

CB World

For Citizens Band and
two-way radio enthusiasts

JUNE 1981

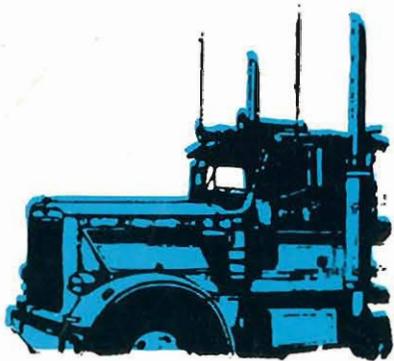
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CBers' handles
Club Corner
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Home base CB**

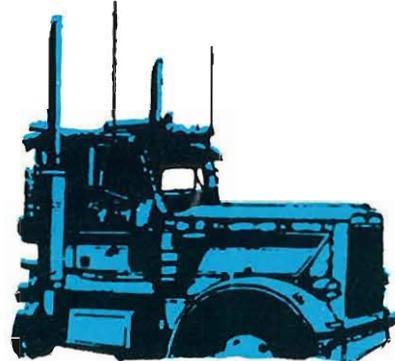


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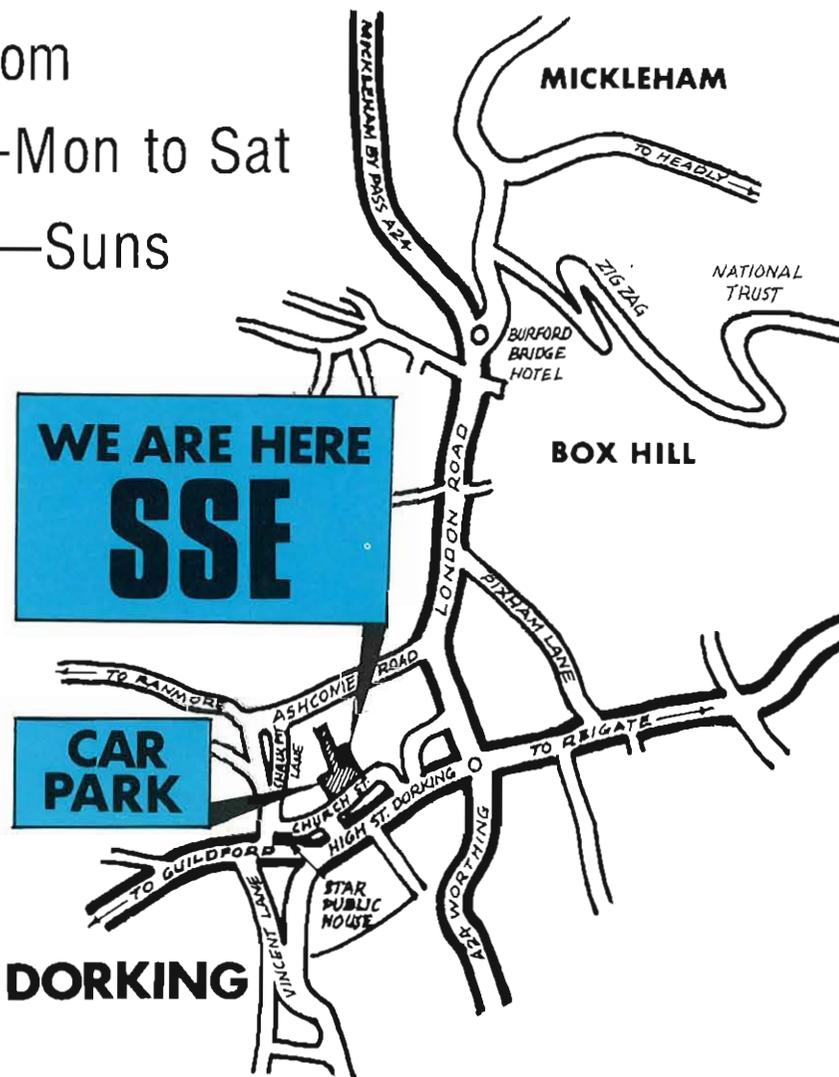
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It is an offence to operate, import or install an unlicensed transmitter in the UK. CB WORLD realises this and points out that it is not our deliberate intention to encourage the illegal use of c.b. equipment.

COME ON!

Welcome to *CB World* monthly. We started life in December 1980, with a sell-out. The next issue, Feb/March, also sold out. Then April/May. Thanks to your response and your letters we are now firmly set for monthly publication. Mind you, every time I sneeze there appears yet another c.b. publication. Will the market support them all? From the hundreds of letters we get each week it seems as if you will be supporting us — thank you. We receive so many it is not possible to print them all. We do read them all through so keep them coming.

Being the leading c.b. publication we tend to get news when it happens, sometimes before it happens. For instance this draft proposal of the Government's FM plans reached us early in April. It is amazing how many c.b. mags guessed on this one — and got it wrong. The U.K. will be allowed two c.b. services.

27MHzFM-40 channels. Four watts at transmitter terminal. The maximum e.r.p. (effective radiated power) will be two watts. 10 kHz channel spacing but from 27.60125 to 27.99125 MHz, plus or minus 2.5 kHz deviation.

930MHzFM-20 channels. 50 kHz channel spacing with 25 watts e.r.p.

I was reading *Citizens' Band* last month — we all read each other's mags you know — and I must agree with their reply to a reader who accused them of being a Home Office magazine praising the merits of FM. Their reply was excellent. In essence they said that thousands of people had invested in AM sets but whilst sympathising we must all have an open mind not a closed mind about the Government's FM proposals. *CB World* is of the same opinion. C.b. is not a religion or a left or right wing political party. We must not get too serious about it. We must get fun out of it. Whether we can get more fun from FM than AM remains to be seen. We said in our last issue that an amnesty should be given to give AM'ers a chance to move over but we understand that this is not to be because of the continuing reports of interference.

You will have noticed in our previous issue that in the International Year of Disabled People, there will take place in September the Mini Olympic Games for the mentally handicapped. *CB World* is supporting this. The Finance Committee for the Games want to give C.b.ers of the U.K. the opportunity to be solely responsible, financially, for the event. Inside this issue you will see a page giving details of CB Clubs who have already decided to make the event their charity drive — why not join them and let us all put back something into the lives of the mentally handicapped athletes who really do get great pleasure in taking part. C.b.ers will also get something out of it — the knowing that we all helped. Down and on the side.

GORDON HENDERSON

The transceivers shown below are typical of the wide range which we shall be offering as soon as the Home Office specification is issued. Whatever your interest and however much you want to spend, Lowe Electronics will have the right rig.



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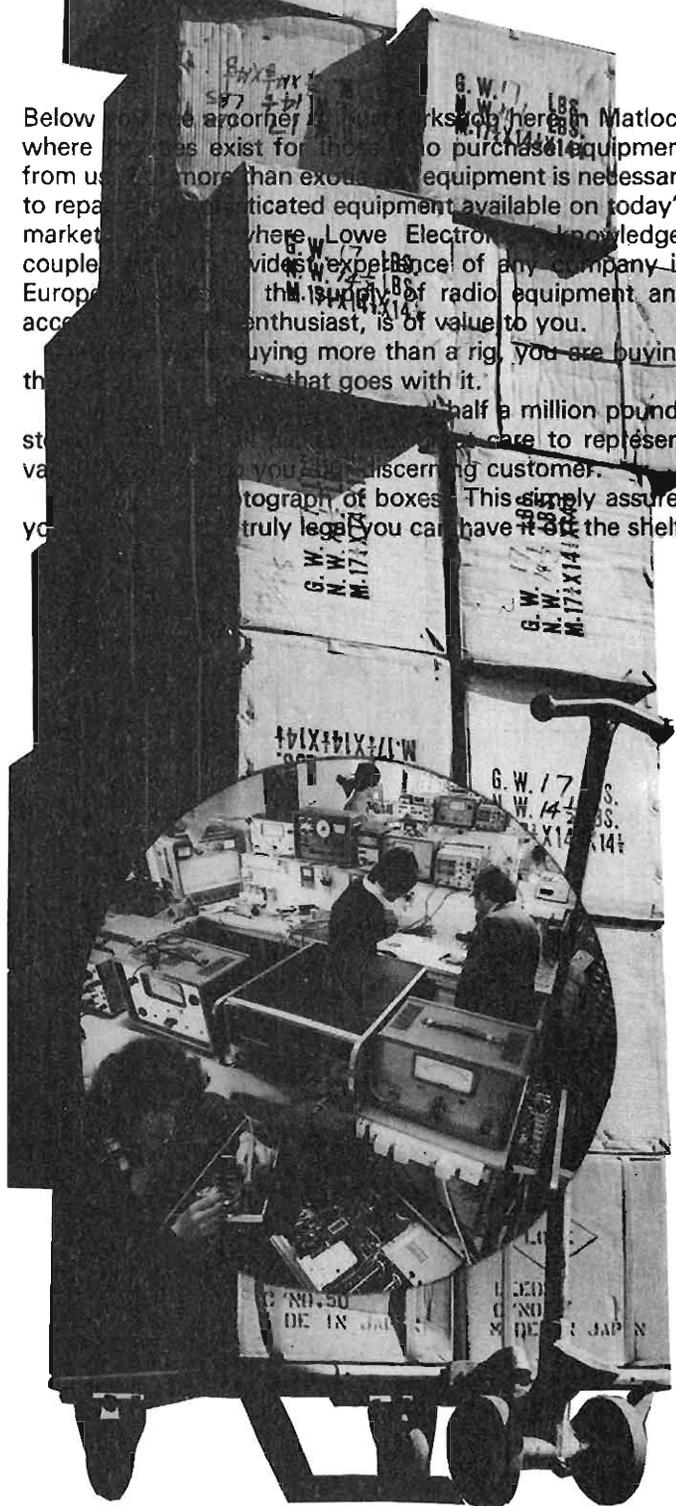
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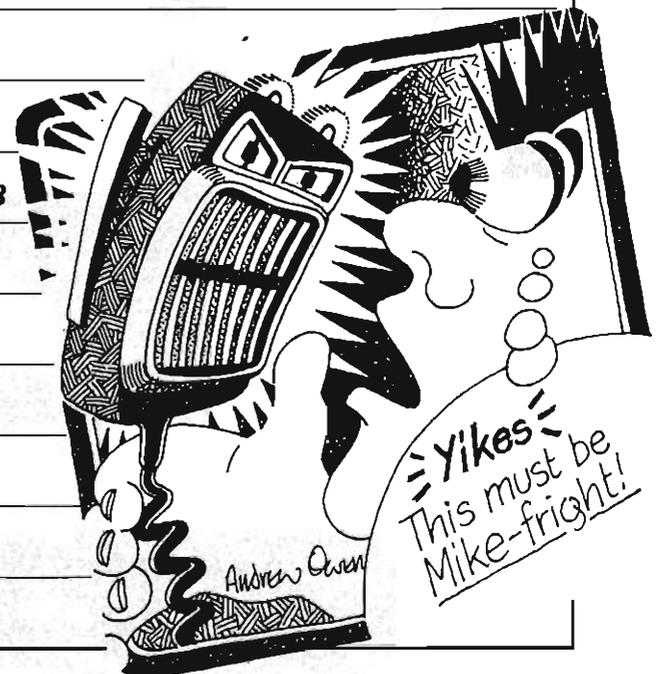
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When the bomb goes off

by Richard Town GLC

CB WORLD makes no apologies for concentrating on the 'serious' side of c.b. in this issue. In virtually all of the 61 countries in which c.b. is used, groups of cb'ers have organised themselves into emergency teams for flood warning, snow clearance, paramedical and breakdown assistance. Since c.b. equipment will be relatively cheap and easy to use it is obvious that c.b. has a vital role to play in civil defence or, indeed, in any emergency situation facing the population.

The following is an extract from opening paragraphs of Greater London Council, Public Services and Safety Committee report PS506.

"Since our last report, the international situation has changed considerably and the world scene has become noticeably more volatile... In response to this increasing concern, the Home Secretary has announced the outcome of the Government's Civil Defence review.

The review announces changes to the two fundamental planning assumptions upon which all civil defence in the United Kingdom has hitherto been based:

(a) The warning period of an intention to attack has been reduced from three to four weeks to a matter of days.

(b) The hypothesis of an immediate nuclear attack at the outset of war involving the total disruption of central government now looks less likely. Hostilities might now commence with a period of conventional war."

After a bomb has dropped, when telephone lines are down, television, radio and other broadcasting transmitters incapacitated and the survivors are either underground or seriously injured; how else will the authorities (or what remains of them) co-ordinate rescue and regain communication with us?

Know the enemy

Nations of the world are locked in a deadly game of armament leapfrog, as each tries to outpace the other in weapons superiority. These weapons can wipe out the populations of whole towns and cities; destroy vast areas of industry; pollute the air and water and generally disrupt the ecological balance of our entire planet.

The atom bomb

The first 'A' bomb was detonated at 1,800 feet above the City of Hiroshima at 0815 hours local, 6th August 1945. It had an equivalent explosive force of 20,000 tons of TNT. There was a blinding flash, followed by a huge explosion. A great fireball, 1,500 feet in diameter, its centre burning at a temperature and pressure equal to those found at the centre of the sun, poured vast

amounts of heat, blast and radiation into the city as a tidal wave of hell and fury.

Casualties	Hiroshima	Nagasaki
Population	300,000	87,000
Victims killed	78,000	27,000
Unaccounted for	13,983	1,924
Seriously injured	84,000	41,000

The hydrogen bomb

In August 1949, the Soviet Union exploded their own atomic device, startling western scientists and prompting a heavy lobby in the US for even more powerful weapons. President Truman lost no time in making his decision and by January 1950 the US Atomic Energy Commission started its intense programme. Two years later on November 1st, 1952, at the Eniwetok Atoll in the Pacific, American scientists detonated the world's first H bomb. The test explosion released a force equivalent to ten million tons of TNT. Once more the US was the most powerful nation on earth. Just under a year later the Soviets again shocked the world and exploded their own thermonuclear device. Nuclear weaponry was no longer the monopoly of the West.

The neutron bomb

A clever little device this, only yielding between one and one thousand tons of TNT. Yet, if exploded several hundred feet above the target its heat and blast energy will be largely dissipated by the time it reaches the surface. The structural damage effect of this device is deliberately restricted and minimized. It took war strategists some 20 years to realise that there is little point in conquering another country if, at the end of the war, there is nothing to take over. The weapon generates vast amounts of neutron particle radiation, which cause up to ten times the biological damage that an H bomb can achieve. Thus, a population can be wiped out, whilst leaving buildings, machinery, etc. virtually intact.

The bomb affects radio

The detonation of any of these foregoing devices cause, as a by-product an electro-magnetic pulse of radio energy. All v.h.f. broadcast receivers with aerials attached and mobile v.h.f. equipment will have their front ends severely damaged: h.f. transmitter and receiver units will no longer operate.

In essence then, electronic communication in this country will cease to exist in its present form once a blast producing a significant e.m.p. has taken place. This is not the temporary disruption that Government propaganda is suggesting but a widespread and immediate destruction of equipment which only extensive repairs will correct.

What can be done?

The effect of e.m.p. cannot be measured

with any degree of accuracy. Your home .20 may be in the blast itself or be affected by the electro-magnetic pulse. It's likely, however, that you may be screened to a greater or lesser extent by surrounding hills or buildings and therefore escape the worst effects. If you do get the worst effects you won't be around anyway to key the mike.

Do: at the onset of warnings disconnect your base from its aerial, mains and earth.

Do: ensure that an extra length of coax. aerial cable is connected by means of a double female plug (usually PL258) to your existing aerial lead-in. The extra length should be long enough to extend to your cellar or wherever you consider safest in your house.

Do: short out the rig's aerial socket, auxiliary 12V d.c. input socket and mains cable. Wrap the entire set in a bath towel and then completely in aluminium foil.

Do: remove to the safest point in your house a 12V car battery. (Your own car battery should be sufficiently charged for this purpose) and two large crocodile clips plus, say, 10ft of red and black twin lead of at least 5A capacity for connexion to the auxiliary 12V terminals or socket of your rig.

Do: store away an extra aerial in case of structural failure of your existing one. A free-standing ¼-wave with ground plane radials as legs would be best.

Don't: whilst waiting for the blast to happen, unwrap your set, connect and ratchet jaw. That car battery won't get charged for an awfully long time.

Don't: leave the mike disconnected outside the aluminium foil package. If your mike is the large-stand type, then it's probably only practicable to wrap it in a smaller towel and then in foil as a separate package. If it's a power mike, short the leads by packing some foil into the plug. Remove the power mike battery and store with, say, half a dozen spares in the mike package.

Don't: unless you already have a base rig in your home, install your mobile rig into your car dashboard in such a way as you can't get it out again in a hurry. There are some good, neat lockable harnesses on the market if you're security conscious.

If when the holocaust comes to its dreadful conclusion the nation with the greatest number of survivors and intact economy will be the victor — not necessarily the nation who had expended the greatest military effort.

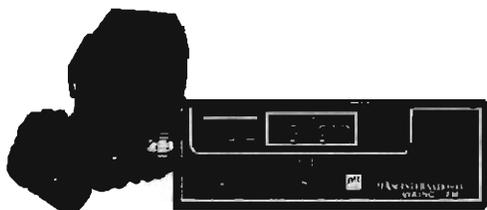
Well, what are you sitting there for reading this magazine? Go and get that extension coax. ready!!

The National Committee for the Legalisation of Citizens' Band Radio is associated with the National Council for Civil Defence through Richard Town being its Communications adviser.

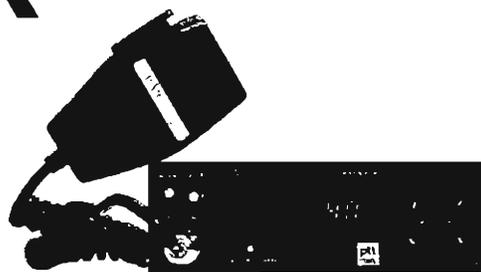
HAM

INTERNATIONAL (U.K.)

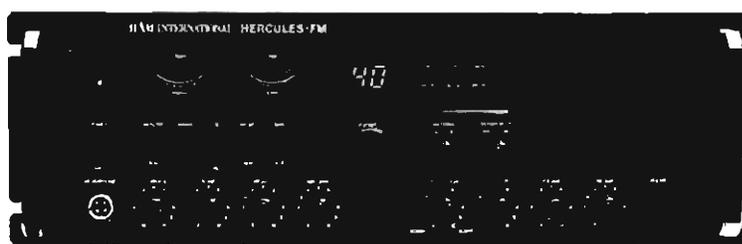
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MINI OLYMPIC GAMES

LOWESTOFT — September 26 to October 3 1981

Sponsored by CB World for

The International Year of the Disabled People 1981

To all Good Buddies, Lady Breakers, Clubs and Two-Way Radio Enthusiasts



Charity committees all over the country are seeking publicity and financial support, to make 1981 a year to remember for disabled and handicapped people.

The Mini Olympics for the Mentally Handicapped is an event that has been held for the last two years. This year we are hoping to have 2,000 competitors, all competing as in the real olympics for their gold medals. This will take place on September 26th till October 3rd 1981 at Lowestoft.

The Finance Committee for the Mini Olympics is offering through CB World to give CB'ers in the UK the opportunity to be solely responsible financially for this event, bringing great joy to all the mentally handicapped competitors and obviously good publicity to all CB'ers in the UK.

WHY NOT MAKE THIS YOUR CLUB'S CHARITY FOR 1981

CB World will publish all donations contributed by clubs. All clubs wishing to make the Mini Olympics (of the mentally handicapped) their club charity please write to: **JOHN HARPER, STILLWATER, ROLVENDEN, KENT** for registration and further details or telephone Rolvenden 302.

CB World have kindly agreed to enter into this good cause and have started by donating this space free of charge.

CAN YOU PLEASE HELP

Dear CB World,

The appeal got off to a good start with the announcement in the last issue and the support we got at the CB World Show, Esher.

At the Show the winning c.bers taking part in the draw were Mr. K. Temple of Kingston (1st prize), Mr. K. Mitchell of Surbiton (2nd prize) and Mr. D. O'Sullivan of Bow, London (3rd prize). We would like to thank exhibitors who will donate equipment for c.b. clubs to raffle during the appeal. They are **Truckers Paradise** (London SE1), **Paper Sales** (Leicester), **Star Communication** (Chertsey), **Surrey-Sussex Electronics** (Dorking), **CB Supplies** (Wolverhampton) and **Out-of-Space** (Burton-on-Trent). No clubs from these areas have asked for application forms — come on breakers jump in. The goodies can be raffled at your club.

Many thanks to those clubs taking part in this appeal so far but we really do need many more. Just to remind you again. The appeal and its proceeds go towards the costs of nearly 2,000 mentally handicapped competitors taking part in this year's Mini Olympic Games lasting one whole week in September. It is our aim and that of CB WORLD that the whole event is seen by the public to be solely financed by the c.b. users in the U.K. In the meantime 10-10 till we do it again 51s and 73s. God bless.

John Harper
Finance Committee

CB CLUBS SO FAR

At this time (21 April) the following clubs have shown interest in becoming involved in this appeal for financing the Mini Olympic Games in September at Lowestoft.

Market Town Breakers	— Ashford
Ace Breakers	— Romney Marsh
Berwick-on-Tweed Breakers	— Berwick
Uttoxeter Breakers Club	— Stoke
Lion's Den	— Torquay
South Wales Big 10-4 Club	— Swansea
East Kent Breakers	— Canterbury
Paddock Wood Breakers	— Paddock Wood
Oakleaf-Sidebanders Club	— Tunbridge Wells
Sandymans CB Club	— Cambridge
Molesey Open Breakers	— West Molesey



Anyone out there?

Richard Town, G.L.C., takes a look at the 'emergency-watch' organizations which we all hope that we never have to use. As more emergency-watch networks start to cover different parts of the country, CB WORLD will publicize their services for the benefit of others.

The use of voluntary services in times of emergency is on the increase: already, in North America, the civil authorities rely a great deal on voluntary help. There seem to be a good case for allowing the agencies described in this article charity status, with its attendant financial benefits.

REACT UK

Since 1962, REACT teams have handled over 65 million emergency calls, including around 15 million highway accidents. REACT International Inc. is now operating in all states of America, Canada, South Africa and some parts of New Zealand and Australia; support groups also exist in West Germany. Whilst we in UK await our legal c.b. service in the autumn, REACT (UK) prepares by forming teams and organizing a national service, ready for operation from 'c.b. Day One'. REACT is forbidden by the terms of its charter to operate in a country where there is no legal c.b. service. Worldwide, over a quarter of a million volunteers have provided a total of 125 million man-hours in local REACT teams, REACT International claims.

When Mount St. Helens in Washington State erupted, Larry Jessup, president of one of the local teams, was killed when he was thrown off a ledge by an earthquake. An evacuation plan, prepared before the disaster for the residents of the Maple Flats area near the mountain, was mobilized, communications being supplied by four monitoring teams. Telephone lines were down in many of the areas and c.b. filled the gap.

Two years ago, the world's first major nuclear plant accident caused a trying time for the local REACT teams in the Harrisburg Pennsylvania area. Teams co-operated with the standard civil defence and emergency authorities; monitoring teams stayed at their rigs during the next week and were particularly active in directing truck drivers to the troubled Three Mile Island plant, answering motorists' questions and relaying information from civil defence and police sources to a rumour-plagued and very frightened public. When eventually the City officials began to make plans (which were never activated) to evacuate people to Johnstown, some hundred miles away, c.b. was the only common means of communication available to both general public, proposed evacuees and authorities.

During the Three Mile Island crisis, writes the *Reacter* (bi-monthly journal of REACT (USA)) uncertainty ran very high. Reports issued by the nuclear power plant company and the statutory Nuclear Regulatory Commission were incomplete,

self-serving and often contradictory. Private citizens left the area in numbers estimated at between 50,000 and 200,000. Estimates of the maximum warning varied from 6 hours to 30 minutes.

The UK Co-Ordinator of REACT is Ivan Francis, an ex-team member himself from Kamloops, Canada. In March, REACT met with RAYNET (amateur radio operators emergency organization) and a working relationship was hammered out. Membership and direction to your local group from P. Horne, 10 Buckingham's Way, Sharnford, Leics. LE10 3PX. Annual membership fee £5.00.

EARS (Emergency Action Radio Service)

Covering the busy A45 between Bury St Edmunds and Stowmarket, the EARS monitoring service is active now on Channel 9. Formed to provide facilities for continuous relaying of highway emergency messages to the statutory emergency services, the base-station monitors also provide traffic and weather information for c.b. users in the area. Although only set up recently, EARS claims a 24 hour monitoring service which could grow into a trans-Suffolk organization. Dr. Andrew Mason, a member of the Suffolk Accident Rescue Service and a founder member of EARS, says, "We hope everyone who buys a c.b. radio in the autumn, when the Government provides a legal c.b. service, will want to become a member." But Dr. Mason stressed to *CB WORLD* that only the holders of legal c.b. licences would be allowed to join the 'mobile membership' of the service. Already, EARS has made contact with the statutory emergency services. A spokesman for Suffolk Police has said "The Police will explore the possibility of liaising with responsible bodies who represent users of lawful equipment to see what benefits can be provided".

Mr. Colin Forest, senior staff officer for the Suffolk Fire Service, said "Any plans which would speed up the emergency process would be welcomed — an early call means an early response." Seems like a good c.b. motto to me. Last word about EARS from Dr. Mason. "Our job is to try to save lives on the road which might otherwise be lost through a delay in communication." EARS c/o Everards Hotel, Bury St. Edmunds, Suffolk.

THE NATIONAL EMERGENCY SERVICE

Claiming to co-ordinate all the efforts of individual people who would wish to monitor c.b. The National Emergency Service has been recently set up by Judy Read, the ex-membership secretary of the React (UK) Supporter's Club. The ultimate aim of the service, which will be run on the lines of a committee or council, is to provide 24 hour coverage for the whole of the UK. Thus anyone who is in trouble on the road can be assured that someone is monitoring

Channel 9 and that help or advice is not far away. The function of the service will be to approach all existing emergency services nationwide, to police and promote the use of the service where and whenever possible and to keep in touch with the media and supervise the training of monitors. Once several monitors have come together they may feel it necessary to form a small group or assistance team. The National Emergency Service claims, "If we are not careful we shall finish up with several small groups, all doing the same thing, all competing with each other. In the States," claims the NES, "there are 43 c.b. monitoring organizations — NES will not actually monitor but will provide the umbrella and backing to all."

The NES, 48 Holcom Close, Stockwood, Bristol BS14 8LX. Registration fee is £2.00.

THAMES

Thames Traffic Help and Monitoring Service was started in early 1980 and by October had around 40 monitoring units. They operated in the areas of Brixton, Bromley, Catford, Clapham, Dulwich, Peckham, Wandsworth, West Norwood, North London, Biggin Hill, Uxbridge and Essex. To date, there are over 300 monitors covering areas well outside London and as far as Devon, Northampton and Wales. THAMES say that these numbers are increasing daily and although the service started in London (with the able assistance of c.b. Club 27 in Catford) it is intended to cover the whole of the UK, on Channel 9. Thames offers a full 24 hour monitoring service for the c.b. operator. The service also offers area information in addition to the life saving and motoring incident watch. Regarding the possibility of prosecution, Thames monitors say that although, until c.b. is legalized, they run the risk when reporting an incident, they will carry on despite the risks. The service is run totally on goodwill and help from c.b. clubs and user's donations for finance. As Thames puts it "If the total number of THAMES units get down the suffering time of one casualty then we have more than proved our worth." Yet another good motto.

THAMES Traffic Help and Monitoring Service, Mr. R. Lingwood, 239B Malpas Road, Brockley, London SE4. No fixed fees.

THAMES MEDICO 9

Many thousands of people are seriously injured on the roads each year. When these accidents occur there are usually onlookers who do not know how to render even the most simple first aid treatment and the casualty suffers. Medical, nursing and first-aid personnel, who are themselves breakers, have formed themselves into MEDICO 9, offering immediate first aid and medical assistance and advice in cases of professionally unattended incidents. The assistance is given, prior to the arrival of the ambulance service, via c.b. direct to the incident or a monitoring mobile breaker.

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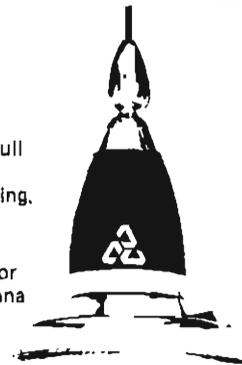
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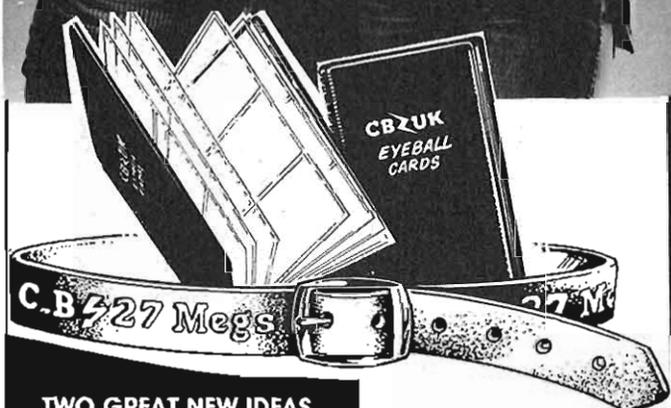
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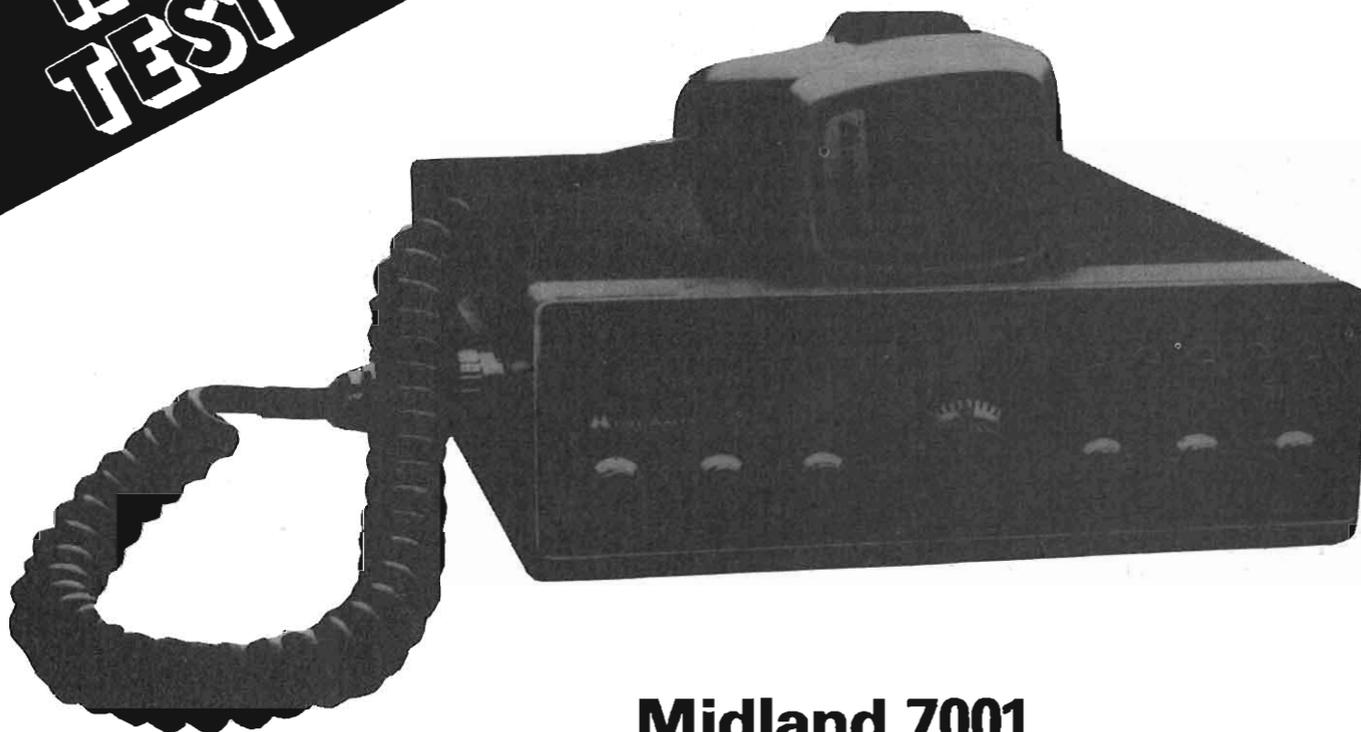
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**BIG
TEST**



Midland 7001

40 Channel mobile AM/SSB transceiver

Probably the nicest thing about this unit is that it has the *feel* of a professional communications rig. The microphone feels like a commercial mike, and the ample length coiled cord feels strong enough to take all sorts of abuse. Tugs on both ends of the microphone cord failed to expose any wires at all. This indicates solid construction in an area that's going to receive considerable use.

The operating control panel of this 40 channel AM unit was well planned out — a green LED digital channel indicator is easily seen in all types of lighting. A back up analog numbered channel selector makes channel changing and identification a snap. Audio output was listed at 3 watts, and lab tested at 4 watts at 10 percent distortion into an 8 ohm speaker. The large speaker provided crisp fidelity, and the taper of the audio control was just right.

Squelch action was also judged excellent. There was no DC gating of the squelch circuit that leads to annoying popping of the speaker when a weak signal is present — signals simply appear, and then gradually fade away as they fall below an RF sensitivity of .7 microvolts, but actually tested better than .5 microvolts for 10 db SN + N to N ratio.

Selectivity on both AM as well as sideband again surprised us — listed at minus 60 dB for adjacent channel, but actually measured at minus 68 dB. Extremely powerful signals only a street away on an adjacent channel were not detectable on the working channel. On sideband, the clarifier, through the use of this top selectivity, operated with ease, tuning in off frequency stations quickly and precisely. In

addition to the RF gain control that is completely variable, an additional RF attenuation switch is available to immediately reduce receiver sensitivity so that only S5 or above signals easily break the squelch.

The noise blanker and automatic noise limiter switch cancelled out all offending spark plug clatter — and an audio tone control finally shaped the audio output exactly to please our ears!

Transmitter tests including the output short test also proved that this is truly a commercial type rig — there was only moderate heating of the final PA heat sink when the output was shorted for five minutes. All the while, the AWI indicator glowed brightly to alert the operator that something was wrong. After restoring the load to a 50 ohm match, power output was tested at exactly 4 watts AM, and a slightly higher than legal output on single sideband with a DC input voltage of 14.5 volts.

The biggest impression that the 7001 made was that it had the feel and sound of a commercial type transceiver. It appears that tremendous detail was given to the precision series to please commercial type users with its performance. Shock tests, drop tests, and vibration tests' failed to dislodge any components on the quality circuit board. A close inspection of the inside again indicated commercial type construction.

The Midland 7001 AM/SSB transceiver received a strong endorsement from commercial radio users in the CB Magazine lab in the USA ●

CB World thanks the American c.b. publication "CB Magazine" — the largest monthly radio magazine — for its help in providing this article which appeared from one of their early issues. The yearly subscription rate is \$15 and anyone wishing to take out a sub can do so by writing to us. Make cheques out to "CB Magazine" (U.S.A.)

STOP PRESS!

Eric Dowdeswell reports on channel specifications

CB draft gives makers go-ahead for goods

POTENTIAL manufacturers of legal CB equipment for the UK market can now get down to the job of producing the goods with the release of a draft specification for 27MHz FM. A separate specification for the second allocation at 934MHz will be issued later.

In the 25 pages of technical details — and FM! on the testing to specification of the new equipment the basic facts that emerge are 40 channels in 10kHz steps from 27.80125MHz to 27.99125MHz, reaching to within 9kHz of the bottom end of the 10m amateur band starting at 28MHz, and a maximum frequency deviation with frequency or phase modulation of ± 2.5 kHz. The regular 10kHz channel spacing is likely to prove a practical advantage compared to the irregular spacing of the AM/SSB illegal equipment in widespread use in the UK, which uses 40 channels between 26.965MHz and 27.405MHz. Thus it can be seen that the new FM band is sandwiched between the illegal AM band and the 10m amateur band. This arrangement at least avoids the chaos which would have ensued if the same 40 channels had been used for both AM

The output power of the transmitter is limited to 4W. "With the antenna permitted for use with the equipment this gives an effective radiated power of 2W" to quote the document. This is rather vague but related to the antenna test procedure laid down for determining the radiated power. That view is confirmed by what must be the biggest joke of the specifications: "If the antenna is mounted at a height exceeding 10m the licence will require a reduction in the transmitted power of 10dB.

"To enable the user to accomplish this easily, the equipment manufacturer should provide as a standard accessory an attenuator having a nominal attenuation of 10dB which may be purchased by the licensee". Importers, please note!

It would seem that whatever antenna is used, the transmitter

output power must be adjusted so that the effective radiated power does not exceed 2W.

Spurious emissions, which the Home Office fears so much, must not exceed a power level of 50nW (nanowatts) within certain specified bands which turn out to be the high and low VHF bands 80 to 85MHz and 87.5 to 104MHz, the VHF aeronautical communication and navigational aid bands, the 174 to 230MHz band and the UHF TV bands between 470 and 862MHz.

The new regulations make it quite clear that the 27MHz FM equipment must not be capable of employing any mode of modulation other than FM, or frequencies outside the range of the 40 channels quoted. So the equipment which has become available recently that covers the new FM channels in the UK, as well as the 10m amateur band, will not be approved.

The position of all those interested in dealing in or manufacturing the new 27MHz FM CB equipment is best defined by quoting the new draft regulations. "The manu-

facturer, assembler, or importer of CB equipment is responsible for ensuring that the apparatus conforms with the specification; and any additional requirements imposed by regulations under the Wireless Telegraphy Act 1949. Conformity with the required standards may be established by tests carried out by the manufacturer, assembler or importer, or by a reputable test establishment acting on his behalf, but in either case conformity with the specification will remain the responsibility of the manufacturer, assembler or importer."

Equipment meeting the spec laid down will carry a clear indication of the type number and name of the manufacturer, and an authorised mark stamped or engraved on the front panel of the equipment, namely a circle not less than 6mm in diameter with the inscription "CB27/81" within the circle in letters and figures not less than 1mm in height.

The draft regulations end with an interpretation of the requirements of the tests on sample units and random samples of equipment taken from production models.

All CB radio equipment whether hand-held, mobile or base station must be covered by a licence, and it is a condition that the apparatus fulfils and is maintained to certain minimum technical standards. No mention is made of the form the licence will take, its cost, or where it will be issued. ●



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INSTALLING A HOME BASE

BY BILL CURTIS

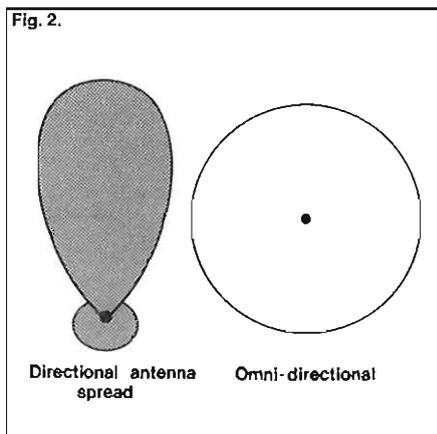
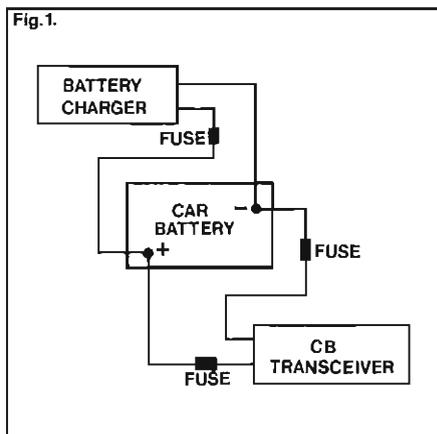
Are you fed up sitting square wheeled, watching those rain drops as you sit in your car modulating? Have you got a greasy chip in one hand and a greasy mike in the other? If so it's about time you thought about getting a base station together.

Apart from it being very convenient, you have the added comfort of being able to monitor the channels just when you feel like it. You can, on some sets, set the alarm to wake you at any time for a bout of modulating or monitoring. Being home based you have access to land lines (telephones) should you pick up a distress call and of course, being indoors, it's warmer.

If you cannot afford two rigs, one method is to fit your skateboard rig with a slide-mount (under £5). This enables you to slide the unit out with no fuss and carry on conversations when you get in to your Mickey Mouse (house). You will need a power supply of some description but do not fret — this need not be too elaborate at first.

THE CHEAPO WAY

The basic cheapo method requires nothing more than a car battery and a trickle battery charger. Do not ever try connecting your rig directly to the charger, they are not designed for this purpose. However, if you connect up your battery charger in the usual way and connect your rig across the battery (see Fig. 1) the result is clean and green. The battery acts as a reservoir and keeps both rig and charger happy. Make sure the leads (+ and -) are connected up correctly to both rig and battery: if you don't you will cause damage, fuses will go for starters. Fit an in-line fuse in both leads to your rig of a type recommended by the manufacturer. It is usually around 5 amps, but allow adequate ventilation around



your battery for the hydrogen gas to escape.

Now, if all this sounds scary, and it can be, either buy a purpose-made transformer as advertised in *CB World* or buy a rig with an a.c./d.c. switch that plugs straight into the mains. The 'President Madison' shown on

the front cover of our April/May issue has just this facility.

THE ANTENNA

If you do not like climbing ladders and heights worry you, do not read on. The last place to feel giddy is on the roof of a house. Keep off those brown bottles and double check everything before you make one move. Make sure the ladder is safe, secure and tied down, we need our readers alive and modulating.

The golden rule with antennas is "walk tall". The higher you can safely get it, the further you will 'get out' and the wider your pick-up will be. There is a bewildering array of antennae about, so which one do you buy? C.b. is above all, a means of communication so do some earwiggling and ask about, even on channel. Be wary of some claims made by manufacturers. Many are true but some take a bit of swallowing. The best recommendation you can ever have is a strong signal coming in from a distant breaker. A directional antenna will concentrate your signal in one direction (see Fig. 2) and omni-directional antennas scatter the signal all around. If you tend to transmit in one direction, or want to range further afield, buy a directional antenna. You can buy a rotator later on and beam it where ever you like. Another way is to have an additional whip antenna for the breaking channel and local work, using an antenna switching box to hop nimbly from one to the other.

Now decide the best place for your twig but bear in mind the following points. Keep it as far away from other antennas as possible. A big antenna will require a big pole and this means a lot of stress, so inspect brickwork for grip. Keep lead lengths as short as possible and use good quality coax. cable. If you don't you will reduce your output; so will using the wrong type of coax. Ordinary t.v. cable is the wrong impedance for most antennae, so check your instructions. Refer back to pages 13 and 14 of April/May issue of *CB World*.

Next measure the cable you will require and add 10% for safety. Most home-base twigs require no adjustment. But if you want to check the s.w.r. wind the cable loosely round and round and check it before it goes up! Then re-read those instructions you've put down somewhere, and refer to your life insurance. Now comes the hairy bit.

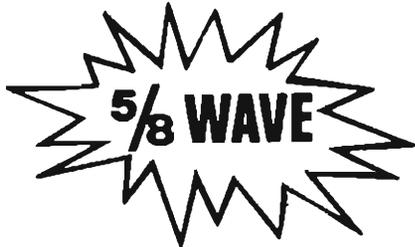
First position your wall bracket. You will need



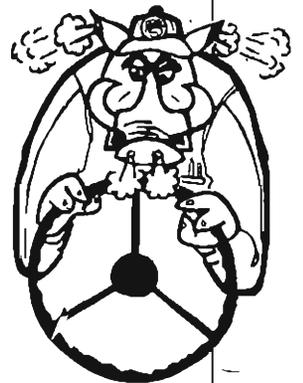
The President Madison has an a.c./d.c. switch and plugs straight into the mains.

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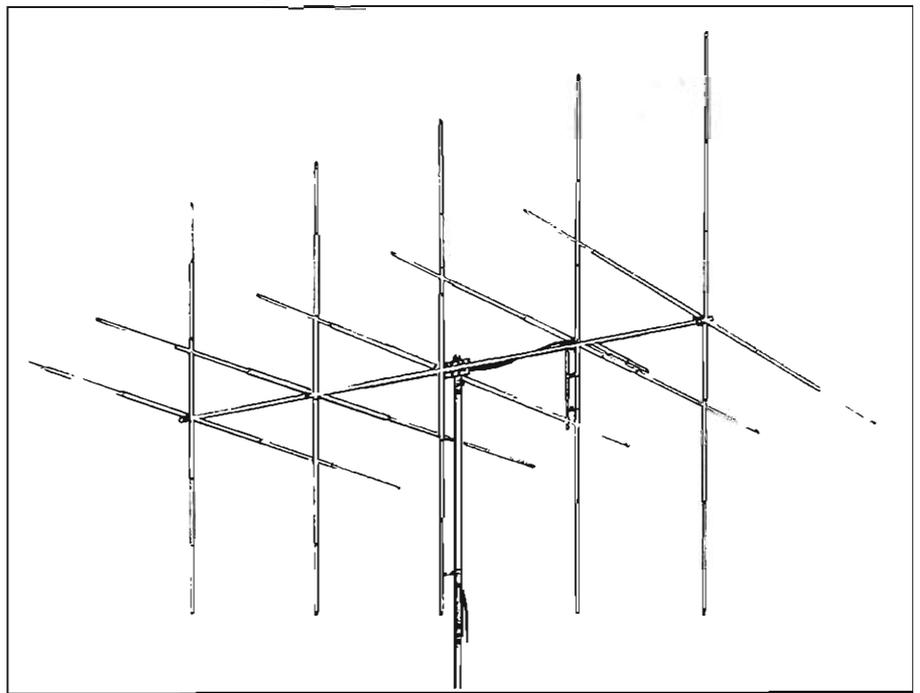
Rawlbolts for this) and get them tight. Ensure the roof overhang will clear your pole. If not, you will require a kinky one (no offence meant!). Connect the cable to your twig before climbing up the ladder, then bolt it on to the pole. It is helpful to have someone feeding the cable to you as you climb carefully to the heavens. Above all make sure your ladder is securely lashed to stop the whole thing sliding down as you lean for that last bolt!

Route your down-lead well away from any other cables and avoid tight bends. Do use plenty of cable clips, but leave a few inches of cable loose at the top to take any sway in high winds. Where the cable enters the house (window or wall) drop the cable a few inches below and then bring it back up. This stops water running down the cable and into the house. If you haven't already done so, fit a low pass filter between your antenna cable and rig. This will help to remove TVI by filtering out high-frequency harmonics.

Before you start modulating, key the mike and check every piece of apparatus in the house that's fitted with a loud speaker for interference. Buzby, it seems, will ignore your mighty twig provided you do not annoy the neighbours. But be warned, if a flicker appears on "Crossroads", or a crackle on "Barry Manilow" it will be YOUR fault and that's a four for sure. So check out your own t.v., in case they come a-knocking.

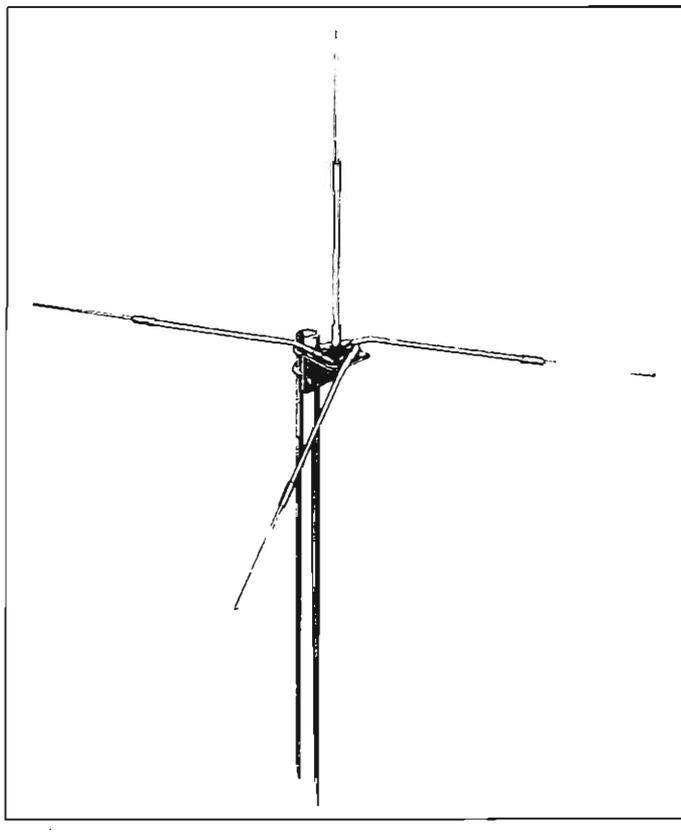
Finally, be a good neighbour; do not use powerful boosters, burners, etc. — they frequently produce spurious radiations that can turn up on even electric tooth brushes. This gives us all a bad name. If you must get out further put up an even bigger twig, or join

Below: an economy ground plane antenna for 40 channels, omnidirectional, unity gain, three drooping quarter-wave radials and 9 ft radiator, weighs 3 lbs, mounts to masts 1" to 1 1/4" outside diameter.



Above: yagi-beam antenna, five horizontal and five vertical half-wave elements, 15.5dB gain above ground plane, 18 ft high, 22 ft wide, weighs 40 lbs, mounts to masts 1 1/2" to 2" outside diameter.

the B.B.C. World Service. C.b. is after all a local communications thing for local chat, and America is a long way away. At all times be very careful when dealing with electrical points, terminals and mains power. Do not connect things up in a gash or temporary method. There is always someone on hand who knows what's what. Ask him first before you do anything yourself. As we said before we want you to remain a regular *CB World* reader — alive ●



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BRITISH IS BEST

We have just bought your second issue of *CB World* and on behalf of my Good Buddy and myself, I would like to congratulate you on it, especially in keeping it British. I would like you, if possible to include our handles in your next section of "For Those Who Dared" as I noticed there were no breakers listed from Perranporth. In the last month there have been quite a few new breakers getting on the air. Our handles are Witch Doctor and the Medicine Man and we are both Perranporth.

Also I would like to give you some handles for towns to include. Also you said if we disagree with some to let you know. The list I am giving you is widely used by all Cornish breakers. All of the towns listed are on breaking channel 14.

John Polkinghorne (Witch Doctor)
 Perranporth.

QSL CARDS

I was very pleased to see your colourful collection of QSL cards featured in an issue of *CB World*. I have been an avid collector of QSL cards for the past year, while working on the continent where the collection and swapping of QSL cards had become an integral part of c.b.

Although slow to get off the ground, QSL cards for 27 MHz are becoming increasingly popular. More and more breakers are having their personal cards printed, not only for D-Xing but also for local copies, whereas six months ago the terms "QSL" and "QSO" were almost unknown on the straight channels.

In March 1980, when c.b. radio became legal in Holland QSL cards became the topic of conversation with every new breaker copied, QSL swap clubs began, local DX contests as whole families became interested in the new world of c.b. Part of the pleasure of an "eyeball" was the exchanging of each other's QSL cards.

Within 2 months of legalisation in Holland there was an estimated 7 million c.b. rigs in the country — almost half the population. As a result the price of QSL cards dropped dramatically and printers were able to produce glossy cards for approximately £14 per 1,000. This is one drawback of having QSL cards printed in the U.K. at the present time. As the demand is not so great, prices tend to be much higher.

In conclusion I would like to say that I hope QSL cards receive the same popularity here in the near future as in the rest of Europe not

only on s.s.b. but also for local copies on 27 MHz, as I feel the individuality expressed on a QSL card brings a more interesting and personal aspect to our QSO's on c.b. radio.

I do hope that a selection of our British QSL cards will be featured in future issues of *CB World*.

Lady Rainbow
 London SE26.

NEWS FROM RAINY CITY

I have read your magazine (which I may say is excellent) and news from Rainy City (Manchester) is conspicuous by its absence. Let me put that right immediately.

In Silk City (Middleton) we have a new club which meets alternate Thursdays and our members are proud to be known as "Moonraker Breakers" (the name stems from local folklore). There are two clubs in this 20. Seniors and Juniors. Being very democratic our breakers have organised a very successful juniors club. This way, they can have their eyeballs the way they want them and it gives them a chance to air their own views.

We, as a Senior club, back them in social events. Recently they had a very successful Fox & Hounds plus a Valentine's party and a wide variety of other entertainments organised for them. After only three eyeballs they have about 65 members and it is still growing.

The senior club is about 180 members strong and that's still growing. If anyone knows of a 20 local to Middleton that has elastic sides, please tell me

If any of our good buddies out there manage to find Silk City then give us a shout on channel 14. Before I go breaker break, one more item of news. Both our clubs are members of the newly formed North West Breakers Association. This covers clubs as far apart as Ashton to Conwy. There is no area limit. Any club wishing to join, please contact J. McCormick, 8 Longhill Walk, Moston, Manchester

Boadicia
 Manchester

STEEL CITY

I am writing to ask if you could print this letter for me. I am a member of the 69 club in Steel City. Some of us have got together and formed a monitoring team and will be monitoring channel 9 as from midnight 17th February. I have

BRING IT BACK

written to REACT (U.K.) and at the time of writing to you I am waiting for a reply. I must emphasise that at the moment we can only assist people who ask the assistance on channel 9 by phoning the appropriate services. If you would print this it would help us a great deal. Hopefully, other clubs are going to do this, it will make the roads a lot safer to drive on.

I must say that your mag is the best mag in the U.K. in my opinion. Keep up the good work.

*Green Lantern
Sheffield*

HANDY LIST

Being a trucker it is a great help that you have just published the "Handles for Towns". It will be even more helpful when truckers know the breaking and calling channels. I was surprised to find so many of the smaller towns were on the air. It is also handy to be able to turn to pages 40-41 of CB WORLD to give a local breaker a shout on good old 27 MHz. a.m. My own home twenty Hazard Country should be Hazard County. I would be very pleased if you would include my handle in your mag. All the high numbers 10-10.

Tarmac

CB WORLD AND HANDLES

I eyeballed *CB World* for the first time, just a few days ago and I must admit to being most impressed with the content, layout, and general presentation.

The breaking channel in this area is 27, and this applies to the entire North West coastline, at least from Workington, down to Southport.

My personal view is that 27 is the logical choice for a national break channel, although I must admit to more than a touch of personal bias.

I feel that you may have bitten off more than you can chew with your publication of 20's and handles, my message is, "Prepare to be inundated".

In order to add to the pending chaos, I enclose my own handle, plus those of a few good buddies of mine (with permission, of course) as it seems rather silly to write individually.

I also enclose a list of 20's, as used by Furness Breakers Club members.

Best of luck with a first class journal.

*Leopard
Barrow*

We have been inundated with handles of breakers and town 20's.

However, we will press on regardless. By about the year 2000 we may have included everyone. Ed.

BRISTOL CB

Thank you for a great magazine. Please could you send me any information, or leaflets about Bristol c.b. clubs, or an address to which I can write. I am very interested in c.b. but I am not allowed to have a rig until they become legal. I cannot wait to get my hands on one. I know hundreds of Bristol c.bers. Also please could you tell me how much home rigs and mobile rigs cost. If possible, could you send me a c.b. price list showing how much rigs cost. Thank you very much.

*Simon Smith (age 14)
Stapleton*

We can't tell you how much c.b. rigs cost 'cos it's illegal to sell them. — Ed.

PIPER CALLS THE TUNE

The second issue of *CB World* was delivered with my papers today and I must congratulate you on maintaining the standard, indeed improving on the first issue and I would like to offer the following assorted comments.

On page 11 your "Slightly Technical Terms" are adequate but not all strictly technically accurate. The most obvious misprint is in Frequency. Mains electricity is supplied at a frequency of 50 cycles per second or 50 hertz (50Hz) NOT 50mHz as printed which strictly means 50 millihertz or 0.05 cycles per second!

'C.B. Slang' — bail out should be bale out and, as an addition, a dual carriageway by-pass, not a motorway, is referred to here as a 'slab' Also 'square wheels' means stationary.

The straightforward approach and wide mix of articles and different facets of the c.b. world which you cover in your magazine is, for me, a first class recipe for success.

*Peter Piper
Billericay*

BUFFALO BILL

I have just purchased a copy of your magazine and having read through it would like to say that I found it very good. If you could add my handle to the list published, I should appreciate it. My handle being "Buffalo Bill" and my DX call sign is Station

Bravo India. I have enclosed one of my QSL cards also.

I have been on the air about twelve months now and am a keen "D-Xer". The c.b. scene is good here on the Fylde coast with about 800 club members and plenty of social activities. Keep up the good work.

*Buffalo Bill
Blackpool*

NEW CBER

I've picked up one or two of the different new c.b. magazines out in the past few months, but have, without hesitation, come straight back to yours. I'm new to the c.b. world (pun) and hope soon to become a rubber bander. This is one of the reasons I think your magazine is so outstanding. I know nothing about radio waves and channels, but your magazine is so straightforward and easy to understand. In other words, I don't have to scratch my head so much when reading your magazine, as I do others. Gradually I'm picking up the meanings of the words the world of c.b. uses.

Unfortunately, there's still a lot I don't understand. I'm not the only one. There are a few others around my area who are in the same predicament as me. I don't want to make a mess of trying to install my first rig in the car or of being a nuisance getting on the air for the first time.

Could you by any chance do a small series in the magazine for all of us, not too sure people out here who might want to graduate into the world of c.b. Starting from scratch. What are channels and side bands? What does one need to know about the extras that go with a rig and how they should be fitted? What's the best antenna or is all this too much to ask? I know I'm asking a lot. Could you tell me of any books that will introduce me to c.b. right from the start and who publishes them?

The magazine's great, very interesting and makes very good, enjoyable reading.

*P. Turner
Southampton*

Give us a chance we've only been going for four issues. All these things are relevant and in time *CB World* will cover all that you ask. We are now monthly to keep up with your very good points. Ed.

EEC CB LICENCE

I read your magazine with interest and noticed you also are not really thinking about the people.

C.B. (Citizens Band Radio). What citizen? A U.K. licence meant operation only in U.K. German only in Germany, French only in France. You go outside your border, if legal, and it becomes illegal!

A c.b. licence must be E.E.C. to be fully practical. If road signs are uniform why not a c.b. licence. I have written to The President of the E.E.C. to this effect. Lorries travel all over Europe so do citizens of member countries. They should be safe in all countries who belong to E.E.C.

*John D. Dillon
Wembley, Middx.*

C.B. G.B. O.K.

Thanks for a great magazine. I look forward to your next issue (I take no chances, I have put it on order).

It is good to have a G.B. c.b. magazine, I have enough American c.b. coming in as skip without having a magazine based on it, so rule Britannia, keep your C.B. G.B. O.K.

*Rembrandt
London SE4*

JUNIOR CBERs

I am writing to inform you of the first junior c.b. club in the Midlands. Our name is: Junior Breaker Club, Coventry (J.B.C.), Clifford Bridge Road, Scout H.Q., Clifford Bridge Road, Coventry. We meet on the first Thursday of each month at 7.30 p.m. until 9.00 p.m. Our age bracket is 10-16 years.

*Mark Cleaver
Nr. Coventry,*

PROSE FROM PENNINE

Hello all good buddies and lady breakers. Firstly, I must congratulate all involved with *CB World* and good luck for the future.

I am a member of the Pennine 19 club which is based at Toffee Town (Halifax, W. Yorkshire). It was formed in May last year with a membership of 12, since then the membership has risen to approximately 470 and rising at 10/15 per week. We have weekly eyeballs at a local Brown Bottle Shop, where as many as 200+ members sign in. We have discos, raffles, live entertainment and guests giving information on everything from antennas to model aircraft. Our committee and members produce our own magazine, organise treasure hunts and members are regularly attending rallies.



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BRING IT BACK

We at the Pennine 19 club think exactly the same as some 1,000,000 enthusiasts that c.b. should be legalised, after all, the rest of the world can't be wrong. So "Come on Billy, Don't be silly, Think of a fee and legalise c.b. Must we beg, for 27 meg".

Wishing you all the highs and stay lucky, break-a-break going down.

*The Sting
Halifax*

You got 27 megs — Ed.

FRIENDLY C.B.

Big 10.4, Roger D on your Feb/March issue — I actually missed out on your first issue, but I really think the current one is a gas.

I am a Scot and I am really keen to make friends with people from England, Wales and Ireland. I hope to be getting a set of wheels soon and, when I do, I am going to cruise around using my c.b. rig. I'm looking forward to having eyeballs, brown bottles and chinwags to make as many friends as I can, because, as your "Come On" leader said, "c.b. is all about friends and communicating".

I do not have a c.b. set at present. Instead, I use my friends and go out as "Country Boy". Any breaker up in my 20 (Kilmarnock) can give me a shout, I'd be pleased to copy them or share a round of brown bottles.

Breaker break, shaker shake. Look forward to the ace magazine again.

*Country Boy
Kilmarnock*

CBers HELP WITH BLAZE

Here is another perfect example of c.b.'s usefulness. Two c.b. breakers spotted a huge blaze at a Daventry furniture factory and alerted the Brigade. Then they spotted two lorries in danger from the flames. It was then that a ring of about 50 breakers swung into action. The first pair at the scene found out the addresses of the lorries' drivers and two more breakers then called them from their homes and took them from their homes to the factory where they moved the lorries to safety. The action saved the two lorries worth £40,000. Breaking off good buddies. Down and gone!

*Duke of Earl
Kenilworth*

WIFE GETS BREAKER INTO CB WORLD

Having bought and read every magazine relating to c.b. over the past nine months I felt I should write telling you that I believe *CB World* to be way out in front of the others and have, through my wife, who deserves credit for bringing home the first issue, now placed a regular order with my newsagent.

As a trucker who relies mainly on my c.b. as a means of information particularly when on unfamiliar territory I sincerely hope that when CB UK becomes legal it will be kept clean, friendly and informative. Yes, it is a very useful tool from which we can all benefit if used correctly. The golden numbers to you and your readers. I'm on the side and satisfied. Please convey my thanks to Windy and Buckshot for their assistance.

*The Centurian
Cardiff*

DXing FANATIC

Being an avid reader of your magazine I am confident that somehow you will try to help me. Being a c.b. and DX fanatic myself I was in QSO with a Canadian station two weeks ago and a station from S. England. Tunbridge Wells TW13 broke on the side to confirm his station could copy myself in Blackpool R.B.1 — Towertown. I then went into immediate QSO with him but conditions were not so good that I could not hear Bob in Tunbridge Wells very clearly but I did get QSL with you, P.O. Box? TW13 — Bob — Tunbridge Wells, Kent.

As you know that Copy is both very good and unusual so please if there is any way that you can obtain the P.O. Box number! I would really be one grateful breaker, so I can confirm with a QSL.

*R. Bishop
Travlerman (Blackpool)*

CB WORLD FAN — GERMANY

Hi there friends, this is the first time I've ever written to a British c.b. publication. I've been an 11 meter operator for a long time and I'm interested in knowing about the happenings on the worldwide c.b. scene. I received a copy of *CB World* from a friend in the U.K. and I did wonder how

you could get all of the informative stories? I read the Feb/March issue from beginning to end. I especially like "Bring it Back" and the QSL cards feature. I was really happy to see my own QSL card printed. I think that the stories you have run about the international c.b. scene are fascinating and I would be interested in the reaction that other readers have on information regarding c.b. on a world-wide basis.

*Super-Stinky No.1
West Germany*

CB WORLD FAN — UK

I have just finished reading No.2 of *CB World* and decided I would write to you. I entered the world of c.b. on a friend's rig a couple of months ago and have arranged to buy a rig of my own, secondhand, quite soon. My handle is Goofy, and my usual 20 is Cambuslang. I would like to say that the handle for Cambuslang most commonly used is Breaker City, not Hoover as you state in your "Handles for towns" feature. I must echo the sentiments of many of the writers in No. 2 of *CB World*. It's an excellent magazine, the best that I have seen, and let's hope it stays that way. But, let's keep it British. I liked the pictures of rigs, keep it up. Also I like the section on c.b. slang and the "slightly technical terms" feature opened up a new understanding of c.b. The rest of the magazine was great too. Could you possibly print the ten code in your jargon section as it would be a great help to many new breakers. Incidentally, the breaking channel on our area is channel 14. The section on individual handles was good and, if expanded, could help solve the problem of new breakers using already established handles. (it happened to me a few days ago).

Thank goodness c.b. will be legalised, now we don't have to hide our antennae up trees, behind garages, etc. but it should be on 27 MHz a.m. because no matter what the government says people will still use a.m. There are many breakers around me, Paperboy, Vega 1 and Firebird, to name a few, and I have never caused any interference.

Lastly, could you publish *CB World* once a month please? I don't like waiting so long for such an excellent magazine as yours. Have to say 10 — 10 now, golden numbers on you, we down, we gone.

*Goofy
Glasgow*

It seems that your enthusiasm for *CB World* has helped us to go monthly — with this issue. Ed.

CB WORLD FAN — ALCATRAZ

In looking through your second issue I was amazed to see no mention of our beloved Isle of Man (Alcatraz). Also in reference to your article on c.b. multi-link-up, the Alcatraz breakers can quite easily modulate with England, Ireland, Scotland or Wales. Myself and my good Lady quite often sit on the hills in our wrapper, with a few other good buddies, and 10.5 between Scotland and Ireland. Modulation between Peel (Deadwood Gulch) and the Ards Peninsula (ALPHA Papa) takes place almost every night and QSL cards are exchanged.

*Deadwood Gulch,
Alcatraz*

I.O.M. was listed in *CB World* No.3. Ed.

BIG WHEELS IN THAMES

I am very pleased with *CB World*. It is the best c.b. magazine I have read so far. Let's hope you can keep up the good work.

I must agree with James Bryant with 'no demos' (Feb/March). Demos only give us a bad name. We c.bers should try to get the public to understand us, not have them say we are causing trouble by causing traffic hold-ups.

I am a U.B.A. member plus a THAMES monitor, Bravo Romeo three, My handle is Road Wrecker. My XYL's handle is Sugar Lady.

CB is here to stay. Never mind what Timothy Raison says or does we will stay on 27 a.m. plus s.s.b.

I could give so many handles wanting to stay on 27 a.m. that you could not print them all in your magazine. I would like someone from your magazine to visit some clubs and get some views from other c.bers. I go to the U.B.A. Tuesday nights at the Telegraph Pub, Brixton Hill, Brixton. Disco One runs the club (Andy Donovan) plus Duchess his XYL (Helen). I am sure you will be more than welcome.

Regarding the T.V. programme about c.b. I thought that it was well put over except for Gooseman — why did he have to swear? I know he only said "arse" but there is no need for it on c.b. We have a lot of wallys already but they do not stay that way for long. I also visit the 27 Club on Monday evenings, Saxon Tavern, Southend Lane, Catford. It is run by Micro Dot (Tony). This is a good night out. Try and get along to one and meet us. I drive a lorry for a living and c.b. has helped me. I have made many good pals from it.

BRING IT BACK

Perhaps you could write an article about THAMES units. I do not understand what THAMES is supposed to do, neither do some members of the unit itself.

Road Wrecker
Bromley

See article in this issue on THAMES Monitoring Services. Ed.

CB CHEER

Congratulations on your fantastic magazine CB World, its great.

Unfortunately I am in a wheelchair recovering from an accident I had six months ago, a result of which I lost part of my leg. I was unable to go out until a month ago. For my birthday my parents bought me an absolute fantastic gift, a CB Radio. As my parents work during the day I am left all alone and get very depressed. But now I can press a button and say "Breaker One Nine for a Copy" then wait for a copy back. As a result I have gained more friends than I could ever want and now I do not get so depressed.

I know I am breaking the law and I often wonder what will happen to me if and when I get caught.

Roll on for the Autumn when c.b. becomes legalised.

Space Invader

CB IN ZIMBABWE

I am a c.ber from Rhodesia now known as Zimbabwe. C.b. became legal over there on the 1st January last year which was really super as it made a new pastime and made plenty of new friends. I am glad to hear that it is to be made legal here soon. I had a Craig set 40 channel a.m./s.s.b. which served me well. My handle there was "The Champ". I do hope to get myself a set and I would like to know if there are any dealers in Glasgow and if there are any Clubs? We had only 9 channels being 19 - 27 with 19 our calling channel and 21 our emergency channel. We were also not allowed to DX to any other country and we were restricted to 4 watts a.m. and 12 watts s.s.b. and no directional aerials. I hope when it becomes legal here we will be allowed 40 or more channels. We also had to adhere to the FCC Rules.

Well my friends I do hope to copy some good buddies and ladies some time. I am pleased with your c.b. magazine and wish you all the 73's and 88's for the future.

Dave James
Glasgow

50 HOUR BUST

I got my rig on the Friday night. I spent all day Saturday fixing it in my wheels. Sunday morning SWR'd the Antenna. Sunday evening at 10 p.m. I was in the garage earwiggling, and giving the occasional copy to the local good buddies, (without, of course, giving my 20 on the air), as I was disguising the rig. As I was fixing the final touches before going for my first cruise and ratchet, a beige Granada Estate, festooned with electric twigs pulled up in front of my garage. Fortunately, upon receipt of my rig, I had been warned of the dreaded 'Gus' of Hazard County. Sure enough his partner walked into my garage and flashed his H.O. Luncheon Voucher. Upon this I asked him politely to get off my property, and if he had a warrant or a Smokey with him. Yes, he did have a Bear with him, who, to give him his due, backed my up when I stated that they couldn't enter my garage without a warrant. As this was now 10.15 p.m., on a Sunday night, I pointed out that it would take some time to produce a warrant, but as soon as they got one, I would allow them into my garage to search the car. There upon the dreaded 'Gus' rides off into the sunset. The Smokey warned me that my wheels were marked and I may be stopped and searched if he sees them on the road.

This story has three morals:

(a) Don't be tempted to modulate too long from one 20 in Hazard County, I got caught for this.

(b) Keep cool. C.bers are protected by the same laws that oppress us, know your legal rights.

(c) If the authorities were as efficient at tracking down real criminals as they were at tracking down 'Good Buddies', then the world would be a better place to live in. By the way, is 50 hours a record bust.

Tiger One
Colchester

MORE ON DXing

Over the last few months - since I became a c.ber - I have read all the c.b. magazines available, and have come to the conclusion that CB World comes out best for all-round information.

I placed an order with my newsagent to have CB World delivered on a regular basis, also, I asked him today to carry a larger stock of your magazine, because of the large

number of breakers in the area, this, he assured me, he would do.

If there is a complaint about your magazine it is that, although DXing is mentioned, none of it tells a breaker how to go about it. I, and a few more breakers, are extremely interested in having a go at DXing and would welcome any information on how a beginner would go about communicating with breakers abroad.

Keep up the good work in your magazine with the other features.

Blue Jay
Bolton

Thanks for your letter, see feature on DXing in this issue. Ed.

MAP READERS, SPEAK UP

This is Brer Rabbit from Timbuktoo Country (A52 between Grantham and Nottingham) I push big wheels for a living and visit as many as five or six towns and cities every day.

Often I need directions for an address and I just call out over the air. In a few cases I get a response, in others I get ignored as I am a stranger in their area.

I've been told by people that they would rather modulate with only handles that they know well. I wish some of you would come out of your shells and talk and help us strangers, after all we do bring your goods and food to your towns for you to use.

It would be so much better if a big wheels could sing out, "19 for a map reader" and then anyone, no matter what their handle, who knows the area, could guide the driver with his directions.

So please, all base stations, if you hear a "19 for a map reader" it's not a call for someone's handle it means you, if you can help us.

Brer Rabbit
Nottingham

MAP READER WANTED

I am a c.b. enthusiast. After reading your second copy of CB World I decided to sit down and write about useful ways of transmitting on c.b.

For instance, it would benefit companions on the road in many ways. It would also make business travel more interesting.

In my job I am out on the road for forty percent of my working time. When we finish a job I have to phone in to get my next job. This causes wasted time and money. It could easily be replaced by c.b. Directions

to places can also be transmitted on the air. This would save time in stopping every now and then to look at maps.

Steve
Maidenhead

SMOKEY INTERFERENCE

Having read several articles concerning interference caused by c.b. I thought I'd write and pass on to you some facts that I thought pretty interesting.

As most c.bers know c.b. does not interfere with police transmissions and I and many other breakers have carried out a few experiments to prove this fact.

Concerning hi-fi interference, did you know that the G.P.O. receive more complaints about police transmissions interfering with stereos than they do about c.b. Strange how the Government never mention this. Why when c.b. is still illegal do some police patrol cars have c.b. fitted with smokies continually putting out copies to catch unsuspecting breakers? Surely these cause TVI as well?

If as Buzby claims he is only after the interference not the breaker, he had better start checking up on the smokies.

Little Angel
Spalding

PLAIN ENGLISH, S'IL VOUS PLAÎT

I am a c.ber of some six months and I must admit I am rather fed up with all this "Americanism"; lets face it we are British! (Rule Britannia and all that!)

I do not see why we should adopt the U.S.A. slang over here, have you heard a Lancashire chap trying to emulate a yanky accent?

I agree with the 10-code, but I have found one gets the message over in plain English quicker than in c.b. slang, i.e. I'm parked! (Yeah, I'm square wheeled!). We don't always know what the other breaker is talking about in some cases, he may have read a different book...

Mind you I've found that 30+ breakers use plain English and the teenagers use the slang, must be a moral here somewhere. Why do people spend pounds on good c.b. sets and waste their money by not having a decent chat? It seems crazy to me, they are not getting their money's worth. Anyway, I'll get off my soapbox now and say that you have brought out a great magazine, keep it up.

Karl Sheridan
Birmingham



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CARFAX

A third radio service for your car — “dedicated” traffic information

Now that c.b. radio is to be made legal in the UK your car can have its “second set” — as they used to say about tv sets in the home. To the motoring service already provided by ordinary broadcasting through your car radio will be added the new c.b. facility, allowing us to actually talk to other motorists and commercial vehicle drivers to compare notes and swap advice about traffic and road conditions in the immediate vicinity. This need for a service to help us cope with local conditions has been getting more and more urgent. Congestion on the roads, accidents, fuel costs and stress on drivers have all been getting worse. C.b. will certainly help a bit, but it has the limitation of being essentially ad hoc. It depends on the presence of drivers at those particular places from which you need information, it depends on their willingness to help other drivers and it depends on their ability to give reliable information. It cannot provide you with a generalized and objective picture of what is happening in a particular locality — for example, roadworks and traffic jams on a main approach route into Birmingham.

It's good news for motorists, therefore, that a third radio service has been developed that could bridge the gap between the general, large-area motoring information you get on your ordinary car radio and the ad hoc, more immediate local information that c.b. can provide. This is Carfax, a general traffic information service developed by the BBC Research Department. Invented by one of their engineers, R. S. Sandell, it is essentially a “dedicated” broadcasting service — that is, entirely devoted to giving traffic information and not used for any other kind of communication. It therefore requires a separate frequency — actually the channel 519.5 to 526.5 kHz at the bottom end of the medium wave band — and separate receiving circuits to pick up the broadcast signals. However, this does not mean you would need to fit a third complete set in your car. The Carfax circuitry can be neatly integrated into a conventional car radio chassis and visually you would not be aware of it.

In being “dedicated” the Carfax system differs from the method used in Germany, Austria and Switzerland. There, several of the major radio broadcasting networks carry special motoring identification signals which activate the car radio receivers automatically. The inevitable fact is that the traffic information takes over from the normal programme whether listeners like it or not. Areas covered by particular traffic announcements inserted

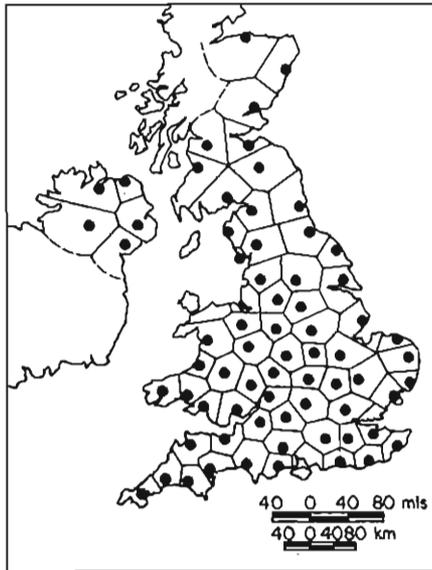


Fig. 1. Dots show existing BBC sites where low-power transmitters for the Carfax traffic information service could be located. Lines show expected service areas and coverage using these sites.

into programmes tend to be very large — they correspond in size to the service areas of the main high-powered regional transmitters together with their off-air relays — and thus many of the announcements heard by drivers relate to road conditions many miles away. Imagine a motorist listening to BBC Radio-4, stuck in a traffic jam in Leeds, being told that a milk float has overturned and is blocking Oxford Road, Manchester!

Local radio seems likely to be more useful. The transmitters are smaller and are situated so as to serve individual centres of population: their announcements are thus more likely to be relevant to their listeners' needs. But here again there is the same basic snag that every listener is forced to suffer interruptions to the programme for traffic announcements whether he or she likes it or not. And what of the majority of roads not served by local radio stations? The main trunk roads and motorways between city centres can receive only the national or regional large-area services. Even on the approaches to a city or town, where there is a local radio service, a driver needs to know of its existence and its wavelength, and he must tune his receiver to it.

It was with these problems in mind that Ron Sandell proposed the Carfax idea —

actually as long ago as the early 1970s' — and the BBC, with a grant from the government through the Ministry of Transport, went ahead and developed it into a practical system. It is now working successfully on an experimental basis.

Carfax provides three important options for the listener: ordinary listening without interruptions by traffic announcements: this may be from the car radio, tuned to any frequency, or a cassette player, etc; ordinary listening, as above, but with interruptions by local traffic announcements, as they are received; Traffic announcements only, with silence between announcements.

The system requires a network of about 70 very low-power radio transmitters, on the band of frequencies mentioned above, spread over the UK. Each transmitter covers an area to which specific traffic information relating to that area is broadcast.

Even under rush-hour conditions, the proportion of time required for the transmission of traffic messages in any small area will normally be limited. Each transmitter in the network can therefore spend most of its time switched off, coming on the air only long enough to transmit its message. This leads to an important advantage, for transmitters can not only share the air-time, but also a single common wavelength.

The map in Fig. 1. shows 72 existing BBC sites where such low-power transmitters could be located. Only one transmitter in a group of 15 or 16 would carry a traffic information message at any moment. This would mean that there might be, say, five transmitters from the whole network on the air simultaneously, but they would be far enough away from each other to minimize mutual interference.

That all transmitters could share the same frequency is an important point: not only does it mean considerable economy in spectrum space, it also means that simple fixed-tuned receiving circuits may be used without any manipulation by the motorist. It also leads to the exciting possibility of a single traffic-information frequency for use throughout the world. Obviously the control of such a network of transmitters would have to be centrally or regionally organized. A network of telephone lines would be needed, as well as one or more small computers.

How does the Carfax system actually work? How does it get messages to drivers and how does it make sure that the right people get the right messages? To begin with, a special signal is needed to activate the traffic

Other transmitters in large idealised lattice

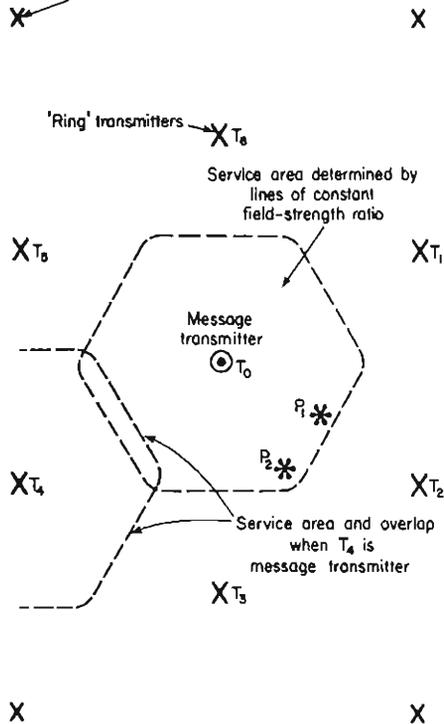


Fig. 2. Part of idealized layout of transmitters, showing one, T^0 , acting as a "message" transmitter, surrounded by "ring" of other transmitters, T^1 to T^6 , which determine its service area by f.m. capture effect.

information receiving circuits preparatory to the transmission of a message. Having become activated by this special "start" signal, normal listening (if any) is interrupted and the traffic-information message is then heard. At the end of the message a special "finish" signal de-activates the receiver and normal listening is resumed.

So far so good. But how to ensure that the right people receive the messages? Basically, it is a matter of network control.

At first the BBC engineers thought the strength of the received signal would be the thing that could decide whether or not the receiver would be activated by the "start" signal. This was found to be rather unreliable because of deficiencies in the receiver and car installation (which ought to be simple and cheap) and because of the practical variations in field-strength. Measurements showed that fluctuations in the signal level received on a vertical car radio aerial occurred while driving along ordinary roads. Similar fluctuations were found to occur while driving through towns, but in addition the average field-strength was depressed by a further amount. Thus it was difficult to control the extent of the service area of any transmitter in an exact way, and it was recognised that there would probably be large overlaps of some service areas and some large unserved areas.

To overcome these difficulties the BBC developed what they call the "ring system". The service areas of transmitters are defined by artificial rings provided by the grouping of

their surrounding transmitters. The basic idea of this can be understood with the help of Fig. 2, which shows an idealised layout of traffic information transmitters, all sharing the same medium-wave channel as already described. Each transmitter has two modes of operation: it may operate either in the message carrying mode or in the "ring mode". Transmitter T^0 in this case, is the transmitter carrying the traffic information message while the surrounding transmitters T^1 to T^6 , here serve as "ring" transmitters.

They all operate in the simple sequence shown in Fig. 3. Prior to its message the transmitter T^0 radiates a "start" code signal, consisting of frequency-modulation of the carrier by a tone. The six ring transmitters radiate at low power c.w. "inhibit" signals which begin just before the beginning of the "start" signal radiated by the message transmitter and end just after it. The ring transmitters remain off at all other times.

Suppose a receiver is located in the region of P^1 (Fig. 2), where signals are received predominantly from transmitters T^0 and T^2 . If the carrier-level from the ring transmitter T^2 is sufficiently strong what is called the "f.m. capture effect" will cause the "start" signal from T^0 to be ignored. Alternatively, if the signal from the "start" signal is the stronger, the receiver will be activated. With strong modulation (a wide frequency deviation at a low modulating frequency) the capture effect by a single ring signal is very pronounced: a small increase in the carrier-level of the interfering ring signal causes a

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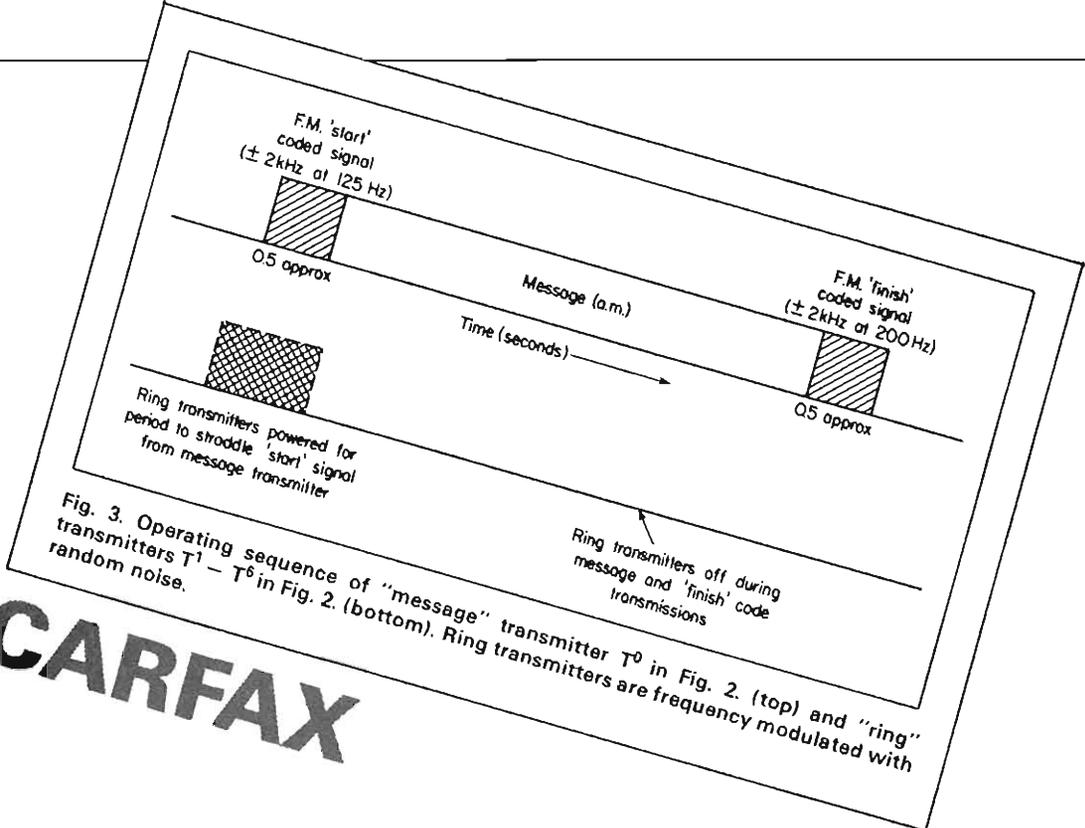


Fig. 3. Operating sequence of "message" transmitter T^0 in Fig. 2. (top) and "ring" transmitters $T^1 - T^6$ in Fig. 2. (bottom). Ring transmitters are frequency modulated with random noise.

very large decrease in the level of the demodulated "start" tone. Where more than one ring transmitter contributes significantly to the received signal, such as at P^2 in Fig. 2, the capture effect still operates but is less pronounced.

Thus it will be seen that receiver activation is determined by the ratio of the "message-to-ring" signal strengths rather than by their absolute values. The encircling ring of transmitters creates a well-defined limit to the service area of the message transmitter — a controlled inhibition of reception of the "start" code signal — so that, outside the service area, receivers are not activated and the message is not then heard.

To overcome the difficulties that might sometimes arise with particular carrier phases of the continuous wave signals from the ring transmitters, these signals are, in fact, frequency-modulated by very low-frequency random noise. This ensures that, during the "start" code, the signals from the ring transmitters are averaged satisfactorily in the receiver.

At the end of the message a "finish" signal is transmitted to deactivate or mute the receiver. Again, frequency modulation of the message transmitter is used but with a different modulation frequency. During transmission of the "finish" code signals, the ring transmitters remain off and reception of the "finish" signal is then possible down to very low signal strengths and under conditions of heavy interference. This is to minimize the number of receivers that may inadvertently remain activated: this could occur, for example, if a particular vehicle happened to be passing under a bridge during the radiation of the "finish" signal.

The set in the car

The important thing to the motorist, of course, is what sort of radio set would be necessary for Carfax in the vehicle. One or two car radio manufacturers are now looking into this, but the BBC engineers have presented them with three working prototypes to consider. The first is a completely separate receiver, fixed-tuned, simple and

inexpensive. The second is an add-on unit. The third is an "integrated" unit, in which the traffic information receiving circuits are embodied in a conventional car radio so that the two receivers are contained in one case.

The separate receiver, with its own aerial, will operate completely independently, having its own loudspeaker. It can be mounted in any convenient position, is technically simple and would be the basic equipment for those who do not wish to have normal car radio facilities.

The integrated unit operates similarly to the add-on unit, but with the advantage of being more compact and cheaper than two separate units.

When will Carfax be available? With the economic situation being as it is in Britain, there is no direct answer to this question at the moment. The BBC say they have taken the development of the system as far as they can. The original grant of money for research and development has run out and no more cash is likely to be available. The government has told the BBC that they don't intend to put any public money into setting up a national Carfax service at present and that it is up to private enterprise to carry on with it.

There have been protests from the radio set manufacturers' association, BREMA, about this apparently negative response, but no signs yet that any manufacturer is ready to take on the whole job. The cost of building and installing seventy or more transmitters to cover the whole of the UK is, of course, the major consideration. So meanwhile it can only be wait-and-see. Let us hope that yet another major example of British technical ingenuity and enterprise doesn't end up gathering dust on the laboratory shelves. ●

This article is based on "Traffic information broadcasting" by S. M. Edwardson, published in the January 1978 issue of *Wireless World*, sister publication of *CB World*.

THE BASIC 10-CODE

This is not the complete list but a condensed version including all the most commonly used U.K. ones. There exists an official 10-code but *CB World* thought it pointless including the whole list, the majority of them are not used on channel.

- *10-1 Receiving a poor signal
- 10-2 Receiving a good signal
- 10-3 Stop transmitting
- *10-4 Yes. Message understood
- 10-6 Busy. Stand by
- *10-9 Repeat message
- *10-10 Signing off
- 10-11 Talking too fast
- 10-13 Report on road or weather
- *10-20 Your location

- 10-27 Moving to channel
- *10-32 Radio check
- *10-33 Emergency
- *10-34 Other trouble, need help
- *10-36 Time check
- 10-39 Message delivered
- 10-44 Message for you
- 10-73 Speed trap at . . .
- 10-77 Negative contact
- 10-84 My telephone number is
- 10-85 My address is . . .
- 10-90 I have TVI
- 10-91 Talk closer to mike
- 10-93 Check my frequency as this channel
- 10-94 Give me a long count

*most commonly used in United Kingdom

CLUB CORNER

NORTHAMPTON BREAKERS CLUB

N.B.C. is a representative body of a considerable number of breakers in an area boasting one of the highest numbers of c.b. users in the U.K. claims 'Santa' their P.R.O.

In addition to promoting social and charitable events, NBC is a staunch supporter of legalisation of 27MHz. It is intended that a REACT service be implemented as a priority. They also seek to develop information services through factsheets, press releases and a monthly newspaper.

Northampton is a large town and has several breakers organisations. NBC wishes to strengthen links with such organisations to mutual benefit. NBC hold eyeballs on Wednesdays and Sundays at the 'Needle'. The Sunday eyeballs have a disco. Visiting breakers are welcomed although it is hoped that they would produce their own breakers club membership cards. If in the area ask on channel for directions.

MIDLANDS CITIZENS BAND CLUB (Leicester)

Formed March 1980 started with 10 breakers who met regularly at the Lively Lady public house in the town.

They moved to larger premises when the membership increased to 40. Now with a membership of 150 they meet every Thursday night at the Coronation, Catherine Street, Leicester.

Skunk, the club secretary, informed CB World that in addition to usual social events, they keep up their campaign to legalise c.b. 27MHz AM.

Their other meets include darts, ice skating, pool, ten-pin bowling and they also turn up at most rallies to

make sure that the MCBC's views are known.

SPIRETOWN BREAKERS S.C. (Chesterfield)

From the start — October 1980 — they have had to alter their 'eyeball house' three times due to the increase in membership which now stands at over 300. They have organised discos, fancy dress parties and visits to c.b. shows. They meet other c.b. clubs and run their own Miss CB competition. Charity work is also a part they take pride in and they presented a music centre cassette recorder to a local childrens home. One of the Spiretown lady breakers is unfortunately paralysed from the neck down and the club have fixed her up with a devise to operate her rig by mouth.

The club meet regularly at the Hollingwood Hotel (unless they have moved again.) CB World notes that in the Spiretown Newsletter they are using some of our copyright names of sections. We don't mind copying but please give us credit by printing "reproduced by kind permission of CB World".

BAND TOWN BREAKERS (Brighouse)

This club was formed in September 1980 by a few breakers meeting from time-to-time over a few brown bottles. They have now formed into a larger club and meet at the Grove Motel every Tuesday. Orphan Annie, club secretary, says that they are not that large but then Brighouse isn't large either. In January BTB raised £50 to boost the funds of a Mini-Bus appeal for a local school for

handicapped children. They are also in "this year of the disabled" pushing a wheelchair fifteen miles in conjunction with other Yorkshire clubs.

We understand that Peacemaker has volunteered to push the wheelchair — all the way to Leeds city centre. We are sorry chaps, CB WORLD can't cover the event for you. We just do not have enough photographers to go round.

CITIZENS AND BREAKERS CLUB (Croydon)

This is a new club operating from the Big 'C' and Big Q is quick to point out that they are not in direct competition with existing ones in the area. (CB World has been to one of the big clubs in Croydon). CABC do not meet in a pub, thus no brown bottles are downed (sad). Big Q says that they are a bit serious about c.b. and at their meetings they discuss legalisation and technical matters. As the name suggests they also want to involve the general public. Although, like most c.bers, they would respond to an emergency they realise that they stand to loose their rigs should they get caught. Any breaker wishing to get in touch, just shout up for Mr. Average, Paraffin Lamp, Wooden Spoon, Big Q, Red Arrow, Red Devil, UFO and Tough Stuff. They say that CB World is well informed and a joy to read and that its the best in the field (crawlers). They are with us, in keeping the channels free from bucket mouths and making it good clean fun for the majority. Well done CABC.

CORBYS TOWN BREAKERS

Formed in December 1980 and already they have nearly 500

members. They arranged a disco and buffet and raised £300 for multiple sclerosis in their 20. They have also shown the film 'Convoy' for breakers and their families for which the attendance was 300. From that they gave £120 to the local mentally handicapped school. The club meets only once a month although they have open evenings for breakers and guests other times of the week. White Knight, the club secretary, said that if any breaker happens to be going through their 20 give them a shout on 19 and you would be welcomed.

N.B.C.B.C. (North Birmingham)

The official long name for this club is The North Birmingham Citizens Band Club. They meet every other Thursday at the Old Crown and Cushion at 7.30 p.m. Membership fee is £2 a year plus 30p per person per meeting. For this members get a free monthly newsletter of club news and gossip. They have over 700 members and at Xmas they raised £100 for a local Old Folks Home. They have a sister club in Canada and correspond on a regular basis on the merits of 27MHz ratchet jawing. They kindly give CB World a rave review (crawlers) and are glad to see a British mag doing it for c.b. CB World thanks Kerry Parkes for his kind words and high numbers.

HEAVY LOAD BREAKERS ASSN (Huyton, Liverpool)

Going about eight weeks they have over 100 members. All are taking c.b. seriously (not too seriously, I hope) and want all c.bers to treat the air-waves with respect. They meet in the local Social Club every Wednesday and are pressing on with the arrangements of usual c.b. social events. They wish CB World the high numbers and say we have the breakers in mind all the time, so says Bobcat.

That's what we are here for — Ed.

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CLUB CORNER

ENFIELD BREAKERS CLUB (Middlesex)

This club is going great guns. They only started up on December 15th, 1980 and at February 20th had attracted 630 members. This has meant that a waiting list of 50 has built up. The club meet at the Royalty Ballroom, Winchmore Hill Road, London N.14. every Monday between 8.00 and 10.30 p.m. They have formed a darts team and will be handing out a thrashing to other c.b. clubs in the near future. They have a video club and hope to fix up a hang-gliding weekend soon. Each Monday they have some professional events (singers, bands, groups etc.) and fancy dress do's. Members are charged only 50 pence per week. They have closed membership as it's getting too big. When a breaker resigns the next person on the list gets in. They also lose a member if he or she does not attend the club for six consecutive weeks. Guests are allowed in with a member of £1. Marie Knight has invited *CB World* to a club night and with all this going on we'll be there.

WELLINGBOROUGH BREAKERS CLUB

This club started in September 1980, has a member of over 550 and is still growing. They meet at the 'Dog and Duck' in Wellingborough on Wednesday nights. The club membership fee is £2.00 which entitles the member to all social events and registration of handles in this area. They also have a club rig which is available on loan to members who find themselves without a rig for reasons of theft or repair. They have recently changed their breaking channel from 19 to 21 to leave the truckers free. If anyone would like any information on the club they can contact Fruitcake, on Wellingborough 227277, the Club Secretary.

R AND B CLUB (Stranraer)

This club pushed an old fashioned hospital bed 19 miles from Drummore to Stranraer. In so doing, they helped to raise £1250 for Aird School. The club itself is into DXing and have made contact with enthusiasts all over the world. Their club call sign is Romeo Bravo — Scotland so says Gorman Shepherd, club secretary.

micro-surgery unit. They are to hold a come-as-your-handle fancy dress ball. Imagine what Bulldozer the club's Treasurer would look like, also Plastic Spanner. The social secretary (Phantom 309) said they are trying to lose the nickname Wally Town for their town, as it is bad for their image. They have their fair share of turkeys who spoil it for others, but it is hoped they will disappear in time.

BUCKINGHAMSHIRE ACTIVITY (Bourne End)

We are indebted to Shy Fox of Bourne End for news of two Clubs operating in this area. They are the Bourne End Breakers Association and the Citizens Radio Associated Breakers.

THE MOB (Molesey Open Breakers)

They are a small but very friendly club with a regular clientele of over 225 registered members. They meet every Wednesday at The Royal Oak, 337 Walton Road, East Molesey, Surrey, and all are very welcome, from Professors to Wallys. A regular weekly raffle produces some really nice goodies, and once a month first prize is usually a magic talking box. They have the best club magazine for miles around, they claim, and invite passing c.bers to point themselves towards the Committee table and receive a big welcome.

SEVERN CITY CLUB (Shrewsbury)

The Severn City Breakers Club in Shrewsbury, Shropshire, was formed in the latter end of 1980. Since then it has changed its premises for Club meets and now gets together at Derick's Club in Shrewsbury. Moonraker writes to say that the membership has grown so much that the Club is trying to find even bigger premises for its meetings. These take place every other Tuesday night at 8 p.m. Every fourth meeting is a social evening with disco. The Club breaks on channels 14 and 19.

R.A.B. (St. Andrews, Fife)

The Royal and Ancient Breakers has been going for about 3 months, starting with a membership of about 20, purely from Golf City. They decided early on, however, to open their doors to the smaller "one-breaker towns" in the surrounding areas and their membership has already jumped to nearly 100. Club nights are changed from week to week to be fair to people who work on shifts. Visitors are always welcome at

any of their meetings and anybody wishing to come along can get in touch with any Golf City breaker on channel 19. Thank you Minstrel for your interesting letter.

LINCOLN BREAKERS

Another Club to come to our notice is the Country Breakers Club in Lincoln, on the "46". Thanks Sandpiper.

CATHEDRAL CITY BREAKERS CLUB. (Truro)

Firmly established in Truro, Cornwall, this Club has a membership of 65 breakers. Not all of them have given us their handles for publication but we forgive them as Silver Bullet's letter states that at least most of them purchase *CB World*. We must work out the number of readers per copy! The Club, by the way, breaks on 14 and 19.

SILLY BREAKERS (Teddington)

No, we are not criticising the breakers of Teddington, Surrey, but just giving you the name of their Society. They are far from silly; our correspondent tells us they have nearly 2,000 members!

NORTH EAST DERBYSHIRE 10-4 CLUB (Chesterfield)

The Club was founded in 1980 and held their first eyeball on the 13th November 1980. They have since grown to the largest club in the area with a total membership of 825 breakers and an average of 45 new members weekly. They have moved their 20 three times: it has been difficult to find a room capable of holding the ever-increasing membership. They hold various events, including treasure hunts, show nights, and have a disco and trade stands at every eyeball. These are held on Wednesday nights at 8.00 p.m. at the Shoulder of Mutton, Hardstoft.

If any good buddies and good ladies are ever in the Spiretown area, they are invited to have an evening at the 10-4 Club. They will get a warm welcome and an enjoyable evening, so says Mr. Fiddler and Diamond Jill.

They recently held a demonstration in Chesterfield in conjunction with Good Buddies from the Spiretown Breakers Club and considering the bad weather they had a good turn out.

CAKETOWN BREAKERS CLUB (Banbury)

They have membership of 120 and the number grows all the time. They hold discos and recently presented £100 to the Horton General Hospital

9

Anyone out there?

The breaker calls for 10-33 assistance on Channel 9 in the normal way. When the monitoring service answers and deals with your request you must then state that this is an unaided accident and ask whether there are any MEDICO monitors on channel. If so then the MEDICO will rely when the Channel 9 monitor has finished and will, at the same time, be proceeding to the scene of the incident.

The breaker should remain at or near the accident. If the ambulance arrives before the Medico, the Medico should be recalled on 9 so that he won't have a wasted journey.

Breakers with some knowledge of first aid who are dealing with an incident themselves, may call for verbal medical assistance from the Medico, via c.b.

Medico 9 also offers courses in first aid, in conjunction with the St. Johns Ambulance and Red Cross. Medical meetings are arranged, concerning road-traffic accidents and their associated injuries, along with updates on the modern methods of first aid.

If the service is properly used, it will prove invaluable to the public, ensuring that accident cases get quick and effective treatment prior to the arrival of the ambulance.

Further information on THAMES MEDICO 9 from (SAE please), 18 Shepherds Way, Selsdon, South Croydon, Surrey SR2 8H5.

The 'serious' side of c.b. provides a lot of fun and satisfaction too. When I'm on the road visiting your local club I don't want to ask "Anyone out there?" I would like to be sure that there is.

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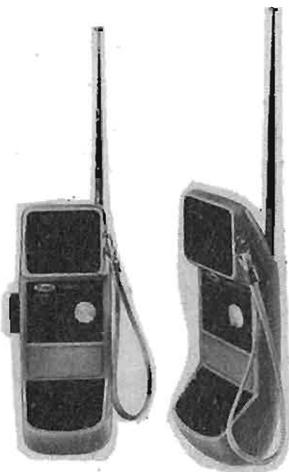
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DXing — This Is What You Do

Jim Glavin explains the art of DXing or skip talking on s.s.b.

DXing simply means distant copying. It could mean a c.b. conversation between London and Brighton, or Portsmouth and Cambridge — anything more than the direct range. What we are really interested in is conversations between our home towns and stations abroad; how to copy a station in, say, America or Africa or, if the skip is right, Australia. How do we talk to them? What do we talk about? What do we do after we have talked to them? In the next few paragraphs I will try to answer these questions in a simple way, avoiding technical description where possible.

First of all, you will need the right equipment to DX. A sideband rig able to communicate between 26.965 MHz (ch.1) up to say 27.855 MHz (ch.80) will do the job, providing one has the antenna to get out. An ideal situation would be to have a base antenna (5/8th wave dipole, for example) situated as high as possible: if you live on a hill, in the country, one could possibly use a multi-element type on a rotator. A linear amplifier or burner would also help, anything from 50 watts upwards to give that extra power. An in-line matching tuner would also help to keep the lowest possible s.w.r. reading while using your 'burner'.

Now your 'radio shack' is ready to explore the world of DXing. Flick through the channels until you come to one where you can hear someone saying, "CQ CQ CQ DX". This could be a station in south Italy, or

somewhere, calling for long-distance contacts. Have handy a pen and note-pad to write down the station name and country of the caller. When you have written down who it is and you have understood his call sign, which might be repeated once or twice, key your mike and call back into the microphone, "CQ CQ CQ DX — this is station Alpha Lima 19 (or whatever station name you decide to call yourself) looking for the station in south Italy. I am QRT and standing by".

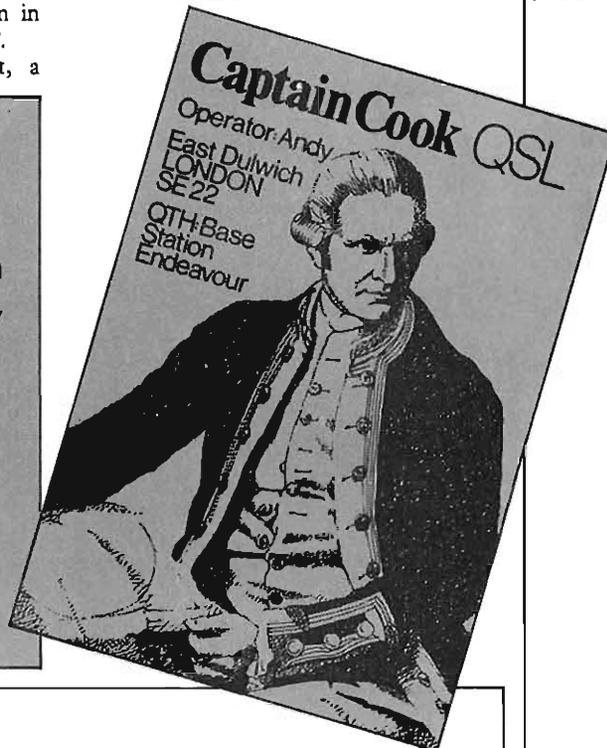
Once you have established contact, a

different kind of conversation immediately starts up between you and your new found c.b. friend in Italy. This conversation contains terms used from the International Q code, which is used by sidebanders all over the world. (See panel for Q-code).

Normally, the two stations will talk about weather conditions, each other's equipment and signal reports. Next may come the

► 59

THE PHONETIC ALPHABET USED IN DXing.			
(A)	ALPHA	(S)	SIERRA
(B)	BRAVO	(T)	TANGO
(C)	CHARLIE	(U)	UNIFORM
(D)	DELTA	(V)	VICTOR
(E)	ECHO	(W)	WHISKEY
(F)	FOXTROT	(X)	XRAY
(G)	GOLF	(Y)	YANKEE
(H)	HOTEL	(Z)	ZULU
(I)	INDIA		
(J)	JULIETTE		
(K)	KILO		
(L)	LIMA		
(M)	MIKE		
(N)	NOVEMBER		
(O)	OSCAR		
(P)	PAPA		
(Q)	QUEBEC		
(R)	ROMEO		



Q-CODE

Question	Answer
QRA What station are you?	I am station
QRB How far are you from me?	I am miles away.
QRD Where are you headed and from where?	I am bound for
QRE What is your estimated time of arrival at	I expect to arrive in at
QRF Are you returning to	I am returning to
QRG What is my exact frequency	Your frequency is
QRK How do you read my signals?	Your signals are (1) unreadable (2) readable now and then (3) readable with difficulty (4) readable (5) perfectly readable
QRL Are you busy?	I am busy.
QRM Are you experiencing interference?	I am experiencing interference.
QRN Are you troubled by static?	I am troubled by static.
QRT Shall I stop transmitting?	Stop transmitting.
QRU Have you anything for me?	I have nothing for you.
QRV Are you ready?	I am ready.
QSA What is the strength of my signal?	Your signals are (1) scarcely perceptible (2) weak (3) fairly good

Question	Answer
QSB Are my signals fading?	(4) good (5) very good Your signals are fading.
QSL Will you send me a confirmation of our communication?	I will confirm.
QSM Shall I repeat the last message?	Repeat the last message.
QSO Can you communicate with	I can communicate with
QTC How many messages do you have for me?	I have messages for you.
QTH What is your location?	I am at
QTN At what time did you depart from	I left at
QTO Have you left port (dock)?	I have left port (dock).
QTP Are you going to enter port?	I am going to enter port.
QTR What is the correct time?	The correct time is
QTU During what hours is your station open?	My station is open from to
QTV Shall I stand guard for you on MHz/kHz.	Stand guard for me on MHz/kHz?
QTX Will you keep your station open for further communication with me for hours?	I will keep my station open for further communication with you for hours.
QUA Do you have news of	Here is the news of



C.B. fever!

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Advance bring you the complete range of CB Accessories — antennas, SWR meters, linear amplifiers, microphones, suppression equipment, ancillary equipment, mounts, books — in fact you name it and we've got it — and at incredibly low prices too! Advance are one of the leaders in Citizens Band.

Super Tee and Sweat Shirts too! Really look the part in these really great and attractive CB casual wear. Available in two exciting colours — dazzling white and navy blue and in four sizes — Small, Med, Large and Ex Large @ £2.95 (plus 20p P&P) Tee Shirt and £5.95 (plus 40p P&P) Sweat Shirt.

ADVANCE — CB ACCESSORIES

Model No.	Description	£
ANTENNAS: MOBILE		
GM-1	Gutter Mount—Centre Loaded	9.00
1427	Hi-Gain Trucker Twins—Mirror Mounts	23.25
CB-40	Base Loaded—Truck Mount	9.75
M-125	A.S. Base Loaded—Radio/Telephone Type	15.75
CB-2275	Magnetic Mount—Base Loaded	17.25
TK-21	Retractable AM/FM/CB Disguised—Top Loading	14.77
DV-27	Sitel Traditional Glassfibre Whip—Complete	5.33
DX-27	HMP Black Whip—Pre-Set SWR	13.50
DX27½	Black ½ Wave—Helicoid Wound	14.77
T-27	Sitel Roof Mount—20' Whip	8.85
K-27	HMP Disguised 43' Whip—Pre-Set SWR	10.05
AV-200	Avant! Astro Phantom Antenna for Glassfibre Cars	13.05
TX-10	Harada Electric Semi-Auto AM/FM/CB	31.50
31-CB	Harada Retractable—Semi-Auto CB	28.80
TP-21D	Harada AM/FM/CB Side Mount for Datsun/Toyota cars	14.25
K-40	The Original K-40 Mobile Antenna	36.00
ANTENNA SPECIALIST: MOBILE ANTENNAS		
M-440	Base Loaded Magnetic Mount	13.80
MS-254	Disguised AM/FM/CB—46' Whip	21.00
CB-5000	Retractable AM/FM/CB—Hidden Loading	21.75
ASC/557/B	Whites or Black 4' 'Skinny Stick'—Helicoid Wound ¼ Wave—Factory Tuned—Fits ¼" Mount	9.30
ASC-550/1	As for ASC-557/B—Fits 5' 'Skinny Stick'	10.50
ASP-636	102' Steel Whip	14.55
ASP-3	Ball Mount	8.25
ASP-570	Spring—Heavy Duty Plated	9.60
M-13	Spring—Normal Plated	4.95
FIRESTIK: MOBILE ANTENNAS		
KW-2	2' Heavy Duty Fibreglass—Full Wave	7.15
KW-3	3' Heavy Duty Fibreglass—Full Wave	8.26
KW-4	4' Heavy Duty Fibreglass—Full Wave	8.25
KW-5	5' Heavy Duty Fibreglass—Full Wave	8.70
KW-7	7' Heavy Duty Fibreglass—Full Wave	9.90
SHAKESPEARE: MOBILE ANTENNAS		
Rebel 4'	500 Watt Maximum—Fits ¼" Mount Colours: Black, White or Orange	6.77
Rebel 6'	As for above—6'	8.17
ANTENNAS: BASE		
Pal-Mecho	Indoor Firestik Antenna	32.25
M-400	A.S. Standuster +5db Gain—Omni-Directional	26.25
Silver Rod 579	Hi-Gain Silver Rod—17' 8" Tall—Short radials 4db	26.25
CPA-27½	HMP ½ Wave Pole—Unity Gain	26.25
GFZ-27	Sitel—Stands in any Room—5' 8" Tall—200 Watt	25.50
B.P.B.S.	Small Base Antenna—8' Tall—3 Legs (Whiskey)	13.50
Big Stick	Shakespeare Big Stick—No Radials	34.50
MS-119	A.S. Super Scanner—5.75db—Omni-Directional	123.00
AR-58 500/525	Comman! ¼ Wave Special—1800 Watt AM—4 Radials 6.25db Gain	30.00
AV-174	Avant! Sigma IV—5.14db Gain	55.50
UFO	¼ Wave—7' Radiating Element—96' Solid Aluminium Radials	26.70
801	Wintenna Mini Duster only 6' High—Fits in a Room or Loft—2.5db Gain	27.30
888	Wintenna Bandmaster—Very Low SWR—Over 25/30 MGZ—Good for 100+ Channels	42.75
812	Wintenna Portable Base Station Antenna	12.00
SWR METERS:		
FS-2/SWR11B	Simple SWR Meter	7.50
WA-30	SWR/Power Meter with Patch Lead	12.00
005	SWR/Power/FS Meter	12.75
006	SWR/Power/FS and Impedance Matcher	19.50
SWR/508	Hansen Power/SWR—Two Meters with Light	21.75
FS-5E	Hansen Power/SWR—Two Meters 20/200/1000 Watt	32.25

Model No.	Description	£
SWR METERS Cont:		
MT-703	Robyn Power/SWR/Mod—Three Meters 1000 Watt	43.50
007	Rama Twin Meter SWR with AM Monitor	17.25
008	Rama SWR/Power/10/100W with Impedance Matcher + AM Monitor	22.50
FC-156S	Rama SWR/Power/FS and Frequency Counter 10W/100W	71.25
FC-2500	As for FC-156S plus Modulation	114.00
AM-28	Impedance Matcher with Thru/Switch	10.50
CBT-8	Antenna Impedance Matcher	5.25
FC-1	Frequency Counter—Fits any Rig	40.50
LINEAR AMPLIFIERS:		
AP-25	25 Watt Amplifier	28.50
CP-100	50 Watt Variable—15/25/50 with Pre-Amplifier	88.50
LMA-100	Tomado 100 Watt Amplifier with 20db Pre-Amplifier	60.00
CP-183	100 Watt Amplifier 25/70/100—BI-Lateral	114.00
LMA-150	150 Watt Amp/150/75/150 Watt with Pre-Amplifier	150.00
RP-20	Adjustable 20db Pre-Amplifier	16.50
MICROPHONES:		
Turner JM+2	Power Mike—Rotary Knob to Adjust Input	21.75
Turner M+3B/F	Power Mike—Slide Control to Adjust Input	31.50
Turner SSK	Super Sidekick Base Station—Power Mike	36.00
Turner EXP-500	Turner's Newest Amplified Base Station Mike	49.50
K-40	K-40 Speech Processor Microphone	36.75
NIM-9/C	Wireless Microphone—Black or Clear	33.75
HM-20	Sadetta Hand-held Speech Processor Mike—Variable Gain	21.50
HM-30	Sadetta Hand-held Power Mike—Variable Gain	24.00
MP-20	Sadetta Base Mike—Compressor Type—No Meters	32.25
MP-21	Sadetta Base Mike—Compressor Type with One Meter	37.50
MP-22	Sadetta Base Mike—Compressor Type with Two Meters	42.00
SUPPRESSION EQUIPMENT AND TVI FILTERS:		
TVI-100	100 Watt TVI Filter	7.89
XLP-150	Telco 150 watt—Low Pass TVI Filter	13.50
XLP-1000	Telco Low and High Band TVI Filter—Adjustable	24.00
CB-520	TVI Filter—Fits on to TV Set	2.48
NFS-1000	Noise Suppression Kit	11.63
CB-260	Alternator Noise Suppression Kit Inc. Spark Plug Caps	5.10
CB-252	Hot Line Filter Kit	2.40
CB-253	7 amp Heavy Duty Hot Line Filter Kit	4.35
CB-294	Alternator Filter	2.40
CB-294	Voltage Regulator Filter	2.03
CB-270	Generator Filter with Turnable Wave Trap	2.55
CB-725	100 amp Noise Filter—2.2 to 400 MHz	4.50
ANCILLARY PRODUCTS:		
SM-1	Slide Mount Bracket with PL-259 Connection	4.73
PS-3/5	Power Supply 240 Volts—13.8 Volts—3/5 amps	15.00
PS-5/7	Power Supply 240 Volts—13.8 Volts—5/7 amps	20.25
CB-140	Extension Speaker with Cable and Jack Plug	5.10
CB-950	Small Round Extension Speaker—Plug and Cable	8.63
CB-544	Mura Extension Speaker with Plug and Cable	9.98
PA-1	Public Address Horn—5' 8" Watt with Plug and Cable	6.75
DH-3	3' Extension Speaker or PA Horn with Cable	4.50
CB-768	8 ohm 3 Watt	1.73
CB-770	3 Pin Female Type Power Cord	1.73
CB-506	2 Pin Female Type Power Cord	1.73
CB-4	Cigarette Lighter Plug with 4' Wire	.57
CB-5	4 Pin Mike Plug with Locking Ring	.65
CB-SD	5 Pin Mike Plug with Locking Ring	.65
SO-239	5 Pin Din Mike Plug	.57
PL-259/6	Chassis Mounting Receptacle	.65
M-359	PL-259 Plug with Built-in Reducer	.39
MI-559	Right-angle Type Coax Connector	.87
CB-352	Double Female Adaptor	.51
	'T' Connector	1.77
	16' RG58/U with PL-259 Connectors	1.2*

Model No.	Description	£																																																														
ANCILLARY PRODUCTS Cont:																																																																
M-563	Double Male Connector	.83																																																														
CB-49	PL-259 Type Connector to 3.5mm Mini Plug	1.20																																																														
CB-064	3.5mm Mini Plug for PA Horns or Extension Speakers	.15																																																														
CB-502	Fuse Holder with Wire	.42																																																														
CB-525	Magnetic Mike Holder	CB-526	Self-Adhesive Mike Holder	CB-528	Screw-On Mike Holder	PL-259	Plug for Low Loss Cable	CB-707	5 Watt Dummy Load with Modulating Light	CB-704	6' Four Pin Mike Extension Lead	CB-705	6' Five Pin Din Mike Extension Lead	ARA-15	Heavy Duty Gutter Mount—Mount with ¼" Hole	P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70
CB-526	Self-Adhesive Mike Holder	CB-528	Screw-On Mike Holder	PL-259	Plug for Low Loss Cable	CB-707	5 Watt Dummy Load with Modulating Light	CB-704	6' Four Pin Mike Extension Lead	CB-705	6' Five Pin Din Mike Extension Lead	ARA-15	Heavy Duty Gutter Mount—Mount with ¼" Hole	P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70		
CB-528	Screw-On Mike Holder	PL-259	Plug for Low Loss Cable	CB-707	5 Watt Dummy Load with Modulating Light	CB-704	6' Four Pin Mike Extension Lead	CB-705	6' Five Pin Din Mike Extension Lead	ARA-15	Heavy Duty Gutter Mount—Mount with ¼" Hole	P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70				
PL-259	Plug for Low Loss Cable	CB-707	5 Watt Dummy Load with Modulating Light	CB-704	6' Four Pin Mike Extension Lead	CB-705	6' Five Pin Din Mike Extension Lead	ARA-15	Heavy Duty Gutter Mount—Mount with ¼" Hole	P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70						
CB-707	5 Watt Dummy Load with Modulating Light	CB-704	6' Four Pin Mike Extension Lead	CB-705	6' Five Pin Din Mike Extension Lead	ARA-15	Heavy Duty Gutter Mount—Mount with ¼" Hole	P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70								
CB-704	6' Four Pin Mike Extension Lead	CB-705	6' Five Pin Din Mike Extension Lead	ARA-15	Heavy Duty Gutter Mount—Mount with ¼" Hole	P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70										
CB-705	6' Five Pin Din Mike Extension Lead	ARA-15	Heavy Duty Gutter Mount—Mount with ¼" Hole	P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70												
ARA-15	Heavy Duty Gutter Mount—Mount with ¼" Hole	P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70														
P-27	DV Base Plug—Pack of 25	RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70																
RB-1	Roger Bleep to fit any Rig	AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70																		
AA-32	Splitter Box PL-259 In—Adjustable	FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70																				
FT-27	HMP Splitter Box	MOUNTS:			DVMB	DV Magnetic Base fits DV, T, DX and B Antennas	K-40-MM	Magnetic Mount for K-40 Antennas	K-1	Adapt-A-Mount—Converts M-125 Type Mount to ¼" x 24	K-1A	Quick Disconnect—Chrome Plated Brass, Invisible Integral Lock	K-3MDS	Spring—Medium Duty Stainless Steel ¾" x 24	K-3AHDS	Spring—Heavy Duty Stainless Steel ¾" x 24	K-4	Stud Mount—½" All Purpose w/¾" x 24 Thread	K-4DD	Discso Disc Super Stud for ½" Hole—¾" x 24 Thread	K-4A	Steel SO-239 Base Stud Mount—¾" x 24 Thread	K-4ADD	Discso Disc Super Stud for ½" Hole ¾" x 24 Thread	K-7	New Shockproof Low Profile 'No Hole' Tr. Lip Mt Macho Mag. Mount w/20 of Stranded Centre Coax-Pre-Assemble	K-24	Side Mount Bracket with K-4 Stud—Fits Vans, Boats and Mirrors	K-24A	As for K-24 but with K-4A Stud	ACCESSORIES: BOOKS				Big Dummy Guide to CB	2.95		Best Book of CB	4.35		Assorted Guides to CB—Pack of 9	8.70																						
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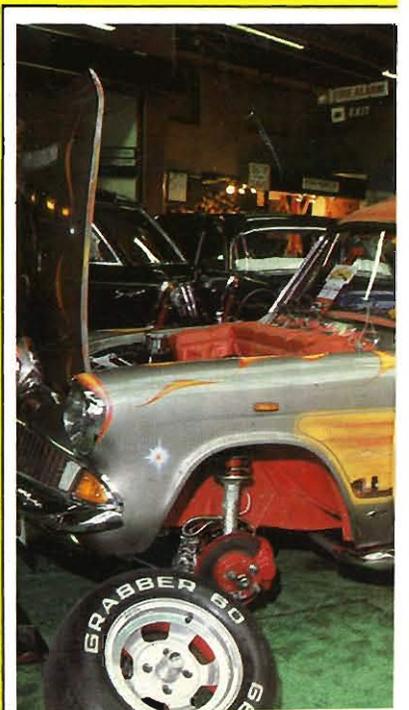
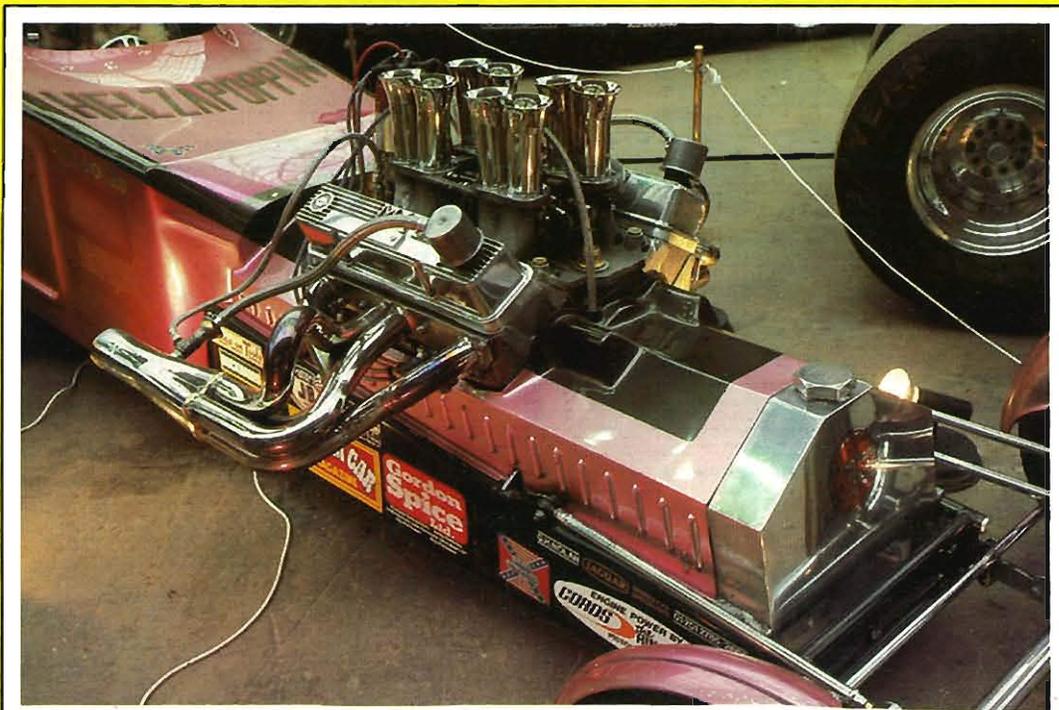
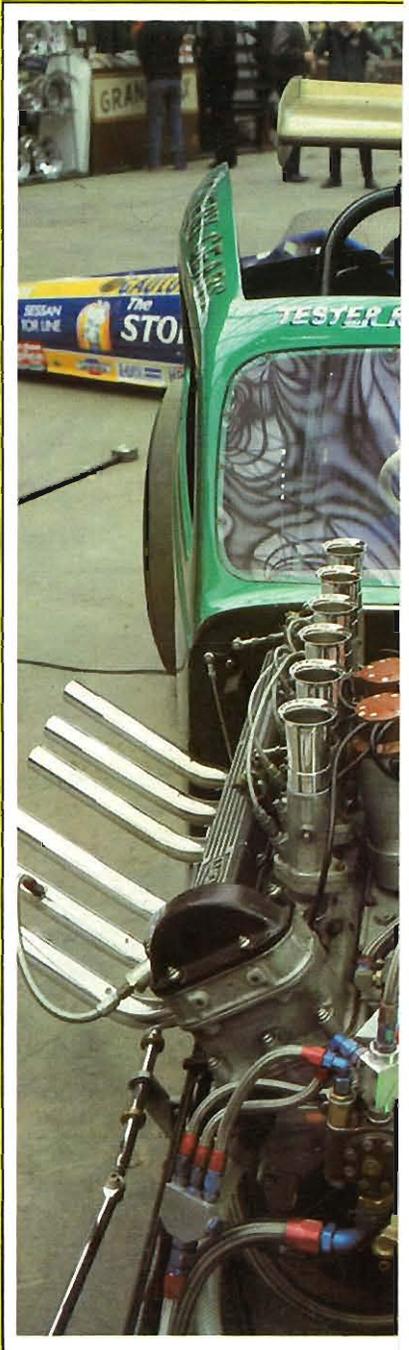
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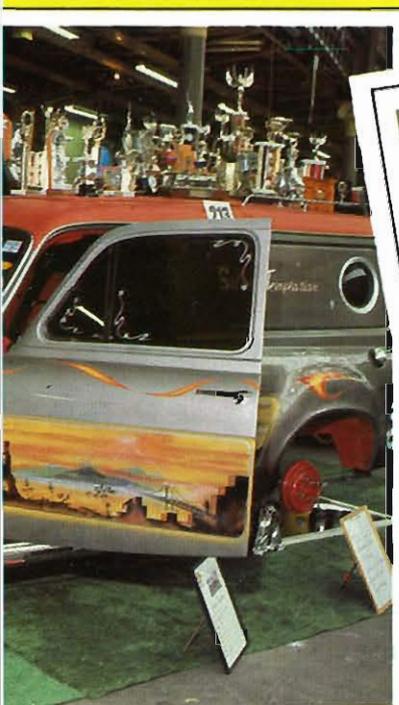
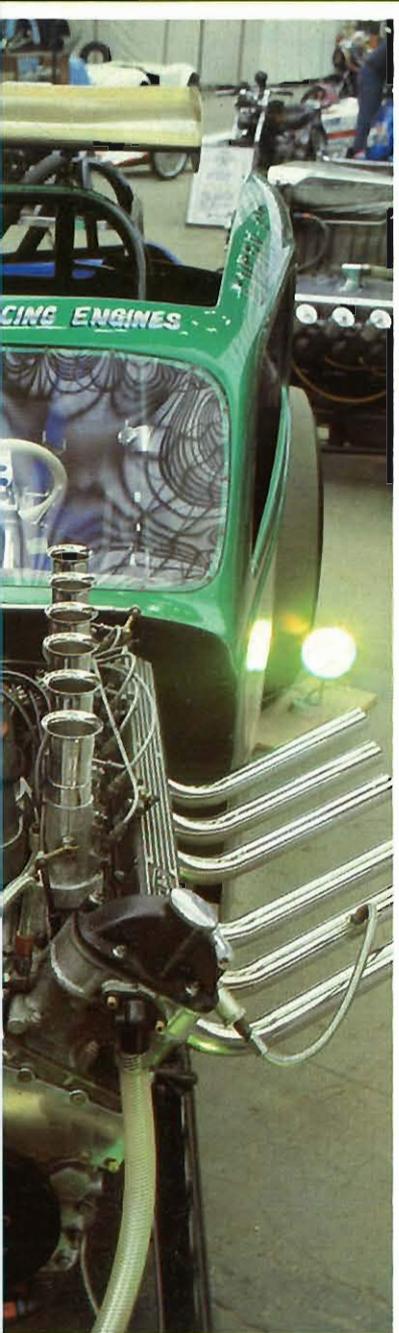
The title of this month's colour spread could be misleading. Yet on the other hand it isn't. In this feature of superb vehicles the CB stands for Custom Built.

We find these machines absolutely fascinating, as we hope you do. The dedication of craftsmanship, creativity and sheer perfectionism is remarkable.

Maybe there is one flaw in the whole range — they don't sprout twigs and they don't have their 'ears on'. If they did their owner's handles would have to reflect their mean machines. Code names like 'Dream Machine', 'Super Wheels', 'Custom Charley', 'Fiery Fred' or 'Tyred Ted' could be suitable. If you like this custom car scene we would be happy to feature some more later on.

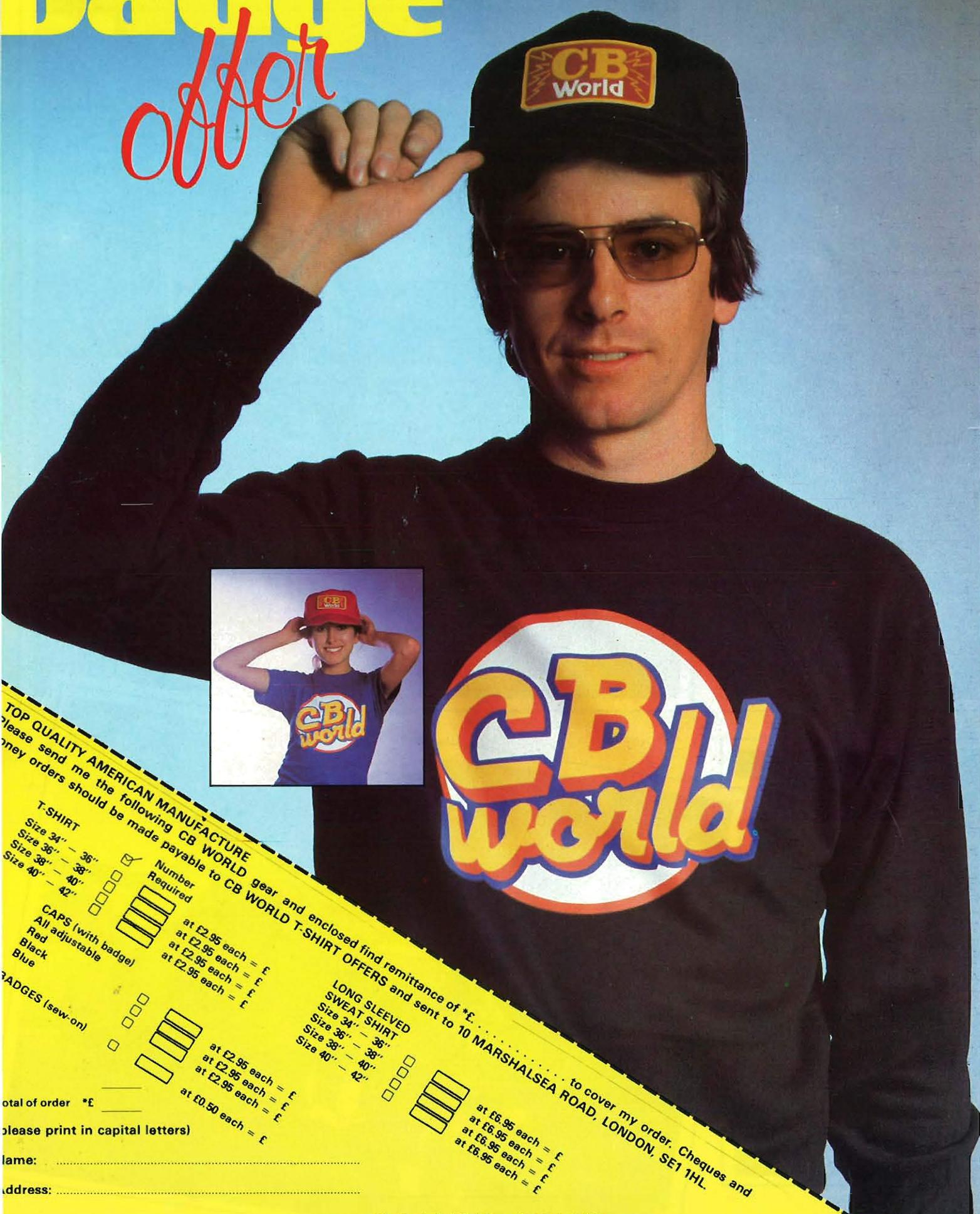
These superb photographs were kindly lent to us by **MOTOR**, like *CB World* an IPC Publication based in Sutton. Thank you **MOTOR**.





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offer



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Name:

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THIS & THAT

They got the point

In our last issue we asked readers to find the handle in our handle directory that best fitted a tattoo artist. We received several amusing suggestions but the first two (a tie!) which we received giving the correct answer were Mr. G. Penney of Farsley, Leeds and Mr. D. Cooke of Todmorden, Lancs. Both will receive a *CB World* T-Shirt. The correct answer was "Prince of Pain".

C.Bers on target

ARROW ELECTRONICS LTD., the Brentwood based Amateur Radio and Citizens Band Radio Shop, told *CB World* that they would like to thank all their c.b. friends for the quite amazing amount of help that they have given in recovery of the equipment stolen from their shop. Throughout the whole of Essex the waveband comradeship quickly spread the news of the missings rigs and within hours the network was busy tracking down the stolen gear. "I have never known such an amazing reaction", Mr. Peter Clarke said. "We received calls over the air, telephone messages, and people popped into the shop with news; it was the reality of how radio enthusiasts can help each other and the community. From the police reaction it would appear that they too are surprised at the help we have had."

Record bust

In 'Bring it Back' this issue Tiger One from Colchester was fixed up with a rig and within 50 hours he had Buzby fingering his collar. Is this a "Guinness Book of Records" entry.

Cost of rigs

Many readers of *CB World* have written in asking how much the rigs cost which we feature in the RIGS RIGS section. We obviously can't say, for two reasons. First we are not supposed to be encouraging the use of illegal c.b. sets and secondly we do not know. However, we do know that a few (phew) of you have sets and we wondered whether we could dare you again (remember the handles, you are naughty) to write in giving us the cost of your set. Please do not guess as we want to be as accurate as we can. Send a postcard please giving

make and model number to *CB World*, Rm 312, IPC Electrical-Electronic Press Ltd., Quadrant House, Sutton, Surrey. Thanks for your help.

CB training!

It had to happen folks. Training courses in the use and maintenance of c.b. radio sets are to be held at the North Cheshire College, Warrington. It probably stems from the training that was given for National Servicemen in the Royal Air Force. (The Publishing Director did his training there). The college claims that it is the first in the country to run courses for c.b. beginners. Mr. Chadwick, Principal Lecturer in Communications and Physics said that the course will be included in the colleges audio visual communications studies. We can hear it now. "Repeat after me the 10-code". "What is a skateboard"? Will we see 'A' level in c.b. language? 'O' level in s.w.r.ing.

Marathon

Amongst the 7,500 entries for the Gillette London Marathon which took place on March 29 was *CB World's* design man Geoff Harrold. Despite his advancing years, he is all of 42 years old, he huffed and puffed his way round the 26 miles in one second under 2½ hours. A remarkable time folks and even more remarkable was the fact that he finished 142nd overall. An additional record was broken that evening, though Geoff can't remember too much about it, and that was the number of brown bottles consumed. Geoff said next year he hopes to complete the course with his 'ears on' carrying 1250 copies of *CB World* in a rucksack.

Family Breakers

Good buddies aged 4 years and 4½ years must be the youngest breakers ever. They are introduced to us in a letter from Paint Pot of Steel City who gives eleven names from just two families of breakers. Paint Pot thinks this shows the impact c.b. is having on people in the U.K. We have also received a letter from Green Dragon of Cromwell City giving us the names of his family, six in all, and information on a family of five has come from Coffee Pot of Fog City.

Green Dragon would like to know how many other "Family c.b.ers" are about. And so would we! The idea of families getting together really appeals. We would say that the "family way" is one super way of getting the best out of c.b.!

CB World is also happy to welcome three Walthamstow youngsters aged 12, 16 and 17 who must be among the youngest of our readers. Are we soon going to welcome the first "breakers school"?

Is being a member of several Breakers Clubs the new trend? Roundabout of Richmond tells us he is a member of three. Can anyone beat that?

National Truckin'

This year the club 'Heart of England Truckers' is organising The National Truckin'. This, they claim is the largest annual gathering of vans, trucks, rigs and rods. All are welcome to attend the weekend planned for August 14th-16th.

Activities will include; disco, dance, bars, 'show and shine', bonfire, country and western gig, silly games and tradestands.

The venue is Shenstone Mill Farm, between Tamworth and Brownhills on the A5 (near Birmingham) and will be well signposted. Adults are admitted for £5. Children under 15 go free.

If you have any queries or require further details please contact:-
Tim Slater — 0543 480 574,
Roy Bickley — Tamworth 62965.

NATCOLIBAR statement

The following is taken from a letter sent to *CB World* by the Secretary of NATCOLIBAR Disco One said on Woman's Hour broadcast on 30.3.81. speaking of 27 MHz FM "the National Committee for Legalisation of CB Radio, who are supposed to be representing us, should never have agreed to this". Before this error spreads, may I make it quite clear that there never has been any question of NATCOLIBAR "agreeing" to 27 MHz FM. The decision was made by the Home Secretary alone — nobody else has the power of decision. But, that apart, Natcolcibar's advice to the Home Secretary has always been that if on 27 MHz, CB should be AM and from its last meeting a motion was sent to the Home Secretary saying so again, very clearly. DISCO ONE WAS THERE! However, above all Natcolcibar is in the business of getting a legal CB service going and will not refuse any workable specification i.e. one that will give equal or better results than breakers get at present. We do not only have existing breakers to consider, but the far greater number of potential future breakers who are not prepared to break the law no matter how stupid they think it is.

THE BIG DUMMY'S GUIDE TO C.B. RADIO

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THIS & THAT

CB poets

In the previous issue we published a poem from Rembrandt of London SEA and we said that if other breakers sent in their efforts we would include them. Well we are gluttons for punishment and here they are — not quite Poet Laureate standard but what do you expect.

The Lonely Breaker

"Pronto's Friend" be my name
For a year I've been mad on this
c.b. game
One Four — One Four for a copy I
shout!
There must be someone there surely
someone about!
Up in the morning, switch on the
rig
Up to the roof, polish me twig
Breaker one four for a copy I yell!
Do I get an answer, do I, like hell.
Pronto's Friend they call, are you
on Channel,
You sound as if you're in the
English Channel,

I'm here, I'm here I say, getting
shirty,
What did they say? who's that 10-1
Turkey.

Many pennies in this rig have I
invested
I do hope Buzby don't get too
interested.
They seek us there, they seek us
here,
Those little yellow vans are
everywhere.

If you do see one, don't modulate,
Otherwise you may get home quite
late!
It won't cost a penny, it won't cost
a pound
But it will cost you up to £400!

I go to the goodies shop and buy all
the best
Just so I can be heard and keep up
with the rest.
Turn on the 'burner', turn on the
'boots'
What about T.V.I and the
neighbours says the missus
Never mind says I, we'll give them
love and best wishes.

Diamond Dogs no better, in fact
he's a pest,
He winds me up just like all the
rest.
Freezeman, Freezeman, are you
there I declare
Or am I modulating into thin air?
Alas, at last the trouble I have
found
The plug for the power pack is on
the ground
But now it is morning and the

televisions are on
So this is Pronto's Friend going
down, going, gone.
From PRONTO'S FRIEND
CROYDON

Black Abbott

If you want a copy,
On channel one nine
Just ask for Black Abbott,
He'll spin you a line.
He tell's you he's fat,
And a bit ugly too,
But, watch out lady breakers,
He's after you!
He had a bad childhood
What a rotten disgrace,
His wicked old mother
Chopped wood on his face.
He drives a white skateboard,
With considerable ease
He's out for a copy
The girls, for to tease!
Black Abbott is fast
So watch what you say,
He'll wind you up tight
both by night and by day.
One nine for a copy
Black Abbott, my dear
Let's go down to my channel
So the breakers, can't hear.
O.K. all you breakers,
I've told you the facts,
Watch out for Black Abbott
He's the first and the last.
You on channel Black Abbott?
You've got the Black Nun,
Now let's get together
And have us some fun.
Black Abbott, do you copy?
It's time we had some Zeds
Geordie Girl and Car-Man,
Are going to our beds.
Ten Ten till we do it again
That's all we have to say
Call in for a coffee
When you're cruising down our
way.

From GEORDIE GIRL
KNOTTINGLEY

The Ballad of the Breaker

I got myself a c.b. set, although I
know t'aint legal yet
But I couldn't wait to get me on the
air,
At the time I didn't bargain for all
the freaky c.b. jargon,
I was a breaker now, and didn't
care.
When I pick up my microphone,
my voice takes on a different tone,
Can't help it, it's the way we
breakers talk,
My accent takes a Texan twang, and
no-one understands a "thang"
When as I drive along they hear me
squawk....

CHORUS:
Come on, my good buddy, got your
ears on, my good buddy?
Got my rig and my big twig, and a
microphone in my paw,
Can anybody hear me, is there
anybody near me?
I'm a brand new breaker breaking, so
gimme a big Ten-Four.

So one day, as I'm driving down
from Way Out West, towards
Bridgetown,

I'm chatting with some guy a mile
behind,
He said "I think it's only fair to
warn you there's a Smokey Bear"
And I said "Go on, you're kidding.
Never mind".
I said "I copy loud and clear, but
there ain't no Smokey Bears
round here,
Ain't even seen a rabbit or a stoat.
Maybe a circus came to town, if I
see that bear I'll run him down,
He'll make my wife a super new fur
coat".

CHORUS:
Come on, my good buddy, got your
ears on, my good buddy?
Got my rig and my big twig, and a
microphone in my paw,
Can anybody hear me, is there
anybody near me?
I'm a brand new breaker breaking, so
gimme a big Ten-Four.

"No", he said, "This kind of
smokey is the sort who slams you
in the pokey,
And I'll warn you now, he ain't too
far away.
T'aint no more than half a mile,
he'll be with you in a little while
But put your hammer down, you'll
be O.K.".
I said, "Well now I understand, and
thank you very kindly, friend,
I gather Smokey Bear must be a
Cop.
Ta, good buddy, my thanks are due,
I'll give you a wave — which car
are you?"
He said "The one with the flashing
blue lamp on the top".

CHORUS:
Come on, my good buddy, got your
ears on, my good buddy?
Got my rig and my big twig, and a
microphone in my paw,
Can anybody hear me, is there
anybody near me?
I'm a brand new breaker breaking, so
gimme a big Ten-Four.
Sent in by WHITE ONE — HULL

Breakings the Game.

We've got ourselves a name
Breakings gonna be the game
To run the greatest 'breakers' club
is gonna be our aim
We got ourselves a site
So we're gonna be alright
To meet our mates and have a ball
every Friday night

In our club there is a bar
So you don't have to go far
for a real great night, with music
too, so come and have a jar.
We're gonna be the leaders
in 'breaking' ground thats new
And all we need is members now, so
that is up to you

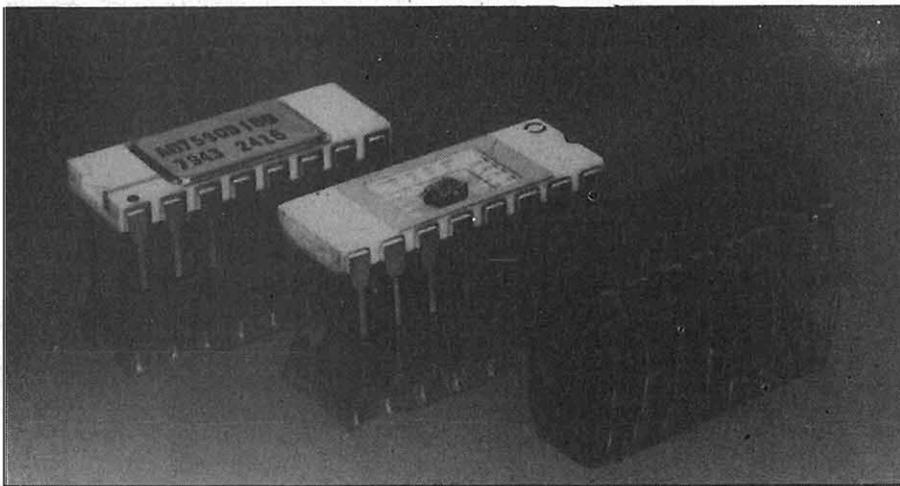
So make a note of the date
And please do not come late
for an evening full of booze and
birds and maybe have some grub,
We openly declare
to 'CB' users everywhere
Come and have an eyeball at the
Burnham Football Club.
From ALL BURNHAM
BREAKERS ASSN.

HOW ABOUT AN EYEBALL

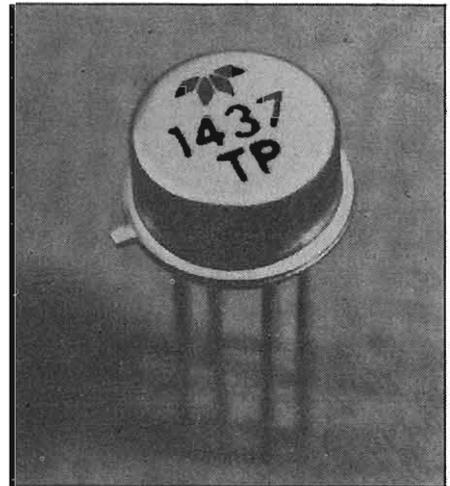
COME TO THE
**MID CORNWALL
CB CENTRE**
TRENANCE ROAD, ST AUSTELL
TELEPHONE 0726 5429

What's all this about chips?

If you're going to be into c.b., you'll be using the chip. Better find out what they are.



Three chips in different packages. The small black object in the centre of the middle integrated circuit is the actual chip — all the rest is needed to support the chip and to allow it to be connected to a circuit. Each i.c. is around $\frac{1}{4}$ " long and could contain hundreds of transistors.



An integrated-circuit amplifier in a metal can, which is less than a centimeter across.

THE MERE mention of words like 'microelectronics' or 'chips' is quite likely to turn a lot of readers right off, but don't get yourselves into a dither — this isn't going to be at all painful. I just thought it might be useful to write a little piece about the above devices to describe what they are, what they do and why you can't seem to open a newspaper without being hit straight between the eyes with the latest marvel of modern microelectronics.

You can call them what you like, of course. Microelectronics, chips, integrated circuits — they all mean much the same. But be careful about 'microprocessor' and 'micro-computer': these devices all are or all use integrated circuits, but not all integrated circuits (i.cs) are microprocessors or micro-computers. We'll come to all that later; for the time being, I'll use the expression 'i.c.', because I don't want to get writers' cramp.

Why integrate?

There are three outstanding features of i.cs which are responsible for their being spoken of with awe by everyone from cabinet makers to Cabinet Ministers — they are cheap, they are reliable and they are almost unbelievably small.

To take these points in order, let me illustrate how prices have changed. The first i.c. I ever got my hands on, back in 1965, or thereabouts, was a simple amplifier, and it cost around £45. A rather better version of that amplifier is now obtainable, two in one i.c., for 70 pence. Reliability I'll come to later on. Smallness? Well, a computer which in 1960 was powerful enough to need a fair sized room to house it can now be arranged on a slice of silicon about a quarter of an inch square. It still needs the other equipment — keyboards, display printers, files, etc. — but the electronics have shrunk to that extent.

And that is all. They're cheap, reliable and small, but totally devoid of any hint of magic. Don't let anybody kid you — there is nothing a 'chip' can do that the older kind of electronics haven't been able to do for years, but it now costs a lot less, doesn't go wrong as often and takes up a lot less space. In some ways, i.cs have made some things possible that weren't to be thought of fifteen years ago. An ordinary pocket calculator, for example, or a television game, would have cost several thousand pounds and occupied as much room as a sideboard in 1966.

It all started with the transistor. If the transistor hadn't been invented, we would

probably have had some remarkable valves by now, but integrated circuits — no chance. To make a transistor, you need a piece of a material called 'semiconductor', of which silicon is one kind. (Not silicone — that's something altogether different.) Into small, distinct parts of a small piece of silicon, you inject other materials which alter the electrical characteristics of the parts, so that the different areas of silicon conduct electricity in different ways. It only remains to connect wires to various parts of the whole thing and put the lot in a little metal can or surround it with plastic, and you have a transistor, which can be used as an amplifier or an electronic switch.

How to integrate

To be useful, a transistor needs other components — resistors, for example — which can be made in the same way. If you have a piece of silicon with a transistor formed on it, you may as well form its resistors on the same piece. Do that and you have an integrated circuit.

Nothing remarkable so far? Well, no, but then you haven't got a very remarkable integrated circuit. A one-transistor switch isn't going to set the world on fire, although

chips

when it was first done it was pretty startling. Having invented your integrated circuit, though, it's pretty much a matter of technique from then on. The different areas on the silicon which have to be modified (doped is the word) are made by photo-etching, among other techniques, using a photographic transparency. A draughtsman draws a pattern of all the different areas, on several sheets because the process is done several times to enable the different areas to be doped in different ways, only several hundred times larger than life. These drawings are then reduced photographically from, perhaps, three feet square to a small fraction of an inch square; the photographs, which are called masks, allow light to fall on selected areas of the silicon which can then be treated chemically to produce areas with the different characteristics.

The way this is done is to heat the surface of the silicon to change it into oxide. This new surface is covered with a material called photoresist which is hardened when it is exposed to ultra-violet light. If the light is played on the surface through the photograph, only the selected areas are exposed, so that the rest can be washed away. Etch the now unprotected parts away with a corrosive fluid and you can make sure that any doping material can only affect the parts now uncovered. The whole process now has to be

repeated several times until the required circuit is built up.

As I said, it's largely a matter of technique, because where we started with one transistor and a few resistors, there are now thousands of transistors and resistors on a piece of silicon maybe a tenth of an inch square. Still nothing magic about it, but the technology is awe-inspiring.

How reliable?

The reliability improvements I mentioned earlier are a direct result of so many components being made together on one piece of silicon. Even with thousands of components on the i.c., there are still only twenty or thirty connexions to the outside world, which means that there are only that many chances to make a mess of it. The individual components (if they can be said to be individual) are part of a solid lump of material with a very low mass, and further encased in either a block of plastic or ceramic or a metal can, with the result that you can be very nearly as brutal as you like to the i.c. without damaging it.

Before integrated circuits were used to build large systems like computers and large automatic control systems for factories, the thousands of separate components — all made by different manufactures — and the hundreds of thousands of connexions by wrap, solder, weld or crimp meant that the average length of time you could expect to have uninterrupted service was around five

hours. Indeed, it was sometimes measured in minutes. Now, a spacecraft can be sent to Saturn and be confidently expected to work when it arrives.

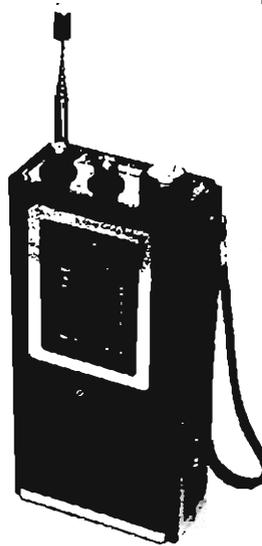
Why use i.cs?

All that is, doubtless, very interesting, but what, I hear you ask, do the things actually do? Ah! Yes! Good question, that. But the answer won't be quite as clear cut as "Calculate" or "Control", though i.cs will do both.

The real answer is that i.cs are only electronic components, and the real question is "What can electronics do?" If you imagine any electronic circuit, apart from those using tremendous power like transmitters or train controllers, you can say with a high degree of confidence that it can be made in i.c. form. Some circuits have 'difficult' components, such as large capacitors or inductors, but they can often be redesigned, using other components in a circuit that 'looks' like the capacitor or inductor, but is easier to make.

What i.cs have done is to make things economically, not technically possible. The first electronic computer was Colossus, a machine designed during the war by T.H. Flowers and S.W. Broadhurst to help decode the Ultra intercepts at Bletchley Park. It used 2500 valves in its MkII version and took up a complete wall with racks of equipment. (Incidentally, ten MkIIs were ordered in March, 1944, to be ready for Operation Overlord. The first was ready on June 1.)

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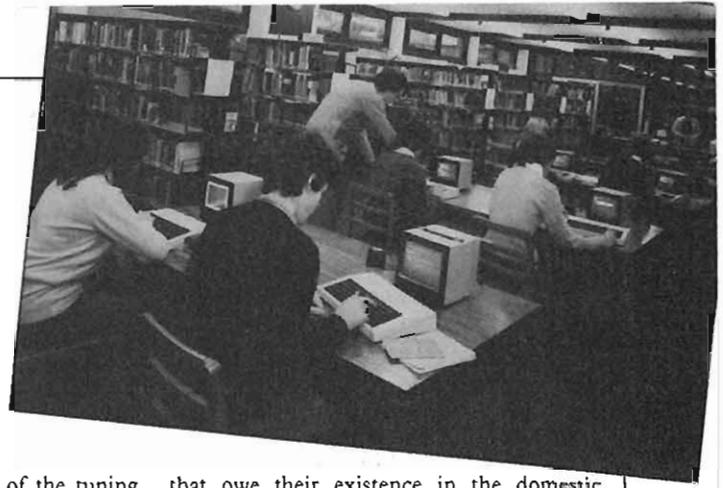
Allow 21 days for delivery

Developments after the war increased the 'power' of computers (but not for a long time the speed, to any great extent) only by making them even bigger physically. Then came the i.c., and within a short time we were talking about minicomputers and microcomputers. You can now have a machine about the size of an office typewriter that can do more, faster, than the early monsters. But, as I said, the i.c. has made that economically possible — the performance could have been achieved before, but it would all have been too big and cost too much.

A modern washing machine contains a microprocessor, which is the core of a computer. It takes in information about water temperature, time, type of clothes, etc., and makes decisions on what action to carry out when, and for how long. It is only possible to get the computing power inside the washing machine because of integrated circuits. Since this is appearing in *CB World*, perhaps one should mention c.b. rigs, which contain i.c.s in quantity. When you select a channel, for example, an extremely complicated i.c. or set of i.c.s leaps into action to obey your every whim, with a bit of luck.

In days long ago, when radio was for listening to Radio 1 on and a breaker was something that soaked you to the skin every now and then, you had to churn away at a tuning knob to select the station — you still do, of course, with domestic radios. But a c.b. channel has to be tuned accurately, particularly on single sideband, so it needs a

Computers are now so small and cheap that groups of pupils, such as this one at Long Road Sixth Form College, Cambridge can be equipped with their own equipment. A central data file (not shown here) feeds six stations or 'nodes'. The whole thing, called the Acorn Econet, costs £2,500.



bit more effort in the design of the tuning arrangements. A crystal, which is a bit of quartz ground to resonate at an exact frequency, correct to within one part in about a million, produces a reference frequency. From then on, depending on which channel you select, an arrangement of frequency dividers, frequency multipliers, mixers, things called phase-locked loops and filters are called into play. All these circuits, which would once have taken up a volume about the size of a tea-chest and used around 150W of power, now go into one integrated circuit, or a set of three or four i.c.s. Once again, the cheapness and small size of i.c.s have made something economically possible, even though it could all be done technically before the i.c. was developed.

To sum it all up, there are many devices around today — calculators, home computers, video games, c.b. rigs, digital clocks and watches and many, many more —

that owe their existence in the domestic market to the 'chip'. Without it, although they could all be made, they would be far too big, cost many times more than they do, use more power than could be supplied by any convenient battery and probably not be all that reliable.

As for the future, who knows? There are indications that new materials — perhaps biological ones — will make processes faster and even more reliable and flexible. While electronic components might shrink even more, the devices that allow humans to use electronics, such as tv screens and keyboards, cannot shrink with them unless humans do so too, so there seems little point in carrying the process to extremes unless that is dictated by the technology, as with i.c.s.

Whatever happens, if the acceleration in development keeps up, the '80s should see some quite dramatic changes. ●

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"Will the publishing of the specifications be too late?" asks Brian Songer



CATCH 22

The official line, however, is that even development work in c.b., before the specifications have been published, will be an offence under the Act. While, off the record, some Home Office officials might sympathize with Brian Songer's problems, they point out that the law, as it stands, must be maintained.

All of which is no help to Songer's company, based in Haverhill, which, once in operation, would be able to offer work to many in an area already hit hard by unemployment, and at the same time begin the creation of a new industry for the town.

As he walks around the empty production area of his factory, and looks out from his office at a room full of silent assembly benches, his telephone is constantly ringing. The callers range from would-be suppliers of

components to retailers wanting to know when they can get their hands on his units. They know that demand for units at the start of legal c.b. will be high, and they also know that if S & M can produce a unit for between £55 and £70 it will sell like hot cakes. The snag, however, is the Wireless and Telegraphy Act, for if British industry can't get that vital six month start, then overseas interests will flood the market before companies like Songer's can get a look in.

When questioned about this grey area of the act, the Home Office will only say that the specification is in the process of being drafted, but before publication it will have to go before two committees, and that could mean a hold up in plans. While the first of these committee stages is that of the Home Office Technical Specifications Committee, the second is that of an advisory group made up of members of a number of trade associations, and that's why there are fears for a hold up, if only because they are not noted for their speed in coming to a decision.

The Home Office say, however, that they are mindful of the need for speed and that the only sticking point may be on how to mark an item of equipment that has type approval.

The question being asked by Brian Songer and others like him is: will the publishing of the specifications be too late, and will they still have that vital six months to prepare their equipment. They need an answer now; any more delays and it will be too late.

Dennis Rookard

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NO. 3

SUMP-PLUG IS IN A SPOT OF BOTHER O-K, SUMP, ANY BREAKERS WANT TO TALK TO ME AND KEEP ME AWAKE. I'M FALLING ASLEEP?

I'LL TELL YOU ALL ABOUT MY EQUIPMENT... I'M USING A DX212H BOOM TWIG..

...WITH 50cc MOTOR DRIVE, AN ALPHA DELTA 2,000 CHANNEL, VARIABLE PITCH KNOB RIG, WITH FLIPPER BUTTONS AND TILT CONTROL, AND...

... 2 1/4 WATT RF PRE-AMP WITH RETRACTABLE MONITORISED HI-GAIN MAG-MOUNT REMOTE SPEAKER, WITH BLAH BLAH BLAH...

... A 'BLUE PETER' SPECIAL HOME-MADE SWR METER, MADE FROM TWO CEREAL PACKETS AND A WASHING-UP LIQUID BOTTLE...

BLETHER, BLETHER, ETC., READ CB WORLD, I'M IN IT EVERY MONTH, ETC ETC...

YOU STILL THERE, SUMP?

WHO'S SNORING ON CHANNEL?

HOOTS MON OCH AYE ETC. ETC.

UNFORTUNATELY, SUMP-PLUG FELL ASLEEP WITH MIKE ON!

WHO'S THE SNORING BREAKER, BOYD?

PUT A SOCK IN IT, MATE!

GIVE OVER, GI' US SOME PEACE!

WHO'S KEYING THE MIKE?

MUCH LATER...

YAWN! WHERE AM I?

LET'S SEE WHO'S ON CHANNEL

YIKES

Andrew Owen.

NOISE OF HEAVY METAL OBJECT COLLIDING WITH EVEN HEAVIER WOODEN OBJECT WHICH IS STATIONARY...

YOU'RE NOT KIDDING!

...THE BREAKER WHO JUST SAID YIKES... YOU'RE COMING OVER TREE-TOP TALL!

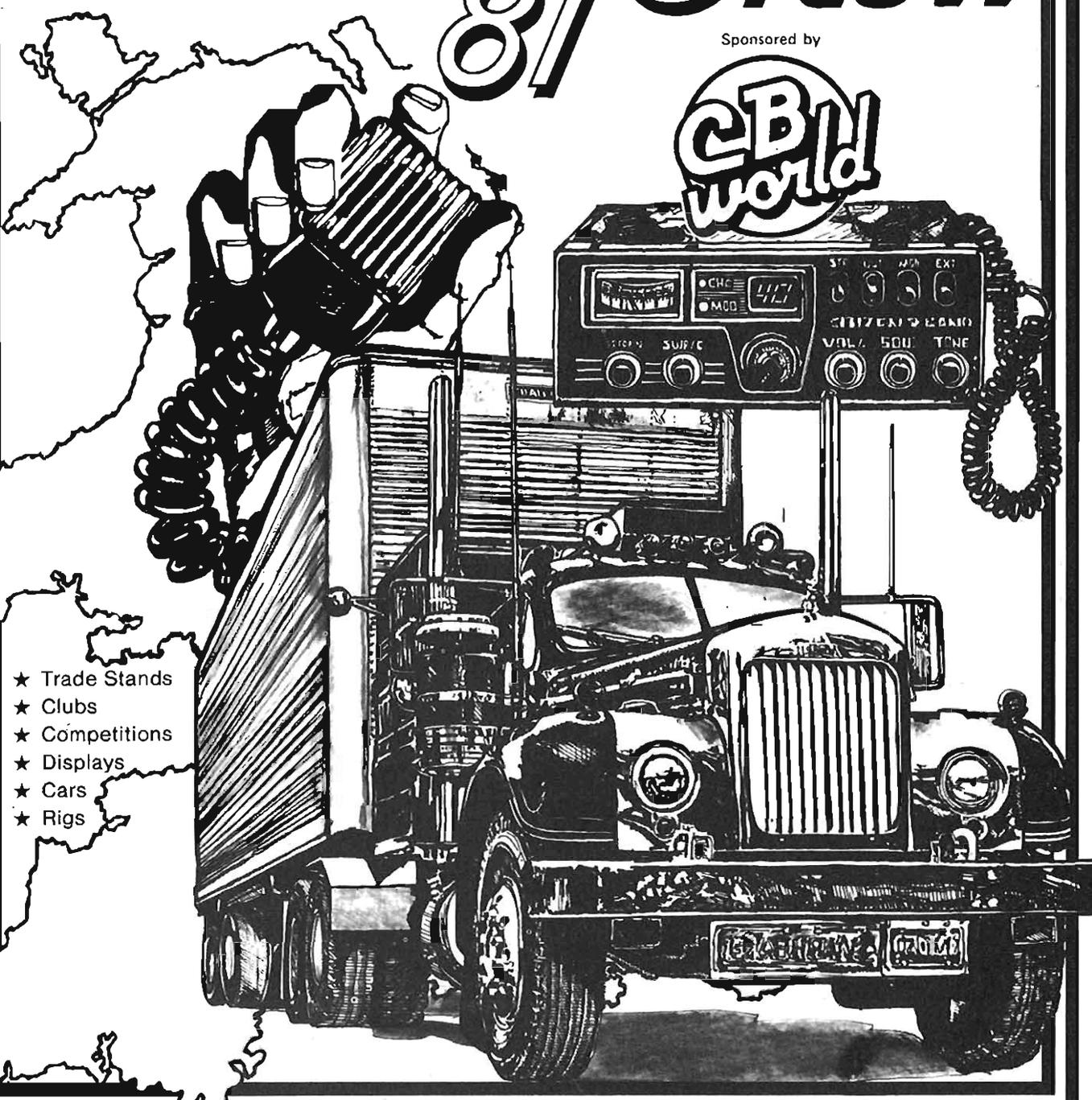
WHAT DOES SUMP MEAN BY THIS CRYPTIC REFERENCE TO GOATS? WOULD ROCK-A-BYE BABY BE MORE TO THE POINT? DOES OUR TIRELESS TRUCKER OFFER FREE TRANSPORTATION, OR WILL POOR SUMP BE POORER STILL?... SEE ALL IN OUR NEXT BUDDIE-BASHING ISSUE!

TO BE CONTINUED.....

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AUGUST 28.29.30.31

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Adults - £1.00 Children/OAPs - 50p

CATCH 22 for the big 10-4

A British company is frustrated in its attempt to manufacture CB radios



Brian Songer: will the UK c.b. market be flooded by Far Eastern products?

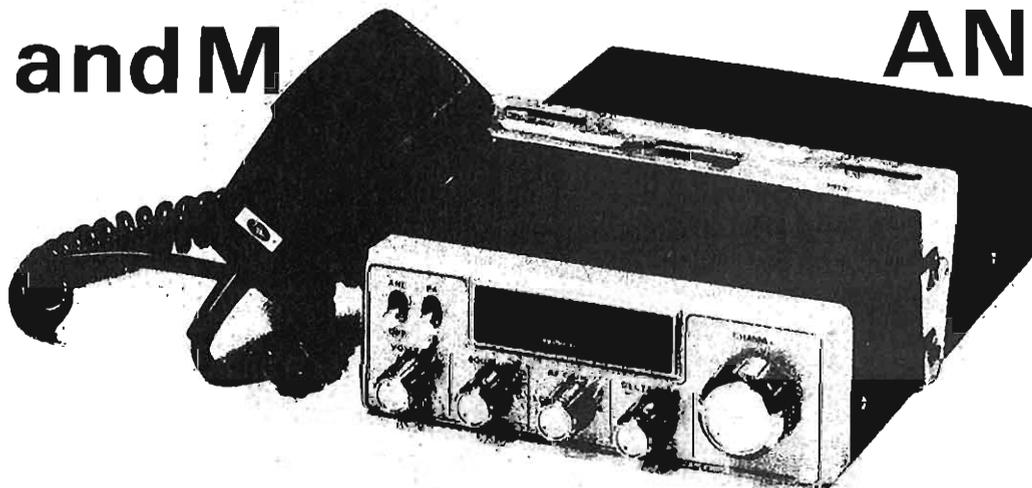
WHEN the Government gave the go-ahead for c.b. operation in the autumn, many British companies took this to mean that it would give them six to seven months to design and set up production lines for the equipment to be ready for the start of legal sales and operation of 27 MHz, f.m. c.b. But, as one company (S & M (Anglia) Ltd) discovered, trying to set up a legal manufacturing operation can lead you straight into a Catch-22 situation.

At issue is the interpretation of the present Wireless Telegraphy Act, which makes it an offence not only to transmit, but to manufacture c.b. equipment. Even with the equipment becoming legal shortly, the Catch-22 bit comes when you try to produce a unit before the start date, with the system specifications not yet officially given by the Home Office.

What annoys Brian Songer of S & M is that this fine example of bureaucratic behaviour could close the door to any British involvement in the c.b. manufacturing industry, and open the way for overseas interests to flood the market with Far Eastern equipment from day one of legal 27 f.m. The problem, as he sees it, is that since it will take up to six months to set up his production line, build the first batch of prototypes and get them type-approved by the Home Office, he should be able to start work now, for what is at stake is the valuable Christmas market — all the more valuable this year, because it will be the first time that the public will be able to buy these units over the counter.

► 4

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CB WORLD SHOW

FOX PHOTOS



SURREY SUSSEX ELECTRONICS



Top left: Harry Owen of SSE looking happy on his stand.
 Top right: Not posing at the "Out of Space" stand.
 Centre left: the old and the young. Julie and Zara astride a 1909 FN complete with wicker sidecar.
 Centre right: 'Misty' from Cheam 20 chatting up the CB World girls.
 Bottom left: 'The Mob' Breakers from the Molesey area enjoying themselves at the Show. Mobster on right, price 65p, about to trim his beard with radio-controlled razor.
 Bottom right: John Harper and Chris Waldock, finance committee members of the Mini Olympic Games, holding one of the trophies for this event to be staged at Lowestoft, 26 September to 3 October (see page 8). The Games have been held for the mentally handicapped for the past two years and this year are part of the International Year of the Disabled.



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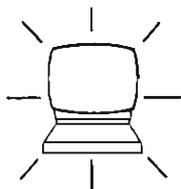


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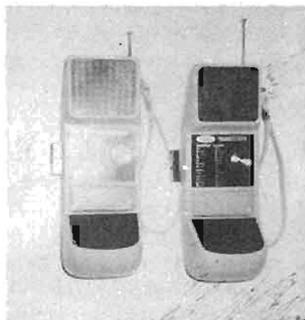
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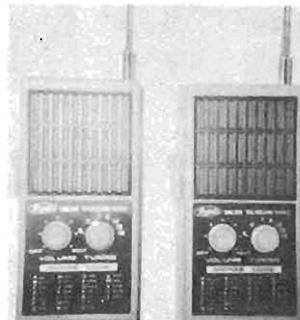
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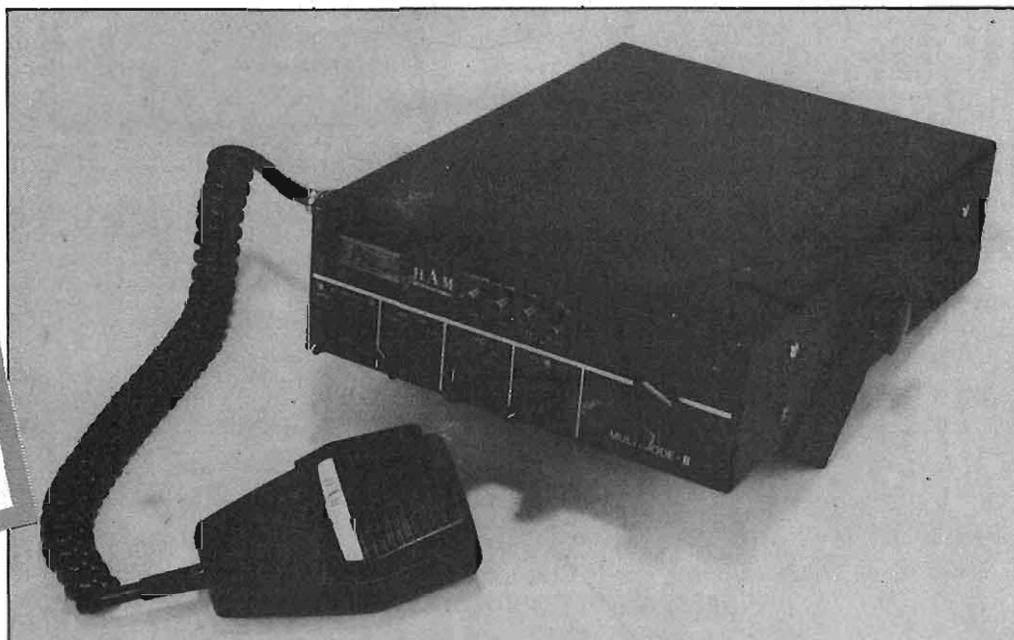
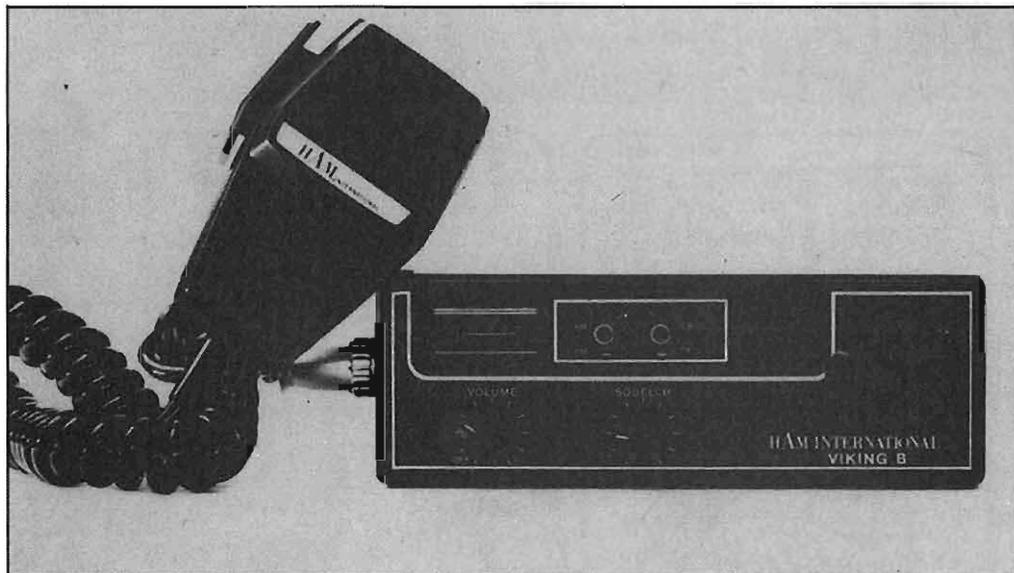


Delux model with
additional morse code
and medium wave radio

£17.50 (pair)

RIGS RIGS RIGS R

Here again is another review of c.b. rigs, this time we show the Ham International range from Belgium. Many readers are writing and telephoning CB World asking where sets can be purchased and how much they cost. We can't answer these questions as the sets are those used in other parts of the world where c.b. is legalised. HAM INTERNATIONAL U.K. have established themselves in the U.K. (Leicester) and have been marketing their well known name through CB World but please don't telephone them about these particular sets.



STOP PRESS
 Since writing the above we were told exclusively by Ham U.K. that they will be selling three models for the U.K. market later this year, VIKING (mobile), MARINER (Mobile) and HERCULES (Base Station). Keep reading CB World for further product news on these sets.

TOP:

HAM INT. — Viking.
 80 channel AM/FM mobile transceiver. 4 watts.
Controls: Volume/off. Squelch. Channel selector.
Switches: AM/FM. CB/PA.
Features: "S"/RF meter. LED digital readout.
NB The 'Viking B' units as shown are the Dutch and Belgium versions with 22 channels only.

ABOVE:

HAM INT. — Multimode-II.
 120 channel (PLL) AM/FM/SSB mobile transceiver. 4 watts.
Controls: Volume squelch/off. Lo/Mid/Hi. LSB/USB/AM/FM Clarifier. Channel selector.
Switches: Clarifier/off. ANL-NB/Off. CB/PA. DX/Local.
Features: LED digital readout "S"/RF meter.

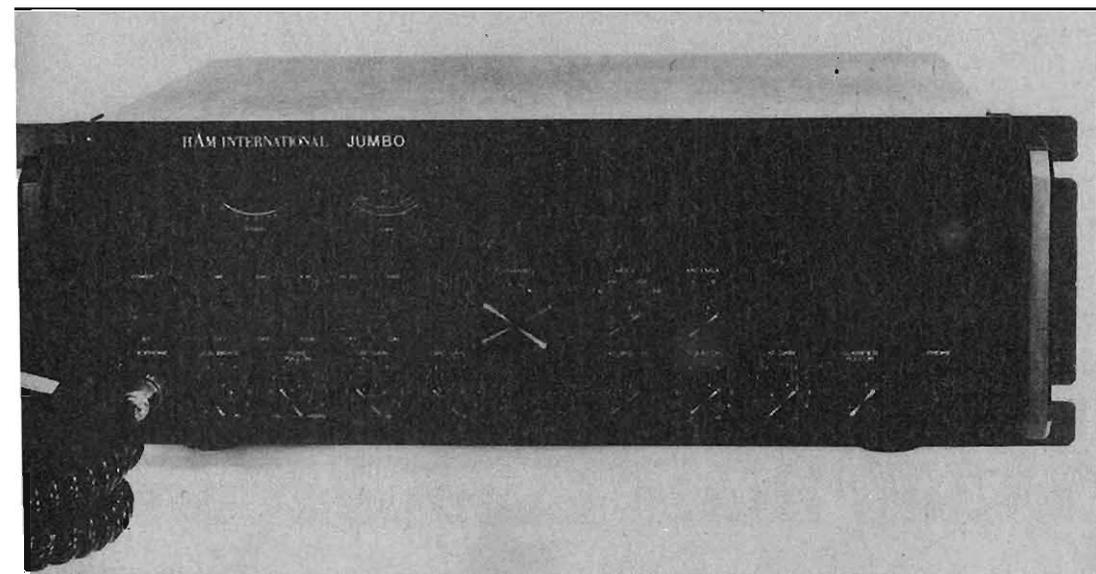
RIGHT:

HAM INT. — Concorde-II.
 120 channel FM/AM/SSB mobile transceiver.
Controls: Volume/off. SWR-CAL/Squelch. FM/AM/USB/LSB/CW/PA. Clarifier/on. Tune/on. RF Gain/Low power. Channel selector.
Switches: "S"/RF/CAL/SWR. AN/ANL & NB. HI/MID/LOW.
Features: Built-in Roger bleep. Tape facilities.

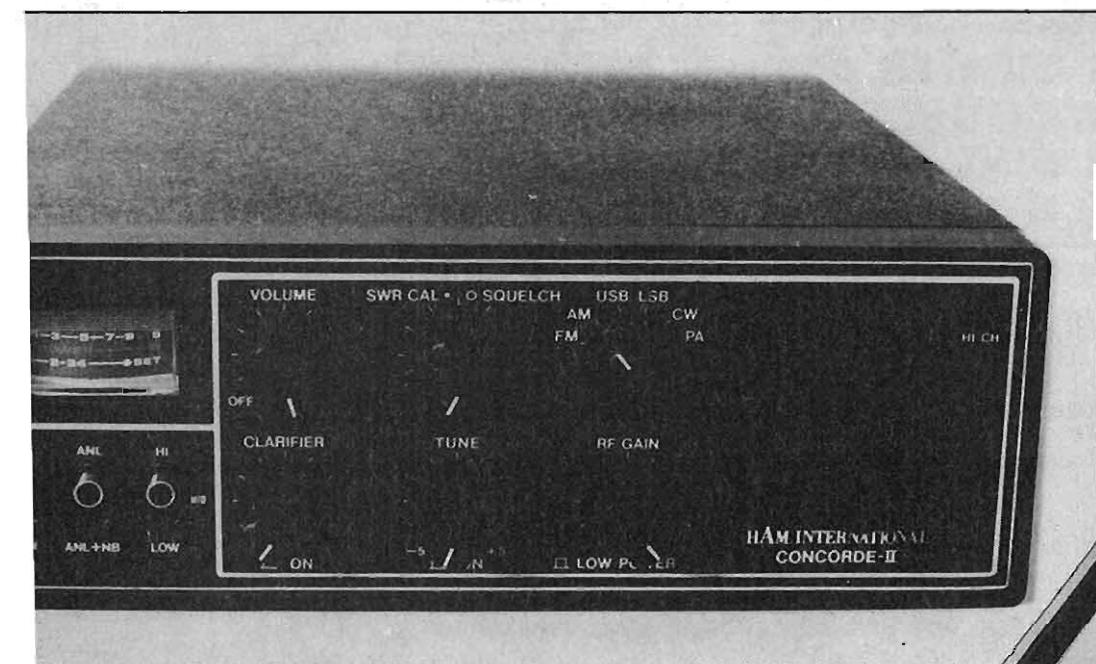
RIGS RIGS RIGS RIGS



HAM INT. — Puma.
120 channel AM/FM mobile base transceiver 4 watts.
Controls: Volume/off. Squelch. Mic Gain. Low-mid-hi. SWR CAL. Channel selector.
Switches: SWR/CAL/RF. FM/AM. ANL-NB/OFF. DX/Local CB-PA/CB. St.by/Norm/Call.
Features: "S"/RF Meter. Built-in Roger Bleep. Built-in SWR Meter. Connector for tape.



HAM INT. — Jumbo.
120 channel FM/AM/SSB base station transceiver, 5 watts AM. 6 watts FM. 18 watts SSB.
Controls: Calibrate. Tune. RF Gain. Mic Gain. AM/FM/USB/LSB. Antenna (A and B). Lo/Mid/Hi. Squelch. AF Gain. Clarifier. Channel selector.
Switches: Power. NB/Off. ANL/Off. 4W/0.5W. Hi Fil/Off. SWR/CAL.
Features: Built-in Roger bleep. Built in SWR meter. 6 indicator lights.



HAM INT. — 8040.
80 channel AM Hand-held transceiver. 5 watts.
Controls: Squelch. Volume/off. Channel selector.
Features: Push-to-talk bar. Spkr/mike. Ext. spkr/phone jack. Ext. ant. jack. Recd g output jack. "S"/RF power-batt. condtn indic. Mike input (for optional ext. mike/spkr unit.)



THIS & THAT

Winter's Tale

White Linin' down
To Smokey Town
I turned and lost my way,
Couldn't take much more
Of that diesel roar
That cold December day.

We were out of luck
Me an' that truck
I cussed and backed her down,
She bucked and kicked
'Till I got her licked
Then I turned that rig around.

I'd a Breakers Friend
At the other end
Of my brand new K Four-Oh,
Channel Fourteen
Told me where I'd been
And where I had to go.

But there was somethin' wrong
As I rolled along
My head just started rockin',
And now I see
That I owe c.b.
And the breaker who kept me talkin'.



Butch Cassidy and the CB Kid alias Glyn Hall (right) — M. D. Wintjoys, London — and Rick Vincent — V.P. Advertising, Firestick, U.S.A., relaxing on Glyn's recent visit to the States.

I was hauling' ass
Through an underpass,
When a Speed-King burned my tail,
He was takin' risks
Didn't hit his discs
Got wrapped up round a rail.

"Breaker Nine with a ten three-three,
On the Eastbound M Four-Oh"
I got on the air
To call up Bear
Sayin' "Tell them Smokies 'GO!'"

Minutes passed
But they sure came fast
That hole got filled with blue,

So I had to flee
As I said c.b.
"That kid owes his life to you!"

The wind blew cold
As I rolled
The sky grew dark and drab,
"Break One-Nine,
Back down the line,
There's ICE on this super slab"

Exit Five
And Man Alive!
A breaker lost his motion,
But he didn't wait
To modulate

So I trucked him in some lotion.

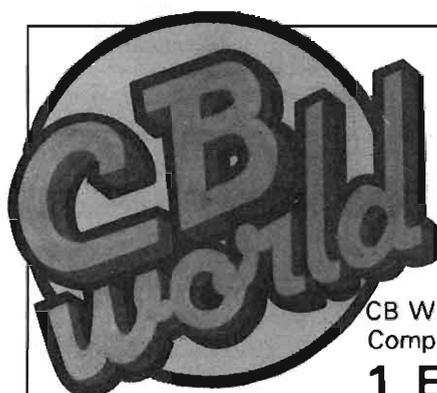
Exit Three
Me an' my c.b.
We were almost into town,
But as I thumbed that mike
A motorbike
With a Smokey flagged me down.

I was mighty fussed
But I took that bust
But then I got real mad,
As he got on the air
To call more Bear
He said "c.b. son, IS BAD!"

from CLAY MILLER,
MORDEN, SURREY

CB on tape

We were sent a cassette recording called "The Official Guide to CB Radio" produced by Sound Products of Bury, Lancs. With so much rubbish about today on c.b. its refreshing to hear something sensible. The Introduction is very good and in non-technical terms it explains what c.b. is all about. The cassette is well engineered and in calling out the 10-code you hear the code coming out loud and clear from one speaker and the explanation from the other — very effective this. The tape covers, c.c. (channel courtesy) do and don'ts, choosing a handle and choosing a rig. As we said its good stuff, but the retail price is a bit stiff (£3.99).



Inter-CB Club Darts Competition

CB WORLD, published by IPC, have arranged an INTER-CLUB DARTS Competition for CB CLUBS in the UK. The Competition will consist of:

- | | |
|------------------|-----------------------------|
| 1 EIGHTS | (Team of 8 from each club) |
| 2 DOUBLES | (Team of 2 from each club) |
| 3 SINGLES | (One member from each club) |

Read future issues of CB WORLD for further news, list of clubs entering and eventually the results. Meanwhile complete the entry form below to register. When we have enough entries each club will be asked to pay £2 per club (not per person) to cover our administration costs.

NAME OF CLUB We wish to enter for
ADDRESS Eights
DARTS CAPTAIN/SEC Doubles
TELEPHONE Singles

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ROOM 312
QUADRANT HOUSE, SUTTON, SURREY SM2 5AS

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Comedy Impressionist - TERRY WEBSTER

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- Your choice of Handle
- Emergency Channel and Code
- The most common 10-Codes - + self test
- How to make your first Break - step by step - wrong way and correct way
- Practical examples of the use of 10-Codes and CB Language
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BRING IT BACK

WE'RE No. 1

Thanks a lot for another great issue (April/May). I am not just saying that to get my letter printed because I really do mean it. Proof of this is that I'm a converted reader because I used to read "Breaker" but soon realised that *CB World* was of a much higher standard especially when they started printing too much about U.S.A. c.b. and displaying pictures of big chested females sprawling over some big Yankee-dog truck. It's not necessary — there are other magazines to accommodate for those of deprived needs. I'm glad to see *CB World* staying clean and British and useful (c.b.ers handles etc.) so once again thanks for the No.1 *CB* magazine in Britain.

Seamus Shamrock
Wakefield

DAGENHAM DUSTBIN? RUBBISH

I was very interested and not a little amused to see your feature on *CB Slang* (February/March issue). I was, however, surprised to note that you say *CB*'ers call Ford cars "Dagenham Dustbins".

Now I am not a Ford owner or driver and I have no axe to grind on the behalf of motor manufacturers but I question the use and derivation of this term.

As anybody who is older than 25 must indeed know, any Ford car is known just about universally as a "Dagenham Oil-Burner". And if anyone remembers the days of the post-war "Popular", particularly after 50,000 miles, they will vouch for the accuracy of this expression. A dustbin is for putting rubbish in, and I don't think that even the most vituperative *CB*'er would refer to a Ford driver as a piece of rubbish....

While on the subject, since when has "water hole" meant a public house? A pub has been called many things, but a water hole is always what the Americans call a "comfort station" — the nerds!

Arthur Ord-Hume

CB DOWN ON THE FARM

I saw and collected a copy of your Feb/March issue from a branch of a well known newsagent in town and have read it through several times. I

agree with it all but it seems to me like the only ones who want c.b. are truckers or skaters. What about us scufflers, sprayers and fencers out here in the sticks? Many are the days when I and others go out on a tractor in the morning and are not able to speak with anyone until late in the evening. We see things going on that could do with a check but Buzby does not have a little red (or yellow) box in the corner of each four field group and despite the writings of the Philistines and telecommunications we cannot all maintain base stations with someone to phone and check whoever else might be concerned. If we go ham its odds against contacting one near enough to be of any use even if it is soon enough after discussing the merits of respective rigs, antennae, inputs, outputs, and the sad case of old GB3YJ who transmitted himself and left the message jammed in the mike. There are lots of times when someone could do with advice, help, clarification of a matter, question a happening, or prevent an accident.

I have seen animals on the road, 1 to 50 alive and one or two dead, men mowing the wrong field, cars and motorcycles being driven in fields in peculiar circumstances, people rounding up the wrong cattle, sawing down wrong trees, 22 ton loaded wagon and drag rigs meeting combine harvesters in narrow lanes, bale-carter convoys coming through villages causing havoc among holiday skaters, most times a tip off to the right buddy was all that was wanted to have the job right.

So may I say your c.b. may be more use to you in the deep sticks than at Spaghetti Junction or Chiswick flyover.

Range Hawk
Stow-on-the-Wold

FAMILY OF BREAKERS

First of all congratulations on your ace magazine. I have been a breaker for eight months now and buy all the *CB* magazines I can lay my hands on as each one gives a variety of information, now yours is firmly on my list.

My family and I are members of the Northern Breakers Club (Highland) now 300 + strong. I also had the privilege of naming our home 20 the Stargate as we were the first residents in our village to 'break out'. Now there are over 30 and we are increasing daily.

Anyway, the second reason for writing is to give you a list of Rosshire town and village

handles for your magazine which we hope will be a great success.

From a Heuchter Teuchter family of breakers:

The Stud — Underdog
Stargate Lady — Sergeant Major
Bloodhound — No. 1 son
Ketchup Kid — No. 2 son.

As you named your XYL Sergeant Major I named you underdog. I'm sure that's not how it is. We get many letters from families of breakers. Ed.

MODEL YOURSELF ON FM

Now that the Government has decided to allow c.b. facilities by the Autumn of this year, your magazine has the opportunity to press home to c.b. users what is legal and what is not. In your December issue you say you do not want to take sides in the MHz issue. You should do, yours is a national publication for c.b. users. Secondly you point out rather proudly that you share the same stables as some great magazines such as *Motor* and *Autocar*. Do something positive and ensure that the users stay within the new laws that will come out later in the year.

Modellers like myself spend many hours building boats (and planes, cars etc) and then travel all over the country and the *World* operating them at regattas. That's what I want to do and in doing it I am no problem to anyone. I do not make any noise, do not make any mess and stay within the confines of the Radio Regulatory Act. I use 27 MHz a.m. LEGALLY. If anybody tried to stop me then I would be very upset, and the same goes for any hobby or activity. If people want to use C.B. then who am I to stop them. But they interfere with my hobby. They operate ILLEGALLY on 27 MHz a.m. Your magazine must press home to your readers what the frequencies will be — 27 MHz f.m. and 930 f.m. — and ask that the illegal gear is taken out of circulation.

You cannot blame us for getting upset, we have stayed within the confines of the Law, and yet c.b. have consistently broken it. And now that you will soon have the facility legally I read reports in my local paper that the local c.b. users will stay on 27 MHz a.m. because of the expense of buying or converting their gear. I have three sets of radio gear all of which cost me a lot of money to buy. If the

Government gives me another frequency then I would not hesitate to convert it all just to get me away from c.b. interference.

Yours faithfully,
Gregory Metcalf
General Secretary
Model Power Boat Assn — UK.

What we said in our December issue (27MHz f.m. was not approved then) was that *CB World* would not take sides in the 27-41-930MHz battle because we wanted the Government to declare its intention then we would support it.

We agree that c.b. users should now move away from 27MHz a.m. but *CB World* cannot make them, only the law can do that. Even those using it know they are breaking the law but as we said in the leader of April/May, people have lashed out money for the sets and do not want to throw them in the dustbin. Let us hope that conversions can be made for them cheaply then I am sure most will change over. Ed.

OPEN LETTER TO MR. WHITELAW

Dear Mr. Whitelaw,
I am dropping a few words just to say I am a heart broken young lady breaker. I have waited for over a year for you to say c.b. is legal and I hardly use the rig as I do not want my parents to pay for my irresponsible actions but it is a hobby I love. I am not only writing for myself as there are many breakers who love c.b. and use it for a hobby. There are even old people that have a c.b. and they think it's great when they cannot get out and if in any trouble the rig is handy.

As you will most probably have seen on television and in the news, c.b. saves lives of many people and it can go on saving lives of many people but the breaker who reports any accidents or troubles is rising prosecution and it could be changed if it was made legal on 27 MHz AM and not FM. You have more than likely heard all this and say that AM frequency is used by many health services but I wish you would take my word it doesn't as I live right next door to a person who is on a pacemaker and that overrides the rig. You may think I am going on but I am only 16 years old and if anything c.b. is the best thing in my life.

If you change your mind which we all hope you will I am sure c.b. 27 MHz AM will be well worthwhile. AM is much better as we will be able to speak to countries abroad who have c.b. already on AM. If you make it so we have to break legally on FM. It isn't worth it as all the other countries on AM will not be able to copy us. All the breakers do not abuse c.b. around my district and do not break the c.b. laws.
Chatty Kathy and all the breakers



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ASPIDISTRA

FOR THE citizens of the German city of Frankfurt, the evening of March 25th, 1945, was much like any other. Every day brought news of fresh disasters, as the Allies continued their push forward into the heartland of the Reich. They knew that, sometime that evening, the air-raid sirens would sound again, heralding the start of yet another RAF 'terror raid'. There was little else to do but wait.

For many, that waiting was relieved by tuning in to Radio Frankfurt, the local station of the national network, and for most of the early part of that March evening, many found comfort in the entertainment programmes from Berlin. At around 9.15 p.m. as the first of the air-raid sirens sounded over the city the programme from Berlin was faded, and Radio Frankfurt, as was normal before an air raid, began to broadcast a series of instructions for the population to follow, only this time, the instructions were more alarming than usual.

Those due to evacuate the area, should move now . . . all Red Cross nurses should report for duty . . . an army car with four passengers in uniform, were in fact enemy agents, they must be halted and arrested, any resisting, and they were to be killed, all butchers in the area were to report to the slaughterhouse to help in the execution of emergency measures. Then as the bombs began to rain down, the station went off the air, not wanting its transmitters to act as direction-finder beacons for RAF aircraft on their bomb run.

A normal broadcast for the Frankfurt area in that black year for Germany? Well, yes and no. Yes, in that it was the type of broadcast the local population were well used to tuning into, and no, because what Frankfurt listeners hear that night, was a complete fake, designed to put the population into a state of panic, which is just what it did, putting valuable people into the thick of the bombing and creating chaos in the city's over-stretched rescue services.

It was not until morning, when the questioning started, that the frightening truth came out. Radio Frankfurt had not even been on the air at 9 p.m.; it had followed procedure and closed down with the approach of the bombers, so who or what was the mystery radio station broadcasting to Frankfurt that night?

The answer lay not in Germany, but in England where, in the Bedfordshire village of Milton Bryan, near Woburn, a group of psychological warfare experts sat back and



FOX PHOTOS

BY DENNIS ROOKARD

waited for a reaction. For the fake broadcasts had not only been their idea, but had been produced in a small studio in the village, and broadcast over a transmitter at Crowborough in Sussex. This transmitter was the key factor in this pirating of the German airwaves for, unlike most transmitters that require a crystal to maintain a set frequency when in operation, this one, given the pet name of "Aspidistra" by its engineers, had the unique feature of being able to change its transmitting frequency within a minute, and this at a time, when it might take hours if not days to change the operating frequency of an ordinary transmitter.

"Aspidistra" had been born in the workshops of the Radio Corporation of America. Designed to operate in the medium-wave band, she had been given a 600 kilowatt output, giving her a voice that was, in early 1945, the most powerful in Europe. Throughout the war, Aspidistra had been responsible for the transmission of a number of pirate radio broadcasts, in particular a fake German forces radio station known as Soldatensender Calais, which broadcast a mixture of true and false news, still thought by many German ex-servicemen to be genuine. Her prime task, however, and the reason for her design, was to capture a German domestic frequency and broadcast misleading information and announcements for the local population.

The brains behind this operation was Sefton Delmer, an ex-Daily Express journalist pressed into wartime service with the Political Warfare Executive, who waged psychological warfare on the enemy — if you like, a department of dirty tricks, and anti-Nazi propaganda. Delmer had gathered around him a team of fellow journalists, German and European refugees, experts in a number of fields, such as printing, broadcasting and, surprisingly, German prisoners of war who had been 'turned'.

Early in the war, his team had discovered that the German domestic broadcasting system had an Achilles heel for, unlike the BBC who broadcast the same programme on one frequency via a large number of transmitters, all operating on that same frequency, the German system had a separate frequency for each transmitter in its network. Apart from giving a local area its own programmes from time to time, it did for the Germans have one major disadvantage, in that, with RAF bombers operating in that area, the transmitters could

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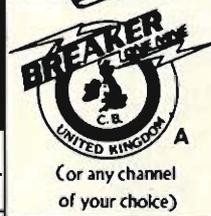


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FOX PHOTOS

act as useful radio beacons. It was for this reason that stations in the network would close down with the approach of the bombers.

Armed with this information, Sefton Delmer went to work. His team mounted a twenty-four-hour radio watch, and logged the German stations which closed down, and at what time; from this information it was then possible to tell when the next station in the German network would go off air, if only because it was on the route of a bomb run into Germany. The next problem to overcome was how to fool the listeners into thinking that their local station was still on the air. Again because of the German broadcast system, it was found possible to tune into another local transmitter, and rebroadcast its signal, for all programmes on the network were the same.

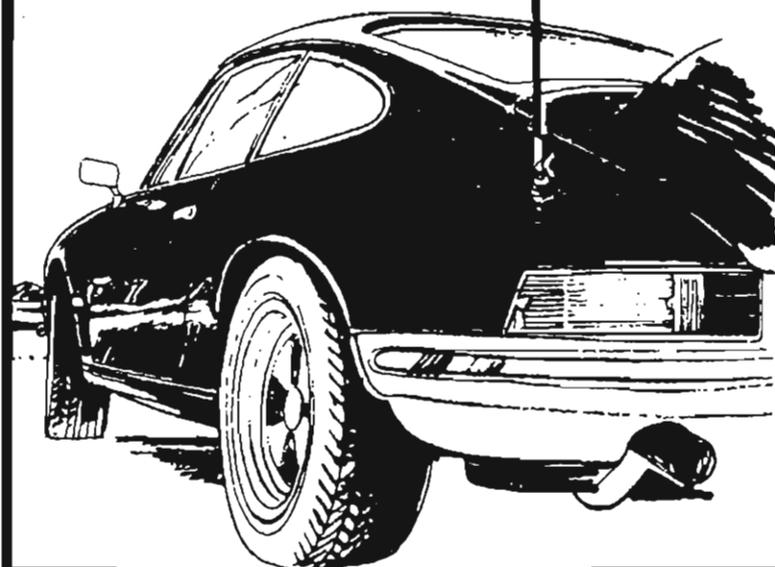
Lastly, came the problem of the voice of the German announcer. Remember that any strange voice would ruin the entire fake broadcast, so it had to be the same. In his book, *Black Boomerang*, Sefton Delmer relates how he overcome this possible major snag. First, recordings were made of any emergency broadcasts, their wording, and the style of presentation: this was followed up by the two fake announcers, a man and a women, spending time over a number of weeks, imitating the style and accents of the genuine announcers. Given the code name of 'Intruder', the team of broadcasters and engineers felt they were ready to go but, as a final touch, one of the studio engineers, pointing out that a German studio and microphone set up would give a slightly different sound to that of its British counterpart, suggested the addition of small tin-foil reflectors behind each microphone. The result was to give the broadcasts the same metallic quality as that of a normal German broadcast.

At Crowborough in Sussex, thirty feet underground, engineers gave transmitter 'Aspidistra' her final check out. With 600



With RAF bombers in the area, domestic German radio stations could not operate without becoming radio beacons. RAF navigator plots a course.

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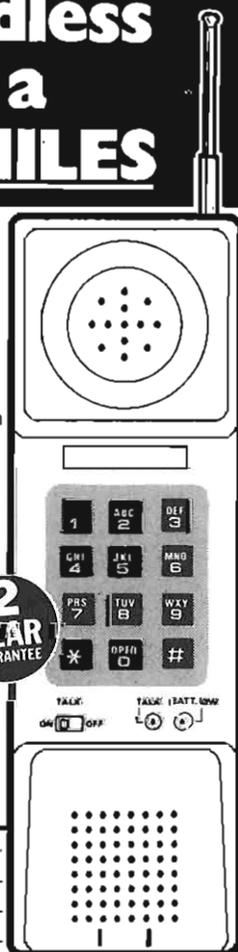
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ASPIDISTRA



FOX PHOTOS



American Flying Fortresses based in England on a mission to Germany.

kilowatts of available power, the 'Intruder operation' was ready to begin.

The team's first mission was to pirate the Cologne frequency, and with RAF operational information to say that the expected loss of programmes and close-down of the Cologne transmitter would be at around 8 p.m. that evening, the only thing left for Delmer and his group of pirate broadcasters to do was wait. With the atmosphere in the control room becoming tenser by the minute, 8 p.m. ticked by on the studio clock with the Cologne programmes still coming in loud and clear; fifteen minutes later they were still there, questions flew around the control room . . . why was Cologne still on the air . . . were the RAF bombers going to hit Cologne after all, was all their work for nothing?

Suddenly the studio telephone rang. Delmer grabbed it . . . "What do you think of the signal now from Cologne?", came the question from "Aspidistra's" engineers, "Very nice, but it's time they were off the air, isn't it?", said Delmer, sarcasm heavy in

his voice. "They are", came the reply, "that's us you're hearing; we took control twenty seconds ago".

With a thumbs-up to the two announcers, the programme, now being received from a transmitter in Vienna, and relayed by the British pirate station on the Cologne frequency, was faded out and "Aspidistra" went to war.

For that first programme in March 1945, fake orders were given, for example, that evacuation should start from two zones in the city, whilst others were to stay put, and if need be face death bravely; on the other hand, others were told to report to a number of fake assembly points, suggesting that small hand carts, bicycles and wheelbarrows would make it easier to carry any personal belongings.

The following evening, the team were at it again; this time, the target city was Frankfurt, whilst on the third, it was Leipzig. Sefton Delmer records that by this time citizens were being tempted from the safe shelters and homes by reports, all fake,

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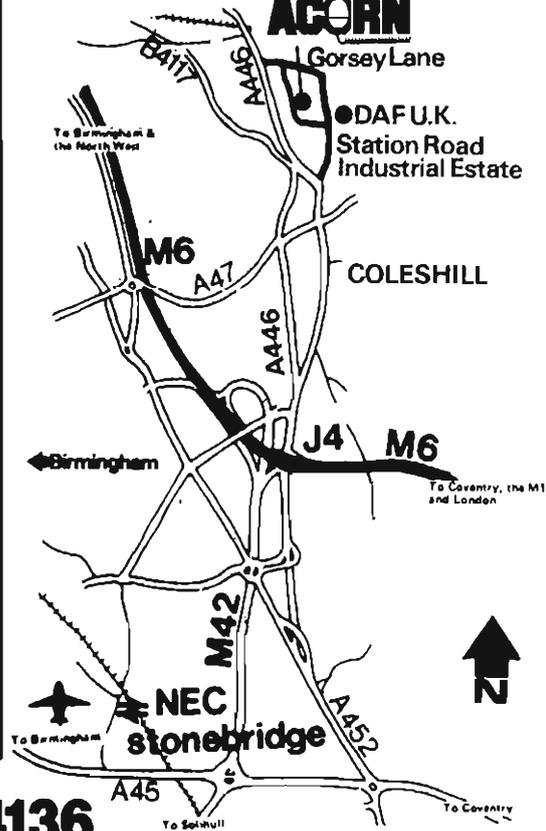
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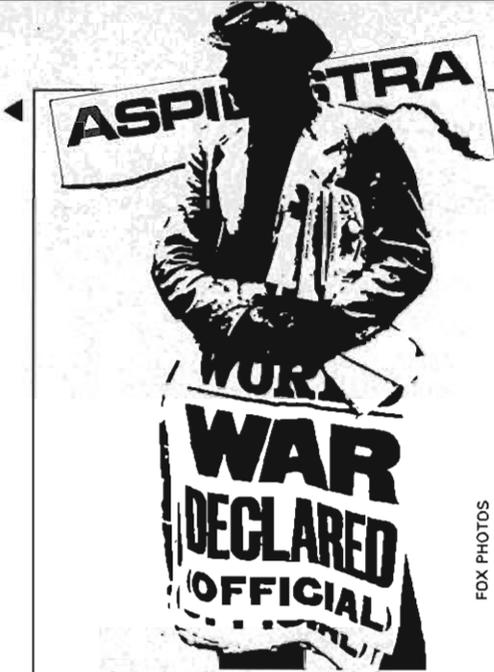
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OUR 10-20
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The show has been cancelled. Scenes like this, that had been commonplace in London at the start of the war, were repeated later in German cities.

FOX PHOTOS

that special trains were distributing food stuffs, hot drinks and clothing at a number of stations and railway yards . . . all in the heart of the area, where bombs were raining down. Yet another message given to the unsuspecting listeners was about the establishment of seven bomb-free safety areas throughout Germany, made all the more effective because of broadcasts by the BBC of "targets for tonight" lists.

How successful were these intruder operations? Delmer maintains that they deprived the German authorities of the use of local radio for issuing orders to the population, for when they found out what had been happening, officials came on the air to say "the enemy are broadcasting counterfeit instructions on our frequencies . . . do not be misled by them," which was just what the British psychological warfare experts wanted. Now that the local population would not believe any local news broadcasts, taking over the country by the Allies became overnight an easier task. In his official history of the department, Charles

Cruickshank backs Delmer up, saying that reports found after the war in Germany suggest that great confusion and unrest had been caused by the broadcasts, with whole neighbourhoods being terrified by the fake news of evacuations, etc.

Looking back at those events, it is fair to say that the Intruder operation and the use of transmitter "Aspidistra", was a low-down, dirty trick on the part of the British forces but on the other hand one has to remember that in early 1945, we were fighting a total war, and any method that could shorten it was adopted.

What happened to "Aspidistra" after the war? Well, the short answer is that she was too useful to be taken apart, so with the Crowborough transmitting site being taken over again by the BBC for normal peacetime use, Aspidistra was put to work broadcasting the medium-wave relay of the BBC World Service programmes, a task, if rumour is to be believed, that she is still performing on 463 metres today. ●



DXing

question "may I have your name and address for my QSL card". A QSL card is an individually designed postcard or picture postcard, which you send to the other station to confirm and compliment the QSO (conversation) you had with him or her. If you promise to QSL keep that promise. Sign and date your cards and if you can afford it always send more than one for him to pass on to other people he may copy. Do not delay in sending your QSL card; try and send it within a week of the QSO.

You will find that when DXing you will meet many new friends on the airwaves.

Foreign stations always look forward to talking to English stations because c.b. is still illegal here. You may find yourself DXing or skip talking for quite a few hours in a day.

To talk to certain countries it all depends on the time of day and how well the skip will last — some say it will last well into 1985. Incidentally, to catch the American stations at this time of the year, best results can be obtained between 3 p.m. and about 8.30 p.m. Naturally, as the days grow longer, so does the skip. As the sun travels around the earth, so will your signal. One moment you could be talking to a station in South America and later on in the day, if all is well, it could be North Africa.

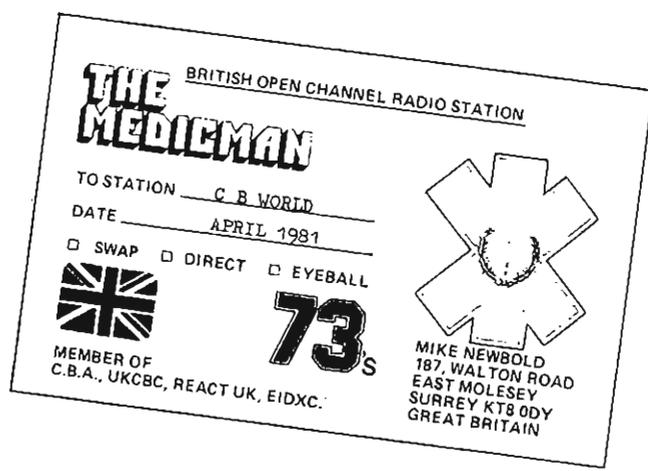
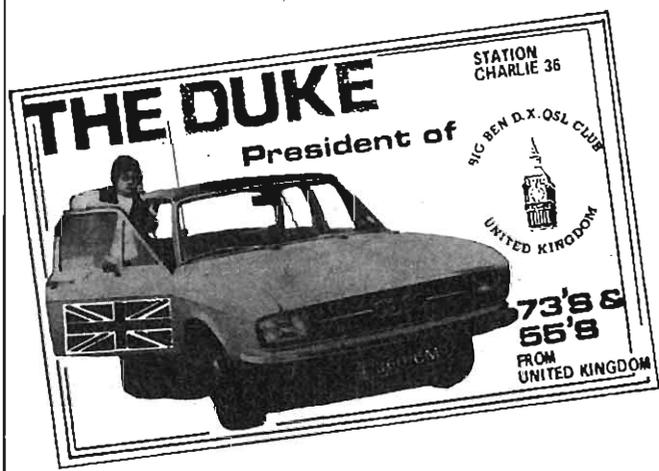
When you do get a QSO, ensure you get the name and address down as soon as possible, because skips can change very rapidly. You

can copy a station very clearly and then lose it in the skip quite suddenly.

On saying your farewells, it is common to say "73's and 55's to you and your family". This simply means "best wishes or all the golden numbers" (as all the a.m. users would say).

I hope that this has explained in simple terms a little more about DXing and QSLing. I trust that more of you will take up s.s.b. and join the many friends already contacting one another from one country to another. 73's and 55's and successful DXing from now on. ●

Editor's note. In the above article Jim Glavin is advocating the use of linear amplifiers or 'burners'. We point out that this is highly illegal and anti-social. Even when c.b. becomes legal in the Autumn of 1981 'burners' will still be illegal.



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HANDLES

NOW A NATIONAL REGISTER!

In starting this section of c.ber's code names we did not realise quite what we were taking on. We have been swamped with 'handles' from John O'Groats to Lands End. Many readers have selected their handles from our published lists, thus avoiding duplication or triplication of names in the same twenty (area). This service — no other c.b. publication provides it — has led us to set up The National Register of c.ber's handles. Names (not real ones of course) will be logged on a computer for easy access, deletion and printing in *CB World*. In selecting a code name try to be original. After all there could be 100 Snoopys, Red Barons or Black Knights. If you do choose a handle and you come face-to-face or channel-to-channel with a person with the same name, try in a friendly way to find out who has been on the air the longest. The other then agrees to change. You can, however, keep your handle if your 'sound-alike' is in another town not normally copied. For instance, it is perfectly in order to have two Snoopys, one in Sheffield and the other in Leicester. Anyway, to those who have sent in their handles, be patient, we can't have *CB World* looking like a telephone directory — yet!

Antistatic Bloxwich
 Apollo Penistone Area, S. Yorks
 Aquarius Heathfield, Sussex
 Artful Kingston, Surrey
 Scrounger
 Ash Tray Penistone Area, S. Yorks
 Asphalt Abergavenny
 Animal
 Assassin Molesey, Surrey
 Asteroid Nottingham
 The Ayatollah Wallasey

Blue Angel Ellesmere Port
 Blue Beard Maidstone
 Blue Belle Royston, Herts.
 Bluebird Great Dunmow, Essex
 Blue Boy Newbury
 Blue Boy Sheffield

Blue Loughborough
 Diamond
 Blue Eagle Penistone Area, S. Yorks
 Blue Flame Lowestoft
 Blue Fox Penistone Area, S. Yorks
 Blue Hog Truro
 Blue Jeans Walsall
 Blue Knight Newark
 Blue Lady Dartford
 Blue Max Dewsbury
 Blue Max Lichfield, Staffs
 Blue Max Nottingham
 Blue Meanie Boston, Lincs.
 Blue Nun Salcoats
 Blue Rose Littlehampton
 Blue Streak Henley-on-Thames
 Boat Man Burton-on-Trent
 Bob Cat Alford, Lincs.
 Bogeyman Blackburn, W. Lothian

Bone Head Northampton
 Boneshaker Surbiton, Surrey
 Boogaloo Birmingham
 Boo Hoo Huntingdon
 Boozer Hampton
 Bossy Bunter Penistone Area, S. Yorks

Bottle Top Higham Ferrers, Northants
 Boxing Glove Burton-on-Trent
 Braco North Stirling
 Brain Wave Walton
 Branch Man Sheffield, Beds.
 Brandy Wood Green, London

Breadman Eastbourne
 Briefcase Preston
 Brillo Boston, Lincs.
 Brillo Pad Higham Ferrers, Northants.
 Broken Burton-on-Trent

Suspender Esher, Surrey
 Brother Boris Ellesmere Port
 Brown Bear Kingston
 Brown Eyes Walton, Surrey
 Bubble Man Salcoats
 Buccaneer Lichfield, Staffs.
 Buckshot Blackpool
 Buffalo Bill Cheltenham
 Buffalo Bill Molesey, Surrey
 The Bug Hersham
 Bugs Bunny Shipton-on-Stour
 Bugs Bunny Clifton
 Bulldozer Daventry
 Bullfinch Ardrossan
 Bunny Daventry
 Bunny Rabbit Epsom
 Bushranger Ardrossan
 Butcher

Chicken Little Slough
 Chilli Bean Byfleet

Chubby Nottingham
 Cider Queen Telford, Salop
 The Clansman Stirling
 Clement Man Kirkliston
 Clunk Aldridge
 Cobra Walthamstow
 Cockney Bournemouth
 Cowboy
 Cockney Nottingham
 Sparrow
 Coffee Bean Truro
 Coffee Boy Telford, Salop
 Coffee Pot Newcastle-upon-Tyne

College Boy Lichfield, Staffs
 Confederate Brixton
 Cooky St. Ives, Cambs.
 Control
 Cossack Leyland, Lancs.
 Country Boy Walton
 Country Sheffield, Beds.
 Cousin
 Country Kilmarnock
 Cowboy
 Country Isle of Man
 Cowboy
 Country Kilmarnock
 Cowboy
 Country Girl Walton
 Cracker Jack Milton Keynes
 Crafty Mitcham

Cockney
 Crazy Horse Burton-on-Trent
 Crazy Horse Slough
 Crazy Horse Wellingborough
 Cream Cobham
 Cracker
 Creeping Aldridge
 Jesus
 Cricket Man Solihull
 Crowman Lichfield, Staffs
 The Crusader Milton Keynes

Dolphin Ardrossan
 Dolphin Kilmarnock
 Don 4 Walton
 Doormouse Market
 Harborough
 Walsall Wood

Double Decker Lichfield, Staffs.
 007 Lincoln/Spalding
 Dougal Kingston
 Dozy Greenford
 Drag Addict Partney
 Dragon Fly Kirkliston
 The Dreamer Isle of Man
 The Driver St. Neots, Cambs.
 Druid Truro
 The Drummer

Duchess Lichfield, Staffs
 Duke Carnoustie, Angus
 Duke Lichfield, Staffs
 Duke Sheffield, Beds.
 Dubionnet Sheffield
 Dumbo Walton
 Dusty Penistone Area, S. Yorks
 Frome
 Dynamite Crawley
 Dynermice St. Neots, Cambs.

The Embassy Tadley, Hants
 Emerald Wolverhampton
 Enforcer Shrewsbury
 Enforcer Tolworth
 Ermintrude Lincoln/Spalding
 Evil Knivell Huntington
 Evil Knevill Bloxwich
 Exterminator Portsmouth

Florance Cheltenham
 Flying Lichfield, Staffs
 Horseman
 Flying Rock Odiham
 Flying Tiger Yeovil
 Flying Wellie Telford, Salop
 Four Wheeler Hendon
 The Fox Chepstow
 Fox Cub Sheffield
 Foxey Little Hampton
 Foxy Lady Hersham
 Free Bird Blackburn, W. Lothian
 Free Bird Molesey
 Free Bird Mount Vernon
 Freeway Walworth, London

Free Wheeler Truro
 Freezer Lowestoft
 Greaser
 Frenchle Great Wyley
 Friar Tuck Penistone Area, S. Yorks
 Molesey
 Letchworth
 Chicken
 Funky Lady Nottingham
 Funky Queen Nottingham
 Funny Bunny Walton

Gonzo Isle of Man
 Goofer Molesey
 The Goose Monifieth, Angus
 Grape Ape Leicester
 Gravedigger Molesey
 Gravy Boat Truro
 Grease Alford, Lincs.

Monkey
 Grease Nipple Burton-on-Trent
 Green Boy Shrewsbury
 Green Dragon Hampton Hill
 Green Dragon St. Ives, Cambs.
 Green Dragon Lichfields, Staffs.
 Green Dragon Medway, Kent and Boston, Lincs.
 Molesey

Green Gingerman
 Green Sheffield
 Lantern
 Green Meanie Swinton
 Green Rabbit Hampton Hill
 Grey Goose Surbiton
 Grey Lady Walsall
 Grey Seal Truro
 Grey Wolf Tolworth
 Grizzly Bear Thamesmead
 Gunfighter Wallasey
 Gunner Ilkeston
 Guy Fawkes St. Neots, Cambs.
 The Guardian Wallasey
 Gypsy Moth Hull

Hissing Sid Wolverhampton
 Hider Aldridge
 Hockeystick Daventry
 Honey Blackburn, W. Lothian
 Monster Littlehampton
 Monster
 Hooper Sheffield, Beds.
 Hop-a-long Thames Ditton
 Wellie

Hornblower Truro
 Horse Power Long Eaton
 Hot Lips Adlestone
 Hot Pants Weybridge
 Hot Spot Daventry
 Hot Stacks Barnsley
 Houndsman Broxbourne
 House Brick Sheffield
 The Hub Cap Walton

HANDLES

Princess Leia	Slough	Rustic Lady	Tolworth	Stallion	Telford	Tinny Mini	Kidderminster
The Printer	Bournemouth	Rusty Nails	Leylands, Lancs	The Stanford	Newport, S. Wales	Tiswas	Wolverhampton
Public Image	Weybridge	Silver Fox	Penistone Area, S. Yorks	Starfighter	Radcliffe	Toby I	Burton-on-Trent
Pup Crawler	Slough	Simple Simon	York	Stargazer	Ardrossan	Toby II	Burton-on-Trent
Purple Carrot	Tadley, Hants.	Sinbad	Burton-on-Trent	Starlord	Pontefract	Toby Jug	Burton-on-Trent
Purple Haze	Crawley	Singing Clown	Surbiton, Surrey	Starman	Slough	Toffee Apple	Truro
Push Rod	St. Ives, Cambs.	Skylab	Huntingdon	Starman	Stirling	Tokyo Joe	Bolton
Pussy Cat	Chepstow	Skylark	Leicester	Starrooper	Telford, Salop	Tokyo Rose	Bolton
Pussy Cat	West Drayton	Skylark	Ardsossan	Starwarrior	Cleckheaton	Tom Thumb	St. Austell
Python	Elton, Nr. Chest.	Skyliner	Helston	Steel Cowboy	Pelsall	Tommy Gun	Crawley
Red Eye	Slough	Skytower	Queensbury	Steel Pulse	Walton	Toolmaker	Thames Ditton
Red Governer	Ramsey	Skywalker	Lowestoft	Steptoe	Milton Keynes	Top Band	Telford, Salop
Red Riding Hood	Newcastle-upon-Tyne	Skywalker	Chertsey, Surrey	Sticky Prune	Clapham	Top Cat	Wolverhampton
Red Robin	Penistone Area, S. Yorks	Sleepy Jo	Chertsey, Surrey	Stingray	Ardrossan	Top Man	East Kilbride
Red Rocket	Dorking	Skywalker	Sleaford	Stingray	Walton	Torque	Leyland, Lancs
Red Rooster	Morritimer	Sleepy Jo	Stamford, Lincs.	Stormbringer	Tonbridge	Wrench	
Red Rooster	New Malden	Sloop John B	Cheltenham	Strawberry	Chertsey	Touchdown	Alford, Lincs
Red Rooster	Penistone Area, S. Yorks	Sly Fox	Aldershot	Fields		Touched Up	Skegness
Red Rufus	Harrow	Smitty	Truro	Streamliner	Hersham	Towbar	Telford, Salop
Red Sea	Burton-on-Trent	Snake Bite	Daventry	Striker	Newcastle-upon-Tyne	Toy Soldier	Sheffield
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Red Tiger	Melksham, Wilts	Snowball	Sheffield	Sugar and Spice	Littlehampton	Bandit	Slough
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Robin Hood	Molesey	Snowplough	Molesey	Super Hogg	Isle of Man	The Trapper	Gravesend
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Romeo	Luton	Spare Wheel	Slough	Super	Slough	Tweet Pie	Salcoats
Romeo II	Stanley	Spartacus	Stockbridge	Trouper	Burton-on-Trent	Tweety Pie	Mount Vernon
Rompin	Telford, Salop	Speedbird	Tolworth	Super	Minehead/ Taunton	Twenty Four	St. Neots
Rompin Donkey		Spieggle	Heathfield, Sussex	Trouper	Ewell	Volts	
Rooster	Farnham, Surrey	Spirit in the Sky	Codnor, Derby	Super	Kingston	Twinn Choke	Lowestoft
Roosters	Slough	Spitfire	Coventry	Surfrider	Daventry	Twinky	Truro
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Rose Bud	Tolworth	Sporty Woman	Heckmondwike	Swamp Rat	Hampton	Wadebridge	Sewer City
Rough Rider	Isle of Man	Spotlight	Daventry	Swan Vesta	Leyland	Walsall Wood	Queer Town
Round Lion	Hinckley	Spotlight	Molesey	Sweeny Tod	Mount Vernon	Watnall	Bread Place
Roundabout	Richmond, Surrey	Square Eyes	Molesey	Sylko One	Yate	Wellingborough (14) (19)	Corgi Town
Running Bear	Telford, Salop	Square	Hinckley	Tigeress	Rochdale	Westbury	White Horse Town
Running Bear	Walton	Leopard		Tigger	Leyland	West Drayton (14)	The WD
Rupert	Penistone Area, S. Yorks	Squeakin	Lowestoft	Tigress	Mount Vernon	West Marcia	Oysterland
		Decon		Tigress	Yate	Westwood	Little W with the Wood
		Squire	Stratford-on-Avon	Tilly Mint	Rochdale	Wisbech	Capital of de Fens
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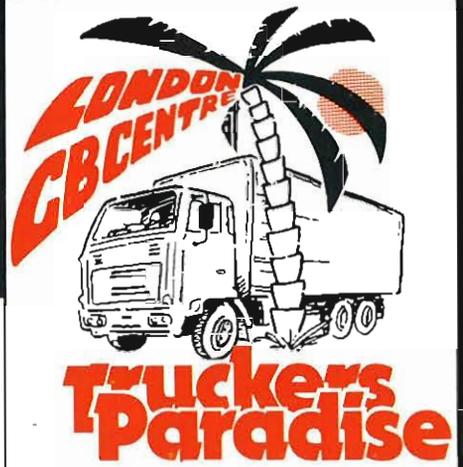
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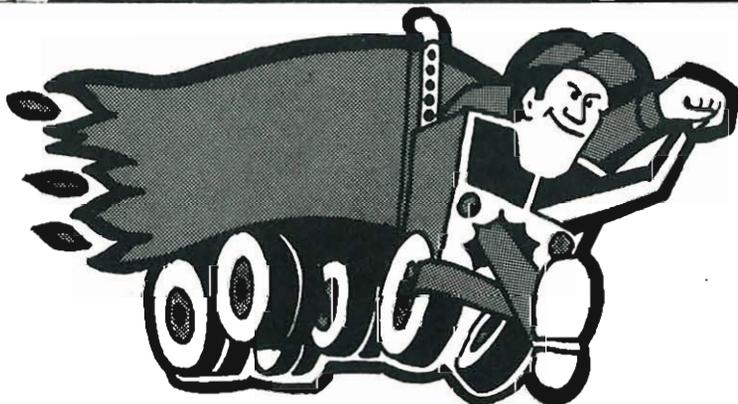
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