



# CQ-TV

December 1968

no. 67

*The Journal of  
the British Amateur  
Television Club*

# THE BRITISH AMATEUR TELEVISION CLUB



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Cover photo: R.S.G.B. Exhibition.

Please note that a certain amount of re-organization has taken place in the Club committee. New officials have been appointed, and their names and addresses are printed on page 1.

Some of the positions in the Club have been filled by the same people for some years, and a change has become inevitable. Our thanks are due to both the retiring officials for the work they have done for us and to the new ones for the work they will be doing.

A complete structure of the Club is being drawn up and will be published as soon as possible. The Club's address, for forwarding purposes remains

64, Showell Lane, Penn, Wolverhaptton.

By an unfortunate oversight, no credit was given in CQ-TV no. 65 to the designer of the vidicon camera channel described there. He is Mr. R. D. Hanes of Wembley, Middlesex, and we offer our apologies to him for the omission.

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## **FOR SALE**

21in Colour Tube with scan chassis, coils, magnets, convergence chassis and power supply. Mounted in metal angle frame-work 2ft 4½ ins x 2ft 2½ ins x 4ft 2ins high.

What offers? Buyer collects.

Partly completed Emitron camera in Imhof type case with length of camera cable and control unit, in 6ft rack with door. All valves. Built to special standards as frame sequential colour camera.

What offers? Buyer collects.

Both above from

C. Grant Dixon,  
Kyrle's Cross,  
Peterstow, Ross-on-Wye,  
Herefordshire.

Pye Mk. 4 vidicon camera chain.

Consists of camera, C.C.U., monitor, tripod, lens and cables. 625/405  
( S.P.G. included ). £50

Mr. Cleland, G3PWU  
5. Northcourt Avenue,  
Reading, Berkshire.

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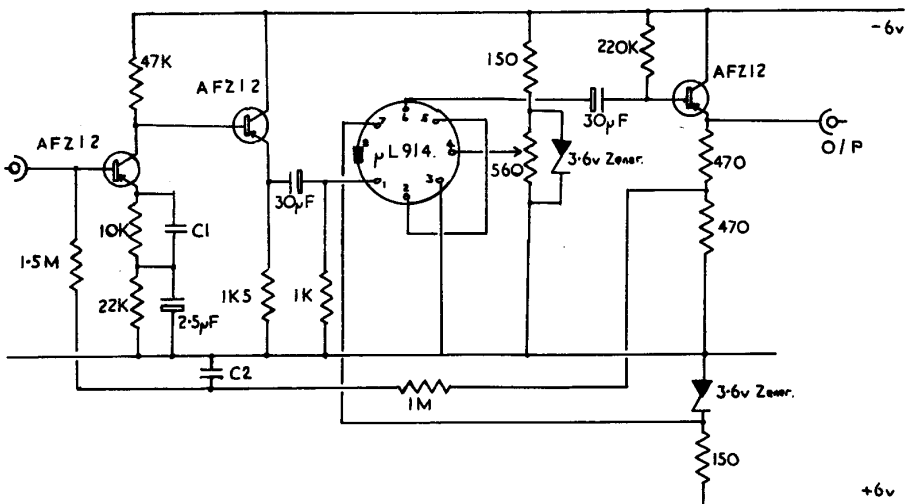
## POST BAG

P.J. Deaves recently moved to Great Plumstead, Norwich, writes to tell of a 70 cm convertor and a multi-standard S.P.G. (using logic circuitry) which he is building. Using the convertor he will be able to feed his Philips colour receiver with any signals available. Anyone in the area able to transmit colour? The address is 10, St. Mary's Close, Gt. Plumstead.

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## AN I.C. HEAD AMP

The head amplifier described here has been built around the Fairchild I.C. type uL914, and is part of a camera chain being built by the author. The complete circuit has yet to perform "over the air" but bears up reasonably well on test - in fact it gives remarkably good results considering its simplicity.



The I.C. used has already been described in ( CQ-TV 61 ), but it is worth noting that most of the uL914s on the market have the flat on the case rather than the colour coded dot.

Tr 1 and Tr 2 are an impedance transformer, Tr 1 being operated at a very low collector current to reduce noise. The output from Tr 2 is low impedance to present a good match into the uL914 ( the input impedance of I.C. is about 1K ).

## TESTING

1. Apply 1 volt pp 50 Kc/s square wave across 75  $\Omega$  and connect to the input of the amplifier via a 3.3M  $\Omega$  resistor and 0.22 $\mu$ F capacitor in series. Adjust C1 and C2 for minimum overshoot and maximum " squareness ". ( In carrying out these adjustments ensure that the I.C. is not clipping the signal by reducing the input ).

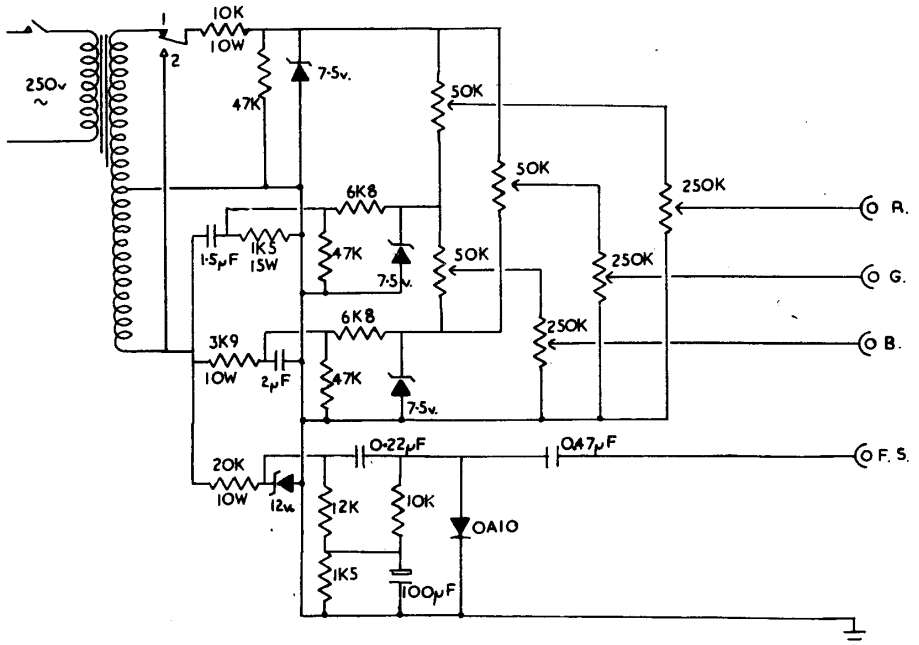
2. Adjust gain for 1 volt pp output.

Note. It is possible to replace the output transistor Tr 3 by a u L900 I.C., which is a buffer amplifier unit with considerable output capabilities.

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## A SIMPLE COLOUR BAR GENERATOR By M. LEWIS.

This circuit is based on one appearing in the September 1967 issue of " Funkschau " but has been modified to use standard components. (The original needed a special transformer as well as some other unusual components).



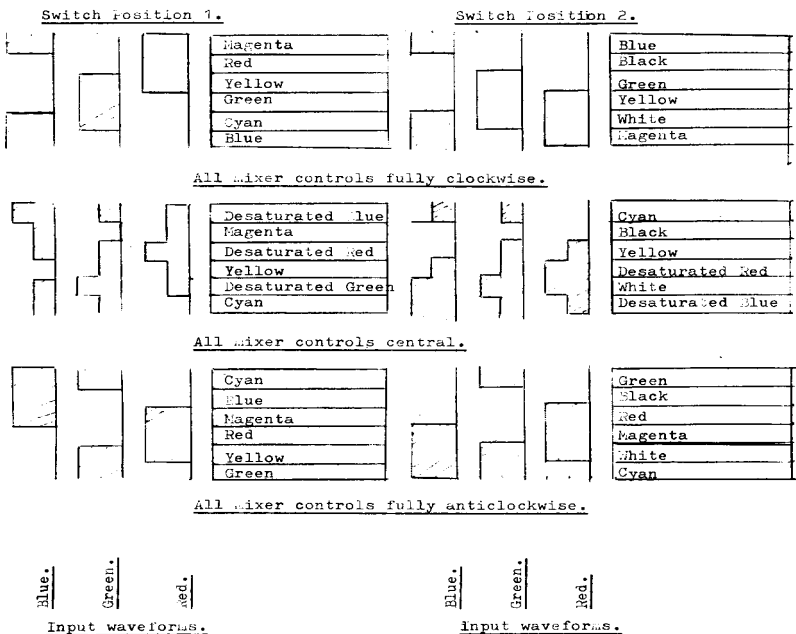
The transformer drives two phase shifting networks which produce two sine waves with 120° phase difference. A third sine wave is derived from the winding which is 180° out of phase with the winding driving the phase shift networks. The result is three sine waves, each 120° out of phase with each other, i.e. a three-phase system. These sine waves are each converted to square waves by 7.5 volt zener diodes. The square waves are fed to a mixer system and then to level controls. A field synchronising signal is produced by squaring a sine wave, differentiating and clipping to produce a negative going spike.

The red, green, blue and synchronising signals were fed to the appropriate input on an R.G.B. monitor.

Six examples of the patterns available are illustrated. As there are very many settings of the six potentiometers it is possible to obtain any hue at any saturation required.

As the signals are derived from the 50 c/s mains, the resultant colour bars are horizontal. There is no line or field blanking applied to the outputs, as the circuit stands, so care must be taken that the clamps in any further equipment do not suppress the signals. Any system into which the signals are fed should have a frequency response flat down to 50c/s. The outputs are high impedance and should not be terminated in 75Ω. These were not found to be too great disadvantages, but required an increase of the coupling capacitors in the monitor. An alternative arrangement would be to parallel an NPN transistor across the zener diodes and drive the base with positive going blanking signals. The outputs could be fed to emitter followers to transform the output impedances.

The generator has been found extremely useful in the adjustment of the input and output matrices in an R.G.B. monitor. It would prove valuable also in work with colour encoders.



**A VIDEO STABILISING AMPLIFIER** By DAVID TAYLOR G6SDB/T  
 from an original idea by G8ABQ

The unit to be described accepts composite or non-composite video and processes it to composite video with a fixed sync amplitude.

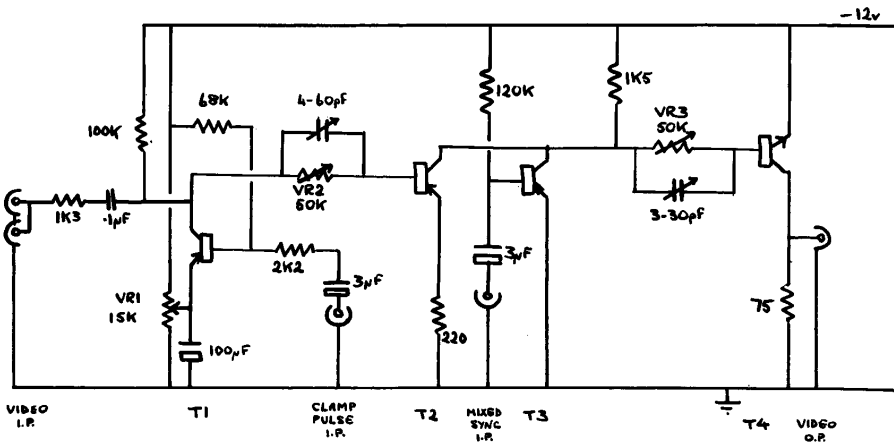
Video is fed to T1 which acts as a clamp. During the conduction period of T1 the collector is held very close to the emitter potential thus the video is clamped to this potential which can be varied by VR1. For non-composite blanked video, line drive is used as clamp pulses, but if the video has disturbances during the blanking period, then mixed blanking is used as clamp pulses. Under these conditions T1 acts both as a blanking inserter and d.c. restorer.

The signal with its d.c. component now established has to be amplified and mixed with syncs. The composite signal at the collectors of T2 and T3 has levels as follows: white-10v, black - 3.1v, sync -0.1v, thus the gain control VR2 is set to give 7 volts picture output. The function of VR1 now becomes clear, it is set so that black level is -3.1v, at the common collectors, and sets the sync amplitude.

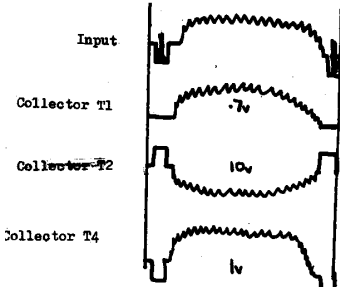
Syncs are added by T3. During the sync period T3 conducts heavily and drags the common potential down to about - 0.1v, its bottoming potential. During blanking the common collector potential is - 3.1v and on peak white -10v The exact picture sync ratio is set by VR1, with VR2 controlling just the picture amplitude. There is sufficient gain in hand with T3 that it can act as a sync separator, so that if no mixed syncs are available the syncs from a composite waveform can be used.

The final composite signal is fed to an amplifier is used to suit your own purposes: e.g. for feeding a tv set: collector load 1800 output 5 volts. Feed tv as CQ-TV 56 for feeding 750 line: collector load 750 terminate in 750 output 1 volt.

The gain of the output stage is set by VR3, and the two trimmers adjusted for best high frequency response.



WAVEFORMS



TO FEED T.V. SET



on 405, 0A47 not needed.

# RSGB EXHIBITION

This year's R.S.G.B. International Radio Engineers and Communications Exhibition was again held at the Royal Horticultural Societies' New Hall, and the BATC was well represented with the usual array of cameras and equipment.

Not all of this equipment was available at the start of the Exhibition, as some of it was stuck on the A40 in a Mini which had unaccountably broken its clutch! However, the show opened with a total of two cameras, two monitors, various pieces of equipment such as a test signal generator and examples of all current camera tubes, and various B.A.T.C. events. And, of course, a supply of CQ-TV's and membership application forms.



The cameras, which were lent by Bob Tebbut, were a self contained transistorised vidicon, and a valve operated, tripod-mounted camera. Unfortunately, when this was cabled up, no one could find where to plug the mixed-syncs, until it was found that the processing amplifier was missing.



Because of this the camera could not be shown working, but instead Pete Blakeborough brought along his transistorised camera. This gave much better results than would have been expected in the available light because it had an F.E.T. head amp. which gave extremely good noise free pictures.

The pulses for the stand were provided by a transistorised S.P.G. built by Tom Mitchell. This used unijunctions as described by Grant Dixon in his article in CQTV No 60.

Meanwhile, on the A40, a certain Mini was retrieved and mended, and more gear delivered to the Exhibition. In fact, such were the various changes that the stand could almost be described as being different each day! One of the pieces from the Mini was a remote pan-tilt unit for Bob Tebbutt's camera. This proved very popular with visitors to the stand, as, indeed, it had last year.



On the stand during the week were Dave Cottrell, Alan Bird, John Armstrong, Tom Mitchell, Pete Blakeborough, Dave Lawton, and Andy Hughes, to whom grateful thanks. The organisers were rather disappointed with the number of volunteers who offered to help, or lend equipment, and feel that if more people had come forward a much bigger and better display could have been mounted. Next year's show is on the 1st-4th October 1969 at the same place, so if anyone can offer any assistance, please write to: David Cottrell, 11, St. Kilda Road, Ealing, W 13, who will be the organiser.

The stand was, however, a great success, attracted a lot of attention and made the club a lot of new friends and members. A very worthwhile effort with satisfying results.

# BATC CONVENTION.

## 1968

Once again the Club Convention proved to be a great success, with 150 people meeting at the I.T.A. Conference Suite on the 14th of September. Among these were visiting French and Dutch members.

A good display of members gear was on show, representing the video, transmitting and slow-scan sides of the hobby. Most of this was in working condition, and one notable show was a videotape message from Mike Barlow- a founder member now in Canada -which had been converted over here from American to British standards. This was replayed at intervals during the day.

Three lectures were presented by members during the day. These were "Slow Scan 71 " by C. Grant Dixon, "A Vidicon Camera Yoke" by G6NDT/T John Tanner and "Amateur Video Tape Recording " by G6LEE/T Gordon Sharpley. These were very well received and the lecturers deserve out thanks for their efforts.

Mr. I.J.P. James agreed to become our new President, and we are very glad to welcome him to this office and we hope he will enjoy his stay. Mr. Neville Watson concluded his very successful term and we offer him our special thanks for the work he has done for us in those two years.

It was announced that the French amateurs are planning an International Amateur Television Convention to be held at Armentieres on 19-20th April, 1969. Further information concerning this event is available from C.F.T.A. 13, Rue de Bellevue, 75, Paris 19.

A new committee was elected and consists of M.J. Sparrow, J. Lawrence, C. Grant Dixon, B. Tebbutt, D.S. Reid, G. Sharpley, A. Hughes, M.J. Bryett, P. Blakeborough, J. Kassar and C. Chivers.

The Convention closed at 6 pm and later in the evening an informal dinner took place at the Rembrandt Hotel. Over thirty guests were present at this largest B.A.T.C. dinner ever held and the Club had the pleasure of the company of the new president, and also a formerpresident, Dr. G.B. Townsend.

READ

**CQ-TV**

TO KEEP IN TOUCH WITH  
AMATEUR TELEVISION ACTIVITIES  
THROUGHOUT THE WORLD