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Editor's Page

Dear Ollis,

This month we have the great pleasure of informing members that Sir Ernest Fisk has accepted the Honorary Presidency of the Club. Sir Ernest Fisk is well known for his support and encouragement of amateur activities, indeed it was at his instigation that Messrs EMI, Ltd, of which he is Chairman, founded an Amateur Division. This Division has brought EMI products to the notice of amateurs, and conversely has been of the greatest help to amateurs on many occasions and in many ways, of which their stand at the recent BATC Convention was a good example. In view of the record of the company in the Television field, and also for their particular help to the Club, it is very fitting that our first President should be one of such high standing both in that company and in the radio industry as a whole. Welcome, Mr. President, and we hope that our association will be long and successful.

It is also with pleasure that we have heard that the 70 cm amateur band is released for amateur TV; this band is already being exploited, and existing techniques and circuitry can be successfully employed at this frequency. In this connection we are glad to see that amongst the new members are several who are already well known for their work in this band, and we can now say that technically there is now nothing to stop us. Unfortunately, however, the Post Office has seen fit to demand an annual licence fee of £3 in addition to the normal transmitting fee, thus penalising those of us keen enough to overcome the extra difficulties and expense of actually transmitting a picture by at least £4-10-0, compared with those members restricted to closed circuit work. Clearly this fee is quite exorbitant, and as such is merely hindering our work. When one considers the possible number of television QSOs that any one station can make, this recurring charge of three pounds for what is, after all, just another form of modulation is seen for what it is. In any case, as an annual charge, it will be the limiting factor in the economics of almost every one of the BATC members, whose enthusiasm and ingenuity can only overcome certain difficulties caused by lack of money to spare. It may well be, however, that in due time the authorities may relent, and so bring amateur TV transmission within the reach of everyone who can afford to make a simple transmitter, and not merely to a fortunate few.

At this point it is necessary to restate that the BATC is not run by, organised for, dictated to nor under the wing of any other body. The aim of this magazine and the publishing staff continues to be to present the latest news on techniques and happenings, and to take every opportunity of publicising both the Club and Amateur TV activities in general through the pages of any journal offering such facilities, regardless of the Editorial policy or other opinions expressed in that magazine. This statement is made in the hope that it will clear up any misunderstandings that may have arisen.

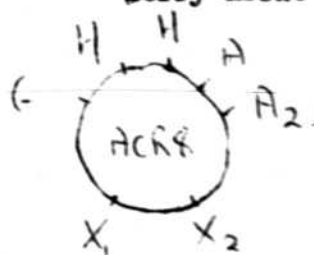
In conclusion, activity and membership are both larger than ever, and show no sign of decreasing. In this season of lectures, many members will probably be discussing amateur Television, and will probably enrol further workers. The Christmas edition of CQ-TV should contain something for everyone, whether they be

video or RF experimenters. Until then, good luck!

K. Barlow.

IN BRIEF: Grant Dixon points out that to obtain equal gain in both negative and positive positions of the cathode/anode follower output stage, just leave out the bypass condensers, and put equal anode and cathode loads, 15K or so. Howard Grubb G3FNL is giving a lecture on TV Modulators for 70 cms at the next RSGB London meeting. Mr P.A. Jordan of the Amateur Cine World points out the following troubles with G45 camera guns: wrong shape, gates designed regardless of film protection, incorrect shutters, no viewfinder, no room for standard cassettes; in addition, the lens is double normal focal length, has no focussing arrangement nor iris diaphragm! However, Grant Dixon is using the lens in a 35 mm film head for telestill use; details later.

Sorry about those ACR8 connections; correct ones below. H.C. Barton has some



news of commercial tubes: GEC tubes 1" and 2 $\frac{1}{2}$ " have screens type E (Blue) B (Green) M and C (Long persistence). The 1" series type 4104 are £4+15-0, 3 months delivery. The 3" 4205 series is only £5, and ex stock. The Maxda 30C2/P3 is a 5 $\frac{1}{2}$ " blue tube, rated at 6kV, and is only £25! Amateur Radio Service, Bury, Lancs have new 931As @ 7/3.

Giving a lecture? The Hon Sec has a good number of large photographs you can borrow for a S.A.E; good notice, please.

Remember too the new Mullard filmstrips on CRTs, History and Principles, and Manufacture. Messrs K. Norvall, 5 Torrens St, City Rd, C11 have a good series of transfers for controls, etc. Unfortunately they cannot do a series of TV ones, but some of their oscilloscope and transmitting ones are suitable.

Graham Goodger ZL2RP has now moved to his new home at 76D, Rongatai Lei, Wellington E5, New Zealand. He asks for gen on telecine as he is a home movie man, and also wants a scanning tube! Talking of scanners, Premiers are out of white ACR1s and "Xs, I am told. Still have green ones, which seem OK. S.J. Hannaford has a 18mm G.B Talkie, sound speed only, 250W 50Volt lamp, 1800' capacity. £25. Write Sid at Beechwood, Croston Rd, Lostock Hall, Preston, Lancs.

Anyone got a 5928 travelling wave tube? these are 20" long and 5" diam. Have a gain of 26 dBs at 5 kMc/s, with a bandwidth of 1 kMc/s and a 30% efficiency!

Want a photograph of your gear? Jim Johnston, 30 Dawlish Drive, Pinner, Middx will help; ring Field End 8970.

If you are still working on the 1200 Mc/s band, why not try a CV52 (E1231). These are rated at 1200 Mc/s and are 5V 0.75A htr, Va max 200 Va 12 μ 12, Gm 8, Rn 1500 ohms, Ia average 60mA 27% effc at 50 cms, 4" at 25 cms; all internal capacities are 2.5pF. The price is only 4/6 at Premiers, and the connections:

CLUB EXTRAS ARE STILL AVAILABLE; QSLs, badges, paper,

Certificates, etc.

Please address mail for the Secretary to New Court, St Johns College, Cambridge, until December 6th.

420 Mc/s references from Fred Rose: "Tripling to 420 Mc/s with an 832A" QST June 1948 p52. "Doorknob oscillator for 420 Mc/s". QST Jan '49. "25% Tx for 420 mc/s" RSGB Bull May '51. "Exciter for same" Bull March 51 p326. SJS Butterfly osc for 420 QST Feb 51 p45. 420 Mc/s Rx S.W. Mag June 48 p262. "Simple Tx's and Rx's" QST Nov 1947 p15. "Resonance Indicator" SWMag April 49. p132. "Tx's and Rx's" QST Aug 50 p11. AT THE TIME OF WRITING, I T IS NOT KNOWN whether we shall be seen at the RSGB Exhibition. In case it is necessary to call upon you for help, can we ask you to make your stuff look really presentable this year? Further news by post later.

A SCANNER FOR STILLS AND CINE FILM

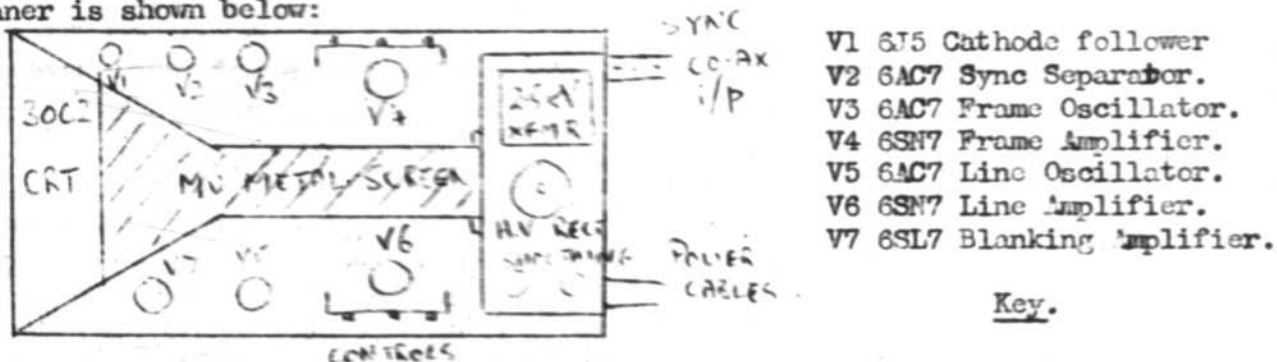
By Fred Rose, G5ELV/T, Grad. Brit. I.R.E.

The following is a description of the scanning gear shown at the recent BADC Convention. Complete circuits have not been included, as for the major part they follow standard practice.

The scanner itself employs a 6" tube, and is built to the design of a normal TV set originally intended to take a VCR97. The circuit was taken from "Inexpensive Television", as this circuit gives easy control of raster size. The only addition to this unit is a 6SL7 employed as a triode inverter and triode blanking pulse amplifier. The main pulse generator is on a separate chassis, and was outlined in a recent issue of "CQ-TV". Output from the P.G. is in the form of mixed frame and line pulses of negative polarity, and is fed to the scanner by co-ax; this necessitates the use of the sync separator as described in "Inexpensive Television". It was found that the sync output from the pulser was so strong as to cause the sync separator to overload and perform erratically; a simple attenuator cured this. The blanking amplifier tube was fed with the full pulse input, however, to ensure complete blanking of the flyback lines. Blanking signals are applied to the grid of the scanning CRT via a 0.1 μ F 2.5 kV condenser.

This system of obtaining blanking pulses from the sync pulses works reasonably well, but as the blanking pulses are too short to give front and back "porches" of black level prior to the sync pulse and after it, synchronising is liable to be upset if there are bright objects at the edges of the picture. The obvious cure is to build a proper blanking pulse generator, but this trouble can be greatly reduced by making the timebase flyback time as fast as possible.

The scanning tube is not, of course, a VCR97, but a tube specially made for telecine work, the Mazda 30C2. This tube is a 5" flat faced tube with a blue trace, and is rather expensive. No doubt the tubes recommended in "CQ-TV" would also give satisfactory results. It is not recommended that tubes smaller than 8" diameter should be employed due to the difficulty of getting a sufficiently small spot size*. (* G3AST reports good results using a 1" tube, q.v). The layout of the scanner is shown below:



- V1 6J5 Cathode follower
- V2 6AC7 Sync Separator.
- V3 6AC7 Frame Oscillator.
- V4 6SN7 Frame Amplifier.
- V5 6AC7 Line Oscillator.
- V6 6SN7 Line Amplifier.
- V7 6SL7 Blanking Amplifier.

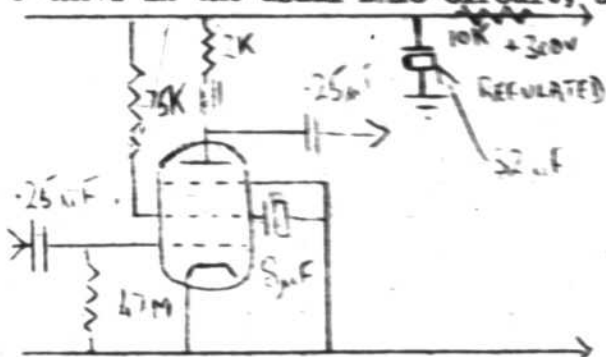
Key.

No special precautions were taken in the construction of the unit; no screened leads were used, but the mu-metal screen of the CRT was found indispensable and must, of course, be earthed. The sync input was screened to prevent radiation and interference with nearby BC sets.

The Video Amplifier:

This uses a 931A fed with a total HT of 300V; this is a low value, but is quite sufficient when used in conjunction with a 30C2 for scanning. It is essential

that the cell HT is really well smoothed, 88 mfd 20H and two 20K resistors were necessary before ripple was eliminated. Output from the cell is applied to 3 6AC7s in the usual B.T.C. circuit; a sample stage circuit is shown below. A



6SN7 strapped as a single triode is used as a Cathode follower. The coils used in the 6AC7 anodes are Weymouth MW coils, but the type of coil required will depend on the type of scanning tube used, and also upon stray circuit capacities. Test with a pulse input as indicated in the last edition.

The unit is built on a small Eddystone diecast chassis. HT supply is from a valve stabilised power pack separate to the 93L1 supply. Output is via co-ax.

Typical video stage.

Stills:

At first the writer was under the impression that a lens assembly would be required, but experiment showed this to be unnecessary. Indeed, the extra cell output obtained by using lenses was sufficient to overload the amplifier. With the particular scanning tube used, overloading occurs without a lens system if the cell is nearer than 9" to the CRT, when the latter is operated at 2.5 kV. Perfectly good pictures have been resolved with a separation of EIGHT FEET between scanner and cell. Normally at G3BLV/T stills are 4" x 3", placed as close as possible to the CRT face, the cell being some 18" away. Care must be taken to keep out room light of course. Due to the thickness of the CRT face the spot and the transparency are not in the same plane, and this causes loss of definition in the system. However, 2 Mc/s bars are easily seen. The transparencies were drawn full size, and 1/4pl lantern slides were made by a local photographer; coloured transparencies are not suitable due to the high blue sensitivity of the 93L1 PEC.

Cine film Unit:

After some thought, it was decided to use continuously moving film, as the pull-down time of most projectors is so long as to produce a noticeable flicker on TV. A synchronous motor is employed to run the film at 25 pps to lock in with the 50 c/s TV TBs. To make this 25 pps into the 50 pps used in sequential TV, each film frame is scanned twice, this being achieved by running the scanner frame timebase at 25 per sec in the opposite direction to the film motion. The scanner frame height is adjusted until the two rasters that appear on the screen above one another occupy the same height originally occupied by the 50 c/s raster.

A lens is necessary to focus the two rasters onto the film frame, and a Dallmeyer 2" f4.5 is used by the writer. A 1 1/2" diam biconvex condenser lens between film and cell brought the output up to the overload point again. Due to the focussing action of the lenses, definition is much better than on stills, better than 3 Mc/s being easily resolved.

Both the frame pulse generator and the projector motor are driven from the mains, and so are always locked. However, it is vital that the scanner frame TB is very linear; a little thought about the CR constants of the coupling components is called for! The unit is very satisfactory, however, and in view of its simplicity makes a very good starting point for a complete TV station.

Members are reminded that when writing to ask for details, etc, an SAE is always welcomed.

Sid Hannaford writes to say that 16 mm film sprockets, etc can be obtained from Specto Ltd, Vale R d. Windsor. Berks.

AN ELLIPTICAL TIME BASE FOR WAVEFORM MONITORING APPLICATIONS

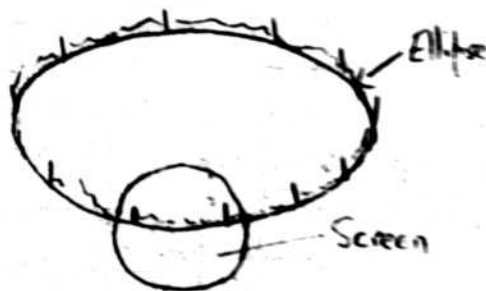
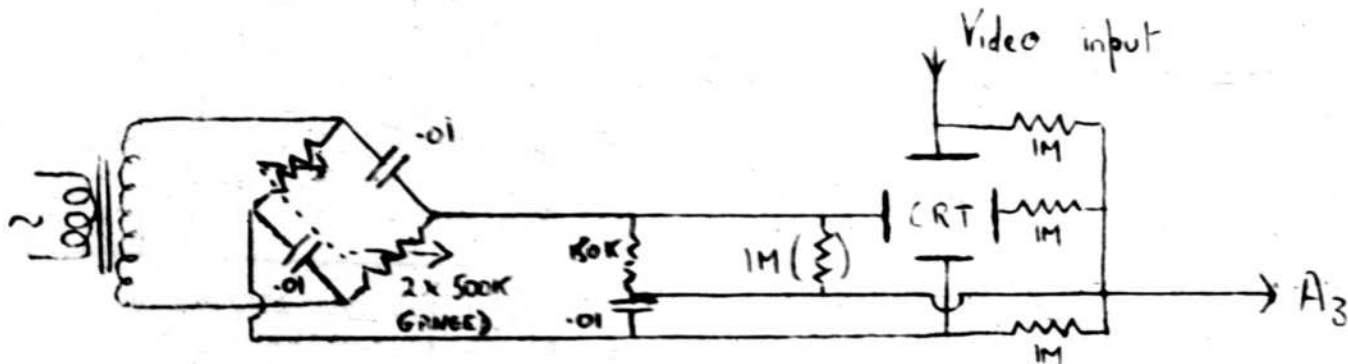
By Grant Dixon.

One of the chief difficulties in using a standard CRO to monitor TV waveforms is that it is not usually possible to display the sync pulse in relation to the rest of the waveform, since it is this pulse that triggers the CRO time base and is consequently not visible, or is abbreviated. One way round this is to employ an elliptical timebase, and to add the video waveform in the usual manner on the Y plates. If two sine waves are applied to the plates of a CRO, then an ellipse or circle will be traced out on the screen, depending upon the phase relation between the two inputs, when they have the same frequencies. Similarly, any video signal added will appear at a point on the ellipse again dependent on the phase relations. If the phasing can be altered, then the video pulses can be moved around the ellipse.

For best results, the ellipse is made large relative to the CRO screen, so that the section of ellipse seen approximates to a straight line. Adjustment of the vertical shift determines which part of the ellipse is employed.

The circuit is quite straightforward; I have used a 2:1 step-up intervalve transformer running off the mains to provide the 50 cycle sine wave. The circuit values are experimental, and may be improved upon. Note that the shift control has been omitted for simplicity.

Operation of the phasing control will cause the pulse to move almost halfway round the ellipse; if it still does not appear on the screen the shift control must be altered to view the other side of the ellipse. The trace will not be very bright, of course, as the spot spends a considerable time off the screen.

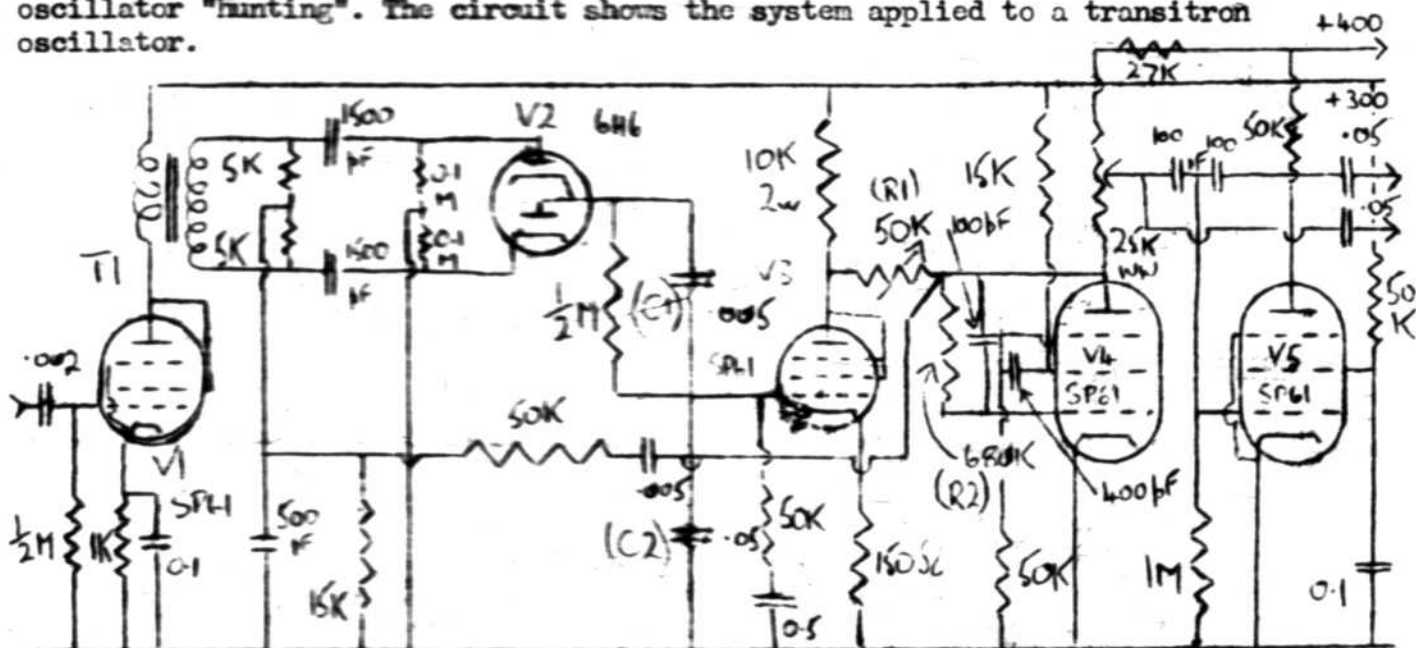
Principle of the systemCircuit of the phasing bridge.

FLYWHEEL SYNC FOR LOW SIGNAL STRENGTH AREAS

BY Hendrik de Waard PAØZX.

Particularly when using negative modulation, or in any application where the received sync pulses are not too reliable, normal methods of sync separation fail to prevent slight discrepancies occurring in the timing of the individual lines. In the case of negative modulation, this is due to the fact that noise peaks go in the same direction as the sync pulses; clippers would remove the sync pulses too, so the result is that some lines are triggered off at random times bearing no relation to the true sync value. This causes a loss of picture definition that can be appreciable.

It is not essential to have each line triggered off by its own sync pulse, however, and it is clear that if the mean of a large number of pulses can be used, the short noise peaks will have very much less effect. In operation, the line sync pulses are mixed with the line sawtooth waveform and applied to a discriminator. The DC output from this has a value dependent upon the phase relation between the two inputs, and so can be passed through a long time-constant filter to the sawtooth generator in such a manner as to correct its frequency. For successful synchronisation, the sawtooth generator must be stable, eg a multivibrator or blocking osc type, and the filter must be carefully designed to prevent the oscillator "hunting". The circuit shows the system applied to a transitron oscillator.



Transformer T1 can be a pulse transformer from a Gee set type 10K/973 or similar. Either pos or neg pulse input to V1 can be used, depending on the connections to T1. Any small 1:1 AF transformer will do. Although V1 and V3 are shown as triode connected 6SP4s, a 6SN7 would probably do just as well. C1 and C2 determine that the sync pulse occurs during flyback, and may need adjustment. V3 is merely a DC amplifier connected to the transitron charging resistor; V4 and V5 are the oscillator and its paraphase amplifier for p-p output. In the normal way, R1 governs the oscillator frequency, but if this gives insufficient control, R2 may be changed. This circuit is very reliable and can be recommended.

DO YOU KNOW the BATCs in your area? Why not get together and collaborate? Its easier, cheaper and more fun that way.

"WHAT THE OTHER FELLOW IS DOING"

Some reorganisation of this column, men. Various sections are being organised as an experiment. Initially, you are being divided up into sections dealing with one particular TV field. We should also like to see reports on a district basis, and section and/or district organisers will be very welcome.



LIVE CAMERA

a 5527 from RCA. We have 18 names of people willing to purchase a tube in the £15 region. Any more? (This is merely to give manufacturers an idea of demand).

Section 1. LIVE CAMERA DEPT.

This section is broadly divided into 2 halves - those who use 5527s and those who use anything else. In "A" group are G2DUS and OM George Short for a start. Norman Rutherford and Tony Leaverland are also thought to have tubes; G3BHH has one on order, as has Tony Sale. G2WJ is thinking about it; G3BLV and G5ZT both have one.

In group "B" are Grant Dixon, G. Bellamy, G3AKJ, Maurice Swift, G3ETI and G3CVO. This group is asked to send all information and enquiries to Grant Dixon.

Will anyone who has been omitted or put in the wrong section please let me know. It is again emphasised that if you have £25, there are no real difficulties preventing you from getting

Section 2.

TELECINE AND TELESTILL.

Telecine workers are known to be G3BLV and OM George Short. Also thought to be active are Sid Hannaford, G2DUS, G3ETI and Grant Dixon. What about it, oms?

Telestill men are G3BLV, G3AST, G3CVO, G2WJ, G3AKJ, Maurice Swift, H. Barton, J. Prewitt, Tony Sale and others. Write C.M. Swift for details.

Information on video amps, sources of scanning tubes, etc are required by this group.

Grant Dixon and G3AST have a little piece of this section to themselves, the former

for his experiments with colour TV and the latter for his work on radio facsimile using the telestill principle.

Section 3. THE HF MEN

In this group are Tony Sale, Sandy Wemyss, G3ETI, G3AKJ, G8IH, G2DD, G3AHB, G3GBO, G3CVO, G3BLV, G2WJ, G2DLJ/A and G3IDR. Many well known VHF workers are in this group, so we should get some good results. Experiments have moved from the microwave bands to 70 cms, and a Club design for a TV converter will appear in the Christmas edition. Tests of modulators are proceeding. G2DUS and G3FNL have, of course, already been on the air for the GPO tests.

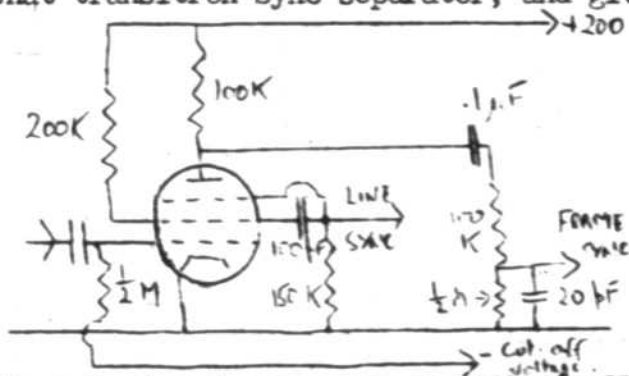


AND THE OTHERS: What about it, chaps? Most of you had something lined up when you joined the Club. Does it work? What is it? Lets have the details for Christmas.

Now for the detailed news. Thanks for the letters, chaps, especially the Marathon ones from G3ETI Grant Dixon, and others!

Here is one from Dalton Raby, who is now licensed as G3IER, and is Hon Sec of the Shefford and District Radio Society. At the time of writing, Dalton was well on his way to a 13 cm QSO, and hopes to build up the necessary video gear this winter with the aid of the junior op. Sid Hannaford (Preston) sends in some useful information, but says nothing of his own activities..... Ray Hills (Harrow) is busy at Tech College, and reports that he has had to ease up on radio temporarily. Another studious type is Bob Styring (Sheffield), who is reading Electrical Engineering looking after the Y L, and building TV receivers all over the place. Current work is on a 12" unit, so freeing the VCR97 for 70cm experiments. In the same area, Maurice Swift, G2DLJ/A has found time between swapping large numbers of cars, and looking after the family and any BADC members who happen to drop in, to collar Bill Chaffe, G2DLJ and G3EMJ and G3GUD to form a TV group at Derby. As all are family men, time is short, but a Plan has been decided upon, and Action is proceeding. Construction will be in this order: Video amp (277s, 4Mc/s), 9" Monitor, Blanking and Sync unit, & 70 cm equipment. Interlace generator when G3ETI coughs up his circuit! Maurice has a small source of radar jammer units and PEC amplifiers. He also hopes to get his ticket soon.

Nigel Prewett has been working hard, drinking hard, and generally enjoying himself. He has been doing some experiments in a dark corner of the Electricity Authority's lab, but we have no further news.... He reminds members of that transitron Sync separator, and gives the values below.



Norman Rutherford (Nottingham) reports that he and his friends have an MCR2X telecine unit, and are building 5527 units fast. He has swapped all his 8 mm cine equipment for 16 mm, and thinks the QSY to 16 mm will be better for TV. Norman also has built a 30line disc scanner, and asks if G4J0 is interested. A back copy of "Television" yielded an article on the Mihaly Traub TV receiver (disc), and Norman wants to try this as a live camera.

Jimmy Hedges G3DBV has also been busy at the lab, but is pressing on with the VHF side. Newcomer J.A. Hedges (Hanwell) has been using a green CRT for scanning, but has now been convinced. May we have your Christian name, oc, to avoid clashing with the Southsea Jimmy Hedges?

New member John Plowman G3ST of Luton has a new angle on things. He is using the telestill principle to transmit a 300 line 50 frame picture for facsimile transmission purposes. His gear is very fb, with Eddystone knobs, grey crackle and chromium all over the place. We may be able to reproduce a photo in the next issue. The video amplifier uses 6SH7s and 6F12s, with a 6F33 gating cathode follower. The pulse generator is crystal locked; it consists of a 75 kc oscillator 6SH7, 6J5 peaking stage, 6AC7 sweep generator, two 6SN7 frequency dividing multivibrators, and a 6AC7 frame sweep generator. Both sweeps are amplified by 6SN7 cathode coupled phase splitters. The remaining stages are two 6SN7s pulse forming and pulse mixing, and a 6H6 blanking clamp. The monitor is a 5CP1. The really interesting part of John's story is that he is scanning 35 mm transparencies with a 1" tube - and apparently with no loss of definition due to spot size. The tube is a GEC type 4104E4 blue trace tube, and appears ideal for the job, especially if it is not too expensive. Comparative results with this tube and an MCR2X would be interesting. John will let us have some circuit details later on. Nice work, om.

Harold Jones, G5ZT/T (Plymouth) has now finished his rebuild, and has been showing the S.W what can be done with a 5527. Harold reports that results are

getting better all the time. Breakthrough from the Light programme on his video amplifier has now been removed, and Harold feels he is really getting somewhere. He asks for help from any reader of this column in the Plymouth area.

John Watts and OM Bellamy (Bristol) have had their names down for a 5527 for some time, but in the meantime have been using a Cossor highly actinic tube for 405 line interlaced scanning with good results. 16 mm telecine is in hand; all the ancilliary camera equipment is now complete and functioning, and now employs the grand total of 98 tubes! They would like to hear of an interested licensed ham in the Bristol area with a view to getting on 70 cms.

Ian Macwhirter G5ETI has been astounded at the price of the TV licence, and does not know whether it is now worth it to put pictures on the air in the Wirral. Ian is expecting a camera tube soon, and has built a 5 stage EF80 video amp, and is performing experiments to find a simple interlace circuit for members. He says that VLF oscillation in wideband amplifiers can be cured by the use of a regulated power unit. Ian is active on 144.44 Mc/s and probably will be on 438.32 Mc/s when and if... Ian thinks he has located a source of cheap lenses. News please, oc!

Grant Dixon points out that the one-shot multivibrator given on P1 of the last issue works on a Negative pulse input, and that the note 1 of his pulser article should read "...of duration greater than the line flyback time...". Also that the ACR8 connections were wrong (see notes). Grant suggests stopping down the PEC with a piece of cardboard with a hole in it in cases where the transparency cannot be placed close up against the raster, and the inclusion of two or more peaking ccts in the coupling between stages consisting of a 50pF condenser across a 100K resistor in series with the coupling condenser. He also reminds us to watch the time constants of video coupling components - 0.25 mfd and $\frac{1}{2}M$ at least. Grant has built an RF EHT unit and now has 2.8 kV on the ACR8 scanner, with much improved results. He finds that replacing the 4.7K anode resistors by 2K GOOD QUALITY ones in the surplus units reduces noise considerably. Grant would like to borrow odd copies of "Electronics" and "Radio Electronics". Any offers? His pulser now uses square waves rather than inverted line pulses during the frame pulse, and appears to work better. Grant is another who would like to hear from hams or enthusiasts in his area (Ross on Wye).

Doug Wheeler G3LWJ is another expecting a live camera tube; he also is looking for local help. He has been in on the Sunday "5527 QSO" party with G3BLV and G5ZT, and was ready to put out a signal on 13cms when the 70 cm news arrived. Doug offers to arrange TV skeds on the various bands, so if you are licensed, please write in with details of the bands you can work for this purpose. Doug's telestill unit is now working satisfactorily. New member H.Barton (Chiswick) has acquired a series of CRTs to try out for telestill work, and is going to let us have the results later. Fred Rose G3BLV (Sunderland) points out that it is very difficult to give circuits for video amplifiers, etc, as so much depends on the type of tube used for scanning the EHT used, cell sensitivity, etc. His 5527 has now arrived, and work is in hand. Meantime, the telecine and telestill unit gives him plenty of good pictures. Fred has had a temporary p-p 955 tx on 70 cms (ex radar altimeter), but now has a QRE/06/40 35 watts at 450 mc/s....and will drive this from the SCR522. Designs for 70cm converters are in hand. Fred suggests a meeting in the North, and would like to hear from members interested.

Frank Smith G 2DD, who is well known for his VIF work, is designing a simple 6J6 + Xtal 70 cm TV converter. He and G2WJ (also well known on 70 cms) are trying out various systems of modulation, etc. G3XC (Slough) also hopes to get a 5527; G3GBO and G3CVO are collaborating with OM Ken Hathaway, and expect a live tube soon. G3CVO's telestill unit gave some trouble before a lecture to the Kingston A.R.C, and at the moment is running at only 1200V on scanner and monitor, with very poor

results. However, a change to a yellow-green ACR2X has not materially altered definition, which may relieve owners of these tubes! Ken Hathaway is building a 12" monitor unit, G3GB0 is to build a camera amp; G3CV0 is on 70 cms on 435.38 Mc/s but will be on 438.48 Mc/s vertically polarised for TV, with the sound on 1776 kc/s or 145.12 Mc/s. Power at the moment is 5 watts input to an 832 trebler, but a CV90 is on the way.

From overseas, P. ~~PIZZI~~ says that their exhibition at Amsterdam was very successful, but that the P's are now not allowed to transmit their amateur program as the PTT objects. G3CV0 had the opportunity of seeing a short transmission from Hoogezand, and results on a WCR97 at about 20 miles range were extremely good. The noise level was rather high on this occasion, but the picture quality compared favourably with fringe area reception in England. Bengt Barkland of Stockholm has a telestill unit in operation in addition to the 5527 camera. Bill Cheek VE3EAB is busy as the Secretary of the Mohawk Radio Club, but is keeping in touch. He passes on the word that electronic embalming is the latest idea... the corpse is dehydrated by HF and sealed into a glass container. Guaranteed life on the shelf of 2,000,000 years! News from S. Africa is scarce, but we hear that activity is getting better.

Grant Dixon has been trying colour television, and will let us have more details later. He is using a 100 cs frame time base, and a 20 kc/s line osc. This gives 33 1/3 complete colour pictures per second, and gives negligible flicker compared with the previous 200 line 50 frame raster. A six sector rotating disc of Strand Electric gelatines is used, and the three 93L's all feed into the same amplifier. Grant would like to contact any other colour men.

That is the lot this time - see you at the RRGB Exhibition, perhaps?

.....

New members this month:

H.E. Smith	G6UH	176 Station Rd, Hayes, Middx.
J. Coleclough	G5XC	55 Kendal Drive, Slough, Bucks.
F.H. Smith	G2DD	74 Braithwaite Gardens, Stanmore, Middx.
John Plowman	G5LST	517 Park St, Luton Beds.
G. SE Ellery	G5BIT	172 Northern Rd, Slough, Bucks.
R.P. Towell	G5GBC	6, Clinton Ave, E. Molesey, Surrey. MOL 1719.
F. Hardy	G3GMZ	12, Kingsmead Ave, Tolworth, Surbiton, Surrey.
Gerhard Merz	DL1BB	Dollingerstrasse 37, Munchen 38, Germany.
R.D. Raby	G6IDR	Radar Link, T Division, REU R/F Henlow, Beds.
E.S. Cave		78, Wood End Green, Hayes, Middx.
J.A. Hedges	G4095	6, Littlejohn Rd, Hanwell, W7.
R. Plumb		25 Love Lane, Morden, Surrey.
P. Groves		26, Timbercroft, Ewell, Surrey.
K. Smith	G4828	77, Bronson Rd, Raines Park, SW20.
J.S. Wilson	G4173	5, Silver St, Waltham Abbey, Essex.
M.P. Morrissey,		51, Groves Lane, Kingston.
J. Sanson		c/o 44 Withert Ave, Bebington, Wirral, Ches.
K. Freeman		30, Waterloo Rd, Ipswich, Suffolk.
H.H.C. Barton		1A, Park Rd, Chiswick, W4.
S.G. Hart	G5ILU	100, Empire Court, Wembley Park, Middx. Wembley 6397.
Les Coote, G3AHB,		is now at 46, Salthill Drive, Slough. Tel 21751.
S.E. Smith	G4636	2, Lockram Lane, Witham, Essex.
J.E. Watts		Die Ruhe, Chapel Ave, Nailsea, Nr Bristol.
G.R. Bellamy		79, Stapleton Rd, Bristol 5.
Ron Oakley		30, Springpond Rd, Dagenham Essex. (Total: 96)

GET THE AMATEURS IN YOUR AREA INTERESTED; PASS THE MAGAZINE AROUND.