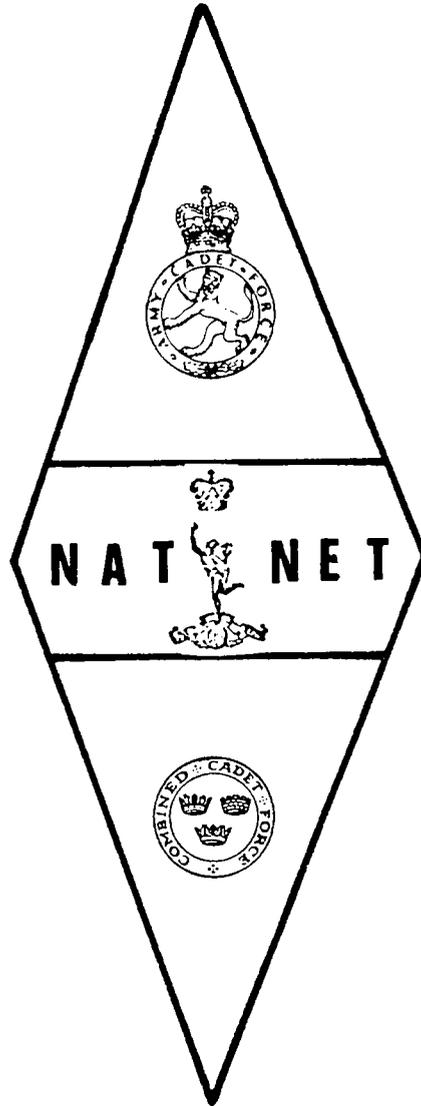


ACF/CCF INTERDISTRICT RADIO NETWORK

NEWS SHEET



IMPORTANT NOTICE

It is known that there are a number of units in the directory who do not participate in the ACF/CCF National Radio Net and whose interest in it has lapsed. A new directory is to be compiled and to facilitate the preparation of it each unit wishing to remain a member of the net is to write to the SO2 Signals of their District quoting their call sign and confirming their address and telephone number by 27 Feb 81. Any unit failing to reply will be deemed to have lapsed and therefore omitted from the new directory.

Amendment No 7

QSL BUREUA and Call Sign 23. Amend address to read:  
Removed for Security

Call Sign 25A amend address to read:  
Cadet Hut, Removed for Security  
delete phone number

Call Sign 31A add: Correspondence to;  
Tykes Fold, Removed for Security

Call Sign 57B

Call Sign 57B delete spare insert:  
Skinners School CCF, Removed for Security

Call Sign 73A delete spare insert:  
West Buckland School CCF, Removed for Security

ACF/CCF INTER DISTRICT RADIO NETWORKNEWS SHEET NO 25JANUARY 1981EDITOR'S COMMENT

1. The term on the net seems to have gone well; plenty of stations on net at lunch time, though little activity in the 8-9 am gap (the "cornflake net?") has been evident. The suggestion of 1230-1400 hours on channel 'D' as the best place for a new station to start seems to have had the effect of concentrating all activity there. There are other spot frequencies, you know; a later paragraph in this news sheet will suggest a way of getting a little more activity going there - and possibly even dodging some of the QRM.
2. Mention of "spot frequencies" is intentional; we are not allocated "bands", to tune up and down in, but set frequencies. Working on some nets (and listening to several others) recently, my digital frequency meter has been reading well off the centre frequency; and it has been calibrated recently, too! Now we are allowed plus or minus 5 khz on our operating frequency, which should be quite enough to clear an interfering signal; if the frequency is solid (and the high sunspot count just now ensures that long distance signals arrive with plenty of power to cause problems) then we have no right to go off and block someone else's spot. The calibration on a C-13 is better than 1 khz total error; if you don't know exactly what frequency you're transmitting on, you should!
3. On some days, voice communication is just not possible over inter-district distances; the only way out is to use the dreaded Morse. This is permitted on the Voice frequencies (assuming usual Net discipline, ie there is no other traffic on the net at the time of sending CW), and the conversion from RT to CW is usually started by control (possibly at the request of an outstation); if one station out of many can't copy or send CW, they should close down; if only one or 2 more stations want to use CW, they should move to a nearby CW frequency. "Lucky Jim" messages may not, however, be sent by CW - unless you are attempting an advance class of award.
4. Which leads on to the obvious question - how does one start to learn CW (and, how long will it take)? The usual method was to copy down the code letters from a passing boy scout's diary, and hum them to yourself until you don't need to look at the sheet as you "dit-dah-dah, dah-dah-dah, dit-dah-dit, dah-dit-dah" your way through the alphabet and numbers. Congratulations - you are now able to receive morse at about 4 words per minute! Further progress is made by listening to slow morse transmissions on the amateur bands; the RSGB magazine "Radio Communication" gives details of the Society's times and transmissions, or contact any RSGB member (including c/s 33B) for details. Also RSARS transmit on 3565 khz and 145.525 Mhz, on Tuesdays and Thursdays, at 1900 hours clock time (the VHF transmission can only be heard within about 50 miles of Catterick, but the HF frequency is usually good for reception throughout the UK).
5. It's quite difficult to keep the "microchip revolution" out of things these days; a well known electronics firm have come up with a little gadget that gives an audible string of randomly chosen morse characters (with speed, spacing, and volume adjustable). This is quite handy, though of course there is no check that you are actually understanding the code; so all of us with access to computers have written programs to send (and check reception of) morse code. This helps give the regular practice that is necessary for quick learning of the code; having tried both the sporadic (once a week) method, and the regular (15 minutes every day) method, I can vouch for the success of the latter - and the complete uselessness of the former! The 'bare bones' of a program that will run on nearly any machine

with BASIC and some sort of output port (or buzzer or something) are given in Annex B. Major Buckley (at c/s 21B) has full details of the morse tutor (that's the non-computerised one); there is a possibility of a slight discount if enough schools order one through him.

#### CHANGE OF CONTROL STATION

6. As we work weak links with low power and a rather inefficient mod (AM), we can expect trouble from static, other signals and atmospheric fading (QRN, QRM and QSB to the experts). Now, the way we organise our control station (firs on frequency is control) can result in a situation where, usually due to fading, only a few stations on net can hear control, and the others are 'frozen out' or have to relay all their transmissions to control. This is bad for net efficiency, tempers and morale - as anyone who has ever been put off the net because they are unworkable at one station only (control) will know. Control stations are therefore reminded that if, for any reason, they are having difficulty working several station on net AND ANOTHER STATION IS GETTING BETTER REPORTS FROM ALL CONCERNED then they should offer control to the stronger station, who should accept it if at all possible. Control is neither a privilege nor a particular burden - it is just part of the job of running a radio station.

#### CLOSING DOWN A WORKING NET

7. A noticeable feature of the lunchtime nets is that, eventually, we all have to get back to work! The standard of control working has been very high recently, with regular opportunities for stations to closedown (and thus good discipline on the air - no-one has to crash out of a net without proper closedown procedure, thus causing long delays for everyone else when their turn comes to send). But when control wants to closedown, too often everyone else decides that they don't want to take control, and poor old control spends quite a while messing around before he can get away. Obviously he will first offer control to the next strongest station (ie the station with best reports round the net). They should then accept control, or themselves request closedown (if time is running out for them, too). No other answer will do, unless they are sure that a third station has better communications and is thus better suited to be control.

8. Occasionally fading or strong local interference causes sudden loss of contact with a station. If you are control and someone disappears, spend no more than 30 secs trying to get them; then try a relay via a known strong station. If this fails, leave them till the end of the round, 'radio check' them - and if they still don't respond, close them down. It's brutal, but it saves everyone else's time. If you are an outstation and lose contact with the net - or just with control - wait at least 5 minutes before giving up.

#### THE VOICE COMPETITION 1981

9. This will run from Monday 2 March till Friday 13 March, inclusive. All 5 voice frequencies (A, B, C, D and E) can be used from 0001Z till 2359Z on each day, except that no competition traffic can be passed between 0900 and 1200, or between 1400 and 1600 each day; or at any time on Saturday or Sunday.

10. Points are scored by passing messages between stations on net. A message consists of a date letter; a serial number (starting with 001); and a signal strength report. Thus a possible message on the first day (date letter "A") would be 'A 012 dif'; on the second day (date letter "B") the message could be 'B 023 dif', and so on. Both sent and received messages should be logged.

11. Each station may exchange messages once on each frequency, on each day, with each other station. Thus a maximum of 5 messages may be passed between a given pair of stations on any one day.

12. Points are scored for the distance between stations as follows:

Contacts less than 25 miles	.....	no points
26 to 100 miles	.....	1 point
101 to 200 miles	.....	2 points
201 to 300 miles	.....	3 points
over 300 miles	.....	4 points

Relayed messages score a basic 1 point, for any distance (between start and finish station) over 25 miles. If a message is passed direct one way, but has to be relayed the other way, it counts as relayed both ways.

13. Multiplier. This is to encourage multiple contacts between stations on the same day, ie to encourage use of ALL the frequencies. A pair of stations contacting each other twice (on different frequencies) on the same day score double points for each contact. For example:

2 stations 150 miles apart should get 2 points per contact (each)

If they contact twice (on different frequencies) in a day, they get DOUBLE points for each contact ie 4 points per contact  
ie a total of 8 points.

If they contact 3 times (on different frequencies) in a day they get TRIPLE points for each contact, ie 6 points per contact  
ie a total of 18 points

If they contact 3 times, etc, but one contact was relayed, they get 6 plus 6 plus 3 points (the 1 point for the relayed contact is multiplied in the normal way). The competition log would look like:

DTG	station contacted					messages		via c/s	distance (miles)	points	mult	total
	on frequency					sent	received					
	A	B	C	D	E							
020735	-	27	-	-	-	A001dif	A0020K	-	150	2	x3	6
020756	-	28	-	-	-	A0020K	A0010K	-	220	3	x1	3
020815	-	-	27	-	-	A003ok	A004ok	-	150	2	x3	6
021214	-	-	-	-	27	A004ok	A007dif	28	(150)	1	x3	3

and so on.

A specimen competition log is attached as Annex C; please use a copy (photobanda - or other) for points claim. Claims should reach c/s 33B by 21 March; no problem if you fill in each day's sheet each evening, and get the whole claim in the post by Monday 16th.

14. Stations which are unable to work in the competition for part of the time (up to 5 days) may claim points in proportion to the days missed. Any such claim should be certified by the Pronto or Sunray of the unit concerned.

15. You are reminded that NO competition traffic may be passed in the periods ~~0900-1200~~ and ~~1400~~ and ~~1600~~; thus confirmation, or verification of messages passed, is prohibited. You may, however, arrange 'schedules'

16. The basics are - get all your kit ready well beforehand; arrange a 'shift' system for your operators; one contact per round maximum; make sure you understand the scoring system; write up your contest log every night; get your claims in immediately to c/s 33B (address at the end of the news sheet). Good Luck!

#### USE OF NET FREQUENCIES

17. We all know that there is a net on "D", most days, between 1230 and 1400. Definitely, a station calling on "A" at 2300 is unlikely to get a reply. For the benefit of those new to the net (who are, I trust, going to have a go at the Voice Competition) here are a few brief notes on the available frequencies.

- "A" - RT and CW - ground wave usually; at its best at night. Use a whip (vertical) carefully tuned, with a good earth (and radial) system.
- "B" - RT and CW - often surprisingly good in the morning and last thing at night. The lowest skywave frequency - use a horizontal dipole.
- "C" - RT and CW - a good alternative to "D" if the QRM gets bad; but if fading forces you off "D" don't try here, unless "B" is useless.
- "D" - RT and CW - the usual band for skywave operation; any serious station will have a dipole cut for this frequency (44 feet each side). If you have no pre-arranged contact (sched) then call on this frequency -- after listening for a few minutes to check there isn't already a net in progress. This gives time for set, operator and kettle to warm up....
- "E" - RT and CW - a much neglected frequency; at its best around lunchtime. With the present sunspot activity it might be worth trying about 0830 and 1600; but only if you know someone will be listening.
- "V", "W" and "X": RT and CW - as for "A". Channel "X" is the most often used for CW; if there is a CW net in progress, you may join in CW or find another frequency. Use a longwire or dipole for "X".
- "Y" and "Z" - CW only. Best times for use, as "D" and "E", respectively.
- "O", "P" and "Q" - Netnet only.

#### SET LISTENING PERIODS

18. To help stations find out about the best way and times to use channel "E", it is suggested that anyone coming on net on MONDAY lunchtimes this term should try calling on channel "E"; it's often clearer than "D" at this time, and you'll need it for the competition!

19. If anyone's interested in getting going on CW (very gently), I'll try to be on "Y" at 1330 hours on Tuesdays this term. A minimum of procedure will be necessary - just replace "this is 33B" with "DE 33B", "net now" with "ZRC2", "radio check" with "? QRK", and "over" with "K". We'll introduce some of the other easy abbreviations "on the air". A useful code to remember is "QRS" - it means "send slower"! I shall send at the same speed that you do, so keep it easy and slow to start with; most people find they can send faster than they can receive - don't! I suggest a special part of the QSL board for CW cards - prominently labelled - this tends to impress visiting generals. Possibly even specially coloured pints in the UK map for stations contacted on CW - helps with internal morale, and, again,

anyone wandering into the shack tends to be impressed. And you must aim to make a good impression on passing Sunrays, Headmasters, etc; you'll want something from them one day, and you'll get it if they think you're doing a good job.

### THE SELF TRAINING OF THE LICENSEE

20. It can hardly have escaped the notice of anyone on net this term that this c/s (33B) has been experimenting with some homebrew kit. Many thanks to those who gave readability reports on what was sometimes a pretty poor signal - initial loading into a dummy load failed to show up instability in the speech processor box - eventually cured by a few ferrite beads. We now have a Collins TCS - 12 transmitter, with a commercial voice processor limiting the modulation to 70%; a FRG-7 receiver; an audio band-pass filter (bought at a rally for £5); and a 100 foot end-fed aerial.

21. Having entered some of this year's Signallers for the December RAE (the City and Guilds Radio Amateur's Exam) and myself squeaked through the GPO Morse test, I'd be interested to know of other sections who have links with amateur radio. We now have a massive heap of notes covering the RAE syllabus (I'm presenting about 14 third and fourth formers for the May exam), so if anyone wants a set of these notes let me know. Only ask if you really intend taking the exam in the near future, though - and you should already have the RSGB RAE book, and Scroggie's "Foundations of Wireless and Electronics".

22. Work continues on the VHF sets here; the design has been agreed as a single - crystal oscillator (7.511 Mhz x 9) with a cheap 10.7 Mhz filter, with as much as possible done by i.c.s - the mixer, f.m. demodulator and audio amp are all 'one chip wonders'. When we get 2 working I'll try to put the design details - as a construction article if anyone's interested - in a later news sheet. The present cost looks like being about £20 per set, including nicads, aerial, microphone/loudspeaker, and home-made p.c.b.s.

### ARE YOUR PAMPHLETS UP TO DATE? (Courtesy of Capt Buckley, 21B).

23. "Training is only as good as the instructors, and they are only as good as the information available to them. Are you up to date? Recently issued are:

- 70785 Signal Communications in the Army Vol II Part I  
Regimental Signalling Handbook, Signal Data (Feb 80)
- 70816 Signal Communications in the Army Vol IV Pamphlet No 2  
Voice Procedure (Nov 78)

These are issued to scale B plus 10 copies for a Signal Platoon.

24. "Also issued recently, though not scaled for ACF/CCF, but well worth a look, is:

- 70805 Signal Communications in the Army Vol III part I  
Royal Signals Reference Manual, Part 1 - Engineering Data (1980)".

### BEHIND THE CALL SIGN 20A

25. Signalling at St Dunstan's College goes back to 1919 when the first SGT was appointed to HQ Coy for 'Signalling Duties'. His equipment amounted to a pair of flags, but from little acorns.....

26. Today the Troop has 24 cadets who, after basic training in A Coy, opted to spend their last two or three years in the Corps with Signals. Such a large commitment, both in terms of numbers and time, means that training can be quite adventurous and whole camps devoted to Signals exercises.

27. Although we parade twice a week much of the important work improving our facilities has to be completed outside normal hours. In the past few years we have built a new Signals Store, a battery charging shed, and brought the radio room up to an acceptable and comfortable standard.

28. The signals store provides clean and spacious accommodation for our growing range of kit, and also the necessary degree of security to 'attractive items'. The radio room now provides operating tables for up to 5 stations, a filing system for all the paperwork, instruction manuals, CESC, etc and the walls are covered with notice boards and a large magazine rack. Power at 24V comes direct from our battery shed and thus we are able to keep sets and acid fumes apart. Multiple mains outlets provide for the Eddystones, and the all important heater and kettle.

29. The College buildings are old but the complex roof shape is ideal for the erection of aerials and we now have fixed dipoles for each voice frequency, with plans to extend the system to include CW frequencies in the near future. Our radio room faces an enclosed garden and most aerials have to be fed with long lengths of coax but we seem to get out alright, helped I'm sure by the elevation of the College site.

30. At the start of 1980, after a long period of preparation, we applied to become a Royal Signals Troop. With the help of our R SIGNALS Adviser unit 39 (City of London) Sig Regt (V) and A/ORLO we were successful and now proudly wear our new cap badge. To complete the picture we were very pleased to have the Commandant of the School of Signals as our Inspecting Officer in the summer.

31. Throughout the year we receive help, and loans of equipment, from our District C R Signals and our R SIGNALS adviser unit. Without their interest much of our training would not be possible. I must encourage you all to seek help, for in our experience it is readily available and willingly given. We too have the motto 'If you don't ask you don't get'.

32. I must also mention the help we have been given by ORLO (The S O in C's Signal Officer Recruiting Officer) and his staff. We have had regular visits and demonstrations and for our last summer camp ORLO provided us with 3 days training for the whole Troop in the Lake District. This was a fantastic experience with enough Clansman Kit for a PRC 351/352 each and 4 fully equipped FFR landrovers. The exercise really tested all our procedure, Slidex, Mapco, and map reading and taught us all a great deal. I can highly recommend this activity to other Troops. (ORLO can be contacted at the School of Signals).

33. Now to equipment of our own. We are still waiting for delivery of our C13 but in the meantime we have on loan from district 2 C13s which have been well used. Our success in the recent voice and field competitions is due largely to these sets. We do have a pair of C12s but they are not a patch, in our view, on the C13. We are looking forward to the delivery of C11/R210 c/w mains PSU (remember our motto!) and this should make Net contacts a little easier, especially to those stations which are sometimes a little off frequency. On the VHF side we still make considerable use of our 88s but like you all are limited by the availability of handsets No 11. For years we have found our 31s unreliable but recently have been using them with elevated antennas on 27ft masts with excellent results. They are also very useful for working to, and extending the range of, our CPRC-26s which like the masts have been provided with the help of our District C R SIGNALS.

34. We also do a lot of line training and each year at least one weekend camp is devoted to a line scheme. Our REME Section has been working hard for us to convert our landrover to FTR as far as possible. We now have all the necessary mechanical fittings and the radio table but as the vehicle is old and has a 12V battery system we cannot convert it electrically and have to rely on 75Ahr batts in the back to power the sets, removing these as necessary to recharge them. With a C13 and a WS 31 with remote aerial we can maintain both HF and VHF links between the landrover and our exercise or camp HQ over a good range, and this allows us to control our exercises much more effectively.

35. In November the College appointed a new RSM for the Corps. We are very fortunate that he is ex R SIGNALS with considerable CW experience and we look forward to a considerable improvement in our CW training in the next few months. His knowledge of the Army and Signals in particular will, I am sure, help raise us all to new levels of achievement and proficiency in due course, so CW competition entrants watch out, you have new operators to beat.

36. The future looks good, the hard work of the WO1 Webb at HQ UKLF is beginning to pay off and we can all look forward to the issue of Clansman, and to a general improvement of cadet signalling. Certainly 20A will try to keep its signal to the forefront, together with the other active stations, but where are the rest of you?

Contributed by  
SSGT (YofS) Paul Davey

#### NOTES ON DIPOLES - A SIMPLE SOLUTION

37. a. A half wavelength dipole has an impedance of 70 ohm.
- b. A C12 has an output impedance of 50 ohm - this is awkward to match to dipole.
- c. A C13 has an output impedance of 70 ohm, which can be fed by 70 ohm coax to a dipole without difficulty. URH-70 is best and can be obtained from Ord, or a good supplier.
- d. From discussions on recent Blandford Cert-T course the use of low loss TV cable is rather useless for this purpose.
- e. A dipole is a balanced antenna, whereas coax is unbalanced. To get a good match it is advisable to use a balun (from balanced - unbalanced) at the junction of coax and dipole. Good quality baluns may be bought for several pounds from any amateur radio stockist. The use of a balun will help improve your aerial efficiency and hence make your signal easier to receive.
- f. At 20A we have use of a Bird SWR and power meter showing both forward and reflected power. This is very useful when tuning a set to give optimum performance. Although expensive (up to £100) it is a very valuable item.
- g. Do try C/S 29's multiband dipole but be prepared to 'trim' the lengths of each element as the wire outside the set frequency may affect its performance. Remember that all calculations can be checked from the standard dipole formula:

$$\text{length of each } \frac{1}{4} \text{ wavelength element} = \frac{234}{\text{Freq in MHz}} \text{ ft}$$

h. Do remember also that the height of the dipole greatly alters its 'take off angle' and hence its effective working range. Do experiment with dipoles at different heights. If you do not have 27ft masts then effective alternatives can be made from the 'D' section 32ft mast fitted with halyards.

i. And finally dipoles are not always the best solution, especially for low frequencies at night, you may be quite surprised at the range obtained with a vertical antenna. A 16ft whip with counterpoise remotod from a C13 is very effective if carefully tuned.

Contributed by  
SSGT (YofS) Paul Davey  
C/S 20A

STATION BEHIND THE c/s 49  
BY CAPT B L LONNOR, SIGS OFFR

38. A visit to our CCF stores, shortly after my arrival revealed some old signals equipment - 2 WS19, 1 730/4 and a few WS62 sets. Upon asking why these were not being used for National Net purposes, I was told that nobody in the CCF could teach morse. As I have held a class 'A' Amateur Licence for many years, this problem was overcome. A c/s was issued and the old projection room, over what is now the Gymnasium was procured. The School maintenance staff were persuaded to paint, rewire and lay line on the floor.

39. The equipment was set up and checked. One 19 was better than the other, so it was serviced, a new 807 fitted and the alignment redone. As the RX section is far from satisfactory in these sets, automatic muting and Ae changeover facilities were constructed, so that the 730/4 could be used. The next thing was to get rid of the noisy PSU. A mains operated one was built in the original PSU box and has proved to be very reliable.

40. The next problem was operators. A project afternoon was used for morse classes and the end of that term saw 3 operators pass the Army Morse Test, at 8 wpm. A steady trickle are trained, each year. 15 have just started, this year.

41. The first Field competition was an interesting experience, in many ways, but we learnt much from it. We now use a multiband dipole of the type used by 29, but using copper/nylon braid. At last, our C13 arrived, last year, but minus 2 leads. It is now however operating, from the mains, but we still prefer the 19 set.

42. Having lost all but one of my operators, at the end of last year, I am having to start all over gain. Still, we should have 15 ops for the Field competition, in the summer. A number of the former ops have obtained Amateur licences, thus swelling the ranks of that hobby, and a second officer will soon join the Sigs section, thus sharing the load, for which, I shall be very grateful.

Sigs Offr 49  
RSARS 0115  
G3Zun

COMMENTS FROM 49

43. I was intrigued to see the article from 29 on his aerial. I first used this type of antenna, when at 25B (later reallocated as 57B). The first one was made of D3, plastic chain forming the gaps and crocodile clips for shorting. I would make the following points, concerning 29's article:

- a. The type of coax cable used is of no consequence. Low loss is only necessary, at VHF and above.
- b. It is a false assumption to say that most of the power is radiated from the centre. The height above ground not only affects the efficiency, but also the radiation pattern. Also, the use of coax feed unbalances the antenna, causing the main lobe to be anything but at 90° to the antenna. A solution for this is to feed the TX o/p to a balun transformer and thence feed the antenna with 75 ohm twin, which is cheap and less conspicuous.
- c. If coax is used, the centre piece can be made from 1 link of the ubiquitous plastic chain, with the wires knotted off around it, spare ends to coax and some 'Bostik' sealant to prevent ingress of moisture to the cable.
- d. There is no need to worry about 3 masts. A simple solution is to use an inverted V. The antenna is held up by ONE halyard and ONE mast, at the centre, the ends coming down to ground level or posts. A reasonable length of rope should be used on each end.
- e. For use below 3360, the ends of the feeder should be strapped, and fed against earth.
- f. The use of a counterpoise, under the antenna is useful to improve efficiency.

#### MAINS PSU's FOR C13 ETC

44. It is vital, that the Silicon rectifiers used for any of the HT supplies are fitted with 0.01 microfarad high voltage disc ceramic capacitors, to prevent destruction by spikes. Series diodes must also have resistors connected across them, to equalise the reverse voltages. 500K are suitable. Series electrolytics must have resistors across them, to ensure equal voltage sharing, as leakage resistances vary considerably. Finally, the construction of these PSU's is NOT a matter for the inexperienced. The HT voltages are potentially LETHAL. So BEWARE.

Pronto 49  
(G3ZUM)

#### QSL BUREAU

45. This is by far the most economical way of exchanging QSL cards. You send batches of QSL cards (about 6-10 at a time) in one envelope to the Bureau. You also send a few return addressed envelopes (with stamps on ...), clearly marked with your callsign, every term; the Bureau sorts your cards into the other station's envelopes, and sends them when the envelope is full. In a busy term this will be about every week or so, if you are active on the band. The right size of envelope to use is 9" by 4" or larger; with a 2nd class stamp.

46. The new address of the Bureau is:

CCF/ACF National Radio Network  
QSL Bureau

Removed for Security

LUCKY JIM AWARD

47. Several stations are now actively pursuing this award; they rely on help from other stations and a confirming QSL card. Please provide both, when asked. No Lucky Jim messages may be sent during competition hours; and stations attempting the award are requested to pass only one message on any round on a normal net.

48. Any new station that wants to try for the award should read the last two News Sheets, and Annex "R" to the Regimental Signalling Handbook, part V (Cadet Signal Training). You are reminded that the message should contain at least 10 words and 5 figures. The time to start is now!

RESULTS OF COMPETITIONS

49. The results of the Christmas Competition should be included at Annex A. The results of the Voice Competition will be in the May News Sheet; thus the early deadline. As an extra bonus, a certificate will be awarded to each station sending in a claim for the Voice competition; this will show the place achieved, and will be sent via the Bureau ..... so get some envelopes in now!

FINISHED SENDING . . . .

50. I hope that stations entering the Voice Competition (and maybe others) will find time to put in a few lines with their claims, letting me know how many operators are at the station, what the kit is, and anything interesting about the station. Don't worry about the grammar and things, I'll tidy it up; I learnt a lot about the net from the various notes enclosed with last year's entries. Comments are welcome from Prontos, Sergeants, and 'mere' operators. This is also the time to ask for assistance or advice - but please, if you're not sure whether something's fair play or not for the competition, do ask beforehand - "finding out" during the competition might cause disqualification.

51. The closing date for competition logs, letters, "Station behind the C/S" entries, suggested articles, etc, for the May News Sheet is Saturday 21 March.

OVER

52. Articles, comments, suggestions and general correspondence should be sent to the Senior Net Monitor:

F/O A Keir  
Barnard Castle School  
Removed for Security

## RESULTS:

1.	20A	St Dunstan's College	1046?***!	C13 with dipoles for B,C,D,E,P & Z 50' 43' mast for low freq Eddystone EC 598 for monitor
2.	29	Sedgbergh School (Wiggers)	695	C12 with $\frac{1}{2}$ dipole for B,C & D
3.	58B	Queen Mary's, Basingstoke	635	C12,C13 mains and battery Trio R 59DS Recr Droopy dipole, centre about 50'
4.	80A	Warwick School	435	C13 with 150' Endfed & $\frac{1}{4}$ dipole Eddystone 730/4
5.	26	Ampleforth College, Yorks	402	C13 with Dipole down to 4.4Mcs RA17
6.	51A	Queen Mary's, Basingstoke	330	PRC 320, C12 with inverted L Eddystone 730/4
7.	44A	Charterhouse, Godalming, Sy	250	C13 with dipole for 5.330 & 120' end fed for lower freq.
8.	49	Lord Wandsworth Col, Hants	222	19(TX only) with 50' endfed Eddystone 730/4
9.	51	Portsmouth Grammar School	162	62 & C13 with 5.330 dipole for C,D & Y dipole for 7.330 for E & Z RA117
10.	49B	Magdalen College School	95	C13 with 160' adj endfed & dipole for 5.330
11.	53B	Tombridge School	30	C13 with dipole for 5.330
12.	28	Pocklington school, Yorks	25	C12 with endfed tuned for freq
13.	5	Woodbridge School, Suffolk	0 (!)	His scoring not mine C13 with 50' Endfed
14.	21A	SW London ACF	0 (!)	My scoring not his as no log submitted by due date - C11/R210 with 5.330 dipole and Endfed for lower freqs. AR88 & Eddystone 730/4. PRT321 when control station.

C/s 17B(Kingston GS), 20 (St Benedicts, Ealing), 72B(Wellington Sch) & 74A(Canford School just failed to appear on the day - something which I think is inexcusable as a simple phone call would have avoided this happening.

C/s 53B did in fact phone and say he had problems and we covered for him until he had 'got steam up'

Check logs were received from monitor stations, being Major CF Kirby (C/s 62A the CW Monitor in person - lovely to hear from you!) Lt J McIntyre (C/s 50 with 27 sheets of monitor log and an Ex CCF Cadet from Scotland now with Regular Army) and lastly 23B being SMI A Jackson the repair man behind 21A/B.

CONGRATULATIONS THEN TO 20A FOR MANAGING TO WIN THIS YEAR AFTER HAVING TRIED FOR THREE YEARS WITHOUT RESULT. YOUR LOG IS SOMETHING OUT OF THIS WORLD, 150 SHEETS WITH 904 ENTRIES, not to mention the summary log and all the other logs you managed to submit - We, the rest of the net that it is, will have to do something about your paper producing ability!

What, we may ask, happened to 36B(HavershamGS) who won the competition in 1978?

Conditions were, I think, far from good both night and day, though again some surprising contacts were made in the middle of the night. Many stations did try and continue to try right through the night and the logs show that calls were sent out and in many cases heard but no reply could be established!

Probably all stations enjoyed the competition, though some found it better than others. Many found it a real test of the VP and operating ability under difficult conditions. CW would have made all the difference if only you had tried.

Thank you everybody for your suggestions, a few are printed overleaf, together with one last comment about reading the rules, which would have helped everybody -----

THE RULE YOU MOSTLY FORGOT (or may be I did not make clear enough!)

DUTIES OF CONTROL STATION

4. Control is senior station, followed by stations in numerical order after control call sign (5 comes after 80A in this case) "

Now what was intended, any may be I did not make it clear enough, was that when 58B was in control of the net, the list would read 53B, 72B, 74A, 80A, 5, 17B Etc. Thus all stations had a chance of being 'top of the pile'

From the Monitors:

- a) Stations open a second net, when one was already working
- b) Some messages required several repetitions lasting for 10 minutes or more.
- c) One station actually started a net after the finish time for one freq, even after having been told of his error - points were deducted here!
- d) Who was the station(s) who joined another net on Saturday afternoon? You were not listening or on the proper frequency!
- e) Who was it, once again, who announced to the world that the net was closing on the particular frequency in use
- f) When you are not control or the designated standby control you have no right to establish a net until the 'free for all time' Some stations did and lost points for it!
- g) Stations did not listen out enough, though in fairness 21A, it now transpires, more than once gave out a tuning call on top of an existing net. Well 21B could not hear the net either due to conditions.

From the Competitors

- 53B - We will be back with improved antenna performance next year
- 5 - Could hear everything but just could not get it to send - frustrating isn't
- 28 - Southern Stations inclined to run their own net and forget the Northern ones - well it may be true, but was due to conditions if it was, sorry.
- 49B - Enjoyed first NRN Comp and hope to enter (and win) the next one in March
- 51 - Stations cannot net properly so are all spread around freq - this might be to do with issue of C13, ALL STATIONS CHECK YOU KNOW HOW TO NET IT PROPERLY AND STICK TO 'NORMAL' OPERATION, do not use phase.  
It's not fair for some stations to spend 15 mins sending one message - agree but it's difficult to stop this if a station feels this way. Control should step in.
- 49 - Could we remove the early shifts and increase team size - well we could but it would mean fewer stations taking part or the send time being reduced and it is short enough as it is, at 30 mins. Teams were restricted to help the smaller stations, particularly the ACF.
- 44A - Control should CONTROL - I agree with this!
- 26 - It snowed on Saturday which didn't help - well at least it should have provided a good earth for you!

So - well done everybody, see and hear you next year I hope.

20A - your shield will be delivered just as soon as it comes back from 29!

BASICS OF AN ACTIVE MORSE AID

These notes are "disassembled" from a program written for a UK101 computer. As the keyboard and input/output port routines are special to this machine, I have not listed the program; but enough stations have asked for 29's 'Pet' version (independently designed by 29) to suggest that it might be worthwhile including these bare bones.

1. Print comprehensive running instructions to screen.
2. Select letters, numbers or mixed characters.
3. Choose sending speed (need not be calibrated accurately).
4. Disable normal keyboard scanning routine.
5. Generate random number (1 - 26 for letters, 27 - 36 for numbers, 1 - 36 for mixed characters). Call random number N.
6. Get code from Nth place in DATA table. This will be the CW character (dit is 1, dah is 3; for devious reasons I set my code in reverse order) and the letter/number it represents. Thus 'A', coded backwards, is 31; 'B' is 1113; and so on. Make sure you get this code right!
7. Call cw code L. Now get first (righthand) bit of L by  $L1 \text{ equals } L - 1\emptyset * \text{INT} (L / 1\emptyset)$ .
8. Test for end of character; if L1 equals  $\emptyset$  then go to para.
9. FOR A equals 1 to L1; GOSUB para 13; NEXT A.
10. GOSUB para 19.
11. Get rid of righthand bit of L by putting  $L \text{ equals } \text{INT} (L/1\emptyset)$ .
12. Go to para 7.
- \*\*\*\*\*
13. Test for "finish" key pressed - if so, go to para 21.
14. Get correct character from current data line - is this key pressed? If not, do this line again until it is.
15. If the correct key is pressed, add 1 to the total of correctly copied characters, Y equals Y plus 1.
16. Now RESTORE data pointer to  $\emptyset$ .
17. Go to para 5.
- \*\*\*\*\*
18. Subroutine for outputting a dit (or 1/3 of a dah).  
 For B equals 1 to X (set X via para 3 and experiment)  
 operate output port (which could key a buzzer, or a simple oscillator)  
 next B  
 RETURN to main program

19. Subroutine for outputting a space between dits and dahs.

```
For B equals 1 to X (X has already been set by para 3) set output port
to  $\phi$ 
next B
RETURN to main program
```

\*\*\*\*\*

20. DATA lines fit in here

\*\*\*\*\*

21. Print congratulatory message to screen.

22. Print total characters decoded correctly (Y).

23. Input time taken, in seconds, and work out receive speed achieved.  
(speed equals  $Y / (5 * \text{seconds})$ ).

24. END.

Photocopies of 29's 'Pet' program (or my UK101 program) are available from  
c/s 33B, for those with little programming experience and the relevant machines.  
Good luck .....



A 'DIY' AUDIO AMPLIFIER FOR YOUR C13 & J1/2 HARNESS

Many stations will already have an audio amplifier for use with the old 19 set harness, using a No 10 Box. (If you want details of this then write to 21B!)

We are now, however, in the Modern age and most, if not all, have either a C12 or C13 working into a J1 or J2 Harness box - you too can have an Audio Amplifier, indeed it's there already if you know how to get at it!

FIRSTLY PLEASE NOTE YOU ARE NOT PERMITTED TO OPEN J1 BOXES OR THE C12/C13 SETS THEY ARE SEALED EQUIPMENTS REQUIRING SPECIAL EQUIPMENT TO RESEAL!

The following modification will most probably be a 'no cost' exercise, though it may be necessary to find an old loudspeaker (Ex TV Set?)

The modification involves taking the output from the set and feeding it back through its own Intercomm Amplifier (i/c on PSU) More than probably you are not using this facility, thus you are losing nothing.

STORES REQUIRED

- Speaker --- suggest six inch, 15ohm
- Four male pins from a plessey 12/16/25 way plug
- Eight inches of wire
- sleeving

CONSTRUCTION

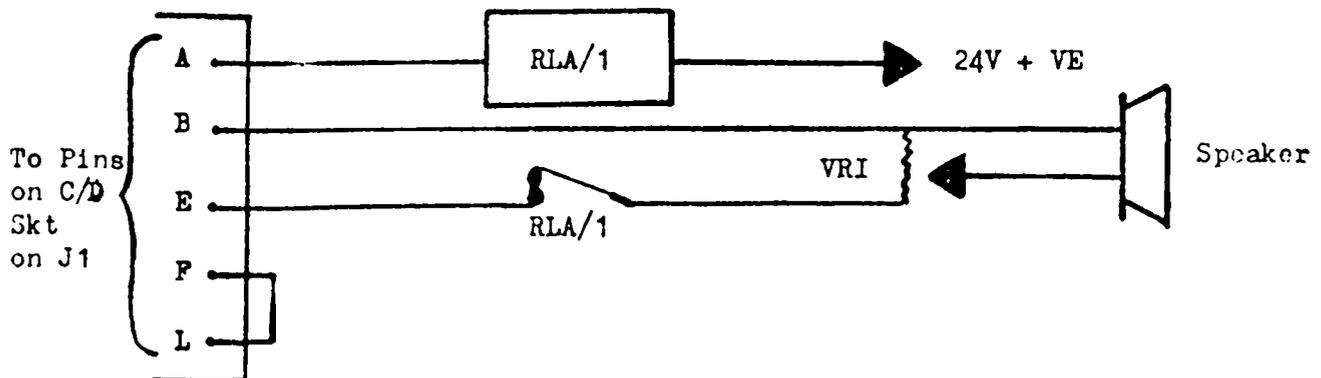
- Solder two male pins on the ends of the 8" wire
- Pull sleeving over joint
- Solder two pins to speaker output leads
- Pull sleeving over joint
- Find and fit speaker to suitable box

OPERATION

- Insert one lead from speaker to socket 'B' }  
Insert other lead from speaker to socket 'E' } 12 pin outlet  
marked 'C' }  
on side of J1 } Box
- Insert one end of lead in socket 'L'
- Insert other end of lead in socket 'F' on nearest headgear outlet on front of J1 Box
- Switch i/c to 'ON' on PSV
- Switch J1 to Set and Remote
- It should work but you will have no vol control, so a further mod might be as diagram below, using a 12 pin plessey plug in the J1 outlet marked C/d Box. This also eliminates loudspeaker feedback.

Give it a try, then try and improve it!

In fairness this is not an original idea, 1 DWR were using this in Ulster in 1971 and South Wales Borderers' in Aden in 1966!

STORES REQUIRED

RLA/1	Z/5945-99-953-0458
VRI	50 Ohms Variable (Local Purchase)
Speaker	Local Purchase
Cable Assy	ZI/5962-99-949-1943

TUNING TO A NETTING CALL

- a. Before time of net carry out normal tuning drill, but:-  
switch modulation switch to 'normal' do not lock the controls.
- b. During tuning call search with channel tuning knob for controls loudest signal.
- c. When control sends netting call, switch calibrator switch to 'CW' (check CW tone control is flange to flange) and tune to zero beat, lock up.
- d. If working CW, detune CW tone control so it is off beat and note is audible.
- e. After netting call switch calibrator switch to 'tune Rn' and carry out normal tuning drill from that point.
- f. Do not forget to switch back to 'Normal' if using voice.



THE USE OF PHASE IS NOT INCLUDED IN NATNET OPERATION PROCEDURES.

KEEP TO 'NORMAL' OR AM TO YOU.

FUSES

10 AMP FUSE - Protects Lt Supply to:

Suv when this fuse blows the suv hums and power on lamp remains on, but the Cl3 is dead and the voltmeter on the suv reads zero.

4 AMP FUSE - Protects Cl3 Receive Circuits.

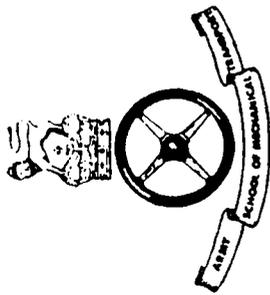
When this fuse blows the power on lamp goes out and Cl3 receive is dead.

7 AMP FUSE - Protects Cl3 Transmit Circuits.

When this fuse blows the Cl3 will not transmit. Sidetone is heard in headsets when pressel is pressed but there is no antenna reading on Cl3 meter.

SIGNALS DIVISION

ARMY SCHOOL OF MECHANICAL TRANSPORT



STATION RADIO

C13

(for additional copies contact 21B)

NATNET PUBS  
JANUARY 1981

OPENING UP DRILL

- a. Erect a minimum of 8' antenna.
- b. Check correction E base to Trf No 11.
- c. Check coax cable Trf No 11 to set.
- d. Check swr and set are earthed and securely clamped to set tray.
- e. Check C13 switches are set as follows:
  - i. HF/1P Switch to 'Low'.
  - ii. CW Tone Knob 'Zeroed' flange to flange.
  - iii. Calibrator Switch to 'RT'.
  - iv. Modulation Switch to 'Phase'.
- f. Check 12 pt connector to harness of 'O' Box and tested Audio gear.
- g. Connect batteries or switch on master switch.

fold here

TUNING DRILL

- a. Switch SW switches to "Power on" set 'on' and 'Traffic', 'IC' if required.
- b. Switch on harness and turn up gain control.
- c. Unlock TRF, channel and RF tuning controls.
- d. Set frequency in RF window.
- e. Switch MHz switch to show correct figure.
- f. Turn channel tuning control until nearest 100KHZ to required frequency is shown in centre of window.
- g. Switch calibrator switch to "Cursor Adjust".
- h. Turn tuning control until meter needle reads centre zero (needle must swing in the same direction as the scale and tuning knob).
- j. Adjust cursor until hairline is over 100KHZ mark.
- k. Turn channel tuning control until nearest 10KHZ to required freq appears directly under hairline.
- l. Switch calibrator switch to "Channel Adjust".
- m. Centre zero needle (Again it must swing in same direction as the scale and tuning knob).
- n. Adjust cursor until hairline is over 100KHZ mark.
- o. Carry out fine tuning to SKHZ or 2.5KHZ by eye.
- p. Lock up channel tuning control.
- q. Switch calibrator switch to "Tune RF".
- r. Turn RF tuning control until meter deflection is obtained
- s. Centre zero meter/needle may not move in same direction as tuning knob, but ensure that a reasonable swing either side of zero is achieved.

fold here

CONTINUED

- t. Lock up RF tuning control.
- u. Switch HF/1P switch to 'Trim E' and hold in that position.
- v. With other hand adjust 'Antenna Trimmer' for maximum reading on the meter, then release HF/1P switch.
- w. Turn calibrator switch to 'R'.
- x. Rotate RFD No 11 until maximum mush is heard in headsets. The figure scale must not show a continuous white line.

ON ORDERS FROM CONTROL

- a. Turn calibrator switch to 'Tune E'.
- b. Turn Trf control knob until maximum reading appears in meter window (Again ensuring that white line on figure scale does not show).
- c. Adjust antenna trimmer for any further improvement on the meter.
- d. Lock up TRF.
- e. Select Mode of working. Either:
 

Calibrator switch to 'RT' and modulation switch to 'Normal'

or

Calibrator switch to 'CW' and modulation switch to 'Normal'.