cq-tv 43

THE BRITISH AMATEUR TELEVISION CLUB

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This month's editorial is from Don Reid, the club's Hon. Secretary.

As John has given me space for a guest editorial, I would like to commence with an advertisement for our fifth Convention- in the Conway Hall, London, on the 10th Sept. Do please make every effort to attend - remember there won't be another one for two years. I hope that many of you will also bring gear for display ; let me know in advance what you are bringing, and the space and power required.

Many members seem a little vague as to when their subscriptions are due. To clear up any confusion, ALL subscriptions (10/- or $2) become due on the 1st January each year. They can be sent to myself, John Tanner, or our Hon. Treasurer.

Also, from time to time, I hear complaints that CQ-TV appears rather irregularly ; this is certainly true, but before you judge the Editor and Committee too harshly, stop to ask yourself if YOU have ever contributed anything. Remember this is a journal of amateur TV developments, and if it is to survive, then it is essential that those who are active should send along any useful hints or tips which they have discovered. New circuits or aerial arrays which you have developed may be a great help to other members working on a similar problem. So next time you are about to curse CQ-TV for being overdue, just lay down that soldering iron, and pick up pencil and paper. Articles needn't be typed, and drawings on the back of an envelope will be acceptable, provided they are legible !

I look forward to meeting you at our Convention.

73, Don Reid

Trentham Gardens Mobile Rally
Stoke-on-Trent. April 24. 1960

BATC, along with a Radio controlled model group, the GPO and the Services had a stand at the above rally. The stand actually consisted of a cafeteria counter, the height of which was excellent for eye level viewing of TV pictures.

Grant Dixon brought his slow scan monitor using the 5FP7, and a supply of tapes recorded by Cop Macdonald (WA2BCW). The beautiful grey cabinet which housed the monitor proved to be a doubtful blessing as some circuits overheated and vertical sync was lost after prolonged running.

Brian Green, G3KCB, and Gordon Sharpley, G3LEE both had scanners and monitors running from very fine looking ex-government power supplies. A home made tape recorder was also in evidence and most of the pictures were displayed from tapes recorded earlier. Both of these monitors used 5" electrostatic tubes (5FP7) and the quality of some of the pictures was undoubtedly due to the high ancde voltage of 5Kv.

Dennis Hodges, G3MXY/T showed his slide scanner for standard TV pictures, with the results displayed on a 9" monitor. This equipment had a very neat folded optical system and it appeared to run for long periods without attention - a sure sign of reliable construction. The stand was completed by a show of BATC photos and the usual literature.

A rather high ambient illumination tended to make the slow scan pictures difficult to see, and the monitor on the slide scanner was not as bright as it might have been. Despite this difficulty repeated demonstrations were given and a fair proportion of the the estimated attendance of 1500 saw the BATC stand.

C.G.D.

The Fifth

AMATEUR TELEVISION CONVENTION

Will be held on

SATURDAY, 10th. SEPTEMBER, 1960.

from 10.0 a.m. to 7.0 p.m.

At the

CONWAY HALL

RED LION SQUARE, HOLBORN, LONDON, W.C.1.

GENERAL MEETING

2.30 p.m. to 3.15 p.m. in the main hall.

The Fifth Amateur Television Convention will be open from 10am to 7pm, but exhibitors will be able to enter any time after 8am, and to stay after 7pm to pack up their gear. Please advise Don Reid if you intend to exhibit, stating what gear you will bring, power required and the approximate table space needed. Mains will be available from three pin five amp outlets.

Amongst other items of interest will be slow scan television in action, 9.5mm telecine equipment demonstrated, Image Orthicon, Vidicon, Iconoscope, and Monoscope cameras in operation; Flying spot scanners, transmitters and other items of television equipment. Lucky dip - raffle - technical books and club items for sale: badges, notepaper, back copies of CQ-TV, notepaper, CQ-TV microfilms etc.

The main event of the day will be the General Meeting at 2.30pm, Members are asken to send in notification of any matters they would like to raise, and also to send in any nominations for new committee members. During the meeting a film show will be held in the small hall for non members. The films will be screened again later for the benefit of members.

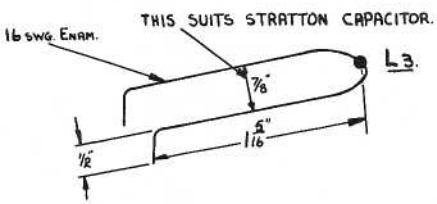
There will also be a number of short talks on various topics of interest to the amateur television enthusiast, ranging from 70cms to closed circuit slow scan systems.

If anyone has any items he would like to donate to either the lucky dip of the raffle would he please send them to Doug Wheele, at 56 Burlington Gdns Chadwell Heath, Romford, Essex, or bring them along.

Admission prices will be as in 1958:

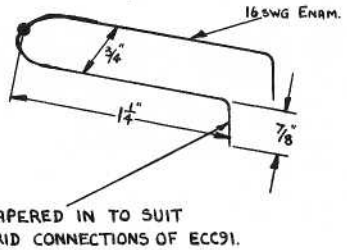
Members, all day....	5/6d
after 2pm	2/-
Non members, all day	5/-
after 2pm	2/6

Refreshments will be on sale during the afternoon. There are a number of restaurants nearby where lunch can be obtained (or bring your own sandwiches.!) For those travelling by car -or lorry!-there is plenty of parking space in Red Lion Square. For those travelling by public transport the Hall is two or three minutes walk from Holborn underground. (Picadilly or Central lines) A map of the area is printed on the backs of the tickets which are now available from Don Reid, John Tanner and Doug Wheele.



L3.

L4.



SPECIAL NOTICE.

Providing sufficient support is obtained, it may be possible to arrange for 5FP7 tubes to be opened up and new phosphors put in. The new phosphor could be white for viewfinder use, or a very short persistence blue for flying spot scanning. No definite arrangements have been made yet, but if you are interested PLEASE DO WRITE and let me know, as the expected demand for these 5FP7 tubes governs whether the scheme works out or not. Remember that brand new 5FP7 tubes are available from Proops in London for only 12/6 each. Also, the larger the expected demand, the lower the price. This would probably be in the region of £5, although this again is only a rough estimate.

Do please drop a card to John Tanner if you are at all interested.

International Amateur Radio Union

The Region 1 division conference was held at Folkestone, England in June this year. Most European countries were represented there and John Tanner went to present the paper prepared by G3AST, for the Radio Society of Great Britain, on 'Narrow Band Image Transmission'. The paper was received well, and the outcome of the conference was that the system should be encouraged, and that licencing authorities should be requested to give permission for transmission in all possible amateur bands, excepting the 1.8 to 2 Mc/s band. This is a most encouraging step forward, and is due largely to the help and encouragement given to the B.A.T.C. by the R.S.G.B. One further result, from the Amateur Television aspect, is that several other countries are mentioning BATC, and slow scan television in their Amateur Radio journals.

G3NDT/T.

ATTENTION ALL SLOW SCANNERS.....

Proops Ltd., 52 Tottenham Court Road, London, advertise APS4 remote viewing units at 25/- each, post free. (Only a few left) These units contain 5FP7, 2 x 6J6, mumetal screen etc - just the job for getting started on slow scan. Can be used with little alteration - just add sync separator, sweep circuits and power supplies to make BATC 'Scanadaptor' - Watch these pages for circuit details.

Wanted: 5CP7 - CV 838 - Contact G3AST - 9, East Coker Road, Yeovil, Somerset. Must be new or newish.

Look Z & I Aero Services offer brand new and boxed 7BP7A - £3 each plus 5/- post and packing. If you want a big slow scan picture here's your chance.

5FP7 tubes Brand new and boxed from Proops at 12/6 each.

931a These are becoming difficult to find, but Henry's offer them brand new and guaranteed for £4 each.

USEFUL REFERENCES

Low-Cost Closed Circuit TV Camera
D.Swaine : Radio-Electronics, Nov.1959, p.122

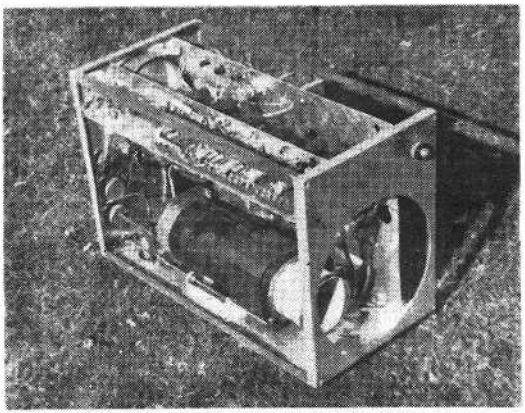
This gives full circuit details of a vidicon camera.

Linear Amplifier for Decimicrosecond Pulses
J.F.Golding & L.G.White : Electronic & Radio Engineer, Sept.1959, p.323.

Some new ideas for pulse or video amplifiers which are driving a capacitative load.

Circuit Design using Silicon Capacitors
J. Hammerslag : Electronics, 18th Sept.1959, p. 48.

These are the "varicaps" to which Mike Barlow referred in a recent CQ-TV



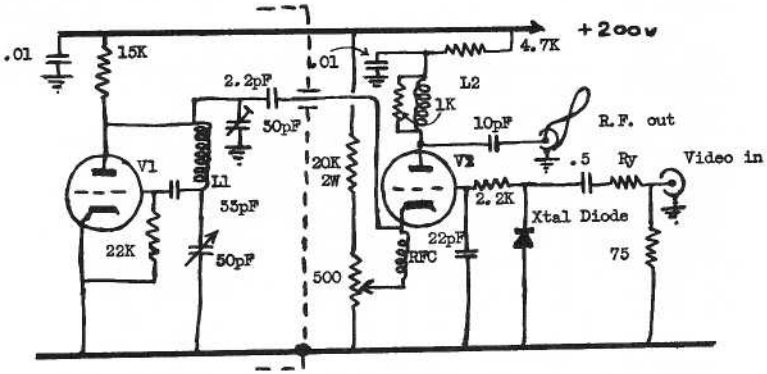
Phil Groves (Hemel Hempstead) is progressing slowly with the C.P.S. Emitron camera due to long periods away from home studying. However, the metalwork is complete as are most of the scan circuits for the viewfinder and camera. Note the 5FP7 viewfinder tube between the two vertical chassis.

TV receivers old 12" TV Sets - as they come, unchecked - £1 each. Contact John Tanner for further details.

Front Cover shows Gordon Sharpley, G3LEE/T, with his camera showing it to some members of the Stockport Radio Society. Part of the band one RF Distribution system can be seen on extreme left

AN R.F. DISTRIBUTION UNIT.

by John E. Cronk, G5MEO/T



L1. 11 turns of 16 s.w.g., close wound on ¼" former.

L2. 8 turns of 16 s.w.g. on ¼ dust iron slug.

Both heater supplies should be decoupled by .01 capacitors at the valveholders.

This unit has been designed to be as simple as possible consistent with reliable, stable operation. It was originally designed as the station monitor at G5MEO/T was a 'live' chassis receiver, and only by feeding the signal in at RF could this trouble be overcome. As the unit was to be used for vision monitoring only no provision has been made for a sound channel, although by duplicating everything this could be achieved.

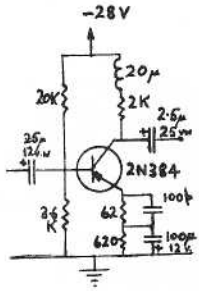
V1 is a Colpitts oscillator. A split stator capacitor would be used for tuning, but the arrangement shown was used to allow one of the adjustables to be used as a 'band set', fine tuning adjustment by the other.

V2 is a grounded grid R.F. amplifier with grid control. The 500 ohm potentiometer varies the grid bias for correct modulation.

The original unit was built on six inches of a 2 x 15 inch rack panel. The valves mounted on the front with components on the rear and covered with a metal box. V1 must be screened, both on top and below the chassis to ensure that all the R.F. reaching V2 is via the 2.2pF. This is a most important point. About 1 volt p-p video is required at the input, positive going for positive modulation. Ry is selected to suit the available video and in the original was 500 ohms. The output attenuator is simply about a two inch loop of 20 s.w.g. wire across the output socket, this is twisted to change the output level. Although this is not a very elegant method of attenuation it has proved most useful in cases of emergency at demonstrations.

In the original, two DH77 valves were used, but almost any valve could be used, although double types such as the 12AT7 are not reccomended due to the likely possibility of stray coupling of the RF from V1 to V2. Of all the simple modulation circuits this was the only one that was capable of giving 100% modulation without difficulty, and the idea may well prove useful for higher power transmitters.

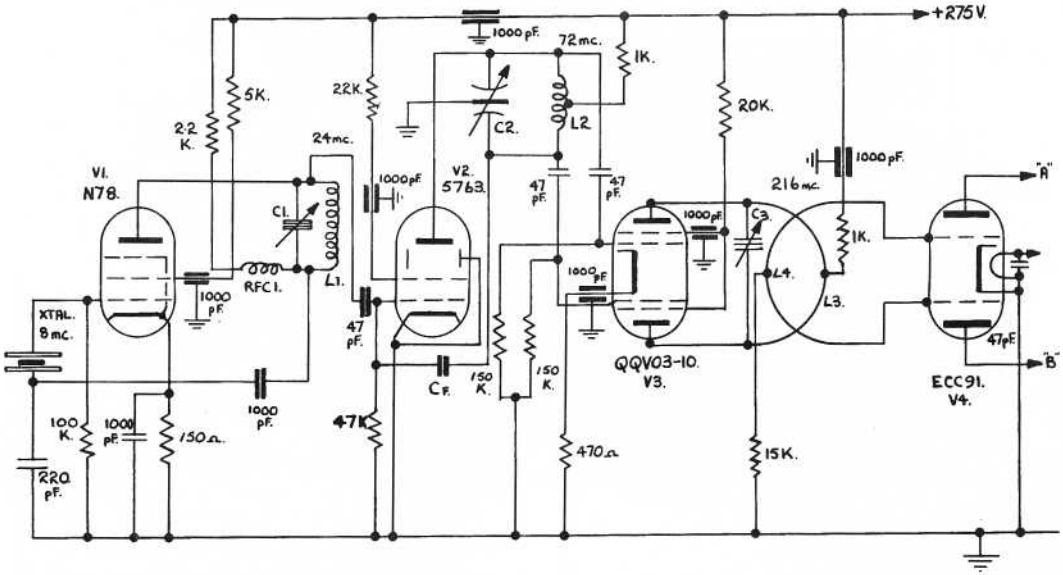
USEFUL CIRCUIT



An RCA advertisement gives this interesting transistor video amplifier circuit. Using a 2N384 drift transistor (£5 or so) it has a bandwidth of 20c/s to 10Mc/s, a rise time of 0.035 microsecs, and 26dbs of gain. It will operate from -65°C to + 55°C; maximum output is 20V p-p. Figures are for a load capacity of 16pF.

A NEW TRANSMITTER FOR THE AMATEUR TV BAND. 70 cms

By J. A. Plowman, G3AST



The position was I really didn't have any room at all for the RF transmitter portion of my rig in the existing standard rack. It was, however, in my interests not to spill over into a second rack and, therefore, the unit described was built entirely into a recessed pan chassis only one rack unit high (1¾ inches).

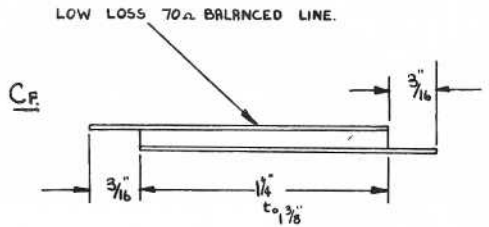
The material used for the chassis was aluminium alloy (1.59) which would obviously not be very reliable at the frequencies involved and to prevent trouble from this the circuit was built on to a 30 guage bright copper sheet which entirely covered the rear face of the chassis.

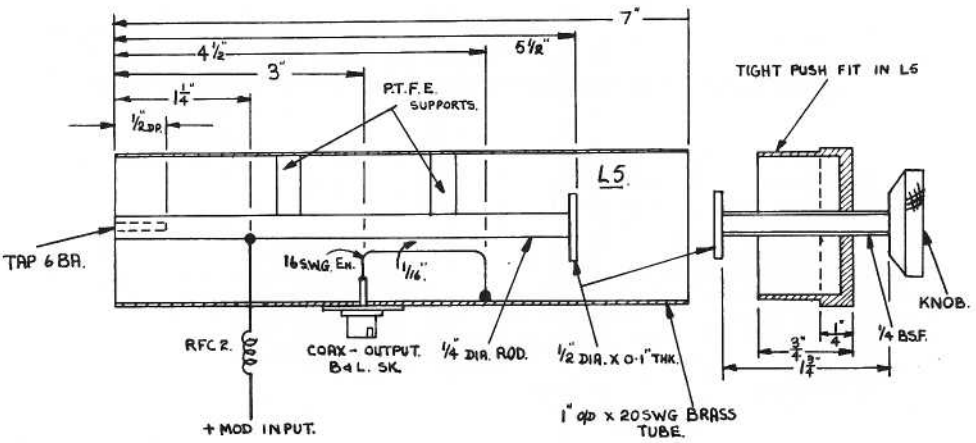
The use of exotic valves was avoided, mainly on account of price but partly in view of the fact that high powers were not required in that the intention was merely to reach G3OGQ about three miles away *** The antenna array for this purpose was a stack of four yagi's. The output into a dummy load was approximately ½ watt, but it was quite clear that the output stage would tackle as much as two watts peak white without much trouble. It had been hoped in the early stages that the transmitter could be constructed entirely from everyday components. However to realise the efficiency necessary in the output stage it was necessary to resort to some simple lathe work. The equipment used was a 6" Myford model makers lathe, and the total time taken was very reasonable and was centred in the main round the production of the top cap of the co-axial cavity.

The Circuit

The secret of sucessful multiplier circuits is plenty of drive. To this end the crystal oscillator/tripler employed was an N78 (similar to 6AQ5) output pentode to which is added a small amount of regenerative feedback. Under these conditions the output across L1 at 24 Mc/s is very considerable indeed. As a result of this more than enough drive is available to t the 5765 second tripler which takes us up to 72 Mc/s.

A reflexing action is employed in this stage and some power at 5f is fed back via C1, the length of which is determined empirically, and in the original cost over a yard of feeder before the maximun length permissible was ascerta ascertained. However, this figure should apply to all subsequent models.





ALL PARTS BEST TURNING QUALITY BRASS.

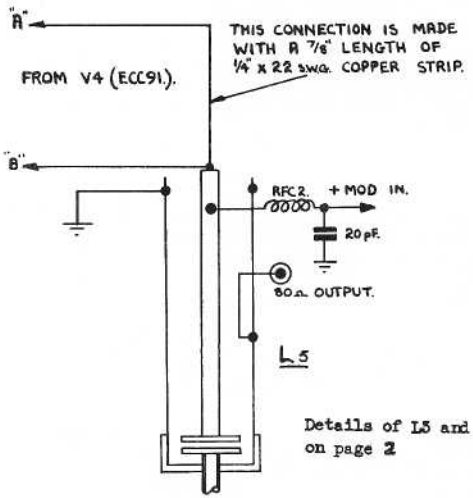
The output at 72Mc/s is more than adequate to light a 6.3 volt dial lamp and this output is fed to the grids of a QQV03-10.

The use of 1000pF feed through capacitors has been somewhat lavish, but their use has proved indispensable and they are available in certain countries on the surplus market. The hair pin loop between the anodes of the QQV03-10 resonates at 216 Mc/s and although the power available at this frequency is lower than previous stages, the 40 mA pilot bulb can be made to light quite brightly, and plenty of RF can be witnessed with the customary neon lamp. No tuning is required to the grids of the final stage, a 6J6, as the sides of the hair pin loop are squeezed together until maximum drive results. This is best accomplished by means of two polystyrene rods with a nick in the tips. Coupling between the two loops must be very tight and, in some respects the tuning capacitor of the driver 'takes over'.

The two anode connections to the 6J6 are strapped together and joined to the co-axial cavity by a short length of copper strap. All connections here should be especially well made, and all nuts and bolts pulled up tight.

The cavity is held on to the chassis bu means of a capacitor mounting clip which is bolted over a standard octal hole previously pierced in the chassis. This method of mounting allows the con connection to the inner element to be very short yet avoids the chassis being unduly long due to the length of the cavity. The presence of RF in the 6J6 anode circuit is not so apparent, however a sensitive neon bulb will strike without trouble and a small dial lamp can be persuaded to light upon touching the inner conductor of the co-ax outlet plug. Tuning is very sharp and it is quite clear that the efficiency of the output stage is very high indeed.

The unit was connected into a 1 Watt dummy load and left to run for 10 hours. After this period no evidence of overheating was apparent and, by and large, the unit appears very sucessful, working into a dummy load. No 'on-air' tests have been carried out due to lack of active participants in the Yeovil area.



Details of L5 and L4 on page 2

*** Note the exchange of pictures between G2DUS/T and G3KKD/T, over 58 miles, using a similar transmitter and power.

CO-AXIAL CABLES

Throughout this article we shall use the abbreviation "co-ax" to denote "co-axial transmission line".

First of all, why do we use co-ax rather than ordinary flex to feed a video or R.F. signal from one place to another ? To mention a couple of reasons : co-ax cable distorts the signal very much less than flex would do, and we can achieve the maximum power transfer of the signal by using co-ax. Balanced twin feeder is similar to co-ax in that it causes very little distortion, but its applications are limited to frequencies below about 200 Mc/s because it can lose power by induction and radiation. Co-ax can be used up to 3000 Mc/s provided it has a suitable low-loss dielectric - above this frequency, waveguides are preferable.

The subject of transmission lines can readily become very mathematical ; in this discussion we are only concerned with some of the basic principles, and the references should be consulted for further details.

The most important feature of co-ax is its characteristic impedance, usually denoted by Z_o. This may be taken as $\sqrt{L/C}$ ohms, where L and C are respectively the series inductance in µH and the shunt capacitance in µF per ft. of the line. This expression is not quite true since we have neglected series resistance and shunt leakage, but is near enough for our present purposes. For typical cable, Z_o is 75Ω and C is about 20 pF/ft., so L is about 0·1 µH/ft.

The equivalent circuit of a cable is seen in Fig.1 ; it shows series resistance R, series inductance L, shunt capacitance C and shunt leakage conductance G (= 1/leakage resistance). The dotted lines indicate that the cable is composed of millions of these sections joined up together, since the physical quantities R,L,C and G are spread out uniformly along the cable.

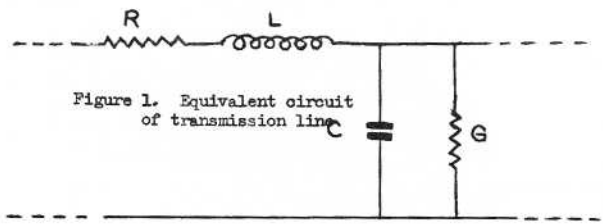


Figure 1. Equivalent circuit of transmission line

If the cable length is doubled, each of these quantities is doubled, as one would expect. Note that the ratio L/C does NOT depend on the length, so the characteristic impedance of the line is a constant for any given type of co-ax regardless of its length. It is the presence of R and G which causes undesirable phase shifts at high frequencies; the use of foam dielectric results in a better cable for high frequencies than one using a solid dielectric since the leakage G is smaller.

Now why are the cables used for transmission feeders generally 50Ω impedance ? Here are a few of the reasons : a 59·93Ω cable can withstand the maximum voltage between inner and outer ; a 36·38Ω cable causes the least temperature rise of the inner conductor ; the loss, for a typical dielectric, is a minimum in a 51Ω cable. A 50Ω cable is the best compromise.

When we come to interconnect video equipment with such cable, two main snags arise. Firstly, 50Ω co-ax is usually about ½" in diameter, and therefore awkward to bend or coil. Secondly, to develop 1 volt, the standard video amplitude, across 50Ω, we must supply 20 mA which is rather a lot for a small radio valve. 75Ω co-ax is employed for video purposes, since it is a convenient size (about ¼" in diamter), and 1 volt can be obtained with 13 mA, which can just be supplied by an ECC81. This cable is also used for domestic TV feeders because the impedance at the centre of a half wave dipole is 73·2Ω. (The dipole impedance is altered by additional elements, but can be brought back to about 75Ω by adjustment of the lengths of the elements.)

Z_o is not only independent of the length of the line, but also of the frequency, provided it exceeds about 10 kc/s.

$Z_o = \frac{138}{e} \text{ Log } \left(\frac{y}{x}\right)$, where e is the dielectric constant of the insulator (=2·26 for polythene) and x and y are the diameters of inner and outer conductors respectively. If we specified a cable with Z_o= 1K, so that only 1 mA would be required to give our 1 volt signal, the ratio y to x would be many millions to one, and quite impracticable. We cannot make the inner conductor too thin or it will be very fragile and equally obviously, we don't want the outer diameter to be more than about ½".

At this stage the reader may be asking "But I know that delay cable with a Z_0 of a few KΩ is available - how is it made ?" Well, here is another simple formula : $T = \sqrt{LC}$ where T is the time delay of a signal passing through the cable, in μS/ft., and L and C are as defined previously. T can be increased if L is made larger ; so delay cable is manufactured by winding the inner in a helical shape, often on a ferrite former (see Fig. 2)

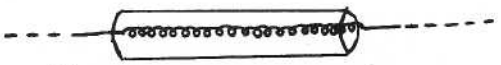


Figure 2. Delay Cable.

Since $Z_0 = \sqrt{L/C}$ and L has been increased, delay line impedance is much larger than 75Ω. For 75Ω co-ax, the delay is about 1 mμS/ft. ; for delay co-ax, it is about 1 μS/yard. (The price of delay co-ax is about a million pounds a second !)

Although 1mμS/ft may seem very small, it is in fact troublesome in professional studios in which very long camera cables are used. It is easy to lose the front porch because of cable delays, and compensating delays are added to cameras with shorter cable runs to correct the pulse timing for all cameras in the studio.

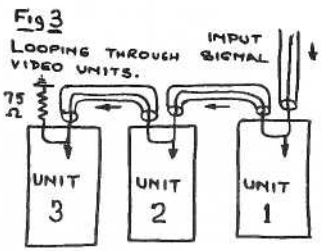
It is worth noting that co-ax can give an accurate and stable time delay ; delay line finds application in, for example, an NTSC colour TV receiver, in which the luminance signal must be delayed to bring it into correct relationship with the slower, narrower-bandwidth,chrominance signal.

But we must return to our co-ax which is carrying a video signal - how should we connect it at the receiving end ? If this end is open or short circuited, it can be shown with a bit of maths that the signal will be reflected back the line to the sending end. Quite apart from the chance of getting ghost images or "ringing", we are losing signal strength at the receiving end and presenting a large capacitive load to the driving valve. It seems reasonable to suppose that there may be some value of terminating impedance for which all the signal is absorbed and none reflected. With a little more maths, we can find that this optimum terminating impedance is simply the characteristic impedance of the line, Z_0.

In the case of cables carrying video signals a 75Ω terminating resistor is required (82Ω is near enough) ; in the case of cables carrying R.F., which feed into a tuned circuit via an R.F. transformer, it may be assumed that the input impedance of the R.F. stage is 75Ω approx., and NO 75Ω resistor should be added. When the line is correctly terminated in this manner, it appears to the driving valve as a pure resistance.

However, if the line is incorrectly terminated, some of the signal is reflected, the amount depending on the degree of mis-termination. A wave pattern termed a standing wave appears along the line, and the ratio of maximum to minimum voltages occurring in the line is called the Standing Wave Ratio, often abbreviated to VSWR.

If it is desired to feed the same video signal into two or more units, the cable should be "looped through", as shown in Fig.3. The loops in units 1 and 2 should be as short as possible to avoid a mismatch - say, an inch or two. Only one 75Ω resistor is required, in the last unit which is being supplied. The input impedances of units 1 and 2 should be large compared with 75Ω, again in order to avoid a mismatch.



Since we must provide 13 mA to obtain 1 volt across 75Ω, there is a temptation not to terminate the co-ax so that we can obtain a greater output for less current. The main snag, as mentioned earlier, is that the co-ax no longer looks like 75Ω to the driving valve - it appears as a shunt capacitance of 20 pF/ft. A few yards represents a large capacitance which will seriously degrade the rise and fall times of pulses and limit the bandwidth, unless a large current is available to cope with it. (See CQ-TV 40,p.2)

To sum up : co-ax should, in general, be correctly terminated - but for video unit interconnections, unterminated co-ax leads of a yard or two can be permitted providing it is remembered that an unterminated co-ax represents a large capacitive load.

I would like to thank Bill Hipwell, Alan Sherman and John Tanner for their help in the preparation of this article.

REFERENCES

High Frequency Transmission Lines by Willis Jackson. (Methuen)
Television by Kerkhof & Werner (Philips) Chapters IX and X.
Principles of Radar by M.I.T. (McGraw-Hill) Chapter VII.

WHAT THE OTHER CHAP IS DOING.

Gordon Sharpley,G3LEE,of Manchester, seems to be our first member who can record slow scan pictures in this country - has anyone else achieved this, apart from Copthorne Macdonald WA2BCW ? Gordon reports that his vidicon camera had improved by 10 dB in signal to noise ratio after being left in a shed all winter, and he can now resolve 3 Mc/s. Pete Bendall, G3NBU/T, sends news from Cambridge - he and Mike Soames are re-building the old G8PY gear, and Pete has had pictures out of his staticon cmmera. He based his design on that of Eric Cornelius, given in CQ-TV 36. Pluff Plowman has been busy with slow scan, and has produced an immaculate monitor, switchable to all standards.

Brian Green, G3KCB, is working with Gordon Sharpley, and has a slow scan flying spot system in action. Jack Byrne(Malvern) has visited Grant Dixon, and promises 70 cm picture transmission eventually. There is a good propagation path from Malvern to Ross-onWye, and Jack has interested a few other people in Malvern in amateur TV. Brian Smith, G3LGJ, writes from Castle Bromwich to say that he is working with George Flanner G3KBA and John Symmes G3LNN, in getting the old gear resurrected. They are going great guns, and may have pictures on the air by now. G3KBA's interlaced pulse gen is in use - he uses multivibs with division ratios of 3, 3, 5 and 9, and claims they are better than step counters. Has anyone any views on the reliability, or otherwise, of the various types of dividers and counters used in pulse gens ? G3KBAs blanking generator and vision-sync-blanking mixer are also in use, and the transmitter was built by G3LGJ. He uses a QQV06/40 tripler feeding a QQV06/40A PA on 70 cm. The modulator uses three KT88 strapped in parallel, as triodes - average video power putput is 70 watts. The transmitting aerial is 16 driven elements with reflectors, and the receiving aerial comprises 4 folded dipoles with mesh reflectors.

W.E. Thornthwaite, G3MTV/T, has completed the BATC sync gen, including the timer unit described in CQ-TV 41, and is obtaining good results from it. He is re-building his 430 Mc transmitter, experimenting with an 832 as a straight PA. G3MNL has a receiver with 14" monitor to pick up the transmissions. Cyril Bogod (Penarth) has been thinking of possible colour systems, and has been in touch with Grant Dixon.

Arthur Critchley, now serving in the RAF, had hoped to be posted to High Wycombe - as a "scientist". (Arthur's inverted commas). True to tradition, he was posted to Yorkshire, and is now awaiting a further posting. Dave Jones, G3LYF/T, is building up gear in Totnes, S. Devon, and would be pleased to get in touch with anyone in that area.

Warren Jacobs, VK6WJ, Western Australia, is proceeding with his new camera, pulse gen and viewfinder, to 625 line standards, and promises photos and details when it is all working. Dennis Wheaton, VK2AWW/T, sends in news from N.S.W. - he was in touch with Rodney Prout, VK2NC/Tm in Newcastle, about 90 miles away, during a recent trip. Rodney has completed his gear to CCIR standards, and will soon have his FSS on the air. The ATV band in Australia extends from 288 to 296 Mc/s. Bill Brownbill, VK3BU/T has two 834s which he hopes to use on 288 Mc/s to put out 100 watts, using 807s to modulate the 834s. Bill is 40 miles from Melbourne, in Geelong.

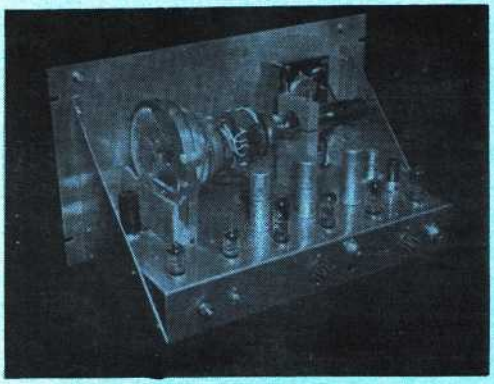
Jim Russell of Bournemouth has been trying to find interest in ATV in his district, but without success ; he has not been active for the past four years since he disposed of his camera gear, but hopes to find the spare time to re-start in future. Norman Kay, Los Angeles, is using a DC Tektronix CRO to line up his new transistor vidicon deflection circuitry - he hadn't intended to improve the linearity, but as the scope was available at work, he decided to improve his circuitry with its help.

Mike Bryett (Bluntisham, Hunts) is now G3OAT/T and active on 434.63 Mc/s - Ian Waters G3KKD/T in Ely (12 miles) receives very strong signals, and G3NOX/T at 25 miles also gets a good signal. Only half a watt is used, with foam dielectric feeder ; this will later be replaced by low loss cable. Ian Waters brought his A2521 R.F. stage over to Mike's and showed what a difference it made, so Mike will be building a converter using the A2521 in the near future. G3NOX/T is building a 32 element stack to replace his existing 16 element one.

Rex Lakeman sends news of the High Wycombe group's Mark II Vidicon Camera - it is now almost complete, and has given pictures, although the video response has to be cleaned up a little. The pulse generator and power supply are working fine, so it only remains to clear away the lethal birdsnest of components and wiring around the camera !

Rex is amazed that none of the members has electrocuted himself - take care lads, we can't afford to lose your ten bobs !

Greg Ehrler K2ALX (Brooklyn, N.Y.) has an early NBC orthicon camera in action, and will be on the air later in the summer. Martin Coyne (Eire) is following the slow scan articles with interest - remember that Pluff Plowman G3AST is co-ordinating activities on slow-scan TV. M. Smith of Newark wants information on the Waveform Gen. type 43 ref. 10VB/6155 - can anyone help ?



Graham Hill's Monoscope unit showing the tube and video amplifier. The unit is built on standard 19" rack panels.

Graham Hill (Dover) reports that he will be in the forces for two years starting sometime in July. However his monoscope camera, pulse generator for 405 lines and vision-blanking-sync mixer unit (based on the G3KOK/T design) are all working well. John Tanner paid a flying visit while at Folkestone for the I.A.R.U. conference in June, and after seeing the excellent pictures persuaded Graham to send the circuits in for CQ-TV (see next edition) Graham has used the E180F high gm valve and has decided that the additional expense is well worthwhile.

The final stop press item of news is that Mike Barlow is now working for the Montreal TV station CFCF - we look forward to hearing more news.

Well, that's the lot for this time - don't forget to send your news along, no matter how unimportant it may seem to you.

NEW MEMBERS

David W. Andrew, 28 Guesseus Road, Welwyn Garden City, Herts.

Brian N. Green, G3KCB, 138 Flixton Road, Urmston, near Manchester.

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Horace H. Preston, G3MGR, 24 Cromwell Road, Malvern Link, Worcs.

Noel A. Roberts, Wilkinson Street, Rockhampton, Queensland, Australia.

D.A. Saxony, Ballyhook Demesne, Grange Con, Co. Wicklow, Eire.

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CHANGE OF ADDRESS

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M.S.Tooms, 81 Misbourne Road, Hillingdon, Middlesex.

New Book

How TV Works by W.A. Holm

Philips Tech. library series.
Price 32/6d.
A very good, non-mathematical introduction to television.