ohms respectively which give an error of little more than 0.5dB.

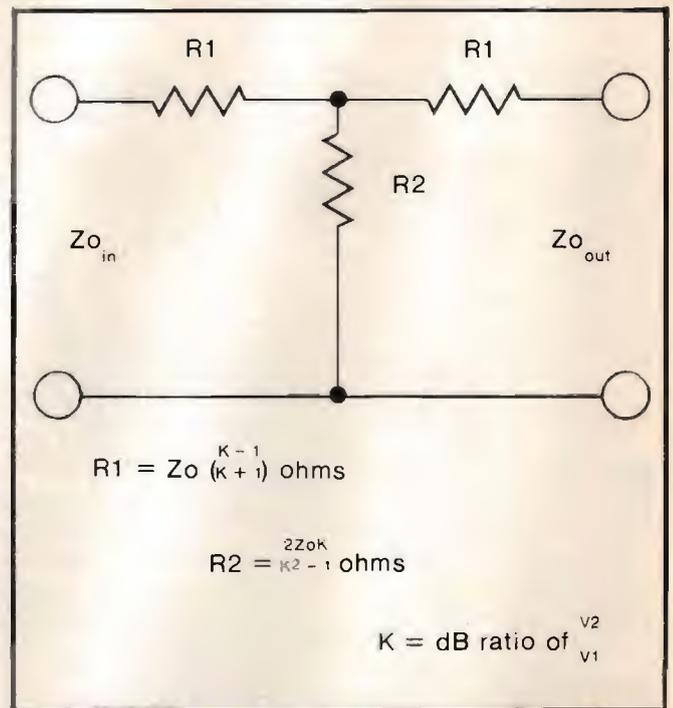


Fig. 1. A constant impedance 'T' network resistive attenuator with the formulae for establishing the component values (see text).

The five-step attenuator

The full circuit for a unit which can be used with any loop antenna having an impedance of 50 ohms is shown in Fig. 2 and although it looks a little complicated, made so by the switching, it consists

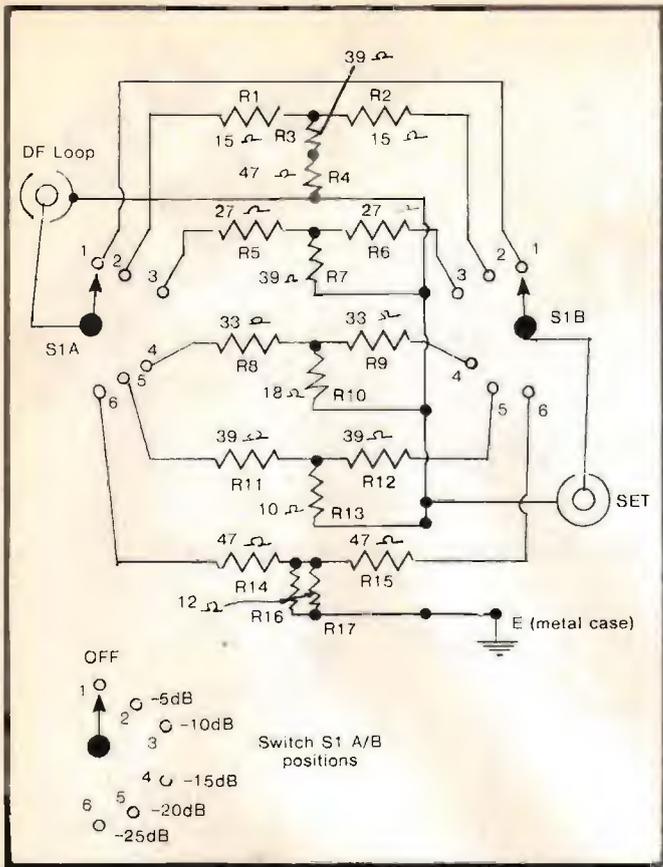


Fig. 2.
Circuit for five-step attenuator using T networks.

only of five separate 'T' networks using preferred values of resistors for each.

The circuit is arranged so that with the switch S1/AB in position 1 (the OFF position) the line is connected straight through and there is no attenuation. Switch positions 2, 3, 4, 5 and 6 introduce approximately 5, 10, 15, 20 and 25dB of attenuation respectively and which is sufficient for practical purposes. The input/output impedance is near enough constant at 50 ohms. Note: That to get as close as possible to the resistor values required the first network has two resistors R3/R4 in series to give the requisite 86 ohms, although an 82-ohm resistor could be used. Much the same applies to R16/R17 which are two 12-ohm resistors this time in parallel to give the 6 ohms required.

Construction

All the components, including a small aluminium box as used for the prototype, are readily available (see components list at end of article). The lid of the box contains the whole of the assembly consisting of the resistor circuit board, the switch S1 A/B and the SO239 input and output sockets. Details for the holes required for fixing these components are given in Fig. 3.

The resistors for the five 'T' networks are assembled on a piece of perforated plain Veroboard to the size given (90 x 50mm) as in Fig. 4A. Note the common 'earth' wire which runs underneath the board and to which the 'down leg' of each network is connected, that is R3/R4 (in series), R7, R10, R13 and R16/R17 (in parallel). The board is mounted in the lid of the box on stand-off pillars with through 6BA screws as in Fig. 4C.

The wiring between the 'T' networks resistor board and the switch S1 A/B (each section one pole six-way) and the input/output socket is shown in Fig. 4B. The final assembly of the unit is shown in the photographs. The unit is connected and used as in Fig. 5 and unless signals are very strong will be operated with the attenuator switch in the 'OFF' position. On getting close to a transmitter the nulls obtained with the loop become less defined due to the high level of signal. It is then that the attenuator is brought into use by bringing the signals down until the sharpest possible null is once again obtained.

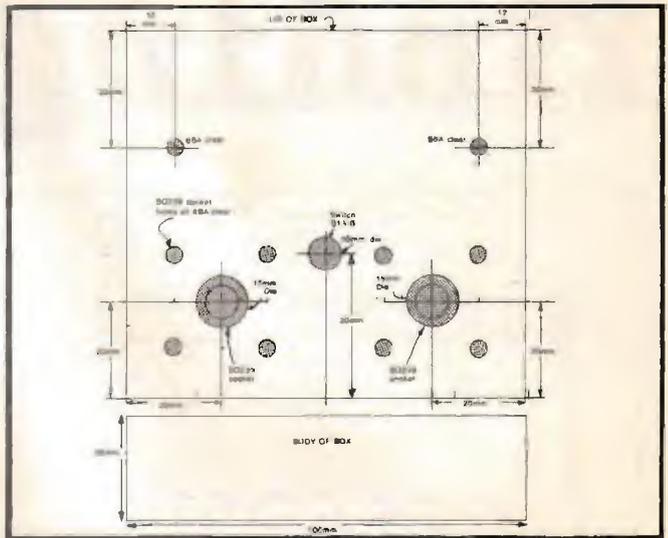


Fig. 3.
Details for drilling the fixing holes for components used in the attenuator.

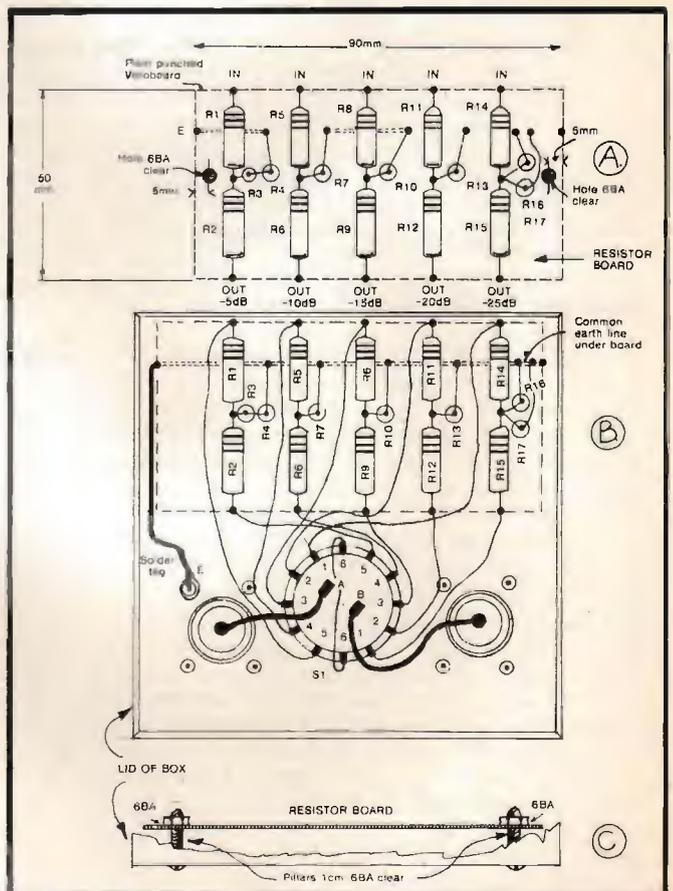


Fig. 4.
(A) Layout and wiring of the 'T' networks on plain Veroboard.
(B) Complete wiring of 'T' networks with switching, etc.
(C) How the resistor board is mounted within the lid of the box.

Radio direction finding

CONTINUED

27 ON
MHz

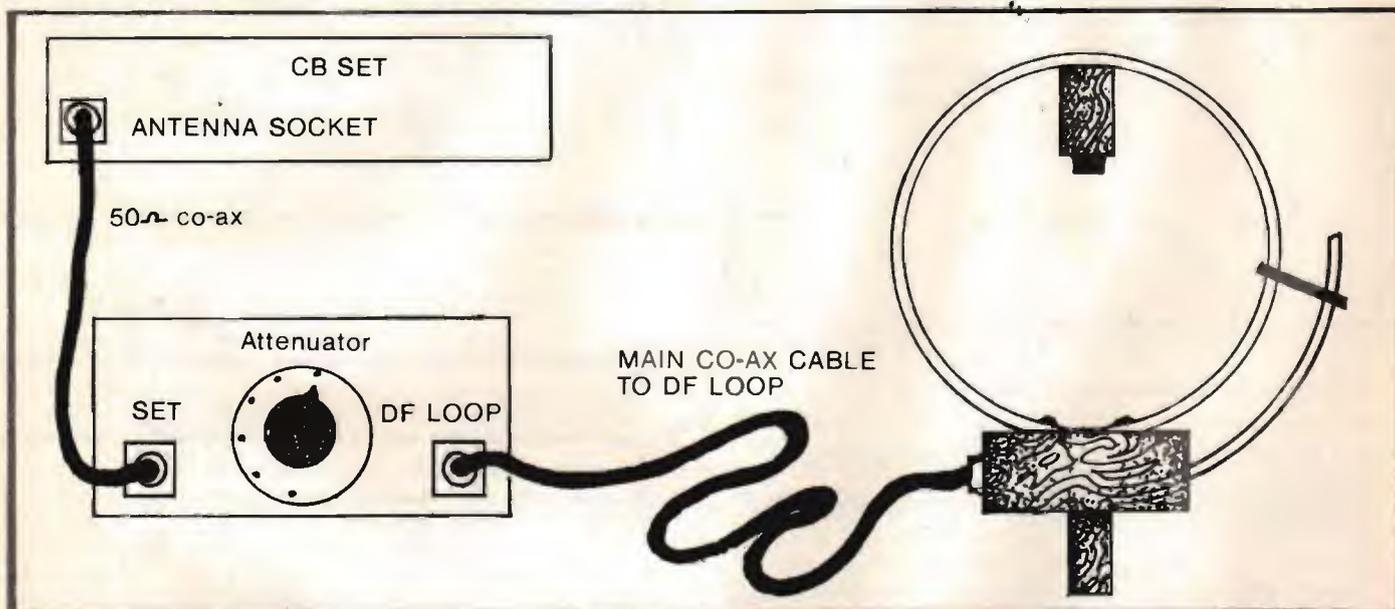


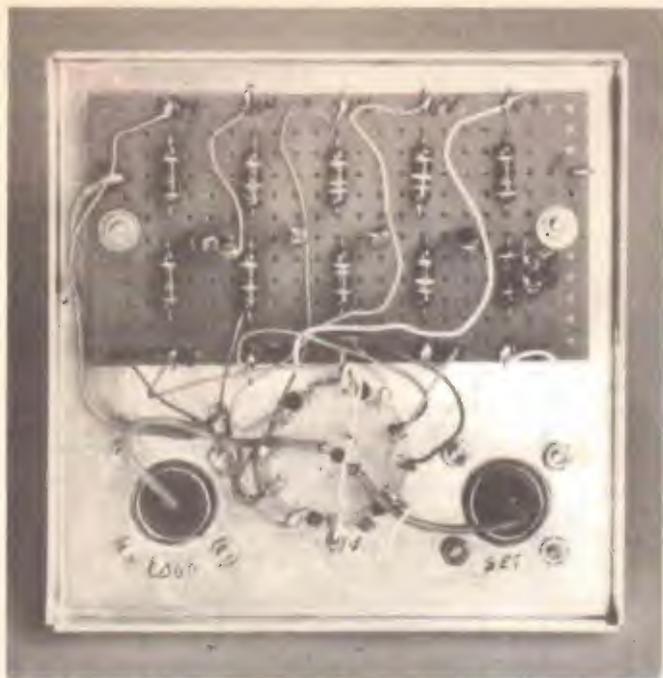
Fig. 5.
Connection of the attenuator between the CB set antenna socket and the loop antenna.

Working alone with a DF loop

Operating with a team, as outlined in Part 3, does, of course, lend itself to rapid location of a transmitter. Operating single handed is simply more time consuming unless one has the advantage of a sophisticated loop antenna with a built-in sensing system which enables general direction to be established from the start. At the moment there is no commercially-made df loop of this nature available, at least not one which has the requisite high degree of accuracy. However, working single handed means that two bearings must first be taken from two different places as far apart as convenient and consistent with being able to hear the signals. General direction and an approximate 'fix' can be obtained simultaneously. The procedure using the diagram in Fig. 6 is as follows. The transmitter is at 'F' but this is otherwise unknown. A bearing taken from any position where the transmitter can be heard as for example at A and labelled START. With a normal loop the bearing from a null could be in either of two directions as indicated by "first bearing and its reciprocal". The line is plotted on a map, going in either direction from point A. We now require a second bearing to establish direction and get an initial fix. From A, move away along a line as near to 90° as

possible to the line of first bearing to point B. An average distance would be about three miles. A second bearing is taken from B and as can be seen from the diagram, this crosses the first bearing a little beyond 'F'. The reciprocals of either of these bearings cannot cross since they are angled away from each other. We now know that 'F' is close to where bearings 1 and 2 cross. The next step is to move again, from B to C, thus making another 90° turn. Again distance is not critical and around three miles should suffice. A third bearing is taken from point C and this crosses the other two slightly below 'F' thus forming the *cocked hat* area containing 'F'. The smaller the cocked hat the closer will be the fix on 'F'. Next move is again 90° from point C, following the direction of the arrows, to point D which also crosses the line of second bearing. A check bearing can be made at this point and which should be more accurate as we are now closer to 'F'. The next point is E for another closer and more accurate bearing.

The crossing points of bearings taken from D and E should be virtually on the transmitter but if another bearing is required then move a short distance further on from E, along the same line, C through D through E to X. Move to the area inside the crossing points of all the bearings taken. From now on it is either a case of taking bearings from



Internal and external views of the RF signal attenuator.

shorter and shorter distances if you have not already seen the antenna of the transmitting station. *But then it might be concealed.* If so, you have the tedious job of getting the most accurate possible bearings from perhaps as little as 100 yards.

Many years ago the writer was actively engaged in tracking down transmitting stations which, in order to avoid revealing their true purpose, will simply be referred to as 'illicit stations' but which because of their clandestine function invariably used carefully-concealed antennas. Bearings obtained even at short range had, literally, to cross the exact position of the antenna so as to be absolutely certain that the station had been located.

Still on the subject of wartime activity, I wonder how many CB operators know that 27MHz (11 metres) was the frequency used for some of the highest-powered wartime coastal radar stations known as CH, which stands for 'Chain Home'. These stations were situated at vantage points all around the coastline of England and Scotland and could detect enemy aircraft at ranges of up to about 200 miles. Each station employed a transmitting antenna array spread between four 350ft high towers each spaced about the same distance apart. Power radiated was in the region of 50,000 watts. Detection of signals reflected from aircraft and verification of direction was by means of a special arrangement of four vertical antennas at a height of about 200ft. The distance of the aircraft echoes received was displayed directly onto a cathode ray tube. At one time a special experimental CH station was set up on the East coast and run at a power of 1,000,000 watts!

Attenuator unit for DF loop

Components list

All components except resistors available from Bi-Pak, PO Box 6, 63A High Street, Ware, Herts. SG12 9AD.

Aluminium box 4 x 4 x 1 1/2 in.	Bi-Pak Order No. 160
Control knob 20mm.	Bi-Pak Order No. 1114
SO239 co-axial sockets	Bi-Pak Order No. 1716
Two-pole 6-way	Bi-Pak Order No. 1966

Other components

Veroboard plain punched 90 x 50mm.

Resistors 1/2-watt type

R1, R2	15 ohms
R3, R11, R12, R7	39 ohms
R4, R14, R15	47 ohms
R5, R6	27 ohms
R8, R9	33 ohms
R10	18 ohms
R13	10 ohms
R16, R17	12 ohms

Available radio components shops

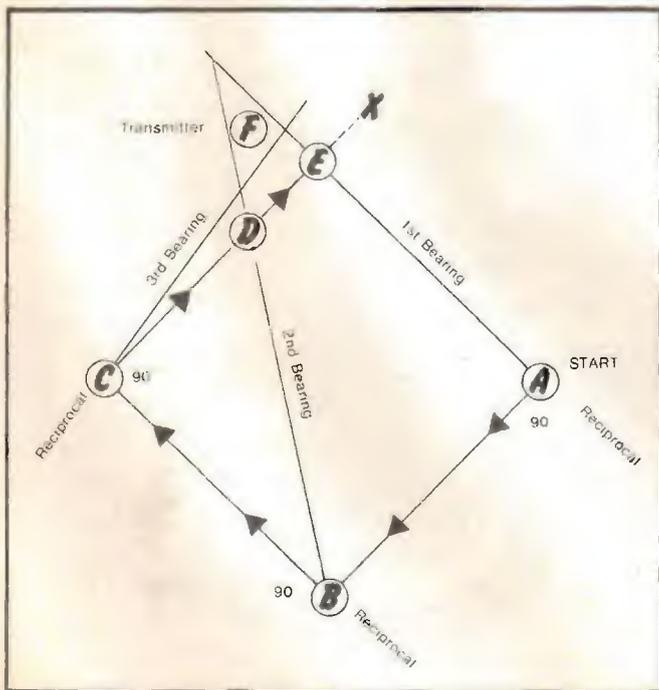


Fig. 6. Method of operating single handed when radio direction finding. (Text explains).

Armstrong



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The antenna that
OUTPERFORMS K40
in mobile tests in the USA

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HERE'S PROOF:
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COPPER PLATED (adds 1 DB gain) 17-7 PH stainless steel. Tapered whip with static tip — factory preset — minimum SWR.

SOLID MACHINED BRASS, triple chrome plated for corrosion-free, attractive appearance.

Molded NORYL — highest quality engineering plastic available — impervious to elements.

First truly hollow coil form — less than 1% variance from antenna to antenna.

Special high strength low loss glass-filled NORYL plastic. Heavy duty copper wire coil. 500 watts continuous operation rating — 1000 watts intermittent operating rating.

Silver, plated beryllium copper contact spring.

58-AU type cable 95% braid coverage sealed against water and moisture.

Solid machined brass, triple chrome plated for corrosion-free, attractive appearance.

All hardware is stainless steel — WILL NOT RUST.

24-MONTH LIMITED WARRANTY

Armstrong Industries, division of Monitor Crystal Service Inc., warrants each new product to be free from defects in material and workmanship under normal use and service for a period of 24 months from delivery to the ultimate consumer.

For complete information, consult the written warranty of Armstrong Industries.

TRIPLE GUARANTEE

1. The Armstrong Antenna will outperform any equivalent antenna it replaces, or you will receive a prompt, full refund from the Armstrong dealer who sold it to you.
2. Guaranteed satisfaction with 24-month Limited Warranty.
3. Plus, lifetime coil burn-out Guarantee.

UNI-AXIS ball joint tilts full 45° in all directions for perfect vertical positioning.

IN-LINE connector simplifies antenna installation.

SHUNT FED coils for quieter reception.

QUICK DISCONNECT — 1-3/4 turn, water tight. Available in seven (7) different mounts.

not the most expensive
(PRICES FROM £26.99 including VAT)
JUST THE BEST!

AVAILABLE AT ALL GOOD CB SHOPS!

SHOPKEEPERS! If you feel your customers deserve the best, tel. Tony King on (0952) 615154 for your nearest master distributor

A DAY OUT IN DOUGHNUT CITY

Grand Charity Fete and CB Eyeball

Saturday 7th August saw the Grand Charity Fete and CB Eyeball Rally at Basingstoke, organised by L.E.S.T., the Local Emergency Service Team. Aimed at raising funds for a local Childrens Home and the Falklands appeal it was, as the name suggests, a combination of CB events and a programme of entertainments aimed at the general public.

L.E.S.T. started to organise the fete/eyeball at the beginning of June - which was an ambitious undertaking for a team that had only been operating since February of this year. That didn't deter them from planning a large event, taking place on open space near the towns' city centre.

Aware of the mistakes that had been made in the past with such shows L.E.S.T. were keen to include a full programme of entertainments. Heading this line up was the Radio Luxembourg Road Show with D.J. Tony Price, providing music for the afternoon and the N.R.G. Disco dancers, a group of scantily dressed young ladies. Also very popular was a fun fair with the usual attractions of dodgems, roundabouts, side stalls and the sweet, sticky smell of candyfloss. Other entertainments included a drum band, radio-controlled aircraft and competitions like 'Beat the goallie'. There were competitions, draws and raffles taking place throughout the day.

The trade stands were also split into two different sections. The fete stands included a craft stand, a stand on behalf of Basingstoke and District Swimming Association, a tarot card reader and other general interest stands. The CB section included Radiotechnic Ltd. with a display of their mobile, handheld and base rigs, Catswhiskers CB with their range of stock and featuring the Cat Call sel.call system, Guildford CB, Raymac stickers and Alton Communications CB.

Although L.E.S.T. had sold over 8,000 advance tickets they were disappointed with the turn out on Saturday. There was a steady stream of visitors throughout the day but unfortunately nothing like the numbers originally anticipated. Of course L.E.S.T. are obviously upset that their hard work



and endeavours were not justified, as they had hoped for a lot of support and they had done extensive local advertising. Since this was their first effort they deserve congratulations for their organisation and enterprize - it's just a shame more people didn't

come to appreciate it.

P.S. I can see why local breakers call Basingstoke Doughnut City. After my third trip around the ringway system I never wanted to see a roundabout again!

SS



FM FEEDBACK

FM FEEDBACK

Part 4 by E. A. Rule

At the present time, the CB market is going through a period when cheap rigs are readily available. Many retail outlets are selling rigs with very little mark-up and, in fact, some are selling at a loss just to keep their prices below the shop up the street. All this may sound like paradise to the person looking for a rig but, in actual fact, it may well prove to be much more expensive in the long run and also be the cause of rigs being produced which have a very poor technical standard. This was mentioned last month with comparisons made between the rigs on the CB market and the amateur market. The old saying that "You only get what you pay for" is just as true today as it's ever been and you are being misled regarding the true cost of equipment because of this price war. It is true, of course, that prices of electronic equipment tend to stay fairly stable with time, because as production due to demand increases, the overheads get lower. We have seen this effect with calculators and colour TV but a moment's thought will show that this is not the reason for the low prices of CB equipment.

The amount of electronics used in a 27MHz CB FM rig is similar to that used in a typical amateur 145MHz FM rig and yet there is a considerable difference in the prices. A 'cheap' amateur rig would start at around £165 and one with a better specification would be around £250. Why this large difference? Even allowing for the lack of a reasonable mark-up by the dealer on CB equipment doesn't account for the differences in prices. Because of this price war, the dealer cannot make a reasonable profit and whether you, as the customer, like it or not, that is what the dealer is in business for. Unless the dealer can make a profit, he cannot be in a position to buy the highly-technical equipment required for servicing modern CB rigs or even allow the time to give 'free' advice. Nothing in this world is free, it is always paid for by someone. So while CB equipment is available at these exceptionally low prices, don't expect much sympathy from your dealer if things go wrong, he just cannot afford the cost and time involved *and* stay in business. Yet in

spite of this the law demands that he is responsible for equipment he sells and if it is faulty or not suitable, he *must* either give free repair or replacement or a full refund.

In a situation like this, it only takes a few faulty rigs (through no fault of the dealer) to cut so much into his profit margin that he finds himself running at a loss and soon goes out of business. It's a spiral which runs downwards, because if the profit margin will not allow equipment to be purchased for servicing rigs, it takes longer to find faults and this costs more in time and labour reducing the profit margin even more. If you want really good service and advice from your dealers with minimum repair bills, you must allow them to make a reasonable profit on goods in the first place. Many dealers in amateur radio equipment have service workshops which are fully equipped with signal generators, frequency counters, oscilloscopes and a spectrum analyser, at a total cost of several thousand pounds. How many CB dealers do you know with that sort of equipment? To set up the harmonic traps and/or align a transmitter requires the use of a spectrum analyser and this one instrument can cost *from* £5,000. How many rigs must the dealer sell to cover this type of outlay? The dealer who was reported to be selling rigs with only a 50p profit per rig would need a fantastic turnover to be able to equip a service department with this type of test equipment.

Quite apart from the cost of test equipment, there is also the salary of a good engineer to consider. With a really first-class engineer, faults are found in less time and this keeps costs down. Without good profit margins, high salaries cannot be paid, so less-skilled engineers are employed, resulting in longer times being taken to repair a rig and, again, we have this spiral downwards. Also, in an attempt to keep costs down, there is the temptation to 'bodge' repairs and in the end it is you, the customer, who pays, either with higher repair bills or lower technical standards. You just cannot have cheap rigs *and* efficient service. The two are completely incompatible.

This situation is made worse by the fact that a large number of non-technical trades (in the electrical sense) have tried to cash in on the CB boom. There are shops selling CB rigs who cannot possibly offer any sort of help. Even showing how to solder an antenna plug is beyond many of them and if you buy your rig from one of these then you deserve all you get! Always but always purchase electronic equipment from a dealer who can offer technical advice and provide a servicing back-up. It's cheaper in the end and you will obtain much more satisfaction from your CB operations. Your local CB dealer is worth supporting because he's the man on the spot (in more ways than one!).

Having said all that, what can you do when things go wrong? There are a number of simple checks that can be made before calling in expert advice and these may save you time and money. First, consider where a rig is completely dead. The first check should be on the power supply: is it switched on?

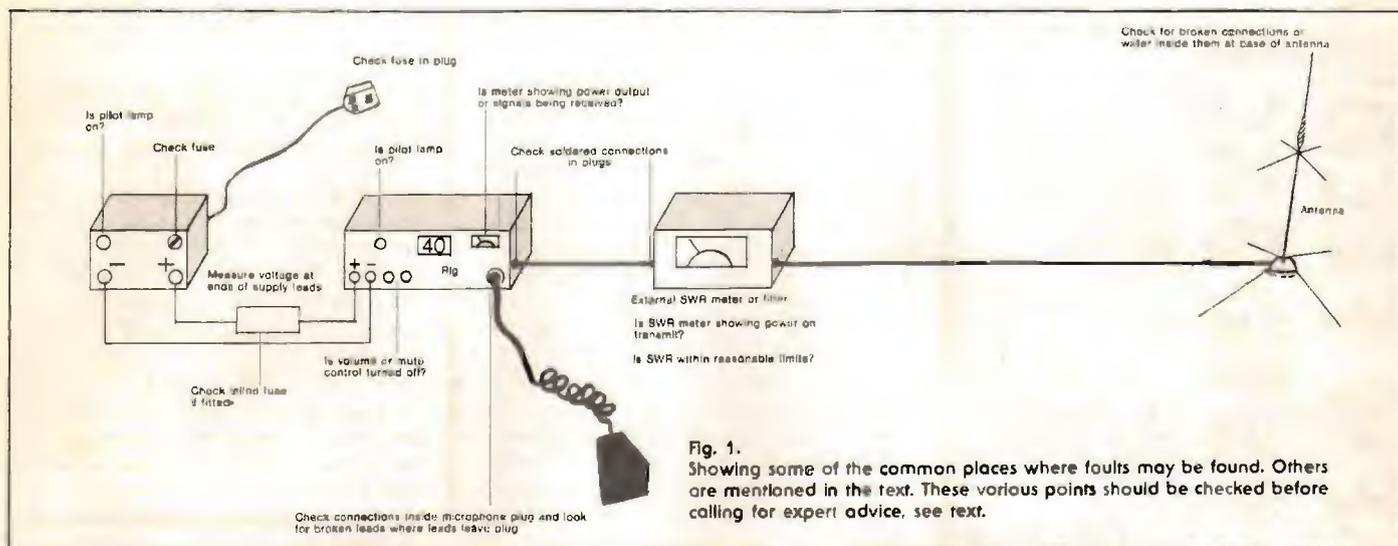


Fig. 1. Showing some of the common places where faults may be found. Others are mentioned in the text. These various points should be checked before calling for expert advice, see text.

Are any pilot lamps alight? If they are not, it may be a blown fuse. Each time you switch on the fuse has to handle a surge of current and this causes the fuse wire to 'flex' and in time this weakens it and it breaks. If replacing the fuse cures the lack of supply then that's what it was but if it blows again, you have more serious troubles. When a separate power supply is in use, did the fuse blow before or after the actual rig was switched on? If the power supply was on but the fuse did not blow until the rig was also turned on, the fault is most likely internal to the rig and expert advice will be needed. However, if the fuse blew at once, it could be due to a short along the lead and it is worth checking that it's not 'trapped' under anything which has penetrated the insulation around the wire, e.g., cable clamps or staples.

In the case where the power supply is OK but the rig is still dead, further checks can be made. When operating the receiver, is the tuning meter showing stations being received although you cannot hear anything? If so, you may have a faulty speaker or extension-speaker plug/lead, etc. and another could be tried. Have you left the mute fully on or the volume control turned down? If the receiver isn't showing any signs of signals, is the antenna still connected? Try transmitting, is there any indication of output on the SWR meter? If no, perhaps the antenna is faulty or disconnected. It could be due to a faulty soldered connection in the antenna plug or lead to or from any external SWR meter or filters. Try the antenna directly onto the rig. If it is then OK, suspect a faulty accessory or connecting lead.

If the receiver is working normally and you get a power output reading when transmitting but no contacts, it is possible that you are not modulating. This could be due to a faulty microphone lead, as these get a lot of flexing and pulling which will cause a break in one or more wires. This break is normally at one end so carefully remove the plug cover and have a look at the internal connections to the plug's pins. Breaks will normally be found where the wire cable leaves the end of the plug cover and cutting a

few inches off the leads and remaking the connections will effect a cure. Be very careful to maintain the same connections which should be colour coded. A break in one of these leads could also prevent the rig receiving as sometimes the rig's loudspeaker is connected via the switch in the microphone. Failure to switch to transmit could also be due to a faulty lead. Trying another microphone lead from a similar rig should prove this.

Keep any checks to the *external* parts of the rig and only then, if nothing is found, should you consider seeking expert advice. Never be tempted to interfere with the internal parts because if you make a mistake you could greatly increase your repair bill. Having decided that you need expert advice, the next step is to make things as easy as possible for the dealer. Do not take the rig back and give him a verbal report on what has happened. At best, he will pass it on to the engineer in a garbled form or, more likely, forget what you said due to other pressures. Always put in writing what is wrong and attach this to the rig so that the engineer who gets the repairs to do can read it for himself. Put down as much information as you can. It's absolutely no use at all just saying "The rig doesn't work". Tell him if it's OK on receive or transmits but won't receive, if it's intermittent or only goes faulty after two hours, etc. These 'clues' can save a competent engineer considerable time and save you money. The average dealer wants satisfied customers and will do all he can to maintain them because it's cheaper in the long run but you must help as much as you can. Do not assume that your dealer is out to 'con' you. He's not, he wants to stay in business and needs your continuing trade but if you do really feel that you have a grievance then your local Trading Standards and Weights and Measures Department will advise you regarding your legal rights. However, it may be a bit tricky if you are using illegal equipment!

Finally, this month, Fig. 1 may be of help in locating some of the simple faults that can put you 'off the air'.

Round Up

Community radio

Recently in the Free Radio series, we published an article on the case for community radio. Anyone becoming particularly interested in this area might like to read *Not The BBC/IBA* by Simon Partridge, one of the prominent campaigners in this field. The book covers the history of the campaign, practical advice on getting a station off the ground and lists of useful organizations and publications.

The book is published by Comedia Publishing Group, 9 Poland Street, London, W1 and costs £1.95 paperback, £5.00 hardback.



Apology

We apologize to AKD and Telecomms after printing their trade only advertisement in the September issue of CB Radio Magazine.

This mistake was CB Radio Magazine's fault and it is not the intention of either AKD or Telecomms to supply the public with equipment at trade prices. For correct retail prices, see the AKD/Telecomms advertisement in this issue.

Happy Talking

Everyone went around last summer with a small pair of earphones strapped to their heads and feet tapping to an unheard rhythm. This year it's the turn of personal CB, not personal hi-fi.

The Shuttlecock is being widely sold through CB dealers although it operates on 49MHz. The transceiver operates on one channel and is very

small so it will fit neatly on a belt or in a pocket. Because it's battery powered it has a limited range of approx. ¼ mile. The Shuttlecock sells at approx. £39.95.

Maxcom are also releasing a personal CB, the Speak Easy, operating on FM channel 33. It operates in the same way as the Shuttlecock by having an earpiece, small whip antenna and a small transceiver unit. However, as well as having a VOX boom microphone it can also be operated by a Press to Talk button on the transceiver. The Speak Easy is also battery powered with a ¼ - ½ mile range and is fitted with a three stage microphone sensitivity switch to compensate for background noise. Retail price not known at time of going to press.

A Free Radio Update

A few useful addresses for those of you that have been following the Free Radio series.

Air Sounds and Spectrum Magazine, 36, Nottingham Rd., Lowden, Notts., NG14 7AP.

Relay, the other magazine about the airwaves, Box 12, 2a St. Pauls Rd., London, N1. A magazine campaigning for the development and legalization of new and alternative forms of radio.

Free the Airwaves campaign, 2 Warwick Crescent, London, W2.

Com Com, Community Radio Group, 92 Huddleston Rd., London, N7 OEG. National lobby for campaign for community radio. Com Com are staging a one day conference on Saturday 25th. September. More information from Simon Partridge on 01-263 6692.



24 Hour round Britain Drive

Someone who believes in planning ahead is Mick Duggan of the Gateway clubs of Hillingdon. Mick and Adrian Sidnell will be attempting a non stop drive around England and Scotland within 24 hours on the 1st. July 1983.

Mick and Adrian are hoping for as much sponsorship and as many donations as possible to provide transport for mentally handicapped children - their target is £5,000. They

will be on channel whilst the run is in progress and hope to make contact with CB'ers en route. They also hope to meet local clubs and receive donations on the journey.

Their list of 'pass through' towns include Bury St. Edmunds, Norwich, Kings Lynn, Grimsby, Humber Bridge, Newcastle, Edinburgh, Glasgow, Bristol, Exeter, Southampton, Brighton and back on to Hillingdon to arrive at the Gateway Club annual fete the next day.

If any local clubs or businesses would like to help with fund raising and donations contact Mick Duggan c/o Gateway Club, Moorcroft Social Centre, Harlington Rd., Hillingdon, Middlesex.

CB Service

As mentioned in last month's introduction, we are hoping to start a readers' service for advice and information. If you feel you can help solve Mrs. Snell's problem, outlined below, please write to her via the magazine.

Dear Sir,

I live on the banks of the River Severn and the roof of my house is just about level with the protective sea-wall. I use a York JCB 863 as a home base and a DV27 antenna mounted on a ground plane on a 17ft. scaffold pole. My usual copies are made with about a dozen local village breakers and others mainly from Caldicott - five miles S.W. across the River Severn. In all other directions, I have a 5-7 mile radius of low-lying agricultural land and beyond that either the industrial complex at Avonmouth or hills which cover an area of seven miles block any signals incoming or outgoing. Can any reader suggest a suitable, legal home base antenna that may get me out further as sitting with a rig that hisses and crackles most of the time is most soul destroying.

G. J. Snell

Eavesdropper - overheard on channel

"I've just got in from my round."

"10.4. What's your handle?"

"Paper Boy."

"Oh, do you deliver papers then?"

Two breakers on channel

1st breaker: "What's your works 20?"

2nd breaker: "I work for Tube Investments."

(Tube Investments is a very large national 'parent' company which owns many other individual companies scattered across the country...)

Irate breaker on the side: "If you work for TI, do you know anything about our cooker? It was sent back to you lot three weeks ago and we haven't heard anything since!"

(... including one which makes cookers).

And from our friendly CB shopkeeper

Perfect SWR

Customer: "There's something wrong with this twig".

Shopkeeper: "What's the problem?"

Customer: "Well... I've got 1:1 SWR - it's perfect - until I key the mike and then it goes right over the red".

Jumped-up customer

Enter customer - who looks around and takes great notice of his surroundings. (Shelves and shelves of CB equipment). On being asked if he would like any help, he leaned over the counter and, in a strong West Indian/Birmingham accent, says "Got any red leather jump suits?"

Foull

Man opens the door, leans through and asks cheerily, "How much are your referees' whistles, mate?"

SWR spray

1st breaker: "... and I don't really understand why the SWR has gone up".

2nd breaker: "The big problem with base antennas is that they're stuck up in the air all the time and collecting all the muck in the atmosphere. You need a can of SWR spray."

1st breaker: "A can of WHAT!"

2nd breaker: "SWR spray. Think about it. Your antenna is getting all the muck deposited - including lead from petrol in the atmosphere. Because lead is a metal, over a period of time, it will alter the SWR of a base antenna if enough builds up on the antenna".

1st breaker: "Oh... yeah, I see."

2nd breaker: "So you need to get a can of SWR spray. It costs about £1.60 but it's worth it because it will do two or three applications. What you have to do is take the antenna down, wash it off to get the lead off and then cover it with the SWR spray. The spray will stop any more lead building up and will stop the SWR getting steadily worse".

1st breaker: "Where do I buy a can?"

The impossible copy

A truly remarkable meeting took place between two breakers at Bracknell Breakers' Club. Some time previously, I had been privileged to earwig what I have since titled 'The impossible copy', which will explain why I refer to it as a meeting and not an eyeball, if you read on.

When I tell you that one of the two breakers concerned is totally deaf and the other is totally blind, I think you will agree with me.

Gold Mine (John) is 32 years old and has been totally blind since the age of nine. Silver Mist (Sarah) is just 17 and has been deaf since birth. CB has brought these two together through Jade Lady (Beryl), who is Sarah's mother and also a member of Breakers' Link, a group who set out to provide rigs to handicapped breakers. To my mind, especially in this case, she is a real breakers' link, for what happens is that when Sarah is on channel, Beryl sits beside her repeating the received copy so that Sarah can lip read. Sarah, herself, has mastered diction and lip reading to such a high degree of perfection that when you eyeball her it is difficult to realise that she has no hearing.

John, on the other hand, is no less remarkable in the way he has overcome his handicap. He has been a licensed 'ham' for some time, finding that CB has now brought him a whole batch of new friends much nearer to home. Both of them are popular breakers on the senior citizens' and handicapped persons' net that is held in Bracknell every day at 11.00am on channel 39, called George's Happy Hour. Both John and Sarah live their net up more than somewhat, where their example of how problems can be overcome is an inspiration to all who hear them.

Photo courtesy Colin Mutlow.
From Broken Spring



NEWS REVIEW



From hippies to royal babies

News Review this month covers an assortment of topics ranging from a hunt for a missing child to a convoy of lunatic hippies causing trouble in nine counties in the South of England - the latter receiving front-page coverage in the Sun. Other topics include CB thefts, the Suffolk EARS, sponsored chatter and even a suggested handle for the royal baby.

Breakers who use the A45 in Suffolk will also be pleased to hear that the CB teas service run by Sugar Puff and Rice Krispie is now back in business after being banned from the Haughley picnic site.

Sun (Front Page)

Gun convoy hippies attack police

An armed convoy of 300 hippies rampaged across Britain on 5 August, leaving in their wake 15 injured policemen.

The gaudily-dressed mob - carrying shotguns and machetes - repeatedly clashed with police on their incredible journey. They left a trail of destruction as they drove across nine counties from Gloucestershire to Norfolk. Throughout the journey, hippy henchmen used CB radio to control the mile-long convoy of vans, lorries and buses. The 'peace people' declared war on anything or anyone who stood in their way.

They turned on police when officers tried to split up the makeshift convoy. The trouble began when the weird mob decided to break camp at Chipping Sodbury, near Bristol, where they had lived on common land for three weeks.

Whilst trying to re-route the hippies as they reached the Cotswold town of Cirencester, a police driver was surrounded and attacked.

Trouble flared again as the mob rolled into Witney, Oxfordshire. Police ordered the convoy to stop - and were set upon. Three police officers were attacked by hippies brandishing iron bars and pickaxe handles. Consequently, 14 men and one woman were arrested.

Sunday JOURNAL

No. 44 August 8 1982

DELIVERED FREE TO HOMES THROUGHOUT THE N.W. LONDON AREA

JUBILEE HOUSE, THE OAKS, RUISLIP, TELEPHONE 0182 86 74111
HEAD OFFICE: SYDNEY/ST. GABRIEL ROBERTS/03000

Car mows down 9 in gang feud

TWO DEAD IN CB WAR

Why we shoot horses

THE police yesterday admitted their policy of sending horses to the knacker's yard when they become too unfit to work.

A top officer in the Mounted Branch of the Metropolitan Police claimed the horses would not be happy being retired.

"They need the company of other horses and people. They would miss us," said Acting Chief Superintendent George Fleming, officer-in-charge of the Mounted Branch.

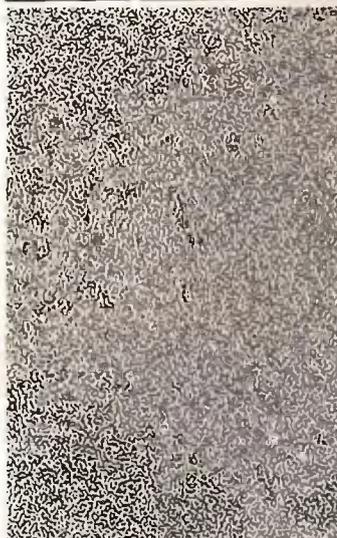
At Fleming, speaking at the police station in Hyde Park, added: "The way some of our horses wouldn't be happy retired. A lot of old horses is kept at work, not put out to grass."

Drummers that the animals are humanely destroyed and their carcasses sold to pet food has caused a public outcry.

Fleming, officer-in-charge of the Mounted Branch.

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Drummers that the animals are humanely destroyed and their carcasses sold to pet food has caused a public outcry.



TWO teenagers were killed and 10 injured when a bitter feud between Citizen's Band radio fans exploded into violence.

Rival CB fans clashed outside a pub in north London.

The trouble began when the rival groups, known as the 'Reds' and the 'Blues', met at the pub. The 'Reds' were led by a man known as 'Red' and the 'Blues' by a man known as 'Blue'.

The 'Reds' were known for their aggressive behavior and the 'Blues' for their more peaceful demeanor. The clash between the two groups resulted in the deaths of two teenagers and the injury of ten others.

EXCLUSIVE

By SIMON HEPTINSTALL

It has been believed that the 'Reds' were allowed to control the area around the pub. The 'Blues' were known for their peaceful demeanor and the 'Reds' for their aggressive behavior.

The clash between the two groups resulted in the deaths of two teenagers and the injury of ten others.



Sting loses star role to a punk

PUNK rock singer Johny Rotten says he has pushed David Bowie and Sting out of the spotlight in a new film.

Rotten, who now runs his own record label, claims to have the new film made more to the liking of the punk scene. He says that the film was made after he had seen Bowie and Sting, but says he will not play the part of a terrorist in a film which would play a part in the new scene.



JOHNNY ROTTEN

Uxbridge Eastcote Ruislip Northwood Hayes

News of the World

CB fans help to find babe missing in the woods

Toddler Richard Gray is now safe after a massive 20-hour search by police aided by CB fans. He had spent the night in a wood and told his mother a fox growled at him.

The hunt began after two-year-old Richard wandered from his home in the Leicestershire village of Egleton.

Police scoured the countryside and frogmen searched the huge Rutland water reservoir nearby. Eventually a policeman found Richard in undergrowth in a wood half a mile from his home. "He was well but very hungry and tired," said Supt. Cliff Kendrick, who led the search. Richard was returned home by a local farmer in his Land-Rover after the police had informed his mother of the good news.

Birmingham Evening News

Footprint led to CB radio thief

Car burglar Mark Hazell put his foot in it when he stole a CB set from a parked car. Police found a clear imprint of his shoe left on a piece of paper in front of the car and they traced it to Hazell, who they were already questioning about the ownership of another car.

Hazell, from Kingshurst, was placed on probation for two years after admitting the two charges to Birmingham magistrates.

East Anglian Daily Times

CB radio 'invaluable' way to get aid to accidents

Several doctors now believe CB radio to be an invaluable asset for getting help to accidents faster, according to a West Suffolk GP.

Doctor Andy Mason, founder and president of the Suffolk EARS, told a public meeting at Bury's Athenaeum that CB radio was invaluable, especially when there are no telephones nearby. In the meeting, called by EARS to explain their service, Dr. Mason said that he had often been called to the scene of an accident too late.

About 40 people attended the evening and a film called 'You Can Save Lives' was shown.



Carry on brewing: the A45 tea ladies reappear five days after court ruling

By Peter Cole

SUGAR Puff and Rice Krispie were back in business yesterday selling refreshments to lorry drivers and motorists on the A45 between Stowmarket and Bury St. Edmunds.

Last Thursday Citizen Band radio enthusiasts Sugar Puff (Mrs. Irene Petti) and Rice Krispie (Miss Sue Talbot) agreed to a court injunction banning their mobile snack bar from the Haughley picnic site.

They had been trading as CB Teas and talking to lorry drivers on the citizens' band radios in the picnic site area since last year.

They agreed at Ipswich County Court last Thursday not to trade within a mile of the picnic site and yesterday they were back in business serving drivers who stopped at a lay-by about two miles away at Woolpit.

Meanwhile, Mid Suffolk District Council's chief planning officer Mr. Bernard Horstead said he has asked if public money can be made available to provide proper facilities for motorists.

Irene and Sue, and Mr. Alastair Melver, who has been working with them for about two weeks, put the van on the grass verge at Woolpit next to a lay-by on the Bury St. Ed-

Northern Echo

Romping home

If his dad buys him a CB radio,

The Marriage Breaker

CB COUPLE IN SECRET HIDEAWAY

A Birmingham mother has left her husband and gone to a secret hideaway after an affair over the CB radio.

Susan Harrison, 35, disappeared at the end of a Citizens' Band meeting in Birmingham. She is believed to be in Wales with Mr. Albert Rose, also 35, whose CB name is Dusty Bin.

Mrs. Harrison, called Wedding Ring, has left her husband Michael, aged 37, and two sons, Dean, 14, and Stephen, 10, at their home in Pound Road, Druids Heath.

The boys, and fellow-breakers in the area, have tried to contact the couple but with no luck.

Wrecked

Now Mr. Harrison, who has been married for 17 years, has banned the CB rig from being used in the home



Mrs. Susan Harrison with her husband Michael, who said: "CB has wrecked my marriage."

and blames it for breaking up his marriage.

"I never wanted the thing in the first place," said Mr. Harrison. "It has wrecked my marriage and I never want

to see it again.

"All I want now is for my wife to return home

Mr. Rose, who is unemployed, lived just a quarter of a mile away in Ashwater Drive with his parents,

young Prince William of Wales already has a handle - thanks to a Middlesbrough lad.

Regal Romper was the handle chosen out of thousands of suggestions after Radio 1 DJ Adrian John asked his listeners for a royal handle.

"We were inundated with ideas ranging from Rockin' Ruler to Prince Charming," said Adrian, "but Dave Simpson's Regal Romper caught the judges' imagination."

"It came to me right away," said Dave, whose handle is Smackwater Jack - chosen by his wife for reasons best known to herself.



The Journal

Charity chatter

CB schoolboys Simon Rushton and Mike Gilligan were nursing sore throats last night after a marathon chat on the airwaves. The two pupils of Dame Allan's School, in Newcastle, got together for a three-day broadcast

in aid of charity. They began their talk-in at Simon's home, in Gateshead, Newcastle, on Tuesday, 13 July and continued for more than 72 hours of continuous transmitting.

Simon and Mike thought up the idea to raise money for the Cheshire Home near Consett. They plan to buy the home a home base set.



Daily Telegraph

CB radio ban on bailed wife

Beverly Wheeler, 32, was amongst seven people who appeared at Croydon court last month accused of wounding her husband, Michael Wheeler, who was shot during an incident involving several CB enthusiasts in Shirley, South London.

Mrs. Wheeler, of New Addington, Surrey and the other six accused, were remanded on bail until 10 September. Amongst the conditions was a restriction forbidding them from contacting the victim or witnesses personally or by CB radio.

The Death of Channel 9?

The sad state of channel nine

It was intended, as you may remember from last month's monitoring article, to take a look at THAMES (Traffic Help And Monitoring Emergency) group this month in very much the same way we had looked at REACT. In fact, this is what I had started to do but events overtook me and this article is not as originally planned!

To understand what happened to THAMES in London during the beginning of August needs a lot of background explanation. It's fair to say that out of all the monitoring organizations, THAMES, certainly in London, has been the subject of considerable criticism. We have had correspondence from breakers complaining of, amongst other things, the wearing of uniforms by THAMES, also the apparent lack of screening and training of prospective monitors and a belligerent attitude on air. We have also had an ex-THAMES area controller come in to our office and explain why he felt he couldn't continue as a monitor. There has also been criticism from THAMES groups throughout the country complaining of the lack of communication and support from the national board – so much so that I have heard of areas that operate THAMES teams in name only – they run the group themselves independently of the THAMES National Board.

The majority of THAMES's problems stem from its size and its origins. Started in the South East in early 1980 on the illegal AM system, the system grew rapidly to cover other areas of the country, although it has always been strongest in Greater London. The actual membership in numbers has been difficult to discover; the THAMES handbook refers to over 2,500 monitors (for the country) but the London County Controller told me there were 'over 9,000' monitors in London alone. Whichever is nearer the truth, it is a lot of people to control effectively, especially since they are volunteers, offering their services free.

The other major obstacle to THAMES's success is that it sits uneasily on the line between legality and illegality. The monitors are split between monitoring AM and FM and the feelings run high amongst the AM monitors who think that FM should never have been legalized and are determined to remain on AM. Whilst not passing comment on whether this is right or

not – it does mean that THAMES is divided over a fundamental issue. THAMES were not prepared to tell me what percentage of the membership monitors FM and what percentage are on AM.

Every breaker knows the state of affairs at the moment on FM CB and that there is a minority of people who enjoy the challenge of breaking an accepted rule or tradition. This results in the bad language and music playing that has spread across the 40 channels and which has also happened on channel 9. Unfortunately some THAMES monitors are easily drawn into arguments with the perpetrators – which effectively blocks off the channel even more. Of course, THAMES itself cannot be blamed for this; its rules do expressly forbid monitors being drawn into argument, using 9 for anything other than emergency and ordering breakers off channel. For all that THAMES monitors in London have gained a bad reputation for trying to police channel 9 and attempting to enforce channel 9 as emergencies only. (Whilst this is an accepted convention, there is no legal restriction on channel 9).

Now to backtrack a little. Whilst starting my research for this article, several breakers drew my attention to the 'West Hampstead Mafia'. So nicknamed by other breakers in the area, the 'Mafia' are a group of FM breakers (although they have links with AM too) who started listening in to channel 9 FM and were horrified with what they heard – not so much at the level of general use on a supposed emergency channel but at the behaviour of some of the monitors. They also did some test emergency calls to see what sort of reply rate they got, both in London and country areas. They got an 'official monitor' response of less than 30%. With such results they are disgusted that monitoring organizations and CB magazines (they include us!) in their words "perpetuate the myth that channel 9 is an effective, 24-hour emergency system". They are convinced quite firmly that it is nothing of the sort and decided that there was no reason to consider channel 9 as a special emergency channel. In fact, they were so angry they decided to use 09 where possible for general conversation and for putting over their campaign that the monitoring systems should be stopped before they cause irreparable damage. Their attitudes are clear in the Limo Bravo song. (Lima Bravo is the prefix for THAMES units in London).

*Chorus: I'm a little monitor,
I sit upon the nine.
The only problem is, my friends,
I'm not here all the time.*

*I've been around the country,
I'll tell you what I've found.
I've put out a lot of 33's,
But no one was around.*

*Now to be a little monitor,
And there are so very few,*

*There's just one thing you've got to have –
And that's a low I.Q.*

*This is my breaking channel:
It is my little perk.
I get my distant copies,
It's my own little network.*

*I know it is impossible
To monitor all the air,
To cover every square mile –
But what do I care.*

*Now I am here to save your life,
I tell you that is true.
But if you talk upon the nine,
I'll smash your head in, too.*

*The friends of the monitors,
They're abusive all the time.
They key you out, they'd bring you down,
Though you're not committing a crime.*

*I want to know your handle,
But I won't reveal my own.
I hide behind my number,
So you will leave me alone.*

*I'm a little monitor,
A badge upon my chest,
I'm full of self importance.
But I'm really like all the rest.*

*And I've got no legal standing,
Of that I am so sure.
And if I say, "Please go away,"
It ain't a big 10-4.*

*Now if you are in trouble,
Don't you be a fool.
Don't you use the number 9,
Because I don't know what to do.*

*And my advice to you, my friends,
Is proven and is sure,
That if you are in trouble,
Go use the 1.4.*

*And there's a last thing I must say.
I tell you it won't take long.
We've got to stop the monitors
Cos' I'm sick of singing this song.*

The depth of feeling behind this song is obviously very strong and it is regularly played on channel 9 in the Hampstead area. The main point the West Hampstead Mafia are trying to make is that, in their opinion, monitors are not trained, are not competent and are not always there – so they

shouldn't be relied on. Although their comments were originally general, they were increasingly aimed at THAMES, especially in Central and South London and, unfortunately, it would appear that THAMES monitors were substantiating their claims, especially as threats were made by THAMES monitors against people associated with the Mafia and their property. Certainly at this time channel 9 was unusable in London for large periods of time through a combination of the West Hampstead Mafia, irate monitors and the general use of channel 9.

At the same time this was going on, I was still trying to research THAMES in the same way as REACT and had made an appointment to meet the London County Controller and Deputy County Controller. They gave me a run down on how THAMES as a whole and London individually was organized - something which has since changed. Terry and Roy were quick to own up to problems that THAMES were experiencing and defended some of the comments aimed at them.

The vexed question of uniforms quickly appeared. THAMES have come in for some heavy criticism on their 'paramilitary'-style uniforms which officers from area controller upwards wear. Critics maintain that these are worn for self glory rather than any practical purpose - something which Roy and Terry deny. Roy was particularly keen to emphasize that discipline is necessary even in a voluntary organization and that the uniform helped maintain discipline and respect. Roy also felt it helped police and the emergency services recognize those in authority on something like a missing child search.

THAMES has certainly lost members recently; there is great dissatisfaction with the organization and a great lack of communication - one ex-monitor I spoke to had been monitoring for six months and had only ever been to or been told about one monitors' meeting. Monitors are also disillusioned with the state of channel 9, although their detractors say they only have themselves to blame.

Terry, the London County Controller, assured me that all of London was covered 24 hours a day by THAMES monitors - a comment that has to be reconsidered in view of their own later findings that they had trouble in raising any when out on a test run. It is also Terry's opinion that monitors "do not need training" and accordingly it is left to the local group controller to prepare new monitors for going on channel. Therefore, no grounding in basic radio procedure or getting the required information is given.

Roy said to me that "There is an awful lot wrong with THAMES, we can sort it out and put our own house in order but it's not going to be right overnight". I was invited to an area meeting in North West London a few days later to see THAMES operating and hopefully 'putting its house in order'.

Before the meeting could take place, a serious incident put the

meeting and the future of channel 9 (in London at least) in jeopardy. Brake fluid was tipped over a car belonging to a prominent member of the West Hampstead Mafia and it was alleged that a member of THAMES was seen doing it. It's not the place of this magazine to get involved in whether this was true or not - although it is true that feelings on both sides were running so high that it's not surprising that something of this nature happened.

The immediate result of this incident was that channel 9 was completely blocked by a carrier transmitted by the outraged Mafia. This

proved nearly impossible to keep the meeting under control and some of the worst aspects of THAMES became obvious. Although Derek from the West Hampstead Mafia was able to give his opinions on the monitoring service and its faults, very few other people were able to express their opinion without being shouted down and very few constructive ideas came out.

The tension so evident in the meeting resulted in the monitors present deciding to break away completely from THAMES and form an independent organization and inviting other parts of THAMES to go with them. The newly-named United Breakers Emergency Services, however, didn't last long, since Terry and Roy, who were going to head the new organization, decided that their loyalties lay with THAMES and spent the next few days phoning around reversing the decisions of the meeting. So in theory THAMES in London is reunited and presenting a united image.

For all that there are still some serious questions that remain unanswered and some decisions that remain unchallenged; if the organization of THAMES was not enough in the past to stop disintegrating - will it be any better in the future? Are there too many people acting in self interest rather than in the interests of breakers? Are there likely to be any effective attempts to weed out the unsuitable monitors? Will there be any training in the future and an age limit enforced? (There was supposed to be an age limit of 16 but this was not adhered to. Unfortunately younger breakers cannot be expected to have the maturity of older people in dealing with emergencies.)

There are other disturbing aspects, too. How could a meeting of just 50 monitors make the decision to split off from THAMES when other monitors in the area were not consulted? Will the universally unpopular uniforms be reconsidered? I suspect not, as there was talk of enforcing stricter discipline and the hierarchy attitude is too firmly established for those in power to want to lose it.

So back to the dramatic heading. Channel 9 was dead in London for some days and without legal enforcement or a big change in attitudes I can't see it improving to the extent of being fully workable. Many breakers now feel that channel 9 doesn't deserve any respect and this isn't just happening in London. Unfortunately episodes like the one described in this article would make most breakers agree that it doesn't deserve any support either. THAMES, through some of its irresponsible monitors, has gained an unenviable reputation and this is likely to carry over to channel 9 itself. This is sad for the many sincere and well-intentioned THAMES monitors who have become involved in a situation not of their own making but between the West Hampstead Mafia and THAMES, they have within a short space of time undone any useful service that channel 9 could offer.

SS

MINOR INCIDENT LOG sub 1

DATE	TIME	TYPE
Exact Nature Of Incident		
Informant		
Location A.		
Location B.		

Advice/Info

EMERGENCY CALL LOG sub 1

DATE	TIME	TYPE
MISB	Speak CALMLY and CLEARLY	
DES	This is THAMES (call sign) receiving. What is your Message and exact Location please	
CL	Location	
	Where is the incident.	
	What is the nearest junction or landmark.	
	How many people are injured	
	What are their injuries.	
	How did they occur	
	If anyone trapped.	
	On which floor is the fire.	
	On which floor is the fire.	
	Why do you require Police	
	Description of vehicle or suspects	
	If contacting the Emergency Services now, please standby at your location and on channel 9.	
	999 Call times at: T.A.	
	This is THAMES (call sign) the Ambulance/Police/Fire Brigade are on way, please confirm their arrival.	
	Call sign of mobile (voluntary)	

NOTES

CALL SIGN

effectively meant that no monitoring service for a large part of London could expect to work and the only activity on 9 was from local breakers who could transmit over the carrier. The area meeting was also cancelled as Roy and Terry were worried that the West Hampstead Mafia, who had been invited to put their view, might come with the intention of causing trouble. In the end the meeting went ahead with just two members from the Mafia, one of them the breaker who had had his car damaged.

The meeting had a turnout of about 50 people, disappointing from an area that has 1,400 monitors on its books. The meeting itself seemed doomed from the start. The underlying antagonism between AM and FM was aggravated by other elements involved, the West Hampstead Mafia, three monitors who intended to immediately resign because of their dissatisfaction with THAMES and the general unhappiness with the national board. It

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Parliamentary Review



This month in the House of Commons questions have been asked about the ethics of allowing the sale of unlicensable radio equipment which is likely to cause interference to other users of the radio spectrum. As usual, these questions are directed at the Minister of State for the Home Office, Mr. Timothy Raison, who in his reply to these questions has made it clear that legislation to prevent the sale of such items will be included in the forthcoming telecommunication legislation.

The result of this action will mean that popular items such as remote telephones, page alerts and, of course, AM and SSB equipment will only be stocked by those shopkeepers prepared to face the possibility of being penalized.

A brief mention was also made in the House of Lords regarding the dangers incurred by adapting motor-cycle crash helmets to accommodate CB headsets. The subject cropped up during discussions on the Transport Bill, in which the subject of crash helmets was under close scrutiny. It is likely that regulations will shortly apply to equipment intended for use with crash helmets in order to ensure all safety precautions have been taken.

The Earl of Avon: The Government welcomes the proposal to cover equipment intended for use in connection with a helmet. For example, with the recent developments in CB radio, intercom sets have been produced for use with 'motor-cyclists' helmets. While the Government has no reason to believe that those at present offered by helmet manufacturers for use with their helmets seriously compromise the protection offered by the helmet, there is the possibility that in ignorance the motor cyclist may be tempted to remove part of the protective energy-absorbing inner lining of his helmet in order to fit the intercom set and action may need to be taken about such points later.

The sale of illicit equipment

Mr. Teddy Taylor asked the Secretary of State for the Home Department

when he expects to bring forward legislation to strengthen the enforcement powers available to control illegal citizens' band transmission and to provide powers to ban the sale of illicit equipment.

The Minister of State, Home Office (Mr. Timothy Raison): It remains our intention to bring such legislation forward as soon as Parliamentary time permits.

Mr. Taylor: The problem is urgent. Does my right hon. Friend realise that many people ask why they should pay a substantial television licence fee when reception is upset by illegal CB radios? Why do we allow illegal equipment to be imported and sold when it cannot be used legally? It is nonsense to allow people to buy goods that cannot be used legally.

Mr. Raison: I agree that the problem is urgent. We hope that the necessary provisions will be included in the telecommunications legislation foreshadowed in the statement made by my right hon. Friend the Secretary of State of Industry on 19 July. Our proposals will cover the sale and advertising of equipment that we do not want.

Investigation delay

Dr. Edmund Marshall: There are delays of up to six months in my part of the country between a complaint being made and its investigation by the enforcement authorities. What are the Government doing to increase the number of staff available for such duties?

Mr. Raison: We are very concerned about the problem and we recognize that delays take place. In conjunction with the police and the radio interference service, we are trying to ensure that the problem is tackled as vigorously as possible. However, the House will recognize that the police, in particular, have many other calls on their time.

Interference by legal sets

Mr. Dudley Smith: Is my right hon. Friend aware that legal users are causing interference and that many television viewers are having to buy

new sets or – if they rent sets – to pay extra to have them modified to circumvent the interference?

Mr. Raison: We have never concealed the fact that problems would arise from legal 27 MHz FM sets as well as from illegal sets. However, I have no doubt that the great bulk of interference derives from the illegal sets on the market. The sooner people stop using them, the better for all concerned.

Mr. Campbell-Savours: Does illegal CB transmission include the use of equipment that is not licenced? Is not the reason that it is not licenced the high licence fee? Is there not massive licence evasion and will the right hon. Gentleman reduce the fee in the proposed legislation?

Mr. Raison: I reject the hon. Gentleman's contention. A licence fee of £10 is perfectly fair and that is borne out by the fact that nearly 300,000 licences have been issued.

European Parliament

Written Question No. 463/82 by Mr. Pearce to the Commission of the European Communities (10 May 1982)

Will the Commission please indicate what legislation governs the use of citizens' band radio in each of the Member States of the Community and what steps the United Kingdom authorities would have to take to bring UK rules on this subject into line with those prevailing in other Member States?

Reply expected shortly!

Sir Patrick Wall asked the Secretary of State for the Home Department what is the total number of (a) citizens band licence forms and (b) forms required to convert an illegal to a legal set which have been issued.

Mr. Raison: No records are kept of the number of application forms issued to the public, but some 300,000 citizens' band radio licences have now been issued and I understand that Her Majesty's Customs and Excise has received about 960 fees of £5 in lieu of import duty and VAT as illegal AM sets have been converted to FM.

DX QSL INTERNATIONAL CLUB SPOT



Come in, the Bravo Bravo 66, yer time is up! Well, hopefully not for a while yet but maybe just long enough to possibly drop me a card. Puzzled? OK then, I'll tell you the whole story. Seems that around about the middle of June, the Bravo Bravo 66, operating out of Birmingham, zonked right into Victoria, Australia and hooked up with Station International 38. Unfortunately, Int. 38 didn't manage to get the full QTH of Bravo Bravo 66 before the skip just rolled on back. The dreaded DX'ers' Dilemma! So - Int. 38, being extremely keen to get in touch with Bravo Bravo 66, got in touch with me and asked me to try and track Bravo Bravo 66. My first thoughts were: "Hmm, easy. Bravo Bravo = Big Ben. Nothing to it." But, unfortunately, Big Ben 66 doesn't tie in with the bit of information that I do have. The first personal of this Bravo Bravo 66 is Raymond and the QTH is possibly Highgate, Birmingham. One other clue I do have is the time. It was 1620 EST in Victoria, which makes it about 5.20am over here. Looks like BB66 is a bit of an early bird. Should BB66 or any of his mates be reading this request, please drop me a card and I will gladly arrange a swap of AD's. I must say, such a very nice hook-up, it would be a shame to miss out on that prized QSO/QSL confirmation.

I received a very nice letter the other day from Sylvia Jones, of Spanish Town, Jamaica, W. Indies. Sylvia has been on the radio just three years but during that time has made many DX contacts and found lots of new friends via CB.

Up till now, Sylvia has received the odd QSL swap out of England but has not actually managed a QSO. However, Sylvia has hooked up with stations in Ireland and Wales which is just as good but it's that elusive English QSO she's looking for. To make matters worse, Sylvia's 14-year-old son has hooked up with Ireland, Wales and England. Bet he rubs it in! Sylvia is Controller for Jamaica and the West Indies, for the Universal International Club, also Jamaican Vice-President of the Kansas Little Apple QSL Club. So you can see, she knows her way around the DX/QSL scene. As with most DX/QSL'ers, Sylvia is a very keen collector of THINGS. (This is how

Allison describes my collections of DX/QSL souvenirs). One of her specialities is State map trays. I've never heard of map trays, they're a new one on me but they sound pretty good. As it happens, Sylvia has been trying for ages to get hold of a tray from England which features the Royal Wedding. Can anybody help? Sylvia promises you some Jamaican souvenirs in return. Check out the QSL list for Sylvia's full AD. In the near future, I'll be printing up information on the West Indies CB scene, courtesy of Sylvia. Look out for this article, it should make good reading. Incidentally, should West Indies traffic be coming in on the radio any time, keep a listen out for Unit 188. That's our friend, Sylvia, trying for an English station.

A bit of gossip for Dirty Doodler collectors now. Think back to the June issue of CB Radio Magazine. Do you recall my sad little tale about Sandy MacKenzie and the mystery of his vanishing DD No. 548? Well, good news. Due to a series of coincidences, a little stockpile of No. 548 has been discovered. I'll give you the back-

thought to it. Well, Sandy, being the gentleman that he is, immediately got on his knees and grovelled! It must have worked because Rosily gave him five. Very kindly, Sandy posted me a copy of No. 548 so that everybody could have a look-see at one of the rarer DD cards. The amazing thing is, when Sandy had this card done up in the early 70's, he eventually had three printing runs done off. That is 3,000 cards. Where are they all? Strange how they've vanished, innit? To keep DD cards flowing into UK, Rosily wants you all to know that she is 100% QSL and holds DD Card No. 642.



She's hoping very much that some of CB Radio Magazine's readers will want to swap cards with her. I reckon there'll be a few takers! Check out the QSL list for Rosily's full AD. Now for a new one on me, a three-part card. I've got Part 2 of DD864/55/66. No. 865 is Annie Oakley, of Olympia, Washington, USA. Can anybody shed any light on Part 864 and 866?

ground to this. A few weeks ago, Sandy was chatting on the radio when Rosily (Pin Cushion) Towner, an old friend of Sandy's, came on the frequency and got into the action. After a while, Sandy began to tell Rosily about all the nice QSL mail which he was receiving from the UK via CB Radio Magazine and also how it mentioned the missing DD No. 548. This amazed Rosily and so it should. She had about 10 No. 548's in her collection and had never given a moment's



OK, let's keep the action Stateside, courtesy of Happy Cobblers. Recently, HC Unit 178 Terry Hannon and HC Unit 196 Bud Moore, of Decatur, Georgia, got in touch with Chris Darlington HC001 and asked if it would be OK to have some Happy Cobbler cards printed up over there in Decatur. Naturally, Chris gave them the OK with the result that Terry and Bud now hold the first Anglo-American Happy Cobbler cards. They've done a wee bit of redesigning on the standard cards and they look good for it. The famous HC logo is featured in the card centre with Old Glory top left and the Union Jack bottom right. Bottom left is a map of Atlanta and the HC Unit No. top right - good-looking cards and a must for a collection. Firsts of a series are always highly prized and these two are no exception. Check out the QSL list for their AD's. Chris is extremely chuffed about these cards; can't say as I blame him, either.

How's the DX treating you these days? Acceptable is it? Good, I'm pleased about that. It seems to have been very kind to Ross. November Yankee 40, lately. Ross kindly sent to me a set of reports which made very good reading. When I first began to read them, I was looking and feeling great. By the end, I'd turned green and was feeling very jealous! Like myself (until recently), Ross is 100% a mobile operator. His station comprises of a Cobra 148 GTL DX fed into an Avanti Moonraker 4ft. whip - original mike, no linears. To really rub it in, Ross told me that at least 80% of his QSO's are genuine mobile contacts, i.e., whilst actually on the move. His very best and longest QSO was with Luigi Craus, IRT 04, operating out of Tome Del Greco, Naples. It lasted 2½ hours of a 4½-hour journey between Filey and his parents' home in Scotland. As Ross says, "Conditions were just right that day". Just right, they must have been brilliant.

Got to admit, it's one of the best mobile QSO's I've come across.

I think that's about enough chit-chat for now. I was now going to give you some facts on Papa Bravo DX/QSL Club of Preston but I've been beaten to it by other CB magazines, which, unfortunately, doesn't leave me with much to say. However, I like the Papa Bravo set-up and consider that Andy Cookson (President) and Ken Wheeler (Vice-President) are a couple of genuine lads who really put a lot into their club and, therefore, deserve the praise they've had recently. Perhaps a wee bit more will not come in wrong. Possibly the only thing left for me to expand upon is the incredible amount and variety of club cards available. These cards are courtesy of The Phantom Scribbler (Artist) and Andy (Ideas and general layout). Not only are club cards available but also very professional-looking personalized cards. The cards are known as Cookys QSL series and word has it that they are becoming very popular collecting-wise. Cost of a master drawing, incidentally, is quite reasonable: a mere £8, not too bad at all. Cooky QSL's are available, plain, coloured or the very

interesting 'photo' series. Further information is available from Papa Bravo Int. DX and QSL Club, PO Box 48, Preston, Lancs. PR1 1AB. To press on, as a club, what does Papa Bravo offer? I can honestly say "Quite a lot", including one of the best UK DX/QSL club patches I've come across. Membership of Papa Bravo is the usual £6 but a quality package is not the only thing you receive. It may sound corny but Andy and Ken are genuinely glad to receive you into the club. CB friendship is a strange creature, here today, gone tomorrow but with Papa Bravo, I think it more lasting. This is, perhaps, best summed up by a nice little piece on the bottom of the club application form: "Friendship via radio and QSL. Hope you will join us. If not, write anyway, we will love to hear from you." Good, aint it? One last item before I leave Papa Bravo. Andy Cookson is holder of Dirty Doodler 979, so he must be a good guy!

OK, enough of murky Preston. Fancy somewhere a wee bit more exotic? How does Bali grab you? Not bad, eh? Right ho then. Courtesy of Barong Bali International DX/QSL Club, let's get ourselves there.

Barong Bali first saw the light of day back in May 1981 although, officially, it didn't swing into action until June 1981. Since then, it has truly lived up to the international part of its name and has now approximately 300 members spread completely around the world. A quick glance in the roster reveals locations such as Indonesia, USA, Ireland, S. Africa, S. America, Lebanon, Australia, N. Zealand, Europe, Japan, Canada, Thailand and so on. A real good distribution of membership.

Unlike a lot of other clubs which have appeared out of nowhere and jumped on the bandwagon, BB was founded by Made Rihayana only after a lot of thought and hard work. The policy and intentions of BB are those

of a self-respecting and good DX/QSL club. "To increase the understanding between people throughout the world and to promote the history and culture of its own country" - in this case, Bali. A far cry from what appears to be the basic necessity of a lot of 'bandwagon' clubs: "To promote the ego of its founder". But I digress. To help Made carry out this policy, he invites and, indeed requests, that should any members have any criticisms, advice or ideas concerning the club and its policies, would they please get in touch with him and make their feelings known. Only a Club President who has confidence in his club would dare to say that. In my club package was a letter of welcome from Made and Club Newsletter No. 1. The greater part of the newsletter was made up of a description of the Republic of Indonesia and its islands in general with Bali singled out for special attention. I found this very interesting and entertaining. Reading this, I discovered the whole of the BB package to be based upon traditional Balinese culture. Not only the designs, as incorporated into the certificate, club stickers, club stamp, etc. but also to the very choice of colours, blue, red and silver. Truly a well-thought-out and remarkable theme. Perhaps the best part of the theme is the amazing club stamp. A beautiful and artistic stamp, which is a pleasure to use. Easily the best club stamp I've ever received. A complete club package costs US\$18 (first class air mail). However, if you find this a bit much to pull out at one go, it can be split up into various bits and pieces. Certificate, club stickers, club stamp and so on can all be bought separately. If you

DX QSL INTERNATIONAL CLUB SPOT

can, though, I recommend you send off the \$18 in one lump. In return, I guarantee one helluva club package which will not disappoint. Everything is classy. I especially liked the Bali souvenirs. I received four items in all, a fan, a bookmark and a traditional flat Wayang puppet. The fourth item? Well, I don't want to say too much in

CB scene in Indonesia. CB appears to have made its first appearance some time in 1977 and, as always a mere handful of people were 'in the know'. Illegal or not, this didn't stop CB spreading and, by 1979, the Indonesian Government had little option other than to legalize it. The CB bug had struck again and claimed yet

lowed by a regional number. If you wish, you can then follow this lot with your own personal call sign. Thus Made's official call sign is Juliet Zulu 14 to which he tags on, not unnaturally, Bravo Bravo. There is a further refinement which is not always adhered to - an identification of your operating status, i.e., mobile or home based. A mobile operator should use M for Michael, a home base, F for Fox-trot. So, Made's full call sign when operating on a LEGAL frequency is JZF14 BB. A bit of a mouthful really but there is a nice ring about it. Thinking about it, perhaps that's what is lacking with UK CB. Some sort of official call sign would surely inspire even the Wallies to raise their radio standards.

Well, playmates, that's about my lot as far as this month's column is concerned. Hope you've found something in it to interest you. Now for the dreaded bits and pieces department. You've probably noticed this last few months I'm shoving in details of nice QSO's I've heard about. Now this is not a competition or anything like that but if you think you've had a rather tasty QSO lately, let me know and I'll print the best ones. To take this one step further, I'm also contemplating the possibility of printing photographs of the relevant stations! So, if you fancy it, let me know your QSO and, if possible, a clear BLACK 'N' WHITE photo of your station (base or mobile). You can even get yourself into the act if you want. As always, to protect the guilty, only Station Call Signs will ever be printed! OK, I'm definitely into my finals now, so until next time, remember these immortal words as spoken by the Bard himself: "Of all those arts in which the wise excel, Nature's chief masterpiece is to QSL".

My best regards to you all, take care, ta, ta. Charlie Hotel EI 25, Bravo Bravo India 222.

Readers are invited to send their news, views, comments. QSL swaps, requests, QSO details and photos to Charlie Hotel, c/o 3 West Street, Tyne and Wear SR3 1EU.

Barong Bali International DX QSL Club Jalan Patimura 53 Denpasar, Bali, Indonesia BBI # 01 Made Rihayana					
	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	Exists but no price available			
6	DX Unit Number	★			
7	Wall Chart	★			
8	I.D. Card	★			
9	Club Roster	★			
10	Club Patch/Badge				★
11	DX Log Book				★
12	Club Accessories	★			
13	Club Information	★			
14	Tourist Information	★			
15	Cassette Swap				★
16	Club Postage	★			
17	Life Membership	★			
18	Discount XYL Membership				★
19	Value For Money	★			
20	Overall Presentation	★			
Total Star Rating		15			4

case I spoil your pleasure but suffice to say it's beautiful. I've never seen anything like it before and it now occupies pride of place on the sitting-room wall. These souvenirs, by the way, appear to be made of a sort of parchment stuff. Not certain what exactly but it drives our cat, Willow, bonkers! She keeps trying to eat them. To sum up, what is Barong Bali all about? On the one hand, a truly international QSL club based upon the native culture of Bali, sending out a magnificent package and on the other? A working DX club operating under the Bravo Bravo India call sign. Made is very active on the frequency, his working conditions being: radio, Yaesu FT707; mike, Turner + 3; antenna, five-element cubical quad.

A very nice set-up indeed. Speaking of radios, let's take a quick look at the

another victim! Legal Indonesian CB is more or less the same as the American FCC specification, i.e., vertical antenna, 40 channels only, 4-watt output on AM, 12-watt output on SSB but, in common with every other CB nation is the world, there is also the illegal specification - anything goes! CB licences are issued via the official Indonesian CB organization - Radio Antar Penduduk Indonesia (RAPI for short). The head office is based in the capital city of Jakarta. As Indonesia consists of hundreds of individual islands, some method whereby each province could be identified had to be devised. The simplest and most effective way was simply to designate each province and island with its own identifying regional number. The province number of Bali, for example, is 14. The official CB call sign is Juliet Zulu fol-

Guaranteed 1-4-1 QSL Swaps

Ian Howell (MoonDog) 13 Ceri Avenue Rhoose Barry S. Glamorgan Wales CF6 9HG (Very nice Cooky OSL No. 37)	Terry Hannan HC178 904 Schoel Drive Decatur GA 30033 USA
Bud Moore HC196 PO Box 824 Decatur Georgia USA (Two very interesting Happy Cobbler cards)	Sylvia Jones Unit 188 PO Box 582 Spanish Town Jamaica West Indies (Can anybody help Sylvia find a tray to commemorate THE WEDDING?)
Rosily Towner (Pin Cushion) 923 Maple Street Hoquiam	Washington 98550 USA (Dirty Doodler Card 642 - any takers?)

DX/QSL Club Calling Frequencies

Greenpeace DX QSL Monitor Group, Amsterdam, Holland. 27 705 USB
Whiskey Deltas Charlie Int. DX/QSL Club, Wakefield, England. 27.455 USB
Sierra Whiskey Group, Mumbles, Swansea. 27 505 LSB
November Papa DX Group, Lowestoft, England. 27.735 LSB

RUFINK

by ZAK

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COULD I SPEAK TO THE MANAGER?

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THAT'S A NEW ONE!

I SAID, I'D LIKE TO SPEAK TO THE MANAGER, PLEASE!

... PLUS YOU'VE GOT TO WEAR A TIE!

I AM!

LOOK! BEFORE YOU START DISHING OUT THE KNUCKLE PIE! I'M REPRESENTING THE OGLERS CB RADIO CLUB, AND I WAS WONDERING IF THERE WOULD BE ANY REDUCTION ON A CLUB ENTRANCE?

GRRRR!

PSST! CB RADIO FREAKS ARE VERY GOOD CUSTOMERS! MUCHO BIG DRINKERS... .. PLenty CASH FOR US!

I LIKE INTELLIGENT PEOPLE LIKE HIM!

YEA! I'M SURE SOMETHING CAN BE ARRANGED, MR. CHAIRMAN... HANG ON A MINUTE!

'NICE BLOKE HIM! ... I MEANT NICE AS A PUBLIC RELATIONS MAN... OH FORGET IT!

GRRRRRR!

... EVER USED A CB RADIO YOURSELF, PAL?

GRRRR!

RUFINK, I'D GET GOING BEFORE ME TURNS UGLY!

THAT'S THE FIRST TIME I'VE SMELT BAD BREATH THRO' SOMEONE'S NOSTRILS!

OH, I'VE GOT YOUR DRIFT... YOU HAVEN'T THE VOICE FOR IT ???!

GRRRRR!

ON SECOND THOUGHTS... I DON'T THINK HE CAN TURN ANY UGLIER!

CB RADIO IS SIMPLE TO USE... EVEN CHILDREN CAN OPERATE IT... EVEN YOU MAYBE... OOPS!

OH! HE'S GETTING SOCIABLE... HE'S SHOWING ME HIS FAVOURITE BUTTON BADGE!

I THINK I'LL HANG AROUND. US FLIES LIKE BLOOD!

I ♥ BREATHING SKULLS

AH! I HOPE MY BUDDY KEPT YOU AMUSED?

HE'S ABOUT AS AMUSING AS HAVING YOUR RIG STOLEN!

RIGHT! THE MANAGER HAS COME UP WITH SOME VERY INTERESTING FIGURES! ... UP TO 50 PEOPLE THE PRICE IS REDUCED FROM £3.50 TO £2 ... OVER 50 WORKS OUT AT \$1.50 EACH!

HOW MANY MEMBERS ARE THERE IN THE OGLERS CB RADIO CLUB?

TWO! ... BUT IT'S IN DANGER OF DECREASING AT ANY MOMENT!

Hi!

WAVE!

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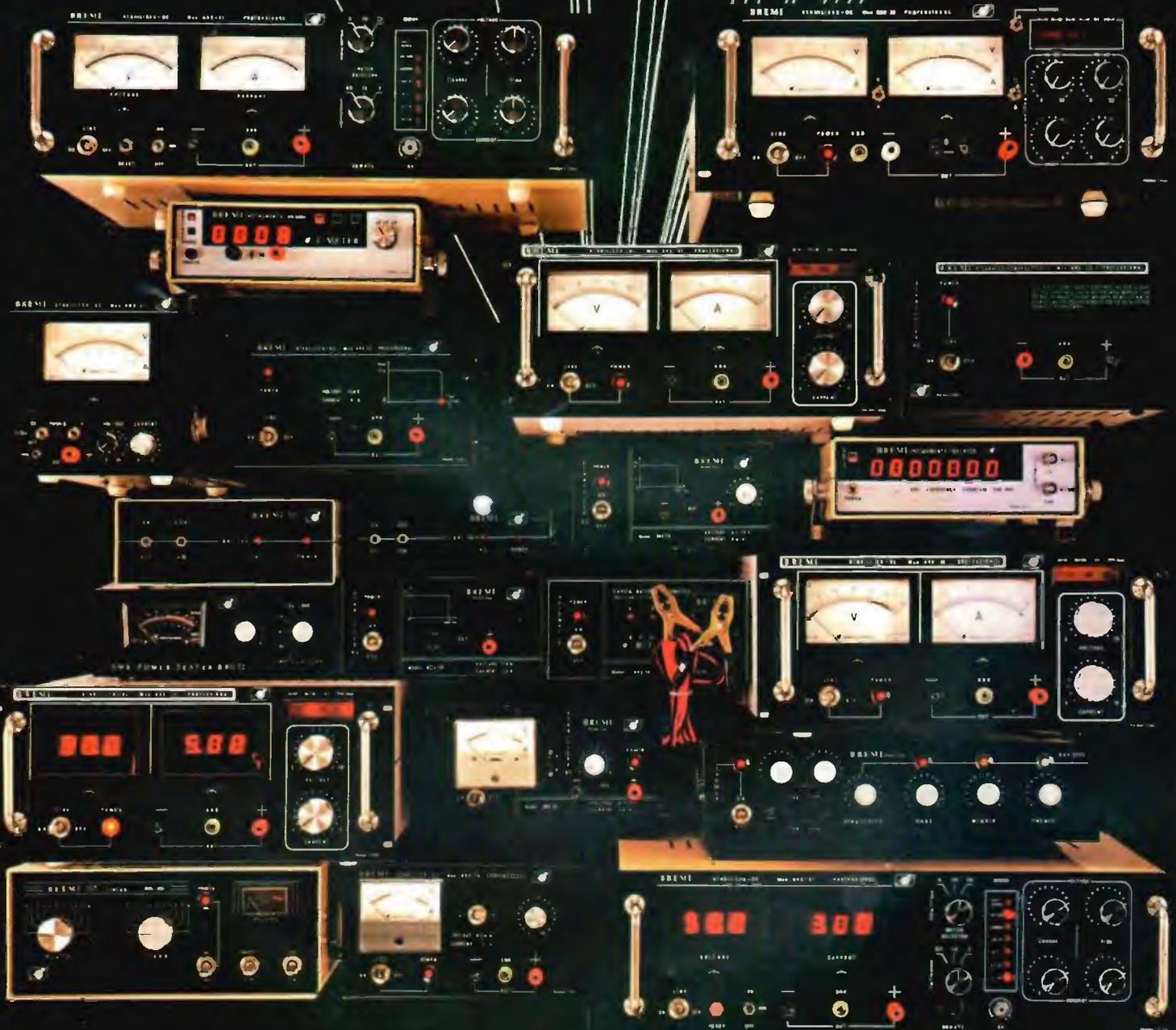
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