

PRINTED RATE.



Rev. G.C.Dobbs, (G3RJV) 8 Redgates Court, Calverton, Nottingham. NG14 6LR.

Devoted to Low Power Radio Communication

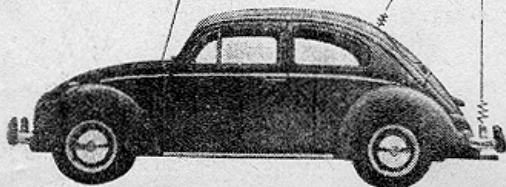


SPRAT

WAC · WPX ZONE 15 · UHF 8 · WDRA · ITD
WCA · DLD 50 · RRA · LCA · COC · IMD
VHF OE 600 · WAOE · OE 3 VHF 10 · FM 200

OE 1 SBA

OP. ING. BRUNO SETTINGER
Franz Kocistraße 4/7/29
QTH A-1100 VIENNA
LOC. II 62 D Zone 15



AUTUMN 1976.

Number 8.

QRP - DX - SSB - Mobile.

OE1SBA.

The LEG AND LOOP Aerial.

G5DNF.

Broadband Amplifier & Driver.

DJ1ZB.

Zero Beat Display.

G2FVA.

Club News

QRP News

The QRP SSB MOBILE Set-Up of OE1SBA

CHAIRMAN

Dr. G.J. Bennett (G3DNF)
52 Whinmoor Crescent,
LEEDS. LS14 LEW

CONTEST AND TEST MANAGER

Mr. A.D. Taylor (G8PG/GW8PG)
37 Pickemill Road, Greasby,
WIRRAL, Merseyside. L49 3ND.

Rev. George C. Dobbs. (G3RJV) 8 Radgates Court, Calverton, Nottingham.
Tel: (060 744) 3920.

EDITORIAL NOTES:

I must open this issue of SPRAT with an apology. Last issue I promised the first of an excellent series of articles by DJLZB on a range of modifications for the HW7. Unfortunately it has been impossible to prepare this material in time, but it will be ready for the next issue of SPRAT.

I am writing this just before the ACTIVITY WEEKEND, which I hope will be well supported by members and hopefully well reported, so that I can amass information as to its worth and outcome. The last two Sundays, when I have been able to get onto 80m have yielded very little in the way of club members, so once more a gentle reminder about Sundays - from 2pm (clocktime) on 3540.

As this is the issue running up to our 2nd birthday as a club, I have included a suggested constitution and a request for your ideas on the role and mechanics of running the club. Please give these ideas a think over.

THE LEICESTER EXHIBITION.

Last year several of us managed to meet together for a chat at the Leicester Exhibition. This year I suggest that we attempt the same. The problem is - the bar or the tea room?! - Assuming that many will be far from home and requiring support for the 'inner man' I suggest the tearoom. Should it be that anyone wishes to 'drag' me into the bar before or after our little gettogether - I may not object! SO:

SATURDAY 30th OCTOBER. 4PM. IN THE TEA ROOM.

I will be wearing one of those plastic engraved callsign badges with a club symbol attached to one side. It would be helpful if members wear callsign badges, perhaps even with a cut-out club symbol. The object of the exercise is a gathering for a chat and exchange of ideas.

Also, it seems likely that I may be at the exhibition on THURSDAY 28th OCTOBER, the 1st day - this will be in the early afternoon. So once again, I will be keeping an eye open for any members present on that day.

CHANGES IN QTH OF MEMBERS + (In addition to list on page 16)

039 to: 30 Chiltern Rd, Hitchin, Herts. SG4 9QH
165 to: 63 Peak View Drive, Ashbourne, Derbyshire. DE6 1BR
211 CORRECT ADDRESS is 17 FAIROAK Way,
144 OZ3XH to: KRAGESLIPPEN 7, DK-2620 Albertslund.

MEMBERS LIST ERROR:

Please note that G3LXQ should read number 176 - number 175 is:
A.J.(Jakey) Gould. G3JKY. 60 Merlin Grove, Beckenham, Kent.

STOP PRESS NEWS - BY PHONE TODAY -- Gwyn Williams No. 116 is now G4FKH.

SUBS :

PLEASE NOTE THAT I AM STILL USING THE SYSTEM OF MEMBERS NUMBERS FOR SUBSCRIPTION REQUESTS. BY THE NEXT ISSUE OF SPRAT (DEC.76) I HOPE THAT ALL MEMBERS WITH NUMBERS UPTO 177 WILL HAVE PAID THEIR 2nd SUBSCRIPTION. (76/77) PLEASE MAKE OUT CHEQUES TO G.C.DOBBS: RE QRP CLUB - AND INCLUDE YOUR MEMBERSHIP NUMBER. TO SAVE POSTAGE, RECEIPTS WILL NOT BE ISSUED UNLESS REQUESTED.

THE CLUB AND YOU.

Elsewhere in this issue, you will find an outline constitution for the club which attempts to state the aims and operation of the club. Since the club began in a rather simple way, some two years ago, it has developed into a large, but wisespread organisation. Originally ideas were offered for a fully democratic club, in the sense of annual elections for officers etc. This is, in practice, very difficult to put into operation. The membership is 'far-flung' and few of us know each other well enough to propose or even vote each other into elected offices.

For some time now the members of the club holding designated offices have been as follows:

CHAIRMAN. Dr. G.J. Bennett. G3DNF
 Hon. Sec. Rev. G.C.Dobbs. G3RJV. Treasurer. G3RJV.
 Test and Contest Manager. Mr. A.D. Taylor. G8PG. Magazine Editor. G3RJV.
 U.S.A. Rep. Mr. R.A.Curtis. W1EXZ. S.W.L. Rep. Mr. K. Bailey. G3EPU.

After the facts - a few questions. I am very interested to gauge the views of members after two years. So a few issues that you might like to comment upon:

- 1) Do you believe that the present officer should remain as above, and for how long?
- 2) What do you think of it so far (HI) that is, what does the club do you like, what you dislike, and what else might it do?
- 3) Are there any ways in which you may be able to help the club?
 May I at this point mention two unsung heroes of the club - Keith Simpson, G4DQF, who has put in such a lot of work to produce the excellent circuit diagrams in SPRAT. - Gwyn Williams (at the moment waiting for a G4.. in the post) who produces the DATASHEETS which are so popular with members. Perhaps there is a special skill or circumstance that you could share with the club?
- 4) One of the ideas offered by Des Vance, G13XZM, in our recent exchange of letters was that of regionalisation. We already have a U.S.A. Rep. who keeps our flag flying in the States and supplies us with new members. Would be it useful to have other Reps. for GM,GI,GW and EU members - there are about enough DL members for such an idea. What do you think?
- 5) Finally to dispel any ideas, if they exist, that the club is a 'one, two, or three man band'. As you may have guessed, I don't covet three offices, they 'just growed'. In fact I am very open to suggestions to lighten my load. Probably the thing I like least is handling the club money, but this is closely linked with dealing with new members and producing SPRAT. Perhaps it may be possible to 'farm out' subscription renewal on some basis? The job I will 'fight to keep' is that of editor of SPRAT! and I do like dealing with members mail in my 'Hon. Sec. Hat'.

WELL SOME IDEAS TO THINK OVER. I WOULD BE VERY PLEASED TO HEAR YOUR COMMENTS ON ALL OR ANY OF THEM.

TOPBAND AND QRP.

Quite a few members have written to me about the omission of a frequency for Topband in the Activity Weekend. This was an unfortunate oversight on my part. It seems that several members are very active on this band. G3ZQA calls CQ QRP on 1850 most days (mostly mornings) and is very keen for club QSO's G4EAX spends 98% of his time on the band and calls for a QRP spot frequency. I did suggest 1850 in a previous SPRAT, and hope that this frequency will be used. G4DES is active on 160 and joins in the 'Shaving Net' at 7.15 (clocktime) with G3KPJ as controller. He also mentions that QRP on Topband is doing well in his area, and names G3KRR, G3ZOF, G4CIA, G3PLB, G3LID and G4EJW as stations to look out for on the band. Lets see what the winter can bring on 185
 BACK TO G4EAX.

John, who with Albert, G4AYS, are the 'club Stars' of the SWM Topband Ladder, has just got married. Best wishes, John - his new QTH is listed later.
 WELL DONE.

To new call G8LXJ - member 166, who is active on 2 mtrs with an IC202 into a quarter wave whip.

AWARD NEWS from G8PG

Newcomers to the basic QRP countries award are:

No.7 G4CLR (CW)	No.8 WB8PJR (CW/SSB)
No.9 GM3RFR (CW/SSB)	No.10 GM3OXX (CW)
No.11 DK5RY (CW)	No.12 OE1SBA (SSB)

The claim from OE1SBA is the best yet, and just proves that under present conditions on the hf bands that an extra few hundred miles to the south makes all the difference. Awards 8,9 and 12 are the first to the countries concerned. As can be imagined the WB8PJR list contains some calls to make European mouths water - how about HI, HC, PJ, TI, HH, KH, KG and KZ for starters! His list covers four continents. GM3RFR mentions that he has worked 47 countries on QRP, so this puts him among the known leaders, although we are sure that there are some dark horses somewhere! Other DX news is that G3DNF has worked TF, a pretty rare one these days, and that G8PG has worked PY4 on 21 and T41 on 14. Re award applications please always include an alphabetical list of call signs of stations worked (this is used as our HQ record) and either 25p in stamps or 2 IRCs to help with expenses.

DL AGCW QRP CONTEST SUMMER 76.

This was very well supported, despite some real problems with static in certain parts of the UK. Some big scores are expected this time. Please note the date for the next contest - JAN. 15/16. 1977. And how about some activity from our GI/GM/GD membership to help boost scores. If you want to find out how your station works on QRP/QRP contacts this is the way to do it.

RSGB LP CONTEST 1977.

We believe that there will be some notable changes in the rules making it a much more interesting event with wider participation. Keep the ground week in April free and watch RAD COMMs and SPRAT for further information.

QRP CALLING TIMES.

Every 15 minutes (00/15/30/45) on the international QRP calling frequencies. If we could only get ALL QRP ops to put in an occasional call, the rate of QRP to QRP QSOs should rise dramatically.

OSCAR QRP DAY.

According to the FOC Newsletter some exciting work was done from GD3FBS, with lots of QSOs being made through OSCAR with ONE WATT INPUT. Once again the myth of QRO takes a knock!

MEMBERS ADS AND NOTICES

- * G3LJF has acquired a TMK MODEL No.TP53N METER has any member a circuit diagram.
- * What about lending G3RJV a handbook for the Telequipment Serviscope Type D31 1
- * In issue 6, A.J. Brooks was mentioned as a source for equipment manuals and circuits. G4WFF gives me their address as : Brooks Data, 5 Farrant House, Winstandley Road, London SW11 2EJ. They have a most comprehensive list of available documents.
- * RFTY Station. Sell or exchange for RX, QRP or test gear. G3TPI. 29 York Rd. Loughboro tel: Loughboro.61032.
- * W9SCH ONE TUBE STATION - G4DEP has a few ECC82 (ex-TV line osc.) which are free to any member - but COVER POSTAGE PLEASE.
- * G3VTT has about 10 2N3866 transistors for exchange for 80/40 CW sector crystals.

MILLIWATT READERS

Now that mag is defunct many members are interested in back issues. Reg, G4ETJ, asks if any members with back issues could lend them to him for photo copying of useful articles. It occurs to me that there may be a lot of members who would like to share some of the past circuits in Milliwatt. If they could send my for short term loan to G3RJV, it may be possible to make up some DATASHEETS based on the 'best of Milliwatt'.

Oh - keep it quiet - G3RJV is looking for a keyer paddle, or even an old vibroplex. Having failed to master the straight key! Seriously, I am interested in buying a commercial or good homebrew keyer paddle or a vibroplex.

BROADBAND AMPLIFIER AND DRIVER ARRANGEMENT.

By DJ 1 ZB.

The output power from a crystal mixer is quite low, from a VFO even lower, and several amplifier stages are needed to generate some hundred milliwatts to drive a QRP PA stage.

The diagram shows a broadband, untuned amplifier that author has tested and modified for four different applications:

- A = 80 to 10 mtr driver with up to 0.5 watts output at 12 volts supply.
- B = 80 to 10 mtr driver with upto 100 milliwatts output at 18 volts supply, used in the author's TTX.
- C = 80 to 10 mtr driver with upto 1 watt output with 24 volt supply,
- D = 160 mtr driver with ca 0.5 watts output with 24 volt supply, used in the author's 160 m TTX.

(A and C were studied for a NFD TTX still in the planning stage)

The table shows the part list for these modifications. The circuit is a three stage, DC coupled, grounded-emitter - grounded collector - grounded emitter combination with dc stability without wasting current for base dividers.

The design philosophy is as follows : Emitter voltage U1 (Ts₁) is set at 2.0 volts for good dc stability. The same voltage appears at the base of Ts₁. The emitter voltage U2 therefore is 1.3 volts. Resistor R5 is to decouple voltage U4 from the supply voltage, so U4 is a few volts lower than U_{b2}. Voltage U3 is at half potential between U4 and U2. Voltage U5 is about 0.7 volts lower than U3, and U6 is 2.7 volts.

To determine the collector currents IC1, IC2 and IC3, one should have the full data on all transistors to work with. From the diagram "high frequency gain (or fT) versus collector current" it can be seen that each transistor has an optimum current range. Furthermore, the efficiency of the Ts₃ stage is about 25% at high frequencies IC3 therefore can be determined by the input needed for the desired driver output. A transistor should be chosen which has an optimum fT at this calculated current. For amplifiers including 10 and 15 mtrs, IC2 should be about 1/3 to 1/2 IC3, and IC1 about 1/2 to 1/6 of IC2. The higher transistor fT is compared to the maximum operating frequency, the greater the current difference may be.

When the currents are chosen, the resistors may be calculated using the following simple equations :

$$R1 = \frac{U2}{IC1} \quad R2 = \frac{U4-U3}{IC1} \quad R3 = \frac{U6}{IC2} \quad R4 = \frac{U5-U6}{IC2} \quad R5 = \frac{U_{b2}-U4}{IC1+IC2} \quad R6 = \frac{2 \cdot Uv}{IC3} .$$

Voltages U_{b1} and U_{b2} are normally the same. But when the transmitter is spotted to a calling station, U_{b2} may be reduced by a potentiometer P down to zero to reduce the transmitter energy so that the accompanied receiver (such as the FET O-T-2 in SPRAT Autumn 1975) does not block. During reception, U_{b2} (and the amplifier current) is zero.

When the amplifier is set into operation the dc voltages calculated will build up regardless of the transistor types used. RE and Rg are feedback resistors which are determined by experiment for the desired amount of amplification. They also 'flatten' frequency response. If the series capacitors are varied too, amplification of higher or lower frequencies may be tailored independantly.

As multiband transmitters need more drive on the higher bands, amplification of the lower frequencies may be reduced by lowering the value of the series capacitor of RE. Some limitations must be obeyed however: As the output of transistor VFO's may have a suppression of harmonics of only 13 dB or so, the harmonics will be amplified more than the ground wave! Therefore, the author prefers a straight frequency response and uses a switch ganged with the VFO bandswitch to determine the drive for each band.

If R3 should become so low by calculation that it affects the gain of the amplifier at high frequencies, and rf choke may be placed in series with R3 to avoid this.

Feedback resistor Rf also helps to flatten frequency response. Its main purpose however, is another one: All transistor stages with untuned (broadband RC or transformer coupled) drive at the base input and a tuned collector circuit show a tendency for frequency dividing, notably if the collector circuit has a wide tuning range.

In multiband transmitters, this may lead to severe mistuning, because the PA stage will amplify half the desired frequency much better! So always have a simple absorption frequency meter at hand when experimenting to check the output frequency

Frequency dividing can be avoided by tuning the base circuit too or by applying enough RF feedback to shunt the base collector capacity which is the nonlinear element needed for this effect.

As shown, the output circuit of this amplifier may be a broadband transformer to drive a push pull PA stage or a tuned circuit or a matching section to drive a single transistor PA stage with a tuned output.

In application C, it is necessary for Ts2 to be cooled by a Wakefield Type NF 207 cooler. In applications A, C and D transistor Ts3 is inserted into a transistor cooler Type 1101A from Jermyn Industries (Vestry Estate, Sevenoaks, Kent), which is screwed to the chassis metal. This hard anodized cooler can withstand 500 volts and causes less than 20 pF capacity from collector to ground, which can be easily tuned out. The 1101A is also the author's preferred cooler for all TO-5 / TO-39 PA transistors with inputs up to 5 watts.

PARTS LIST FOR APPLICATIONS A to D.

	A	B	C	D	E
R1	100 ohm	220 ohm	100 ohm	1,2k	470 ohm
R2	330	1,2k	820	10k	1,5k
R3	39-68	220	47	330	270
R4	39-68	390	120	680	270
R5	27	150	39	390	68
R6	12	68	12	22	68
Rg	-	1,2k	-	-	-
RE	-	47	47	-	-
Rf	330	1,2k -3,3k	470	3,3k	3,3k
Ub	12v	18v	24v	24v	12v
Ts1	2N5179	2N5179	2N5179	BC107	BF194, 2N918, 2N5179
Ts2	2N5189 2N3866 2N5109	2N5179	2N5109	2N1613	2N2222, 2N2218, (2N5179)
Ts3	2N5189 2N5859	2N2218 2N3866	2N3553	BSY85 2N2102	2N2218
IC1	11 mA	6 mA	13 mA	1 mA	3 mA
IC2	68-40	13 mA	57 mA	8 mA	10 mA
IC3	166 mA	30 mA	166 mA	90 mA	30 mA

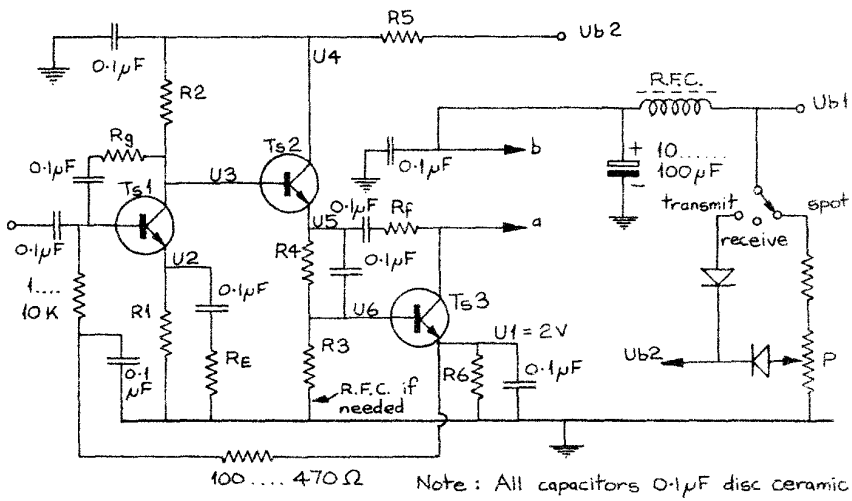
Version E has been calculated for G3KZR during the preparation of the material.

E = about 50 mW output at 12 volts upto 14 MHz (28 MHz with higher FT Transistors)

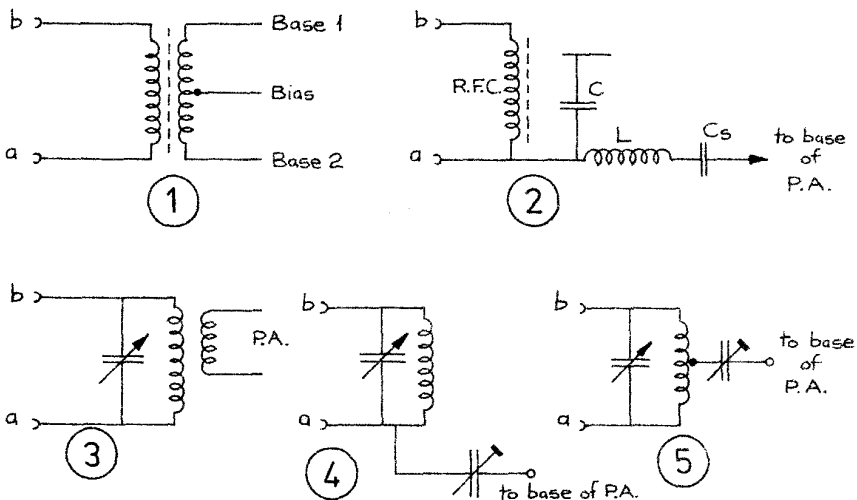
E version not yet tested, but it should work like the others.

+++++

TUNNEL DIODES - Brian, G4DYF, tells me that John BIRKETT has some AEY 11 tunnel diodes at 50p. Brian would like to hear from anyone who has information about these. No data seems available, even from Mullards. These could open up an interesting avenue for QRP research.



Broadband amplifier schematic



Methods of coupling to the P.A.
(2,4 and 5 preferred by the author)

BROADBAND AMPLIFIER AND DRIVER ARRANGEMENT

BY DJ1ZB

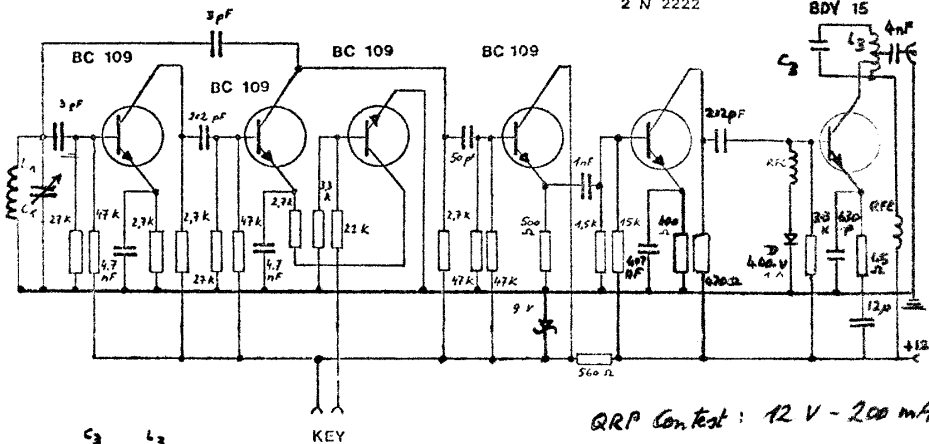
DAILY TELEGRAF

QRP - CW - TX

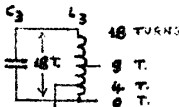
2 N 2222

(2N3054)

BDY 15



QRP Contest : 12 V - 200 mA



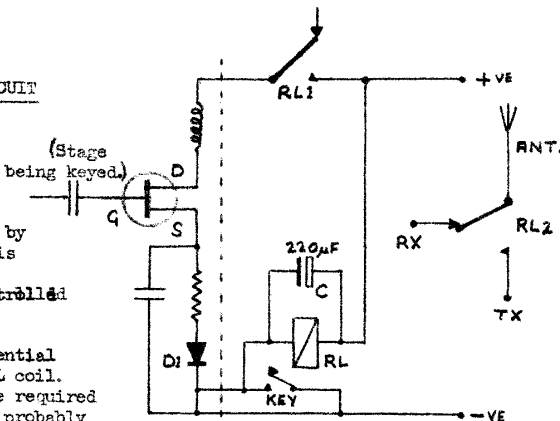
3.5 MHZ	Uc = 12 V DC PS
3W INPT	Ic = 300 mA PS
IDEA, MADE AND USED BY: DK 9 FN	

FULL 'BREAK IN' CIRCUIT

Used By : G5DOF.

Relay RL is slugged by capacitor C (ie RL is SLOW to release)
Release time is controlled by the value of C.

D1 blocks +ve potential being fed through RL coil.
If more contacts are required the value of C will probably have to be a higher value - In any case the value of C can be found by experiment. The value shown allows sending at 12 w.p.m. as minimum speed. Complete BK is achieved by this system, thus eliminating a master change over switch.



(How does Gordon get 599 from the US, and work PY with 2 watts?
Could this be the secret!)

THE "LOOP AND LEG" AERIAL.

By Dr. G.J. Bennett. G3DNF.

This aerial is a form of 'long wire' end fed, the directivity of which is modified by bending part of the wire into a loop. The whole array is erected in a vertical plane, and needs only one support. It has given such good results when using QRP that it seems worthwhile to let others have details of its construction.

First, a bit of background information will set the scene and show how such an unusual aerial came into being. At the G3DNF QTH, the main aerial for several years has been a 90 ft end fed wire running NNE/SSW at about 20 ft above ground. This aerial is fed at first floor level, so that the length of the down-lead is negligible. Predictably this aerial works well on the HF bands, where its major lobes cover Africa, South America, Asia and Northern Europe. By contrast, results in the broadside direction are poor, with the result that North America, Middle East and Central Europe are not so easily worked.

To counteract this, a 2 element collinear has been, at times, erected in place of the long wire, in order to work USA on 21 MHz. Such a temporary solution is fine when conditions remain steady, but there was a need to have an alternative aerial which could be left up permanently, which would radiate strongly in the WNW/ESE direction. Additional requirements were that the aerial must be a multiband type, capable of being end fed, to simplify the aerial matching arrangements. After some trials with a steeply sloping toploaded wire, the 'loop and leg' was devised as a means of utilising the available space at the gable end of the house to accommodate a loop. The resulting dimensions were a combination of choice and necessity. A temporary version of the aerial was quickly erected, and within a few hours had shown that theory and practice were in agreement! The temporary version lasted for a year, until a gale broke the wire. Rather than make up a stronger version, a copy was put together and is still going well.

CONSTRUCTION.

The wire used was ordinary PVC covered stranded connecting wire. Lightweight insulators and spacers were made from small strips of polypropylene sheet with holes drilled at each end. The main support is a wooden 'garden stake', 7 feet long, with a 6 foot length of $1\frac{1}{4}$ inch PVC piping forced over one end. The support is mounted at the gable end of the house. The aerial itself is so light that only thin nylon cord is needed for tensioning. Fig.1 shows the general layout, the dimensions of the aerial itself being given in Fig.2.

THEORY OF OPERATION.

40 Metres.

Consider as an approximate half wavelength, folded back. No advantage expected. (Fig.4.a.)

20 Metres.

Approximately a full wavelength, but one half wavelength has been folded back so that the centre section of the $\lambda/6$ maximum current is in phase with the centre section of the other half wavelength. Expect enhanced broadside radiation with additional lobes due to radiation from other sections. (Fig.4.b.)

15 Metres.

The top and bottom of the loop, each being $\lambda/2$, one in phase. Expect enhanced broadside radiation, with additional lobe(s) due to radiation from the leg. (Fig.4.c.)

10 Metres.

Difficult to predict, but some broadside radiation can be expected, as some sections are in phase. (Fig.4.d.)

RESULTS:

To some extent, prevailing conditions have prevented a full evaluation of this aerial on the HF bands. However, the required broadside radiation on 20m has been fully proven. Many excellent contacts with North America on 2 watts input have been obtained. For instance the ARRL 1976 Contest resulted in a total of nearly 40 contacts, many of which were 599 both ways.

In the opposite direction, S9 reports from I,YU and HA are the norm! There is also so useful low angle radiation in the downward sloping leg direction. This gives good reception of EU stations, and by an odd coincidence resulted in a QSO with G3NEO over a 40 mile 'line of sight' path!

On 15 metres, despite the totally different mode of operation, the aerial performs just as well as on 20m, with good USA results and the Med. Countries. In fact the aerial is as good as a collinear for USA contacts.

On 10 metres, it's catch as catch can, but during a recent bout of rather indifferent Spor!E conditions, a two way QRP contact with HA was gleefully logged, with 3 watts here, and only one watt at the HA end. So there is no doubt about the broadside radiation at least.

As for 40 metres, well there seems to be some evidence that DX comes through better, but this band has never been one on which G3DNF can work DX, so its hard to make comparison!

The consistant thing about the loop and leg, the plane of which runs WSW/ENE, is that it covers the gaps in the radiation pattern of the long wire, running in the same direction.

CONCLUSIONS

If you are a long wire fan, and want a congenial change, try this aerial. Its a bit mongrel-like at first sight, but it goes like a thoroughbred!

DX - SSB - QRPP - MOBIL ?

By Ing. Bruno Settinger. OE1 BA.

For QRP in SSB I use the Argonaut transceiver with an output of 2 watts HF. at home with a Fribel 2 element beam antenna 18 ft above the flat metal roof of the house. After working all 6 continents and receiving the WAC award last year, I participated in an American contest with this equipment. An American station gave me the report 57 2000 (the last numbers are the power in watts) I replied with 59 002 - he said "No, No! I need your power!" and I answered proudly "That's my power!" These are the nice moments in QRPP work.

But now to mobile operation. On 80m I am working with a home brew mobile whip (2 fibreglass tubes each 5 inches long and a coil in the middle, tunable with a ferroxide roole) It is complicated to work with, because the bandwidth of the antenna is only 60 KHz without tuning. 40m is very interesting! I made contacts during driving on the highway to Berlin.

For 15 metres I use the American surplus mobile antenna AL31, 11 ft long and a brass tube of 1 ft (That's the true quarter of lamda) mounted on a hustler bumper insulator. With this antenna it is possible to drive at 80 mph and have contact with European stations

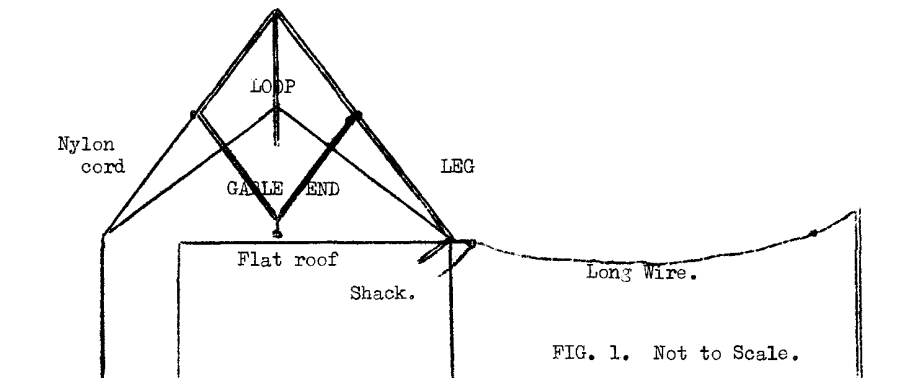
With the car near a little lake I made contacts with YK and UA9 DX stations. Isn't it fascinating ?

Vienna. 15 July 1976.

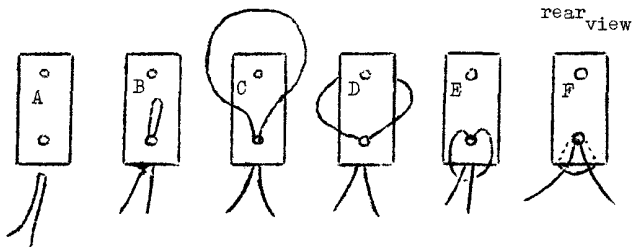
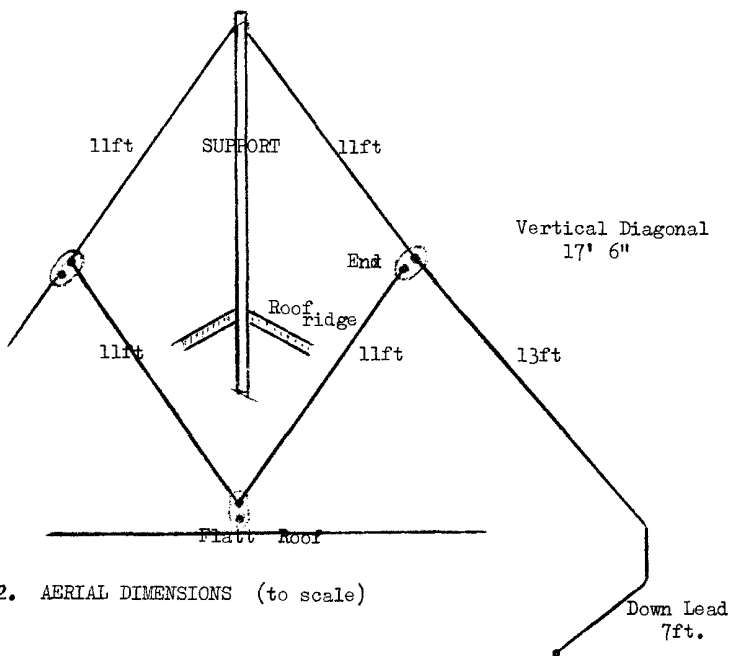
QRP AND SSB.

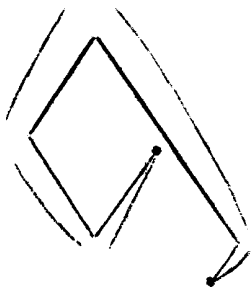
In a QRP club, it only seems natural that most of the operation is on CW, reflecting the simplicity and effectiveness of this mode. However, quite a lot of members are able to, and do, operate SSB QRP. Two members, OE1BA and GM3RFR have claimed the basic countries award for SSB, and WB8PJR has claimed a mixed mode award. Several members, like myself, run the Argonaut, and a lot of members have expressed an interest in the Tucker Tin SSB rig.

Experience is proving SSB to be a valid mode, with 5 watts or less, and I would like to receive - (a) Reports of SSB QRP working on all bands, (b) Ideas for possible frequencies and perhaps times for QRP/QRP SSB working. The International QRP frequencies are all in CW sectors, but it would be interesting the test the viability of 2 way QRP SSB contacts. Ideas on the subject to G3RJV.

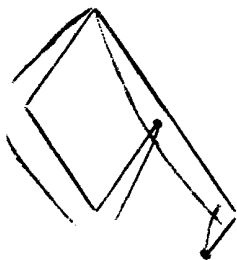


Horizontal Diagonal 12' 6"

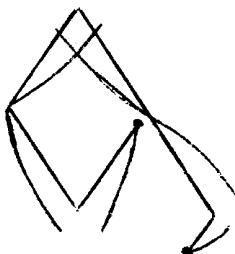




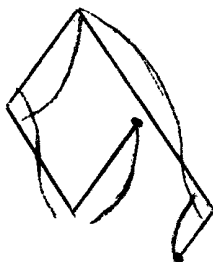
40 METRES (A)



20 METRES (B)



15 METRES (C)

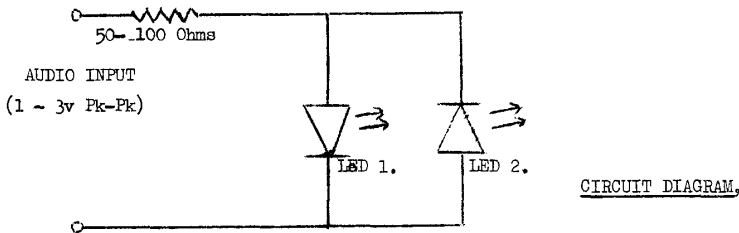


10 METRES (D)

FIG. FOUR. CURRENT DISTRIBUTION.

G3DNF 'Leg and Loop' Aerial

ZERO BEAT DISPLAY WITH LED'S By Edgar Janes (G2FWA)
 (reprint from Cheltenham Group RSGB Newsletter Jan, 1976)



Two light-emitting diodes connected in parallel, but with opposing polarities make an inexpensive display for indication of zero beat frequency (the frequency at which the receiver is tuned exactly to the frequency being transmitted). This display can be driven by an audio frequency voltage from a single side band receiver or by the signal from an rf signal generator headset. A current limiting resistor protects both LED's from overload.

When the input frequency is more than 1 KHz away from zero beat, both LEDs appear on all the time. Each one is correctly biased for half a cycle and shut off for the other half. As the input frequency comes within about 20 Hz of zero beat, the LEDs will flicker until zero beat is reached. Both LEDs go out and remain out over the notch of zero beat frequency, plus or minus about 5 Hz.

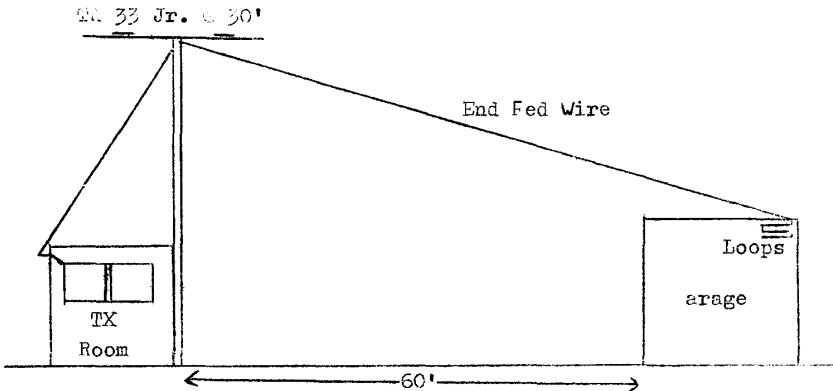
While the display is being tuned, LED intensity varies, since it depends on the low frequency response of the Audio Amplifier used. If the amplifier can go down to DC, DC, the circuit can be used to detect the direction of current flow - each LED can indicate a different direction of current flow. If red and green leds are used, the direction of current flow can be colour coded.

Comments on 'Improving the Efficiency of Short L.F. Band Aerials (BY G8PG)

NOTES BY P. REDFERN (G4CLM)

The original article by Gus G8PG appeared in SPRAT no.2 - a few copies of the articles are available as 'data sheets' - please send a stamp to G3RJV.

I have a space problem, and before I read the G8PG article, I had only 90' of wire for Top Band. The diagram below shows the present arrangement. The antenna is an inverted V with inductive loops on the garage rafters. With a total length of 130', including the loops, I get good reports from Europe using a KW204 TX. The arrangement works better with an ATU, details of which I may present in a later SPRAT.



G - QRP - CLUB. SUGGESTED CONSTITUTION.

- 1) NAME: The club shall be known as the G-QRP-CLUB.
- 2) OBJECTIVES: The objectives of the club shall be to encourage the use of low power (10w and under) on all amateur bands and by all authorised transmission modes. To this end the Committee may produce a regular Club Magazine, other publications of QRP interest, organise training activities, organise and support QRP nets and organise and support QRP contests.
- 3) GOVERNING BODY: The governing body shall consist of 5 members elected by the general membership. The Committee shall elect a chairman and a secretary/ treasurer from its members, and either elect or co-opt a Training Manager and Tests and Contests Manager.
- 4) QUALIFICATION FOR MEMBERSHIP: Membership shall be open to any licenced radio amateur or short wave listener interested in QRP. The committee has the right to reject any application for membership should they consider it against the best interests of the club, however, and in any such instance their decision shall be final.
- 5) SUBSCRIPTION: The Committee shall be empowered to fix the annual rate of subscription and to vary it at any time should they consider this necessary. They shall also have the right to waive or reduce the subscription in cases of disability or extreme hardship.
- 6) The treasurer shall present a statement of accounts which will be published annually at a date before any committee changes. The accounts shall be properly audited and a balance sheet including the name of the Auditor(s) and a statement of accuracy certified by him/them shall be published annually.
- 7) AWARDS: The committee shall have the right to inaugurate awards for achievement in QRP working and QRP contests. They may also, at their discretion, accept the donation of awards and trophies.
- 8) PUBLICATIONS: The committee have the right to nominate any member for the post of editor of the Club Magazine, and to nominate members for other special publication projects.
- 9) EXCLUSION FROM MEMBERSHIP: The committee have the right to expel any member whose conduct, in their opinion, has brought discredit to the club. Their decision in such instances shall be final. The member concerned shall be informed of the charges against him and shall be given 30 days in which to answer them, if he so wishes.
- 10) HQ STATION: The committee have the right to set up an HQ Station either permanently or on an ad-hoc basis for special events, and to name nominated operators as laid down by Home Office regulations.

THE CLUB AND THE FUTURE.

Notes by G3RJV.

Why, when the club is such an informal organisation, come up with ideas for a constitution? Well, in fact, the above outline is nothing new and appeared about a year ago as a result of an exchange of letters by Gus and myself. The club has from very humble beginnings about 2 years ago, grown to a viable size and, I believe, become a useful part of the amateur radio world. Members are drawn from many parts of the world, the technical and operating skills of the members are well known through SPRAT which is now, we believe, the only QRP specialist magazine in the world.

I hope members will read the short section THE CLUB AND YOU and write in with ideas. The suggested constitution is just that - an idea which we hope you will see as an attempt to define the club and its role.

There is another reason for a written constitution - apart from its obvious importance to any organisation - for some time I have thought that the club ought to affiliate with the RSGB, who would require us to submit such a constitution. Again, if you have any comments on this, please let me know.

J. BIRKETT

COMPONENT SUPPLIERS:
25 THE STRAIT, LINCOLN.
tel: Lincoln 20767.
Please add 20p Postage (UK)
on orders under £2.

V.H.F. DUAL GATE MOS FETS. LIKE 40673 : 33p each. 4 for £1.10.
TEXAS POWER TRANSISTOR. 800 volt, 2 amp, plastic TO3. NPN. 50p each. 3 for £1.10
TEXAS DABLINGTON PNP POWER TRANSISTORS @ 35p.
VHF STRIPLINE LOW NOISE NPN TRANSISTORS like BFR 90 @ £3 each.
100 ASSORTED SUB-MINIATURE 1/8, 1/3, watt RESISTORS. 17 diff. values. 57p.
10XAJ BAND EDGE MARKER CRYSTALS. 7MHz, 8MHz, at 75p each.
GLASS ENCAPSULATED CRYSTALS. 28kHz, 91.4565kHz, 126.690kHz, 630kHz,
149.98kHz, 3000kHz. All at 40p each.
SPECIAL OFFER OF RESISTORS: 5% carbon film 1/8, 1/4, 1/2, watt.
Assorted. 20 different values in LOTS OF 200. 80p.
FT243 CRYSTALS: 8040kHz, 8100kHz, at 75p each.
7620, 7720, 7966.7, 8233.3, 8300, 8366.7, 8483.3, 8583.3,
8650, 8716.7 all kHz - ALL AT 40p each.
AUDIO ICs: SN76001 @ 55p, TBA 611B @ 65p, TBA 641A @ 80p, TBA 800 @ 85p.

SIX ASSORTED 10X 80 m. CRYSTALS FOR £2.16.

MOTOROLA 2N3055 POWER TRANSISTORS @ 55p each.
B6107, BC108, BC109. ALL AT SIX FOR 50p. BF180 or BF181 RF TRANSISTORS. 4 for 60p
500+500+17+17 pf TUNING CAPACITORS with sm drive. at 38p
JACKSON TUNING CAPACITORS. TYPE C 802. 10pf @ 75p each.
FETs like 2N3819 (BE5565) at 20p each or 6 for £1.
BRANDED TEN WATT ZENER DIODES. 15, 18, 22, 33, 56, 100 volt. ALL AT 30p each.
JUMBO LEDS. Red or Green, at 15p each.
NEW BOOKS: Short Wave Receivers for the Beginner @ 60p
Practical Test equipment. @ 75p.
COMPRESSION TRIMMERS: 10, 30, 50, 150, 750, 1000 pf All at 6p each.
PLASTIC POWER TRANSISTORS: MP8112, NPN at 15p. MP8512 PNP at 15p.
20 ASSORTED TUNING VARACTOR DIODES - Untested - for 45p.
80pf WIDE SPACED, TRANSMITTING CONDENSER. at £1.85.
ONE POLE - 21 Way - ROTARY SWITCHES at 65p. each.
50 of AC128 TRANSISTORS. Branded but untested for 57p.
100 ASSORTED SILVER MICA CAPACITORS AT 57p.
200 ASSORTED TUBULAR CERAMICS FOR 57p.
50 ASSORTED TRANSISTOR ELECTROLYTICS FOR 57p.
200 PIV. 3 amp, PLASTIC, WIRE ENDED DIODES, at 15p each.
100 SUB-MINIATURE, DISC CERAMICS, 50vw, (From 3.3pf to .01uF) assorted at 57p.

MEMBERS: ADDITIONS AND CHANGES SINCE JULY

16.9.76

PLEASE NOTE - The following new members were given incorrect numbers when enrolled - The correct membership numbers are as below.

224	G5LS	Harry Effemey 'Langmoor' Chapel Rd. Langham. Bolchester, Essex. CO4 5NY.	Homebrew 20m D.C. Transceiver. HW7 KW 2000B
225	W0PFR	Terence J. Shilhanek. Carlton Mobile Home Ct, Springville, /P camping operation. IOWA. 52336. USA.	HW8
226	G3ESB	Alan Hitchcock. 38 West Rd. Spondon. DERBY. DE2 7AB	Homebrew equipment. Antennas
227	G4EAN	Ian Roger Brothwell 56 Arnot Hill Rd. Arnold, NOTTINGHAM. NG5 6LQ	Transistorised Home Const.
228	VK5ME	Sidney Gordon McLean 8 Penno Parade North, Belair. South Australia. 5052	Homebrew HF, VHF&UHF Modified HW7, EC10, XCRI Alternative energy. Home Const
229	G3VTT PA0AQQ	Colin L. Turner. 40 Egremont Rd. Bearstead, Maidstone. Kent.	General QRP. Home Const.
230	G4DTB	127 Ledbury Rd. HEREFORD. HR1 1RQ. Michael Bryan.	Homebrew 80/160 valve TX " " 80m QRP TX " " General Coverage RX.
231	G4BUE	Christopher Page. 'Tatworth' Station Rd. NORTH CHALLEY. Lewes. Sussex.	HW7. 2 el. Quad + Versatower. DXCC home and /M.
232	G4EZF	William David (DAVE) Logan. 27 Shaw St. Mottram. Nr. Hyde. Cheshire. SK14 6LE.	LG50 reduced to 5 watts. BC-348-L (1942 vintage) 110 ft ef.

NEW QTH:

084 G4EAX 27 Ingleby Rd. Wilne Meadow. Sawley, Long Eaton. Notts. NG10 3DF.

NEW Call:

166 is now G8LXJ.

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DATASHEETS.

There has been a good response to the datasheets offered by the club, and with thanks to Gwyn Williams, the club continues to offer sheets of QRP interest. Please send a S.A.E. with requests. The following are still available:-

HW7 MODIFICATIONS - The QST WICER Article - Simple HW7 mods (SPRAT reprint)

QRP AWARDS - Awards list from G QRP-Club and from the American QRP ARCI.

THE G3IGU 80m QRP TRANSCEIVER. (SPRAT reprint)

TRANSISTORL. One transistor TX from G3YUQ. (SPRAT reprint)

G8EPE 2MTR. 30WATT AM TRANSMITTER. (SPRAT reprint)

ARTICLE BY K8EEG on ACTIVE FILTERS AND QRP. (QST)

MFJ. ACTIVE FILTER. Makers Circuit and application information.

MINIATURE SOLID STATE VFO. (ham Radio)

MINITUNER. 80/40m direct conv. RX. (Ham Radio)

TRANSISTOR PA DESIGN THE SAFE WAY. G QRP C Paper by DJ1ZB.

THE TUCKER TIN MK II. Simple QRP Phasing SSB Rig. ZL2AMJ.

NEW SHEETS:

LOW POWER, SOLID STATE, VFO TRANSMITTER FOR 20m. (ham. Radio)

DE LUXE 20m CW TRANSCEIVER. Advanced 1.5w rig. (Ham Radio)

TUCKER TIN MARK II - REDRAWN PRINTED CIRCUIT BOARDS and notes on a SIMPLE PHASING RIG ALIGNMENT AID. the pcb's (not clear on the full article) have be redrawn by G2CKM and G3YCC has supplied gen on the ZL2AMJ alignment aid.