



MERCURY

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AMATEUR RADIO SOCIETY**

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EDITORIAL

Welcome again to another edition of "Mercury", produced this time during a surprisingly cold but dry and bright spell here in Blandford.

On behalf of John Martinson (HQ Secretary), Les G3VYZ, the HQ Station main stay, G12DZG our Awards Manager and myself, a warm thank you to the many members who sent greetings cards over the Christmas period. It was a great pleasure to be remembered by so many of you and your kind thoughts and comments make the effort of controlling and guiding the Society more the worth while. Thank you again.

Not many issues of the "Mercury" go by without a change in the Society officers. This time it is a change in the Ministry of Defence that has caused Colonel John Martinson, who has held the HQ reins for quite a spell, to retire and take a well earned rest. At the same time John is relinquishing the post of HQ Secretary. Thank you most sincerely for your assistance during your term of office, and I hope you will enjoy better health and a pleasant retirement.

The new HQ Secretary is no stranger to us and I hope that G30NU, Des Barry, will be setting a new trend, as this is the first time that the Society has been able to boast an active amateur (indeed even an amateur) in the HQ post.

Welcome to the fold Des and I am looking forward to some very pleasant months ahead.

The last "Mercury" carried the usual "Awards" feature from our Awards Manager, Walter, G12DZG. Due to the Xmas rush, I failed to leave Walter enough room and had to quite drastically re-arrange his quarterly report in order to fit it in the space left. The result was a report which carried comment that was not of Walter's origin and I would like to apologise and to say that it is not the intention to alter the Award Scheme as suggested in the December "Mercury".

However, the letter from Ian Scott has produced some erstwhile correspondence, extracts of which can be found elsewhere in this edition. One thing is very apparent, the thing that is lacking on "Activity Sunday" is activity! !

The Brunei DX-pedition has been unavoidably delayed but Dennis Bowden is confident of radiating as VS5RCS on all bands, 80 thru' to 10, late May, early June. Dennis will be operating for a four day period only - Tuesday to Friday during whichever week he manages to get to VS5. As soon as it is known, details will be put out over G4RS, but in any case all QSLs to:

WA6VVJ, 1628 151st Avenue, Amityville, New York, USA, 11701

Incidentally G3VBL/5A, Keith, is active until late May.

The "deadwood" in the Society membership is pretty heavy. Around 406 of our members are out of compliance and Page 2 gives the disappointing details. This is not good enough. Perhaps some members were press-ganged into joining just to make an impression. perhaps some have decided that 5d a month is too expensive relative to what is offered. Perhaps some have just forgotten that an annual member pays 5/- a year. I don't know. But what I do know is that 40% of our members at 5/- a year equates to some 20 Class I Award plaques. The Society has two sources of income, ~~members~~ subscriptions and profits on sale of QSL cards. Both are badly needed to finance the Awards Scheme. So if you know any of these members, spread the word please. Three hundred of you trying will be far more effective than my lone voice. Thank you.

Just one more point, a particular effort please over the "Old Comrades" weekend. See you then? I hope so.

Good DX

73

de G3EKL

SUBSCRIPTIONS - ACKNOWLEDGEMENTS

Subscriptions are gratefully acknowledged from the following members between 1st December 1967 and 29th February 1968:

6	111	167	231	330	435	521
8	118	176	242	336	441	523
11	121	177	251	338	446	541
62	124	178	253	341	469	542
72	130	180	255	359	474	543
73	132	192	256	362	482	546
74	140	194	273	388	485	548
81	143	200	279	393	489	551
83	144	204	299	396	492	570
84	148	209	301	398	499	574
88	150	211	325	401	500	588
93	152	212	328	414	502	AFF 9
98	157	214	329	432	505	AFF 30
						AFF 41
						AFF 45

OUTSTANDING SUBSCRIPTIONS

The following list shows members and Affiliated Clubs who have **NOT** paid their subscriptions for 1968 as at 29 Feb. A notice to this effect has been sent with the current "Mercury" to the members concerned.

AFF 2	14	147	240	293	343	386	433	495	562
AFF 4	28	158	243	294	344	390	434	497	563
AFF 5	34	161	244	295	345	391	436	504	564
AFF 6	37	162	245	296	346	392	437	508	566
AFF 7	38	163	246	297	347	394	438	511	567
AFF 8	51	165	247	298	348	399	439	512	568
AFF 10	54	166	248	300	349	400	440	515	571
AFF 11	55	169	252	303	350	403	443	516	572
AFF 12	57	170	260	304	351	404	444	517	573
AFF 14	58	174	261	306	352	406	445	519	575
AFF 19	59	179	262	307	353	407	447	520	
AFF 20	60	186	263	308	354	409	448	524	
AFF 21	66	187	265	309	355	411	449	527	
AFF 22	67	189	266	310	356	412	450	528	
AFF 23	69	190	269	311	357	413	451	530	
AFF 24	70	193	271	312	361	415	453	532	
AFF 27	77	201	272	313	366	419	454	535	
AFF 29	80	202	274	315	368	420	464	536	
AFF 31	87	208	276	316	369	421	466	539	
AFF 32	90	220	277	318	370	423	467	540	
AFF 33	94	221	278	321	371	424	468	546	
AFF 35	101	223	280	322	374	425	473	549	
AFF 37	105	225	281	327	376	426	476	553	
AFF 39	119	230	286	331	377	427	478	557	
AFF 40	123	234	287	333	378	428	480	558	
AFF 42	131	235	290	334	379	429	484	559	
AFF 43	135	236	291	337	382	430	488	560	
AFF 44	142	238	292	342	385	431	490	561	

TRANSISTORISED HI FI STEREO AMPLIFIER

By G3JXL - No 259

Pre-Amplifier and tone control

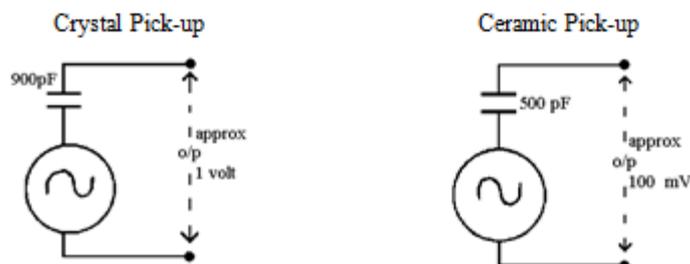
Before going ahead with the details of the pre-amplifier it is necessary to correct the errors in the December 1967 issue in the Main Power amplifier. I can only assume our worthy Editor copied the circuit diagram out for printing AFTER the bar was opened instead of before. As has been pointed out to me on 80m many times and many more times personally by readers of Mercury, the Amplifier as drawn out could not possibly work at all! Maybe our Editor will reprint the diagram correctly but in any case the errors must be listed just in case anyone tried to get the circuit working after wiring up as it is in December's Mercury.

The Corrections are as follows:

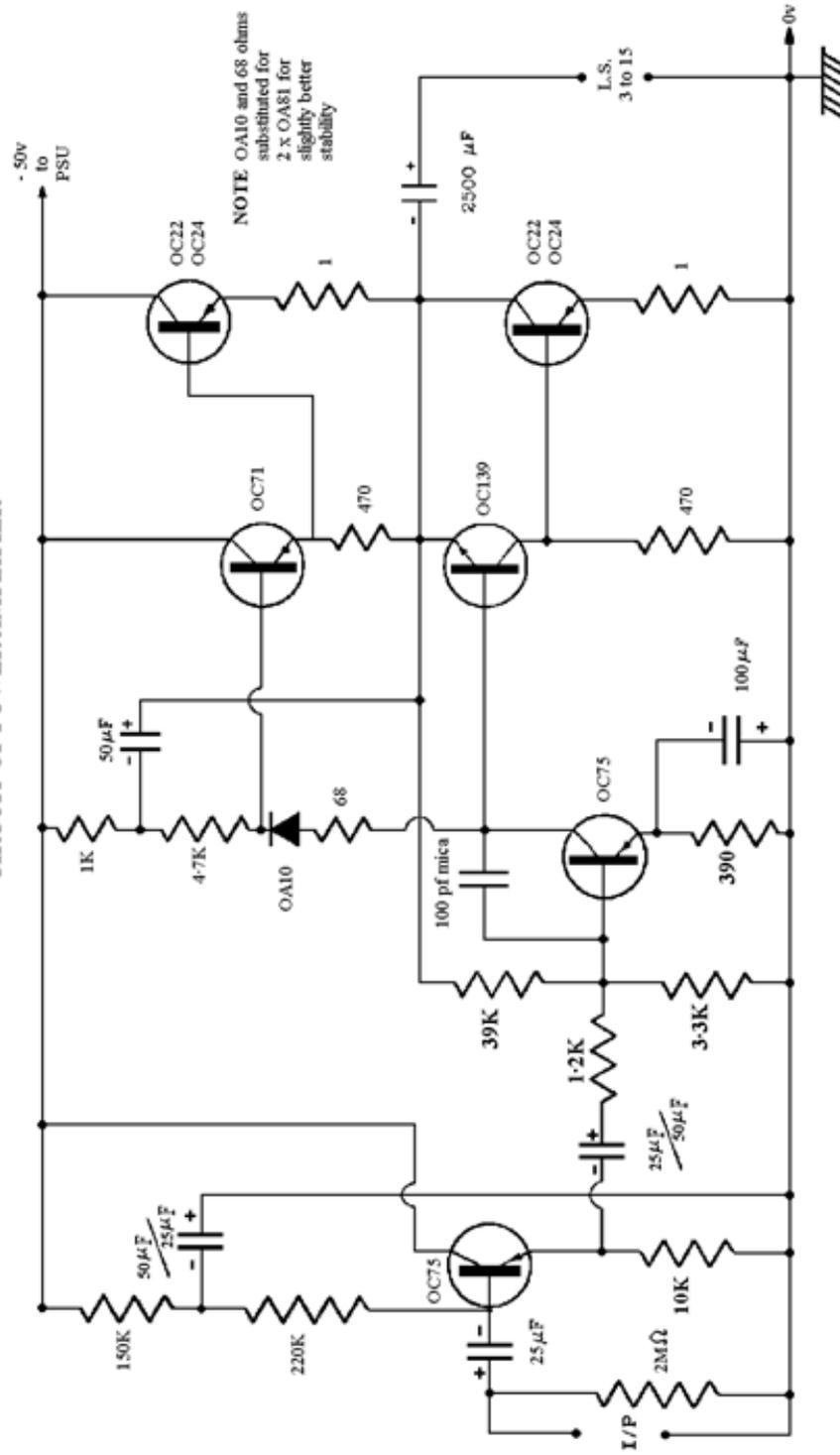
1. (Power Supply unit) Capacitor is 5000 FIVE THOUSAND MICROFARAD NOT 500.
2. C_3 top plate should be marked negative.
3. TR2 symbol has no emitter sign, this is the electrode connected to R10.
4. C_3 (100 Micro-Farad) should be connected across R10 with positive plate to chassis and negative plate to collector of TR2 NOT to base as shown in diagram.
5. The junction of R5, R6, R7 and base TR2 should be shown all connected by means of a dot.
6. The junction of R7 and C_6 should be shown connected by a dot.
7. Polarity of C_5 not shown, the positive plate is connected to chassis, the negative plate top plate.
8. The 0v line should be clearly shown as CHASSIS.

The Pre-amplifier tone control

It might be useful at this point to refresh our memories on the requirements of a crystal or ceramic pick-up as to load.



CIRCUIT OF POWER AMPLIFIER



It will be seen that the pick-up is a generator in series with a small capacitor - 900 picaFarad approximately in the case of the xtal pick-up, 500 pica-Farad in the case of the ceramic pick-up. The output of the xtal is very often much greater than the ceramic type. It is not easy to give an exact voltage but on an average record an output of about 1 volt peak from the xtal on loud passages whereas the ceramic would give perhaps 100 milli-Volts on the same record. The ceramic would provide better quality and would have a lower tracking weight. It is not intended to discuss pick-ups in detail in this article only so far as our design is affected. It will be seen that the ceramic and xtal pick-ups must work into a high impedance load or there will be severe attenuation of the lower frequencies. We are all aware of the necessity for the load to equal the internal resistance of the generator for maximum power transfer - the snag being with the ceramic and xtal pick-up that they are capacitive - i.e., the internal impedance increasing as frequency decreases. For example, take the ceramic pick-up, at 1000 c/s the internal reactance is given by:

$$\begin{aligned}
 X &= \frac{1}{2\pi f} \\
 \therefore X &= \frac{1}{2\pi \times 1000 \times 500 \times 10^{-12}} \\
 &= \frac{10^{12}}{2\pi \times 1000 \times 500} \\
 &= \frac{10^6}{\pi} \\
 &= 318,000 \text{ ohm}
 \end{aligned}$$

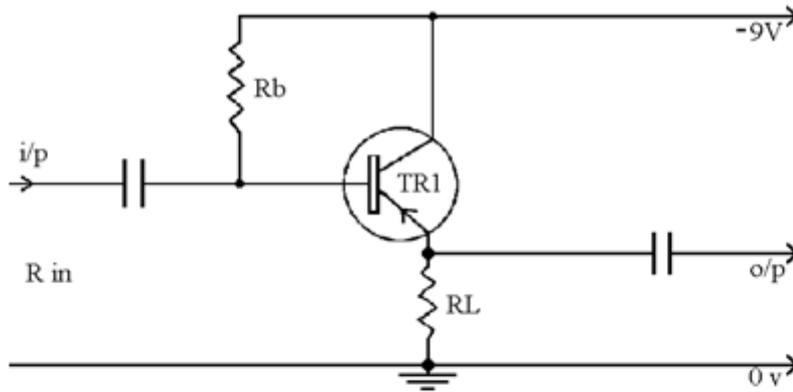
At 100 c/s $X = 3 \text{ M ohms approx.}$, at 50 c/s $X = 6 \text{ M ohm approx.}$ It is obvious that for as level a response as possible then the pick-up must work into a load of **at least two megohms**. This is confirmed by recommendation of most of the pick-up manufacturers who quote minimum loads of at least two megohms.

One school of thought just says that it is so difficult to provide a high impedance load it is easier to work the pick-up into a low impedance and use frequency correction later on in the amplifier, the pick-up output then would fall to about 5 millivolts so much greater gain is needed thus complicating the design of the pre-amplifier. The writer has never liked this second method - it seems that all the advantages of the modern high quality ceramic pick-up are lost. Nor is it really possible to equalise exactly. So - we have our first design consideration the input impedance of the pre-amplifier must be high (two megohms or greater) when switched to pick-up. This is a snag with transistors as they are low impedance devices.

On the face of it we have only to connect the transistor in the common collector configuration and we have a high input impedance.

As an approximation it is true to say that the input impedance of a common collector (emitter follower) is β multiplied by the emitter load. So - we need a high β and a high load but one or two snags follow - however large we make the resistor in the emitter, say 20,000 ohms, it is usually shunted by the input impedance of the next stage, a common emitter amplifier with an input impedance of only 1,000 ohms, thus it is difficult to get a high value of load for our emitter follower - and there is a limit to the value of β unless we pay a lot for our transistors. Even assuming a high value of β and a high value of load, we are still not going to get a high impedance due to the shunting effect of the bias chain and the collector resistance of the transistor.

A glance at the following diagram will make this clear.



Assume $R_L = 10\text{K ohm}$ $\beta = 200$
 then R_{in} is: $200 \times 10,000 = 2,000,000\Omega$

but it is shunted by R_b which is usually $300\text{K}\Omega$ and the collector resistance of TR1 which can be no more than 1megohm . R_{in} would not be likely to be much higher than \approx Megohm.

What do we do? Fortunately there is an answer to the problem, the technique of "bootstrapping". We can get rid of the effects of the base bias resistor by bootstrapping it, and we can overcome the shunting of R_L by making the next stage another emitter follower - but - we still have the trouble of the shunting effect of the collector resistance. However, by combining the two transistors into a form of Darlington Pair we can bootstrap the first collector, use D.C. coupling and get a high input resistance. We shall get no voltage gain at all of course, the whole circuit having 100% NFB overall. But we get a very high input resistance. It appears as if we are using two transistors to no avail, but in fact, using this circuit simplifies the pre-amplifier. Any other type of circuit entails a low output from the pick-up thus needing extra gain.

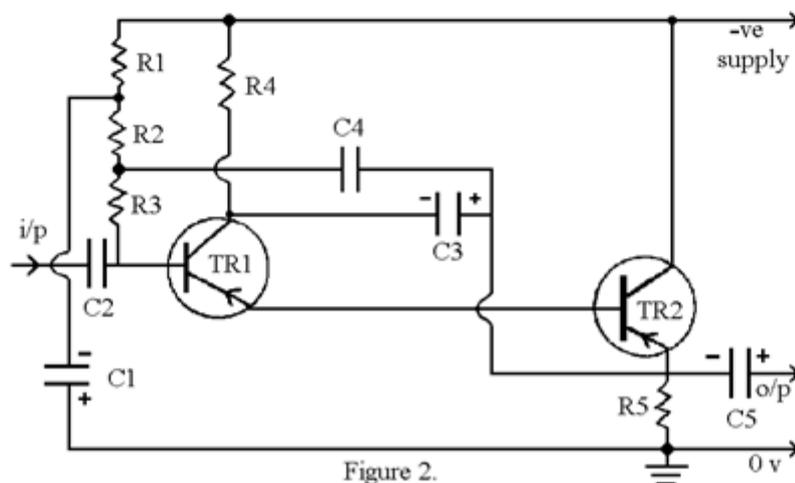


Figure 2.

R1	1.2 M ohms	C1	25 micro Farad 25 volt
R2	1.2 M ohms	C2	0.1 micro Fared
R3	1.2 M ohms	C3	2 micro Farad 25 volt
R4	6.8 K ohms	C4	0.1 micro Fared
R5	4.7 K ohms	C5	10 micro Farad 25 volt

TR1 TR2 0C44

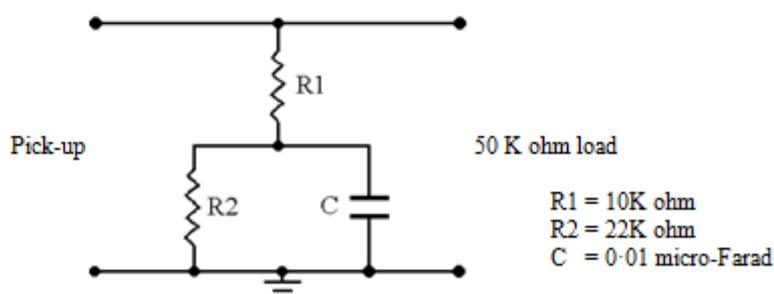
A quick analysis of the cct. in Fig 2 is as follows:

TR2 load (say 2000 ohms) TR2 $\beta = 50$ approx. thus the input impedance to TR2 is 100,000 ohms shunted by TR2 output resistance (1 Megohm say) and this is the load for TR1. The output resistance of TR1 is so high it can be ignored (due to collector of TR1 being boot-strapped) The bias chain of TR1 is also boot-strapped so it will have no shunting effect on TR1 base circuit. So, the input impedance of TR is $\beta \cdot R_L$, say 80,000 ohms multiplied by 50, equals 4,000,000 ohms. In fact this could, due to β being greater than 50 be nearer to 6 Megohms. Another good reason for using this circuit is that the capacitance is also boot-strapped and its effect reduced giving an extended frequency response. Input capacities can be a nuisance at high impedances and can form integrating circuits when a series resistor is used for loading purposes. An integrating circuit will increase the rise-time of the amplifier and thus ruin the high-frequency response.

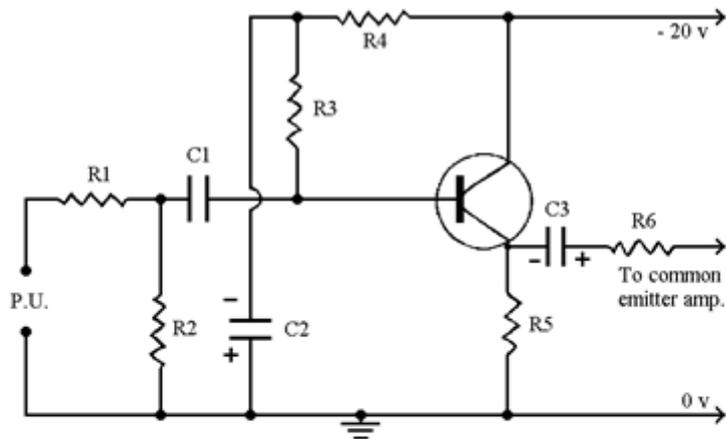
The alternatives to the circuit just described are given here although not recommended by the writer. There are two in fact, the first of these two methods has already been mentioned briefly, it uses a low or medium impedance load for the pick-up with frequency correction and extra amplification to make up for the greatly attenuated output of the pick-up. The circuit is as follows:-

Circuit showing load required to convert ceramic pick-up output to that of a good quality magnetic pick-up.

NOTE Output would be about 2mV/cm/sec



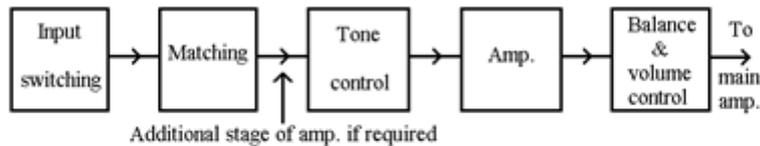
The second alternative is to use a medium impedance first stage in the amplifier and pad this up to a high impedance with a series resistor. This means the pick-up output will not require frequency correction but the pick-up output will be reduced to about one tenth of normal as far as signal drive to the first stage is concerned. This will be seen from the following diagram.



- | | |
|----------------|-------------------------|
| R1 - 1.8 M ohm | C1 - 0.2 micro-Farad |
| R2 - 220 K ohm | C2 - 50 micro-Farad 25V |
| R3 - 220 K ohm | C3 - 25 micro-Farad 25V |
| R4 - 100 K ohm | |
| R5 - 22 K ohm | |
| R6 - 2.2 K ohm | |

One of the dangers here is the integrating circuit formed by R1 and the TR input capacitance. However, the circuit is used and can produce quite reasonable results. The main disadvantage of this as far as the writer is concerned is that it is likely to produce a much worse signal to noise ratio than the recommended first circuit.

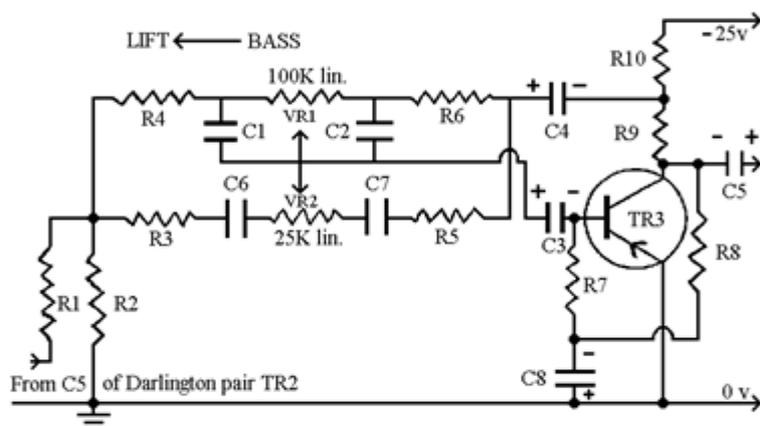
A Block diagram of the suggested pre-amplifier is as follows:



The writer is convinced that it is not necessary to make a fully universal pre-amplifier (i.e. one that will match all types of pick-up). Not many audio enthusiasts use two different high-fidelity pick-ups. As a general rule - the enthusiast uses the best he can afford or the one which suits his purpose. It is not likely that anyone would use a good ceramic pick-up as well as a high quality magnetic pick-up; If anyone had either of these pick-ups he would never use a high output low quality xtal pick-up. This has written off the requirement for a pre-amplifier to suit all these pick-ups so it is my intention to show several variations of the pre-amp, the reader will then decide which of these suits him or more to the point his pick-up. A common requirement will be a tone control circuit giving bass lift and cut (about 15 dB) and treble lift and cut (about 15 dB) and an r.m.s. output of \approx volt max. This will more than drive the main amplifier.

The first complete circuit to consider will be to suit a high quality ceramic cartridge of the Decca Derram type, the pre-amplifier would then consist of the Darlington Pair high input impedance circuit followed by the tone control circuit and common emitter amplifier, this in turn followed by balancing control and volume control. The writer is convinced that a better signal to noise ratio comes about if this arrangement is used.

The tone control circuit is a conventional frequency conscious negative feed-back arrangement and much research was carried out by the writer before this circuit was finalised. (The writer would like to pay a tribute at this stage to a good friend and colleague G3CDM who very often assisted in research and specification testing and who was at all times prepared to lend a sympathetic but critical ear to the writer's ideas, results and arguments; and was eventually persuaded against his inclination to accept that a transistorised amplifier is superior to the well known 10 watt valve amplifier that many hi-fi enthusiasts use. G3CDM finally threw his 10 watt valve amplifier out and is using this transistorised version).



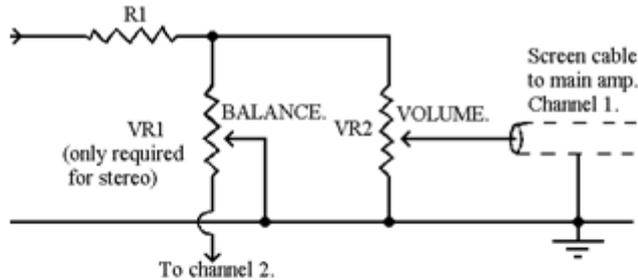
R1	-	2.2 K ohm	R10	-	1.2 K ohm
R2	-	1 M ohm	C1,C2	-	0.05 Micro-Farad
R5, R3	-	1.2 K ohm	C3,C4,C5,C8	-	25 micro-Farad 25V
R6, R4	-	10 K ohm	C6,C7	-	0.01 micro-Farad
VR1	-	100 K ohm lin	TR3	-	OC44
VR2	-	25 K ohm lin			
R7, R8	-	100 K ohm			
R9	-	3.9 K ohm			

Very careful checks and measurements were taken on this tone control circuit and one of the main disadvantages of this type of circuit (difficulty in locating the "flat" position - no lift - no cut) was fortunately not present. The flat response position came in the middle of both tone control tracks so if you have no test equipment you can build the circuit knowing you will get the correct response level in the centre of the tone control tracks and fifteen dB lift of bass and treble at one end and fifteen dB cut at the other. If the reader has test equipment (or access to it) then a square wave at 500c/s into the pre-amp will be seen to be amplified four times and still be a square wave when it leaves the pre-amp if bass and treble controls are in the centre of their tracks.

The distortion in the pre-amplifier was found to be of the same low order (or lower) than the main amplifier. A signal of 100 milli-volts r.m.s. into the pre-amp gave an output of 400 milli-volts

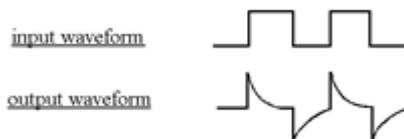
to the main amplifier, again with the tone controls in the "flat" or centre position, so it will be seen that the pre-amp will be suitable for most ceramic cartridges, just driving the main amp to full power but not over-loading or clipping before doing so.

Gain Control and balance circuit



R1 - 6.8 K ohms VR1 - 100 k ohms lin. VR2 - 100 K ohms log.

It might be of interest to readers to know the method of measuring the input impedance of the D.C. coupled emitter follower stage used in the front of the tone circuit. A video/audio generator set to square wave was applied to the input of the amplifier via a 500 pica-Farad capacitor, and set to provide an output of 100 milli Volts R.M.S., the output of the stage was examined on one of the traces of a CD1400 CRO (any good fairly wide-band CRO will do of course) and the frequency of the generator was varied until the CRO trace showed complete differentiation. i.e.



Thus, charging time of the input circuit ($5CR$) is just equal to the pulse duration (t)

$$\text{as } 5CR = t$$

$$\text{and } t = \frac{0.5}{\text{PRF}} \text{ sec s}$$

$$R = \frac{0.5}{\text{PRF} \times 5C}$$

Say PRF at integration is 30 Hz

$$R = \frac{0.5}{30 \times 5 \times 500 \times 10^{-12}}$$

$$= \frac{5 \times 10^{11}}{30 \times 5 \times 500} = \frac{10^9}{15}$$

$$= \frac{100}{15} \times 10^6 = 6 \text{Mohms approx}$$

This was checked by another method suggested by G3CDM and found to be correct as stated. This method used a sine-wave output from the audio generator and same method of connection used. (i.e. - via a 500 pica-Farad capacitor). The output was measured on the CRO and one megohm resistors added in series with the input until the output had fallen to 0.5 of previous level - the total resistance would be roughly equal to the input resistance of the amplifier.

Both methods showed the input impedance of the pre-amplifier to be about 4 megohms.

The first complete circuit shown shows an additional common emitter stage which is only necessary for very low output pick-ups and in most cases need not be inserted. Therefore that part of the circuit between the dotted lines may be omitted in most cases.

The second circuit would suit a high output xtal pick-up.

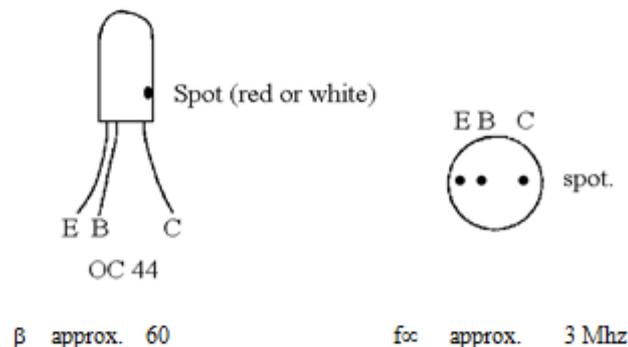
Sometime in the future the writer intends to design a circuit suitable for a low output high grade magnetic pick-up and perhaps our Editor will be good enough to publish this circuit. (Delighted - Ed)

Constructional details of pre amp

Detailed instructions are not necessary as the pre-amp is very stable. Vero-board or tag-strips may be used and normal precautions must be taken to avoid hum loops etc. (avoid earthing to chassis except at one point apart from the balance control which has a common earth to both channels). The writer used tag boards ("Radio Spares" 20 position tag boards) and mounted two of these behind the ganged controls in an aluminium box 9 inches long by 3 inches wide and 3 inches deep. The box was made up and a lid fitted to the box, the controls fitted to the lid and the tag boards on "stand offs" behind the controls (see diagram). If a mono version of this is made, the balance control is just left out completely.

The circuit of the main amplifier has been included as a number of errors appeared in the first printing. Opportunity is thus taken of showing a small modification to the bias diode, having slightly better D.C. stabilisation. A sixty eight ohm resistor in series with an OA10 junction diode is used instead of two OA81 diodes in parallel.

TRANSISTOR DATA

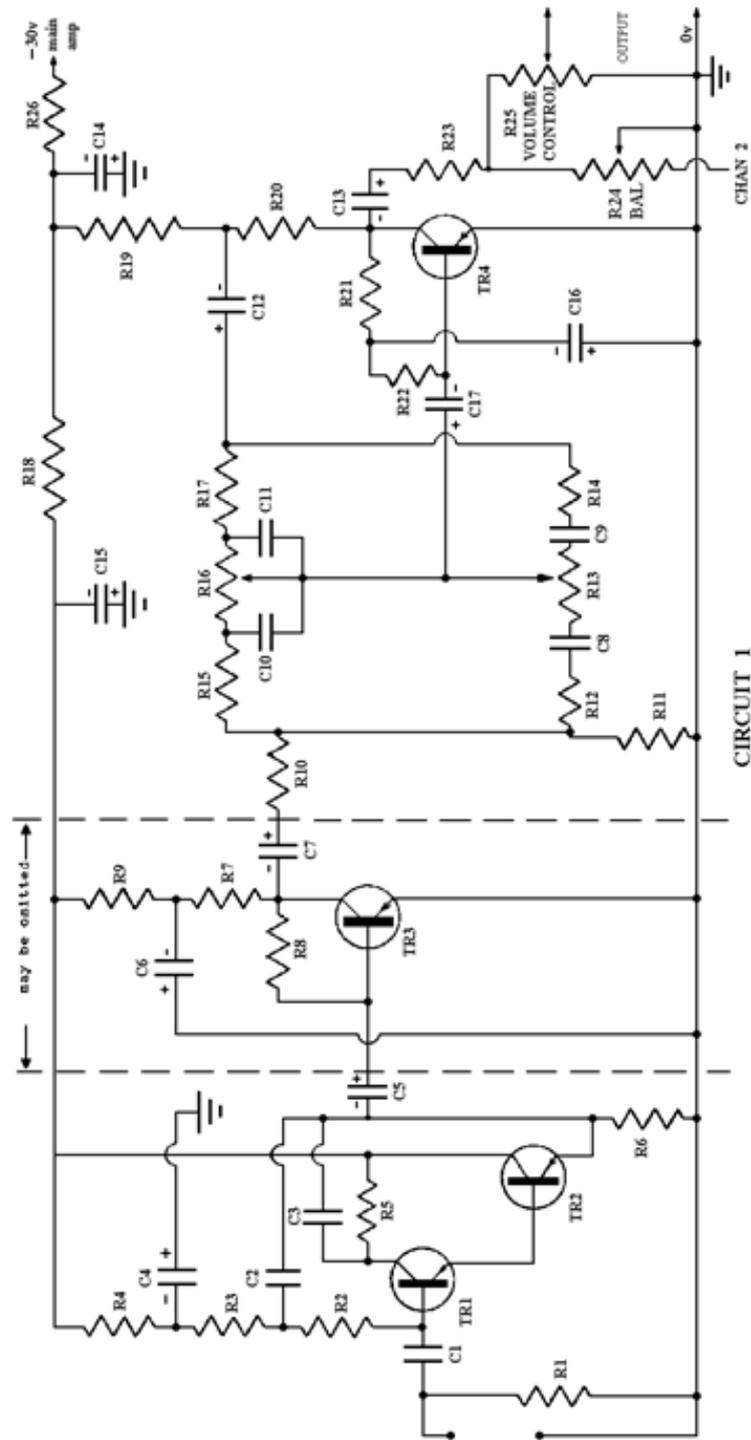


OC75 type could be used with a very slight degrading of high-frequency response and a small reduction in noise figures. The specification of the pre-amp is such that no degrading of specification of the main amplifier is introduced. i.e. spec of pre-amp is better than main amp.

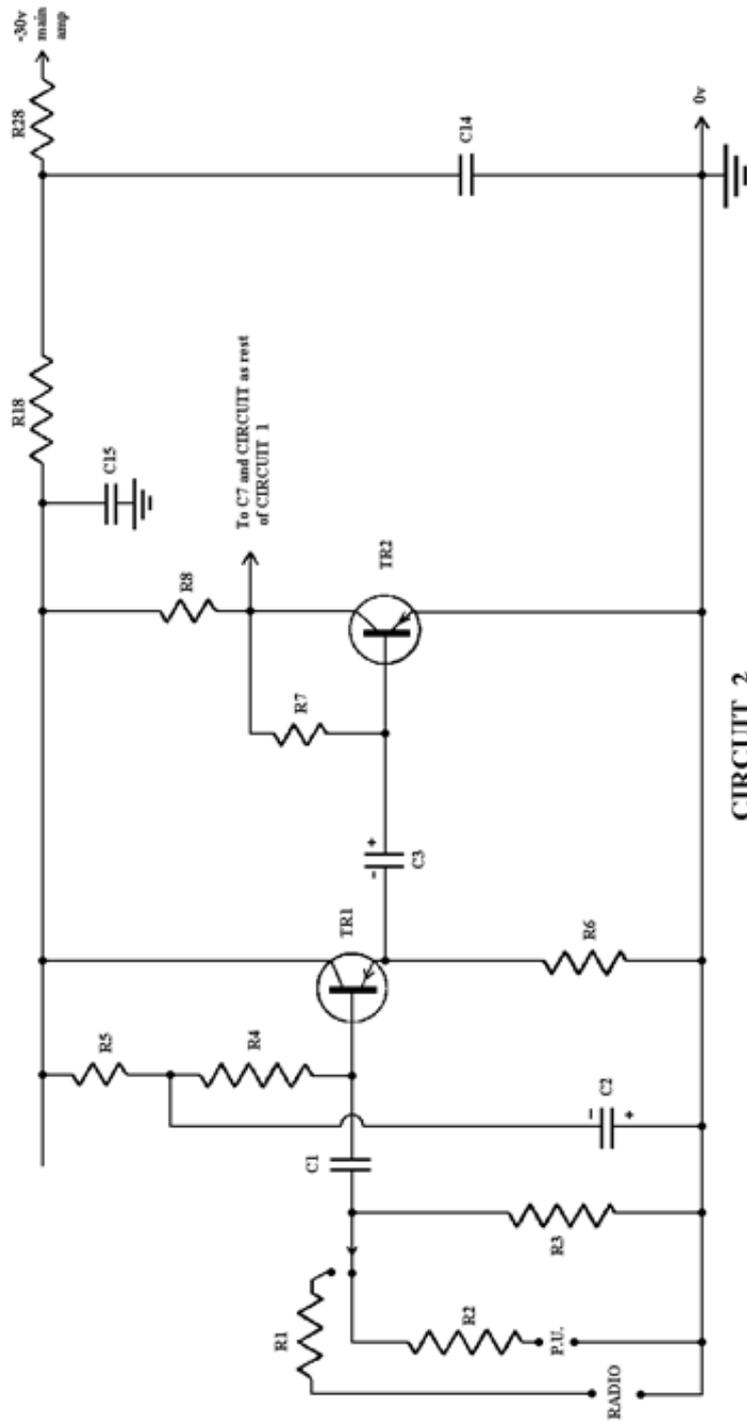
Components for Circuit 1

R1	-	4.7 Megohms	C1	-	0.1 microFarad
R2	-	1.2 Megohms	C2	-	0.1 microFarad
R3	-	1.2 Megohms	C3	-	0.1 microFarad
R4	-	1.2 Megohms	C4	-	25 microFarad 25 volt
R5	-	6.8 K ohms	C5	-	25 microFarad 25 volt
R6	-	4.7 K ohms	C6	-	25 microFarad 25 volt
R7	-	8.8 K ohms	C7	-	25 microFarad 25 volt
R8	-	200 K ohms	C8	-	0.01 microFarad
R9	-	1 K ohm	C9	-	0.01 microFarad
R10	-	2.2 K ohms	C10	-	0.05 microFarad
R11	-	1 Megohm	C11	-	0.05 microFarad
R12	-	1.2 K ohms	C12-C18	-	25 microFarad 25 volt
R13	-	25 K ohms LIN (TREBLE CONTROL)	C13-C17	-	25 microFarad 25 volt
R14	-	1.2 K ohms	C14	-	2,500microFarad 25 volt
R15	-	10 K ohms	C15	-	100 microFarad 25 volt
R16	-	100 K ohms LIN (BASS CONTROL)	TR1	-	OC44
R17	-	10 K ohms	TR2	-	OC44
R18	-	1 K ohms	TR3	-	OC44
R19	-	1.8 K ohms	TR4	-	OC44
R20	-	3.3 K ohms			
R21	-	100 K ohms			
R22	-	100 K ohms			
R23	-	8.8 K ohms			
R24	-	100 K ohms LIN (BALANCE)			
R25	-	100 K ohms LOG (VOLUME)			
R28	-	3.3 K ohms			

CCT SUITABLE FOR HIGH GRADE CERAMIC PICK-UP



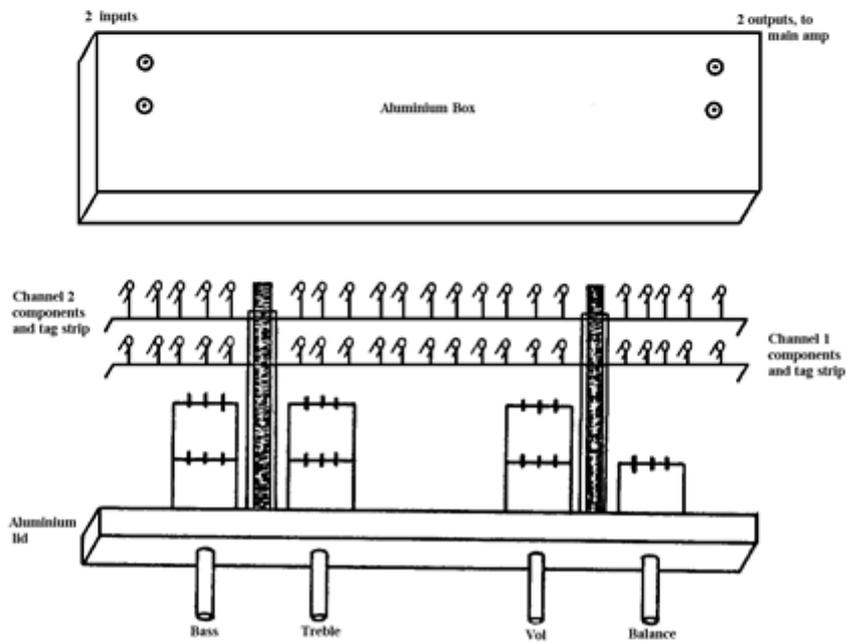
CCT SUITABLE FOR XTAL PICK-UP



Components for Circuit 2

R1 - 600 K ohms	C1 - 0.1microFarad
R2 - 1.8 M ohms	C2 - 25 microFarad 25 volt
R3 - 220 K ohms	C3 - 25 microFarad 25 volt
R4 - 220 K ohms	
R5 - 100 K ohms	
R6 - 22 K ohms	TR1 OC44
R7 - 100 K ohms	TR2 OC44
R8 - 4.7 K ohms	

From collector of TR2 the circuit of 2 is exactly the same as circuit of 1.



VS9 QSL BUREAU

The sub manager for VS9 QSL cards is G3JZP.

There are cards in the Bureau for the following:

VS9AHN VS9ATH VS9ADF VS9APB VS9AM VS9M

If any member knows who was operating the above calls, would they please have them send SAE's to:

Mrs Jean Hodgkins.
"Bridge House",
Hunton, Nr Bedale,
YORKS.

QSL BUREAUX IN GENERAL

The following letter was sent to the Editor.

Dear Sir,

Was pleased to note the blurb concerning RSGB QSL Bureau in the December 1987 issue of the "Mercury".

When a bumper bundle of cards arrive from the central Bureau (G2MI) for sorting, all available space is commandeered (have a very obliging XYL).

Naturally if there are no envelopes in stock it means QSL cards have to be stored and this takes up a lot of space. Occasionally one gets a moan that no cards have been forwarded for some time and the usual answer is "No SAE's in stock".

Regarding size of envelopes. Do not send under post card size and no larger than 8" x 5". A fourpenny stamp carries approx. 15 cards and a six-penny stamp approx. 35 cards.

Please remember to notify change of address promptly. Saves time and trouble in tracing.

Finally, if a reminder is received that SAE's are required, send them direct to the QSL Bureau Sub-manager named. HE is the one with the bursting file!!!

J3 de

Bert Matthews G8QM (RAOTA - 1935)
 RSARS 510
 G6/G8 RSGB QSL Bureau
 sub manager (1946 & still going strong !!)

(Many thanks for writing Bert - sorry about the "splitting of the last page!!" - Ed)

ooooo-----ooooo

1968 OLD COMRADES REUNION

Princess Royal Day will be held on 23rd June and the Old Comrades reunion will be over the same weekend in CATTERICK, definitely CATTERICK. G3CIO will be operating during the weekend, with G3PNM, G3RUS and G3VIS leading the field.

A little birdie has whispered that our Awards Manager will be in the area at the same time too.

The HQ Station will also be active, and I hope static conditions will be more favourable than they were last year!

'OUR MAN IN ALDABRA'

(A further chapter in the life of John Walker compiled by the Editor)

PHASE 1

The Royal Society "Phase I" party (some twenty strong) landed at Settlement, Aldabra on 13th August 1967 and it wasn't very long before the KW 2000A was carefully unpacked and set up, together with the vertical, which was secured to a pole 15' high alongside the "Guesthouse" a small wooden shack destined to be our home for the next seven and a half months. Checks were completed, lighting arranged, generators proved and late on the next day the rig was "fired up" and the first QSO with the outside world was attempted. Imagine our delight to make contact with G4RS at Blandford where the HQ Station, which had been patiently listening, came through at S4 on CW. A forty five minute QSO ensued with Les (G3VYZ) who was on the key, equally as elated as we were on the Island and just before midnight local, we closed down knowing that all was well.

During Phase I, the first three week period, whilst awaiting the arrival of the main party and supplies, contact was kept with the outside world by means of daily skeds with VS9MB In Gan and twice weekly skeds with G4RS at Blandford. I was extremely grateful for the help given me by VS9MB. Between these two outlets from Aldabra various points and tricky situations were smoothly settled. At the same time trips were made to the far end of the Island and the small portable sets were tested out but found to be lacking in power, considerable trouble being caused by the strong broadcast stations which were to be heard during the evening and the powerful teleprinter stations during daylight. The sets themselves were not in the peak of condition due to an unexpected dunking they received when rough weather swamped the "Gemini" in which they were travelling, capsizing it. However Sgt Harry Stickley, officially the repair man for the Expedition, agreed to go to each Island in turn and see what he could do to improve communications. By dint of sensible aerial sighting and painstaking work on the wet equipments Harry achieved what he had hoped and each of the Island posts, Cinq Cases, Anse Cedres and East Channel were able to override the heavy local QRM. Harry stayed at East Channel until the main party arrived, checking all things to his satisfaction before returning to Settlement.

PHASE II

This phase commenced when "Vidal" arrived on 28th August and brought the rest of the party and the long awaited stores, some thirty-eight crates of various sizes and weights. After unloading and unpacking, the main station was set up, comprising a C11 and R210 with both AC and DC power supplies, together with a Redifon GR 410. The C11/R210 gave me AM and CW facilities anywhere between 2 and 16 Mc/s with an output of about 50 watts, whilst a Redifon GR 410 offered CW and SSB facilities on certain spot frequencies. (A photo of the equipment was shown in the December '67 Mercury - Ed). Twice daily skeds were soon established with the Royal Navy in Mauritius and a daily one with the Meteorological Bureau, also in Mauritius, so the KW 2000A could now relax and be used for pleasure only!!!

"Vidal" left three weeks later, taking with her most of the Phase I party, and with final farewells on the Aldis lamp she sailed out of sight, bound for Mombassa, Durban, Capetown and finally England. We were now left on our own, radio being our only means of contact with the outside world.

The same week found me appointed "Weather Forecaster/Met. Man-in-Chief" and with an excellent Met office handbook together with the instructions supplied with the various instruments but absolutely no experience at all, I set about becoming the expert on clouds, wind

and rain. (Some four months later I can safely report that there have been no complaints yet so it seems that a course at Bracknell is not vital!!!) So life assumed a steady pattern and Phase III started.

PHASE III

The long term party soon settled down to their studies and getting out into the field. Contact was maintained between each party and the base at Settlement over the portable transceivers, which had been carefully sited and cared for by Harry. His care brought dividends as virtually no trouble occurred and regular and constant phone reports were received and collated at base day by day. As Harry was unable to fully occupy his day (faults were not unknown but certainly not sufficient to keep him occupied all the time) he agreed to act as assistant to one of the party, Tony Diamond, and generally made himself useful digging and probing, studying the habits of the giant tortoises and other unique species of wild life on the Island. Unfortunately this kind of work is not included under any specific trade classification in the Service, not even in the Veterinary Corps, so Harry will have to be content to leave it as an entry on his Service documents as "Other Specialist qualifications"!! For myself I was well occupied with the three skeds each day to Mauritius, regular weather measurements to collate, reports to take from the other Islands (In case any readers thought that Aldabra was only one island, it is in fact broken up into four separate islets, none of which can be reached without some form of boat) and occasional safaris to the outback of Picard island for the purpose of procuring fresh goat meat for the main base cookhouse!! There were some fifty Islanders resident together with a further half a dozen members of the Expedition, so a goat did not last very long!!! As the weeks rolled by I began to wonder whether I would keep up with all of the Amateur Radio skeds being asked of me - through regular contact with G4RS numerous requests were being made and operating hours became more and more difficult. From the first week in December the Met Office requested an additional report at 1200 GMT, also one at midnight if conditions were cyclonic. Luckily, due to lack of official traffic, I was able to drop one of the daily skeds with the Navy on the understanding that a listening watch was being kept on a guard frequency on which I could call in the event of an emergency. This meant only an hour each day (as against the previous two) commencing at 1000 GMT and so balanced the load a little, as operating times had to be geared to "generating" times due to a fair restriction of fuel. I was able to charge the battery banks each day and occasionally operated the KW from it's DC PSU to enable operation during the quiet periods.

And so the days passed by and Christmas Eve arrived. All members of the Expedition attended Mass in the Catholic church at Settlement and this was followed by a party in "Seychelles" style which lasted until a quarter past five the next morning, Christmas Day. It would have carried on longer. but one of the locals broke a string on the guitar and that put paid to the festivities. At least this was what I assumed to be the reason, it was quite a coincidence that the free booze for the locals had also run out!

So to the New Year, heralded on New Years Eve with the arrival of the "MANAHINE" carrying supplies for the last Phase of the Expedition and also relief expeditioners from the Royal Society. The C11/R210 made contact with the "Manahine" and met info was gratefully exchanged between stations, as she slowly made her way toward the Island. On board were numerous clean shaven pale faces who looked quite incongruous against the old timers!! Amongst the supplies were large quantities of beer (Don't get the wrong idea, the daily ration was one tin per man and each tin only held 12 fluid ounces) as well as some very welcome spirits. This allowed all of us to welcome in 1968 in excellent style until a native of the Island, one extremely accurate rat, whose shooting prowess could well be taken as an example by our intrepid Corps shots, succeeded in topping up my vodka and orange with deadly accuracy from a range of some twelve feet.

This caused great amusement from the assembled company, except yours truly. I am glad to be able to report that the rat was unable to repeat the performance as I had the great pleasure of despatching it to where ever accurate rats depart, with the help of a .22 bullet the following morning. The hole in the ceiling is very apparent about noon each day when the sun is high !!

And so to the end of Phase III. The "Manahine" sailed away with the lucky ones on their way back to their families in G land and Phase IV commenced. This phase should last until the end of March when the Island will once again be left to the few locals and Nature. But meanwhile activity on the Islands proceeds at a great rate and yours truly is kept very busy with preparing met reports, sending most unusual traffic back to the Royal Society, the odd meat procurement and of course Amateur Radio.

To that end, and possibly to the annoyance of some amateur operators the score to the end of last year from 15th August was 2478 QSOs on all bands Top thru' to Ten. One hundred and thirty-eight countries have been worked and average WAC time is 57 seconds !!! I have been lucky enough to offer QSOs to people all over the world, of all races and creeds and have made hundreds of friends. In particular the thrill of working on 160 metres to the States was one of the moments that will live in my memory. Apparently this made the 98th Top Band country for W1BB - I hope Stew manages to get the other two for his DXCC on Top!!! My sincere thanks to Des Barry, G3ONU, who has coped with the flow of QSLs and to Roli, ZC4RB, who has helped in passing back the station logs from here each week. That is why many QSL cards have been acknowledged so quickly and effectively. And last but by no means least, my thanks to G4RS, whose regular QSOs have enabled me to keep reasonably sane, with news of my family and the many friends left behind at Blandford. The final report on this saga will appear in due course, meanwhile 73's to you all and good DX !!

(Up to 31 Dec. 67 1200 QSL cards had been despatched by G3ONU).

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COMMONWEALTH CALL AREAS

I expect some of you noticed in the January issue of the "Radio Communication" ("Bull" to most of us) that it carried a list of Commonwealth call areas.

Aldabra was shown as VQ7 and as I have been in correspondence with the ARRL about Aldabra, and they (the ARRL) consider it's prefix to be VQ9, I queried the VQ7 prefix with the RSGB.

Their reply is shown below.

Mr, R.A. Webb, G3EKL
Royal Signals Amateur Radio Society,
Blandford Camp, Dorset.

18th

January, 1968

Dear Mr. Webb,

In reply to your letter of 11 January enquiring the prefix for Aldabra Island, I would advise you that this is not a prefix issued by the I.T.U. but is one derived locally. Some years ago a station operated from Aldabra using the VQ7 prefix, but recent licences issued by the Seychelles Authority incorporate a VQ9 prefix.

Yours sincerely,

R.F. Stevens, G2BVN

SIDEBAND GENERATORS

BY

CHRONICLER

When comparing the construction of an s.s.b. transmitter with an a.m. transmitter the major difference is that only low level modulation is used on s.s.b. Firstly the carrier is generated and immediately suppressed! This is performed in a balanced modulator, which, in addition to suppressing the carrier, produces a d.s.b. output. This must be then passed through a highly selective bandpass filter, similar to the 5.2 Mc/s filter described previously by yours truly. There are several types of balanced modulator which can be used, but the most common type is the two diode balanced modulator. There are three possible configurations for this device, each of which are shown in Figure 1. Each of these balanced modulators requires a low impedance audio drive at only a few millivolts. In fact a 12AX7 (ECC83) with the first half as an amplifier and the second half as a cathode follower will suffice. The alternative is a transformer feeding the balanced modulator. The secondary therefore must be a low impedance at about 500 ohms. This sort of component is not always available in the junk box, but a "make do" replacement can be a 12.6v heater transformer, the 240v primary winding connected to the anode of the a.f. amplifier and the 12.6v winding to the balanced modulator.

When using transistors there are considerably less problems. The output impedance of a transistor amplifier stage can be arranged to present the correct impedance to the balanced modulator, and a two stage transistor audio amplifier will provide more than enough gain. The balanced modulator may be set up only when the complete sideband generator section is completed, otherwise false indications may well result due to stray fields from the carrier oscillator. The method of setting up any form of balanced modulator is the same; firstly set VC to minimum and adjust RV for minimum output. Then adjust VC for minimum. If this increases the output then it should be connected to the other side of the secondary of T1 (Fig 1A). With VC set for null then RV should be again adjusted to minimum, and this process repeated until no further improvement can be achieved. The choice of component for RV in the balanced modulator is important. It must be a carbon track otherwise a good null will not be possible. It must also be a linear law potentiometer.

Consider now the complete s.s.b. generator section. This will provide an s.s.b. output on a fixed frequency, say 5.2 Mc/s. of sufficient level suitable to drive a mixer, then a driver followed by the linear power amplifier. Considerable ease of construction and screening is accomplished by constructing the transmitter in units. Any modifications or improvements that may be required at a later date can very easily be incorporated, whereas with a complete one-unit transmitter this does provide some headaches.

A block diagram of a sideband generator is shown in Figure 2. If automatic level control (a.l.c.) is required it can control the gain of the filter amplifier stage by varying the bias on the grid. The negative control voltage can be derived at the PA stage, and will be discussed in another article.

A circuit for this sideband generator is shown in Figure 3. The carrier oscillator is a standard Colpitts oscillator with T1 tuned to the carrier frequency. The secondary of T1 must be bifilar-wound and provides a balanced push-pull low impedance output to the two-diode balanced modulator. The audio stages comprise a 12AX7, the first half as a straight amplifier and the second half as a cathode follower to provide a low impedance output to the balanced modulator.

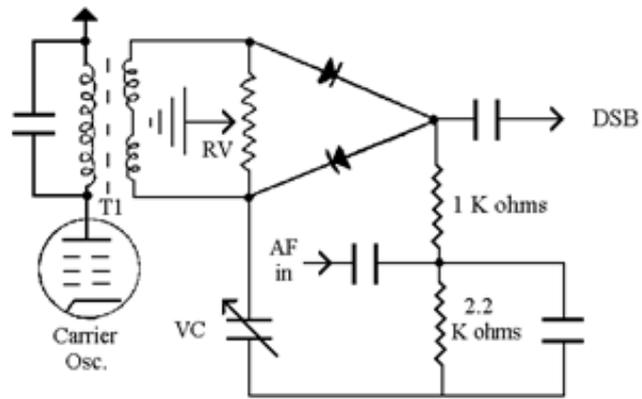


Fig. 1 (a)

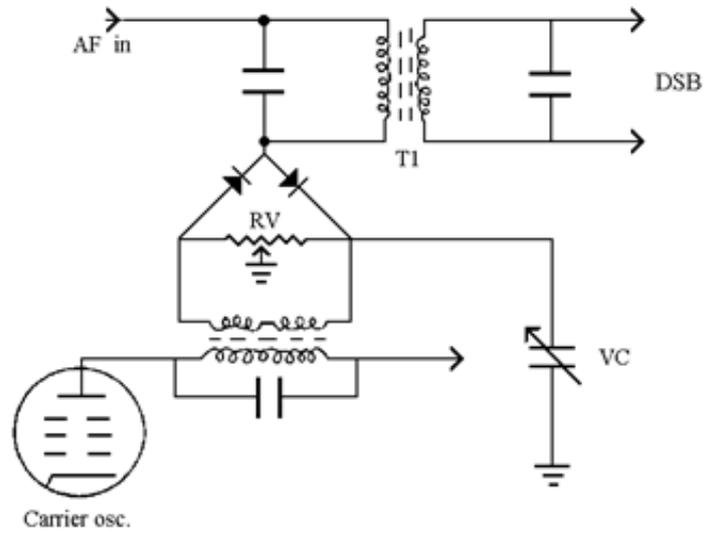


Fig. 1 (b)

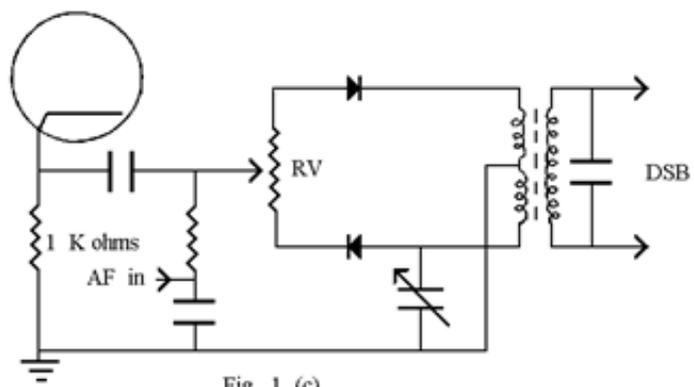


Fig. 1 (c)

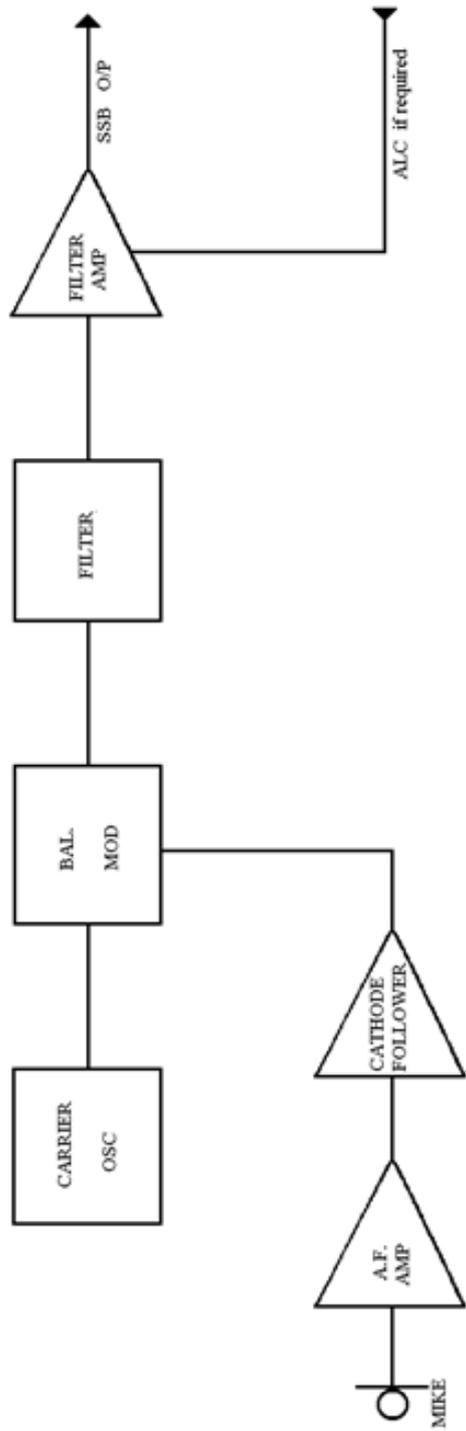
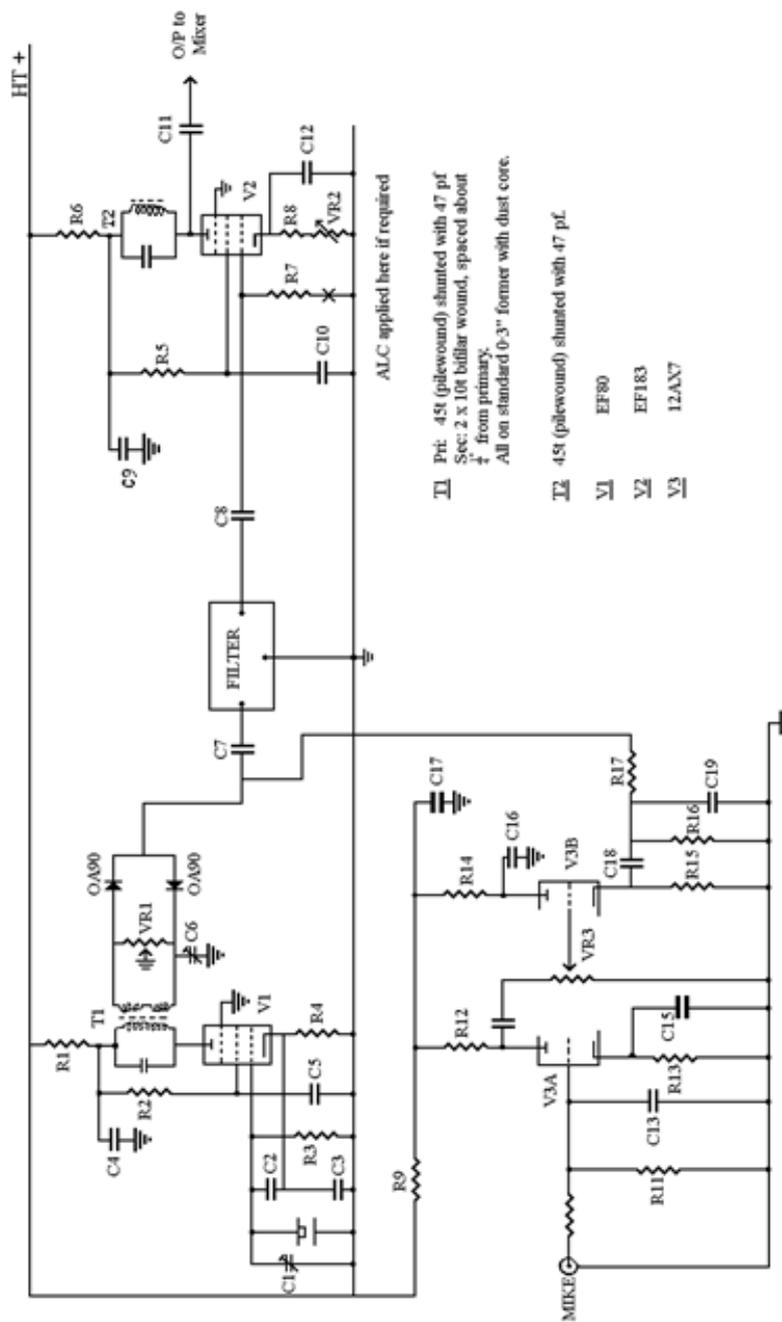


FIGURE 2



T1 Pri: 45t (pilewound) shunted with 47 pf
 Sec: 2 x 10t bifilar wound, spaced about
 1/4" from primary.
 All on standard 0.3" former with dust core.

T2 45t (pilewound) shunted with 47 pf
 V1 EF80
 V2 EF183
 V3 12AN7

A.L.C. applied here if required

Fig. 3

FIG 3 - COMPONENTS LIST

R1	4.7 K Ω	R10	10 K Ω	C1	3-30 Pf	C11	100 Pf
R2	27 K Ω	R11	1 M Ω	C2	15 Pf	C12	.01 Mf
R3	27 K Ω	R12	100 K Ω	C3	50 Pf	C13	47 Pf
R4	1 K Ω	R13	1 K Ω	C4	.01 Mf	C14	.05 Mf
R5	47 K Ω	R14	10 K Ω	C5	.01 Mf	C15	25 Mf 25V
R6	1 K Ω	R15	1 K Ω	C6	3-30 Pf	C16	.1 Mf
R7	100 K Ω	R16	2.2 K Ω	C7	1000 Pf	C17	16 Mf
R8	100 Ω	R17	1 K Ω	C8	1000 Pf	C18	.5 Mf
R9	10 K Ω			C9	.01 Pf	C19	.001 Mf
				C10	.01 Mf		

All resistors $\frac{1}{4}$ watt rating

All capacitor 350v working

VR1 1 K Ω Carbon Linear
VR2 10 K Ω
VR3 500 K Ω

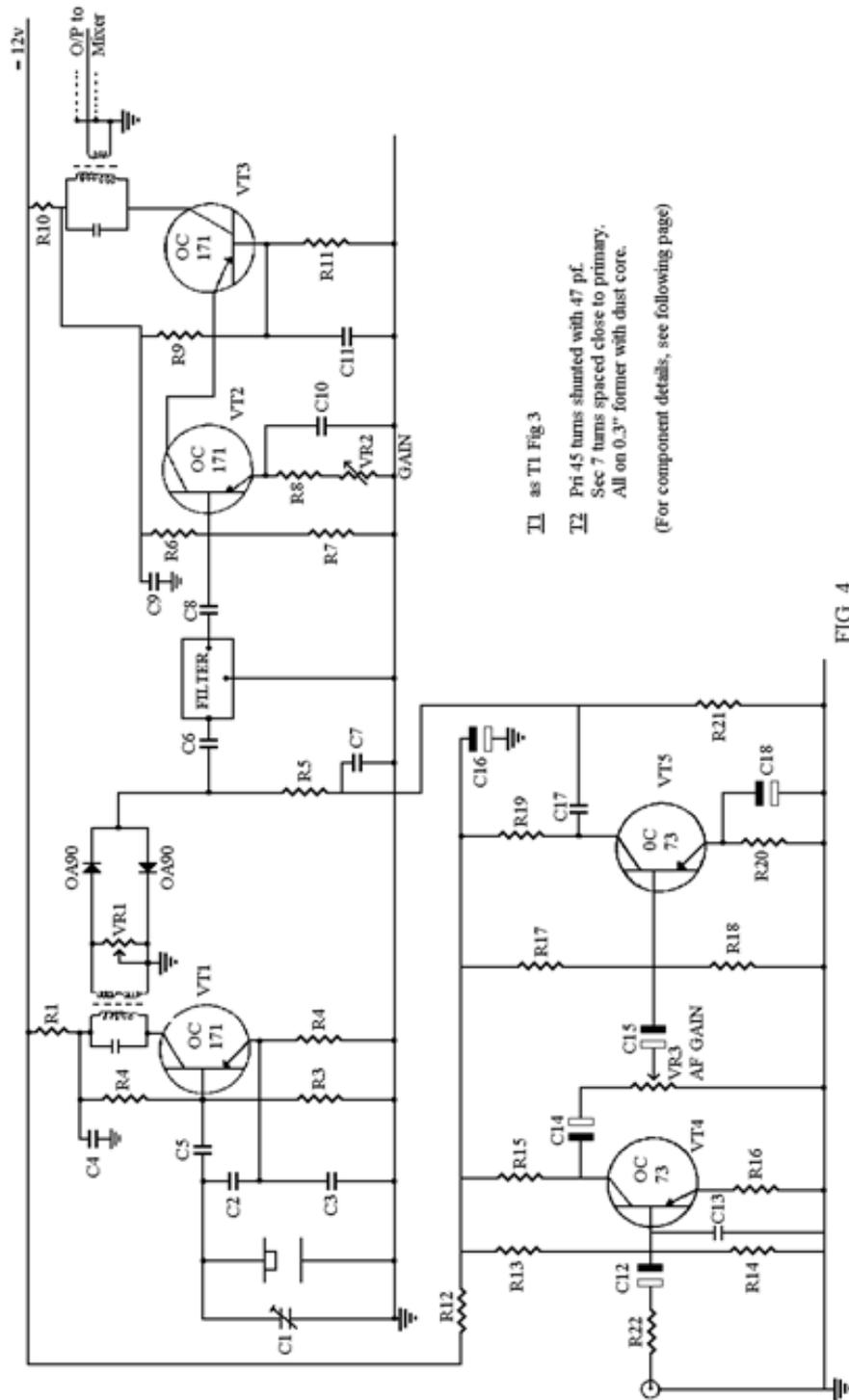
FIG4 - COMPONENTS LIST

R1	470 Ω	R12	1 K Ω	C1	3-30 Pf	C12	20 Mf
R2	47 K Ω	R13	47 K Ω	C2	15 Pf	C13	47 Pf
R3	27 K Ω	R14	10 K Ω	C3	150 Pf	C14	20 Mf
R4	1 K Ω	R15	4.7 K Ω	C4	.1 Mf	C15	20 Mf
R5	470 Ω	R16	1 K Ω	C5	100 Pf	C16	100 Mf
R6	15 K Ω	R17	22 K Ω	C6	1000 Pf	C17	.5 Mf
R7	3.3 K Ω	R18	10 K Ω	C7	1000 Pf	C18	100 Mf
R8	1 K Ω	R19	4.7 K Ω	C8	1000 Pf		
R9	10 K Ω	R20	1 K Ω	C9	.1 Mf		
R10	470 Ω	R21	1 K Ω	C10	.1 Mf		
R11	10 K Ω	R22	10 K Ω	C11	.1 Mf		

All resistors $\frac{1}{4}$ watt rating

All Capacitors 25V working

VR1 1 K Ω Carbon linear
VR2 5 K Ω
VR3 20 K Ω



T1 as T1 Fig 3

T2 Pri 45 turns shunted with 47 pf.
Sec 7 turns spaced close to primary.
All on 0.3" former with dust core.

(For component details, see following page)

FIG 4

Following the balanced modulator is the filter, as described previously, and following that is V2, the filter amplifier. The gain control in the cathode of V2 is the most effective way of reducing the output from the sideband generator. If only an audio gain were provided the apparent carrier suppression would reduce when the audio gain is turned down. With the gain control as shown in the cathode of V2 both the audio and the suppressed carrier are reduced by the same amount. The preset gain control in the audio stages should be adjusted for the microphone in use and set at its highest level which does not introduce distortion. This will ensure maximum carrier suppression.

A transistor version of the sideband generator is shown in Figure 4. Again a Colpitts oscillator is used for the carrier generation, The filter amplifier, VT2 and VT3 provide a very high gain and extremely stable amplifier with a low input impedance which matches the filter and a high impedance which means the collector tuned circuit does not require tapping into for matching.

Setting up the sideband generator is quite simple and the following procedure applies to both generators. The station receiver can be used and the output of the sideband generator connected to it. Initially the carrier balance potentiometer must be at one end of its travel, the carrier null trimmer at minimum and the GAIN control at maximum. T1 and T2 should be adjusted for maximum output first, The carrier balance potentiometer is then adjusted for minimum, and the best null.. These two adjustments must be repeated for maximum carrier suppression. The audio quality may then be checked, perhaps using a tape recorder to assist monitoring, and the trimmer across the crystal adjusted to best quality. Each time the frequency of the carrier is changed by adjustment of this trimmer the carrier balancing process will need to be performed again.

Almost ready to go now. Just mix it to an Amateur band and we're away. Good luck - more to fellow.

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ROYAL SIGNALS CORPS COMMITTEE DONATION

The Society is extremely grateful to the Corps Committee for a very generous donation made earlier this year.

The donation was used to purchase a Heathkit SB 101 transceiver together with the matching SB 600 speaker unit. A DC P.S.U. (HP14) was bought from Society funds at the same time.

The P.S.U. and transceiver were obtained in kit form, and kindly assembled "off the premises" by G3DSS (3). This was done to prevent too many fingers getting into the proverbial pie!

The reason behind the purchase of a transceiver was to enable the Society eventually to provide a station which could be loaned to any Society member lucky enough to have a short overseas trip or interested in putting some remote part of the UK on the air and so putting the Society more firmly on the map.

The equipment is currently in use at G4RS after being "run-in" at G3EKL, and certainly handles beautifully. Extremely stable and with an excellent receiver section the 101 is admired by all who visit the HQ Station.

VISITORS TO HQ STATION

The visitors book at G4RS has been honoured with quite a few entries in the last few months, and the largest daily catch occurred on Feb. 7 when some ten or so members of the RSGB Council spent a day in the Blandford area.

It was most pleasing to be able to meet this years President (G3TR) Executive Vice President (G2YS), the General Manager (G4AR), the Secretary and his Assistant (G3TRP), a Past President (G3IIR), one of the Technical Committee (G6JP), one of the HF Contest Committee (G3GVV) and of course dear old Phil Thorogood (G4KD) - a most impressive array!

Unfortunately they were only able to pause for a brief half hour at G4RS but they seemed to thoroughly enjoy themselves, and the air was full of banter and chatter as is wont when Amateurs get together.

The General Manager (G4AR), was deep in conclave with Bill Graham, (G3KPQ) over the advantages and disadvantages of the SB 101 and KW 2000 A (at least I think that was the topic or conversation - judging by the laughter it could well have been a comparison of ST2 entertainment).

Eric Cole, G2EC, our Vice President, and also Evan Nepean G5YN, were amongst the party and they seemed well satisfied with the new HQ Station.

The occasion also drew together the largest number of licensed Blandford amateurs yet seen, eleven in all, who explained all the various items of gear, operating positions etc. - not forgetting the library (a most important place) - and generally helped make the visitors feel at home.

All in all a successful get together and a very memorable day for the Society.

Society members present were:

HOSTS		OFFICIAL VISITORS	
G3EKL (46)	G3WME (103)	G2EC (1)	
G3IBB (37)	G3MNG (470)	G5YN (40)	
G3KPQ (99)	G3WXX (108)	G3GUV (140)	
G3SYW (183)	Brian Giller (212)		
G3VYZ (173)	Gerry Rhys (58)		

Another of our members who has called and "seen for himself" is G3DNF (185) Gordon Bennett, who called one lunch-time and stayed quite late in the evening. He took the opportunity of operating the HQ Station and was very satisfied with the set up.

Yet another new signature in the book was that of George Twist, G3LWH, who is the RSGB Council member elected by representation in Region 9 (our area). George called on the afternoon of March 8th and had the unexpected pleasure of working John Walker when he was on Cosmoledo Island - one of the islands close to Aldabra. George called the HQ Station "Rolls Royce"- very politely - and thought that the Society was extremely lucky in having such spacious Club premises.

THE OTHER SIDE OF THE COIN
FROM
the Awards Manager GI2DZG (5)

In the last issue of "Mercury", G3SYW made a plea for more interest to be taken in the overseas members and due to an oversight by the Editor my article "On the Awards Front" included a reference to G3SYW's letter. This suggested that I was in agreement with the views expressed in the letter. The fact is that I had never seen the letter!! Our Editor In all good faith, had assumed that I would be in agreement and expanded my "copy" by including reference to the letter. In fact I do not feel strongly on the matter and take the view that as long as claims for Awards keep reaching me, whether such claims are made for contacts on 15 or 80 is of no importance. What is important, to my mind, is that members are keeping in touch and it was precisely for this reason that the Awards were instituted. When I cease to receive claims, then I will be worried.

The strength of any Society lies in it's membership and the fact that our members do keep in touch shows that they are interested. This is substantiated also by the evidence of eleven Class I Awards and twenty-four Class II Awards which have been issued since the scheme was started.

Elsewhere in this issue is a list of the members who have gained Awards.

Iain, in his letter, asks what percentage of QSLs submitted for awards have been for contacts with other than G stations. Here are the answers:

Class I Awards Excluding the two listener members and the two transmitting members who operated with overseas calls, there are seven award winners with fifty contacts apiece i.e. a total of 350 contacts. An analysis of the claims submitted shows that 14 non G stations were contacted ... 4% of the contacts made.

Class II Awards Excluding those who have gained Class I awards, we are left with thirteen members who have made 25 contacts each i.e. a total of 325 contacts. An analysis of these claims shows a slightly better figure with a percentage of 6.7.

The Editor has been kind enough to pass on to me the correspondence received on the subject, a grand total of six letters. With the high percentage of transmitting members in the Society, and even allowing for those who are not interested in awards, surely this is indicative that the membership as a whole is satisfied with the existing rules governing the Awards scheme.

Extracts from the letters received are shown below:

Member 271 "My score is 97 heard and 78 confirmed. Of the outstanding QSL's only six are DX stations. All others are G".

G8VG "Grand total worked is 145, confirmed 130... of the total worked I have had the good fortune to work only 12 (I must spell that out) TWELVE during the so called "Activity" periods ... Of the overseas contacts totalling 18 I have received only 12 confirmations and none of these were worked during "Activity" spells.... may I suggest that he ('SYW) could do myself and a great many others a kindness if he could tell the Field Secretary just how to bring more members into the Awards scheme; how to get QSL cards when a station has been worked, and to listen during the so called "Activity" periods and count up the number of member stations working. No Mr Editor, don't mess around with the conditions for obtaining the award, get the members on the bands."

G3UXH Peter recounts in an amusing letter his first participation In the December "Activity" period with not one member contacted although the specified bands were activated by him. In true "Certa Cito" fashion he has promised to try again in the next period. (Hope you were more successful OM!!)

G3IDG "...one doesn't find European stations restricted to working a limited number of other European countries for DXCC just because some W's have only a handful of other countries within the same radius of them...we can stay on 80 metres until we rot if we choose to. I say let the rules stay as they are."

G3WNH Uses only six watts on 1.8 and 3.5 and is mainly interested in rag chewing says "I think it would be perfectly fair to include a certain number of overseas contacts (dependent upon the number of active overseas members), or alternatively make a separate award (Class III or similar) for LF Band contacts, requiring more contacts than a Class II award, and amend the Class II award to include a percentage of HF band QSO's."

G3SGH From quite a long letter, John says "My experience in four years of constant working on the HF bands (CW only) has produced contacts with four RSARS members, two of whom have yet to reply to my QSL,! Admittedly I was not a member of the Society until late last year, nevertheless with DXCC and 250 countries to my credit one could reasonably expect a few more than four - and whilst on the subject of contacts with RSARS members what happened on the special date in January? I called RSARS on the HF bands all morning with what result -- nothing, and 80 metres all the afternoon - nothing. I did manage to QSO five last Sunday on 80 during the morning and despatched cards to them the following week by letter; one has been answered."

John, ex 5th L. of C. and 98 Medium W/T continues "Is it that local contacts also require an SAE with IRC to cover the labour involved? I'm sorry if this should appear embittered but my experience with QSL's with a number of DX stations and DX-peditions, even to fulfil all the requirements as suggested in "How to increase your QSL returns from DX stations", does NOT guarantee a return and one regrets the time, trouble and expense.

My procedure now is that if the RSGB or ISWL covers that country for QSL's, I'm content to use that Bureau and if the DX country is courteous enough to reply I'm indeed thankful. I believe the sending of IRC, SAE etc. sails pretty close to the recent disclosure of bribes and falsification of cards which brought discredit to Amateur Radio.

I'm probably in the minority on this subject, I suppose it depends upon how important the other man's QSL is, but I think the time is coming shortly now when a revival of the true amateur spirit should be shouted abroad, and QSL's should be the subject of courtesy only. Incidentally, your QSL cards are just fine and if they don't warrant a return then nothing will!!

9M2NF Dennis wrote me direct to give me his score of 30 worked and 22 confirmed. He made no mention whatsoever about the situation.

It is interesting to note that those most affected (the overseas members) have not sent one letter in support of G3SYW's plea. Furthermore the fact that two overseas members have gained Class I Awards shows that the Awards are obtainable.

Obviously, from the correspondence, there is not the amount of activity taking place that there should be during the "Activity" periods. Also, the courtesy of sending QSL's seems to be sadly lacking. On the former, during February "Activity" period I made a survey on all the bands between 1100 to 1200 GMT. Not one member was heard on the spot frequencies, but G3WRY was active on 21 Mhz as I heard him being called by an OE station.

It is up to the membership to activate the bands and I hope you will do so. In the final analysis, anyway, there will be no overseas members in a few years time, thanks to "you-know-who".

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FROM THE EDITORS POSTBAG

203 Mike writes from New York and says that he is active on 10 metres. But the **G3NKR/W2** description of his gear makes my mouth water. Even better is that of the Club station being organised by the Company for whom he works, a synthesised SSB exciter, driving a two kilowatt linear into a three band beam some 45 feet up - but this is only a temporary antenna and will be replaced by multi-element arrays for 20, 15 and 10 metres at an even greater elevation!!! As Mike says "It is great doing it the American way, so long as you don't have to foot the bill!!"

G3NKR is willing to assist any of the members who may be chasing States-side components or pieces of equipment. Anybody interested please write straight to Mike at:
14½ Buckingham Street, Rochester, N.Y. 14807, USA
(And it is meant to be 14½!!)

Tks for your offer about snippets for the "Mercury" OM and I'll be delighted to accept anything you care to send.

469 At present without a call. Harry is trying to beat the authorities in ZB2 land. He has started building a three band exciter for 20, 15 and 10 metres as commercial gear carries an exorbitant tax. But he is having difficulty in progressing as the Telecoms people say "That a licence will be only issued when the transmitter has been fully inspected no transmitting components may be purchased or brought into the country without a transmitting licence!!" Sounds like putting the cart before the horse to me, but I'm sure Harry will cope and we'll hear him on before very long. You are quite right old son - it's Tiny!!

557 Good to have such a newsy letter from you John and to hear that you are in the pink.
WA6CEB I haven't the heart to upset all the readers with another mouth-watering description of gear - suffice to say that John is alright thank you, and looking out for members on 14280 SSB each day around 1430 Z.

282 You've taken your time Maurice hi!!! A typical Caplan letter tells the Society that he has just managed to satisfy the Telecoms Dept and their engineers that his equipment is the goods and that the BC 221 will ensure that he never operates outside the bands - result - VS6AA. Antenna situation is not all that it could be, but dipoles seem to be the order of the day. with emphasis on 15 metres CW. (Step in '8VG

- 275** Sorry that you are having such trouble with W QRM Don. Good to know that you
VP1DW are on the go and hope to hear you one day. Don is on CW mostly on 14 megs but also is
 QSX on 3520, between 2100 and 2359 Z most days. He says that if any member wants to
 make a sked with him, drop him a line at the QTH shown at the end of this "Mercury" and
 he can be almost 99% sure of meeting you. (You are really in luck '8VG aren't you!!)
- 418** Ray Vasper has settled back in DL land after a pleasant six weeks with the Guards
DL5YT at Caterham. I had a QSO with him the other evening and can vouch that his voice
 certainly carries well!! Ray asks me to remind members that he is the QSL Manager for
 any DL5 RSARS members and also to let you know that there is another award for the
 picking. "WARSIG ". Quite easy apparently - you need to produce QSL's for contacts with
 ten RSARS members worked in DL land since 1st Jan 88. Any claims, together with cards
 to Ray, QTHR. There is no catch - there are more than ten active over there!! (Are you
 alright for cards Ray?)
- 432** A hearty welcome back to Les Dicker, who has been QRT since 1964 but has now
9V1OS started making himself heard. Les is running a Drake T-4X with an R-4A receiver and he
 is using a dipole. Hope to hear you before long OM. ("Tks for cryptic note").
- 576** What a nice long letter OM - thank you very much for all your news and I hope that
G3VVH your all-band SSB transistor transceiver is making satisfactory progress. 'VVH is in the
 Colchester area and used to be on the CCF net (13B). He would like to contact any other
 ex-CCF wallahs who are in the Society and wonders whether such members would care to
 get together on the G4RS twice weekly natter nets and then QSY to another freq.
- 464** Can any one help Clarence pse? He is after a 1 Mc/s bar mounted on an octal base
G2UZ for his LM 14 freq. meter. The same beast is used in the BC221. Clarence says that he has
 tried the usual places and dealers but with no success. Any offers pse?
- AFF 45** Nice to hear from you OM, and very pleased to hear that you have managed to get a
9M2RH call of your own. The next move is to work you so eyes down, look in you Award hunters,
 another good DX station for the asking.
- 24** Frank is also in the market for a crystal - an 8 Mc/s rock, preferably FT 243. Any
G3IDG offers straight to '3IDG pse. Sorry about your being upset about the re-issuing of defunct
 numbers Frank. Too late to do much about it now but it is done you know - the GPO even
 reissue call signs at times. I take your point that it prevents one knowing just when a
 member actually joined the Society, but after a careful scrutiny of the HQ bump it was
 decided to try and tidy things up a bit. You can see from the "outstanding subs" list that
 there is a lot of dead wood.
- 598** Another "well done". This time to Geoffrey who got his ticket on 20th February.
G3XGT Good for you Geoff and I hope your Sommerkamp F Line gear gives you hours of
 pleasure.
- 191** Good to work you the other Sunday Mike, - sorry I wasn't one of the 39 gang!!
G3LOV Unfortunately the evening sked of course clashes with the slow morse xmissions
G3LUN from G4RS. I like your No 1 rule - no army matters are to be discussed over the air at any
 time!!

124 What a lovely call sign!! Hope you are having fun out there Keith and that you offer
G3WBL/5A many members another QSL card. By the way - what about some of our gorgeous cards -
I'm sure you can get your hands on postal orders!!!

451 Tks for your sub OM - It came too late to be shown in the "Thank you" section. Any
9M2PO one wanting a QSO with Malaya -try 28600 sideband most mornings around 1000 Z

122 Good to hear from you again, and it's very obvious from your moans that you're
G3RUS almost back to normal!! Yes '4RS does pound the brass occasionally - but I must admit
that SSB usually wins the day!! Sri the wx stopped the gee-gees!!!

268 Good to hear from you Dave and to know that you still have the flag flying high in
DL5XE DL land. Fine business on your fortnightly broadcasts - it seems that you are radiating
better on FM than on the amateur bands!!!

What has happened to your "mini - AGM"?

232 Heartiest congratulations Wilf and very pleased to hear that the HQ Station slow
G3XHJ morse xmissions are of use to some of you. Wilf has just made it with his licence - and is
active on all bands. Tks for your remittance order for cards -- your letter came in after the
subs sheet dead line date.

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ACTIVITY PERIODS

The last Sunday in each month is a special time for you all to get out and about on the bands and find
members.

Frequencies are:3505, 7010, 14020, 21030 and 28040 on CW

3750, 14180, 21440 and 28680 on SSB or AM

Try and make it - activity at present is very low. The dates?

28th April, 28th May, 30th June. ALSO 22/23 June.

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TECHNICAL TIPS

(A suggestion from G3EJF - 4)

Ever wanted a resistor between two preferred values? The writer recently wanted a 8 megohm
resistance but only had several 8.2 megohms and also several 10 megohms at 10% tolerance.

All were checked carefully on an accurate components bridge and it was found that all ran
high - that is greater than the stated value.

So if you want a resistance midway between two preferred values, choose the lower value
chances are in your favour that it will be just about right!

RSARS AWARDS LIST

Class I Awards

No. 1	G8VG	7	G3EJF
2	Member 271 (Alan Aston)	8	G3LAT
3	G3UEV	9	G2DZG
4	G3JEX	10	GM3NXA
5	VS9ARV, VS9HRV, VS9KRV, G3VIY, DL2YT	11	Member 481 (Gordon Allis)
6	DL2BL, VS9AFR, MP4TBV G3NKO, GM3NKO		

Class II Awards

No. 1	AFF 30	13	Member 481
2	G3LHJ	14	G3VNX
3	Member 271	15	DL2BL, VS9AFR, G3NKO
4	G8VG	18	G6VQ
5	G3UEV	17	G3UJW
6	G3EJF	18	G3CIO
7	GM3NXA	19	G3WET
8	G3DMK	20	G5PM
9	G2DZG	21	G3ORY
10	G3LAT	22	G3VIS
11	G3JEX	23	G3POY
12	VS9ARV, VS9KRV, VS9HRV	24	G3EMO

Special Award for the first Transmitting member to make one hundred confirmed contacts

G8VG

ON THE AWARDS FRONT

KEN TURK - G3UEV

Holder of the Class I Award No 3, Ken Turk, spent most of his Service career in India where he ended up as a F of S at Luchkow. Ken's first trade was ES. Later, he became an I. Mech III and subsequently R. Mech Class II.

Ken, who installed the first public address systems at Delhi and Lahore railway stations, says his worst experience was in the climbing of 90 foot section mast in pouring monsoon rain, in darkness. With one end of a delta matched antenna around his waist, he had to effect a repair for a vital link. The only light was the flashes of lightning all around at the time.

Demobbed in 1947, Ken married his ex-ATS girlfriend, who was a tailoress with the Corps (R Signals) at Huddersfield. Present employment is as Service Manager with a large retail TV/Electricity organisation in Lancashire, G3UEV has golf as his second hobby.

Equipment used is a KW Valiant on the transmitting side and a much modified CR100 as receiver. A half-wave dipole at 45 feet is used for 1.8 Mc/s, one half being used for 3.5 Mc/s whilst a Windom antenna is used for 7 and 21 Mc/s bands. Most of Ken's operating is on the key though an SSB exciter is almost ready for use on 14 Mc/s. It is also planned to be active on 4 metres.

DAVE BUTLER - GI3JEX

Like G3UEV, Dave Butler, holder of the Class I Award No, 4, also spent a large part of his service career in India where he served with the 14th Indian Division Signals, It is of interest to note that one of Dave's instructors was a Sergeant Lissen, a member of the well-known family who were in the radio component manufacturing business in the 1920-'30s.

With a son serving in the Royal Air Force on communications and stationed in ZC4, GI3JEX is a member of CHC, FOC, RCC. TOPS and the RSGB. He confesses to a dislike of phone operation and is not a DX enthusiast, though he has 34 awards to his credit and has contacted and confirmed 34 countries on 1.8 Mc/s, including UF6, ZC4 and ZL.

Dave lists his hobbies in the following order; XYL, his children and grandchildren and radio operating and constructing ...(a replica of the Swan 350 is on the stocks).

He and his wife maintain the log and despatch QSLs on behalf of GI3TK who is a blind amateur.

Equipment used is a Viceroy Mk II with a transverter for 1.8 Mc/s. The receiver is a Geloso G209. A Pye Reporter is used for occasional operation on 4 metres. Antennas in use are an inverted trap dipole and a ground plane.

RON FORD - GM3NKO

Class I Award No 6

Ron Ford is somewhat younger than the two previous award winners. He enlisted as a boy at Beverley in '51 and there, after being taught the basic principles of discipline, he passed out as an OWL and was posted to Malaya in '54 with the 15/19th Kings Royal Hussars. He wasn't long in getting a licence and was soon active as VS2FN.

After three years of DX operating he returned with the same Unit to Ulster where he operated as GI3NKO until early 1960. Ron freely admits that a GI3 is nothing like as useful as a VS2 but he managed to make himself heard. The next move took him on a parallel path with the Editor when they both QSYed to Germany on the same troop train. This was in the summer of 1960 and DL2BL was allocated to Ron in October of the same year. This call was extensively used all over North Rhine Westphalia. Not a keen G man (or perhaps particularly friendly with somebody at Records) his next move was out to VS9 and there the QRM was soon piling up around the frequency occupied by VS9AFR. Whilst there Ron had the opportunity of operating from Kamaran Island and also from Sharjah in the Trucial Oman.

Tiring of the sun, he returned to G land in '65 and was sent for his sins to the Junior Leaders Regiment in the Newton Abbott area and was very quickly active as G3NKO. Whilst in Devon he was instrumental in getting a club station weaving and spent many hours helping the youngsters at G3PYZ. Finally another QSY late in '67, via G4RS, to Glasgow which is where he is at present operating as GM3NKO. Surviving the murderous gales of last January, he was to be heard albeit with a makeshift aerial, the day after the hurricane that had stricken the city.

His equipment now is a KW 2000A and random lengths of wire dependent upon location. Couple this with a tolerant XYL and four harmonics - result, one very active communicator!!

CURRENT SCORE BOARD

G8VG	145	worked	130	confirmed
271	87	worked	76	confirmed
G3DMK	60	worked	34	confirmed
GI2DZG	56	worked	50	confirmed
9M2NF	30	worked	22	confirmed
G3EKL	35	worked	24	confirmed (Sweating!!)
G3IDG	21	worked	12	confirmed
G3WMX	69	worked	39	confirmed
G3EMO	35	worked	24	confirmed (Also sweating!!)

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RULES FOR THE ROYAL SIGNALS AMATEUR RADIO AWARD

1. The object of this award is to encourage activity amongst the transmitting and listener members of Royal Signals Amateur Radio Society.
2. The award is available to all individual members of the Society and the affiliated clubs subject to the conditions laid down in these rules.
3. The award will be made in two classes and will consist of a certificate for the Class II award and a Royal Signals plaque for the Class I award.
4. Transmitting members must furnish proof of contact and Short Wave Listener members proof of having heard, member stations as detailed below:-
 For the Class II award:
 25 member stations including the Society's HQ station G4RS/GB3RCS
 For the Class I award:
 50 member stations including the Society's HQ station G4RS/GB3RCS.
5. Members may either submit QSL cards or other written confirmation or a list certified by two licensed radio amateurs, an officer of a National radio society or an Officer of Royal Signals. Such a list must take the following form:

"This is to certify that I have examined QSL cards or other written confirmation from the stations listed below which confirm contacts made by/reports submitted by station

Signed
 Appointment/Callsign

Signed
 Appointment/Callsign

Date	Time	Freq. Band	Callsign of Member station contacted/heard
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6. Member stations contacted/heard after 1 Jan 1965 will count towards this award. For the purposes of the Award the same member operating under different callsigns from different countries will count separately under each callsign. Thus G3NJM and 9M4MB although operated by the same member count as two member stations.
 However, contacts made by this member under either callsign will count towards his own award.
7. Claims together with the supporting evidence should be sent to:-
 Mr. W. E. Caughey, Awards Manager RSARS,
 Gilnahirk Park, Cherry Valley,
 Belfast 5, Northern Ireland.
8. Details of awards presented will be published in MERCURY.
9. Transmitting members of the Society are asked to scrutinise all listener reports received and to assist by issuing QSL cards to listener members of the Society. Listener members are asked to ensure that their report cards are clearly marked "Member Royal Signals Amateur Radio Society".

AVAILABLE FROM HQ

MEMBERS' NOTEPAPER This is a good quality white paper and costs 8/4d. per 100 sheets post free.
MEMBERS' QSL CARDS The basic card cost 37/6d. per 500 post free. We can overprint your callsign, Name and address in black, red, blue or green for a further 15/- per 500, making a total price of 52/6d. per 500, less than a penny farthing each.

ORDER FORM

(Block letters please)

NAME **CALLSIGN**

ADDRESS

I enclose Cheque/Postal Order for Please supply :-
..... sheets of Members Notepaper at 8/4d per 100
..... Basic QSL cards at 37/6 per 500
..... QSL cards overprinted in(State colour) at 52/6 per 500

Cheques and Postal Orders to be crossed and made payable to
ROYAL SIGNALS AMATEUR RADIO SOCIETY and post to:-

Captain (QM) R.A. WEBB, R. Signals
30th Signal Regiment,
Blandford Camp,
BLANDFORD FORUM,
Dorset.

**APPLICATION FOR MEMBERSHIP OF THE
ROYAL SIGNALS AMATEUR RADIO SOCIETY**

I wish to apply for membership of the Royal Signals Amateur Radio Society as under:-

ANNUAL MEMBERSHIP (5/- per year)	SUMENCLOSED
LIFE MEMBERSHIP (£2.2. 0d)	_____
CLUB AFFILIATION (10/- per year)	_____

SURNAME..... **CHRISTIAN**

NAME.....

ADDRESS FOR CORRESPONDENCE

CALL **SIGNATURE**

(Give brief details of your service on reverse of form)

PLEASE RETURN TO : Captain (QM) R.A. WEBB, R. Signals
30th Signal Regiment,
Blandford Camp,
BLANDFORD FORUM,
Dorset