CQ-TV

No. 108

October 1979

The Journal of the
British Amateur Television Club

The British Amateur Television Club.

C Q - T V is the quarterly journal of B.A.T.C.
Contributions for publication should be sent to the Editor, Andrew M. Hughes
17 Woodside Avenue
Esher, Surrey.
KT10 8JQ.

Close for press dates are Dec 1st for the Feb issue, Mar 1st for the May issue, May 1st for the July issue and August 1st for the October issue.

WHO TO WRITE TO

Subscriptions and changes of address should be sent to the Treasurer.

Membership enquiries should be sent to the Membership Secretary.

Advertisements and articles for C Q - T V should be sent to the Editor.

Orders for books and magazines should be sent to B.A.T.C. Publications; orders for equipment and components to Club Sales. Please address your letters to the most suitable Club Official, and only write to the Secretary if you REALLY do not know who you want; forwarding letters is a boring chore! Also, please enclose a stamped addressed envelope with your letters, with an extra stamp if you expect it to have to be forwarded.

CONTENTS

COMMITTEE MEMBERS NAMES AND ADDRESSES

PRESIDENT
R.C. Hills G3HRH

CHAIRMAN
Don Reid
6 Mount Crescent
Brentwood, Essex.
CM14 5DB
Tel. Brentwood 223735

GENERAL SECRETARY
Mike Cox G8HUA
13 Dane Close
Broughton, Brigg
South Humberside.

MEMBERSHIP SECRETARY
Brian Summers G8GQS
13 Church Street
Gainsborogh
Lincolnshire.
Tel. Gainsborough 3940

TREASURER
Arthur Rix G3RYF
17 Forest Drive East
London
E11 1JX
Tel. 01-539 1468

B.A.T.C. PUBLICATIONS
Malcolm Sparrow G3KQJ
64 Showell Lane
Penn, Wolverhampton
West Midlands.
Tel. Wombourne (std 0902) 893037

SALES AND LIBRARY
C. Grant Dixon G8CGK
Kyrles Cross
Peterstow
Ross-on-Wye
Herefordshire
HR9 6LD
Tel. Ross-on-Wye 2715

EQUIPMENT REGISTRY
Alan Watson
Somerby View
Bigby, Barnetby
Lincolnshire
DN38 6EU
Tel. Searby 347

CONTESTS AND ACTIVITY
Graham Shirville G3VZV
18 Church End
Milton Bryan
Milton Keynes
Bucks. MK17 9HR

COMMITTEE MEMBERS
Jeffrey Borin
Trevor Brown G8CJS
Cyril Chivers
Mike Crampton G8DLX
Lewis Elmer G8EUP
Dave Lawton G8ANO
John Lawrence GW3JGA
Paul Marshall
Tom Mitchell G3LMX
Joe Rose G8CTG

SUBSCRIPTIONS

Once again, subscriptions are due, and we must ask all members to send their two pounds to the Treasurer by January 1st 1980. Please try to remember to pay on time, as the cost of sending reminders is money wasted. This year we have a new Treasurer, so remember the new address :

Arthur Rix G3RYF
17, Forest Drive East
LONDON,
E11 1JX

If you live in U.K., or anywhere in Europe, it is most convenient to pay by Post Office Giro. The account number is 25 612 4000. Members in other parts of the world are asked to pay, if at all possible, by means of a cheque or draft on a London bank - this reduces the bank charges involved.

For those members who wish to pay by Bankers Order, a form is printed below. Just fill in the details, and send it to the Treasurer, who will deal with both the Club's bank, and yours.

THE BRITISH AMATEUR TELEVISION CLUB

BANKERS ORDER FORM

Date_____

To the Manager,

(member's bank)_____

_____

Please pay on my behalf IMMEDIATELY and SUBSEQUENTLY on the first day of January each year, commencing 1st January 1980, the sum of Two Pounds (£2) to the account of :

The British Amateur Television Club
a/c no 0271204
Lloyds Bank Ltd. (sorting code 30 94 79)
67, Kingsway
LONDON WC2B 6SX

Name_____

Address_____

_____

Signature

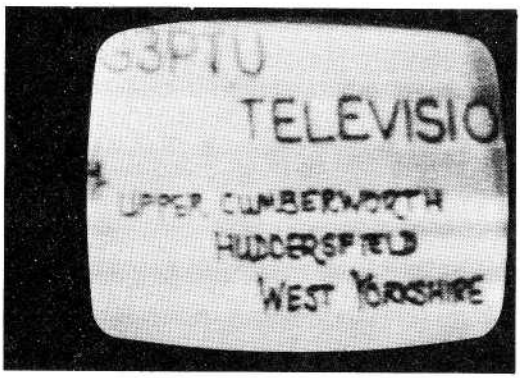
_____

TV ON THE AIR

By John L. Wood G3YQC

G4EYT, a newcomer to ATV seems to be a bit "out in the sticks" (his words), living as he does in Sturminster Newton in Dorset. Colin would very much like to contact any ATVers in his area. The equipment at present is an aged Marconi dual-standard mono TV with a modified tuner for 70 cm. Doubtless if there were another station within range Colin would build some transmitting gear. The address is: "Cheviot", 6 Brinsley Close, Sturminster Newton, Dorset.

G8CJS (Leeds) has kindly sent several photos taken of off the air pictures received at his QTH, the one shown here is typical and as you can see originated from G8GQS in Gainsborough, Lincs. over a 75Km path. Trevor has also sent pictures of transmissions from G3PTU Huddersfield, G3LKK Leeds, and G8LQC from Leeds. It is interesting to note that both G3LKK and G8LQC used the simple modulator from C Q - T V 105, G8LQC in fact used it on an FDK Multi U11. G8GQS uses a 4CX250B in his final and all stations are very active and would like further contacts.



G3PTU (Huddersfield) has also sent some interesting photos. The one shown here is of his own transmission as received at G8CJS in Leeds. David is very active and is on the lookout for further contacts.

Ray Lucas, GW8GKF has sent what can only be described as the manuscript to a short book! This describes in detail the activities of a group of TV amateurs in the mid-Glamorgan area of South Wales. The stations involved are GW8MDO, GW8AGI, GW8LJJ and of course GW8GKF. As there is more information than can be used at one time I am splitting it up into two parts.

THE GW STORY (part 1)

Mike GW8MDO lives in Blackwood which, like most places in the South Wales valleys is surrounded by mountains, Mike's only contacts from home are with GW8LJJ about a mile away and GW8GKF in Caerphilly, niose-free pictures are always exchanged. The transmitter consists of a 35 MHz IF into a M/M 70 cm transverter which feeds a M/M linear amplifier. The aerial is a 46 element Multibeam. On receive a 5" Rigonda TV is used. Station equipment includes a $\frac{1}{4}$" Akai VTR, and a Shibaden capstan servo editor $\frac{1}{2}$" VTR. Mike has been interested in ATV for about 4 years.

GW8AGI lives in Rhewderyn which as usual is in a deep mountain valley. The only station workable is GW8GKF. Bob, a very enthusiastic TVer uses a home brew transmitter with a "GKF" screen modulator, power output is about 10 watts and the aerial is a 46 element Multibeam. Transmissions to Caerphilly need only about 2 Watts for a grade 4 picture. On receive a 5" Rigonda is used. Bob has been an ATVer for 10-15 years.

Eric, GW8LJJ is described as a fanatical constructor and frowns upon those who buy commercial equipment. His home-built effects generator apparently has to be seen to be believed making available a multiplicity of special effects and video combining facilities, the unit has taken countless hours to construct and, like all good biffins Eric is still not satisfied. Presentation takes priority at the station. The number of cameras available is estimated as probably out-numbering the BBC and IBA! Could this be a slight exageration? Anyway it would seem that there is no shortage of cameras in the shack. The transmitter is a U450L - "Aha! that's commercial" - which is modulated by a "GKF" screen modulator and feeds a 2C39 linear amplifier delivering around 30 Watts of RF to a 46 element Multibeam. On the receive side as you would expect various tuners and IF panels are available. VTRs in common use in the shack are a Sanyo 2000 and an ITC ½" reel to reel colour recorder. Eric has been interested in ATV for about 6 years and lives in Blackwood which is about 750 feet ASL - much good it does him though since the surrounding mountains rise to 1500 feet! The only stations workable are GW8MDO and GW8GKF . The locals reckon that his 8 ft. by 6 ft. shack is really a "Tardis" since the amount of equipment inside just doesn't compute when viewed from the outside.

The next issue will give extensive details of GW8GKFs shack and equipment, gen of RF paths out of the valleys and a look into the studio in which the group produce programmes for clubs and all together with a photo of an interesting TV aerial!

Correspondence as usual please to : "TV on the Air" 54 Elkington Road, Yelvertoft, Northampton, NN6 7LU. Tel. (0788) 823250.

LETTERS to the EDITOR

Dear Sir,

Through the letters column of your publication may I air two points,

firstly

A number of stations have expressed the desire to establish a common talkback channel other than 144.75 MHz. The suggestion is to use 145.25 MHz, the choice being based on the fact that this channel has only recently been made available and therefore has at present low occupancy. Secondly if multiplied by three to become 435.75 MHz it provides drive at an ideal frequency for vision on 70 cm, with f3 modulation of the vision carrier provided from the basic S10 drive to carry the sound.

The 435.75 MHz is ideal as being far away from the A3j stations plus well away from the Emley beacon which is a problem with A5 tv. The problem is that as yet the RSGB is unwilling to agree to this channel being used for this use, for reasons unexplained. The author would be pleased to know through these columns other member's views on this subject.

secondly

With the increasing interest in 10 GHz band activity ought not an application be made for an inland repeater for tv on F3 sound.

A suitable lofty spot could be negotiated such as the IBA Emley TV Mast in Yorkshire; here again suggestions and views would be welcomed.

D. J. Long G3PTU
Huddersfield
W. Yorks.

Dear Mr Editor,

As no one else is seemingly willing or able to acquaint the members of BATC, particularly those who know no other than atv, with the currrent state of operational sstv on all bands world-wide I again write to you after an absence of some time.

From the 1st June 1979 to date there has been 2xsstv activity on 20m, unless otherwise noted, from DF, DK, DL, EA3, 4, 6&8, F3&9, HB7&9, 12, 4, 6, 8, 7, 0, JA6, LU4, OE5, OH2, with OH2KM using the first OH home made JA design 400 OK3, OZ3, PP2, VK3&7, VR6TC (21 MHz), all W

call areas except 3, 8&9, YU4, ZK1, ZL4, & 5NODOG (10, 15 & 20 MHz), the last giving me my 99th 2xsstv country. G activity on 80m and 2m was poor and involved 11 stations only, despite the recent "great openings" on 2m during which no sstv was heard from EU notwithstanding repeated calls and requests for sstv.

What is the real interest of the Council of BATC in sstv ??? as the officers and committee members of BATC remain conspicuous by their absence on the air operational and contestwise. As at the Leicester 78 Exhibition the BATC stand at this year's RSGB Alexandra Palace Exhibition displayed no sstv equipment (at any rate on the morning of the first day of the RSGB one) but only atv equipment. The CQ-TV report of the AGM 78 "happenings" made no reference whatsoever then, nor since, to Grant Dixon's projection of W9NTP's film, with recorded tape introduction on MSTV but gave full details of atv recording of the AGM - why?

The arrival of the new ROBOT SSTV Keyboard for which long queues formed at Daiton havention 78 to try it out, is awaited with interest although it will not also cope with rtty and cw. Maybe G3OQD will soon be active on the air with his version of a "Slow Scan Television System using a Microprocessor", inspired ? by K6AEP's articles theron in 73 magazine (see back copies from the Editor of THAT magazine !)

Some 30 OH amateurs are Known to be constructing the JA version of the Robot 400 convertor, and OH5RM has sent the negative of the pc board therefor to G3OQD. Similar numbers in VK use their home-made version, with one in use in Berkshire.

I read that Grant Dixon G8CGK is in demand as a lecturer on sstv eg at this year's RSGB VHF Convention, but with what results operationalwise in the UK ?

Richard Thurlow G3WW
March
Cambs.

BOOK REVIEW

The Cheap Video Cookbook
by D. Lancaster
pub. Prentice - Hall International
Price £6.55

This is a book for amateur computor types who wish to get words, pictures, etc, out of a home computor and on to a tv set. Much do-it-yourself constructional detail is included, with information on microprocessor controlled video displays.

BATC Committee

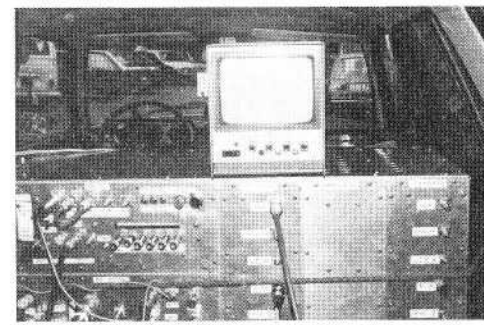
At a recent committee meeting a proposal from a member to publish in CQ-TV the minutes of all such meetings was considered. Most committee members thought the idea basically sound, with the one doubt that the space used in the magazine might be considered wasted by some club members. After all, committee meetings tend to be rather boring affairs !
After much (boring !) discussion it was decided to publish in the magazine a precis of each meeting of the full committee, as an experiment, to last two years. If at the end of this time a significant number of readers had written to the Editor commending the idea, the precis would be continued. Otherwise, the space would be used for more popular material.

Precis of the BATC Committee Meeting held in July 1979 in Rugby.
1. Present: Reid (Chair), Mitchell, Summers, Elmer, Hughes, Pratt, Crampton, Rix, Marshall, Brown.
3. Matters arising from previous minutes:
Mr Summers reported on the (continuing) membership drive by advertising in foreign journals.
It was decided to allow (in the future) members to claim travelling expenses for committee meetings. (This being the first approved travel expense claim allowed for committee members since the Club began, necessary due to the rising cost of rail & road transport)
In future all CQ-TV envelopes for the Jan/Feb issue to be stamped according to whether member had paid his subscription.
A flow chart of committee members function was drawn up and the Editor asked to consider publication.
4. Mr Pratt explained the current financial situation, which appeared to be satisfactory, and mentioned that the Club would shortly be needing a new bank account, as Mr Rix would be taking over as Treasurer in January. He also mentioned the difficulty and expense of cashing foriegn cheques for small amounts and asked that officials request payment for Club affairs by Giro (Europe) and London cheques (rest of world).
5. Mr Hughes agreed to change the publication date of the first issue of the year to Feb. to allow envelopes to be stamped according to whether subscriptions had been paid.

The meeting voted against a proposal that all new members should join from the preceding January.
The Editor agreed to publish committee meeting minutes in precis form in CQ-TV
7. Decisions were made to order new stickers for cars and equipment (as now advertised in CQ-TV) and new Club ties.
Mr Elmer agreed to investigate the cost of a new BATC banner for exhibitions.
Mr Hughes agreed to draft a new Members Information sheet (for new members)
Mr Crampton agreed to find costs of 3-4000 copies

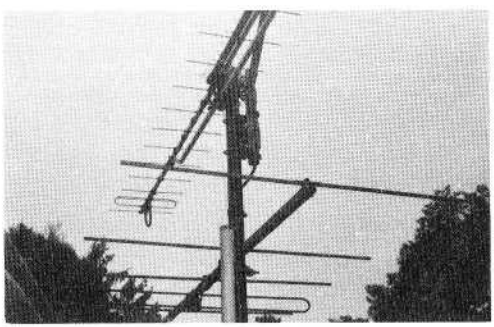
of new Membership Application Forms.
Messrs. Brown & Crampton agreed to organise (if possible) a demonstration of amateur tv at the Warwickshire Town & Country Royal Showground Festival.
Mr Brown was authorised to proceed with a tape & slide lecture as part of a BATC package for publicity.
8. Mr Brown repotred on progress on the BATC video tape for Australia.
9. The AP Exhibition stand was reported to have taken £216
10. Convention 1980; suggestions for the venue were; Woburn Abbey (Mr Summers), Leicester Polytechnic (Mr Elmer), Alexandra Palace (Mr Mitchell).
12. Mr Brown raised the matter of 144.75 Mhz as a fast scan calling frequency, as the RSGB had been using it for slow morse. Mr Crampton to discuss with RSGB.
Mr Sparrow asked for help running BATC publications. Mr Crampton agreed to help.
14. Committee agreed to Mr Wood's proposal to introduce a diamond grade for the CQ-TV award.

-.-



FRENCH AMATEUR TV CONVENTION 1978

The following photos were taken by members of the Jersey Amateur Radio and Electronics Club at the French Amateur TV Convention in 1978.



The estate car belongs to Marc Chamley F3YX and is capable of 100 watts of television and 50 watts on 23 cm while mobile. F3YX is probably the biggest driving force behind amateur tv in France and often does demonstrations to local radio clubs of mobile amateur tv.
The hand held rig is believed to be operating on 23 cm.
The French are very worried at the moment by proposals by their PTT to take 430 - 434 MHz away from the amateur allocation; they at present make considerable use of it for atv, SSB, FM and repeaters.

CONTEST NEWS

Contest Organiser Graham Shirville G3VZV

I am delighted to be able to report a good turnout, a high level of activity and quite good conditions during the B.A.T.C. Summertime contest on the 2/3 June.

The full results are shown below:-

POSITION	CALLSIGN	POINTS	QSO'S	QRA	POWER-IN	ANT	RX
1	G3GBU/P	4721	23	ZN61F	150	88M	VARICAP
2	G4ARD/P	4284	31 (70) 3 (23)	ZL18H	100 (70) 50 (23)	18P 15/15	TP491 BFR91
3	G8DIR/A	3361	15	YM48H	25	18P	BFT66
4	G8DTQ	2617	17	ZL60E	80	18P	TP491
5	GW800J/P	2356	12	YL35J	60	88M	ELC1043
6	G8GLQ/A	2280	10	YL47G	150	18P	TP390
7	G81WX	1656	13	AL52H	50	88M	ELC1043
8	G8CIU/A	1454	9	AL52B	10	21	BFR90
9	G8GQS	1018	9	ZN57H	100	88M	ELC1043
10	G8DHS	965	8	AL34B	150	18P	MMCONV
11	G8DLK	932	6	ZM54B	3	18P	ELC1043
12	G4CRJ	772	11	ZL38B	100	88M	-
13	G8EGG	740	9	ZL77H	3	14	-
14	G8MNY/P	577	9	ZL67B	80	48M	H/B
15	G3AMY	236	6	ZN64F	8	48M	ELC1043
16	G8PTH	121	3	AL56G	10	48M	-
RX ONLY							
1	G8CTT	243	6	AL41J	-	46	MOSFET

So, congratulations to the Stoke-on-Trent Amateur Radio Society G3GBU/P as the leading station. They will be receiving a certificate and the 'prize' I offered - actually a bottle of champagne, which will I hope arrive safely.

All the participants appeared to have enjoyed themselves - quite a few comments were received - "Listen more carefully on 2 meters please" - G3DTQ, "A weak signal does not always mean that TV on 70 cms is impossible - it is always worth a try- G4ARD", "Please arrange a lift for the next one" - G8GQS, "switch off the 70 cms repeaters for the durations!" - G8DHS, "All set up for 10GHZ, but no takers!" - G4CRJ, "Too many people used 144.75 as working channel whilst others were trying to use it as a calling channel" - G3AMY.

Personally I was disappointed at the lack of activity on 23 cms and 10GHz and I will try to think up something for 1980. I would also endorse the comment about the misuse of the calling channel - get off it when you have established contact, and I also found problems caused by stations leaving their vision up for a very long time - thereby causing impossible QRM to others locally trying to work weaker stations.

There were many two-way contacts made between stations over 200 kms apart but the best DX contact at 255 kms was between G3GBU/P near Leek in Staffordshire and G8CIU/A near Gravesend in Kent.

By the time this is being read the International TV contest on September 8/9 will have come and gone and I hope that everyone taking part heard of the late change in the rules " ALLOWING ONE WAY CONTACTS " for half points. This change was the result of some pressure on the other European organisers, but in the usual (so it seems !) way the agreement was only reached in July - too late for insertion in the last issue. Anyway full results should be in the next issue and I hope that plenty of stations (in the south at least) will have been able to make contacts across the Channel.

RESULTS of the 9th WORLD SSTV CONTEST

1st	SM5EEP (32032 points)	7th	G3WW
2nd	WB9OGS	8th	HA1ZH
3rd	I0VMV	9th	HA5KBM
4th	I0PCB	10th	I4LRH
5th	W6WDL	11th	I6GMQ
6th	HA6JI	12th	G3GRJ

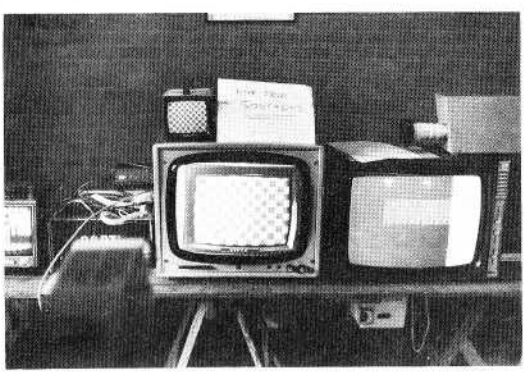
Congratulations to G3WW, the highest scoring G, with 18800 points.

Don't forget that have the slowscan contest coming up on November 24/25 on 3.6 and 144 (full rules in the last issue) - I hope we have a reasonable level of activity this time.

On a slightly different tack - in a letter from F3YX he tells me that there are about 10 stations in France able to work MOBILE TV. He goes on to say " my car is equipped permenently with 100W peak on 438.5 MHz positive / negative and 1255 MHz FM TV 10W plus 2 cameras, genlock, electronic switching for cross-band working also 3 antennas - 23 ele 1255 MHz, 19 ele at 435 MHz, 5 ele 144 MHz all at 2.9 metres above the ground. No problem to drive at 150 km/hr " - I can only wonder at the size of the car ! He is also threatening colour as well !

73s to all - comments etc to me at the address in the front or via telex 261817 ALLGDL G.

AMATEUR TV in KENT



Part of the atv display organised by the Kent video group and shown at the Maidstone Mobile Rally on the 27th May this year.

Highlight was the reception of Nick G8DHS (now G4 IMO) 45 km away near Southend over a less than easy path. DHS is being receivrd on a Rigonda portable and "monitored" by CCTV. These Rigondas are quite popular with our group as they have plenty of gain and tune 70 with little difficulty. On the right is the P100 colour pattern generator demonstrating a correctly set up PAL decoder, courtesy of Clive G8EQZ. Above it is a home made camera by Andy (licence applied for) with one of the Sony zoom lenses which were available recently at such bargain prices. On the left is the DF2SS pattern generator constructed by Andy G8PTH. This produces 14 different pattens, switching automatically every 2 seconds. PCBs are available as a group project. The whole display is not very tidy, but these things seldom are ! Our informal group has several members in Kent and Essex and acts as a forum for ideas and a bulk buying group - contact G8EQZ (QTHR) or G8PTH for details.

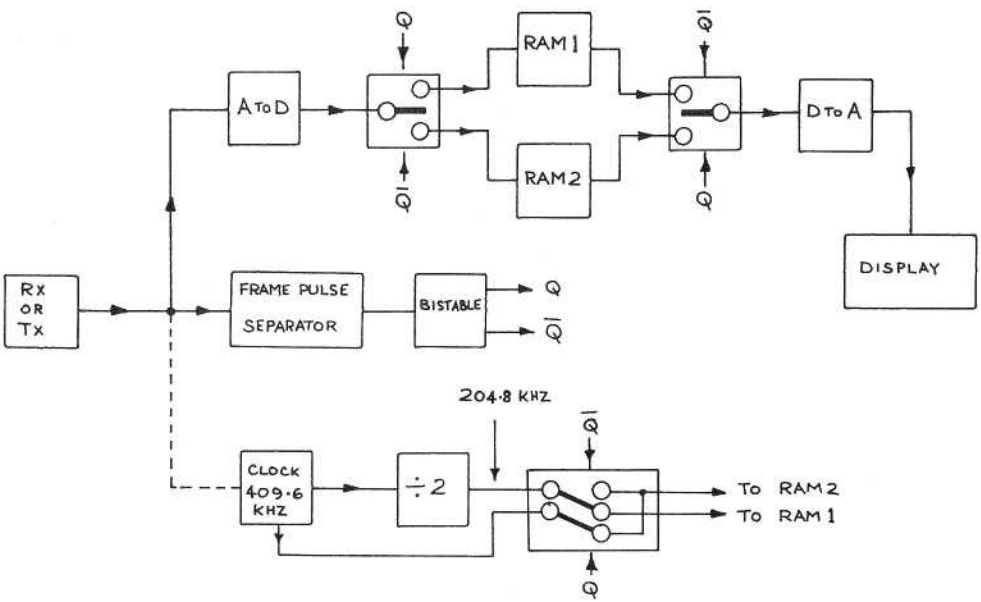
SUPER N.B.T.V. a possibility... ... ... ?

BY DOUG PITT

Narrow Bandwidth T.V. is the preferred term for Low Definition T.V. i.e. the sort that J.L. Baird and the BBC used between 1930 and 1935. One of the advantages it has over both H.D.T.V. (Fast Scan, so called) and Slow Scan is the small number of "picture points" which theoretically exist, making digital experiments possible with NBTV that would be much more complicated and expensive with the other two modes with a high number of points. One of the snags is that the bandwidth is kept fairly low (10 KHz per sideband) by reducing the repetition rate to the point where flicker becomes obvious if not annoying. But normal speed movements are still smooth and would remain so even if the repetition rate were lowere still further....with quite intolerable flicker. How can we use the lowest possible rate and still get a flicker-less picture? One method is the Slow Scan way; use a C.R. tube with a fairly long delay, but this gives a 'mushiness' to movements.

The cinema got over this difficulty a long time ago. Early projectors shone a stationary picture on the screen for a comparatively long period, say a tength of a second, then interposed a revolving metal shutter while the film was snatched down one frame in a very much shorter period, say a hundreth of a second. The number of flashes of light on the screen equalled the number of frames. Modern projectors have a shutter with several blades so that the SAME frame is flashed twice or three times during the stationary period. The eye and brain accept this as twice or three times the number of frames per second and flicker vanishes. Could this be done electronically with NBTV? With a whole frame of memory available, I think so.

It may be that the scheme that follows, a type of middling-to-fast scan conversion, has no novel features. If it's already old hat, the Editor will doubtless consign it to the waste paper basket and tell me not to waste readers' time. Anyway, here it is.



The Nottingham standard of NBTV, quite popular, has 32 lines, each with 48 'points'. The whole repeated $12\frac{1}{2}$ times per second ($=\frac{1}{4}$ of mains frequency). Call the number of points 64 instead of 48 for generosity.
32 x 64 = 2048 points per frame. Allow 8 levels of brightness (= 3 bits) and we get a figure of about 6 bits to represent the picture (if my reasoning and my arithmetic are right) with a writing clock rate of about 205 KHz. I am assured that the first figure is "chickenfeed" and the second is "quite practicable".

Assume two identical RAMs, called 1 and 2, then the scheme below should do the trick. The frame pulses from the receiver or tape recorder are separated and fed to a bistable with complimentary outputs Q and $\overline{Q}$ so that during each alternate frame the states are reversed. These outputs are fed to two, two-way switches and one changeover switch, i.e. the contents of two 4016s or 4066s. In this way RAM 1 is loaded with one frame's information while RAM 2 is releasing the previous frame twice over, i.e. reading speed is always twice writing speed. At the next frame pulse all three switches change state and the two RAMs effectively swop over functions. I'm told that RAMs can be made to read or to write repetitively so this should be no snag. The result: an illusion of twice the frame rate.

One thing that isn't shown in the diagram is some means of locking the clock to the line or frame pulses so that everything keeps synchronised. Maybe the clock frequency could be doubled again to 819.2 KHz followed by a divide by 4 circuit. This would give the illusion of four times the repetition rate....or is such a clock rate exceeding the speed limit?

Now the questions to readers who are well informed in these matters (I'm not). Is the idea sound or is it founded on a fallacy? Could anyone design such a device, and would it be likely to work? Finally, could a non-millionaire with a soldering iron construct it? Expert comment invited!

Notes on the P100 Pattern Generator.

BY TOM MITCHELL

These notes are intended to supplement the information contained in C Q - T V 102 (which gives the circuit and full setting up details). I have a small number of back copies of all the issues containing P100 at normal back copy prices while stocks last. However, these notes include all necessary errata and details of the modification for improved castellations given in C Q - T V 105 (page 5).

It is possible to build this board using 74LS series TTL. This reduces the current requirement from around 250-300 mA to under 100mA.

PROCEDURE

1. Fit ICs NB. IC23 is a clock oscillator- Not required when used with P100 SPG. But see castellation modification later.
2. Fit wire links, marking off on diagram as you go (I use self-fluxing solder through enamel).
3. Fit other components. If you don't have suitable inductors they can be replaced by wire links for testing. This gives a square burst and fast rise times on the video which may upset your monitor or RX
4. Check above for errors.

TESTING

Inspection of the layout will reveal that all the TV Pulse inputs and Power Rails come from the corresponding pins on the SPG. (N. B. LINE DRIVE is not required, the corresponding pin on the SPG is used as a control input).

Link boards together, power up and inspect output, which should be black and burst, until one or more control pins are earthed.

Earth the control inputs in turn and check outputs.

G/S Grey scale
G Grille
P Purity (Lift)
C Colour pattern

Now have fun by earthing more than one at a time.

When satisfied set the oscillators as accurately as possible by comparison with a colour TV - or using a good counter.

SIMPLE COLOUR LOCK

a) Feed 4fsc from Pattern Generator to SPG s/c input
b) Loop 'c' output from SPG back to colour lock input.
c) Observing the dot pattern on a mono monitor - or monitor burst with respect to line sync on a scope If necessary try a slight adjustment to the SPG oscillator.

Note the colour oscillator controls the SPG so this should be set as close as possible to nominal. Best method is to compare the oscillator with the B.L.O. on a TV set tuned to a broadcast station. More details in C Q - T V.

Due to the lack of the 25 Hz offset in the simple system the SPG line syncs will drift by one line in just over 30 seconds compared with the broadcast station.

APPENDIX

ERRATA for C Q - T V 102
Page 20 OUTPUT STAGES

Last paragraph first line "any high Gain silicon PNP

Page 21 ON SPG

Second paragraph, second line "with waveform 'c' (Not 'C")

Fig. 2 new link under IC8 goes to connector Pin 27.

CIRCUIT DIAGRAM

a) Values not given
L1 - 47 or 50 u L2 68 u

Capacitor into pins 12 and 13 of IC22 is 100pf

b) Capacitor into pins 9 and 20 of IC22 reduced to 200pf

Page 24 Parts list

IC's 4,5,6 and 7 all 7400 Bracket ommited
IC15 should be 7400

IMPROVED CASTELLATIONS MOD (C Q - T V 105)

Under 1, third line change to
"This moves LD from clear to reset" etc.).

Due to an oversight when the line clock into the final version was changed from 'b' to 'a', the castellations on the left hand side of the picture are wider than those on the right hand side.

This can be improved but the right hand side is still greater than that on the left by the width of one grille line by the following simple modifications.

1. Locate IC3 and cut track between pins 1 and 13. Now wire from pin 1 of IC3 to a) Pin 10 of IC3, b) Pins 7 and 10 of IC9.
   This moves LB from clear to reset of IC3 and also applies it to the J and K inputs of IC9 (which is next to IC3 on the board).
2. The final stage of the modification is to ivert the 'a' input
   i) If you are using the board with the P100 SPG, insert an IC in position 23 (This can be either a 7413 as specified or a 7420 which takes less current).
   ii) Remove the short link from edge connector to IC3 pin 11.
   iii) Fit alternative link from IC6 pin 11 to IC23 pin 6 shown on wiring diagram.
   iv) Fit a new link from input from edge connector to pin 1 and 2 of IC6; there are several suitable holes in the board.

THE VIDEO COLUMN

By Jeffrey Borin.

A rather short column this time, largely due to my losing a vital file of circuits just before the close of press date, and having to put a new article together at very short notice. I shall be covering only one simple subject; the ubiquitous one-chip, three terminal voltage regulators. Most of you will probably have been using them for years, but for those of you who are not aware of these extremely useful and inexpensive devices, here are the basic facts.

ONE-CHIP REGULATORS

It is now almost unnecessary to design regulated power supplies for most applications, nor is there any need to use supplies with inferior performance on the grounds of economy or physical size. A range of integrated circuits is now available which comprises a complete high quality voltage regulator in one small package.

As with many ICs, the manufacturers use a variety of prefixes and suffixes around the generic type number. The table shows how to interpret the type numbers.

HOW TO READ THE TYPE NUMBERS

General form : a b C d e

a b	78	for positive output	
	79	for negative output	
C	No letter	1 A current rating	TO3 or plastic package
	H	5 A	TO3 package
	L	100 mA	TO92 plastic package
d e	05	5 v	
	12	12 v	output voltage
	15	15 v	other values sometimes available
	24	24 v	

eg 7812 is a + 12 v 1 A unit
79L05 is a - 5 v 100 mA unit.

Fig. 1 shows the circuit for using any of these 3 terminal regulators. To make them work just follow these simple rules.

1. Calculate the minimum AC voltage from the transformer.

$$V_{ac} = (Vout + 5)/1.4$$

e.g. for a 5v output use at least a 7v transformer.

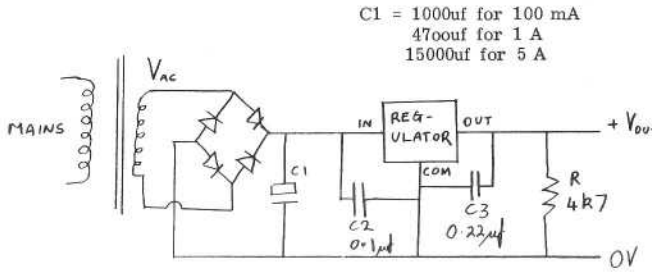


FIGURE 1 BASIC CIRCUIT All polarities reversed for negative regulators

2. Calculate minimum rating of transformer.

   VA rating = Vac x Iout

   e.g. for a 7v winding and 0.5a maximum output the transformer should be rated at not less than 3.5Va
3. Ensure that C2 and C3 are connected close to the device to prevent instability (usually at about 50 MHz when it happens). Use a single earth point for C2, C3 and regulator.
4. Do not exceed the maximum dc voltage input to the regulator. (Commonly 25v devices, 30v to 35v for higher voltage units).
5. R is only necessary if the supply is liable to be loaded very lightly (less than about 20mA for the 1A devices).

If rule (4) is observed and the device is wired correctly these regulators are almost indestructible ! They have current limiting which protects them, the transformer and the current being powered and if they get too hot they simply shut down until a safe temperature is reached. The output may be shorted with impunity.

At around £1 each for the 1A plastic package regulators (these are the most popular type) there can be very few applications where anything more complex or sophisticated is required.

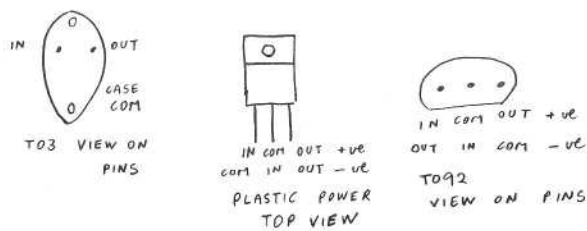


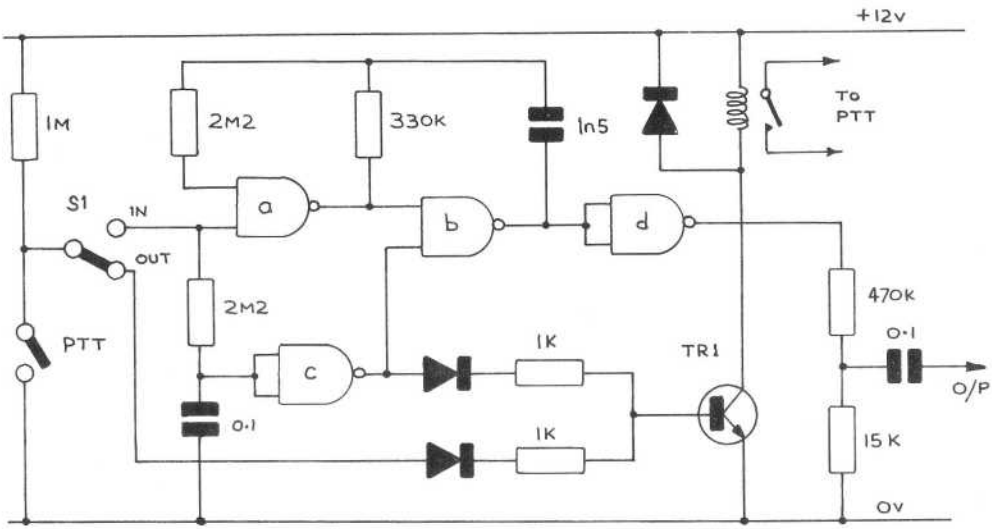
FIGURE 2 Pin out diagrams

LAST WORD

As I write this article I realise that I have run out of 7805s and I need to complete a particular TTL circuit before tomorrow. I shall have to resort to a 2N3055 plus a zener. UGH !

an END OF TRANSMISSION bleep unit

BY D. J. ROBINSON G4FRE



ALL GATES ¼ CD 4011
TR1 BC108 OR SIMILAR
DIODES IN4148 OR SIMILAR

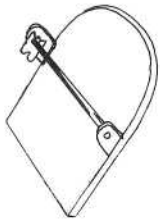
This circuit was developed to give an end of transmission 'bleep' using an easily available IC.

Gates 'a' and 'b' form a gated oscillator whose frequency is controlled by the In5 capacitor and the 330K resistor.

Gate 'c' creates a delay which controls the length of the bleep via the 0.1uF and the 2M2.

Gate 'd' buffers the output; the level is controlled by the 470K and the 15K potential divider chain.

The prototype was built on a piece of 0.1 inch veroboard $1\frac{1}{2}$ ins x 1 ins, and fixed inside a diecast box $3\frac{1}{2}$ ins x $1\frac{1}{4}$ ins x 1 ins. It is mounted in line with the microphone of my FT101b, using the internal 13 volts brought out through the spare pin of the microphone socket.



NEW

B.A.T.C. LAPEL BADGES

PRICES

lapel badge	50p	inc p & p
lapel badge with callsign	80p	"
key fob	60p	"

ALSO...

B. A. T. C. Ties	£2
Equipment stickers	25p each inc p & p
Windscreen stickers	20p each inc p & p

Available from
B.A.T.C. Club Sales
"Kyrles Cross"
Peterstow
Ross-on-Wye
Herefordshire.

If you wish to buy a badge with callsign, send your order to Club Sales complete with your call written in BLOCK CAPITALS, October 1st is the date when first batch will be manufactured.

HINTS ON PHOTOGRAPHING TV SCREENS

T. BROWN

The problems vary with the type of camera used, but every type of camera has its problems for this kind of photography.

Fixed Focus Cameras

This is the type of camera that have very few adjustments and usually cost under £20. Never try to fill the whole of the viewfinder with the TV screen, as this will cause focus problems and also the viewfinder is inaccurate for close-up work. Always use as large a TV set as possible and keep at least 6 feet away from it. If it is a "still" picture and the camera has a 'B' setting, i.e. time exposure, then this is the best way, first making sure the camera is fixed down securely, and a cable relaese is if possible used to operate the shutter; then make exposures of about $\frac{1}{2}$ to 2 seconds. Note which settings were used for which pictures so a final setting can be determined when viewing the results. If the camera does not have a 'B' setting, then use fast film, i.e. 400ASA, and put the camera on its dullest setting.

Twin Lens Reflex Cameras

These are very old in design, and not very popular at the present time, so they can often be picked up cheap second-hand. The viewfinder is still inaccurate for close-up work, but large TV sets present little problem. A useful exercise with this sort of camera is loading the film rollers with tissue paper, to form a viewing screen, operating the shutter in the 'B' mode, and viewing the TV set to note the discrepancies in the viewfinder. You can then learn to work the camera by misframing. Also you can experiment with filters for correcting the focus; a x2 is usually sufficient. These are available from your photographic dealer in various sizes; but probably not the right size to fit this type of camera ! So some ingenuity will have to be used to make them fit.

Single Lens Reflex Cameras

This is probably the most expensive type of camera. Its viewfinder viewfinder is always accurate and presents no problems - neither does exposure, as they are usually adjustable down to very low light levels. The problem is the shutter, which is nearly always a focal plane type. This can be likened to a letter-box which scans across the picture. If it scans vertically, then little problem occurs. If it scans horizontally (as most do) then strobe patterns with the line scan will result. The only way round this problem is to use slow shutter speeds for still pictures, i.e. test cards etc, or to turn the camera vertical which will result in only half the camera frame being used.

Working with colour film

It seems to be more and more difficult to get black and white film processed nowadays, so unless you are into processing your own, then the odds are you will be using colour. Because film regards 5500 K as white then your pictures will come out with a blue cast - not too objectionable if the original picture was in monochrome, but if you want to correct it then the blue content of the picture will have to be reduced. For black and white sets experiment with amber gels over the screen, or camera lens. For colour sets reduce the blue drive. Much experimenting will have to be done. Bulk film processing is not renowned for its colour fidelity, but if the picture is being photographed in colour, and it is of prestige value, you may consider having an enlargement made by hand processing, supplying the original artwork e.g. Test Card, to the laboratory for them to correct against. It will probably cost you the best part of £5 for a 10" x 8" print.

Typical exposures

Whenever possible use a long exposure because this will reduce the noise which always seems to be present on amateur transmissions. The noise, being random, will integrate to zero over many TV frames. Using this technique it is often possible to end up with a photograph that is better from a noise point of view than was the originally received TV image.

Obviously this is not possible on moving pictures and therefore is a technique which must be reserved for still pictures. But it is well worth remembering, as the effect on noise can be dramatic.

The following information is intended as a guide for exposure for those of you who do not have a light meter.

400 ASA film	moving pictures	F5.6 at 1/25th
	still pictures	F22 at 1 sec
100 ASA film	moving pictures	F2.8 at 1/25th
	still pictures	F11 at 1 sec

MSTV

by W9NTP

The following information is an extract from a large amount of news on MSTV sent by W9NTP to Grant Dixon. The rest is available to any intrtested members, but there is too much to print in full in CQ-TV. Don says that if anyone wishes to participate in the MSTV tests he will supply a second memory board for the Robot 400 for "just the postage". He will also try to get 2107 ICs for "nominal costs". He hopes to do lots of tests in October, November and December of this year.

SPECIFICATIONS FOR MSTV SYSTEM
FOR COMPLETION OF FCC STA
TWO YEAR TEST PERIOD.

Number of pixels per line----------128
Number of lines per field (frame too)----------128
Aspect ratio----------1/1
Frame rate----------2 F/s
Pixel clock frequency (128 L x 128 P)x F = 32,768 pixels per second
Line frequency----------128 x 2 = 256 Hz
Time of one line ----------3.91 ms
Base video bandwidth ----------32,768 / 2 = 16,384 Hz
Horizontal sync pulse width ---------- .4 ms
Vertical sync pulse width ---------- 1 line or 3.91 ms

The RF transmission method will be direct frequency modulation on the assigned frequency 29.150MHz The transmitted bandwidth shall not exceed 36 KHz. It is of course necessary to preserve the DC bandwidth throughout the transmitter and receiver. As mentioned before, the direct modulation of any HF transceiver can be done by using a reactance modulator on the VFO of the selected transceiver. The reception can be

made on any FM receiver tuning to the correct frequency and having a bandwidth of at least 36 KHz. Old surplus police systems may be used. It is planned however, to supply a small solid state receiver meeting all the requirements in a few months. This will be available from Science Workshop here in the United States. Since it will use 10.7 IF transformers and 455 KHz FM components it will probably be very reasonably priced.

For any of you that are interested in getting involved technically, I would like to outline a procedure that I think will lead to success. First of all, David Evans of the RSGB has suggested if a few of you are really interested in transmitting MSTV video, he will work through the British Post Office to see if permission can be obtained for your operation from Europe.

If you have a Robot 400 or a reasonable facsimile, you will need a second memory board. Boards that will fit into the Robot box are obtainable at cost from W9NTP. The chips can be bought from mail order houses or if extreme difficulty is found in obtaining them I will furnish them at my own cost. Please note that in no way are these tests being made to promote commercial sales of anything. The investigators of MSTV feel that hams should be advancing the state of the art, and this is our way of doing it.

PROPOSED MSTV SYSTEM

Pictures are frame grabbed at 2 fields per second by Robot. This is compatible with both 60 and 50 Hz countries. The Robot memory not being loaded is viewed by the local monitor. During this period of time (.5 sec) one of the small static buffer memories is loaded at display rates for 8 lines while the other buffer is transmitting its 8 lines at 16 KHz. The two buffer memories alternate in loading fast and unloading slow until one complete frame grabbed image has been transmitted. The other Robot fast dynamic memory is now loaded and the procedure continues unloading and loading the two buffer memories. The only problem is the speed of the static 21L02s. I t will probably be necessary to write two pixels simultaneously into them. If you use slower memories yet, it is possible to write 4 pixels in parallel. The only problem this could cause later, is the slight possibility that a given pixel might need to be loaded individually. The receiver is the inverse of the above. It will be necessary to recover the sync and load the buffers alternately and transfer the data to the dynamic Robot display memories. This should be no problem. As circuits are developed please let W9NTP know your successes and failures.

Further papers on this subject have been sent to Grant Dixon by W9NTP, and are available from him or from the Editor of CQ-TV. The subjects are as follows:

How Many Memories for a Data Link ?
The Conversion of the Robot 400 to Colour.
A Microprocessor System for MSTV
Techniques for Bandwidth Reduction of TV Images.
Ideas for Modification of a Digital Scan Convertor.

TECHNICAL SSTV CONTEST FOR 1980.

W9NTP writes :-

In order to encourage further investigation into the fascinating field of slow scan television and associated subjects, A5 Magazine would like to sponsor a competition for the development and modification of scan convertors and other video related equipment. The slow scan net has existed for many years on 14230 KHz at 1800 GMT each Saturday. In the future the net will be divided into two general modes of operation. The first hour of the net (1800 - 1900 GMT) will be mainly operation and the checking out of equipment. The second hour from 1900 to 2000 will be devoted to the improvement of equipment and advancing the state of the art. There are many modifications that can be made to the Robot 400 and other digital scan convertors. A5 magazine and the Slow Scan Dayton Hamvention Forum would like to honour the best modification to a Robot 400 by awarding a plaque or prize to the lucky developer. There may be other categories of competition. As time goes on A5 magazine will announce them. It should be understood by all that modifications to the Robot 400 will void your warranty. As ARRL director of the Central Division I would like to go on record and say that I feel that technical developments by hams can go farther in furthering the growth of our hobby than any other activity. The technical part of the SSTV net will be dominated by technical types that played an important part in the original development of SSTV as you know it. Robert Suding WØLMD, and Don Miller W9NTP, will act as net controls. There will be discussion and the encouragement of questions about all phases of computer interface and modifications of the Robot 400 which many of you own. Many investigations require the availability of an additional memory board. W9NTP will supply at cost memory boards

to any investigator. If you are lacking ideas, I would like to list a few ideas that popped into my head as I wrote this announcement. Don't ask me how to do these things. You do them and call into the net and tell us about them. A5 magazine will publish all modifications and achievements immediately so everyone will know what is going on. Let's prove again that hams are not just appliance operators but lead the way for commercial interests to follow.

IDEAS FOR MODIFICATION OF A DIGITAL SCAN CONVERTER

1. Load only a part of the screen with a modification of a picture already loaded into memory. The screen can be divided into 4 parts with your picture in a different pose in all four corners.
2. Add another memory for 256 resolution in either the horizontal or vertical direction.
3. Add colour to the Robot 400 (improve the W9NTP version).
4. Adapt the Robot 400 to load a microprocessor for frame grab. The present microprocessor systems cannot load a fast scan picture directly into the computer memory without stopping all computation.
5. Transmit SSTV digitally. It may take 4 times as long but the pictures may be better. What is the fastest that you can send SSTV ones and zeros?
6. Provide an automatic video gain control for the Robot 400. This will make it possible to better match the camera A/D converter without contouring.
7. Add pixel averaging, line averaging or field averaging. It is not easy to do on the Robot 400 because of grey coding of the A/D conversion.
8. Design an electronic pencil so that handwriting can be directly written on the screen.
9. Add "teletext" capability. Write high resolution lettering on the picutre. This can be easily done with 40 characters to the line.
10. Modify the Robot 400 to do some form of MSTV for faster transmission.
11. Modify the Robot 400 for high resolution slowed down transmission.
12. Add a flag capability to point out objects in your picture.
13. Synchronise incoming SSTV with your locally generated SSTV for overlay etc.
14. Design a special effects generator especially adapted for SSTV.
15. Modify the output of the Robot 400 so that the fast scan output can be video tape recorded on Sony type video tape recorders. The system as it now stands is not compatible with RS 170 interface.
16. Modify the output of the Robot 400 for a serial digital output for telephone lines and other serial data streams such as computer loading and other data transmission systems.

I hope that these ideas will start your old amateur radio ingenuity going so that you will be inspired to talk about your technical ideas on the air. Let us omprove our IMAGE by using our equipment for something other than the repeat of someone elses pictures and the transmission of girly pictures.

B.A.T.C. Publications

This is a separate department of the Club. Do not send orders for publications to Club Sales, send orders to B.A.T.C. Publications
64 Showell Lane,
Penn, Wolverhampton,
West Midlands.

Slow Scan Television by B.J. Arnold G3RHI published by B.A.T.C. 2nd. edition 35p +8p p&p
A Guide to Amateur Television published by B.A.T.C. price (post paid) £1.50 to members and £2.00 to non-members. Overseas postage rates on request.

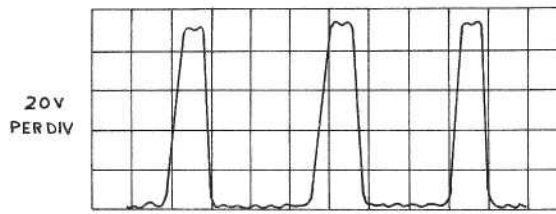
C Q - T V BACK ISSUES. The following issues are at present in stock: Nos. 68, 69, 73, 76, 77, 79, 82, 83 86, 87, 88, 89, 90, 91, 92, 93, 94, 95 onwards. The stocks of some are very low and will soon run out. They are: Nos. 73, 76, 79, 83 and 86. Back issues cost 50p each for Nos. 93 onwards and 25p prior to 93. Return postage allowance would be appreciated. Any article which has appeared in the journal can be supplied in photo-copy from 5p per sheet. Payment for this service should be in postage stamps. A list of all the main articles which have appeared in C Q - T V giving details of how many sheets are needed to reproduce it is available for 40p (preferably in UK postage stamps) plus a large (9" x 4") s.a.e.

PLEASE NOTE THIS LIST CANCELS ALL OTHERS

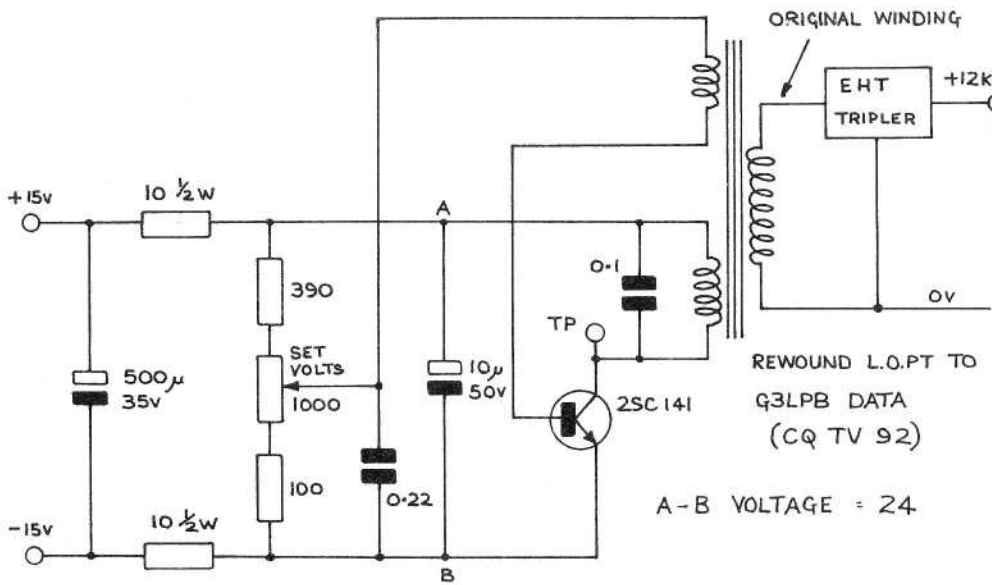
A SSTV EHT Unit

Graham Goodger ZL2RP

I have recently been working on a Robot 70 monitor which had been loaned to me. The owner had, on my recommendation, replaced the eht supply, which had failed, with the one designed by John Brown. This was the one in C Q - T V No 92 and the Amateur TV Handbook. To get the extra eht required he used a commercial tripler, but ran into trouble with it. I have therefore redesigned this circuit of John's to suit the Robot, and it works very well, so I thought the amended circuit might be of use to readers. I don't think any description is necessary, as the type of supply is well known, and the circuit diagram has all the details.



WAVEFORM AT T. P.



Thoughts on Band and System Planning for the Future

BY TREVOR BROWN G8CJS

I think that most amateur TV enthusiasts engaged on 70 cm fast scan would agree that a working channel for the co-ordination of the vision QSO is required preferably on 2 meters. The present frequency of 144.75 suffers from severe QRM from broadcast stations and even slow morse to a point where at my QTH it is un-useable and a search for an alternative has already begun.

Let us leave 2 meters for a moment and consider 70 cm and vision frequencies. The strongest QRM problems I have encountered here is undoubtedly the 70 cm beacons in the 432.9 region and to avoid these and a majority of repeaters a vision carrier frequency over 435.5 is necessary. This still leaves room for a reasonable monochrome transmission but for colour a lower carrier frequency will be necessary.

I think also that for sound accompaniment most TV amateurs would agree that 6 MHz intercarrier has its problems in that it means putting the vision carrier down in the communication section of 70 cm.

I have had great success with the technique of frequency modulating the sound onto the vision carrier providing that vision modulation is kept below 90% then the sound can be recovered with a good limiter and an FM detector at the receive end. Interference of the vision by the sound is also unnoticeable providing deviation is kept down.

Now, returning to 2 meters, I would like to see one of the FM simplex channels recognised for TV work rather like RTTY only of course the information is carried in our case would be secondary to the transmission. This channel I would like to be S10 so as to facilitate the 2 meter rig being fed into a tripler and vision modulation applied resulting in a vision carrier of 435.75, and an easy way of applying sound and sound idents, just by modulating the 2 meter rig I realise that some people will still want to run full 6 MHz intercarrier sound with vestigial sideband colour. I would not like to discourage them, but what I do want to do is to set some standards that allow newcomers to get on the air quickly and as simply as possible and not get discouraged with our hobby because the standards are too high. I believe that once they can radiate fast scan then improvements will follow until they will probably become the colour vestigial sideband operators of tomorrow.

Perhaps by operating some kind of common standard and putting our own house in order we could also get the licence ammended to a more workable form. I believe that sound idents by means of stopping thevision modulation and then FM modulating the carrier is the easieset way technically and a better way for the Authorities to monitor us than the present system.

In return I would like to see the present clause of being able to receive the type of modulation transmitted be made none applicable to fast scan TV. Instead a pause after the sound ident, where the station would monitor his own carrier frequency on a radio receiver only. Whenever I read the licence about the clause of receiving the mode you transmit it always conjures up visions of some Post Office Engineer in a van some streets away wrestling with a TV camera and chalking messages on a blackboard for me to go QRT.

B.A.T.C. Equipment Registry exists to help members of the Club who have equipment for disposal, or who wish to purchase some specific item. Send a list of your " wants " or " disposals" to the address inside the front cover of this issue and during the six months for which your application is valid, the Registry will attempt to put you in touch with someone who will buy your surplus, or sell you your needs.

B.A.T.C. possesses a Marconi Sideband Analyser which was donated to the Club some years ago. If anyone wishes to use this equipment, could they contact Ian Waters at 39 Stow Road, Stow-cum-Quy, Cambridgeshire. They will need to provide their own transport.

BE ALERT !

B.A.T.C. needs lerts !

FOR SALE

Robot 70D monitor, Slow/Fast scan, videograph, 128/256 line, frame reset, extra I/P. Also matching Robot 80A camera $\frac{1}{4}$, $\frac{1}{2}$, full frame, pos./neg., internal test signal, original cartons, handbooks, video RSO's with over 50 countries, will deliver via Securicor F.O.C. £450 o.n.o.
1" vidicons £10
30mm Plumbicons, Leddicons, y,r,g and b types, very slight blemishes, electrically perfect, all tested, packed in original Gimbal box. £15

A. McMurtry GI3MBB
20 Towerview Cresc.
Bangor, Co. Down
BT19 2BA
Northern Ireland.
Tel. Bangor 61946.

Adverts

FOR SALE

Building a caption generator or VDU ?
Marconi ASCII keyboard in metal case £25
Hall effect keyboard (only requires diode matrix and decoder for ASCII out, supplied with ready built decoder board, tested diodes and data sheets) £15
Dave Wilson
Hilfield Farmhouse
Hilfield Lane
Aldenham
Watford WD2 8DD
Tel: 01-743 8000 x4703

Advertising Rates

Back page	£20
Inside full page	£18
Half page	£10

Small adverts 10p per line (but free to members of B.A.T.C. who enclose the address panel from the last issue of CQ - TV)

Advertisements are inserted in CQ - TV on the understanding that advertisers comply with the law and accept responsibility for their wording. They must also undertake to reply to all those who enclose a stamped addressed envelope with their letter.

SUBSCRIPTIONS

Have you paid your subscription ?
You are not allowed free small ads unless you have.
Pay now !
Avoid the rush later !
The Treasurer's address is inside the front cover.
The annual sub. is £2. (as if you didn't know !)

FOR SALE

One Decca 20" colour broadcast monitor.
One off-air tuner (Philips G8 IF).
£50.00 the pair.

Steve Beeching
64 Manners Rd.,
Balderton,
Newark.
Tel. Newark 76895

FOR SALE

Mixers
5 channel, cuts and fades and preview buttons, modern, 2 units. £20.00
4 channel, ex. BBC, cuts & fades, transistor, electronics complete but remote controls missing (8 switches + 2 pots.) £30.00
10 channel, ex. BBC. Cuts, fades, inlay & wipes. Desk and consol £125.00

Cameras
Marconi MK 4 vidicon telecine camera 3 units + control panel valve, to clear at £10.00
EMI type 201 Ex. broadcast viewfinder type, with CCU and circuits spare panels, vidicon tube, can cable not included £25.00
PYE MK6 Image Orthicon camera, complete, very sophisticated, 4 units + circuits £100.00

Lens
neat Japanese 16mm focal length, "c" mount, no iris, as new £8.50

S.P.G.
Sync pulse gen. Thorn transistor, triple standard 19" rack mount £20.00

Colour
Philips EL 1801 V.T.R. colour adaptor $5\frac{1}{4}$" x 19" rack unit £25.00
Sony CLP-ICE VTR. Colour adaptor. Circuits as new condition.
Philips 3 tube colour power op. Zoom lens, control units, cables waveform monitor, pic. monitor, all working order RGB outputs £350.00

Tubes
3" I.O. tube type P875 ELCON target, brand new in carton with data £15.00

TV equipment wanted - blanking plates for EMI 203 camera, camera control panel for same. Pye Mk 7 I.O. camera head, Marconi Mk 5 picture & waveform monitor. Marconi colour coder, colour equipment in general, or almost anything.

B. Summers G8GQS
Phone Gainsborough 3940 evenings

FOR SALE

Eight input, eight output, video switching matrix. Professional quality unit.
£10 o.n.o.
J. Borin
50 Bonnersfield Lane
Harrow, Middx.
Tel : 01 863 2880

FOR SALE

Computor / Comptometer keyboards, output 8 contact encoded £5 each plus £1.50 p&p.
Constant voltage power supply transformers with 2 x 8uF ac capacitors. Mains input 190/250volts output 12/0/12volts 40/0/40volts over 100 watts constant (as dc power pack use) down to about 190v supply. Weight 22lb. £6 ea. + £2 p&p
Ditto 6.5v 20 amp output weight 18lb £4 ea + £2 p&p
Large electrolytics;
31,000uF 15v weight $1\frac{1}{2}$lb
14,000uF 13v weight 1lb £1 ea + 50p p&p
5,000uF 55v weight 2lb
Some veteran valves;
2 x LP2 (1 new in box) 1 x HL2 1 x PM1
3 type 7193 VHF triode valves, octal base, top cap anode and grid
offers for lot.
2 counters 0 - 999999 resetable, 60v ac coil £1 ea 50p p&p
Some switches, valves, transistors, capacitors, relays etc sae list
WANTED
Cheap or gash $\frac{1}{2}$" VTR
Projection tv parts, tubes valves coils eht units etc
Cyril Stanners
29 Whiteway Road
Kingsteignton
South Devon

EXCHANGE

I.C.s 100 plus type TAA611 (audio amp)
100 plus 7404 (invertors)
50 plus 7460 (expandors)
for anything useful... ...
WANTED
9706 E.M.I. Vidicon, or simolar.

J. Brown G3LPB
1 Silverdale Road
Falmouth
Cornwall
TR11 4HW

B. A. T. C. SALES

CAMERA TUBES	Price	Post & Packing
EEV Leddicon	£82	nil
½" E.M.I. 97777 Ebitron	£28	nil
⅔" E.M.I. 9831 amateur grade vidicon	£11	nil
1" E.M.I. 9677 amateur grade vidicon	£11	nil
1" E.M.I. 9728 amateur grade vidicon	£11	nil
1" English Electric P849 amateur grade vidicon	£12	nil
4½" E.M.I. 9565 Image Orthicon	£10 for two,	buyer collects.

COILS		
1" B.A.T.C.	£11.54	60 p
1" ex-industrial (limited number only)	£ 6	60 p
⅔" E.M.I.	£11.50	60 p

ACCESSORIES		
Paxolin sockets for 1" or ⅔" vidicons	.32	10p
C mount for lens	£ 1.00	10p

B.A.T.C. headed notepaper and envelopes	£ 1.75	
EEV Test Card	£ 1.65	30p
B.A.T.C. Test Card	.50	10p
Reporting Chart	.12	10p
Lapel Badge (diamond shape button hole type)	.40	10p
Lapel Badge (new circular shape pin type)	.40	10p
Lapel Badge (new pin type with call sign)	.70	10p
Key fob	.50	10p
Equipment Stickers (new circular shape 1" dia)	.15	10p
Windscreen Stickers (new circular shape 2½" dia)	.10	10p
Ties (printed with the new Club badge)	£ 1.80	20p

PRINTED CIRCUIT BOARDS		
C Q - T V SPG printed circuit board ready drilled	£ 3	10p
C Q - T V SPG Genlock Unit printed circuit board ready drilled	£ 3	10p
Project 100 printed circuit boards ready drilled, each	£ 4	10p

Rapidly increasing postal charges have compelled us to quote the above post and packing charges. Will overseas members please ask for a quotation before sending cash. Obviously, for small items such as badges & stickers etc, one can send several items for the same postal charge - please try and estimate the correct amount. Our thanks go to those members who estimate on the high side and suggest that any balance be put to Club funds.

Please send your order to C. G. Dixon (B.A.T.C. Club Sales)
Kyrles Cross
Peterstow
Ross-on-Wye
Herefordshire.

Project 100 printed boards are available from Tom Mitchell at 30 Old Farm Close, Hounslow, Middlesex, at the prices quoted above. Suitable Xtals are also stocked by him at £2.60 each. (4fsc and 5 MHz)

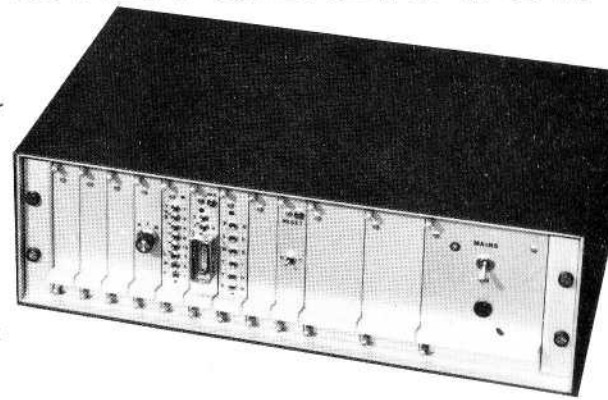
PLEASE NOTE THIS LIST CANCELS ALL PREVIOUS ONES.

IN THE NEXT C Q - T V

A keyboard driven caption generator for 625 line television systems by David Long.

Will there be an article by YOU ? Let other members know about your activities, designs, thoughts etc. Don't miss the close for press date. Send your ms to the Editor NOW !

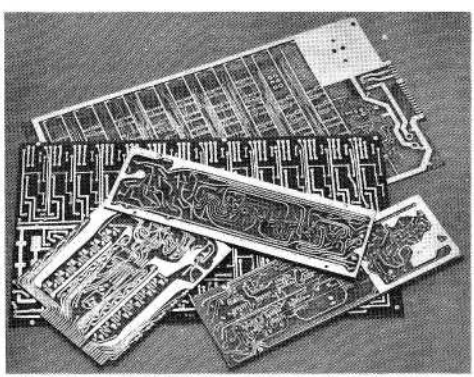
T.V. CHARACTER GENERATOR



The Crofton character generator has been designed to produce upper case alpha, numerics and sundry symbols. The standard keyboard having 60 keys. The equipment will lock to a standard mixed sync source and provide a composite output of 1.4v p-p into 75 ohms.

The standard format provides 3 pages of 16 characters by eight lines. Page select is by simple rotary switch.

This inexpensive instrument will find many applications within the video field for both the professional and semi professional user. Price on application.



The Crofton PCB Service

The Crofton P.C.B. service has been set up to offer a service to both the small and medium sized electronics company.

Being fully aware of the pressures on most engineers today, we have set up a specialist operation capable of producing P.C.B. designs and boards from the most scanty information.

You give us the circuit and we will do the rest. Whether you want high quality or low price commercial boards we can offer you a competitive service. Prototypes can normally be provided within 2–3 days from receipt of artwork.

So next time you're in the market for this type of service just give us a ring.

CROFTON ELECTRONICS LTD

35 Grosvenor Road, Twickenham, Middlesex. Telephone: 01-891 1923