JANUARY 1960 CQ-TV No. 3

Reprint

Editor's Note

Dear Ons,

This is written for those who are sober and fully recovered from the effects of the Festive Season. Let me take this opportunity of thanking you for the wonderful amount of mail and cards that came in. I hope that if I neglect to reply personally to you, you will not be too offended.

This is a much shorter edition than the last, but should be more legible, as I am back on the good typewriter; however I note with alarm and despondency that the ink is blurring...

There is still no news from the GPO, but the BBC say that they have not yet been able to arrange a meeting. The Television Society are also pressing, it appears. It is possible that when the RF allocations do eventually arrive, we shall get 1215-1300 Mc/s and/or 420 Mc/s, so don't do anything drastic for the time being! The 25cm will be troublesome - SSBs with CV90s..... may mean Negative modulation, etc. We look like having fun, men. 73s,

(Here was a small cartoon).

Mike B, G/CVO.

(The original stencil for this page has been lost. July 1965).

"THIS MONTH'S SHORTS....."

DID you see we were mentioned in the Daily Mail?
That makes the Herald, Mail, Bull, W.W to date.
Publicity.....

HAS anyone a source of 16mm test films? Also clean and clear stills for IFO work?

SOME modifications and corrections:
Last week's interlace generator; use an EF55 in the last stage to handle bigger grid swings; neon stabilise the 10 and 20 kcs oscillators to avoid trouble with mains voltage variations.
That pre-amp. input circuit did not come out well, so I will redraw it and include it in this copy. Problem: Where is the missing circuit? No PSU data for said pre-amp, as it has not been tested yet.

SKEDS - 3765 Kcs SATURDAYS 2100 and 2200 Local time.
1892.5 Kcs THURSDAYS same times.
Listen for "CQ-TV", and remember our Dutch friends may be around too.
Let me know any futther suggestions for skeds.

ANYONE get a 5527 for Christmas??

THERE is a new TV activity map this time. Towns marked have one or more of our members resident, but not necessarily active.

WANTED: Will the person who has the TV Circular letter containing the Iconoscope circuits and TWO copies of QST please return same to G2DUS, 40 Regent St., Stotfold, Beds - DIRECT and IMMEDIATELY, please.

PRIZE (not a 5527) offered for winning design for a Club TV QSL - one we can all use by overprinting our own calls. Any bright ideas?

THE TELEVISION SOCIETY has contacted us, and has very kindly offered to help out with tickets for their functions, which are normally held at the C.E.A 164 Shaftesbury Ave., W.C.2.
Recent meetings have covered "Contracts and Casting", "SSB Rxs", and the next meeting on the 27th at 1900 is on "H.F Cables in Television".
The Club is getting a copy of the Society's Journal, and this may be borrowed on payment of postage.

NEW 'UMS: Fred PILKINGTON, Graizelound, 63A Ely Rd, Littleport, Cambe.
G.T.WILLIAMS 15 Park Way, Rickmansworth, Herts.
I.J.P.JAMES G5IJ, 40 Julien Rd, Ealing, W.5
Welcome, ems, and hurry up and get going with TV!

oooooCOOOOoooooo

Sorry, men, but I can't forecast the publication date for the next edition. As there are now only 101 days, 6 hours and 14 mins to go before I am once again a civvy, - there may be some delay in store.

TV in HOLLAND

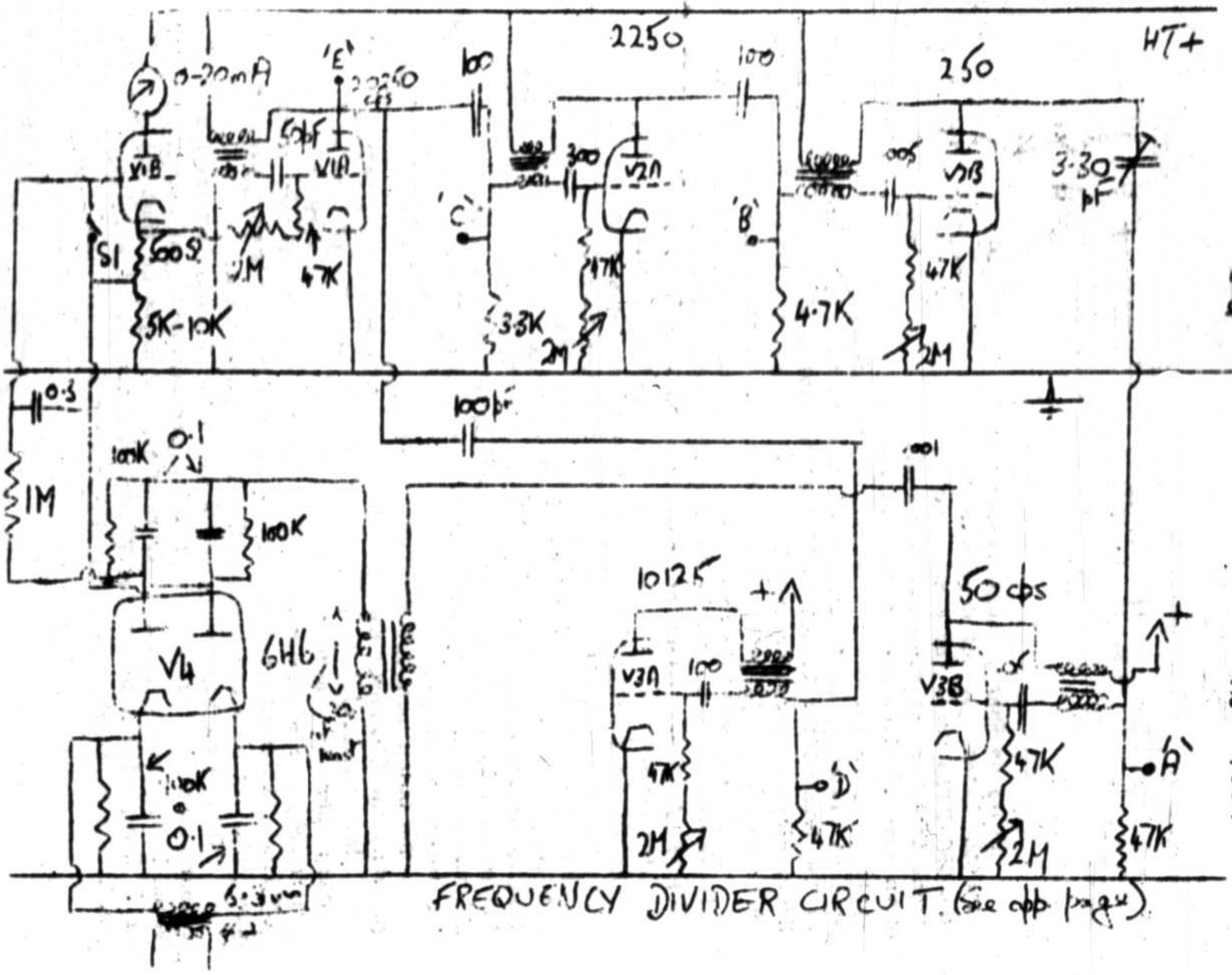
Henry de Waard, PACZX has written with the latest news of developments in the GRONINGEN area. The camera and transmitter are at Winschoten, a small town some 25 miles from Groningen, and are operated by PAOVT. Several receivers are working well at distances of 15 miles, but to date the field strength of the transmitter is not sufficient to give good results in Groningen. Henry suspects receiver trouble at the moment. The Vision Tx is on 145 mc/s, running at 30 watts. Sound is on 29.64 mc/s with 40 watts.

A.F. van Aggelen, PAOXN gives the 'gen' on the Haarlem TV-TX. This is his own job, and is running 275 lines, double interlaced. A 5527 is again the camera tube, and the Sync. is to U.S.A standards. Negative modulation is in use, and the system is locked to the 50 cycle mains. 'XN is grid modulating a pair of Eimac 4-65A's in p-p on 145.35 mc/s, but is not fully satisfied with the operation of the P.A yet, as he is only getting 60 watts. RF drive comes from a C.O-807-807-832-829B. A 16 mm projector is in use for tests, and the titles are fully readable. Shading occurs badly on live material, but 'XN is still experimenting. The antenna is 45 ft high, and reception is good throughout Haarlem. All the equipment except the camera, is in a 6½ ft high by 21 ins. About 150 tubes are in use.

The Dutch hams are well organised in a section of VERON. PAOTZA, who runs the Eindhoven ham Tx, presided at a meeting they held recently

The commercial tv people are fighting out the problem of How-many lines; there is a strong case for 625 lines, but in view of the lack of programme material, Henry, at least, points out that if they stick to 405 lines, it should be possible to relay A.P programmes - even if we have to do it on a ham basis first to convince them!

They certainly are ahead of us at the moment, but given some encouragement in the form of official permission to put out TV, I think we shall be able to equal their results, and maybe do that relay after all! Henry will look out for TV men on Saturdays at sked times, and if you have some tricky problems, please keep them for him.



FREQUENCY DIVIDER CIRCUIT. (See opp page)

A MAINS SYNCHRONIZED PULSE GENERATOR by P.Parkin.

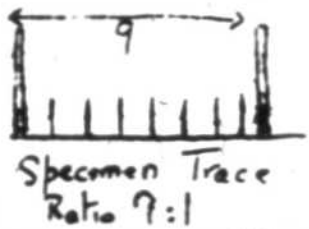
(This pulse generator can be used as it stands for sequential scanning, or the pulse outputs can be used to sync the multivibrators in the interlace generator circuit given in the last edition).

The pulser, shown on the opposite page, will give 20250 cps, if required, 10125 cps, and 50 cps pulse outputs. V1A generates 20250 cps pulses, which are used to sync V3A at 10125 cps, and V2A at 2250 cps, i.e dividing by 5. V2B runs at 250 cps, and V3B at 50 cps. V4 is a discriminator which compares the mains against the 50 cps obtained by division, and applies an Automatic Frequency Control voltage to V1B. This tube acts as a frequency control valve, correcting the frequency of the basic 20 kc oscillator to keep the whole arrangement locked to the mains.

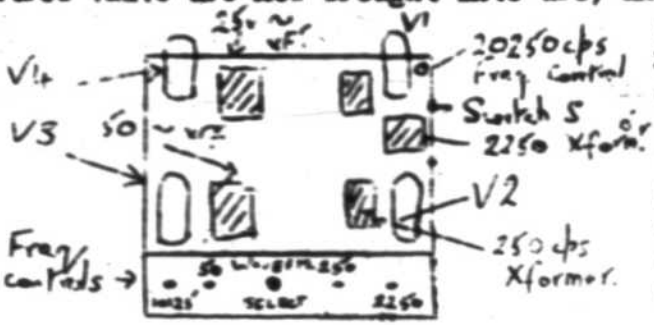
The meter reads A.F.C volts, and is arranged to give a mid-scale reading at 20250 cps, by adjustment of the Cathode bias resistor.

The discriminator circuit is rather experimental, so it may be cut out by the switch S1. Provision should be made for getting at the AFC valve connections in order to reverse the polarity of the DISC input if necessary.

All the oscillators are blocking oscillators for economy in the number of valves required, and the transformers may be any low ratio L.F type. Those from the ID/APN4 are very suitable, shunted by a 10K if necessary.



Lining up is done with a scope. The 50 cycle oscillator is set up first, and to prevent pulling may be temporarily locked to the mains by taking a 0.001 to the heater pin from any convenient point. The scope is now taken to point "A", and the 250 cycle osc. is adjusted until the frequency ratio is 5:1 (see fig). Repeat for the 2250, 20250 and 10125 cps oscs., setting the ratios to 9:1, 9:1 and 1:2 respectively. The discriminator and its control valve are now brought into use, and the polarity of the AFC volts adjusted so that the 20 kcs osc. does not hunt about.



Output is taken from the anodes of the tubes required, and may be used direct for sync purposes, or amplified and squared in the usual way. A suggested lay--out is given on the left.

420 mcs Aerials

By W.A.Wemyss.

(This is the conclusion of Mr. Wemyss's lecture to the Catterick Amateur Radio Club, and whilst actually being on the subject of 70 cms, is also applicable to other U.H.F bands).

On 70 cms the problems of aerial design are more pressing than on 2 metres. For ham work, a stack is a necessity on Two to give all round radiation, and so reduce the number of directional CQs requd. Similarly, on 420 mcs, it is necessary to have an array that gives all-round radiation at a very low angle only, (stack, turnstile, quad, etc), for general work. But on 420 mcs, $\lambda/2$ is only 12 ins., so it is possible to construct very high gain parabolas, etc, quite easily and economically For communication purposes, then, two arrays are an optimum:

(1). A general coverage system with slight directivity, for hearing other stations and roughly DF-ing them.

(2). A high gain system for working them once contact is roughly made.

For Ham TV work, fixed beams will be in use, and so we can go all out for gain. A simple parabola made out of wire netting can give a gain over a dipole of some 30dBs, Fig. 1.

Fig 1

Since the system relies upon the reflecting properties of the parabola, an increase in gain and directivity results if the direct radiation from the dipole is cut out by the insertion of a reflector in front of the radiator (Fig. 2).

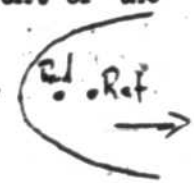


Fig 2

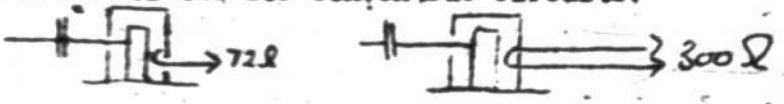
If sides are put on the parabola, the construction is simplified, and the array becomes a "Cheese" array (35 dBs). If space is pressing, the cheese may be cut in half (Fig.3).

Fig 3

The centre impedance of the fed dipole will be as for a normal Yagi array with the same spacings. Other types of reflector, such as sheet, horn, corner, etc, suggest themselves, but in view of the ease of building a parabola or cheese, and the loss of gain, it is not really worth it.

Feeders are a tricky point. Co-ax has high Capacity and dielectic losses, and ribbon has a high radiation loss as well. Where possible, the TX PA should be mounted right onto the aerial itself.

Matching to the tx may be by link if lines are used in the PA, or as follows for concentric circuits:



"WHAT THE OTHER BLOKE

IS DOING....."

G2FXA, Stockton. Of "News Chronicle" fame. Is hoping to attack a 9.5 mm projector with a 931 in the usual manner. Also is "doing" a TV rx for Sutton - besides rebuilding his transmitter power pack, and VFO. His EC545 is also giving trouble, and so is the 144 mc rig. He wants to make a wire recorder too. Can it be he is gettin' dandruff now?

F9HH, Paris. Bernard writes in with some news of the Eiffel Tower 819 line signals. He says it is nice, but very expensive..... Hopes to let us have gen on current French activities and research from time to time.

GEOFF. EVANS, Starmore. Since demob he has been doing refresher courses prior to going to the EMI Institute this year. Geoff has had time to make a TV radiogram - CRM51, FB superhet for sound, Axiom 12, push buttons, etc - and also a portable TV set, using condenser dropping and a 3" tube. Although a fine trumpeter, he has not had time to do much blowing. Activity with another Horne???

G5ZT, Plymouth. Harold has been having a rare time. He lost his shop, store and workshop in a large fire. His TV RX for A.F (200 odd miles now consists of three p-p EF54 RF stages using resonant line tuning, Mixer, 5 15 mc IFs into the usual; sound into a B26, a 9" tube, and two aerial arrays: 3 - over - 3 vertical, and 3 ele. W/s horizontal! And there is a GEE station about 2 miles away..... Harold says he can almost see them sticking their tongues out at him during TV hours - especially since the 2nd harmonic of the Gee Tx is around 61.75 mcs! Vision is irregular due to these things, but H. gets the sound S1-9 - three nights entertainment per week at least. Another case of dandruff, I fear...

FRED WOOD, Bexley Heath. Fred's tape recorder has arrived, so he has been concentrating on getting that going. He has started on a 420 mc converter.

ZS6GX, Germiston, S.A is a regular visitor to the U.K by courtesy of S. African Airways, and can be reached via G6VX (Hayes, Kent) when here. Has a good supply of blue trace CRTs and 931As, and is hoping to get some of the ZS's TV minded.

DAVE BISHOP, Weymouth. Dave has been experimenting with A.F E.H.T units, and on his early models is getting about 7 kV at 500 micro-amps, at 4 mc. He is going to let us have details as soon as he gets 10 kV!

BILL NORTH, Lane End, Bucks has been very busy at his garage, but is now finishing off his pulser (non-interlace). Bill has not been able to get hold of a short persistence tube, so he has temporarily modified his TV equipt to work on about 80 lines. Results so far are a Black Cross - DX being about 100 yards.

TONY SALE, Lane End, has just joined the RAF, and we have no news.....

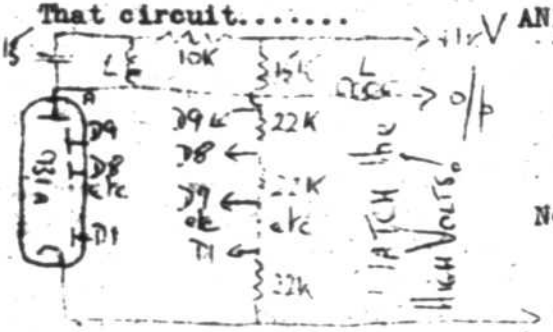
MICHAEL BARLOW, G3CVO Gerrards Cross, has nearly completed his 931A pre-amp., and is busy building the interlace generator (Sale) plus the Parkin frq. divider, and monitor unit in an ID/APN4 unit.

IVAN HOWARD, G2DUS, Stetfold has rebuilt his Ike units over Christmas, and is now getting poorer results! From personal observation I can confirm that his 200 line non-interlaced pictures have a real BBC quality, at least over closed circuit. He can reproduce the 2.5 mc bars on the tuning signal quite well, in fact looking at his monitor tube (9") one would think that AP was doing the transmitting. Anyone going down the Great North Rd is definitely recommended to drop in and see the rig. Ivan hopes to put on a Press cum GPO cum BBC TV service show as soon as he gets the pictures back to their previous stage. Even as it is now, the definition and contrast are really good, and I should think Ivan will certainly be the first of us to put up anything like a professional quality show.

IAN MACWHIRTER, G3ETI, Great Heols, suggests we stick to sequential scanning in view of the difficulty of getting a perfect interlace. There is one point, Ian - have you remembered that if we interlace, then the persistence of the CRTs can be twice as long without loss of definition? 200 line double interlaced should be easily possible. Ian is ready to go on 438.6 and 420.05 mcs. No 5527 yet, but he has some ingenious ideas for tuning signals: a nifty female arranged to be blurred at less than 5 mcs response.... tune for max. definition!

FRED FILKINGTON, Littleport, is at the Wireless College in Colwyn Bay. Is studying for his PMG and Ham tickets, and playing with TV Rxs.

That circuit..... AND



Have you seen that TV RX kit by a very well-known firm that has DC restoration, and THEN condenser coupling to the CRT?? Another brown paper bag, Algernon.....

Next edition (due ?) will have articles on film scanning with an interlaced scan, and Ike circuits - I hope....

Cheyne Cottage,
Duken Wood Drive,
Gerrards Cross,
Bucks.

January, 1950.

Dear ones,

due to our now very large circulation - some 55 copies - I am finding the financial burden of doing the printing rather a strain. I am sure you will appreciate that reliance on voluntary subscriptions tends to leave me somewhat out of pocket. Therefore after discussions with as many of you as possible, as from this edition a subscription of 4/6d per annum must be levied to cover production costs. Those who have already contributed have been credited with this amount, and a receipt will be enclosed herewith. If you have sent money, and do not get a receipt, please let me know at once. If you are particularly hard up, the next (Feb - March) edition will be sent anyway, but after that it will have to be 4/6d or nothing!

If the circulation stays up, it may be posible to increase the size of the magazine, - or even to pay the contributors for their efforts.....

Sorry to be so depressing at the start of the year!

73s,

Mike Barlow, G3CVO.

TV ACTIVITY MAP - revised monthly

FRANCE - PARIS
HOLLAND - GRONINGEN, HAARLEM, EINDHOVEN
S. AFRICA - GERMISTON